3 1735 034 194 195

Applied Science & Technology Index

1964

From the collection of the
Prelinger Library
San Francisco, California
2008

Indexed

AIAA
AIChE
of (
ASHR
ASME
Soci
Air C
ing
Aircra
Am A
Ame
Am C
Cera
Am C
rami
Am C
Chen
Am C
Conc
Am D
Am G
Mont
Am In
Am J
Clini
Am J
Am J
Heal
Am M
Am M
chini
Am M nal of the Mineralogical Society of America
Am Oil Chem Soc J—Journal of the American Oil Chemists' Society
Am Perfumer—American Perfumer and Cosmetics
Am Scientist—American Scientist
Am Soc C E Proc—Proceedings of the American Society of Civil Engineers
Am Soc Heat Refrig & Air-Cond Eng J. See ASHRAE J
Am Soc Mech Eng Trans. See ASME Trans
Am Water Works Assn J—Journal American Water Works Association
Anal Chem—Analytical Chemistry
Arch Forum—Architectural Forum, The Magazine of Building
Arch Rec—Architectural Record
Archives Environmental Health—Archives of Environmental Health
Assn for Computing Mach J—Journal of the Association for Computing Machinery
Astronautics & Aeronautics—Astronautics and Aeronautics
Astronautics & Aerospace Eng—Astronautics and Aerospace Engineering
Audio—Audio
Audio Eng Soc J—Journal of the Audio Engineering Society
Automation—Automation
Automobile Eng—Automobile Engineer
Automotive Ind—Automotive Industries

Bell Lab Rec—Bell Laboratories Record
Bell System Tech J—Bell System Technical Journal
Brit Plastics—British Plastics

Can Chem Process—Canadian Chemical Processing
Can J Chem Eng—Canadian Journal of Chemical Engineering
Can Min & Met Bul—Canadian Mining and Metallurgical Bulletin
Cer Ind—Ceramic Industry
Chem & Eng N—Chemical and Engineering News

stry and Industry
Engineering
mical Engineering Prog-
neering, the Magazine of
ction
ion
pressed Air Magazine
Engineering
iesel Equipment Superin-
ngineering
—Drug and Cosmetic In-
Geology and the Bulletin
Economic Geologists
Communication
t—Electrical Construction
ngineering
World
-Technology
Journal of the Electro-
Electronic Eng—Electronic Engineering
Electronic Ind—Electronic Industries
Electronics—Electronics
Eng & Instrumentation. See J Res Nat Bur Stand
Eng & Min J—Engineering and Mining Journal
Eng J—Engineering Journal
Eng N—Engineering News-Record
Engineer—Engineer
Engineering—Engineering

Food Eng—Food Engineering
Food Tech—Food Technology
Foundry—Foundry
Franklin Inst J—Journal of the Franklin Institute
Fundamentals. See Ind & Eng Chem

Gas—Gas
Gas Age—Gas Age
Geol Soc Bul—Bulletin of the Geological Society of America
Geophysics—Geophysics
Glass Ind—Glass Industry

Heating-Piping—Heating, Piping and Air Conditioning
Hydraulics & Pneumatics—Hydraulics and Pneumatics
Hydrocarbon Process & Pet Refiner—Hydrocarbon Processing and Petroleum Refiner

IEEE Proc—Proceedings of the IEEE
IEEE Trans Applications & Ind—IEEE Transactions on Applications and Industry
IEEE Trans Com & Electronics—IEEE Transactions on Communication and Electronics
IEEE Trans Power Apparatus & Systems—IEEE Transactions on Power Apparatus and Systems
ISA J—ISA Journal
Illum Eng—Illuminating Engineering, The Journal of the Illuminating Engineering Society

ABBREVIATIONS OF PERIODICALS INDEXED

Ind & Eng Chem—Industrial and Engineering Chemistry
Ind Chem—Industrial Chemist
Ind Electronics—Industrial Electronics
Ind Finishing—Industrial Finishing
Ind Med—Industrial Medicine and Surgery
Ind Phot—Industrial Photography
Ind Quality Control—Industrial Quality Control
Inland Ptr/Am Lithogr—Inland Printer/American Lithographer
Inst E E Proc—Proceedings of the Institution of Electrical Engineers
Inst Mech Eng Proc—Proceedings of the Institution of Mechanical Engineers
Inst Metals J—Journal of the Institute of Metals
Inst Pet J—Journal of the Institute of Petroleum
Instrument Soc Am J. See ISA J
Instruments & Control Systems—Instruments and Control Systems
Iron Age—Iron Age
Iron & Steel Eng—Iron and Steel Engineer
Iron & Steel Inst J—Journal of the Iron and Steel Institute

J Agri & Food Chem—Journal of Agricultural and Food Chemistry
J Ap Chem—Journal of Applied Chemistry
J Ap Mech. See ASME Trans
J Ap Phys—Journal of Applied Physics
J Basic Eng. See ASME Trans
J Colloid Sci—Journal of Colloid Science
J Eng Ind. See ASME Trans
J Eng Power. See ASME Trans
J Geol—Journal of Geology
J Heat Transfer. See ASME Trans
J Math & Phys—Journal of Mathematics and Physics
J Metals—Journal of Metals
J Nutrition—Journal of Nutrition
J Pet Tech—Journal of Petroleum Technology
J Res Nat Bur Stand—Journal of Research of the National Bureau of Standards
J Sci Instr—Journal of Scientific Instruments

Light Metal Age—Light Metal Age
Lub Eng—Lubrication Engineering

Mach—Machinery
Machine Design—Machine Design
Mag of Stand—Magazine of Standards
Manuf Chem—Manufacturing Chemist and Aerosol News
Marine Eng/Log—Marine Engineering/Log
Materials in Design Eng—Materials in Design Engineering
Materials Res & Stand—Materials Research & Standards
Math & Math Phys. See J Res Nat Bur Stand
Mech Eng—Mechanical Engineering
Metal Finishing—Metal Finishing
Metal Prog—Metal Progress
Metallurgia—Metallurgia, the British Journal of Metals
Mill & Factory—Mill & Factory
Min Cong J—Mining Congress Journal
Min Eng—Mining Engineering
Mod Materials Handling—Modern Materials Handling
Mod Metals—Modern Metals
Mod Phot—Modern Photography
Mod Plastics—Modern Plastics
Mod Textiles Mag—Modern Textiles Magazine

Naval Eng J—Naval Engineers Journal
Nucleonics—Nucleonics

Oil & Gas J—Oil and Gas Journal
Op Res—Operations Research

Paper Ind—Paper Industry
Pet Management—Petroleum Management
Phys & Chem. See J Res Nat Bur Stand
Phys Today—Physics Today
Pit & Quarry—Pit and Quarry
Plant Eng—Plant Engineering
Plastics Tech—Plastics Technology
Plastics World—Plastics World
Plating—Plating
Power—Power
Power Eng—Power Engineering
Proc Design. See Ind & Eng Chem
Product Eng—Product Engineering
Product Res & Develop. See Ind & Eng Chem
Prog Arch—Progressive Architecture
Pub Roads—Public Roads
Pub Works—Public Works

Q S T—QST

RCA R—RCA Review
R Sci Instr—Review of Scientific Instruments
Radio & Electronic Eng—Radio and Electronic Engineer
Radio Corp Am R. See RCA R
Radio-Electronics—Radio-Electronics
Radio Propagation. See J Res Nat Bur Stand
Radio Science. See J Res Nat Bur Stand
Res/Develop—Research/Development
Roads & Sts—Roads and Streets
Rock Prod—Rock Products
Roy Aeronautical Soc J—Journal of the Royal Aeronautical Society
Rubber Age—Rubber Age
Rubber Chem & Tech—Rubber Chemistry and Technology
Rubber World—Rubber World

SAE J—SAE Journal
SMPTE J—Journal of the Society of Motion Picture and Television Engineers
Safety Maint—Safety Maintenance
Sci Am—Scientific American
Soap & Chem Spec—Soap and Chemical Specialties
Soc Automotive Eng J. See SAE J
Soc Dyers & Col J—Journal of the Society of Dyers and Colourists
Soc Motion Picture & Tv Eng J. See SMPTE J
Sound—Sound; Its Uses and Control
Space/Aeronautics—Space/Aeronautics
Steel—Steel

Tappi—Tappi
Tech Assn Pulp & Paper Ind. See Tappi
Textile Ind—Textile Industries
Textile Res J—Textile Research Journal
Textile World—Textile World
Tool & Manuf Eng—Tool and Manufacturing Engineer
Traffic Q—Traffic Quarterly

WPCF J—Journal of the Water Pollution Control Federation
Water & Sewage Works—Water & Sewage Works
Water Works & Wastes Eng—Water Works and Wastes Engineering
Water Works Eng—Water Works Engineering
Welding Eng—Welding Engineer
Welding J—Welding Journal
Westinghouse Eng—Westinghouse Engineer
Wire & Wire Prod—Wire and Wire Products
Wireless World—Wireless World

APPLIED SCIENCE & TECHNOLOGY INDEX

1964

EDITED BY
ELSA TOOM

INDEXERS
RONALD S. BERMAN, RUDOLPH G. GIGLIO,
ANNELIESE SOMMERLAD

MANAGING EDITOR
CHARLOTTE TRILLING

THE H. W. WILSON COMPANY
NEW YORK 1965

UNIVERSITY OF PITTSBURGH
LIBRARY

R
qZ7913
I42
1964

PRINTED IN THE UNITED STATES OF AMERICA

Library of Congress Catalog Card No. 14-5408 rev 2

Acknowledgments

In addition to the staff members whose names appear on the title page we wish to acknowledge the contributions of the following who indexed for the 1964 volume part-time during the year: Jane C. Luhks, Mary M. Raymond.

E. T.

Abbreviations of Periodicals Indexed

For full information consult pages vii-x

AIAA J—AIAA Journal
AIChE J—Journal of the American Institute of Chemical Engineers
ASHRAE J—ASHRAE Journal
ASME Trans—Transactions of the American Society of Mechanical Engineers
Air Cond Heat & Ven—Air Conditioning, Heating and Ventilating
Aircraft Eng—Aircraft Engineering
Am Assn Pet Geologists Bul—Bulletin of the American Association of Petroleum Geologists
Am Cer Soc Bul—Bulletin of the American Ceramic Society
Am Cer Soc J—Journal of the American Ceramic Society
Am Chem Soc J—Journal of the American Chemical Society
Am Concrete Inst J—Journal of the American Concrete Institute
Am Dyestuff Rep—American Dyestuff Reporter
Am Gas Assn Mo—American Gas Association Monthly
Am Inst Chem Eng J. See AIChE J
Am J Clinical Nutrition—American Journal of Clinical Nutrition
Am J Phys—American Journal of Physics
Am J Pub Health—American Journal of Public Health and the Nation's Health
Am Mach—American Machinist
Am Mach/Metalworking Manuf—American Machinist/Metalworking Manufacturing
Am Mineralogist—American Mineralogist, Journal of the Mineralogical Society of America
Am Oil Chem Soc J—Journal of the American Oil Chemists' Society
Am Perfumer—American Perfumer and Cosmetics
Am Scientist—American Scientist
Am Soc C E Proc—Proceedings of the American Society of Civil Engineers
Am Soc Heat Refrig & Air-Cond Eng J. See ASHRAE J
Am Soc Mech Eng Trans. See ASME Trans
Am Water Works Assn J—Journal American Water Works Association
Anal Chem—Analytical Chemistry
Arch Forum—Architectural Forum, The Magazine of Building
Arch Rec—Architectural Record
Archives Environmental Health—Archives of Environmental Health
Assn for Computing Mach J—Journal of the Association for Computing Machinery
Astronautics & Aeronautics—Astronautics and Aeronautics
Astronautics & Aerospace Eng—Astronautics and Aerospace Engineering
Audio—Audio
Audio Eng Soc J—Journal of the Audio Engineering Society
Automation—Automation
Automobile Eng—Automobile Engineer
Automotive Ind—Automotive Industries

Bell Lab Rec—Bell Laboratories Record
Bell System Tech J—Bell System Technical Journal
Brit Plastics—British Plastics

Can Chem Process—Canadian Chemical Processing
Can J Chem Eng—Canadian Journal of Chemical Engineering
Can Min & Met Bul—Canadian Mining and Metallurgical Bulletin
Cer Ind—Ceramic Industry
Chem & Eng N—Chemical & Engineering News
Chem & Ind—Chemistry and Industry
Chem Eng—Chemical Engineering
Chem Eng Prog—Chemical Engineering Progress
Civil Eng—Civil Engineering, the Magazine of Engineered Construction
Coal Age—Coal Age
Combustion—Combustion
Comp Air Mag—Compressed Air Magazine
Control Eng—Control Engineering
Corrosion—Corrosion

Diesel Equip Supt—Diesel Equipment Superintendent
Dom Eng—Domestic Engineering
Drug & Cosmetic Ind—Drug and Cosmetic Industry

Econ Geol—Economic Geology and the Bulletin of the Society of Economic Geologists
Elec Com—Electrical Communication
Elec Constr & Maint—Electrical Construction and Maintenance
Elec Eng—Electrical Engineering
Elec World—Electrical World
Electro-Tech—Electro-Technology
Electrochem Soc J—Journal of the Electrochemical Society
Electronic Eng—Electronic Engineering
Electronic Ind—Electronic Industries
Electronics—Electronics
Eng & Instrumentation. See J Res Nat Bur Stand
Eng & Min J—Engineering and Mining Journal
Eng J—Engineering Journal
Eng N—Engineering News-Record
Engineer—Engineer
Engineering—Engineering

Food Eng—Food Engineering
Food Tech—Food Technology
Foundry—Foundry
Franklin Inst J—Journal of the Franklin Institute
Fundamentals. See Ind & Eng Chem

Gas—Gas
Gas Age—Gas Age
Geol Soc Bul—Bulletin of the Geological Society of America
Geophysics—Geophysics
Glass Ind—Glass Industry

Heating-Piping—Heating, Piping and Air Conditioning
Hydraulics & Pneumatics—Hydraulics and Pneumatics
Hydrocarbon Process & Pet Refiner—Hydrocarbon Processing and Petroleum Refiner

IEEE Proc—Proceedings of the IEEE
IEEE Trans Applications & Ind—IEEE Transactions on Applications and Industry
IEEE Trans Com & Electronics—IEEE Transactions on Communication and Electronics
IEEE Trans Power Apparatus & Systems—IEEE Transactions on Power Apparatus and Systems
ISA J—ISA Journal
Illum Eng—Illuminating Engineering, The Journal of the Illuminating Engineering Society

Ind & Eng Chem—Industrial and Engineering Chemistry
Ind Chem—Industrial Chemist
Ind Electronics—Industrial Electronics
Ind Finishing—Industrial Finishing
Ind Med—Industrial Medicine and Surgery
Ind Phot—Industrial Photography
Ind Quality Control—Industrial Quality Control
Inland Ptr/Am Lithogr—Inland Printer/American Lithographer
Inst E E Proc—Proceedings of the Institution of Electrical Engineers
Inst Mech Eng Proc—Proceedings of the Institution of Mechanical Engineers
Inst Metals J—Journal of the Institute of Metals
Inst Pet J—Journal of the Institute of Petroleum
Instrument Soc Am J. See ISA J
Instruments & Control Systems—Instruments and Control Systems
Iron Age—Iron Age
Iron & Steel Eng—Iron and Steel Engineer
Iron & Steel Inst J—Journal of the Iron and Steel Institute

J Agri & Food Chem—Journal of Agricultural and Food Chemistry
J Ap Chem—Journal of Applied Chemistry
J Ap Mech. See ASME Trans
J Ap Phys—Journal of Applied Physics
J Basic Eng. See ASME Trans
J Colloid Sci—Journal of Colloid Science
J Eng Ind. See ASME Trans
J Eng Power. See ASME Trans
J Geol—Journal of Geology
J Heat Transfer. See ASME Trans
J Math & Phys—Journal of Mathematics and Physics
J Metals—Journal of Metals
J Nutrition—Journal of Nutrition
J Pet Tech—Journal of Petroleum Technology
J Res Nat Bur Stand—Journal of Research of the National Bureau of Standards
J Sci Instr—Journal of Scientific Instruments

Light Metal Age—Light Metal Age
Lub Eng—Lubrication Engineering

Mach—Machinery
Machine Design—Machine Design
Mag of Stand—Magazine of Standards
Manuf Chem—Manufacturing Chemist and Aerosol News
Marine Eng/Log—Marine Engineering/Log
Materials in Design Eng—Materials in Design Engineering
Materials Res & Stand—Materials Research & Standards
Math & Math Phys. See J Res Nat Bur Stand
Mech Eng—Mechanical Engineering
Metal Finishing—Metal Finishing
Metal Prog—Metal Progress
Metallurgia—Metallurgia, the British Journal of Metals
Mill & Factory—Mill & Factory
Min Cong J—Mining Congress Journal
Min Eng—Mining Engineering
Mod Materials Handling—Modern Materials Handling
Mod Metals—Modern Metals
Mod Phot—Modern Photography
Mod Plastics—Modern Plastics
Mod Textiles Mag—Modern Textiles Magazine

Naval Eng J—Naval Engineers Journal
Nucleonics—Nucleonics

Oil & Gas J—Oil and Gas Journal
Op Res—Operations Research

Paper Ind—Paper Industry
Pet Management—Petroleum Management
Phys & Chem. See J Res Nat Bur Stand
Phys Today—Physics Today
Pit & Quarry—Pit and Quarry
Plant Eng—Plant Engineering
Plastics Tech—Plastics Technology
Plastics World—Plastics World
Plating—Plating
Power—Power
Power Eng—Power Engineering
Proc Design. See Ind & Eng Chem
Product Eng—Product Engineering
Product Res & Develop. See Ind & Eng Chem
Prog Arch—Progressive Architecture
Pub Roads—Public Roads
Pub Works—Public Works

Q S T—QST

RCA R—RCA Review
R Sci Instr—Review of Scientific Instruments
Radio & Electronic Eng—Radio and Electronic Engineer
Radio Corp Am R. See RCA R
Radio-Electronics—Radio-Electronics
Radio Propagation. See J Res Nat Bur Stand
Radio Science. See J Res Nat Bur Stand
Res/Develop—Research/Development
Roads & Sts—Roads and Streets
Rock Prod—Rock Products
Roy Aeronautical Soc J—Journal of the Royal Aeronautical Society
Rubber Age—Rubber Age
Rubber Chem & Tech—Rubber Chemistry and Technology
Rubber World—Rubber World

SAE J—SAE Journal
SMPTE J—Journal of the Society of Motion Picture and Television Engineers
Safety Maint—Safety Maintenance
Sci Am—Scientific American
Soap & Chem Spec—Soap and Chemical Specialties
Soc Automotive Eng J. See SAE J
Soc Dyers & Col J—Journal of the Society of Dyers and Colourists
Soc Motion Picture & Tv Eng J. See SMPTE J
Sound—Sound: Its Uses and Control
Space/Aeronautics—Space/Aeronautics
Steel—Steel

Tappi—Tappi
Tech Assn Pulp & Paper Ind. See Tappi
Textile Ind—Textile Industries
Textile Res J—Textile Research Journal
Textile World—Textile World
Tool & Manuf Eng—Tool and Manufacturing Engineer
Traffic Q—Traffic Quarterly

WPCF J—Journal of the Water Pollution Control Federation
Water & Sewage Works—Water & Sewage Works
Water Works & Wastes Eng—Water Works and Wastes Engineering
Water Works Eng—Water Works Engineering
Welding Eng—Welding Engineer
Welding J—Welding Journal
Westinghouse Eng—Westinghouse Engineer
Wire & Wire Prod—Wire and Wire Products
Wireless World—Wireless World

List of Periodicals Indexed

AIAA Journal. $30 m American Institute of Aeronautics and Astronautics, Inc, 1290 Avenue of the Americas, New York 10019

AIChE Journal. $25 bi-m American Institute of Chemical Engineers, 345 E 47th St, New York 10017

ASHRAE Journal. $10 m American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc, 345 E 47th St, New York 10017

ASME Transactions. $15 American Society of Mechanical Engineers. 345 E 47th St, New York 10017
Published in 5 parts: ser A, Journal of Engineering for Power. q (Ja); ser B, Journal of Engineering for Industry, q (F); ser C, Journal of Heat Transfer, q (F); ser D, Journal of Basic Engineering. q (Mr); ser E, Journal of Applied Mechanics. q (Mr)
$7.50 to members and affiliates

Air Conditioning, Heating and Ventilating. $7 m Industrial Press, 93 Worth St, New York 10013

Aircraft Engineering. 48s; U.S. $7.50; Canada $7.50 m Bunhill Publications, Ltd, 4 Ludgate Circus, London, E.C. 4

American Association of Petroleum Geologists Bulletin. $30 m American Association of Petroleum Geologists, Inc, Box 979, Tulsa Okla. 74101

American Ceramic Society Bulletin. $6 m American Ceramic Society, 4055 N High St, Columbus, Ohio 43214

American Ceramic Society Journal; Ceramic Abstracts. $25 including Ceramic Bulletin m American Ceramic Society, 4055 N High St, Columbus, Ohio 43214

American Chemical Society Journal. $26 s-m American Chemical Society, 1155 16th St, N.W, Washington, D.C. 20036

American Concrete Institute Journal. $18 m American Concrete Institute, P.O. Box 4754 Redford Station, Detroit, Mich. 48219

American Dyestuff Reporter. $7.50 bi-w Howes Pub. Co, Inc, 44 E 23d St, New York 10010

American Gas Association Monthly. $5 m (bi-m Jl-Ag) American Gas Assn, Inc, 605 Third Av, New York 10016

American Institute of Chemical Engineers Journal. See A I Ch E Journal

American Journal of Clinical Nutrition. $15 m The American Journal of Clinical Nutrition, Inc, 466 Lexington Av, New York 10017

American Journal of Physics. $12.50 m American Institute of Physics, Inc, 335 E 45th St, New York 10017

American Journal of Public Health and the Nation's Health. $15 m American Public Health Association, Inc, 1790 Broadway, New York 10019

American Machinist. $20 bi-w McGraw-Hill, Inc, 330 W 42d St, New York 10036
Formerly American Machinist/Metalworking Manufacturing; changed January 6, 1964

American Machinist/Metalworking Manufacturing. $3 bi-w McGraw-Hill Pub. Co, Inc, 330 W 42d St, New York 10036
Name changed to American Machinist January 6, 1964

American Mineralogist, Journal of the Mineralogical Society of America. bi-m U.S. Geological Survey, Washington, D.C. 20242

American Oil Chemists' Society Journal. $12 m American Oil Chemists' Society, 35 E Wacker Drive, Chicago 60601

American Perfumer and Cosmetics. $5 m Allured Pub. Corp. 1031 South Blvd, Oak Park, Ill. 60302

American Scientist. $3.50 q Sigma Xi, 51 Prospect St, New Haven, Conn. 06511

American Society of Civil Engineers Proceedings. m American Society of Civil Engineers, 345 E 47th St, New York 10017

American Society of Heating, Refrigerating and Air-Conditioning Engineers Journal. See ASHRAE Journal

American Society of Mechanical Engineers Transactions. See ASME Transactions

American Water Works Association Journal. m American Water Works Assn. Inc, 2 Park Av, New York 10016

Analytical Chemistry. $5 m American Chemical Society, 1155 16th St, N.W. Washington, D.C. 20036

Architectural Forum, The Magazine of Building. $7 m Time, Inc, 540 N. Michigan Av, Chicago, Ill. 60611
Discontinued with August-September 1964 number

Architectural Record. $5.50 m McGraw-Hill Publications, 330 W 42d St, New York 10036
Extra number published in Mid-May

Archives of Environmental Health. $12 m American Medical Association, 535 N Dearborn St, Chicago 60610

Association for Computing Machinery Journal. $15 q Association for Computing Machinery, 211 E 43d St, New York 10017

Astronautics & Aeronautics. m American Institute of Aeronautics and Astronautics, 1290 Avenue of the Americas, New York 10019
Price on request
Formerly Astronautics and Aerospace Engineering; changed January, 1964

Astronautics and Aerospace Engineering. $10 m American Institute of Aeronautics and Astronautics, 500 Fifth Av, New York 10036
Name changed to Astronautics & Aeronautics, January, 1964

Audio. $5 m Radio Magazines, Inc, 204 Front St, Mineola, New York 11501

Audio Engineering Society Journal. $11 q Audio Engineering Society, P.O. Box 383, Madison Square Station, New York 10010

Automation. $10 m Penton Pub. Co. Penton Bldg, Cleveland 44113

Automobile Engineer. £4 5s; U.S. $12; Canada $12 m Iliffe Transport Publications, Ltd. Dorset House, Stamford St, London, S.E. 1
Extra number published in May

Automotive Industries. $10 s-m Chilton Co. Chestnut & 56th Sts, Philadelphia 19139

Bell Laboratories Record. $2 m Bell Telephone Laboratories, Inc, 463 West St, New York 10014

Bell System Technical Journal. $5 10 times a yr American Telephone and Telegraph Co, 195 Broadway, New York 10007
Published bi-monthly in 1964; changed January, 1965

British Plastics. £3 10s; U.S. $11.50 Canada $11.50 m Iliffe Industrial Publications, Ltd, Dorset House, Stamford St, London, S.E. 1

Canadian Chemical Processing. $6; U.S. $10 m Southam Business Publications, Ltd, 1450 Don Mills Rd, Don Mills, Ontario, Canada 416

Canadian Journal of Chemical Engineering. $20; U.S. $22.50 bi-m Chemical Institute of Canada, 48 Rideau St, Ottawa 2, Ont.

Canadian Mining and Metallurgical Bulletin. $10; U.S. $12 m Canadian Institute of Mining and Metallurgy, 906 Drummond Bldg, Montreal, Que.

Ceramic Industry. $5 m Cahners Pub. Co. Inc, 5 So Wabash Av, Chicago 60603

Chemical & Engineering News. $6 w American Chemical Society, 1155 16th St, N.W. Washington, D.C. 20036

Chemical Engineering. $3 bi-w McGraw-Hill Inc, 330 W 42d St, New York 10036

Chemical Engineering Progress. $25 m American Institute of Chemical Engineers, 345 E 47th St, New York 10017

Chemistry and Industry. £6 w Society of Chemical Industry, 14 Belgrave Square, London, S.W. 1

Civil Engineering, the Magazine of Engineered Construction. $5 m American Society of Civil Engineers, 345 E 47th St, New York 10017

Coal Age. $3 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Combustion. $4 m Combustion Pub. Co, Inc, 277 Park Av, New York 10017

Compressed Air Magazine. $5 m Compressed Air Magazine Co, 942 Memorial Parkway, Phillipsburg, N.J. 08865

Control Engineering. $3 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Corrosion. $10 m National Association of Corrosion Engineers, Inc, 980 M & M Bldg, Houston, Tex. 77002

Diesel Equipment Superintendent. $4 m Diesel Publications, Inc, 80 Lincoln Av, Stamford, Conn. 06904

Domestic Engineering. $5 m Medalist Publications Inc, 1801 Prairie Av, Chicago 60616

Drug & Cosmetic Industry. $3 m Drug Markets, Inc, 101 W 31st St, New York 10001

Economic Geology and the Bulletin of the Society of Economic Geologists. $8.50 s-q Economic Geology Pub. Co, M. M. Leighton, Business Mgr. Urbana, Ill. 61801

Electrical Communication. $2 q International Telephone and Telegraph Corp, 320 Park Av, New York 10022

Electrical Construction and Maintenance. $3 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Electrical Engineering. $12 m Institute of Electrical and Electronics Engineers, Inc, 345 E 47th St, New York 10017

Discontinued with the December 1963 number

Electrical World. $8 w McGraw-Hill, Inc, 330 W 42d St, New York 10036

Electro-Technology. $15 m Conover-Mast Publications, Inc, 205 E 42d St, New York 10017

Electrochemical Society Journal. $24 m Electrochemical Society, 30 E 42d St, New York 10017

Electronic Engineering. £1 16s; U.S. $5; Canada $5 m Morgan Brothers, Ltd, 28 Essex St, Strand, London, W.C. 2

Electronic Industries. $10 m Chilton Co. Chestnut & 56th Sts, Philadelphia 19139

Electronics. $6 bi-w McGraw-Hill, Inc, 330 W 42d St, New York 10036

Changed to bi-weekly beginning April 6, 1964

Extra number, Buyers' Guide July 25

Engineer. £5 10s; U.S. $16 w Morgan Brothers, Ltd, 28 Essex St, Strand, London, W.C. 2

Engineering. £5 10s w Engineering Ltd, 36 Bedford St, London, W.C. 2

Engineering and Instrumentation. See Journal of Research of the National Bureau of Standards

Engineering and Mining Journal. $4 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Engineering Journal. $6 m Engineering Institute of Canada, 2050 Mansfield St, Montreal 2, Que.

Engineering News-Record. $6 w McGraw-Hill, Inc, 330 W 42d St, New York 10036

Food Engineering. $2 m Chilton Co, Chestnut & 56th Sts, Philadelphia 19139

Food Technology. $14.50 m Institute of Food Technologists, 176 West Adams St, Chicago 60603

Foundry. $10 m Penton Pub. Co, Penton Bldg, Cleveland 44113

Franklin Institute Journal. $20 m Franklin Institute of the State of Pennsylvania, Benjamin Franklin Parkway at 20th St, Philadelphia 19103

Fundamentals. See Industrial and Engineering Chemistry

Gas. $15 m Chilton Co, 56th & Chestnut Sts, Philadelphia 19139

Gas Age. $5 m (s-m Ja) Moore Pub. Co, Inc, Ojibway Building, Duluth, Minnesota 55802

Geological Society of America Bulletin. $25 m Geological Society of America, 231 E 46th St, New York 10017

Geophysics. $10 bi-m Society of Exploration Geophysicists, Howard R. Breck, Business Manager, Shell Bldg, Tulsa, Okla. 74119

Glass Industry. $6 m Glass Pub. Co, Inc. 777 Lexington Av, New York 10017

Heating, Piping & Air Conditioning. $5 m Keeney Pub. Co, 6 N Michigan Av, Chicago 60602

Hydraulics & Pneumatics. $8.50 m Industrial Pub. Co. 812 Huron Rd, Cleveland 44101

Hydrocarbon Processing & Petroleum Refiner. $4 m Gulf Pub. Co, P.O. Box 2608, Houston, Tex. 77001

IEEE Proceedings. $22 m Institute of Electrical and Electronics Engineers, Inc, 345 E 47th St, New York 10017

IEEE Transactions on Applications and Industry. $10 bi-m Institute of Electrical and Electronics Engineers, Inc, 345 E 47th St, New York 10017

Discontinued with the November 1964 number

IEEE Transactions on Communication and Electronics. $17 bi-m Institute of Electrical and Electronics Engineers, Inc, 345 E 47th St, New York 10017

Discontinued with the November 1964 number

IEEE Transactions on Power Apparatus and Systems. $17 m Institute of Electrical and Electronics Engineers, Inc. 345 E 47th St, New York 10017

ISA Journal. $4 m Instrument Society of America, Penn-Sheraton Hotel, 530 William Penn Pl, Pittsburgh 15219

Illuminating Engineering, the Journal of the Illuminating Engineering Society. $18 m Illuminating Engineering Society, 345 E 47th St, New York 10017

Industrial and Engineering Chemistry. m American Chemical Society, 1155 16th St, N.W. Washington, D.C. 20036

Sold only in combination with one or more I&EC quarterlies; Process Design and Development (Ja); Fundamentals (F); Product Research and Development (Mr) One quarterly $5; two $8.50; three $12 Subscriptions must begin with January and end with December.

Industrial Chemist. 50s m Tothill Press, Ltd, 33 Tothill St, Westminster, London, S.W. 1

Discontinued with the May 1964 number

Industrial Electronics. £3; U.S. and Canada $10 m Iliffe Electrical Publications, Ltd, Dorset House, Stamford St, London, S.E. 1

Industrial Finishing. $3 m Practical Publications, Inc, 1142 N. Meridian St, Indianapolis 46204

Industrial Medicine and Surgery. $6 m Industrial Medicine Pub. Co, P.O. Box 306, Tamiami Station, Miami, Fla. 33144

Industrial Photography. $6 m United Business Publications, Inc, 200 Madison Av, New York 10016

Industrial Quality Control. m American Society for Quality Control, Inc, 161 W Wisconsin Av, Milwaukee 53203

Inland Printer/American Lithographer. $5 m Maclean-Hunter Pub. Corp. 79 W Monroe St, Chicago 60603

Institute of Metals Journal. separate papers Institute of Metals, 17 Belgrave Square, London, S.W. 1

Institute of Petroleum Journal. £6 6s m Institute of Petroleum, 61 New Cavendish St, London, W. 1

Institution of Electrical Engineers Proceedings. £12 m The Institution, Savoy Place, London, W.C. 2

Institution of Mechanical Engineers Proceedings. separate papers Institution of Mechanical Engineers, 1 Birdcage Walk, Westminster, London, S.W. 1

Instrument Society of America Journal. See ISA Journal

Instruments and Control Systems. $4 m Instruments Pub. Co, Inc, 845 Ridge Av, Pittsburgh 15212

Iron Age. $25 w Chilton Co. Inc. Chestnut & 56th Sts, Philadelphia 19139

Iron and Steel Engineer. $7.50 m Association of Iron and Steel Engineers, 1010 Empire Bldg, Pittsburgh 15222

Iron and Steel Institute Journal. £24 m Iron and Steel Institute, 4 Grosvenor Gardens, London, S.W. 1

Journal of Agricultural and Food Chemistry. $20 bi-m American Chemical Society, 1155 16th St, N.W. Washington, D.C. 20036

Journal of Applied Chemistry. £15 m Society of Chemical Industry, 14 Belgrave Square, London, S.W. 1

Journal of Applied Mechanics. See ASME Transactions

Journal of Applied Physics. $20 m American Institute of Physics, 335 E 45th St, New York 10017

$15 to members and associate members of the American Institute of Physics

Journal of Basic Engineering. See ASME Transactions

Journal of Colloid Science. $28 9 times a yr Academic Press Inc, 111 5th Av, New York 10003

Journal of Engineering for Industry. See ASME Transactions

Journal of Engineering for Power. See ASME Transactions

Journal of Geology. $14 bi-m University of Chicago Press, 5750 Ellis Av, Chicago 60637

Journal of Heat Transfer. See ASME Transactions

Journal of Mathematics and Physics. $8 q Massachusetts Institute of Technology, Cambridge, Mass. 02139

Journal of Metals. $10 m American Institute of Mining, Metallurgical and Petroleum Engineers, Inc. 345 E 47th St. New York 10017
Journal of Nutrition. $22.50 m Wistar Institute of Anatomy and Biology, 36th St at Spruce, Philadelphia 19104
Journal of Petroleum Technology. $8 m Society of Petroleum Engineers of AIME, 6300 North Central Expressway, Dallas 75206
Journal of Research of the National Bureau of Standards. Superintendent of Documents, Washington, D.C. 20402
Published in 4 sections: A, Physics and Chemistry $4 bi-m; B, Mathematics and Mathematical Physics $2.25 q; C, Engineering and Instrumentation $2.25 q; D, Radio Science $9 m
Section D, formerly Radio Propagation; changed January 1964 and became monthly
Journal of Scientific Instruments. £8 m Institute of Physics and the Physical Society, 47 Belgrave Square, London, S.W. 1

Light Metal Age. $6 bi-m Roy Fellom, Jr. 693 Mission St. San Francisco 94105
Lubrication Engineering. $11 m American Society of Lubrication Engineers, 838 Busse Highway, Park Ridge, Ill. 60068

Machine Design. $10 bi-w Penton Pub. Co. Penton Bldg, Cleveland 44113
Machinery. $10 m Industrial Press, 93 Worth St, New York 10013
Magazine of Standards. $7 m American Standards Association, Inc, 10 E 40th St, New York 10016
Manufacturing Chemist and Aerosol News. £4; U.S. $12 m Grampian Press, Ltd, The Tower, 229-243 Shepherds Bush Road, London, W.6
Marine Engineering/Log. $4 m (s-m in June) Simmons-Boardman Pub. Corp, 30 Church St, New York 10007
Materials in Design Engineering. $3 m Reinhold Pub. Corp, 430 Park Av, New York 10022
Extra number published in Mid-October
Materials Research & Standards. $5 m American Society for Testing Materials, 1916 Race St, Philadelphia 19103
Mathematics and Mathematical Physics. See Journal of Research of the National Bureau of Standards
Mechanical Engineering. $7 m American Society of Mechanical Engineers, 345 E 47th St, New York 10017
Metal Finishing. $5 m Metals and Plastics Publications, Inc, 99 Kinderkamack Road, Westwood, N.J. 07675
Metal Progress. $9 m American Society for Metals, Metals Park, Ohio 44072
Metallurgia, the British Journal of Metals. 30s m Kennedy Press, Ltd, 31 King St, W. Manchester 3
Mill & Factory. $10 m Conover-Mast Publications, Inc, 205 E 42d St, New York 10017
Mining Congress Journal. $3 m American Mining Congress, Ring Bldg, Washington, D.C. 20036
Mining Engineering. $10 m American Institute of Mining, Metallurgical and Petroleum Engineers, Inc. 345 E 47th St, New York 10017
Modern Materials Handling. $8 m Cahners Pub. Co, Inc, 221 Columbus Av, Boston 02116
Modern Metals. $10 m Modern Metals Pub. Co, 435 N. Michigan Av, Chicago 60611
Modern Photography. $5 m Modern Photography, 165 W 46th St, New York 10036
Modern Plastics. $8 m McGraw-Hill, Inc, 330 W 42d St, New York 10036
Extra number, Encyclopedia issue September
Modern Textiles Magazine. $5 m Rayon Pub. Corp. 303 Fifth Av, New York 10016

Naval Engineers Journal. $20 bi-m American Society of Naval Engineers, Inc, 1012 14th St, N.W. Washington, D.C. 20005
Nucleonics. $8 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Oil and Gas Journal. $7 w Petroleum Pub. Co. 211 South Cheyenne, Tulsa, Okla. 74101
Operations Research. $10 bi-m Operations Research Society of America, Mt Royal and Guilford Avs, Baltimore 21202

Paper Industry. $5 m Paper Industry Management Assn, 2570 Devon Av, Des Plaines, Ill. 60018
Petroleum Management. $7 m (s-m Jl) Petroleum Engineer Pub. Co, 800 Davis Bldg, Dallas 75202
Physics and Chemistry. See Journal of Research of the National Bureau of Standards
Physics Today. $4 m American Institute of Physics, 335 E 45th St, New York 10017
Pit and Quarry. $7 m Pit and Quarry Publications, Inc, 431 S Dearborn St, Chicago 60605
Plant Engineering. $10 m Technical Pub. Co, 308 E James St, Barrington, Ill. 60010
Plastics Technology. $7 m Plastics Technology Magazine, 630 Third Av, New York 10017
Plastics World. $8 m Cahners Pub. Co, Inc, 221 Columbus Av, Boston, Mass. 02116
Plating. $5 m American Electroplaters' Society, Inc, 443-445 Broad St, Newark, N.J. 07102
Power. $3 m McGraw-Hill, Inc, 330 W 42d St, New York 10036
Power Engineering. $10 m Technical Pub. Co. 308 E James St, Barrington, Ill. 60010
Process Design and Development. See Industrial and Engineering Chemistry
Product Engineering. $15 bi-w McGraw-Hill Inc, 330 W 42d St, New York 10036
Product Research and Development. See Industrial and Engineering Chemistry
Progressive Architecture. $10 m Reinhold Pub. Corp, 430 Park Av, New York 10022
Public Roads. $1 bi-m Superintendent of Documents, Washington, D.C. 20402
Public Works. $7 m Public Works Journal Corp. 200 S Broad St, Ridgewood, N.J. 07450

QST. $6 m American Radio Relay League, Inc. 225 Main St, Newington, Conn. 06111

RCA Review. $2 q Radio Corporation of America, RCA Laboratories Division, Princeton N.J. 08540
Radio and Electronic Engineer. £5 10s m Institution of Electronic and Radio Engineers, 8-9 Bedford Square, London, W.C. 1
Radio Corporation of America Review. See RCA Review
Radio-Electronics. $5 m Gernsback Publications, Inc, 154 W 14th St, New York 10011
Radio Propagation. See Journal of Research of the National Bureau of Standards
Radio Science. See Journal of Research of the National Bureau of Standards
Research/Development. m F. D. Thompson Publications, Inc. 205 W Wacker Drive, Chicago 60606
Review of Scientific Instruments. $13 m American Institute of Physics, 335 E 45th St, New York 10017
$11 to members of scientific societies
Roads and Streets. $6 m The Gillette Group, Magazine Pub. Div, The Reuben H. Donnelley Corp, 466 Lexington Av, New York 10017
Rock Products. $10 m Maclean-Hunter Pub. Corp, 79 W Monroe St, Chicago 60603
Name changed to Rock Products Mining and Processing January, 1964; became Rock Products again in July 1964
Royal Aeronautical Society Journal. £10 10s m Royal Aeronautical Society, 4 Hamilton Place, London, W. 1
Rubber Age. $5 m Palmerton Pub. Co, Inc, 101 W 31st St, New York 10001
Rubber Chemistry and Technology. $9.50 5 times a yr American Chemical Society, Division of Rubber Chemistry, Prince and Lemon Sts, Lancaster, Pa. 17604
Rubber World. $7 m Bill Brothers Pub. Corp, 630 3d Av, New York 10017

SAE Journal. $12 m Society of Automotive Engineers, Inc, 485 Lexington Av, New York 10017
SMPTE Journal. $16 m Society of Motion Picture and Television Engineers, 9 E 41st St, New York 10017
Safety Maintenance. $4 m Alfred M. Best Co, Inc, 75 Fulton St, New York 10038
Scientific American. $7 m Scientific American, Inc, 415 Madison Av, New York 10017
Soap and Chemical Specialties. $4 m MacNair-Dorland Co, Inc, 254 W 31st St, New York 10001
Soap Blue Book is extra number
Society of Automotive Engineers Journal. See SAE Journal
Society of Dyers and Colourists Journal. £8 8s m Society of Dyers and Colourists, Dean-House 19 Piccadilly, Bradford 1, Yorkshire, England
Society of Motion Picture and Television Engineers Journal. See SMPTE Journal

Sound; Its Uses and Control. $8 bi-m Sound, 335 E 45th St, New York 10017
Discontinued with the November-December 1963 number

Space/Aeronautics. $15 m Conover-Mast Publications, Inc. 205 E 42d St, New York 10017
Extra number. Research and Development Technical Handbook September

Steel. $25 w Penton Pub. Co, Penton Bldg, Cleveland 44113

Tappi. m Technical Association of the Pulp and Paper Industry, 360 Lexington Av, New York 10017
Extra number Yearbook 1964-1965

Technical Association of the Pulp and Paper Industry. See Tappi

Textile Industries. $2 m W. R. C. Smith Pub. Co, 1760 Peachtree Rd, N.W, Atlanta 30309
Extra number published in Mid-September

Textile Research Journal. $25 m Textile Research Institute, Inc, Publications Department, P.O. Box 625, Princeton, N.J. 08540

Textile World. $2 m McGraw-Hill, Inc, 330 W 42d St, New York 10036

Tool and Manufacturing Engineer. $6 m American Society of Tool and Manufacturing Engineers, 20501 Ford Road, Dearborn, Mich. 48128

Traffic Quarterly. q Eno Foundation for Highway Traffic Control, Inc, Saugatuck, Conn. 06880
Price on request

Water & Sewage Works. $5 m Scranton Pub. Co, Inc, 35 E Wacker Drive, Chicago 60601
Two numbers published in November

Water Pollution Control Federation Journal. $10 m Water Pollution Control Federation, 3900 Wisconsin Av, Washington, D.C. 20016

Water Works and Wastes Engineering. $5 m Water Works and Wastes Engineering, 466 Lexington Av, New York 10017
Formerly Water Works Engineering; changed January 1964

Water Works Engineering. $5 m Water Works Engineering, 466 Lexington Av, New York 10017
Name changed to Water Works and Wastes Engineering January, 1964

Welding Engineer. $3 m Welding Engineer Publications, Inc, 5826 Dempster St, Morton Grove, Ill. 60053
Extra number published in Mid-June

Welding Journal. $8 m American Welding Society, 345 E 47th St, New York 10017

Westinghouse Engineer. $2.50 bi-m Westinghouse Engineer, P.O. Box 2278, 3 Gateway Center, Pittsburgh 15230

Wire and Wire Products. $8 m Quinn-Brown Pub. Corp, 299 Main St, Stamford, Conn. 06901

Wireless World. £2 6s; U.S. $8; Canada $8 m Iliffe Electrical Publications, Ltd. Dorset House, Stamford St, London, S.E. 1

Key to General Abbreviations

+	continued on later pages of the issue
abr	abridged
Ag	August
Ap	April
bibliog	bibliography
comp	compiled or compiler
cond	condensed
cont	continued
D	December
diag	diagram
ed	edited or edition or editor
F	February
il	illustrations
inc	incorporated
Ja	January
Je	June
Jl	July
Mr	March
My	May
N	November
n s	new series
no	number
O	October
p	page
pl	plate
por	portrait
pt	part
rev	revised
S	September
sup	supplement
tr	translated or translation or translator
v	volume
yrbk	yearbook

Sample entry: GAS meters
Trends in metering and regulation. H. J. Evans. il diags Gas 40:78+ Ja '64

Explanation: An illustrated article with diagrams, on the subject GAS meters entitled "Trends in metering and regulation," by H. J. Evans, will be found in volume 40 of Gas, page 78 (continued on later pages of the same issue) the January 1964 number

Applied Science & Technology Index

1964

ABS (alkyl benzenesulfonate). See Benzenesulfonates

ACTH

New synthesis of a biologically active nonadecapeptide corresponding to the first nineteen amino acid residues of adrenocorticotropins. C. H. Li and others. bibliog il Am Chem Soc J 86:2715-18 Jl 5 '64

Synthesis of a biologically active heptadecapeptide related to adrenocorticotropin. C. H. Li and others. bibliog il Am Chem Soc J 86:2703-10 Jl 5 '64

Synthesis of a biologically active pentadecapeptide corresponding to an altered sequence in the adrenocorticotropin (ACTH) structure. C. H. Li and others. bibliog il Am Chem Soc J 86:2711-15 Jl 5 '64

ABBREVIATIONS

See also

Symbols

ABERRATION (optics)

Calculation of the spherical aberration coefficient from beam emittance diagrams. A. Galejs and P. H. Rose. R Sci Instr 35:644-5 My '64

Determination of optical path difference for a photographic objective. F. E. Washer and W. R. Darling. il J Res Nat Bur Stand 67C:311-18 O '63

Discovery of stellar aberration. A. B. Stewart. diags Sci Am 210:100-8 Mr '64

Lens faults; illustrations with text. E. Meyers and B. Sherman. Mod Phot 28:80-1 Mr '64

Two optical aberration problems. E. J. Irons. diags Am J Phys 31:940-2 D '63

ABIETIC acid

Syntheses of (±)-methyl dehydrodeisopropylabietate. T. A. Spencer and others. bibliog Chem & Ind p577-8 Ap 4 '64

Synthesis of abietadienoic acids from dehydroabietic acid. A. W. Burgstahler and L. R. Worden. bibliog Am Chem Soc J 86:96-101 Ja 5 '64

ABILITY

See also

Creative ability

ABLATION shielding. See Shielding (heat)

ABORTION

Provoked abortion, a major public health problem. E. Rice-Wray. bibliog Am J Pub Health 54:313-21 F '64

ABRASION

Correlation of laboratory abrasion testers. L. I. Weiner and C. J. Pope. diags Textile Res J 33:761-4; 34:371-2 S '63, Ap '64

Effect of abrasion on the specific surface area of metals and glass. R. J. Adams and others. bibliog il Electrochem Soc J 111:774-80 Jl '64

Mechanism of abrasion of vulcanized rubber. A. P. Rudakov and E. V. Kuvshinskii. bibliog diags Rubber Chem & Tech 37:291-6 Ja '64

Some aspects of abrasion properties of cotton fabrics. W. Żurek and H. Szemik. diags Textile Res J 34:143-52 F '64

ABRASIVE belts

Abrasive belt grinding; a consideration for low unit cost productivity. B. Feinberg. il Tool & Manuf Eng 52:109-14 Mr '64

Belts grind out shiny finish. il Iron Age 194:101 Jl 23 '64

ABRASIVE wheels. See Grinding wheels

ABRASIVES

Abrasive machining goes big. R. H. Eshelman. il Iron Age 193:55 F 27 '64

Abrasive machining; the big bite of tiny grains. R. H. Eshelman. il Iron Age 193:93-100, cover Ap 9 '64

Abrasives; before and after the weld. il Welding Eng 49:35-8 N '64 (reprints 50c)

Carborundum grinds out new abrasive methods. R. H. Eshelman. il Iron Age 194:47 O 15 '64

Deflashing tool; abrasive blast quickly cleans molded parts. il Plastics World 21:105 N '63

Faster cutoff of tool steels with dry abrasive wheels. C. H. Wick. il Mach 70:99-101 N '63

New cost cutting frontiers. il diags Steel 154:80-9 Ap 13 '64

Relation between the thickness of the affected glass and the diameter of abrasive grains in the grinding of glass. P. Y. Bokin. Glass Ind 45:139 Mr '64

Remove metal at lower cost by abrasive machining. G. Nisula. il diags Product Eng 35:106-9 My 25 '64

Statistical polyhedron model of abrasive grain. H. T. McAdams. bibliog diags A S M E Trans ser B 85:388-93; Discussion. 393-4 N '63

Straight talk about abrasive machining. P. J. Gruber. Automotive Ind 131:132+ S 1 '64

Take heavier cut, abrasive users told; abstract. R. Merritt. il Iron Age 193:70 Mr 26 '64

Two-way spin speeds deburring. J. E. Sandford. il diag Iron Age 194:55-7 Jl 9 '64

Which abrasive is best for you? E. A. Borch. il Foundry 91:139-40+ S '63; Discussion. L. C. Frank. 92:111-12+ F '64

See also

Abrasive belts

Metal finishing

Polishing

ABSENTEEISM (labor)

Reduction of industrial time-loss; treatment with carisoprodol compound in musculoskeletal disorders. R. G. Conant. bibliog Ind Med 33:25-7 Ja '64

Sick absence for men and women by marital status. P. E. Enterline. bibliog Archives Environmental Health 8:466-70 Mr '64

Sick absence in certain western countries. P. E. Enterline. bibliog Ind Med 33:738-41 O '64

ABSORBENTS

Conductometric determination of carbon using carbonate-saturated barium hydroxide absorbent. E. J. Violante. bibliog Anal Chem 36:856-8 Ap '64

Dry-liquids concept; Micro-Cel E. il Chem Eng Prog 60:119 Ag '64

How to use oil absorbents. il Safety Maint 128:52-4 Ag '64

Straggling of electrons in layered media. N. G. Parke, 3d and others. J Ap Phys 35:3065-6 O '64

ABSORPTION

Absorption of chlorine by wool. I. C. Watt and R. Morris. bibliog Textile Res J 34:701-5 Ag '64

Absorption of dipole liquids in the visible. K. F. Herzfeld. bibliog Am Chem Soc J 86:3468-9 S 5 '64

Absorption of oxygen by sodium sulphite on a sieve plate. I. J. Harris and G. H. Roper. bibliog diag Can J Chem Eng 42:34-7 F '64

Attaining equilibrium in water absorption tests of epoxy casting resins. H. Lee. bibliog Materials Res & Stand 3:910-13 N '63

Automatic apparatus for measuring the absorption or evolution of gas at constant pressure. F. Neighbour and D. Verdin. bibliog diags J Sci Instr 41:219-21 Ap '64

Carbonyl-stretching absorptions in the pentacarbonyl hydrides of manganese, technetium, and rhenium. D. K. Huggins and H. D. Kaesz. bibliog Am Chem Soc J 86:2734-6 Jl 5 '64

ABSORPTION—*Continued*

Gas absorption accompanied by a large heat effect and volume change of the liquid phase. S. H. Chiang and H. L. Toor. bibliog diag A I Ch E J 10:398-402 My '64

Gas absorption accompanied by an irreversible reaction of general order. P. L. T. Brian. bibliog A I Ch E J 10:5-10 Ja '64

Hydrogen absorption by and dissolution rate of low-carbon steel in sulfuric, hydrochloric, phosphoric and nitric acids. R. M. Hudson. bibliog Corrosion 20:245-51 Ag '64

Immersion cell for the quantitative determination of liquid absorption, swelling, and density of porous solids. I. G. Fels. diags R Sci Instr 35:1357-9 O '64

Kinetics of absorption of carbon dioxide in monoethanolamine solutions at short contact times. J. K. A. Clarke. bibliog diags Ind & Eng Chem Fundamentals 3:239-45 Ag '64

Mechanism of liquid-phase resistance to gas absorption in a packed column. J. E. Vivian and C. J. King. bibliog flow diag diag A I Ch E J 10:221-7 Mr '64

Non-ionic surfactants and water absorption. R. W. Mendes and others. bibliog Drug & Cosmetic Ind 95:34-5+ Jl '64

Oxygen absorption in low-frequency vertically vibrating liquid columns. R. H. Buchanan and others. bibliog diag Ind & Eng Chem Proc Design 2:173-7 Jl '63; Discussion. 3:191-2 Ap '64

Paramagnetic resonance absorption of γ-irradiated synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:757-61 Mr 5 '64

Removal of sulfur oxides from flue gas with alkalized alumina at elevated temperatures. D. Bienstock and others. bibliog flow sheet il diags A S M E Trans ser A 86:353-8; Discussion. 358-60 Jl '64

Salicylic acid absorption; abstract. F. Gstioner and R. Elsner. Drug & Cosmetic Ind 95:123 Jl '64

Some aspects of gas separation. W. H. Granville. bibliog diags Ind & Eng Chem 56:32-7 My '64

Transient absorption at small contact times; moving-band absorber. T. S. Govindan and J. A. Quinn. bibliog diags A I Ch E J 10:35-8 Ja '64

Unsteady state absorption of carbon dioxide by dilute sodium hydroxide solutions. T. R. Rehm and others. bibliog diag A I Ch E J 9:760-5 N '63

Vapor-phase dyeing of cellulose acetate; equilibrium saturation values and absorption isotherms. F. Jones and R. Seddon. bibliog il diag Textile Res J 34:373-80 My '64

See also

Silica gel

Sound—Absorption

ABSORPTION (physiology)

Absorption of preformed vitamin A from ligatured poultry intestinal sections. T. E. Shellenberger and others. bibliog J Nutrition 82:99-105 Ja '64

All-vegetable protein mixtures for human feeding; studies in dogs on the absorption of gossypol from cottonseed flour-containing vegetable protein mixtures. R. Bressani and others. bibliog J Nutrition 83:209-17 Jl '64

Aspirin absorption. Drug & Cosmetic Ind 94:930 Je '64

Cationic skin absorption. I. H. Blank and others. Drug & Cosmetic Ind 94:935 Je '64

Effect of feeding colostral and milk components on the cessation of intestinal absorption of large molecules (closure) in neonatal pigs. J. G. Lecce and others. bibliog il J Nutrition 84:43-8 S '64

Effect of lysine on calcium metabolism in man. H. Spencer and J. Samachson. bibliog J Nutrition 81:301-6 D '63

Effect of oleic and linoleic acids on the absorption of saturated fatty acids in the chick. R. J. Young and R. L. Garrett. bibliog J Nutrition 81:321-9 D '63

Enhancement of calcium absorption in man by a bile acid sequestrant. A. M. Briscoe and C. Ragan. Am J Clinical Nutrition 13:277-84 bibliog(p283-4) N '63

In vivo intestinal transport of calcium and water from solutions recycled through healed gut loops in dogs. C. F. Cramer. bibliog J Nutrition 84:118-24 O '64

Influence of various chelating agents on the availability of zinc. P. Vohra and F. H. Kratzer. J Nutrition 82:249-56 F '64

Lactose and calcium transport in gut sacs. Y. O. Chang and D. M. Hegsted. bibliog J Nutrition 82:297-300 Mr '64

Physiologic processes in absorption of pollutants. M. Bacaner. bibliog il diags Archives Environmental Health 8:77-85; Discussion. 110-14 Ja '64

SO_2 absorption in the respiratory tract. L. G. Strandberg. bibliog diags Archives Environmental Health 9:160-6 Ag '64

Steroid absorption. Drug & Cosmetic Ind 93:893 D '63

ABSORPTION apparatus

Absorption or compression for air-conditioning systems; which? F. C. Wood. il Power 107:59-62 D '63

Foaming in a natural gasoline absorber. W. E. Glausser. diags Chem Eng Prog 60:67-8 O '64

How to design a natural-gas absorber. T. H. Russell and W. A. Thompson. bibliog diags Oil & Gas J 62:80-3 Je 1 '64

Turbulent contact absorber. H. R. Douglas and others. il diags Chem Eng Prog 59:85-9 D '63

ABSORPTION of rays

Absorption data of laser-type GaAs at 300° and 77°K. W. J. Turner and W. E. Reese. bibliog diag J Ap Phys 35:350-2 F '64

Errors of reflectivity measurements and of calculations of refractive index n and absorption coefficient k. H. Piller and K. v. Gehlen. bibliog Am Mineralogist 49:867-82 Jl '64

Modulation of infrared by free carrier absorption. R. B. McQuistan and J. W. Schultz. bibliog diags J Ap Phys 35:1243-8 Ap '64

Optical absorption and diffuse reflectance of powders. P. D. Johnson. J Ap Phys 35:334-6 F '64

Optical-acoustic effects in solid films. A. V. Houghton and R. U. Acton. bibliog il AIAA J 2:120-1 Ja '64

Scattering and absorption of plane waves by cylindrically symmetrical underdense zones. F. A. Albini. bibliog diag AIAA J 2:524-30 Mr '64

Ultraviolet absorbers and their use in plastics. J. A. Weicksel. il Tappi 46:sup 196A-8A N '63

Ultra-violet absorbers in finishing materials. Ind Finishing 40:108-10 N '63

Ultraviolet-absorbing green glass. H. Moore. Glass Ind 45:244-8 My '64

Ultraviolet absorption of the unconjugated azomethine group. R. Bonnett and others. bibliog Chem & Ind p 1836-7 N 16 '63

See also

Beer law

Black body

Spectrophotometry

ABSORPTION spectra. See Spectrum—Absorption spectra

ABSTRACTS

Gaps in abstracting? G. Borgstrom and C. Paris. bibliog Food Tech 18:64-6 Ja '64

Materials Research & Standards now publishing key words and abstracts. diags Materials Res & Stand 4:34-5 Ja '64

See also

Chemical abstracts (periodical)

ACCELERATION

Accelerated motion of a sphere in a viscous fluid. L. M. Brush, jr. and others. bibliog Am Soc C E Proc 90 [HY 1 no 3764]: 149-60 Ja '64; Discussion. 90 [HY 4 no 3980]:365-9 Jl '64

Effect of variation of acceleration on free-surface instability. C. S. Yih and S. P. Lin. bibliog il diags Tappi 47:88-94 F '64

Electromagnetic acceleration correction to the Debye relaxation time. R. W. Schmieder. Am J Phys 31:885-6 N '63

Inertia switches. E. S. Charkey. il diags Machine Design 36:174-80 Je 18 '64

Laminar natural convection to an isothermal flat plate with a spatially varying acceleration. R. Lemlich and J. S. Steinkamp. bibliog diag A I Ch E J 10:445-7 Jl '64

Linearized analysis of the pressure waves in a tank undergoing an acceleration. F. E. Ehlers. AIAA J 2:110-12 Ja '64

Method for accelerating flat plates to high velocity. A. S. Balchan and G. R. Cowan. il diags R Sci Instr 35:937-44 Ag '64

Pressure variation in a tank undergoing an acceleration. R. C. Progelhof. diags AIAA J 2:1505-7 Ag '64

See also

Airplanes—Acceleration

ACCELERATORS. See Vulcanization—Accelerators

ACCELERATORS (particles)
Atom smasher beams 10^{13} protons. C. Wiley. il diag Electronics 37:81-2 Ja 3 '64
Choice of betatron oscillation frequencies in a spiral sector FFAG accelerator. G. Parzen and P. Morton. bibliog R Sci Instr 34:1323-7 D '63
Diagnostic studies of a pinch plasma accelerator. D. P. Duclos and others. bibliog il diags AIAA J 1:2505-13 N '63
Electric propulsion characteristics of a pulsed plasma rail accelerator. D. H. Winicur. bibliog AIAA J 2:1673-5 S '64
Hall current plasma accelerator. G. L. Cann and G. L. Marlotte. bibliog diag AIAA J 2:1234-41 Jl '64
High-energy accelerators for nuclear-physics research. J. B. Adams. il plan diags Inst E E Proc 111:856-68 Ap '64; Discussion. G. C. Barney. 111:1624 S '64
Hot-wire calorimeter study of ion production and acceleration. V. A. Sandborn and L. V. Baldwin. bibliog diags AIAA J 2:660-6 Ap '64
Injection of intense neutral beams into a tandem accelerator. A. B. Wittkower and others. bibliog diags R Sci Instr 35:1-11 Ja '64
Kinematic method for determination of accelerator beam energies. B. M. Bardin and M. E. Rickey. bibliog R Sci Instr 35:902-3 Jl '64
Magnet excitation for a proton accelerator. G. O. Calabrese. diags IEEE Trans Com & Electronics 83:302-9 My '64
Nanosecond pulsing for Van de Graaff accelerators. C. D. Moak and others. bibliog il diags R Sci Instr 35:672-9 Je '64
Pulsed electromagnetic acceleration of metal plasmas. T. L. Rosebrock and others. bibliog il diags AIAA J 2:328-34 F '64
Simulating space radiation. E. A. Burrill. il diags Space/Aeronautics 41:78-87 My '64
Surface effects in a pulsed plasma accelerator. W. J. Guman and W. Truglio. il AIAA J 2:1342-3 Jl '64
Target reloading in neutron generators. H. Hollister. bibliog Nucleonics 22:68-9 Je '64
See also
Linear accelerators
Synchrotron

ACCELERATORS, Electron. See Electron accelerators

ACCELEROMETERS
Accelerometer calibration. J. Johansson. diags Instruments & Control Systems 36:79-81 D '63
Balanced beam improves angular accelerometer. D. K. Phillips and H. L. Roberson. diag Control Eng 11:91 Jl '64
Multiple accelerometer vibration control system. P. Longrigg. il diags Electronic Eng 35:817-21 D '63
Piezoelectric accelerometer. J. Willis and B. D. Jimerson. diag IEEE Proc 52:871-2 Jl '64
Rotating-reed accelerometer. J. V. Fitzgerald and F. J. Matusik. diags Instruments & Control Systems 36:89 D '63
Thumbtack accelerometer for the 1.5-150 kc range. P. Hertelendy and P. Reynard. diags R Sci Instr 35:1305-6 O '64
Two-phase accelerometer. J. Law, jr. and D. W. Novotny. bibliog il diags IEEE Trans Power Apparatus & Systems 83:614-19; Discussion. 651-2 Je '64
Unconventional inertial sensors. J. T. LaVan. il diags Space/Aeronautics 40:73-83 D '63

ACCIDENT law
See also
Negligence

ACCIDENT prevention. See Safety devices and measures

ACCIDENTS
High cost of not having an off-the-job safety program. M. Hamilton. Safety Maint 127:17-19+ Je '64

Making safety motivate; the personal importance of accident prevention. H. A. Rusk. Ind Med 33:631-2 S '64

Scraper knocks down a wall and a tractor drops a bridge. il Eng N 173:24 Ag 27 '64
See also
Automobile accidents
Aviation—Accidents
Building accidents
Eye—Injuries
Farm accidents
Fires
First aid in illness and injury
Negligence
Railroads—Accidents
Safety devices and measures
Safety education
Safety movement
Waterworks—Accidents

Costs

Business man's view of this safety business. S. Learned. Safety Maint 127:8-11 Ja '64
Hidden costs of off-duty accidents. R. B. Tuttle. Coal Age 69:114-15 Mr '64

Statistics

Safety effort of US water industry within the framework of the nationwide effort. H. K. Williford. Am Water Works Assn J 55:1394-6 N '63

ACCIDENTS, Industrial
Accident prevention for the younger worker. H. Huntley. il Safety Maint 127:10-13+ Ap '64
Injury experience, related employment data for sand and gravel industry in 1961. Pit & Quarry 56:39 Ja '64
Learning the hard way. Safety Maint 127:38 Ja '64
Lightning strokes and occupations; editorial. Ind Med 32:532-3 D '63
Minimum standards may not be enough. W. T. Evans. il Water & Sewage Works 110:405-6 N '63
Protective patches prevent knee injuries. T. N. Karlen. il Safety Maint 127:12-14+ Mr '64
Rehabilitation of the injured worker; editorial. J. E. Linster. Archives Environmental Health 8:632-3 My '64
Report on causes underlying refrigeration system accidents. Heating-Piping 35:59-60 N '63
Safety equipment for safer utilities. J. B. Stevens. bibliog il Am Water Works Assn J 55:1423-32 N '63; Abstract. Pub Works 95:152+ F '64
Stress of life; new focal point for understanding accidents. H. Selye. Ind Med 33:621-5 S '64
What are the environmental problems today? T. E. Ely. Ind Med 33:629-31 S '64
World congress in the prevention of occupational accidents and diseases, 4th, London; program and abstracts of papers. Engineering 198:34-5 Jl 10 '64
You can learn a lesson from others' accidents. Welding Eng 49:62+ My '64
See also
Building accidents
Coal mines and mining—Accidents and explosions
Dust explosions
Electric plants (central stations)—Accidents
Electricity, Injuries from
Employers liability
Explosions
First aid in illness and injury
Machinery—Safety devices
Mine accidents
Safety devices and measures
Safety education
Safety organization

Costs

Integrated loss program. Safety Maint 128:18 S '64

Statistics

Epidemiology of disabling work injuries in Israel. K. J. Mann and others. bibliog Archives Environmental Health 9:505-13 O '64
Injury rates stable in first quarter 1964. Safety Maint 128:10 S '64
1963 injury statistics. Safety Maint 127:25 Je '64
Second quarter injury rates down. Safety Maint 127:14+ F '64

ACCOUNTANTS, National conference of electric and gas utility. See National conference of electric and gas utility accountants

ACCOUNTING
See also
Billing
Cost accounting
Time keeping

also subdivision Accounting under special subjects, e.g.
Gas companies
Paper and pulp mills
Petroleum refineries
Public utilities
Textile mills

Mechanical aids

Computerized system improves machinery maintenance efficiency. L. W. Collins, jr. il diags Mach 70:101-10 My '64
Computers a growing factor in today's printing industry. D. L. Ritter. Inland Ptr/Am Lithogr 153:52 Jl '64
G.P.O. computer handles 6,000,000 telephone accounts. il Ind Electronics 2:444 S '64

ACCOUNTING—Mechanical aids—*Continued*

New direct accounting computer. Franklin Inst J 277:376-7 Ap '64

Paper feed mechanism for bank printer. diags Product Eng 35:32-3 Mr 2 '64

See also

Adding machines

ACCUMULATORS, Hydraulic. See Hydraulic accumulators

ACENAPHTHYLENE

Stereoregularity in ionic polymerization of acenaphthylene. V. M. Story and G. Canty. bibliog diags J Res Nat Bur Stand 68A:165-71 Mr '64

ACETAL resins. See Resinous products

ACETALDEHYDE

Acetaldehyde-2-deoxy-D-ribose 5-phosphate aldolase complex; comparison of the product obtained on borohydride reduction and hydrolysis with synthetic N^{ϵ}-ethyllysine. O. M. Rosen and others. bibliog Am Chem Soc J 86:2092-3 My 20 '64

Photochemical oxidations; acetaldehyde. H. S. Johnston and J. Heicklen. Am Chem Soc J 86:4254-8 O 20 '64

Analysis

Determination of acetaldehyde by colorimetry. D. J. Clancy and D. E. Kramm. Anal Chem 35:1987-8 N '63

Determination of methyl ketones and acetaldehyde by titration with hypobromite using Bordeaux indicator. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 36:384-6 F '64

Manufacture

Acetaldehyde from ethylene (Aldehyd G.m.b.H.); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:131 N '63

Acetaldehyde via ethylene oxidation gets tryout in single-stage design; process flowsheet. il Chem Eng 70:150-2 D 9 '63

ACETALS

Acetal resins' outlook not spectacular. il Chem & Eng N 42:25 Jl 27 '64

Acetals. R. H. Hardesty and E. H. Rodgers. il Machine Design 36:51-5 S 17 '64

Chemistry of 9-hydroxy-α-tocopherone, a quinone hemiacetal. W. Dürckheimer and L. A. Cohen. bibliog Am Chem Soc J 86:4388-93 O 20 '64

Correlations and anomalies in mass spectra; acetals. W. H. McFadden and others. bibliog Anal Chem 36:1031-7 My '64

Decomposition of acrolein acetals. J. H. Davies and P. Kirby. Chem & Ind p 194 F 1 '64

Determination of acetals in C_8 and C_{10} alcohols. J. G. O'Connor and M. S. Norris. Anal Chem 36:1391-2 Je '64

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

Glyoxal monoethyl hemiacetal. M. Zief and C. H. Schramm. Chem & Ind p234 F 8 '64

Ion pairs in acetolysis of *p*-chlorobenzhydryl acetate. A. F. Diaz and S. Winstein. Am Chem Soc J 86:4484-5 O 20 '64

Isolation of tetramethylcyclopropanone ethyl hemiketal from photolysis of tetramethylcyclobutanedione. H. G. Richey, jr. and others. Am Chem Soc J 86:3906-7 S 20 '64

Look at acetals. il diags Brit Plastics 37:356-61 Jl '64

Steroidal cyclic ketals; the preparation of steroidal Δ^4-3-ethyleneketals. J. J. Brown and others. bibliog Am Chem Soc J 86:2183-7 Je 5 '64

ACETAMIDE

Interaction of urea and acetamide with polyglycine. J. A. Rupley and M. Praissman. Am Chem Soc J 85:3526-7 N 5 '63

Ion exchange separation of acetamide from ammonium acetate and its determination. P. King and J. R. Simmler. bibliog Anal Chem 36:1837-8 Ag '64

Metabolism of α-chloro-*N,N*-diallyl-acetamide (CDAA) and 2-chlorallyl-*N,N*-diethyldithiocarbamate(CDEC) by plants. E. G. Jaworski. J Agri & Food Chem 12:33-7 Ja '64

Metabolism of carcinogen shows sex-linked differences. il Chem & Eng N 42:43-4 Je 8 '64

ACETANILIDES

Decomposition reactions of N-nitrosoacetanilide. D. B. Denney and others. Am Chem Soc J 86:3180-1 Ag 5 '64

Phenylation with nitrosoacetanilides. E. L. Eliel and J. G. Saha. bibliog Am Chem Soc J 86:3581-2 S 5 '64

ACETATES

Alkaline hydrolysis of polynuclear methyl arylacetates. N. Acton and E. Berliner. bibliog Am Chem Soc J 86:3312-18 Ag 20 '64

Catalysis of the decarboxylation of dimethyloxaloacetate by manganese (II), nickel (II), and their complexes. J. V. Rund and R. A. Plane. bibliog Am Chem Soc J 86:367-71 F 5 '64

Chemistry of cyclopropanols; the hydrolysis of cyclopropyl acetate and the synthesis of cyclopropanol. C. H. DePuy and L. R. Mahoney. bibliog Am Chem Soc J 86:2653-7 Jl 5 '64

Kinetics of proton exchange in aqueous solutions of acetate buffer. Z. Luz and S. Meiboom. bibliog Am Chem Soc J 85:3923-5 D 20 '63

Methanolysis of 2,4-dinitrophenyl acetate. W. R. Ali and others. Chem & Ind p809 My 9 '64

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Reaction of dichlorocarbene with enol acetates-novel 2,2-dichloro-1-steroidalcyclopropyl acetates. C. E. Cook and M. E. Wall. bibliog Chem & Ind p 1927-8 D 7 '63

See also

Butyl acetate
Chromyl acetates
Trifluoroacetates

ACETIC acid

Acetylation celluloses from pulping of wood in acetic acid. L. E. Herdle and others. bibliog Tappi 47:617-20 O '64

Determination of iron with diethylacetic acid by isotope dilution analysis. I. Mencis and T. R. Sweet. Anal Chem 35:1904-7 N '63

Electrochemical oxidation of acetic acid in the presence of aromatic hydrocarbons. S. D. Ross and others. bibliog Am Chem Soc J 86:4139-43 O 5 '64

Ionization and proton exchange of amines in acetic acid. E. Grunwald and E. Price. bibliog Am Chem Soc J 86:2965-77 Ag 5 '64

Nuclear magnetic resonance study of the products from an unusual reaction of norbornadiene, the ionic addition of N-chlorodiethylamine in sulfuric acid-acetic acid. R. S. Neale and E. B. Whipple. bibliog Am Chem Soc J 86:3130-7 Ag 5 '64

Thermodynamics of the thermal decomposition of acetic acid in the vapor phase. W. C. Child, jr. and A. J. Hay. bibliog Am Chem Soc J 86:182-7 Ja 20 '64

Thermometric titrations in glacial acetic acid. H. J. Keily and D. N. Hume. bibliog diag Anal Chem 36:543-51 Mr '64

See also

Phenoxyacetic acid
Trichloroacetic acid

Analysis

Determination of acetic acid in blood and other tissues by vacuum distillation and gas liquid chromatography. D. Lester. bibliog diag Anal Chem 36:1810-12 Ag '64

Spectrophotometric determination of traces of acetic acid in acetic anhydride. B. C. Mitra and others. Anal Chem 36:673-4 Mr '64

Manufacture

Peracetic acid; Inorganic chemicals div., FMC corporation. diag Hydrocarbon Process & Pet Refiner 42:209 N '63

ACETIC anhydride

Acetic anhydride by direct oxidation. G. L. Gobron and L. A. Alheritiere. flow sheets il diags Chem Eng Prog 60:55-7 S '64

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Rearrangement of aromatic N-oxides; rates and mechanism for the reaction of acridine N-oxide with acetic anhydride. J. H. Markgraf and M. K. Ahn. bibliog Am Chem Soc J 86:2699-702 Jl 5 '64

Analysis

Spectrophotometric determination of traces of acetic acid in acetic anhydride. B. C. Mitra and others. Anal Chem 36:673-4 Mr '64

ACETOLYSIS

Assisted acetolysis of tributyltin hydride. R. E. Dessy and others. bibliog Am Chem Soc J 86:28-32 Ja 5 '64

ACETOLYSIS—*Continued*
Azide group as a neighboring group; acetolysis of *trans*-2-azidocyclohexyl *p*-toluenesulfonate. A. Streitwieser, jr. and S. Pulver. bibliog Am Chem Soc J 86:1587-8 Ap 20 '64
Chemical behavior of charge-transfer complexes; phenanthrene catalysis in acetolysis of 2,4,7-trinitro-9-fluorenyl *p*-toluenesulfonate. A. K. Colter and others. bibliog Am Chem Soc J 86:3106-13 Ag 5 '64
Dissociated ions and ion pairs in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and others. Am Chem Soc J 86:2072-3 My 20 '64
Ion pairs in acetolysis of *p*-chlorobenzhydryl acetate. A. F. Diaz and S. Winstein. Am Chem Soc J 86:4484-5 O 20 '64
Nonclassical bridged ion in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and R. Baker. bibliog Am Chem Soc J 86:2071-2 My 20 '64
Proximity effects; stereospecific synthesis and acetolysis of *cis*- and *trans*-5-methylcyclooctyl tosylates. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3743-7 D 5 '63
Radiochemical study of the acetolysis of 3-phenyl-2-butyl tosylate. W. B. Smith and M. Showalter. Am Chem Soc J 86:4136-9 O 5 '64
Secondary α-deuterium isotope effects in acetolyses of *endo*- and *exo*-norbornyl and 2-(Δ^3-cyclopentenyl)ethyl arenesulfonates. C. C. Lee and E. W. C. Wong. bibliog Am Chem Soc J 86:2752-3 Jl 5 '64

ACETONE
Coulometric titration of organic acids in acetone. C. A. Streuli and others. bibliog Anal Chem 36:1371-2 Je '64
Detection and lifetime of enol-acetone in the photolysis of 2-pentanone vapor. G. R. McMillan and others. bibliog Am Chem Soc J 86:3602-5 S 20 '64
1,2:4,5-Di-*O*-isopropylidene-ribitol. K. W. Buck and others. Chem & Ind p 1623-4 S 19 '64
Experimental determination of the vapour-liquid equilibrium data for the system acetone-methanol-*iso*propanol. P. Allen and K. A. Pike. bibliog diag Ind Chem 40:260-6 My '64
Fading of rhodamine B in aqueous acetone solutions. B. Stevens and W. S. W. Bingham. bibliog Soc Dyers & Col J 79:632-5; Discussion. 636 D '63
Find acetone thermal conductivity; nomographs. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:148 Ap '64
Formation of 2,4-dimethoxy-6-methylphenylacetone from 3,5-dimethoxybenzyl isopropenyl ether; a new variant of the Claisen rearrangement. W. J. le Noble and P. J. Crean. Am Chem Soc J 86:1649-50 Ap 20 '64
Ion association in polyvalent symmetrical electrolytes; the conductance of manganese (II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64
Ion pairs and dissociated ions from trityl benzoate in moist acetone. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2720-1 Jl 5 '64
Large salt effects and mechanism in acetone and ether. S. Winstein and others. Am Chem Soc J 86:305-7 Ja 20 '64
Photochemical oxidations; acetone. H. S. Johnston and J. Heicklen. bibliog Am Chem Soc J 86:4249-54 O 20 '64
Polarography of derivatives of hydrazines with acetone. D. K. Banerjee and others. Anal Chem 36:2220-1 O '64
Solvent effects on the C^{13} chemical shift of the carbonyl group of acetone. G. E. Maciel and G. C. Ruben. bibliog Am Chem Soc J 85:3903-4 D 5 '63
Solvolysis of arylphenylmethyl chlorides in 90 per cent acetone. L. Verbit and E. Berliner. bibliog Am Chem Soc J 86:3307-12 Ag 20 '64
Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64
Transition metal complexes with aliphatic Schiff bases; copper(II) and nickel(II) complexes of 1,3-propanediamine and their reactions with acetone. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:223-5 Ja 20 '64
Unusual reactants highlight new isoprene process. il diag Chem Eng 71:78-80 S 28 '64

ACETONITRILE
Acetonitrile; time for review. F. Veatch and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-83 Ap '64
Nucleophilic displacement reactions in aromatic systems; rates and mechanism for the reaction of 2,4-dinitrochlorobenzene with 1,4-diazabicyclo[2.2.2]octane in acetonitrile. S. D. Ross and others. bibliog Am Chem Soc J 85:3999-4003 D 20 '63
Polarographic studies in acetonitrile and dimethylformamide. S. Wawzonek and others. bibliog Electrochem Soc J 111:74-8 Ja '64
Polarographic studies in acetonitrile and dimethylformamide; behavior of α,β-unsaturated carbonyl compounds. S. Wawzonek and A. Gundersen. bibliog Electrochem Soc J 111:324-8 Mr '64
Polarography in acetonitrile of titanium tetrachloride and tetraiodide in various supporting electrolytes. I. M. Kolthoff and F. G. Thomas. bibliog Electrochem Soc J 111:1065-74 S '64
Voltammetry and controlled potential oxidation of 3.4-dimethoxypropenylbenzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

ACETOPHENONE
Inhibition of light-induced reactions by mercaptans and disulfides; benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64
Microwave absorption and molecular structure in liquids; dielectric relaxation and intramolecular hydrogen bonding in hydroxy- and methoxyacetophenones. A. A. Antony and C. P. Smyth. bibliog Am Chem Soc J 86:156-8 Ja 20 '64

ACETOXY compounds
Acetoxyphosphines. L. K. Peterson and A. B. Burg. Am Chem Soc J 86:2587-91 Jl 5 '64
Synthesis of 26-acetoxy-22-nitro-5-cholesten-3β-ol-20-one. S. V. Kessar and A. L. Rampal. Chem & Ind p 1957-8 D 14 '63

ACETYLACETONE
Acetylacetonate anion; molecular orbital calculations in the Hückel and self-consistent field approximations. L. S. Forster. bibliog Am Chem Soc J 86:3001-4 Ag 5 '64
Isotropic proton magnetic resonance shifts in π-bonding ligands coordinated to paramagnetic nickel(II) and cobalt(II) acetylacetonates. W. D. Horrocks, jr. and others. bibliog Am Chem Soc J 86:3031-8 Ag 5 '64
Rates and mechanism of substitution reactions of palladium(II)-acetylacetonate complexes. R. G. Pearson and D. A. Johnson. bibliog Am Chem Soc J 86:3983-9 O 5 '64
Reaction between sodium succinate and acetylacetone. G. H. Suverkropp and H. Wynberg. bibliog Chem & Ind p 1803-4 N 9 '63
Tetrameric structure of anhydrous, crystalline cobalt(II) acetylacetonate. F. A. Cotton and R. C. Elder. Am Chem Soc J 86:2294-5 Je 5 '64

ACETYL chloride
Reaction of ethers with acetyl chloride and the identification of products by gas chromatography. P. Waszeciak and H. G. Nadeau. bibliog Anal Chem 36:764-7 Ap '64

ACETYLCHOLINESTERASE
Betaines of 3-hydroxyproline; assignment of configuration and inhibition of acetylcholinesterase. F. Sakiyama and others. bibliog Am Chem Soc J 86:1842-4 My 5 '64

ACETYL compounds
Decomposition of acetyl peroxide in solution; kinetics and use of radical traps. H. J. Shine and others. bibliog Am Chem Soc J 85:3613-21 N 20 '63
Mass spectra of three acetyl derivatives of 3.4-dideoxyaldopentose. M. Venugopalan and C. B. Anderson. Chem & Ind p370-1 F 29 '64
Studies on unimolecular layers of modified proteins; bovine serum albumin and its acetyl derivatives. M. Muramatsu and H. Sobotka. bibliog diags J Colloid Sci 18:625-35 S '63

ACETYLMETHYLCARBINOL. See Hydroxybutanone

ACETYL nitrate
Reaction of acetyl nitrate with alcohol derivatives of fatty acids; a synthesis of nitrate esters. D. C. Malins and others. bibliog Am Oil Chem Soc J 41:44-6 Ja '64

ACETYLSALICYLIC acid. See Aspirin

ACETYLATION

Acetylation celluloses from pulping of wood in acetic acid. L. E. Herdle and others. bibliog Tappi 47:617-20 O '64

Acetylation of citronella oil. V. D. Johnston. Am Perfumer 79:63-4 Je '64

Aromatic substitution; Friedel-Crafts acetylation of benzene, alkylbenzenes, and halobenzenes with acetyl halides and acetic anhydride. G. A. Olah and others. bibliog Am Chem Soc J 86:2198-202 Je 5 '64

Chromatographic separations of acetylated sugars. C. D. Hurd and H. T. Miles. bibliog Anal Chem 36:1375-8 Je '64

Hydroxyl group determination in high molecular weight alcohols and complex organic mixtures. D. E. Jordan. bibliog Am Oil Chem Soc J 41:500-2 Jl '64

Kinetics of acid catalyzed acetylation of cellulose. W. C. Frith. bibliog il Tappi 46: 739-44 D '63

Preparation and acetylation of 2-aminobenzothiazole 3-oxide. T. A. Liss. bibliog Chem & Ind p368-9 F 29 '64

Study of base-catalyzed and salt-catalyzed acetylation of hydroxyl groups. G. H. Schenk and others. bibliog Anal Chem 36: 914-19 Ap '64

ACETYLENE

Acetylene black is now a domestic product. il Chem Eng 71:80 Je 22 '64

Addition of acylcobalt carbonyls to acetylenes; π-(2,4)-(alkeno-4-lactonyl)cobalt tricarbonyl derivatives and their conversion to 2,4-pentadieno-4-lactones. R. F. Heck. bibliog Am Chem Soc J 86:2819-24 Jl 20 '64

Carbide begins acetylene black production. il Chem & Eng N 42:23 My 18 '64

Catalytic syntheses of acrylic acid and ethyl acrylate from acetylene, carbon monoxide, and water or ethanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog Ind & Eng Chem Proc Design 3:169-76 Ap '64

Catalytic synthesis of methyl acrylate from acetylene, carbon monoxide and methanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog J Ap Chem 13:498-505 N '63

Homogeneously catalyzed hydration of acetylenes by mercuric perchlorate-perchloric acid; evidence for a bis-(acetylene)-mercuric ion complex as an intermediate. W. L. Budde and R. E. Dessy. bibliog diag Am Chem Soc J 85:3964-70 D 20 '63

Mass spectrometric study of photoionization; apparatus and initial observations on acetylene, acetylene-d_2, benzene, and benzene-d_6. V. H. Dibeler and R. M. Reese. bibliog il diag J Res Nat Bur Stand 68A:409-17 Jl '64

Mechanism of the electro-oxidation of acetylene on platinum. J. W. Johnson and others. bibliog diag Electrochem Soc J 111: 863-70 Jl '64

Microwave spectrum, dipole moment and polarizability of acetylene-d_1. J. S. Muenter and V. W. Laurie. bibliog Am Chem Soc J 86:3901-2 S 20 '64

Reaction of methylene radicals with acetylene in the gas phase. T. Terao and others. bibliog Am Chem Soc J 85:3919-20 D 20 '63

Reactions of acetylenes on noble metal catalysts in the absence of hydrogen. D. Bryce-Smith. Chem & Ind p239 F 8 '64

Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64

Reduction of multiple bonds by low-valent transition metal ions; the homogeneous reduction of acetylenes by chromous sulfate. C. E. Castro and R. D. Stephens. bibliog Am Chem Soc J 86:4358-63 O 20 '64

Transfer reactions involving boron; dihydroboration of acetylenes; proposed product formation involving participation by neighboring boron during hydrolysis. D. J. Pasto. bibliog Am Chem Soc J 86:3039-47 Ag 5 '64

Unusual reactants highlight new isoprene process. il diag Chem Eng 71:78-80 S 28 '64

See also

Oxyacetylene apparatus
Oxyacetylene flame
Oxyacetylene welding

Manufacture

Acetylene and ethylene (Hoechst HTP process); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:135 N '63

Acetylene and ethylene: Research association of polymer raw material, Chiyoda chemical engineering and construction co. diag Hydrocarbon Process & Pet Refiner 42:134 N '63

Acetylene; Badische anilin- & soda-fabrik AG. diag Hydrocarbon Process & Pet Refiner 42:132 N '63

Acetylene (BASF); Chemical construction corp. diag Hydrocarbon Process & Pet Refiner 42:133 N '63

Acetylene from plasma jets. J. H. S. Haggin. Ind & Eng Chem 56:10+ Ap '64

Acetylene; Hydrocarbon research, inc., Delhi-Taylor oil corp. diag Hydrocarbon Process & Pet Refiner 42:136 N '63

Acetylene; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:137 N '63

British Geon will switch to naphtha for acetylene. Chem & Eng N 42:62+ Jl 20 '64

Plasma acetylene process developed. il Chem & Eng N 42:42 Ja 20 '64

Reactions of carbon vapor with hydrogen and with methane in a high intensity arc. R. F. Baddour and J. L. Blanchet. bibliog Ind & Eng Chem Proc Design 3:258-66 Jl '64

Selected process flow sheets for petrochemicals. Oil & Gas J 62:112 S 7 '64

Waste problem whipped at acetylene plants; Airco Chemical. B. C. Herod. il diag Pit & Quarry 56:98-9+ My '64

ACETYLENE compounds

Limiting hydrogen absorption by and dissolution of steel during pickling. R. M. Hudson and K. J. Riedy. bibliog Metal Finishing 62:48-52 Jl '64

New general heterocycle synthesis; use of acetylene dicarboxylic esters. J. B. Hendrickson and others. bibliog Am Chem Soc J 86:107-11 Ja 5 '64

Novel acetylene tungsten carbonyl complexes. D. P. Tate and others. bibliog diags Am Chem Soc J 86:3261-5 Ag 20 '64

Reaction of dimethyl acetylenedicarboxylate with malonic acid derivatives. P. Bamfield and others. Chem & Ind p 1313-14 Jl 18 '64

Reaction of monosubstituted acetylenes with trialkylaluminiums. T. Mole and J. R. Surtees. Chem & Ind p 1727-8 O 26 '63

Synthesis and electronic properties of polypyridylacetylenes. Y. Okamoto and D. Alia. bibliog Chem & Ind p 1311-12 Jl 18 '64

ACID mists. See Mists, Acid

ACID resisting materials

Developing a new alloy. R. B. Leonard. il diag Chem Eng 71:150+ O 26 '64

How to prevent attack by acids/alkalis. H. G. Bennett. il diag Can Chem Process 48:71-4 Ja '64

Japanese stainless steel with acid resistance. F. Tsukamoto. il Metal Prog 85:107-8 Ja '64

Liquid adhesion barrier boosts pickler life; Pliosil. il Steel 155:88 S 28 '64

New stainless fights hot acids. Iron Age 193: 82 F 6 '64

New stainless steel resists sulfuric acid. Materials in Design Eng 59:133+ Mr '64

Resistance of materials to corrosion. Materials in Design Eng 60:45-61 Mid-O '64

Resists acids and solvents; paint called Synth-Epoxy S-16. il Can Chem Process 48: 24 Mr '64

Simple acidproof plastic pump for slurries. K. E. Cox. diag Chem Eng 71:93 Ag 31 '64

Stainless lining multiplies sulfuric pickle tank life. il diag Steel 154:48+ Je 1 '64

See also

Steel, Stainless

ACID waste

Dual drain pipes separate acids, save solvents; Hughes Aircraft's Semiconductor division. il Plant Eng 18:134-5 Je '64

Neutralizing acid waste before dumping; question and answer. Dom Eng 203:118 Je '64

ACIDATION of oil wells. See Petroleum—Acidation of wells

ACIDITY

Acidity function and reaction rates in mixed solvents. G. Corsaro. bibliog Chem & Ind p75-6 Ja 11 '64

Acidity of hydrocarbons; exchange rates of ring-substituted toluene-α-t's with lithium cyclohexylamide in cyclohexylamine. A. Streitwieser, jr. and H. F. Koch. bibliog Am Chem Soc J 86:404-9 F 5 '64

Acidity of hydrocarbons; relative stabilities of triphenylmethyl and bridgehead triptycyl carbanions. A. Streitwieser, jr. and others. Am Chem Soc J 86:3578-9 S 5 '64

Effect of acidity on the differential capacity of polarized platinum electrodes. M. C. Banta and N. Hackerman. bibliog Electrochem Soc J 111:114-19 Ja '64

ACIDITY—*Continued*

Kinetics and mechanisms of reactions of chromium(VI) and iron(II) species in acidic solution. J. H. Espenson and E. L. King. bibliog Am Chem Soc J 85:3328-33 N 5 '63

Protonation of indoles; basicity studies; the dependence of acidity functions on indicator structure. R. L. Hinman and J. Lang. bibliog Am Chem Soc J 86:3796-806 S 20 '64

Reactivity of diketene and its supposed acidity. J. M. Briody and D. P. N. Satchell. Chem & Ind p893 My 23 '64

Varietal and location influence on acid composition of tomato fruit. D. B. Bradley. bibliog J Agri & Food Chem 12:213-16 My '64

ACIDS

Acid-catalyzed rearrangement of diphenylbicyclo[6.1.0]nona-2,4,6-trien-9-ylcarbinol. K. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:1159-60 Mr 20 '64

Acid mine-drainage control; principles and practices guide; case histories. bibliog il plan diags Coal Age 69:81-4+ My; 72-7 Je '64

Anomalous formation of Lewis salts from bases and protonating acids. D. Cook. bibliog Chem & Ind p 1259 Jl 11 '64

Carbon-carbon bond fission in cyclopropanes; the acid-promoted opening of the three-membered ring in bicyclo[4.1.0]heptane, bicyclo[3.1.0]hexane, and bicyclo[2.1.0]pentane. R. T. LaLonde and L. S. Forney. bibliog Am Chem Soc J 85:3767-71 D 5 '63

Carbonium ions; the direct observation of saturated and unsaturated acyl cations and their equilibria with protonated acids. N. C. Deno and others. bibliog Am Chem Soc J 86:4370-2 O 20 '64

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

Difference effect on magnesium dissolving in acids. W. J. James and others. bibliog Electrochem Soc J 110:1117-20 N '63

Dihalomethylenation of protonic acids with phenyl(trihalomethyl)mercury compounds. D. Seyferth and others. bibliog Am Chem Soc J 86:2961-3 Jl 20 '64

Disintegration of iron and steel while dissolving in acids. M. E. Straumanis and others. bibliog il Electrochem Soc J 111:1292-3 N '64

Effect of mineral acid medium upon f_{SH^+}/f_{tr^+}. W. M. Schubert and others. Am Chem Soc J 86:2520-1 Je 20 '64

Hard and soft acids and bases. R. G. Pearson. bibliog diags Am Chem Soc J 85:3533-9 N 20 '63

Hydrogen absorption by and dissolution rate of low-carbon steel in sulfuric, hydrochloric, phosphoric and nitric acids. R. M. Hudson. bibliog Corrosion 20:245-51 Ag '64

Hydrogen exchange of azulenes; acid-base equilibria in aqueous solutions. F. A. Long and J. Schulze. bibliog Am Chem Soc J 86:327-31 F 5 '64

Hydrogen exchange of azulenes; structure of the conjugate acids of azulenes. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:322-6 F 5 '64

Lewis acid induced rapid allylic rearrangements of 2-halo-3-hydroxy-2,4-dimethyl cyclobutenones; an unusually reactive α haloketone. D. G. Farnum and others. bibliog Am Chem Soc J 86:673-9 F 20 '64

Medium effects on the dissociation of weak acids in methanol-water solvents. E. E. Sager and others. bibliog J Res Nat Bur Stand 68A:305-12 My '64

Mercuration of aniline in acidic solution; mercury(II) complexes with mercurated aniline derivatives. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4318-22 O 20 '64

Nature of chromium(VI) in acid solution and its relation to alcohol oxidation. D. G. Lee and R. Stewart. bibliog Am Chem Soc J 86:3051-6 Ag 5 '64

Oxidation of vanadium(IV) by chromium(VI) in acidic solution. J. H. Espenson. Am Chem Soc J 86:1883-4 My 5 '64

Rate of acid removal by liquid ion exchangers. J. L. Wert and others. bibliog A I Ch E J 9:857-8+ N '63

Reaction of vinylmercuric iodide with nonhalogen acid. M. M. Kreevoy and R. A. Kretchmer. bibliog Am Chem Soc J 86:2435-40 Je 20 '64

Reactions in strong acids; new concept in amino acid chemistry; C-derivatization of amino acids. J. Kollonitsch and others. bibliog Am Chem Soc J 86:1857-8 My 5 '64

Reactions of Lewis acids with diaroyl peroxides. D. Z. Denney and others. bibliog Am Chem Soc J 86:46-50 Ja 5 '64

Refinery features ammonia and acid pressure leaching and hydrogen reduction; process flowsheet. Can Chem Process 48:57-8 S '64

Role of cementite in the acidic corrosion of steel. D. N. Staicopolus. diag Electrochem Soc J 110:1121-4 N '63

Salt effects and medium effects on indicator acid-base equilibria in a methanol-water solvent. D. Rosenthal and others. bibliog Am Chem Soc J 86:549-54 F 20 '64

Solvent deuterium isotope effects on acid-base equilibria. P. Salomaa and others. bibliog Am Chem Soc J 86:1-7 Ja 6 '64

Sorption of acids by wool from mixtures of acids. P. Larose and R. Donovan. bibliog Soc Dyers & Col J 78:24-7; 79:95-7, 418-21; 80:322-6 Ja '62, Mr, S '63, Je '64

Theories of acids and bases. G. T. Austin and H. F. Austin. bibliog diag Chem Eng 71:105-8+ Ag 3 '64

Trivalency of gallium ions formed during the dissolution of the metal in acids. M. E. Straumanis and K. A. Poush. bibliog il diags Electrochem Soc J 111:795-8 Jl '64

See also

Acidity
Boronic acids
Hydrochloric acid
Picolinic acid
Sulfuric acid
Xenic acid

Analysis

Interpretation of potentiometric titrations of weak acids in methanol-water solvents. K. C. Ong and others. bibliog Anal Chem 36:1971-2 S '64

Quantitative infrared analysis of some water-soluble acids and salts. M. Dolinsky and C. H. Wilson. Anal Chem 36:1383-5 Je '64

ACIDS, Fatty

Adenosine triphosphatase and ATP-P_i exchange in mitochondria of essential fatty acid-deficient rats. R. M. Johnson. bibliog J Nutrition 81:411-14 D '63

Antimycotic activity of some fatty acid derivatives. A. F. Novak and others. bibliog Am Oil Chem Soc J 41:503-5 Jl '64

Application of specific response factors in the gas chromatographic analysis of methyl esters of fatty acids with flame ionization detectors. R. G. Ackman and J. C. Sipos. bibliog Am Oil Chem Soc J 41:377-8 My '64

Cargill enters fatty nitrogen field. il Chem & Eng N 42:33-4 My 25 '64

Changes in retail market food supplies in the United States in the last seventy years in relation to the incidence of coronary heart disease, with special reference to dietary carbohydrates and essential fatty acids. M. A. Antar and others. Am J Clinical Nutrition 14:169-78 bibliog (p 177-8) Mr '64

Changes in the fatty acid pattern of the adipose tissue of obese subjects while on a reducing regimen. I. Macdonald and P. J. C. Barry. Am J Clinical Nutrition 15:158-60 S '64

Chromatographic separation of *cis* and *trans* fatty esters by argentation with a macroreticular exchange resin. E. A. Emken and others. bibliog diag Am Oil Chem Soc J 41:388-90 My '64

Colorimetric method for determining free fatty acids in vegetable oils. D. Baker. Am Oil Chem Soc J 41:21-2 Ja '64

Continuous production of cylic fatty acids. R. E. Beal and others. diag Am Oil Chem Soc J 41:683-5 O '64

Copolymerization of methyl esters of unsaturated C_{18} fatty acids. F. R. Mayo and C. W. Gould. bibliog Am Oil Chem Soc J 41:25-9 Ja '64

Dietary considerations with regard to type of fat. L. W. Kinsell and others. il diags Am J Clinical Nutrition 15:198-204 O '64

Dietary fat and the structure and properties of rat erythrocytes; response of erythrocyte fatty acids to various dietary fats. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 82:329-32 Mr '64

Effect of degree of fatty acid unsaturation in tocopherol deficiency-induced creatinuria. L. A. Witting and M. K. Horwitt. bibliog J Nutrition 82:19-33 Ja '64

ACIDS, Fatty—*Continued*

Effect of oleic and linoleic acids on the absorption of saturated fatty acids in the chick. R. J. Young and R. L. Garrett. bibliog J Nutrition 81:321-9 D '63
Effect of oxygen and other factors in selenium catalyzed isomerization of unsaturated fatty acid esters. V. V. R. Subrahmanyam and F. W. Quackenbush. bibliog Am Oil Chem Soc J 41:275-9 Ap '64
Efficient production of biosynthetically labeled fatty acids. T. L. Mounts and H. J. Dutton. bibliog diag Am Oil Chem Soc J 41:537-9 Ag '64
End-use evaluation of some copolymers and terpolymers of vinyl ethers of linseed conjugated fatty alcohols. R. H. Dent and others. bibliog Am Oil Chem Soc J 40:713-16 D '63
Fatty acid components of fried foods and fats used for frying. L. T. Kilgore and W. D. Luker. bibliog Am Oil Chem Soc J 41:496-500 Jl '64
Fatty acid composition of adipose tissue in normal and abnormal subjects. A. G. A. Heffernan. bibliog Am J Clinical Nutrition 15:5-10 Jl '64
Fatty acid composition of oils from 21 species of marine fish, freshwater fish and shellfish. E. H. Gruger, jr. and others. bibliog Am Oil Chem Soc J 41:662-7 O '64
Fatty acid composition of plasma and liver lipid components as influenced by diet in the growing chick. G. A. Leveille and others. bibliog J Nutrition 81:357-62 D '63
Fatty acid composition of rice lipids by gas-liquid chromatography. J. C. Lugay and B. O. Juliano. bibliog Am Oil Chem Soc J 41:273-5 Ap '64
Fatty acid sizing of hardboards. G. D. Sinclair. bibliog Tappi 47:579-83 S '64
Fatty acids, fatty alcohols, wax esters, and methyl esters from crambe abyssinica and lunaria annua seed oils. T. K. Miwa and I. A. Wolff. bibliog Am Oil Chem Soc J 40:742-4 D '63
Fatty acids of pimiento pepper seed oil. J. E. Marion and A. H. Dempsey. il Am Oil Chem Soc J 41:548-9 Ag '64
Fatty acids of serum and adipose tissue in six groups eating natural diets containing 7 to 40 per cent fat. R. F. Scott and others. bibliog Am J Clinical Nutrition 14:280-90 My '64
Fatty alcohols poised for growth. il Chem & Eng N 42:31+ Je 8 '64
Fractionation of West Coast tall oil. W. J. Janes, jr. Tappi 47:sup 122A-4A My '64
Gas chromatography of *cis-trans* fatty acid isomers on nitrile silicone capillary columns. C. Litchfield and others. bibliog Am Oil Chem Soc J 41:52-5 Ja '64
Gas chromatography of free fatty acids. J. G. Nikelly. bibliog Anal Chem 36:2244-8 N '64
Gas-liquid chromatography of polar fatty derivatives. R. A. Morrissette and W. E. Link. bibliog Am Oil Chem Soc J 41:415-18 Je '64
Genetic control of fatty acid biosynthesis in rapeseed (brassica napus L.) R. K. Downey and B. M. Craig. bibliog Am Oil Chem Soc J 41:475-8 Jl '64
Hydrogenation of conjugated fatty acids with hydrazine. T. Takagi and B. M. Craig. bibliog Am Oil Chem Soc J 41:660-1 O '64
Hydroxy unsaturated oils; preparation and characterization of methyl dimorphecolate and methyl lesquerolate from dimorphotheca and lesquerella oils. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41:430-3 Je '64
Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63
Ionization of monolayers of fatty acids from C_{14} to C_{18}. J. A. Spink. bibliog J Colloid Sci 18:512-25 Ag '63
Isomerization of mono ethenoid acids during hydrogenation. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:150-2 F '64
Long chain α-phosphono fatty acids, salts and esters. E. W. Maurer and others. bibliog Am Oil Chem Soc J 41:205-8 Mr '64
Manufacture of soap from fatty acids. A. B. Herrick and E. Jungermann. bibliog diags Am Oil Chem Soc J 40:615-18 N '63
Metabolism of 4,7,10,13,16-docosapentaenoic acid in the essential fatty acid-deficient rat. B. Verdino and others. bibliog J Nutrition 83:234-8 Jl '64
Methyl oct-*cis*-2-enoate; its synthesis, GLC behaviour and infrared spectra. O. Mercuri and others. bibliog Am Oil Chem Soc J 41:89-92 F '64
Minor component fatty acids of common vegetable oils. D. F. Kuemmel. bibliog Am Oil Chem Soc J 41:667-70 O '64
Monolayer properties of fatty acids. E. D. Goddard and J. A. Ackilli. bibliog J Colloid Sci 18:585-95 Ag '63
Muscular dystrophy; a problem in polyunsaturated fatty acid metabolism? A. J. Siedler and others. Am J Clinical Nutrition 15:187-8 S '64
Naturally occurring all-*cis* 6,9,12,15-octadecatetraenoic acid in plant oils. B. M. Craig and M. K. Bhatty. bibliog Am Oil Chem Soc J 41:209-11 Mr '64
Occurrence of 6,9,12,15-octadecatetraenoic acid in echium plantagineum seed oil. C. R. Smith, jr. and others. bibliog il Am Oil Chem Soc J 41:290-1 Ap '64
Physical properties of fatty acid methyl esters. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:142-5, 426-9, 514-15, 524-6, 675-8 F, Je-Ag, O '64
Plasma free fatty acids in kwashiorkor and the pathogenesis of the fatty liver. B. Lewis and others. bibliog Am J Clinical Nutrition 15:161-8 S '64
Preparation and analysis of some food fats and oils for fatty acid content by gas-liquid chromatography. K. J. Hivon and others. bibliog Am Oil Chem Soc J 41:362-6 My '64
Preparation and plasticizing characteristics of piperidides of long chain fatty acids and N-fatty acyl derivatives of other cyclic imines. R. R. Mod and others. bibliog Am Oil Chem Soc J 41:237-40 Mr '64
Preparation of phosphorus esters of long-chain hydroxy fatty acids. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41:9-13 Ja '64
Promotion of dropwise condensation by monolayers of radioactive fatty acids. D. W. Tanner and others. bibliog il J Ap Chem 14:361-9 S '64
Quantitative consideration of the effect of polyunsaturated fatty acid content of the diet upon the requirements for vitamin E. P. L. Harris and N. D. Embree. Am J Clinical Nutrition 13:385-92 bibliog(p391-2) D '63
Reaction of acetyl nitrate with alcohol derivatives of fatty acids; a synthesis of nitrate esters. D. C. Malins and others. bibliog Am Oil Chem Soc J 41:44-6 Ja '64
Reaction of phosphorous trichloride with fatty acids. A. R. Galbraith and others. bibliog Am Oil Chem Soc J 41:104-7 F '64
Reactions of fatty acids and their derivatives in alkalis. M. F. Ansell and B. C. L. Weedon. Ind Chem 40:70-3 F '64
Role of polyunsaturated fatty acids in nutrition. F. A. Kummerow. bibliog Food Tech 18:839-43 Je '64
Search for new industrial oils; cuphea, a versatile source of fatty acids. R. W. Miller and others. bibliog Am Oil Chem Soc J 41:279-80 Ap '64
Some new products including dibasic and tribasic acids, from conjugated fatty esters; abstract and discussion. P. A. Toseland and R. V. Crawford. Chem & Ind p244-5 F 8 '64
Sources of variation in repeated measurement of plasma free fatty acids in rested fasting subjects. L. E. Hollister and J. E. Overall. bibliog Am J Clinical Nutrition 15:149-57 S '64
Structure of polyenoic odd- and even-numbered fatty acids of mullet (mugil cephalus). N. Sen and H. Schlenk. bibliog Am Oil Chem Soc J 41:241-7 Mr '64
Studies of the metabolism of polyunsaturated acids by short-term experiments. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:149-54 O '64
Studies on the changes in fatty acid composition in developing seeds; ricinus communis. K. S. Chandra. bibliog il Am Oil Chem Soc J 41:251-4 Ap '64
Studies on the metabolism of linoelaidic acid in the essential fatty acid-deficient rat. O. S. Privett and M. L. Blank. bibliog il diag Am Oil Chem Soc J 41:292-7 Ap '64
Study of the hypocholesterolemic activity of the ethyl esters of the polyunsaturated fatty acids of cod liver oil in the rat. S. G. Kahn. bibliog J Nutrition 83:262-6 Jl '64

ACIDS, Fatty—*Continued*

Transport of water through monolayers of long-chain *n*-paraffinic alcohols. V. K. La Mer and others. bibliog J Colloid Sci 19: 673-84 O '64

See also

Linoleic acid
Oleic acid
Stearic acid
Vernolic acid

Analysis

Analysis of fatty acid-ethylene oxide adducts by countercurrent distribution. F. P. Wetterau and others. bibliog Am Oil Chem Soc J 41:383-7 My '64

Analysis of volatile fatty acids in sewage by gas chromatography. E. Hindin and others. bibliog Water & Sewage Works 111:92-5 F '64

Applications of mass spectroscopy in fatty acid and lipid chemistry. R. T. O'Connor. Am Oil Chem Soc J 41:sup4+ Je '64

Chromatographic analysis of sucrose esters of long chain fatty acids. H. Mima and N. Kitamori. bibliog Am Oil Chem Soc J 41: 198-200 Mr '64

Determination of the glyceride structure of fats; distribution of individual saturated and unsaturated acids. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:445-8 Je '64

Essential fatty acid contents of various fats; interpretations of values by physico-chemical tests. R. B. Alfin-Slater and D. Melnick. bibliog Am Oil Chem Soc J 41:145-50 F '64

Essential fatty acid requirement of infants and the assessment of their dietary intake of linoleate by serum fatty acid analysis. R. T. Holman and others. bibliog Am J Clinical Nutrition 14:70-5 F '64

Identification of the major polyunsaturated C_{18} acids of marine oils by GLC separation factors on normal and organosilicone polyesters. R. G. Ackman and P. M. Jangaard. bibliog Am Oil Chem Soc J 40:744-5 D '63

Methods for determination of cyclopropenoid fatty acids; infrared absorption method. F. C. Magne and others. Anal Chem 36:681-2 Mr '64

Methods for the determination of cyclopropenoid fatty acids. F. C. Magne and others. bibliog Am Oil Chem Soc J 40:716-20; 41:309-11 D '63, Ap '64

Procedure for the simultaneous quantitative determination of glycerol and fatty acid contents of fats and oils. M. E. Mason and others. Anal Chem 36:587-90 Mr '64

Rapid, accurate microanalysis of the lower fatty acids with particular reference to serial determination. F. A. Vandenheuvel. bibliog il diags Anal Chem 36:1930-6 S '64

Silicic acid-silver nitrate chromatography as an enrichment technique in fatty acid analysis. M. K. Bhatty and B. M. Craig. Am Oil Chem Soc J 41:508-10 Jl '64

ACIDS, Organic

Coulometric titration of organic acids in acetone. C. A. Streuli and others. bibliog Anal Chem 36:1371-2 Je '64

Cyclization of geranic acids; preparation of a cyclobutanone. J. J. Beereboom. Am Chem Soc J 85:3525-6 N 5 '63

Effect of yellow organic acids on iron and other metals in water. J. Shapiro. bibliog Am Water Works Assn J 56:1062-82 Ag '64

Effects of aliphatic acids and their salts on the flame spectrometric emission of calcium. A. C. West. bibliog Anal Chem 36: 310-14 F '64

Halogenated aliphatic acids. J. K. Leasure. bibliog J Agri & Food Chem 12:40-3 Ja '64

Identification of the methyl esters of the stable Krebs cycle acids by gas liquid chromatography. H. H. Luke and others. bibliog Anal Chem 35:1916-18 N '63

Individual volatile acids in anaerobic treatment. P. L. McCarty and others. bibliog diags WPCF J 35:1501-16 D '63

New derivatives for characterization of organic acids. R. G. Taborsky. Anal Chem 36:1663-4 Jl '64

Nonvolatile organic acids and core breakdown of Bartlett pears. M. W. Williams and M. E. Patterson. bibliog J Agri & Food Chem 12:80-3 Ja '64

Organic acids by column chromatography. F. G. Pohland and B. H. Dickson, jr. bibliog Water Works & Wastes Eng 1:54-5+ Jl '64

Photochemistry of α-keto acids and α-keto esters. P. A. Leermakers and G. F. Vesley. bibliog Am Chem Soc J 85:3776-9; 86:1768-71 D 5 '63, My 5 '64

Streptolydigin: streptolic acid. K. L. Rinehart, jr. and others. bibliog Am Chem Soc J 85:4035-7 D 20 '63

Streptolydigin: ydiginic acid. K. L. Rinehart, jr. and D. B. Borders. bibliog Am Chem Soc J 85:4037-8 D 20 '63

Structure of pulvilloric acid. J. F. W. McOmie and others. bibliog Chem & Ind p 1689-90 O 19 '63

Wittig reaction; synthesis of β,γ-unsaturated acids. H. S. Corey, jr. and others. bibliog Am Chem Soc J 86:1884-5 My 5 '64

See also

Adipic acid
Benzoic acid
Carboxylic acids
Cinnamic acid
Croconic acid
Eburicoic acid
Fumaric acid
Maleic acid
Muconic acid
Resin acids
Terephthalic acid

Analysis

Determination of volatile acids by gas chromatography. J. F. Andrews and others. bibliog Water & Sewage Works 111:206-10 Ap '64

Identification of alcohols and volatile organic acids from natural orange essence. J. A. Attaway and others. bibliog J Agri & Food Chem 12:118-21 Mr '64

Organic acids in digester liquor by chromatography. A. F. Westerhold. WPCF J 35: 1431-3 N '63

Organic acids of rice and some other cereal seeds. D. F. Houston and others. bibliog J Agri & Food Chem 11:512-17 N '63

ACNE

Acne treatment. Drug & Cosmetic Ind 95:619 O '64

Treating acne; abstract. M. J. Tye and B. K. Fisher. Drug & Cosmetic Ind 94:774 My '64

ACOUSTIC laboratories. See Sound laboratories

ACOUSTIC logging. See Petroleum—Well logging

ACOUSTIC resonance. See Resonance

ACOUSTICS. See Sound

ACOUSTICS, Architectural

Acoustics and miniature concert halls. H. Lawrence. il Audio 48:8+ Jl '64

Acoustics; what happened at Philharmonic Hall? il plans Arch Forum 119:118-23 D '63

Added warmth of Festival hall tone. il Engineering 197:718 My 22 '64

Architectural acoustics. V. O. Knudsen. il diags Sci Am 209:78-92 N '63

Basic course in commercial sound. N. H. Crowhurst. diags Audio 48:33-6 Ap; 41-4 My; 33-6 Je; 28-31+ Jl; 19-22+ Ag; 35-7 S; 75-8 O; 43-4+ N '64

Cinerama theatre acoustics. M. Rettinger. il diags SMPTE J 73:566-8 Jl '64

Correlation techniques in studio testing. A. N. Burd. diags Radio & Electronic Eng 27:387-95 My '64

Design of building products; contributions of other professions. il Prog Arch 45:175-6 Je '64

New perspectives with unified ceilings. R. F. Coyne. il diags Air Cond Heat & Ven 61: 79-82 My '64

Purist tackles room acoustics. J. W. Linsley. il Audio 48:19-21+ Ap '64

Reverberation and ambiophony. G. A. Briggs. il Radio-Electronics 35:42-4 O '64

See also

Sound absorbent materials

ACOUSTOELECTRIC effect. See Sound waves

ACRIDINE

Rearrangement of aromatic N-oxides; rates and mechanism for the reaction of acridine N-oxide with acetic anhydride. J. H. Markgraf and M. K. Ahn. bibliog Am Chem Soc J 86:2699-702 Jl 5 '64

Study of two crystalline forms of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and R. J. Robinson. Anal Chem 36:2195-6 O '64

X-ray fluorescence spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and others. bibliog Anal Chem 36:1098-100 My '64

ACROLEIN

Decomposition of acrolein acetals. J. H. Davies and P. Kirby. Chem & Ind p 194 F 1 '64

ACRYLAMIDE

Anionic stereospecific polymerisation of N-disubstituted acrylamides and some vinyl ketones: abstract and discussion. P. R. Thomas. Chem & Ind p 1831 N 16 '63

ACRYLATES

Acrylic elastomers. M. A. Mendelsohn and H. F. Minter. bibliog Rubber Age 95:403-6, 584-8 Je-Jl '64

Investigation of comonomer distribution in ethylene-acrylate copolymers with thermal methods. K. J. Bombaugh and others. diags Anal Chem 35:1834-7 N '63

Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64

Polyacrylate elastomers attract new interest. il Chem & Eng N 41:27-8 N 18 '63

Stereospecificity in the anionic polymerization of isopropyl acrylate. C. Schuerch and others. bibliog Am Chem Soc J 86:4481-2 O 20 '64

See also

Plastics, Transparent

Manufacture

Catalytic syntheses of acrylic acid and ethyl acrylate from acetylene, carbon monoxide, and water or ethanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog Ind & Eng Chem Proc Design 3:169-76 Ap '64

ACRYLIC acid

Manufacture

Catalytic syntheses of acrylic acid and ethyl acrylate from acetylene, carbon monoxide, and water or ethanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog Ind & Eng Chem Proc Design 3:169-76 Ap '64

ACRYLIC fibers

Computer calculation of pressure drop. P. Taylor. il Chem Eng Prog 60:67-70 Ap '64

Effect of fiber-forming conditions on the microstructure of acrylic fiber. M. Takahashi and others. bibliog il Textile Res J 34:87-97 F '64

Influence of drying temperature and humidity on the internal structure of acrylic fiber during drying. H. Takeda and Y. Nukushina. bibliog Textile Res J 34:173-5 F '64

Pile fabrics specialist; Glenoit Mills. il Mod Textiles Mag 44:25-7 N '63

Processing and performance characteristics of Chemstrand's Acrilan acrylic fiber in carpets. D. B. Finn. Am Dyestuff Rep 53:464-7 Je 8 '64

Statistical treatment of data and extreme-value theory in relation to fatigue in textiles. D. Prevorsek and others. bibliog diags Textile Res J 33:963-73 D '63

Time, temperature, and stress relationships in wet-gel acrylic fibers. W. C. Schneider and G. K. Klausner. Textile Res J 34:819-25 O '64

We changed from cotton to acrylics; Ledbetter manufacturing co. il Textile Ind 128:72-5 Mr '64

See also

Dyes and dyeing—Acrylic fibers

ACRYLIC plastics. See Plastics, Transparent

ACRYLONITRILE

Acrylonitrile build-up begins in Europe. il Chem & Eng N 42:75-6 My 11 '64

Application of a Hammett-Taft relation to kinetics of alkylation of amino acid and peptide model compounds with acrylonitrile. M. Friedman and J. S. Wall. bibliog Am Chem Soc J 86:3735-41 S 20 '64

Developing ABS resin technology brings forth new varieties. il Chem & Eng N 42:42-3 Mr 30 '64

Dyeing of polyacrylonitrile fibers. S. Rosenbaum. bibliog il diag Textile Res J 33:899-910; 34:52-60 N '63, Ja '64

Electrolytic reductive coupling. M. M. Baizer. bibliog diag Electrochem Soc J 111:215-22 F '64

Role of sites in dyeing. S. Rosenbaum. bibliog diag Textile Res J 34:159-67, 291-302 F, Ap '64

Synthesis of acrylonitrile. W. Hofmann. diags Rubber Chem & Tech 37:34-45 bibliog(p43-5) pt 2 Ap '64

Manufacture

Acrylonitrile: American cyanamid co. diag Hydrocarbon Process & Pet Refiner 42:138 N '63

Acrylonitrile: the Standard oil co. (Ohio). diag Hydrocarbon Process & Pet Refiner 42:139 N '63

New plant highlights acrylonitrile activity. Oil & Gas J 62:94 F 24 '64

ACTINIDE series

Carrier technique for quantitative electrodeposition of actinides. M. Y. Donnan and E. K. Dukes. bibliog diag Anal Chem 36:392-4 F '64

Electronic specific heat associated with localized states in actinide metals. W. R. Scott and others. J Ap Phys 35:1092-3 pt 2 Mr '64

New approach to separation of trivalent actinide elements from lanthanide elements. F. L. Moore. bibliog Anal Chem 36:2158-62 O '64

Removal of radioactive actinides and lanthanides from aqueous solutions with calcium fluoride prior to flame photometric determination of lithium. H. P. Holcomb. Anal Chem 36:2360-1 N '64

Separation of americium from curium with calcium fluoride. H. P. Holcomb. bibliog diag Anal Chem 36:2329-32 N '64

ACTINOMYCETES

Problem, musty water; the culprit, actinomycetes. R. E. Hansen. il map Water Works & Wastes Eng 1:45-9 Ja '64

ACTIVATED charcoal. See Carbon, Activated

ACTIVATED sludge method. See Sewage disposal—Activated sludge method; Trade waste disposal—Activated sludge method

ACTIVATION

Activation analysis by absolute gamma-ray counting and direct calculation of weights from nuclear constants. F. Girardi and others. bibliog diag Anal Chem 36:1588-94 Jl '64

Activation analysis finds its place in the life sciences. R. E. Wainerdi. diag Nucleonics 22:57-60 F '64

Activation analysis matures as industrial tool. il Chem Eng 70:92-4 D 9 '63

Activation analysis; new tool finds many uses. il diag Steel 155:40-4 Jl 6 '64

Activation analysis of antimony by sum-coincidence spectrometry. F. Adams and J. Hoste. bibliog diag Nucleonics 22:55-7 Mr '64

Activation analysis of high purity materials. W. J. Ross. bibliog Anal Chem 36:1114-19 My '64

Activation energy calculation from a linearly-increasing-temperature experiment. T. R. Ingraham and P. Marier. bibliog Can J Chem Eng 42:161-3 Ag '64

Analysis of total beryllium in beryllium metal by gamma activation. H. L. Rook. bibliog diags Anal Chem 36:2211-12 O '64

Analytical technique detects and measures trace metals. F. J. Berlandi and H. B. Mark, jr. Chem & Eng N 42:84 S 14 '64

Anodic activation of iron. V. D. Kashcheev and others. bibliog Corrosion 20:54-6 F '64

Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36:2062-4 O '64

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Computer program to optimize times of irradiation and decay in activation analysis. T. L. Isenhour and G. H. Morrison. flow diags Anal Chem 36:1089-92 My '64

Computer routines for neutron activation analysis of lubricating oils. D. E. Hull and J. T. Gilmore. bibliog Anal Chem 36:2072-7 O '64

Determination of fluorine in organic compounds by fast neutron activation analysis. R. Blackburn. Anal Chem 36:669-71 Mr '64

Determination of nickel in hydrogenated fats by neutron activation analysis. A. G. Souliotis. bibliog Anal Chem 36:1385-6 Je '64

Determination of oxygen in gallium arsenide by neutron activation analysis. R. F. Bailey and D. A. Ross. bibliog Anal Chem 35:791-4 Je '63; Discussion. 36:1879 Ag '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

ACTIVATION—*Continued*

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

Determination of the zinc-68—zinc-64 ratio in rocks and minerals by neutron activation analysis. R. H. Filby. bibliog Anal Chem 36:1597-600 Jl '64

Determination of zinc in ores and mill products by neutron activation analysis. J. M. Bakes and P. G. Jeffery. Anal Chem 36:1594-7 Jl '64

Dynamic analysis of activation overpotential. L. Karasyk and others. bibliog Electrochem Soc J 111:237-41 F '64

Large volume activation analysis of organically bound iodine using isotopic neutron sources. R. Grunewald and others. bibliog diag Anal Chem 36:1138-40 My '64

Neutron activation analysis. il Mech Eng 85:71 N '63

Neutron activation method for soil removal measurements; a comparison of the reflectance method and the neutron activation method. D. A. Netzel and others. bibliog il Am Oil Chem Soc J 41:678-83 O '64

Nuclear activation analysis; abstract. R. E. Wainerdi and N. P. DuBeau. Metal Prog 85:143+ Ja '64

Nuclear highlights in spectrometry and activation analysis. V. P. Guinn. bibliog Nucleonics 22:70+ Mr '64

Ores analysed at the push of a button by radioactivation analysis. il Engineering 197:654 My 8 '64

Oxygen determination in rocks, minerals, and water by neutron activation. A. Volborth and H. E. Banta. bibliog Anal Chem 35:2203-5 D '63

Plasma jet process activates polymer surface for printing; abstract. R. M. Mantell and W. Ormond. il Chem & Eng N 42:72+ Ap 20 '64

Practical approach to the self-shielding problems in low-flux neutron activation analysis. O. U. Anders. bibliog diags Anal Chem 36:564-8 Mr '64

Rapid neutron activation method for determining chromium in ruby maser and laser crystals. J. R. Weiner and others. bibliog il Electrochem Soc J 110:1160-2 N '63

Rapid, nondestructive method of precision oxygen analysis by neutron activation. O. U. Anders and D. W. Briden. bibliog diags Anal Chem 36:287-92 F '64

Rapid radiochemical separation and activation analysis of rare earth elements. K. Rengan and W. W. Meinke. bibliog diag Anal Chem 36:157-61 Ja '64

Second-order interference in activation analysis. E. Ricci and F. F. Dyer. bibliog Nucleonics 22:45-50 Je '64

Self-shielding in activation analysis. J. Gilat and Y. Gurfinkel. Nucleonics 21:143-4 Ag '63

Simultaneous determination of mercury and arsenic in biological and organic materials by activation analysis. B. Sjöstrand. bibliog diag Anal Chem 36:814-19 Ap '64

Simultaneous determination of niobium and tantalum by neutron activation using niobium-94*m* and tantalum-182*m* and rapid radiochemical separations. C. K. Kim and W. W. Meinke. bibliog Anal Chem 35:2135-8 D '63

Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64

Simultaneous determination of sulfur and phosphorus in water by neutron activation analysis. C. H. Wayman. Anal Chem 36:665-6 Mr '64

Systematic neutron activation technique for the determination of trace metals in petroleum. U. P. Colombo and others. diags Anal Chem 36:802-7 Ap '64

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

ACTIVITY coefficients

Activity coefficients at infinite dilution; 2-propanol-water system. E. W. Slocum and B. F. Dodge. bibliog diag A I Ch E J 10:364-8 My '64

Relation between H_0 and water activity. C. Perrin. bibliog Am Chem Soc J 86:256-8 Ja 20 '64

Theoretical activity coefficients of an ideal Debye-Hückel electrolyte. J. F. Skinner and R. M. Fuoss. bibliog Am Chem Soc J 86:3423-7 S 5 '64

ACYL compounds

Addition of acyl- and alkylcobalt carbonyls to conjugated dienes. R. F. Heck. bibliog Am Chem Soc J 85:3381-3 N 5 '63

Carbonium ions; the direct observation of saturated and unsaturated acyl cations and their equilibria with protonated acids. N. C. Deno and others. bibliog Am Chem Soc J 86:4370-2 O 20 '64

Interaction of benzamidoxime with fluoroacyl chlorides; some novel 1,2,4-oxadiazoles. J. P. Critchley and others. bibliog Chem & Ind p806-7 My 9 '64

Kinetic consequences of the acyl-enzyme mechanism for the reactions of specific substrates with chymotrypsin. B. Zerner and M. L. Bender. bibliog Am Chem Soc J 86:3669-74 S 20 '64

Kinetic evidence for the formation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolyses of specific substrates. B. Zerner and others. bibliog Am Chem Soc J 86:3674-9 S 20 '64

New cyclic oligomers; metal alkoxide oxides, metal acylate oxides. J. Rinse. bibliog il diags Ind & Eng Chem 56:42-50 My '64

Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed reactions of N-acetyl-L-tryptophan derivatives at low pH. F. J. Kézdy and others. bibliog Am Chem Soc J 86:3690-6 S 20 '64

Preparation of 1-acyl-1,3-butadiene derivatives from acylmethyl-π-allylcobalt tricarbonyls. R. F. Heck. bibliog Am Chem Soc J 85:3383-7 N 5 '63

Reaction of acyl azides with norbornylene. L. H. Zalkow and others. Chem & Ind p 1556-7 S 5 '64

Reaction of acyl chlorides with aminized cotton. P. E. Robbins and H. H. Perkins. Am Dyestuff Rep 52:915-19 N 11 '63

Reaction of formohydroxamic acid with acyl derivatives in neutral aqueous solution. S. A. Bernhard and others. bibliog Am Chem Soc J 86:4406-14 O 20 '64

Reaction of phosphorus pentachloride with acyl anhydrides; a forgotten reaction. C. L. Wale. Chem & Ind p2003 D 28 '63

ACYL group

Equilibrium distribution of acyl groups between primary and secondary hydroxyl positions in partial esters. J. D. Brandner and R. L. Birkmeier. bibliog Am Oil Chem Soc J 41:367-70 My '64

Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolysis of specific ester substrates at low pH. F. J. Kézdy and M. L. Bender. Am Chem Soc J 86:937-8 Mr 5 '64

ACYLATION

Acylation of α-chymotrypsin by N-acetyl-L-tryptophan. F. J. Kézdy and M. L. Bender. bibliog Am Chem Soc J 86:938-40 Mr 5 '64

Acylations of ketals and enol ethers. R. D. Youssefyeh. Am Chem Soc J 85:3901-2 D 5 '63

ADAMANTANE. See Tricyclodecane

ADAMS, Ansel

Eloquent light; A. Adams' giant West Coast exhibit. P. Caulfield. por Mod Phot 28:12-13 F '64

ADAMS, Roger

AIC gold medalist. por Chem & Eng N 42:90 My 18 '64

ADAPTATION (biology)

Adaptation of the chick to dietary energy source. W. E. Donaldson. bibliog J Nutrition 82:115-20 Ja '64

ADDING machines

Punched-card reader enters equations into a calculator. il Machine Design 36:12 S 10 '64

ADDITION compounds

Addition of acyl- and alkylcobalt carbonyls to conjugated dienes. R. F. Heck. bibliog Am Chem Soc J 85:3381-3 N 5 '63

Addition of nitrones to olefins; fused bicyclic isoxazolidines. N. A. LeBel and others. Am Chem Soc J 86:3759-67 S 20 '64

Addition of silylamines and silazanes to isocyanates. J. F. Klebe and others. bibliog Am Chem Soc J 86:4400-6 O 20 '64

Bisulphite addition compounds of aminosugars. D. L. Ingles. bibliog Chem & Ind p927-8 My 30 '64

Bis(urea) and thiourea adducts of the tetrachloroindate (III) anion. D. G. Tuck and E. J. Woodhouse. bibliog Chem & Ind p 1363-4 Jl 25 '64

ADDITION compounds—*Continued*
Concerning the mechanism of addition of simple olefins to organotin dihydrides. C. Barnetson and others. bibliog Chem & Ind p458-9 Mr 14 '64
Cycloaddition. P. D. Bartlett and others. bibliog Am Chem Soc J 86:616-31 F 20 '64
Cycloaddition reactions of sulfenes. I. J. Borowitz. bibliog Am Chem Soc J 86:1146-9 Mr 20 '64
Cycloadditions; the reactions of Δ^2-1,2,3-triazolines with phenyl isocyanate and phenyl isothiocyanate. J. E. Baldwin and others. Am Chem Soc J 86:4509-10 O 20 '64
Electrophilic addition reactions of 1,1-dimethyldiazenium bromide with 1,3-dienes and styrenes. W. H. Urry and others. bibliog Am Chem Soc J 86:2224-9 Je 5 '64
Electrophilic addition to olefins; the stereochemistry of addition of deuterium bromide to 1-phenylpropene. M. J. S. Dewar and R. C. Fahey. bibliog Am Chem Soc J 85:3645-8 N 20 '63
Enamines as dipolarophiles in 1,3-dipolar addition reactions. M. E. Munk and Y. K. Kim. bibliog Am Chem Soc J 86:2213-17 Je 5 '64
Molecular addition compounds of amines and iodine; evidence for the existence of a 2 : 1 triethylamine-iodine complex. C. D. Schmulbach and D. M. Hart. bibliog Am Chem Soc J 86:2347-51 Je 20 '64
New synthesis of cyclohexenones; the double Michael addition of vinyl ethynyl ketones to active methylene compounds; application to the total synthesis of *dl*-griseofulvin. G. Stork and M. Tomasz. bibliog Am Chem Soc J 86:471-8 F 5 '64
Photochemical cycloaddition as a device for general annelation. H. Hikino and P. de Mayo. bibliog Am Chem Soc J 86:3582-3 S 5 '64
Stereochemical assignments for β-ketols formed by aldol addition of three simple ketones to *p*-nitrobenzaldehyde. M. Stiles and others. bibliog diags Am Chem Soc J 86:3337-42 Ag 20 '64

ADDITIVES, Food. See Food additives

ADENINE
Adenine nucleosides of 4-thioribofuranose. E. J. Reist and others. Chem & Ind p 1364-5 Jl 25 '64
Binding of silver ion by adenine and substituted adenines. K. Gillen and others. bibliog Am Chem Soc J 86:2792-6 Jl 20 '64
Studies on polynucleotides; the specific synthesis of C_3'-C_5'-linked ribooligonucleotides; homologous adenine oligonucleotides. Y. Lapidot and H. G. Khorana. bibliog Am Chem Soc J 85:3857-62 D 5 '63
Synthesis of 7-substituted adenines through the use of a blocking group at the 3-position; site of alkylation of 7-substituted adenines. N. J. Leonard and T. Fujii. bibliog Am Chem Soc J 85:3719 N 20 '63

ADENOSINE
Crystal and molecular structure of β-adenosine-2-′-β-uridine-5′-phosphoric acid. E. Shefter and others. Am Chem Soc J 86:1872-4 My 5 '64
Purine nucleosides; direct bromination of adenosine, deoxyadenosine, guanosine, and related purine nucleosides. R. E. Holmes and R. K. Robins. bibliog Am Chem Soc J 86:1242-5 Mr 20 '64
Synthesis of homoribose (5-deoxy-D-allose) and homoadenosine. K. J. Ryan and others. bibliog Am Chem Soc J 86:2503-8 Je 20 '64
Synthesis of 2′, 3′-dideoxyadenosine from 2′-deoxyadenosine. M. J. Robins and R. K. Robins. bibliog Am Chem Soc J 86:3585-6 S 5 '64

ADENOSINE phosphate
Mitochondrion. D. E. Green. il diags Sci Am 210:63-6+ Ja '64; Discussion. 210:10+ Ap '64
Specific chemical synthesis of γ-P^{32} labeled adenosine 5′-triphosphate. D. L. M. Verheyden and others. bibliog Am Chem Soc J 86:1253-4 Mr 20 '64
Volume changes accompanying the adenosine triphosphate-myosin B interaction. H. Noguchi and others. bibliog Am Chem Soc J 86:2077-8 My 20 '64

ADHESION
Adhesion between polymers and textile fabrics; abstract and discussion. W. C. Wake. Chem & Ind p61-2 Ja 11 '64
Adhesion of vapor-deposited aluminum to lime-soda glass. J. R. Frederick and K. C. Ludema. bibliog J Ap Phys 35:256-7 Ja '64
Correlation of the coefficient of adhesion with various physical and mechanical properties of metals; abstract. M. E. Sikorski. Metal Prog 85:175-7 My '64
Improving adhesion of polyethylene extrusion coatings. G. R. DeHoff and T. F. McLaughlin, jr. il diags Mod Plastics 41:107-10+ N '63
Quantitative adhesion measurements of electroless copper to copper and gold. B. F. Rothschild and R. G. Nabors. il diags Plating 51:1063-5 N '64
Role of adhesion in the reinforcement of elastomers. S. S. Voyutskii and others. bibliog diag Rubber Age 95:729-35 Ag '64
Theory and analysis of peel adhesion; rate-temperature dependence of viscoelastic interlayers. D. H. Kaelble. bibliog J Colloid Sci 19:413-24 Je '64
Wetting and adhesion. J. R. Huntsberger. bibliog il Chem & Eng N 42:82-7 N 2 '64; Discussion. 42:4-5 D 14 '64
Wetting and adhesion in two-component systems. H. K. Livingston. bibliog J Colloid Sci 19:185-91 F '64

Testing

Paint adhesion over chromium electroplate. B. K. Dent. il Plating 50:1100-3 D '63
Scratch test for measuring adherence of thin films to oxide substrates. M. M. Karnowsky and W. B. Estill. bibliog il R Sci Instr 35:1324-6 O '64

ADHESIVE tape
Adhesives seal windshield and rear window. diags Product Eng 35:69 Ag 3 '64
High-speed taping of corrugated containers. R. H. Valley. Tappi 47:sup 152A+ Ap '64
Tape handle spells success. il Food Eng 36:93-4 Mr '64

ADHESIVE tape, Plastic
Sellotape polyester thermosetting tape. il Engineering 198:202-3 Ag 14 '64

ADHESIVES
Adhesion of printing inks and adhesives on pretreated polyolefin surfaces. K. F. Büchel. bibliog il Brit Plastics 37:142-5 Mr '64
Adhesive bonding cuts rejections. il Foundry 92:130 S '64
Adhesive bonding directory. Mod Metals 20:62+ S '64
Adhesive bonding light metals. F. L. Church. flow diag il diags Mod Metals 19:34+ O; 46+ D '63; 20:68-9+ F; 41-2+ Ap; 76+ Jl; 56+ S '64
Adhesives. L. H. Sharpe and others. il diags Naval Eng J 76:777-85 O '64
Adhesives assemble giant magnet. il Am Mach 108:80 Je 8 '64
Adhesives for high and low temperatures. R. C. Kausen. bibliog diags Materials in Design Eng 60:94-8 Ag; 108-12 S '64
Adhesives set up new products. A. W. Young. il diags Iron Age 193:127-34 Ap 30 '64
Application of adhesives. R. R. Myers. bibliog diags Tappi 46:745-50 D '63
Bonded metal assembly. D. K. Rider. il diags Product Eng 35:85-98 My 25; 75-8 Je 8 '64 (reprints 50c)
Bulk starch handling and automatic mixing. F. W. Velguth. il diags Tappi 47:sup 148A-52A Ap '64
Ceramic-metal adhesive combinations. J. F. Benzel. il diags Am Cer Soc Bul 42:748-51 D '63
Design of joints and physical strength of rigid plastics. G. C. Grimes. Machine Design 35:166+ D 5 '63
Effect of high humidity environments on the strength of adhesive joints. D. J. Falconer and others. Chem & Ind p 1230-1 Jl 4 '64
Electric curing process facilitates assembly by aluminum honeycomb. diag Light Metal Age 21:6 O '63
Guide to military and federal specifications for rubber-bonding adhesives. I. Katz. Rubber Age 95:78-86 Ap '64
How to prepare surfaces for adhesive bonding. il Materials in Design Eng 58:100-1 N '63
How to select the correct adhesives for pressure-sensitive purposes. J. Questel. Inland Ptr/Am Lithogr 154:59 O '64
Joining and fastening; adhesives; tables. Materials in Design Eng 60:534-5 Mid-O '64
Liquid press fit, a new type of bonding material. V. Krieble. Product Eng 34:97-8 D 23 '63
Production and use of the optical contact bond. R. N. Smartt and J. V. Ramsay. J Sci Instr 41:514 Ag '64

ADHESIVES—*Continued*

Rubber and plastic adhesive and sealant manufacturers' council adhesives and sealants seminar; Cherry Hill, N.J.; abstracts of papers. Rubber World 150:81-2 Ap '64

Structural adhesives economize joining. il diag Materials in Design Eng 59:152+ F '64

Structural adhesives; their promising future in materials joining. S. B. Twiss. il Res/Develop 15:26-30 Ag '64

Structural adhesives; with engineering data sheet. il diags Welding Eng 49:35-43 S '64 (reprints 50c)

Theory and analysis of peel adhesion; rate-temperature dependence of viscoelastic interlayers. D. H. Kaelble. bibliog J Colloid Sci 19:413-24 Je '64

Trend in structural adhesives. H. A. Burgman. il Machine Design 35:192-8 N 21 '63

Types of adhesives used. diags Tappi 47:sup 134A-5A My '64

Universal bonding with a computer. il diags Am Mach 108:112 Ja 20 '64

Water emulsion paints and adhesives. B. C. O'Keefe. Ind Finishing 40:108-9 S '64

What flock adhesive to use and why. Ind Finishing 40:113-14 S '64

Will super adhesives replace welding? Welding Eng 49:96 Ap '64

You can cut joining costs as much as 50 per cent. il Steel 154:43-51 Ap 27 '64

See also

Binding materials

Resinous products—Adhesives

Testing

Controlled test for measuring the gluability of paperboard. W. O. Kroeschell. il diag Tappi 47:336-8 Je '64

Correlation of some thermal properties of epoxy adhesives and shear strength of steel bonds. G. J. Barenholtz and others. Ind & Eng Chem Product Res & Develop 2:270-2 D '63

Laboratory evaluation of adhesives vs. field results. E. T. Rilee, jr. and R. D. Faunce. Tappi 47:sup159A-61A S '64

ADIPATES

Substituted phenylbutyl adipates and hydrocarbons as oxidatively autoinhibitive compounds. H. E. Mertwoy and H. Gisser. bibliog Ind & Eng Chem Product Res & Develop 3:180-6 S '64

ADIPIC acid

Determination of some diamines in the presence of adipic acid, amines, and amino acids. V. J. Farrugia and P. C. Christopher. Anal Chem 36:435-6 F '64

More nylon requires more adipic acid. P. W. Sherwood. Mod Textiles Mag 44:56-8 N '63

ADIPOSE tissue. See Fat

ADMINISTRATION, Public

See also

Water departments

ADOLESCENCE. See Youth

ADONIS vernalis

Vernadigin and 3-acetylstrophadogenin; two new cardenolides from adonis vernalis L. A. Poláková and Z. Čekan. bibliog Chem & Ind p 1766-7 N 2 '63

ADRENAL glands

Adrenal lipids of cholesterol-fed guinea pigs and rats. R. Ostwald and others. J Nutrition 82:443-51 bibliog(p450-1) Ap '64

Effect of potassium on juxtaglomerular cells and the adrenal zona glomerulosa of rats. P. M. Hartroft and E. Sowa. bibliog J Nutrition 82:439-42 Ap '64

Hormones

Seasonal variation of adrenal cortex activity. G. I. Watanabe. bibliog Archives Environmental Health 9:192-200 Ag '64

ADRENOCORTICOTROPIN. See ACTH

ADRIATIC SEA

See also

Petroleum—Adriatic Sea

ADSORBENTS

Adsorption of nitrogen-methane on molecular sieves. P. B. Lederman and B. Williams. bibliog flow diag diag A I Ch E J 10:30-4 Ja '64

Adsorption process uses multistaging. F. C. Boston. il diags Hydrocarbon Process & Pet Refiner 43:141-5 Ag '64

Binary equilibrium data from single-component isotherms. G. J. Minkoff. Ind & Eng Chem Proc Design 3:409-10 O '64

Catalysts for selective hydrogenation of soybean oil; hydrogenation catalysts prepared on molecular sieves and other supports. C. H. Riesz and H. S. Weber. bibliog Am Oil Chem Soc J 41:464-8 Jl '64

Characterization of selected heavy-metal salts as adsorbents for gas chromatography. A. G. Altenau and L. B. Rogers. bibliog Anal Chem 36:1726-35 Ag '64

Drying liquid hydrocarbons using adsorptive agents. D. E. Eaves and P. R. Sewell. bibliog diag Ind & Eng Chem Proc Design 3:361-5 O '64

Esso develops new molecular-sieve process, recovers linear paraffins. Oil & Gas J 61:46 N 25 '63

Molecular sieves dry alky feed better. M. D. Box and others. diags Hydrocarbon Process & Pet Refiner 43:125-6 Ja '64

Molecular sieves dry propylene better. J. A. McConnell. Hydrocarbon Process & Pet Refiner 42:97-8 D '63

Molecular sieves in the vulcanization of rubber. G. A. Blokh and others. bibliog Rubber Chem & Tech 37:714-19 Jl '64

Olefin polymerization over synthetic molecular sieves. C. J. Norton. bibliog Ind & Eng Chem Proc Design 3:230-6 Jl '64

Porous glass as an adsorbent for thin layer chromatography. J. K. G. Kramer and others. bibliog Anal Chem 36:2379-80 N '64

Sorption of long chain normal paraffins in molecular sieves. C. G. V. Burgess and others. bibliog J Ap Chem 14:350-60 Ag '64

Survey of modern chemistry; unusual chemical bonding creates complex structures. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:91-6 F 3 '64

Twin-absorber air dryers. il Engineer 217:317 F 14 '64

ADSORPTION

Adsorption. C. H. Giles. il diag Chem & Ind p724-32, 770-81 bibliog(p731-2, 780-1) My 2-9 '64

Adsorption and coadsorption studies at ionized surface layers by means of α-disintegration recoils. M. Avrahami and N. H. Steiger. bibliog J Colloid Sci 18:863-77 D '63

Adsorption and condensation processes. J. B. Hudson and S. Ross. bibliog il diags Ind & Eng Chem 56:30-6 N '64

Adsorption and migration of Sr on W. B. E. Barnaby and others. bibliog il J Ap Phys 35:1759-63 Je '64

Adsorption dependent stripping analysis at the graphite electrode. S. P. Perone and T. J. Oyster. Anal Chem 36:235-6 Ja '64

Adsorption, desorption, resorption. W. V. Loebenstein. J Res Nat Bur Stand 67A:615-24 N '63

Adsorption from solutions of non-electrolytes. J. J. Kipling. bibliog Chem & Ind p 1007-11 Je 13 '64

Adsorption in heterogeneous aqueous systems. W. J. Weber, jr. and J. C. Morris. bibliog Am Water Works Assn J 56:447-56 Ap '64

Adsorption of alkanes on cracking catalysts; a study of the exchange between isobutane and its adsorbed radioactive analog. J. G. Larson and W. K. Hall. bibliog Am Chem Soc J 85:3570-5 N 20 '63

Adsorption of cobalt(III) trisethylenediamine at mercury electrodes. H. A. Laitinen and L. M. Chambers. Anal Chem 36:1881-2 Ag '64

Adsorption of colloidal silica on alumina and of colloidal alumina on silica. R. K. Iler. bibliog il Am Cer Soc J 47:194-8 Ap '64

Adsorption of disperse dyes in admixture. A. Johnson and others. bibliog diag Soc Dyers & Col J 80:129-34 Mr '64

Adsorption of gases on Raney nickel. J. R. Huff and others. bibliog Ind & Eng Chem Proc Design 3:159-64 Ap '64

Adsorption of inhibitive anions on iron surfaces; abstract and discussion. J. G. N. Thomas. Chem & Ind p332 F 22 '64

Adsorption of n-decylamine on solid metal electrodes. J. O. Bockris and D. A. J. Swinkels. bibliog Electrochem Soc J 111:736-43 Je '64

Adsorption of naphthalene on solid metal electrodes. J. O. Bockris and others. bibliog Electrochem Soc J 111:743-8 Je '64

Adsorption of nitrogen-methane on molecular sieves. P. B. Lederman and B. Williams. bibliog flow diag diag A I Ch E J 10:30-4 Ja '64

Adsorption of polyvinyl alcohols by montmorillonite. D. J. Greenland. bibliog J Colloid Sci 18:647-64 S '63

ADSORPTION—*Continued*

Adsorption of some organic surfactants on rutile surfaces; electron microscope studies. G. D. Cheever and E. G. Bobalek. bibliog il Ind & Eng Chem Fundamentals 3:89-94 My '64

Adsorption of the elements on inorganic ion exchangers from nitrate media. W. J. Maeck and others. Anal Chem 35:2086-90 D '63

Adsorption properties of naturally occurring erionite and its cationic-exchanged forms. P. E. Eberly, jr. bibliog il Am Mineralogist 49:30-40 Ja '64

Adsorption rate studies; significance of pore diffusion. S. Masamune and J. M. Smith. bibliog diag A I Ch E J 10:246-52 Mr '64

Adsorption studies of water vapor on porous glass. K. Kawasaki and others. bibliog diags J Colloid Sci 19:144-51 F '64

All-glass sorption vacuum trap. F. B. Haller. diags R Sci Instr 35:1356-7 O '64

Applicability of Fick's law to diffusion and sorption data. C. K. Whitney and R. L. Hamilton. Textile Res J 34:739-40 Ag '64

Chemisorption and surface chemistry of ethylene on supported platinum catalysts. P. J. Lucchesi and others. bibliog Am Chem Soc J 86:1494-7 Ap 20 '64

Chemisorption detector for oxygen. D. J. Collins and S. A. Hoenig. diags R Sci Instr 35:15-16 Ja '64

Chronopotentiometric measurement of adsorption by current reversal. H. B. Herman and others. Anal Chem 35:2210-11 D '63

Chronopotentiometric measurement of adsorption; riboflavin on a mercury electrode. S. V. Tatwawadi and A. J. Bard. bibliog Anal Chem 36:2-5 Ja '64

Chronopotentiometric study of adsorption. H. A. Laitinen and L. M. Chambers. bibliog Anal Chem 36:5-11 Ja '64

Correlation of adsorption equilibria of pure gases on activated carbon. W. H. Cook and D. Basmadjian. bibliog Can J Chem Eng 42:146-51 Ag '64

Correlation of emission processes for adsorbed alkali films on metal surfaces. N. S. Rasor and C. Warner. bibliog diag J Ap Phys 35:2589-600 S '64

Correlation of some gas adsorption data extending to low pressures and supercritical temperatures. R. J. Grant and M. Manes. bibliog Ind & Eng Chem Fundamentals 3:221-4 Ag '64

Critical phenomena with thorium adsorbed on single crystal tungsten. J. Anderson and W. E. Danforth. Electrochem Soc J 111:1297-8 N '64

Decreasing sorption effect with increasing pressure. P. A. Faeth and A. F. Clifford. bibliog Am Chem Soc J 86:1874-5 My 5 '64

Dehydrogenation of n-butylenes over calcium nickel phosphate; determination of relative adsorption coefficients. J. Firko and D. S. Alexander. bibliog Can J Chem Eng 42:183-6 Ag '64

Developing a chemical adsorption cryopump. J. L. Perry. il diag Res/Develop 14:58-9 N '63

Dispersion and adsorption in porous media flow. R. B. Banks. bibliog diags Am Soc C E Proc 90 [HY 5 no 4022]:13-31 S '64

Drying air with activated alumina under adiabetic conditions. R. J. Getty and W. P. Armstrong. bibliog diag Ind & Eng Chem Proc Design 3:60-5 Ja '64

Effect of specific adsorption on the interaction energy between two double layers. O. F. Devereux and P. L. de Bruyn. bibliog diags J Colloid Sci 19:302-12 Ap '64

Electron spin resonance of molecules adsorbed on synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:749-57 Mr 5 '64

Ellipsometer investigation of vapor adsorption on etched silicon. B. H. Claussen. bibliog Electrochem Soc J 111:646-52 Je '64

Equilibria and capacities for adsorption on carbon. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 90 [SA 3 no 3952]:79-107 Je '64

Esso achievement; adsorption process for hydrocarbon purification. il Chem Eng 70:236 N 11 '63

Evidence for adsorption of cobalt(III)-(ethylenedinitrilo) tetraacetate at platinum electrodes. F. C. Anson. bibliog Anal Chem 36:520-3 Mr '64

Evidence for O_4; magnetic studies on adsorption of oxygen. L. N. Mulay and L. K. Keys. bibliog Am Chem Soc J 86:4489-91 O 20 '64

Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64

Improved method for the calculation of pore size distribution from adsorption data. D. Dollimore and G. R. Heal. bibliog J Ap Chem 14:109-14 Mr '64

Interaction of water with iron and titanium oxide surfaces; goethite, hematite, and anatase. J. J. Jurinak. bibliog J Colloid Sci 19:477-87 Je '64

Kinetics of adsorption on carbon from solution. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 89 [SA 2 no 3483]:31-59 Ap; [SA 6 no 3745]:53-5 D '63

Kinetics of *n*-butane adsorption on various particle sizes of silica gel by gas-solid chromatography. P. E. Eberly, jr. bibliog J Ap Chem 14:330-7 Ag '64

Low-energy electron diffraction studies of gas adsorption on platinum (100), (110), and (111) surfaces. C. W. Tucker, jr. bibliog il diags J Ap Phys 35:1897-905 Je '64

Mechanism of phenol adsorption by organo-clay derivatives. A. L. Roberts and others. bibliog J Ap Chem 14:261-5 Je '64

Molecular orbitals apply to adsorption. G. Blyholder. il Chem & Eng N 42:42-3 Je 22 '64

Monolayer capacity in the physical adsorption of gases on solids. K. S. W. Sing. bibliog Chem & Ind p321-2 F 22 '64

More insight into adsorption design. J. M. Campbell and others. bibliog diags Hydrocarbon Process & Pet Refiner 42:89-96 D '63

New theoretical analysis of adsorption phenomena, introductory part; the characteristic expression of the main regular types of adsorption isotherms by a single simple equation. I. Kühn. bibliog J Colloid Sci 19:685-98 O '64

Odor stimulus. R. W. Moncrieff. bibliog Am Perfumer 78:37-9 D '63

Oxygen adsorption and double layer capacities; gold in perchloric acid. G. M. Schmid and R. N. O'Brien. bibliog diags Electrochem Soc J 111:832-7 Jl '64

Oxygen adsorption on silicon surfaces observed via electron spin resonance. K. A. Müller and others. bibliog J Ap Phys 35:2254-6 Jl '64

Partial molal enthalpies of adsorption of hydrogen and oxygen on platinum and on carbon-supported platinum. J. G. Aston and others. bibliog diag Am Chem Soc J 86:2097-101 Je 5 '64

Piezoelectric sorption detector. W. H. King, jr. bibliog diags Anal Chem 36:1735-9 Ag '64

Poly(1-butene) chain flexibility from sorption data. G. M. Pavlyuchenko and others. bibliog Rubber Chem & Tech 36:1003-4 O '63

Pore diffusion is important adsorption step. J. M. Smith. Chem & Eng N 41:59-60 D 9 '63

Radiometric determination of adsorption isotherms from solution on organic substrate. J. Haberman and T. C. Castorina. bibliog Anal Chem 36:1917-20 S '64

Rates of adsorption and desorption of polystyrene on chrome surface. R. R. Stromberg and others. bibliog J Res Nat Bur Stand 68A:391-9 Jl '64

Recovery of organic solvents from polluted air; abstract. N. R. Rowe. Air Cond Heat & Ven 60:35-6 D '63

Reversibility of polyester adsorption on glass. R. R. Stromberg and W. H. Grant. bibliog J Res Nat Bur Stand 67A:601-6 N '63

Review of adsorption and description of organic pesticides by soil colloids, with implications concerning pesticide bioactivity. G. W. Bailey and J. L. White. J Agri & Food Chem 12:324-32 bibliog(p331-2) Jl '64

Separation of H_2 and D_2 by moving-bed adsorption; corroboration of adsorber design equations. D. Basmadjian. bibliog diag Can J Chem Eng 41:269-72 D '63

Silica-alumina catalysis theory unfolds. M. R. Basila and others. Chem & Eng N 42:42-4 O 5 '64

Some aspects of gas separation. W. H. Granville. bibliog diags Ind & Eng Chem 56:32-7 My '64

Sorption of acids by wool from mixtures of acids. P. Larose and R. Donovan. bibliog Soc Dyers & Col J 78:24-7; 79:95-7, 418-21; 80:322-6 Ja '62, Mr, S '63, Je '64

Sorption of long chain normal paraffins in molecular sieves. C. G. V. Burgess and others. bibliog J Ap Chem 14:350-60 Ag '64

ADSORPTION—*Continued*

Sorption of nonionic solutes on ion exchange resins bearing amphiphilic counter ions. H. Small and D. N. Bremer. bibliog diag Ind & Eng Chem Fundamentals 3:361-7 N '64

Sorption of water on compacts of bottle-hydrated cement. R. F. Feldman and P. J. Sereda. bibliog J Ap Chem 14:87-104 F '64

Spring microbalance for magnetic susceptibility, adsorption, and thermogravimetric studies. L. N. Mulay and L. K. Keys. bibliog diag Anal Chem 36:2383-4 N '64

Strength reduction and length changes in porous glass caused by water vapor adsorption. K. H. Hiller. bibliog J Ap Phys 35: 1622-8 My '64

Studies in adsorption; measurement of external specific surface of fibres by solution adsorption. C. H. Giles and A. H. Tolia. bibliog J Ap Chem 14:186-95 My '64

Study of adsorption and oxidation of carbon monoxide on platinum using constant current pulses. T. B. Warner and S. Schuldiner. bibliog Electrochem Soc J 111:992-7 Ag '64

Surface area measurements and adsorption of soils. M. J. Suess. bibliog il Am Soc C E Proc 90 [IR 1 no 3841]:87-108 Mr '64

Surface area of nonporous carbon blacks and area of the adsorbed nitrogen molecule. A. Voet. bibliog Rubber Chem & Tech 37: 630-4 Jl '64

Surface properties and flow behavior of kaolinite; electrophoretic studies of anion adsorption. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:833-45 D '63

Symposium on adsorption; abstracts of papers. Chem & Ind p733-5 My 2 '64

Syngenesis of sulfide ores; desorption of adsorbed metal ions and their precipitation as sulfides. K. L. Temple and N. W. Le Roux. bibliog il diags Econ Geol 59:647-55 Je '64

Thermal coalescence of the lignin phase in wood. T. N. Kleinert and L. M. Marraccini. bibliog Tappi 47:605-9 O '64

Vapor adsorption tests with dyed wool. C. H. Giles and others. bibliog Textile Res J 34: 839-43 O '64

Zirconium dioxide-oxygen reactions; chemisorption of atomic oxygen. T. Smith. bibliog Electrochem Soc J 111:1027-31 S '64

Zirconium dioxide-oxygen reactions; molecular oxygen adsorption with electron transfer. T. Smith. bibliog Electrochem Soc J 111:1020-7 S '64

See also
Absorption
Adsorbents
Chromatographic analysis
Desorption

ADSORPTION, Heat of

Calorimeter and cryostat for measuring heats of physical adsorption. G. L. Kington and P. S. Smith. bibliog diags J Sci Instr 41: 145-8 Mr '64

ADSORPTION apparatus

Adsorption unit's dehydration capacity doubled at economical cost. R. L. White and J. M. Gregory. il diags Oil & Gas J 62:192-4 S 21 '64

ADVANCED research projects agency. See United States—Defense, Department of—Advanced research projects agency

ADVERTISEMENTS

Ain't advertising awful? B. Lasky. Inland Ptr/Am Lithogr 152:116 D '63

Printing

How hot-metal pasteup speeds up newspaper ad makeup. A. Lawson. il Inland Ptr/Am Lithogr 153:76-7 Ap '64

Silk screen on foil proves successful for car cards. il Inland Ptr/Am Lithogr 153:45 Jl '64

Typographic scoreboard. A. Lawson. Inland Ptr/Am Lithogr 151:53 Je; 75 S; 152:63 D '63

ADVERTISEMENTS, Pictorial

Ad parade. il Drug & Cosmetic Ind 91:443, 584, 720; 92:46, 435, 721; 93:645-6+ O '62-Ja, Ap, Je, N '63

Photographs

Almost endless applications. il Ind Phot 13: 53-6+ Ap '64

See also
Photography, Commercial

ADVERTISING

See also
Employment systems—Advertising aids
Moving pictures in advertising
Television advertising

also subdivision Advertising under special subjects, e.g.
Chemical industries
Drug trade
Electric utilities
Gas industry
Gasoline industry
Petroleum industry and trade
Plumbing trade

Costs

P & G largest advertiser in 1963. Soap & Chem Spec 40:80+ S '64

Taxation

Nonprofit groups face tax on ad revenue. Chem & Eng N 42:25-6 S 14 '64

ADVERTISING, Mail

Small printer uses direct mail to build his business; Town press of Angola, N.Y. R. Dyment. il Inland Ptr/Am Lithogr 152:58+ Ja '64

ADVERTISING literature

Pump dealers speak up; tell what they like, don't like about manufacturer sales aids. il Dom Eng 203:86-7+ Ap '64

Three sales aids. Am Gas Assn Mo 46:25 Mr '64

Bibliography

Free booklets. Published in monthly numbers of Textile industries

Hydraulics and pneumatics; 1964 review of technical literature. Hydraulics & Pneumatics 17:67-82 Jl '64

Manufacturers' literature. S. Snider. Prog Arch 44:171-2 N '63

New literature. Published in monthly numbers of Automation

New literature. Published in monthly numbers of Metal progress

New literature. Published in monthly numbers of Research/development

Trade literature supplement. Heating-Piping 36:2-68 pt 2 Ap; 2-74 pt 2 S '64

AERATION

Handling bulk materials with air. W. F. Hahn. il diags Automation 11:72-81 O '64

Scale-up of a Venturi aerator. M. L. Jackson and W. D. Collins. bibliog il diags Ind & Eng Chem Proc Design 3:386-93 O '64

See also
Sewage disposal—Aeration
Trade waste disposal—Aeration
Water—Aeration

AERIAL mapping. See Mapping, Aerial

AERIAL photography. See Photography, Aerial

AERIAL surveying. See Surveying, Aerial

AERIALS. See Radio antennas; Television antennas

AERODYNAMICS

Aerodynamic coefficients in the slip and transition regime. E. F. Blick. bibliog AIAA J 1:2656-8 N '63

Aerodynamics in very small spaces; gas-lubricated bearings. C. H. Vivian. il diags Comp Air Mag 69:11-15 Ap '64

Amateur scientist; aerodynamics of air-supported vehicles. R. W. Moffat. diags Sci Am 210:135-8 Ja '64

Analytical method for the design of two-dimensional contractions. W. T. F. Lau. bibliog diag Roy Aeronautical Soc J 68:59-62 Ja '64

Calorimetric heating-rate probe for maximum-response-time interval. R. H. Kirchhoff. diags AIAA J 2:966-7 My '64

Choice of a hodograph boundary for contracting ducts. J. C. Gibbings. Roy Aeronautical Soc J 68:420-2 Je '64

Compressible discharge coefficient of a Borda pipe and other nozzles. T. H. Frost. diag Roy Aeronautical Soc J 68:346-9 My '64

Effect of thermal accommodation on cylinder and sphere drag in free molecule flow. G. S. Springer and S. W. Tsai. bibliog AIAA J 2:126-8 Ja '64

Experimental determination of air drag on a textile yarn struck transversley by a high-velocity projectile. J. C. Smith and others. bibliog il J Res Nat Bur Stand 68C:177-81 Jl '64

Heat transfer on power law bodies. A. W. Maddox. AIAA J 2:1474-5 Ag '64

Least-squares approach to unsteady kernel function aerodynamics. J. A. Fromme. bibliog AIAA J 2:1349-50 Jl '64

Simple derivation of three-dimensional characteristic relations. C. W. Chu. bibliog AIAA J 2:1336-7 Jl '64

Speed of sound and Mach number effects. S. L. Bragg and S. F. Smith. Roy Aeronautical Soc J 67:669-70 O '63; Discussion. bibliog diags 67:797-8; 68:62-3, 485-92 D '63-Ja, Jl '64

Stratification in a pressurized container with sidewall heating. J. M. Ruder. bibliog diag AIAA J 2:135-7 Ja '64

AERODYNAMICS—*Continued*

Subsonic adiabatic flow in a duct of constant cross-sectional area. A. J. Ward Smith. bibliog diag Roy Aeronautical Soc J 68:117-26 F '64

See also

Air flow
Airplane stability and stabilizers
Airplanes—Design
Ballistics
Boundary layer
Magnus effect
Shock waves
Turbulence
Vortex motion
Wind tunnels
Winds

Tables, calculations, etc.

Three-dimensional effects in viscous wakes. M. H. Steiger and M. H. Bloom. bibliog diag AIAA J 1:776-82 Ap '63; Discussion. Y. H. Kuo and L. V. Baldwin. 2:1163-4 Je '64

AERODYNAMICS, Hypersonic

Acoustic probe for hypersonic air data sensing. R. R. Berlot. bibliog AIAA J 1:2646-8 N '63

Air ionization in the hypersonic laminar wake of sharp cones. F. L. Fernandez and E. S. Levinsky. bibliog AIAA J 2:1829-32 O '64

Ames hypervelocity free-flight research. A. Seiff. bibliog il diags Astronautics & Aerospace Eng 1:16-23 D '63

Approximate nonequilibrium air ionization in hypersonic flows over sharp cones. E. S. Levinsky and F. L. Fernandez. diags AIAA J 2:565-8 Mr '64

Boundary-layer transition on a slender cone in hypersonic flow. A. Martellucci. bibliog AIAA J 2:771-2 Ap '64

Calculation of cylindrical blast wave propagation with counterpressure. B. Steginsky. AIAA J 2:175-8 Ja '64

Chemical and vibrational relaxation of an inviscid hypersonic flow. A. D. Wood and others. bibliog diag AIAA J 2:1697-705 O '64

Chemical nonequilibrium boundary layer. F. G. Blottner. bibliog AIAA J 2:232-40 F '64

Contours for stagnation-point mass injection in hypersonic flow. C. Y. Wang. AIAA J 2:178-9 Ja '64

Correlation of flat-plate pressures using the rarefaction parameter $M\infty C\infty^{1/2}/Re_x\infty^{1/2}$. H. E. Deskins. bibliog AIAA J 2:573-4 Mr '64

Criterion for slip near the leading edge of a flat plate in hypersonic flow. L. Talbot. bibliog AIAA J 1:1169-71 My '63; Discussion. J. Aroesty. 2:189-90 Ja '64

Dissociative relaxation in viscous hypersonic shock layers. C. Park. bibliog diag AIAA J 2:1202-7 Jl '64

Drag minimization using exact methods. S. A. Powers. bibliog AIAA J 2:941-3 My '64

Drag of spheres in rarefied hypervelocity flow. M. Kinslow and J. L. Potter. bibliog il diags AIAA J 1:2467-73 N '63

Dynamics and structures; aerodynamics. J. L. Jones, jr. diags Space/Aeronautics 42 no 4:16-19 '64-65

Effect of mass injection on the drag of a slender cone in hypersonic flow. H. H. King and L. Talbot. bibliog diags AIAA J 2:836-44 My '64

Effect of the boundary layer upon the flow in a conical hypersonic nozzle. M. Sichel. bibliog AIAA J 2:180-3 Ja '64

Effect of transverse enthalpy gradient on blunt body pressure distributions in hypersonic flow. D. Brooke and R. E. Thomas. AIAA J 2:1829 O '64

Effects of controlled roughness on boundary-layer transition at a Mach number of 6.0. J. R. Sterret and P. F. Holloway. AIAA J 1:1951-3 Ag '63; Discussion. J. L. Potter and J. D. Whitfield. 2:407-8; Reply. 408-9 F '64

Entropy production in vibrational-nonequilibrium nozzle flow. L. N. Connor and W. D. Erickson. AIAA J 2:397-8 F '64

Finite-difference calculation of hypersonic wakes. S. L. Zeiberg and G. D. Bleich. bibliog diag AIAA J 2:1396-402 Ag '64

Flow-separation spike for hypersonic control of a hemisphere-cylinder. W. E. Thurman. diag AIAA J 2:159-61 Ja '64

Flutter of multibay panels at high supersonic speeds. E. Dowell. bibliog diags AIAA J 2:1805-14 O '64

Growth of the turbulent inner wake behind 3-in.-diam. spheres. R. Knystautas. AIAA J 2:1485-6 Ag '64

Hypersonic area rule. M. L. Ladyzhenskil. diags AIAA J 1:2696-8 N '63

Hypersonic blunt-body flow fields at angle of attack. R. J. Swigart. AIAA J 2:115-17 Ja '64

Hypersonic cone wake velocities obtained from streak pictures. W. K. Washburn and others. bibliog il diag AIAA J 2:1465-7 Ag '64

Hypersonic flow field around a hemisphere in a CO_2-N_2-A gas mixture. J. H. Klaimon. bibliog AIAA J 2:953-4 My '64

Hypersonic laminar wakes and transition studies. A. Pallone and others. bibliog il AIAA J 2:855-63 My '64

Hypersonic viscous drag effects on blunt slender cones. J. D. Whitfield and B. J. Griffith. bibliog il diags AIAA J 2:1714-22 O '64

Hypersonic viscous flow near a sharp leading edge. R. W. Garvine. diag AIAA J 2:1660-1 S '64

Hypersonic wake characteristics behind spheres and cones. Z. J. Levensteins. bibliog il AIAA J 1:2848-50 D '63

Hypersonic wakes and trails. L. Lees. bibliog diags AIAA J 2:417-28 Mr '64

Integral equations for viscous hypersonic nozzle flow. M. Sichel. bibliog diags AIAA J 2:148-50 Ja '64

Integral solution for compressible laminar mixing. J. E. Hubbartt. AIAA J 2:1657-9 S '64

Interaction between the solar plasma wind and the geomagnetic cavity. L. Lees. bibliog diags AIAA J 2:1576-82 S '64

Interactions of gas molecules with an ideal crystal surface. R. A. Oman and others. bibliog il diags AIAA J 2:1722-30 O '64

Inviscid hypersonic flow past smooth symmetric bodies. S. H. Maslen. bibliog diag AIAA J 2:1055-61 Je '64

Laminar compressible mixing behind finite bases. P. S. Lykoudis. diag AIAA J 2:391-2 F '64

Laminar wake with arbitrary initial profiles. H. Gold. AIAA J 2:948-9 My '64

Length of the laminar hypersonic wake during ballistic re-entry. P. S. Lykoudsi. bibliog AIAA J 2:155-6 Ja '64

Magnetohydrodynamic hypersonic viscous flow past a blunt body. M. C. Smith and C. S. Wu. diags AIAA J 2:963-5 My '64

Model for the transition regime in hypersonic rarefied gasdynamics. B. B. Hamel. bibliog diag AIAA J 2:1047-54 Je '64

Momentum integral methods for the laminar free shear layer. T. Kubota and C. F. Dewey, jr. bibliog AIAA J 2:625-9 Ap '64

Nonequilibrium hypersonic flat-plate boundary-layer flow with a strong induced pressure field. G. R. Inger. bibliog AIAA J 2:452-60 Mr '64

Oxygen-electron attachment in hypersonic wakes. S. L. Zeiberg. bibliog AIAA J 2:1151-2 Je '64

Pressure distribution for hypersonic boundary-layer flow. M. S. Sastry. diag AIAA J 1:2398-9; 2:961-2 O '63, My '64

Pressure gradient effects on nonequilibrium far wakes. N. Ness and J. B. Fanucci. bibliog AIAA J 2:1514-15 Ag '64

Pressures in the stagnation regions of blunt bodies in rarefied flow. J. L. Potter and A. B. Bailey. bibliog AIAA J 2:743-5 Ap '64

Quasi-one-dimensional treatment of chemical reactions in turbulent wakes of hypersonic objects. S. C. Lin and J. E. Hayes. bibliog AIAA J 2:1214-22 Jl '64

Real-gas hypersonic blunt-body flows. R. J. Swigart. bibliog AIAA J 1:2642-4 N '63

Recent studies of the laminar base-flow region. E. Baum and others. bibliog il diags AIAA J 2:1527-34 S '64

Shock interaction in a hypersonic flow. F. R. Tepe, jr. and W. Tabakoff. bibliog diag AIAA J 2:1478-80 Ag '64

Skin friction of slender cones in hypersonic flow. J. Raat. AIAA J 2:755-6 Ap '64

Structure of the boundary layer at the leading edge of a flat plate in hypersonic slip flow. J. A. Laurmann. bibliog diag AIAA J 2:1655-7 S '64

Studies of the luminous hypersonic wake. R. L. Taylor and others. bibliog il diag AIAA J 2:1731-8 O '64

Study of laminar hypersonic cavity flows. K. M. Nicoll. bibliog il diag AIAA J 2:1535-41 S '64

Study of the incompressible turbulent boundary layer with pressure gradient. P. A. Libby and others. bibliog AIAA J 2:445-52 Mr '64

AERODYNAMICS, Hypersonic—*Continued*

Study of wakes behind a circular cylinder at $M = 5.7$. J. F. McCarthy, jr. and T. Kubota. bibliog il diags AIAA J 2:629-36 Ap '64

Three-dimensional perturbations on hypersonic wedge flow. N. D. Malmuth. bibliog diags AIAA J 2:1383-9 Ag '64

Tracer-spark technique for velocity mapping of hypersonic flow fields. J. B. Kyser. il diag AIAA J 2:393-4 F '64; Discussion. 2:1517-18 Ag '64

Transition correlations for hypersonic wakes. S. L. Zeiberg. bibliog AIAA J 2:564-5 Mr '64; Discussion. diag 2:1675-7 S '64

Transonic experiment at hypersonic speed. S. C. Traugott. bibliog diags AIAA J 2:1521-7 S '64

Turbulent wake characteristics with different eddy viscosity coefficients. K. S. Wan. bibliog AIAA J 2:121-2 Ja '64

Viscous and nonviscous nonequilibrium nozzle flows. J. J. Brainerd and E. S. Levinsky. bibliog diags AIAA J 1:2474-81 N '63

Wake transition. K. S. Wen. bibliog AIAA J 2:956-7 My '64

Weak interacting hypersonic flow over cones. W. Hoelmer and M. Saarlas. bibliog AIAA J 2:1846-7 O '64

See also
Airplanes, Hypersonic

Heating effect

Ablation of a cylindrical cavity in an infinite medium. S. V. Nardo. bibliog diag AIAA J 2:936-7 My '64

Ablation-products radiation from cones. W. C. Davy and others. bibliog il diag AIAA J 2:1583-9 S '64

Analytical study of meteor entry. J. A. Fay and others. bibliog AIAA J 2:845-54 My '64

Atmospheric chemistry and aerodynamic flow. G. S. Canetti and H. Cheung. diag Chem Eng Prog 60:36-8 F '64

Centrifugal hypersonic wind tunnel facility for investigating effects of inertia on ablating bodies. J. S. Ford, 2d and W. H. Horton. bibliog flow diag il diags Roy Aeronautical Soc J 67:745-53 D '63

Droplet formation from a liquid film over a rotating cylinder. S. I. Cheng and J. Cordero. il AIAA J 1:2597-601 N '63

Effect of shock curvature on turbulent heating of sphere-cones. C. T. Edquist. AIAA J 2:1486-7 Ag '64

Effect of variable Lewis number on heat transfer in a binary gas. K. R. Enkenhus. bibliog AIAA J 2:747-9 Ap '64

Effects of species diffusion and heat conduction on nonequilibrium flows behind strong shocks. W. E. Gibson and J. D. Buckmaster. bibliog AIAA J 2:1681-8 O '64

Experimental heat-transfer studies of hypervelocity flight in planetary atmospheres. J. J. S. Gruszczynski and W. R. Warren, jr. bibliog il diags AIAA J 2:1542-50 S '64

Interaction of micrometeorites with gaseous targets. J. C. Slattery and others. diag AIAA J 2:543-8 Mr '64

Investigation of the physical properties of gases at high temperatures. K. C. Lapworth. bibliog il diags Roy Aeronautical Soc J 68:189-97 Mr '64

Laminar boundary layer near the plane of symmetry of a hypersonic inlet. P. A. Libby and others. bibliog diags AIAA J 1:2732-40 D '63

Laminar heat transfer to spherically blunted cones at hypersonic conditions. B. J. Griffith and C. H. Lewis. bibliog diags AIAA J 2:438-44 Mr '64

Laminar, transitional, and turbulent heat transfer after a sharp convex corner. V. Zakkay and others. bibliog diag AIAA J 2:1389-95 Ag '64

Mach 8 to 22 studies of flow separations due to deflected control surfaces. D. S. Miller and others. bibliog il AIAAJ 2:312-21 F '64

Manned spacecraft material problems. J. N. Kotanchik. il diags Astronautics & Aeronautics 2:12-17 Jl '64

Nonequilibrium blunt-body flow using the method of integral relations. W. C. L. Shih and J. R. Baron. bibliog AIAA J 2:1062-71 Je '64

Nonequilibrium sodium ionization in laminar boundary layers. J. J. Kane. AIAA J 2:1651-3 S '64

Preliminary estimates of radiative transfer effects on detached shock layers. R. Goulard. bibliog diags AIAA J 2:494-502 Mr '64

Production of intense radiation heat pulses. J. F. Louis and others. il diag AIAA J 2:156-9 Ja '64

Radiation model for nonequilibrium molecular gases. C. F. Hansen. bibliog AIAA J 2:611-16 Ap '64

Radiative and convective heating during hypervelocity re-entry. R. M. Nerem and G. H. Stickford. bibliog AIAA J 2:1156-8 Je '64

Re-entry heat conduction of a finite slab with a nonconstant thermal conductivity. W. R. Wells. AIAA J 2:379-81 F '64

Re-entry wake in an earth-fixed coordinate system. J. H. Klaimon. bibliog AIAA J 2:745-7 Ap '64

Shock curvature effect on the outer edge conditions of a laminar boundary layer. I. Rubin. AIAA J 1:2850-2 D '63

Stagnation-point heat-transfer measurements in partially ionized air. P. H. Rose and J. O. Stankevics. il AIAA J 1:2752-63 bibliog(p2762-3) D '63

Supersonic stagnation point heat transfer at low Reynolds numbers. H. Tong and W. H. Giedt. bibliog AIAA J 2:185-6 Ja '64

Theory of stagnation-point heat transfer in a partially ionized diatomic gas. J. A. Fay and N. H. Kemp. bibliog AIAA J 1:2741-51 D '63

Transient axisymmetric thermoelastic problem for the hollow sphere. W. E. Warren. bibliog AIAA J 1:2569-76 N '63

Use of temperature-sensitive coatings for obtaining quantitative aerodynamic heat-transfer data. R. A. Jones and J. L. Hunt. il AIAA J 2:1354-6 Jl '64

AERODYNAMICS, Supersonic

Boundary of underexpanded axisymmetric jets issuing into still air. A. F. Charwat. AIAA J 2:161-3 Ja '64

Contour calculations for chemical nonequilibrium flow. T. E. Widmer and T. P. Anderson. bibliog AIAA J 1:2631-3 N '63

Decay of shock waves in stationary flows. O. S. Ryzhov. bibliog AIAA J 1:2911-15 D '63

Electron fluctuations in an equilibrium turbulent plasma. A. Demetriades. bibliog AIAA J 2:1347-9 Jl '64

Flutter design parameter to supplement the Regier number. F. J. Frueh. AIAA J 2:1343-5 Jl '64

Flutter of a ring of panels. R. Stearman. bibliog diags AIAA J 2:1441-8 Ag '64

Flutter of multibay panels at supersonic speeds. W. P. Rodden. bibliog AIAA J 2:1476-8 Ag '64

Flutter of two parallel flat plates connected by an elastic medium. J. A. McElman. diags AIAA J 2:377-9 F '64

Interaction between primary and secondary streams of supersonic ejector systems and their performance characteristics. W. L. Chow and A. L. Addy. bibliog diags AIAA J 2:686-95 Ap '64

Jet-driven resonance tube. P. A. Thompson. bibliog il diag AIAA J 2:1230-3 Jl '64

Lift contribution to the sonic boom. G. A. Bird and C. J. Wetherall. bibliog diags AIAA J 2:582-3 Mr '64

Method of Belotserkovskii for asymmetric blunt-body flows. E. A. Brong and D. C. Leigh. diag AIAA J 2:1852-3 O '64

Momentum integral methods for the laminar free shear layer. T. Kubota and C. F. Dewey, jr. bibliog AIAA J 2:625-9 Ap '64

Nonequilibrium flow over a cone. R. Sedney and N. Gerber. bibliog diags AIAA J 1:2482-6 N '63

Numerical stability of the three-dimensional method of characteristics. H. Sauerwein and M. Sussman. diags AIAA J 2:387-9 F '64

Research into aerodynamics. il Engineer 217:1063-5 Je 19 '64

Review of problems in application of supersonic combustion. A. Ferri. bibliog diags Roy Aeronautical Soc J 68:575-95; Discussion. 595-7 S '64

Supersonic Magnus effect on a finned missile. E. R. Benton. bibliog diags AIAA J 2:153-5 Ja '64

Supersonic panel flutter of oblique clamped plates. A. Kornecki. bibliog diag Roy Aeronautical Soc J 68:270-1 Ap '64

Unified analysis of supersonic nonequilibrium flow over a wedge: vibrational nonequilibrium. R. S. Lee. bibliog diag AIAA J 2:637-46 Ap '64

See also
Aerodynamics, Hypersonic
Airplanes, Supersonic
Boundary layer

AERODYNAMICS, Supersonic—*Continued*

Heating effect

Correlation of boost phase turbulent heating flight data. M. G. Dunn. bibliog AIAA J 2:122-4 Ja '64

Effect of gas composition on the ablation behavior of a charring material. N. S. Vojvodich and R. B. Pope. bibliog diags AIAA J 2:536-42 Mr '64

Heat transfer to a sphere for free molecule flow of a nonuniform gas. K. J. Touryan and G. Maise. diag AIAA J 1:2644-6 N '63

Hydromechanical fuel controls look good for Mach 3. J. R. Goerke. S A E J 72:87-8 My '64

Laminar heat transfer to a two-dimensional backward facing step from the high-enthalpy supersonic flow in the shock tube. J. Rom and A. Seginer. bibliog il AIAA J 2:251-5 F '64

Thermal ionization behind strong shock waves. R. W. Truitt. AIAA J 1:2175-6 S '63; Discussion. K. N. C. Bray. 2:1161-2; Reply. 1162 Je '64

Thin-film radiative heat-transfer gage. R. M. Nerem and G. H. Stickford. bibliog diag AIAA J 2:1647-9 S '64

AEROELASTICITY

Aeroelastic vibration of a steel arch. R. R. Bradshaw. il diags Am Soc C E Proc 90 [ST 3 no 3921]:1-17 Je '64; Discussion. 90 [ST 5 no 4066]:243-4 O '64

Flutter design parameter to supplement the Regier number. F. J. Frueh. AIAA J 2:1343-5 Jl '64

AERONAUTIC engineering

SAE-ASME National air transport and space meeting and production engineering forum, New York. S A E J 72:102-9 Jl '64

Space/Aeronautics research and development technical handbook, 1964/1965. Space/Aeronautics 42 no 4:1-252 '64-65 ($5)

Towards better aircraft structures; Royal aeronautical society symposium, London, May 2; papers presented. Roy Aeronautical Soc J 67:685-716 N '63

See also
Aerodynamics
Aerodynamics, Supersonic
Aeronautic research
Airplanes—Design
Calculating machines—Aeronautic applications

Bibliography

Professional publications. il Aircraft Eng 36:217 Jl '64

History

Sir Frederick Handley Page; the man and his work. G. V. Lachmann. il diags Roy Aeronautical Soc J 68:433-52 Jl '64; Excerpts. Engineer 217:1138-9 Je 26 '64

Study and teaching

Teaching aircraft design in the postgraduate course at the College of aeronautics, Cranfield. A. F. Newell and D. Howe. il diags Aircraft Eng 36:330-2 O '64

Tables, calculations, etc.

See also
Airplane stability and stabilizers

AERONAUTIC engineers

See also
Page, Frederick Handley

AERONAUTIC instruments

Aerospace pushes, is pushed by instruments; American institute of aeronautics and astronautics, 1st meeting, Washington. I S A J 11:22+ Ag '64

Airborne distance measurement. il Engineer 218:70 Jl 10 '64

Airborne distance measurement. il Engineer 218:559 O 2 '64

Aircraft navigational projector. il Engineer 216:744 N 1 '63

All-weather aircraft landing. F. B. Brady. il diags Sci Am 210:25-35 Mr '64

Automatic landing; Hawker Siddeley Trident. il plan diags Aircraft Eng 36:160-5 Je '64

Data acquisition system. flow chart diag Aircraft Eng 36:147 My '64

Feedback stiffens D'Arsonval movement. R. Bergeson. diags Control Eng 11:121 S '64

Now the pilot sees data at eye-level. il Engineering 197:286-7 F 21 '64

On site system calibration. D. B. Jones. il diags I S A J 11:71-4 S '64

Vibration-proof indicator for severe environments. diags Space/Aeronautics 42:77+ S '64

See also
Accelerometers
Altimeters
Gyro compass
Radio aids to aviation
Radio apparatus on aircraft

Lighting

Airline looks at aircraft lighting problem. R. Schwab and others. S A E J 72:70-1 F '64

Manufacture

Tube forming instrument cases. L. Rubin. diags Am Mach 108:51 Ag 3 '64

Testing

Designing the servo drive for a rocking table. H. R. Martin and J. E. Carrington. il diags Hydraulics & Pneumatics 17:84-9 Jl '64

AERONAUTIC laboratories

New Aerospace research center combines many disciplines; General Precision. il Anal Chem 36:sup87A-9A Ja '64

Research and development laboratories of Ferranti, ltd. Engineer 216:743 N 1 '63

See also
Testing laboratories—Vacuum chambers
Wind tunnels

Equipment

Development of strong aluminium alloys. W. M. Doyle. il Aircraft Eng 36:214-17 Jl '64

Research and testing; equipment, programmes, techniques and projects (cont). il Aircraft Eng 36:153, 226, 254, 295 My, Jl-S '64

Small gas turbine used to supply total energy to space research laboratory. il Air Cond Heat & Ven 61:96 Jl '64

Heating and ventilation

Space age challenge; nearly constant room temperatures. H. M. Olbur. il diags Heating-Piping 36:137-41 My '64

AERONAUTIC meteorology. See Meteorology, Aeronautic

AERONAUTIC research

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. bibliog il map diags Roy Aeronautical Soc J 68:75-105 F '64

Concord aerodynamics. P. Satre. il Engineer 216:988-9 D 13 '63

NASA designs that merit reward. il Product Eng 35:44-5 Jl 6 '64

Recent supersonic transport research. W. J. Alford, jr. and C. Driver. bibliog il diags Astronautics & Aeronautics 2:26-37 S '64

Reinforced polyester is the natural choice for aero- and hydrodynamic research. il Plastics World 21:16-17 N '63

Research into aerodynamics. il Engineer 217:1063-5 Je 19 '64

Space/Aeronautics research and development technical handbook, 1964/1965. Space/Aeronautics 42 no 4:1-252 '64-65 ($5)

Supersonic transport; road ahead. W. Littlewood. Astronautics & Aeronautics 2:77-8 S '64

See also
Aeronautic laboratories
Airplanes, Experimental
Rocket sleds
Space research
United States—National aeronautics and space administration
Wind tunnels

Bibliography

Research reports and memoranda. Aircraft Eng 36:155, 229, 259, 335 My, Jl-Ag, O '64

Australia

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. bibliog il diag Roy Aeronautical Soc J 68:76-82 F '64

Canada

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. bibliog il diag Roy Aeronautical Soc J 68:82-90 F '64

India

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. bibliog il map diag Roy Aeronautical Soc J 68:90-5 F '64

AERONAUTIC research—*Continued*

New Zealand

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. bibliog il Roy Aeronautical Soc J 68:95-9 F '64

South Africa

Aeronautical research and development in the Commonwealth. A. E. Woodward-Nutt. il Roy Aeronautical Soc J 68:99-101 F '64

AERONAUTICAL society, Royal. See Royal aeronautical society

AERONAUTICS

See also
Aerodynamics
Airfoils
Airplane stability and stabilizers
Airplanes
Airports
Electronics in aeronautics
Gliders
Helicopters
Space flight
Surveying, Aerial

Bibliography

In print. Astronautics & Aerospace Eng 1:153 F; 131 S; 5 N '63; [cont as] Astronautics & Aeronautics 2:5 F; 14-15 Je; 87 Jl; 18 O '64
Library; reviews, additions to the library, reports. Published in monthly numbers of Journal of the Royal aeronautical society

Exhibitions

Any more for the Sky Lark? a conducted tour of Farnborough. Wireless World 70: 516-17 O '64
Salone internazionale dell'aeronautica, Turin, May 31-June 7. il plan diags Aircraft Eng 36:126-31 My '64
S.B.A.C. flying display and exhibition, Farnborough, Sept. 7-13. il Engineer 218:357, 411-14, 439-43 S 4-18 '64; diags Engineering 198:286-9, 328-31 S 4-11 '64
S.B.A.C. flying display and exhibition, 24th, Farnborough, Sept. 7-13; with preview, floor plans, and list of exhibitors. il Aircraft Eng 36:265-72, 277-80, 310-29 S-O '64

History

Development of military aviation in Australia. W. H. Garing. il Roy Aeronautical Soc J 68:25-34 Ja '64
Some reflections on parachute design, 1797-1837. S. B. Jackson. diags Roy Aeronautical Soc J 68:464-6 Jl '64
Technology and air power. R. Cockburn. Roy Aeronautical Soc J 68:165-8 Mr '64

Laws and regulations

Control of aircraft noise perceived at ground level; technical aspects; legal aspects. E. J. Richards; H. Caplan. bibliog Roy Aeronautical Soc J 68:45-52; Discussion. 53 Ja '64
Development of legislation for hovercraft. A. R. Barrowclough. Roy Aeronautical Soc J 68:467-76 Jl '64
Everyday air law. P. Martin. Roy Aeronautical Soc J 68:230-6 Ap '64
Legislation and regulations in agricultural aviation. W. J. Maan. Roy Aeronautical Soc J 68:559 Ag '64
Licensing British air transport. S. Wheatcroft. bibliog Roy Aeronautical Soc J 68: 169-77; Discussion. 177-8 Mr '64

Patents

British patent abridgments. diags Aircraft Eng 36:156, 230, 260, 336 My, Jl-Ag, O '64
U.S. patent specifications. diags Aircraft Eng 36:156, 230, 260, 336 My, Jl-Ag, O '64

AERONAUTICS, Commercial

Aerospace in perspective; utilization. il diags Space/Aeronautics 41:122-37 Ja '64
Application of supersonic aircraft to airline operations. H. D. Fellows. Am Soc C E Proc 90 [AT 2 no 4103]:25-30 O '64
Civil aviation to 1970. R. Horonjeff and G. Ahlborn. bibliog diags Am Soc C E Proc 90 [AT 1 no 3891]:1-15 My '64
Defining the sonic-boom problem. H. A. Hutchinson. bibliog Astronautics & Aerospace Eng 1:56-61 D '63
Dollar dilemma threatens SST. R. K. Rourke and J. P. Mitchell. S A E J 72:60-3 S '64
Power for supersonic flight. S. G. Hooker. il diags Roy Aeronautical Soc J 68:454-63 Jl '64
Pros and cons of supersonic aviation in relation to gains or losses in the combined time/comfort consideration. B. K. O. Lundberg. bibliog il diags Roy Aeronautical Soc J 68:611-28; Discussion. 628-30 S '64
Report on the status of the supersonic transport. J. T. Dyment. il diags S A E J 72: 30-5 Jl '64
Some considerations affecting the design and operation of supersonic civil transports. A. L. Courtney. diags Roy Aeronautical Soc J 68:598-610 S '64
Supersonic commercial jets need low-cost fuel. E. H. Wehner. S A E J 72:54-5 O '64
Supersonic transport. il diags Space/Aeronautics 41:62-91 Ap '64
Supersonic transport. R. L. Bisplinghoff. il diags Sci Am 210:25-35 Je '64
Supersonic transport development program. R. D. Kelly. Am Soc C E Proc 90 [AT 2 no 4091]:1-8 O '64
Time of transition. N. E. Rowe. bibliog il diags Roy Aeronautical Soc J 68:145-55 Mr '64
Transport aircraft; trends in design; illustrations with text. Engineer 217:30-1 Ja 3 '64
What's an economic supersonic transport? J. G. Borger and W. F. Hibbs. map Astronautics & Aeronautics 2:16-24 S '64
Wing structure suits supersonic transport. J. D. Van Dyke, jr. diags S A E J 72:86-8 N '64

See also
Airlines
Airports

Great Britain

Licensing British air transport. S. Wheatcroft. bibliog Roy Aeronautical Soc J 68: 169-77; Discussion. 177-8 Mr '64

AERONAUTICS, Military

Instant infantry flights anywhere within 45 minutes. il Machine Design 36:14-15 Mr 12 '64
Technology and air power. R. Cockburn. Roy Aeronautical Soc J 68:165-8 Mr '64
Time of transition. N. E. Rowe. bibliog il diags Roy Aeronautical Soc J 68:145-55 Mr '64

See also
Airplane carriers
Airplanes, Military
United States—Air service, Navy
Weapons systems

Australia

Development of military aviation in Australia. W. H. Garing. il Roy Aeronautical Soc J 68:25-34 Ja '64

United States

DOD space programs. H. Brown. il Astronautics & Aeronautics 2:68-71 Je '64

AEROSOL products. See Containers, Pressurized

AEROSOLS

Aerosol studies by light scattering. M. Kerker and others. bibliog diags J Colloid Sci 19: 213-37 Mr '64
Charged aerosol energy converter. A. Marks and others. bibliog diags AIAA J 2:45-51 Ja '64
Transport of aerosols through ducts. R. I. Mitchell and others. plan diags Ind & Eng Chem Proc Design 3:339-45 O '64

AEROSPACE industries

Aerospace age presents new challenge for manufacturing; abstract. G. I. Beckwith. S A E J 72:59 Ja '64
Aerospace manufacturing requirements get tougher. G. I. Beckwith and J. Madsen. S A E J 72:108 Ja '64
Defense cutbacks and the aerospace industry. M. L. Weidenbaum. bibliog Astronautics & Aeronautics 2:60-4 Je '64
Get to know reliability control. J. de S. Coutinho and others. diags S A E J 72:32-9 Ag '64
High strength steel needs no post-weld treatment. Space/Aeronautics 41:105 Mr '64
Improved techniques handle clean-room problems. il diag S A E J 72:54-9 Mr '64
International conference and exhibit on aerospace electro-technology, Phoenix, Ariz. April 19-25; program. Electro-Tech 73:10-12+ Ap '64
Making money in space. J. A. Strasser. il Electronics 37:124-6 Je 15 '64
Management knowhow lags technology. W. A. Davis. Steel 154:80+ My 11 '64

AEROSPACE industries—*Continued*

Materials and processing, what does the aerospace industry need? R. G. Dermott. Metal Prog 85:74-83 Mr '64

Measurements gap. L. B. Wilson and H. W. Martin. il Space/Aeronautics 41:84-90 Mr '64

Microelectronics. F. Leary. bibliog il diags Space/Aeronautics 41:68-84 F '64

Politics and technology in the aerospace budget requests. Space/Aeronautics 41:10-11+ F '64

SAE-ASME National air transport and space meeting and production engineering forum, New York. S A E J 72:102-9 Jl '64

Systems reliability in the space program. N. E. Golovin. bibliog Ind Quality Control 20:20-30 My '64

Systems view of producibility. P. Rosenthal and H. T. McAdams. il diags Space/Aeronautics 41:100-7 Ap '64

Testing for 100 per cent reliability. R. H. Eshelman. il Iron Age 193:66-7 My 28 '64

Their E rating is high. B. Austin. il Ind Phot 13:42-4+ F '64

Directories

Advertiser capability reference: guide to 186 organizations with experience in solving aerospace problems. Space/Aeronautics 41:209-32 Ja '64

AFGHANISTAN

Peace corps volunteers teach printing. Inland Ptr/Am Lithogr 152:122+ Mr '64

AFRICA

Africa: EEC's bid for larger markets. L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:97-113 Jl '64

See also

Kilimanjaro

also subdivision Africa under special subjects, e.g.

Electricity supply

Mines and mineral resources

Nutrition problems

Petroleum industry and trade

Television broadcasting

Native races

Ecology of childhood disease in the Karamojong of Uganda. D. B. Jelliffe and others. bibliog il map Archives Environmental Health 9:25-36 Jl '64

Iron overload in Bantu subjects. T. H. Bothwell and others. bibliog Am J Clinical Nutrition 14:47-51 Ja '64

AFRICA, East

See also

Railroads—Africa, East

AFTERGLOW. See Electric discharges

AGAR

Photorectifiers with agar gel contacts. K. E. Plain and R. H. Bube. Electrochem Soc J 111:751-2 Je '64

AGE

See also

Old age

AGE (animals)

Characterization of the eating quality of four beef muscles from animals of different ages by panel scores, shear-force values, extensibility of muscle fibers, and collagen content. S. J. Ritchey and R. L. Hostetler. bibliog Food Tech 18:1067-70 Jl '64

AGE, Geological. See Geological time

AGE and employment

Job hunting over 40. il Chem Eng 71:147-8+ Jl 6 '64

See also

Retirement

AGE of rocks. See Rocks—Age

AGENCY (law)

Make sure owner's agent has authority to act. R. A. Brown. Heating-Piping 36:116 Jl '64

AGFACOLOR. See Photography—Films

AGGLOMERATION

Agglomeration of dried materials. J. G. Moore and others. flow diag il Chem Eng Prog 60:63-6 My '64

Crushing strength of zinc oxide agglomerates. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:202-5 Jl '64

Service-induced diffusion and nodule formation in rubber stocks. R. W. Smith and A. L. Black. bibliog il Rubber Chem & Tech 37:338-47 Ap '64

Spontaneous pelletization in fine powders. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:197-201 Jl '64

AGGREGATES

Aggregate economy through universal standardization. D. L. Bloem. Pit & Quarry 57:118-20 Ag '64

Aggregate industries; review and forecast. B. C. Herod. il map Pit & Quarry 56:110-15 Ja '64

B. K. Powers looks at the lightweight aggregate industry today; interview. Rock Prod 67:78-9+ O '64

Corson co. researches fly ash lightweight aggregate. L. J. Minnick. bibliog il Rock Prod 67:74-7 S '64

First 12-axle trailer train hauls aggregates. il Rock Prod 67:71 O '64

Is the fly ash disposal problem solved? S. Levine. bibliog il Rock Prod 67:60-1 Je '64

Mathematical method for blending aggregates. D. L. Neumann. bibliog Am Soc C E Proc 90 [CO 2 no 4026]:1-13 S '64

Minimum stockpiling equals maximum savings for American Aggregates' South Springfield, Ohio plant. S. Levine. flow sheet il diag Rock Prod 67:82-5 Ap '64

Mold aggregates; a comparison of their properties. J. M. Neff. il Foundry 92:198-200+ Ap '64

Nevada deposit yields new type of lightweight aggregate. Pit & Quarry 56:140 Ja '64

Rock deposits and good crushed stone aggregates. N. C. Rockwood. Rock Prod 67:26+ My '64

Separate plants supplying 150,000,000 cu. yd. of aggregate for new California dams. H. F. Utley. il Pit & Quarry 56:132-5+ Ap '64

Stability of bituminous pavements related to aggregate characteristics. R. E. Olsen. Pub Roads 33:54-5 Ag '64

Statistical approach to aggregate graduation: abstract. H. A. Radzikowski. Pub Works 95:176 Ap '64

Stone plant that backed the record pavers. H. K. Glidden. il plan Roads & Sts 107:72+ Je '64

See also

Concrete—Aggregate

Gravel

Road materials

Sand

Manufacture

Aggregate production speed record set at Curtis Construction. il Rock Prod 66:68-70 D '63

Busy firm with unique deposit serves widely varied markets. B. C. Herod. il Pit & Quarry 56:133-5 Mr '64

Danish lightweight aggregate sweeps Europe. R. Ironman. il diag Rock Prod 67:82+ O '64

Eastern sintering plant now producing fly ash pellets. R. L. Wirt and W. A. Rumberger. il diags Rock Prod 67:62-6 Je '64

Eight job aggregates from one novel crushing site. il diags Roads & Sts 107:68-72 F '64

Expanded shale production climbs at Kenlite. il diags Rock Prod 67:78-82 F '64

Fly ash plant in operation. Elec World 162:61 Jl 13 '64

Hudson's lightweight slate aggregate plant. W. E. Trauffer. il Pit & Quarry 56:124-5+ N '63

Industry leader adds to market service: American aggregates corp. B. C. Herod. flow diag il diag Pit & Quarry 56:118-23 F '64

Manicouagan Dam project requires millions of tons of materials. il map Pit & Quarry 57:96-101+ S '64

New larger loader brings changes to plant operation; Becker county sand & gravel co. il Roads & Sts 107:52-5 My '64

New radial stockpiling system; Asbury rock products co. R. S. Torgeson. il Rock Prod 66:78-9+ D '63

New Virginia crushed stone plant. W. E. Trauffer. il diags Pit & Quarry 57:88-90+ O '64

Pace-setting Oklahoma crushing plant. flow diag il Rock Prod 67:108-10 My '64

Road contractor adds crushed stone plant, then agstone and pulverizing setup; Hodges and co. W. E. Trauffer. il Pit & Quarry 56:145-7 My '64

Tucson Rock grows with the growing Southwest. R. S. Torgerson. il diag Rock Prod 67:64-6 Jl '64

Tyrone Rock captures an expanding market. R. J. Mitchell. il diag Rock Prod 67:76-9 Jl '64

Washers and screens pace big Kansas hot-mix job. H. K. Glidden. il diags Roads & Sts 107:44-7+ Ag '64

AGING. See Old age

AGING of metals. See Metals—Aging

AGITATION

Incipient vortex formation in baffled agitated vessels. M. W. Clark and T. Vermeulen. bibliog diag A I Ch E J 10:420-2 My '64

Liquid film controlled mass transfer in agitated vessels. D. N. Miller. bibliog Ind & Eng Chem 56:18-27 O '64

Mass transfer and contactor efficiency in a stirred liquid-liquid reactor. A. J. Engel and O. A. Hougen. bibliog diag A I Ch E J 9:724-9 N '63

Scale of mixing in a stirred vessel. A. W. Rice and others. bibliog diags A I Ch E J 10:125-9 Ja '64

Transient characteristics of continuous extraction with agitation. H. K. Staffin and J. C. Chu. bibliog diags A I Ch E J 10: 98-105 Ja '64

Turbulence energy and intensity spectra in a baffled, stirred vessel. W. J. Kim and F. S. Manning. bibliog diags A I Ch E J 10:747-52 S '64

AGITATORS

Critical evaluation of power requirements in agitated systems. A. T. Gretton. bibliog Chem Eng 71:145-8 Ja 20 '64

Mixing non-Newtonian fluids. G. E. Alves. bibliog il Chem Eng Prog 60:41-2 Ag '64

Pneumatic agitator improves parts cleaning. F. Rider. il Plant Eng 18:131 S '64

Turbine impellers as gas-liquid contacting devices. G. Hamer and N. Blakebrough. bibliog diags J Ap Chem 13:517-24 N '63

See also

Mixers

Stirrers

AGRICULTURAL chemicals

Marketing lawn, garden products. R. M. Staples. Soap & Chem Spec 40:83-4 Ap '64

See also

Pesticides

AGRICULTURAL chemisty

See also

Feeding and feeding stuffs

Insecticides

Soil analysis

AGRICULTURAL engineering

See also

Agricultural machinery

Drainage

Electricity on the farm

Irrigation

AGRICULTURAL experiment stations

Air conditioning plays key role in plant-growth research room. il diag Air Cond Heat & Ven 60:102-3 N '63

AGRICULTURAL laboratories

Block grill shields laboratory. il Eng N 172: 22 F 27 '64

AGRICULTURAL limestone. See Lime as fertilizer

AGRICULTURAL machinery

Agricultural machinery developments. il Engineer 217:276 F 7 '64

Automatic coupling for tractors and implements. il Engineering 196:719 D 6 '63

Electronics spark recent FCIM advances; farm, construction and industrial machinery meeting, Milwaukee, Sept. 14-17. S A E J 72:34-49 S '64

Farm equipment; illustrated review. Automotive Ind 130:85-8 Je 15 '64

Hovertruck. A. E. Bingham; E. W. B. Evans. il diags Roy Aeronautical Soc J 67: 755-8 D '63

Latest trends in construction and farm equipment. M. Ainsworth. il Automotive Ind 130:59-62 Je 15 '64

Multi-purpose cultivation tool. il Engineer 218:592 O 9 '64

Multi-purpose forage box. il Engineer 217: 1006 Je 5 '64

Multi-purpose moving-floor trailer. il Engineer 216:862 N 22 '63

New inter-row rotary hoe. il Engineering 197:831 Je 19 '64

Pick-up baler. il Engineer 218:594 O 9 '64

Small company engineering has to be good, or else. C. L. Callum and C. W. Bricher. il S A E J 72:57-9 N '64

Winning the war on poverty with farm and construction equipment. H. W. Barclay. il Automotive Ind 130:47-50 Je 15 '64

See also

Cultivators

Harvesting machinery

Tractors, Farm

Exhibitions

Royal agricultural society of England's annual Royal show, Stoneleigh, Warwick, July 7-10. il Engineer 218:49-51, 93-6 Jl 10-17 '64

Royal Smithfield show and agricultural machinery exhibition, London. il diag Engineer 216:935-8, 989-91 D 6-13 '63

Manufacture

Farm equipment production illustrated. C. J. Kelly. Automotive Ind 130:80-1 Je 15 '64

Massey-Ferguson's new North American combine plant. il Automotive Ind 130:89-90 Je 15 '64

Switch to CO_2-Mig arc spot welding reduces cutter costs. il Welding Eng 48:44-5 N '63

Painting and finishing

Massey-Ferguson's new painting setup. G. E. Toles. il Ind Finishing 40:58-60+ O '64

AGRICULTURAL machinery industry

Great Britain

National power farming conference, Harrogate, Feb. 12-13; abstracts of papers. Engineer 217:348-9 F 21 '64

1964 prospects of all engineerings; agricultural engineering. il Engineering 197:138-40 Ja 17 '64

AGRICULTURAL products

See also

Crops

Rubber

AGRICULTURAL research

American Cyanamid agricultural research center at Princeton. Food Tech 17:1400 N '63

Jealott's Hill research station. D. J. Halliday. bibliog il Chem & Ind p4-12 Ja 4 '64

See also

Agricultural experiment stations

Agricultural laboratories

Soil research

AGRICULTURE

Man's food in a competitive world. W. Slater. Chem & Ind p 1785-7 N 9 '63

Pesticides; a contribution to agriculture and nutrition. W. J. Darby. Am J Pub Health 54:18-23 pt 2 Ja '64

See also

Agricultural machinery

Airplanes in agriculture

Drainage

Feeding and feeding stuffs

Fertilizers

Food and agriculture organization of the United Nations

Irrigation

Terracing

Great Britain

Trends in land tenure and ownership. E. S. Dobb. bibliog Roy Aeronautical Soc J 68: 539-43 Ag '64

Mexico

See also

Chinampas

United States

U.S. agriculture and nutrition. R. R. Renne. Food Tech 18:1541-3 O '64

AGSTONE. See Lime as fertilizer

AILERONS

Aerodynamic design and flying controls; Hawker Siddeley Trident. il plans diags Aircraft Eng 36:172-81 Je '64

AIR

Analytical approximations of thermodynamic functions of air. V. V. Mikhailov. bibliog AIAA J 1:2692-6 N '63

Analytical representation of the thermodynamic functions of dissociating air. V. V. Mikhailov. AIAA J 1:2689-92 N '63

Body burden and air quality standards. J. R. Goldsmith. bibliog Archives Environmental Health 8:39-43; Discussion. 110-14 Ja '64

Breakdown in air at very low pressure in a waveguide. A. S. Dunbar. bibliog J Ap Phys 35:3047-8 O '64

Catalyzed copper-copper oxide flame reactions of selected organohalogens in the presence of methane and air. E. A. Eads. Anal Chem 36:2373 N '64

Computation of the critical flow function, pressure ratio, and temperature ratio for real air. R. M. Reimer. A S M E Trans ser D 86:169-73; Discussion. 173-4 Je '64

Condensing heat transfer in steam-air mixtures in turbulent flow. P. B. Stewart and others. bibliog flow diag diag Ind & Eng Chem Proc Design 3:48-54 Ja '64

Dispersion properties of air as a possible limitation on the maximum useable bandwidths of coherent optical communication systems. C. M. Knop. IEEE Proc 52:319-20 Mr '64

Drying air with activated alumina under adiabatic conditions. R. J. Getty and W. P. Armstrong. bibliog diag Ind & Eng Chem Proc Design 3:60-5 Ja '64

AIR—*Continued*

Effect of oxidation on the reactivity of nuclear graphite towards air. A. R. Blake. bibliog J Ap Chem 14:382-8 S '64

Effects of thermal and r.f.-activated oxidation on the air reactivity of graphite. A. R. Blake and others. J Ap Chem 14:115-17 Mr '64

Experimental detonation velocities and induction distances in hydrogen-air mixtures. L. E. Bollinger. bibliog AIAA J 2:131-3 Ja '64

How Btu control improves peak shaving with propane-air gas. P. E. Petrash. diag Gas 40:156-7+ O '64; Same. il Gas Age 131:32-3+ O '64

How low for low excess air. R. J. Bender. il Power 108:63-5 Mr '64

Index of refraction of air, the absorption and dispersion of centimeter waves by gases. G. Boudouris. il diags J Res Nat Bur Stand 67D:631-84 bibliog(p681-4) N '63

Modified combustion pipette to analyse explosive mixtures of methane with air in Haldane mine-air analysis apparatus. A. K. Ghosh and B. Mitra. diags Chem & Ind p269-70 F 15 '64

Molten zirconium reacts with N_2 in air. L. S. Nelson. il Chem & Eng N 42:45-6 S 14 '64

Oxidation of pyrolytic graphite at temperatures of 1400°-1800°F and at air velocities of 25-100 cm/sec. M. Levy and P. Wong. bibliog il Electrochem Soc J 111:1088-91 S '64

Peak shaving with propane-air; utilization and evaluation. C. C. Heath. il plan diags Gas 39:70-3 D '63

Photomultiplier and electronic study of Geiger counter pulses in air. H. M. Herreman and L. B. Loeb. bibliog il diags J Ap Phys 34:3160-7 N '63

Propane/air; standby fuel for industry. E. J. Skerkoske. Am Cer Soc Bul 43:630-1 S '64

Protection of copper in high temperature air. S. A. Hoenig. R Sci Instr 35:904 Jl '64

Relation between velocity and velocity pressure for air and other gases; reference data. J. K. Brasch. Air Cond Heat & Ven 61:109-10 Ja '64

Sophomore-laboratory experiment on the viscosity of air. F. Oppenheimer. il diag Am J Phys 32:526-8 Jl '64

Stagnation-point heat-transfer measurements in partially ionized air. P. H. Rose and J. O. Stankevics. il AIAA J 1:2752-63 bibliog(p2762-3) D '63

Standing-wave discharge in air. P. A. Silberg. bibliog il J Ap Phys 35:2264-5 Jl '64

Summary of experiments on local heat transfer from the rear of bluff obstacles to a low speed airstream. H. H. Sogin. bibliog diags A S M E Trans ser C 86:200-2 My '64

Thermodynamic properties for imperfect air and nitrogen to 15,000°K. C. H. Lewis and C. A. Neel. bibliog AIAA J 2:1847-9 O '64

Vibrational relaxation in air. D. R. White and R. C. Millikan. bibliog il AIAA J 2:1844-6 O '64

See also

Aerodynamics
Atmosphere, Upper
Atmospheric pressure
Compressed air
Humidity
Meteorology

Analysis

Analysis by ion current. R. A. Morris and others. il diags Instruments & Control Systems 36:108-10 N '63

Apparatus for the automatic quantitative determination of ammonia concentrations in air. M. J. Kolbezen and others. bibliog il diags Anal Chem 36:593-6 Mr '64

Design parameters and performance of a miniaturized colorimetric recording air analyzer. B. E. Saltzman and A. L. Mendenhall, jr. il diag Anal Chem 36:1300-4 Je '64

Determination of ethylene oxide in air. N. E. Bolton and N. H. Ketcham. diag Archives Environmental Health 8:711-20 My '64

Determination of polyphenyls in working environments of organic reactors by spectrophotometric methods. C. Testa and G. Masi. bibliog diag Anal Chem 36:2284-7 N '64

Increasing sensitivity of 3-methyl-2-benzothiazolone hydrazone test for analysis of aliphatic aldehydes in air. T. R. Hauser and R. L. Cummins. Anal Chem 36:679-81 Mr '64

Portable sulphur dioxide recorder. D. A. Lloyd and M. Madden. diags J Sci Instr 41:622-5 O '64

Scintillation counter for the measurement of radon concentration in air. A. J. L. Collinson and A. K. M. M. Haque. bibliog diag J Sci Instr 40:521-3 N '63

Specific spectrophotometric determination of ozone in the atmosphere. H. A. Bravo and J. P. Lodge, jr. bibliog diag Anal Chem 36:671-3 Mr '64

Spectrophotometric determination of sulfur dioxide suitable for atmospheric analysis. B. G. Stephens and F. Lindstrom. diag Anal Chem 36:1308-12 Je '64

Spectrophotometric determination of total nitrogen dioxide and nitrogen tetroxide in air. S. W. Comer and A. V. Jensen. bibliog Anal Chem 36:799-800 Ap '64

Spectrophotometric method for determination of tetranitromethane in solution and in air. D. J. Glover and S. G. Landsman. bibliog Anal Chem 36:1690-1 Jl '64

See also

Air sampling

Bacteriology

Airborne infection; how important for public health? bibliog il Am J Pub Health 54:1666-88 O '64

Test new electric incinerator design for sterilizing laboratory air. G. J. Harris and others. bibliog diag Heating-Piping 36:94-5 F '64

AIR bases, Military

Wastewater treatment at McClellan air force base. R. V. Daigh. il map WPCF J 36:895-900 Jl '64

See also

Guided missile bases

Buildings

Differential settlement at Selfridge air force base. G. B. Wallace and W. C. Otto. il plan diag Am Soc C E Proc 90 [SM 5 no 4047]: 197-220 S '64

Equipment

How would you protect piped utilities at the North Pole? N. J. Staihar. il diags Power Eng 68:46-8 Ag '64

Portable service station proves useful. il Pet Management 36:212 Mr '64

Sanitary affairs

Volume analysis for an equalization tank. H. A. Dombeck. il Pub Works 95:83-5 Jl '64

AIR-blast circuit breakers. See Electric circuit breakers—Oilless

AIR brakes

Lubrication of air brake equipment on railroad freight cars. J. B. Driver. bibliog il diags Lub Eng 20:16-24 Ja '64

AIR carriers

See also

Airlines

AIR classifier. See Air separators

AIR cleaners

Air cleaners; applications and efficiency measuring methods; ASHRAE symposium. Air Cond Heat & Ven 61:55-9 Mr '64

Annual equipment specification digest; air distribution. il Air Cond Heat & Ven 61:63-4+ Ja '64

Compressed air must be clean and dry. Ind Finishing 40:95 My '64

Performance and application of electronic air cleaners in occupied spaces. D. J. Sutton and others. bibliog ASHRAE J 6:55-62 Je '64

Understanding air cleaner rating methods aids accurate selection and application. G. N. Deming. Air Cond Heat & Ven 61:59-61 Je '64

See also

Air filters

AIR cleaning

Modern air cleaning for a rolling mill. S. P. Adkins. il Iron & Steel Eng 41:176+ Mr '64

Ventilation effectiveness for indoor air cleaning. P. Kranz. bibliog ASHRAE J 5:27-31 S '63; Discussion. P. M. Engle and R. H. Avery. diag 5:30-3; Reply. 33-5+ D '63

AIR compressors

Air compressor. Iron & Steel Eng 41:239-40 Mr '64

AIR compressors—*Continued*

Air compressors; fluid power component selection charts. Hydraulics & Pneumatics 17: 75 Ja '64

Atlas Copco rotary screw compressors. il diags Engineering 197:514-16 Ap 10 '64

Bulk cargo handling compressor. il Engineer 216:1071 D 27 '63

Carbon ring oil-free air compressors. il diag Engineering 197:570 Ap 24 '64

Central packaged air-compressor station for construction of Yards Creek pumped-storage system. il diags Power 108:73 Je '64

Compressed air equipment; its growing importance in energy systems engineering. il Power 108:154-5 Je '64

Compressor capacity geared to plant expansion. T. M. Joyce. il Plant Eng 18:130-1 Ja '64

Compressor control seals with rolling diaphragms. J. F. Taplin and G. W. Fobian. diag Hydraulics & Pneumatics 16:106-7 N '63

Compressor supplied clean room with dry, oil-free air. il Plant Eng 18:143 S '64

First centrifugal compressor plant installed at steel mill. il Iron & Steel Eng 41:232 S '64

High purity air compressor supplies Pershing air bearings. J. W. Mahanay. il diag Hydraulics & Pneumatics 17:121-5 S '64

Integral-gear compressor. il Mech Eng 86:57 Ag '64

Market potential of gas prime movers for air compressor drive. M. E. White. Gas 40:sup 14 S '64

Non-lubricated air compressors. il Engineer 218:558 O 2 '64

Pneumatic compressors. il diags Machine Design 35:119-25 D 12 '63

Tunnel beneath Cicero. P. Meyer. il diag Comp Air Mag 69:8-9 Ag '64

Typical performance characteristics of gas turbine radial compressors. C. Rodgers. bibliog il diags A S M E Trans ser A 86: 161-70; Discussion. O. E. Baljé. 170:4; Reply. 174-5 Ap '64

See also

Air pumps

Compressed air

Superchargers

Cost of operation

Costs to watch in air compressor evaluation. J. G. Howell. il Plant Eng 18:135-8 F '64

Design

Choice of compressor piston diameters. P. C. Bevis. diags Engineer 217:615-16 Ap 3 '64

Design for compressed air. A. J. Ferrara. diag Air Cond Heat & Ven 61:62-6 Ag '64

Revolution? it's here in air compressors. J. G. Greenwood. il Power 108:79-81 O '64

Lubrication

Air/oil valve monitors lube oil flow. il diags Hydraulics & Pneumatics 17:18 Ap '64

Lubricating the tough jobs. il diag Hydraulics & Pneumatics 17:16 Ap '64

Maintenance and repair

Anatomy of compressor ills tells need for preventive maintenance program. L. Nielson. il Plant Eng 18:124-8 O '64

Compressed air cost too high? J. P. Hansen. il Textile Ind 128:120+ My '64

Don't inherit trouble. M. A. Kay. Power 108: 166-7 Mr '64

Soap plant observer. W. J. Beach. il diag Soap & Chem Spec 40:175-6 Ja '64

Noise

Noise abatement with portable air compressors. il Engineer 217:895 My 22 '64

Reducing noise of small compressors. il Engineering 197:591 Ap 24 '64

Road breaking equipment made less noisy. il Engineering 197:734 My 29 '64

Specifications

How to specify a reciprocating air compressor. W. D. Laird. il diags Hydraulics & Pneumatics 17:47-50+ F '64

AIR compressors, Portable

Libyan drillers are getting new lost-circulation weapon; compressor packages for aerating drilling fluid. R. J. Enright. il Oil & Gas J 62:77-9 Ja 6 '64

Noise abatement with portable air compressors. il Engineer 217:895 My 22 '64

AIR conditioning

Air conditioning ceiling panels. il Engineering 197:840 Je 19 '64

Air conditioning memos. il Dom Eng 204: 132-4 O '64

Air conditioning plays key role in plant-growth research room. il diag Air Cond Heat & Ven 60:102-3 N '63

Air conditioning; the right to choose. L. T. Avery. Heating-Piping 36:146 Ap '64

AIHA urged to consider effect of changes in environment on man. Heating-Piping 36:41 Je '64

Are you an air conditioning engineer? L. T. Avery. Heating-Piping 36:123 Mr '64

Comparative performance of systems used for year-around air conditioning of research residence 2. J. R. Wright. bibliog il plans diags ASHRAE J 5:67-74 N '63

Economic effects of lighting and air conditioning on building costs. T. L. Ballman and others. diag IEEE Trans Applications & Ind 83:206-8 Jl '64

Energy systems take on major role in booming commercial building field. R. H. Marks. il diags Power 108:143-50 Ja '64 (reprints 25c)

First use of thermoelectricity for commercial air conditioning. il diags Eng N 172:23 Mr 7 '64

Heat pump gives low cost air conditioning. diag Engineering 197:812 Je 12 '64

Heat recovery systems prove successful; heat-pump water heater. G. D. Leach, jr. and J. C. Murray. il Elec World 162:118+ Jl 13 '64

How to deal with plenum leaks in ventilating ceiling systems. T. Mariner. Heating-Piping 35:160-4 N '63

Indoor weather predictions. W. T. Tucker, 3d. ASHRAE J 5:27-9 D '63

Kansas State to dedicate research institute, continue ASHRAE environmental program. E. A. Bajster. il plans ASHRAE J 5:27-30 N '63

Kansas state university dedicates its institute for environmental research. il Heating-Piping 35:23-4 D '63

Nine-story university dormitory served by two on-site chillers. H. B. Swygert. il Air Cond Heat & Ven 60:100-1 N '63

1964 energy systems design survey; air conditioning. Power 108:sup44-56 O '64

Now oil can compete for air conditioning. Oil & Gas J 62:45 My 4 '64

Plumbing, heating, and cooling Fantasia; New York world's fair. il plans diags Dom Eng 204:85-102 Ag '64

Refrigerant vapor heating-cooling system. O. S. Lieberg. il diag Air Cond Heat & Ven 61:62-4 S '64

Some sociological implications of modern air conditioning. E. J. Overmyer. il ASHRAE J 6:62-5 F '64

Temperature control centralized. Eng N 172: 52 F 20 '64

Thermal characteristics of structures. E. P. Palmatier. diags ASHRAE J 6:81-9+ Mr '64

When outside wet-bulb is low. M. Ramsey. diags Air Cond Heat & Ven 61:99-101 S '64

See also

Air cleaners

Air conditioning from central stations

Air purification

Dehumidification

Electricity in air conditioning

Exhaust systems

Gas in air conditioning

Ventilation

also subdivision Air conditioning under special subjects, e.g.

Airport buildings

Animal buildings

Apartment houses

Atomic research laboratories

Auditoriums

Bank buildings

Churches

College buildings

Cotton mills

Data processing service centers

Exhibition buildings

Factories

Hospitals

Laboratories

Library buildings

Office buildings

Office buildings, Industrial

Paper and pulp mills

Pharmaceutical laboratories

Printing offices

Public buildings

AIR conditioning—See also—*Continued*

School buildings
Store buildings
Submarine boats
Telephone company buildings
Telephone exchanges
Television studios
Textile mills
Theaters

Bibliography

Book reviews (cont). Air Cond Heat & Ven 60:120+ N; 95-6 D '63; 61:108-9 Ap; 129-30 My; 122 Je; 114 Jl; 139-40 S; 148-9 O '64

Books and reports. Published in monthly numbers of Heating, piping and air conditioning

Highlights of high efficiency particulate air filter requirements. Heating-Piping 36:108-9 O '64

Trade literature. Published in monthly numbers of Heating, piping and air conditioning

Trade literature supplement. Heating-Piping 36:2-68 pt 2 Ap; 2-74 pt 2 S '64

Costs

Absorption or compression for air-conditioning systems; which? F. C. Wood. il Power 107:59-62 D '63; Correction. 108:98+ Ap '64

Can gas turbines compete as air conditioning power sources? A. E. Congress. diag Heating-Piping 35:87-91 D '63; Discussion. 36:87-90+ Jl; 88+ O '64

Compact school design cuts air conditioning costs. D. L. Gusler. il diags Heating-Piping 35:95-9 D '63

Compares operating costs; warns of other factors. F. F. Stevenson. Heating-Piping 36:91-2+ Ap '64

Computerizing heat pump operating costs. H. L. Milburn. plan diags ASHRAE J 6:67-71 Ag '64

Determining feasibility of factory air conditioning; reference data. A. T. Spangler. Air Cond Heat & Ven 61:81-8 Ag '64

Employ weather data in method of estimating operating costs. J. S. Blossom. Heating-Piping 36:120-3 My '64

Lower cooling, lighting costs foreseen; Building research institute meeting, Washington. Eng N 172:21 Ap 30 '64

Hygienic aspects

Artificial temperature control and disease in America. A. Montagu. Archives Environmental Health 9:403-7 S '64

Tables, calculations, etc.

Automatic heating and air-conditioning calculations. D. D. Eschbach, jr. ASHRAE J 6:62-3 My '64

Predicting cooling capacity of room air conditioners at room and ambient temperatures. R. E. W. Butt. ASHRAE J 6:70-1 Ap '64; Discussion. 6:12 Je '64

AIR conditioning, Industrial

Need marine condenser for plant air conditioning. A. D. Sullivan. Heating-Piping 36:146-7 My '64

See also

Factories—Air conditioning
Metal working plants—Atmosphere control

AIR conditioning equipment

Absorption or compression for air-conditioning systems; which? F. C. Wood. il Power 107:59-62 D '63

Air conditioners. il Engineering 196:576 N 1 '63

Air conditioning and refrigeration; growing market for aluminum. il Mod Metals 20:50+ My '64

Air conditioning; gives cool dry air in warm areas of high humidity. il diags Product Eng 35:52-3 Ja 6 '64

Air-mixing box solves four major stratification problems. il diag Power 108:105 Jl '64

Annual equipment specification digest; air conditioning. il Air Cond Heat & Ven 61:43-4+ Ja '64

Cooling the maestro. J. Everetts, jr. il ASHRAE J 6:44-6 Ja '64

Equipment developments. Published in monthly numbers of Heating, piping and air conditioning

Freeze protection for ventilation and air conditioning symposium, New York, Feb. 11-14. ASHRAE J 6:50-6 Jl '64

How to provide protection against corrosion in air conditioning systems. P. W. Sherwood. il Air Cond Heat & Ven 61:47-8 F '64

New equipment and materials. Published in monthly numbers of Air conditioning, heating and ventilating

Oil-powered air conditioning; is it in your future? Dom Eng 204:105-6 Jl '64

Parts and products. Published in monthly numbers of ASHRAE journal

Thermoelectric air conditioners installed at Johnson's Wax. il Elec World 161:148 Je 1 '64

Thermoelectric air conditioners used commercially. il diag Arch Rec 136:195 Jl '64

Thermoelectric air conditioning. il diags Dom Eng 204:78-9+ S '64

We save $1133 a year on cooling water for our air-conditioning system. B. L. Reeves. diags Power 108:166 Ag '64

See also

Air pipes
Dehumidifiers
Electricity in air conditioning
Gas in air conditioning
Heat pump
Humidifiers

Control

Damper is a control device. A. J. Hess. Heating-Piping 36:112 Ap '64

Operating staff designs own centralized control for air conditioning. C. S. Dawson. il Heating-Piping 36:123-7 Je '64

Some control problems and their solutions. K. R. Solvason. ASHRAE J 6:76-9 My '64

Survey of discontinuous temperature control methods for electric space heating and cooling processes. W. K. Roots and J. M. Nightingale. diags IEEE Trans Applications & Ind p 1-16 bibliog(p 13-16); Discussion. 63-4; Reply. 64-9 Ja '64

Three-pipe control considerations. R. M. Barth. il diags ASHRAE J 5:53-8 N '63

Two-position discontinuous temperature control in electric space heating and cooling processes; control system; controlled process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p 17-38; Discussion. 63-4; Reply. 64-9 Ja '64

Design

Air conditioning of research and test facilities; contamination control. J. Peterson. bibliog ASHRAE J 6:53-6 S '64

Air conditioning of research and test facilities; load characteristics. H. E. Twietmeyer. ASHRAE J 6:50-3 S '64

Air conditioning research and test facilities; symposium at ASHRAE annual meeting in Cleveland. Air Cond Heat & Ven 61:58-61 Ag '64

By-pass factor in its place! M. Ramsey. Air Cond Heat & Ven 61:105-7 O '64

Control for all outside air. M. Ramsey. Air Cond Heat & Ven 61:64-5 Ap; 95-8 My; 92-4 Je '64

Design criteria for clean room air conditioning systems; data file. bibliog il plans diags Heating-Piping 35:165-84 N '63

Design criteria for laboratory air-conditioning systems. L. Economides. ASHRAE J 6:48-50 S '64

Design uses analog to predict transient refrigeration load in medical research facilities. G. H. Green. il plan diag Heating-Piping 36:106-11 Je '64

Guidelines for designing research animal room air conditioning systems; data file. bibliog flow diag il plans diag Heating-Piping 36:171-86 Ja '64

History of high velocity air distribution. C. M. Wilson. Air Cond Heat & Ven 61:70 Ap '64

How to figure cooling coils. M. A. Ramsey. diags Air Cond Heat & Ven 60:67-70 N; 50-2 D '63

New chart for analyzing dual duct operation. L. A. Fekete. Air Cond Heat & Ven 61:25-8 F '64

New chart gives quantity, temperature of cooling coil discharge air. W. E. Adams. Heating-Piping 36:113-15 O '64

1964 energy systems design survey; air conditioning. Power 108:sup44-56 O '64

Predicting air jet performance. H. H. Yousoufian. bibliog diags Air Cond Heat & Ven 61:79-86 S '64

Psychrometrics of dual duct systems. D. Rickelton. diags Heating-Piping 36:113-17 Mr; 147-51 Ap '64; Discussion. 36:82+; Reply. 84 Ag '64

Sizing coils without catalogs. M. Ramsey. diags Air Cond Heat & Ven 61:89-91 Mr '64

Unconventional design and why it failed. F. F. Stevenson. diag Heating-Piping 36:132-3 Ag '64

Valance cooling. W. J. McGuinness. diags Prog Arch 45:148 Ja '64

When capacity variations are extreme. M. Ramsey. diag Air Cond Heat & Ven 61:92-4 Ag '64

AIR conditioning equipment—*Continued*

Exhibitions

International heating, ventilation and air-conditioning exhibition, London, April 20-25. il Engineer 217:789-90, 823-5 My 1-8 '64; Engineering 197:504-5 Ap 10 '64

National air-conditioning, heating and refrigeration exposition, 13th, Chicago, Jan. 20-23; with floor plan and list of exhibitors. Heating-Piping 36:201-4 Ja '64

WACIA show, Los Angeles, Feb. 12-15; ARI show, Chicago, Jan. 20-23; with floor plan and lists of exhibitors. Air Cond Heat & Ven 61:11-18 Ja '64

Installation

Confidence is no substitute for knowledge in installing refrigeration. A. D. Sullivan. Heating-Piping 36:129-31 Je '64

Helicopter, walkie-talkies save contractor time, money. il Heating-Piping 36:182-3 Je '64

Maintenance and repair

82 tips on maintaining your air-conditioning system. W. J. Wren. il Textile World 114:60-4 F '64

Noise

Acoustic studies advance air conditioning goals. L. S. Ries. il plan diags Heating-Piping 36:107-11 Ag; 135-7 S '64

E flat. A. D. Sullivan. Heating-Piping 35:157-9 N '63

Effect of flow on the attenuation of lined ducts. H. R. Mull. bibliog il ASHRAE J 5:75-8 D '63

How air diffusing equipment is sound rated under ADC's test code. W. L. Batchelor and W. J. Waeldner. il diag Heating-Piping 35:143-6 N '63

Power level measurements on a representative group of room air conditioners. D. B. Smith. il ASHRAE J 6:29-34 Ag '64

Problems and activities in the development of room air conditioner noise standards. P. E. Kolb. ASHRAE J 6:34-7 Ag '64

Quiet high-velocity air distribution. V. V. Cerami and N. S. Shataloff. diags Air Cond Heat & Ven 61:71-80 Ag '64

Quiet in man's indoor environment. L. L. Beranek. bibliog diags ASHRAE J 6:30-8 Jl '64

Trade association activities toward noise standards. R. H. Bohman. ASHRAE J 6:63-6 Je '64

Standards

How air diffusing equipment is sound rated under ADC's test code. W. L. Batchelor and W. J. Waeldner. il diag Heating-Piping 35:143-6 N '63

How high pressure units are tested under ADC's test code. T. L. Day and R. W. Waterfill. il diag Heating-Piping 36:144-9 S '64

Predicting cooling capacity of room air conditioners at room and ambient temperatures. R. E. W. Butt. ASHRAE J 6:70-1 Ap '64; Discussion. 6:12 Je '64

Problems and activities in the development of room air conditioner noise standards. P. E. Kolb. ASHRAE J 6:34-7 Ag '64

Trade association activities toward noise standards. R. H. Bohman. ASHRAE J 6:63-6 Je '64

Testing

Acoustic studies advance air conditioning goals. L. S. Ries. il plan diags Heating-Piping 36:107-11 Ag; 135-7 S '64

How high pressure units are tested under ADC's test code. T. L. Day and R. W. Waterfill. il diag Heating-Piping 36:144-9 S '64

Instruments and procedures for testing air distribution systems. J. C. Barrett. diags Air Cond Heat & Ven 61:71-80 Ap '64

Low temperature tests on airborne equipment. il Engineering 196:669 N 22 '63

Power level measurements on a representative group of room air conditioners. D. B. Smith. il ASHRAE J 6:29-34 Ag '64

Structural testing of rectangular high velocity ductwork. D. J. Mosshart, jr. ASHRAE J 6:90 My '64

Visual study of two-phase flow while evaporating in horizontal tubes. W. R. Zahn. bibliog flow diag il diags A S M E Trans ser C 86:417-29 Ag '64

AIR conditioning equipment, Portable

Blowing hot and cold. il Engineering 197:720 My 22 '64

Portable air conditioner, ready for trouble; Autonetics div. of North American aviation, inc. il Plant Eng 18:121 S '64

AIR conditioning from central stations

Central system for 1700 acre campus. il Heating-Piping 36:116-18 Ap '64

Centralized air conditioning plus indvidual control. il Engineering 197:360 Mr 6 '64

Commercial application of freeze protection for ventilation and air-conditioning systems. W. J. Abraham. ASHRAE J 6:50-1 Jl '64

Douglas Aircraft elects to purchase chilled and ht water, compressed air. flow diag il plan Air Cond Heat & Ven 60:69-71 D '63

Hartford story. L. Smith. il plan diags Heating-Piping 36:114-21 S '64

NDHA considers chilled water as a utility; panel discussion. Heating-Piping 36:112-13 Ag '64

No towers stop this tower. il Eng N 173:92-3 Ag 6 '64

Underground piping, district cooling, and a guide; annual meeting of National district heating association, Niagara Falls, Ontario. Air Cond Heat & Ven 61:67-70 Ag '64

AIR conditioning industries

Air conditioning; a growth industry is still growing. R. Gray. il Heating-Piping 36:119-23 Ja '64

Law and your profits. Published in monthly numbers of Heating, piping and air conditioning

What's right with modern air conditioning. L. Bouillon. ASHRAE J 6:45-7 Jl '64

What's wrong with modern air conditioning? A. I. McFarlan. ASHRAE J 6:74-9 Mr '64

See also

Gas in air conditioning

Directories

1964 directory; heating, piping, and air conditioning equipment for industrial, commercial, institutional and public buildings; classified by products, trade names, manufacturers' addresses. Heating-Piping 36: sup 1d-210d Ja '64

AIR conditions

Atmospheric ionization in allergic respiratory diseases. G. I. Blumstein and others. Archives Environmental Health 8:818-19 Je '64

Ventilatory function after exposure to ionized air. N. Lefcoe. bibliog diags Archives Environmental Health 7:664-7 D '63

See also

Air pollution

AIR curtains

How silencers made dredge's invisible smokestacks possible. Marine Eng/Log 69:112+ S '64

Spinning weather; so-called Condifil process, spreads an air curtain on both sides of a spinning frame. il diag Product Eng 35:55 Ag 17 '64

AIR cushion vehicles

Air-cushion vehicle tries shuttling over Arctic ice. il Machine Design 36:10 Jl 16 '64

Amateur scientist; aerodynamics of air-supported vehicles. R. W. Moffat. diags Sci Am 210:135-8 Ja '64

Captured air bubble over-water vehicle concept. A. G. Ford. bibliog il diags Naval Eng J 76:223-30 Ap '64

Development of legislation for hovercraft. A. R. Barrowclough. Roy Aeronautical Soc J 68:467-76 Jl '64

Flexible understructures for GEM vehicles. J. W. Ebert. il diags Naval Eng J 76:281-4 Ap '64

Hovercraft on the Thames. il Mech Eng 85:75 N '63

Hovertruck. A. E. Bingham; E. W. B. Evans. il diags Roy Aeronautical Soc J 67:755-8 D '63

Hydrokeel landing craft slides over the water. il Machine Design 36:6 Jl 30 '64

Hydroskimmer test program. il diag Mech Eng 86:48 O '64

London airport hovercar link. il Engineer 218:138-9 Jl 24 '64

Maritime administration surface effect ship. S. Rethorst and W. T. Potter. diags Naval Eng J 76:241-7 Ap '64

Navy Hydroskimmer. il Comp Air Mag 68:21 N '63

Physical principles of hovercraft. W. A. Mair. bibliog diags Roy Aeronautical Soc J 68:683-90; Discussion. 690-1 O '64

Radically new air cushion craft skim to success. il diag Mod Metals 19:40+ D '63

Role of the GEM in amphibious support operations. P. G. Fielding. diags Naval Eng J 76:117-29 F '64

Side-wall hover craft. C. F. Morris. plan diags Naval Eng J 76:141-6 F '64; Discussion. A. M. Lippisch. il 76:311 Ap '64

AIR cushion vehicles—*Continued*

U.S. navy's XMR-1 the Hydroskimmer. America's first big hovercraft. il Marine Eng/Log 68:54-5 N '63

Welding in the construction of the Hydroskimmer. J. C. Kaluzny. il Welding J 43: 202-4 Mr '64

AIR cushions

Air cushion aids assembly. il Steel 154:31 F 17 '64

Air cushions annealing furnace produces fine grained aluminum sheet. diag Mod Metals 19:42-3 N '63

Moving heavy loads, on air. il Engineering 198:359 S 18 '64

New air-support system from Fruehauf stresses mobility for containers. il Mod Materials Handling 19:3 Je '64

New for bulk and packages; conveying without contact. il Mod Materials Handling 19: 44-5 Je '64

AIR diffusers

Comparative performance of systems used for year-around air conditioning of research residence 2. J. R. Wright. bibliog il plans diags ASHRAE J 5:67-74 N '63

Performance of a diffuser with fully-developed pipe flow at entry. P. Bradshaw. Roy Aeronautical Soc J 67:733 N '63

AIR ducts. See Air pipes

AIR engines

Air motor drives earth auger. il Eng N 172: 112 My 21 '64

Cushioned air cylinders. diags Engineer 217: 529 Mr 20 '64

Torquing with air. A. G. Ringer. il diag Instruments & Control Systems 37:111-13 Mr '64

AIR entrainment. See Concrete—Air entrainment

AIR filters

Air filter eliminates locomotive breathing problems. il Iron & Steel Eng 41:156 Mr '64

Air filters; fluid power component selection charts. Hydraulics & Pneumatics 17:76-7 Ja '64

Air filtration of microbial particles. H. M. Decker and others. il diags Am J Pub Health 53:1982-8 D '63

Characteristics and application of high performance dry filters. P. M. Engle, jr. and C. J. Bauder. diags ASHRAE J 6:72-5 My '64

Clean air for activated sludeg plant; abstract. I. Withnell. Pub Works 95:174+ My '64

Control for the oil mist hazard. il Safety Maint 127:44-5 Je '64

Determining the efficiency of air filters. A. H. Chasick and R. L. Bootes. bibliog il Water Works & Wastes Eng 1:50-4 Ja '64

Environmental control in hospital facilities. W. Viessman. bibliog Heating-Piping 36: 129-34 My '64; Discussion. 36:128-30; Reply. 130-3 O '64

Fighting dust at Mangla project, West Pakistan. il Diesel Equip Supt 42:22-3 Ag '64

Filtering compressed air efficiently. diag Engineering 198:359 S 18 '64

Highlights of high efficiency particulate air filter requirements. Heating-Piping 36:108-9 O '64

Plant-wide clean room. il Mill & Factory 73:56-7 D '63

Self-cleaning filter gives plant air new life. il diag Plant Eng 17:126 D '63

Two approaches to exhausting toxic particles. M. Birken. il diags Plant Eng 18:126-9 Ap '64

Testing

Effect of filter media microstructure on dust collection. S. F. Duncan. il ASHRAE J 6: 37-41 Ap '64

Testing of fabric filter and hydraulic dust removers. W. Pichel. il diags ASHRAE J 6:87-93 Je '64

AIR flow

Air flow can affect finishing results. Ind Finishing 40:114-15 Mr '64

Air flow through textile fabrics. A. C. Goodings. diags Textile Res J 34:713-24 Ag '64

Amateur scientist; how to photograph air currents in color and build an accurate Foucault pendulum. il diags Sci Am 210: 132-3+ F '64

Application of the airflow method to mohair. D. S. Uys. Textile Res J 34:739 Ag '64

Calculation of the discharge coefficient of profiled choked nozzles and the optimum profile for absolute air flow measurement. B. S. Stratford. bibliog diags Roy Aeronautical Soc J 68:237-45 Ap '64

Computation of the critical flow function, pressure ratio, and temperature ratio for real air. R. M. Reimer. A S M E Trans ser D 86:169-73; Discussion. 173-4 Je '64

Damper with a linear characteristic. M. H. Barker. il Engineer 217:1131-2 Je 26 '64

How to calculate pneumatic flow through narrow slots; data sheet. T. S. Neprud. diags Machine Design 36:163-5 F 27 '64

How to determine air flow through fixed and variable orifices. W. Weibel. diags Hydraulics & Pneumatics 17:68+ Ag '64

Mass flow in nozzle of a gas-blast circuit-breaker. A. A. Hudson. diags Engineer 217: 933-9 My 29 '64

Pitot tube measurements in pipe; with reference data sheets. C. H. R. Hook. diags Air Cond Heat & Ven 60:64-8 D '63

Pneumatic servo regulators control pressure and flow. J. F. Taplin. diags Automation 11:89-92 Je '64

Studies of the developing flow between concentric cylinders with the inner cylinder rotating. K. N. Astill. bibliog il diags A S M E Trans ser C 86:383-90; Discussion. K. M. Becker. 391; Reply. 391-2 Ag '64

Theory of the air-supported puck. W. M. Whitney. diags Am J Phys 32:306-12 Ap '64

Tracing flow patterns in air using a radioactive gas. E. V. Seymour. diags Engineer 218:496-8 S 25 '64

See also
Anemometers
Compressed air lines
Couette flow
Fans, Mechanical
Turbulence

AIR freight service

Air cargo opportunities abroad. J. C. Cook. il I S A J 11:63-6 Je '64

Air freight pushes more than speed. il Iron Age 194:27 O 8 '64

Better equipment, simpler methods widening air cargo future. il S A E J 72:74-5 O '64

Intransit cargo control dire need for jet age. V. F. Caputo and L. Miller. il S A E J 72:88-9 O '64

Jet cargo facility requirements. S. R. Wallace. il plans Am Soc C E Proc 90 [AT 2 no 4068]: 135-40 O '64

Rocket travel, new air cargo methods explored. R. R. Kay. Iron Age 194:48 O 15 '64

AIR gage. See Gages, Pneumatic

AIR jets

Air jets sense position. K. L. Elkins. diag Hydraulics & Pneumatics 17:128 My '64

Information from air jets; tactile perception method. il Comp Air Mag 69:22 Ja '64

Paper drying: air jet impingement. A. J. Cirrito. Paper Ind 45:433-5 N '63

Paper drying; controlling quality and heat rate in impingement drying. A. J. Cirrito. Paper Ind 45:548-50, 599-601 Ja-F '64

Predicting air jet performance. H. H. Yousoufian. bibliog diags Air Cond Heat & Ven 61:79-86 S '64

AIR motors. See Air engines

AIR navigation

Airborne navigation computer. il Engineer 216:783 N 8 '63

Extended pictorial map display system. il diag Engineering 196:813 D 27 '63

See also
Aeronautic instruments
Decca navigation system
Inertial guidance systems
Radio aids to aviation

AIR pilots

Pilot's viewpoint. J. M. McMahon; D. H. Woolley. Roy Aeronautical Soc J 67:770-4 D '63

Prone pilot position. R. Cansdale. diags Roy Aeronautical Soc J 67:790-2 D '63

Role of the test pilot. A. W. Bedford. Roy Aeronautical Soc J 68:383-8; Discussion. 388-90 Je '64

Training

See also
Air pilots, Military—Training
Flight simulators

AIR pilots, Military

Training

Simulating tactical radar and sonar. R. G. Hundley. il diags Electronics 36:25-31 D 13 '63

See also
Flight simulators

AIR pipes

Building height and costs lowered by underground air duct. C. B. Miller. il plan Air Cond Heat & Ven 61:60-3 Ap '64

Duct heaters serve all-electric industrial offices. il Elec Constr & Maint 63:92-3 Ap '64

Hi-rise SE-duction. diags Am Gas Assn Mo 46:20+ Ja '64

Hot-wire measurements of turbulence correlations in a triangular duct. C. J. Cremers and E. R. G. Eckert. bibliog diags **A S M E** Trans ser E 29:609-14 D '62; Discussion. 30:636-7 D '63

Multistory venting with SE-ducts. M. D. Ringler and H. Cullinane. bibliog flow diag il diags Air Cond Heat & Ven 61:55-61 S '64

Outside piping and duct systems to serve building's perimeter zones. il Heating-Piping 36:46 O '64

Structural testing of rectangular high velocity ductwork. D. J. Mosshart, jr. ASHRAE J 6:90 My '64

Textured concrete and air ducts mesh like a Chinese puzzle. il diags Eng N 173.30-2 O 22 '64

Tool removes dents from stainless steel ducting. H. Stromer. il diag Am Mach/Metalworking Manuf 108:125 Je 22 '64

See also

Compressed air lines

Design

Effect of flow on the attenuation of lined ducts. H. R. Mull. bibliog il ASHRAE J 5:75-8 D '63

Heat losses from horizontal ducts carrying high velocity air. A. C. Kent and R. G. Nevins. bibliog diags ASHRAE J 6:45-9 Mr '64

Make-up air duct design; simplified method; abstract. K. E. Robinson. Air Cond Heat & Ven 61:53 Ap '64

Tables, calculations, etc.

Nomograph aids computation of 90 degree elbow losses in rectangular ducts; data sheet. F. Caplan. Heating-Piping 35:135-6 D '63

AIR pollution

Adsorption; in air pollution and in natural processes. C. H. Giles. il Chem & Ind p770-81 bibliog(p780-1) My 9 '64

Air pollution checked in vehicle tunnel. il Safety Maint 127:51-2 Ap '64

Air pollution curbed, profits hiked. M. G. Boone. il diag Oil & Gas J 62:92-3 Ag 24 '64

Air pollution from aerobic waste treatment. J. O. Ledbetter. bibliog Water & Sewage Works 111:62-3 Ja '64

Air-pollution problems of the wrought-brass industry. N. H. Jackson. Inst Metals J 92:200-4 '63-64

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on air pollution. Combustion 35:40-1 Je '64

Analysis by ion current. R. A. Morris and others. il diags Instruments & Control Systems 36:108-10 N '63

Analytical reference service. H. P. Kramer. Am J Pub Health 54:1531-5 S '64

Annual air pollution medical research conference, 6th, San Francisco, Jan. 28-29: with texts of papers. Archives Environmental Health 8:1-194 Ja '64

Application of acoustics in air pollution problems. J. C. F. Chow. bibliog Am Soc C E **Proc 90 [SA 4 no 4005]:59-75 Ag '64**

Application of thin layer chromatography to the analysis of atmospheric pollutants and determination of benzo[α]pyrene. E. Sawicki and others. bibliog Anal Chem 36:497-502 Mr '64

Atmospheric pollution by SO_2 from an isolated chimney. E. Zielinski. il diags Combustion 35:16-25 F '64

Auto Big Four to make own air pollution controls. Am Mach 108:59 Ag 31 '64

Auto makers oppose exhaust control devices. Chem & Eng N 42:36-7 Jl 6 '64

Auto makers rush to meet California deadline; exhaust control systems will be ready for 1966 models. il diag Chem & Eng N 42:23-4 Ag 24 '64

Black liquor oxidation practice and development; a critical review. J. E. Landry. bibliog diags Tappi 46:766-72 D '63

California revises exhaust-control test procedures. Oil & Gas J 62:71 F 10 '64

Clean air will affect utilities. il Elec World 162:45-6 O 5 '64

Combustion nuclei; a potential air pollutant. J. E. Quon. Archives Environmental Health 7:600-11 bibliog(p610-11) N '63

Crankcase-diversion tactics say bye-bye to blowby. R. D. Quillian, jr. and others. il diags S A E J 72:50-6 My '64

Danger level of sulfur dioxide is disputed. Chem & Eng N 42:58-9 Jl 13 '64

Determination of background levels and health hazards in plant environmental air contamination. J. S. Holtaway. il plan Ind Med 33:230-4 Ap '64

Determination of nitrate or nitrate **plus** nitrite with 1-aminopyrene; application to air pollution. E. Sawicki and others. bibliog Anal Chem 35:1934-6 N '63

Devices for automotive air pollution control. il diags Product Eng 35:44-5 Ag 31 '64

Economics hinder pollution-control efforts. Oil & Gas J 62:64-5 Ag 3 '64

Economics of pollution control. **Eng & Min J** 165:189-90 Je '64

Effect of air pollutants on cotton. **M. A.** Morris **and others. Textile Res J 34:563-4** Je '64

Effect of atmospheric contaminants on light fastness. V. S. Salvin. bibliog Soc Dyers & Col J 79:687-95 D '63; Same abr. Am Dyestuff Rep 53:12-20 Ja 6 '64; Discussion. Soc Dyers & Col J 79:695-6 D '63

Engineering control of industrial contaminants. I. Kingsley. diag Safety Maint 128:44-6+ Ag '64

Express concern for air pollution at incinerator conference. H. C. Moore. diag Heating-Piping 36:102-3 Ag '64

Forecast for control of auto exhausts; partly cloudy. Chem Eng 71:44 Ag 3 '64

Four smog devices okd by **California. H. F.** Jones. il Iron Age 193:55 **Je** 25 '64

International agreement on criteria for air quality; editorial. J. R. Goldsmith. bibliog Archives Environmental Health 9:3-5 Jl '64

Maximum allowable concentrations; international symposium, 2d, Paris. Archives Environmental Health 8:487-91 Mr '64

Measurement and control of air contaminants in Ontario uranium mines. G. R. Yourt. bibliog Ind Med 33:222-9 Ap '64

Microdetermination of selenium with 3,3′-diaminobenzidine by the ring oven technique and its application to air pollution studies. P. W. West and C. Cimerman. bibliog Anal Chem 36:2013-16 S '64

Micrometeorology. G. Sutton. il diags Sci Am 211:62-70+ O '64

Nashville air pollution study; morbidity in relation to air pollution. L. D. Zeidberg and others. map **Am J Pub Health** 54:85-97 bibliog(p96-7) Ja '64

New exhaust-control market goes up in smoke. E. Addeo. il Chem Eng 71:78+ O 26 '64

New steps to minimize the hazards of air pollution, for public and voluntary agencies; for the doctor and his patient. V. G. MacKenzie. **Am J Pub Health** 54:79-83 pt 2 Ja '64

Photodynamic bioassay of polycyclic air pollutants. S. S. Epstein and others. bibliog Archives Environmental Health 7:531-7 N '63

Process cuts pollution, gives marketable acid. diag Steel 154:47 Ap 20 '64

Progress in protection of air and water. J. O. Julson. il Paper Ind 46:621-3 O '64

Review of three papers from the 56th annual meeting of the Air pollution control association. Air Cond Heat & Ven 60:34-6 D '63

Royal automobile club and clean air. **T. H.** Turner. Engineer 217:135 Ja 17 '64

Senate testimony reveals solutions to vehicle air pollution. diag Heating-Piping 36:46+ Ag '64

Significance of sulphur in atmospheric corrosion. T. H. Turner. Engineer 217:274-5 F 7 '64

Simple modification of a commercial sulphur dioxide meter for the determination of other atmospheric pollutants. P. N. R. Nichols. bibliog diag Chem & Ind p 1654-5 S 26 '64

Smogless cars due in '65. Oil & Gas J 62:63-4 Ag 24 '64

Summer approval sought for exhaust controls. il Chem & Eng N 42:80+ Mr 9 '64

Symposium on ecology and the industrial society, Swansea, April 13-16; abstracts of papers. Chem & Ind p 1256-8 Jl 11 '64

Threshold limit values for 1963. H. B. Ashe and others. Archives Environmental Health 7:592-9 N '63

Threshold limit values for 1964. Archives Environmental Health 9:545-54 O '64

AIR pollution—*Continued*

Tokyo-Yokohama asthma; an area specific air pollution disease. R. B. W. Smith. bibliog Archives Environmental Health 8:805-17 Je '64

United States air quality. R. I. Larsen. bibliog Archives Environmental Health 8:325-33 F '64

What is the role of air pollution as a cause of disease? T. M. Gocke. bibliog Am J Pub Health 54:71-8 pt 2 Ja '64

See also
Air filters
Beryllium poisoning
Dust collectors
Flue dust
Fumes
Gases, Asphyxiating and poisonous
Los Angeles—Air pollution
New Orleans—Air pollution
New York (city)—Air pollution
Plants, Effect of air pollution on
Smog

Laws and regulations

Air pollution control in New York state. A. Rihm, jr. il Civil Eng 34:56-8 F '64

Anti-smog rule raises fuel worries. Elec World 161:19 F 17 '64

Atmospheric hygiene by community action. E. R. Weidlein. Archives Environmental Health 8:373-7 Mr '64

California approves auto exhaust devices. il Chem & Eng N 42:23-4 Je 22 '64

Emissions and pollutant levels; trends in Los Angeles. C. V. Kanter and R. G. Lunche. Archives Environmental Health 8:5-14; Discussion. 31-8 Ja '64

National air pollution law passed. Foundry 92:25+ F '64

Particulate or photochemical; it's still smog. L. Raymond. il diags S A E J 72:48-54 Ag '64

Seek bulk outlets for fly ash. diag Elec World 161:45-6 F 10 '64

Smog controls on '66s; California cars to get industry devices. J. Dunne. il diag Automotive Ind 131:53-4 S 1 '64

Standards with respect to atmospheric lead. R. A. Kehoe. Archives Environmental Health 8:348-54 F '64

Suit attacks Los Angeles fuel-oil ban. Oil & Gas J 62:90 Ap 27 '64

What you should know about the new clean air act. il Pub Works 95:156+ My '64

Research

Air resources engineering; progress report. Am Soc C E Proc 90 [SA 1 no 3796]:67-71 F '64; Discussion. H. C. McKee. 90 [SA 4 no 4006]:103-4 Ag '64

Immunologic methods in air pollution research. A. S. Josephson. bibliog il Archives Environmental Health 8:143-6; Discussion. 147-52 Ja '64

Testing

Apparatus for the rapid collection and determination of traces of toxic gases in air. R. G. Lidzey and F. M. Longmaid. diag Chem & Ind p 150 Ja 25 '64

Data gathering and monitoring equipment in air pollution control programs. A. C. Stern. bibliog flow chart diags Am J Pub Health 53:1972-81 D '63

Determination of atmospheric pollutants in the part-per-billion range by gas chromatography; simple trapping system for use with flame ionization detectors. T. A. Bellar and others. diags Anal Chem 35:1924-7 N '63

Further investigations of atmospheric concentration of lead. J. Cholak. bibliog Archives Environmental Health 8:314-24 F '64

Time constant of a Thomas autometer and significance of indicated response. H. P. Sanderson and others. diag Anal Chem 36:2296-301 N '64

California

Particulate or photochemical; it's still smog. L. Raymond. il diags S A E J 72:48-54 Ag '64

Smog controls on '66s; California cars to get industry devices. J. Dunne. il diag Automotive Ind 131:53-4 S 1 '64

Trends in air pollution outside Los Angeles County. G. J. Taylor. Archives Environmental Health 8:15-18; Discussion. 31-8 Ja '64

Canada

Industry approach to the problem of air pollution control. L. P. Roy. map Eng J 47:25-8 Ja '64

Great Britain

Clean air conference and exhibition, Scarborough, Oct. 8-11. Chem & Ind p 1752-3 N 2 '63

Japan

Air pollution and its health effects in Japan. T. Toyama. bibliog maps Archives Environmental Health 8:153-73; Discussion. 180-1 Ja '64

New York (state)

Air pollution control in New York state. A. Rihm, jr. il Civil Eng 34:56-8 F '64

AIR preheaters

Clean air preheaters quickly, easily with fire-hose nozzles. il Elec World 160:80 D 16 '63

Direct-fired makeup air heater provides kitchen's ventilation. R. E. Strand. il Heating-Piping 36:111-12 O '64; Discussion. G. M. Hama. 36:89 D '64

Industrial application of freeze protection for ventilation and air-conditioning systems. J. J. Burke. diags ASHRAE J 6:52-4 Jl '64

Now fuel costs justify heat recovery. W. J. Gossom. Hydrocarbon Process & Pet Refiner 43:135 Je '64

Porcelain enamel for heat exchange surfaces. H. W. Huffcut. il Am Cer Soc Bul 43:128-30 F '64

Use of ammonia for reducing air-heater corrosion at Bankside generating station, C.E.G.B. J. T. S. Gundry and others. bibliog plan diags Combustion 36:39-47 O '64

Waste heat recovery for glass tanks. J. Waitkus. il diags Glass Ind 45:301-6+, 370-1+ Je-Jl '64

Testing

What you need to know about air preheater testing. H. E. Bloss. diags Power Eng 68:47-50 Ap '64

AIR pressure support

Portable nylon shelters with inflatable frame. il Engineering 197:395 Mr 13 '64

Two air-supported structures for athletics. il diag Arch Rec 135:209-10 Mr '64

Walter Kidde inflatable frame building. il diags Engineering 197:738-9 My 29 '64

AIR pumps

Portable granular material pump. K. Kristie. il diag Comp Air Mag 69:20-1 Ag '64

AIR purification

Design criteria for clean room air conditioning systems; data file. bibliog il plans diags Heating-Piping 35:165-84 N '63

How to identify and handle odors in air conditioning systems. P. W. Sherwood. Air Cond Heat & Ven 60:37-8 D '63

Sterile air in hospitals. H. N. Helfman. ASHRAE J 5:59-61 N '63

Test new electric incinerator design for sterilizing laboratory air. G. J. Harris and others. bibliog diag Heating-Piping 36:94-5 F '64

See also
Air conditioning
Air filters
Air pollution
Dust removal

AIR raid shelters

See also
Atomic bomb shelters

Air conditioning

Numerical analyses of the thermal environment of occupied underground spaces with finite cover using a digital computer. T. Kusuda and P. R. Achenbach. diags ASHRAE J 6:99-105 Je '64

Office building or fallout shelter; heat pump provides air conditioning. R. G. Vanderweil. plan diags Heating-Piping 36:119-24 Ap '64

Shock protect mechanical systems in office building-fallout shelter. R. G. Vanderweil. diags Heating-Piping 36:124-8 Jl '64

Study of thermal environment in underground survival shelters using an electronic analog computer. E. E. Drucker and J. T. Haines. diags ASHRAE J 6:81-4 Jl '64

Heating and ventilation

Numerical analyses of the thermal environment of occupied underground spaces with finite cover using a digital computer. T. Kusuda and P. R. Achenbach. diags ASHRAE J 6:99-105 Je '64

AIR raids

Protective measures

See also
Radar—Military use

AIR raids and building
See also
Atomic bombs and building

AIR sampling

Air sampling in viral respiratory disease. M. S. Artenstein and F. C. Cadigan, jr. bibliog Archives Environmental Health 9:58-60 Jl '64

Apparatus for the automatic quantitative determination of ammonia concentrations in air. M. J. Kolbezen and others. bibliog il diags Anal Chem 36:593-6 Mr '64

Apparatus for the rapid collection and determination of traces of toxic gases in air. R. G. Lidzey and F. M. Longmaid. diag Chem & Ind p 150 Ja 25 '64

Data gathering and monitoring equipment in air pollution control programs. A. C. Stern. bibliog flow chart diags Am J Pub Health 53:1972-81 D '63

Determination of background levels and health hazards in plant environmental air contamination. J. S. Holtaway. il plan Ind Md 33:230-4 Ap '64

Determination of ethylene oxide in air. N. E. Bolton and N. H. Ketcham. diag Archives Environmental Health 8:711-20 My '64

Further investigations of atmospheric concentration of lead. J. Cholak. bibliog Archives Environmental Health 8:314-24 F '64

United States air quality. R. I. Larsen. bibliog Archives Environmental Health 8:325-33 F '64

AIR separators

Design trends in mechanical air separators. W. G. Bauer. diags Pit & Quarry 56:109-13+ D '63

Review of air classification. P. J. Vandenhoeck. diags Min Cong J 50:43-6 Mr '64

AIR springs. See Automobiles—Springs and suspension

AIR tools. See Pneumatic tools

AIR traffic. See Airports—Traffic control; Airways—Traffic control

AIR travel
See also
Airlines—Traffic

AIRCRAFT
See also
Airplanes
Autogiros
Guided missiles
Helicopters

AIRCRAFT accidents. See Aviation—Accidents

AIRCRAFT gas turbines. See Gas turbines, Aircraft

AIRCRAFT steel. See Steel, Aircraft

AIRFIELD landing mats. See Aviation landing stations—Landing mats

AIRFOILS

Behaviour and effects of laminar separation bubbles on aerofoils in incompressible flow. J. W. Ward. bibliog diags Roy Aeronautical Soc J 67:783-90 D '63

Effect of base bleed on a periodic wake. C. J. Wood. bibliog diags Roy Aeronautical Soc J 68:477-82 Jl '64

Effects of a chordwise gap in an aerofoil of finite span in a free stream. B. Lakshminarayana. bibliog diags Roy Aeronautical Soc J 68:276-80 Ap '64

Extension of lifting-line theory to a cascade of split aerofoils. B. Lakshminarayana. diags AIAA J 2:938-40 My '64

Fundamental torsional variations of solid aerofoils. J. C. Maltbaek. Engineer 217:391-2 F 28 '64

Generalisation of the condition for waviness in the pressure distribution on a cambered plate. E. A. Boyd. bibliog Roy Aeronautical Soc J 67:529-30 Ag '63; 68:59 Ja '64

Improved Glauert series for certain airfoil problems. M. D. Greenberg. bibliog AIAA J 2:1666-7 S '64

Potential flow past a parabolic leading edge. J. D. Dennon. diags AIAA J 2:934-6 My '64

Theory of thin airfoils in magnetoaerodynamics. L. Dragos. bibliog AIAA J 2:1223-9 Jl '64

Transonic flow past two-dimensional aerofoils. D. W. Holder. il diags Roy Aeronautical Soc J 68:501-16 bibliog(p515-16) Ag '64

Transonic similarity correlation of the terminal shock jump on aerofoils. D. G. Mabey. bibliog diags Roy Aeronautical Soc J 68:199-203 Mr '64

Velocity distribution on a polynomial mean line and the converse. R. P. Llewelyn. bibliog diag Roy Aeronautical Soc J 68:57-8 Ja '64

Wind-tunnel screens; flow instability and its effect on aerofoil boundary layers. P. Bradshaw. diags Roy Aeronautical Soc J 68:198 Mr '64

AIRLIFT TCC process. See Gasoline—Manufacture

AIRLINES

$805 screen success: Delta air lines first in-plant-produced movie. il Ind Phot 13:40-1 Mr '64

Fleets of new jets growing. Oil & Gas J 62:63 Ag 3 '64

High-lift plane design lifts local airlines' prospects. F. G. Wagner. diags S A E J 72:53-5 Ja '64
See also
Airports

Reservation systems

Air line shows new switching system. Franklin Inst J 277:297-8 Mr '64

Air travel seat reservation. Engineer 216:859 N 22 '63

Automatic seat reservation system for B.E.A. il Ind Electronics 2:42 Ja '64

Statistics

See also
Airlines—Traffic

Terminals

Houston's Jetero airport; development of terminal and related areas. R. O. Grimes. plans diag Am Soc C E Proc 89 [AT 1 no 3487]:27-38 Ap '63; Discussion. A. R. Kelly. 90 [AT 1 no 3916]:81-2 My '64

La Guardia airport gets new terminal. il Prog Arch 45:83 Je '64

London gets a better airline terminal. il plan Engineering 196:590 N 8 '63
See also
Airport buildings

Ticket offices

Lighting a ticket office; data sheet. J. C. Epperson. il Illum Eng 59:495-6 Jl '64

Traffic

Airline system simulation. W. A. Gunn. flow diag diags Op Res 12:206-29 Mr '64

Maximum payloads per unit time delivered through an air network. G. B. Dantzig and D. L. Johnson. bibliog diags Op Res 12:230-6 Mr '64

AIRPLANE carriers

Newport News Shipbuilding launches giant flattop America. il Marine Eng/Log 69:68 Mr '64

Nuclear aircraft carrier operations. V. P. de Poix. il Naval Eng J 76:387-96 Je '64

AIRPLANE engines

British aero engines for world market at the Farnborough show. il Engineering 198:328-9 S 11 '64

Farnborough display; engines; illustrations with text. Engineer 218:412-13 S 11 '64
See also
Gas turbine, Aircraft

Bearings

High temperature oil evaluation in full-scale bearing fatigue tests. J. H. Gustafson. diag Lub Eng 20:65-8 F '64

Control

See also
Airplanes—Control

Exhaust

Exact kinetic and approximate nozzle recombination losses. D. Migdal and A. Goldford. bibliog AIAA J 2:1457-8 Ag '64

Transient response of wire resistance thermometers. A. Quarmby. Roy Aeronautical Soc J 68:696-8 O '64

Fuel

See also
Airplanes—Refueling
Gas turbines, Aircraft—Fuel

Fuel feeding

See also
Gas turbines, Aircraft—Fuel feeding

Jet engines

Gun-launching supersonic-combustion ramjets. A. M. Valenti and others. bibliog il diag Astronautics & Aerospace Eng 1:24-9 D '63

Hypersonic airbreathing propulsion. W. H. Avery and G. L. Dugger. bibliog diags Astronautics & Aeronautics 2:42-7 Je '64

Hypersonic propulsion. W. G. Osmun. diags Space/Aeronautics 41:80-3 Mr '64

Jet engine oscillations and noises. S. L. Bragg. Engineer 217:268-9, 305-7 F 7-14 '64; Excerpts. il diags Engineering 197:270-2 F 14 '64

AIRPLANE engines—Jet engines—*Continued*

Jet engine parts; ceramic-like plastics. il diag Plastics World 21:40-1 D '63

Jet engine testing. il Mech Eng 85:50 D '63

Jet propulsion. J. A. Schetz. diags Space/Aeronautics 42 no 4:53-5 '64-65

Maximum range of hypersonic ramjet. J. H. Horlock. bibliog diags Roy Aeronautical Soc J 68:699-702 O '64

Review of problems in application of supersonic combustion. A. Ferri. bibliog diag Roy Aeronautical Soc J 68:575-95; Discussion. 595-7 S '64

Shock-induced combustion with oblique shocks; comparison of experiment and kinetic calculations. P. M. Rubins and R. P. Rhodes, jr. bibliog il diags AIAA J 1:2778-84 D '63

Supersonic combustion progress. A. Ferri. bibliog il diags Astronautics & Aeronautics 2: 32-7 Ag '64

Test cell for overhauled big jets. il Engineering 197:416 Mr 20 '64

See also

Gas, turbines, Aircraft

Lubrication

Polymeric thickeners are o.k. in aircraft piston-engine oils. C. K. Bransford and H. A. Poitz. S A E J 72:84 Ap '64

Manufacture

Aero-engine finishes. C. Butler and F. Cork. il Aircraft Eng 36:281-5 S '64

Mounting

Tandem engines make private flying simple. W. D. Thompson. il S A E J 72:52-3 F '64

Specifications

U.S. aircraft engines, reciprocating type, specifications, 1964; tables. Automotive Ind 130:218-19 Mr 15 '64

Testing

Gun-launching supersonic-combustion ramjets. A. M. Valenti and others. bibliog il diag Astronautics & Aerospace Eng 1:24-9 D '63

In-flight torquemeters aid in utility aircraft-engine development; abstract. L. F. Monts. S A E J 72:84-5 F '64

AIRPLANE factories

Costs

How clean is clean? D. A. Eckhardt and others. diags S A E J 72:82-5 O '64

Equipment

Electronic machine tool control for Concord project. Electronic Eng 36:611 S '64

Europe's largest die forging press. il Aircraft Eng 36:246-7 Ag '64

Fixed optical tooling dock cuts tooling time. R. E. Gariss. il Mach 70:94-6 Jl '64

New production and plant equipment. C. J. Kelly. Published in semi-monthly numbers of Automotive industries

1964 products guide for manufacturing, automotive, and aviation products. Automotive Ind 129:117-225 D 15 '63

Numerical control systems for machine tools. il diags Aircraft Eng 36:238-44 Ag '64

Portable air conditioner, ready for trouble; Autonetics div. of North American aviation, inc. il Plant Eng 18:121 S '64

Tools for the industry (cont). il diag Aircraft Eng 36:150, 227, 257 My, Jl-Ag '64

Maintenance and repair

Computerized system improves machinery maintenance efficiency. L. W. Collins, jr. il diags Mach 70:101-10 My '64

Electrical maintenance at Republic Aviation. R. J. Lawrie. il diag Elec Constr & Maint 63:83-7+ Je '64

Management

Feedback; a key to engineering cost control. L. S. Lee. flow chart Machine Design 36: 134-9 O 8 '64

Providing timely production data. R. D. Bernhard. il Automation 11:48-55 Mr '64

Quality control

Collection of inspection data through the use of computers. W. N. Moore. il Ind Quality Control 20:10-13 Je '64

Conference on aerospace reliability and maintainability, 3d, Washington. Product Eng 35:58 Jl 20 '64

Statistical design and analysis of qualification test program for a small rocket engine. S. R. Wood and D. E. Hartvigsen. bibliog Ind Quality Control 20:14-18 Je '64

Zero defects plan declares war on error; Lockheed Georgia co. P. J. Cathey. Iron Age 194:116-18 O 29 '64

Safety measures

Norair's plus factor; built-in and maintained safety. L. B. Johnson. il Plant Eng 18:121-4 Ja '64

AIRPLANE fuel filters. See **Fuel filters, Airplane**

AIRPLANE industry and trade

International aspects

British contribution to Concord production in France. il diag Aircraft Eng 36:232-7 Ag '64

France

Development of French helicopters. P. H. L. Morain. il diags Roy Aeronautics Soc J 68:675-81; Discussion. 681-2 O '64

World of design; aircraft. R. M. Koff. il diags Product Eng 35:94-5 O 12 '64

Germany

German aircraft; an active new company; Bölkow co. il diags Engineering 198:98-9 Jl 24 '64

Great Britain

1964 prospects for all engineerings; aircraft engineering. il Engineering 197:112-14 Ja 17 '64

Representing Great Britain's aerospace industry; Society of British aerospace companies. E. Bowyer. Aircraft Eng 36:262-4 S '64

S.B.A.C. flying display and exhibition, Farnborough, Sept. 7-13. il Engineer 218:357, 411-14, 439-43 S 4-18 '64; diags Engineering 198:286-9, 328-31 S 4-11 '64

S.B.A.C. flying display and exhibition, 24th, Farnborough, Sept. 7-13; with preview, floor plans, and list of exhibitors. il Aircraft Eng 36:265-72, 277-80, 310-29 S-O '64

Italy

Salone internazionale dell'aeronautica and the Italian aircraft industry. il plan diags Aircraft Eng 36:126-31 My '64

Northern Ireland

Northern Ireland's aviation activities. il Engineer 216:632-4 O 18 '63

AIRPLANE parts

See also

Ailerons

Manufacture

Automatic machine produces airplane access doors. L. K. Geertsen. il Mach 70:147-9 My '64

Forming of tubular aircraft parts simplified by electrohydraulic shot. K. F. Smith. il diags Mach 71:114-17 S '64

High-energy-rate forming is a big producer at North American Aviation. il Mach 70: 116-20 Jl '64

Putting five-axis n/c to work. R. Taipale. il diag Am Mach 108:75-7 Ag 17 '64

Vacuum brazing of honeycomb panel structures. C. M. Marshall and N. R. Williams. il diag Mach 71:158-61 O '64

Testing

Dye penetrant techniques for flaw detection. G. A. Grizzell. diags Aircraft Eng 36:207+ Jl '64

AIRPLANE propellers

Interconnected propellers give French transport stol capability. M. D. Marks and A. A. Lischer. bibliog il diags S A E J 72:90-3 My '64

Velocities induced by the vortex wake of a propeller in a duct. R. Hickling. diags Roy Aeronautical Soc J 67:731-3 N '63

Testing

Performance of Lanchester's Aerial Tourbillion. G. V. Parkinson. bibliog il diags Roy Aeronautical Soc J 68:561-4 Ag '64

AIRPLANE stability and stabilizers

Flight simulation for research. D. H. Perry and J. M. Naish. bibliog il diags Roy Aeronautical Soc J 68:645-60; Discussion. 660-2 O '64

Stabilizing flexible vehicles. R. E. Andeen. bibliog diags Astronautics & Aeronautics 2: 38-44 Ag '64

See also

Airplane wings—Flutter

Gyroscope

AIRPLANE tires. See Tires, Airplane

AIRPLANE wings

ABS contributes to new airplane wing concept. il Mod Plastics 41:107 F '64
Aerodynamic design and flying controls; Hawker Siddeley Trident. il plans diags Aircraft Eng 36:172-81 Je '64
Aircraft leading edge. O. Ball. il diag Materials in Design Eng 59:137-8 Ap '64
Flapping propulsion wake analysis. I. Michelson. AIAA J 1:2658-9 N '63
Fleep flies freight. il Mech Eng 86:131 Ap '64
Jet flap characteristics for high-aspect-ratio wings. G. K. Korbacher. bibliog diag AIAA J 2:64-71 Ja '64
Laminar flow control cuts wing friction drag for greater range. W. L. Collins and others. il diags S A E J 72:56-60 Jl '64
Materials for wings and fuselage of the supersonic transport. R. H. Raring. diag Materials Res & Stand 3:810-14 O '63; Discussion. H. R. Moore. 4:168-9 Ap '64
Paraglider lift nears ideal. C. R. Faulders and G. M. Minott. diags S A E J 72:82 F '64
Reduction of torsional stiffness due to thermal stress in thin, solid wings. D. J. Johns. diag AIAA J 2:1850-2 O '64
Rotating cylinder flaps for v/s.t.o.l. aircraft. A. A. Calderón. il diags Aircraft Eng 36:304-9 O '64
Some effects of planform modification on the skin friction drag. E. J. Hopkins. AIAA J 2:413-14 F '64
Structural design; Hawker Siddeley Trident. il diags Aircraft Eng 36:166-71 Je '64
Sweptforward wings for the HFB 320 Hansa. il diags Aircraft Eng 36:248-51 Ag '64
Three-dimensional perturbations on hypersonic wedge flow. N. D. Malmuth. bibliog diags AIAA J 2:1383-9 Ag '64
Wing structure suits supersonic transport. J. D. Van Dyke, jr. diags S A E J 72:86-8 N '64

See also
Airfoils

Flutter

Effect of aerodynamic damping on flutter of thin panels. H. M. Voss and E. H. Dowell. bibliog AIAA J 2:119-20 Ja '64
Flutter analysis using influence matrices and steady-state aerodynamics. J. B. Herreshoff. bibliog diags AIAA J 1:2853-5 D '63
Flutter characteristics of titanium alloys. J. Genin and R. P. Peloubet. AIAA J 2:1482-3 Ag '64
Flutter design parameter to supplement the Regier number. F. J. Frueh. AIAA J 2:1343-5 Jl '64
Flutter of a ring of panels. R. Stearman. bibliog diags AIAA J 2:1441-8 Ag '64
Flutter of multibay panels at high supersonic speeds. E. Dowell. bibliog diags AIAA J 2:1805-14 O '64
Flutter of multibay panels at supersonic speeds. W. P. Rodden. bibliog AIAA J 2:1476-8 Ag '64
Flutter of two parallel flat plates connected by an elastic medium. J. A. McElman. diags AIAA J 2:377-9 F '64
Modern methods of investigating flutter and vibration. H. P. Y. Hitch. bibliog il diags Roy Aeronautical Soc J 68:357-71; Discussion. 371-3 Je '64
Supersonic panel flutter of oblique clamped plates. A. Kornecki. bibliog diag Roy Aeronautical Soc J 68:270-1 Ap '64
Testing aircraft flutter models. A. D. Maclellan. il Instruments & Control Systems 36:86-7 D '63

Testing

Review of slotted-wall wind tunnel interference effects on oscillating models in subsonic and transonic flows. K. C. Wight. bibliog diags Roy Aeronautical Soc J 68:670-4 O '64
Some experiments with vortex breakdown. M. V. Lowson. bibliog il diags Roy Aeronautical Soc J 68:343-6 My '64
Study of the flow field associated with a steadily-rolling slender delta wing. J. K. Harvey. bibliog diags Roy Aeronautical Soc J 68:106-10 F '64

AIRPLANES

Turbine-powered high wing monoplane. diags Engineer 218:516 S 25 '64

See also
Ailerons
Airfoils
Autogiros
Gliders
Helicopters
Loading and unloading—Airplanes

Acceleration

Supersonic transport climb path optimization including a constraint on sonic boom intensity. M. Falco. bibliog AIAA J 1:2859-62 D '63

Bearings

Design criteria for rolling element airframe bearings for high temperature and high altitude use. J. B. Havewala and J. H. Johnson. bibliog il diags Lub Eng 20:25-33; Discussion. 33-5 Ja '64
Spherical aircraft bearings. R. B. Ziccarelli. il Materials in Design Eng 59:132 Ap '64

Cabins

Interior arrangements; Hawker Siddeley Trident. il plans Aircraft Eng 36:192-3 Je '64

Supercharging

Aircraft systems; Hawker Siddeley Trident; air conditioning and pressurization. diags Aircraft Eng 36:187-8 Je '64
Ozone in high-altitude aircraft cabins. L. S. Jaffe and H. D. Estes. map Archives Environmental Health 9:61-71 bibliog(p70-1) Jl '64

Cockpits

Interior arrangements; Hawker Siddeley Trident. il plans Aircraft Eng 36:192-3 Je '64

Control

Flight simulation for research. D. H. Perry and J. M. Naish. bibliog il diags Roy Aeronautical Soc J 68:645-60; Discussion. 660-2 O '64
Fluid-flow flight control needs no electronics. W. J. Lewis. diags Space/Aeronautics 41:125+ Ap '64
Future flight controls; hydraulic or mechanical? abstract. M. Knopf. diag S A E J 71:92 D '63
New controls, new cooperation among U.S., U.K., and France. D. Barlow. Control Eng 11:35-6 O '64
Vortex senses aircraft pitch rate. J. H. Lindahl. il diags Control Eng 11:99-100 S '64

See also
Airplane stability and stabilizers
Airplanes—Landing

Cost of operation

Direct operating costs of airlines; handle with care. F. R. Poyns. S A E J 71:59-61 D '63
Dollar dilemma threatens SST. R. K. Rourke and J. P. Mitchell. S A E J 72:60-3 S '64

See also
Airplanes, Jet propelled—Cost of operation
Airplanes, Supersonic—Cost of operation

Design

Aircraft design and development. R. R. Heppe and others. il diags Astronautics & Aerospace Eng 1:29-35 N '63
Computer applications in the development of efficient aircraft structures. I. C. Taig. diags Roy Aeronautical Soc J 67:706-10; Discussion. 715 N '63
Curved beams. C. G. B. Mitchell. diags Roy Aeronautical Soc J 68:134-7 F '64
German aircraft; an active new company; Bölkow co. il diags Engineering 198:98-9 Jl 24 '64
High-lift plane design lifts local airlines' prospects. F. G. Wagner. diags S A E J 72:53-5 Ja '64
New techniques and materials for damping. J. P. Henderson. diags Machine Design 36:119+ Jl 30 '64
New way to select vehicle design parameters. H. Moss. diags S A E J 72:62-5 Mr '64
Pilot's viewpoint. J. M. McMahon; D. H. Woolley. Roy Aeronautical Soc J 67:770-4 D '63
Progress with the Concord. G. Edwards. Engineer 217:371-3 F 28 '64
Structural design. R. J. Atkinson. bibliog Roy Aeronautical Soc J 67:692-5; Discussion. 712-13 N '63
Structural development. H. R. Ashley. il diags Roy Aeronautical Soc J 67:701-5; Discussion. 714-15 N '63
Structural fatigue and other airworthiness aspects. J. K. Williams. bibliog Roy Aeronautical Soc J 67:776-81 D '63
Teaching aircraft design in the postgraduate course at the College of aeronautics, Cranfield. A. F. Newell and D. Howe. il diags Aircraft Eng 36:330-2 O '64
Transport aircraft; trends in design; illustrations with text. Engineer 217:30-1 Ja 3 '64

See also
Airplane wings
Airplanes—Radomes
Airplanes, Light

AIRPLANES—*Continued*

Electric equipment

Improved aircraft-ignition cables. il Engineer 217:836 My 8 '64

Protecting aircraft distribution systems. K. F. Bacon. il diags Ind Electronics 2:334-8 Jl '64

See also
Airplanes—Control

Electronic equipment

Aircraft accident data recorder. il Electronic Eng 36:20 Ja '64

Aircraft accident recorder. il Wireless World 70:50 Ja '64

Airlines see different paths to all-weather landings. R. C. Collins and others. il S A E J 72:96-9 O '64

All-weather landings. il diags Machine Design 36:160-5 S 10 '64

Commercial aircraft prospects for microelectronics. J. R. Moore and R. M. Ashby. bibliog flow diag il diags Astronautics & Aeronautics 2:34-40 Ap '64

Data acquisition system. flow chart diag Aircraft Eng 36:147 My '64

Digital data link for aircraft communication. W. J. Battell. il diags Radio & Electronic Eng 27:315-23 Ap '64

Equivalence and optimal strategies for some minimum fuel discrete systems. E. Polak. diags Franklin Inst J 277:150-61 F '64

Hot mikes will record air crew's conversation. A. A. McKenzie. il Electronics 36:53-4 N 15 '63

Majority voting protects aircraft and pilot. H. Moreines and others. il diags Electronics 37:85-91 My 18 '64

Microelectronics in equipment design. S. S. Forte. il diags Electronic Eng 36:696-701 O '64

New airborne navigation computer. il Electronic Eng 35:812 D '63

Now the pilot sees data at eye-level. il Engineering 197:286-7 F 21 '64

S.B.A.C. flying display and exhibition, 24th, Farnborough, Sept. 7-13. il Ind Electronics 2:470-4 O '64; Electronic Eng 36:713-19 O '64; Engineering 198:272-4, 310 Ag 28-S 4 '64

Equipment

Auxiliary equipment (cont). il Aircraft Eng 36:152, 224, 256, 294 My, Jl-S '64

Computer-controlled navigational demonstration aircraft. il Engineer 217:960 My 29 '64

Low temperature tests on airborne equipment. il Engineering 196:669 N 22 '63

New products; automotive-aviation. C. J. Kelly Published in semi-monthly numbers of Automotive industries

See also
Aeronautic instruments
Radio apparatus on aircraft

Fires and fire protection

False warning riddance sought in air fire detection. il diags S A E J 72:72-5 Je '64

Novel solution to special fire problem; monoammonium phosphate. il Safety Maint 127:42-3 Mr '64

Fuselage

Materials for wings and fuselage of the supersonic transport. R. H. Raring. diag Materials Res & Stand 3:810-14 O '63; Discussion. H. R. Moore. 4:168-9 Ap '64

Structural design; Hawker Siddeley Trident. il diags Aircraft Eng 36:166-71 Je '64

Hydraulic equipment

Conventional components boost C-141 reliability. C. H. Cannon. il diags Hydraulics & Pneumatics 17:103-8 Mr '64

Dual filters increase aircraft reliability. D. B. Meredith. il diag Hydraulics & Pneumatics 17:68-70 F '64

SAE aerospace group discusses pressure effects. diags Hydraulics & Pneumatics 17:67+ F '64

Solid propellants power emergency hydraulic systems. M. L. Caplan. il diags S A E J 72:72-5 Ja '64

Trends in hydraulic systems; Aerospace fluid power conference, 13th, Detroit. Automotive Ind 130:43 Ja 1 '64

Two-pressure circuit tests aircraft valves. L. Edwards and T. Geddes. il diag Hydraulics & Pneumatics 17:76-7 Mr '64

See also
Airplanes, Military—Hydraulic equipment

Instrument boards

Interior arrangements; Hawker Siddeley Trident. il plans Aircraft Eng 36:192-3 Je '64

Jet propulsion

See Airplanes, Jet propelled

Landing

Airlines see different paths to all-weather landings. R. C. Collins and others. il S A E J 72:96-9 O '64

All-weather aircraft landing. F. B. Brady. il diags Sci Am 210:25-35 Mr '64

All-weather landing systems. A. B. Winick. il diags Am Soc C E Proc 90 [AT 2 no 4077]:85-94 O '64

All-weather landings. il diags Machine Design 36:160-5 S 10 '64

Automatic landing; Hawker Siddeley Trident. il plan diags Aircraft Eng 36:160-5 Je '64

Boundary layer control system lands jet planes. diags Product Eng 35:56-7 O 12 '64

Frequent take-offs and landings increase operating problems of medium-range jets. W. E. Rhoades and R. T. Glassons. il S A E J 72:32-5 O '64

New approach to I.L.S. modulation depth comparison. G. G. Gouriet. il diags Electronic Eng 36:2-7 Ja '64

100-ft barrier. G. B. Litchford. bibliog diags Astronautics & Aeronautics 2:58-65 Jl '64

Preparation of an overhaul schedule for use after a heavy landing. B. Decomps and De Caumont. plans diags Aircraft Eng 36:132-6 My '64

Runway visibility in thick fog. D. M. Finch. il diags Am Soc C E Proc 90 [AT 2 no 4112]:95-121 O '64

See also
Airplanes, Vertical take-off

Landing gear

Cost of landing an airplane. J. E. Davis and R. C. Curry. S A E J 71:47-9 D '63

Lifting 100 tons on the level; four hydraulic jacks raise a 100-ton airplane for landing gear maintenance. K. C. Dawson. il diags Hydraulics & Pneumatics 16:109-11 N '63

See also
Airplanes—Wheels

Lighting

Airline looks at aircraft lighting problems. R. Schwab and others. S A E J 72:70-1 F '64

Load

Method of measuring helicopter landing loads. M. J. H. Harding. il diags Roy Aeronautical Soc J 68:323-9 My '64

Prediction of aerodynamic loads. G. W. Webber. il Aircraft Eng 36:200-6+ Jl '64

Rotor blade harmonic air loading. R. H. Miller. bibliog diag AIAA J 2:1254-69 Jl '64

Transient pressures on structures due to wind gusts. G. A. Bird. A S M E Trans ser E 31:152-3 Mr '64

Unsteady air loads on helicopter rotor blades. R. H. Miller. bibliog diags Roy Aeronautical Soc J 68:217-218; Discussion. 228-9 Ap '64

Maintenance and repair

How to cut cost of aircraft maintenance; abstract. R. M. Adams and G. N. Brock. S A E J 71:84 D '63

Lifting 100 tons on the level; four hydraulic jacks raise a 100-ton airplane for landing gear maintenance. K. C. Dawson. il diags Hydraulics & Pneumatics 16:109-11 N '63

Maintenance and overhaul in relation to operators' field requirements and official airworthiness requirement. H. Best-Devereux. Roy Aeronautical Soc J 67:774-5 D '63

Manufacture

Aluminum waffles milled from the solid by advanced numerical control. L. W. Collins, jr. il diag Mach 70:103-6 Jl '64

British contribution to Concord production in France. il diag Aircraft Eng 36:232-7 Ag '64

New techniques speed metal bonding. C. L. Sullivan. il Mach 70:107-9 Jl '64

Numerical control on Concord. il Engineering 198:91 Jl 17 '64

Production aspects. T. O. Williams. il diags Roy Aeronautical Soc J 67:696-700; Discussion. 713-14 N '63

See also
Airplane factories

AIRPLANES—*Continued*

Materials

Aluminum alloys ok for Mach 2.5. E. H. Spuhler and others. S A E J 71:42-4 D '63

Auxiliary and ancillary equipment; Hawker Siddeley Trident. il Aircraft Eng 36:196-8 Je '64

Beryllium structures. R. N. Kelly. il diag Space/Aeronautics 42:64-73 Jl '64

Development and testing of elastomeric materials for fluid sealing applications. C. M. Blow. Aircraft Eng 36:208-12 Jl '64

Development of strong aluminum alloys. W. M. Doyle. il Aircraft Eng 36:214-17 Jl '64

Effect of proof stress on the notched fatigue strength of the aluminum alloy HE 15. P. G. Forrest. Roy Aeronautical Soc J 67:596-8 S '63; Discussion. E. R. Welbourne. 67:798-9 D '63

Fabricating titanium for aerospace applications. L. M. Limbach. il Mod Metals 20:53-4 S '64

Finding a skin for the Concorde. il Steel 155:52-4 O 5 '64

High quality steels and forgings. il Engineering 198:265 Ag 28 '64

High temperature service offered by new nickel-base alloys. J. C. Freche and W. J. Waters. bibliog il diag Foundry 92:44-7 Jl '64

Materials. bibliog Space/Aeronautics 42 no 4:147-65+ '64-65

Materials. J. Fielding. bibliog Roy Aeronautical Soc J 67:685-91; Discussion. 711-12 N '63

Materials and processing, what does the aerospace industry need? R. G. Dermott. Metal Prog 85:74-83 Mr '64

New materials: aircraft, missile or space vehicle applications (cont). il Aircraft Eng 36:154, 225, 258 My, Jl-Ag '64

Sikorsky turns to titanium forgings for high-performance helicopters. H. W. Bredin. il Mach 70:88-93 Jl '64

Supersonic transport materials. R. H. Raring. bibliog il Astronautics & Aeronautics 2:54-9 S '64

Titanium; on the rebound. A. G. Rosenthal. il Mod Metals 20:27-8+ My '64

Titanium today. il diag Space/Aeronautics 41:92-9 Ap '64

With the A-11, titanium comes of age. Steel 154:25-6 Mr 9 '64

Wood technology is giving designers new uses for an age-old material. S. Barnes. il Machine Design 36:78-85 Jl 30 '64

See also
Steel, Aircraft

Plastics

ABS contributes to new airplane wing concept. il Mod Plastics 41:107 F '64

New reinforced plastic technology gives the 727 a big lift. il diags Mod Plastics 41:100-3 Ag '64

Reinforced polyester is the natural choice for aero- and hydrodynamic research. il Plastics World 21:16-17 N '63

Model testing

Testing aircraft flutter models. A. D. Maclellen. il Instruments & Control Systems 36:86-7 D '63

Noise

Major problems of noise from aircraft. J. D. Voce. Engineering 196:798-800 D 20 '63

Painting and finishing

Atmospheric control for aircraft painting; questions and answers. Ind Finishing 40:102-3 Mr '64

Jet airliner's interior parts are painted with a two-component primer. W. M. Anderson. il Ind Finishing 40:24-6+ Ag '64

Makeup air heaters provide pressurization for spray painting jets. il Heating-Piping 36:112-13 S '64

Performance

Comparative performance of five Chipmunk aircraft. J. H. Fawcett. Aircraft Eng 36:140-5 My '64

Maximum range of hypersonic ramjets. J. H. Horlock. bibliog diags Roy Aeronautical Soc J 68:699-702 O '64

Pneumatic equipment

Pneumatic power system proposed for flight vehicles. R. W. Casebolt. diags S A E J 72:87-90 Ja '64

Private ownership

See also
Airplanes in business

Radomes

Approximate evaluation of slender radome performance in hypersonic flight. F. A. Albini. bibliog diags AIAA J 2:476-83 Mr '64

Refueling

Airplane fuel, from barge to plane. il map Civil Eng 34:34-5 Je '64

Cold fuel for supersonic aircraft. P. F. Golden and others. diags Astronautics & Aeronautics 2:64-8 O '64

Portable instrument for measuring the electrical conductivity of aviation fuels. M. D. Foster and K. J. Marsh. diags J Sci Instr 41:379-81 Je '64

Refuelling in flight. P. S. Macgregor. il plan diags Aircraft Eng 36:273-6+ S '64

See also
Airplanes, Jet propelled—Refueling

Safety measures

See Aviation—Safety measures

Seats

Convertible airliner seat developed by British European airways. il Mech Eng 86:71 Jl '64

Two seats (first class) = three seats (tourist). il Engineering 197:383 Mr 13 '64

Speed

See also
Airplanes, Jet propelled

Tail surfaces

Aerodynamic design and flying controls: Hawker Siddeley Trident. il plans diags Aircraft Eng 36:172-81 Je '64

Tests prove feasibility of blown tail for stol aircraft. diags Space/Aeronautics 41:117+ Je '64

Take-off

Effect of gradient on jet transport runway lengths. G. Ahlborn and R. Horonjeff. Am Soc C E Proc 89 [AT 1 no 3490]:39-50 Ap '63; Discussion. M. Meisner. 89 [AT 2 no 3686]:53-69 O '63; Reply. 90 [AT 1 no 3916]:83-4 My '64

Frequent take-offs and landings increase operating problems of medium-range jets. W. E. Rhoades and R. T. Glassons. il S A E J 72:32-5 O '64

Method of calculating maximum permissible take-off weights using a digital computer. A. Wilson and B. A. Graham. diag Roy Aeronautical Soc J 68:692-3 O '64

Runway visibility in thick fog. D. M. Finch. il diags Am Soc C E Proc 90 [AT 2 no 4112]:95-121 O '64

Tandem engines make private flying simple. W. D. Thompson. il S A E J 72:52-3 F '64

See also
Airplanes, Vertical take-off

Testing

Comparative performance of five Chipmunk aircraft. J. H. Fawcett. Aircraft Eng 36:140-5 My '64

Determining data system accuracy. W. J. Irwin and D. E. Korsch. bibliog I S A J 11:55-60 S '64

Prediction of aerodynamic loads. G. W. Webber. il Aircraft Eng 36:200-6 Jl '64

Reflections on aircraft instrumentation. A. H. Duncan. il diags Engineering 196:783-4 D 20 '63

Role of the test pilot. A. W. Bedford. Roy Aeronautical Soc J 68:383-8; Discussion. 388-90 Je '64

Theoretical deduction of fatigue scatter factor for structures. I. M. K. Malik. Aircraft Eng 36:223 Jl '64

See also
Airplanes—Model testing

Vibration

Modern methods of investigating flutter and vibration. H. P. Y. Hitch. bibliog il diags Roy Aeronautical Soc J 68:357-71; Discussion. 371-3 Je '64

New techniques and materials for damping. J. P. Henderson. diags Machine Design 36:119+ Jl 30 '64

Random vibrations of a Myklestad beam. Y. K. Lin. diags AIAA J 2:1448-51 Ag '64

Vibration and shock testing. M. Gertel. diags Space/Aeronautics 42 no 4:191-6 '64-65

See also
Airplane wings—Flutter
Helicopters—Vibration

AIRPLANES—*Continued*

Weight

Airliners weigh in. il Electronics 37:26 N 2 '64

Method of calculating maximum permissible take-off weights using a digital computer. A. Wilson and B. A. Graham. diag Roy Aeronautical Soc J 68:692-3 O '64

Wheels

Mg alloy use cuts aircraft wheel cost, weight. H. C. Buckelew. S A E J 72:90-4 Ap '64

Windshields

Eyes for the X-15. il Product Eng 35:65 Mr 16 '64

Windshields; stretched acrylic laminates for aircraft. il Plastics World 22:36 Mr '64

AIRPLANES, Experimental

Advanced X-15; proven space tool takes on new jobs. il Machine Design 36:10 Mr 12 '64

Disappointing debut. il Electronics 37:25-6 Je 1 '64

Glass materials system meets multi-design needs. il Materials in Design Eng 59:117 My '64

MX-324; step to manned rocket flight. il Astronautics & Aeronautics 2:55 O '64

X-15A-2; the newest rocket research aircraft. il Engineering 197:384 Mr 13 '64

X-15 project. J. V. Becker and others. bibliog il diags Astronautics & Aeronautics 2:52-61 F; 20-8 Mr '64

See also

Space vehicles

AIRPLANES, Freight

Air freight; a change and its promised savings. il Mod Materials Handling 19:53-60 N '64

Civil aviation to 1970. R. Horonjeff and G. Ahlborn. bibliog diags Am Soc C E Proc 90 [AT 1 no 3891]:1-15 My '64

Conventional components boost C-141 reliability. C. H. Cannon. il diags Hydraulics & Pneumatics 17:103-8 Mr '64

First flight of the turbo Skyvan. il Engineering 196:683 N 29 '63

Fleep flies freight. il Mech Eng 86:131 Ap '64

Jet Belfast. il diags Aircraft Eng 36:138-9 My '64

Latest United States air freighter; C141 Starlifter transport. il Engineer 216:658 O 18 '63

Maximum payloads per unit time delivered through an air network. G. B. Dantzig and D. L. Johnson. bibliog diags Op Res 12:230-6 Mr '64

AIRPLANES, Hypersonic

Advanced X-15; proven space tool takes on new jobs. il Machine Design 36:10 Mr 12 '64

Aerospace in perspective; exploration. il diags Space/Aeronautics 41:106-21 Ja '64

Approximate evaluation of slender radome performance in hypersonic flight. F. A. Albini. bibliog diags AIAA J 2:476-83 Mr '64

Europe studies an aerospace transporter. Engineering 198:424-5 O 2 '64

Hypersonic airbreathing propulsion. W. H. Avery and G. L. Dugger. bibliog diags Astronautics & Aeronautics 2:42-7 Je '64

Hypersonic propulsion. W. G. Osmun. diags Space/Aeronautics 41:80-3 Mr '64

Study of hypersonic aircraft. D. E. Wall. diags Am Soc C E Proc 90 [AT 2 no 4074]: 9-24 O '64

X-15 project. J. V. Becker and others. il diags Astronautics & Aeronautics 2:52-61 F; 20-8 Mr '64

AIRPLANES, Industrial

See also

Airplanes in agriculture

Airplanes in the petroleum industry

AIRPLANES, Jet propelled

British military aircraft; illustrations with text. Engineer 217:28-9 Ja 3 '64

British v/s.t.o.l. transport developments. il diags Engineer 217:425-6 Mr 6 '64

Business airplane harnesses twin turboprop engines. il Machine Design 35:14 D 19 '63

Effect of gradient on jet transport runway lengths. G. Ahlborn and R. Horonjeff. Am Soc C E Proc 89 [AT 1 no 3490]:39-50 Ap '63; Discussion. M. Meisner. 89 [AT 2 no 3686]:53-69 O '63; Reply. 90 [AT 1 no 3916]:83-4 My '64

First flight of the turbo Skyvan. il Engineering 196:683 N 29 '63

Fleets of new jets growing. Oil & Gas J 62:63 Ag 3 '64

Frequent take-offs and landings increase operating problems of medium-range jets. W. E. Rhoades and R. T. Glassons. il S A E J 72:32-5 O '64

Jet Belfast. il diags Aircraft Eng 36:138-9 My '64

Jet cargo facility requirements. S. R. Wallace. il plans Am Soc C E Proc 90 [AT 2 no 4068]:135-40 O '64

Shorts propose a small twin jet. il Engineering 197:541 Ap 17 '64

Twin-jet multi-purpose aircraft. il Engineer 217:328 F 14 '64

See also

Airplane engines—Jet engines

Airplanes, Hypersonic

Airplanes, Supersonic

Gas turbines, Aircraft

Rocket propulsion

Air conditioning

Aircraft systems; Hawker Siddeley Trident: air conditioning and pressurization. diags Aircraft Eng 36:187-8 Je '64

Control

Aerodynamic design and flying controls; Hawker Siddeley Trident. il plans diags Aircraft Eng 36:172-81 Je '64

Automatic landing; Hawker Siddeley Trident. il plan diags Aircraft Eng 36:160-5 Je '64

Cooling

See also

Airplanes, Supersonic—Cooling

Cost of operation

Cost of landing an airplane. J. E. Davis and R. C. Curry. S A E J 71:47-9 D '63

Design

Aerodynamic design and flying controls; Hawker Siddeley Trident. il plans diags Aircraft Eng 36:172-81 Je '64

Evolution and basic design philosophy; Hawker Siddeley Trident. il diags Aircraft Eng 36:158-9 Je '64

Maximum range of hypersonic rampets. J. H. Horlock. bibliog diags Roy Aeronautical Soc J 68:699-702 O '64

727, Boeing's most reliable jet. K. C. Plewes and others. S A E J 71:52-6 D '63

Structural design; Hawker Siddeley Trident. il diags Aircraft Eng 36:166-71 Je '64

Sweptforward wings for the HFB 320 Hansa. il diags Aircraft Eng 36:248-51 Ag '64

Equipment

Aircraft systems; Hawker Siddeley Trident. il diags Aircraft Eng 36:184-91 Je '64

Auxiliary and ancillary equipment; Hawker Siddeley Trident. il Aircraft Eng 36:196-8 Je '64

Fuel tanks

Super VCIO fin fuel system. diags Aircraft Eng 36:137 My '64

Hydraulic equipment

Filtering a jet aircraft hydraulic system. Product Eng 34:57 N 25 '63

Improved hydraulic systems seen for future aircraft. R. E. Middleton and others. il diags S A E J 72:51-3 O '64

727 jet hydraulics; more and better. J. E. Klansnik. il diags Hydraulics & Pneumatics 17:100-4 Jl '64

Landing

See Airplanes—Landing

Maintenance and repair

Cost of landing an airplane. J. E. Davis and R. C. Curry. S A E J 71:47-9 D '63

Ground handling and maintenance; Hawker Siddeley Trident. il diags Aircraft Eng 36:194-5 Je '64

Preparation of an overhaul schedule for use after a heavy landing. B. Decomps and De Caumont. plans diags Aircraft Eng 36: 132-6 My '64

Progress with the development of the B.A.C. one-eleven. J. P. Thomas. il map Aircraft Eng 36:298-303 O '64

Noise

Control of aircraft noise perceived at ground level: technical aspects; legal aspects. E. J. Richards; H. Caplan. bibliog Roy Aeronautical Soc J 68:45-52; Discussion. 53 Ja '64

Refueling

Filter separators ensure clean fuel. il diag Oil & Gas J 61:47 O 28 '63

Hydrant fuel system serves airport. il Eng N 171:94 N 14 '63

Portable service station proves useful. il Pet Management 36:212 Mr '64

AIRPLANES, Jet propelled—*Continued*

Testing

In-flight tests double for wind tunnel studies. D. J. Long. S A E J 72:92-3 Jl '64

Progress with the development of the B.A.C. one-eleven. J. P. Thomas. il map Aircraft Eng 36:298-303 O '64

Structural design; Hawker Siddeley Trident. il diags Aircraft Eng 36:166-71 Je '64

AIRPLANES, Light

BD-1; engineering solution to an economic problem. il diags Machine Design 36:144-7 O 8 '64

New light twin by Beagle. il Engineering 198: 391 S 25 '64

AIRPLANES, Military

A-11 jet is a product of titanium and welding technology. il diag Welding Eng 49:70 Ap '64

Army presses for air mobility. il diags Machine Design 36:160-4 F 13 '64

British military aircraft; illustrations with text. Engineer 217:28-9 Ja 3 '64

British unveil a fixed-wing TFX. il Machine Design 35:106-7 D 19 '63

Integrated weapons system; the TSR-2 military aircraft; illustrations with text. Engineer 216:740 N 1 '63

Jet-lift vtol principle chosen for two very different aircraft missions. H. Deplante and F. Hoffert. il diags S A E J 72:60-5 N '64

Twelve Mach-3 interceptors pass their tests. il Machine Design 36:6 Mr 12 '64

Twin-jet multi-purpose aircraft. il Engineer 217:328 F 14 '64

With the A-11, titanium comes of age. Steel 154:25-6 Mr 9 '64

XB-70 rollout. il diags Machine Design 36:162-7 Je 8 '64

See also

Airplanes, Military transport

Control

Controlling fighter planes from a jeep in battle area. T. Maguire. il Electronics 37: 114-18 O 5 '64

Ejection devices

Rockets; flight from danger. il Product Eng 35:61 Ag 17 '64

Shotgun ejection seat. il Mech Eng 86:68 Jl '64

Electronic equipment

Air force seeks new weapons breakthroughs. J. F. Mason. Electronics 37:46-7 Mr 6 '64

Biomedical flight data collection. H. R. Bratt and M. J. Kuramoto. bibliog il diags I S A J 10:57-62 O '63

Silent war; electronic spying. J. M. Carroll. il diags Electronics 37:74-81 Ap 20 '64

Hydraulic equipment

Navy steered to cleaner plane hydraulic systems. N. F. Robinson. S A E J 72:76-7 Ja '64

Manufacture

Problem plagued XB-70 advances technology. il Steel 154:29+ My 18 '64

Painting and finishing

Epoxy coatings protect Douglas-built bomb racks. G. Bright. il Ind Finishing 40:44-6+ Ja '64

Testing

Design qualification. T. A. Simonds. Ind Quality Control 20:11-13+ F '64

AIRPLANES, Military transport

'Copter-transportable equipment; BAT, army's all-purpose tractor, can be carried in sections. E. J. Rodrick. il Automotive Ind 130: 31-3 Ap 1 '64

Short Belfast strategic transport. il Engineering 197:166-8 Ja 24 '64

AIRPLANES, Supersonic

Aerospace in perspective; utilization. il diags Space/Aeronautics 41:122-37 Ja '64

Airport designers' headache; supersonic transport (SST). Eng N 172:20 Ap 30 '64

Aluminum alloys ok for Mach 2.5. E. H. Spuhler and others. S A E J 71:42-4 D '63

ASCE National airport conference, 4th, San Francisco, April 22-24. Civil Eng 34:79 Je '64

Application of supersonic aircraft to airline operations. H. D. Fellows. Am Soc C E Proc 90 [AT 2 no 4103]:25-30 O '64

British contribution to Concord production in France. il diag Aircraft Eng 36:232-7 Ag '64

British unveil a fixed-wing TFX. il Machine Design 35:106-7 D 19 '63

Development of strong aluminum alloys. W. M. Doyle. il Aircraft Eng 36:214-17 Jl '64

Dollar dilemma threatens SST. R. K. Rourke and J. P. Mitchell. S A E J 72:60-3 S '64

Electronics for the SST; what's ahead? L. D. Shergalis. il Electronics 36:24-5 N 15 '63

Exploratory studies of mechanical cycling fatigue behavior of materials for the supersonic transport; abstract. D. N. Gideon and others. Metal Prog 86:206+ Ag '64

Finding a skin for the Concorde. il Steel 155: 52-4 O 5 '64

Fuel systems problems in high speed aircraft. W. G. Lydiard. il diags Roy Aeronautical Soc J 68:11-21; Discussion. 21-4 Ja '64

Minimum supersonic transports safety goal; one fatal accident in 500,000 hr. J. Lederer. S A E J 72:58-9 Ag '64

Operation of the supersonic transport at airports. W. Magruder. plans diags Am Soc C E Proc 90 [AT 2 no 4092]:31-51 O '64

Operations of the supersonic transport in the terminal area. F. T. Fox. Am Soc C E Proc 90 [AT 2 no 4102]:59-67 O '64

Power for supersonic flight. S. G. Hooker. il diags Roy Aeronautical Soc J 68:454-63 Jl '64

Problem plagued XB-70 advances technology. il Steel 154:29+ My 18 '64

Progress with the Concord. G. Edwards. Engineer 217:371-3 F 28 '64

Proposals for a supersonic transport. il Product Eng 35:57-8 F 17 '64

Pros and cons of supersonic aviation in relation to gains or losses in the combined time/comfort consideration. B. K. O. Lundberg. bibliog il diags Roy Aeronautical Soc J 68:611-28; Discussion. 628-30 S '64

Report on the status of the supersonic transport. J. T. Dyment. il diags S A E J 72: 30-5 Jl '64

Some considerations affecting the design and operation of supersonic civil transports. A. L. Courtney. diags Roy Aeronautical Soc J 68:598-610 S '64

Supersonic commercial jets need low-cost fuel. E. H. Wehner. S A E J 72:54-5 O '64

Supersonic transport. il diags Space/Aeronautics 41:62-91 Ap '64

Supersonic transport climb path optimization including a constraint on sonic boom intensity. M. Falco. bibliog AIAA J 1:2859-62 D '63

Supersonic transport development program. R. D. Kelly. Am Soc C E Proc 90 [AT 2 no 4091]:1-8 O '64

Supersonic transport materials. R. H. Raring. bibliog il Astronautics & Aeronautics 2:54-9 S '64

Supersonic transport; road ahead. W. Littlewood. Astronautics & Aeronautics 2:77-8 S '64

Supersonic transport; the race for safety. N. E. Halaby. Astronautics & Aeronautics 2:40-2 S '64

Supersonic transport-tire design poses no new problems. il Machine Design 36:6 Jl 16 '64

Thrust nozzles for supersonic transport aircraft. D. Migdal and J. J. Horgan. bibliog il diags A S M E Trans ser A 86:97-104 Ap '64

Transport aircraft; trends in design; illustrations with text. Engineer 217:30-1 Ja 3 '64

Twelve Mach-3 interceptors pass their tests. il Machine Design 36:6 Mr 12 '64

XB-70 rollout. il diags Machine Design 36:162-7 Je 18 '64

See also

Airplanes, Hypersonic

Control

Aerospace in perspective; control. il diags Space/Aeronautics 41:138-55 Ja '64

All-mechanical actuator for high temperatures. E. P. Tomaszek. diag Space/Aeronautics 41:261 Ja '64

Flight control. C. L. Seacord. diags Space/Aeronautics 42 no 4:66-9 '64-65

Cooling

Cold fuel for supersonic aircraft. P. F. Golden and others. diags Astronautics & Aeronautics 2:64-8 O '64

Cost of operation

What's an economic supersonic transport? J. G. Borger and W. F. Hibbs. map Astronautics & Aeronautics 2:16-24 S '64

Design

Airborne opportunity; FAA's competition for a supersonic transport. il diag Product Eng 34:71-2 N 11 '63

AIRPLANES, Supersonic—Design—*Continued*

Aircraft structures. C. M. Wong. Space/Aeronautics 42 no 4:22-4 '64-65

Airport operators have part in design of supersonic jet. Eng N 173:16 Jl 30 '64

Concord aerodynamics. P. Satre. il Engineer 216:988-9 D 13 '63

Concord supersonic transport. il diags Space/Aeronautics 41:84-7 Ap '64

Defining the sonic-boom problem. H. A. Hutchinson. bibliog Astronautics & Aerospace Eng 1:56-61 D '63

Dynamics and structures: aerodynamics. J. L. Jones, jr. diags Space/Aeronautics 42 no 4:16-19 '64-65

F-111 is first production aircraft to have variable sweep wings. il Product Eng 35:33 Jl 6 '64

Power for the Mach 3 supersonic transport. J. F. Dugan, jr. and others. bibliog il diags Astronautics & Aeronautics 2:44-51; Discussion. 51-3 S '64

Recent supersonic transport research. W. J. Alford, jr. and C. Driver. bibliog il diags Astronautics & Aeronautics 2:26-37 S '64

Research into aerodynamics. il Engineer 217:1063-5 Je 19 '64

Stretching an aircraft. Engineering 198:130 Jl 31 '64

Supersonic airliner progress; illustrations with text. Engineer 216:732 N 1 '63

Supersonic scramble. R. Sanders. il diags Mech Eng 86:26-32 Jl '64

Supersonic transport. R. L. Bisplinghoff. il diags Sci Am 210:25-35 Je '64

Supersonic transport; the contenders. il diags Engineering 197:444-6 Mr 27 '64

Wing structure suits supersonic transport. J. D. Van Dyke, jr. diags S A E J 72:86-8 N '64

Electronic equipment

Supersonic transport, challenge to avionics designers. W. J. Evanzia. il diags Electronics 37:60-5 S 7 '64

Hydraulic equipment

Improved hydraulic systems seen for future aircraft. R. E. Middleton and others. il diags S A E J 72:51-3 O '64

Programmed power concept for XB-70 fluid power systems. il Hydraulics & Pneumatics 17:75-6+ Ag '64

Noise

Effects of sonic boom on buildings; symposium. bibliog il diags Materials Res & Stand 4:581-623 N '64

AIRPLANES, Transport. See Airplanes, Military transport

AIRPLANES, Vertical take-off

Accident report on SC.1v.t.o.l. research aircraft crash. Engineer 217:176 Ja 24 '64

Army presses for air mobility. il diags Machine Design 36:160-4 F 13 '64

British v/s.t.o.l. transport developments. il diags Engineer 217:425-6 Mr 6 '64

Fixed-wing aircraft would land like a helicopter. il Machine Design 36:14 Je 4 '64

Influence of v/stol aircraft on airport design. R. D. Speas and H. P. Schmidt. diags Am Soc C E Proc 90 [AT 2 no 4096]:167-80 O '64

Ionocraft is propelled by a stream of ionized air. il diag Product Eng 35:85-6 Je 22 '64

Jet flap characteristics for high-aspect-ratio wings. G. K. Korbacher. bibliog diag AIAA J 2:64-71 Ja '64

Jet-lift vtol principle chosen for two very different aircraft missions. H. Deplante and F. Hoffert. il diags S A E J 72:60-5 N '64

Rotating cylinder flaps for v/s.t.o.l. aircraft. A. A. Calderón. il diags Aircraft Eng 36:304-9 O '64

Tests prove feasibility of blown tail for stol aircraft. diags Space/Aeronautics 41:117+ Je '64

Three ways to put the V in vtol. W. R. Morgan and others. il diags S A E J 72:40-4 Ap '64

Tilt-wing aircraft in the works. H. F. Carter. diags S A E J 72:45-7 Ap '64

Time of transition. N. E. Rowe. bibliog il diags Roy Aeronautical Soc J 68:145-55 Mr '64

V in v/stol could be versatility. B. S. Kelsey. S A E J 72:78 My '64

V/stol landings smoothed by letting air out of tires. J. A. Hoess and others. il diag S A E J 72:58-9 Ap '64

Vtol's up in the air. il diags Product Eng 35:61 Mr 16 '64

XC-142A. il diag Product Eng 35:34 Jl 6 '64

AIRPLANES in agriculture

Aerial agricultural machinery; Royal aeronautical society symposium, London, Jan. 16. bibliog il diags Roy Aeronautical Soc J 67:754-81; Discussion. 781-2 D '63

Agricultural aviation potentials for Asia. E. C. S. Little. il maps plan diags Roy Aeronautical Soc J 68:127-33 F '64

Royal aeronautical society symposium on agricultural aviation, London, Jan. 29. bibliog Roy Aeronautical Soc J 68:535-59; Discussion. 560 Ag '64

AIRPLANES in business

Business aircraft operation expands steadily without fanfare; abstract. R. J. Hixson. S A E J 72:80 F '64

For executive use, a new twin by Cessna. il Engineering 197:317 F 28 '64

So you're thinking of buying business aircraft. M. H. Smith and H. P. Schmidt. S A E J 72:58-61 Je '64

Technical progress is varied in utility airplane areas. il S A E J 72:43-5 Ja '64

Twin-engined executive aircraft. il Engineer 217:409 F 28 '64

AIRPLANES in forestry

Forest fire control aircraft in Canada. D. G. Fraser. bibliog Roy Aeronautical Soc J 68:546-52 Ag '64

AIRPLANES in freight service

Growing use of air freight shows changing industry trend. il Oil & Gas J 62:30-2 Ja 6 '64

AIRPLANES in the petroleum industry

Growing use of air freight shows changing industry trend. il Oil & Gas J 62:30-2 Ja 6 '64

AIRPORT buildings

Cantilever roof spans 197 ft; (Alitalia's) new service hangars at Fiumicino airport. il Eng N 173:29 O 29 '64

Damage to Ottawa air terminal building produced by a sonic boom. W. A. Ramsay. il plan Materials Res & Stand 4:612-16 N '64

Evolution and future of airport passenger terminals. A. W. Thompson. plans diags Am Soc C E Proc 90 [AT 2 no 4064]:127-34 O '64

Metal deck in big panels cuts cost of arched roof. Eng N 172:104 F 13 '64

New airport terminal at Prestwick. il Engineering 198:466 O 9 '64

Phoenix airport terminal buildings; prestressed challenge. W. E. Riley. il diags Am Concrete Inst J 61:137-50 F '64

Structural design of the Terminal building for Edmonton international airport. E. M. Rensaa. il plans diags Eng J 47:21-7 Je '64; Discussion. 47:78+ S '64

Two-level terminal geared for the crowds; La Guardia airport. il plans Eng N 172:32-3 Ap 23 '64

Air conditioning

Analysis of htw cycles shows capabilities of each. il diags Heating-Piping 36:122-5 Ag '64

How and why of water treatment for systems at O'Hare airport. M. Callahan. il Heating-Piping 36:90-3 F '64; Same. Water & Sewage Works 111:165-7 Ap '64

Underground cooling towers serve jet terminal at Memphis, Tenn. il diags Air Cond Heat & Ven 61:117-18 Ja '64

Heating and ventilation

How and why of water treatment for systems at O'Hare airport. M. Callahan. il Heating-Piping 36:90-3 F '64; Same. Water & Sewage Works 111:165-7 Ap '64

How single pump, steam cushion htw systems can be improved. il diags Heating-Piping 36:95-101 Je '64

Lighting

TWA's lighting technique. il Illum Eng 59:422-4 Je '64

AIRPORTS

Major transportation projects. il map Eng N 172:75+ Ja 23 '64

See also

Heliports

Buildings

See Airport buildings

Costs

Bids on airport work are close; unit prices. Eng N 173:40 Jl 30 '64

Cut costs on Florida airport; unit prices. map Eng N 173:128-9 S 17 '64

Economics and finance in airport planning. B. Brown. Am Soc C E Proc 90 [AT 2 no 4080]:197-202 O '64

AIRPORTS—Costs—*Continued*

Jet port price close to estimate; unit prices. Eng N 173:58 Ag 27 '64

Oklahoma airport bids are close; unit prices. Eng N 173:126 S 17 '64

Piling costs on airport extension; unit prices. Eng N 172:134+ Je 18 '64

Prices are close on runway work; unit prices. Eng N 172:52 My 7 '64

Texas airport is improved; unit prices. Eng N 173:59 O 22 '64

Two compete for airport paving; unit prices. Eng N 173:55 Ag 20 '64

Wisconsin airport project; unit prices. Eng N 171:114+ D 19 '63

Design

Airport designers' headache; supersonic transport (SST). Eng N 172:20 Ap 30 '64

ASCE National airport conference, 4th, San Francisco, April 22-24. Civil Eng 34:79 Je '64

Houston's Jetero airport; location and configuration. F. H. Newman, jr. maps plans Am Soc C E Proc 89 [AT 1 no 3475]:9-26 Ap '63; Discussion. A. R. Kelly. 89 [AT 2 no 3686]:51-2 O '63; Reply. 90 [AT 1 no 3916]:77-80 My '64

Influence of v/stol aircraft on airport design. R. D. Speas and H. P. Schmidt. diags Am Soc C E Proc 90 [AT 2 no 4096]:167-80 O '64

Jet-age airport for a county. P. R. Van Putten. il Pub Works 95:82-4 N '64

Jetero; an airport designed to handle supersonic jet planes. il plan diags Eng N 172:38-40+ Ap 16 '64

Operational look at airport design. R. C. Huber. Am Soc C E Proc 90 [AT 2 no 4075]:161-6 O '64

Operations of the supersonic transport in the terminal area. F. T. Fox. Am Soc C E Proc 90 [AT 2 no 4102]:59-67 O '64

Drainage

Four-mile-long ditch prepares Newark airport for expansion. il Eng N 172:26-8 Je 25 '64

Electric equipment

Light and power for Oakland jetport. il diag Elec Constr & Maint 63:90-3 F '64

Equipment

Airplane fuel, from barge to plane. il map Civil Eng 34:34-5 Je '64

Filter separators ensure clean fuel. il diag Oil & Gas J 61:47 O 28 '63

Hydrant fuel system serves airport. il Eng N 171:94 N 14 '63

Hydrostatic drives for aircraft tow-tractors. il Product Eng 35:43 Ag 31 '64

Hydrostatic tractor tows plane. il Hydraulics & Pneumatics 17:26 S '64

Lifting 100 tons on the level; four hydraulic jacks raise a 100-ton airplane for landing gear maintenance. K. C. Dawson. il diags Hydraulics & Pneumatics 16:109-11 N '63

New hydrostatic drive; vehicle's wheels house hydraulic motors. il Automotive Ind 131:37-8 Ag 1 '64

Plastic-coated lines guard fuel. il plan Oil & Gas J 62:66 F 24 '64

Federal aid

FAA allocates 1965 airport funds. Eng N 173:22 O 22 '64

Lighting

Airport safety aid; screens of material which does not reflect radar echoes have been applied to landing lights. il Engineer 217:623 Ap 3 '64

Contractor licks runway lighting installation problems. il Elec Constr & Maint 63:104-6 Je '64

Light and power for Oakland jetport. il diag Elec Constr & Maint 63:90-3 F '64

Linear sodium lighting with intensity control applied to airport visual landing aids. M. Latin and others. bibliog il diags Illum Eng 59:239-45; Discussion. 245-6 Ap '64

Low-cost runway approach lighting systems. diag Product Eng 35:56 Mr 30 '64

Runway visibility in thick fog. D. M. Finch. il diags Am Soc C E Proc 90 [AT 2 no 4112]:95-121 O '64

Location

Houston's Jetero airport; location and configuration. F. H. Newman, jr. maps plans Am Soc C E Proc 89 [AT 1 no 3475]:9-26 Ap '63; Discussion. A. R. Kelly. 89 [AT 2 no 3686]:51-2 O '63; Reply. 90 [AT 1 no 3916]:77-80 My '64

Runways

Cationic emulsion use in slurry sealing airfield surfaces. T. J. Gates. il plan Roads & Sts 107:88-90+ F '64

Construction practice for rigid pavement; report of the subcommittee on construction of the committee on airfield pavement. il Am Soc C E Proc 90 [AT 1 no 3906]:41-72 My '64

Contractor licks runway lighting installation problems. il Elec Constr & Maint 63:104-6 Je '64

Effect of gradient on jet transport runway lengths. G. Ahlborn and P. Horonjeff. Am Soc C E Proc 89 [AT 1 no 3490]:39-50 Ap '63; Discussion. M. Meisner. 89 [AT 2 no 3686]:53-69 O '63; Reply. 90 [AT 1 no 3916]:83-4 My '64

Fill settlement despite vertical sand drains. G. F. Sowers. plan Am Soc C E Proc 90 [SM 5 no 4044]:289-302 S '64

Million-yard runway tar seal job; Boston's Logan international airport. il Roads & Sts 107:120-2+ Ap '64

Prestressed bridge will be jet runway. il diags Eng N 172:54-5 Mr 19 '64

Runway over river rests on piles. il Eng N 172:24 F 20 '64

Runway Rx; lime, cement, concrete, steel; Dallas' Love field. il Eng N 173:28-31 S 24 '64

Runway visibility in thick fog. D. M. Finch. il diags Am Soc C E Proc 90 [AT 2 no 4112]:95-121 O '64

Stinger crane places wire mesh. il Eng N 171:176 D 19 '63

Subgrade stabilization under an existing runway. S. C. Dearstyne and G. J. Newman. plan diags Am Soc C E Proc 89 [AT 1 no 3473]:1-8 Ap '63; Discussion. 89 [AT 2 no 3686]:47-9 O '63; 90 [AT 1 no 3916]:75-6 My '64

Safety measures

Airport safety aid; screens of material which does not reflect radar echoes have been applied to landing lights. il Engineer 217:623 Ap 3 '64

Surfaces

Apron paving tar defies jet fuels. Eng N 172:51-2 F 20 '64

Construction practice for rigid pavement; report of the subcommittee on construction of the committee on airfield pavement. il Am Soc C E Proc 90 [AT 1 no 3906]:41-72 My '64

Rigid and stiff airport pavement. H. P. Carothers. bibliog diags Am Soc C E Proc 90 [AT 1 no 3893]:17-39 My '64

Traffic control

Air surveillance radar. il Engineer 216:769-70 N 8 '63

Forecasting airport traffic. N. L. Johnson. Am Soc C E Proc 90 [AT 2 no 4079]:181-95 O '64

Ground control of airport traffic. R. S. Nickelsberg. Am Soc C E Proc 90 [AT 2 no 4099]:123-6 O '64

Ten signals at a glance. J. E. Russell. il diags Electronics 37:54-7 Je 29 '64

Transportation problem

Automobile parking requirements at airports. W. S. Homburger and W. R. Eager. plans diags Am Soc C E Proc 90 [AT 2 no 4078]:141-59 O '64

London airport hovercar link. il Engineer 218:138-9 Jl 24 '64

Trends in automobile parking at airports. C. A. Lawler. il plans diags Am Soc C E Proc 90 [AT 2 no 4076]:69-83 O '64

Belfast

Northern Ireland's airport open. Engineer 216:816 N 15 '63

Chicago

How single pump, steam cushion htw systems can be improved. il diags Heating-Piping 36:95-101 Je '64

Dallas

Runway Rx; lime, cement, concrete, steel; Dallas' Love field. il Eng N 173:28-31 S 24 '64

Edmonton, Alberta

Structural design of the Terminal building for Edmonton international airport. E. M. Rensaa. il plans diags Eng J 47:21-7 Je '64; Discussion. 47:78+ S '64

Glasgow

Another airport for Glasgow. il Engineering 197:714 My 22 '64

AIRPORTS—*Continued*

Grand Rapids, Michigan

Jet-age airport for a county. P. R. Van Putten. il Pub Works 95:82-4 N '64

Houston, Texas

Jetero; an airport designed to handle supersonic jet planes. il plan diags Eng N 172:38-40+ Ap 16 '64

London

London airport hovercar link. il Engineer 218:138-9 Jl 24 '64

London gets a better airline terminal. il plan Engineering 196:590 N 8 '63

London's third airport. Engineer 217:664 Ap 10 '64

New Jersey

Two more jetport sites tossed into bistate fight. map Eng N 172:18 Ja 16 '64

New York (city)

La Guardia airport gets new terminal. il Prog Arch 45:83 Je '64

Prestressed bridge will be jet runway. il diags Eng N 172:54-5 Mr 19 '64

Runway over river rests on piles. il Eng N 172:24 F 20 '64

Two-level terminal geared for the crowds; LaGuardia airport. il plans Eng N 172:32-3 Ap 23 '64

Two more jetport sites tossed into bistate fight. map Eng N 172:18 Ja 16 '64

Newark, New Jersey

Four-mile long ditch prepares Newark airport for expansion. il Eng N 172:26-8 Je 25 '64

Ottawa

Damage to Ottawa air terminal building produced by a sonic boom. W. A. Ramsay. il plan Materials Res & Stand 4:612-16 N '64

Scotland

New airport terminal at Prestwick. il Engineering 198:466 O 9 '64

Washington, D.C.

Operational experience at Dulles airport. A. H. Saunders. Am Soc C E Proc 90 [AT 2 no 4070]:53-8 O '64

AIRSHIPS

New blimp rises high. il Rubber Age 95:885 S '64

AIRWAYS

See also

Airports

Traffic control

Air traffic control evolution. R. J. Shank. map diags Astronautics & Aeronautics 2:46-52 Ag '64

Air traffic control simulator for Eurocontrol. Electronic Eng 36:105 F '64

Application of electronic sector scanning techniques to height-finding radar systems. D. E. N. Davies. bibliog diags Inst E E Proc 110:1941-8 N '63

Challenge of air traffic control. D. D. Thomas. diags Astronautics & Aeronautics 2:66-9 Ja '64

Digital data link for aircraft communication. W. J. Battell. il diags Radio & Electronic Eng 27:315-23 Ap '64

Digitrac for handling radar data. S. M. Eriksson. diags Elec Com 39 no 3:360-8 '64

National airspace system takes shape. Control Eng 11:23-5 Ja '64

Remote control networks keep airline pilots in touch. R. J. Glischinski. il map Control Eng 11:115 Mr '64

Simulator for Eurocontrol. Engineer 217:290 F 7 '64

AKRON university

Rubber science hall of fame

Carothers elected to Rubber hall of fame. Rubber Age 94:462 D '63

ALABAMA

See also

Coal mines and mining—Alabama
Public health—Alabama
Roads—Alabama

ALACRAN reef

Carbonate sands of Isla Perez, Alacran reef complex, Yucatán. R. L. Folk and R. Robles. bibliog il maps diags J Geol 72:255-92, pl 1-4 My '64

ALANINE

Isolation of enzyme-substrate complex aids study of enzymic catalysis. K. Yagi. Chem & Eng N 42:34 Ag 10 '64

Total syntheses of N^{a} [1-(2-acetamido-3-*O*-D-glucosyl)-D-propionyl-L-alanyl-D-α- and γ-glutamyl]-L-lysyl-D-alanyl-D-alanine, and identity of the γ-glutamyl isomer with the glycopeptide of a bacterial cell wall precursor. A. E. Lanzilotti and others. bibliog Am Chem Soc J 86:1880-1 My 5 '64

ALARMS

See also

Burglar alarms
Electric alarms

ALASKA

See also subdivision Alaska under special subjects, e.g.

Bridges
Building
Coal mines and mining
Earthquakes
Electric utilities
Electricity supply
Gas, Natural
Geology
Hydroelectric plants
Mines and mineral resources
Paleontology
Petroleum
Petroleum industry and trade
Petroleum products pipe lines
Sewerage
Steamboat lines

ALBERTA

See also subdivision Alberta under special subjects, e.g.

Coal mines and mining
Geology
Petroleum
Petroleum industry and trade
Sulfur industry and trade

ALBION, New York

Water supply

New York apple country taps Lake Ontario. N. M. Fuller. il Water & Sewage Works 111:347-9 Ag '64

ALBITE

Coexisting albite and oligoclase in some schists from New Zealand. B. W. Evans. bibliog il diag Am Mineralogist 49:173-9 Ja '64

Myrmekite. D. Shelley. bibliog il diags Am Mineralogist 49:41-52 Ja '64

Phase equilibrium relations in the system $CaMgSi_2O_6$(diopside) - $NaAlSiO_4$(nepheline)-$NaAlSi_3O_8$(albite)-H_2O at 1,000 kg/cm² water vapor pressure. A. D. Edgar. bibliog Am Mineralogist 49:573-85 My '64

Phase-equilibrium relations in the system nepheline-albite-water at 1,000 kg/cm. A. D. Edgar. bibliog J Geol 72:448-60 Jl '64

ALBUMIN

Blood albumin. Drug & Cosmetic Ind 94:596 Ap '64

Complex formation between oxidized lipids and egg albumin. K. A. Narayan and others. bibliog Am Oil Chem Soc J 41:254-9 Ap '64

Diffusion studies of bovine plasma albumin at 25° with the help of Jamin interference optics. A. Chatterjee. bibliog Am Chem Soc J 86:3640-2 S 20 '64

Effect of egg white diets on calcium metabolism in the rat. G. W. Engstrom and H. F. DeLuca. bibliog J Nutrition 81:218-22 N '63

Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K. Ijichi and others. bibliog Food Tech 18:1628-32 O '64

Interaction of dodecyl sulfate anions of low concentration with alkaline bovine serum albumin. R. Lovrien. bibliog Am Chem Soc J 85:3677-82 N 20 '63

Lipid-protein interactions. D. G. Therriault and J. F. Taylor. bibliog Am Oil Chem Soc J 41:490-4 Jl '64

Ovalbumin's heat capacity determined. G. C. Kresheck and L. Benjamin. il Chem & Eng N 42:56+ O 26 '64

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86:3434-8 S 5 '64

Studies on unimolecular layers of modified proteins; bovine serum albumin and its acetyl derivatives. M. Muramatsu and H. Sobotka. bibliog diags J Colloid Sci 18:625-35 S '63

ALCOHOL

Conversion chart for aqueous ethyl alcohol. D. S. Davis. Am Perfumer 79:28-9 Ag '64

ALCOHOL—*Continued*

Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15:85-9 Ag '64

Electron spin resonance study of free radicals in ultraviolet-irradiated ethanol at 77°K. P. J. Sullivan and W. S. Koski. bibliog Am Chem Soc J 86:159-61 Ja 20 '64

Ethyl alcohol oxidation at platinum electrodes. R. A. Rightmire and others. bibliog diags Electrochem Soc J 111:242-7 F '64

Nature of chromium(VI) in acid solution and its relation to alcohol oxidation. D. G. Lee and R. Stewart. bibliog Am Chem Soc J 86:3051-6 Ag 5 '64

Nutritional aspects of alcoholic beverages. E. C. Barton-Wright. Chem & Ind p506-7 Mr 21 '64

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Production of steam-volatile phenols during the cooking and alcoholic fermentation of grain. R. D. Steinke and M. C. Paulson. bibliog diag J Agri & Food Chem 12:381-7 Jl '64

Study of solid support and partition liquid interactions in gas chromatographic separation of ethanol-methanol mixtures. E. D. Smith and others. Anal Chem 36:1750-3 Ag '64

Vapor-liquid equilibrium; the system ethanol-cyclohexane from 5 to 65°. G. Scatchard and F. G. Satkiewicz. bibliog Am Chem Soc J 86:130-3 Ja 20 '64

Manufacture

Ethanol; Shell development co. diag Hydrocarbon Process & Pet Refiner 42:162 N '63

Oxo process (Ruhrchemie AG); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:208 N '63

Shell adds to Ethyl alcohol facilities. Soap & Chem Spec 40:177-8 Ja '64

ALCOHOLATES

Formation and reactions of alkoxyphosphonium alkoxides. D. B. Denney and others. Am Chem Soc J 86:4487-8 O 20 '64

Infrared spectra of transition metal alkoxides. C. T. Lynch and others. bibliog Anal Chem 36:2332-7 N '64

New cyclic oligomers: metal alkoxide oxides, metal acylate oxides. J. Rinse. bibliog il diags Ind & Eng Chem 56:42-50 My '64

Unexpected conversion of carbohydrate mesyl esters to ethers with retention of configuration by reaction with alkoxides in dimethyl sulfoxide. D. H. Ball and others. bibliog Am Chem Soc J 86:3579-80 S 5 '64

ALCOHOLISM

Alcoholism in the Soviet Union; public health and social aspects. J. Wortis. bibliog Am J Pub Health 53:1644-55 O '63

Magnesium metabolism in alcoholism. J. F. Sullivan and others. bibliog Am J Clinical Nutrition 13:297-303 N '63

Vitamin unresponsiveness; progression of classic signs of neuropathy and pellagra during therapy. L. Zieve and E. Hill. bibliog Am J Clinical Nutrition 13:312-17 N '63

ALCOHOLS

Action of alcohol/water mixtures on wool. H. Zahn and G. Blankenburg. bibliog Textile Res J 34:176-7 F '64

Behavior of esters in liquid hydrogen fluoride; some glycitol esters. E. J. Hedgley and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:1583-6 Ap 20 '64

Carbonium ions; the opening of bicyclic alcohols to cyclohexenyl cations and the further conversion to cyclopentenyl cations. N. C. Deno and J. J. Houser. bibliog Am Chem Soc J 86:1741-3 My 5 '64

Classification of alcohols by nuclear magnetic resonance spectroscopy. O. L. Chapman and R. W. King. Am Chem Soc J 86:1256-8 Mr 20 '64

Complexes of Ca-montmorillonite with primary monohydric alcohols (clay-organic studies). G. W. Brindley and S. Ray. bibliog Am Mineralogist 49:106-15 Ja '64

Composition of the surface film on aqueous solutions of aliphatic alcohols. J. J. Kipling. bibliog J Colloid Sci 18:502-11 Ag '63

Constitution and synthesis of neo-intermedeol. V. B. Zalkow and others. Chem & Ind p 194-5 F 1 '64

Effect of hydrogen bonds on the relative retention during gas-liquid chromatography with β-cyanoethyl polyvalent alcohols. J. Ratuský and L. Baštař. bibliog Chem & Ind p579-80 Ap 4 '64

End-use evaluation of some copolymers and terpolymers of vinyl ethers of linseed conjugated fatty alcohols. R. H. Dent and others. bibliog Am Oil Chem Soc J 40:713-16 D '63

Fatty acids, fatty alcohols, wax esters, and methyl esters from crambe abyssinica and lunaria annua seed oils. T. K. Miwa and I. A. Wolff. bibliog Am Oil Chem Soc J 40:742-4 D '63

Fatty alcohols poised for growth. il Chem & Eng N 42:31+ Je 8 '64

Free radical yields in *n*-alcohols resulting from gamma irradiation. I. Zwiebel and R. H. Bretton. bibliog il A I Ch E J 10:339-44 My '64

Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64

Guaiol, α-, β-, γ- eudesmol and cryptomeridiol from callitris columellaris F. Muell. P. Rudman. Chem & Ind p808-9 My 9 '64

Hydridocarbonyl complexes of osmium by reaction with alcohols. L. Vaska. bibliog Am Chem Soc J 86:1943-50 My 20 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *cis*-acyclic, cyclic, and bicyclic olefins; a convenient synthesis of optically active alcohols and olefins of high optical purity and established configuration. H. C. Brown and others. bibliog Am Chem Soc J 86:397-403 F 5 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *trans* and hindered olefins; triisopinocampheyldiborane as a reagent for the configurational assignment of alcohols and olefins *via* hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:1071-6 Mr 20 '64

Hydrogenolysis of saturated, oleic and ricinoleic acids to the corresponding alcohols. A. J. Pantulu and K. T. Achaya. bibliog Am Oil Chem Soc J 41:511-14 Jl '64

Induced decompositions of di-*t*-butyl peroxide in primary and secondary alcohols. E. S. Huyser and C. J. Bredeweg. bibliog Am Chem Soc J 86:2401-5 Je 20 '64

Influence of unsaturation and of fluorine substitution on ketone-alcohol equilibrium constants: a measure of α,β-unsaturated ketone resonance energy and of halogen destabilization. H. J. Ringold and others. bibliog Am Chem Soc J 86:4510-12 O 20 '64

Isolation of stachene and two related alcohols. R. D. H. Murray and R. McCrindle. bibliog Chem & Ind p500-1 Mr 21 '64

Leaf alcohol (cis 3-hexen-1-ol). P. Bedoukian. bibliog Am Perfumer 78:31-5 D '63

Molecular weight distribution of nonionic surfactants; foam, wetting, detergency, emulsification and solubility properties of normal distribution and homogeneous p,t-octylphenoxyethoxyethanols. E. H. Crook and others. bibliog Am Oil Chem Soc J 41:231-7 Mr '64

Organic ions in the gas phase; loss of water from primary alcohols under electron impact. S. Meyerson and L. C. Leitch. bibliog Am Chem Soc J 86:2555-8 Jl 5 '64

Ortho-substitution rearrangement and other reactions of α-substituted benzyltrimethylammonium ion-alcohols with potassium amide in liquid ammonia. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1394-8 Ap 5 '64

Oxidation of secondary alcohols with carbon tetrachloride. W. J. Jackson, jr. bibliog Ind & Eng Chem Product Res & Develop 3:100-5 Je '64

Photochemistry of long-chain fatty alcohols for evaporation control. A. Golden and others. bibliog Am Water Works Assn J 56:784-92 Je '64

Reaction of acetyl nitrate with alcohol derivatives of fatty acids: a synthesis of nitrate esters. D. C. Malins and others. bibliog Am Oil Chem Soc J 41:44-6 Ja '64

Reaction of hexachlorocyclopentadiene with alcohols and potassium hydroxide. W. H. Chang. bibliog diags Chem & Ind p709-10, 1491-2 Ap 25, Ag 22 '64

Reactions between secondary alcohols, ketones, and hydrogen on metallic catalysts. J. Newham and R. L. Burwell, jr bibliog Am Chem Soc J 86:1179-86 Mr 20 '64

Removal of alcohols from complex mixtures during gas chromatography. R. M. Ikeda and others. Anal Chem 36:2188-9 O '64

Secondary alcohol ethoxylates as degradable detergent materials. R. C. Myerly and others. bibliog Soap & Chem Spec 40:78-80+ My '64

ALCOHOLS—*Continued*

Selective reductions; further studies of the reaction of alcohols with lithium aluminum hydride as a route to the lithium alkoxyaluminohydrides. H. C. Brown and C. J. Shoaf. bibliog Am Chem Soc J 86:1079-85 Mr 20 '64

Soft detergent intermediates. il Chem Eng 71:54+ Mr 2 '64

Specificity of the electron-impact induced elimination of water from alcohols and related reactions in the mass spectrometer. W. Benz and K. Biemann. bibliog Am Chem Soc J 86:2375-8 Je 20 '64

Structure and stereochemistry of α-caryophyllene alcohol. A. Nickon and others. bibliog Am Chem Soc J 86:1437-8 Ap 5 '64

Structure of α-caryophyllene alcohol. K. W. Gemmell and others. bibliog Am Chem Soc J 86:1438-9 Ap 5 '64

Studies in organophosphorus chemistry; conversion of alcohols and phenols to halides by tertiary phosphine dihalides. G. Wiley and others. bibliog Am Chem Soc J 86:964-5 Mr 5 '64

Syndets with alcohol derivatives. T. P. Matson. Soap & Chem Spec 39:52-4+ N '63

Total synthesis of α-caryophyllene alcohol. E. J. Corey and S. Nozoe. bibliog Am Chem Soc J 86:1652-3 Ap 20 '64

Transport of water through monolayers of long-chain *n*-paraffinic alcohols. V. K. La Mer and others. bibliog J Colloid Sci 19:673-84 O '64

Use evaluation of alcohol derivatives in detergent formulations. T. P. Matson. Am Oil Chem Soc J 40:636-40 N '63

Vapor phase vinylation of aliphatic monohydric alcohols. V. A. Sims and J. F. Vitcha. bibliog diag Ind & Eng Chem Product Res & Develop 2:293-6 D '63

See also

Butyl alcohol
Hexadecanol
Isopropyl alcohol
Methanol
Vinyl alcohol

Analysis

Determination of acetals in C_8 and C_{10} alcohols. J. G. O'Connor and M. S. Norris. Anal Chem 36:1391-2 Je '64

Determination of primary alcohol groups in polyglycols using triphenylchloromethane. J. G. Hendrickson. bibliog Anal Chem 36:126-8 Ja '64

Determination of trace quantities of alcohols by ultraviolet spectrophotometry of alkyl nitrobenzoates. M. W. Scoggins. Anal Chem 36:1152-4 My '64

Hydroxyl group determination in high molecular weight alcohols and complex organic mixtures. D. E. Jordan. bibliog Am Oil Chem Soc J 41:500-2 Jl '64

Identification of alcohols and volatile organic acids from natural orange essence. J. A. Attaway and others. bibliog J Agri & Food Chem 12:118-21 Mr '64

Isolation, identification, and gas chromatographic estimation of some esters and alcohols of lemon oil. R. M. Ikeda and E. M. Spitler. bibliog J Agri & Food Chem 12:114-17 Mr '64

Mild, rapid, hydroxyl determination for primary alcohols. J. A. Florida and others. bibliog Anal Chem 36:2053-5 O '64

Use of *p*-phenylazobenzoyl chloride for chromatographic analysis of fatty alcohols. I. Katz and M. Keeney. bibliog Anal Chem 36:231-4 Ja '64

Manufacture

Alfol alcohol process; Continental oil co. diag Hydrocarbon Process & Pet Refiner 42:140 N '63

Condea set to start up Alfol alcohols plant. il Chem & Eng N 42:68+ My 4 '64

What's the future for oxo alcohols? M. Hill. Hydrocarbon Process & Pet Refiner 43:135-7 Ag '64

ALCOHOLYSIS

General base catalyzed ethanolysis of ethyl trifluoroacetate. S. J. Johnson. bibliog diags Am Chem Soc J 86:3819-24 S 20 '64

Sulfene, an intermediate in the alcoholysis of methanesulfonyl chloride. W. E. Truce and others. Am Chem Soc J 86:288 Ja 20 '64

ALDEHYDES

Condensation reactions of aromatic aldehydes in dimethyl sulfoxide solution; asymmetric tricarbon condensation involving dimethyl sulfoxide. G. A. Russell and H. D. Becker. bibliog Am Chem Soc J 85:3406-10 N 5 '63

Conversion of oleyl and elaidyl tosylates to aldehydes. V. Mahadevan. Am Oil Chem Soc J 41:520 Jl '64

Cotton effects and conformational equilibria in aliphatic aldehydes and ketones. M. J. T. Robinson. bibliog Chem & Ind p932-3 My 30 '64

Infrared study of the $C=N$ stretching vibration in azine derivatives of aldehydes and ketones. L. D. Frederickson, jr. bibliog Anal Chem 36:1349-55 Je '64

New method for the reduction of aldehydes and ketones to CH_2 under mild conditions. L. Caglioti and P. Grasselli. Chem & Ind p 153 Ja 25 '64

Oxidation of aromatic aldehydes by chromyl acetate. K. B. Wiberg and P. A. Lepse. bibliog Am Chem Soc J 86:2612-19 Jl 5 '64

Reaction of trialkyl phosphites with aliphatic aldehydes; P^{31} and H^1 nuclear magnetic resonance spectra of tetraoxyalkyl phosphoranes. F. Ramirez and others. Am Chem Soc J 86:514-16 F 5 '64

Relationship between molecular structure and flavor perceptibility of aliphatic aldehydes. P. W. Meijboom. bibliog Am Oil Chem Soc J 41:326-8 Ap '64

Restricted rotation in aromatic aldehydes. F. A. L. Anet and M. Ahmad. bibliog Am Chem Soc J 86:119-20 Ja 5 '64

Selective oxidation of arylcarbinols to aldehydes. V. J. Traynelis and W. L. Hergenrother. Am Chem Soc J 86:298-9 Ja 20 '64

Selective reductions; the partial reduction of nitriles with lithium triethoxyaluminohydride; a convenient aldehyde synthesis. H. C. Brown and C. P. Garg. bibliog Am Chem Soc J 86:1085-9 Mr 20 '64

Selective reductions; the partial reduction of tertiary amides by lithium di- and triethoxyaluminohydrides; a new aldehyde synthesis *via* the dimethylamides. H. C. Brown and A. Tsukamoto. bibliog Am Chem Soc J 86:1089-95 Mr 20 '64

Sensitization and catalysis of light-induced decarbonylation of aldehydes. J. D. Berman and others. bibliog Am Chem Soc J 85:4010-13 D 20 '63

Structural studies by nuclear magnetic resonance; the stereospecificity of coupling between protons separated by five bonds and conformations of some aromatic aldehydes. G. J. Karabatsos and F. M. Vane. bibliog Am Chem Soc J 85:3886-8 D 5 '63

Tritium-labeled compounds; mechanism for the oxidation of aldehydes and aldoses-1-*t* with sodium chlorite. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:301-4 My '64

See also

Acetaldehyde
Benzaldehyde
Formaldehyde

Analysis

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

Increasing sensitivity of 3-methyl-2-benzothiazolone hydrazone test for analysis of aliphatic aldehydes in air. T. R. Hauser and R. L. Cummins. Anal Chem 36:679-81 Mr '64

Modified analytical method for microgram amounts of metaldehyde in plant material. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:249-50 My '64

Specific spot test for aldehydes. M. H. Hashmi and others. bibliog Anal Chem 36:2029 S '64

Spot tests for aromatic and $\alpha.\beta$-unsaturated aldehydes. F. Feigl and E. Libergott. bibliog Anal Chem 36:132-3 Ja '64

Manufacture

Aldehyde plant; quite small but fully automatic. il diag Chem Eng 71:92+ S 14 '64

Oxo process (Ruhrchemie AG); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:208 N '63

ALDOL

Mechanism of amine-catalysed aldol cyclisation. T. A. Spencer and K. K. Schmiegel. bibliog Chem & Ind p 1765-6 N 2 '63

ALDOSES

Non-enzymatic browning; routes to the production of melanoidins from aldoses and amino-compounds. H. S. Burton and D. J. McWeeny. bibliog Chem & Ind p462-3 Mr 14 '64

Tritium-labeled compounds; determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-*l-t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

ALDOSES—*Continued*

Tritium-labeled compounds; mechanism for the oxidation of aldehydes and aldoses-1-*t* with sodium chlorite. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:301-4 My '64

Tritium-labeled compounds X; isotope effects in the oxidation of aldoses-*l-t* with bromine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:145-51 Mr '64

ALDOXIMES. See Oximes

ALEXANDRITE

Flux growth of chrysoberyl and alexandrite. E. F. Farrell and J. H. Fang. il Am Cer Soc J 47:274-6 Je '64

ALFALFA

Lipids of dehydrated alfalfa (medicago sativa). J. W. Van Der Veen and H. S. Olcott. bibliog J Agri & Food Chem 12:287-9 My '64

Nature of zinc-containing substances in the alfalfa plant cell. W. J. Johnson and W. G. Schrenk. J Agri & Food Chem 12:210-13 My '64

Some nonfermentable free sugars in the leaf-petiole fraction of alfalfa (medicago sativa). V. V. Rendig and others. bibliog J Agri & Food Chem 12:421-3 S '64

ALGAE

Algae dine sumptuously from carbon dioxide feeder. H. J. Lugt. diag Chem Eng 71:175-6 Mr 16 '64

Algae problem prompts sewage treatment study. R. L. Smith and D. Miller. il diag Pub Works 95:130 O '64

Causal factors of population variations of algae in a paper mill waste water pond system. K. H. Oliver, jr. and T. C. Dorris. bibliog map Tappi 47:7-12 Ja '64

Control of algae with viruses. R. S. Safferman and M. E. Morris. bibliog il Am Water Works Assn J 56:1217-24 S '64

Effect of dilution media on the bod of algae. M. M. Allen and others. bibliog WPCF J 36:1049-56 Ag '64

Effect of light intensity on photosynthesis. M. M. Varma and M. J. Wilcomb. bibliog il Water & Sewage Works 110:426-9 D '63; Abstract. Pub Works 95:156+ Mr '64

Effects of algae on plant operation; joint discussion. bibliog Am Water Works Assn J 56:1201-16 S '64

Evaluation of potassium permanganate as an algicide for water cooling towers. G. P. Fitzgerald. bibliog il Ind & Eng Chem Product Res & Develop 3:82-5 Je '64

Hydromechanical method to increase efficiency of algal photosynthesis. R. L. Miller and others. bibliog il diags Ind & Eng Chem Proc Design 3:134-43 Ap '64

Lake's response to its environment. R. O. Sylvester and G. C. Anderson. bibliog maps Am Soc C E Proc 90 [SA 1 no 3786]:1-22 F '64

Low water can be friend or foe to algae. il Water & Sewage Works 110:404 N '63

Nitrogen and phosphorus extraction from domestic waste-water treatment plant effluents by controlled algal culture. W. E. Gates and J. A. Borchardt. diag WPCF J 36:443-62 bibliog(p461-2) Ap '64

Solar power via a botanical process. W. J. Oswald and C. G. Golueke. diag Mech Eng 86:40-3 F '64

Solving winter algae problems. il Water Works & Wastes Eng 1:84 F '64

Studies on microbiotic cycles in surface waters. J. K. G. Silvey and A. W. Roach. bibliog Am Water Works Assn J 56:60-72 Ja '64

Taste and odor production in reservoirs by blue-green algae. A. R. Gaufin. bibliog Am Water Works Assn J 56:1345-50 O '64

ALGAE, Fossil

Algal limestones of the Marble Falls formation (lower Pennsylvanian), central Texas. T. Freeman. bibliog map diag Geol Soc Bul 75:669-75, pl 1-3 Jl '64

Association of mineralization and algal reef structures on Northern Rhodesian Copperbelt, Katanga, and Australia. W. G. Garlick. bibliog plan diags Econ Geol 59:416-27 My '64

Classification and environmental significance of algal stromatolites. B. W. Logan and others. bibliog diags J Geol 72:68-83, pl 1-4 Ja '64

Stromatolites and other algal structures at Mufulira, Northern Rhodesia. S. P. Malan. bibliog il diags Econ Geol 59:397-415 My '64

ALGAE as food

Algae as food for space travel; a review. R. P. Casey and J. A. Lubitz. il Food Tech 17:1386-90+ bibliog(p 1393-4) N '63

Developing an unconventional food, algae, by continuous culture under high light intensity. R. O. Matthern and R. B. Koch. bibliog il diags Food Tech 18:652-6+ My '64

ALGEBRA

Algebra. W. W. Sawyer. il maps diags Sci Am 211:70-8 S '64

Algebra of systems of second-order reactions. R. Aris. bibliog Ind & Eng Chem Fundamentals 3:28-37 F '64

Algebraic specification of statistical models for analysis of variance computations. W. J. Hemmerle. Assn for Computing Mach J 11:234-9 Ap '64

ALPAK system for nonnumerical algebra on a digital computer. W. S. Brown; J. P. Hyde. bibliog diags Bell System Tech J 42:2081-119; 43:785-804, 1547-62 S '63, Mr, pt 2 Jl '64

ALPAK system for nonnumerical algebra on a digital computer; rational functions of several variables and truncated power series with rational-function coefficients. W. S. Brown and others. Bell System Tech J 43:785-804 Mr '64

Application of dual-number quaternion algebra to the analysis of spatial mechanisms. A. T. Yang and F. Freudenstein. bibliog diags A S M E Trans ser E 31:300-8 Je '64

Powerful tool, matrix algebra. G. T. Westbrook. bibliog diags Hydrocarbon Process & Pet Refiner 42:173-80 Je; 177-82 Jl; 179-84 S; 129-32 D '63

See also
Algorithm
Equations
Equations, Linear
Equations, Nonlinear
Equations, Roots of
Interpolation
Matrices

ALGEBRA, Boolean

Application of symbolic logic to a selection problem. J. G. Root. bibliog Op Res 12:519-26 Jl '64

Approach to multilevel Boolean minimization. E. L. Lawler. bibliog Assn for Computing Mach J 11:283-95 Jl '64

Efficient algorithm for finding certain minimum cost procedures for making binary decisions. J. R. Slagle. Assn for Computing Mach J 11:253-64 Jl '64

Functional forms of dual-comparable functions and a necessary and sufficient condition for realizability of a majority function. S. Muroga. bibliog IEEE Trans Com & Electronics 83:474-86 S '64

Graphs of finite idempotent Boolean relation matrices. D. Rosenblatt. bibliog J Res Nat Bur Stand 67B:249-56 O '63

Hydraulic systems; applying switching theory. R. W. Henke. diags Machine Design 36:173-82 S 24 '64

System reliability; redundant networks. G. D. Weinstock. bibliog diags Electro-Tech 74:26-9+ Ag '64

ALGEBRAIC equations. See Equations, Algebraic

ALGERIA

See also
Gas industry—Algeria
Petroleum industry and trade—Algeria
Petroleum pipe lines—Algeria

ALGINATES

Alginate in compatibility. G. Richardson and R. Woodford. Drug & Cosmetic Ind 95:113-14 Jl '64

Alginates. Drug & Cosmetic Ind 94:276 F '64

ALGORITHM

Aitken-Hermite interpolation. M. Gershinsky and D. A. Levine. bibliog Assn for Computing Mach J 11:352-6 Jl '64

Algorithm for computing interzonal transfers using the gravity model. D. A. D'Esopo and B. Lefkowitz. bibliog diag Op Res 11:901-7 N '63

Algorithm for the sequential solution of schedule networks. C. R. Goldberg. diags Op Res 12:499-502 My '64

Algorithm for the traveling salesman problem. J. D. C. Little and others. bibliog flow chart diags Op Res 11:972-89 N '63

Algorithms and analog computers for the most reliable route through a network. G. R. Shorack. bibliog Op Res 12:632-3 Jl '64

Calculations with pseudo-random numbers. F. Stockmal. bibliog Assn for Computing Mach J 11:41-52 Ja '64

Combination of the Monte Carlo method with the method of steepest descents for the solution of certain extremal problems. L. S. Gurin and V. P. Lobac. AIAA J 1:2708-10 N '63

Compact book storage in libraries. F. F. Leimkuhler and J. G. Cox. diags Op Res 12:419-27 My '64

ALGORITHM—*Continued*

Contribution to Gruebler's theory in the number synthesis of plane mechanisms. F. R. E. Crossley. bibliog diags A S M E Trans ser B 86:1-5; Discussion. 5-8 F '64

Development of *M*-stage decision rule for scheduling *n* jobs through *M* machines. R. A. Dudek and O. F. Teuton, jr. bibliog Op Res 12:471-97 My '64

Efficient algorithm for finding certain minimum cost procedures for making binary decisions. J. R. Slagle. Assn for Computing Mach J 11:253-64 Jl '64

Estimation of power spectral density by filters. E. J. Gauss. bibliog Assn for Computing Mach J 11:98-103 Ja '64

Fact retrieval and deductive question-answering information retrieval systems. W. S. Cooper. bibliog Assn for Computing Mach J 11:117-37 Ap '64

Feature word construction for use with pattern recognition algorithms; experimental study. R. L. Mattson and O. Firschein. bibliog flow chart il diags Assn for Computing Mach J 10:458-77 O '63

Finding synchro position from voltage measurements; data file. B. H. Robinson. diags Control Eng 11:107-8 O '64

Generalized multistep predictor-corrector methods. W. B. Gragg and H. J. Stetter. bibliog Assn for Computing Mach J 11:188-209 Ap '64

Generalized tree circuit; basic building block of an extended decomposition theory. H. A. Curtis. bibliog diags Assn for Computing Mach J 10:562-81 O '63

Geometric model and a graphical algorithm for a sequencing problem. W. W. Hardgrave and G. L. Nemhauser. diags Op Res 11:889-900 N '63

Ianov's program schemata. J. D. Rutledge. bibliog Assn for Computing Mach J 11:1-9 Ja '64

Incorporation of step functions and ramp functions into a linear programming model. B. A. Schoomer. bibliog Op Res 12:773-7 S '64

Maximum payloads per unit time delivered through an air network. G. B. Dantzig and D. L. Johnson. bibliog diags Op Res 12:230-6 Mr '64

Modification of Fulkerson's PERT algorithm. C. T. Clingen. bibliog diags Op Res 12:629-32 Jl '64

Multiple choice programming. W. C. Healy, jr. Op Res 12:122-38 Ja '64

Numerical solution of systems of nonlinear equations. F. Freudenstein and B. Roth. bibliog Assn for Computing Mach J 10:550-6 O '63

Optimization of some multistage chemical processes. C. S. Wang and L. T. Fan. bibliog Ind & Eng Chem Fundamentals 3:38-42 F '64

Reduction of number range in the use of the Graeffe process. A. A. Grau. Assn for Computing Mach J 10:538-44 O '63

Search problem. S. H. Cameron and S. G. Narayanamurthy. diags Op Res 12:623-9 Jl '64

Sensitivity analysis of multiterminal flow networks. S. E. Elmaghraby. diags Op Res 12:680-8 S '64

Sequencing a one state-variable machine; solvable case of the traveling salesman problem. P. C. Gilmore and R. E. Gomory. bibliog diags Op Res 12:655-79 S '64

Signal-flow graphs. W. K. Chen. IEEE Proc 52:967 Ag '64

Simultaneous parametric program. R. J. Swersey. diag Op Res 12:781-3 S '64

Solution of variational problems by means of a generalized Newton-Raphson operator. R. McGill and P. Kenneth. bibliog diag AIAA J 2:1761-6 O '64

String algorithm for shortest path in directed networks. V. Klee. diags Op Res 12:428-32 My '64

Two new classes of algorithms for finding the eigenvalues and eigenvectors of real symmetric matrices. C. D. La Budde. Assn for Computing Mach J 11:53-8 Ja '64

ALIENS

See also

Refugees

ALIGNMENT of machinery. See Alinement of machinery

ALINEMENT of machinery

Adjusting toe-in. il Automobile Eng 54:406 S '64

Align machinery by optical measurement. E. H. Koenig. il diags Plant Eng 18:140-3 My '64

Beam of light has found widespread application in optical alignment systems. diags Product Eng 35:71 Mr 16 '64

Effect of misalignment on a circular, externally pressurized, gas-lubricated bearing. L. Licht and R. K. Kaul. diag A S M E Trans ser E 31:141-3 Mr '64

Effects of misalignment on the forces acting on the retainer of ball bearings. K. Kakuta. bibliog diags A S M E Trans ser D 86:449-54; Discussion. 454-6 S '64

Electrical read-out from optical alignment devices. J. Dyson and P. J. W. Noble. il diags J Sci Instr 41:311-16 My '64

Large steam turbine alignment problems. P. F. Carson and R. H. Telfer. il diags Engineer 216:680-4 O 25 '63

Laser check alignment of linear accelerator. il diag Product Eng 35:53 Ag 17 '64

Misaligned roller bearings: how fast will they fail? D. W. Dareing and E. I. Radzimovsky. bibliog diags Machine Design 36:175-9 F 13 '64

Three-in-one bearings refine alignment. diag Iron Age 194:70 O 1 '64

Toe-in indication equipment. F. R. Towner. il diags Ind Electronics 2:453-6 O '64

Why did the motor vibrate? I. E. Church. diag Power 107:57 N '63

ALIPHATIC compounds

Aliphatic dienyl cations. N. C. Deno and C. U. Pittman, jr. bibliog Am Chem Soc J 86:1871-2 My 5 '64

Aliphatic triafulvene. A. S. Kende and P. T. Izzo. bibliog Am Chem Soc J 86:3587-9 S 5 '64

Chemistry of aliphatic disulfides. R. G. Hiskey and others. bibliog Am Chem Soc J 86:2010-18 My 20 '64

Composition of the surface film on aqueous solutions of aliphatic alcohols. J. J. Kipling. bibliog J Colloid Sci 18:502-11 Ag '63

Cotton effects and conformational equilibria in aliphatic aldehydes and ketones. M. J. T. Robinson. bibliog Chem & Ind p932-3 My 30 '64

Cotton effects in aliphatic amino-acids. W. Gaffield. Chem & Ind p 1460-1 Ag 15 '64

Cycloaliphatic epoxides: their synthesis and properties. H. Batzer. bibliog il diag Chem & Ind p 179-89 F 1 '64

Cyclopolymerization of aliphatic 1,2-diisocyanates. C. King. Am Chem Soc J 86:437-40 F 5 '64

Direct method for reductive deamination of aliphatic amines. A. Nickon and A. S. Hill. bibliog Am Chem Soc J 86:1152-8 Mr 20 '64

Directive effects in aliphatic substitutions; reactivity of aralkanes, aralkenes, and benzylic ethers toward peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2364-7 Je 20 '64

Effects of aliphatic acids and their salts on the flame spectrometric emission of calcium. A. C. West. bibliog Anal Chem 36:310-14 F '64

Halogenated aliphatic acids. J. K. Leasure. bibliog J Agri & Food Chem 12:40-3 Ja '64

Infrared spectra-structure correlations of aliphatic amides in the 700- to 250-cm.$^{-1}$ region. J. E. Katon and others. bibliog Anal Chem 36:2126-30 O '64

Relationship between molecular structure and flavor perceptibility of aliphatic aldehydes. P. W. Meijboom. bibliog Am Oil Chem Soc J 41:326-8 Ap '64

Spectrophotometric titration of primary aliphatic amides. W. R. Post and C. A. Reynolds. bibliog Anal Chem 36:781-3 Ap '64

Transition metal complexes with aliphatic Schiff bases; compounds formed by the reaction of copper(II) and nickel(II) ethylenediamine and triethylenetetramine complexes with some aliphatic aldehydes. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:1331-4 Ap 5 '64

Transition metal complexes with aliphatic Schiff bases; copper(II) and nickel(II) complexes of 1,3-propanediamine and their reactions with acetone. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:223-5 Ja 20 '64

Vapor phase vinylation of aliphatic monohydric alcohols. V. A. Sims and J. F. Vitcha. bibliog diag Ind & Eng Chem Product Res & Develop 2:293-6 D '63

ALIZARIN

Metal complexes of alizarin. E. G. Kiel and P. M. Heertjes. bibliog Soc Dyers & Col J 79:21-7, 61-4, 186-8, 363-7 Ja-F, My, Ag '63; Discussion. 79:526-7 N '63

ALKALI metal carbonates

Corrosion of gold-palladium, nickel and type 347 stainless steel in molten alkali carbonates. G. J. Janz and A. Conte. Corrosion 20:237-8 Jl '64

Nature of alkali carbonate apatites. D. R. Simpson. bibliog Am Mineralogist 49:363-76 Mr '64

ALKALI metal compounds
Alkali alkyls, extending their toehold. Can Chem Process 47:55-7 N '63
Calorimetric properties of some alkali pentaborate hydrates from 15 to 370°K. G. T. Furukawa and others. bibliog diags J Res Nat Bur Stand 68A:381-9 Jl '64
Chemical analysis of the alkali metal tungsten bronzes. B. A. Raby and C. V. Banks. bibliog diags Anal Chem 36:1106-10 My '64
Properties and structure of glasses in the binary systems alkali-TiO_2. B. V. J. Rao. bibliog il Am Cer Soc J 47:455-63 S '64
Simple electron diffraction camera for the examination of alkali antimonide photoelectric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64
Solutions of alkali metal carboxylate mixtures in hydrocarbons. E. Kissa. bibliog J Colloid Sci 19:279-89 Mr '64

ALKALI metal cyanides
Zone-melting apparatus for alkali metal cyanides and alkali metal halides. T. J. Neubert and S. Susman. diag R Sci Instr 35:724-7 Je '64

ALKALI metal fluorides
Solvolysis reactions in chlorine trifluoride and bromine pentafluoride; preparation of the tetrafluorochlorates and hexafluorobromates of potassium, rubidium, and cesium. E. D. Whitney and others. bibliog Am Chem Soc J 86:2583-6 Jl 5 '64

ALKALI metal halides
Constitution and microstructure of some binary alkali halide mixtures. J. G. Loxham and A. Hellawell. bibliog il diags Am Cer Soc J 47:184-8 Ap '64
Instrumentation for measuring the dc conductivity of very high resistivity materials. D. S. Dorcas and R. N. Scott. diags R Sci Instr 35:1175-6 S '64
Lattice parameters and lattice energies of high-pressure polymorphs of some alkali halides. C. E. Weir and G. J. Piermarini. bibliog J Res Nat Bur Stand 68A:105-11 Ja '64
Photochemical studies in an alkali halide matrix; an *o*-nitrobenzaldehyde actinometer and its application to a kinetic study of the photoreduction of benzophenone by benzhydrol in a pressed potassium bromide disk. J. N. Pitts, jr and others. bibliog Am Chem Soc J 86:3606-10 S 20 '64
Radiation hardening in alkali-halide crystals. J. S. Nadeau. bibliog diags J Ap Phys 35:1248-55 Ap '64
Temperature dependence of light scattering in some alkali halides. C. A. Plint and M. L. Breig. bibliog J Ap Phys 35:2745-9 S '64
Two photomechanical effects in alkali halide crystals. J. S. Nadeau. bibliog diags J Ap Phys 35:669-77 Mr '64
Use of interdiffusion to determine crystalline solubility in alkali halide systems. J. M. Short and R. Roy. diags Am Cer Soc J 47:149-51 Mr '64
Zone-melting apparatus for alkali metal cyanides and alkali metal halides. T. J. Neubert and S. Susman. diag R Sci Instr 35:724-7 Je '64
See also
Lithium chloride
Lithium halides
Potassium chloride

ALKALI metal oxides
See also
Sodium oxide

ALKALI metal phosphates
Polarography in fused alkali metaphosphates. R. D. Caton and H. Freund. bibliog Anal Chem 35:2103-8 D '63

ALKALI metal silicates
Flocculation of pinacyanol chloride in alkali silicate solutions. M. A. McGarry and J. F. Hazel. J Colloid Sci 19:294-301 Ap '64

ALKALI metals
Alkali ion doping of silicon. J. O. McCaldin and A. E. Widmer. bibliog IEEE Proc 52:301-2 Mr '64
Alkali metal voltaic cells. D. C. Hamby and others. bibliog diags Electrochem Soc J 111:998-1002 Ag '64
Anelastic effects of alkali ions in crystalline quartz. D. B. Fraser. bibliog diag J Ap Phys 35:2913-18 O '64
Anion exchange behavior of alkali and alkaline earth elements in dioxane-mineral acid media. R. R. Ruch and others. bibliog Anal Chem 36:2311-15 N '64
Correlation of emission processes for adsorbed alkali films on metal surfaces. N. S. Rasor and C. Warner. bibliog diag J Ap Phys 35:2589-600 S '64
Corrosion of high-temperature materials in alkali metals; panel discussion. bibliog il diags Nucleonics 22:37-42 Mr '64
Dimensions and energies of alkali metal crystals in relation to those of their gaseous ions. R. H. Stokes. bibliog Am Chem Soc J 86:2333-6 Je 20 '64
Rare alkali and beryllium mineralization in volcanic tuffs, Honey Comb Hills, Juab County, Utah. W. N. McAnulty and A. A. Levinson. map Econ Geol 59:768-74 Ag '64
Some zeolite equilibria with alkali metal cations. L. L. Ames, jr. Am Mineralogist 49:127-45 bibliog(p 144-5) Ja '64
See also
Lithium
Rubidium

ALKALIES
Alkali inspectorate look back. J. S. Carter. Chem & Ind p 1970-3 D 21 '63
Analysis of alkaline pulping liquors; automatic colorimetric determination of total and active alkali in white and green liquors. R. B. Kesler. flow diag Tappi 47:167-70 Mr '64
Current status of alkaline digester corrosion as reported by regional digester group. H. M. Canavan and Z. S. Blanchard. Tappi 47:sup 124A-7A Ag '64
How to prevent attack by acids/alkalis. H. G. Bennett. il diag Can Chem Process 48:71-4 Ja '64
Mechanism of decomposition of sodium peroxybenzoate in alkaline solution. K. Akiba and O. Simamura. Chem & Ind p705-6 Ap 25 '64
Reactions of fatty acids and their derivatives in alkalis. M. F. Ansell and B. C. L. Weedon. bibliog Ind Chem 40:70-3 F '64
Reactions of lignin during sulfate cooking. J. Gierer and others. bibliog Tappi 47:233-9 Ap '64
Some considerations on the aging of alkali cellulose. A. M. Dowell, jr. and K. A. Kuiken. bibliog Tappi 46:726-30 D '63

ALKALINE earth compounds
High-temperature energy relations in borates; alkaline-earth and lead borate compounds and their glasses. D. R. Stewart and G. E. Rindone. bibliog Am Cer Soc J 46:593-6 D '63
Stable divalent rare earths in alkaline earth halides by solid-state electrolysis. F. K. Fong. bibliog diag RCA R 25:303-7 Je '64

ALKALINE earth halides
Doping of alkaline earth halide single crystals. P. F. Weller and J. E. Scardefield. bibliog Electrochem Soc J 111:1009-11 Ag '64

ALKALINE earth metals
Anion exchange behavior of alkali and alkaline earth elements in dioxane-mineral acid media. R. R. Ruch and others. bibliog Anal Chem 36:2311-15 N '64
Determination of traces of alkaline earths in alkali halides by spectrophotometric titration in the ultraviolet. E. P. Parry and G. W. Dollman. bibliog Anal Chem 36:1783-6 Ag '64
(Ethylenedinitrilo)tetraacetic acid titration of barium in presence of other alkaline earth elements. H. F. Combs and E. L. Grove. Anal Chem 36:400-2 F '64
Reversed-phase partition chromatographic separation of several alkaline earths from each other and from yttrium. J. W. O'Laughlin and others. bibliog Anal Chem 36:2110-12 O '64
Some zeolite equilibria with alkaline earth metal cations. L. L. Ames, jr. bibliog Am Mineralogist 49:1099-110 Jl '64
See also
Calcium
Strontium

ALKALINE earth phosphates
Copper-activated alkaline-earth phosphate phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:538-41 My '64

ALKALINITY
Argentometric titration of sulfide in alkaline solutions. C. H. Liu and S. Shen. bibliog Anal Chem 36:1652-4 Jl '64
Chemistry of the autocatalytic reduction of copper by alkaline formaldehyde. R. M. Lukes. bibliog Plating 51:1066-8 N '64
Corrosion of uranium, zirconium, and some alloys in alkaline solutions. J. S. L. Leach and A. Y. Nehru. bibliog Electrochem Soc J 111:781-7 Jl '64
Reaction at the iron alkaline electrode. A. J. Salkind and others. bibliog Electrochem Soc J 111:493-5 My '64
See also
Water—Alkalinity

ALKALOIDS
Absolute configuration of dendrobine. Y. Inubushi and others. bibliog Chem & Ind p 1689-90 O 3 '64

ALKALOIDS—*Continued*

Absolute configurations of virosecurinine, securinine and allosecurinine. T. Nakano and others. bibliog Chem & Ind p 1763-4 N 2 '63

Alkaloid studies; the alkaloids of aspidosperma obscurinervium Azembuja; a new class of heptacyclic indole alkaloids. K. S. Brown, jr. and C. Djerassi. bibliog Am Chem Soc J 86:2451-63 Je 20 '64

Alkaloids of desmodium pulchellum Benth. ex Baker. S. Ghosal and B. Mukherjee. Chem & Ind p 1800 O 24 '64

Aporphine and isoquinolinedienone alkaloids of ocotea glaziovii. B. Gilbert and others. bibliog Am Chem Soc J 86:694-6 F 20 '64

Aspidosperma alkaloids; fendleridine. R. H. Burnell and others. bibliog Chem & Ind p33-4 Ja 4 '64

Aspidosperma alkaloids: fendlerine. R. H. Burnell and others. Chem & Ind p235-6 F 8 '64

Biological interconversions in the amaryllidaceae; the haemanthamine-haemanthidine-tazettine sequence. H. M. Fales and W. C. Wildman. bibliog Am Chem Soc J 86:294-5 Ja 20 '64

Biosynthesis of coniine from four acetate units. E. Leete. Am Chem Soc J 85:3523-4 N 5 '63

Biosynthesis of the alkaloids of colchicum. E. Leete. bibliog Am Chem Soc J 85:3666-9 N 20 '63

Biosynthesis of the hemlock alkaloids; the incorporation of acetate-1-C^{14} into coniine and conhydrine. E. Leete. bibliog Am Chem Soc J 86:2509-13 Je 20 '64

Biosynthesis of the nicotiana alkaloids; the incorporation of glycerol-2-C^{14} into the pyridine ring of anabasine. E. Leete and A. R. Friedman. bibliog Am Chem Soc J 86:1224-6 Mr 20 '64

Buxus alkaloids. K. S. Brown, jr. and S. M. Kupchan. bibliog Am Chem Soc J 86:4414-33 O 20 '64

Calabash curare alkaloids; specific deuterium labeling and nuclear magnetic resonance studies. M. Grdinic and others. bibliog diags Am Chem Soc J 86:3357-63 Ag 20 '64

Chemistry of cleavamine; a novel transannular cyclization relating to biosynthesis of aspidosperma alkaloids. J. P. Kutney and E. Piers. bibliog Am Chem Soc J 86:953-5 Mr 5 '64

Chimonanthine; a one-step synthesis and biosynthetic model. A. I. Scott and others. bibliog Am Chem Soc J 86:302-3 Ja 20 '64

Concerning alkamine G from amianthium muscaetoxicum. A. G. Smith and others. bibliog Chem & Ind p 1362-3 Jl 25 '64

Crystal structure of securinine hydrobromide dihydrate and the molecular structure of securinine. S. Imado and others. diag Chem & Ind p 1691 O 3 '64

Deserpideine, a new yohimbinoid type alkaloid. E. Smith and others. Am Chem Soc J 86:2083-4 My 20 '64

Fortschritte der chemie organischer naturstoff, generalregister I-XX, 1938-1962 and vol. XXI. L. Zechmeister, ed. Review, by C. A. Finch. Chem & Ind p 1793-4 O 24 '64

Hallucinogenic drugs. F. Barron and others. il diags Sci Am 210:29-37 Ap '64

High resolution mass spectra of natural products; vinblastine and derivatives. P. Bommer and others. bibliog Am Chem Soc J 86:1439-40 Ap 5 '64

Isolation of macusine B from aspidosperma peroba F. Allem. ex Sald. F. Fish and others. bibliog Chem & Ind p319-20 F 22 '64

Isomerisation of iso-type diterpene alkaloid salts to normal-type salts. S. W. Pelletier and K. Kawazu. bibliog Chem & Ind p 1879-80 N 23 '63

Major alkaloid of marrubium vulgare. W. W. Paudler and S. Wagner. bibliog Chem & Ind p 1693-4 O 19 '63

Mass spectrometry in structural and stereochemical problems; some observations on mass spectra of pseudoindoxyl alkaloids. N. Finch and others. bibliog Am Chem Soc J 86:2620-2 Jl 5 '64

Narcissamine; a quasi-racemic alkaloid. S. M. Laiho and H. M. Fales. bibliog Am Chem Soc J 86:4434-8 O 20 '64

Novel C-D ring cleavage of dihydrocorynantheine derivatives. L. J. Dolby and S. I. Sakai. bibliog Am Chem Soc J 86:1890-1 My 5 '64

Rauwolfia alkaloids; the oxidative demethylation and rearrangement of some ajmaline derivatives. M. F. Bartlett and others. bibliog Am Chem Soc J 86:729-31 F 20 '64

Structure and synthesis of the alkaloid anahygrine. J. D. Leary and others. bibliog Chem & Ind p283-4 F 15 '64

Structure of eseramine. B. Robinson and G. Spiteller. bibliog Chem & Ind p459-60 Mr 14 '64

Structure of nudiflorine, a naturally occurring isomer of ricinidine. R. Mukherjee and A. Chatterjee. bibliog Chem & Ind p 1524-5 Ag 29 '64

Structure of tubulosine, a novel alkaloid from pogonopus tubulosus(DC.) Schumann. P. Brauchli and others. bibliog Am Chem Soc J 86:1895-6 My 5 '64

Structures of affinine and affinisine, alkaloids of peschiera affinis (Muell. Arg.) Miers. M. P. Cava and others. bibliog Chem & Ind p 1193-4 Je 27 '64

Synthesis of a degradation product of securinine. Z. Horii and others. bibliog Chem & Ind p664 Ap 18 '64

Synthesis of a vincadifformine-type skeleton via a novel transannular cyclization reaction. J. P. Kutney and others. bibliog Am Chem Soc J 86:2286-7 Je 5 '64

Synthesis of iboga alkaloids via a novel transannular cyclization reaction. J. P. Kutney and others. bibliog Am Chem Soc J 86:2287-8 Je 5 '64

Synthesis of lycopodium alkaloids; a synthetic proof for the structure of lyconnotine. Z. Valenta and others. Am Chem Soc J 86:2533-4 Je 20 '64

(+)-Tembetarine, [N-methyl-(+)-reticuline] in fagara species; oxidation to (+)-laurifoline. S. M. Albonico and others. bibliog Chem & Ind p 1580-1 S 12 '64

Thalictrum alkaloids; the structure, configuration, and total synthesis of thalicarpine, a novel dimeric aporphine-benzylisoquinoline alkaloid. S. M. Kupchan and N. Yokoyama. bibliog Am Chem Soc J 86:2177-83 Je 5 '64

Total synthesis of alkaloids seems to follow biogenesis. A. I. Scott and others. il Chem & Eng N 42:40-1 F 24 '64

Total synthesis of *dl*-anatabine. P. M. Quan and others. bibliog Chem & Ind p 1553 S 5 '64

Total synthesis of *dl*-garryine and *dl*-veatchine. W. Nagata and others. Am Chem Soc J 86:929-30 Mr 5 '64

Total syntheses of diterpenes and diterpene alkaloids; a tetracyclic common intermediate. S. Masamune. Am Chem Soc J 86:288-9 Ja 20 '64

Total syntheses of diterpenes and diterpene alkaloids; garryine. S. Masamune. Am Chem Soc J 86:290-1 Ja 20 '64

Total syntheses of diterpenes and diterpene alkadoids; kaurene. S. Masamune. Am Chem Soc J 86:289-90 Ja 20 '64

Total synthesis of vincamine. M. E. Kuehne. bibliog Am Chem Soc J 86:2946 Jl 20 '64

Two new alkaloids, viroallosecurinine and virosine, isolated from securinega virosa Pax. et Hoffm. S. Saito and others. bibliog Chem & Ind p 1263-4 Jl 11 '64

Vinca alkaloids; the structures of the oncolytic alkaloids vinblastine (VLB) and vincristine (VCR). N. Neuss and others. bibliog Am Chem Soc J 86:1440-2 Ap 5 '64

See also

Atisine
Diosgenin
Emetine
Hyoscyamine
Lobeline
Plants—Alkaloid content

Analysis

Estimation of tropane alkaloids by thin layer chromatography. M. Ikram and M. K. Bakhsh. bibliog Anal Chem 36:111-12 Ja '64

ALKANES. See Paraffins

ALKOXIDES. See Alcoholates

ALKOXY compounds

2′,3′-*O*-alkoxymethylene derivatives of ribonucleosides. J. Žemlička. bibliog Chem & Ind p581 Ap 4 '64

ALKOXY group

Determination of higher alkoxyl groups by direct chemical reaction and nonaqueous titration. S. Ehrlich-Rogozinski and A. Patchornik. bibliog Anal Chem 36:840-3 Ap '64

Electron spin resonance spectra of organic oxy radicals. K. U. Ingold and J. R. Morton. Am Chem Soc J 86:3400-2 Ag 20 '64

Stereochemistry of asymmetric silicon; alkoxy and siloxy leaving groups. L. H. Sommer and others. diags Am Chem Soc J 86:3276-9 Ag 20 '64

ALKYL benzene sulfonate. See Benzenesulfonates

ALKYL borate. See Boric acid

ALKYL bromides
Mechanism of electrochemical reduction of alkyl bromides. J. W. Sease and others. Am Chem Soc J 86:3154-5 Ag 5 '64

ALKYL chlorides
Hydroboration; the reaction of unsaturated alkyl chlorides and p-toluenesulfonates with diborane and disiamylborane. H. C. Brown and K. A. Keblys. bibliog Am Chem Soc J 86:1791-5 My 5 '64

ALKYL compounds
Alkali alkyls, extending their toehold. Can Chem Process 47:55-7 N '63
Alkylbenzenes. R. M. Roberts and others. bibliog Am Chem Soc J 86:2846-57 Jl 20 '64
Alkyliridium and alkylrhodium dihalocarbonyl-bis(trialkyl- or triarylphosphines). R. F Heck. bibliog Am Chem Soc J 86:2796-9 J 20 '64
Alkyloxymethyl ethers of sucrose and glucose as surfactants. G. R. Ames and others. bibliog J Ap Chem 14:245-9 Je '64
Allied to make linear alkylbenzene for soft detergents. Chem & Eng N 42:24 Mr 23 '64
Aluminum alkyls to join Ethyl's stable. il Can Chem Process 48:46-9 Ag '64
Composition of straight chain alkylbenzenes by gas chromatography. W. J. Carnes. bibliog Anal Chem 36:1197-200 Je '64
Electron spin resonance of alkyl nitrenes. E. Wasserman and others. Am Chem Soc J 86:3166-7 Ag 5 '64
Factors governing orientation in metalation reactions: the metalation of alkylferrocenes. R. A. Benkeser and J. L. Bach. bibliog Am Chem Soc J 86:890-5 Mr 5 '64
Gas chromatographic determination of alkyl substituted ureas. R. W. Reiser. Anal Chem 36:96-8 Ja '64
Hydrogen chemical shifts of 3-alkyl and 3-phenyl sydnones. K. D. Lawson and others. Am Chem Soc J 86:463-5 F 5 '64
Interaction of alkyllithium compounds with base; complex formation between ethyllithium and triethylamine in benzene. T. L. Brown and others. bibliog diags Am Chem Soc J 86:2135-41 Je 5 '64
Novel synthesis of higher aluminum alkyls. C. M. Starks and others. bibliog Ind & Eng Chem Product Res & Develop 3:19-20 Mr '64
Separation and analysis of alkylpoly-nitrates by gas chromatography. E. Camera and D. Pravisani. bibliog Anal Chem 36:2108-9 O '64
σ-bonded alkyl compounds of niobium and tantalum: trimethyldichloroniobium and trimethyldichlorotantalum. G. L. Juvinall. Am Chem Soc J 86:4202-3 O 5 '64
Thermochemistry of alkyl polyoxides and their radicals. S. W. Benson. bibliog Am Chem Soc J 86:3922-4 O 5 '64

ALKYL group
Alkylbenzenes; dealkylation and fragmentation reactions induced by aluminum chloride-water. R. M. Roberts and others. bibliog Am Chem Soc J 85:3454-8 N 5 '63
Aromatic substitution; intact and dealkylating nitration of propylated and butylated alkylbenzenes with nitronium tetrafluoroborate. G. A. Olah and S. J. Kuhn. bibliog Am Chem Soc J 86:1067-70 Mr 20 '64
Benzene-from-toluene units being expanded. il Chem & Eng N 42:23-4 Jl 20 '64
De-alkylation by the secondary phosphide ion. F. G. Mann and M. J. Pragnell. Chem & Ind p 1386 Ag 1 '64
Extraction of uranium(VI) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64
Kinetics of catalytic xylene hydrodealkylation. A. H. Weiss and L. C. Doelp. bibliog Ind & Eng Chem Proc Design 3:73-8 Ja '64
Kinetics of thermal dealkylation of alkylnaphthalenes. J. C. Bixel and others. Ind & Eng Chem Proc Design 3:78-84 Ja '64
Mechanism of transalkylation of the ethylbenzene with gallium bromide-hydrogen bromide. A. Streitwieser, jr. and L. Reif. bibliog Am Chem Soc J 86:1988-93 My 20 '64
Naphthalene via hydrodealkylation. C. R. Andersson and D. E. Lamb. bibliog diags Ind & Eng Chem Proc Design 3:177-82 Ap '64
Oxidative dealkylation of alkylaromatic hydrocarbons. C. J. Norton and T. E. Moss. bibliog diag Ind & Eng Chem Proc Design 3:23-32 Ja '64
Thermal hydrodealkylation (THD); Gulf research and development co. flow diag Hydrocarbon Process & Pet Refiner 42:228 N '63

ALKYL halides
Catalyzed reaction of alkylmagnesium halides with alkyl halides. V. D. Parker and others. bibliog diag Am Chem Soc J 86:1110-16 Mr 20 '64
Direct 4-alkylation of pyridine by alkyl halides and magnesium or lithium. D. Bryce-Smith and others. bibliog Chem & Ind p495-6 Mr 21 '64
Mechanism of reduction of alkyl halides by organotin hydrides. L. W. Menapace and H. G. Kuivila. bibliog Am Chem Soc J 86:3047-51 Ag 5 '64
Rapid oxidation of iron(II) porphyrins by alkyl halides; a possible mode of intoxication of organisms by alkyl halides. C. E. Castro. bibliog Am Chem Soc J 86:2310-11 Je 5 '64
Reactions of coordinated ligands; the reactions of alkyl halides with mercapto groups in transition metal complexes of mercaptoamines. D. H. Busch and others. bibliog Am Chem Soc J 86:3642-50 S 20 '64
Stereochemistry of the replacement of chlorine atoms in alkyl halides by chlorine-38 activated in the (n,γ) process. C. M. Wai and others. bibliog Am Chem Soc J 86:2525-6 Je 20 '64

ALKYL iodides
Differences in electron spin resonance spectra and annealing characteristics of radicals produced in polycrystalline and glassy alkyl iodides by γ-radiolysis. H. W. Fenrick and others. bibliog Am Chem Soc J 85:3731-2 D 5 '63

ALKYLATE. See Alkylation

ALKYLATION
Alkylation of benzene with 1-hexene using aluminum chloride-nitroalkane catalysts. H. S. N. Setty and H. W. Prengle, jr. bibliog Ind & Eng Chem Fundamentals 3:300-4 N '64
Aluminum chloride alkylation; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:166 S '64
Application of a Hammett-Taft relation to kinetics of alkylation of amino acid and peptide model compounds with acrylonitrile. M. Friedman and J. S. Wall. bibliog Am Chem Soc J 86:3735-41 S 20 '64
Boron-11 nuclear magnetic resonance spectra (32.1 mc.) of alkylated derivatives of dicarbahexaborane(8) and 1-iododecaborane(14). R. E. Williams and T. P. Onak. bibliog diags Am Chem Soc J 86:3159-60 Ag 5 '64
Cascade sulfuric acid alkylation; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:167 S '64
Chelation as a driving force in organic reactions; a generic synthesis of amino acids by the carboxylation and alkylation of 3-phenylhydantoin. H. Finkbeiner. Am Chem Soc J 86:961-2 Mr 5 '64
Chemistry of aliphatic disulfides; effect of α-alkylation on the cyanide cleavage of unsymmetrical disulfides. R. G. Hiskey and others. bibliog Am Chem Soc J 86:2010-14 My 20 '64
Detergent makers switch to linear alkylated sulfonates. P. J. Weaver. bibliog Hydrocarbon Process & Pet Refiner 43:101-3 Mr '64
Direct 4-alkylation of pyridine by alkyl halides and magnesium or lithium. D. Bryce-Smith and others. bibliog Chem & Ind p495-6 Mr 21 '64
Effluent refrigeration alkylation; Stratford engineering corp. flow diag Hydrocarbon Process & Pet Refiner 43:168 S '64
HF alkylation; Perco; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:169 S '64
HF alkylation; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:170 S '64
Molecular sieves dry alky feed better. M. D. Box and others. diags Hydrocarbon Process & Pet Refiner 43:125-6 Ja '64
Olefin-aromatic alkylation; Universal oil products co. diag Hydrocarbon Process & Pet Refiner 42:207 N '63
Performance of LAS in syndets. C. J. Stanberry, jr. and others. Soap & Chem Spec 40:43-6 Jl '64
Radical anions as intermediates in substitution reactions; carbon alkylation of nitroparaffin salts. R. C. Kerber and others. bibliog Am Chem Soc J 86:3904-5 S 20 '64
Reductive alkylation of quinones with trialkylboranes. M. F. Hawthorne and M. Reintjes. Am Chem Soc J 86:951 Mr 4 '64
Selected process flow sheets for petrochemicals: detergent alkylate. Oil & Gas J 62:113 S 7 '64

ALKYLATION—*Continued*
Synthesis of 7-substituted adenines through the use of a blocking group at the 3-position; site of alkylation of 7-substituted adenines. N. J. Leonard and T. Fujii. bibliog Am Chem Soc J 85:3719 N 20 '63

ALLANITE
Variation of some rare earths in allanite. J. W. Frondel. bibliog Am Mineralogist 49: 1159-77 S '64
X-ray fluorescence lead-uranium ratio measurements in allanite, Bankura District, India. S. B. Bhattacherjee and M. N. Kumar. bibliog Anal Chem 36:1400 Je '64

ALLANTOIN
Novel amino acid-allantoin compounds for topical application. I. I. Lubowe. Am Perfumer 79:46-50 Jl '64

ALLENE
Cyclobutane compounds; formation of a four-membered ring during the electrophilic addition of hydrogen bromide to allene. K. Griesbaum. bibliog Am Chem Soc J 86: 2301-3 Je 5 '64
Metal-ammonia reduction of an allene. J. M. Brown. bibliog Chem & Ind p 1689 O 19 '63

ALLERGY
Allergic contact sensitivity to malathion. T. H. Milby and W. L. Epstein. bibliog Archives Environmental Health 9:434-7 O '64
Atmospheric ionization in allergic respiratory diseases. G. I. Blumstein and others. Archives Environmental Health 8:818-19 Je '64
Menthol hypersensitivity. Drug & Cosmetic Ind 95:439 S '64

ALLOXAN
Polarographic study of the system alloxan-alloxantin-dialuric acid. W. A. Struck and P. J. Elving. bibliog Am Chem Soc J 86: 1229-35 Mr 20 '64

ALLOY casting institute
Annual meeting, 24th, Hot Springs, Va. Foundry 92:158+ Ag '64

ALLOYS
Activities of silicon in metals and alloys. P. J. Bowles and others. bibliog diags Iron & Steel Inst J 202:113-21 F '64
Brazing alloys. J. J. Lawless, jr. il Machine Design 36:174-84 Ag 27 '64
Castability ratings for investment-casting alloys; reference book sheets. K. G. Boynton. diags Am Mach 108:95+ Jl 20 '64
Cryogenic characteristics of alloy wires. A. B. Kaufman. il Instruments & Control Systems 37:119-21 Mr '64
Crystals: drop by drop; ultra-fast cooling device. il Electronics 37:32 Ag 10 '64
Developing a new alloy. R. B. Leonard. il diag Chem Eng 71:150+ O 26 '64
Development of alloys for brazing columbium. C. W. Fox and others. bibliog il diag Welding J 42:sup535-40 D '63
Development of partially volatile filler alloys for high-temperature brazing. N. Bredzs and others. diags Welding J 43: sup63-70 F '64
Electromagnetic mixing of metals and alloys. J. J. Schott. diag R Sci Instr 35:411-12 Mr '64
Electron metallography of chemical attack upon some alloys susceptible to stress corrosion cracking. H. W. Pickering and P. R. Swann. bibliog il diags Corrosion 19:373-89 N '63
Fusible alloy acts as workholder. B. Rixon. il diags Am Mach/Metalworking Manuf 107: 90-1 N 25 '63
Low-temperature-coefficient-of-resistance alloys. C. D. Starr and others. Electro-Tech 72:12 N '63
Magnetic aging of spinodal alloys. J. W. Cahn. bibliog il J Ap Phys 34:3581-6 D '63
Modern views on the electron theory of metals and alloys. E. R. Petty. bibliog diags Metallurgia 70:12-17 Jl '64
Plansee seminar on Metals for the space age, 5th. Product Eng 35:65 Jl 20 '64
Resistivity of ferromagnetic alloys. J. M. Sivertsen. bibliog J Ap Phys 35:2407-12 Ag '64
Stability of a planar interface during solidification of a dilute binary alloy. W. W. Mullins and R. F. Sekerka. bibliog diags J Ap Phys 35:444-51 F '64
Ultrapure metals and alloys. H. G. Sell. il diag Westinghouse Eng 24:94-6 My '64
See also
Aluminum alloys
Amalgams
Bearing metals
Beryllium alloys
Brass
Bronze
Cadmium alloys
Cobalt alloys
Copper alloys
Germanium alloys
Gold alloys
Indium alloys
Invar
Iron alloys
Lithium alloys
Magnesium alloys
Molybdenum alloys
Nickel alloys
Niobium alloys
Niobium stannide
Palladium alloys
Permalloy
Platinum alloys
Rhenium alloys
Rhodium alloys
Silicon alloys
Silver alloys
Solutions, Solid
Steel alloys
Stellite
Tantalum alloys
Titanium alloys
Tungsten alloys
Uranium alloys
Vanadium alloys
Zinc alloys
Zirconium alloys

Analysis

X-ray spectrometric analysis of noble metal dental alloys. B. W. Mulligan and others. bibliog il J Res Nat Bur Stand 68A:5-8 Ja '64

Testing

Biaxial stress-strain properties of welds in high strength alloys. B. L. Baird. Welding J 42:sup571-6 D '63
Dislocation substructure vs transgranular stress corrosion susceptibility of single phase alloys, P. R. Swann. il Corrosion 19: 102-12 Mr '63; Discussion. 19:427-8 D '63
Testing laboratory measures magnetic properties of alloys. il Tool & Manuf Eng 52: 120 Ap '64

ALLOYS, Hard facing
This shop grew on spray hardfacing; Brooks flame spray inc. il Welding Eng 49:67 Jl '64
Wear-resistant facing of rolls. il Engineer 217:355 F 21 '64

ALLOYS, Heat resisting
Batch furnace for heat resisting alloys. il Metallurgia 70:48 Jl '64
Castable cobalt-tungsten alloys for high temperature service. J. C. Freche and R. L. Ashbrook. il Foundry 92:76-9 O '64
Comparisons of materials: stress-rupture strength of high temperature alloys; tables. Materials in Design Eng 60:36-7 Mid-O '64
Development of alloys for high temperature service; abstract and discussion. R. A. Smith. Chem & Ind p328-9 F 22 '64
Dry corrosion of cobalt, chromium and Co-Cr, Ni-Cr and Fe-Cr alloys in hydrogen sulphide atmospheres; abstract. A. Davin and D. Coutsouradis. Metal Prog 85:174-5 My '64
Eight alloys resistant to heat and corrosion. W. J. Collins. bibliog Product Eng 34:82-8 N 25 '63
Electrodeposited dispersion-hardened alloys, key to high-temperature strength. C. R. Smith. J Metals 15:740-1 O '63
Exotic materials. R. J. Van Thyne. Space/Aeronautics 42 no 4:163-4 '64-65
Freezing metals speeds cutting rate 20 times. il Steel 153:31 N 11 '63
High-temperature alloys need overcoats. E. S. Nichols and others. il S A E J 72:72-3 O '64
High-temperature materials. I. Stambler. diags Space/Aeronautics 40:81-7 N '63
High temperature metals. E. W. Ross and H. T. McHenry. il Chem Eng 70:97-103 N 25 '63
Melting furnace for studies of refractory metal alloys. V. R. Thompson and W. T. Reynolds. il diags J Metals 16:809-13 O '64
Metal selector; cast high alloys. Steel 155:sup S22-3 O 12 '64
Metal selector; high temperature alloys. Steel 155:sup S7-12 O 12 '64
More alloys expand working environment. il Iron Age 194:25 Jl 2 '64
New diffusion coatings protect superalloys. il Materials in Design Eng 59:124+ Ja '64
Quality control in high temperature alloys. T. P. Davis and others. il diags Ind Quality Control 20:9-13 N '63
Radial forging of integral turbine wheels. R. W. Redlinger and others. il diag Am Mach 108:81-3 O 12 '64

ALLOYS, Heat resisting—*Continued*
Refractory metals. R. T. Begley. Space/Aeronautics 42 no 4:154-6 '64-65
Refractory metals for thermal-protection systems. E. E. Mathauser. bibliog il Astronautics & Aeronautics 2:66-9 Jl '64
Review and comparison of alloys for future solid-propellent rocket-motor cases; abstract. Metal Prog 85:184+ Je '64
Steels and superalloys. H. J. Hucek. Space/Aeronautics 42 no 4:147-50 '64-65
Stronger titanium fasteners for high temperatures. C. Hood. Space/Aeronautics 40:105 N '63
Tooling guidelines put superalloys in line for smoother cuts. il Iron Age 192:96-8 D 12 '63
Turning superalloys; with data sheet. C. T. Olofson. Metal Prog 86:104+ Jl '64
Whisker-metal composites stay strong at high temperatures. W. H. Sutton. Space/Aeronautics 40:98+ N '63
See also
Chromium alloys
Molybdenum alloys
Nickel alloys
Steel, Heat resisting

Testing

Microstructure study in a welded superalloy. W. A. Owczarski and C. P. Sullivan. bibliog il Welding J 43:sup393-9 S '64

ALLUVIUM
Depth-discharge relations in alluvial channels. D. B. Simons and others. Am Soc C E Proc 88 [HY 5 no 3263]:57-72 S '62; Discussion. H. A. Berdenis van Berlekom. 89 [HY 2 no 3468:183-7 Mr '63; Reply. 90 [HY 1 no 3783:249-52 Ja '64
Distribution of beryllium in the Oslo region, Norway; a geochemical, stream sediment study. J. W. Brinck and A. Hofmann. bibliog map Econ Geol 59:79-96 Ja '64
Experiments on small streams in alluvium. P. Ackers. bibliog il Am Soc C E Proc 90 [HY 4 no 3959]:1-37 Jl '64
Regime criteria for alluvial streams. R. J. Garde and K. G. Ranga Raju. bibliog Am Soc C E Proc 89 [HY 6 no 3705]:153-64 N '63; Discussion. 90 [HY 4 no 3980]:331-6 Jl '64

ALLYL alcohol
Allyl alcohol as a sensitive and specific reagent for the detection of mercurous ions. M. Qureshi and others. bibliog Anal Chem 36:2040-1 S '64

ALLYL compounds
Allyl lithium in research. Manuf Chem 35:107 Ja '64
Allylic fluorides; solvolysis of 1,3,5,7,7,7-hexafluoro-1-heptene. T. J. Dougherty. bibliog Am Chem Soc J 86:2236-40 Je 5 '64
Hydroboration; directive effects in the hydroboration of representative allyl derivatives; the elimination reaction of β-substituted organoboranes. H. C. Brown and O. J. Cope. Am Chem Soc J 86:1801-7 My 5 '64
Organic syntheses by means of noble metal compounds; catalytic carbonylation of allylic compounds with palladium chloride. J. Tsuji and others. bibliog Am Chem Soc J 86:4350-3 O 20 '64
Organic syntheses by means of noble metal compounds; preparation of a new type of π-allylic palladium chloride complex and its carbonylation. J. Tsuji and others. Am Chem Soc J 86:4491 O 20 '64
Small-ring compounds; the formolysis of allylcarbinyl tosylate. K. L. Servis and J. D. Roberts. bibliog Am Chem Soc J 86:3773-7 S 20 '64

ALLYL group
Allylic brominations with 1,2-dibromotetrachloroethane. E. S. Huyser and D. N. DeMott. Chem & Ind p 1954 D 14 '63
Cyclisations following radical addition to ethyl diallylacetate. J. I. G. Cadogan and others. Chem & Ind p753 My 2 '64

ALMONDS
Evaluation of protein in Middle Eastern diets. J. W. Cowan and others. bibliog J Nutrition 81:235-40 N '63

ALPHA rays
Alpha-particle voltmeter. L. H. Bettenhausen and W. J. Gallagher. diag Nucleonics 22:70 Je '64
Rutherford and his alpha particles. T. H. Osgood and H. S. Hirst. bibliog Am J Phys 32:681-6 S '64
Secondary electron production from alpha particles emerging from gold. J. N. Anno. bibliog diag J Ap Phys 34:3495-9 D '63

Measurement

Alpha particle energy resolution in a liquid scintillator. D. L. Horrocks. bibliog diags R Sci Instr 35:334-40 Mr '64
Spinthariscope for measuring alpha activity. Engineer 218:26 Jl 3 '64

ALPHABET
New alphabet may help to break world communications barrier. F. A. Richardson. il Inland Ptr/Am Lithogr 152:57+ Ja '64
Origins of our alphabet are lost in controversy. F. A. Richardson. Inland Ptr/Am Lithogr 152:80+ N '63

ALPHATIZING process. See Chromizing

ALTERATIONS, Hydrothermal. See Metamorphism

ALTERNATING current electric motors. See Electric motors, Alternating current

ALTERNATING electric currents. See Electric currents, Alternating

ALTERNATORS. See Electric generators, Alternating current

ALTIMETERS
Barometers measuring up. il Product Eng 35:65 O 12 '64

ALTITUDE flying. See Aviation—Altitude flying

ALTITUDES
Effects of altitude on standard atmosphere; data sheet. J. Bakker. Power 107:82 D '63
Mortality from heart disease at high altitude. W. E. Morton and others. bibliog Archives Environmental Health 9:21-4 Jl '64
See also
Sea level

ALUMINA
Adsorption of colloidal silica on alumina and of colloidal alumina on silica. R. K. Iler. bibliog il Am Cer Soc J 47:194-8 Ap '64
Alumina and other dielectric ceramics; symposium abstracts. Am Cer Soc Bul 43:353+ Ap '64
Alumina content of enstatite in a Venezuelan high-temperature peridotite. D. H. Green. Geol Soc Bul 74:1397-401, pl 1 N '63
Alumina size distributions from high-pressure composite solid-propellant combustion. L. A. Povinelli and R. A. Rosenstein. bibliog diags AIAA J 2:1754-60 O '64
Anion substitution and structure of $12CaO\cdot 7Al_2O_3$. J. Jeevaratnam and others. bibliog Am Cer Soc J 47:105-6 F '64
Catalytic dehydrogenation of methyl isobutyrate to methyl methacrylate over alumina catalysts. E. L. McDaniel and H. S. Young. bibliog diag Ind & Eng Chem Product Res & Develop 2:287-92 D '63
Correlation of slag resistance with the pore structure of an alumina-silica refractory. T. Vojnovich and others. bibliog diag Am Cer Soc Bul 43:514-17 Jl '64
Determination of metallic platinum in platinum-alumina catalysts by X-ray diffraction. R. A. Van Nordstrand and others. bibliog Anal Chem 36:819-24 Ap '64
Diamond grinding alumina parts. il Am Cer Soc Bul 43:223 Mr '64
Diffusion sintering; initial sintering kinetics of alumina. D. L. Johnson and I. B. Cutler. bibliog Am Cer Soc J 46:545-50 N '63
Dissolution in ceramic systems; dissolution of alumina, mullite, anorthite, and silica in a calcium-aluminum-silicate slag. B. N. Samaddar and others. il diag Am Cer Soc J 47:249-54 My '64
Drying air with activated alumina under adiabatic conditions. R. J. Getty and W. P. Armstrong. bibliog diag Ind & Eng Chem Proc Design 3:60-5 Ja '64
Effect of Al_2O_3 on the mineral constitution of self-fluxing sinters. E. Mazanek and S. Jasieńska. bibliog il Iron & Steel Inst J 202:319-24 Ap '64
Effect of gaseous environment on fracture behavior of Al_2O_3. A. J. Mountvala and G. T. Murray. bibliog il Am Cer Soc J 47:237-9 My '64
Effect of silica on transformations of fibrillar colloidal boehmite and gamma alumina. R. K. Iler. bibliog Am Cer Soc J 47:339-41 Jl '64
Effect of starting materials on phase relations in the system CaO-Al_2O_3-H_2O. M. S. Crowley. bibliog Am Cer Soc J 47:144-8 Mr '64
Electron tunneling through asymmetric films of thermally grown Al_2O_3. S. R. Pollack and C. E. Morris. bibliog il diags J Ap Phys 35:1503-12 My '64
Enthalpy of transformation, δ-Al_2O_3 to α-Al_2O_3. O. J. Kleppa and T. Yokokawa. Am Chem Soc J 86:2749 Jl 5 '64
Grinding low-soda alumina. L. D. Hart and L. K. Hudson. il Am Cer Soc Bul 43:13-17 Ja '64

ALUMINA—*Continued*

High-alumina ceramics and the electrical industry. F. E. V. Spencer. Inst E E Proc 111:308 F '64

High-alumina plastics and ramming mixes. K. K. Kappmeyer and others. il Am Cer Soc Bul 43:452-6 Je '64

High-temperature phase equilibria for the partial system $3CaO.MgO.2SiO_2$-$MgO.Al_2O_3$-$2CaO.Al_2O_3.SiO_2$ in the quaternary system CaO-SiO_2-Al_2O_3-MgO. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64

Hydrothermal preparation of a gehlenite hydrate. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:449-52 S '64

Isotopic exchange of oxygen between alumina and organic compounds. D. Samuel and I. Wasserman. bibliog Chem & Ind p891-2 My 23 '64

Jet thinning device for preparation of Al_2O_3 electron microscope specimens. N. J. Tighe. il diags R Sci Instr 35:520-1 Ap '64

Keeping properties of edible oils; identity of trace materials adsorbed from peanut oil by chromatography on alumina. A. Crossley and A. Thomas. bibliog Am Oil Chem Soc J 41:95-100 F '64

Magnets reduce iron content of alumina. il Mod Materials Handling 19:76 Mr '64

Mechanical properties of pure, dense aluminum oxide as a function of temperature and grain size. R. M. Spriggs and others. bibliog il Am Cer Soc J 47:323-7 Jl '64

Nature of burned anodic coatings. A. E. Hultquist. bibliog Electrochem Soc J 111:1302-3 N '64

Negative resistance in Al-Al_2O_3-Se-Au sandwich cells. T. Mukerjee and J. Allan. 3d diags J Ap Phys 35:2270-1 Jl '64

1010° and 800°C isothermal sections in the system Na_3AlF_6-Al_2O_3-SiO_2. D. F. Weill and W. S. Fyfe. bibliog Electrochem Soc J 111:582-5 My '64

Phase equilibria in the spinel region of the system FeO-Fe_2O_3-Al_2O_3. B. D. Roiter. bibliog Am Cer Soc J 47:509-11 O '64

Phase equilibria in the system NiO-Al_2O_3-SiO_2. B. Phillips and others. bibliog Am Cer Soc J 46:579-83 D '63

Physical and chemical properties of alumina bleached cottonseed oil. J. C. Kuck and others. bibliog Am Oil Chem Soc J 41:101-4 F '64

Pressure sintered alumina bicrystals. M. P. Davis. bibliog il Am Cer Soc J 47:463-4 S '64

Role of solute segregation at grain boundaries during final-stage sintering of alumina. P. J. Jorgensen and J. H. Westbrook. bibliog il diags Am Cer Soc J 47:332-8 Jl '64

Rubbing contact materials for face type mechanical seals. J. W. Abar. il diag Lub Eng 20:381-6 O '64

Silica-alumina catalysis theory unfolds. M. R. Basila and others. Chem & Eng N 42:42-4 O 5 '64

Sintering alumina-urania compositions. I. Amato and others. bibliog il Am Cer Soc Bul 43:125-7 F '64

Some observations on the interfacial topographies of aluminum and its amorphous oxide. J. J. Randall, jr. and W. J. Bernard. bibliog il diags J Ap Phys 35:1317-22 Ap '64

Structure of nickel oxide containing alumina. E. Gillam and J. P. Holden. bibliog il Am Cer Soc J 46:601-4 D '63

Studies on the transport and deposition of alpha-aluminum oxide. J. V. Kerrigan. bibliog il J Ap Phys 34:3408-10 N '63

Surface charge of alumina and magnesia in aqueous media. M. Robinson and others. bibliog diag Am Cer Soc J 47:516-20 O '64

Surface combustion of hydrogen; on platinum-coated alumina. D. Gidaspow and R. T. Ellington. bibliog diag A I Ch E J 10:707-13 S '64

Surface diffusion of carbon dioxide on alumina. J. B. Rivarola and J. M. Smith. bibliog flow diag Ind & Eng Chem Fundamentals 3:308-13 N '64

Thermal conditioning of polycrystalline alumina ceramics. R. H. Insley and V. J. Barczak. bibliog diag Am Cer Soc J 47:1-4 Ja '64

Thermal transformation of alumina trihydrate, hydrargillite. T. Sato. bibliog J Ap Chem 14:303-8 Jl '64

Thin silicon film growth on polycrystalline alumina ceramic. V. Y. Doo. il Electrochem Soc J 111:1196-8 O '64

Translucent engineering ceramic; Stellox. il Engineering 197:249 F 14 '64

Ultrasonic attenuation in Al_2O_3 at ultrahigh frequencies and low temperatures. T. M. Fitzgerald and others. il J Ap Phys 35:2647-8 S '64

Zero point of charge of alpha-alumina. J. A. Yopps and D. W. Fuerstenau. bibliog diag J Colloid Sci 19:61-71 Ja '64

See also

Bauxite

Boehmite

Corundum

Manufacture

Australia develops new alumina reduction process. Light Metal Age 22:21 Ag '64

ALUMINATES

See also

Calcium aluminate

ALUMINAUT. See Submarine boats

ALUMINUM

Adhesive of vapor-deposited aluminum to lime-soda glass. J. R. Frederick and K. C. Ludema. bibliog J Ap Phys 35:256-7 Ja '64

Aluminium and its alloys in 1963. E. Elliott. bibliog il Metallurgia 69:65-73, 115-25 F-Mr '64

Aluminum extrusion packaging specifications. Light Metal Age 21:13-14 D '63

Aluminum-plastic laminate can be drawn, welded. il Mod Metals 20:78-9 Ap '64

Aluminum-polyethylene laminate developed. il Chem & Eng N 42:46-7 Mr 23 '64

Aluminium/polyethylene sheet laminate. il Engineering 197:517 Ap 10 '64

Aluminum, titanium studied for space platform. Mod Metals 20:82 Ap '64

Amateur scientist; how to grind, polish and test an aluminum telescope mirror. W. C. Peterson. diags Sci Am 209:159-60+ N '63

Anion exchange separation of gallium, indium, and aluminum. J. Korkisch and I. Hazan. bibliog Anal Chem 36:2308-11 N '64

Anode gas reactions in aluminum electrolysis. J. Thonstad. bibliog diags Electrochem Soc J 111:955-65 Ag '64

Chemical resistance of refractories to Al and Al-Mg alloys. J. G. Lindsay and others. bibliog il Am Cer Soc J 47:90-4 F '64

Crystallographic texture variations through rolled aluminium and copper sheet. I. L. Dillamore and W. T. Roberts. bibliog diags Inst Metals J 92:193-9 '63-64

Determination of unloading behavior of uniaxially strained 6061-T6 aluminum from residual strain measurements. W. F. Hartman. bibliog diag J Ap Phys 35:2090-6 Jl '64

Distribution of a-c resistance in oxide films on aluminum. M. A. Heine and M. J. Pryor. bibliog il Electrochem Soc J 110:1205-14 D '63

Dynamic response of aluminum. L. M. Barker and others. bibliog diags J Ap Phys 35:1203-12 Ap '64

Effect of internal oxidation on the plastic deformation of silver-aluminum single crystals. M. J. Marcinkowski and D. F. Wriedt. bibliog il diags Electrochem Soc J 111:92-100 Ja '64

Effect of temperature on photo-exoemission. J. F. Young and D. J. Williams. bibliog J Ap Phys 35:2279-82 Ag '64

Elastic constants of aluminum. J. Vallin and others. bibliog J Ap Phys 35:1825-6 Je '64

Exo-emission from abraded and etched aluminum. R. K. Mueller and K. Pontinen. J Ap Phys 35:1500-2 My '64

Growth kinetics of discontinuous thermal oxide films: aluminum. R. W. Bartlett. bibliog Electrochem Soc J 111:903-8 Ag '64

Imine insertion into the aluminium carbon bond. K. Hoegerle and P. E. Butler. Chem & Ind p933 My 30 '64

Low-temperature elastic moduli of aluminum. G. N. Kamm and G. A. Alers. bibliog J Ap Phys 35:327-30 F '64

Lubricants for aluminum cut friction, stop galling. Materials in Design Eng 60:130+ N '64

Negative resistance in Al-Al_2O_3-Se-Au sandwich cells. T. Mukerjee and J. Allen. 3d. diags J Ap Phys 35:2270-1 Jl '64

Novel six-membered aluminum-nitrogen heterocycles *via* metalative cyclization. J. J. Eisch and M. E. Healy. bibliog Am Chem Soc J 86:4221-2 O 5 '64

Oxidation of aluminum by carbon dioxide in the presence of cryolitic electrolyte. S. Gjerstad and B. J. Welch. bibliog diag Electrochem Soc J 111:976-80 Ag '64

Possible effect of aluminum on the availability of fluoride in potable water. Pub Works 95:190+ O '64

ALUMINUM—*Continued*

Properties of materials; aluminum and its alloys; wrought and cast; tables. Materials in Design Eng 60:124-33 Mid-O '64
Residual pressure effects in polycrystalline aluminum. M. H. Miles and P. Gibbs. bibliog il J Ap Phys 35:1941-4 Je '64
Sandwich; balsa on aluminum. il Mech Eng 86:57 My '64
Simple furnace for growing metal crystals. G. T. Clayton and C. Hendrickson. il diag Am J Phys 32:679-80 S '64
Some observations on the interfacial topographies of aluminum and its amorphous oxide. J. J. Randall, jr. and W. J. Bernard. bibliog il diags J Ap Phys 35:1317-22 Ap '64
Structure of anodic layers on the (100) face of aluminum. J. C. Grosskreutz and G. G. Shaw. bibliog il J Ap Phys 35:2195-7 Jl '64
Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64
Very rapid oxidation of aluminum at room temperature when in contact with mercuric iodide. D. A. Jackson, jr. and H. Leidheiser, jr. bibliog diag Electrochem Soc J 111:652-6 Je '64

See also
Alumina
Steel—Aluminum content

Analysis

Chelometric determination of aluminum. K. E. Burke and C. M. Davis. bibliog Anal Chem 36:172-5 Ja '64
Fluorometric and spectrophotometric determination of aluminum in industrial water. C. A. Noll and L. J. Stefanelli. Anal Chem 35:1914-16 N '63
Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64
Spectrophotometric determination of iron and aluminum in silicone polymers. S. Fujiwara and H. Narasaki. bibliog Anal Chem 36:206-7 Ja '64

Coloring

Characteristics of coloured weather resistant coatings for aluminium. F. G. Abbott. il Metallurgia 69:167-72 Ap '64
Color-anodized aluminum. H. J. Rosen. Prog Arch 45:150 Ja '64
Colour processes for architectural aluminium. il Engineering 196:624 N 15 '63
Studies in high light-fastness of dyes; the fading of anionic dyes in anodic alumina films. C. H. Giles and K. V. Datye. bibliog J Ap Chem 13:473-83 N '63

Corrosion

Aluminum extends its range of usage. G. F. Drumm. il diag Can Chem Process 48:101-4 S '64
Artificial pits for quantitative studies of corrosion of aluminum alloys in natural waters. G. A. W. Murray. bibliog il diags Corrosion 20:329-34 O '64
Comparative behaviour of two aluminium alloys and mild steel in saline river water in a Nigerian river. L. A. Harasimowicz and F. F. Booth. il Metallurgia 69:59-64 F '64
Corrosion fatigue of aluminium alloys as affected by metallic coatings and impressed currents; abstract and discussion. J. A. Whittaker and H. King. Chem & Ind p979-80 Je 6 '64
Corrosion of aluminum alloys in chlor-alkali environments. L. W. Gleekman. il diags Chem Eng Prog 60:49-54 My '64
Corrosion of aluminium in contact with wood. R. H. Farmer and F. C. Porter. bibliog il Metallurgia 68:161-7 O '63
Effect of cooling rate on susceptibility of high strength aluminum alloys to intergranular corrosion; abstract. S. J. Ketcham and W. Beck. Metal Prog 84:178+ N '63
Effect of inhibitor cations upon aluminum corrosion; chromate solutions. J. C. Cessna and others. bibliog diags Corrosion 20:1-6 Ja '64
Electrochemical behavior of aluminum alloys susceptible to intergranular corrosion; electrode kinetics of oxide-covered aluminum. F. H. Haynie and S. J. Ketcham. bibliog diags Corrosion 19:403-7 D '63
Experiments which disproved the theory of intercrystalline corrosion of the light alloy duralumin. H. O. Short. diags Roy Aeronautical Soc J 68:203-4 Mr '64
Pitting and uniform corrosion of aluminum by pH 3.5 citrate buffer solution. E. L. Koehler and S. Evans. bibliog diags Electrochem Soc J 111:17-21 Ja '64
Spalled concrete traced to conduit. il Eng N 172:28-9 Mr 12 '64
Three year tidewater corrosion of aluminum alloys. W. H. Ailor, jr. and F. M. Reinhart. bibliog il Naval Eng J 76:443-9 Je '64

Electrotechnical uses

All-aluminum-coil transformer developed. il Elec World 161:38 Mr 2 '64
Aluminum cable destined for high volt power line. il Mod Metals 19:66 Ja '64
Aluminum cable-ladder cuts costs, saves space. C. H. Williams. il Elec World 161:135 Ap 6 '64
Aluminum in Manicouagan; 4800 miles of aluminum transmission cable and 340 miles of aluminum pipe. il Light Metal Age 22:7-8 Je '64
Aluminum sheathing with reference to high voltage cables. R. M. Russek and K. Kuwahara. bibliog il diags Wire & Wire Prod 39:1562-7+ O '64
Comparative vibration fatigue tests 84/19 ACSR Chukar versus 61-strand 5005. B. Hondalus. il IEEE Trans Power Apparatus & Systems 83:971-4 S '64; Discussion. 83:1069-70 O '64
Conductors tested for Keystone project. il Elec World 162:78 Jl 27 '64
Connecting solid-conductor aluminum cables in terminal boxes. A. N. Burki and A. M. Sabine. il diags Engineer 216:942-3 D 6 '63
Design characteristics of 5005 all-aluminum alloy conductors for the Virginia electric and power co. 500-kv project. H. W. Adams and J. D. Shaw. bibliog IEEE Trans Power Apparatus & Systems 83:241-5 Mr '64; Discussion. 83:428 Ap '64
Economics justifies heavier distribution feeders. W. J. Stephens. Elec World 162:24-5 O 12 '64
Kaiser develops new all-aluminum conductor. A. N. Shealy. Elec World 161:52-3+ F 10 '64
Load capability of bare ACSR and all-aluminum conductors based on long-time outdoor temperature rise tests. J. C. Gorub and E. F. Wolf. il IEEE Trans Power Apparatus & Systems p852-7 D '63
New high field cryogenic magnet. Franklin Inst J 276:545 D '63
Progress in the application of aluminium to electrical engineering. J. C. Bailey. bibliog il diag Metallurgia 69:75-9 F '64
Solid aluminum conductor, to 500 MCM, shown. il Elec World 161:36 F 17 '64
Tensile tests on ACSR/ACAR conductors after rifle damage. il Elec World 162:86+ O 5 '64
Testing of mechanical joints in aluminium conductors for insulated cables. L. Roullier. bibliog il diags Inst E E Proc 110:758-72 Ap '63; Discussion. 110:2009-16 N '63
Trans-Pacific cable uses aluminum conductor. il Mod Metals 19:72 Ja '64

Failure

Critical analysis of crack propagation laws. P. Paris and F. Erdogan. bibliog diag A S M E Trans ser D 85:528-33; Discussion. 533-4 D '63
Deformation and fracture of aluminium and aged aluminium-four per cent copper foils. P. J. E. Forsyth and R. N. Wilson. bibliog il Inst Metals J 92:82-8 '63-64
Edge cracking and lamination in hot and cold rolling of aluminum; international discussion, London. Light Metal Age 22:4+ Je '64
Fracture of aluminum alloys wetted with zinc amalgam. Light Metal Age 22:8 Je '64
Geometrical effects in strain cycled aluminum. M. H. Raymond and L. F. Coffin. bibliog il diags A S M E Trans ser D 85:548-54 D '63
Identification of oxide defects in high-strength aluminium alloy plate. A. J. Bryant and A. N. Turner. il Inst Metals J 92:253-4 '63-64

Finishing

Designation systems for aluminum finishes. Plating 51:922-5 S '64
Electropolishing aluminum. B. A. Shenoi and others. bibliog Metal Finishing 61:50-4 D '63
Electropolishing of aluminum. B. A. Shenoi and K. S. Indira. bibliog il Metal Finishing 61:52-7 N '63
Finishing of aluminum in Europe. F. C. Porter. il Metal Prog 85:95-7+ Ja '64
GE electroforms aluminum; gets two microinch finish. il Steel 155:33 Jl 13 '64

ALUMINUM—Finishing—*Continued*

Properties of materials; mechanical finishes for aluminum, copper and stainless steel; tables. Materials in Design Eng 60:399 Mid-O '64

Rotary embossing prepainted coil. H. Lewis. il Mod Metals 20:32+ Je '64

Tin becomes new middle man for plating on aluminum. il Iron Age 194:78-9 Ag 13 '64

Vibratory finisher. il diag Mod Metals 20:42+ F '64

When and how to select finishes for aluminum. R. V. Vanden Berg. il Product Eng 35:65-80 F 3 '64

Gas content

Casting high quality aluminum rolling ingot. il Mod Metals 20:52+ Mr '64

Hydrogen content

Secondary hydrogen porosity in aluminium. D. E. J. Talbot and D. A. Granger. bibliog il Inst Metals J 92:290-7 '63-64

Joining to steel, etc.

Arc spot welds join aluminum to hosts of other metals. il Iron Age 192:80-1 N 21 '63

Process permits welding aluminum to other metals. il Mod Metals 19:82-3 N '63

Spotwelding aluminum to dissimilar metals. il Light Metal Age 22:19 F '64

Welding joins aluminum to other metals easily. il Electronics 36:56-7 N 22 '63

Metallography

Capacitance and microstructure of etched aluminum foils. R. Bakish and R. Kornhaas. il diags Materials Res & Stand 3:640-3 Ag '63; Discussion. 4:301-2 Je '64

Competition between recrystallization and polygonization during annealing of cold work in aluminum single crystals. H. P. Leighly, jr. and others. bibliog il Inst Metals J 92:363-6 '63-64

Corrosion resistance in sea water of medium strength aluminum bronzes. B. Upton. il Corrosion 19:204-9 Je '63; Discussion. 19:429-30 D '63

Deformation and fracture of aluminium and aged aluminium-four per cent copper foils. P. J. E. Forsyth and R. N. Wilson. bibliog Inst Metals J 92:82-8 '63-64

Fibre textures of aluminium alloy extruded rod and plate. E. Hirosawa. bibliog il diags Inst Metals J 92:78-81 '63-64

Low temperature diffusion bonding of aluminum alloys. I. M. Barta. il diag Welding J 43:sup241-7 Je '64

Nature and particle size of intermetallics in two types of aluminium alloy. P. M. Slate and M. Whitaker. bibliog il diag Inst Metals J 92:70-7 '63-64

Relationship between grain size and intergranular cavitation in an aluminum-1¼ per cent manganese alloy and 70:30 α-brass. D. M. R. Taplin and V. N. Whittaker. bibliog il Inst Metals J 92:426-8 '63-64

Secondary hydrogen porosity in aluminium. D. E. J. Talbot and D. A. Granger. bibliog il Inst Metals J 92:290-7 '63-64

Substructure formation in aluminium, copper, and nickel during deformation at high temperatures and high strain rates. H. Ormerod and W. J. M. Tegart. il Inst Metals J 92:297-9 '63-64

Paint

To mix aluminum paints for more brightness. Ind Finishing 40:122-3 Ap '64

Prices

Alcoa ok's aluminum ingot hike. J. Belzer. il Iron Age 193:104-5 Mr 12 '64

Kaiser fails in try to hike aluminum price. Chem & Eng N 41:29 D 16 '63

Price problems plague aluminum industry. il Chem & Eng N 42:55-6 Jl 13 '64

Protection

Aluminum strip paint line. Light Metal Age 22:12 Je '64

Anodised aluminium windows for two new London buildings. il Metallurgia 69:258 Je '64

Anodized aluminum trims its cost. il Iron Age 194:62-3 O 1 '64

Anodizing goes automatic. il Am Mach 108:88-9 O 12 '64

Anodizing in practice, recent advances; abstract. F. C. Porter. Metal Prog 85:182+ Ap '64

Bridgeport brass co.'s new coil coating line paints aluminum sheet. G. C. Close. il Ind Finishing 40:40-2+ My '64

Bright dip phosphoric acid recovery system. W. E. Rushton. flow sheets Plating 51:693-4 Jl '64

Characteristics of coloured weather resistant coatings for aluminium. F. G. Abbott. il Metallurgia 69:167-72 Ap '64

Coil coaters boost sales; eye new tonnage markets. Mod Metals 19:62-3 D '63

Conversion coats form quickly. J. E. Sandford. il diag Iron Age 194:58-9 Ag 6 '64

Cooling anodizing baths. C. S. Cave. il Metal Prog 85:120 My '64

Design and operating pointers in sulfuric acid anodizing. G. R. Darrow. il diags Plating 51:212-18 Mr '64

Designation systems for aluminum finishes. Plating 51:922-5 S '64

Dip coating 16-ft. long aluminum extrusions; question and answers. Ind Finishing 40:102 S; 84+ O '64

Double-coat line finishes aluminum sheet. il Mod Metals 20:36 My '64

Double-coat paint line; properties of precoated aluminum broadened. W. Lubars. il Metal Finishing 61:72-3 N '63

Fabricator hits coil coating jackpot; Wolverine aluminum corp. il Mod Metals 20:68+ Je '64

Finishing of aluminum in Europe. F. C. Porter. il Metal Prog 85:95-7+ Ja '64

Greece gets its first coil coater; Security Aluminum's new plant in Athens. il Mod Metals 20:74 Je '64

Hard, low-friction surface extends use of aluminum. il Mach 70:126 Jl '64

How to form and fabricate prepainted aluminum. H. E. Wegner. il diags Materials in Design Eng 59:92-6 Ja '64

How to hardcoat aluminum. R. R. Greiner. il diags Am Mach 108:76-8 S 28 '64

How to specify and fabricate prepainted aluminum sheet. H. E. Wegner. il Mod Metals 20:36+ Je '64

New quality control test for anodized aluminum. E. T. Englehart and G. Sowinski, jr. il diags Mod Metals 20:56+ Ag '64

New test evaluates quality of anodized aluminum. E. T. Englehart and G. Sowinski, jr. diag S A E J 72:51-2 F '64

Painted aluminum windows. A. G. Rosenthal. il Mod Metals 20:44+ Jl '64

Performance of anodised aluminium and choice of treatment method; abstract and discussion. B. A. Scott and E. W. Skerrey. Chem & Ind p 157-8 Ja 25 '64

Performance of clear lacquers on aluminum surfaces; abstract. R. D. Guminski and F. M. P. Meredith. Metal Prog 86:196 S '64

Preanodized aluminum now $1 million industry. il Steel 155:106+ N 2 '64

Special silicone treatments of anodized aluminum surfaces. Y. Tsuji. bibliog Metal Finishing 62:53-5 Jl '64

Swimming pools so durable you can let them freeze in winter for ice skating rinks are made of Tedlar coated aluminum. il Mod Metals 20:64+ Je '64

Teflon seals aluminum hardcoat. J. E. Sandford. il Iron Age 193:82-3 Mr 19 '64

Tonnage markets for anodized coil. il Mod Metals 20:27-8+ S '64

Travel trailers sheathed in anodized aluminum. il Mod Metals 20:80 Mr '64

Twelve year evaluation of painted aluminium buildings. W. H. Ailor. il diags Metallurgia 68:151-4 O '63

When and how to select finishes for aluminum. R. V. Vanden Berg. il Product Eng 35:65-80 F 3 '64

Why paint failures on aluminum siding; question and answer. Ind Finishing 40:100+ S '64

Standards

British standards for aluminium and its alloys. 1963 revisions. E. Elliot. Metallurgia 68:197-206 N '63

Strength

Effect of cooling rate on susceptibility of high strength aluminum alloys to intergranular corrosion; abstract. S. J. Ketcham and W. Beck. Metal Prog 84:178+ N '63

Fatigue crack propagation in sheet specimens. H. Grover. diags Materials Res & Stand 4:430-2 Ag '64

Heat treatment and properties of 74S aluminum. I. Taylor. il Metal Prog 84:96-100 D '63

New high strength aluminum alloy is tough, weldable. Materials in Design Eng 59:88-9 F '64

Peening increases fatigue strength of welded aluminum. G. E. Nordmark. il diag Metal Prog 84:101-3 N '63

ALUMINUM—*Continued*

Testing

Chip formation in high-speed cutting of copper and aluminum. K. J. Trigger and B. F. von Turkovich. il diag A S M E Trans ser B 85:365-73 N '63

Effect of strain rate and temperature on the resistance to deformation of aluminum, two aluminum alloys, and lead. J. A. Bailey and A. R. E. Singer. Inst Metals J 92:404-8 '63-64

New instrument measures cross-sectional areas. il Mod Metals 20:90 Je '64

Uses

Air conditioning and refrigeration; growing market for aluminum. il Mod Metals 20:50+ My '64

Airborne earthmover; Universal engineer tractor. il Mod Metals 19:72 N '63

Alcoa's 1964 student design merit awards. il Product Eng 35:84-5 Je 22 '64

All aluminum body Cobra sports car proves lethal in racing circuit. il Mod Metals 20:58 F '64

Aluminum adds mobility in military applications; illustrations with text. Light Metal Age 22:12-13 Ap '64

Aluminum and its alloys in the CPI. J. C. Kuli. il Chem Eng Prog 60:45-8 My '64

Aluminum automobile engine; let's take another look. J. M. Smith. bibliog il diags S A E J 72:90-5 O '64

Aluminum design awards. il Mech Eng 86:60-1 F '64

Aluminum dump trucks bring operating economies. il Mod Metals 20:82 S '64

Aluminum extends its range of usage. G. F. Drumm. il diag Can Chem Process 48:101-4 S '64

Aluminum floating deck. il Light Metal Age 22:24 Ag '64

Aluminum gains again in autos. H. F. Jones. il Iron Age 193:35 Ja 23 '64

Aluminum in heavy duty truck bodies. il Light Metal Age 22:9-10 Je '64

Aluminium in Stalwart amphibious vehicle. il Engineer 217:403 F 28 '64

Aluminum in the '64 models; still 70 pounds per car despite loss of engine business. A. G. Rosenthal. il Mod Metals 19:30-2+ D '63

Aluminum in trucks. il Light Metal Age 21:25 D '63

Aluminum inner shells for freezers handled in new finishing system. H. D. White. il Metal Finishing 62:65-7 Ap '64

Aluminium; its applications in the chemical and food industries; tr. by W. C. E. Barnes. P. Junière and M. Sigwalt. Review, by E. W. Skerrey. Chem & Ind p 1724-6 O 10 '64

Aluminium lifting barriers for road traffic control. il Engineering 197:20 Ja 3 '64

Aluminum marks time in booming housewares industry. il Mod Metals 20:60+ Mr '64

Aluminum; new inroads in auto market? il Steel 154:83-4 Ja 20 '64

Aluminum skins make skis top performers. il Mod Metals 20:56 Je '64

Aluminium submarine to explore ocean depths. il Engineering 198:378 S 18 '64

Aluminum truck bodies in mining operations. R. A. Esmonde. il map diag Can Min & Met Bul 57:263-8 Mr '64

Aluminum truck bodies; light answer to a weighty problem. R. A. Esmonde. il diag Rock Prod 67:64-7+ O '64

Aluminum truck body use in mining industry to increase rapidly. il diags Welding Eng 49:46-7 Jl '64

Aluminum use in autos. il Light Metal Age 22:10-11 F '64

Aluminum zoo for playground roughriders. il Pub Works 94:168 D '63

Aluminum's boiling pot of ideas. C. L. Kobrin. il Iron Age 193:93-100 Je 18 '64

Anodizing in practice, recent advances; abstract. F. C. Porter. Metal Prog 85:182+ Ap '64

Casual furniture firms face problems amidst prosperity. A. G. Rosenthal. il Mod Metals 19:23+ N '63

Cross aluminium cylinder. R. C. Cross. il diags Automobile Eng 54:135-9, 190-1 Ap-My '64

Design students create promising new aluminum products. il Mod Metals 20:41-2+ S '64

Do lightweight truck bodies pay? Eng & Min J 164:124 D '63

Extrusions make a portable airstrip. il Mod Metals 19:38 D '63

Forming 22′ aluminum panels. il Light Metal Age 21:5 O '63

Future of the aluminum engine. G. E. Herrman. Automotive Ind 130:62-3 Ap 1 '64

Home improvement show; smaller turnout was no reflection on expectations of record sales. F. Shiras. il Mod Metals 20:46+ Ap '64

Lighting fixture and welding head win 1963 Alcoa industrial design awards. il Mod Metals 19:72 D '63

Metallized agents trim shooting costs. Coal Age 69:124+ Je '64

Metallized blasting agents based on ammonium nitrate and aluminum chips. il Min Cong J 50:115 Je '64

Not-so mobile homes. A. G. Rosenthal. il diags Mod Metals 20:32+ F '64

Producers push for major new aluminum applications in autos. il Mod Metals 20:46+ F '64

Reservoir covered with 20 tons of aluminum sheet. il Mod Metals 20:86 F '64

Sparlight extruded aluminium masts. il diags Engineering 196:626-7 N 15 '63

Spherical aircraft bearings. R. B. Ziccarelli. il Materials in Design Eng 59:132 Ap '64

Student designers develop creative ideas in aluminum. il Mod Metals 19:56-7 Ja '64

Volatile liquids protected by floating aluminum decks. diag Mod Metals 20:48 S '64

What about aluminum bearings? R. L. Hatscheck. il Mill & Factory 73:58-60 D '63

Welding

Aluminum pipe Tig welded and bundled. il Welding Eng 49:58 S '64

Aluminum truck body use in mining industry to increase rapidly. il diags Welding Eng 49:46-7 Jl '64

Arc spot welds join aluminum to hosts of other metals. il Iron Age 192:80-1 N 21 '63

Cheap and fast aluminium spot welding. il Engineering 196:764 D 13 '63

First aluminum sub to explore ocean three miles down. il Welding Eng 49:44-5 S '64

Friction welding of high strength structural aluminum alloys. T. H. Hazlett and K. K. Gupta. bibliog il diag Welding J 42:sup490-4 N '63

Gas metal-arc welding used to fabricate aluminum church steeple. il Welding J 43:690-1 Ag '64

Giant aluminum crane has a delicate touch. il Welding Eng 49:49-50 F '64

How to repair aluminum bodies. Welding Eng 49:60+ Mr '64

How to weld aluminum diecastings. il Iron Age 194:66-7 O 15 '64

Improvement of gas metal-arc spot welds. S. A. Agnew and W. N. Canulette. il diags Welding J 43:sup 184-92 Ap '64

Introducing two weldable aluminum alloys; 74S and C74S. I. Taylor. il Metal Prog 84:74-7 N; 96-100 D '63

Largest welded aluminum project nears completion. il Welding Eng 49:106-7 Ap '64

Low magnesium 5183 filler metal alloy speeds welding of world's largest aluminum crane. il Welding J 43:608-9 Jl '64

New aluminum Mig spot welding technique. il Welding Eng 49:72 My '64

New high strength aluminum alloy is tough, weldable. Materials in Design Eng 59:88-9 F '64

New stud-weld improves pan-handle design. il Metallurgia 69:32 Ja '64

Peening increases fatigue strength of welded aluminum. G. E. Nordmark. il diag Metal Prog 84:101-3 N '63

Process permits welding aluminum to other metals. il Mod Metals 19:82-3 N '63

Production of aluminum welding wire. J. C. Nickels. il Wire & Wire Prod 39:541-4+ Ap '64

Proper pre-weld practice produces better aluminum cryogenic bellows. R. H. Raymond. il Mod Metals 19:46+ N '63

Properties of X7000-series aluminum alloy weldments. A. T. D'Annessa and R. E. Friend. bibliog il Welding J 43:sup337-43 Ag '64

Shear strength of aluminum welds; single fillet-inert gas processes; engineering data sheet. diags Welding Eng 49:63 Ag '64

Spotwelding aluminum to dissimilar metals. il Light Metal Age 22:19 F '64

Stud welder cuts costs on aluminum facing. il Welding Eng 49:85 N '64

Ultrasonic welding. il diag Machine Design 36:130-7 Ap 9 '64

Unique setup welds aluminum converter parts; Buick motor div., Flint, Mich. H. Chase. il Automotive Ind 131:58-9 Ag 1 '64

ALUMINUM—Welding—*Continued*
Unit shears, welds, planishes coiled aluminum strips. il Welding Eng 49:80 S '64
Welded aluminum steeple subs for concrete. il Welding Eng 49:86 Jl '64
Welding aluminum diecastings. il Foundry 92:127-8 O '64

ALUMINUM, Cellular
Foamed aluminum refractory takes 3500 F. Materials in Design Eng 60:113 Jl '64

ALUMINUM, Clad
Aluminium cladding for Persian hangar. il Engineering 198:260 Ag 28 '64

ALUMINUM, Cold treatment of
Cryogenics squelch quench distortion. E. Dullberg. il S A E J 72:86-8 Ag '64

ALUMINUM, Cold working of
Competition between recrystallization and polygonization during annealing of cold work in aluminum single crystals. H. P. Leighly, jr. and others. bibliog il Inst Metals J 92:363-6 '63-64

ALUMINUM, Molten
Aluminum alloy fluxes. L. M. Elijah. il Foundry 92:88-90+ Mr '64
Aluminium melting; use of the reverberatory furnace. il diags Metallurgia 68:279-80 D '63
Olin conductors' method of EC redraw rod production. T. E. Colston and C. M. Fredrickson. il diags Wire & Wire Prod 39:67-8+ Ja '64
Siphon transfers molten aluminum; system prevents oxidation during semicontinuous casting. il diag Iron Age 193:68-9 Mr 5 '64

ALUMINUM, Powdered
Alum-A-Lead; new compound of aluminum powder and liquid resin produces an improved solder. il Light Metal Age 22:5 F '64
Aluminum made into bearings by new powder process. C. L. Kobrin. il Iron Age 193:135-6 Ap 30 '64
Aluminum sheet from finely divided particles. T. S. Daugherty. il diag J Metals 16:827-30 O '64
New methods of obtaining fuel cell electrodes; aluminum-nickel mixed powder hydrogen electrode. A. R. Despić and others. bibliog il Electrochem Soc J 111:1109-12 O '64
Nonacoustic combustion pulsations of ammonium perchlorate containing aluminum. Y. H. Inami and H. Shanfield. AIAA J 2:1314-18 Jl '64
Successful aluminum slurry blasts paved way for Dow's explosives algebra. C. H. Grant. il diags Eng & Min J 165:98-102 Ag '64

Therapeutic use
Prophylaxis of silicosis by aluminum; preliminary report on experimental investigations. W. T. Ulmer. bibliog il diag Ind Med 33:52-6 F '64

ALUMINUM, Stainless clad
Working ss-clad aluminum sheet. W. M. Rogerson and J. K. Wareham. diags Am Mach/Metalworking Manuf 107:80-4 N 25 '63

ALUMINUM, Strip
Air cushion annealing furnace produces fine grained aluminum sheet. diag Mod Metals 19:42-3 N '63
Aluminum sheet from finely divided particles. T. S. Daugherty. il diag J Metals 16:827-30 O '64
Aluminum strip paint line. Light Metal Age 22:12 Je '64
Anodized aluminum trims its cost. il Iron Age 194:62-3 O 1 '64
Automation of pre-paint treatment in coil coating lines. diag Mod Metals 20:76 Je '64
Bridgeport brass co.'s new coil coating line paints aluminum sheet. G. C. Close. il Ind Finishing 40:40-2+ My '64
Coated coil business booming. Mod Metals 20:27-8+ Je '64
Coil coaters boost sales; eye new tonnage markets. Mod Metals 19:62-3 D '63
Continuous casting of aluminum may pick up. Steel 154:132+ Mr 30 '64
Continuous process for heat treating aluminum strip. Light Metal Age 21:20 D '63
Conversion coats form quickly. J. E. Sandford. il diag Iron Age 194:58-9 Ag 6 '64
Double-coat line finishes aluminum sheet. il Mod Metals 20:36 My '64
Double-coat paint line; properties of precoated aluminum broadened. W. Lubars. il Metal Finishing 61:72-3 N '63
Fabricator hits coil coating jackpot; Wolverine aluminum corp. il Mod Metals 20:68+ Je '64
Greece gets its first coil coater; Security Aluminum's new plant in Athens. il Mod Metals 20:74 Je 64
High-speed continuous casting boosts sheet production. il Mod Metals 20:60 F '64
How to specify and fabricate prepainted aluminum sheet. H. E. Wegner. il Mod Metals 20:36+ Je '64
Hunter process casts wide reroll sheet. G. Deitz. il diags Mod Metals 20:41-2+ Mr '64
New line gives coiled strip mechanical, organic finishes. F. D. Shiras. il Mod Metals 20:58+ Je '64
Preanodized aluminum now $1 million industry. il Steel 155:106+ N 2 '64
Rotary embossing prepainted coil. H. Lewis. il Mod Metals 20:32+ Je '64
Tonnage markets for anodized coil. il Mod Metals 20:27-8+ S '64

ALUMINUM, Structural
Aluminaut may open wealth of seas. Steel 155:28 S 7 '64
Aluminaut progress report. Mech Eng 86:52-3 My '64
Aluminum at the World's fair. il Mod Metals 20:38+ Ag '64
Aluminium cladding for Persian hangar. il Engineering 198:260 Ag 28 '64
Aluminum hospital of tomorrow offers economical care. il Mod Metals 19:90 N '63
Aluminum in structural engineering; symposium. il diags Mod Metals 19:26-34 Jl; 41+ Ag; 60+ S; 42+ O; 60+ N '63; 47-8+ Ja; 20:56+ Jl '64
Aluminum room protects spacecraft. il Mod Metals 20:63 Ag '64
Aluminum use in the fertilizer industry. B. H. Wyma and R. H. Wagner. bibliog il Chem Eng Prog 60:55-62 My '64
Aluminum white room protects Gemini space capsule from contamination. il Light Metal Age 22:27 Ag '64
British home of tomorrow. il Mod Metals 20:38 Ap '64
Colour processes for architectural aluminium. il Engineering 196:624 N 15 '63
Fabrication of aluminum balsa. il Light Metal Age 21:5 D '63
Friction welding of high strength structural aluminum alloys. T. H. Hazlett and K. K. Gupta. bibliog il diag Welding J 42:sup490-4 N '63
Home building aluminum's biggest market gets bigger. il Mod Metals 19:62-4+ Ja '64
Home improvement show; smaller turnout was no reflection on expectations of record sales. F. Shiras. il Mod Metals 20:46+ Ap '64
Noninsulated metal siding provides saving of more than $80,000. L. V. Gibney. diags Power Eng 68:48-9 O '64
Optimized aluminum structures save on maintenance; with nomographs. P. T. Coffin. Elec World 161:56-9+ Ap 6 '64
Prefab cottages made of prefinished aluminum. il Mod Metals 19:80 D '63
Predictability of fatigue in aluminum structural design. il Light Metal Age 22:17 F '64
Putting the pressure on aluminum. R. A. Coccola. il Am Mach 108:104-5 My 11 '64
Simple joint tests predict performance of structures. il Steel 153:109 N 25 '63
Skillful metalworking team launches research sub. E. E. Ellwood. il Iron Age 194:58-9 Jl 9 '64
Small aluminum homes for arctic, tropics. il Mod Metals 20:84 Je '64
Space age structure to use huge amount of aluminum. il Mod Metals 20:36 Ag '64
Twelve year evaluation of painted aluminium buildings. W. H. Ailor. il diags Metallurgia 68:151-4 O '63
Unique use of extrusions wins architectural award. il Mod Metals 20:70 Jl '64
Welded aluminum steeple subs for concrete. il Welding Eng 49:86 Jl '64
What is available in structural aluminum. J. R. Stemler and J. W. Clark. il diags Civil Eng 34:44-8 Ap '64
World's largest aluminum semi-gantry crane. il Mod Metals 20:82 Je '64
See also
Domes, Aluminum
Walls, Aluminum

Testing
New aluminum X-braced 345-kv H-frame carries severe test loadings. il Elec World 160:30-1 D 16 '63

ALUMINUM alloys
Aluminum alloy fluxes. L. M. Elijah. il Foundry 92:88-90+ Mr '64
Aluminum alloys for cryogenic service. J. E. Campbell. bibliog Materials Res & Stand 4:540-8 O '64

ALUMINUM alloys—*Continued*

Aluminum alloys; new uses and fabrication techniques. B. H. Wyma. bibliog il Ind & Eng Chem 55:53-9 D '63
Aluminum alloys now more versatile. G. F. Drumm. il Can Chem Process 48:69-70+ Ag '64
Aluminum alloys ok for Mach 2.5. E. H. Spuhler and others. S A E J 71:42-4 D '63
Aluminium and its alloys in 1963. E. Elliott. bibliog il Metallurgia 69:65-73, 115-25 F-Mr '64
Aluminum's boiling pot of ideas. C. L. Kobrin. il Iron Age 193:93-100 Je 18 '64
Artificial pits for quantitative studies of corrosion of aluminum alloys in natural waters. G. A. Murray. bibliog il diags Corrosion 20:329-34 O '64
Beryllium-aluminum alloys, promising new structural metals. R. W. Fenn, jr. and others. il Materials in Design Eng 60:103-5 S '64
Beryllium teams up with aluminum; Lockalloy. Iron Age 194:90 S 17 '64
British standards for aluminium and its alloys, 1963 revisions. E. Elliott. Metallurgia 68:197-206 N '63
Carbothermic smelting of aluminum; an alternative to the traditional Bayer-Hall processes? P. T. Stroup. bibliog diag J Metals 16:703-8 S '64
Changes in the influence of atmospheric humidity during fatigue of an aluminum alloy. J. A. Bennett. bibliog il diags J Res Nat Bur Stand 68C:91-100 Ap '64
Chemical resistance of refractories to Al and Al-Mg alloys. J. G. Lindsay and others. bibliog il Am Cer Soc J 47:90-4 F '64
Comparative behaviour of two aluminum alloys and mild steel in saline river water in a Nigerian river. L. A. Harasimowicz and F. F. Booth. il Metallurgia 69:59-64 F '64
Constitution of solid tin-rich aluminium-cadmium-tin alloys. A. J. Perry and H. J. Bray. Inst Metals J 92:152 '63-64
Corrosion fatigue of aluminium alloys as affected by metallic coatings and impressed currents; abstract and discussion. J. A. Whittaker and H. King. Chem & Ind p979-80 Je 6 '64
Corrosion of aluminum alloys in chlor-alkali environments. L. W. Gleekman. il diags Chem Eng Prog 60:49-54 My '64
Deformation and fracture of aluminium and aged aluminium-four per cent copper foils. P. J. E. Forsyth and R. N. Wilson. bibliog il Inst Metals J 92:82-8 '63-64
Diffusion in the β phase of the copper-aluminium system. M. K. Asundi and D. R. F. West. il Inst Metals J 92:428-30 '63-64
Ductile beryllium-aluminum alloys broaden potential uses. R. W. Fenn, jr. and D. D. Crooks. Space/Aeronautics 42:73+ O '64
Effect of magnesium on properties of variant 356-T6 aluminum alloys. W. A. Bailey. bibliog il diags Foundry 92:54-60 My '64
Effect of residual stresses on the stress-corrosion properties of the aluminium alloy D.T.D. 5054. G. A. Hawkes. il diags Inst Metals J 92:419-22 '63-64
Effect of sodium on the spectrographic determination of silicon in aluminium-silicon alloys. F. W. Smith and S. J. Williams. Metallurgia 70:45-7 Jl '64
Effect of vacancy distributions caused by elastic interaction on the growth of Guinier-Preston zones. W. B. Grupen and G. Sines. bibliog diag J Ap Phys 35:3001-8 O '64
Electrochemical behavior of aluminum alloys susceptible to intergranular corrosion; electrode kinetics of oxide-covered aluminum. F. H. Haynie and S. J. Ketcham. bibliog diags Corrosion 19:403-7 D '63
Electrodeposition of iron from aqueous solutions onto an aluminum alloy. E. H. Cook and F. L. McGeary. il Corrosion 20:111-14 Ap '64
Factors affecting the modification of the aluminium-silicon eutectic. V. D. Davies and J. M. West. bibliog il diags Inst Metals J 92:175-80 '63-64
Fibre textures of aluminium alloy extruded rod and plate. E. Hirosawa. bibliog il diags Inst Metals J 92:78-81 '63-64
Finding a skin for the Concorde. il Steel 155:52-4 O 5 '64
Friction welding of high strength structural aluminum alloys. T. H. Hazlett and K. K. Gupta. bibliog il diag Welding J 42:sup490-4 N '63
Fundamentals of modification in the aluminium-silicon system. C. B. Kim and R. W. Heine. bibliog il Inst Metals J 92:367-76 '63-64
High-temperature X-ray diffractometer study of the zinc-aluminium system in the region 40-75 wt.-per cent zinc. G. R. Goldak and J. G. Parr. bibliog Inst Metals J 92:230-3 '63-64
High-tin aluminum alloy bearing material displays exceptional physical properties. Automotive Ind 131:96 Jl 15 '64
Highly workable new alloy of beryllium + aluminum; Lockalloy. il Mod Metals 20:72-3 S '64
How to hardcoat aluminum. R. R. Greiner. il diags Am Mach 108:76-8 S 28 '64
Identification of oxide defects in high-strength aluminium alloy plate. A. J. Bryant and A. N. Turner. il Inst Metals J 92:253-4 '63-64
Influence of small additions of silver on the ageing of aluminium alloys; further observations on Al-Zn-Mg alloys. J. T. Vietz and others. bibliog il diags Inst Metals J 92:327-33 '63-64
Influence of small additions of sodium on the surface tension of aluminium and aluminium-silicon alloys. V. D. Davies and J. M. West. bibliog diag Inst Metals J 92:208-10 '63-64
Introducing two weldable aluminum alloys; 74S and C74S. I. Taylor. il Metal Prog 84:74-7 N; 96-100 D '63
Large aluminium alloy ring forgings. il Engineering 196:521 O 25 '63
Low temperature diffusion bonding of aluminum alloys. I. M. Barta. il diag Welding J 43:sup241-7 Je '64
Metal selector; aluminum casting alloys. Steel 155:sup S28-9 O 12 '64
Metal selector; aluminum wrought alloys. Steel 155:sup S26-7 O 12 '64
More data on new aluminum alloys. E. J. Holcomb. il diag Materials in Design Eng 58:81-4 D '63
More machinable steels, copper and aluminum alloys; round table discussion. Metal Prog 86:108-17 O '64
Nature and particle size of intermetallics in two types of aluminium alloy. P. M. Slate and M. Whitaker. bibliog il diag Inst Metals J 92:70-7 '63-64
New aluminum extrusion alloy for porcelain enameling. F. L. Church. il Mod Metals 20:38+ My '64
New high strength aluminum alloy is tough, weldable. Materials in Design Eng 59:88-9 F '64
New structural laminate; polyethylene core, aluminum skins. K. H. Pohl and A. T. Spencer. bibliog il diags Mod Plastics 41:119-24 Mr '64
Polarographic determination of lead in aluminium alloys containing molybdenum or up to 5 per cent of iron (iron hardeners). W. Stross and J. Clark. Metallurgia 68:191-2 O '63
Properties of materials; aluminum and its alloys; wrought and cast; tables. Materials in Design Eng 60:124-33 Mid-O '64
Properties of X7000-series aluminum alloy weldments. A. T. D'Annessa and R. E. Friend. bibliog il Welding J 43:sup337-43 Ag '64
Quench-aging makes headway with 6061 aluminum. O. R. Singleton, jr. Iron Age 192:94-5 D 12 '63
Rapid technique for preparing thin foils for electron microscopy from bulk samples of aluminium alloys. G. Blankenburgs and M. J. Wheeler. il diag Inst Metals J 92:337-8 '63-64
Recommended practice for preparation of and electroplating on aluminum alloys. Plating 51:559-64 Je '64
Relationship between grain size and intergranular cavitation in an aluminium-1¼ per cent manganese alloy and 70:30 α-brass. D. M. R. Taplin and V. N. Whittaker. bibliog il Inst Metals J 92:426-8 '63-64
Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64
Some observations on the kinetics of ageing reactions during creep of aluminium alloys. V. B. Nileshwar. bibliog il diags Inst Metal J 92:241-5 '63-64
Spectrochemical standards for aluminum alloys. G. P. Koch and others. il Anal Chem 36:1957-61 S '64
Structure and tensile properties of aluminum alloys. A. K. Watkins and V. Kondic. bibliog il diags Foundry 91:58-63 N '63
Structure of a phase formed in copper-aluminium alloys at low temperatures. J. S. L. Leach. bibliog Inst Metals J 92:93-4 '63-64

ALUMINUM alloys—*Continued*

Tensile strength of a silica fibre reinforced aluminium alloy. D. Cratchley and A. A. Baker. bibliog il diags Metallurgia 69:153-9 Ap '64

Tin becomes new middle man for plating on aluminum. il Iron Age 194:78-9 Ag 13 '64

Up-dating data on thermal conductivity of wrought aluminum alloys; data sheet. Mach 70:139-40 Ag '64

X7002; a new high strength weldable aluminum alloy. A. I. Kemppinen and others. il Metal Prog 86:100-3 Jl '64

Yield effect in a zinc-aluminium-cadmium alloy. J. A. Sabato and H. Destaillatz. diags Inst Metals J 92:252 '63-64

Zinc-aluminum alloys. O. R. Singleton, jr. il Metal Prog 84:124 N '63

See also

Aluminum, Structural
Aluminum bronze
Iron alloys—Aluminum alloys

Analysis

Volumetric determination of magnesium in aluminum alloys. A. Smart. Metallurgia 69: 245-7 My '64

Testing

Development of strong aluminium alloys. W. M. Doyle. il Aircraft Eng 36:214-17 Jl '64

Effect of proof stress on the notched fatigue strength of the aluminum alloy HE 15. P. G. Forrest. Roy Aeronautical Soc J 67: 596-8 S '63; Discussion. E. R. Welbourne. 67:798-9 D '63

Effect of strain rate and temperature on the resistance to deformation of aluminium, two aluminium alloys, and lead. J. A. Bailey and A. R. E. Singer. Inst Metals J 92:404-8 '63-64

Effects of rate of cycling on the unusual fatigue behaviour of two high-strength aluminium alloys. J. M. Finney. bibliog il Inst Metals J 92:380-2 '63-64

Kahn-type tear tests and crack toughness of aluminum alloy sheet. J. G. Kaufman and A. H. Knoll. il diags Materials Res & Stand 4:151-5 Ap '64

Shear tests of 4340 steel, 6Al-6V-2Sn titanium, and 7075-T6 aluminum. A. A. Iannelli. diags Materials Res & Stand 4: 207-10 My '64

Three year tidewater corrosion of aluminum alloys. W. H. Ailor, jr. and F. M. Reinhart. bibliog il Naval Eng J 76:443-9 Je '64

ALUMINUM alloys, Heat treatment of

Heat treatment and properties of 74S aluminum. I. Taylor. il Metal Prog 84:96-100 D '63

ALUMINUM barges. See Barges, Aluminum

ALUMINUM boats. See Boats, Aluminum

ALUMINUM borides

Presence of carbon in aluminum borides. V. I. Matkovich and others. bibliog Am Chem Soc J 86:2337-40 Je 20 '64

ALUMINUM bronze

Corrosion resistance in sea water of medium strength aluminum bronzes. B. Upton. il Corrosion 19:204-9 Je '63; Discussion. 19: 429-30 D '63

Modified semi-continuous casting processes. G. Trapied. diags Inst Metals J 92:305-11 '63-64

ALUMINUM cans. See Cans, Aluminum

ALUMINUM chloride

Alkylation of benzene with 1-hexene using aluminum chloride-nitroalkane catalysts. H. S. N. Setty and H. W. Prengle, jr. bibliog Ind & Eng Chem Fundamentals 3:300-4 N '64

Alkylbenzenes; dealkylation and fragmentation reactions induced by aluminum chloride-water. R. M. Roberts and others. bibliog Am Chem Soc J 85:3454-8 N 5 '63

Aromatic substitution; ferric chloride and aluminum chloride catalyzed chlorination of benzene, alkylbenzenes, and halobenzenes. G. A. Olah and others. bibliog Am Chem Soc J 86:1055-60 Mr 20 '64

New method of aromatic substitution yielding unusual orientation; amination with N-haloamines catalyzed by aluminum chloride. P. Kovacic and others. bibliog Am Chem Soc J 86:1650-1 Ap 20 '64

ALUMINUM coating

Aluminized steel protects insulation. H. H. Lawson. il Chem Eng 71:94+ Ag 31 '64

Aluminum hot dip coating protects ferrous parts. il Steel 155:103-4 Ag 10 '64

High-temperature alloys need overcoats. E. S. Nichols and others. il S A E J 72:72-3 O '64

How to fabricate aluminized steel. R. G. McDonell. il Tool & Manuf Eng 53:52-6 N '64

Identification of intermetallic layers formed on aluminized steel by means of the electron-probe microanalyser. H. J. Lamb and M. J. Wheeler. il Inst Metals J 92:150-2 '63-64

Infrared radiometer improves wire and cable production. L. C. Whitney. il diag Wire & Wire Prod 39:1619+ O '64

Metallized coatings fight corrosion. A. P. Shephard. il Elec World 161:62-3 My 4 '64

New method for coating copper with aluminum. il Light Metal Age 21:30 D '63

Pure aluminum coatings are uniform and nonporous. J. J. Crosby. il diag Materials in Design Eng 59:108-9 Je '64

Sprayed, molten aluminum or zinc coatings protect steel plate. il Marine Eng/Log 68:90 N '63

Where to use galvanized and aluminum coated steel sheets. K. G. Coburn. il Metal Prog 86:184-5+ O '64

ALUMINUM compounds

Aluminum alkyls to join Ethyl's stable. il Can Chem Process 48:46-9 Ag '64

Internal olefins, organoaluminum compounds give alpha olefins. G. Bruno. Chem & Eng N 42:47-8 Ja 27 '64

Novel synthesis of higher aluminum alkyls. C. M. Starks and others. bibliog Ind & Eng Chem Product Res & Develop 3:19-20 Mr '64

Phenylaluminium hydrides. J. R. Surtees. Chem & Ind p1260 Jl 11 '64

Reaction of triphenylaluminium with benzonitrile. G. K. J. Gibson and D. W. Hughes. Chem & Ind p544 Mr 28 '64

Variation of the internal fields and isomer shifts at the Fe sites in the FeAl series. M. B. Stearns. J Ap Phys 35:1095-6 pt 2 Mr '64

ALUMINUM cutting

Feedback machine trims pistons. R. H. Eshelman. il Iron Age 192:80-1 N 28 '63

How temperature variations affect accuracy when machining aluminum. D. Weisman. Tool & Manuf Eng 52:91-6 F '64

Machining a parabolic curve. H. C. Emerson. il Am Mach 108:57-9 My 25 '64

Power saw cuts aluminum extrusions. il Mod Metals 20:66 Ag '64

Shear cuts hot logs into billets at the extrusion press. il Mod Metals 20:54-5 Ag '64

Trim truck aids siding operation. il Mod Metals 20:66 F '64

ALUMINUM domes. See Domes, Aluminum

ALUMINUM extruders council

Annual meeting, New Orleans, Dec. 2-4. Light Metal Age 21:9-10 D '63

ALUMINUM floors. See Floors, Aluminum

ALUMINUM fluoride

Heat of atomization of aluminum difluoride. T. C. Ehlert and J. L. Margrave. Am Chem Soc J 86:3901 S 20 '64

Now commercial; AlF_3 synthesis from superphosphate byproduct; process flowsheet. F. Weinrotter. il Chem Eng 71:132-4 Ap 27 '64

ALUMINUM foil

Aluminum cuts air-conditioning load. il Textile Ind 127:169+ N '63

Aluminum foil shields aid titanium welding. il Light Metal Age 22:17 Je '64

Capacitance and microstructure of etched aluminum foils. R. Bakish and R. Kornhaas. il diags Materials Res & Stand 3:640-3 Ag '63; Discussion. 4:301-2 Je '64

Deformation and fracture of aluminium and aged aluminium-four per cent copper foils. P. J. E. Forsyth and R. N. Wilson. bibliog il Inst Metals J 92:82-8 '63-64

Enameled-foil transformers offer flexibility. H. W. Book. il Elec World 162:53+ Ag 24 '64

Foil mill features hydro-mechanical design. il Light Metal Age 21:19 D '63

How to lithograph aluminum foil. V. J. Shaw. Inland Ptr/Am Lithogr 153:56 Ag '64

New transformer coils use all-aluminum foil. il Steel 154:33+ Je 15 '64

Packaging of foods in laminate and aluminum-film combination pouches. B. S. Luh and G. de la Hoz. bibliog Food Tech 18:1473-6 S '64

Portion-packs jam in foil. il Food Eng 36:54-5 Ag '4

Rapid technique for preparing thin foils for electron microscopy from bulk samples of aluminium alloys. G. Blankenburgs and M. J. Wheeler. il diag Inst Metals J 92:337-8 '63-64

Silk screen on foil proves successful for car cards. il Inland Ptr/Am Lithogr 153:45 Jl '64

ALUMINUM foil—*Continued*
Testing for foil packaging development. E. Gauldin and Y. M. Brandt. Tappi 47:sup 168A-71A S '64

ALUMINUM founding
Aluminum casting problems solved by fiber refractories. T. R. Tate. il Mod Metals 20:44+ My '64
Aluminum castings keep strength after chem-milling. J. R. Bodkin. il Materials in Design Eng 59:112 Je '64
Aluminum spurs iron founders. H. F. Jones. il Iron Age 194:31 Jl 2 '64
Builds new business from new products. S. T. Barker. il diags Foundry 92:58-61 F '64
Chrysler details diecasting layout. il Steel 155:71-2 Ag 24 '64
Continuous casting of aluminium; symposium. il diags Engineer 217:596-8, 634-8 Mr 27-Ap 3 '64
Control adds strength, ductility to aluminum castings; abstracts. D. N. Williams. il S A E J 72:68-70 F '64; Steel 154:52-3 F 3 '64
Die-cast, one-piece aluminum car doors with an outside skin of steel. il Product Eng 35:50 Ja 20 '64
Effect of magnesium on properties of variant 356-T6 aluminum alloys. W. A. Bailey. bibliog il diags Foundry 92:54-60 My '64
Foundry system features full automation. J. C. Miske. il Foundry 92:104-5+ O '64
From shot to shakeout; a fully automated foundry. il Steel 155:46-8 O 5 '64
Furnace to handle aluminum; question and answer. diags Foundry 92:67-8 F '64
High speed continuous traveling mold casting machine. il Light Metal Age 22:11+ Ap '64
How melting practice affects aluminum casting quality. A. H. Hinton. il Foundry 92:48-51 Jl '64
Influence of die evacuation on aluminum die-casting properties. R. M. Kalish. diags Foundry 92:98-102 Jl '64
Investment casting proves best for magnet arms. il Mod Metals 20:84 S '64
Light metals; AFS congress; abstracts of papers. il Foundry 92:175+ Je '64
Metal selector; aluminum casting alloys. Steel 155:sup S28-9 O 12 '64
New aluminum-ceramic composite. R. R. Palmisano and J. Drager. il Metal Prog 85:113-15 Je '64
New die coat gives better die castings; Glas-Mol. J. Fox. il Light Metal Age 22:14-15 Ap '64
Potential for large aluminum die castings. H. L. Byrne. il Metal Prog 86:197-8+ O '64
Qualco uses gas for precision casting of aluminum. il Gas 40:73-5 My '64
Small electric motor rotors are pressure cast; question and answer. diags Foundry 92:80 My '64
Structure and tensile properties of aluminum alloys. A. K. Watkins and V. Kondic. bibliog il diags Foundry 91:58-63 N '63
Tornado disaster results in improved die-casting production. J. C. Miske. il plans Foundry 92:102-6 F '64
Volkswagen develops mold pouring device. il Foundry 92:23 F '64
Will the aluminum engine come back? G. E. Herrman. il Foundry 92:142-3+ S '64
World's largest impregnator safeguards die-cast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

ALUMINUM freight cars. See Freight cars, Aluminum

ALUMINUM industry and trade
Aluminum, 1963. I. Lipkowitz. Eng & Min J 165:99-102 F '64
Aluminum producers seek a fair shake in tariffs. Mod Metals 20:56+ Mr '64
Aluminum sales up, earnings off in first nine months. Mod Metals 19:91 N '63
Foreign markets for aluminum extrusions. J. Logan. Light Metal Age 21:15-16+ D '63
Man of the year; General Extrusions' Fred Schuler. il diags Mod Metals 19:31-2+ Ja '64
Seventh aluminum producer to triple primary capacity; Conalco. il Mod Metals 19:34+ N '63
State of the light metals industry, 1963. G. W. Streepey. il Min Cong J 50:99-102 F '64
Survey replies forecast 17 per cent gain in aluminum use. Mod Metals 19:58+ Ja '64

History
Anniversaries in aluminium. M. Schofield. Metallurgia 68:256-8 D '63

Statistics
Extrusion users report. Mod Metals 20:38+ Jl '64

Australia
Aluminum boom down under. il map Mod Metals 19:68+ N '63
Aluminum in Australia. il map Light Metal Age 21:6-7+ D '63
Australia aluminum. Light Metal Age 22:10 Ap '64
Growth seen for bauxite, alumina and metal. il map Min Eng 16:111-16 O '64
Producers announce joint alumina plant in Australia. Mod Metals 19:74 D '63

China
Aluminum in red China. il Light Metal Age 22:10-11 Ag '64

Europe
Finishing of aluminum in Europe. F. C. Porter. il Metal Prog 85:95-7+ Ja '64

France
French aluminum industry. il Light Metal Age 22:6-8+ F '64

Great Britain
Aluminium Federation's new offices. il Metallurgia 69:133 Mr '64
Enlarged services and new premises for G. W. aluminium co. il Metallurgia 69:181-2 Ap '64

Greece
Greece gets its first coil coater; Security Aluminum's new plant in Athens. il Mod Metals 20:74 Je '64

ALUMINUM ingots
Alcoa ok's aluminum ingot hike. J. Beizer. il Iron Age 193:104-5 Mr 12 '64
Automatic handling line pours, stacks, bundles ingot. il Mod Metals 19:76 Ja '64
Casting high quality aluminum rolling ingot. il Mod Metals 20:52+ Mr '64
Siphon transfers molten aluminum; system prevents oxidation during semicontinuous casting. il diag Iron Age 193:68-9 Mr 5 '64

ALUMINUM metallurgy
Carbothermic smelting of aluminum. P. T. Stroup. Light Metal Age 22:8 Ap '64
Carbothermic smelting of aluminum; an alternative to the traditional Bayer-Hall processes? P. T. Stroup. bibliog diag J Metals 16:703-8 S '64
Smelting industry leader predicts bright outlook for secondary aluminum. W. A. Singer. Mod Metals 19:54-5 Ja '64
See also
Aluminum ingots

Electrometallurgy
Magnetic field measurement of high-amperage aluminum cells. W. E. Capitaine and W. H. Schmidt-Hatting. il diags J Metals 16:42-5 Ja '64
Petroleum residuals in prebaked carbon anode binders. M. B. Dell. il Ind & Eng Chem Product Res & Develop 3:250-1 S '64

ALUMINUM nitrate
Reversal of charge of lyophobic colloids by hydrolyzed metal ions; aluminum nitrate. E. Matijević and others. bibliog J Colloid Sci 19:333-46 Ap '64

ALUMINUM ores
See also
Bauxite

ALUMINUM oxides
See also
Alumina

ALUMINUM paint. See Aluminum—Paint

ALUMINUM phosphates
Low temperature ceramic solves high temperature problems. A. C. Allen. il Cer Ind 83:52-4+ Ag '64

ALUMINUM pipes. See Pipes, Aluminum

ALUMINUM plates
Aluminium sheet edge preparation by routing. il Engineering 197:25 Ja 3 '64
Automatically square-cut aluminium plate. il Engineer 216:959 D 6 '63
Giant hydraulic press tests missile skin. il Hydraulics & Pneumatics 17:42 Jl '64
Milling waffle pattern in Saturn tank skins. H. D. Adams. il Mach 70:116-18 Mr '64
To stress-relieve alloy plates; stretch. il Engineering 197:873 Je 26 '64

ALUMINUM roofs. See Roofs, Aluminum

ALUMINUM ships. See Ships, Aluminum

ALUMINUM silicates
Acidic crystalline aluminosilicates. C. J. Plank and others. bibliog Ind & Eng Chem Product Res & Develop 3:165-9 S '64

ALUMINUM silicates—*Continued*

Cracking catalysts are metal-acid aluminosilicates; Durabead 5; abstract. C. J. Plank. il Chem & Eng N 42:70 Ap 20 '64

Dissolution in ceramic systems; molecular diffusion, natural convection, and forced convection studies of sapphire dissolution in calcium aluminum silicate. A. R. Cooper, jr. and W. D. Kingery. bibliog diags Am Cer Soc J 47:37-43 Ja '64

New polymorph of Al_2SiO_5 and further studies in the system Al_2O_3-SiO_2-H_2O. S. Aramaki and R. Roy. bibliog diags Am Mineralogist 48:1322-47 N '63

Phase relations between cymrite, $BaAlSi_3O_8(OH)$, and celsian, $BaAl_2Si_2O_8$. Y. Seki and G. C. Kennedy. diag Am Mineralogist 49:1407-26 bibliog(p 1425-6) S '64

System Al_2SiO_5 at high temperatures and pressures. R. C. DeVries. bibliog il diag Am Cer Soc J 47:230-7 My '64

X-ray study of sursassite from New Brunswick. R. L. Freed. bibliog Am Mineralogist 49:168+ Ja '64

See also

Albite
Anorthite
Bentonite
Kyanite
Pyrophyllite
Sillimanite
Tourmaline

ALUMINUM tanks. See Tanks, Aluminum

ALUMINUM towers. See Towers, Aluminum

ALUMINUM walls. See Walls, Aluminum

ALUMINUM window frames. See Window frames, Aluminum

ALUMINUM work

Aluminum impact extrusions. A. Katz. il diags Machine Design 36:150-4 Ag 27 '64

Aluminum metalworking advances developed in aluminum sub project. il Mod Metals 20:60+ Ap '64

Aluminum sandwiches for instant airfields. il Steel 153:78-80 D 16 '63

Aluminum waffles milled from the solid by advanced numerical control. L. W. Collins, jr. il diag Mach 70:103-6 Jl '64

Aluminum's boiling pot of ideas. G. L. Kobrin. il Iron Age 193:93-100 Je 18 '64

Anvil attachment speeds stapling of aluminum. il diag Light Metal Age 22:23 Ag '64

Auto-assembly of valve guides and seats in aluminum cylinder heads. D. Scott. il Automotive Ind 129:44-7 N 1 '63

Automatic machine produces airplane access doors. L. K. Geertsen. il Mach 70:147-9 My '64

Chemical cleaner aids epoxy-aluminum bond. il Materials in Design Eng 60:165-6 N '64

Cold flow replaces soldering. il diags Am Mach 108:74-5 Mr 2 '64

Continuous aluminum rod. D. B. Cofer. il diags Wire & Wire Prod 38:1858-61+ D '63

Continuous casting. il diags Mod Metals 20:40-2+ Mr; 54+ Ap; 56+ My; 44+ Je '64 (to be cont)

Cryothermal treatment stabilizes aluminum forgings. A. Incardona and H. Poett. il Tool & Manuf Eng 53:66-7 S '64

Dip brazing aluminum. R. H. Haines. il Mod Metals 20:28+ Mr '64

Dip brazing of aluminum. M. Sinclaire. il diag Metal Prog 86:84-7 S '64

Dip coating 16-ft. long aluminum extrusions; question and answers. Ind Finishing 40:102 S; 84+ O '64

Electroforming of aluminum optical components. il Light Metal Age 22:4-5 Ag '64

Expanded aluminum. A. Rosenthal. il Mod Metals 20:28+ Ag '64

Extruders predict 21 per cent increase in 1964. Mod Metals 20:33-4+ Jl '64

Extrusion handling system cuts costs and waste. il Mod Metals 20:62+ F '64

Extrusion of aluminium rod at the Prescot works of B.I.C.C. ltd. W. J. Bannister. il Wire & Wire Prod 38:1706-9+ N '63

Extrusion press built in record time; Fielding and Platt installation at Indalex. il plan Metallurgia 69:10-12 Ja '64

Extrusion users report. Mod Metals 20:38+ Jl '64

Extrusion work order cost analysis. Light Metal Age 21:10-11 D '63

Extrusions + synthetic rubber make versatile tools for press brakes. il diags Mod Metals 20:84-5 Jl '64

Fast cycling extrusion press for aluminium. il Engineering 197:202 Ja 31 '64

Ford guards productivity with huge castings impregnator. il plan Automotive Ind 129:71-4 N 15 '63

Forming of tubular aircraft parts simplified by electrohydraulic shot. K. F. Smith. il diags Mach 71:114-17 S '64

Furnace feeds hot billet shear. il Iron Age 194:155 S 24 '64

Gun reaming precision aluminum die castings. H. Gregg. il Mach 70:126-7 N '63

Haystack can find needle in sky. il Mod Metals 20:66+ S '64

Heat exchangers contoured to fit available space. G. J. Haislmaier. Steel 153:29 D 30 '63

Hot punch shapes new laminate. il Iron Age 193:64 Ap 2 '64

How to form and fabricate prepainted aluminum. H. E. Wegner. il diags Materials in Design Eng 59:92-6 Ja '64

How to specify and fabricate prepainted aluminum sheet. H. E. Wegner. il Mod Metals 20:36+ Je '64

Integrated extrusion plant offers one-stop service. il Mod Metals 20:68-9 Mr '64

Liquid nitrogen quenches without distortion. E. Dullberg and C. Vanderhoof. il Tool & Manuf Eng 52:71-3 My '64

Manufacture of ⅜" diameter EC redraw rod by the slit strip process. C. W. Siltanen. il diags Wire & Wire Prod 38:1712-13+ N '63

New aluminum extrusion alloy for porcelain enameling. F. L. Church. il Mod Metals 20:38+ My '64

New lubricants solve aluminum fabrication problems; Cindol. il Mod Metals 20:32+ S '64

One-piece aluminum passenger car wheel. il Product Eng 35:67-8 F 17 '64

Patterned extrusions. il diags Light Metal Age 21:17-18 D '63

Piston poses production puzzle. R. H. Eshelman. il Iron Age 192:73 D 12 '63

Radiation pyrometer for temperature measurement in the hot extrusion of aluminium. G. A. Woolvet and J. M. Alexander. diags Inst Metals J 92:430-2 '63-64

Rotary miling slashes cost of producing Polaris rings. il diags Mach 70:133-4 Je '64

Rubber tool spares anodized finish. il Mod Metals 20:38 Mr '64

Shear cuts hot logs into billets at the extrusion press. il Mod Metals 20:54-5 Ag '64

Skillful metalworking team launches research sub. E. E. Ellwood. il Iron Age 194:58-9 Jl 9 '64

Snyder special machine for spot-facing and weigh-milling aluminum pistons. il Mach 70:176 F '64

Soldering aluminium without flux. il Iron Age 194:135 O 29 '64

Thin-wall aluminum sleeves ground without distortion. H. J. Gerber. il Mach 70:143 My '64

Wound tubing; novel approach to aluminum fabrication. R. R. Irving. il Iron Age 193:73-5 My 7 '64

See also

Aluminum—Finishing
Aluminum—Welding
Aluminum founding

ALUMINUM works

Aluminium extrusion plant. il Engineer 216:1030 D 20 '63

Effective scrubber to remove chlorine from aluminium-factory gaseous effluents. W. E. Race and R. Lewis. il diags Inst Metals J 92:205-7 '63-64

Shell shelters aluminum smelter. il Eng N 172:23 Ja 2 '64

Control equipment

Automation of pre-paint treatment in coil coating lines. diag Mod Metals 20:76 Je '64

Equipment

Automatic handling line pours, stacks, bundles ingot. il Mod Metals 19:76 Ja '64

Characteristics of coloured weather resistant coatings for aluminium. F. G. Abbott. il Metallurgia 69:167-72 Ap '64

Extrusion handling equipment. J. W. Nelson. il diags Mod Metals 20:32+ Ap; 62+ My; 50+ Je '64 (to be cont)

New line gives coiled strip mechanical, organic finishes. F. D. Shiras. il Mod Metals 20:58+ Je '64

Special-purpose heavy-duty trailer. il Engineer 217:79 Ja 10 '64

Special trailer for furnace box and hot anode transportation at Fort William. il Metallurgia 69:114 Mr '64

Quality control

New quality control test for anodized aluminum. E. T. Englehart and G. Sowinski, jr. il diags Mod Metals 20:56+ Ag '64

AMALGAMS

Cold combustion for the quantitative determination of amalgable metals in the presence of their oxides in treated ores. M. G. Habashy. diag Anal Chem 36:1781-3 Ag '64

Forced convection boiling of potassium-mercury systems. Y. S. Tang and others. bibliog il diag A I Ch E J 10:617-20 S '64

Fracture of aluminum alloys wetted with zinc amalgam. Light Metal Age 22:8 Je '64

AMARYLLIDACEAE

Biological interconversions in the amaryllidaceae; the haemanthamine-haemanthidine-tazettine sequence. H. M. Fales and W. C. Wildman. bibliog Am Chem Soc J 86:294-5 Ja 20 '64

Narcissamine; a quasi-racemic alkaloid. S. M. Laiho and H. M. Fales. bibliog Am Chem Soc J 86:4434-8 O 20 '64

AMATEUR moving pictures. See Moving pictures, Amateur

AMATEUR radio operators. See Radio operators, Amateur

AMBLYGONITE. See Phosphates

AMERICAN association for contamination control

Annual technical meeting, 3d, Los Angeles, May 5-8. Heating-Piping 36:121 Jl '64

AMERICAN association for textile technology

Annual conference, 4th, New York, Feb. 6. Am Dyestuff Rep 53:188-9 Mr 2 '64

AMERICAN association of petroleum geologists

AAPG studying certification. Oil & Gas J 62:79 My 11 '64

Annual meeting, 49th, Toronto, May 18-21; program and abstracts of papers. Am Assn Pet Geologists Bul 48:511-52, 1415-37 Ap, Ag '64

Membership directory. Am Assn Pet Geologists Bul 48:1-222 pt 2 Mr '64

Professional certification for the A.A.P.G. J. C. Sproule. Am Assn Pet Geologists Bul 48:382-91 Mr '64

Southwestern federation of geological societies meeting, Midland, Texas, Jan. 29-Feb. 1; abstracts of papers. Oil & Gas J 62:132-5 Ja 13 '64

AMERICAN association of physics teachers

Annual meeting, 32d, New York, Jan. 23-26, 1963; abstracts of papers. Am J Phys 32:76-84 Ja '64

Annual meeting, 33d, New York, Jan. 22-25; with abstracts of papers. Am J Phys 32:811-18 O '64

Meeting, Orono, Me. June 27-29; abstracts of papers. Am J Phys 32:176-80 F '64

Summer meeting, Northfield, Minn., June 26-28, 1962; abstracts of papers. Am J Phys 32:71-5 Ja '64

AMERICAN association of railway surgeons

Annual meeting, 76th, Chicago, April 9-11; program. Ind Med 33:186-7 Ap '64

AMERICAN association of state highway officials

AASHO road test; three years later. Eng N 172:19-21 Ap 9 '64

New AASHO guide specs near final vote. Roads & Sts 106:49-51 D '63

AMERICAN association of textile chemists and colorists

Annual convention, New York, Sept. 23-25; program and list of exhibitors. Mod Textiles Mag 45:60+ S '64

Annual meeting, Boston, Oct. 30-Nov. 1; abstracts of papers. Textile Ind 127:112-18 D '63

Annual meeting, 7th Boston, Oct. 30-Nov 1. Textile World 113:108+ D '63; Am Dyestuff Rep 53:22-31 Ja 6 '64

Council highlights. Am Dyestuff Rep 53:304-5 Ap 13 '64

Council highlights. 236th meeting, Research Triangle Park, N.C. Am Dyestuff Rep 53:644-5 Jl 20 '64

Dedication exercises AATCC national headquarters building, Research Triangle Park, N.C. April 24. il Am Dyestuff Rep 53:595-608 Jl 6 '64

Meeting, New York; abstracts of papers. Textile World 114:106-8+ N '64

National convention, New York, Sept. 23-25; with program, abstracts of papers and list of exhibitors. Am Dyestuff Rep 53:732-86 Ag 31 '64

New England sections regional meeting, South Egremont, Mass. May 1-2; with abstracts of papers. Am Dyestuff Rep 53:685-8 Ag 3 '64

President's address. E. R. Kaswell. Am Dyestuff Rep 52:1057-8 D 23 '63

Report of a questionnaire study of the membership conducted by the executive committee of the council. Am Dyestuff Rep 53:645-52 Jl 20 '64

Role of AATCC in the total textile industry. F. Fortess. diag Am Dyestuff Rep 53:609-12 Jl 6 '64

Committee on research

Minutes of 212th meeting. Am Dyestuff Rep 52:1073-9 D 23 '63

Minutes of 213th meeting. Am Dyestuff Rep 53:262-7 Mr 30 '64

Minutes of 214th meeting. Am Dyestuff Rep 53:613-16 Jl 6 '64

AMERICAN ceramic society

Annual meeting, 66th, Chicago, April 18-23; with program. Am Cer Soc Bul 43:231-7+, 414-21 Ap-My '64

Membership roster. Am Cer Soc Bul 43:691-725+ O '64

Basic science division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:253+ Ap '64

Pacific coast regional meeting, 17th, and basic science division joint meeting, San Francisco, Oct. 28-30; program and abstracts of papers. Am Cer Soc Bul 43:653-5+ S '64

Ceramic-metal systems division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:271+ Ap '64

Fall meeting, French Lick, Ind., Sept. 20-23; program and abstracts of papers. Am Cer Soc Bul 43:591-3+ Ag '64

Design division

Annual meeting, Chicago, April 20-22; program. Am Cer Soc Bul 43:267+ Ap '64

Electronics division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:277+ Ap '64

Fall meeting, Gatlinburg, Tenn. Am Cer Soc Bul 42:764-6 D '63

Fall meeting, Philadelphia, Sept. 16-18; program and abstracts of papers. Am Cer Soc Bul 43:584-9 Ag '64

Glass division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:287+ Ap '64

Fall meeting, Bedford, Pa.; abstracts of papers. Glass Ind 44:672-5+ D '63

Fall meeting, Bedford Springs, Pa., Oct. 14-16; program and abstracts of papers. Am Cer Soc Bul 43:645-7+ S '64

Materials and equipment division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:297+ Ap '64

Fall meeting, Bedford Springs, Pa., Sept. 30-Oct. 3; program and abstracts of papers. Am Cer Soc Bul 43:637-9 S '64

Refractories division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:301+ Ap '64

Fall meeting, Virginia Beach, Va., Oct. 8-10; program and abstracts of papers. Am Cer Soc Bul 43:641-3 S '64

Structural clay products division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:311+ Ap '64

Fall meeting, Dallas, Sept. 23-25; program and abstracts of papers. Am Cer Soc Bul 43:599-601 Ag '64

Whiteware division

Annual meeting, Chicago, April 20-22; program and abstracts of papers. Am Cer Soc Bul 43:317+ Ap '64

Fall meeting, Bedford Springs, Pa., Sept. 30-Oct. 3; program and abstracts of papers. Am Cer Soc Bul 43:637-9 S '64

AMERICAN chemical society

ACS business operations fully computerized. il Chem & Eng N 42:74+ O 12 '64

ACS comments on lab licensing bill. Chem & Eng N 42:30 Mr 16 '64

ACS divisions elect officers for 1964. Chem & Eng N 41:58-62 D 23 '63

American chemical society; its officers, directors, councilors, and committees. Chem & Eng N 42:72-8 F 17 '64

ACS monographs advisory board named. Chem & Eng N 42:54 Ag 10 '64

ACS names 24 award winners. Chem & Eng N 42:178-9 S 7 '64

Annual report, 1963. Chem & Eng N 42:53-74 Mr 9 '64

AMERICAN chemical society—*Continued*

Board of directors minutes and reports of committees. Sept. 8. Chem & Eng N 41:66-78 N 11 '63

Board of directors minutes and reports of committees. Chem & Eng N 42:134-47 Ja 27 '64

Committee on professional training; progress report. Chem & Eng N 42:68-73 Mr 16 '64

Fibers, finishes, dyes top Southeastern regional meeting. Textile World 114:69 Ja '64

Local sections honor students, teachers. Chem & Eng N 42:68+ Je 22 '64

Meeting, 147th, Philadelphia; abstracts of papers. Plastic Tech 10:59 Ap '64

National meeting, 146th, Denver, Jan. 19-24; program. Chem & Eng N 41:80-97 D 16 '63

National meeting, 147th, Philadelphia, April 5-10; official reports. Chem & Eng N 42:66-91 Je 1 '64

National meeting, 147th, Philadelphia, April 5-10; program. Chem & Eng N 42:76-84 Ja 13; 72-111 Mr 2 '64

National meeting, 148th, Chicago, Aug. 30-Sept. 4; with program. Chem & Eng N 42:60+ Jl 27 '64

National meeting, 148th, Chicago; presidential address. M. H. Arveson. Chem & Eng N 42:126-30 S 14 '64

Officers of local sections and divisions and chapters of student affiliates. Chem & Eng N 42:67-75 Mr 23 '64

Official reports from the 148th national meeting. Chem & Eng N 42:100-2+ O 26 '64

Price is ACS president-elect for 1964. Chem & Eng N 41:74 D 16 '63

Professional relations and status committee studies code of ethics. Chem & Eng N 42:102 Jl 13 '64

Reports from the Board of directors meeting June 6, and reports of committees. Chem & Eng N 42:54-61 Ag 3 '64

Society names advisory board members. Chem & Eng N 42:78-80 F 17 '64

Chemical abstracts service

ACS financial policies and Chemical abstracts prices. Chem & Eng N 42:94+ Ap 20 '64

CAS names first advisory board. Chem & Eng N 42:80+ My 11 '64

Philadelphia section proposes changes in CA. Chem & Eng N 42:60+ F 24 '64

Division of rubber chemistry

Fall meeting, 84th, New York, Sept. 11-13; program. Rubber Chem & Tech 37:sup xvii-xx Ja '64

Meeting, 85th, Detroit, April 28-May 1. Rubber Age 95:460-1 Je '64

Meeting, 86th, Chicago, Sept. 2-4; program and abstracts of papers. Rubber Age 95:567-75 Jl '64; Rubber World 150:81-90 Jl '64

Spring meeting, 85th, Detroit, April 28-May 1; program and abstracts of papers. Rubber Age 94:919-26 Mr '64; Rubber World 149:81-8 Mr '64

AMERICAN commission on stratigraphic nomenclature

Records of the stratigraphic commission for 1961-1962. Am Assn Pet Geologists Bul 47:1987-91 N '63

AMERICAN concrete institute

ACI awards; six honored at 60th convention. Am Concrete Inst J 61:sup 18-19+ Ap '64

Annual convention, 60th, Houston, March 2-5; program. Am Concrete Inst J 61:sup3+ Ja '64

Annual meeting, 60th, Houston, Tex., March 2-5 and Monterrey, Mexico, March 7; with abstracts of papers and list of exhibitors. Am Concrete Inst J 61:sup3-5+ My '64

Annual report for 1963. Am Concrete Inst J 61:sup 1-4 Ap '64

Fall meeting, 16th, Toronto, Nov. 11-14; with abstracts of papers. Am Concrete Inst J 61:sup 11-14+ Ja; sup24-7 F '64

Fall meeting, 17th, Miami, Nov. 11-13; program. Am Concrete Inst J 61:sup3+ S '64

Mather is president. Eng N 172:51-2 Mr 5 '64

Publication policy and instructions. Am Concrete Inst J 61:sup4-7+ F '64

Responsibility in concrete. R. H. Corbetta. Am Concrete Inst J 61:481-6 My '64

AMERICAN cyanamid company

American Cyanamid agricultural research center at Princeton. Food Tech 17:1400 N '63

AMERICAN die casting institute

Annual meeting, Chicago, Sept. 11-12; with abstracts of papers. Foundry 91:121+ N '63

Annual meeting, Chicago, Sept. 23-24; abstracts of papers. Foundry 92:154-6+ N '64

AMERICAN electroplaters society

Annual convention and exposition, St Louis, June 15-18; with programs, abstracts of papers and list of exhibitors. Metal Finishing 62:64-74 Je '64

Annual convention, 51st and Industrial finishing exposition, 6th, St Louis, June 14-18; with program, abstracts of papers, list of exhibitors and floor plan. Plating 51:438-45, 451-6 My '64

Annual report. Plating 51:585-93 Je '64

Financial report for the fiscal year July 1, 1963-June 30, 1964. Plating 51:900-3 S '64

Quarterly report of AES vice chairman for research. W. H. Safranek. Plating 51:46, 227, 696-7, 926-7 Ja, Mr, Jl, S '64

AMERICAN foundrymens society

Castings congress and exposition, 68th, Atlantic City, April 27-May 1; with program, list of exhibitors and abstracts of papers. Foundry 92:126-39 Ap; 60-71, 169-96 Je; 129-31+ Jl; 107-9 Ag '64

AMERICAN gas association

Accounting section organization meeting, Atlanta, Sept. 12-13. Am Gas Assn Mo 46:26-8+ F '64

AGA now reorganized for better efficiency. G. T. Kinney. Oil & Gas J 62:54-7 Je 1 '64

A.G.A. public relations contests bring double rewards. Am Gas Assn Mo 46:19-20+ Mr '64

AGA task groups use administrative dynamics. J. F. Ebdon, ed. Gas 40:75-8 F '64

Annual convention, Atlantic City and New York, Oct. 11-15; preview. Am Gas Assn Mo 46:2-4 Jl-Ag '64

Annual convention, Los Angeles; with new officers and directors elected. Am Gas Assn Mo 45:2-7 N '63

Annual electronics seminar, 11th, Chicago, Nov. 18-20. Am Gas Assn Mo 46:31+ Ja '64

GIDea trading post. Am Gas Assn Mo 46:22-3 My '64

General management annual conference, 10th, New Orleans, March 23-25. Am Gas Assn Mo 46:29+ F; 30-2 My '64

Industrial and commercial gas sales conference, Columbus, Ohio, March 31-April 2. Am Gas Assn Mo 46:33 F '64

Joint AGA-PCGA convention, Los Angeles, Oct. 13-16. Gas Age 130:22-6+ D '63

PAR promotion, advertising and public information structure streamlined. W. H. Ligon. Am Gas Assn Mo 46:14-15 Je '64

Why A.G.A. is reorganizing its r&d program. Am Gas Assn Mo 46:15-16+ My '64

AMERICAN gas association monthly (periodical)

A.G.A. Monthly wins NSC public interest award. Am Gas Assn Mo 46:6 Je '64

AMERICAN gear manufacturers association

Annual meeting, 48th, Hot Springs, Va. June 7-10. Mach 70:123 Jl '64

Annual meeting, Hot Springs, Va.; with abstracts of papers and new design manuals. Product Eng 35:73-8 Jl 20 '64

AMERICAN institute of aeronautics and astronautics

Aerospace sciences meeting, New York, Jan. 20-22. Astronautics & Aeronautics 2:78-80 Mr '64

AIAA first-year review. Astronautics & Aeronautics 2:72-5 Mr '64

Annual meeting, 1st, Washington, June 20-July 2. Astronautics & Aeronautics 2:62-9 Ag '64

Annual meeting, 1st, Washington, June 29 July 2; with plans, program and list of exhibitors. Astronautics & Aeronautics 2:78-84 Je '64

AMERICAN institute of architects

AIA general conditions. H. J. Rosen. Prog Arch 45:168 Ag '64

A.I.A. names 59 for rank of Fellowship. Arch Rec 135:23 Je '64

AIA's new president. Eng N 172:46-7 Je 25 '64

Annual convention, St Louis, June 14-18. Arch Rec 136:10+ Ag '64

AMERICAN institute of chemical engineers

Annual meeting, 56th, Houston, Dec. 1-5; with program. Chem Eng Prog 59:104+ O; 90+ N '63

Annual meeting, 57th, Boston, Dec. 6-10; with program. Chem Eng Prog 60:100-2+ O '64

National meeting, 52d, Memphis, Tenn. Feb. 2-5; with program. Chem Eng Prog 59:102-8 D '63; 60:86-7 Ja '64

National meeting, 53d, Pittsburgh, May 17-20; with program. Chem Eng Prog 60:104-8+ Mr '64

National meeting, 54th, Las Vegas, Sept. 20-23; with program. Chem Eng Prog 60:108-12 Jl '64

AMERICAN institute of mining, metallurgical and petroleum engineers

Annual meeting, 93d, New York, Feb. 16-20; with abstracts of papers. Pit & Quarry 56:82-3+ My '64

Annual western meeting, C.I.M. held jointly with the Pacific Northwest metals & minerals conference, Vancouver, Oct. 25-28; program. Can Min & Met Bul 57:903+ S '64

Societies name 1965 AIME officers and directors. Min Eng 16:290+ Jl '64

Metallurgical society

Annual meeting, 93d, New York, Feb. 16-20; program and abstracts of papers. J Metals 16:73-130 Ja '64

Extractive metallurgy division in perspective. C. L. McCabe. J Metals 16:670+ Ag '64

Fall meeting, Philadelphia, Oct. 18-22; program and abstracts of papers. J Metals 16:749-88 S '64

Fellows of the Metallurgical society. J Metals 16:196-7 F '64

Institute of metals' revised bylaws. J Metals 16:445-8 My '64

1963 metallurgical salary survey. W. J. Geroulo. J Metals 16:731-4 S '64

Technical conference on applied aspects of refractory metals, Los Angeles, Dec. 9-10; abstracts of papers. J Metals 16:410-15 My '64

Society of mining engineers

International mineral processing congress, 7th, and SME fall meeting, New York, Sept. 20-25; program and abstracts of papers. Min Eng 16:81-3 Je; 128-128B Jl; 60-1 Ag '64

Meeting, New York, Feb. 16-20; program and abstracts of papers. Min Eng 15:56-62 N '63; 16:59-68 Ja '64

1964 membership directory. Min Eng 16:129-281 Jl '64

Coal division

Annual spring meeting, Marion, Ill. April 16-17; abstracts of papers. Coal Age 69:108-9 Je '64

Society of petroleum engineers

Annual AIME meeting, 93d, New York, Feb. 16-20; program. J Pet Tech 16:53-4 Ja '64

Annual California regional meeting, 33d, Santa Barbara, Oct. 24-25; program and abstracts of papers. J Pet Tech 15:1093-5 O '63

Annual California regional meeting, 34th, Los Angeles, Nov. 5-6; program and abstracts of papers. J Pet Tech 16:1132-3 O '64

Annual fall meeting, 39th, Houston, Oct. 11-14; with program and abstracts of papers. J Pet Tech 16:1013-18 S '64

AMERICAN institute of nutrition

Annual meeting, 28th, Chicago, April 13-17; proceedings. J Nutrition 83:385-99 Ag '64

AMERICAN institute of physics

Annual report, 1963. E. Hutchisson. flow chart il Phys Today 17:43-59 My '64

Change in directorship. Phys Today 17:54-5 O '64

AMERICAN institute of plant engineers

Joint AIPE-ASME plant engineering conference, Los Angeles, April 6-8; program. Mech Eng 86:110-11 F '64

National officers installed. Plant Eng 18:138-9 Ag '64

AMERICAN institute of steel construction

Twelve buildings get awards. il Arch Rec 136:14-15 S '64

AMERICAN iron and steel institute

Trade associations that serve the public works field. il Pub Works 94:108-9 N '63

AMERICAN machine tool distributors association

Spring meeting, 40th, Boca Raton; with abstracts of papers. Automotive Ind 130:95+ Ap 15 '64

AMERICAN mining congress

Annual meeting, Los Angeles, Sept. 16-18; abstracts of papers of interest to producers of nonmetallics. Pit & Quarry 56:101-4+ N '63

Annual membership meeting, Washington, Jan. 13-14. Min Cong J 50:50-3 F '64

Coal convention and coal show, Cleveland, Ohio, May 11-14; with abstracts of papers. Coal Age 69:98-102+ Je '64; Min Cong J 50:48-64 Je '64

Coal division conference, Pittsburgh, Nov. 15; abstracts of papers. Min Cong J 49:58-9+ D '63

Coal show, Cleveland, May 11-14; program and list of exhibitors. Min Cong J 50:60-6 Mr; 66-85 Ap '64; Coal Age 69:128-34+ Ap '64

Meeting, Los Angeles; abstracts of papers. Eng & Min J 164:116+ O; 98-102 N '63

Metal mining and industrial mineral convention. Eng & Min J 165:107-8 O '64

Metal mining and industrial minerals convention, Los Angeles, Sept. 15-18; with program and abstract of papers. Min Cong J 49:41-53 Ag; 61-75D O '63

Metal mining and industrial minerals convention, Portland, Sept. 13-16; with program. Min Cong J 50:47-59 Ag '64

AMERICAN oil chemists society

Annual fall meeting, 37th, Minneapolis, Sept. 30-Oct. 2; abstracts of papers. Soap & Chem Spec 39:43-6+ N '63

Annual meeting, 55th, New Orleans, April 19-22; program and abstracts of papers. Am Oil Chem Soc J 41:sup4+ Mr '64

Annual report of the Smalley committee, 46th. Am Oil Chem Soc J 41:452-3 Je '64

Bright future in steady growth; report of the president 1963-64. W. O. Lundberg. Am Oil Chem Soc J 41:sup6+ Je '64

Fall meeting exposition, Chicago, Oct. 11-14; floor plan and list of exhibitors. Am Oil Chem Soc J 41:sup 18-20 S '64

Fall meeting, 38th, Chicago, Oct. 11-14; program and abstracts of papers. Am Oil Chem Soc J 41:8+ Ag '64

Report, industrial oils and derivatives committee, 1964. Am Oil Chem Soc J 41:614-15 S '64

Report of the commercial fats and oils analysis committee, 1964. Am Oil Chem Soc J 41:454-6 Je '64

Report of the epoxidized oils subcommittee on oxirane oxygen, 1963. Am Oil Chem Soc J 41:86-7 Ja '64

Report of the instrumental techniques committee, 1962-1963. Am Oil Chem Soc J 41:158-60 F '64

Report of the standards committee, 1964. Am Oil Chem Soc J 41:sup 18+ Jl '64

Report on activities of industrial oils and derivatives committee, 1963. Am Oil Chem Soc J 40:605-6 N '63

AMERICAN petrofina, inc.

What happens when two oil firms merge? J. Scott. il Pet Management 36:80-7 Ja '64

AMERICAN petroleum institute

API handles basic research. D. Martin. il Pet Management 35:13-16 N '63

Annual meeting, Chicago, Nov. 11; program. Oil & Gas J 61:85-7 N 11 '63

Annual meeting, 43d, Chicago, Nov. 11-13. Oil & Gas J 61:105-24 N 18 '63

Marketers, API face antitrust probe. G. T. Kinney. Oil & Gas J 61:42-3 N 25 '63

AMERICAN pharmaceutical association

Annual meeting, 111th, New York, Aug 2-7. Drug & Cosmetic Ind 95:331-3+ S '64

AMERICAN physical society

APS Division of electron physics, the first 20 years. L. Marton. Phys Today 17:44-6+ O '64

AMERICAN potash and chemical corporation

Kirkpatrick award for chemical engineering achievement. flowsheet il diags Chem Eng 70:225-36 N 11 '63

AMERICAN power conference

Annual meeting, 26th, Chicago, April 14-16; abstracts of papers on ehv and atomic power. Power Eng 68:41+ Jl '64

Annual meeting, 26th, Chicago, April 14-16; abstracts of papers on pumped storage. Power Eng 68:33 Jl '64

Annual meeting, 26th, Chicago, April 14-16; panel discussion on prevention of boiler furnace explosions. Power Eng 68:63-4 Je '64

Annual meeting, 26th, Chicago, April 14-16; with program and abstracts of papers. Combustion 35:47-50 Mr; 35-42 My; 38-41 Je '64

Meeting, Chicago; with abstracts of papers. Elec World 161:54-5+ Je 1 '64

AMERICAN public health association

Annual meeting, 92d, New York, Oct. 5-9; with preliminary program and list of exhibitors. Am J Pub Health 54:1341-1439 Ag '64

Committees and association representatives 1963-1964. Am J Pub Health 54:338-66 F '64

Health statisticians and the American public health association. F. E. Linder. Am J Pub Health 54:1005-6 Je '64

Mental health workers and the American public health association. B. Pasamanick. Am J Pub Health 54:1603-4 S '64

Policy statements. Am J Pub Health 54:131-52 Ja '64

AMERICAN public health association—*Cont.*
Report of the chairman of the executive board to the governing council, 1962-1963. C. G. King. Am J Pub Health 54:118-21 Ja '64
Why belong to the American public health association? H. E. Hilleboe. Am J Pub Health 54:849-50 My '64

AMERICAN public power association
Convention, Jacksonville, Fla. Elec World 161:44-5 Je 1 '64; Power Eng 68:46-7 Jl '64

AMERICAN public works association
Annual congress, Atlantic City. Eng N 173:29 O 15 '64
News bulletins. Published in monthly numbers of Public works

AMERICAN radio relay league
ARRL amateurs serve their country. il diags Q S T 48:66-76 Mr '64
ARRL and International amateur radio. il diags Q S T 48:64-79 My '64
ARRL DX competition, 1964 results. E. White, comp. il Q S T 48:22-33+ O '64
ARRL national convention, 13th, New York. Aug. 21-23; preview. Q S T 48:36-9 Ag '64
ARRL National traffic system. G. Hart. diags Q S T 48:43-6 Je '64
ARRL 1949-1953 sideband, tvi; and regulatory battles. il map diag Q S T 48:66-77 O '64
ARRL, 1954-1964, growth and stability. il Q S T 48:65-72+ N '64
ARRL, Red Cross renew agreement. Q S T 48:20-1 Ap '64
ARRL serves in wartime. il diag Q S T 48:66-77 Ag '64
ARRL; the boom years. il Q S T 48:70-85 Je '64
ARRL the early years. il maps Q S T 48:66-71 F '64
ARRL; the exciting years. il diags Q S T 48:66-79 Ap '64
Announcing 1964 ARRL simulated emergency test. Q S T 48:86-7 O '64
Fifty years of ARRL. H. Hoover, jr. and others. il Q S T 48:65-74 Ja '64
League program. H. Hoover, jr. Q S T 48:31-5 Ja '64
More bands! il Q S T 48:66-78 S '64
National convention, New York, Aug. 22. Q S T 48:80-2 O '64
New ARRL message precedences. G. Hart. Q S T 48:44+ Ja '64
Your new league headquarters; illustrations with text. Q S T 47:71-3 D '63

AMERICAN road builders association
Annual meeting, 62d, New Orleans. Eng N 172:22 Mr 5 '64; Roads & Sts 107:78+ Ap '64

AMERICAN society for clinical nutrition
Annual meeting, 4th, Atlantic City, May 2; program and abstracts of papers. Am J Clinical Nutrition 14:237-52 Ap '64

AMERICAN society for engineering education
Annual meeting, 72d, Orono, Me. June 22-26. Eng N 173:60 Jl 2 '64; Mech Eng 86:80-1 Ag '64

AMERICAN society for quality control
Annual convention and exhibit, 18th, Buffalo, May 4-6; program and list of exhibitors. Ind Quality Control 20:33-40 My '64
Annual report of the board of directors. map Ind Quality Control 20:21-7 N '63
Annual report of the board of directors. map Ind Quality Control 21:204-12 O '64
National conference of the Automotive division, 7th, Detroit, Feb. 27; abstracts of papers. Automotive Ind 130:81-7 Ap 15 '64
1964-65 organization manual. Ind Quality Control 21:259-65 N '64

AMERICAN society for testing and materials
ASTM broadened its horizons in 1963. il Materials Res & Stand 4:29-31 Ja '64
ASTM D-11 subcommittee reports. Rubber World 149:93-8 Mr '64
ASTM grants-in-aid announced. Materials Res & Stand 4:328-9 Je '64
ASTM's administrative committee on standards. G. H. Harnden. Materials Res & Stand 3:923-4 N '63
Annual meeting, 67th, Chicago, June 20-26; with abstracts of papers. Pit & Quarry 57:134-7 S '64
Annual meeting, 67th, Chicago, June 21-26; abstracts of papers. Materials Res & Stand 4:433-9 Ag '64
Annual meeting, 67th, Chicago, June 21-26; preview, program, abstracts of papers and exhibits. il Materials Res & Stand 4:234-53 My '64
Board of directors meeting, Philadelphia, May 13. Materials Res & Stand 4:501-7 S '64
Coming publication year. Materials Res & Stand 3:926-29+ N '63
Committee D-11 on rubber and rubberlike materials meeting, Philadelphia, Feb. 5-7; reports. Rubber Age 94:958-9 Mr '64
Committee D-11 on rubber-like materials meeting, Chicago, June 22-26. Rubber World 150:83-6+ Ag '64
Committee D-12 on soaps and other detergents meeting, New York, March 9-10. Soap & Chem Spec 40:53-6 Ap '64
Honors and awards presented at annual meeting luncheon. il Materials Res & Stand 4:442-52 Ag '64
Meeting of the ASTM committee B-8; Kansas City, Sept. 17-18 Plating 51:1080+ N '64
New ASTM publications. Published in monthly numbers of Materials research & standards
Statics and dynamics; president's address. I. V. Williams. Materials Res & Stand 4:440-1 Ag '64
Why hold the 1965 annual meeting on a university campus? R. J. Painter. il Material Res & Stand 4:330-1 Je '64

AMERICAN society of body engineers
Annual convention: abstracts of papers. Automotive Ind 129:90 D 15 '63

AMERICAN society of civil engineers
ASCE activity in public affairs. Civil Eng 34:35-7 Ag '64
ASCE annual meeting and first Structural engineering conference, Oct. 7-11; with abstracts of papers. Civil Eng 33:42-9 N '63
ASCE environmental engineering conference, Salt Lake City, May 11-15; program. Civil Eng 34:67-73 Mr '64
ASCE transportation engineering conference, Cincinnati, Feb. 17-21; program. Civil Eng 33:69-75 D '63
Annual meeting and structural engineering conference, New York; abstracts of papers. Eng N 173:11-12 O 29 '64
Annual meeting and structural engineering conference, New York, Oct. 19-23; program. Civil Eng 34:47-55 Ag '64
Board of direction meeting, San Francisco, Oct. 7-8. Civil Eng 33:74-5 N '63
Environmental engineering conference, Salt Lake City; with abstracts of papers. Eng N 172:59 My 21 '64
Hydraulics division conference, Vicksburg, Miss. Aug. 18-21; program. Civil Eng 34:75-7 Je '64
Irrigation and drainage division conference, Los Angeles, Nov. 6-8. Civil Eng 33:40-2 D '63
Transportation conference, Cincinnati; with abstracts of papers. Civil Eng 34:40-6 Mr '64

AMERICAN society of heating, refrigerating and air-conditioning engineers
ASHRAE finances reviewed. W. L. McGrath. ASHRAE J 5:37-9 D '63
ASHRAE officers, directors, committeemen. ASHRAE J 5:97-8+ D '63
ASHRAE officers, directors, committeemen. ASHRAE J 6:92-4 Ap; 84-6 Ag; 85-7 O '64
Annual meeting, 71st, Cleveland. Heating-Piping 36:43-4 Ag '64
Annual meeting, 71st, Cleveland, June 29-July 1; program and abstracts of papers. ASHRAE J 6:67-86 Je; 46-63 Ag '64
Semiannual meeting, New Orleans, Jan. 27-29; program. Air Cond Heat & Ven 61:11+ Ja '64
Semiannual meeting, New Orleans, Jan. 27-29; program and abstracts of papers. ASHRAE J 6:48-83 Ja; 52-73 Mr '64

AMERICAN society of lubrication engineers
Annual meeting and lubrication show; Chicago, May 26-28; program. Lub Eng 20:120-2 Ap '64

AMERICAN society of mechanical engineers
ASME president, vice-presidents, directors nominated. Mech Eng 86:93-5 Ag '64
Annual meeting, Philadelphia; abstracts of papers. Combustion 35:23-9 Ja; 44-7 F '64
Annual report, 1962-63. Mech Eng 86:113-29 Ja '64
Council meeting, Philadelphia, Nov. 17. Mech Eng 86:111+ F '64
Council report to the membership. Mech Eng 86:1R-12R S '64
Incinerator conference and exhibit, 1st, New York, May 18-20. Mech Eng 86:98-9 Jl '64
Inside ASME. Published in monthly numbers of Mechanical engineering
Joint AIPE-ASME plant engineering conference, Los Angeles, April 6-8; program. Mech Eng 86:110-11 F '64
Petroleum mechanical engineering conference, 18th, Tulsa, Okla. Mech Eng 85:103-5 N '63
Petroleum mechanical engineering conference, 19th, Los Angeles, Sept. 20-23; program. Mech Eng 86:87-9 Ag '64
Regional student conference, 1964; list of papers and prizes. Mech Eng 86:118-19 O '64
Student design contest. diags Mech Eng 86:127-9 Ap '64

AMERICAN society of mechanical engineers—*Continued*

Winter annual meeting, 84th, Philadelphia, Nov. 17-22. Mech Eng 86:84-103 Ja '64

Winter annual meeting, 85th, New York, Nov 29-Dec 3, advance program, availability of papers. Mech Eng 86:92-112 O '64

Winter annual meeting, Philadelphia, Nov. 18-22; abstracts of papers. Power Eng 68:53-4 Ja '64

Woman's auxiliary announces mechanical engineering student awards. Mech Eng 85:106-7 N '63

See also

Design engineering conference

National power conference

Gas turbine power division

Annual conference and products show, 9th, Houston. Mech Eng 86:169-70 Ap '64

AMERICAN society of naval engineers

ASNE day 1964. Naval Eng J 76:334-50+ Je '64

ASNE day 1965. Naval Eng J 76:509-10 Ag '64

What is ASNE? Naval Eng J 76:594 Ag '64

AMERICAN society of tool and manufacturing engineers

Conference and exposition, Detroit, April 20-24; products on display. Mach 70:151-75 Ap '64

Engineering conference and tool exposition, Detroit, Apr. 20-24; with list of exhibitors and products on display. Tool & Manuf Eng 52:129-68 Ap '64

Engineering conference and tool exposition, Detroit, April 20-24; with preview of products. Steel 154:90-1, 143-4+ Ap 13 '64

Engineering conference and tool exposition, Detroit, April 20-24; with program, list of exhibitors and products on display. Iron Age 193:108+, 122+ Ap 9 '64

Introducing ASTME's 1964 honor award winners. Tool & Manuf Eng 52:95-6 My '64

AMERICAN standards association

American standard practice for roadway lighting. il diags Illum Eng 59:73-112 F '64

Company member conference, Philadelphia, Nov. 6-7. Mag of Stand 35:7-11 Ja '64

AMERICAN vacuum society

Annual meeting, 11th; abstracts of papers. Res/Develop 15:66-9 N '64

Founding of the American vacuum society. J. B. Merril. Res/Develop 15:66-7 S '64

AMERICAN water works association

Annual conference, 83d, Kansas City, May 19-24; with program, list of exhibitors, officers and awardees. Am Water Works Assn J 55:1579-96 D '63

Annual conference, 84th, Toronto, May 31-June 5; abstracts of papers. Water Works & Wastes Eng 1:60-1 Je; 39+ Jl; 47-8 Ag '64

Annual conference, 84th, Toronto, May 31-June 5; with program, list of exhibitors and floor plan. Am Water Works Assn J 56:sup 48+ Ap; sup60+ My '64; Water Works & Wastes Eng 1:85-7 My '64

Committee reports, publications and auditors' reports for the year ending Dec. 31, 1963; membership growth, membership awards. Am Water Works Assn J 56:480-518 Ap '64

Honors "better men" at record Toronto conference. Water Works & Wastes Eng 1:40-1 Jl '64

Illinois section annual meeting, 55th, Chicago, March 17-20. Water & Sewage Works 111:299 Je '64

Indiana section, annual meeting, 56th, Indianapolis, Feb. 5-7. Water & Sewage Works 111:287 Je '64

Ohio section annual conference, 25th, Cleveland, Oct. 30-Nov. 1. Water & Sewage Works 111:150-1 Mr '64

Progressing toward AWWA's objectives; presidential address. J. G. Copley. Am Water Works Assn J 56:1-3 Ja '64

Then as now, better men for better service; address by past-president at AWWA conference, Toronto. J. G. Copley. Am Water Works Assn J 56:823-4 Jl '64

AMERICAN welding society

Annual meeting and exposition, Detroit, May 5-7; with presidents address. Welding J 43:522+ Je '64

Annual meeting and exposition, 45th, Detroit, May 4-8; with preview of exhibits. Steel 154:53+, 115-16+ Ap 27 '64

Annual meeting and welding show, 45th, Detroit, May 4-8; abstracts of papers. Steel 154:139+ My 4 '64

Annual meeting, 45th, and ASME metals engineering conference, Detroit, May 4-8; program and list of exhibitors. Welding J 43:317-22, 336-40 Ap '64; Welding Eng 49:60+ Ap '64

Fall meeting, Boston, Sept. 30-Oct. 3; with program. Welding J 42:731-2+, 896+ S, N '63

National fall meeting, San Francisco, Oct. 5-8; program. Welding J 43:768-72 S '64

AMERICIUM

Separation of americium from curium with calcium fluoride. H. P. Holcomb. bibliog diag Anal Chem 36:2329-32 N '64

Analysis

Emission spectrographic determination of americium in plutonium. C. E. Pietri and A. W. Wenzel. bibliog Anal Chem 36:1937-9 S '64

Isotopes

Rapid radiochemical analysis for americium-241. M. H. Campbell. bibliog Anal Chem 36:2065-7 O '64

AMES, Bruce N.

ACS award in biological chemistry. por Chem & Eng N 42:156 Ja 27 '64

AMES, William Melville

Obituary. F. J. Bolton. por Chem & Ind p695-6 Ap 25 '64

AMIDES

Activation energy of deuterium-hydrogen exchange in amides. I. M. Klotz and B. H. Frank. Am Chem Soc J 86:3889 S 20 '64

Amide-amide interaction via a cyclol. G. I. Glover and H. Rapoport. bibliog Am Chem Soc J 86:3397-8 Ag 20 '64

Application of the Ritter reaction to α-olefins. T. Clarke and others. bibliog Am Oil Chem Soc J 41:78-82 Ja '64

Cis and *trans* configurations of the peptide bond in N-monosubstituted amides by nuclear magnetic resonance. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 86:337-41 F 5 '64

Configurations in unsymmetrically N,N-disubstituted amides. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 85:3728-30 D 5 '63

Diborane as a mild reducing agent for the conversion of primary, secondary, and tertiary amides into the corresponding amines. H. C. Brown and P. Heim. Am Chem Soc J 86:3566-7 S 5 '64

Facilitated reversible formation of amides from carboxylic acids in aqueous solutions; intermediate production of acid anhydride. T. Higuchi and others. Am Chem Soc J 85:3655-60 N 20 '63

Formation of an isocyanide and a ketone from an α-haloamide. J. C. Sheehan and I. Lengyel. Am Chem Soc J 86:746-7 F 20 '64

Gas chromatographic separation of amines and amides. J. F. O'Donnell and C. K. Mann. Anal Chem 36:2097-9 O '64

Gas-liquid chromatography of polar fatty derivatives. R. A. Morrissette and W. E. Link. bibliog Am Oil Chem Soc J 41:415-18 Je '64

Gem-dihalides from α-haloamides. C. L. Stevens and others. bibliog Am Chem Soc J 85:3390-6 N 5 '63

Infrared spectra-structure correlations of aliphatic amides in the 700- to 250-cm.$^{-1}$ region. J. E. Katon and others. bibliog Anal Chem 36:2126-30 O '64

Mass spectral studies; fragmentation of aromatic amides. K. G. Das and others. Am Chem Soc J 86:3729-32 S 20 '64

N-methylol, N-substituted amides as cross-linking reagents for cotton. S. L. Vail and C. M. Moran. bibliog Am Dyestuff Rep 53:282-6 Ap 13 '64

Oxygen-18 study of the dehydration of asparagine amide with N,N'-dicyclohexylcarbodiimide and *p*-toluenesulfonyl chloride. D. V. Kashelikar and C. Ressler. bibliog Am Chem Soc J 86:2467-73 Je 20 '64

Selective reductions; the partial reduction of tertiary amides by lithium di- and triethoxyaluminohydrides: a new aldehyde synthesis via the dimethylamides. H. C. Brown and A. Tsukamoto. bibliog Am Chem Soc J 86:1089-95 Mr 20 '64

Spectrophotometric titration of primary aliphatic amides. W. R. Post and C. A. Reynolds. bibliog Anal Chem 36:781-3 Ap '64

Three new polyamide resins. il Plastics Tech 9:9 D '63

Analysis

Use of differential reaction rates to analyze mixtures of organic materials containing the same functional group; application to amides and nitriles. S. Siggia and others. Anal Chem 36:227-8 Ja '64

AMINATION

Amination of 5-ethyl-2-methylpyridine. R. F. Childs and A. W. Johnson. Chem & Ind p542 Mr 28 '64
Amination of pyridine. G. C. Barrett and K. Schofield. bibliog Chem & Ind p 1980 D 21 '63
Aromatic amination with hydrazoic acid catalyzed by Lewis acids; orientation, activity, and relative rates. P. Kovacic and others. bibliog Am Chem Soc J 86:1588-92 Ap 20 '64
Direct amination of 3-ethylpyridine. Y. Ban and T. Wakamatsu. bibliog Chem & Ind p710-11 Ap 25 '64
Mechanism of the amination of pyridine. R. A. Abramovitch and others. Chem & Ind p659-60 Ap 18 '64
New method of aromatic substitution yielding unusual orientation; amination with N-haloamines catalyzed by aluminum chloride. P. Kovacic and others. bibliog Am Chem Soc J 86:1650-1 Ap 20 '64
Reaction of acyl chlorides with aminized cotton. P. E. Robbins and H. H. Perkins. Am Dyestuff Rep 52:915-19 N 11 '63
Synthesis of pyrazines; cycloamination of alkanolamines. W. K. Langdon and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:8-11 Mr '64
Toluene amination gives m-toluidine. P. Kovacic and others. il Chem & Eng N 42:56 S 14 '64

AMINE oxides

Amine oxides: Aromox. Drug & Cosmetic Ind 94:750 My '64
Analysis of detergent mixtures containing amine oxides. H. Y. Lew. bibliog Am Oil Chem Soc J 41:297-300 Ap '64
Fatty amine oxides. E. Jungermann and M. E. Ginn. bibliog Soap & Chem Spec 40:59-62 S '64
Recent advances in fatty amine oxides. D. B. Lake and others. bibliog Am Oil Chem Soc J 40:628-31. 640-2 N '63
Tertiary amine oxide rearrangements; the mechanism of the demethylation of nicotine. J. C. Craig and others. bibliog Am Chem Soc J 86:3866-9 S 20 '64
Thermal decomposition of dimethyllaurylamine oxide. G. P. Shulman and W. E. Link. bibliog Am Oil Chem Soc J 41:329-31 Ap '64

Analysis

Application of gas chromatography to the detection of *tert*-amine oxides. J. C. Craig and others. bibliog Anal Chem 36:1142-3 My '64

AMINES

Adsorption of n-decylamine on solid metal electrodes. J. O. Bockris and D. A. J. Swinkels. bibliog Electrochem Soc J 111:736-43 Je '64
Armour markets amine oxides as surface-active agents. Chem & Eng N 42:86-7 Mr 9 '64
Carbon monoxide insertion reactions; the reaction of methylmanganese pentacarbonyl with amines and phosphines. R. J. Mawby and others. bibliog Am Chem Soc J 86:3994-9 O 5 '64
Characterization and separation of amines by gas chromatography. W. J. A. Vanden Heuvel and others. bibliog Anal Chem 36:1550-60 Jl '64
Condensation of formaldehyde with N-bis(2-haloethyl)amines; structure of the products. G. R. Pettit and J. A. Settepani. Chem & Ind p 1805 O 24 '64
Configuration of isocarvomenthylamine and the carvyl- and carvotanacetylamines. S. Schroeter and E. L. Eliel. bibliog Am Chem Soc J 86:2066-7 My 20 '64
Correlation of thermodynamic properties of amine-water solutions with molecular structure. R. R. Davison and others. bibliog A I Ch E J 10:471-4 Jl '64
Diborane as a mild reducing agent for the conversion of primary, secondary, and tertiary amides into the corresponding amines. H. C. Brown and P. Heim. Am Chem Soc J 86:3566-7 S 5 '64
Direct method for reductive deamination of aliphatic amines. A. Nickon and A. S. Hill. bibliog Am Chem Soc J 86:1152-8 Mr 20 '64
Direct synthesis of amine alanes. E. C. Ashby. Am Chem Soc J 86:1882-3 My 5 '64
Enamines as dipolarophiles in 1,3-dipolar addition reactions. M. E. Munk and Y. K. Kim. bibliog Am Chem Soc J 86:2213-17 Je 5 '64
Extractability of selected metal ions with high molecular weight amines. B. E. McClellan and V. M. Benson. bibliog Anal Chem 36:1985-7 S '64
Filming amines, positive protection for the condensate return system. Oil & Gas J 62:74 Je 1 '64
Gas chromatographic separation of amines and amides. J. F. O'Donnell and C. K. Mann. Anal Chem 36:2097-9 O '64
Induced decompositions of di-*t*-butyl peroxide in primary and secondary amines. E. S. Huyser and others. bibliog Am Chem Soc J 86:4148-51 O 5 '64
Ionization and proton exchange of amines in acetic acid. E. Grunwald and E. Price. bibliog Am Chem Soc J 86:2965-77 Ag 5 '64
Maleic anhydride and tertiary amines form dangerous mix. W. R. Davie. Chem & Eng N 42:41 F 24 '64
Mechanism of amine-catalysed aldol cyclisation. T. A. Spencer and K. K. Schmiegel. bibliog Chem & Ind p 1765-6 N 2 '63
Mechanism of the rearrangement of *p*-quinamines to 4-aminodiphenyl ethers. B. Miller. bibliog il Am Chem Soc J 86:1127-35 Mr 20 '64
Oxidation of primary, secondary, and tertiary amines with neutral potassium permanganate. H. Shechter and S. S. Rawalay. bibliog Am Chem Soc J 86:1706-9 My 5 '64
Photoionization and γ-induced oxidation of aromatic amines in rigid organic glasses. M. Kondo and others. bibliog Am Chem Soc J 86:1297-300 Ap 5 '64
Preparation of tris(trimethylsilyl)- and tris(trimethylstannyl)amines. W. L. Lehn. Am Chem Soc J 86:305 Ja 20 '64
Raman spectra of diamines and diammonium ions; effects of ionization on carbon-hydrogen stretching frequencies. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:559-64 F 20 '64
Reaction mechanism and fixation of monochloro-*s*-triazine dyes on cellulose using tertiary amine catalysts. T. L. Dawson. pl Soc Dyers & Col J 80:134-43 Mr '64
Reaction of difluoramine with some allyl-and cyclopropylcarbinylamines. C. L. Bumgardner and J. P. Freeman. Am Chem Soc J 86:2233-5 Je 5 '64
Reactions of formaldehyde with aromatic amines. W. V. Farrar. bibliog J Ap Chem 14:389-99 S '64
Re-examination of some reported rearrangements of quinamines. B. Miller. Am Chem Soc J 86:1135-8 Mr 20 '64
Solvent effects in organic chemistry; the failure of tertiary aromatic amines as Hammett bases. E. M. Arnett and G. W. Mach. bibliog Am Chem Soc J 86:2671-7 Jl 5 '64
Specifically solvated ion-pair intermediates in nitrous acid deamination of an axial amine. T. Cohen and E. Jankowski. bibliog Am Chem Soc J 86:4217-18 O 5 '64
Study of aromatic amine inhibitors by nuclear magnetic resonance. P. F. Cox and others. bibliog Corrosion 20:299-302 S '64
Thiol interactions in sugar-amine systems. D. L. Ingles. bibliog Chem & Ind p 1901-2 N 30 '63
Use of lone pairs in conformational analysis. T. A. Claxton. bibliog Chem & Ind p 1713-14 O 10 '64
Volume requirement of the unshared pair of electrons in amines. N. W. J. Pumphrey and M. J. T. Robinson. bibliog Chem & Ind p 1903-4 N 30 '63

See also
Benzylamine
Ethylamine
Ethylenediamine
Methylamine
Triethylamine

Analysis

Determination of some diamines in the presence of adipic acid, amines, and amino acids. V. J. Farrugia and P. C. Christopher. Anal Chem 36:435-6 F '64
Spectrophotometric determination of primary amines in aqueous solution with copper-(ethylenedinitrilo) tetraacetic acid. I. M. Citron and A. Mills. Anal Chem 36:208-10 Ja '64

AMINO acids

Action of oxygen on amino-acids in relation to self-heating of moist wool. H. P. Rothbaum. bibliog J Ap Chem 14:165-74 Ap '64
Activity of amino acid-activating enzymes in tissues from protein-depleted rats. S. Gaetani and others. bibliog J Nutrition 84:173-8 O '64
Amino-acid analysis of orthocortex from Lincoln wool. A. R. Haly and A. S. Inglis. bibliog Textile Res J 34:562-3 Je '64
Amino-acid and vitamin contents of bombacopsis glabra kernels. R. J. Abbott and others. bibliog Chem & Ind p 1390-1 Ag 1 '64

AMINO acids—*Continued*

Amino acid balance and imbalance; effect of amino acid imbalance on self-selection of diet by the rat. J. C. Sanahuja and A. E. Harper. bibliog J Nutrition 81:363-71 D '63

Amino acid balance in the adult; high nitrogen-low tryptophan diets. H. Fisher and others. bibliog J Nutrition 81:230-4 N '63

Amino acid composition and nutritive value of proteins. P. B. Rama Rao and others. bibliog J Nutrition 82:88-92 Ja '64

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-94 bibliog (p392-4) Mr '64

Amino acid requirements of children; nitrogen balance at the minimal level of essential amino acids. I. Nakagawa and others. bibliog J Nutrition 83:115-18 Je '64

Amino acids in dog blood and gut contents after feeding zein. E. S. Nasset and others. bibliog J Nutrition 81:343-7 D '63

Amino acids yield to quantitative gas chromatography. C. W. Gehrke and W. M. Lamkin. Chem & Eng N 42:62 S 14 '64

Aminoaciduria after dietary loading in human subjects. G. V. Mann and N. Perry. bibliog Am J Clinical Nutrition 14:163-8 Mr '64

Antagonism of poorly invertible D-amino acids toward growth promotion by readily invertible D-amino acids. S. H. Kamath and C. P. Berg. bibliog J Nutrition 82:237-42 F '64

Antagonism of the D-forms of the essential amino acids toward the promotion of growth by D-histidine. S. H. Kamath and C. P. Berg. bibliog J Nutrition 82:243-8 F '64

Application of a Hammett-Taft relation to kinetics of alkylation of amino acid and peptide model compounds with acrylonitrile. M. Friedman and J. S. Wall. bibliog Am Chem Soc J 86:3735-41 S 20 '64

Availability of amino acids to microorganisms. M. J. Horn and H. W. Warren. bibliog J Nutrition 83:267-72 Jl '64

Benzopyrylium salts; reaction of flavylium perchlorate with ethyl esters of α-amino acids. R. L. Shriner and R. Sutton. bibliog Am Chem Soc J 85:3989-91 D 20 '63

Biochemistry of lungs in relation to silicosis; effect of quartz dust on the protein amino acids of guinea pig lung tissue. P. Bailey and others. bibliog Archives Environmental Health 8:547-54 Ap '64

Chelation as a driving force in organic reactions; a generic synthesis of amino acids by the carboxylation and alkylation of 3-phenylhydantoin. H. Finkbeiner. Am Chem Soc J 86:961-2 Mr 5 '64

Chemical pathology of acute amino acid deficiencies. H. Sidransky and others. bibliog J Nutrition 78:269-77; 82:269-76 N '62, F '64

Cotton effects in aliphatic amino-acids. W. Gaffield. Chem & Ind p 1460-1 Ag 15 '64

Determination of some diamines in the presence of adipic acid, amines, and amino acids. V. J. Farrugia and P. C. Christopher. Anal Chem 36:435-6 F '64

Determination of the essential amino acid proportions needed to allow rapid growth in chicks. D. C. Dobson and others. bibliog J Nutrition 82:67-75 Ja '64

Effect of phytic acid on the availability of zinc in amino acid and casein diets fed to chicks. H. J. A. Likuski and R. M. Forbes. bibliog J Nutrition 84:145-8 O '64

Effect of selenium, sulfur and sulfur amino acids on nutritional muscular dystrophy in the lamb. H. F. Hintz and D. E. Hogue. bibliog J Nutrition 82:495-8 Ap '64

Effects of metal ions on protein magnetic resonance spectra and rates of alkaline hydrolysis of some amino acid esters. R. Mathur and N. C. Li. bibliog Am Chem Soc J 86:1289-92 Ap 5 '64

Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63

Free amino acids in plasma and tissues of rats fed a vitamin B_6-deficient diet. M. E. Swendseid and others. bibliog J Nutrition 82:206-8 F '64

Free amino acids in quartz-dusted guinea pigs. P. Bailey and T. A. Kilroe-Smith. bibliog Archives Environmental Health 9:53-7 Jl '64

Metabolic studies of an amino acid imbalance in cold-exposed rats. G. J. Klain and R. L. Winders. bibliog J Nutrition 82:333-7 Mr '64

More of phosphorylase's structure known. C. Nolan and others. diags Chem & Eng N 42:43-4 Ap 27 '64

New synthesis of a biologically active nonadecapeptide corresponding to the first nineteen amino acid residues of adrenocorticotropins. C. H. Li and others. bibliog il Am Chem Soc J 86:2715-18 Jl 5 '64

Novel amino acid-allantoin compounds for topical application. I. I. Lubowe. Am Perfumer 79:46-50 Jl '64

Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of clinical symptoms and starvation to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:422-6 Ap '64

Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of dietary protein to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:427-31 Ap '64

Optical rotatory dispersion of some amino acids and criteria of protein conformation. L. I. Katzin and E. Gulyas. bibliog Am Chem Soc J 86:1655-9 My 5 '64

Ozone, HCN convert olefins to acids. E. K. Fields. Chem & Eng N 42:65 S 14 '64

Peptide synthesis from N-carboxy-α-amino acid anhydrides in water; aminoacylpenicillanic acids. N. H. Grant and H. E. Alburn. bibliog Am Chem Soc J 86:3870-3 S 20 '64

Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64

Preparation of biaxially oriented polycapramide by the solid state polycondensation of a single crystal of ε-aminocaproic acid. N. Morosoff and others. bibliog il Am Chem Soc J 86:3167 Ag 5 '64

Preservation of fresh unfrozen fishery products by low-level radiation; effects of radiation pasteurization on amino acids and vitamins in clams. R. O. Brooke and others. bibliog Food Tech 18:1060-4 Jl '64

Reaction of cyanogen bromide with mono- and diamino acids. J. Schreiber and B. Witkop. bibliog Am Chem Soc J 86:2441-5 Je 20 '64

Reactions in strong acids; new concept in amino acid chemistry; C-derivatization of amino acids. J. Kollonitsch and others. bibliog Am Chem Soc J 86:1857-8 My 5 '64

Relative potency of diets containing amino acids and proteins for promoting growth of rats. W. D. Salmon. J Nutrition 82:76-82 Ja '64

Role of dispensable amino acids in the nutrition of the rat. L. H. Breuer, jr. and others. bibliog J Nutrition 82:499-506 Ap '64

Serum amino acids in kwashiorkor. R. G. Whitehead and R. F. A. Dean. bibliog Am J Clinical Nutrition 14:313-30 Je '64

Supplementation of cereal proteins with amino acids. R. Bressani and others. bibliog J Nutrition 79:333-9; 80:80-4; 81:399-404 Mr, My, D '63

Supplementation of wheat gluten protein. W. L. Banks, jr. and others. J Nutrition 82:61-6 Ja '64

Synthesis of *cis*- and *trans*-3-hydroxy-L-proline, two new amino acids from the antibiotic telomycin. J. C. Sheehan and J. G. Whitney. bibliog Am Chem Soc J 85:3863-5 D 5 '63

Synthesis, properties, and biological activity of some amino acid derivatives of halogen-substituted phenoxy acids. J. F. Carmichael and others. bibliog J Agri & Food Chem 12:434-6 S '64

Urolithiasis in the rat; influence of amino acid supplements on the occurrence of citrate calculi. R. Van Reen and others. bibliog J Nutrition 83:358-64 Ag '64

Vitamin content and amino acid composition of some African game animals. I. Mann. bibliog J Agri & Food Chem 12:374-6 Jl '64

See also

Arginine
Cystine
Glutamic acid
Histidine
Hydroxyproline
Isoleucine
Leucine
Lysine
Methionine

AMINO acids—See also—*Continued*
Phenylalanine
Serine
Tryptophan
Tyrosine

Analysis

Analysis of mixtures of sugars and mixtures of amino acids by dialysis based on differential kinetics. S. Siggia and others. bibliog Anal Chem 36:638-9 Mr '64

Digitizer for application of computers to automatic amino acid analysis. W. L. Porter and E. A. Talley. diag Anal Chem 36:1692-3 Jl '64

Gas chromatographic analysis of amino acids as *N*-trifluoroacetylamino acid methyl esters. P. A. Cruickshank and J. C. Sheehan. bibliog Anal Chem 36:1191-7 Je '64

Ion exchange chromatography of amino acids; single column, high resolving, fully automatic procedure. P. B. Hamilton. bibliog diags Anal Chem 35:2055-64 D '63

Isolation, concentration, separation, and identification of amino acids in potatoes by ion exchange and paper chromatography. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:112-14 Mr '64

Quantitative chromatographic determination of cysteic acid in amino acid mixtures on ion exchange papers. J. Hartel and A. J. G. Pleumeekers. bibliog il Anal Chem 36:1021-2 My '64

Sample preparation for infrared spectra of agar supported aqueous solutions of amino acids. M. L. Tarver and L. M. Marshall. Anal Chem 36:1401-2 Je '64

Some factors affecting mobility measurements in paper electrophoresis. R. H. Hackman and M. Goldberg. bibliog Anal Chem 36:1220-2 Je '64

AMINOBENZOIC acid

Colorimetric determination of bromate with *o*-aminobenzoic acid. M. H. Hashmi and others. Anal Chem 36:2028-9 S '64

AMINO compounds

Complex formation between trimethylaluminium and amino-compounds. T. Mole. Chem & Ind p281-2 F 15 '64

Condensation of B-aminoborazines with dimethylformamide and amine hydrochlorides. R. H. Toeniskoetter and K. A. Killip. bibliog Am Chem Soc J 86:690-4 F 20 '64

Methyl 4-amino-4-deoxy-α-D-lyxoside. W. G. Overend and others. bibliog Chem & Ind p 1840-1 N 16 '63

Non-enzymatic browning; routes to the production of melanoidins from aldoses and amino-compounds. H. S. Burton and D. J. McWeeny. bibliog Chem & Ind p462-3 Mr 14 '64

Nuclear magnetic resonance studies of protonation of polyamine and aminocarboxylate compounds in aqueous solution. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1698-706 Ag '64

Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64

Polarography of 2-aminoethanethiosulfuric acid and 2-aminoethaneselenosulfuric acid. W. Stricks and R. G. Mueller. bibliog Anal Chem 36:40-4 Ja '64

Preparation of amino-derivatives of sulphur tetrafluoride and phosphorus pentafluoride by silicon-nitrogen bond cleavage reactions. G. C. Demitras and others. Chem & Ind p 1712 O 10 '64

Studies of boron-nitrogen compounds; nuclear magnetic resonance studies of some μ-aminodiboranes and amine boranes. D. F. Gaines and R. Schaeffer. bibliog Am Chem Soc J 86:1505-7 Ap 20 '64

Synthesis of branched-chain amino-sugars. S. W. Gunner and others. Chem & Ind p 1523 Ag 29 '64

AMINO group

Formyl, a novel NH_2-terminal blocking group in a naturally occurring peptide; the identity of *seco*-gramicidin with desformylgramicidin. R. Sarges and B. Witkop. bibliog Am Chem Soc J 86:1861-2 My 5 '64

Polarographic evidence for the binding of zinc to amino-groups of protein. W. U. Malik and Salahuddin. bibliog Chem & Ind p706-7 Ap 25 '64

Three methods for the determination of the degree of substitution at protein-amino groups with special reference to substituted gelatins. W. G. Cobbett and others. bibliog J Ap Chem 14:296-302 Jl '64

AMINOFFITE. See Silicates

AMINOLYSIS. See Ammonolysis

AMINOPHENOLS

Analysis

Spectrophotometric determination of *p*-phenylenediamines and *p*-aminophenols with ninhydrin. R. Suffis and others. Anal Chem 36:636-7 Mr '64

AMINOPROPANE. See Propylamine

AMINOQUINOLINE

Determination of small amounts of manganese by oxidation of 8-aminoquinoline, extraction, and spectrophotometry. V. K. Gustin and T. R. Sweet. bibliog Anal Chem 36:1674-6 Jl '64

AMINOTRIAZOLE

Metabolism of 3-amino-1,2,4-triazole-5-C^{14} by rats. S. C. Fang and others. bibliog J Agri & Food Chem 12:219-23 My '64

AMMETERS

Hallicrafter HM-1 vacuum-tube volt-milliammeter. E. C. Carlson. il Radio-Electronics 35:64 N '64

Meters for beginners. R. G. Middleton. il diags Radio-Electronics 35:44-6 N '64

Sampling directional current meter. J. H. Allen and others. il diag J Sci Instr 41:329-32 My '64

Simple electronic milliammeter. G. F. Weston and P. Schagen. il diags Electronic Eng 36:21-3 Ja '64

AMMONIA

Ammonia maser with separated oscillating fields. S. G. Kukolich. bibliog IEEE Proc 52:211 F '64

Ammonia oxidation; low-cost route to hydrazine; process flowsheet. E. Guccione. il Chem Eng 71:72-4 Mr 2 '64

Ammonia rides fertilizer boom. H. M. Wilson; H. S. Pylant. il map diags Oil & Gas J 62:65-74 F 3 '64

Ammonia substitutes as fuel in internal combustion engine. Chem & Eng N 42:54 S 28 '64

Ammonia symmetrization of organomercuric halides. F. R. Jensen and B. Rickborn. bibliog Am Chem Soc J 86:3784-6 S 20 '64

Ammoniation of triple superphosphate fertilizers with gaseous ammonia and with nitrogen solutions. R. F. Nunn and others. bibliog diag J Agri & Food Chem 12:351-7 Jl '64

Ammoxidation of isobutylene in a coated tube. W. F. Brill and J. H. Finley. bibliog Ind & Eng Chem Product Res & Develop 3:89-93 Je '64

Anhydrous ammonia development in the diazo process. H. Denstman. diag Ind Phot 12:6+ N '63

Anhydrous ammonia may find use as cotton defoliant. Chem & Eng N 42:53-4 F 3 '64

Carbanions; cleavage of 2,2-dimethylpropyl-, 2,2,2-triphenylethyl-, and 3,3,3-triphenylpropyltrimethylammonium iodides by sodium in liquid ammonia. E. Grovenstein, jr. and L. C. Rogers. bibliog Am Chem Soc J 86:854-61 Mr 5 '64

Carbon dioxide and ammonia in aqueous ammonium nitrate solutions. D. F. Othmer and G. J. Frohlich. bibliog diags Ind & Eng Chem Proc Design 3:270-9 Jl '64

Cheap imported ammonia for fertilizer complex. il Chem Eng 71:106 Mr 16 '64

Compressibility of ammonia and its mixtures with nitrogen and hydrogen. I. M. Lichtblau and others. bibliog diag A I Ch E J 10:486-90 Jl '64

Corrosion of iron and steel in NH_4NO_3-NH_3-H_2O solutions. G. Schick and H. H. Uhlig. bibliog il Electrochem Soc J 111:1211-15 N '64

Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64

Electrodeposition of nickel-molybdenum alloys; plating from concentrated ammonia solutions. L. Domnikov. bibliog Metal Finishing 62:57-60 Ag '64

Hall effect in concentrated metal-ammonia solutions. D. S. Byser and J. C. Thompson. Am Chem Soc J 86:4509 O 20 '64

Hazards with ammonia and mercury. G. Thodos. A I Ch E J 10:274 Mr '64

Melamine process based on hydrogen cyanide and ammonia involving electrolytic conversion of hydrogen cyanide. R. W. Foreman and J. W. Sprague. bibliog diags Ind & Eng Chem Product Res & Develop 2:303-7 D '63

Mercury(II) complexes of guanidine and ammonia, and a general discussion of the complexing of mercury(II) by nitrogen bases. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4325-9 O 20 '64

AMMONIA—*Continued*

Metal-ammonia reduction of an allene. J. M. Brown. bibliog Chem & Ind p 1689 O 19 '63

Neighboring group reactions; a trapped tetrahedral intermediate from the reaction of a bromolactone with ammonia. H. E. Zaugg and others. bibliog Am Chem Soc J 86:1399-402 Ap 5 '64

New catalysts for the exchange of deuterium between hydrogen gas and liquid ammonia. A. R. Kenyon and D. Pepper. bibliog diag J Ap Chem 14:399-405 S '64

Ortho-substitution rearrangement and other reactions of α-substituted benzyltrimethyl ammonium ion-alcohols with potassium amide in liquid ammonia. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1394-8 Ap 5 '64

Rare gas ion reactions with ammonia. G. R. Hertel and W. S. Koski. bibliog Am Chem Soc J 86:1683-5 My 5 '64

Reaction kinetics of the formation of hexamethylenetetramine. R. K. Wood and W. F. Stevens. bibliog flow diag J Ap Chem 14:325-30 Ag '64

Reaction of CH radicals with ammonia. D. R. Safrany and others. Am Chem Soc J 86:3160 Ag 5 '64

Reaction of producing hydrogen peroxide in liquid ammonia. K. E. Mironov and others. bibliog AIAA J 1:2915-16 D '63

Reactions of metal-ammonia solutions; kinetics of potassium-liquid ammonia reaction at room temperature. D. Y. P. Chou and others. bibliog Am Chem Soc J 85:3530-1 N 5 '63

Refinery features ammonia and acid pressure leaching and hydrogen reduction; process flowsheet. Can Chem Process 48:57-8 S '64

Solve measuring problems in piping liquefied NH$_3$. C. A. Lee. diags Heating-Piping 36:102-5 Je '64

Stereochemistry of the lithium-ammonia reduction of α,β-unsaturated ketones. G. Stork and S. D. Darling. bibliog Am Chem Soc J 86:1761-8 My 5 '64

Structure-reactivity relationship of olefin reductions with lithium in ethylamine; a comparison of the ethylamine and ammonia systems. A. P. Krapcho and M. E. Nadel. bibliog Am Chem Soc J 86:1096-100 Mr 20 '64

Study of ammoniation reactions in a fluidized bed of superphosphate. L. F. Albright and others. bibliog flow sheet J Agri & Food Chem 12:73-9 Ja '64

Tracer experiments on alkaline hydrolysis of some oxalate ammonia cobalt(III) complexes. C. Andrade and H. Taube. bibliog Am Chem Soc J 86:1328-30 Ap 5 '64

Use of ammonia for reducing ari-heater corrosion at Bankside generating station, C.E.G.B. J. T. S. Gundry and others. bibliog plan diags Combustion 36:39-47 O '64

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

X-ray powder diffraction patterns of nickel cyanide-ammonia complex, nickel cyanide-ammonia-benzene clathrate and nitrogen-quinol clathrate. V. M. Bhatnagar and J. A. R. Cloutier. bibliog il Chem & Ind p707-9 Ap 25 '64

Analysis

Analysis of ammonia-hydrazine mixtures for both components. S. S. Yamamura and J. H. Sikes. bibliog Anal Chem 35:1958-60 N '63

Apparatus for the automatic quantitative determination of ammonia concentrations in air. M. J. Kolbezen and others. bibliog il diags Anal Chem 36:593-6 Mr '64

Coulometric titration of ammonia with hypobromite using direct amperometric end point detection. G. D. Christian and others. Anal Chem 35:2217-19 D '63

Indirect spectrophotometric determination of ammonia. J. H. Howell and D. F. Boltz. bibliog Anal Chem 36:1799-802 Ag '64

Spectrophotometric determination of ammonia as rubazoic acid with bispyrazolone reagent. L. Procházková. bibliog Anal Chem 36:865-71 Ap '64

Manufacture

Ammonia; C F Braun & co. diag Hydrocarbon Process & Pet Refiner 42:143 N '63

Ammonia; Chemical construction corp. diag Hydrocarbon Process & Pet Refiner 42:144 N '63

Ammonia (Claude process); the Fluor corp. diag Hydrocarbon Process & Pet Refiner 42:145 N '63

Ammonia for the heavy organic industry; abstract and discussion. P. W. Reynolds. Chem & Ind p 1327-8 Jl 18 '64

Ammonia; Foster Wheeler corp. diag Hydrocarbon Process & Pet Refiner 42:146 N '63

Ammonia; Girdler corp. diag Hydrocarbon Process & Pet Refiner 42:147 N '63

Ammonia; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:149 N '63

Ammonia products plant will use 50 million therms a year. R. Hays. il plan Gas 40:69-72 My '64

Ammonia synthesis plant kinetics. G. E. Hays and others. bibliog il Chem Eng Prog 60:61-5 Ja '64

Ammonia; the M. W. Kellogg co. diag Hydrocarbon Process & Pet Refiner 42:148 N '63

Canadians expand ammonia capacity. Chem & Eng N 42:25 Je 1 '64

Decade of progress in ammonia technology. H. S. Pylant. il map diags Oil & Gas J 62:68-74 F 3 '64

Giant economy-size compressors save for ammonia plant. T. R. Kendrick. il Oil & Gas J 62:150-1 My 11 '64

How much ammonia for world's needs? L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:135-40 O '64

New ammonia plant features Texas-size equipment. E. P. Wells and others. il diag Oil & Gas J 62:92-5 Jl 20 '64

Novel scheme for anhydrous ammonia; process flowsheet. D. J. Carra and R. A. McAllister. Chem Eng 70:62-4 D 23 '63

Selected process flow sheets for petrochemicals. Oil & Gas J 62:118 S 7 '64

Small NH$_3$ plants may compete with large. diags Chem & Eng N 41:38-9 D 30 '63

Trinidad ammonia plant goes on stream. il Oil & Gas J 62:145 My 18 '64

Will NH$_3$/CH$_3$OH synthesis work here? diag Can Chem Process 47:70-2 D '63

Transportation

World's first refrigerated ammonia tanker delivered by Verolme's Rotterdam shipyard. il Marine Eng/Log 69:62-3 O '64

AMMONIATION. See Ammonia

AMMONIUM

Ammonium in alkali feldspars. D. S. Barker. bibliog Am Mineralogist 49:851-8 Jl '64

Buddingtonite, an ammonium feldspar with zeolitic water. R. C. Erd and others. bibliog diags Am Mineralogist 49:831-50 Jl '64

Effects of solutions of urea and of ammonium and potassium salts on the germination of kale, barley and wheat. J. K. R. Gasser. Chem & Ind p 1687-9 O 3 '64

Solvent effects in organic chemistry; solvation of stable carbonium and ammonium ions in water; the temperature coefficient of the (*H*-R acidity scale. E. M. Arnett and R. D. Bushick. bibliog Am Chem Soc J 86:1564-71 Ap 20 '64

AMMONIUM acetate

Ion exchange separation of acetamide from ammonium acetate and its determination. P. King and J. R. Simmler. bibliog Anal Chem 36:1837-8 Ag '64

Studies of rat liver and kidney enzymes; response to dietary protein deficiency and repletion during chronic administration of ammonium acetate and L-glutamine. J. H. Hutchinson and D. H. Labby. bibliog Am J Clinical Nutrition 14:302-9 My '64

AMMONIUM chloride

Quantitative determination of kaolinite and halloysite by NH$_4$Cl retention measurement. K. Wada. bibliog diag Am Mineralogist 48:1286-99 N '63

AMMONIUM citrate

Quality of phosphorus in mixed fertilizers as revealed by solubility in water, neutral ammonium citrate, and alkaline ammonium citrate solutions. J. W. Gilliam and B. Wright. bibliog J Agri & Food Chem 12:205-7 My '64

AMMONIUM compounds

Association of tetrabutylammonium bromide in methanol-nitrobenzene mixtures. R. L. Kay and D. F. Evans. bibliog Am Chem Soc J 86:2748-9 Jl 5 '64

Benzalkonium creams. Drug & Cosmetic Ind 95:429 S '64

Carbanions; cleavage of 2,2-dimethylpropyl-, 2,2,2-triphenylethyl-, and 3,3,3-triphenylpropyltrimethylammonium iodides by sodium in liquid ammonia. E. Grovenstein, jr. and L. C. Rogers. bibliog Am Chem Soc J 86:854-61 Mr 5 '64

AMMONIUM compounds—*Continued*
Catalysis of the decomposition of *N*-nitrosotriacetonamine by a polymeric quaternary hydroxide. M. S. M. Alger and others. bibliog Chem & Ind p2008-9 D 28 '63
Determination of quaternary ammonium compounds and similar biocides in alkaline solution. A. M. Upperton. Chem & Ind p 192 F 1 '64
Effect of pH and salt content of the hypophase on molecular area relationships for monomolecular films of quaternary ammonium stearates. J. L. Pauley and others. bibliog J Colloid Sci 19:602-5 S '64
Fused organic salts; bromohydroxy- and nitrohydroxydebromination and other reactions of organic halides with molten quaternary ammonium nitrates. J. E. Gordon. bibliog Am Chem Soc J 86:4492-3 O 20 '64
Influence of basicity of benzylic carbanion on the *ortho*-substitution rearrangement of certain α-carbonyl benzyltrimethylammonium compounds. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1108-10 Mr 20 '64
Isoracemization of trialkylammonium carbanide ion pairs. D. J. Cram and L. Gosser. Am Chem Soc J 86:2950-2 Jl 20 '64
Light scattering measurements on solutions of some quaternary ammonium salts. S. P. Wasik and W. D. Hubbard. bibliog J Res Nat Bur Stand 68A:359-65 Jl '64
N,N′-bis(2-dimethylaminoethyl)urea; preparation and pyrolysis of the di-*N*-oxide and the quaternary ammonium hydroxide derivatives. A. Crawshaw and A. N. Mason. Chem & Ind p365 F 29 '64
New approach to quaternary ammonium compounds. W. J. Shibe, jr. and D. H. Hanson. bibliog Soap & Chem Spec 40:83-5+ Jl '64
Ortho-substitution rearrangement and other reactions of α-substituted benzyltrimethylammonium ion-alcohols with potassium amide in liquid ammonia. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1394-8 Ap 5 '64
Reinvestigation of the pyrolysis of tetramethylammonium hydroxide. W. K. Musker. bibliog Am Chem Soc J 86:960-1 Mr 5 '64
Synthesis of tetraisoamylammonium tetraisoamylboride; a reference electrolyte for the evaluation of single ion conductivities. J. F. Coetzee and G. P. Cunningham. Am Chem Soc J 86:3403-4 Ag 20 '64
Trimethylphenylammonium iodide as a quantitative precipitant for gold. W. W. White and J. R. Zuber. bibliog Anal Chem 36:2363-4 N '64
Use of a quaternary ammonium compound for quantitative estimation of active sites in water-soluble polyanions. L. Stoloff and J. Blethen. Anal Chem 36:2192-4 O '64

AMMONIUM nitrate
Bulk loading of ammonium nitrate blasting agents. J. E. Wilson. il Min Cong J 49:60-3 D '63
Canadian mine manufactures ammonium nitrate; builds a better prill; Cominco. Eng & Min J 165:68 Ja '64
Carbon dioxide and ammonia in aqueous ammonium nitrate solutions. D. F. Othmer and G. J. Frohlich. bibliog diags Ind & Eng Chem Proc Design 3:270-9 Jl '64
Corrosion of iron and steel in NH_4NO_3-NH_3-H_2O solutions. G. Schick and H. H. Uhlig. bibliog il Electrochem Soc J 111:1211-15 N '64
Effect of potential of mild steel on stress corrosion cracking in ammonium nitrate solutions. Z. Szklarska-Smialowska. bibliog diag Corrosion 20:198-202 Je '64
Electrochemical behavior and corrosion of iron crystals in ammonium nitrate solutions. J. Flis and others. bibliog il diags Corrosion 20:184-8 Je '64
How Benquet measures FO in AN-FO. Eng & Min J 165:111 Mr '64
Inhibition of ammonium nitrate corrosion of mild steel. D. Gherardi and others. bibliog il diag Corrosion 20:73-9 Mr '64
Metallized agents trim shooting costs. Coal Age 69:124+ Je '64
Metallized blasting agents based on ammonium nitrate and aluminum chips. il Min Cong J 50:115 Je '64
Recent trends in the use of explosives in mining. M. D. Saunders. il Can Min & Met Bul 57:933-8 S '64
Research on primers for blasting agents. N. M. Junk. il diags Min Cong J 50:98-101 Ap '64
Safety and efficiency in hole loading and blasting with AN-FO. G. H. Damon. bibliog diags Pit & Quarry 56:89-94 D '63
Small diameter AN-FO blasting methods cut underground mining costs at Aguilar. M. Rossetti and G. Preisz. il diags Eng & Min J 164:94-7 D '63
Successful aluminum slurry blasts paved way for Dow's explosives algebra. C. H. Grant. il diags Eng & Min J 165:98-102 Ag '64
Truck mixes and charges AN-fuel oil at job. il Coal Age 69:116 Ag '64
Vertical drilling and new bulk AN/fuel oil blasting system; Enos coal mining div. of Interlake iron corp. J. R. Kerr. il Min Cong J 50:56-9 S '64

Manufacture

Ammonia products plant will use 50 million therms a year. R. Hays. il plan Gas 40:69-72 My '64
Ammonium nitrate and nitric acid; Chemical & industrial corp. diag Hydrocarbon Process & Pet Refiner 42:150 N '63
Nitrogen fertilizer plant integrates Dutch and American know-how; process flowsheet. P. Ellwood. Chem Eng 71:136-8 My 11 '64

AMMONIUM perchlorate
Deflagration characteristics of ammonium perchlorate strands. L. J. Shannon and E. E. Petersen. bibliog diag AIAA J 2:168-9 Ja '64
Effect of oxidizer concentration on combustion instability of a solid propellant. D. W. Rice. bibliog AIAA J 2:1654-5 S '64
Effect of radiation on ammonium perchlorate propellants. T. Acker and others. AIAA J 2:1165 Je '64
Nonacoustic combustion pulsations of ammonium perchlorate containing aluminum. Y. H. Inami and H. Shanfield. AIAA J 2:1314-18 Jl '64

AMMONIUM persulfate
Ammonium persulfate irritant. Drug & Cosmetic Ind 94:110 Ja '64

AMMONIUM phosphates
Ammoniation of fluidized triple superphosphate fertilizers. E. G. Shook and others. J Agri & Food Chem 12:347-51 Jl '64
Ammoniation of triple superphosphate fertilizers with gaseous ammonia and with nitrogen solutions. R. F. Nunn and others. bibliog diag J Agri & Food Chem 12:351-7 Jl '64
Calcium ammonium orthophosphates. A. W. Frazier and others. bibliog J Agri & Food Chem 12:198-201 My '64
Conduction in single crystals of ammonium dihydrogen phosphate. E. J. Murphy. bibliog J Ap Phys 35:2609-14 S '64
Crystal perfection of ammonium dihydrogen phosphate. R. F. Belt. il diag J Ap Phys 35:3063-4 O '64
Diffusivity of ammonium dihydrogen phosphate in aqueous solutions. J. W. Mullin and T. P. Cook. bibliog il diags J Ap Chem 13:423-9 O '63
Novel solution to special fire problem; monoammonium phosphate. il Safety Maint 127:42-3 Mr '64
Optical observation of elastic resonances in $NH_4H_2PO_4$. D. J. A. Gainon and others. bibliog il diag J Ap Phys 35:1166-8 Ap '64

AMMONIUM sulfate
Crystallization of anhydrous copper sulfate from sulfuric acid: ammonium sulfate mixtures. P. M. Gruzensky. il J Res Nat Bur Stand 68A:313-15 My '64
Separation of scandium from yttrium, rare earths, thorium, zirconium, uranium, and other elements by anion exchange chromatography in ammonium sulfate media. H. Hamaguchi and others. bibliog Anal Chem 36:2304-6 N '64

AMMONOLYSIS
Aminolysis of thioacyl and selenoacyl analogs. H. G. Mautner and others. bibliog Am Chem Soc J 85:3458-62 N 5 '63
Concerning the mechanism of the hydrolysis and aminolysis of Schiff bases. K. Koehler and others. bibliog Am Chem Soc J 86:2413-19 Je 20 '64
Intramolecular aminolysis of esters and transamidation. R. B. Martin and others. bibliog Am Chem Soc J 86:2406-13 Je 20 '64

AMMUNITION
See also
Bullets
Projectiles

AMPEROMETRIC titrations. See Volumetric analysis

AMPHIBIA
Chemistry of amphibian metamorphosis. E. Frieden. il diags Sci Am 209:110-18 N '63

AMPHIBIOUS motor vehicles. See Motor vehicles, Amphibious

AMPHIBOLES

Calciferous brown amphibole in alkalic gabbro of Koraput, Orissa, India. M. K. Bose. bibliog Am Mineralogist 48:1405-9 N '63

Cummingtonite-grunerite series; a chemical, optical and X-ray study. C. Klein, jr. bibliog Am Mineralogist 49:963-82 Jl '64

Mineralogy and paragenesis of amphiboles from Gibson Peak plution, northern California. P. W. Lipman. Am Mineralogist 49:1321-30 S '64

See also

Grunerite

AMPHIBOLITES

Mineralogy of amphibolite interlayers in the gneiss complex, northwest Adirondack Mountains, New York. A. E. J. Engel and others. map J Geol 72:131-56 bibliog(p 155-6) Mr '64

Petrochemistry of a Precambrian amphibolite from the Jaraquá area, São Paulo, Brazil. C. D. Gomes and others. bibliog maps diag J Geol 72:664-80 S '64

AMPHITHEATERS

Tripod supports bandshell roof. il Eng N 172:30 F 6 '64

AMPHOTERIC substances

Solid solubility and amphoteric behavior of tin in solution grown gallium phosphide. F. A. Trumbore and others. bibliog Electrochem Soc J 111:748-50 Je '64

AMPLIFIERS

Alignment of a logarithmic amplifier-detector. R. E. Richardson. diags R Sci Instr 34:1146-7 D '63

Amplifier can be adjusted to cancel unbalanced noise. J. R. Smith, jr. diag Electronics 37:60-1 Ag 24 '64

Amplifier improves peak voltmeter response. M. Uno. diag Electronics 37:73 Ap 20 '64

Analysis of a half-cycle-response magnetic amplifier with resistance or a-c servomotor load. J. S. Bajwa and H. R. Weed. bibliog il diags IEEE Trans Applications & Ind 83:222-33 Jl '64

Analysis of halfwave magnetic servoamplifier with biased-rectifier control. B. K. Bose. bibliog diags Inst E E Proc 111:869-76 Ap '64

Antisymmetrical amplifier networks. A. W. Keen. bibliog diags Radio & Electronic Eng 27:277-84 Ap '64

Bandpass pulse amplifiers with optimal bandwidth-overshoot characteristics. W. S. Metcalf. bibliog diags Inst E E Proc 111:1401-6 Ag '64

Beam stability in dc-pumped cyclotron-synchronous wave amplifiers. J. C. Bass. IEEE Proc 52:843 Jl '64

Bomb-proof amplifiers. Electronics 37:30+ Ag 24 '64

Broadband balanced idler circuit for parametric amplifiers. J. D. Pearson and K. S. Lunt. bibliog diags Radio & Electronic Eng 27:331-5 My '64

Characteristics of broadband parametric amplifiers using filter networks. B. L. Humphreys. bibliog diags Inst E E Proc 111:264-74 F '64

Code in the head. T. Roddam. diags Wireless World 70:309-12 Je '64

Comb-type-slow-wave structure for TWM applications. F. S. Chen. bibliog diags Bell System Tech J 43:1035-66 My '64

Complex magnetic susceptibility of maser rubies at microwave frequencies. H. Kiemle and H. Rothe. IEEE Proc 52:1243 O '64

Demonstration of linear amplification using cryotrons. P. M. Chirlian and V. A. Marsocci. il IEEE Proc 51:1792 D '63

Dielectric parametric amplifier. T. R. Billeter and others. bibliog diag J Ap Phys 35:2159-60 Jl '64

Direct analogue of a magnetic amplifier. R. E. King. bibliog il diags Radio & Electronic Eng 28:61-6 Jl '64

Direct observation of difference frequency signal in a traveling-wave maser. F. Bosch and others. diag IEEE Proc 52:1243-5 O '64

Double-sideband parametric conversion using non-linear resistance and capacitance. K. L. Hughes and D. P. Howson. bibliog diags Radio & Electronic Eng 27:417-24; Discussion. 439-41 Je '64

Electrical analog of multiresistivity systems using single resistivity media and amplifier circuits. W. E. Haupin. diags R Sci Instr 35:1050-1 Ag '64

Electroacoustic amplifier with net electrical gain. F. S. Hickernell and N. G. Sakiotis. diag IEEE Proc 52:194-5 F '64

Filling factor and isolator performance of the traveling-wave maser. F. S. Chen and W. J. Tabor. diags Bell System Tech J 43:1005-33 My '64

Helium-cooled *X*-band parametric amplifier. J. C. Sadler and W. E. Wells, jr. IEEE Proc 52:1268-9 O '64

How to use turbulence amplifiers for control logic. R. N. Auger. il diags Control Eng 11:89-93 Je '64

Hybrid electrometer preamplifier. R. D. Russell and others. diag J Sci Instr 41:487 Jl '64

Image intensifier for nuclear research. Electronic Eng 36:529 Ag '64

Improved method of audio level control for broadcasting and recording. J. F. Lawrence, jr. diags SMPTE J 73:661-3 Ag '64

Increasing power in the v.h.f. station. E. P. Tilton. diags Q S T 48:27-31 S '64

Inexpensive optical-lever amplifier for studying the Brownian motion of a galvanometer. K. S. White. bibliog diags Am J Phys 31:922-5 D '63

Isolation for negative-conductance amplifiers used in radio astronomy. G. Berkovits. diags IEEE Proc 52:982-4 Ag '64

Line strengths for noble-gas maser transitions; calculations of gain/inversion at various wavelengths. W. L. Faust and R. A. McFarlane. diags J Ap Phys 35:2010-15 Jl '64

Low-noise nonreciprocal parametric amplifier with power matching at the input and output. R. Maurer and K.-H. Löcherer. bibliog il diags IEEE Proc 51:1589-98 N '63

Low voltage, high input impedance hybrid amplifier circuits. F. H. Laishley. diags Electronic Eng 36:309-11 My '64

Magnetic amplifier telemetry encoder circuit. B. K. Bose. il diags IEEE Proc 52:1076 S '64

Magnetic-scr amplifier with lock-out controls for synchronizing and protection. R. E. Morgan and R. G. Hoft. bibliog diags IEEE Trans Com & Electronics 83:371-3 Jl '64

Maser rate equations and spiking. D. A. Kleinman. bibliog Bell System Tech J 43:1505-32 pt 2 Jl '64

Measurement of intermodulation and a discussion of dynamic range in a ruby traveling-wave maser. W. J. Tabor and others. bibliog diags IEEE Proc 52:656-63 Je '64

Measurement of large direct currents. P. Covert. diags Electro-Tech 74:106+ O '64

Microwave amplification with superconductors. A. S. Clorfeine. il diag IEEE Proc 52:844-5 Jl '64

More on the solid-state amplifier and Dr Lilienfeld. J. B. Johnson. bibliog Phys Today 17:60-2 My '64

Negative feedback in transconductance and transresistance amplifiers. R. R. Jennings. diags Electro-Tech 74:37-41 Jl '64

New millimeter wave device; beam-plasma amplifier. G. A. Swartz. bibliog il diag Electronics 36:40-2 N 8 '63

96-kmc millimeter wave maser. il diags Westinghouse Eng 23:184-6 N '63

*n*th order simulation by one operational amplifier. G. K. Aggarwal. diag IEEE Proc 52:969 Ag '64

Operational amplifiers symposium. bibliog il diags Anal Chem 35:1770-833 N '63

Operational trigger for precise control. P. Lefferts. il diags Electronics 37:50-5 N 2 '64

Parametric amplifier with double-tuned idler circuit. W. Heinlein. il diags IEEE Proc 52:88 Ja '64

Parametric amplifiers. Engineer 216:856 N 22 '63

Parametric amplifiers and converters with pumped inductance and capacitance. D. G. Tucker and K. L. Hughes. bibliog diags Radio & Electronic Eng 27:435-9; Discussion. 439-41 Je '64

Parametric up-conversion by the use of non-linear resistance and capacitance. D. P. Howson and A. Szerlip. bibliog diags Radio & Electronic Eng 27:425-34; Discussion. 439-41 Je '64

Paramp system achieves high stability. R. L. Sleven and R. J. Domchick. il diags Electronics 37:34-7 F 28 '64

Possibilities of amplification of sound waves at microwave frequencies. H. J. E. H. Pauwels. IEEE Proc 52:300 Mr '64

Practical kilowatt amplifier for 432 mc. A. T. Margot. il diag Q S T 48:47-50 Ag '64

Pumping conditions for parametric gain with a nonlinear immittance element. R. A. Pucel. bibliog diags IEEE Proc 52:269-76 Mr '64; Correction. 52:769 Jl '64

Rc regenerative/superregenerative amplifier. R. K. Keenan. diag IEEE Proc 52:1060 S '64

Reduction of distortion in tunnel-diode amplifiers. G. H. B. Thompson and R. H. Skilton. diag IEEE Proc 52:1069-70 S '64

AMPLIFIERS—*Continued*

Reliable d.c.-amplifier for thermocouple vacuum gauges. U. Tallgren and U. Kracht. diags Electronic Eng 36:671-5 O '64

Rotating amplifier. E. Erdelyi. diags Electro-Tech 72:58-67 N; 55-61 D '63

Rotating amplifier; applications. E. Erdelyi. diags Electro-Tech 72:55-61 D '63

S-band traveling-wave maser with a 30 per cent tunable bandwith. D. J. Miller and H. B. Yin. diags IEEE Proc 51:1779-80 D '63

SBE linear amplifier SBI-LA. E. L. Campbell. il Q S T 48:86-7 S '64

Servo comparator amplifier handles high voltages. J. S. MacDougall. diags Electronics 37:75-6 Ag 10 '64

70-kmc traveling-wave maser uses superconducting magnet. Westinghouse Eng 23:190-1 N '63

Simple high gain dc amplifier. R. G. Callahan. diag R Sci Instr 35:759-60 Je '64

Simulation by a single operational amplifier of third-order transfer functions having a pole at the origin. L. K. Wadhwa. bibliog diags Radio & Electronic Eng 27:373-80 My '64

Simulation of higher-order linear systems with single operational amplifiers. C. E. Cohn. diag IEEE Proc 52:874 Jl '64

Smaller, better magnetic amplifiers for power and control circuits. bibliog il diags Electronics 37:69-73 Je 29 '64

State of the art of magnetic amplifiers in Japan. J. Yamaguchi. bibliog il diags IEEE Trans Com & Electronics 83:578-82 S '64

State of the art of transductor application in Germany. A. Lang. bibliog il diags IEEE Trans Com & Electronics 83:409-23 Jl '64

Stradford hi-fi-tv Adaptor model 480. il Radio-Electronics 35:67 O '64

Studies of a high-gain pulsed ^{87}Rb microwave maser. P. Davidovits and N. Knable. bibliog il J Ap Phys 35:3042 O '64

Subharmonic pumping of high signal frequency parametric amplifiers. D. E. Allen and J. A. Barkson. diag IEEE Proc 52:1263-4 O '64

Symmetrical clipping. R. M. Rowland. diags Q S T 48:61-2 Je '64

Synthesis of correcting network for a feedback amplifier. S. S. Hakim. bibliog diags Inst E E Proc 111:27-30 Ja '64; Discussion. 111:1284-5 Jl '64

Theory of intermodulation and harmonic generation in traveling-wave masers. E. O. Schulz-DuBois. bibliog diags IEEE Proc 52:644-56 Je '64

Thin tapes of high-purity silicon-iron for magnetic amplifiers. J. L. Walter. bibliog diags IEEE Trans Com & Electronics 83:274-81 My '64

13-inch ruby oscillator-amplifier chain. H. G. Heard. il IEEE Proc 51:1664 N '63

30-gc multiplier as an ultra-stable parametric amplifier pump. R. J. Kampf and others. diag IEEE Proc 52:1074 S '64

Three-band neutralized v.f.o. amplifier. R. E. Anderson. il diag Q S T 48:40-3 Ag '64

Transductor variable speed drives for a.c. motors. il diag Engineer 218:383 S 4 '64

Twenty-one centimeter traveling-wave maser for the Harvard radio telescope. M. L. Hensel and E. B. Treacy. bibliog il diags R Sci Instr 35:970-5 Ag '64

Ultrasensitive linear cryotron amplifier. V. L. Newhouse and H. H. Edwards. bibliog il diags IEEE Proc 52:1191-206 O '64

Understanding high-speed operational amplifiers. G. Gass. il diags Electronic Ind 23:106-11 F '64

Wide dynamic range tunnel diode amplifier employing automatic gain control approach for phase tracking systems. V. Stachejko. IEEE Proc 52:1063 S '64

Zener-stabilized dc amplifier. A. M. Schotz. il diags Radio-Electronics 35:56+ Ag '64

Zero field millimeter maser. W. E. Hughes and R. E. Deal. IEEE Proc 52:857 Jl '64

See also

Cryotron

Light amplifiers

Cooling

Cryogenically cooled *X*-band parametric amplifier. J. C. Sadler and W. E. Wells, jr. il IEEE Proc 52:305 Mr '64

Design

Bode fillet in amplifier design. T. Roddam. diags Wireless World 70:101-5 F '64

Cooking up an amplifier. J. Darr. diag Radio-Electronics 35:61 N '64

Design of a linear-phase i.f. amplifier for colour television receivers. J. O. Scanlan. diags Radio & Electronic Eng 27:255-60 Ap '64

Design of high speed direct-coupled amplifiers. D. J. Baker and C. L. Wyatt. bibliog diags Electronic Ind 23:102-5 Mr '64

Development of basic devices and the need for theory. H. L. Fox and O. L. Wood. bibliog diags Control Eng 11:75-81 S '64

High-frequency amplifier design using admittance parameters. G. D. Johnson and others. bibliog diags Electro-Tech 72:74-9 N; 66-72+ D '63

Self-tuning 5kw linear amplifier. J. Wood. diags Electronic Eng 36:524-9 Ag '64

Some transformations of the nodal admittance matrix of a network with application to a difference amplifier. K. G. Nichols. bibliog diags Electronic Eng 36:617-21 S '64

Noise

Low-noise K_u-band nondegenerate parametric amplifier. J. Whelehan and E. Moley. il IEEE Proc 52:209-10 F '64

Noise performance of photo diodes in parametric amplifiers. K. Garbrecht and W. Heinlein. diags IEEE Proc 52:192-3 F '64

Post-amplifier noise temperature contribution in a low-noise receiving system. C. T. Stelzried. diag IEEE Proc 52:76-7 Ja '64

Prediction of the optimum noise performance of a reflection cavity maser. C. R. Ditchfield. Radio & Electronic Eng 27:149-52 F '64

Standards

Proposed standard for rating and testing magnetic amplifiers. bibliog diags IEEE Trans Com & Electronics 83:535-40 S '64

Testing

Intermodulation distortion measurement. D. E. O. Waddington. bibliog il diags Audio Eng Soc J 12:221-5 Jl '64

New sensitive method for gain measurements. K. Hasegawa and O. Nishino. diags IEEE Proc 52:74-5 Ja '64

Proposed standard for rating and testing magnetic amplifiers. bibliog diags IEEE Trans Com & Electronics 83:535-40 S '64

Rating pre-amps by minimum detectable signals. K. Ishii. il Electronic Ind 23:100-1 Mr '64

Transient generators for audio testing. J. L. Grauer. diags Audio 48:22-3+ S '64

AMPLIFIERS, Fluid. See Fluid amplifiers

AMPLIFIERS, Transistor

All silicon tape playback preamps and recording circuit. J. Abajian, jr. and D. J. Jones. il diags Audio 48:22-8+ O '64

A-c temperature compensation and integrated amplifiers. J. D. Meindl and O. Pitzalis. bibliog diags IEEE Trans Com & Electronics p579-84 N '63

Amplified indoor antennas for fm and tv. P. E. Sutheim. il diags Radio-Electronics 35:32-4 O '64

Amplitude distortion in transistor amplifiers. G. M. Riva and others. diags Inst E E Proc 111:481-90 Mr '64

Analysis of a feedback amplifier. C. D. West. bibliog diags Electronic Eng 36:326-9 My '64

Bridge source and detector. F. Butler. diags Wireless World 70:318-21 Je '64

Circuit protects amplifier against short circuit. E. Segatis. diags Electronics 37:61-2 Ag 24 '64

Class-D for efficiency. P. A. Stark. il diags Audio 48:23-7+ Je; 24-7+ Jl; 23-7+ Ag '64

Combined feedback stabilizes amplifier. N. A. Wade. diag Electronics 37:76 My 4 '64

Commercially available semiconductor detectors and preamplifiers; charts. Nucleonics 22:62-7 My '64

Complementary amplifier offers high input impedance. L. J. Ernst. diag Electronics 37:92-3 My 18 '64

Complementary two-stage amplifiers. B. Crawford. il diags Electro-Tech 73:48-53+ My '64

Designing zero-drift d-c differential amplifiers. W. E. Earle. diags Electronics 36:66+ N 8 '63

Differential amplifier based on the feedback pair. D. M. Taub. diags Inst E E Proc 111:917-20 My '64

Direct-coupled transistor amplifier. M. Bronzite. diags Wireless World 70:153-5 Mr '64

El cheapo 2-30. R. R. Moore. il diags Audio 48:19-21+ N '64

Emitter to emitter feedback. S. S. Hakim. diags Electronic Eng 35:736-7 N '63

Gain controlled band-pass amplifiers. M. D. Wood. bibliog diags Electronic Eng 36:150-3, 234-7 Mr-Ap '64

AMPLIFIERS, Transistor—*Continued*

Getting transistors into single-sideband amplifiers. R. C. Hejhall. diags Electronics 37:72-5 Je 1 '64

Handsets with transistor amplifiers. K. E. Hammer. il diags Bell Lab Rec 42:159-64 My '64

Heathkit transistorized d.c. power supply. il Q S T 48:61 Mr '64

High-efficiency low-frequency power source for vibration excitation. B. H. Venning. bibliog diags Radio & Electronic Eng 27:55-63 Ja '64

High-gain dc amplifier drives crt display. F. J. Murphree and J. H. Hammond, jr. il diag Electronics 37:53 Je 29 '64

High speed logic circuits using a tunnel diode transistor feedback amplifier. G. G. Scarrott and R. W. Mitchell. il diags Radio & Electronic Eng 26:485-91 D '63

Hum sniffer. L. E. Greenlee. il diags Radio-Electronics 35:52-4 O '64

Improved power stabilization in varying resistances. O. S. Wecksler. diags J Sci Instr 41:105-6 F '64

Improved transistor r-f amplifier circuit. I. M. Gottlieb. diags Electronics Ind 23:83-5 Ag '64

Invention of the solid-state amplifier. V. E. Bottom. diags Phys Today 17:24-6 F '64

Knight KN999 all-transistor integrated stereo amplifier. J. Marshall. il Radio-Electronics 35:74 S '64

Lafayette LA-200 transistor stereo amplifier. P. E. Sutheim. il diag Radio-Electronics 35:72 S '64

Light isolates amplifier stages. L. D. Shergalis. diags Electronics 36:43-5 N 1 '63

Limitations of transistor dc amplifiers. A. H. Hoffait and R. D. Thornton. diags IEEE Proc 52:179-84 F '64

Master of ceremonies public address. L. A. Wortman. il diags Radio-Electronics 35:26-7 F '64

Microminiature thin-film amplifier. Franklin Inst J 276:455-6 N '63

Microwave tunnel-diode amplifiers with large dynamic range. R. Steinhoff and F. Sterzer. bibliog diags RCA R 25:54-66 Mr '64

Minimizing feedback in high-frequency transistor amplifiers. C. B. Parker. diags Electronic Ind 23:68-71 Ja '64

Multiplication and logarithmic conversion by operational amplifier-transistor circuits. W. L. Paterson. bibliog diags R Sci Instr 34:1311-16 D '63

New low-noise transistor circuit for electrostatic microphones. P. J. Baxandall. bibliog diags Wireless World 69:593-7 D '63

New solid-state sound-mixing equipment for television. D. B. Manning. il diags SMPTE J 73:788-91 S '64

New technique for designing fast rise transistor pulse amplifiers. C. J. Rush. il diags R Sci Instr 35:149-56 F '64

One gc transistor amplifier stage using Linvill technique. V. Gelnovatch and G. E. Hambleton. diag IEEE Proc 52:1262 O '64

Operation of tunnel diode amplifiers beyond cutoff frequency. J. O. Scanlan. diags IEEE Proc 52:435-6 Ap '64

Operational amplifier suppresses third harmonic. M. Schmidt. diag Electronics 37:74 Ap 6 '64

Passive circuit adjustment of parametric amplifiers incorporating varactor diodes. T. Buckley. diags J Sci Instr 41:333-4 My '64

Pre-amplifier for use with micro-electrodes. I. D. Pugsley. bibliog il diags Electronic Eng 35:788-91 D '63

Preliminary analysis of the transistor tuned power amplifier. J. Furlan. diag IEEE Proc 52:311 Mr '64

Product preview section; basic amplifiers, etc. il Audio 48:30-6 Ag '64

Pulse distribution amplifier with new pulse re-forming technique. A. J. Banks. il diags SMPTE J 72:931-7 D '63

Push-pull output from one transistor. L. E. Geisler. il diags Radio-Electronics 35:56-7 S '64

Quiet, please; transistor preamp. D. V. R. Drenner. il diags Radio-Electronics 35:30-1 Mr '64

Simultaneous amplification and parametric frequency multiplication in vhf power transistors. J. K. Pulfer and A. E. Lindsay. diag IEEE Proc 52:212 F '64

Some results on the use of a tunnel-diode amplifier on a radio astronomy receiver. T. V. Seling. IEEE Proc 52:423-4 Ap '64

Squeeze in more components by adding a micro amplifier. B. Greenbaum. il Electronics 37:73 Mr 23 '64

Stability criteria in tuned transistor amplifiers. B. T. O'Shannassy. diags IEEE Proc 52:747 Je '64

Stereo amplifier (Heathkit all-transistor AA-22). N. H. Crowhurst. il Radio-Electronics 35:62 Mr '64

Take-along transistor amplifier. il diag Radio-Electronics 35:32-4 Ap '64

Tape recording amplifier. G. P. Hobbs. diags Wireless World 70:47-50 Ja '64

Theory of a unilateral parametric amplifier using two diodes. J. Hamasaki. Bell System Tech J 43:1123-47 My '64

Thermal stability in transistors. T. Mollinga. diags Electro-Tech 73:26-9 Ja '64

3-watt transistor audio amplifier. T. D. Towers. il diags Wireless World 69:598-602+ D '63

Transistor aerial pre-amplifier. M. V. Callendar. il diags Wireless World 69:580-3 D '63

Transistor amplifier with d.c. and a.c. feedback stabilization. H. C. Bertoya. diags Electronic Eng 36:240-5 Ap '64

Transistor low drift d.c. amplifiers. J. J. Pinto. bibliog diags Electronic Eng 36:304-8 My '64; Discussion. 36:558-9 Ag '64

Transistorised relay. il Engineer 217:145 Ja 17 '64

Tunable filter for low frequencies using operational amplifiers. H. Sutcliffe. bibliog diags Electronic Eng 36:399-403 Je '64

Tunable solid-circuit filter suitable for an i.f. amplifier. T. E. Price and others. il diags Electronic Eng 35:806-12 D '63

Unity-gain buffer acquires precision by feedback. D. K. Phillips. diags Electronics 36:36-7 D 20 '63

Universal tape-play preamp. R. Williamson. il diags Radio-Electronics 35:35-7 O '64

Varactor-diode parametric amplifiers. F. J. Hyde. bibliog diags Inst E E Proc 111:1080-7 Je '64

Versatile amplifier for precise radiometry. P. M. G. Fead. bibliog il diags R Sci Instr 35:821-8 Jl '64

Wide band current transformers for the examination of current waveforms. F. J. U. Ritson and J. Wood. il diags Electronic Eng 36:483-5 Jl '64

Design

Basic uhf circuit forms amplifiers and multipliers. A. E. Munich. il diags Electronics 37:59-60 Jl 13 '64

Design of transistor i.f. amplifiers; stability and power gain. K. R. Wilsher and A. Dabrowa. bibliog diags Radio & Electronic Eng 27:37-54 Ja '64

Electronic scanner for transistor pairs used in balanced pre-amplifiers. R. R. Vierhout and A. J. H. Vendrik. il diags Electronic Eng 36:630-1 S '64

Engineering approach to the design of transistor feedback amplifiers. E. M. Cherry. diags Radio & Electronic Eng 25:127-44 F '63; Discussion. 27:349-52 My '64

How to design micropower transistor amplifiers. J. D. Meindl and others. il diag Electronics 37:73-8 My 18; 48-52 Je 1 '64

Input resistance of transistor feedback amplifiers. E. de Boer. diags Electronic Eng 36:702-6 O '64

Parametric amplifiers used in electroacoustics: condenser microphone amplifier with semiconductor elements. E. de Niet. bibliog diags Audio Eng Soc J 12:186-91 Jl '64

Some precision direct coupled transistor amplifiers and their approximate design. C. W. B. Grigson. bibliog diags Electronic Eng 36:454-9, 540-7 Jl-Ag '64

Two transistor-operated frequency-selective amplifiers. S. Harkness. bibliog diags Electronic Eng 36:622-6 S '64

Noise

Noise in audio amplifiers. P. Tharma. bibliog diags Wireless World 69:447-52 S '63; Discussion. R. G. T. Warren. 69:546-7 N '63

Power supply

Bistable circuit for overload protection of power supplies. B. T. Denvir. diags Electronic Eng 35:748-50 N '63

AMPLIFIERS, Vacuum tube

Altec Lansing Royal II solid-state stereo amplifier, model 360A. il diag Audio 48:40+ Ap '64

Analysis of feedback amplifiers by finding the reciprocal of gain. B. Beddoe. diags Electronic Eng 36:92-6 F '64

Broad-band amplifiers. J. E. Jennings. il diags Q S T 48:37-42 Ja '64

AMPLIFIERS, Vacuum tube—*Continued*

Buffer amplifier supplies bipolar output. F. E. Smith. diag Electronics 37:75 Jl 27 '64

Class-D for efficiency. P. A. Stark. il diags Audio 48:23-7+ Je '64

Commercially available semiconductor detectors and preamplifiers; charts. Nucleonics 22:62-7 My '64

Compressor amplifier features balanced push-pull circuit. L. M. Hilles. il diags Electronics 37:36-7 Ja 24 '64

Cutoff frequencies of the dielectrically loaded comb structure as used in traveling-wave masers. S. E. Harris and others. bibliog diags Bell System Tech J 43:437-84 pt 2 Ja '64

Dyna stereo 35 amplifier. J. Marshall. il diag Radio-Electronics 35:70+ Ja '64

Galvanometer amplifier of increased range. W. B. Muir. diag R Sci Instr 35:408 Mr '64

Hammarlund HXL-1 linear amplifier. E. L. Campbell. il diag Q S T 48:55-6 Je '64

Harman-Kardon 1000 series amplifier, A1000T, and tuner, F1000T. il Audio 48:37+ Je '64

High sensitivity galvanometer amplifier. R. H. Wood and H. S. Jongenburger. diag R Sci Instr 35:407-8 Mr '64

Kilowatt amplifiers for 50 and 144 mc. E. P. Tilton. il diags Q S T 48:11-17+ F '64

Line voltage and amplifier distortion. H. Reed. Radio-Electronics 35:37 F '64

New triode amplifier. R. M. Voss and R. Ellis. il diags Audio 48:22-3+ Jl '64

Power tube equations; engineer's notebook. R. A. Henderson. Electronic Ind 23:77 Ja '64

Product preview section; basic amplifiers, etc. il Audio 48:30-6 Ag '64

Professional stereo line amplifier. H. Reed. il diag Radio-Electronics 35:44-5 F '64

R.f. amplifiers for 420 and 1215 mc. with planar ceramic triodes. J. W. Rush. il diags Q S T 48:39-45 My '64

Selective amplifier of variable frequency and bandwidth. T. J. Seed. diags R Sci Instr 35:473-5 Ap '64

Superregenerative backward wave amplifiers for millimeter waves. W. R. Day, jr. il IEEE Proc 52:711-12 Je '64

Traveling-wave masers employing iron-doped rutile. L. C. Morris and D. J. Miller. IEEE Proc 52:410 Ap '64

Wideband u.h.f. amplifier using earthed-grid triodes. R. Levy and others. bibliog diags Inst E E Proc 111:235-40 F '64

See also

Electrometers
Electron multipliers
Multivibrators

Design

Design of Cuccia couplers for quadrupole amplifiers. G. O. Chalk. bibliog diags Inst E E Proc 110:2105-17 D '63

Interrelation of speaker and amplifier design. V. Brociner and D. R. von Recklinghausen. diags Audio Eng Soc J 12:124-8 Ap '64

Noise

Intermodulation distortion; pros, cons, and hows. M. Horowitz. diags Audio 48:38+ Ja '64

Low noise and space-charge smoothing in a crossed-field amplifier. N. R. Mantena and T. Van Duzer. IEEE Proc 51:1662-3 N '63

Noise performance of a photoparametric amplifier. S. Saito and Y. Fujii. diags IEEE Proc 52:978-9 Ag '64

Parametric input stages in electroacoustics: low-noise playback amplifier in magnetic recording. E. de Niet. bibliog diags Audio Eng Soc J 12:21-7 Ja '64

Proposed mechanism for the broadband noise in long crossed-field guns. T. Van Duzer and R. D. Harris. bibliog il diags J Ap Phys 35:1642-3 My '64

Study of noise in television camera preamplifiers. K. Sadashige. diags SMPTE J 73:202-6 Mr '64

AMUSEMENT parks

Equipment

See also

Ferris wheels

AMYL alcohol

Manufacture

Amyl alcohol; Pennsalt chemicals corp. diag Hydrocarbon Process & Pet Refiner 42:151 N '63

AMYLASES

Bacterial alpha amylase; abstract. L. Kogan. Am Dyestuff Rep 53:288 Ap 13 '64

AMYLOSES

Structure, properties, and amylolytic degradation of starch. C. T. Greenwood. bibliog il diags Food Tech 18:732-8 My '64

AMYRIN

Synthesis of a β-amyrin derivative, olean-11,12;13,18-diene. E. J. Corey and others. bibliog Am Chem Soc J 85:3979-83 D 20 '63

ANABASINE

Biosynthesis of the nicotiana alkaloids; the incorporation of glycerol-2-C^{14} into the pyridine ring of anabasine. E. Leete and A. R. Friedman. bibliog Am Chem Soc J 86:1224-6 Mr 20 '64

ANAEROBIC bacteria. See Bacteria, Anaerobic

ANAHYGRINE. See Alkaloids

ANALGESICS

Absolute configuration of (-)-*N*-(1-methyl-2-piperidinoethyl)propionanilide. P. S. Portoghese. bibliog Chem & Ind p582 Ap 4 '64

Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64

Non-addicting analgesic; Pentazocine. Drug & Cosmetic Ind 94:767 My '64

Reduction of industrial time-loss; treatment with carisoprodol compound in musculoskeletal disorders. R. G. Conant. bibliog Ind Med 33:25-7 Ja '64

See also

Aspirin

ANALOG computers. See Calculating machines—Analog computers

ANALYSIS, Colorimetric. See Colorimetric analysis

ANALYSIS, Mineralogical. See Mineralogical analysis

ANALYSIS of variance. See Variance analysis

ANALYTIC chemistry. See Chemistry, Analytic

ANALYTIC geometry. See Geometry, Analytic

ANATABINE. See Alkaloids

ANATASE

Pseudomorphs of anatase after sphene from Roanoke County, Va. R. S. Mitchell. bibliog Am Mineralogist 49:1136-9 Jl '64

ANATOMICAL models

Electrochemical nerve models as neuristors. R. M. Stewart. bibliog IEEE Proc 52:78-9 Ja '64

ANCHORAGE

Bow mooring for berthing tankers. L. E. Van Houten and G. A. McCammon. il Civil Eng 34:60-2 Mr '64

Evaluation of mooring forces. S. Li. bibliog diags Am Soc C E Proc 88 [WW 4 no 3313]: 19-37 N '62; Discussion. 89 [WW 2 no 3527]: 105-6 My; [WW 3 no 3621]:63-70 Ag '63; Reply. 90 [WW 1 no 3814]:137-50 F '64

Mooring system prevents anchor-chain breakage; oil-storage barge is connected by two nylon ropes to the carousel buoy. il Oil & Gas J 62:115 O 19 '64

Offshore mooring island for supertankers. V. Blancato and J. H. Finger. il diags Am Soc C E Proc 88 [WW 4 no 3311]:1-17 N '62; Discussion. 89 [WW 2 no 3527]:99-104 My '63; Reply. 90 [WW 2 no 3917]:21-6 My '64

Synthetic lines offer mooring advantages. R. J. Laureti. Marine Eng/Log 70:49-51 My '64

ANCHORAGE, Alaska

See also

Building—Anchorage, Alaska
Gas, Natural—Anchorage, Alaska, Supply to

ANCHORS

Danforth patent anchor. il Engineering 198: 174-5 Ag 7 '64

ANDERSON, Gaylord West

Sedgwick memorial medal for 1963 to G. W. Anderson; with acceptance address. por Am J Pub Health 53:2011-13 D '63

ANDROGENS

19-labeled androgens. S. Rakhit and M. Gut. bibliog Am Chem Soc J 86:1432-4 Ap 5 '64

ANDROSTANE

Mass spectrometry in structural and stereochemical problems; mass spectral and enolization studies on 7-keto-5α-androstanes. R. Beugelmans and others. bibliog Am Chem Soc J 86:2832-7 Jl 20 '64

ANDROSTANONE

Mass spectrometry in structural and stereochemical problems; a study of the hydrogen transfer reactions accompanying fragmentation processes of 1-keto steroids; synthesis of deuterated 5α-androstan-1-ones. H. Powell and others. bibliog Am Chem Soc J 86:2623-8 Jl 5 '64

ANDROSTANONE—*Continued*

Mass spectrometry in structural and stereochemical problems; fragmentation and hydrogen transfer reactions of a typical 3-keto steroid, 5α-androstan-3-one. R. H. Shapiro and others. bibliog Am Chem Soc J 86:2837-45 Jl 20 '64

ANDROSTENEDIONE

Microbiological 9α,12α,- and 9α,18-dihydroxylations of androst-4-ene-3,17-dione. E. Kondo and K. Tori. bibliog Am Chem Soc J 86:736-7 F 20 '64

ANEMIA

Chemical cyanosis-anemia syndrome. R. L. Wuertz and others. Archives Environmental Health 9:478-91 bibliog(p490-1) O '64

Effect of iron supplementation of sow rations on the prevention of baby pig anemia. C. H. Chaney and C. E. Barnhart. bibliog J Nutrition 81:187-92 N '63

Effect of small doses of folic acid in nutritional megaloblastic anemia. G. Izak and others. bibliog Am J Clinical Nutrition 13: 369-77 D '63

Epidemiological analysis of the hemoglobin picture in parturient women of Jerusalem. S. L. Kark and others. bibliog Am J Pub Health 54:947-60 Je '64

Iron in medicine. il Manuf Chem 35:44-6 Ap '64

Pyridoxine-responsive anemia; description of three patients with megaloblastic erythropoiesis. J. D. Hines and J. W. Harris. bibliog Am J Clinical Nutrition 14:137-46 Mr '64

ANEMOMETERS

Hot-wire measurements in the hypersonic wakes of slender bodies. A. Demetriades. bibliog il diag AIAA J 2:245-50 F '64

Ionisation anemometer. il Engineer 218:106 Jl 17 '64

New robust standard cup contact anemometer. C. J. Sumner. diag J Sci Instr 41:638-9 O '64

Simple miniature probe anemometer. E. V. Seymour. diag Engineer 216:899-900 N 29 '63

ANESTHESIA

Inguinal herniorrhaphy: immediate return to unrestricted work; surgical techniques using local anesthesia. C. J. Bellis. bibliog il Ind Med 33:721-5 O '64

ANESTHETICS

See also

Bromochlorotrifluoroethane
Chloroform

ANGINA pectoris

Glyceryl trinitrate. Drug & Cosmetic Ind 95: 599 O '64

Pronethalol; 2-isopropyl-amino-1-(2-naphthyl) ethanol. Drug & Cosmetic Ind 94:438 Mr '64

ANGIOTENSIN

N-[2-isopropyl-3-(L-aspartyl-L-arginyl)-carbazoyl]-L-tyrosyl-L-valyl-L-histidyl-L-prolyl-L-phenylalanine, an isostere of bovine angiotensin II. H. J. Hess and others. bibliog Am Chem Soc J 85:4040-1 D 20 '63

ANGLES

Aluminum angles in tension. S. C. Redshaw. il diags Mod Metals 19:60+ N '63

Angle measuring interferometer. J. G. Marzolf. bibliog diags R Sci Instr 35:1212-15 S '64

Autocollimator for measuring small angular displacements. il diag Engineer 217:798 My 1 '64

Design criteria for integral web and universal angle buses. R. M. Milton and others. bibliog il diags IEEE Trans Power Apparatus & Systems p928-37; Discussion. 937-40; Reply. 940-1 D '63

See also

Goniometers

ANHYDRIDES

Acceleration of glycidyl epoxy resin-anhydride reactions. R. J. Arnold. bibliog Mod Plastics 41:149-50+ Ap '64

Dianhydride curing agent betters epoxy properties. Chem Eng 71:98+ My 25 '64

Facilitated reversible formation of amides from carboxylic acids in aqueous solutions: intermediate production of acid anhydride. T. Higuchi and others. Am Chem Soc J 85:3655-60 N 20 '63

Formulation and cure cycle study for an anhydride-cured epoxy-novolac system. A. C. Mack. bibliog diag Ind & Eng Chem Product Res & Develop 3:213-17 S '64

Mechanism of strong-base-initiated polymerization of N-carboxyanhydrides. M. Goodman and U. Arnon. bibliog Am Chem Soc J 86:3384-90 Ag 20 '64

Peptide synthesis from N-carboxy-α-amino acid anhydrides in water; aminoacylpenicillanic acids. N. H. Grant and H. E. Alburn. bibliog Am Chem Soc J 86:3870-3 S 20 '64

Preparation and decomposition of *p*-nitrobenzoic-*t*-butylcarbonic anhydride. C. J. Michejda and D. S. Tarbell. Chem & Ind p369-70 F 29 '64

Reaction of phosphorus pentachloride with acyl anhydrides; a forgotten reaction. C. L. Wale. Chem & Ind p2003 D 28 '63

Technique puts bromine in polyesters. Chem & Eng N 42:56-7 Mr 2 '64

See also

Acetic anhydride
Maleic anhydride
Pyromellitic anhydride

ANILINE

Electron transfer reactions involving *N*-benzohydrylidene aniline. A. G. Evans and B. D. Phillips. Chem & Ind p 1718 O 10 '64

Mechanistic fate of the anilino moiety in the rearrangement of α-anilinoketones. K. L. Nelson and others. bibliog Am Chem Soc J 86:684-7 F 20 '64

Mercuration of aniline in acidic solution; mercury(II) complexes with mercurated aniline derivatives. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4318-22 O 20 '64

Steric enhancement of resonance; absorption spectra of N-alkyl- and N,N-dialkyl-2,4-dinitroanilines. M. J. Kamlet and others. bibliog Am Chem Soc J 86:4018-21 O 5 '64

Studies of the chemistry of mercury in aqueous solution; mercury(I) and mercury(II) complexes of aniline. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4314-18 O 20 '64

ANIMAL buildings

Air conditioning

Estimating heat produced by laboratory animals. N. R. Brewer. bibliog Heating-Piping 36:139-41 O '64

Guidelines for designing research animal room air conditioning systems; data file. bibliog flow diag il plans diag Heating-Piping 36:171-86 Ja '64

ANIMAL cages

See also

Bird cages

ANIMAL experimentation

Chemical stimulation of the brain. A. E. Fisher. il diags Sci Am 210:60-8 Je '64

Experimental narcotic addiction. J. R. Weeks. il diags Sci Am 210:46-52 Mr '64

Habitat selection. S. C. Wecker. diags Sci Am 211:109-16 O '64

Living in space. S. Barnes. il diags Machine Design 36:90-4 Ja 30 '64

Why the National society for medical research? editorial. H. E. Essex. Am J Clinical Nutrition 13:341-2 D '63

See also

Germ-free life

ANIMAL learning

Arithmetic behavior in chimpanzees. C. B. Ferster. il diags Sci Am 210:98-104+ My '64

ANIMAL population. See Population (zoology)

ANIMAL products

See also

Packing houses—By-products

ANIMALS

See also

Age (animals)
Chimpanzees
Species

ANIMALS, Habits and behavior of

Habitat selection. S. C. Wecker. diags Sci Am 211:109-16 O '64

Population control in animals. V. C. Wynne-Edwards. il map diags Sci Am 211:68-74 Ag '64

Vitamin B_6 deficiency and the initial acquisition of behavior. H. N. Sloane, jr. and B. F. Chow. bibliog J Nutrition 83:379-84 Ag '64

ANIMATED cartoons. See Moving pictures—Animated cartoons

ANIONS

Adsorption of inhibitive anions on iron surfaces; abstract and discussion. J. G. N. Thomas. Chem & Ind p332 F 22 '64

Anionic phosphate surfactants. R. S. Cooper. Am Oil Chem Soc J 40:642-5 N '63

Chemistry of conjugate anions and enols; the kinetically controlled enolization of α,β-unsaturated ketones and the nature of the transition state. S. K. Malhotra and H. J. Ringold. bibliog Am Chem Soc J 86:1997-2003 My 20 '64

Electron spin resonance spectra of different solvates of *m*-nitrophenol negative ion in a mixed solvent. C. Corvaja and G. Giacometti. Am Chem Soc J 86:2736 Jl 5 '64

Evidence for the cycloheptatrienide anion. A. W. Johnson. Chem & Ind p504-5 Mr 21 '64

ANIONS—*Continued*

Interaction of dodecyl sulfate anions of low concentration with alkaline bovine serum albumin. R. Lovrien. bibliog Am Chem Soc J 85:3677-82 N 20 '63

Mechanism of the anionic polymerization of methyl methacrylate; effects of solvents upon stereoregularity and rates in fluorenyllithium-initiated polymerizations. D. L. Glusker and others. bibliog Am Chem Soc J 86:187-96 Ja 20 '64

Orbital degeneracy and the electron spin resonance spectrum of the benzene-1-*d* negative ion. R. G. Lawler and others. bibliog Am Chem Soc J 86:520-1 F 5 '64

Pentalenyl dianion. T. J. Katz and others. bibliog Am Chem Soc J 86:249-52 Ja 20 '64

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86:3434-8 S 5 '64

Radical anions as intermediates in substitution reactions; carbon alkylation of nitroparaffin salts. R. C. Kerber and others. bibliog Am Chem Soc J 86:3904-5 S 20 '64

Stable dianion radicals and trianions in substituted pentadienyl systems. N. L. Bauld. bibliog Am Chem Soc J 86:2305-6 Je 5 '64

Surface properties and flow behavior of kaolinite; electrophoretic studies of anion adsorption. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:833-45 D '63

Use of a quaternary ammonium compound for quantitative estimation of active sites in water-soluble polyanions. L. Stoloff and J. Blethen. Anal Chem 36:2192-4 O '64

ANISOLE

Oxidation of methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 86:4124-9 O 5 '64

Proton resonance spectra of the methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 85:3940-2 D 20 '63

Studies of the chemistry of mercury in aqueous solution; the equilibrium quotient of aromatic mercuration for benzene and *p*-methoxyanisole. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4322-5 O 20 '64

ANISOTROPY

Analysis of slightly anisotropic shells. R. G. Dong and S. B. Dong. bibliog AIAA J 1:2565-9 N '63

Comparison of the elastic anisotropy of two austenitic steels. G. Bradfield. Iron & Steel Inst J 202:616 Jl '64

Effect of anisotropy on instability in sheet-metal forming. G. G. Moore and J. F. Wallace. bibliog diags Inst Metals J 93:33-8 '64-65

Nonwoven fabric studies: the anisotropy of nonwoven fabrics. J. W. S. Hearle and P. J. Stevenson. bibliog il Textile Res J 33:877-88 N '63

Rotation properties of certain anisotropic ore minerals. E. N. Cameron and others. bibliog diag Econ Geol 56:569-83; 58:1309-12 My '61, D '63

Shear strength of an anisotropically consolidated clay. B. B. Broms and M. V. Ratnam. bibliog diags Am Soc C E Proc 89 [SM 6 no 3691]:1-26 N '63; Discussion. T. S. Nagaraj. 90 [SM 4 no 3979]:193-4 Jl '64

ANNEALING

Allegheny Ludlum makes bright annealed sheets. Steel 153:33 N 11 '63

Annealing spectrum of cold-worked silver-cadmium alloys. R. Kamel and E. A. Attia. bibliog Inst Metals J 92:270-4 '63-64

Better copper wire by vacuum annealing. il diag Engineering 197:201 Ja 31 '64

Bright annealed stainless steel. il diags Engineer 217:303-4 F 14 '64

Bright annealing stainless steel strip. il Engineering 197:222-3 F 7 '64

Cause of exaggerated grain growth in extra-low carbon enameling iron; abstract. J. L. Walter. Metal Prog 85:158+ Je '64

Competition between recrystallization and polygonization during annealing of cold work in aluminium single crystals. H. P. Leighly, jr. and others. bibliog il Inst Metals J 92:363-6 '63-64

Effect of annealing on the microstructure and hardness of some nickel electrodeposits. R. Weil and others. bibliog il Electrochem Soc J 111:1046-52 S '64

Effect of vacuum annealing of oxide films on the oxidation of copper-nickel alloy. T. Yamashina and T. Nagamatsuya. Electrochem Soc J 111:249-52 F '64; Discussion. 111:1439-40 D '64

Factor affecting quality in open coil annealing; abstract. W. H. Minck. Metal Prog 85:156+ Je '64

Investigation into the rapid annealing of blackplate. E. W. Williams. bibliog il diag Iron & Steel Inst J 200:535-40 Jl '62; Abstract. Metal Prog 85:188+ F '64

Liquid nitrogen cryostat to facilitate isothermal annealing studies on metals after heavy-particle bombardment. F. Dworschak and others. diags R Sci Instr 35:46-8 Ja '64

Persistence of voids after annealing of fatigued copper. S. M. Cousland and K. R. Sargant. bibliog il Inst Metals J 92:185-6 '63-64

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Stainless steel strip. Automobile Eng 54:133-4 Ap '64

Vacuum annealing of copper wire. il Engineer 217:181-2 Ja 24 '64

See also

Electric furnaces, Annealing

Furnaces, Annealing

ANNUNCIATORS

Recorded voice warns of plant trouble at Gulf States Utilities. il Power 108:75 S '64

ANODIZING of aluminum. See Aluminum—Protection

ANORTHITE

Optical extinction of anorthite at high temperatures. F. D. Bloss. bibliog Am Mineralogist 49:1125-31 Jl '64

ANTACIDS

Soluble antacid. Drug & Cosmetic Ind 93:889-90 D '63

ANTARCTIC regions

Antarctic programme during the IQSY. il Engineering 197:335-6 F 28 '64

Antarctic programme of the National bureau of standards. il Engineer 218:232-3 Ag 7 '64

Antarctic vehicles. Automotive Ind 131:136+ S 15 '64

Daylight star observations in Antarctica. D. R. Lee. diag Am Soc C E Proc 90 [SU 2 no 3971]:75-82 Jl '64

See also subdivision Antarctic regions under special subjects, e.g.

Birds

Building

Geology

Ice

Scientific research

ANTENNAS. See Radio antennas; Television antennas

ANTHOPHYLLITE

See also

Grunerite

ANTHRACENE

Effect of water vapor on the electrical resistance of anthracene. K. Kawasaki and K. Kanou. J Colloid Sci 18:886-8 D '64

Molecular complexes and their spectra; complexes of anthracene and phenanthrene with iodine. J. Peters and W. B. Person. bibliog Am Chem Soc J 86:10-14 Ja 5 '64

Reactions of peroxy radicals with polynuclear aromatic compounds; reactivities of anthracene, α-benzoanthracene, and tetracene toward alkyl aryl peroxy radicals. L. R. Mahoney. bibliog diag Am Chem Soc J 86:444-9 F 5 '64

Some zone-refining calculations on phenanthrene-anthracene system. E. T. Nelson and others. Anal Chem 36:931-2 Ap '64

Synthesis, brominolysis, and pyrolysis of a Dewar anthracene; a free radical displacement on carbon. D. E. Applequist and R. Searle. bibliog Am Chem Soc J 86:1389-91 Ap 5 '64

ANTHRANILIC acid

Nonsteroidals show antiarthritic action. il Chem & Eng N 42:36-7 Je 29 '64

Separation and determination of iron(II) and iron(III) with anthranilic acid using solvent extraction and spectrophotometry. D. L. Dinsel and T. R. Sweet. bibliog Anal Chem 35:2077-81 D '63

ANTHRONE

Spectrophotometric determination of urea-formaldehyde with anthrone. R. G. Westenhouse. Anal Chem 36:1875-6 Ag '64

ANTIBIOTIC feed supplements

Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64

Effects of dietary antibiotics and uric acid on the growth of chicks. L. N. Bare and others. bibliog J Nutrition 83:27-33 My '64

ANTIBIOTICS

Antibiotics. S. A. Goulden. bibliog Manuf Chem 35:59-60+ Je '64

Antibiotics. M. D. Shepherd. bibliog Manuf Chem 34:537-9 N '63

Antibiotics and the control of spoilage in canned foods. E. Wheaton and G. L. Hays. bibliog Food Tech 18:549-51 Ap '64

Antibiotics; their use in the food industry; abstracts and discussion. Chem & Ind p 1495-6 Ag 22 '64

Aziridinomitosenes; a new class of antibiotics related to the mitomycins. J. B. Patrick and others. bibliog Am Chem Soc J 86:1889-90 My 5 '64

Cephalothin. Drug & Cosmetic Ind 95:600 O '64

Chemical studies on lincomycin; the structure of lincomycin. H. Hoeksema and others. bibliog Am Chem Soc J 86:4223-5 O 5 '64

Effect of internal temperature, pumping, and antibiotics on spoilage of hams given a dry sale cure. R. F. Kelly. bibliog Food Tech 18:1607-11 O '64

Fortschritte der chemie organischer naturstoff, generalregister I-XX, 1938-1962 and vol. XXI. L. Zechmeister, ed. Review, by C. A. Finch. Chem & Ind p 1793-4 O 24 '64

Glutarimide antibiotics; total synthesis of *dl*- and *l*-cycloheximide. F. Johnson and others. bibliog Am Chem Soc J 86:118-19 Ja 5 '64

Hamycin antifungal. Drug & Cosmetic Ind 94:448 Mr '64

Lincomycin and celesticetin are similar. Chem & Eng N 42:48-50 S 7 '64

Lincomycin hydrochloride. Drug & Cosmetic Ind 95:599-600 O '64

Mitomycin antibiotics; synthetic studies; related indoloquinones, active antibacterial agents. G. R. Allen, jr. and others. bibliog Am Chem Soc J 86:3878-9 S 20 '64

Mitomycin antibiotics; synthetic studies; the synthesis of 7-methoxymitosene, an antibacterial agent. G. R. Allen, jr. and others. bibliog Am Chem Soc J 86:3877-8 S 20 '64

Partial structure of chalcomycin. P. W. K. Woo and others. bibliog Am Chem Soc J 86:2724-6 Jl 5 '64

Skin sterilization. Drug & Cosmetic Ind 93:736 N '63

Spray drying of antibiotics. il Manuf Chem 35:47 My '64

Stereochemical identification and synthesis of amicetose and the stereochemical identification of rhodinose and the sugar from streptolydigin. C. L. Stevens and others. bibliog Am Chem Soc J 86:3592-4 S 5 '64

Streptolydigin. K. L. Rinehart, jr. and others. bibliog Am Chem Soc J 85:4035-9 D 20 '63

Structure of cervicarcin. S. Marumo and others. bibliog Am Chem Soc J 86:4507-8 O 20 '64

Structure of chalcomycin. P. W. K. Woo and others. bibliog Am Chem Soc J 86:2726-7 Jl 5 '64

Synthesis of 4-amino-5-cyanopyrrolo[2,3-*d*] pyrimidine, the aglycone of toyocamycin. E. C. Taylor and R. W. Hendess. bibliog Am Chem Soc J 86:951-2 Mr 5 '64

Synthesis of *cis*- and *trans*-3-hydroxy-L-proline, two new amino acids from the antibiotic telomycin. J. C. Sheehan and J. G. Whitney. bibliog Am Chem Soc J 85:3863-5 D 5 '63

Thiostrepton; degradation products and structural features. M. Bodanszky and others. bibliog Am Chem Soc J 86:2478-90 Je 20 '64

See also

Gramicidin
Griseofulvin
Neomycin
Streptomycin
Tetracycline

Analysis

Reproducibility of R_f and correlation of chromatographic patterns on paper and thin layer plates. T. F. Brodasky. bibliog Anal Chem 36:996-9 My '64

Resolution of neomycin and catenulin antibiotic complexes by ion exchange resin chromatography. H. Maehr and C. P. Shaffner. bibliog il Anal Chem 36:104-8 Ja '64

Spectrophotometric determination of streptozotocin. A. A. Forist. bibliog Anal Chem 36:1338-9 Je '64

ANTICHOLINESTERASE

Decay of anticholinesterase activity of organic phosphorus insecticides on storage in waters of different pH; abstract. C. M. Weiss and J. H. Gakstatter. WPCF J 36:274-5 Mr '64

Organophosphorus insecticides in Colorado. J. H. Holmes. bibliog Archives Environmental Health 9:445-53 O '64

Para-substituted meta-xylenyl diethyl phosphates and N-methylcarbamates as anticholinesterases and insecticides. R. L. Metcalf and others. bibliog J Agri & Food Chem 12:231-6 My '64

ANTICOAGULANTS. See Blood—Coagulation

ANTIDOTES

Effectiveness of aurin tricarboxylic acid (ATA) as an antidote for beryllium poisoning. M. E. King and others. bibliog Ind Med 33:566-9 Ag '64

ANTI-FOULING paint. See Paint, Anti-fouling

ANTI-FREEZE solutions

Auto makers could revive long-life antifreeze. il Chem & Eng N 41:23-4 D 2 '63

ANTI-FRICTION bearings. See Bearings, Antifriction

ANTIGENS and antibodies

A, B, and H blood-group substances yield highly active fragments. Chem & Eng N 42:38-9 Ja 13 '64

Antibodies to lung in pulmonary disease of man. O. J. Balchum and J. Van Dyke. bibliog Archives Environmental Health 8:139-42; Discussion. 147-52 Ja '64

Challenge to the validity of the Vi test for the detection of chronic typhoid carriers. V. Bokkenheuser and others. bibliog Am J Pub Health 54:1507-13 S '64

Fluorescent antibodies in virus diseases; abstract. J. Riggs. Ind Med 33:706 O '64

How cells attack antigens. R. S. Speirs. il diags Sci Am 210:58-64 F '64

Thymus hormone. R. H. Levey. il diags Sci Am 211:66-71+ Jl '64

Virus-like particles offer new leads to studies of leukemia. il Chem & Eng N 42:40-2 O 19 '64

See also

Immunity

ANTILLES. See West Indies

ANTIMALARIALS. See Malaria

ANTIMONATES

Aromatic substitution; acetylation of benzene, alkylbenzenes, and halobenzenes with methyloxocarbonium (acetylium) hexafluoro- and hexachloroantimonate. G. A. Olah and others. bibliog Am Chem Soc J 86:2203-9 Je 5 '64

Stable carbonium ions; alkylcarbonium hexafluoroantimonates. G. A. Olah and others. bibliog Am Chem Soc J 86:1360-73 Ap 5 '64

ANTIMONIDES

Simple electron diffraction camera for the examination of alkali antimonide photoelectric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64

ANTIMONY

Antimony, 1963. D. E. Moulds. Eng & Min J 165:118-19 F '64

Ferrimagnetic garnets containing pentavalent antimony. S. Geller and others. J Ap Phys 35:542-7 Mr '64

Role of antimony in positive plate behavior in the lead-acid cell. J. Burbank. bibliog il Electrochem Soc J 111:1112-16 O '64

Self-diffusion in antimony. H. B. Huntington and others. bibliog diag J Ap Phys 35:3027-32 O '64

Analysis

Activation analysis of antimony by sum-coincidence spectrometry. F. Adams and J. Hoste. bibliog diag Nucleonics 22:55-7 Mr '64

Antimony in titanium dioxide. R. J. M. Ratcliffe and S. G. E. Stevens. bibliog Manuf Chem 35:83-4 S '64

Coulometric titration of total antimony and antimony(III) in glasses. W. M. Wise and J. P. Williams. Anal Chem 36:1863-4 Ag '64

Fast paper chromatography of different valence states of mercury and antimony. M. Qureshi and M. A. Khan. Anal Chem 35:2050-2 D '63

ANTIMONY alloys

Growth of bismuth-antimony single-crystal alloys. D. M. Brown and F. K. Heumann. bibliog J Ap Phys 35:1947-51 Je '64

Plating of lead-tin-antimony ternary alloys. D. L. Cox. Plating 51:976-7 O '64

ANTIMONY alloys—*Continued*

Transition from plane to cellular interface in solidifying tin-lead-antimony alloys. G. S. Cole and W. C. Winegard. bibliog il diag Inst Metals J 92:322-6 '63-64

ANTIMONY compounds

Composition dependence of photoelectric characteristics of Cs-Sb compounds. M. Hagino and others. bibliog diags J Ap Phys 35:2112-18 Jl '64

Electrolytic stibine formation. L. Tomlinson. bibliog Electrochem Soc J 111:592-6 My '64

Spectra

Infrared spectra of some alkyl-substituted pentavalent antimony compounds. G. G. Long and others. Am Chem Soc J 86:209-13 Ja 20 '64

ANTIMONY fluorides

Krypton difluoride-antimony pentafluoride complex. H. Selig and R. D. Peacock. Am Chem Soc J 86:3895 S 20 '64

ANTIMONY sulfide

Electron probe analyses of copper in meneghinite. K. Fredriksson and C. A. Andersen. il Am Mineralogist 49:1467-9 S '64

ANTIMONY telluride

Analysis of mixtures of antimony and bismuth tellurides containing selenium and iodine. K. L. Cheng and B. L. Goydish. bibliog Anal Chem 35:1965-7 N '63

ANTIOXIDANTS

Aluminum alkyls to join Ethyl's stable. il Can Chem Process 48:46-9 Ag '64

Antioxidants show promise as jet fuel additives. Oil & Gas J 61:94-5 N 4 '63

Comparative effects of certain antioxidants on gestational performance and teratogeny in vitamin E-deficient rats. D. W. King. J Nutrition 83:123-32 bibliog(p 131-2) Je '64

Determination of antioxidants in certain food products and packaging materials by gas chromatography. W. M. Schwecke and J. H. Nelson. bibliog J Agri & Food Chem 12:86-9 Ja '64

Effect of several different BHT treatments on post-storage acceptance of a shredded oat cereal. S. Shmigelsky and others. Food Tech 18:387-9 Mr '64

Effect of temperature, antioxidant, and oxygen on the stability of precooked dehydrated sweetpotato flakes. H. J. Deobald and T. A. McLemore. bibliog Food Tech 18:739-42 My '64

Graphite generates antioxidant coating. il Chem Eng 71:108 My 11 '64

Package treatment versus direct application as a means of incorporating BHT in shredded breakfast cereals. E. F. Caldwell and others. bibliog Food Tech 18:383-6 Mr '64

Responses of cereals to antioxidants. R. H. Anderson and others. bibliog Food Tech 17:1587-92 D '63

Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63

Analysis

Determination of butylated hydroxyanisole, butylated hydroxytoluene, and ethoxyquin in hydrocarbon-soluble samples. N. J. Alicino and others. bibliog J Agri & Food Chem 11:496-8 N '63

Determination of 2,6-di-*tert*-butyl-*p*-cresol in turbine oils. B. Braithwaite and G. Penketh. bibliog Anal Chem 36:185-8 Ja '64

Identification of trace quantities of antioxidants in polyethylene. D. F. Slonaker and D. C. Sievers. flow diag il Anal Chem 36:1130-2 My '64

Kinetics of autoxidation of methyl linoleate; effect of added antioxidants and a new method for the evaluation of antioxidants. R. M. Quencer and others. bibliog Am Oil Chem Soc J 41:650-3 O '64

Titration of oxygen and antioxidants using 2,4,6-tri-*tert*-butylphenoxy free radicals. J. P. Paris and others. bibliog Anal Chem 36:1332-4 Je '64

ANTIOXIDANTS for rubber. See Rubber—Aging

ANTI-TANK missiles. See Guided missiles—Anti-tank missiles

ANTITRUST laws. See Trusts, Industrial—Law

ANTS

Comparison of some granular carriers for chlordan and heptachlor against the imported fire ant. W. F. Barthel and C. S. Lofgren. J Agri & Food Chem 12:339-42 Jl '64

ANVILS

Anvil attachment speeds stapling of aluminum. il diag Light Metal Age 22:23 Ag '64

Bearing rejects strike out in anvil-bounce tests. il Iron Age 194:88-9 S 17 '64

AORTA

Importance of dietary copper in the formation of aortic elastin. B. Starcher and others. bibliog J Nutrition 82:318-22 Mr '64

APARTMENT houses

All-gas high rise; Philadelphia apartment building. il Am Gas Assn Mo 46:9-10 Mr '64

Apartment boom is losing its bang. Eng N 171:25-6 D 5 '63

Apartments; building types study. il plans diags Arch Rec 136:103-28 Ag '64

Apartments, what next? il plans Arch Forum 120:70-83 Mr '64

Building types study; apartments. G. A. Christie. il plans Arch Rec 135:143-62 Ja '64

Cables tie down stacked-up shear wall. il diag Eng N 173:38-9 S 24 '64

Consensus on service hot water. V. J. Pantuso. diags Air Cond Heat & Ven 61:52-62 F '64; Discussion. B. Janofsky. 61:87-8 Ap '64; Reply. 61:5+ Je '64

Elevatoring high-rise apartment buildings. G. R. Strakosch. diags Arch Rec 135:191-2+ Je '64

Environment for the elderly; apartments for independent living. il plans Prog Arch 45:146-9 Ap '64

Far above Cayuga's waters. il plan Prog Arch 45:96-7 S '64

400 South Ocean Boulevard apartments, Palm Beach, Fla. il plan Arch Rec 136:160 O '64

Golden Gateway; superstructures. S. E. Teixeira. il plans Civil Eng 34:36-9 Ja '64

Hi-rise battle plan. R. L. Leusch. Am Gas Assn Mo 46:10-12 My '64

Huge air-rights apartment rises over Chicago tracks. il Eng N 172:23 F 27 '64

Hungary rushes apartment drive. il Eng N 172:43+ Je 11 '64

Panels stacked like dominoes make a building. il diag Eng N 173:62-3 S 17 '64

Prestressed concrete soars 308 ft. il Eng N 172:21 Ap 9 '64

Search for architectural principles; 1300 Lafayette East apartments, Detroit, Mich. il plans diags Prog Arch 45:176-9 S '64

Surveys show mixed market for apartments. G. A. Christie. Arch Rec 136:18 Ag '64

Tendons tie down core walls. il diag Eng N 172:31 Ap 23 '64

Uni-plant metered energy service extended to residential market. Am Gas Assn Mo 46:10 Mr '64

Versatile structures for apartment framing. R. M. Gensert. plans diags Arch Rec 135:178-9 Je; 136:185-8 Jl '64

Will factory made flats speed housing? il plans diags Engineering 197:52-3 Ja 10 '64

Air conditioning

Employ weather data in method of estimating operating costs. J. S. Blossom. Heating-Piping 36:120-3 My '64

5860 apartments are fueled by all-gas power plant. il Gas 40:110-11 Je '64

48-apartment housing complex energized by Uni-Plant. il Gas 40:104 Jl '64

Gas-fired central heating-cooling selected for luxury apartment house. il Air Cond Heat & Ven 61:99 My '64

Heat pump employs panel heating as refrigerant condenser. E. L. Weber. il diag Heating-Piping 35:95-7 O '63; Discussion. 36:107-8 Ja '64

Install 96 air conditioning plants for new apartments. L. S. Ries. il Heating-Piping 36:100-2 F '64

Roof-mounted gas engines cool apartment house. il Air Cond Heat & Ven 61:91 Je '64

Total-electric heating-cooling used in suburban Philadelphia hi-rise apartments. W. A. Schertzer. il Air Cond Heat & Ven 61:108-9 O '64

Trends in apartment air conditioning. il Air Cond Heat & Ven 61:49-53 Ag '64

Designs and plans

Milan apartments based on pentagon. il plan Eng N 173:34 S 3 '64

P/A eleventh annual design awards; urban renewal project for San Francisco redevelopers, inc. il plans Prog Arch 45:106-9 Ja '64

APARTMENT houses—*Continued*

Electric equipment

All-electric garden apartments. il plan diag Elec Constr & Maint 62:64-7 D '63

Electric heating forum; heating apartments with electricity. A. N. Reichel. plan Elec Constr & Maint 63:94-7 Ap '64

On-site generation serves large housing development. L. Kazan. il diag Elec Constr & Maint 63:86-9 F '64

Primary distribution offers builder most for the least. C. A. Jacobson. il Elec World 160:36-8 D 16 '63

Protect low-voltage systems from arcing-fault damage. N. Peach. il diags Power 108:61-5 Ap '64

Topeka's all-electric apartment prove out. il plans Elec Constr & Maint 63:68-9 Ja '64

Utilities cash in on apartment boom. Elec World 161:21 Je 8 '64

Utility wiring plan aids apartment sales. il diag Elec World 161:138 Je 15 '64

Heating and ventilation

Almost-total-energy package used in Atlanta apartment. il Gas 40:107-9 Ag '64

Apartment heating costs cut by multiple-boiler system. il diag Arch Rec 134:144 D '63

Beach city to have West Coast's first total energy high-rise apartment. Gas 40:116-17 Je '64

Choose steam heat for village on stilts. L. Smith. il diags Heating-Piping 36:120-1 Ag '64

Electric heating forum; heating apartments with electricity. A. N. Reichel. plan Elec Constr & Maint 63:94-7 Ap '64

5860 apartments are fueled by all-gas power plant. il Gas 40:110-11 Je '64

Gas-fired central heating-cooling selected for luxury apartment house. il Air Cond Heat & Ven 61:99 My '64

Gas to power huge energy systems in Los Angeles. il Oil & Gas J 62:194 O 12 '64

Heat pump employs panel heating as refrigerant condenser. E. L. Weber. il diag Heating-Piping 35:95-7 O '63; Discussion. 36:107-8 Ja '64

Install 96 air conditioning plants for new apartments. L. S. Ries. il Heating-Piping 36:100-2 F '64

Multistory venting with SE-ducts. M. D. Ringler and H. Cullinane. bibliog flow diag il diags Air Cond Heat & Ven 61:55-61 S '64

Total-electric heating-cooling used in suburban Philadelphia hi-rise apartments. W. A. Schertzer. il Air Cond Heat & Ven 61:108-9 O '64

World's largest landlord revisited. L. Smith. il diags Heating-Piping 36:108-11 Mr '64

APARTMENTS

Lighting

Apartment gallery. il Illum Eng 59:427 Je '64

APATITE

Infrared spectra of phosphate minerals; symmetry and substitutional effects in the pyromorphite series. H. H. Adler. bibliog diags Am Mineralogist 49:1002-15 Jl '64

Nature of alkali carbonate apatites. D. R. Simpson. bibliog Am Mineralogist 49:363-76 Mr '64

Thorian intermediate member of the britholite-apatite series; physical and chemical studies. M. R. Hughson and J. G. Sen Gupta. bibliog il Am Mineralogist 49:937-51 Jl '64

APES

See also

Chimpanzees

APOCYANACEAE

Structures of affinine and affinisine, alkaloids of peschiera affinis (Muell. Arg.) Miers. M. P. Cava and others. bibliog Chem & Ind p 1193-4 Je 27 '64

APORPHINE

Aporphine and isoquinolinedienone alkaloids of ocotea glaziovii. B. Gilbert and others. bibliog Am Chem Soc J 86:694-6 F 20 '64

Chemical determination of the absolute configuration of aporphines; the reductive cleavage of proaporphines. M. P. Cava and others. bibliog Chem & Ind p282-3 F 15 '64

Thalictrum alkaloids; the structure, configuration, and total synthesis of thalicarpine, a novel dimeric aporphine-benzylisoquinoline alkaloid. S. M. Kupchan and N. Yokoyama. bibliog Am Chem Soc J 86:2177-83 Je 5 '64

APPALACHIAN region

Pattern of folded folds in the Appalachian Piedmont along Susquehanna River. J. Freedman and others. bibliog maps diags Geol Soc Bul 75:621-38, pl 1-5 Jl '64

Social work in the southern Appalachians. T. J. Herlihy. bibliog Am J Pub Health 53:1770-9 N '63

See also subdivision Appalachian region under special subjects, e.g.

Electric utilities
Geology
Petroleum
Roads

APPLE juice

Acetylmethylcarbinol and diacetyl as chemical indexes of microbial quality of apple juice. M. L. Fields. bibliog Food Tech 18:1224-8 Ag '64

Effects of chemical treatments on refrigerated apple juice. J. Y. Do and D. K. Salunkhe. bibliog Food Tech 18:584-6 Ap '64

APPLES

Explosive puffing applied to apples and blueberries. N. H. Eisenhardt and others. flow sheet il Food Eng 36:53-5 Je '64

Lye peeling of apples improved by wax solvents. W. O. Harrington and C. H. Hills. Food Tech 18:375-6 Mr '64

Rapid determination of diphenylamine in apples by direct bromination and gas chromatography. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:468-70 N '63

Storage

Rates of moisture loss of apples under refrigerated storage conditions. C. P. Lentz and E. A. Rooke. bibliog diags Food Tech 18:1229-31 Ag '64

Some effects of gamma radiation on the keeping quality of apples. L. M. Massey, jr. and others. bibliog J Agri & Food Chem 12:268-74 My '64

APPLESAUCE

Fresh-flavored instant applesauce powder. G. Johnson and others. Food Tech 18:1237-9 Ag '64

Gelled applesauce. M. E. Lazar and A. I. Morgan, jr. il Food Tech 18:310-11 Mr '64

APPLICATIONS for positions

Help wanted. C. Pacifico. Chem & Eng N 42:76-8+ Mr 30 '64 (reprints 40c)

How to prepare a resume. M. A. Williamson. Res/Develop 15:26-7 N '64

APPLIED mechanics. See Mechanics, Applied

APPORTIONMENT

Apportionment of the U.S. House of representatives; a minimum range, integer solution allocation problem. O. R. Burt and C. C. Harris, jr. bibliog Op Res 11:648-52 Jl '63; Discussion. E. J. Gilbert and J. A. Schatz. 12:768-73 S '64

APPRENTICES

Apprenticeship training for paper machine crews. W. L. Adams. Paper Ind 46:383-5 Ag '64

Bemetel training scheme. il Engineer 216:751 N 1 '63

Training in today's industrial economy. E. G. Fisk. Paper Ind 46:385-9 Ag '64

See also

Employees, Training of

APPROXIMATE computation

Acetylacetonate anion; molecular orbital calculations in the Hückel and self-consistent field approximations. L. S. Forster. bibliog Am Chem Soc J 86:3001-4 Ag 5 '64

Analytical approximations of thermodynamic functions of air. V. V. Mikhailov. bibliog AIAA J 1:2692-6 N '63

Analytical representation of the thermodynamic functions of dissociating air. V. V. Mikhailov. AIAA J 1:2689-92 N '63

Application of a new method of approximation in the solution of ordinary differential equations to the Blasius equation. E. D. Kennedy. bibliog A S M E Trans ser E 31:112-14 Mr '64

Approximate circular and noncircular offset probabilities of hitting. F. E. Grubbs. bibliog diag Op Res 12:51-62 Ja '64

Approximate evaluation of slender radome performance in hypersonic flight. F. A. Albini. bibliog diags AIAA J 2:476-83 Mr '64

Approximate method for a queuing process with a randomly deteriorating server. M. Eisen. Op Res 11:996-1000 N '63

Approximate method for computing diffraction patterns caused by ionospheric irregularities. R. Gagnon. bibliog diags J Res Nat Bur Stand 68D:737-42 Je '64

Approximate method for plug nozzle design. G. Angelino. diags AIAA J 2:1834-5 O '64

Approximate methods for time-dependent gas-film lubrication problems. W. A. Michael. bibliog A S M E Trans ser E 30:509-17 D '63

APPROXIMATE computation—*Continued*

Approximate numerical scheme for the theory of cavity flows past obstacles of arbitrary profile. T. Y. T. Wu and D. P. Wang. diags A S M E Trans ser D 86:556-60 S '64

Approximate solution for laminar boundary layer flow. R. L. Kosson. bibliog AIAA J 1:1088-96 My '63; Discussion. 2:587-8 Mr '64

Approximate solution of second-order boundary-layer equations. L. Devan and M. M. Oberai. AIAA J 2:1838-40 O '64

Approximate solution to flux concentration by hydromagnetic flow. J. M. Baker. bibliog diag AIAA J 2:112-13 Ja '64

Approximate solutions to the three-machine scheduling problem. R. J. Giglio and H. M. Wagner. Op Res 12:305-24 Mr '64

Approximate theoretical calculation of continuum opacities. S. S. Penner and M. Thomas. bibliog diag AIAA J 2:1572-5 S '64

Approximating polynomials by polynomials of lower degree. P. A. Jarvie. bibliog Instruments & Control Systems 37:140-2 Ap '64

Approximation of residual total-magnetic-intensity anomalies. A. L. Kontis and G. A. Young. bibliog diag Geophysics 29:623-7 Ag '64

Approximation of the eigenvalues for heat transfer in laminar tube slip flow. R. M. Inman. AIAA J 2:373-4 F '64

Approximations for some radial Mathieu functions. J. E. Burke. bibliog J Math & Phys 43:234-40 S '64

Broadside radar echoes from ionized trails. H. Weil. bibliog AIAA J 2:429-32 Mr '64

Buckling of bars of variable rigidity with varying axial load. K. T. Sundara Raja Iyengar and S. Anantharamu. bibliog diags Roy Aeronautical Soc J 67:734-6 N '63

Controller settings and loop performance; a rapid estimate. P. S. Buckley. diags Control Eng 11:81-2 Ag '64

Covariance matrix approximation. L. B. Schlegel. AIAA J 1:2672-3 N '63

Cutting-tool temperature-predicting equation by response-surface methodology. S. M. Wu and R. N. Meyer. bibliog diags A S M E Trans ser B 86:150-6 My '64

Describing function for nonlinear systems with memory subject to random input. V. S. Levadi and R. L. Cosgriff. bibliog diags IEEE Trans Applications & Ind p73-6 Mr '64

Diffusion approximation for thermal radiation in gases with jump boundary condition. R. G. Deissler. bibliog diag A S M E Trans ser C 86:240-6 My '64

Direct method for Chebyshev approximation by rational functions. J. Stoer. bibliog Assn for Computing Mach J 11:59-69 Ja '64

Effect of cyclic loading on the temperature in viscoelastic media with variable properties. R. A. Schapery. bibliog diags AIAA J 2:827-35 My '64

Estimate of errors for approximate solutions of the simplest equations of gasdynamics. S. K. Godunov. AIAA J 2:208-15 Ja '64

Far-flow approximations for precursor ionization profiles. L. Wetzel. bibliog AIAA J 2:1208-14 Jl '64

Integral approach to an approximate analysis of thrust vector control by secondary injection. K. Karamcheti and H. T. S. Hsia. diags AIAA J 1:2538-44 N '63; Discussion. W. Simon. 2:1358-9 Jl '64

Momentum integral approximation for compressible magnetogasdynamic boundary-layer flow. J. J. Kauzlarich and A. B. Cambel. bibliog diag A S M E Trans ser E 30:269-74 Je '63; Discussion. 31:358-9 Je '64

Nonequilibrium blunt-body flow using the method of integral relations. W. C. L. Shih and J. R. Baron. bibliog AIAA J 2:1062-71 Je '64

Numerical solution of systems of nonlinear equations. F. Freudenstein and B. Roth. bibliog Assn for Computing Mach J 10:550-6 O '63

Particle motion in the equatorial plane. V. L. Pisacane. diag AIAA J 2:1361-4 Ag '64

Quasi-longitudinal approximation in the generalized theory of radio wave absorption. R. F. Benson. bibliog J Res Nat Bur Stand 68D:219-23 F '64

Quasi-one-dimensional treatment of chemical reactions in turbulent wakes of hypersonic objects. S. C. Lin and J. E. Hayes. bibliog AIAA J 2:1214-22 Jl '64

Radar scattering from coated perfect conductors; application to the semi-infinite cone and use of exact eikonal. H. Überall. bibliog J Res Nat Bur Stand 68D:749-66 Je '64

Random volume scattering. H. Bremmer. bibliog J Res Nat Bur Stand 68D:967-81 S '64

Rapid estimation of the far-field in an axisymmetric compressible jet. R. S. Rosler. AIAA J 2:1489-91 Ag '64

Reactance of a symmetrical pair of strips in rectangular waveguide. L. Lewin. diag Inst E E Proc 111:1382-4 Ag '64

Relative stability via the direct method of Lyapunov. W. G. Vogt. A S M E Trans ser D 86:87-90 Mr '64

Residual analysis for circular cylindrical shells under segmental line-load. J. Sheng and J. Kempner. bibliog diags AIAA J 1:2558-64 N '63; Correction. 2:784 Ap '64

Series solution of equations for re-entry vehicles with variable lift and drag coefficients. Y. C. Shen. bibliog diag AIAA J 1:2487-90 N '63

Transcendental approximation for laminar boundary layers. P. D. Richardson. AIAA J 1:2659 N '63

Use of the Debye-Hückel approximation in the analysis of protein potentiometric titration data. M. Nagasawa and A. Holtzer. bibliog Am Chem Soc J 86:531-8 F 20 '64

WKB connection formulas. E. L. Murphy and R. H. Good, jr. bibliog J Math & Phys 43:251-4 S '64

See also

Relaxation methods (mathematics)

APRICOTS

Effects of maturity and storage on certain biochemical changes in apricots and peaches. P. B. Deshpande and D. K. Salunkhe. bibliog Food Tech 18:1195-8 Ag '64

Thermal degradation of pigments and relative biochemical changes in canned apricots and cherries. K. B. Dalal and D. K. Salunkhe. bibliog Food Tech 18:1198-200 Ag '64

AQUARIUMS

Philadelphia Aquarama filters handle 3.8 mgd. il Water & Sewage Works 111:138-9 Mr '64

AQUATIC plants

Determination of butoxyethanol ester of 2,4-dichlorophenoxyacetic acid in shellfish and fish. J. E. Coakley and others. bibliog J Agri & Food Chem 12:262-5 My '64

Flow retardance by channel weeds and their control. J. C. Stephens and others. bibliog Am Soc C E Proc 89 [IR 2 no 3550]:31-53 Je '63; Discussion. M. W. Scrivner and P. J. Tilp. 89 [IR 4 no 3746]:65-9 D '63; Reply. 90 [IR 2 no 3941]:53-4 Je '64

Too much food in the effluent. F. J. Miller. il Water Works & Wastes Eng 1:40-1 Je '64

Toxicological effects of herbicides on the fish environment. C. R. Walker. bibliog il Water & Sewage Works 111:113-16, 173-5 Mr-Ap '64

See also

Fresh water flora

AQUEDUCTS

Costs

Aqueduct costs $650,000 a mile; unit prices. Eng N 172:39 Ap 30 '64

AQUIFERS. See Water, Underground

ARABIA

See also

Petroleum industry and trade—Arabia

ARABS

See also

Bedouins

ARBITRATION, Industrial

Improved arbitration now in view for textiles. M. Stone. il Mod Textiles Mag 45:38-9+ Jl '64

Labor bargaining must protect management's rights. B. S. Kirsh. Automation 11:50-4 Ag '64

Labor relations know-how. Published in monthly numbers of Mill and factory

Labor relations; roundup of actual day-to-day in-plant problems and how they were handled by management men. Published in monthly numbers of Rock products

Thorn-strewn primrose path known as compulsory arbitration. H. J. Lambeth. Rock Prod 67:63-5 F '64

ARBORS and mandrels

Grinder runs faster without arbor. il Iron Age 194:145-7 S 24 '64

Mandrel aids backing-off operation. F. Rush. diags Am Mach 108:133 Mr 16 '64

Proposed recommended practice for the processing of mandrels for electroforming. Plating 51:1075-8 N '64

Safe cutoff for waveguide tube improves shearing quality; Western Electric's North Carolina works. F. J. Fuchs, jr. and H. R. Tillman. il diags Mach 70:112-15 F '64

ARBORS and mandrels—*Continued*

Thin-wall aluminum sleeves ground without distortion. H. J. Gerber. il Mach 70:143 My '64

ARBOVIRUSES

Arthropod-borne viruses; abstract. A. Shelokov. Ind Med 33:716 O '64

ARC, Electric. See Electric arc

ARC welding. See Electric welding, Arc

ARCHED bridges. See Bridges, Arched

ARCHEOLOGY

Archeological reconnaissance and highway location. L. F. Erickson. il Pub Works 95:104-6 Ag '64

Industrial archaeology, an introduction by K. Hudson and Archaeology and the microscope by L. Biek. Review, by A. Clow. Chem & Ind p275-6 F 15 '64

See also
Egypt—Antiquities
Greece—Antiquities
Italy—Antiquities
Stone age

ARCHES

Arch form as a facade motif; Inwood Manor, Houston, Tex. il plan Arch Rec 136:118-19 Ag '64

Buckling of circular arches under nonuniform pressure. W. Wempner and T. Ewbank. diag Am Soc C E Proc 89 [EM 4 no 3597]:17-20 Ag '63; Discussion. R. Schmidt. 89 [EM 6 no 3774]:275-6 D '63; Reply. 90 [EM 3 no 3936]:279-80 Je '64

Collapse of arches under repeated loading. V. Franciosi and others. bibliog diags Am Soc C E Proc 90 [ST 1 no 3803]:165-201 F '64; Discussion. 90 [ST 5 no 4066]:219-20 O '64

Two-hinged arches; digital computer analysis and design. I. Hooper and P. C. Wang. diags Civil Eng 33:67-8 D '63

ARCHES, Concrete

Dynamic nonlinear response of reinforced concrete arches. V. N. Gupchup and J. M. Biggs. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3596]:225-48 Ag 63; 90 [ST 4 no 4001]:261-5 Ag '64

ARCHES, Steel

Aeroelastic vibration of a steel arch. R. R. Bradshaw. il diags Am Soc C E Proc 90 [ST 3 no 3921]:1-17 Je '64; Discussion. 90 [ST 5 no 4066]:243-4 O '64

Arch along the Mississippi; St Louis Gateway arch. il diags Comp Air Mag 69:14-17 O '64

Construction resumed on St Louis arch. il Eng N 172:20 Ja 30 '64

Gateway arch halfway to the top. il Eng N 173:13 Jl 30 '64

Leaning arches frame giant bird cage. il Eng N 173:44-5 O 1 '64

St Louis arch in bootstrap erection stage. il diag Welding Eng 49:56+ Ja '64

Skewed arches span Berlin arena. il diag Eng N 172:137 Mr 19 '64

Welding moves ahead on tracks. il Iron Age 194:83 Jl 16 '64

ARCHIE, Gustave E.

G. E. Archie to receive Lester C. Uren award at Houston. por J Pet Tech 16:1020-1 S '64

ARCHITECTS

Architect's expanding role in industrial design. F. L. Whitney. il Arch Rec 136:168+ Jl '64

Architects toughen ethical standards. Eng N 172:17-18 Je 25 '64

Architectural practice in Mexico. R. L. W. Wright. Prog Arch 45:154 F '64

Architecture as a total community; synthesis and sublimation; the role of the architect. A. Mayer and C. Stein. il Arch Rec 136:139-48 O '64

Design of building products; role of the architect. il diags Prog Arch 45:165-74 Je '64

For 1964, a rise in architects' business. Prog Arch 44:70-1 N '63

100 largest architectural firms in the U.S. Arch Forum 120:14-16 Ap '64

Peace corps architect in Peru. il plan Prog Arch 45:104 O '64

Role of the architect-engineer in planning and building research facilities. J. W. Beyvl. il plans Res/Develop 15:28-31 Mr '64

Search for architectural principles; some thoughts and works of Gunnar Birkerts. il plans diags Prog Arch 45:172-91 S '64

20th century engineering; where is the architect? il Prog Arch 45:61 Ag '64

U.S. firm radiates from Rome; Robert S. McMillan associates. il map plans diags Prog Arch 45:239-46 O '64

What it takes to be a client. D. Canty. Arch Forum 119:84-7 Jl; 92-5 S; 94-7 D '63; 120:104-7 F; 106-9 Ap '64

See also
American institute of architects
Jeanneret, Pierre
Rudolph, Paul

Government relations

President Johnson and public architecture; convictions on architect's role recalled. Arch Rec 135:10 Ja '64

Law

AIA general conditions. H. J. Rosen. Prog Arch 45:168 Ag '64

It's the law. B. Tomson and N. Coplan. Published in monthly numbers of Progressive architecture

ARCHITECTS homes. See Architecture, Domestic—Architects homes

ARCHITECTS offices

Draftsmen's wharf. il plan Prog Arch 45:156-60 Jl '64

ARCHITECTURAL acoustics. See Acoustics, Architectural

ARCHITECTURAL decoration. See Decoration and ornament, Architectural

ARCHITECTURAL engineering. See Building

ARCHITECTURAL lighting. See Lighting, Architectural

ARCHITECTURAL research

Future of research. R. Llewelyn-Davies and P. Cowan. Arch Rec 136:105+ S '64

ARCHITECTURAL societies

See also
American institute of architects

ARCHITECTURE

Architecture and the urban emergency. D. Canty. il Arch Forum 121:172-9 Ag-S '64

Architecture as total community. A. Mayer and C. Stein. il maps plans Arch Rec 135:137-44 Mr; 169-78 Ap; 145-52 My; 141-6 Je; 136:157-62 Jl; 129-38 Ag; 197-206 S; 139-48 O '64

Architecture at the New York world's fair. M. F. Schmertz. il Arch Rec 136:143-50 Jl '64

Beneath the visiting moon. J. E. Burchard. il Prog Arch 44:160-70 N; 126-31 D '63

Light, form, and power; new work of Louis Kahn. V. Scully. il plans diags Arch Forum 121:162-70 Ag-S '64

Secret scrapbook of an architectural scavenger. P. Blake. il diags Arch Forum 121:81-114 Ag-S '64

Tradition and continuity in architecture. W. Gropius. il Arch Rec 135:131-6 My; 133-40 Je; 136:151-6 Jl '64

See also
Airport buildings
Automobile sales buildings
Balconies
Beach architecture
Bridges—Architecture
Building materials
Buildings
Cathedrals
Ceilings
Childrens homes
Church architecture
Clinics
Clubhouses
College architecture
Concrete construction
Convents
Courts (architecture)
Dairies
Department stores
Embassy buildings
Exhibition buildings
Facades
Fire houses
Flashing
Greenhouses
Hillside architecture
Interior decoration
Library buildings
Medical buildings
Memorials
Modular coordination (architecture)
Monuments
Moving picture theaters
Municipal centers
Museums
Music halls
Nurses homes
Nursing homes
Office buildings
Offices

ARCHITECTURE—See also—*Continued*

Parapets
Partitions
Pavilions
Police stations
Prisons
Public buildings
Remodeling (architecture)
Shelters
Shoe stores
Skis and skiing—Stations, lodges, etc.
Stadiums
Tennis courts, Indoor
Theaters
Vaults (architecture)

also subdivision Architecture under names of cities, e.g.

Berlin
Boston
Buenos Aires
Chicago
Dallas
Detroit
Dublin
Frankfurt, Germany
Honolulu
Montreal
New York (city)
Paris
Philadelphia
Portland, Oregon
Rochester, New York
St Louis
San Francisco
Tokyo
Toronto
Washington, D.C.

Bibliography

Book reviews. Published in monthly numbers of Progressive architecture

Books. Published in monthly numbers of Architectural forum

Required reading. Published in monthly numbers of Architectural record

Competitions

A.I.A. awards honor 16 projects. il Arch Rec 136:10+ Jl '64

AIA holds competition for headquarters. il plan Arch Rec 135:20 Ap '64

AIA jury selects four buildings for honor awards. il Eng N 172:18-19 Je 25 '64

AISC chooses 1964's prize buildings. il Eng N 173:18 Jl 23 '64

Architects panel selects 16 best buildings of 1964. il Arch Forum 121:9 Jl '64

Boston architectural center design chosen. il Arch Rec 135:14-15 Ap '64

Boston architectural center to enter new phase with new building. il plans Prog Arch 45:70-1 Mr '64

Building types study; apartments; FHA honor awards for residential design. G. A. Christie. il plans Arch Rec 135:154-62 Ja '64

California buildings receive honor awards. il Arch Rec 135:14-15 Je '64

Design for mechanical learning; college electronic communications center; Rensselaer polytechnic institute. il plans diags Arch Rec 135:178-92 My '64

Eight get awards in Boston arts festival. il Arch Rec 136:12-15 O '64

FHA awards recognize architectural merit. il Arch Rec 135:14-15 Ja '64

Glen Canyon dam is no. one; Dulles airport honored, in Civil engineering achievement awards. il Eng N 172:21 F 20 '64

National program honors ten churches with design awards. il diag Arch Rec 135:12-13 Je '64

P.C.I. honors eleven structures in awards program. il Arch Rec 136:12-13 S '64

P/A eleventh annual design awards. il plans diags Prog Arch 45:100-46 Ja '64

P/A holds 11th awards presentation. Prog Arch 45:60-1 F '64

Providence education center. il Arch Rec 135: 12 Ja '64

Second program of library awards cites three for top honors. il Arch Rec 135:12 Ap '64

Turnover on Olympus; the P/A design awards program, 1954-1964. il plans diags Prog Arch 45:140-55 Jl '64

Twelve buildings get A.I.S.C. awards. il Arch Rec 136:14-15 S '64

Unique use of extrusions wins architectural award. il Mod Metals 20:70 Jl '64

Varied designs from synagogue problem. il plans diags Prog Arch 45:72-3 Mr '64

Winners named in competition for school shelters. il plans Arch Rec 135:26+ F '64

Young Japanese wins Hawaii AIA medal. il Prog Arch 45:72 Ap '64

Designs and plans

New computers may provide big-job planning assistance. il Arch Rec 135:86+ Mr '64

P/A eleventh annual design awards. il plans diags Prog Arch 45:100-46 Ja '64

See also subdivision Designs and plans under special subjects, e.g.

Architecture, Domestic
Hospitals
Naval architecture
School buildings

Details

Architectural details. il plans diags Arch Rec 134:149-64 O '63; 135-121-36 F; 137-52 Ap; 136:169-84 S '64

Bench and bicycle rack; Northeast regional library; selected detail. Prog Arch 45:206 S '64

Ceiling fixtures; State capitol credit union; selected detail. diags Prog Arch 45:139 Jl '64

Design of building products; architectural products by industrial designers. il diags Prog Arch 45:145-64 Je '64

Olivet college collegiate center; column and roof; selected details. Prog Arch 45:155 Mr '64

Plywood footbridge; Reed college, Portland, Ore.; selected detail. il diags Prog Arch 44:136-7 D '63

Precast sunshade; Western Washington state college; selected detail. Prog Arch 45:207 S '64

Skylighted column; First national bank in Loveland; selected detail. Prog Arch 45: 133 Jl '64

Steeple; Wayside Congregational Christian church, Seattle, Wash.; selected detail. Prog Arch 44:155 N '63

Structural components; U.S. embassy office building, Dublin, Republic of Ireland; selected detail. plan diags Prog Arch 45:162-3 F '64

See also

Decoration and ornament, Architectural

Exhibitions

Tapiola, Finland, seen in exhibit. il Arch Rec 134:10 D '63

History

World architecture, an illustrated history. Review, by J. Barnett. il Arch Rec 135: 165-8 Mr '64

International aspects

Abroad. Published in monthly numbers of Architectural forum

Philosophy

Architecture in a social context; the work of Sven Markelius. il plans Arch Rec 135: 153-64 Ap '64

Houses; the architect speaks to man's needs. il plans diags Prog Arch 45:128-93 My '64

Ideas and integrities. B. Fuller. Review, by C. W. Condit. Prog Arch 45:188+ Jl '64

Oneness of form and material. il plans Prog Arch 44:106-17 D '63

Wavy line versus the Cube. L. Mumford. il diag Arch Rec 135:111-16 Ja '64

Specifications

Specifications clinic. H. J. Rosen. Published in monthly numbers of Progressive architecture

Study and teaching

Passing of the Ark. W. W. Wurster. il Prog Arch 45:166-71 Jl '64

California

Varying approaches from Campbell & Wong. il Prog Arch 45:54 Ja '64

Colorado

High mountain monastery for research. il plan Arch Forum 120:82-5 Ja '64

Small banks, a credit to their communities; Loveland. il plans diags Prog Arch 45:128-33 Jl '64

Cuba

New architecture of Castro's Cuba. D. Rowntree. il Arch Forum 120:122-5 Ap '64

Europe

Industrialized building; Western Europe. E. T. Shiffer. il plans diags Prog Arch 45:192-200 O '64

Finland

Finnish architecture; traditions and development. L. K. Eaton. il map Prog Arch 45: 154-61 Ap '64

Tapiola, Finland, seen in exhibit. il Arch Rec 134:10 D '63

ARCHITECTURE—*Continued*

Great Britain

New work, a new style; word in Britain; character. R. Banham. il plans Arch Forum 121:118-25 Ag-S '64

Greece

Oneness of form and material; Mykonos, classical example. il Prog Arch 44:106-10 D '63

Tourist hotel on an ancient coast. il plans diags Arch Rec 136:170-1 O '64

Guatemala

Curtain walls revolutionize Guatemala. W. Hunter. il Eng N 172:80-2 F 13 '64

Hawaii

Hanging gardens on the rocks in Hawaii; hotel at Kaanapali Beach. il plans Arch Rec 135:149-54 Mr '64

Hawaiian hotel opens to landscape. il plan diags Arch Rec 136:174-5 O '64

Italy

Church of the Autostrada. J. M. Fitch. il plan Arch Forum 121:100-9 Jl '64

Japan

Grotto theater is part of Tokyo office block. il diag Arch Forum 120:120-1 F '64

New work, a new style; functional grid in Japan. il plans Arch Forum 121:130-5 Ag-S '64

Kenya

Office building, Nairobi, Kenya. il plans Prog Arch 45:244 O '64

Mexico

Architectural practice in Mexico. R. L. W. Wright. Prog Arch 45:154 F '64

Minnesota

Small banks, a credit to their communities; Minneapolis. il plans diags Prog Arch 45:134-9 Jl '64

Nigeria

University of Lagos, Lagos, Nigeria; McMillan associates. il Prog Arch 45:241-2 O '64

Peru

Peace corps architect in Peru. il plan Prog Arch 45:104 O '64

Rumania

Rumanian architecture; conformity and an occasional breakthrough. il Prog Arch 45:94-5 S '64

Spain

Light on the altar; Church of the Coronation of Our Lady, Vitoria, Spain. il plan Arch Forum 119:82-3 D '63

Sweden

Architecture in a social context; the work of Sven Markelius. il plans Arch Rec 135:153-64 Ap '64

Switzerland

One major 1964 exhibition empowers architecture to reflect goals of program; Swiss national exhibition, Lausanne. il plan Arch Rec 135:14-15 My '64

Swiss build a thinking man's fair. O. Tanner. il plan Arch Forum 121:92-9 Jl '64

Swiss school is a lesson in concrete. il plan diag Arch Forum 120:78-81 Ja '64

Taiwan

New work, a new style; shells soar in Formosa. il diags Arch Forum 121:136-9 Ag-S '64

Texas

Small banks, a credit to their communities; Edinburg. il plans diags Prog Arch 45:122-7 Jl '64

Tropics

Tropical climate control techniques. B. Polk. il plan diags Arch Rec 135:208-10 Ap '64

Two solutions for the tropical house. il plans Prog Arch 44:118-25 D '63

ARCHITECTURE, American

75 years of change, mostly unpredicted. D. Haskell. il Arch Forum 121:72-80 Ag-S '64

ARCHITECTURE, Domestic

Advancing house design. il plan Prog Arch 45:99 O '64

Holiday homes abroad. il plan Engineering 198:128 Jl 24 '64

New row house. R. P. Dober and R. C. Stauffer. il plans Prog Arch 45:117-21 Ag '64

Record houses of 1964. il plans diags Arch Rec 135:47-127 Mid-My '64

Seven new houses by Ulrich Franzen. il plans Arch Rec 134:127-42 N '63

See also

Apartment houses
Balconies
Country houses
Fireplaces
Hillside architecture
Houses
Houses, Row
Interior decoration

Architects homes

Bold expression in brick and concrete. il plans diag Arch Rec 135:80-3 Mid-My '64

Private world of an individual; residence, Sausalito, Calif. il plans diags Prog Arch 45:148-53 My '64

Simply designed home makes use of standard materials for maximum economy. il plans Arch Rec 135:96-9 Mid-My '64

Sophisticated rusticity for country house. il plan Arch Rec 135:88-91 Mid-My '64

Space, not an object; one-room house; Champaign, Ill. il plan Prog Arch 45:178-81 My '64

Two solutions for the tropical house; open pavilion. il plan diag Prog Arch 44:122-5 D '63

Two solutions for the tropical house; solid enclosure. il plan Prog Arch 44:118-21 D '63

Designs and plans

Ultimate house, modern setting for gas. il plan Am Gas Assn Mo 46:12-13 F '64

See also

Houses, Model

Details

See also

Stairways

California

Architecture as an art form; mountaintop house, Agoura, Calif. il plans diags Prog Arch 45:166-71 My '64

An atrium expands builder house living area. il plan Arch Rec 135:108-11 Mid-My '64

Cross-shaped hilltop house provides wide variety of outlook. il plans Arch Rec 135:179-82 Ap '64

Expansive ranch house forms its own oasis. il plan Arch Rec 135:76-9 Mid-My '64

Family home planned in three distinct units. il plan Arch Rec 136:217-20 S '64

Form is what things are; two residences in California by Joseph Esherick. il plans diags Prog Arch 45:134-47 My '64

Four linked pavilions form builder house. il plan Arch Rec 135:92-5 Mid-My '64

Pin-wheel plan provides privacy without fences. il plans Arch Rec 135:153-6 Je '64

P/A eleventh annual design awards; house for Mr and Mrs W. S. Jewell, Orinda, Calif. il plans Prog Arch 45:114-17 Ja '64

Rhythm and symmetry in a steel-framed house; West Los Angeles. il plans Arch Rec 135:48-53 Mid-My '64

Sausalito apartment remodeled. il plans diags Prog Arch 45:156-7 Mr '64

Town house and a country house by Wurster, Bernardi and Emmons. il plans diag Arch Rec 135:139-42 Ja '64

Connecticut

Multi-level house for a rocky hilltop. il plans Arch Rec 135:100-3 Mid-My '64

Seven new houses by Ulrich Franzen; houses in Westport and New Canaan. il plans Arch Rec 134:132-3, 136-7 N '63

Florida

Development house expresses the character of concrete. il plan diag Arch Rec 135:72-5 Mid-My '64

Simplicity cuts costs for a seaside house. il plans Arch Rec 136:147-50 Ag '64

France

Instinctive home; Castellaras-le-Neuf, Alpes-Maritimes, France. il plans Prog Arch 45:186-93 My '64

Hawaii

Four houses in Hawaii. il plans Arch Rec 136:161-4 O '64

Illinois

Lakeside house combines traditional atmosphere with contemporary design. il plans Arch Rec 135:120-3 Mid-My '64

ARCHITECTURE, Domestic—*Continued*

Iowa

Adequate tool for living; Cedar Rapids, Iowa. il plans Prog Arch 45:182-5 My '64

Simply designed home makes use of standard materials for maximum economy. il plans Arch Rec 135:96-9 Mid-My '64

Long Island, New York

Modern house echoes tradition. il plans Arch Rec 134:111-14 D '63

Seven new houses by Ulrich Franzen; houses in Hewlett Harbor and Great Neck. il plans diags Arch Rec 134:130-1, 134-5 N '63

Louisiana

Patios and pavilions are combined for a walled-in city house for a large family. il plans Arch Rec 135:116-19 Mid-My '64

Maryland

Formal house planned for a river view. il plans Arch Rec 135:64-7 Mid-My '64

Sunny house for a wooded site; Silver Spring. il plans Arch Rec 135:169-72 Mr '64

Massachusetts

Raised basement adds space to neat development house. il plans Arch Rec 135:124-6 Mid-My '64

Minnesota

Receding walls give privacy to restricted site. il plan Arch Rec 135:84-7 Mid-My '64

Missouri

Staggered walls exploit site irregularities. il plans diag Arch Rec 135:112-15 Mid-My '64

New Hampshire

Compact saddle-roofed house that exploits a difficult site. il plans diag Arch Rec 135:157-60 My '64

New Jersey

One-story house has bold living spaces and light effects. il plan diag Arch Rec 135:68-71 Mid-My '64

Seven new houses by Ulrich Franzen; cluster housing for Tenafly. il plans Arch Rec 134:128-9 N '63

New York (state)

Adaptable house dramatizes use of steel. il plan diag Arch Rec 135:58-61 Mid-My '64

Five pavilions linked by a service spine. il plan diags Arch Rec 135:104-7 Mid-My '64

Seven new houses by Ulrich Franzen; houses in Mamaroneck and Bedford. il plans Arch Rec 134:138-42 N '63

Pennsylvania

Bold expression in brick and concrete. il plans diag Arch Rec 135:80-3 Mid-My '64

P/A eleventh annual design awards; house for Mr and Mrs J. H. P. Hamilton, New Hope. il plans diags Prog Arch 45:110-13 Ja '64

P/A eleventh annual design awards; town houses for Harold Rosen & co., Philadelphia. il plans diags Prog Arch 45:100-5 Ja '64

Sweden

Swedish style. il Engineering 196:768 D 13 '63

Texas

Open plan for a family home; Houston. il plan diag Arch Rec 135:173-6 Mr '64

Washington, D.C.

Contemporary town house uses vaulted roofs. il plans diag Arch Rec 135:54-7 Mid-My '64

Georgetown house expanded. il plans Prog Arch 45:158-9 Mr '64

Washington (state)

Attractive development house for $5,995. il plans Arch Rec 135:62-3 Mid-My '64

ARCHITECTURE, Modernistic

Mailer vs. Scully; two statements on contemporary architecture. Arch Forum 120:96-7 Ap '64

New work, a new style? il plans Arch Forum 121:115-61 Ag-S '64

Yale's school of art and architecture; the measure. S. Moholy-Nagy. il plan Arch Forum 120:76-9 F '64

ARCS

Arc lengths and curvature of parabolic segments. M. H. Thibodeaux. diags Am Soc C E Proc 90 [PL 1 no 3755]:1-6 Ja '64

ARCTIC regions

Auroral-zone absorption effects on an hf Arctic propagation path. R. D. Hunsucker. bibliog map J Res Nat Bur Stand 68D:717-21 Je '64

Diurnal changes of transmission time in the Arctic propagation of vlf waves. W. T. Blackband. diags J Res Nat Bur Stand 68D:205-10 F '64

Effects of Arctic nuclear explosions on satellite radio communication. P. R. Arendt and H. Soicher. bibliog maps IEEE Proc 52:672-6 Je '64

Electrical properties of sea ice at 0.1 to 30 mc/s. F. L. Wentworth and M. Cohn. bibliog il diags J Res Nat Bur Stand 68D:681-91 Je '64

Precise phase and amplitude measurements on vlf signals propagated through the Arctic zone. F. H. Reder and others. diags J Res Nat Bur Stand 68D:275-81 Mr '64

See also

Building—Arctic regions
Petroleum—Arctic regions
Petroleum industry and trade—Arctic regions
Polar regions

AREA measurement

Automatic area compensator for constant stress cycling. C. E. Feltner and J. Jackobs. diags R Sci Instr 34:1360-3 D '63

Digital read-out of section area for sheet samples. il Engineering 197:296 F 21 '64

Special jig computer areas. H. E. Hoteko. il Control Eng 11:97 Ag '64

Storage area measurements; windrow. C. W. Matthews. diags Rock Prod 67:46 Ag '64

AREA of surfaces. See Surfaces—Areas and volumes

ARENAS. See Stadiums

ARGABRITE, William Greame

Memorial. C. S. Ross. por Am Assn Pet Geologists Bul 48:1592-3 S '64

ARGENTINA

See also subdivision Argentina under special subjects, e.g.

Geology
Lead mines and mining
Metal working industries
Mines and mineral resources
Petroleum industry and trade
Petroleum laws and regulations
Railroads
Sewerage
Zinc mines and mining

ARGININE

Nonspecific role of arginine in the promotion of muscular dystrophy in the chick. K. J. Jenkins and others. bibliog J Nutrition 82:415-21 Ap '64

Synthesis of arginine-containing peptides through their ornithine analogs; synthesis of arginine vasopressin, arginine vasotocin, and L-histidyl-L-phenylalanyl-L-arginyl-L-tryptophylglycine. M. Bodanszky and others. bibliog Am Chem Soc J 86:4452-9 O 20 '64

ARGON

Argon improves $ZnBr_2$ shielding windows. W. B. Lane and M. J. Nuckolls. diag Nucleonics 22:88-9 F '64

Complete gas chromatographic analysis of fixed gases with one detector using argon as gas carrier. D. P. Manka. flow diag Anal Chem 36:480-2 Mr '64

Effect of argon addition on shock-layer radiance of CO_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64

Electrical conduction and breakdown in argon and helium at temperatures from 1500°K to 2500°K. D. W. George. bibliog il diags Inst E E Proc 110:2063-72 N '63

Electrical conductivity of potassium-seeded argon plasmas near thermal equilibrium. L. P. Harris. J Ap Phys 35:1993-4 Je '64

Experimental determination of the drift velocity of low-energy electrons in Ar, N_2, CO_2, several ArN_2 mixtures, and several Ar-CO_2 mixtures. N. E. Levine and M. A. Uman. bibliog il diags J Ap Phys 35:2618-24 S '64

Heat transfer from nonequilibrium ionized argon gas. C. Park. bibliog AIAA J 2:169-71 Ja '64

Hydrates at high pressures; application of statistical mechanics to the study of the hydrates of methane, argon, and nitrogen. S. Saito and others. bibliog A I Ch E J 10:734-40 S '64

Hydrates at high pressures; methane-water, argon-water, and nitrogen-water systems. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5 Mr '64

ARGON—*Continued*

Mass spectrometric study of neutral particles sputtered from Cu by 0- to 100-eV Ar ions. J. R. Woodyard and C. B. Cooper. bibliog diags J Ap Phys 35:1107-17 Ap '64

Measured temperatures of strong shock waves in argon. J. Roth. bibliog il diags J Ap Phys 35:1429-33 My '64

O-2 transition of CO in condensed oxygen, nitrogen, and argon. S. Abramowitz and H. P. Broida. bibliog J Res Nat Bur Stand 68A:331-3 My '64

Performance of argon detectors in the field-intensified current region. J. Z. Knapp and A. S. Meyer. bibliog diag Anal Chem 36:1430-41 Jl '64

Specific reaction rate of the second-order formation of Ar_2^+. F. W. Lampe and G. G. Hess. bibliog Am Chem Soc J 86:2952-3 Jl 20 '64

Sputtering of polycrystalline copper and silver by 30-170 kev argon ions. C. E. Ramer and others. bibliog diag J Ap Phys 35:1673-80 Je '64

Sputtering yields of single crystals bombarded by one- to ten-kev Ar^+ ions. G. D. Magnuson and C. E. Carlston. bibliog diags J Ap Phys 34:3267-73 N '63

Using argon to degas steel. il Mech Eng 85:47 D '63

Virial coefficients for argon, methane, nitrogen, and xenon. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:621-5 S '64

X-ray diffraction on whiskers grown from ferrous chloride in an argon atmosphere. W. Rambauske and R. R. Gruenzel. il J Ap Phys 35:408 F '64

Analysis

Determination of argon and oxygen by gas chromatography. J. W. Swinnerton and others. diag Anal Chem 36:1669-71 Jl '64

Determination of argon in the presence of oxygen and other atmospheric gases by adsorption chromatography. K. Abel. bibliog diags Anal Chem 36:953-4 Ap '64

Isotopes

K-Ar dating of rocks and tectonic events in the Piedmont of southeastern Pennsylvania. D. M. Lapham and W. A. Bassett. bibliog map diag Geol Soc Bul 75:661-7 Jl '64

Potassium-argon ages from lavas of the Hawaiian Islands. I. McDougall. map Geol Soc Bul 75:107-27 bibliog(p 123-4) F '64

Manufacture

High purity nitrogen, oxygen and argon. il Engineering 196:588 N 8 '63

Industrial gases plant at Stoke-on-Trent. il(p 720) Engineer 216:721 N 1 '63

AGRON, Liquid

Spark erosion in liquid argon. I. A. Bucklow and L. E. Drain. diag J Sci Instr 41:614-17 O '64

ARITHMETIC

Arithmetic behavior in chimpanzees. C. B. Ferster. il diags Sci Am 210:98-104+ My '64

Checking in data processing. C. F. Page. il Instruments & Control Systems 37:129-31 Ag '64

Function evaluation in unnormalized arithmetic. R. L. Ashenhurst. Assn for Computing Mach J 11:168-87 Ap '64

Single-scan techniques for the translation of arithmetic expressions in ALGOL 60. B. Randell and L. J. Russell. bibliog Assn for Computing Mach J 11:159-67 Ap '64

See also
Algorithm
Division
Multiplication

ARIZONA

See also subdivision Arizona under special subjects, e.g.
Electronics industry
Gas, Natural
Geology
Mines and mineral resources
Petroleum
Petroleum industry and trade
Roads
Water supply

ARKANSAS

See also
Gas, Natural—Arkansas
Geology—Arkansas
Petroleum—Arkansas
Petroleum industry and trade—Arkansas

ARKANSAS RIVER

Hydraulic aspects of Arkansas River stabilization. M. S. Petersen. il map plans Am Soc C E Proc 89 [WW 4 no 3699]:29-65 N '63; Discussion. 90 [WW 1 no 3814]:173 F; [WW 2 no 3917]:35-7 My '64

ARMAMENTS

1964 prospects for all engineerings. il Engineering 197:109-11 Ja 17 '64

See also
Disarmament

ARMATURES

End component of armature leakage reactance of turbine generators. J. A. Tegopoulos. bibliog diags IEEE Trans Power Apparatus & Systems 83:632-7 Je '64

Glass banding of traction motor armatures. il Engineering 198:171 Ag 7 '64

Glass-bonded traction motor armatures. il Engineer 218:255 Ag 14 '64

ARMOR plate

Appraisal of brittle fracture temperature of rolled armor steel by the NRL drop weight test. V. H. Pagano and C. O. McHugh. bibliog il plan diags Welding J 43:sup 129-39 Mr '64

Influence of strength level and heat-affected zone on the brittle fracture temperature (navy drop-weight test) of Mn-Mo armor steel. V. H. Pagano and K. Chesney. bibliog il diag Welding J 43:sup 92-6 F '64

ARMORED automobiles. See Automobiles, Armored

ARMS and armor

Buoyant textiles and body armor; symposium. Mod Textiles Mag 45:60-6+ O '64

ARNEL. See Cellulose acetate fibers

AROMATIC compounds

Alkaline hydrolysis of polynuclear methyl arylacetates. N. Acton and E. Berliner. bibliog Am Chem Soc J 86:3312-18 Ag 20 '64

Aromatic amination with hydrazoic acid catalyzed by Lewis acids; orientation, activity, and relative rates. P. Kovacic and others. bibliog Am Chem Soc J 86:1588-92 Ap 20 '64

Aromatic nitriles by ammoxidation. S. Sakuyama and others. il diag Chem Eng Prog 60:48-9 S '64

Aromatic nucleophilic substitution rules apply to hydrated electron reactions. E. J. Hart and M. Anbar. il Chem & Eng N 42:50+ S 14 '64

Aromatic ring synthesis via the Michael reaction. C. E. Glassick and others. Chem & Ind p 1711 O 10 '64

Aromatic substitution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-70, 2198-209 Mr 20, Je 5 '64

Composition of the dinuclear aromatics, C_{13} to C_{14}, in the light gas oil fraction of petroleum. B. J. Mair and T. J. Mayer. bibliog diags Anal Chem 36:351-62 F '64

Condensation reactions of aromatic aldehydes in dimethyl sulfoxide solution; asymmetric tricarbon condensation involving dimethyl sulfoxide. G. A. Russell and H. D. Becker. bibliog Am Chem Soc J 85:3406-10 N 5 '63

Cyclobutadiene fuses to one aromatic nucleus. M. P. Cava and others. il Chem & Eng N 42:36-7 Ja 20 '64

Dialkyl peroxide-induced reductions of aromatic ketones. E. S. Huyser and D. C. Neckers. bibliog Am Chem Soc J 85:3641-4 N 20 '63

Effect of substituted aromatic compounds on the radiolysis of cyclohexane. W. V. Sherman. bibliog Chem & Ind p 1266-7 Jl 11 '64

Electrode reactions of aromatic compounds in strong acid solutions; chronopotentiometric and spectrometric studies of the *p*-hydroquinone-H_2SO_4 system at platinum electrodes. H. B. Mark, jr. and C. L. Atkin. bibliog Anal Chem 36:514-20 Mr '64

Electron spin resonance studies of aromatic polynitro compounds. I. Bernal and G. K. Fraenkel. bibliog diags Am Chem Soc J 86:1671-5 My 5 '64

Electron transfer through organic structural units; aromatic and heterocyclic carboxylates as bridging groups in oxidation-reduction reactions. E. S. Gould and H. Taube. bibliog Am Chem Soc J 86:1318-28 Ap 5 '64

Electronic effects of the sulfonyl group in aromatic systems; relationships between inductive and d-orbital resonance contributions. C. Y. Meyers and others. bibliog Am Chem Soc J 86:2944-5 Jl 20 '64

AROMATIC compounds—*Continued*

Electrophilic substitution of aromatic fourteen-membered ring cyclic conjugated systems. Y. Gaoni and F. Sondheimer. Am Chem Soc J 86:521-2 F 5 '64

Heteropolar ozonization of aza-aromatics and their N-oxides. E. J. Moriconi and F. A. Spano. bibliog Am Chem Soc J 86:38-46 Ja 5 '64

Ionic method aromatizes steroid's A, B rings. il Chem & Eng N 42:42+ Je 15 '64

Kinetics of aromatic nitration. R. C. Miller and others. bibliog diags Ind & Eng Chem 56:43-53 Je '64

Leaf alcohol (cis 3-hexen-1-ol). P. Bedoukian. bibliog Am Perfumer 78:31-5 D '63

Mass spectral studies; fragmentation of aromatic amides. K. G. Das and others. Am Chem Soc J 86:3729-32 S 20 '64

Microwave absorption and molecular structure in liquids; intramolecular structural effects in the dielectric relaxation of six aromatic compounds. E. Forest and C. P. Smyth. bibliog Am Chem Soc J 86:3474-7 S 5 '64

New emphasis put on aromatic substitution. C. Ingold and others. Chem & Eng N 42:42-4+ S 28 '64

New heteroaromatic compounds; derivatives of 4,3-borazaroisoquinoline. M. J. S. Dewar and R. C. Dougherty. bibliog Am Chem Soc J 86:433-6 F 5 '64

New heteroaromatic compounds; two analogs of triphenylene and a possible route to borazarene. G. C. Culling and others. bibliog Am Chem Soc J 86:1125-7 Mr 20 '64

Nucleophilic displacement reactions in aromatic systems; rates and mechanism for the reaction of 2,4-dinitrochlorobenzene with 1,4-diazabicyclo[2.2.2.]octane in acetonitrile. S. D. Ross and others. bibliog Am Chem Soc J 85:3999-4003 D 20 '63

Oxidation of aromatic aldehydes by chromyl acetate. K. B. Wiberg and P. A. Lepse. bibliog Am Chem Soc J 86:2612-19 Jl 5 '64

Photo-induced nucleophilic aromatic substitution. R. L. Letsinger and O. B. Ramsay. Am Chem Soc J 86:1447-8 Ap 5 '64

Radiolysis and pyrolysis of polyaromatic compounds. J. Weiss and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:73-8 Je '64

Reactions of formaldehyde with aromatic amines. W. V. Farrar. bibliog J Ap Chem 14:389-99 S '64

Reactions of peroxy radicals with polynuclear aromatic compounds; reactivities of anthracene, α-benzoanthracene, and tetracene toward alkyl aryl peroxy radicals. L. R. Mahoney. bibliog diag Am Chem Soc J 86:444-9 F 5 '64

Reduction of aromatic disulfides with triphenylphosphine. R. E. Humphrey and J. M. Hawkins. bibliog Anal Chem 36:1812-14 Ag '64

Reduction of nitroaromatic compounds with sodium borohydride. L. A. Kaplan. bibliog Am Chem Soc J 86:740-1 F 20 '64

Reflectance fluorescence spectra of aromatic compounds in potassium bromide pellets. B. L. Van Duuren and C. E. Bardi. bibliog diag Anal Chem 35:2198-202 D '63

Restricted rotation in aromatic aldehydes. F. A. L. Anet and M. Ahmad. bibliog Am Chem Soc J 86:119-20 Ja 5 '64

Selective separation of polycyclic aromatic compounds by countercurrent distribution with a solvent system containing tetramethyluric acid. J. D. Mold and others. bibliog Anal Chem 35:2071-4 D '63

Solvent effects in organic chemistry; the failure of tertiary aromatic amines as Hammett bases. E. M. Arnett and G. W. Mach. bibliog Am Chem Soc J 86:2671-7 Jl 5 '64

Solvolysis with t-alkyl hydroperoxides of t-alkyl and aryl chlorides and polychlorocompounds activated by aromatic rings. N. A. Milas and others. bibliog Chem & Ind p423-4 Mr 7 '64

Spot tests for aromatic and α,β-unsaturated aldehydes. F. Feigl and E. Libergott. bibliog Anal Chem 36:132-3 Ja '64

Study of aromatic amine inhibitors by nuclear magnetic resonance. P. F. Cox and others. bibliog Corrosion 20:299-302 S '64

Ten pi electron system is aromatic. E. Vogel. Chem & Eng N 42:40-1 O 5 '64

Tracer diffusion coefficients of aromatic organic molecules. T. A. Miller and others. bibliog Anal Chem 36:418-20 F '64

Analysis

Instrumentation as applied to a number of aromatic and flavoring materials; abstract. V. D. Johnston. Am Perfumer 78:24 N '63

Use of organo-clays as gas chromatographic stationary phases. J. V. Mortimer and P. L. Gent. bibliog Anal Chem 36:754-6 Ap '64

AROMATIZATION

Novel steroid aromatization reaction. M. Heller and others. bibliog Am Chem Soc J 86:2309-10 Je 5 '64

Reductive aromatization of steroidal dienones; a new method for the preparation of estrone. H. L. Dryden, jr. and others. Am Chem Soc J 86:742-3 F 20 '64

ARSENATES

See also

Zinc arsenates

ARSENIC

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II)-hydrogen peroxide reaction. R. Woods and others. bibliog Am Chem Soc J 86:1698-700 My 5 '64

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron (II) persulfate reaction and the photoreduction of iron(III); presence of oxygen. R. Woods and others. bibliog Am Chem Soc J 85:3334-7 N 5 '63

Constitutional effect of arsenic additions on an austenitic stainless steel. H. J. Goldschmidt and W. M. Ham. bibliog il diags Iron & Steel Inst J 202:347-55 Ap '64

Diffusion of Zn into GaAs under the presence of excess arsenic vapor. H. Rupprecht and C. Z. LeMay. bibliog il J Ap Phys 35:1970-3 Je '64

Effect of arsenic on selenium metabolism in rats. O. E. Olson and others. bibliog J Agri & Food Chem 11:531-4 N '63

Nature of Benedict's arsenophosphotungstic acid reagent. E. Vandalen and M. G. Mellon. bibliog Anal Chem 36:1068-71 My '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; reactions of tetrakis (trifluoromethyl)diarsine with some metal carbonyl compounds. W. R. Cullen and R. G. Hayter. bibliog Am Chem Soc J 86:1030-2 Mr 20 '64

Analysis

Arsenic in paper and paperboard; proposed revision of TAPPI standard T 436 m-45. diag Tappi 47:sup 131A-2A Ap '64

Coulometric titration of total arsenic and arsenic(III) in glasses. W. M. Wise and J. P. Williams. bibliog Anal Chem 36:19-21 Ja '64

Microdetermination of arsenic in organic compounds by iodometry. C. DiPietro and W. A. Sassaman. bibliog Anal Chem 36:2213-14 O '64

Simultaneous determination of mercury and arsenic in biological and organic materials by activation analysis. B. Sjöstrand. bibliog diag Anal Chem 36:814-19 Ap '64

ARSENIC chlorides

List of ferrocene-type polymers growing. D. S. Trifan and E. W. Neuse. diag Chem & Eng N 42:46-7 S 7 '64

ARSENIC compounds

Exchange of parts between molecules at equilibrium; polyarsenous oxyhalides. J. R. Van Wazer and others. bibliog Am Chem Soc J 86:807-11 Mr 5 '64

Exchange of parts between molecules at equilibrium; the new family of poly(fluoroarsenous methylimides). M. D. Rausch and others. bibliog Am Chem Soc J 86:814-19 Mr 5 '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; cobalt and manganese complexes. R. G. Hayter. bibliog Am Chem Soc J 86:823-8 Mr 5 '64

Physiological effect

Carcinogenesis tests of two inorganic arsenicals. C. Baroni and others. bibliog Archives Environmental Health 7:668-74 D '63

ARSENIC oxides

Carcinogenesis tests of two inorganic arsenicals. C. Baroni and others. bibliog Archives Environmental Health 7:668-74 D '63

Effect of arsenic trioxide exposure on mortality. S. S. Pinto and B. M. Bennett. bibliog Archives Environmental Health 7:583-91 N '63

Growth of As_2O_3 on GaAs. M. E. Straumanis and C. D. Kim. il diags Electrochem Soc J 111:1186-7 O '64

Precise method for assay of potassium iodate by comparison with (primary standard) arsenic trioxide. S. M. Tuthill and others. bibliog Anal Chem 36:1994-6 S '64

Ultrasonic relaxation loss in SiO_2, GeO_2, B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64

ARSENIC sulfides
See also
Enargite

ARSENIC trioxide. See Arsenic oxides

ARSENIDES
See also
Gallium arsenide

ARSINE

1-Dimethylarsino-2-chlorotetrafluorocyclobutene and related compounds. W. R. Cullen and others. bibliog Chem & Ind p502-3 Mr 21 '64

Tritertiary arsine complexes of titanium(IV) halides. G. A. Barclary and others. Chem & Ind p 1710-11 O 10 '64

ART
See also
Architecture
Photography
Sculpture

ART, Modern

Modern art on the French Riviera. il plan diags Arch Forum 120:98-103 Mr '64

ART objects

Lighting

Apartment gallery. il Illum Eng 59:427 Je '64

ARTERIES

Shoring up blood vessels in the human brain. Product Eng 35:65 F 17 '64

See also
Aorta
Arteriosclerosis
Thrombosis

ARTERIOSCLEROSIS

Drugs affecting lipid synthesis. W. L. Holmes. bibliog Am Oil Chem Soc J 41:702-7 O '64

Dynamic aspects of cholesterol ester metabolism in rabbits with atherosclerosis. L. Swell and others. bibliog J Nutrition 81:263-70 N '63

Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64

Epidemiologic investigations in relation to diet in groups who show little atherosclerosis and are almost free of coronary ischemic heart disease. F. W. Lowenstein. Am J Clinical Nutrition 15:175-86 bibliog (p 184-6) S '64

Fatty acids of serum and adipose tissue in six groups eating natural diets containing 7 to 40 per cent fat. R. F. Scott and others. bibliog Am J Clinical Nutrition 14:280-90 My '64

Studies in atherosclerosis; electronic computers in the processing of dietary data. M. H. R. Goodloe and others. bibliog flow sheet Am J Clinical Nutrition 13:304-11 N '63

ARTHRITIS

Chemotherapy of rheumatoid arthritis. S. Oldham. Manuf Chem 35:45-9 O '64

Family and genetic studies of rheumatoid arthritis and rheumatoid factor in Blackfeet Indians. T. A. Burch and others. bibliog Am J Pub Health 54:1184-90 Ag '64

Nonsteroidals show antiarthritic action. il Chem & Eng N 42:36-7 Je 29 '64

ARTIFICIAL daylight. See Daylight, Artificial

ARTIFICIAL diamonds. See Diamonds, Artificial

ARTIFICIAL emeralds. See Emeralds, Artificial

ARTIFICIAL islands. See Islands, Artificial

ARTIFICIAL leather. See Leather, Artificial

ARTIFICIAL limbs. See Limbs, Artificial

ARTIFICIAL rubber. See Rubber, Artificial

ARTIFICIAL ruby. See Ruby, Artificial

ARTIFICIAL sapphires. See Sapphires, Artificial

ARTIFICIAL satellites. See Satellites, Artificial

ARTS and crafts
See also
Decoration and ornament

ARUBA (island)
See also
Chemical industries—Aruba (island)

ARYL compounds

Alkyl aryl sulfonates; Continental oil co. diag Hydrocarbon Process & Pet Refiner 42:142 N '63

Bisarylation of ferrocene. W. F. Little and others. bibliog Chem & Ind p 195-7 F 1 '64

Factors influencing the basicities of triarylcarbinols; the synthesis of sesquixanthydrol. J. C. Martin and R. G. Smith. bibliog Am Chem Soc J 86:2252-6 Je 5 '64

Nonsteroidals show antiarthritic action. il Chem & Eng N 42:36-7 Je 29 '64

Photolytic decomposition of aryldiazonium salts; the *p*-dimethylaminophenoxy radical. P. J. Zandstra and E. M. Evleth. bibliog Am Chem Soc J 86:2664-6 Jl 5 '64

Polarographic reduction of some aryl diketones. R. H. Philip, jr. and others. bibliog diags Electrochem Soc J 111:328-34 Mr '64

Retarding effects of polyarylmethanes in autoxidation reactions. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2371-4 Je 20 '64

Ultraviolet spectrometric determination of mixtures of arylsulfonic acids. J. M. Arends and others. bibliog Anal Chem 36:1802-5 Ag '64

ASBESTOS

Asbestos gets tough; new safety garments for molten metal handlers. il Safety Maint 128:25-6 N '64

Asbestos, 1963. K. V. Lindell. Eng & Min J 165:145-6 F '64

Asbestos output zooms in California. H. F. Utley. il Pit & Quarry 56:152-3 Mr '64

Asbestos reinforced laminate. Engineering 198:106 Jl 24 '64

Asbestos reinforced plastics. W. Taylor. il Brit Plastics 37:435-9 Ag '64

Fire-safe ball value result of asbestos-TFE. il Materials in Design Eng 59:172+ Mr '64

Jeffrey skipway; operation and maintenance. J. M. Fletcher. il Can Min & Met Bul 57:842-8 Ag '64

Maintenance of mining equipment at Cassiar, B.C. T. L. Horsley. Can Min & Met Bul 57:443-5 Ap '64

Nylon + asbestos = strength + heat resistance. il Mod Plastics 41:94-5 Je '64

Occurrence of asbestos in Chamoli, U.P., India. D. Prakash and I. K. Dalela. Am Mineralogist 49:424-6 Mr '64

Quebec asbestos mining association research testing laboratory and its relation to the asbestos mining industry. J. J. Paré. bibliog Can Min & Met Bul 57:1045-9 O '64

See also
Chrysotile

ASBESTOS cement pipes. See Pipes, Asbestos cement

ASBESTOS cement sewer pipes. See Sewer pipes, Asbestos cement

ASCORBIC acid. See Vitamins—Vitamin C

ASH, Volcanic. See Volcanic ash, tuff, etc.

ASHES
See also
Oil fuel—Ash content

ASIA
See also
Nutrition problems—Asia
Petroleum industry and trade—Asia
Rubber industry and trade—Asia

ASPARAGINE

Mechanism for the dehydration of asparagine and maleamic acid derivatives by N,N′-dicyclohexylcarbodiimide. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86:741-2 F 20 '64

Mechanism for the N,N′-dicyclohexylcarbodiimide-caused dehydration of asparagine and maleamic acid derivatives. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86:4162-6 O 5 '64

Oxygen-18 study of the dehydration of asparagine amide with N,N′-dicyclohexylcarbodiimide and *p*-toluenesulfonyl chloride. D. V. Kashelikar and C. Ressler. bibliog Am Chem Soc J 86:2467-73 Je 20 '64

ASPARAGUS

High-speed photography aids in the development of mechanical asparagus harvester. il Res/Develop 15:23 F '64

ASPARTIC acid

Preparation of β-poly-L-aspartic acid using activated β-ester derivative. J. Kovacs and others. bibliog Chem & Ind p 1955-6 D 14 '63

ASPEN

Further studies on the isolation of glucosides from the barks and leaves of populus tremuloides and populus grandidentata. I. A. Pearl and S. F. Darling. bibliog Tappi 47:377-80 Je '64

Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64

Studies on the chemistry of aspenwood. I. A. Pearl and others. bibliog flow sheets Tappi 45:107-13; 46:502-5; 47:458-62 F '62, Ag '63, Ag '64

ASPERGILLUS

Structure of itaconitin, a colouring matter of aspergillus itaconicus Kinoshita. S. Nakajima and others. bibliog Chem & Ind p805-6 My 9 '64

ASPHALT

Effect of blowing variables on durability of coating grade asphalts. S. H. Greenfeld. bibliog il Ind & Eng Chem Product Res & Develop 3:158-64 Je '64

German gussasphalt worth considering for our roads. Roads & Sts 107:93-4 F '64

Hard alloys drawn without scoring. il Iron Age 193:130 F 20 '64

How much asphalt in crude oil? W. L. Nelson and S. Patel. Oil & Gas J 62:120-3 F 17 '64

Ozonation of asphalt flux. P. G. Campbell and J. R. Wright. bibliog Ind & Eng Chem Product Res & Develop 3:186-94 S '64

Velocity-depth relationship in microelectrophoresis cell for asphaltenes in nitromethane. J. R. Wright and R. R. Minesinger. J Colloid Sci 18:802-4 O '63

See also

Gilsonite

Pavements, Asphalt

Petroleum refining—Asphalt removal

Manufacture

New automatic blending system speeds asphalt loading at Sunray DX oil co.'s Tulsa refinery. K. Brooks. il diag Oil & Gas J 61:134-5 D 2 '63

Solvent decarbonizing; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:222 S '64

Spectra

Infrared spectra of asphalts; some aspects of the changes caused by photooxidation. P. G. Campbell and J. R. Wright. bibliog J Res Nat Bur Stand 68C:115-23 Ap '64

Photo-oxidation in asphalts. Franklin Inst J 278:71-2 Jl '64

Testing

Asphalt testing becomes more automatic; abstract. E. M. Barrall, 2d and others. il Chem & Eng N 42:82 Ap 20 '64

Densimetric method for characterizing asphalt. L. W. Corbett. bibliog diag Anal Chem 36:1967-71 S '64

Effect of carbon-arc intensity on asphalt oxidation. J. R. Wright and others. bibliog J Ap Chem 14:30-5 Ja '64

Ring-and-ball softening point test for asphalts, pitches, and tars. Materials Res & Stand 4:417-21 Ag '64

ASPHALT floors. See Floors, Asphalt

ASPHALT paving technologists, Association of. See Association of asphalt paving technologists

ASPHALT plants

560,000 tons of hot-mix in 13 weeks; Atlantic City expressway. il Roads & Sts 107:84+ Ag '64

Equipment

Automated gravel plant adds tv. il Rock Prod 67:96+ F '64

Denver paving contractor operates integrated gravel-asphalt plants. W. E. Trauffer. il Pit & Quarry 56:124-8+ Ja '64

Double dryer ups asphalt plant. Eng N 172:145 Ja 23 '64

Impact mixing. H. G. Nevitt. Roads & Sts 106:76-7 D '63

Modern asphalt storage plant saves money. A. Stenman. il Pub Works 95:100-1 Je '64

New asphalt-blending system cuts truck-loading time 33 minutes. O. O. Wells and C. L. Massa. il diag Oil & Gas J 62:124-7 Mr 2 '64

ASPHALT plants, Portable

Asphalt plant is semi-mobile. il Eng N 173:50 Jl 16 '64

Continuous asphalt plants added to line. Eng N 172:107 F 13 '64

ASPHALT roads. See Roads, Asphalt

ASPHALT roofing. See Roofing, Asphalt

ASPHYXIA

Death in a hole. Heating-Piping 35:155-6 N '63

Master switch of life. P. F. Scholander. diags Sci Am 209:92-6+ D '63

ASPIDOSPERMA. See Quebracho

ASPIRIN

Advantages claimed for granular aspirin. il Manuf Chem 35:57-8 My '64

Aspirin. H. O. J. Collier. il diags Sci Am 209:96-104+ N '63

Aspirin absorption. Drug & Cosmetic Ind 94:930 Je '64

Gas chromatographic determination of acetylsalicylic acid. J. G. Nikelly. bibliog Anal Chem 36:2248-50 N '64

Analysis

Determination of aspirin by gas chromatography. R. C. Crippen and H. C. Freimuth. bibliog Anal Chem 36:273-5 F '64

ASSAYING

Continuous analysis of low grade ores. Engineering 198:515 O 23 '64

Precise method for assay of potassium iodate by comparison with (primary standard) arsenic trioxide. S. M. Tuthill and others. bibliog Anal Chem 36:1994-6 S '64

ASSEMBLING machines

Assembling a mixed bag of auto parts. il Am Mach 108:131-3 Ap 13 '64

Machine inserts transistors; wraps leads. C. L. Brooks. il diags Tool & Manuf Eng 52:96-7 Ap '64

Machines do work of skilled hands. F. J. Riley. il Iron Age 193:82-3 F 13 '64

Single and multiple station automatic assembly machines; abstract. C. C. Holloway, jr. Automation 11:149-51 Je '64

Speedy assembly on standard presses. il Mach 70:123 Ja '64

Tailoring assembly automation to fit specific needs. F. F. White. il diags Automation 11:59-63 Ja '64

Universal assembly. il Product Eng 35:52 Ap 13 '64

Control

Automated assembly of automatic transmission converters. il Mach 70:127 D '63

Focus on automatic assembly. R. C. Beacham. il Automation 11:76-85 Je '64

Pulse-bleed control valves simplify assembly circuit. J. V. Patton and J. N. Magaw. il diags Hydraulics & Pneumatics 17:89 Ap '64

Technical and economic aspects place accent on automatic assembly. C. C. Holloway. il Automation 10:50-8 D '63

Unique handling devices serve cigarette lighter assembly machine. B. Green. il diags Automation 10:75-7 D '63

Why you should consider automated assembly. A. R. Wiese. il diags Mach 70:93-9 Mr '64

Numerical control

How to use turbulence amplifiers for control logic. R. N. Auger. il diags Control Eng 11:89-93 Je '64

ASSEMBLING methods

Assembly; designing for automation. Product Eng 35:50-1 Ag 31 '64

Assembly methods in many plastic applications. il diags Machine Design 36:23-9 S 17 '64

Assembly, the last frontier of automation. M. D. Kilbridge and T. O. Prenting. Automation 11:144-7 S '64

Auto-assembly of valve guides and seats in aluminum cylinder heads. D. Scott. il Automotive Ind 129:44-7 N 1 '63

Flow-line assembly of lathes. il Engineer 217:1068-9 Je 19 '64

Lathes float along assembly flowline. il diag Engineering 197:804-5 Je 12 '64

Line blends men and machines to cut assembly costs. R. H. Eshelman. il Iron Age 194:78-9 N 5 '64

1964 production preview: assembly. Am Mach 108:138-9 Ja 20 '64

No-assembly-line plan gets nothing but results. il Steel 154:90-1 My 25 '64

Novel assembly methods at Saab car plant. D. Scott. il diag Automotive Ind 131:52-5 Ag 1 '64

Prestincerts; new method of inserting components such as drain plug bosses, electrical terminal posts and other devices into metal components. il Automobile Eng 54:150-1 Ap '64

Revolving assembly line for gas metal-arc welding. A. L. Gentilie. il Welding J 43:510-11 Je '64

Short assembly lines hike production at Climatrol. Steel 155:51 O 12 '64

Volvo engine plant boosts productivity. D. Scott. il Automotive Ind 130:45-8 My 1 '64

See also

Automation

Automobile assembly plants

Costs

How special diet can reduce fat assembly costs. il diags Steel 155:58-9 Jl 20 '64

ASSOCIATED equipment distributors

Annual meeting. Chicago. Jan. 26-30. Roads & Sts 107:37 Mr '64

ASSOCIATED general contractors of America

AGC may desert national joint board. Eng N 173:29-30 O 1 '64

AGC swears by single contract. Eng N 172:19-20 Mr 12 '64

ASSOCIATED general contractors of America —*Continued*

Contractor Ray Rogers; his work is his hobby. Eng N 172:48-50 Mr 12 '64

Contractor-SHD joint committee covers lot of ground. Roads & Sts 107:69+ My '64

Highway division, annual meeting, Las Vegas, March 2-5. Roads & Sts 107:46-7 Ap '64

ASSOCIATION of asphalt paving technologists

Annual meeting, 39th, Dallas. Roads & Sts 107:85-7 Jl '64

ASSOCIATION of British chemical manufacturers

Annual dinner, London, Oct. 14. Chem & Ind p 1809-10 O 24 '64

A.B.C.M. and safety. Ind Chem 40:275-84 My '64

ASSOCIATION of iron and steel engineers

Annual convention and exposition, Cleveland, Sept. 21-24; with program and list of exhibitors. Iron & Steel Eng 41:90-6 Ag '64; Iron Age 194:144+ S 10 '64

Annual convention and iron and steel exposition, Cleveland, Sept. 21-24; with program, list of exhibitors and abstracts of papers. Iron & Steel Eng 41:154-73 S '64

AISE officers and directors, 1964; national committees. Iron & Steel Eng 41:100-4 Ja '64

Spring conference, Cincinnati, April 27-29; program and abstracts of papers. Iron & Steel Eng 41:98-107 Ap '64

Western meeting, Los Angeles, Feb. 24-26; program and abstracts of papers. Iron & Steel Eng 41:94-100 F '64

ASSOCIATIONS, Trade. See Trade associations

ASTHMA

Asthma and temperature change. L. Greenburg and others. Archives Environmental Health 8:642-7 My '64

Further observations on New Orleans asthma. H. Weill and others. Archives Environmental Health 8:184-7; Discussion. 188-9 Ja '64

Tokyo-Yokohama asthma; an area specific air pollution disease. R. B. W. Smith. bibliog Archives Environmental Health 8:805-17 Je '64

ASTRONAUTICAL congress, International. See International astronautical congress

ASTRONOMICAL instruments

Leak tests star trackers under high vacuum. il Res/Develop 14:56-7 N '63

See also

Telescope

ASTRONOMICAL observatories

Broader view at Jodrell Bank. il Engineer 217:1027-8 Je 12 '64

Mees observatory. Phys Today 17:60+ Ap '64

New radio telescope at Jodrell Bank. il Engineering 197:794-5 Je 12 '64

Orbiting observatories. I. Stambler. il diags Space/Aeronautics 42:34-42 S '64

Steadiest spectator; Orbiting astronomical observatory. il Mech Eng 85:56 D '63

ASTRONOMICAL photography

Photography, stellar astronomy, and resolution. J. H. Waddell. Res/Develop 15:9 Je; 14-15 Jl '64

Space cameras of tomorrow. P. Lathrop. il Ind Phot 12:8+ D '63

Stratoscope II television system. L. E. Flory and others. il diags SMPTE J 73:3-8 Ja '64

ASTRONOMICAL research

Some results obtained with the 22-meter radio telescope. A. E. Salomonovich. bibliog diags AIAA J 2:193-202 Ja '64

ASTRONOMY

Daylight star observations in Antarctica. D. R. Lee. diag Am Soc C E Proc 90 [SU 2 no 3971]:75-82 Jl '64

Space astronomy and the slow-scan vidicon. L. R. Malling. bibliog il diags SMPTE J 72:872-5 N '63

X-ray astronomy. Sci Am 209:67-8 D '63

See also

Comets
Galactic systems
Jupiter (planet)
Life on other planets
Mars (planet)
Meteors
Moon
Orbits
Planets
Radio astronomy
Satellites
Solar system
Stars
Venus (planet)

ATHEROSCLEROSIS. See Arteriosclerosis

ATHLETIC fields

Boys' athletic field graded at four cents a yard. il Roads & Sts 107:80-1 My '64

ATISINE

Studies of the conversion of podocarpic acid into atisine. L. H. Zalkow and N. N. Girotra. bibliog Chem & Ind p704-5 Ap 25 '64

Total syntheses of diterpenes and diterpene alkaloids. S. Masamune. Am Chem Soc J 86:291-2 Ja 20 '64

ATLANTA

Water supply

Kerosene contamination of river supply at Atlanta. P. Weir. Am Water Works Assn J 56:1323-5 O '64

ATLANTIC OCEAN

Absolute dating of deep-sea cores by the Pa^{231}/Th^{230} (ionium) method. J. N. Rosholt and others. J Geol 69:162-85 bibliog(p 183-5) Mr '61; Discussion. G. A. Rusnak. 71:809-10 N '63

Atlantic sediments, erosion rates, and the evolution of the continental shelf; some speculations. J. Gilluly. bibliog maps Geol Soc Bul 75:483-92 Je '64

Sediment distribution in the oceans; the Mid-Atlantic Ridge. M. Ewing and others. bibliog maps diags Geol Soc Bul 75:17-35, pl 1-6 Ja '64

ATLANTIC refining company

Atlantic hunts immediate profits. G. T. Kinney. Oil & Gas J 62:62-4 My 25 '64

Atlantic seeks oil in new frontiers. L. F. Davis. Oil & Gas J 62:64-5 Mr 16 '64

Union is still merger-minded, Rubel and Hartley agree. Oil & Gas J 62:68-9 F 17 '64

ATMOSPHERE

Angels, insects, and weather. A. H. LaGrone and others. bibliog il J Res Nat Bur Stand 68D:895-901 Ag '64

Aperture-to-medium coupling loss in tropospheric scatter systems. C. A. Parry. IEEE Proc 51:933-4 Je '63; Discussion. 52:100-1 Ja '64

Approach to tropospheric duct propagation. G. Franceschetti. bibliog flow diag IEEE Proc 51:1481-6 N '63

Atmospheric physics; Irving Langmuir laboratory. il Phys Today 17:62-3 S '64

Atmospheric reaction studies related to air pollution. A. P. Altshuller. Archives Environmental Health 8:27-30; Discussion. 31-8 Ja '64

Automated performance measurements on a five-link troposcatter system. J. H. Green. IEEE Proc 52:1077-8 S '64

Constitution of the atmosphere at magnetospheric levels. S. J. Bauer. bibliog J Res Nat Bur Stand 68D:597-9 My '64

Digital troposcatter transmission and modulation theory. E. D. Sunde. bibliog diags Bell System Tech J 43:143-214 Ja '64

Effects of altitude on standard atmosphere; data sheet. J. Bakker. Power 107:82 D '63

Geomagnetic effects of explosions in the lower atmosphere. K. G. Ivanov. bibliog AIAA J 1:2703-8 N '63

Guided waves in the troposphere. bibliog J Res Nat Bur Stand 68D:563-4 My '64

Intermodulation distortion in analog fm troposcatter systems. E. D. Sunde. bibliog diags Bell System Tech J 43:399-435 pt 2 Ja '64

Ionizing radiation and constitution of the atmosphere. T. E. Van Zandt. bibliog J Res Nat Bur Stand 68D:569-71 My '64

Layer structure of the troposphere; simultaneous radar and microwave refractometer investigations. J. A. Saxton and others. bibliog il Inst E E Proc 111:275-83 F '64

Micrometeorology. G. Sutton. il diags Sci Am 211:62-70+ O '64

Models of the troposphere. J Res Nat Bur Stand 68D:547-52 bibliog(p551-2) My '64

Origin and evolution of atmospheres and oceans. A. G. W. Cameron and others. il Phys Today 17:19-22 F '64

Reflection of radio waves from undulating tropospheric layers. A. T. Waterman, jr. and J. W. Strohbehn. bibliog diags J Res Nat Bur Stand 67D:609-16 N '63

Reflections from an exponential atmosphere. K. Bullington. bibliog diags Bell System Tech J 42:2849-67 N '63

Spectrum of optical waves propagated through the atmosphere. D. C. Hogg. Bell System Tech J 42:2967-9 N '63

Synopsis of attenuation and emission investigations of 58 to 62 kmc frequencies in the earth's atmosphere. C. W. Tolbert and A. W. Straiton. bibliog IEEE Proc 51:1754-60 D '63

Tropo goes commercial. A. A. McKenzie. il map diags Electronics 37:88-94 Jl 27 '64

ATMOSPHERE—*Continued*

Vhf reflection from a tropospheric layer. J. R. Wait. J Res Nat Bur Stand 68D:847-8 Jl '64

See also

Air
Auroras
Meteorology
Planets—Atmosphere

ATMOSPHERE, Upper

Antarctic programme during the IQSY. il Engineering 197:335-6 F 28 '64

Antarctic programme of the National bureau of standards. il Engineer 218:232-3 Ag 7 '64

Approximate method for computing diffraction patterns caused by ionospheric irregularities. R. Gagnon. bibliog diags J Res Nat Bur Stand 68D:737-42 Je '64

Atmosphere and near space. F. S. Johnson and W. L. Webb. bibliog diag Astronautics & Aerospace Eng 1:81-5+ N '63

Canadian programme for ionospheric research by satellite. Radio & Electronic Eng 27:208 Mr '64

Chart for determining the effects of ionospheric tilts using an idealized model. T. A. Croft and R. B. Fenwick. diags J Res Nat Bur Stand 67D:735-45 N '63

Circulation of the upper atmosphere. R. E. Newell. il map diags Sci Am 210:62-72+ Mr '64

CAT and SCAT. E. R. Reiter. bibliog il diags Astronautics & Aeronautics 2:60-5 My '64

Collisional detachment and the formation of an ionospheric *C* region. E. T. Pierce. bibliog diag J Res Nat Bur Stand 67D:525-32 S '63; Discussion. H. R. Arnold. 68D:215-17 F '64

Concerning limitations and further corrections to geometric-optical theory for lf, vlf propagation between the ionosphere and the ground. J. R. Johler. bibliog diag J Res Nat Bur Stand 68D:67-78 Ja '64

Discussion of the theory of ionospheric cross modulation. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1109-22 O '64

Dynamic stratosphere. W. L. Webb. bibliog il Astronautics & Aeronautics 2:62-8 Mr '64

Effects of charged particles on the motion of an earth satellite. C. L. Brundin. bibliog AIAA J 1:2529-38 N '63

Electron collision frequency in the ionospheric *D* region. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1123-6 O '64

Electron densities from satellite antenna impedance. O. C. Haycock and K. D. Baker. il diags IEEE Trans Com & Electronics 83:458-62 S '64

Electron distribution in the ionosphere. J. W. Wright. J Res Nat Bur Stand 68D:589-94 bibliog(p592-4) My '64

Elf and vlf waves below an inhomogeneous anisotropic ionosphere. J. Galejs. bibliog J Res Nat Bur Stand 68D:693-707 Je '64

Experimental determination of the absolute phase path of radio waves reflected from the ionosphere at normal incidence. N. N. Rao and others. IEEE Proc 52:858-9 Jl '64

F-region irregularities studied by scintillation of signals from satellites. K. C. Yeh and G. W. Swenson, jr. map J Res Nat Bur Stand 68D:881-94 bibliog(p892-4) Ag '64

Geomagnetism and the ionosphere. S. A. Bowhill. bibliog J Res Nat Bur Stand 68D:572-3 My '64

Impedance of a cylindrical dipole having a sinusoidal current distribution in a homogeneous anisotropic ionosphere. W. S. Ament and others. bibliog diags J Res Nat Bur Stand 68D:379-405 Ap '64

Influence of a circular ionospheric depression on vlf propagation. J. R. Wait. diags J Res Nat Bur Stand 68D:907-14 Ag '64

Inversion of radio wave absorption data to establish ionospheric properties; nondeviative absorption. A. D. Wheelon. bibliog diags J Res Nat Bur Stand 67D:699-705 N '63

Ionosonde studies of some chemical releases in the ionosphere. J. W. Wright. bibliog il J Res Nat Bur Stand 68D:189-204 F '64

Ionosphere dynamics. G. H. Munro and L. H. Heisler. IEEE Proc 51:1475-81 bibliog(p 1480-1) N '63

Ionospheric sounding using coded pulse signals. D. C. Coll and J. R. Storey. bibliog il diags J Res Nat Bur Stand 68D:1155-9 O '64

Ionospheric storms. S. Matsushita. J Res Nat Bur Stand 68D:574-8 bibliog(p576-8) My '64

Minus 225° F recorded in upper atmosphere. Steel 153:84 N 18 '63

Performance studies of a quadrupole mass filter. W. M. Brubaker and J. Tuul. bibliog diags R Sci Instr 35:1007-10 Ag '64

Perturbations in the ionosphere caused by a moving body. A. V. Gurevich. diags ARS J 32:1161-7 Jl '62; Discussion. AIAA J 1:1748-9, 2869-70 Jl, D '63

Plasma-vehicle interaction in a plasma stream. D. F. Hall and others. bibliog diags AIAA J 2:1032-9 Je '64

Propagation of e.l.f. waves below an inhomogeneous anisotropic ionosphere. J. Galejs and R. V. Row. bibliog J Res Nat Bur Stand 68D:103-4 Ja '64

Radio-star scintillations from ionospheric waves. J. W. Warwick. bibliog il diags J Res Nat Bur Stand 68D:179-88 F '64

Radio, the ionosphere, and IQSY. R. W. Knecht. bibliog J Res Nat Bur Stand 68D:578-83 My '64

Reflection of vlf radio waves from an inhomogeneous ionosphere; exponential model with hyperbolic transition. J. R. Wait and L. C. Walters. J Res Nat Bur Stand 67D:747-52 N '63

Relationship between simultaneous geomagnetic and ionospheric oscillations. H. Rishbeth and O. K. Garriott. bibliog J Res Nat Bur Stand 68D:339-43 Mr '64

Rocket soundings in the mesosphere. W. Nordberg. bibliog il maps diags Astronautics & Aeronautics 2:48-58 My '64

SAND (sample analysis of nuclear debris); instrument which will perform atmospheric exploration. Product Eng 35:77 Je 22 '64

Science of near space. E. Appleton. Engineering 197:495 Ap 3 '64

Solar corpuscular activity and ionization density in the *F*2 layer of the ionosphere. C. Lal. bibliog IEEE Proc 51:1471-4 N '63

Spark chambers and magnet system for photographing cosmic-ray tracks at balloon altitudes. J. A. DeShong, jr. and others. bibliog il diags R Sci Instr 35:1035-9 Ag '64

Sputtering in the upper atmosphere. D. McKeown and others. AIAA J 2:400-1 F '64; Discussion. 2:1678-9 S '64

Survey of ionospheric effects upon earth-space radio propagation. R. S. Lawrence and others. diags IEEE Proc 52:4-27 bibliog(p26-7) Ja '64

Upper atmosphere. J. C. G. Walker. bibliog diags Space/Aeronautics 42:56-63 O '64

Vlf propagation in a compressible ionosphere. R. B. Kieburtz. bibliog J Res Nat Bur Stand 68D:795-805 Jl '64

Vlf propagation under the ionosphere in the lowest mode of horizontal polarization. H. A. Wheeler. bibliog diags J Res Nat Bur Stand 68D:105-13 Ja '64

Zenith 58.3-gc radiation from the earth's atmosphere between the altitudes of 5 and 100 thousand feet. C. W. Tolbert and A. W. Straiton. il IEEE Proc 52:867 Jl '64

ATMOSPHERIC electricity

See also

Auroras
Thunderstorms

ATMOSPHERIC pollution. See Air pollution

ATMOSPHERIC pressure

Computation of the critical flow function, pressure ratio, and temperature ratio for real air. R. M. Reimer. A S M E Trans ser D 86:169-73; Discussion. 173-4 Je '64

Line shift in a spectrograph due to variations of atmospheric pressure, and a compensation method. C. G. Carlsson. diag J Sci Instr 41:475-6 Jl '64

Prediction of the viscosity of nonpolar binary gaseous mixtures at atmospheric pressure. M. R. Strunk and others. bibliog A I Ch E J 10:483-6 Jl '64

See also

Barometers

ATMOSPHERIC turbulence

Clear air turbulence. J. A. Fusca. il map diags Space/Aeronautics 42:60-9 Ag '64

ATMOSPHERICS. See Lightning

ATOMIC absorption spectroscopy. See Spectroscopy

ATOMIC blasting

A-blast asked for route excavation. map Eng N 171:52 D 19 '63

A-blasted canal seen as ultimate Panama solution. map Eng N 172:38-9 Ja 23 '64

Applications for nuclear explosives. il Engineer 217:1104-6, 1170 Je 19-26 '64

Atomic-age fracturing may soon open up stubborn reservoirs. C. H. Atkinson and M. A. Lekas. bibliog map diags Oil & Gas J 61:154-6 D 2 '63

Atomic fracing may give huge gas yield. Oil & Gas J 62:110-11 O 12 '64

Block caving, nuclear style. D. D. Rabb. il diags Min Eng 16:48-52 Mr '64

Costs of nuclear-blasted canals drop. map Eng N 172:17 F 6 '64

ATOMIC blasting—*Continued*

Deepest 72-in diameter rotary drilled shaft sunk for AEC by Loffland bros. il Min Eng 16:68-70 S '64

Effects of nuclear explosions on oil reservoir stimulation. H. F. Coffer and others. bibliog il diags J Pet Tech 16:473-80, cover My '64

Engineering with nuclear explosives. C. R. Gerber. il diags Chem Eng 71:117-20 Jl 6 '64

Excavation with nuclear explosives; promise and problems. G. W. Johnson. bibliog maps Phys Today 16:38-44 N '63

H-blasted canal; five years off. Eng N 172: 29 Je 11 '64

Nuclear excavation of a sea-level Isthmian canal. E. Graves, jr. il maps Civil Eng 34: 48-55 O '64

Stripping overburden with nuclear explosives. P. L. Russell. il Min Eng 16:76-80 Je '64

Terminology

Recommended explosion-crater nomenclature. S. M. Hansen and others. diag Geophysics 29:772-3 O '64

ATOMIC bomb shelters

Buildings inside a mountain rise on springs in tight space; NORAD underground control center. il diag Eng N 171:34-6 D 5 '63

Civil defense official describes architect's role. R. Berne. Arch Rec 135:50+ Mr '64

Fallout protection for the power industry; basic design criteria. P. J. McCoy and others. plans Power Eng 68:48-50 Je '64

NORAD's underground Command center. T. O. Blaschke. il plan diags Civil Eng 34:36-9 My '64

Numerical analyses of the thermal environment of occupied underground spaces with finite cover using a digital computer. T. Kusuda and P. R. Achenbach. diags ASHRAE J 6:99-105 Je '64

Nutritional quality of survival biscuits and crackers. J. B. Longenecker and H. P. Sarett. bibliog Am J Clinical Nutrition 13: 291-6 N '63

Problem of nuclear shelters. R. L. Corsbie. Archives Environmental Health 8:613-21 Ap '64

Rice university conference develops five factory projects. il plans diags Arch Rec 134: 115-20 D '63

Winners named in competition for school shelters. il plans Arch Rec 135:26+ F '64

ATOMIC bombs

Effects of nuclear explosions on watersheds. T. F. Craft. bibliog Am Water Works Assn J 56:846-52 Jl '64

Detection

Electronic eye system detects nuclear explosions. Franklin Inst J 277:182 F '64

Spotting the big ones with Loran-C. W. N. Dean. il Product Eng 34:79 N 11 '63

Underground explosion detection. Franklin Inst J 276:573-4 D '63

VELA UNIFORM. bibliog il maps plans diags Geophysics 29:151-298, 663-773 Ap, O '64

Protective measures

Falling weight simulates nuclear blast. il diags Machine Design 36:166-7 S 10 '64

Testing

Behavior of airborne fission products. L. B. Lockhart, jr. Am Scientist 52:301-5 S '64

Effects of Arctic nuclear explosions on satellite radio communication. P. R. Arendt and H. Soicher. bibliog maps IEEE Proc 52:672-6 Je '64

Geomagnetic effects of explosions in the lower atmosphere. K. G. Ivanov. bibliog AIAA J 1:2703-8 N '63

National security and the nuclear-test ban. J. B. Wiesner and H. F. York. diags Sci Am 211:27-35 O '64

Nuclear simulation. il Product Eng 35:51 Ag 17 '64

VELA UNIFORM. bibliog il maps plans diags Geophysics 29:151-298, 663-773 Ap, O '64

Vlf anomalies observed at State college, Pa., during the U.S. 1962 high-altitude nuclear tests. C. F. Sechrist, jr. bibliog J Res Nat Bur Stand 68D:125-33 Ja '64

Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64

ATOMIC bombs and building

Blast loading of small buried arches. J. R. Allgood. bibliog diags Am Soc C E Proc 90 [ST 5 no 4095:39-61 O '64

ATOMIC clocks. See Clocks—Atomic clocks

ATOMIC energy. See Atomic power

ATOMIC energy commission (United States)

AEC looks at power reactor subsidy. Chem & Eng N 42:32-3 Jl 27 '64

AEC trims power needs another 945 mw. Elec World 161:55 My 4 '64

Commissioner Palfrey answers questions; interview. Nucleonics 22:20-2 F '64

Hanford plutonium complex may diversify. R. Bloomberg. Chem Eng 71:50 F 3 '64

Radcliffe president to be first woman AEC commissioner. Nucleonics 22:19 My '64

SNAP programs undergo basic readjustment. Nucleonics 22:20-1 Mr '64

Weapons material cutback has far-reaching employment effects. Nucleonics 22:17 F '64

ATOMIC industrial forum, inc.

1963 Atomfair: New York, Nov. 19-21. il Engineer 216:1078-82 D 27 '63

ATOMIC nuclei

Interaction of medium-energy nucleons with complex nuclei. L. Rosen. il diag Phys Today 16:21-4+ N '63

International symposium on nuclear electronics, Paris, Nov. 25-27. J Sci Instr 41:121-2 Mr '64

Magnetic structure investigations at the nuclear center. E. F. Bartaut and others. bibliog J Ap Phys 35:952-3 pt 2 Mr '64

Reactions at position 19 in the steroid nucleus; a convenient synthesis of 19-norsteroids. M. Akhtar and D. H. R. Barton. bibliog Am Chem Soc J 86:1528-36 Ap 20 '64

See also

Nuclear reactions

Spin

Efficiency of a ^{85}Rb filter in optical pumping of ^{87}Rb. P. Davidovits and N. Knable. diags R Sci Instr 35:857-8 Jl '64

Nuclear gyroscopes. J. H. Simpson. bibliog il diags Astronautics & Aeronautics 2:42-4+ O '64

Spin decoupler for nmr. J. J. Noggle. diags R Sci Instr 35:1166-9 S '64

ATOMIC orbitals

Proton-^{13}C spin-spin coupling; inadequacy of correlation of proton-^{13}C coupling with s-character. G. J. Karabatsos and C. E. Orzech, jr. bibliog Am Chem Soc J 86:3574-5 S 5 '64

Semiempirical treatment of molecular structures; electronegativity and atomic terms. G. Klopman. bibliog Am Chem Soc J 86: 1463-9 Ap 20 '64

ATOMIC power

Desalinization could be new nuclear industry. Steel 153:128 D 9 '63

Nuclear notes. Published in monthly numbers of Power

Nuclear power engineering (cont). Power Eng 67:70 O; 76 N; 66 D '63; 68:56 Ja; 66 F; 64 Ap; 64 My; 70 Je; 56 Jl; 66 Ag; 64 S; 64 O '64

Predicts bright atomic future; interview with G. T. Seaborg. Chem & Eng N 42:30-4 Je 15 '64

See also

Atomic bombs
Atomic industrial forum, inc.
International conference on peaceful uses of atomic energy
Nuclear engineering
Rockets, Atomic powered
Ship propulsion, Atomic

Economic aspects

Coal industry blasts atomic power subsidy; abstract. J. E. Moody. Chem & Eng N 42: 34 Mr 16 '64

Economics of reactors for power and desalination. S. Baron. bibliog Nucleonics 22:67-71 Ap '64

Fast breeder progress up to industry. Elec World 160:27 D 16 '63

Nuclear industry takes off kid gloves, counterattacks coal. Nucleonics 22:17-20 Ja '64

Role of nuclear energy. W. Penney. Engineer 217:481 Mr 13 '64

U-power competitive now, sees 20,000 tpy U_3O_8 additional demand. W. M. Gilchrist. Eng & Min J 165:71 Ja '64

See also

Atomic power plants

Exhibitions

Atomfair week, New York, Nov. 19-21. Nucleonics 21:64A-64NN N '63

1963 Atomfair; New York, Nov. 19-21. il Engineer 216:1078-82 D 27 '63

ATOMIC power—*Continued*

International aspects

Future of Canada's uranium mining industry. W. M. Gilchrist. Can Min & Met Bul 57: 521-4 My '64

U.S. nuclear power experience; special report. il Nucleonics 22:49-72 Jl '64

Laws and regulations

Atom-power policies defended. il Eng N 171: 17-19 N 28 '63

ATOMIC power equipment industry

Directories

1963-64 international nucleonics buyers' guide issue. Nucleonics 21:207-320 Ag '63

ATOMIC power plants

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on nuclear energy. Combustion 35: 35-8 My '64

Atomic power; central power stations. C. E. Wise. il diags Machine Design 36:116-23 Ap 9 '64

Closed circuit MPD; the Dragon's friend? il Engineering 197:527-8 Ap 10 '64

Coal Age mining guidebook; peak in competitive power. Coal Age 69:162-3 Jl '64

Dual-purpose plant to desalt water, generate electricity. Chem & Eng N 42:50 Jl 20 '64

First 1,000-mw all-nuclear plant offered. il Elec World 161:60 Mr 9 '64

Geneva; the peaceful uses atomic war. J. H. M. Sykes. Engineering 198:223 Ag 21 '64

Interest in env and atomic power grows with more installations. Power Eng 68:41+ Jl '64

Light-water reactors are almost competitive. il Chem & Eng N 42:50-2 Jl 6 '64

New reactor concepts attract utility interest. Elec World 161:50-1 Ap 6 '64

Nuclear distillery. Phys Today 17:69 Jl '64

Nuclear power nears competitiveness. Chem & Eng N 42:68+ S 28 '64

Nuclear power-water desalting combinations possible by 1975. Chem & Eng N 42:86+ Ap 13 '64

Nuclear reactors applied to water desalting. J. T. Ramey and others. Combustion 36: 33-7 O '64

Nuclear report, 9th. il map diags Elec World 161:99-122 My 18 '64

One-billion-gallon A-desalter predicted. Eng N 172:28 Ap 9 '64

PCEA hears sea-water use scheme. il Elec World 161:27-8 Ap 27 '64

Power reactors the world around; tables. Nucleonics 21:112-15 Ag '63

Power sources draw attention at Geneva; fast-neutron reactor. il Chem & Eng N 42: 56-7 S 21 '64

Where we stand now on nuclear power. map Eng N 171:18-19 N 28 '63

Will king coal's market be atomized? Elec World 162:83-6 N 2 '64

Combined heat and power

Nuclear power heats a town in Sweden. W. Pichel. flow diag diags ASHRAE J 6:101-3 Mr '64

Construction

Peach Bottom reactor is lifted into place. il Elec World 161:36 Ap 13 '64

Control equipment

Computer-controlled monitoring for Wylfa nuclear power-station. il Engineer 217:792 My 1 '64

Control and safety requirements for the electrical engineering design of the C.E.G.B. nuclear power stations. H. H. Gott and R. D. Trotter. bibliog plan diags Inst E E Proc 110:955-68 My '63; Discussion. 110:2023-7 N '63

PWR plant has conventional controls. R. Eastman and D. F. Winters. il diag Elec World 161:49-51+ Je 1 '64

Report on IEEE workshop on computer applications in power plants. R. B. Squires. Combustion 35:20-4 Mr '64

Costs

Analyzing power costs for nuclear plants. L. Geller and others. bibliog il Nucleonics 22:64-72 Jl '64

Economic advantages of Oyster Creek nuclear station. Power 108:82 My '64

Economy hinges on Malibu site. E. Koffmann. il map diag Elec World 161:107-9 My 18 '64

Effects of changing economic conditions on fuel-cycle costs. P. Dragoumis and others. Nucleonics 21:116-19 Ag '63

Fuel cycle economics of large D_2O moderated, organic cooled power reactors. R. J. Rickert. diags Combustion 35:20-2 Ap '64

Here's a simplified way to evaluate nuclear power economics; computer study of nuclear and fossil-fuel plants. R. W. Kupp and D. J. Sengstaken. Power Eng 68:34-5 Jl '64

How toll enrichment will reduce fuel costs. D. F. Herron. diags Nucleonics 22:62-3 Je '64

How utilities can figure nuclear fuel costs. D. G. Adler. diag Elec World 162:114-17 S 21 '64

Lower fuel cost spurs nuclear power demand. Elec World 161:38 Mr 16 '64

Molten salt reactor could cut power costs. diags Elec World 162:60+ O 5 '64

New Jersey A-plant aims at $113 per kw cost. il map Elec World 160:33 D 30 '63

Next ten years in atomic energy development. J. Cockroft. Franklin Inst J 277:1-8 Ja '64; Same. Naval Eng J 76:679-83 O '64; Discussion. Franklin Inst J 277:8-10 Ja '64

Niagara Mohawk nuclear plant to make competitive power. Nucleonics 22:17-18 My '64

Nuclear estimates set ceiling for coal. A. F. Tegen. Elec World 162:22 Jl 20 '64

Nuclear power drives energy costs down. G. J. Stathakis. Elec World 162:50-3 O 5 '64

Nuclear power estimates too rosy? Elec World 162:19+ Ag 17 '64

Nuclear power; experience and trends. L. F. C. Reichle. il diags Combustion 35:22-9 Je '64

Sporn's nuclear economics disputed. Elec World 162:17-18 S 14 '64

Statistics epitomize nuclear progress; tables. Elec World 161:114-22 My 18 '64

When economics favor shift to nuclear power generation. R. J. Bender. diags Power 108: 70-3 O '64

Design

Layout and building design features of the Douglas Point nuclear power project. E. C. Smith. il plans diags Eng J 47:27-32 Je '64

Reactor containment and environmental considerations. R. O. Brittan. Am Soc C E Proc 90 [UP 1 no 4037]:21-3 S '64

Siting dictates plant design criteria. R. A. Wiesemann. Elec World 161:101-4 My 18 '64

Employees

Health program for radiation workers. W. D. Norwood. bibliog Archives Environmental Health 9:529-35 O '64

Nuclear hazard pay issue heads for utility showdown. Elec World 160:14 N 11 '63

Equipment

Charge tube storage at Hunterston. il Engineer 217:693 Ap 17 '64

Concrete pressure vessel for Wylfa. il Engineer 218:273 Ag 21 '64

Delicate handling machine of 400 tons. il diag Engineering 197:318-19 F 28 '64

Electrical aspects of Hunterston nuclear generating station. J. Henderson and others. maps plan diags Inst E E Proc 109 pt A: 259-70 Ag '62; Same cond. Engineer 212:997-1001 D 15 '61; Discussion. Inst E E Proc 109 pt A:271-8; 111:147-8 Ag '62, Ja '64

Electrical features of the SELNI Enrico Fermi atomic power plant. G. d'Arminio and others. map plan diags IEEE Trans Power Apparatus & Systems p93-101 F '64

Emergency cooling for large nuclear reactors at Hanford, Wash. G. T. Lewis. flow diag il diag Power 108:59-61 Ag '64

Hallam nuclear power facility electric auxiliary-power systems. V. R. Pool. il diag IEEE Trans Power Apparatus & Systems p 1086-9 D '63

Hunterston; most powerful atomic station. il Engineering 198:386-7 S 25 '64

Hunterston nuclear power-station. il(p517-19) pl Engineer 217:512-13 Mr 20 '64

Industry fallout from the atom mushrooms; interview with G. T. Seaborg. R. W. Crosby Iron Age 194:60-3 S 17 '64

Just a detail; standpipe seal for Dungeness nuclear power-station. S. C. F. Wills. diags Engineer 218:217-19 Ag 7 '64

Materials for boiling water and superheated steam nuclear power reactors. W. R. Smith. il diag Materials Res & Stand 4:170-4 Ap '64

New Jersey A-plant promises four-mill power. il Elec World 161:33 Mr 9 '64

Overpressure tests on a prototype duct corner unit. C. H. A. Townley and E. Procter. il diags Engineer 216:1057-63 D 27 '63

Peach Bottom atomic power-station in Pennsylvania. il diag Engineer 216:752-4, 791-4 N 1-8 '63

Prestressing nuclear pressure vessels. S. C. C. Bate and others. il diags Engineering 197:492-5 Ap 3 '64

ATOMIC power plants—Equipment—*Cont.*

Refuelling machine for s.g.h.w. reactor. diag Engineer 217:438 Mr 6 '64

Remote viewing system for Dragon reactor. il diag Engineer 217:644-6 Ap 10 '64

Stress-relieving 300-ton diagrid at French nuclear power-station. Engineer 217:328-9 F 14 '64

User experience with powerful Ward Leonard d.c. machine drives for gas circulators at Calder Hall. E. L. Desbruslais. bibliog diags Inst E E Proc 109 pt A:279-87 Ag '62; Discussion. 109 pt A:287-91; 111:579-81 Ag '62. Mr '64

Wylfa nuclear power-station, 1180mw. il Engineer 217:397 F 28 '64

Location

Atom plant siting stirs convention hassle. Elec World 160:85 D 2 '63

Atom-power policies defended. il Eng N 171: 17-19 N 28 '63

Big hurdle for A-power; gaining public acceptance. Nucleonics 21:17-24 O '63

Bodega Head nuclear power project cancelled. il Chem & Eng N 42:35-6 N 9 '64

Little opposition to California A-plant. Elec World 160:24-5 D 16 '63

Ravenswood causes nuclear reaction. F. J. Starin. il Iron Age 192:50 N 28 '63

Siting dictates plant design criteria. R. A. Wiesemann. Elec World 161:101-4 My 18 '64

Siting problems slow A-power growth. W. K. Davis and R. F. Griffin. Elec World 161:105-6 My 18 '64

Tests seek safety facts, aid siting. C. K. Beck. diag Elec World 161:109-11 My 18 '64

Safety measures

Design for radiation safety. W. J. Thon. Air Cond Heat & Ven 61:87-93 O '64

How to get safe power from atoms; Shippingport atomic power station. il Mill & Factory 74:74-5 F '64

Lead shielding at Trawsfynydd. il Engineering 197:439 Mr 27 '64

Little opposition to California A-plant. Elec World 160:24-5 D 16 '63

Reactor safety. map Mech Eng 86:54 My '64

Shippingport atomic goes six years without exposure accident. il Elec World 160:20-1+ D 9 '63

Siting problems slow A-power growth. W. K. Davis and R. F. Griffin. Elec World 161:105-6 My 18 '64

Tests seek safety facts, aid siting. C. K. Beck. diag Elec World 161:109-11 My 18 '64

Use of lead as a shielding material at Trawsfynydd nuclear power station. il Metallurgia 69:209-12 My '64

Waste

See also
Nuclear reactors—Waste

Belgium

Ambitious Belgian program moving despite problems. il Nucleonics 21:22-3 N '63

California

Economy hinges on Malibu site. E. Koffmann. il map diag Elec World 161:107-9 My 18 '64

Little opposition to California A-plant. Elec World 160:24-5 D 16 '63

Zoning ordinance may halt A-plant. Eng N 172:24 Ap 16 '64

Canada

Canadians plan 1,000-mw nuclear plant. map Elec World 162:39-40 Ag 24 '64

Heavy-water reactor stressed. Elec World 162:23 Jl 6 '64

Keeping the Candu system competitive. il Can Chem Process 48:49-52 My '64

Layout and building design features of the Douglas Point nuclear power project. E. C. Smith. il plans diags Eng J 47:27-32 Je '64

Next for Candu; direct cycle steam? diags Can Chem Process 48:57-8+ O '64

France

To meet France's energy needs; nuclear power. IEEE Trans Power Apparatus & Systems 83:sup6A-7A S '64

Great Britain

Control and safety requirements for the electrical engineering design of the C.E.G.B. nuclear power stations. H. H. Gott and R. D. Trotter. bibliog plan diags Inst E E Proc 110:955-68 My '63; Discussion. 110: 2023-7 N '63

Nuclear power; the year of reckoning. Engineering 197:562 Ap 24 '64

Performance of British nuclear power-stations. Engineer 218:444-5 S 18 '64

Power reactor development by the U.K.A.E.A. il Engineer 218:127-9 Jl 24 '64

Replanning the British nuclear power programme. M. Goldring. Engineer 216:940-1 D 6 '63

Second nuclear power programme. Engineer 217:757 Ap 24 '64

Use of lead as a shielding material at Trawsfynydd nuclear power station. il Metallurgia 69:209-12 My '64

User experience with powerful Ward Leonard d.c. machine drives for gas circulators at Calder Hall. E. L. Desbruslais. bibliog diags Inst E E Proc 109 pt A:279-87 Ag '62; Discussion. 109 pt A:287-91; 111:579-81 Ag '62. Mr '64

What's the thinking behind Britain's nuclear power program? Elec World 162:42-4 Ag 24 '64

With the end of a nuclear generation. Engineering 197:306 F 28 '64

Wylfa nuclear power-station, 1180mw. il Engineer 217:397 F 28 '64

India

India's nuclear power plants. Engineer 216: 867 N 22 '63

Italy

Electrical features of the SELNI Enrico Fermi atomic power plant. G. d'Arminio and others. map plan diags IEEE Trans Power Apparatus & Systems p93-101 F '65

Japan

Nuclear know-how for Japanese users. il Engineering 197:468 Ap 3 '64

Progress of Tokai nuclear generating station. il Engineering 196:606 N 8 '63

Minnesota

New Elk River reactor dedicated. il diag Power Eng 67:54 D '63

Nebraska

Hallam nuclear power facility electric auxiliary-power systems. V. R. Pool. il diag IEEE Trans Power Apparatus & Systems p 1086-9 D '63

Nebraska ready to sell commercial radiation. Chem & Eng N 42:27 F 3 '64

New Jersey

AEC nod expected on Oyster Creek. Elec World 162:47-8 N 2 '64

Atom's competitive status in historic advance; Jersey plant to make nuclear power under four mills. Nucleonics 22:17-18 Mr '64

Jersey Central selects GE to build 600-mwe plant. Nucleonics 22:21 Ja '64

New Jersey A-plant aims at $113 per kw cost. il map Elec World 160:33 D 30 '63

New Jersey A-plant promises four-mill power. il Elec World 161:33 Mr 9 '64

New York (state)

Niagara Mohawk nuclear plant to make competitive power. Nucleonics 22:17-18 My '64

Norway

Advanced in-core instrumentation from Halden. H. Ager-Hanssen and R. D. Smith. bibliog il diags Nucleonics 22:49-56 Ap '64

Pennsylvania

Peach Bottom atomic power-station in Pennsylvania. il diag Engineer 216:752-4, 791-4 N 1-8 '63

Shippingport atomic goes six years without exposure accident. il Elec World 160:20-1+ D 9 '63

Scotland

Electrical aspects of Hunterston nuclear generating station. J. Henderson and others. maps plan diags Inst E E Proc 109 pt A: 259-70 Ag '62; Same cond. Engineer 212:997-1001 D 15 '61; Discussion. Inst E E Proc 109 pt A:271-8; 111:147-8 Ag '62. Ja '64

Hunterston: most powerful atomic station. il Engineering 198:386-7 S 25 '64

Hunterston nuclear power-station. il(p517-19) pl Engineer 217:512-13 Mr 20 '64

Unusual design aspects of Hunterston reactors. A. N. H. Bond. il diag Engineer 217: 514-16 Mr 20 '64

Sweden

Direct-cycle boiling heavy water reactor to be built in Sweden. flow diag Power Eng 68:59 S '64

Marviken nuclear power-station. Engineer 218:147 Jl 24 '64

Nuclear power heats a town in Sweden. W. Pichel. flow diag diags ASHRAE J 6:101-3 Mr '64

ATOMIC power plants—Sweden—*Continued*

Sweden: new energy plans take hold. J. J. O'Connor. il map diags Power 108:179-86 F '64 (reprints 25c)

Swedish turbine to operate on heavy-water cycle in Marviken nuclear power plant. flow diag diags Power 108:62-3 Ag '64

Tennessee

Status of gas cooled reactor program. R. M. Evans and A. E. Goldman. il diags Metal Prog 85:118-22 Mr '64

Wales

Lead shielding at Trawsfynydd. il Engineering 197:439 Mr 27 '64

Washington (state)

Emergency cooling for large nuclear reactors at Hanford, Wash. G. T. Lewis. flow diag il diag Power 108:59-61 Ag '64

ATOMIC power plants, Portable

Atomic power; portable and mobile reactors. C. E. Wise. il diags Machine Design 36:134-9 My 7 '64

ATOMIC powered rockets. See Rockets, Atomic powered

ATOMIC reactors. See Nuclear reactors

ATOMIC research

Image intensifier for nuclear research. Electronic Eng 36:529 Ag '64

Washington plans for atom center. R. R. Kay. Iron Age 193:52 F 27 '64

See also

Bubble chambers

Spark chambers

Europe

See also

European organization for nuclear research

Germany

New firm will aid Germany's reactor program; Alkem, alphachemie und metallurgie, G.m.b.H. Chem & Eng N 42:92-3 Mr 9 '64

Great Britain

Universities' research reactor. il diag Engineer 218:243-4 Ag 14 '64

ATOMIC research laboratories

Babcock & Wilcox builds nuclear development center. il Anal Chem 36:sup 109A-11A Je '64

Babcock & Wilcox company's nuclear development center. il Mech Eng 86:69 Mr '64

Opening of the Rutherford laboratory and inauguration of Nimrod. Chem & Ind p763 My 2 '64

Reactor produces rare elements in quantity. Franklin Inst J 276:542-3 D '63

Scottish research reactor centre. il Engineer 216:843-5 N 22 '63

See also

Oak Ridge national laboratory

Air conditioning

Piping cooling water for new atom smasher. R. W. Vanvalzah. il plan diags Heating-Piping 36:77-84 F '64

Electric equipment

Power equipment for UKAEA. il Engineering 198:517 O 23 '64

Equipment

Argon improves $ZnBr_2$ shielding windows. W. B. Lane and M. J. Nuckolls. diag Nucleonics 22:88-9 F '64

Better cages for thermonuclear plasma. il diags Engineering 197:877-9 Je 26 '64

New Frank H. Neely nuclear research center on Georgia Tech campus. il diag Mech Eng 85:80 D '63

New tools for sub-atomic searches at Rutherford high energy laboratory. il plan diags Engineering 197:606-8 My 1 '64

Private nuclear development centre in Virginia; Babcock and Wilcox co. il diags Engineer 217:1016-17, 1055-8 Je 5-12 '64

Rutherford high-energy laboratory. Engineer 217:775 My 1 '64

System for continuous generation and fast transfer of radioactive gases. F. Pleasonton and C. H. Johnson. bibliog diags R Sci Instr 35:97-102 Ja '64

Vacuum research furnace for Euratom. il Engineer 217:1002 Je 5 '64

Safety measures

Design for radiation safety. W. J. Thon. Air Cond Heat & Ven 61:87-93 O '64

Designing safety into a radioisotope laboratory. L. C. Schwendiman. il Mag of Stand 35:209-10 Jl '64

Pressure testing of thick reinforced concrete cell. S. H. Fistedis. il diags Am Soc C E Proc 90 [ST 2 no 3860]:31-54 Ap '64

ATOMIZATION

Heat of atomization of aluminum difluoride. T. C. Ehlert and J. L. Margrave. Am Chem Soc J 86:3901 S 20 '64

Measurement of droplet size for wide range particle distributions. J. H. Roberts and M. J. Webb. AIAA J 2:583-5 Mr '64

Some current ideas regarding the rotating distributor. D. R. Johnstone. bibliog il diags Roy Aeronautical Soc J 67:767-70 D '63

Thickness distribution in a sheet formed by impinging jets. D. Hasson and R. E. Peck. bibliog diags A I Ch E J 10:752-4 S '64

ATOMIZERS

Lanvin atomizer-pump package tested. diags Drug & Cosmetic Ind 93:814-15+ D '63

New Lanvin atomizer. il Soap & Chem Spec 39:117 N '63

Ultrasonic atomizer developed for oil burner. Combustion 35:49 Ap '64

ATOMS

Atom to Adam. M. Calvin and G. J. Calvin. il diags Am Scientist 52:163-86 bibliog(p 184-6) Je '64

Bombardment of tungsten with 20-keV helium atoms in a field ion microscope. M. K. Sinha and E. W. Müller. bibliog il diags J Ap Phys 35:1256-61 Ap '64

Dielectric susceptibility tensor for an atomic vapor. R. L. Fork. J Ap Phys 35:134-6 Ja '64

Direct measurement of atomic lifetimes; helium. T. M. Holzberlein. il diags R Sci Instr 35:1041-6 Ag '64

Dynamical theory of atom jumps in crystals. E. Pearlstein. bibliog diags Am J Phys 31:842-7 N '63

Effect of distant atoms in a molecule on nuclear magnetic resonance chemical shifts. J. R. Van Wazer and D. Grant. bibliog Am Chem Soc J 86:1450-1 Ap 5 '64

Energy distribution of sputtered Cu atoms. R. V. Stuart and G. K. Wehner. bibliog diag J Ap Phys 35:1819-24 Je '64

Energy levels of the cesium atom. W. B. Nottingham. IEEE Proc 51:1771-2 D '63

Influence of oxygen on the surface mobility of tin atoms in thin films. H. L. Caswell and Y. Budo. bibliog il J Ap Phys 35:644-7 Mr '64

Nature of the polar effect in reactions of atoms and radicals; reactions of chlorine atoms and peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2357-64 Je 20 '64

Neutron thermalization theory applied to hot atom chemical reactions; consideration of isotropic and asymmetric scattering. C. H. Hsiung and A. A. Gordus. bibliog Am Chem Soc J 86:2782-9 Jl 20 '64

New tool explores atomic structure. il Engineering 197:367 Mr 6 '64

New tool for exploring atomic structure. Franklin Inst J 277:507-8 My '64

Origin of the elements. W. A. Fowler. bibliog il Chem & Eng N 42:90-104 Mr 16 '64 (reprints $1)

Production of metastable Hg atoms by charge exchange. R. W. Rostron. bibliog diags J Ap Phys 35:2291-9 Ag '64

Reactions of sulfur atoms; further investigations of the insertion reaction. A. R. Knight and others. bibliog Am Chem Soc J 86:4243-8 O 20 '64

Research techniques for exploring atomic structure. il diag Engineer 217:882-4 My 15 '64

Solvent effects in the reactions of free radicals and atoms; effect of solvent polarity on the reactions of peroxy radicals. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2368-71 Je 20 '64

Solvent effects on the C^{13} chemical shift of the substituted carbon atom of phenol. G. E. Maciel and R. V. James. bibliog Am Chem Soc J 86:3893-4 S 20 '64

William Rowan Hamilton, Michael Faraday, and the revival of Boscovichean atomism. R. Kargon. bibliog Am J Phys 32:792-5 O '64

X-rays; an eye on atoms. il Product Eng 35:52 Ag 17 '64

See also

Atomic nuclei

Collision phenomena

Electrons

Neutrons

Nuclear reactions

Protons

Beams

Atomic beam magnetic resonance apparatus for short-lived isotopes. G. K. Rochester and K. F. Smith. diags J Sci Instr 41:629-32 O '64

ATOMS—Beams—*Continued*

Bunching of a beam of 20-kev neutral hydrogen atoms. P. H. Rose and others. bibliog diags R Sci Instr 35:1286-9 O '64

ATTENUATORS, Radio. See Radio attenuators

ATTITUDE (psychology)

Employe attitudes; a supervisory barometer. M. Brown. Hydrocarbon Process & Pet Refiner 43:147-8+ F '64

AUBURN, Maine

Water supply

Standpipe extension increases pressure. L. K. Parker. il Water Works & Wastes Eng 1:52-3 O '64

AUCUBIGENIN

Syntheses of (±)-tetrahydroanhydro-desoxyaucubigenin and related compounds. K. Kurosawa and S. Fujise. bibliog Chem & Ind p 1688 O 19 '63

AUDIO engineering society

Annual meeting, 15th, New York, Oct. 14-18; program and abstracts of papers. Audio Eng Soc J 12:68-72+ Ja '64

Annual meeting, 16th, Oct. 12-16; program. Audio 48:104-6 O '64

AUDIOMETERS

Significance of new reference zero levels for audiometers. H. Davis and F. W. Kranz. Mag of Stand 35:71-5 Mr '64

AUDIO-VISUAL instruction

Audio visual aids into the breach. il Engineering 197:438 Mr 27 '64

Audio-visual devices; capabilities and needs. J. Flory. SMPTE J 72:938-42 D '63

A-v world in a meadow. il Ind Phot 12:46 N '63

Design for mechanical learning; college electronic communications center; Rensselaer polytechnic institute. il plans diags Arch Rec 135:178-92 My '64

Education: there's no biz like show biz; college hall designed for tv teaching. il plan diags Eng N 172:52-3 Mr 19 '64

Industrial audio-visuals. il plan Ind Phot 13: 57-8+, 62-5, 67-72 Ja '64

Making lectures live. il plan diag Engineering 198:353 S 18 '64

New skills taught by sight, sound. K. W. Bennett. il Iron Age 194:27-8 Ag 13 '64

AUDITING

Internal control

Quality auditing for missiles. P. S. Reis. bibliog Ind Quality Control 20:7-11 D '63

AUDITORIUMS

Acoustics and miniature concert halls. H. Lawrence. il Audio 48:8+ Jl '64

Atlanta's cultural building boom; preliminary designs for auditorium and exhibition hall. il Eng N 172:30 Je 11 '64

Beckman auditorium, California institute of technology, Pasadena. il plan Arch Rec 136: 156-7 O '64

Construction of a buttressed dome segment; Culver City high school auditorium. A. R. Nasser. il diags Am Concrete Inst J 61: 509-20 My '64

Convention hall dodges floods. il Eng N 172:77 Je 18 '64

Design for mechanical learning; college electronic communications center; Rensselaer polytechnic institute. il plans diags Arch Rec 135:178-92 My '64

Dividers multiply auditorium uses. il plan Eng N 171:45 N 28 '63

Education, there's no biz like show biz; college hall designed for tv teaching. il plan diags Eng N 172:52-3 Mr 19 '64

Functionalized listening facility for the multilingual auditorium. D. D. Jones. diags Audio Eng Soc J 12:245-7 Jl '64

Gay, carousel-like auditorium. il Eng N 171: 20 D 12 '63

Parisians lay an egg underground. il plan Eng N 172:24 Ja 2 '64

Typhoon-proof louvers screen tropical sun; Philippine American life insurance company building. il plan diags Arch Rec 134:139-41 D '63

See also

Music halls

Air conditioning

Air conditioning of auditorium-type buildings. A. Greenberg. bibliog diags Arch Rec 135: 205-8 Mr '64

Gas cooling for conventioneers; municipal convention hall, Asbury Park. il Am Gas Assn Mo 46:33 O '64

Meet tight schedule in installing 3300 tons of air conditioning for Atlantic City Convention Hall. F. W. Hay. il diags Heating-Piping 36:93-8 Ag '64

Lighting

Lighting a multipurpose hall. il Illum Eng 59:sup36A Ag '64

AUGERS

New auger-crane rig proves versatility. il Elec World 162:74 Jl 13 '64

AUGITE. See Pyroxenes

AUGUSTA, Wisconsin

Water supply

Small town creates new water system for new industry. D. Larsen and W. Osborn. il diag Water Works Eng 116:966-7+ D '63; Abstract. Pub Works 95:154+ F '64

AULD, Samuel James Manson

Obituary. por Inst Pet J 49:359 N '63

AURORAS

Auroral absorption effects on a transpolar synchronized step-frequency circuit. R. D. Hunsucker. map IEEE Proc 52:330 Mr '64

Auroral measurements and upper atmospheric physics. R. E. Meyerott and J. E. Evans. bibliog il map diags AIAA J 2:1169-74 Jl '64

Auroral-zone absorption effects on an hf Arctic propagation path. R. D. Hunsucker. bibliog map J Res Nat Bur Stand 68D:717-21 Je '64

AUSFORMING. See Steel, Hardening of

AUSTEMPERING. See Steel, Heat treatment of

AUSTENITE

Austenite grain size and temper brittleness. J. M. Capus. bibliog il Iron & Steel Inst J 200:922-7 N '62; Abstract. Metal Prog 85: 166+ Mr '64

Austenitic decomposition in weld heat-affected zones. M. M. D'Andrea, jr. and C. M. Adams, jr. bibliog il Welding J 42:sup503-11 N '63

Constitutional effect of arsenic additions on an austenitic stainless steel. H. J. Goldschmidt and W. M. Ham. bibliog il diags Iron & Steel Inst J 202:347-55 Ap '64

High-temperature decomposition of austenite in alloy steels. J. McCann and K. A. Ridal. bibliog il Iron & Steel Inst J 202:441-7 My '64

Hot bend test; a tool to predict suitable weldability and high temperature service performance of austenitic steels. H. M. Soldan and G. J. Schnabel. bibliog il diags Welding J 43:sup353-7 Ag '64

How to improve dimensional stability in precision metal parts. D. O'Boyle. il diags Machine Design 36:113-17 Ja 30 '64

Ordering, stacking faults and stress corrosion cracking in austenitic alloys. D. L. Douglass and others. bibliog il diags Corrosion 20:15-27; Discussion. 27-8 Ja '64

Post-weld heat treatment of high-temperature austenitic steels. R. N. Younger and others. bibliog il Iron & Steel Inst J 201: 693-8 Ag '63; Abstract. Metal Prog 86:203+ Ag '64

Service experiences at 1050 F and 1100 F of piping of austenitic steels. R. A. Baker and H. M. Soldan. bibliog il diags Combustion 35:24-8 N; 42-5 D '63

Spot welding defects in austenitic stainless; engineering data sheet. diags Welding Eng 48:61 D '63

Wrought austenitic stainless steels. Materials in Design Eng 60:115-26 O '64 (reprints 35c)

AUSTRALIA

See also subdivision Australia under special subjects, e.g.

Aeronautic research
Aeronautics, Military
Aluminum industry and trade
Automobile industry and trade
Bridges
Chemical education
Coal mines and mining
Copper mines and mining
Electric plants (central stations)
Electricity supply
Gas, Natural
Geology
Gold mines and mining
Hydroelectric plants
Iron mines and mining
Irrigation
Lead mines and mining
Mines and mineral resources
Mining industry and finance
Petroleum
Petroleum industry and trade
Petroleum pipe lines
Radio broadcasting
Scientific research
Shipping

AUSTRALIA—See also—*Continued*
Telephone
Television broadcasting
Uranium mines and mining
Water supply
Zinc mines and mining

Government printing office

Australia builds new $7-million government printing office. il Inland Ptr/Am Lithogr 152:72-3 F '64

AUSTRIA
See also subdivision Austria under special subjects, e.g.
Bridges
Hydroelectric plants
Machine tool industry
Roads
Textile industry

Industries and resources

World of design; aggressive little Austria. E. J. Tangerman. il Product Eng 35:57-65 Je 8 '64

AUTHORSHIP
See also
Scientific writing
Technical writing

AUTOCLAVES
Autoclave potentials. W. P. Koval. il Plastics World 21:26-7 D '63
Device adds solids to reacting autoclaves. A. W. Billitzer. diag Chem Eng 70:100 D 23 '63
Michigan firm installs unusual cleaning system. il Steel 153:31 D 16 '63
New techniques speed metal bonding. C. L. Sullivan. il Mach 70:107-9 Jl '64
Replaceable liner-type autoclave with modified Bridgman closures. O. C. Kopp and others. diags R Sci Instr 34:1262-3 N '63

AUTOCOLLIMATORS. See Collimators

AUTOFINING process. See Petroleum refining—Sulfur removal

AUTOGIROS
NV-101 reconnaissance drone. Product Eng 35:55 Ja 20 '64
Wallis ultra-light autogyro. K. H. Wallis. il Roy Aeronautical Soc J 67:754-5 D '63

AUTOMATIC control. See Control equipment

AUTOMATIC machinery. See Machinery, Automatic

AUTOMATIC telephone. See Telephone, Automatic

AUTOMATION
Abstracts. Published in monthly numbers of Automation
Advanced planning to meet the impact of automation in large scale test environments. G. J. Kashuba. diags Naval Eng J 75:1003-12 D '63
Artful automation does double duty for Minnesota city. M. Kays and B. Mittelsteadt. il diag Water Works & Wastes Eng 1:77-9+ My '64
Assembly; designing for automation. Product Eng 35:50-1 Ag 31 '64
Assembly, the last frontier of automation. M. D. Kilbridge and T. O. Prenting. Automation 11:144-7 S '64
Automate your pilot plants. L. C. Hardison and R. A. Lengemann. flow diag il Chem Eng 71:129-32 Je 22 '64
Automated diecasting; special report. il diags Foundry 92:120-62 N '64
Automated handling; does it pay? G. Berkwitt. il Mill & Factory 74:64-7 Ap '64
Automation; a tough taskmaster bears down on instrumentation. il Iron Age 194:60-2 Jl 30 '64
Automation and the CPI labor unions. A. E. Adams. il Chem Eng 71:224+ O 12 '64
Automation and the regulations. A. G. Stirling. Naval Eng J 76:795-801 O '64
Automation in marine engineering applications. E. C. Mericas. il diags Naval Eng J 75:897-908 D '63
Automation in opening and picking. C. A. Dean. il diags Textile Ind 128:106-10 Ap '64
Automation in plastics processing. L. L. Scheiner. Plastics Tech 9:27-38 D '63
Automation in ships. A. C. Grover. Automation 10:137-8 N '63
Automation makes rapid strides in the power field; special section. il diag Power Eng 68:34-41 My '64
Automation of a gas compressor station. B. S. Simon and J. B. Vraspir. diags Gas 40:90-3 F '64
Automation pays off at UOP's pilot plants. D. H. Stormont. il Oil & Gas J 62:118 Ap 20 '64
Automation; researching the future; Diebold research program. il Mech Eng 86:53 Ja '64
Autoramics '65. A. L. Friedberg. il Cer Ind 83:33-8+ S '64
Competition spurs production innovations in the manufacture of refrigerators. C. R. Morris. il diags Automation 11:81-4 Ag '64
Computer-run warehousing; blended automation and men. J. A. Eaton. il diag Mod Materials Handling 19:38-42 N '64
Computers, automation, and process control; annual review. T. J. Williams. Ind & Eng Chem 56:47-56 bibliog(p52-6) N '64
Computers; SHARE first annual Design automation workshop, Atlantic City, June 24-26. Product Eng 35:54-6 Jl 20 '64
Conference on manufacturing automation. 7th, Detroit, Nov. 11-13. Automation. 10:14-15 N '63
Consulting engineer looks at water works automation. C. W. Reh. il Water Works & Wastes Eng 1:75-6 My '64
$500,000 automation investment; Sun oil co. Oil & Gas J 62:154-5 Jl 27 '64
Future of automation in Canada. E. W. Leaver. bibliog Eng J 46:28-31 D '63
Great Britain's production engineering research association (PERA) conference and exhibition, Leicestershire; automation for small and medium-sized firms. Automation 10:47+ N '63
Hand tool route to automation; Gardner-Denver co. Steel 153:56-7 N 11 '63
How automation and technology will change Chicago's printing industry. Inland Ptr/Am Lithogr 153:63 S '64
How automation plays a part in water-quality surveillance. G. E. McCallum and H. Stierli. il Water Works & Wastes Eng 1:68-70 My '64
How long until full automation? R. H. Eshelman. Iron Age 193:79 Ap 9 '64
How we'll manufacture tomorrow. il diags Steel 154:120-8 Ja 6 '64
Instrumentation and automation. Water Works & Wastes Eng 1:90-2+ My; 82-8+ S '64
Instrumentation and automation in Chicago's Central district plant. M. Roth. il map diag Water Works & Wastes Eng 1:71-4 My; 36-9 Je '64
Instrumentation and automation; its role in the water works field as seen by equipment manufacturers. Water Works & Wastes Eng 1:90-2+ My '64
Instruments for clinical chemistry labs; the big swing to automation. il Chem & Eng N 41:112-24+ D 9 '63
Keys to successful automation. H. H. Bixler. Automation 11:76-80 Ag '64
Large-bore Diesel is readily adaptable to automation. il plans Marine Eng/Log 69:54-7+ Ap '64
Management as a process control problem. S. Ramo. Automation 11:125-6 My '64
Material handling; last frontier for big savings. il diag Steel 155:41-5 O 26 '64
Metalworking automation today. Tool & Manuf Eng 51:57-60 D '63
More ship per man; by automation. J. D. Deal, jr. and C. L. Long. diag Naval Eng J 76:257-64 Ap '64
Point automation aids productivity at Swedish Diesel plant. D. Scott. il Automotive Ind 130:42-6 F 1 '64
Present status of ship automation in Japan. N. Hamada. il diags Naval Eng J 76:359-64+ Je '64
Pros and cons of instrumentation, control and automation. R. A. Ryder. il map Water Works & Wastes Eng 1:54-6 Je '64
Psychologic challenge in automation. A. P. Solomon. bibliog Archives Environmental Health 9:72-81 Jl '64
Redesign for automation pays off. il Steel 154:69 Je 15 '64
Research into the future of automation. Engineering 196:606 N 8 '63
Role of foundry middle management. H. K. Jackson. Foundry 92:267+ Ap '64
Ship automation to what extent. L. A. Harlander. diags Naval Eng J 76:265-74 Ap '64
Symposium on automated textile processing. il diags Textile Res J 33:1035-54 D '63
Top managers getting with automation. diags Engineering 196:802-3 D 27 '63
Unemployment; stop blaming automation; interview with I. T. Ellis. G. C. Thomas. il Mod Materials Handling 19:38-43 Mr '64
U.S. still leads automation race. R. H. Eshelman. il Iron Age 194:45 Jl 30 '64
Who's afraid of machine shop automation? Engineering 197:146 Ja 24 '64
See also
Assembling methods
Control equipment
Feedback control systems
Machinery, Automatic
Servomechanisms

AUTOMATION—*Continued*

Bibliography

Books. Published in monthly numbers of ISA journal
New books. Published in monthly numbers of Automation

Economic aspects

Automation and employment. Am Mach 108:75 Je 8 '64
Studied approach to capital expenditures spurs production growth. R. O. Swalm. Automation 11:89-92 S '64
What automation means to America; special documentary for management. bibliog diags Automation 11:13-183 Ap '64
White collar workers and change. R. E. Busher. Automation 11:32 F '64

Exhibitions

Annual instrument-automation conference and exhibition, 19th, New York. Iron Age 194:27 O 22 '64
Annual ISA instrument-automation exhibit, New York. Product Eng 35:72-3 O 26 '64
Instruments, electronics and automation exhibition, London, May 25-30; with floor plans and list of exhibitors. il Ind Electronics 2:220-9 My '64
International instruments, electronics and automation exhibition, London, May 25-30. Engineering 197:702-3 My 22 '64; il Engineer 217:891-2, 930-2, 990-2 My 22-Je 5 '64; Electronic Eng 36:413-20 Je '64; Ind Electronics 2:276-83 Je '64; Wireless World 70:278-94 Je '64

Social aspects

Automation is necessary for survival; abstract. J. I. Snyder. Mach 70:176 Ap '64
Growing picture of education. L. H. Evans and G. E. Arnstein. bibliog Automation 11:56-9+ Ap '64
Labor bargaining must protect management's rights. B. S. Kirsh. Automation 11:50-4 Ag '64
Labor views automation. Automation 11:84-6, 90-1 Ap '64
Modern manufacturing environment is creating new work concepts. J. A. Bekker. bibliog Automation 11:58-62 O '64
Needed; specific answers to important questions. P. G. Peterson. Automation 11:140-1 Ap '64
N/c and people. A. N. Wecksler. Mill & Factory 74:63-6 F '64
Our problems reflect progress. L. T. Rader. Automation 11:92-3 Ap '64
Preserving the individual in an age of automation. R. M. Grummon. Automation 11:259+ Ap '64

Terminology

Language of automation: data sheet. Mach 70:145-6 N '63

Russia

Automation in the latest press equipment. il Product Eng 35:84-5 F 17 '64
Letter from Kiev, control engineering capital of Russia. D. Winston. il Control Eng 11:30+ Ag '64

AUTOMATONS

Machines that mimic men. il diags Steel 153:92-6 N 25 '63
Prelude to a super being; the human mechanical walking machine. Res/Develop 15:13 Jl '64
Role of industrial robots in improving production operations. J. F. Engelberger. il Automation 11:62-7 Je '64

AUTOMATONS (calculating machines)

Input-error-limiting automata. S. Winograd. bibliog Assn for Computing Mach J 11:338-51 Jl '64
Memory orders of states of an automaton. C. L. Liu. bibliog diags Franklin Inst J 277:37-49 Ja '64
Properties of linear machines. M. Cohn. bibliog Assn for Computing Mach J 11:296-301 Jl '64
RS-machines with almost blank tape. C. C. Elgot and J. D. Rutledge. bibliog diags Assn for Computing Mach J 11:313-37 Jl '64
Structures of an automaton and its input semigroup. R. H. Oehmke. Assn for Computing Mach J 10:521-5 O '63
Tape sets and automata. R. R. Brown. diags Assn for Computing Mach J 11:10-14 Ja '64

AUTOMOBILE accidents

Automobile crash phenomena. il diag Machine Design 36:116-21 Ag 13 '64
Quick starts simulate crash stops in GM collision research. L. C. Lundstrom and others. il diags S A E J 72:88-93 Je '64
Safe extraction of a person from a crippled car. il Comp Air Mag 69:27 S '64
What's the score on highway safety? panel discussion. il Safety Maint 127:18-19+ Mr '64
Why doors spring open during crashes. A. G. Gross. il diags S A E J 72:60-2 Ag '64

See also
Automobile drivers
Road accidents

AUTOMOBILE assembly plants

Austin car assembly. il plans Automobile Eng 54:294-8, 324-33 Je-Jl '64 (to be cont)
Auto boom prompts Chrysler expansion. H. F. Jones. il Iron Age 192:71 D 12 '63
Automated weld line builds VW Beetles. il diag Steel 154:54-5 F 17 '64
Automatic assembly of passenger-car bodies at VW. C. A. Weinert. il diags Automotive Ind 130:77-80 Ap 15; 54-6 My 1 '64
Automatic body assembly at Volkswagenwerke. diags Product Eng 35:30-1 Mr 2 '64
Buick's expanded composite assembly plant. J. Geschelin. il Automotive Ind 130:66-9+ F 15 '64
Ford Mustangs on the production line. J. Geschelin. il Automotive Ind 130:49-51 My 1 '64
GM's West Coast plant only one in U.S. to produce four car and two truck lines. Automotive Ind 130:35 Ap 1 '64
Quality first at Volvo. D. Scott. il Automotive Ind 139:46-9 Mr 1 '64
Unique decentralized assembly for Rover 2000. D. Scott. il plan Automotive Ind 130:71-5 Ja 15 '64
Volkswagen's $2 million bet; automatic line builds beetles. A. Ashburn. il Am Mach/Metalworking Manuf 107:62-4 D 23 '63
Volvo add more quantity to their quality. il Engineering 197:632 My 8 '64

Equipment

Automation in assembling Volkswagen body shells. W. E. Stalhuth. il diags Automation 11:69-75 F '64
Chrysler's assembly line computers provide instant quality control data. J. Geschelin. flow chart il Automotive Ind 130:37-9 Je 1 '64
Compact quality; American motors co. R. J. Nemmers. il Comp Air Mag 69:4-11 Mr '64
Continental car assembly line; illustrations with text. Engineer 217:972-3 My 29 '64
New Citroen plant. D. Scott. il diag Automotive Ind 131:63-7 Ag 15; 49-53 O 1 '64
Novel assembly methods at Saab car plant. D. Scott. il diag Automotive Ind 131:52-5 Ag 1 '64
Power for assembly. H. P. Scott. il diags Elec Constr & Maint 63:79-84 Mr '64

AUTOMOBILE brakes. See Brakes, Automobile

AUTOMOBILE drivers

What's the score on highway safety? panel discussion. il Safety Maint 127:18-19+ Mr '64

Licenses

139 million drivers in 1980. E. M. Cope and A. R. Mundy. Pub Roads 33:68-79 O '64

Testing

Instructor mousetraps the driver of a new type automobile-skill tester. il Machine Design 36:14-15 My 21 '64

Training

Driver improvement or system improvement? R. Myrick and L. E. Schlesinger. diags Traffic Q 18:92-104 Ja '64

AUTOMOBILE driving

Automobile in American daily life. T. A. Bostick. bibliog map Pub Roads 32:241-55 D '63
Left-turn penalties in traffic assignment models. J. A. Wattleworth and P. W. Shuldiner. diags Am Soc C E Proc 89 [EM 6 no 3729]:97-126 D '63
Perceptual and field factors causing lateral displacement. R. M. Michaels and L. W. Cozan. bibliog il diags Pub Roads 32:233-40 D '63

AUTOMOBILE driving simulators

Car-driving simulator. il Mech Eng 86:66-7 Jl '64
Driving exhibits at the New York world's fair. il Product Eng 35:98-100 Ap 27 '64
Driving simulator to promote road safety. il Safety Maint 128:21+ Jl '64

AUTOMOBILE driving simulators—*Continued*

Instructor mousetraps the driver of a new type automobile-skill tester. il Machine Design 36:14-15 My 21 '64

Mobil tests fairgoer's driving skill at the World's fair. il Pet Management 36:108 Jl '64

AUTOMOBILE engineering

Automotive Industries salutes Harold N. Metzel, chief engineer, Oldsmobile. il Automotive Ind 130:53-5 My 15 '64

Engineering cars to sell. D. N. Frey. S A E J 72:34-5 My '64

Engineering highlights of Chrysler corporation's 1965 cars. J. Geschelin. il diags Automotive Ind 131:57-62 Ag 15 '64

FISITA automobile technical congress, 10th, Tokyo and Kyoto, Japan. S A E J 72:91-5 Ag '64

1965 passenger-car engineering trends. il diags S A E J 72:30-56 N '64

SAE automotive engineering congress and exposition, Detroit, Jan. 13-17; preview, program, and list of exhibitors. S A E J 72:33-52 Ja '64

See also

Automobile engines

Calculating machines—Automobile engineering applications

Bibliography

Books; brief comments on recent publications relevant to automobile engineering (cont). Automobile Eng 54:13, 60-1, 277, 314-15, 353-5, 395-6 Ja-F, Je-S '64

Briefs of SAE papers. Published in monthly numbers of SAE journal

Tables, calculations, etc.

Make statistics an engineering tool. diags S A E J 72:30-7 Mr '64

AUTOMOBILE engines

Bigger engines promise more exciting racing. Engineering 196:809 D 27 '63

Chrysler produces two powerful engines for stock car and drag racing events. il Automotive Ind 130:37-8 F 15 '64

Chrysler's developments in ram-charging cf engines. J. Geschelin. il diags Automotive Ind 130:35-7 F 1 '64

Eight Ford engines at Indianapolis race. J. Dunne. il Automotive Ind 130:71-2 Mr 15 '64

End of the front-engine era; Indianapolis 1964. C. E. Wise and N. F. Wood. il Machine Design 36:160-7 My 21 '64

Ford pushes stratified charge engine. diag Steel 155:83-4 Ag 3 '64

Ford tailors sporty Mustang to meet driver specs. il diags S A E J 72:36-46 My '64

Ford's dohc competition engine; from Fairlane to Indy lane. A. J. Scussel. il diags S A E J 72:68-76 S '64

Future of the aluminum engine. G. E. Herrman. Automotive Ind 130:62-3 Ap 1 '64

German car uses new gasoline engine. il diags Oil & Gas J 61:79-80 O 21 '63

Gordini F 11 engine. diag Engineering 198:14 Jl 3 '64

How to select and apply an engine for Indianapolis. il diags Machine Design 36:120-5 F 27 '64

Institution of mechanical engineers. Automobile division symposium abstracts. Engineer 216:951-2 D 6 '63

Jaguar's new 4.2 engine. il diag Automotive Ind 131:9-10 N 1 '64

Materials battle is tug-of-war. H. R. Neal. il Iron Age 193:104-6 F 20 '64

More sixes due in '65s. J. Dunne. Automotive Ind 131:27-8 Jl 1 '64

1965 passenger-car engineering trends; engines. il diags S A E J 72:32-7 N '64

1965 passenger car power team combinations. H. M. Nelson. Automotive Ind 131:84-5 O 15 '64

Oldsmobile 425 cu. in. engine. J. Geschelin. il diag Automotive Ind 131:69-71 S 15 '64

Plymouth and Dodge unveil new engines. H. F. Jones. il Iron Age 193:55 F 13 '64

Power up, size and weight down on Oldsmobile F-85 engine. G. Burrell and F. W. Ball. il diags S A E J 72:56-61 O '64

Rolls-Royce engine powers B.M.C. luxury sedan. D. Scott. il Automotive Ind 131:54-5 O 1 '64

Rotary combustion engines. R. F. Ansdale. il diags Automobile Eng 53:518-24: 54:20-7, 52-6 D '63-F '64

Rotary piston engine performance criteria. F. Wankel. diags Automobile Eng 54:386-92 S '64

Spider: first car with the NSU Wankel engine. il Engineering 198:420 O 2 '64

Studebaker uses GM engines. il Automotive Ind 131:44-5 O 1 '64

Triumph 2000; engine, clutch, gearbox, propeller shaft and final drive assembly. il diags Automobile Eng 54:84-93 Mr '64

Wankel engine in sports car. diags Mech Eng 86:66 F '64

Wankel's rotary powers a roadster. il diags Machine Design 35:130-2 D 5 '63

What engine will power the care of tomorrow? E. S. Starkman. bibliog diags S A E J 72:34-9 Ap '64

See also

Gas turbines, Automotive

Motor truck engines

Tractors

Cooling

See also

Automobile engines—Radiators

Design

Aluminum automobile engine; let's take another look. J. M. Smith. bibliog il diags S A E J 72:90-5 O '64

American Motors puts a new straight six in Ramblers. D. V. Potter and others. il diags S A E J 72:44-50 O '64

Average hp continues to rise. M. Ainsworth. Automotive Ind 131:78-82 O 15 '64

British approach to small car engines. il diags Engineering 196:746-7 D 13 '63

Designers' dilemma over new Formula one. il Engineering 197:314-15 F 28 '64

Developing the NSU engine. diags Engineering 197:251 F 14 '64

Fiat 1300 and 1500; four-cylinder, 1 295 cm^3 and alternative 1 481 cm^3 engines. il diags Automobile Eng 54:260-6 Je '64

Ford Taunus 12 M engines. O. G. W. Fersen. il diags Automobile Eng 54:380-4 S '64

Ford's double over-head cam (DOHC), 255 cu in. V-8. il Product Eng 35:68-9 Mr 16 '64

Ford's new overhead camshaft race engine. J. Geschelin. il diag Automotive Ind 130:74-6 Ap 15 '64

History of a dimension; Rolls-Royce engine design practice. S. H. Grylls. Engineer 216:726-7 N 1 '63

Institution of mechanical engineers Automobile division symposium on Design of small engines for mass-produced cars. il diags Inst Mech Eng Proc 178 pt 3D:1-124 '63-64

International design review; engines. P. Windsor-Smith. il diags Automobile Eng 54:206-22 My 20 '64

Racing engine modified. il Automotive Ind 131:47-8 Jl 15 '64

Rover 2000; analysis of the design of the four-cylinder single overhead camshaft engine. il diags Automobile Eng 53:466-73 N '63

Squeeze play by Chrysler puts big engine in compact cars. W. L. Weertman and E. W. Beckman. il diags S A E J 72:85-91 Jl '64

Efficiency

Manifold pressures. S. E. Bonamy. bibliog Automobile Eng 54:397-401 S '64

Exhaust

Approval seen for smog control units. R. R. Kay. Iron Age 193:44 Mr 5 '64

Auto Big Four to make own air pollution controls. Am Mach 108:59 Ag 31 '64

Auto makers oppose exhaust control devices. Chem & Eng N 42:36-7 Jl 6 '64

Auto makers rush to meet California deadline; exhaust control systems will be ready for 1966 models. il diag Chem & Eng N 42:23-4 Ag 24 '64

California approves auto exhaust devices. il Chem & Eng N 42:23-4 Je 22 '64

California revises exhaust-control test procedures. Oil & Gas J 62:71 F 10 '64

Crankcase-diversion tactics say bye-bye to blowby. R. D. Quillian, jr. and others. il diags S A E J 72:50-6 My '64

Devices for automotive air pollution control. il diags Product Eng 35:44-5 Ag 31 '64

Forecast for control of auto exhausts; partly cloudy. Chem Eng 71:44 Ag 3 '64

Four smog devices okd by California. H. F. Jones. il Iron Age 193:55 Je 25 '64

Identification of nitro-olefins in the combustion products of hydrocarbons. K. F. Lampe and W. B. Deichmann. bibliog diag Ind Med 33:281-3 My '64

Nature of lead in automobile exhaust gas. D. A. Hirschler and L. F. Gilbert. il Archives Environmental Health 8:297-313 F '64

New exhaust-control market goes up in smoke. E. Addeo. il Chem Eng 71:78+ O 26 '64

AUTOMOBILE engines—Exhaust—*Continued*
Race is on in smog control. Product Eng 35:39 Jl 6 '64
Royal automobile club and clean air. T. H. Turner. Engineer 217:135 Ja 17 '64
Senate testimony reveals solutions to vehicle air pollution. diag Heating-Piping 36:46+ Ag '64
Smog control. diag Product Eng 35:63-4 Mr 16 '64
Smog control confusion; Chrysler device being tested on Coast. J. Dunne. il Automotive Ind 131:19-20 Ag 1 '64
Smog controls on '66s; California cars to get industry devices. J. Dunne. il diag Automotive Ind 131:53-4 S 1 '64
Smogless cars due in '65. Oil & Gas J 62:63-4 Ag 24 '64
Smoke, a growing problem. il Diesel Equip Supt 42:23-5 My '64
SAE seeks solution to smog. H. F. Jones. Iron Age 193:75 Je 18 '64
Summer approval sought for exhaust controls. il Chem & Eng N 42:80+ Mr 9 '64

Fans

Imp engine cooling fan. P. B. H. Moore. il diag Automobile Eng 54:45 F '64

Fuel

See also
Gasoline
Gasoline—Anti-knock and anti-knock mixtures

Fuel feeding

Petrol engine charge stratification. diags Automobile Eng 53:536-8 D '63
Tecalemit-Jackson petrol injection. il diags Automobile Eng 54:307-13 Jl '64

Ignition

Electronic feedback scheme allows engine to determine its own best setting. diags Product Eng 35:54 S 28 '64
See also
Spark plugs

Ignition devices

Development of the Ford transistorized ignition system. R. C. Hogle and L. F. Mieras. diags Automotive Ind 130:50-3 Mr 1 '64
Electronic method of ignition advance for automobiles. A. R. Hayes. bibliog il diags Electronic Eng 36:369-73 Je '64
Holley's new transistorized ignition system. il Automotive Ind 130:50 F 1 '64
Ignition system misconception. W. F. Palmer. diags Radio-Electronics 35:47 Ja '64
Ignitions; roll your own. diags Product Eng 35:63 F 3 '64
New ignition system for cars. R. Van Houten and J. C. Schweitzer. il diag Electronics 37:68-72 O 5 '64
Prestolite Transigniter 201. diag Automobile Eng 54:148 Ap '64
Transistor car ignition system. J. H. Willis. diags Wireless World 70:151-2 Mr '64; Discussion. 70:187-8 Ap '64
Transistor-switched ignition systems. J. Nawracaj. diags Electro-Tech 73:112-13 My '64
Transistorized ignition conversion kit. Engineering 196:592 N 8 '63
Transistors save your breaker points. J. R. Gyorki. il diags Radio-Electronics 35:53-5 Ap '64; Discussion. 35:60 Je '64
Zenerless transistor ignition. W. C. King. il diags Radio-Electronics 35:34-5 S '64

Lubrication

Air-blending quality oils. R. L. Moxey. il Comp Air Mag 69:8-10 O '64
Automotive lubes face a quality challenge. il diag Chem Eng 71:84+ My 25 '64
Automotive lubricants. H. A. Hartung. A S M E Trans ser D 86:371-3 bibliog(p381-2) Je '64
Crank-case oil temperature heater-cooler? H. T. Livingston. diag Power 107:164 D '63
Effect of several variables on engine rusting in service tests. P. A. Bennett and G. K. Malone. bibliog il Lub Eng 20:94-8 Mr '64
Engine-cranking viscosity of lubes. H. V. Lowther and G. H. Shea. bibliog Oil & Gas J 62:77-8+ Mr 30 '64
Low oil viscosity, not high cranking speed, makes engines start faster. T. W. Selby. S A E J 72:88-9 My '64
Motorists not sold on long-life oils. Oil & Gas J 62:44-6 F 3 '64
Progress report on vehicle tests to determine the effect on both engine and crankcase oil of extending oil drain periods. J. Heritage and C. D. Brewer. il diag Inst Pet J 49:371-82 D '63
What's ahead for 5W-30? D. H. Stormont. Oil & Gas J 62:95-6 F 3 '64
See also
Oil filters, Automobile

Manufacture

Auto-assembly of valve guides and seats in aluminum cylinder heads. D. Scott. il Automotive Ind 129:44-7 N 1 '63
Automatic transfer machine for processing four- and six-cylinder engine blocks. il Mach 70:150-1 Mr '64
First details of $43 million AMC engine plant. J. Geschelin. il Automotive Ind 130:63-9 My 15 '64
German automakers offer magnesium die-casting tips. Steel 154:52 Ja 13 '64
Hydraulic clamping on car engine assembly. il Engineering 197:331 F 28 '64
Japanese experiments with ductile cast iron pay off. il Steel 154:49 Ja 20 '64
Making engine production pay; illustrations with text. C. A. Weinert. Automotive Ind 131:70-81 S 1 '64
New engine component works in Gloucestershire. il Metallurgia 68:178-80 O '63
PERT goes to work for Chrysler. C. Emerson. Am Mach 108:67-72 F 3 '64
Tailor mades build Rambler 6. C. Emerson. il Am Mach 108:59-62 Ap 27 '64
Volkswagen program aims at automatic die-casting operations. il Foundry 92:112-13 Mr '64
Volvo engine plant boosts productivity. D. Scott. il Automotive Ind 130:45-8 My 1 '64
Will the aluminum engine come back? G. E. Herrman. il Foundry 92:142-3+ S '64
See also
Automobile parts

Mounting

Carbon black effect on engine mount compounds. T. A. Knurek and R. P. Salisbury. il diags Rubber World 150:46-57 Ag '64

Mufflers

Muffler materials battle. il Steel 155:199-200 O 12 '64
Multiple-chamber unit improves muffler silencing. J. C. Walker and E. C. Lentz. S A E J 72:72-4; Discussion. D. C. Apps. 74-5 Ag '64
Welding the newer grades; AM-350, AM-355, AM-363 and the muffler alloys. R. H. Kaltenhauser. il Metal Prog 86:125-8 Ag '64

Noise

Motor vehicle noise and vibration; symposium abstracts. Engineer 218:91-2 Jl 17 '64

Painting and finishing

Buick engines; how they are painted. P. C. Bardin. il Ind Finishing 40:52-4+ Ag '64

Protection

See also
Anti-freeze solutions

Radiators

Back shutters hold engine temp. il diags Diesel Equip Supt 42:44-5 O '64
Gear cuts slits in stock. C. Emerson. il Am Mach 108:47-8 Ag 31 '64
Wood co.'s Temp-Gard insures full radiators, reduces hot spots due to trapped air. il diag Diesel Equip Supt 41:45 N '63

Starting

See Automobiles—Starting

Superchargers

Pinpointing turbo failure. il Diesel Equip Supt 42:35 Ag '64

Temperature

Back shutters hold engine temp. il diags Diesel Equip Supt 42:44-5 O '64

Testing

Chevrolet cranks hot and cold engines, to determine starting system requirements. R. L. Courtney and R. J. Putansu. S A E J 71:79-82 D '63
Continuous measurement of engine power; design and development of transmission dynamometer, capable of multiplying engine torque and speed. A. W. Pocock. il diags Engineering 196:718-19 D 6 '63
Manifold pressure. S. E. Bonamy. bibliog Automobile Eng 54:397-401 S '64
Passenger car engine goes to the races. W. H. Gay. il diags S A E J 72:66-72 Ap '64

Valves

Redesigned air cylinder saves Ford million in just one plant. L. J. Burza. il Steel 153:30-1 D 30 '63

AUTOMOBILE factories

Czechs building big plant: 1000 all-new Skodas scheduled daily. D. Scott. il Automotive Ind 129:29-32 N 1 '63

Girder-carried cables replace columns. F. Kramrisch. il diags Eng N 172:101 F 13 '64

James A. MacAlarney engineers Ford's new plants. Eng N 171:51-2 D 5 '63

Motor car manufacture; illustrations with text. Engineer 217:20-1 Ja 3 '64

See also

Automobile assembly plants

Automobiles—Manufacture

Control equipment

Automakers look into n/c die milling. Am Mach 108:101 My 11 '64

Automatic control of prepaint processing improves quality of car finishes. il diags Mach 70:121-2 Jl '64

Automation in assembling Volkswagen body shells. W. E. Stalhuth. il diags Automation 11:69-75 F '64

Buick's mechanized setup for making chassis springs. H. Chase. il Automotive Ind 130:47-9 Je 1 '64

Inside Citroen; electronic controls and tv monitors used. D. Scott. il diag Automotive Ind 131:63-7 Ag 15 '64

Costs

Cost-cutting design changes are spelled out for auto makers. il Machine Design 36:8 Je 18 '64

Equipment

Applying mechanized handling to standard machines. J. F. Oldani. il diag Automation 11:80-6 My '64

Automation idea from Britain: skewer the whole car body. il diags Steel 154:40 Mr 2 '64

Automotive metalworking illustrated. C. J. Kelly. Automotive Ind 129:76-7 N 15 '63

Budd's phone-facsimile set-up speeds written or printed data and drawings. il Automotive Ind 130:78-9 Je 1 '64

Cadillac retools its piston line. C. Emerson. il Am Mach 108:115-18 F 17 '64

Cadillac's new piston processing line. J. Geschelin. il diag Automotive Ind 130:39-42 Ja 1 '64

Car production in Sweden. il Engineer 217:842-3, 880-1 My 8-15 '64

Chrysler builds tomorrow's stamping plant today. J. F. Kerigan. diags Steel 154:42-5 Ja 20 '64

Citroen are not only forward in drive. il plan Engineering 197:822-3 Je 19 '64

Dynamic balancing machines. il Automobile Eng 54:444-5 O '64

Expander-forming car body-panels save material, lower tool cost. D. Scott. il Automotive Ind 129:48-51 N 1 '63

First details of $43 million AMC engine plant. J. Geschelin. il Automotive Ind 130:63-9 My 15 '64

Ford's expanded Livonia plant. J. Geschelin. il diags Automotive Ind 131:49-51 Ag 1 '64

Here's where we need assistance. R. M. Rodger. Steel 153:44 N 25 '63

How Buick's special grabs ease bulky-shape handling. il Mod Materials Handling 19:46-7 N '64

Kearney & Trecker has announced a new numerically-controlled machining center. C. A. Weinert. il Automotive Ind 130:64+ Ap 1 '64

Long, short work runs justified on heavy-duty stamping line. il Iron Age 193:84-6 F 13 '64

Mechanical handling at the Halewood plant; Ford motor co. il Engineer 217:175-6 Ja 24 '64

New plant and tools; recent developments in production equipment (cont). il diags Automobile Eng 53:494-6; 54:76-80, 118-20, 158-62, 198-203, 334-6, 412-14, 452-4 N '63, F-My, Jl, S-O '64

New plating plant for Jaguar cars. il Metallurgia 69:159-60 Ap '64

New production and plant equipment. C. J. Kelly. Published in semi-monthly numbers of Automotive industries

1964 automotive metalworking improvement planning section. C. A. Weinert. il diags Automotive Ind 131:68-116+ S 1 '64

1964 products guide for manufacturing, automotive, and aviation products. Automotive Ind 129:117-225 D 15 '63

Oldsmobile's completely new paint shop. J. Geschelin. il Automotive Ind 130:38-41 F 1 '64

Progress in production equipment. J. Geschelin. Automotive Ind 131:65-6 S 1 '64

Saab plant boosts output 300 per cent. D. Scott. il diag Automotive Ind 130:48-51 Ap 1 '64

Stamping and welding Pontiac chassis frames. J. Geschelin. il Automotive Ind 130:59-62 Ja 15 '64

Standardizing the design of draw dies. diags Mach 70:117-22 My '64

Standardizing the design of forming dies. diags Mach 70:90-4 Ja '64

Tailor mades build Rambler 6. C. Emerson. il Am Mach 108:59-62 Ap 27 '64

U.S. production equipment in overseas automotive plants; illustrations with text. C. A. Weinert. Automotive Ind 131:78-85 Jl 1; 72-9 Jl 15 '64

Vauxhall automatic assembly. il diags Automobile Eng 54:446-50 O '64

Why Detroit seeks flexible equipment. Steel 154:38-43 Mr 9 '64

Wirebound returnables serve double purpose. il Mod Materials Handling 18:77 D '63

Management

How Chrysler uses computers. J. Geschelin. Automotive Ind 130:91-2 Je 15 '64

PERT case histories prove versatility. E. J. Hughes and others. flow chart il diags S A E J 72:84-90 Mr '64

Power

Power for assembly. H. P. Scott. il diags Elec Constr & Maint 63:79-84 Mr '64

Quality control

Accuracy measured in millionths tracks down machining errors. R. W. Militzer. il diags S A E J 72:50-3 Jl '64

Automakers stress better quality. H. F. Jones. il Iron Age 193:68-9 Ap 9 '64

Bearing rejects strike out in anvil-bounce tests. il Iron Age 194:88-9 S 17 '64

Chrysler's assembly line computers provide instant quality control data. J. Geschelin. flow chart il Automotive Ind 130:37-9 Je 1 '64

Computer controls quality. il Tool & Manuf Eng 52:78-9 Je '64

Computers cut cost of quality. il Steel 154:101-2 Ap 6 '64

Customer quality requirements. M. L. Katke. Ind Quality Control 20:4-5 Je '64

Data culled from assembly lines for instant quality control. il Iron Age 193:58-60 Ap 2 '64

New test evaluates quality of anodized aluminum. E. T. Englehart and G. Sowinski, jr. diag S A E J 72:51-2 F '64

New tools for quality. L. D. Miller. il Automation 11:37+ My '64

Process and product control. P. H. Ponta. il Automotive Ind 131:68-72 Ag 15 '64

Quality control of gear grinding. K. Yokota. Ind Quality Control 20:18-19 Je '64

Quality plan uses graphic reports: Chevrolet's Buffalo, N.Y. gear and axle plant. R. Dyment. il Automotive Ind 129:65-7 N 15 '63

Quality through competition. H. E. Chesebrough. Ind Quality Control 20:31-2 My '64

Total quality control program puts dent in rework costs. W. N. Redstreake. il Iron Age 193:124-6 F 20 '64

Waste

Operating costs of wastes treatment at General Motors plants. R. J. Brink. Water & Sewage Works 111:378-80 Ag '64

AUTOMOBILE headlights. See Automobiles—Lighting

AUTOMOBILE industry and trade

Automobile industry accentuates trends in industrial design. J. J. Andrews. Arch Rec 136:172+ Jl '64

Manufacturing's responsibility to the future automobile customer; abstract. R. M. Rodger. Automobile Ind 129:53+ D 15 '63

Planes, autos, space, standards, and societies; overseas style. M. L. Stoner. S A E J 72:92-7 S '64

See also

Automobile factories

Gasoline service stations—Automobile accessories

History

Akron and Detroit; tale of two cities. S. V. d'Adolf. il Rubber World 151:52-7 O '64

From seat on platform to all-embracing shell traces forward leap of body. V. D. Kaptur, jr. il S A E J 72:56-7 Je '64

New models

Breakthrough in autodom: clay models to computers, to n/c machines, a technology to revolutionize carmaking. Steel 154:27-8 Je 22 '64

AUTOMOBILE industry and trade—New models —*Continued*

From clay to tape to die; a revolution comes to diemaking. il diags Steel 155:50-5 Jl 20 '64

GM stylists raise the roof. H. F. Jones. il Iron Age 193:51 F 6 '64

Lincoln Mercury springs first mid '64 autos. H. F. Jones. il Iron Age 193:69 Ja 30 '64

New Ford Mustang offers wide variety of options. il Automotive Ind 130:71-3 Ap 15 '64

Options more popular; V-8 surge continues on '64 models. J. Dunne. Automotive Ind 130:29-30 Ja 1 '64

See also
Automobiles—Exhibitions

Used cars

See also
Automobile sales buildings—Used car lots

Australia

New growth for Australian auto industry. il Automotive Ind 131:86-7 Jl 1 '64

Canada

Canada determined to keep legislation, stemming flow of American-made parts. Automotive Ind 131:128+ O 15 '64

Czechoslovakia

Czechs building big plant; 1000 all-new Skodas scheduled daily. D. Scott. il Automotive Ind 129:29-32 N 1 '63

Europe

Automobile design trends in Europe. M. Platt. il diags S A E J 72:34-47 F '64

Europe goes big. il diag Product Eng 35:52-3 Mr 30 '64

Europe's big three. il Product Eng 35:61 S 14 '64

Plastics in European automobiles. F. L. Siegrist. il Metal Prog 85:132+ Ja '64

France

Expanding French industry faces slackening demand. D. Scott. il Automotive Ind 131:63-6 Jl 1 '64

French cars and what the French want. G. Wilkins. il diag Engineering 198:454-5 O 9 '64

Germany

Plastic body panels mass-produced at East German car plant. D. Scott. il diag Automotive Ind 130:53-6 Je 1; 131:67-70 Ag 1 '64

West Germany's automotive industry still grows with another large gain. C. A. Weinert. Automotive Ind 131:55-9 Jl 1; 61-3 Jl 15 '64

Great Britain

Continued growth for British auto industry. D. Scott. il Automotive Ind 131:60-2 Jl 1 '64

Luxury two-litre car; the new Rover 2000. il Engineer 216:635-6, 694-6 O 18-25 '63

Motor cars; illustrations with text. Engineer 217:22-3 Ja 3 '64

1964 prospects for all engineerings; automobile engineering. il Engineering 197:115-17 Ja 17 '64

Six new British models: London motor show. il Automotive Ind 129:51-3 N 15 '63

Whose small car? Engineering 197:277 F 21 '64

World of design: British motorcars. R. M. Koff. il Product Eng 35:66-9 Ag 17 '64

Italy

Fiat posts new gains. Automotive Ind 131:67-8 Jl 1 '64

Russia

Ivan dreams of his own car, but automotive promises. il Product Eng 35:86-8 F 17 '64

Sweden

Automaking in Sweden. A. E. Fristaed. il Am Mach 108:82-3 Ag 17 '64

Car production in Sweden. il Engineer 217:842-3, 880-1 My 8-15 '64

AUTOMOBILE laboratories

Bringing the field into the test lab. F. Blair, jr. il S A E J 72:78-81 Ja '64

Motor vehicle research centre; Vauxhall motors ltd. il Engineer 218:211-12 Ag 7 '64

Equipment

Instruments for workshop and laboratory. il Automobile Eng 54:375-6, 417-18, 459-60 Ag-O '64

AUTOMOBILE laws and regulations

See also
Motor vehicles—Inspection
Traffic regulations

AUTOMOBILE license plates. See Automobiles—License plates

AUTOMOBILE lighting. See Automobiles—Lighting

AUTOMOBILE oil filters. See Oil filters, Automobile

AUTOMOBILE parking

Automobile parking requirements at airports. W. S. Homburger and W. R. Eager. plans diags Am Soc C E Proc 90 [AT 2 no 4078]: 141-59 O '64

Cars park inside circular store. il Eng N 172:24 F 20 '64

Extruded plastic car park markers. il Engineering 198:514 O 23 '64

First vertical parking unit in Britain commissioned. il Engineering 196:623 N 15 '63

Garage goes round and round. il Eng N 173:13 Jl 30 '64

Get 1350 tons of cooling from 875 hp in shopping-parking facility. H. A. Wolfberg. il diags Heating-Piping 36:148-55 My '64

Giant luminaire lights acre of parking space. il plan diag Elec Constr & Maint 63:87+ Ja '64

Lighting a shopping center parking area; data sheet. L. Odry. il diag Illum Eng 59:410-11 sec 2 My '64

Macy's park-and shop, Elmhurst, N.Y. branch. il plan Arch Forum 120:37 Ap '64

Mechanical car park. il Engineer 218:177 Jl 31 '64

Mechanical parking; a workable solution. il diags Engineering 198:278-9 Ag 28 '64

Mechanically controlled car parking. il Engineer 218:336 Ag 28 '64

Milwaukee's parking program. M. E. Bruening and H. J. Wantoch. 3pls Traffic Q 18:30-48 Ja '64

Multi-storey car park and hotel in one. il Engineering 196:713 D 6 '63

Parking areas enhance highway safety. il Pub Works 95:134 S '64

Parking in Tokyo. I. Koshimidzu. 4pls Traffic Q 18:169-87 Ap '64

Parking plaza provided by channel improvement. J. R. Coupal, jr. and P. D'Errico. il Pub Works 95:121-2 O '64

Planning for parking in urban renewal projects. I. Candeub. 4pls Traffic Q 18:17-29 Ja '64

Practical scheme for railway station rooftop parking. il Engineering 197:485 Ap 3 '64

Problem of the parked car. il Pub Works 95:78-80 Ag '64

Too much parking? R. C. Rich. il Pub Works 95:128-30 Je '64

Trends in automobile parking at airports. C. A. Lawler. il plans diags Am Soc C E Proc 90 [AT 2 no 4076]:69-83 O '64

Two more parking systems for UK. il Engineering 197:395 Mr 13 '64

See also
Drive-in and curb services

AUTOMOBILE parts

Aluminum; new inroads in auto market? il Steel 154:83-4 Ja 20 '64

Assembling a mixed bag of auto parts. il Am Mach 108:131-3 Ap 13 '64

Ford sees big surge in powder metal usage. il Steel 153:109-10 D 2 '63

Job shop takes the tough jobs. R. H. Eshelman. il Iron Age 194:67 Jl 16 '64

Malleable iron auto parts increased. il Automotive Ind 130:57-8 My 1 '64

New ideas cut costs. il Automotive Ind 131:39-41 Jl 1 '64

Steel courts autos with ideas. H. F. Jones. il Iron Age 193:123 Je 11 '64

Steering wheel depends on it. il diag Mod Plastics 41:90-1+ Ap '64

See also
Automobiles—Doors

Failure

Endurance tests boost part life, slash warranty costs. R. P. Keller. il S A E J 72:94-8 Je '64

Manufacture

Automotive metalworking illustrated. C. J. Kelly. il Automotive Ind 130:80-1 F 15 '64

Automotive overseas production illustrated. C. J. Kelly. il Automotive Ind 131:88-9 Jl 1 '64

Automotive processes illustrated. C. J. Kelly. Automotive Ind 129:54-5 N 1 '63

Buick's mechanized setup for making chassis springs. H. Chase. il Automotive Ind 130:47-9 Je 1 '64

Cassel Sulfinuz process. J. C. Gregory. il Automobile Eng 53:539-42 D '63

Chrysler builds tomorrow's stamping plant today. J. F. Kerigan. diags Steel 154:42-5 Ja 20 '64

AUTOMOBILE parts—Manufacture—*Cont.*

Cold working operations at Oldsmobile. J. Geschelin. il diag Automotive Ind 131:46-8 O 1 '64

Ford's expanded Livonia plant. J. Geschelin. il diags Automotive Ind 131:49-51 Ag 1 '64

Forging Chevrolet parts. J. Dunne. il Automotive Ind 130:41-2 Mr 1 '64

Fully automated header upsets and flanges axle tubes. H. Chase. il diag Automotive Ind 130:83-5 My 15 '64

How to stay in auto partmaking; Thompson Ramo Wooldridge inc. il Steel 155:81-2 Jl 6 '64

Machining hypoid pinions. il diags Automobile Eng 53:490-3 N '63

New Chevy foundry. Automotive Ind 131:106 Jl 15 '64

1964 automotive metalworking improvement planning section. C. A. Weinert. il diags Automotive Ind 131:68-116+ S 1 '64

Plastics in electro plating; economies effected by a blanket of floating polypropylene spheres. il Automobile Eng 54:407 S '64

Snyder special double-end trunnion machine for processing steering knuckles. il Mach 70:160 Je '64

Standardizing the design of progressive and transfer dies. diags Mach 70:86-91 Ag '64

Standardizing the design of punching dies. diags Mach 70:90-3 N '63

Unique setup welds aluminum converter parts; Buick motor div., Flint, Mich. H. Chase. il Automotive Ind 131:58-9 Ag 1 '64

Vacuum metallizing plant for motor cars. il Engineering 196:632 N 15 '63

Testing

Fatigue life studies are active. J. Geschlin. Automotive Ind 130:55-6 Ap 1 '64

AUTOMOBILE racing

Chevy engines sweep Nassau races. H. W. Barclay. il plan Automotive Ind 130:19-22 Ja 1 '64

Ferrari sweeps Sebring; Cobra takes grand touring class first time in six years. H. M. Nelson. il Automotive Ind 130:45-8 Ap 15 '64

Five Comets to run in East African safari; world's toughest race covers 3100 mi. il Automotive Ind 130:30 Mr 1 '64

Ford's double over-head cam (DOHC), 255 cu in. V-8. il Product Eng 35:68-9 Mr 16 '64

Foyt winds Daytona duel. H. M. Nelson. Automotive Ind 131:35-6 Jl 15 '64

Hill repeats at Glen. H. M. Nelson. il Automotive Ind 131:19-22 N 1 '64

Hill wins Grand Prix; BRM first and second at Watkins Glen. H. M. Nelson. il Automotive Ind 129:21-4 N 1 '64

Le Mans 1964. Engineering 197:864 Je 26 '64

Marquette crew again provides Indy welding, charging service. il Welding Eng 49:50+ My '64

Mecom's Scarab wins; Ferrari second in Bridgehampton race. H. M. Nelson. il Automotive Ind 131:59-61+ O 15 '64

Passenger car engine goes to the races. W. H. Gay. il diags S A E J 72:66-72 Ap '64

Plymouths sweep 500; Petty sets record with new engine. Automotive Ind 130:21-2 Mr 1 '64

Racing splits industry. Automotive Ind 130:72+ Mr 15 '64

Racing tire race. il Rubber World 150:22-3 Jl '64

Resistance to record speed; Donald Campbell and Bluebird. Engineering 198:104 Jl 24 '64

Works teams dominant at Monte Carlo rally. Engineering 197:189 Ja 31 '64

AUTOMOBILE radiators. See Automobile engines—Radiators

AUTOMOBILE research

Novel mobility research methods used in army vehicle design. I. R. Ehrlich. il S A E J 72:74-6 F '64

Vauxhall's little MIRA. il Engineering 198:204 Ag 14 '64

See also

Automobile laboratories

AUTOMOBILE sales buildings

VW sales under the trees. il plan diag Prog Arch 45:138-43 Mr '64

Lighting

Lighting a used car lot. il plan Illum Eng 59:555 Ag '64

Successful lighting for an automobile dealer: case report. A. A. Tseng. il Illum Eng 59:481-3 Jl '64

Used car lots

Lighting a used car lot. il plan Illum Eng 59:555 Ag '64

Lighting for used cars; data sheet. J. H. Shaw. il Illum Eng 59:141 F '64

Successful lighting for an automobile dealer; case report. A. A. Tseng. il Illum Eng 59:481-3 Jl '64

Used car dealers put sparkle into sales. J. A. Banton. il Elec World 161:87 Ja 13 '64

AUTOMOBILE service stations

Auto-repair centers; new area for investment. G. T. Kinney. il Oil & Gas J 62:96-7+ S 21 '64

AUTOMOBILE steel. See Steel, Automobile

AUTOMOBILE tires. See Tires, Automobile

AUTOMOBILE traffic

See also

Road traffic

Street traffic

AUTOMOBILE trailers

Amphibious trailer. il Automotive Ind 130:112 Ja 15 '64

Boat trailers; by airless electrostatic. D. Motley. il Ind Finishing 40:46-8+ Je '64

Mobile homes and travel trailers. G. Corfield. Gas 39:15+ N '63

Molded glass-polyester homes for highways. il Plastics World 21:58-9 N '63

Not-so mobile homes. A. G. Rosenthal. il diags Mod Metals 20:32+ F '64

Out and about. il Engineering 197:240 F 7 '64

Travel trailer towing improved by trailer and car designers. diags S A E J 72:78-81 O '64

Travel trailers sheathed in anodized aluminum. il Mod Metals 20:80 Mr '64

AUTOMOBILES

AM launches a new Typhoon. H. F. Jones. il Iron Age 193:75 Ap 9 '64

AMC's new cars completely restyled. il Automotive Ind 131:98-9 S 15 '64

Aurora station wagon. il Automotive Ind 130:126+ Je 15 '64

Automobiles '65 il diags Machine Design 36:136-47 S 24 '64

Barracuda, Mustang enter sports arena. H. F. Jones. il Iron Age 193:29 Ap 2 '64

Bond Equipe GT; an economical 2 + 2. il Engineering 197:568 Ap 24 '64

Buick design changes. il Automotive Ind 131:95-7 S 15 '64

Cadillac lower and longer. il Automotive Ind 131:93-4 S 15 '64

Chevrolet, entirely new. il Automotive Ind 131:80-4 S 15 '64

Chrysler gas turbine car on world tour. il Engineer 216:701 O 25 '63

Chrysler's lines for '65. C. B. Campbell. il Automotive Ind 131:59-63 S 15 '64

Detroit presents its spring models; Barracuda and Mustang, compacts for the sporting set. il Steel 154:125-6 Ap 13 '64

Do we really want a gas-turbine motor car; Chrysler corp.'s latest prototype. il diag Engineering 196:556-7 N 1 '63

Equally at home on rough or road; Renault's 4L. il Engineering 197:341 Mr 6 '64

Fiat 850 fills a small gap in a big range. il diag Engineering 197:602-3 My 1 '64

Ford Mustang debut in April. J. Dunne. Automotive Ind 130:35-6 F 15 '64

Ford tailors sporty Mustang to meet driver specs. il diags S A E J 72:36-46 My '64

Ford's Mustang sports car. il Product Eng 35:61-2 Mr 16 '64

Ford's new Mustang. il Product Eng 35:48-9 Ap 13 '64

French cars and what the French want. G. Wilkins. il diag Engineering 198:454-5 O 9 '64

German G.T. car. il Engineer 216:966 D 6 '63

Highlights of the '65 cars. J. Geschelin. Automotive Ind 131:39-40+ O 1 '64

Individuality comes in the finish; Vanden Plas Princess 3 litre. il Engineering 197:475 Ap 3 '64

Jaguar Mark X. il diags Automobile Eng 53:344-53, 398-405, 474-80 Ag-S, N '63

Lincoln-Mercury line for '65. il diags Automotive Ind 131:76-9 S 15 '64

Luxury lounge tackles turnpike tedium. Machine Design 36:6 Ap 9 '64

More top cars for more top people. il Engineering 197:158 Ja 24 '64

Motor cars; illustrations with text. Engineer 217:22-3 Ja 3 '64

Mustang with wide choice of kick. il Engineering 197:533 Ap 17 '64

New station wagons. il Automotive Ind 130:36 F 15 '64

1965 cars will need more octanes. D. H. Stormont. il Oil & Gas J 62:79-80 S 21 '64

1965 Ford models reflect drastic changes. il diags Automotive Ind 131:41-3 O 1 '64

Plymouth's Barracuda. J. Dunne. il Automotive Ind 130:17-18 Ap 1 '64

AUTOMOBILES—*Continued*

Pontiac's distinctive styling. il Automotive Ind 131:89-92 S 15 '64

Rivolta combines the best features of both US and European cars. il diags Product Eng 34:52 N 25 '63

Rolls-Royce engine powers B.M.C. luxury sedan. D. Scott. il Automotive Ind 131:54-5 O 1 '64

Rover 2000. il diags Automobile Eng 53:466-73, 508-16; 54:2-12 N '63-Ja '64

Spider; first car with the NSU Wankel engine. il Engineering 198:420 O 2 '64

Studebaker uses GM engines. il Automotive Ind 131:44-5 O 1 '64

Taste of motoring sixty years ago with the de Dion Bouton. il Engineering 196:779-80 D 20 '63

32 new '65 Olds models. il Automotive Ind 131:72-5 S 15 '64

T-Birds, Falcons and Mustangs. il Automotive Ind 131:85-8 S 15 '64

Triumph 2000. il diags Automobile Eng 54:84:93, 124-32, 170-6 Mr-My '64

Turbine assembly line; Chrysler corp. J. Dunne. il Automotive Ind 130:25-7 F 1 '64

Vee-8-engined grand touring car. il Engineer 217:184 Ja 24 '64

What a lot you get in the Fiat 2300. il Engineering 197:11 Ja 3 '64

See also

Automobile engineering
Automobile engines
Motor buses
Motor trucks
Motor vehicles
Radio telephone on automobiles
Tractors

Acceleration

Car tests indicate comfort-acceleration tie. R. Fine. il S A E J 72:101-2 Ja '64; Discussion. B. D. Van Deusen. 72:105 Mr '64

Estimating the acceleration of sports cars. P. J. Bourke. Automobile Eng 54:66-7 F '64

Machine accurately measures vehicle acceleration. il Engineering 197:216 F 7 '64

Air conditioning

Air cooling up 38 per cent. Automotive Ind 131:39-40 S 1 '64

Automotive air-conditioning compressor; design challenge. G. H. Moore, jr. and K. B. Bjorkman. il ASHRAE J 6:49-52+ My '64

Design and operation of Cadillac's comfort control system. il diags Automotive Ind 129:39-41 N 1 '63

Multiple thermistors monitor car comfort. N. Hunter. diag Control Eng 11:125 My '64

1965 passenger-car engineering trends; air conditioning and other accessories. il diag S A E J 72:55-6 N '64

Axles

Automatic straightening of rear-axle shafts. il Mach 70:110-11 D '63

Characteristics of induction hardened axles. R. K. Wuerfel. il Metal Prog 84:93-5 D '63

Fiat 1300 and 1500; rear axle. diag Automobile Eng 54:304-6 Jl '64

Fully automated header upsets and flanges axle tubes. H. Chase. il diag Automotive Ind 130:83-5 My 15 '64

Bearings

Rear wheel bearing process. T. Dickinson. Automotive Ind 130:71-2+ Ap 1 '64

Bodies

All aluminum body Cobra sports car proves lethal in racing circuit. il Mod Metals 20:58 F '64

Austin car assembly; from body painting to the assembly of complete cars. il diag Automobile Eng 54:324-33 Jl '64

Austin car assembly; storage of pre-painted bodies. il plans Automobile Eng 54:294-8 Je '64

Automatic assembly of passenger-car bodies at VW. C. A. Weinert. il diags Automotive Ind 130:77-80 Ap 15; 54-6 My 1 '64

Automation idea from Britain; skewer the whole car body. il diags Steel 154:40 Mr 2 '64

Automation in assembling Volkswagen body shells. W. E. Stalhuth. il diags Automation 11:69-75 F '64

Car bodies up-ended in degreasing plant. il Engineering 197:745 My 29 '64

Changing big dies in an hour. il Am Mach 108:60-1 Ja 6 '64

Designers preview new products for body engineers. il Steel 153:113-14 N 18 '63

Electrocoating. il Machine Design 36:160-1 Je 18 '64

Expander-forming car body-panels save material, lower tool cost. D. Scott. il Automotive Ind 129:48-51 N 1 '63

Fiat automated welding line. il diag Automobile Eng 54:192-7 My '64

Fiat 1300 and 1500; chassis-body structure. il diags Automobile Eng 54:347-9 Ag '64

Ford electrocoats auto bodies in rust prevention campaign. il Automation 11:15 Je '64

From seat on platform to all-embracing shell traces forward leap of body. V. D. Kaptur, jr. il S A E J 72:56-7 Je '64

GM's A body may start design trend. il Steel 153:63-4 D 23 '63

How to repair aluminum bodies. Welding Eng 49:60+ Mr '64

International review of bodywork. S. W. Peck. il Automobile Eng 54:284-93 Je '64

Jaguar Mark X; the braking system, integral chassis-body structure, fuel system and electrical equipment. il diags Automobile Eng 53:474-80 N '63

Making body production pay; illustrations with text. C. A. Weinert. Automotive Ind 131:109-11 S 1 '64

Making plastic bodies for the Chevrolet Corvettes; illustrations with text. Automotive Ind 130:52-3 My 1 '64

1965 passenger-car engineering trends; body engineering. il diags S A E J 72:49-53 N '64

Plastic body panels mass-produced at East German car plant. D. Scott. il diag Automotive Ind 130:53-6 Je 1; 131:67-70 Ag 1 '64

Post-curing glass fibre bodies. il Automobile Eng 54:441 O '64

Post-curing reveals plastic body faults. il Engineering 198:80 Jl 17 '64

Rover bolts body assemblies. il Steel 153:157-8 D 9 '63

Rover 2000; body manufacture. il diag Automobile Eng 54:110-17, 152-7 Mr-Ap '64

Rover 2000; front suspension, steering, braking system and details of the chassis-body structure. il diags Automobile Eng 54:2-12 Ja '64

Strengthened thermoplastics bid for body applications. T. P. Murphy and others. il S A E J 72:83-7 Je '64

Triumph 2000; details of the design, construction and finish of the unitary structure of the body. il diags Automobile Eng 54:170-6 My '64

U.S. passenger car specifications; body data and dimensions; tables. Automotive Ind 130:144-5 Mr 15 '64

Volkswagen's $2 million bet: automatic line builds beetles. A. Ashburn. il Am Mach/Metalworking Manuf 107:62-4 D 23 '63

Wheelbase and overall length of 1963-65 model passenger cars. Automotive Ind 131:83 O 15 '64

Brakes

See Brakes, Automobile

Bumpers

Roll forming machine. il Engineer 217:607 Ap 3 '64

Stainless steel bumpers by roll forming. Engineering 198:178 Ag 7 '64

Stainless steel motor car bumpers. il Metallurgia 70:10-11 Jl '64

Chassis

Fiat 1300 and 1500; chassis-body structure. il diags Automobile Eng 54:347-9 Ag '64

Jaguar Mark X; the braking system, integral chassis-body structure, fuel system and electrical equipment. il diags Automobile Eng 53:474-80 N '63

Making chassis production pay; illustrations with text. C. A. Weinert. Automotive Ind 131:99-108 S 1 '64

1965 passenger-car engineering trends; chassis, suspension, and steering systems. il diags S A E J 72:37-43 N '64

Stamping and welding Pontiac chassis frames. J. Geschelin. il Automotive Ind 130:59-62 Ja 15 '64

Clutches

Clutch temperatures. T. P. Newcomb. bibliog diags Automobile Eng 54:145-7 Ap '64

Diaphragm spring clutch. il diags Automobile Eng 54:318-19 Jl '64

Fiat 1300 and 1500; clutch. il diags Automobile Eng 54:300-1 Jl '64

International design review; clutches. R. F. Ansdale. il diags Automobile Eng 54:222-4 My 20 '64

1966 cars get new clutch. J. Dunne. il diag Automotive Ind 131:47-8 Ag 15 '64

Rover 2000; clutch, gearbox, propeller shaft, final drive assembly and the rear suspension system. il diags Automobile Eng 53:508-16 D '63

AUTOMOBILES—*Continued*

Cold weather operation

Aids start vehicles in -20 F temperatures; abstract. A. A. Calvert. S A E J 72:97-8 Ja '64

Compact models

See Automobiles—Small size

Corrosion

Calcium chloride versus sodium chloride. J. Geschelin. Automotive Ind 130:47 F 1 '64; Abstract. Metal Prog 85:161-2 Ap '64

Detroit faces new battle against rust. il Steel 154:79-80 Mr 2 '64

Effect of several variables on engine rusting in service tests. P. A. Bennett and G. K. Malone. bibliog il Lub Eng 20:94-8 Mr '64

Design

Automobile design trends in Europe. M. Platt. il diags S A E J 72:34-47 F '64

Automobiles: Skoda makes its bow. il Product Eng 35:71-2 O 26 '64

Better and faster design by machine. L. S. Gomolak. il diags Electronics 37:64-71 Je 1 '64

Cars; Detroit '65. il diags Product Eng 35:57-60 S 14 '64

Cars, next off the line. diags Product Eng 35:51 Je 8 '64

Cars; the Cord 810. il Product Eng 35:48 Ag 31 '64

Chrysler gas turbine car. R. F. Ansdale. il diags Automobile Eng 53:484-9 N '63

Cost-cutting design changes are spelled out for auto makers. il Machine Design 36:8 Je 18 '64

Designers high on these ideas for future cars; S A E annual meeting, Detroit. Steel 154:51 Ja 13 '64

Engineering highlights of Chrysler corporation's 1965 cars. J. Geschelin. il diags Automotive Ind 131:57-62 Ag 15 '64

Factors to be considered in designing modern sports car. B. Tyndall. diags Automotive Ind 131:40-1 Ag 1 '64

Fiat 1300 and 1500. il diags Automobile Eng 54:260-6, 300-6, 340-9 Je-Ag '64

Ford '65 styling at work. G. Bordinat. flow chart il Automotive Ind 131:69-77 O 15 '64

Four-litre Princess R. il Engineer 218:308-9 Ag 28 '64

GM's dream cars at the World's fair. il Automotive Ind 130:57+ My 15 '64

General Motors introduces a new design direction; special report. W. L. Mitchell. il Automotive Ind 131:31-42 N 1 '64

Human factors, studies clue engineers to safer vehicle designs; S A E national automobile week. S A E J 72:104-9 Je '64

Impala typifies the American trend. il Engineering 198:40 Jl 10 '64

Influence of Turin. il Product Eng 34:85-6 D 9 '63

Inside Chrysler products. il diags Product Eng 35:47 Ag 31 '64

International design review. il diags Automobile Eng 54:206-58 My 20 '64

International review of bodywork. S. W. Peck. il Automobile Eng 54:284-93 Je '64

Large power increase for Singers. il Engineering 198:462 O 9 '64

More design means less development. il Engineering 197:316 F 28 '64

New designs needed for autos. A. Tremulis. il Iron Age 193:63 Mr 19 '64

New Ford Mustang offers wide variety of options. il Automotive Ind 130:71-3 Ap 15 '64

NSU Prinz; so much from two cylinders. il diag Engineering 197:250-1 F 14 '64

Out of Rolls-Royce and BMC; Vanden Plas Princess 4 litre R. il Engineering 198:249-50 Ag 21 '64

Pininfarina's Sigma safety car. il diags Product Eng 35:54-5 F 3 '64

Pontiac's engineering concept. J. Z. DeLorean. il Automotive Ind 129:37-8 N 15 '63

Rambling Rover. il Product Eng 34:40-1 D 23 '63

Road accidents and resulting injuries; abstracts of papers. Engineer 217:580 Mr 27 '64

Step closer; car drawings by computer. il Steel 155:139-40 N 2 '64

Swedish car developments. il Engineer 218:348 Ag 28 '64

Take your pick of '65 models. il diags Product Eng 35:51-3 S 28 '64

Teague predicts breadbox-size engine, great styling changes in next 20 years. J. Dunne. il Automotive Ind 130:31-2+ Ja 1 '64

Victor reaches the third generation. il Engineering 198:519 O 23 '64

See also

Automobiles—Bodies

Automobiles—Chassis

Doors

Die-cast, one-piece aluminum car doors with an outside skin of steel. il Product Eng 35:50 Ja 20 '64

New door lock for open cars. diags Automobile Eng 54:362-3 Ag '64

Why doors spring open during crashes. A. G. Gross. il diags S A E J 72:60-2 Ag '64

Electric equipment

Alternators for British cars. Engineering 196:557 N 1 '63

Flat-type wiring cable; it unrolls like a ribbon and lies flat on the floor; abstract. C. P. Christman. il S A E J 72:85 F '64

International design review; electrical equipment. L. Griffiths. il diags Automobile Eng 54:249-58 My 20 '64

Making electrical production pay; illustrations with text. C. A. Weinert. Automotive Ind 131:112-13 S 1 '64

New facilities for making Delcotrons. J. Geschelin. il Automotive Ind 130:66-70 Ja 15 '64

1965 passenger-car engineering trends; electrical systems. diags S A E J 72:53-4 N '64

Triumph 2000; drive shafts, independent rear suspension, front suspension, steering, braking system, and electrical equipment. il diags Automobile Eng 54:124-32 Ap '64

See also

Automobile engines—Ignition devices

Automobiles—Lighting

Electronic equipment

Digital servo actuator. il diag Electro-Tech 73:100 Ja '64

Electronics in the automobile industry; symposium. Engineer 217:687-8 Ap 17 '64

Equipment

Components and products. il diags Automobile Eng 54:415, 455-6 S-O '64

New products; automotive-aviation. C. J. Kelly. Published in semi-monthly numbers of Automotive industries

See also

Automobiles—Mirrors

Oil filters, Automobile

Spark plugs

Exhibitions

International motor show, London. il diags Engineer 216:637, 687-90 O 18-25 '63

International motor show, 34th, Geneva, Switzerland, March 12-22. il Engineer 217:535-6, 593-5 Mr 20-27 '64; Engineering 197:410-12 Mr 20 '64

Leipzig fair. D. Scott. il Automotive Ind 130:61-3+ Ap 15 '64

London motor show. il diags Automobile Eng 54:422-33 O '64

Paris motor, motor cycle and cycle show, 51st, Oct. 1-10. il diag Engineer 218:598-600, 642-4 O 9-16 '64

Show hybrids popular at International automobile show, 8th, New York. il Automotive Ind 130:21 My 1 '64

Six new British models; London motor show. il Automotive Ind 129:51-3 N 15 '63

Something for everyone at Earls Court; 1963 International motor show. il Engineering 196:522-3 O 25 '63

Turin motor show. il diags Engineering 196:612-13 N 15 '63

What racing car enthusiasts have today; racing car show. il Engineering 197:188-9 Ja 31 '64

Fenders

Zinc-rich welding primer protects car fenders. P. C. Bardin. il Ind Finishing 40:24-7 O '64

Frames

Automatic CO_2 welding of perimeter type automotive frames. J. F. Blamy. il Mach 70:111-16 My '64

Detroit plans more torque box frames. Steel 154:81-2 Mr 23 '64

Ford frames changes for '65 models. H. F. Jones. il Iron Age 193:51 F 27 '64

Gearing

B.M.C. gearbox synchronizers. diags Automobile Eng 54:177 My '64

Effect of lubricant viscosity on rear axle gear and pinion bearing operation. R. McClintock and R. E. Osborne. il diag Lub Eng 20:387-92 O '64

Ford's four-speed gear box. J. Dunne. il Automotive Ind 130:51-3 F 15 '64

AUTOMOBILES—Gearing—*Continued*

Fuller twin-countershaft gearboxes. il diags Automobile Eng 54:42-4 F '64
Multi-cone synchromesh device. diag Engineer 216:1033 D 20 '63
New idea in synchromesh. diags Engineering 196:650-1 N 22 '63
Spreading the application of overdrives. il diags Engineering 197:76-7 Ja 17 '64

See also

Automobiles—Clutches
Automobiles—Steering gear
Automobiles—Transmission

Heating and ventilation

1965 passenger-car engineering trends; air conditioning and other accessories. il diag S A E J 72:55-6 N '64
Why not automatic heating? Automobile Eng 54:421 O '64

License plates

Finishing car licenses for Michigan. H. F. Reves. il Metal Finishing 62:68-72 S '64

Lighting

Beware of amber parking lights. Product Eng 34:30 D 23 '63
Headlight adjuster. il Engineer 216:712 O 25 '63
Lighting study project report on motor vehicle (exterior) lighting. Illum Eng 59:660-2 O '64
Night visibility for opposing drivers with high and low headlight beams; abstract. R. N. Schwab. Illum Eng 59:584-5 S '64
Quartz-iodine headlamps slated for European debut. V. J. Roper and L. A. Morgenstern. il diags S A E J 72:30-5 Je '64
There are different degrees of dipping. Engineering 196:592 N 8 '63

Lubrication

Automotive lubes face a quality challenge. il diag Chem Eng 71:84+ My 25 '64
Effect of lubricant viscosity on rear axle gear and pinion bearing operation. R. McClintock and R. E. Osborne. il diag Lub Eng 20:387-92 O '64
Telelube HD lubrication. diags Automobile Eng 54:385 S '64
What lubricants will future cars need? R. E. Jeffrey and L. G. Boschma. Hydrocarbon Process & Pet Refiner 43:125-8 My '64

Maintenance and repair

Hard starting traced to poor maintenance. R. C. Teasel and J. F. Hoffman. S A E J 72:66-7 F '64
Wiring an automotive service complex. il plan Elec Constr & Maint 63:77-81 Jl '64

Manufacture

Advances in automotive production techniques. il diags Mach 70:89-127 D '63
Air-powered tool tightens bolts, checks torques. il diag Hydraulics & Pneumatics 17:22+ Je '64
Citroen are not only forward in drive. il plan Engineering 197:822-3 Je 19 '64
Compact quality; American motors co. R. J. Nemmers. il Comp Air Mag 69:4-11 Mr '64
Ford Mustangs on the production line. J. Geschelin. il Automotive Ind 130:49-51 My 1 '64
Pontiac's engineering concept. J. Z. DeLorean. il Automotive Ind 129:37-8 N 15 '63
Rover 2000 body manufacture. il diag Automobile Eng 54:110-17, 152-7 Mr-Ap '64
Unique decentralized assembly for Rover 2000. D. Scott. il plan Automotive Ind 130:71-5 Ja 15 '64

See also

Automobile assembly plants
Automobile engines—Manufacture
Automobile factories
Automobile parts

Materials

Advances in automotive production techniques: materials. Mach 70:90-1 D '63
Aluminum automobile engine; let's take another look. J. M. Smith. bibliog il diags S A E J 72:90-5 O '64
Aluminum gains again in autos. H. F. Jones. il Iron Age 193:35 Ja 23 '64
Aluminum in the '64 models: still 70 pounds per car despite loss of engine business. A. G. Rosenthal. il Mod Metals 19:30-2+ D '63
Aluminum use in autos. il Light Metal Age 22:10-11 F '64
Automotive materials illustrated. C. J. Kelly. Automotive Ind 130:60-1 Ap 1; 131:92-3 O 15 '64
Autos using more zinc die castings. J. F. Kimberly. Iron Age 194:29 Ag 20 '64
Designers preview new products for body engineers. il Steel 153:113-14 N 18 '63
EPT for automotive sponge. L. Spenadel. il Rubber World 150:69-77 Ag '64
Fasteners are engineered at Chevrolet motor div. il Steel 153:155-6 N 25 '63
Guide to automotive fasteners. J. Geschelin. il diags Automotive Ind 129:78-80+ O 15; 68-70 N 15 '63; 130:63-5 Ja 15; 57-8 Ap 1; 81-2 My 15 '64
Improved zinc alloy. Automotive Ind 131:110 Jl 15 '64
Malleable iron auto parts increased. il Automotive Ind 130:57-8 My 1 '64
Materials and treatment. Automobile Eng 54:322-3, 377-8, 416-17, 457-8 Jl-O '64
Materials battle is tug-of-war. H. R. Neal. il Iron Age 193:104-6 F 20 '64
Materials hold auto spotlight. H. F. Jones. il Iron Age 193:28-9 Ja 23 '64
Materials in the automobile Chrysler corporation cars. il Automotive Ind 131:47-51+ N 1 '64
Producers push for major new aluminum applications in autos. il Mod Metals 20:46+ F '64
Rootes puts an Imp in the import market. il Iron Age 193:107 Mr 12 '64
Rubber and the 1965 automobile. F. Olmstead. il diags Rubber Age 95:879-84 S '64
Stainless steel strip. Automobile Eng 54:133-4 Ap '64
Volkswagen; world's largest magnesium user reveals cost-cutting techniques. il diags Mod Metals 20:42+ Ag '64
Why VW likes magnesium. O. Hoehne and D. Korff. plan S A E J 72:76-8 Ap '64
Wood technology is giving designers new uses for an age-old material. S. Barnes. il Machine Design 36:78-85 Jl 30 '64
Zinc die casting uses increase in '64 autos. Automotive Ind 130:52-3 Ja 1 '64

Plastics

Acrylics in automotive applications. il Plastics World 22:56 My '64
Auto plastics pick up speed. H. F. Jones. il Iron Age 193:113 Mr 12 '64
Automakers lead new round of switches to plastics. il Steel 155:41-2 Ag 10 '64
Automotive uses on the upswing. il Mod Plastics 41:74-8+ N '63
Autos and appliances put shine in ABS sales. il Chem & Eng N 42:25-6 Ja 13 '64
Autos step up fiber glass use. H. F. Jones. il Iron Age 192:141 N 14 '63
Do European cars lead American in new plastics applications? H. P. DeHaan and G. N. Freund. il Plastics World 21:40-3 N '63
Fiberglass Porsche. il Product Eng 35:58 F 17 '64
Finishing the Avanti plastic body. H. F. Reves. il Metal Finishing 62:52-6 Ja '64
Foreign carmakers top U.S. in use of plastics. il Steel 155:149-50 Ag 10 '64
Imp engine cooling fan. P. B. H. Moore. il diag Automobile Eng 54:45 F '64
Making plastic bodies for the Chevrolet Corvettes; illustrations with text. Automotive Ind 130:52-3 My 1 '64
New design opportunities with plastics. W. J. Simpson. il Mech Eng 86:40-4 Mr '64
New fiberglass-reinforced plastic is a smoothie. C. A. Sprang and G. I. Davis. S A E J 72:84 S '64
New high-temperature acrylic finds high-class application in autos. il Plastics Tech 10:15 Mr '64
Plastic body panels mass-produced at East German car plant. D. Scott. il diag Automotive Ind 130:53-6 Je 1; 131:67-70 Ag 1 '64
Plastics deepen penetration into auto markets. il Chem & Eng N 42:21-4 Jl 27 '64
Plastics in European automobiles. F. L. Siegrist. il Metal Prog 85:132+ Ja '64
Plastics in the automotive industries (cont). N. M. Lloyd. il Automotive Ind 130:76-80 My 15; 131:64-8 Jl 15 '64
Post-curing glass fibre bodies. il Automobile Eng 54:441 O '64
Post-curing reveals plastic body faults. il Engineering 198:80 Jl 17 '64
Progress in moulding. il Brit Plastics 37:248-51 My '64
Reinforced plastics in cars and trucks. F. L. Siegrist. il Metal Prog 85:105-9 My '64
Steering wheel depends on it. il diag Mod Plastics 41:90-1+ Ap '64
Vinyl automotive trim. Plastics Tech 10:53 F '64

AUTOMOBILES—Materials—Plastics—*Cont.*

Wanted; workable plastics for future automotive uses. T. J. Risk. il Plastics World 22:24-7 Mr '64
Why A. O. Smith tries plastics. il Steel 154:87-8 F 3 '64

Mirrors

Lucas automatic anti-dazzle mirror. il Engineering 197:441 Mr 27 '64

New models

See Automobile industry and trade—New models

Noise

Fiat 850 stresses silence by using rubber to isolate engine, suspension from body. D. Scott. il diag Automotive Ind 130:55-6 My 15 '64
No noise but the wind. J. R. Thomson and others. il diags S A E J 72:72-4 Jl '64
Noise and vibration; symposium, Cranfield; abstracts of papers. Automobile Eng 54:401-2 S '64

Painting and finishing

Austin car assembly; from body painting to the assembly of complete cars. il diags Automobile Eng 54:324-33 Jl '64
Austin car assembly; storage of pre-painted bodies. il plans Automobile Eng 54:294-8 Je '64
Automatic control of prepaint processing improves quality of car finishes. il diags Mach 70:121-2 Jl '64
Automatic electronic control of pre-paint treatment control. diag Automotive Ind 131:69 Jl 15 '64
Car body finishing temperatures monitored. il Engineering 197:89 Ja 17 '64
Car spraying and stoving plant. il Engineer 218:343 Ag 28 '64
Car trim better finished in special plant. il Engineering 197:55 Ja 10 '64
Controlling metal surface texture at Chrysler. H. W. Barclay. il Automotive Ind 129:61-4 N 15 '63
Electrocoating. il Machine Design 36:160-1 Je 18 '64
Electrocoating, a new technique for painting auto bodies. il Metal Prog 86:132+ Jl '64
Electrocoating automobiles. il diag Product Eng 35:88 Je 22 '64
Electrocoating; Ford's giant step in painting. il Am Mach 108:110-11 My 11 '64
Electrocoating gains as primer. H. F. Jones. il Iron Age 193:71 My 14 '64
Electrodeposition system for autos adds corrosion resistance. Mach 70:101 N '63
Electronic touch guides coating in automotive prepaint line. il diag Iron Age 193:104-5 Je 18 '64
Electrophoresis; Ford's new way of painting. il Engineering 198:155 Jl 31 '64
Ford electrocoats auto bodies in rust prevention campaign. il Automation 11:15 Je '64
New data on electrodeposited organic coatings. Materials in Design Eng 60:113+ Jl '64
New painting process; primer seen threat to galvanized parts. J. Dunne. flow chart il Automotive Ind 130:35-7 My 15 '64
Oldsmobile unveils new paint line. il Steel 154:173-4 My 4 '64
Oldsmobile's completely new paint shop. J. Geschelin. il Automotive Ind 130:38-41 F 1 '64
Swap galvanized for electrocoating? il Steel 154:107-8 My 11 '64
Two-stage trichlor finishing. J. Schmadebeck and O. Lindemann. il Metal Finishing 61:68-70 D '63
With acrylic auto finishes, what's underneath counts. A. S. Kasper. il S A E J 72:62-5 Jl '64

Parking

See Automobile parking

Patents

Current patents (cont). diags Automobile Eng 53:505-6, 546; 54:39-40, 81-2, 121-2, 163-4, 204, 337-8, 419-20, 461-2 N '63-My, Jl, S-O '64

Polishing and waxing

Electrostatic wax coating protects car finishes. il Mach 70:122 D '63

Propeller shafts

Fiat 1300 and 1500; propeller shaft. diags Automobile Eng 54:303-4 Jl '64
International design review; transmission shafts and final drive assemblies. R. F. Ansdale. il diags Automobile Eng 54:230-2 My 20 '64
1965 passenger-car engineering trends; transmissions and drivelines. il diags S A E J 72:44-6 N '64

Radiators

See Automobile engines—Radiators

Radio equipment

See Radio telephone on automobiles

Riding qualities

Car buyer seeks more power, comfort. il Steel 154:77-8 Mr 9 '64
Car tests indicate comfort-acceleration tie. R. Fine. il S A E J 72:101-2 Ja '64; Discussion. B. D. Van Deusen. 72:105 Mr '64
Ride evaluation. B. D. Van Deusen. il diags Automobile Eng 53:532-5 D '63

See also
Automobiles—Springs and suspension
Automobiles—Vibration

Roofs

Foil-butt-seam welding of extensions to roof panels. il Mach 70:116-17 D '63

Safety measures

Automobile safety at the International auto show. G. E. Rowland. il Product Eng 35:100-1 Ap 27 '64
Beware of amber parking lights. Product Eng 34:30 D 23 '63
Britain's cars are becoming safer. il Engineering 198:462 O 9 '64
Human factors studies clue engineers to safer vehicle designs; S A E national automobile week. S A E J 72:104-9 Je '64
Latest safety car features armor plate and sliding doors. il diag Machine Design 36:96-7 Ja 30 '64
Pininfarina's Sigma safety car. il diags Product Eng 35:54-5 F 3 '64
Safe tire legislation. il Rubber World 150:27 Ag '64
SAE progress in vehicle safety. il S A E J 72:122-7 F '64
Three driving safety research projects. Safety Maint 128:16-17 Jl '64

See also
Motor vehicles—Inspection

Seat belts

Irvin-Norris Dynalock. il diags Automobile Eng 54:62-4 F '64
Safety belt with pendulum control. diag Engineering 196:592 N 8 '63
Seat belts are safety belts. Safety Maint 127:24 Je '64

Seats

Designing vehicle seats for greater comfort. J. J. Keegan and A. O. Radke. diags S A E J 72:50-5 S '64
Elastomeric diaphragm for automotive seating. T. Seather. il Automotive Ind 130:50-2 Je 1 '64

Skidding

Factors affecting skid resistance of polybutadiene. G. J. Briggs and others. bibliog il Rubber World 150:41-53 S '64
Looking at the trouble spot where the rubber meets the road. W. E. Meyer. il S A E J 72:36-40 O '64
Panic-proof brake system reduces skid hazard. il diags Machine Design 36:142-3 My 7 '64
Proposed method for wet-skid evaluation. R. W. Hallman and C. A. Brunot. il Rubber Age 95:886-9 S '64

Small size

British approach to small car engines. il diags Engineering 196:746-7 D 13 '63
Compact car in the utility fleet. H. J. Wurth. il Gas Age 131:22-4 Ja '64
1100 from France. il diags Engineer 217:357 F 21 '64
Hillman Imp. il Engineering 196:651 N 22 '63
Hydrolastic Mini from BMC. il Engineering 198:421 O 2 '64
Hydrolastic suspension for B.M.C. Minis. il Engineer 218:560 O 2 '64
Improved Renault R8 with price unchanged. Engineering 197:277 F 21 '64
Institution of mechanical engineers Automobile division symposium on Design of small engines for mass-produced motor cars. il diags Inst Mech Eng Proc 178 pt 3D:1-124 '63-64
Jaeger automatic meets small car needs. il diags Engineering 197:790-1 Je 12 '64
Luxury two-litre car; the new Rover 2000. il Engineer 216:635-6, 694-6 O 18-25 '63

AUTOMOBILES—Small size—*Continued*

1964 cars; two competing compacts built in Britain. il Machine Design 35:8 N 7 '63

Redesigned Tempest uses separate frame. J. H. Lagergren. il S A E J 72:48-52 Ap '64

Rootes puts an Imp in the import market. il Iron Age 193:107 Mr 12 '64

Squeeze play by Chrysler puts big engine in compact cars. W. L. Weertman and E. W. Beckman. il diags S A E J 72:85-91 Jl '64

Whose small car? Engineering 197:277 F 21 '64

Specifications

Foreign passenger car specifications, 1964; tables. Automotive Ind 130:146-51 Mr 15 '64

Highlights of the 1964 cars; tables. H. M. Nelson. Automotive Ind 130:56-68 Ja 1 '64

U.S. passenger car specifications; tables. Automotive Ind 130:124-43 Mr 15 '64

Speed

Resistance to record speed; Donald Campbell and Bluebird. Engineering 198:104 Jl 24 '64

See also
Automobile racing

Springs and suspension

Anti-skid device controlled by suspension movement. diag Engineering 197:216 F 7 '64

Buick's mechanized setup for making chassis springs. H. Chase. il Automotive Ind 130:47-9 Je 1 '64

Computer analysis of leaf springs. R. J. Allwood. diags Automobile Eng 54:393-5 S '64

Design formulas and procedure for U-shaped torsion springs. R. E. Hanslip. bibliog diags Product Eng 35:77-82 Ag 3 '64

Fiat 1300 and 1500; front suspension. diags Automobile Eng 54:340-3 Ag '64

Fiat 1300 and 1500; rear suspension. Automobile Eng 54:306 Jl '64

Hydrolastic Mini from BMC. il Engineering 198:421 O 2 '64

Hydrolastic suspension for B.M.C. Minis. il Engineer 218:560 O 2 '64

Improved air-springs. T. A. O. Gross. Automobile Eng 54:46-7 F '64

International design review; suspension and steering. il diags Automobile Eng 54:233-42 My 20 '64

New Vauxhall Viva's orthodox suspension altered to give soft but flat ride. il Automotive Ind 130:107 Ja 15 '64

1965 passenger-car engineering trends; chassis, suspension, and steering systems. il diags S A E J 72:37-43 N '64

Rover 2000; clutch, gearbox, propeller shaft, final drive assembly and the rear suspension system. il diags Automobile Eng 53:508-16 D '63

Rover 2000; front suspension, steering, braking system and details of the chassis-body structure. il diags Automobile Eng 54:2-12 Ja '64

Sealed-for-life ball joints. il diags Automobile Eng 54:14-17 Ja '64

Simulation of an automobile suspension system. diags Instruments & Control Systems 37:143 O '64

Spring design. K. Weiss. Automobile Eng 54:268-71 Je '64

Triumph 2000; drive shafts, independent rear suspension, front suspension, steering, braking system, and electrical equipment. il diags Automobile Eng 54:124-32 Ap '64

See also
Automobiles—Vibration

Stability

Vehicle directional control behavior described in more precise terms. diags S A E J 72:26-33 F '64

Starting

Aids start vehicles in -20 F temperatures; abstract. A. A. Calvert. S A E J 72:97-8 Ja '64

Chevrolet cranks hot and cold engines to determine starting system requirements. R. L. Courtney and R. J. Putansu. S A E J 71:79-82 D '63

Hard starting traced to poor maintenance. R. C. Teasel and J. F. Hoffman. S A E J 72:66-7 F '64

Low oil viscosity, not high cranking speed, makes engines start faster. T. W. Selby. S A E J 72:88-9 My '64

Steering gear

Accelerated wear tests on hydraulic pumps. J. A. Edwards. il diags Automobile Eng 54:350-2 Ag '64

Accelerated wear tests on power steering pumps. J. A. Edwards. il Automotive Ind 130:42 F 1 '64

Fiat 1300 and 1500; steering. il diags Automobile Eng 54:344-7 Ag '64

International design review; suspension and steering. il diags Automobile Eng 54:233-42 My 20 '64

1965 passenger-car engineering trends; chassis, suspension, and steering systems. il diags S A E J 72:37-43 N '64

Power steering with feel. il diag Engineering 198:518-19 O 23 '64

Rover 2000; front suspension, steering, braking system and details of the chassis-body structure. il diags Automobile Eng 54:2-12 Ja '64

Saginaw tilt-wheel steering. P. Zeigler. il diags Automobile Eng 54:140-4 Ap '64

Sealed-for-life ball joints. il diags Automobile Eng 54:14-17 Ja '64

Seven-station trunnion machines for processing steering control arms. il Mach 70:182 F '64

Triumph 2000; drive shafts, independent rear suspension, front suspension, steering, braking system, and electrical equipment. il diags Automobile Eng 54:124-32 Ap '64

Understeer and oversteer. J. R. Ellis. diags Automobile Eng 53:178-82 My '63; Discussion. il 53:481-3 N '63

Vehicle directional control behavior described in more precise terms. diags S A E J 72:26-33 F '64

Testing

Automobile crash phenomena. il diag Machine Design 36:116-21 Ag 13 '64

Automobile vibration techniques. il Engineer 218:140 Jl 24 '64

Daytona test feathers Comet's nest. H. F. Jones. il Iron Age 193:49 Ja 16 '64

Dowty Rotol vibration equipment. il diag Automobile Eng 54:67-9 F '64

Endurance tests boost part life, slash warranty costs. R. P. Keller. il S A E J 72:94-8 Je '64

Foreign cars have a day out; third annual foreign car test day at Silverstone. il Engineering 197:768 Je 5 '64

General Motors builds a circular, high-speed test track of concrete. il diag Eng N 172:68-9 My 21 '64

GM researchers using rocket engine to test crosswind stability of car. Automotive Ind 129:97 D 15 '63

GM's new test track. J. Dunne. il Automotive Ind 130:19-20 Je 1 '64

GM's test program proves out. H. F. Jones. il Iron Age 193:115 My 21 '64

Inertia roller test rig replaces road test. il Engineering 197:331 F 28 '64

New techniques for automotive development. il Engineering 196:611 N 15 '63

Performance trials do tell a significant story. A. W. Percy and others. diags S A E J 72:41-3 O '64

SAE progress in vehicle safety. il S A E J 72:122-7 F '64

Static road testing of motor cars. il Engineer 217:137 Ja 17 '64

Toe-in meter gives direct reading. Engineering 197:440 Mr 27 '64

Vauxhall's little MIRA. il Engineering 198:204 Ag 14 '64

Vehicle performance recording. A. L. Alexander. il diags Automobile Eng 53:526-31 D '63

Why GM pushes proving ground tests. il Steel 154:141-2 My 25 '64

Transmission

Automakers shift to fourth gear. H. F. Jones. il Iron Age 193:67 Ap 23 '64

Automatic transmission goes sporting; Sunbeam Alpine. il Engineering 197:863 Je 26 '64

Blending automatic transmission fluids for proper friction properties; abstract. T. D. Newingham. S A E J 72:63 F '64

Borg-Warner automatic transmission. il diags Engineering 198:230-1 Ag 21 '64

Borg-Warner limited slip differential. Engineering 198:341 S 11 '64

Bringing the field into the test lab. F. Blair, jr. il S A E J 72:78-81 Ja '64

Buick 300 transmission sheik to a harem of engines. C. S. Chapman. il diags S A E J 72:66-71 Je '64

De Normanville type 230 overdrive. il diags Automobile Eng 54:434-40 O '64

Ferguson four-wheel drive for BRM. il Engineering 198:80 Jl 17 '64

Fiat 1300 and 1500; gearbox. diags Automobile Eng 54:301-3 Jl '64

AUTOMOBILES—Transmission—*Continued*

Ford guards productivity with huge castings impregnator. il plan Automotive Ind 129: 71-4 N 15 '63

Ford tailors sporty Mustang to meet driver specs. il diags S A E J 72:36-46 My '64

Ford's expanded Livonia plant. J. Geschelin. il diags Automotive Ind 131:49-51 Ag 1 '64

Free transfer technique being used in machining of differential carriers. J. Geschelin. Automotive Ind 130:344-6 Mr 15 '64

Gun reaming precision aluminum die castings. H. Gregg. il Mach 70:126-7 N '63

Hydroplanetary transmission units. M. Schachter. il diags Automobile Eng 54:278-83 Je '64

In-process inspection proves worth in transmission bore quality. il Mach 70:124-6 D '63

International design review; transmissions. R. F. Ansdale. il diags Automobile Eng 54: 224-30 My 20 '64

Is GM readying front wheel drive? Steel 154: 105 Ja 27 '64

Jaeger automatic meets small car needs. il diags Engineering 197:790-1 Je 12 '64

Making power train production pay; illustrations with text. C. A. Weinert. Automotive Ind 131:82-98 S 1 '64

New idea in synchromesh. diags Engineering 196:650-1 N 22 '63

New method devised for evaluating foaming of automatic transmission fluids; abstract B. E. Nagel. S A E J 72:106-7 Ja '64

1965 passenger-car engineering trends; transmissions and drivelines. il diags S A E J 72:44-6 N '64

Outer sides of converter covers completely machined in one chucking. il diag Mach 70: 106-7 D '63

Spreading the application of overdrives. il diags Engineering 197:76-7 Ja 17 '64

Triumph 2000: engine, clutch, gearbox, propeller shaft and final drive assembly. il diags Automobile Eng 54:84-93 Mr '64

World's largest impregnator safeguards die-cast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

See also
Automobiles—Gearing

Transportation

Side loading cars faster without damage. il Engineering 197:664 My 15 '64

Trim

Zincmakers introduce new auto trim alloy. il Iron Age 193:61 Ap 23 '64

Upholstery

Leather for vehicle trim. il Automobile Eng 53:498-503 N '63

Vibration

Automobile vibration techniques. il Engineer 218:140 Jl 24 '64

New techniques for automotive development. il Engineering 196:611 N 15 '63

Noise and vibration; symposium, Cranfield; abstracts of papers. Automobile Eng 54: 401-2 S '64

Weight

Total cost of weight. Materials in Design Eng 59:76-7 Mr '64

Wheels

Adjusting toe-in. il Automobile Eng 54:406 S '64

One-piece aluminum passenger car wheel. il Product Eng 35:67-8 F 17 '64

Toe-in indication equipment. F. R. Towner. il diags Ind Electronics 2:453-6 O '64

Toe-in meter gives direct reading. Engineering 197:440 Mr 27 '64

Windshields

Adhesives seal windshield and rear window. diags Product Eng 35:69 Ag 3 '64

British standard for safety glass. H. J. H. Starks. Engineer 218:505 S 25 '64

Windshields; Shatterproof glass corp. il Glass Ind 45:293-5 Je '64

AUTOMOBILES, Armored

British armored car. il Automotive Ind 131: 117 S 15 '64

LBJ's armored car. il Automotive Ind 131: 49 Ag 15 '64

AUTOMOBILES, Electric

Electric runabout pivots on a diamond. il Machine Design 36:6 My 7 '64

Electricity authorities sponsor an electric car. il Engineering 197:440 Mr 27 '64

Fuel cells and the passenger car. B. V. Poulston and J. G. Kirtley. Engineer 217: 464-7 Mr 13 '64; Abstract. Engineering 197: 380-1 Mr 13 '64

Royal automobile club and clean air. T. H. Turner. Engineer 217:135 Ja 17 '64

AUTOMOBILES, Industrial

Compact car in the utility fleet. H. J. Wurth. il Gas Age 131:22-4 Ja '64

AUTOMOBILES, Racing

All aluminum body Cobra sports car proves lethal in racing circuit. il Mod Metals 20:58 F '64

Bigger engines promise more exciting racing. Engineering 196:809 D 27 '63

Birth of a racing car; illustrations with text. Engineer 217:652-3 Ap 10 '64

British onslaught at Indianapolis. il Engineering 197:704 My 22 '64

Bruce McLaren turns racing car constructor. il Engineering 198:341 S 11 '64

Chrysler produces two powerful engines for stock car and drag racing events. il Automotive Ind 130:37-8 F 15 '64

Design battle highlights race. R. R. Kay. il Iron Age 193:116 My 21 '64

Designers' dilemma over new Formula one. il Engineering 197:314-15 F 28 '64

End of the front-engine era; Indianapolis 1964. C. E. Wise and N. F. Wood. il Machine Design 36:160-7 My 21 '64

Estimating the acceleration of sports cars. P. J. Bourke. Automobile Eng 54:66-7 F '64

Ferguson four-wheel drive for BRM. il Engineering 198:80 Jl 17 '64

Ferrari sweeps Sebring; Cobra takes grand touring class first time in six years. H. M. Nelson. il Automotive Ind 130:45-8 Ap 15 '64

Ford GT makes its racing debut at the Nurburgring in May. il Engineering 197:502 Ap 10 '64

Ford's dohc competition engine; from Fairlane to Indy lane. A. J. Scussel. il diags S A E J 72:68-76 S '64

Ford's Mustang and Plymouth's Barracuda. il Machine Design 36:12 Ap 23 '64

Ford's new GT racer. il Automotive Ind 130: 22 My 1 '64

Ford's new overhead camshaft race engine. J. Geschelin. il diag Automotive Ind 130: 74-6 Ap 15 '64

Hill repeats at Glen. H. M. Nelson. il Automotive Ind 131:19-22 N 1 '64

How to select and apply an engine for Indianapolis. il diags Machine Design 36:120-5 F 27 '64

Indianapolis preview. R. R. Kay and J. Kay. il Automotive Ind 130:37-44 My 1; 70-5 My 15 '64

Offy wins at Indy. H. Nelson. il Automotive Ind 130:37-9+ Je 15 '64

Racing car show at Olympia; illustrations with text. Engineer 217:226-7 Ja 31 '64

Racing engine modified. il Automotive Ind 131:47-8 Jl 15 '64

Rover-BRM gas-turbine for Le Mans two litre class. il Engineering 197:533 Ap 17 '64

Two radical racers carry Studebaker's Indy-500 hopes. il Machine Design 35:14-15 N 21 '63

Wankel's rotary powers a roadster. il diags Machine Design 35:130-2 D 5 '63

What racing car enthusiasts have today; racing car show. il Engineering 197:188-9 Ja 31 '64

Works teams dominant at Monte Carlo rally. Engineering 197:189 Ja 31 '64

AUTOMOBILES, Toy

Cooper Junior for junior. il Engineering 198: 14 Jl 3 '64

AUTOMOBILES and roads

Coming to terms with the private car. Engineering 196:675 N 29 '63

Future role of the automobile in urban transportation. R. E. Singer. 2pls Traffic Q 18:156-68 Ap '64

New idea in urban transportation. E. H. Harlow. il Pub Works 94:119-20 D '63

Planning to keep the traffic moving; Buchanan report Traffic in towns. il plan Engineering 196:706-7 D 6 '63

Town planning in the age of the car. J. A. Proudlove. il plans diags Engineering 198: 311-13 S 4 '64

AUTOMOTIVE chemicals

Aerosol review, 1964; automotive products. Manuf Chem 35:124+ Mr '64

Auto makers could revive long-life antifreeze. il Chem & Eng N 41:23-4 D 2 '63

Automotive specialties marketing. C. R. Jasperson. il Soap & Chem Spec 40:112+ S; 120+ O '64

How to sell more automotive chemical specialties through service stations. K. N. Marriott. Soap & Chem Spec 39:149+ D '63

Metal packages for automotive products. B. Morgan. il Soap & Chem Spec 40:121+ Mr '64

AUTOMOTIVE chemicals—*Continued*
Technical aspects of automotive aerosols. M. A. Johnsen. bibliog il Soap & Chem Spec 40:113-16+ My '64

AUTOMOTIVE Diesel engines. See Diesel engines, Automotive

AUTOMOTIVE engineers, Society of. See Society of automotive engineers

AUTOMOTIVE fuel
See also
Gasoline

AUTOMOTIVE gas turbines. See Gas turbines, Automotive

AUTOMOTIVE industries

Directories

Directory of manufacturers of complete motor vehicles, tractors, construction and off-highway equipment, all types of gasoline and Diesel engines, and gas turbine engines. Automotive Ind 130:61-3 Mr 15 '64
1964 products guide for manufacturing, automotive, and aviation products. Automotive Ind 129:117-225 D 15 '63

AUTORADIOGRAPHY. See Radiography

AUTOTRANSFORMERS. See Electric transformers—Autotransformers

AUTOXIDATION. See Oxidation—Autoxidation

AUTUNITE
Crystallography of meta-autunite (I). M. Ross. bibliog il Am Mineralogist 48:1389-93 N '63

AVERAGE
X chart control limits based on a small number of subgroups. F. S. Hillier. bibliog Ind Quality Control 20:24-9 F '64

AVIATION
See also
Air navigation
Airlines
Airplanes
Airplanes—Take-off
Airports
Radar aids to aviation
Radio aids to aviation
Television aids to aviation
United States—Air service, Navy

Accidents

Accident report on SC.1v.t.o.l. research aircraft crash. Engineer 217:176 Ja 24 '64
Investigation of aircraft accidents. E. Newton. il diags Roy Aeronautical Soc J 68:156-64 Mr '64
Minimum supersonic transports safety goal; one fatal accident in 500,000 hr. J. Lederer. S A E J 72:58-9 Ag '64
One-eleven accident report. Engineer 216:777 N 8 '63

Altitude flying

Ionizing radiation and the supersonic transport. S. R. Mohler. bibliog diags Astronautics & Aeronautics 2:60-4+ S '64
Ozone in high-altitude aircraft cabins. L. S. Jaffe and H. D. Estes. map Archives Environmental Health 9:61-71 bibliog(p 70-1) Jl '64
Piston valve for decompression research. il Engineering 197:559-60 Ap 17 '64
See also
Airplanes—Cabins—Supercharging

Physiological aspects

See also
Space flight—Physiological aspects

Safety measures

Clear air turbulence. J. A. Fusca. il map diags Space/Aeronautics 42:60-9 Ag '64
Minimum supersonic transports safety goal; one fatal accident in 500,000 hr. J. Lederer. S A E J 72:58-9 Ag '64
Structural fatigue and other airworthiness aspects. J. K. Williams. bibliog Roy Aeronautical Soc J 67:776-81 D '63
Supersonic transport; the race for safety. N. E. Halaby. Astronautics & Aeronautics 2:40-2 S '64
See also
Airplanes, Military—Ejection devices
Airports—Traffic control
Airways—Traffic control
Parachutes

AVIATION landing stations
See also
Airports

Landing mats

Aluminum sandwiches for instant airfields. il Steel 153:78-80 D 16 '63
Extrusions make a portable airstrip. il Mod Metals 19:38 D '63
Special line turns out lightweight airfield matting. il diag Automation 11:64-5 My '64

AWARDS. See Rewards, prizes, etc.

AXLES
See also
Automobiles—Axles
Bearings
Car axles
Motor trucks—Axles

AZABICYCLOOCTANE
New isoquinuclidine synthesis. M. P. Cava and C. K. Wilkins, jr. bibliog Chem & Ind p 1422-3 Ag 8 '64

AZEOTROPES
Azeotropes in gas chromatography and in extractive distillation. P. F. Tiley. Chem & Ind p 1320 Jl 18 '64
Azeotropic aerosol propellants. J. R. Haase and R. J. Scott. bibliog Soap & Chem Spec 40:105+ Ag '64
Correlation method for binary azeotrope data. L. M. Shorr. bibliog J Ap Chem 14:376-82 S '64

AZEPINE
Derivatives of 3H-azepine. L. A. Paquette. bibliog Am Chem Soc J 85:4053-4 D 20 '63
Unsaturated heterocyclic systems; derivatives of 3H-azepine. L. A. Paquette. bibliog Am Chem Soc J 86:4096-9 O 5 '64
Unsaturated heterocyclic systems; 2,3-dihydro-1H-azepines. L. A. Paquette. bibliog Am Chem Soc J 86:4092-5 O 5 '64

AZEPINONE
Dihydroazepinone chemistry; the photoisomerization of 1,3-dihydro-3,5,7-trimethyl-2H-azepin-2-one. L. A. Paquette. bibliog Am Chem Soc J 86:500-3 F 5 '64

AZETIDINE
Biosynthesis of azetidine-2-carboxylic acid. E. Leete. Am Chem Soc J 86:3162 Ag 5 '64

AZIDES
Azide group as a neighboring group; acetolysis of *trans*-2-azidocyclohexyl *p*-toluenesulfonate. A. Streitwieser, jr. and S. Pulver. bibliog Am Chem Soc J 86:1587-8 Ap 20 '64
Comparison of thermal and photochemical rearrangements of triarylmethyl and related azides. W. H. Saunders, jr. and E. A. Caress. bibliog Am Chem Soc J 86:861-4 Mr 5 '64
Cyanogen azide. F. D. Marsh and M. E. Hermes. Am Chem Soc J 86:4506-7 O 20 '64
Gasometric analysis of alkyl azides with sodium iodide-trichloroacetic acid. W. R. Carpenter. bibliog Anal Chem 36:2352-3 N '64
Isolation of primary decomposition products of azides; 1,4-diphenyl-5-azido-1,2,3-triazole. P. A. S. Smith and others. bibliog Am Chem Soc J 86:2025-33 My 20 '64
Organometallic azides are Lewis bases; abstract. J. S. Thayer and R. West. Chem & Eng N 42:53 Ap 20 '64
Reaction of acyl azides with norbornylene. L. H. Zalkow and others. Chem & Ind p 1556-7 S 5 '64
Reaction of thymoquinone with hydrogen azide. A. H. Rees. Chem & Ind p931-2 My 30 '64
See also
Lead azides

AZIDO group
Azidotriazoles lose N_2 without cyclization. P. A. S. Smith and others. Chem & Eng N 42:40-1 Je 1 '64

AZIMUTH indication
Daylight star observations in Antarctica. D. R. Lee. diag Am Soc C E Proc 90 [SU 2 no 3971]: 75-82 Jl '64
Solar-altitude azimuth. P. Hartman. bibliog diags Am Soc C E Proc 89 [SU 1 no 3410]: 1-12 F '63; Discussion. W. H. Eldridge. 89 [SU 3 no 3684]:181-3 O '63; Reply. 90 [SU 1 no 3885]:63-4 Ap '64

AZINES
Infrared study of the C=N stretching vibration in azine derivatives of aldehydes and ketones. L. D. Frederickson, jr. bibliog Anal Chem 36:1349-55 Je '64

AZIRIDINE
Direct titration of epoxy compounds and aziridines. R. R. Jay. Anal Chem 36:667-8 Mr '64
Fluorine-containing polymers for application on wool. A. G. Pittman and W. L. Wasley. bibliog Am Dyestuff Rep 53:366-9 My 11 '64
Pilot plant and mill applications of tris (1-aziridinyl) phosphine oxide finishes to cotton fabrics. R. B. LeBlanc. Am Dyestuff Rep 53:291-3 Ap 13 '64

AZIRIDINE—*Continued*

Shrinkproofing of wool by basic polyaziridines. G. C. Tesoro and S. B. Sello. bibliog Textile Res J 34:523-32 Je '64

Use of 1-(perfluoroacyl) aziridines on wool. A. G. Pittman. Textile Res J 33:953-5 N '63

AZIRIDINONE

2,3-Diazacyclopropanone (di-*t*-butyldiaziridinone). F. D. Greene and J. C. Stowell. Am Chem Soc J 86:3569 S 5 '64

AZOBENZENE

Free-radical addition to azobenzene in cumene solution; electron paramagnetic resonance spectra of some long-lived radical intermediates. J. K. S. Wan and others. bibliog Am Chem Soc J 86:2069-70 My 20 '64

Tautomeric equilibria; substituent effects in dimethylaminoazobenzenes. M. Isaks and H. H. Jaffé. bibliog Am Chem Soc J 86:2209-13 Je 5 '64

AZO compounds

Azo compounds; five-membered cyclic azo compounds; their stereospecific decomposition. C. G. Overberger and J. Anselme. bibliog Am Chem Soc J 86:648-61 F 20 '64

Azo coupling of aryldiazonium and $B_{10}H_{10}^{-2}$ ions. M. F. Hawthorne and F. P. Olsen. bibliog Am Chem Soc J 86:4219-20 O 5 '64

Cage effects in thermal and photochemical decomposition of an azo compound. G. S. Hammond and J. R. Fox. bibliog Am Chem Soc J 86:1918-21 My 20 '64

Colour differences in azo pigments. J. D. Hildreth and D. Patterson. bibliog il diags Soc Dyers & Col J 79:519-23; 80:474-9 N '63, S '64

Excited state p*K*'s; azobenzene and azoxybenzene. H. H. Jaffé and others. diag Am Chem Soc J 86:2932-4 Jl 20 '64

Mechanisms of photochemical reactions in solution; photosensitized decomposition of azo compounds. J. R. Fox and G. S. Hammond. bibliog Am Chem Soc J 86:4031-5 O 5 '64

Phenylhydrazone-phenylazoalkane interconversion. A. J. Bellamy and R. D. Guthrie. bibliog Chem & Ind p 1575-6 S 12 '64

Photochemical reactions of azo dyes in solution with different substrates. H. C. A. van Beek and P. M. Heertjes. bibliog diags Soc Dyers & Col J 79:661-9; Discussion. 669-70 D '63

Printing of azoics. C. Streck. bibliog Am Dyestuff Rep 53:865-8+ S 28 '64

Small ring bicyclic azo compounds and bicyclic hydrocarbons; isomerization of bicyclo[2.1.0]pentane and bicyclo[2.2.0]hexane. C. Steel and others. bibliog Am Chem Soc J 86:679-84 F 20 '64

Structure of 4-arylazo-3-methyl-5-isoxazolones and their methyl derivatives. L. A. Summers and D. J. Shields. bibliog Chem & Ind p 1264-5 Jl 11 '64

Studies on unimolecular layer of modified proteins; azoproteins. M. Muramatso and H. Sobotka. bibliog diags J Colloid Sci 18:636-46 S '63

Use of *p*-phenylazobenzoyl chloride for chromatographic analysis of fatty alcohols. I. Katz and M. Keeney. bibliog Anal Chem 36:231-4 Ja '64

See also

Naphthols

AZOMETHANE

Photoisomerization of azomethane. R. F. Hutton and C. Steel. bibliog Am Chem Soc J 86:745-6 F 20 '64

AZOMETHINE. See Methylenimine

AZOXY compounds

Cis-azoxybenzenes; synthesis and structure. D. L. Webb and H. H. Jaffé. bibliog Am Chem Soc J 86:2419-21 Je 20 '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

AZULENE

Hydrogen exchange of azulenes. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:322-35 F 5 '64

B

BMEWS. See Guided missiles—Defenses

BOD testing. See Sewage—Testing

BACHNER award. See Rewards, prizes, etc.

BACKHOES. See Excavating machinery

BACKWARD regions. See Underdeveloped areas

BACTERIA

Bacteria thrive on pipe wraps. Eng N 172:105 Ap 2 '64

Effect of bacteria on sandstone permeability. P. J. Kalish and others. diags J Pet Tech 16:Trans805-14 Jl '64

Electrical stimulation of bacteria. G. Spohr. il Water Works & Wastes Eng 1:41-3 Ap '64

Ferredoxin acts in primary CO_2 fixation. B. B. Buchanan and others. il Chem & Eng N 42:48-9 S 21 '64

Role of bacteria in the development of perspiration odor on fabrics. bibliog il Am Dyestuff Rep 52:1010-13 D 9 '63

Significant bacteriuria and duration of pregnancy. M. Henderson. bibliog Archives Environmental Health 8:527-30 Ap '64

See also

Actinomycetes
Escherichia coli
Iron bacteria
Paper making—Bacteria control
Sulfur bacteria

Culture

See Bacteriology—Cultures and culture media

Metabolism

Comparison of respiration and metabolism of biological slimes using radiophosphorus. M. M. Varma and G. W. Reid. diags WPCF J 36:176-200 bibliog(p 199-200) F '64

Respiration

Comparison of respiration and metabolism of biological slimes using radiophosphorus. M. M. Varma and G. W. Reid. diags WPCF J 36:176-200 bibliog(p 199-200) F '64

BACTERIA, Anaerobic

Individual volatile acids in anaerobic treatment. P. L. McCarty and others. bibliog diags WPCF J 35:1501-16 D '63

BACTERIA, Pathogenic

Bacterial endotoxins. A. I. Braude. il Sci Am 210:36-45 Mr '64

See also

Clostridium
Escherichia coli
Food poisoning
Immunity
Rickettsia
Salmonella
Streptococci
Tubercle bacilli

BACTERIAL oxidation. See Oxidation, Physiological

BACTERICIDES. See Disinfection and disinfectants

BACTERIOLOGY

See also

Air—Bacteriology
Food—Bacteriology
Microorganisms
Sewage—Bacteriology
Viruses
Water—Bacteriology

Cultures and culture media

Development of clostridium botulinum in experimentally inoculated sterile skim milk held at low temperatures. O. W. Kaufmann and A. R. Brillaud. bibliog Am J Pub Health 54:1514-21 S '64

Sensitivity of grivet monkey kidney cell line BS-C-1 for propagation and isolation of certain human viruses. N. J. Schmidt and others. bibliog Am J Pub Health 54:1522-30 S '64

Some aspects about using bacterial pure cultures in the manufacture of fermented sausages. F. P. Niinivaara and others. bibliog il diags Food Tech 18:147-53 F '64

Tests for sterility of pharmaceutical products. A. D. Russell and R. J. Gilbert. bibliog diags Manuf Chem 35:42-6+ F '64

Laboratory methods

Evaluation of the recovery of beta hemolytic streptococci from two mail-in methods. A. D. Lattimer and others. bibliog Am J Pub Health 53:1594-602 O '63

See also

Filters and filtration (bacteriology)

BACTERIOSTASIS

Aviation gasoline corrosiveness caused by sulfate-reducing bacteria; prevention by growth inhibitors. A. M. Wachs and others. bibliog Ind & Eng Chem Proc Design 3:65-9 Ja '64

BAEKELAND, L. H.

Dr L. H. Baekeland; centenary celebrations of his birth. D. R. Houwink. Chem & Ind p50-1 Ja 11 '64

BAER, Erich
E. Baer receives first AOCS award in lipid chemistry. pors Am Oil Chem Soc J 41: sup 13+ S '64

BAG filling machines
Bag handling system saves $9,000 per year. il Mod Materials Handling 19:65 Mr '64
Speeds pouch filling; machine handles various pouch types in sizes to 8 by 10. il Food Eng 36:109 Je '64

BAGASSE
Sugar cane bagasse shifts from a waste fuel to basic raw material. S. E. Martinez. il diag Power 108:52-5 Ja '64

BAGS
Cellophane bag is reclosable. il Food Eng 36:109 Ap '64
See also
Paper bags

BAGS, Plastic
All-plastic shipping bag. il Food Eng 36: 144 My '64
Fertilizer packaging. il Plastics World 22:12-13 Ja '64
Fluid foods go bulk. J. V. Ziemba. il Food Eng 35:46-7 N; 48-51 D '63
Liquid eggs frozen in bag. il Food Eng 36:82-4 Ag '64
New seal improves moisture resistance of PE shipping bags. il diag Mod Plastics 41: 105 F '64
Poly-ply bag. il Plastics World 22:42 My '64
Polythene for heavy gauge sacks. P. L. Clegg and J. W. Ladbury. il diags Brit Plastics 37:256-60 My '64
Slit-film PE bag permits free air circulation for produce. il Mod Plastics 41:107 Jl '64
Ultrasonic sealing. il Plastics World 22:52 S '64

BAILAR, John C.
Bailar awarded Priestley medal. Chem & Eng N 42:36 Ap 13 '64

BAIRSTOW, Leonard
Obituary. J. L. Pritchard and J. L. Nayler. bibliog Roy Aeronautical Soc J 68:sup 44-6 My '64

BAKED products
Adapted idea generates economy package. F. P. Mueller. il diag Food Eng 36:76-8 Je '64
Streamlines bun packing; National baking co. J. Glyman. il Food Eng 36:64-5 Mr '64
Wafers go commercial; Bulgur wafer. il Food Eng 36:99 Jl '64
See also
Pies

BAKERS and bakeries
Courses for the bakery trade; abstract. E. J. Neal. Chem & Ind p396-7 Mr 7 '64
Selecting a plant site. M. Fulton. diag Food Eng 36:51-3 S '64

Control equipment

Baking by computer control; new Sara Lee bakery. diag Food Tech 17:1374-5+ N '63
British manufacturer is investigating small bakery automation. il Automation 11:43-4 F '64
How Sara Lee tackled computerized handling. G. C. Thomas. diag Mod Materials Handling 19:34-7 Ag '64
Rumanian automatic bakery equipment. il Ind Electronics 2:477 O '64
Take two tons of flour; Nabisco's batching system controlled by computer. L. S. Gomolak. il diags Electronics 37:82-9 Ap 20 '64
Tomorrow's plant today; Kitchens of Sara Lee. il plan Food Eng 36:68-71 S '64

Equipment

Bulk handling scores again; Mother's cake & cookie co. H. M. Lauritzen and G. Beal. il diag Food Eng 36:98 Ap '64
Centralized handling steps up distribution; Nabisco's panel-controlled conveyor system. il diag Food Eng 36:93+ F '64
Efficient circulation system improves tank cleaning at Koester bakery. flow diag il diag Food Eng 36:56-7 F '64
Multi-purpose refrigeration plant serves modern bakery. R. C. Dannenberg. il Gas 40:101-3 Jl '64; Same. Food Eng 36:95-7 S '64
Nabisco's tunnel cools product efficiently. il Food Eng 35:54-5 D '63
Optimizes continuous mixing. il diags Food Eng 36:102 Ap '64
Special pumps key to portable pan greaser. R. Broomall. il Automation 10:75 N '63
Streamlines bun packing; National baking co. J. Glyman. il Food Eng 36:64-5 Mr '64
Tow cart system serves multiple shipping areas. flow diag il Automation 11:80 Mr '64
Unit collectors solve dust problem. il Safety Maint 128:43+ S '64
Unusual handling features evolved for big freezer. diag Plant Eng 18:132 F '64
See also
Dough mixers

Lighting

Design for a bakery. il Illum Eng 59:159 Mr '64

Safety measures

Everyone works in safety; Interstate Chicago bakery. Food Eng 36:82-4 F '64

BAKING
Studies of the nutritive loss of supplemental lysine in baking. G. R. Jansen and others. bibliog Food Tech 18:367-75 Mr '64

BALANCES
Combination recording sorption balance and extensometer. H. Roper and J. G. Bryden. diags J Sci Instr 41:84-7 F '64
Direct-reading two knife 50-pound balance of high precision suitable for state weights and measures laboratories. H. E. Almer and others. bibliog il J Res Nat Bur Stand 68C:141-54 Jl '64
Disturbances arising from thermal transpiration in microbalance experiments. J. A. Poulis and J. M. Thomas. bibliog diags J Sci Instr 40:95-100 Mr '63; Discussion. J. B. Moser. 40:546 N '63
Errors in vacuum microbalances caused by unequal thermal expansion of the balance arms. C. H. Massen and others. bibliog diags J Sci Instr 41:302-7 My '64
Improved recording vacuum balance. M. R. Harris. diags J Sci Instr 41:163-6 Mr '64
Response of highly precise balances to thermal gradients. L. B. Macurdy. bibliog il diags J Res Nat Bur Stand 68C:135-40 Jl '64
Simple laboratory device for winding fused quartz springs and an improved design of spring for use in sorption balances. C. T. Hawkins and J. W. G. Musty. diags J Sci Instr 40:544-5 N '63
Simple remotely operated quartz spring recording balance. A. Landsberg. diag J Sci Instr 41:337-8 My '64
Soap plant observer; balances and scales. W. J. Beach. il diags Soap & Chem Spec 40:155-6+ F; 161-2 Mr '64
Spring microbalance for magnetic susceptibility, adsorption, and thermogravimetric studies. L. N. Mulay and L. K. Keys. bibliog diag Anal Chem 36:2383-4 N '64
Surface balance for production of rapid changes of surface area with continuous measurement of surface tension. R. M. Mendenhall and A. L. Mendenhall, jr. bibliog il diags R Sci Instr 34:1350-2 D '63
Vapor pressure measurements at high temperatures using a recording microbalance. P. D. Zavitsanos. diags R Sci Instr 35:1061-3 Ag '64
Vibration isolation of knife-edge balances. J. A. Macinante and J. Waldersee. bibliog diags J Sci Instr 41:1-6 Ja '64
See also
Torsion balances

BALANCING machines
Avery dynamic balancing machines. il Engineering 197:322-4 F 28 '64
Dynamic balancing machine. il Engineer 217: 319 F 14 '64
Dynamic balancing machine from standardised sub-assemblies. il Engineer 217:1004 Je 5 '64
Dynamic balancing machines. il Automobile Eng 54:444-5 O '64
Dynamic balancing machines. D. E. Tyzack. il diags Ind Electronics 1:789-92 D '63
Machine speeds balancing of turbine rotors. il Marine Eng/Log 69:22L Ja '64
Pedestal re-design on a dynamic balancing machine. J. T. Sidaway. il diag Engineer 217:903-5 My 22 '64
Shipyard install dynamic balancer. il Ind Electronics 2:16 Ja '64
Vertical-axis dynamic balancing. il Engineer 218:68 Jl 10 '64

BALANCING of machinery
Balancing loaded linkages. D. C. Tao. diags Machine Design 36:151-6 Ap 9 '64
Better balance for future aero-engines. il diag Engineering 197:526 Ap 10 '64
Crank sequence for least external unbalance. J. C. Maltbaek. diags Engineer 218:168-70 Jl 31 '64
Dynamics of synchronous-precessing turborotors with particular reference to balancing. T. M. Tang and P. R. Trumpler. diags A S M E Trans ser E 31:115-22 Mr '64
Gas turbine aero engine rotor balance and vibration. K. S. Hodgkinson. il diags Aircraft Eng 36:218-20 Jl '64

BALANCING of machinery—*Continued*

Hall multipliers balance crankshafts. N. C. Sethne. diag Control Eng 11:117 S '64

In-line balancing machine; Volkswagenwerk. il Automation 11:43 My '64

Least-squares method for computing balance corrections. T. P. Goodman. diags A S M E Trans ser B 86:273-7; Discussion. 278-9 Ag '64

On-the-line balancing of rotating machines. J. Vande Vegte. diags Control Eng 11:91-4 Mr '64

Some recent research on the balancing of large flexible rotors. A. L. G. Lindley and R. E. D. Bishop. bibliog il diags Inst Mech Eng Proc 177 no 30:811-26; Discussion. 827-38; Reply. 839-41 '63

See also

Balancing machines

BALCONIES

Balconies organized as facade pattern; Sunset Heights. il plan Arch Rec 136:114-15 Ag '64

Plastic analysis of circular balcony girders. K. H. Chu and A. Thelen. bibliog diags Am Soc C E Proc 89 [ST 6 no 3726]:159-86 D '63; Discussion. L. W. Lu. 90 [ST 3 no 3940]:415-16 Je '64

BALL bearings. See Bearings, Ball

BALL mills

Grinding low-soda alumina. L. D. Hart and L. K. Hudson. il Am Cer Soc Bul 43:13-17 Ja '64

Ni-Hard cast iron, an improved material for grinding media. A. J. Rickard. il Engineer 217:559-61 Mr 27 '64

BALLAST tubes. See Electric resistors

BALLISTIC missiles. See Guided missiles

BALLISTICS

Direct observation of instrument ballistics. R. G. Fulks and H. C. Littlejohn. bibliog diags IEEE Trans Com & Electronics p639-42 N '63

Example of hole diameter in thin plates due to hypervelocity impact. R. F. Rolsten and others. bibliog J Ap Phys 35:556-9 Mr '64

See also

Guns

Projectiles

BALLOONS

Air arm a century ago. H. Stagnito. il diags Comp Air Mag 69:10-13 Je '64

New technique uses balloons to string line conductors over Japan's Inland Sea. il Power Eng 67:45 D '63

Operation skyhook, a new method of logging timber. il Paper Ind 46:579-80 O '64

Vee-balloons for transporting logs over mountainous terrain. il Product Eng 35:57 O 12 '64

BALLOONS, Meteorological

First flight of Stratoscope II. R. E. Danielson. bibliog il diags Am Scientist 51: 375-99 D '63

Simple balloon technique for measuring the radiation patterns of radio aerials. C. S. L. Keay and R. E. Gray. il diags Electronic Eng 36:322-5 My '64

BALLS, Plastic

How soft balls can simplify design; drawings. R. O. Parmley. Product Eng 35:102-3 Je 22 '64

BALLS, Rubber

Rubber balls find many jobs; drawings with text. R. O. Parmley. Product Eng 34:56-7 D 23 '63

BALLS, Steel

Amateur scientist; tests with rolling balls. R. Hayward. diags Sci Am 211:103-6 Ag '64

Statistics with steel balls. il Ind Electronics 2:466 O '64

Manufacture

How steel balls are made. L. H. Bobbitt. diags Am Mach 108:86-8 Ag 17 '64

BALSA

Fabrication of aluminum balsa. il Light Metal Age 21:5 D '63

Model balsa-wood bridges in education. B. C. Ringo. il Civil Eng 34:48-9 F '64

Sandwich; balsa on aluminum. il Mech Eng 86:57 My '64

BALTIC SEA

Long bridge may span the Baltic; would link Denmark and Germany. il map Eng N 172:82 My 21 '64

See also

Petroleum—Baltic Sea

BALTIMORE

Architecture

Private supplement to a civic undertaking; Blaustein building. il plans diag Prog Arch 45:132-7 Mr '64

BAMBOO

Standard cold-soda pulping evaluation of Philippine woods and bamboos. P. M. Nicolas and J. R. Navarro. Tappi 47:98-105 F '64

BANANAS

Modern banana processing facilities. R. P. Post, jr. diags ASHRAE J 6:46-8 Je '64

United Fruit places emphasis on research to improve earnings. Food Tech 18:1185-6+ Ag '64

BAND spectra. See Spectrum—Band spectra

BANDY, Mark Chance

Memorial; with bibliography of his publications. G. Switzer. por Am Mineralogist 49: 464-8 Mr '64

BANGOR, Maine

Streets

Parking plaza provided by channel improvement. J. R. Coupal, jr. and P. D'Errico. il Pub Works 95:121-2 O '64

BANK buildings

Bank capitalizes on unique design. il Arch Rec 135:260 F '64

Bank loses seven stories, gains annex. il Eng N 173:15 Jl 30 '64

City federal savings and loan assn., Union, N.J. and Perpetual savings and loan assn. branch, Los Angeles. il plans Arch Rec 136: 154-5 O '64

Different kind of skyscraper; First Pasadena state bank, Pasadena, Tex. il plans Arch Forum 120:122-5 Mr '64

Economical office tower. il plans diags Arch Rec 135:153-6 My '64

New banking building preserves older structure. il Prog Arch 45:75 Mr '64

Philadelphia savings fund society building. W. H. Jordy and H. Wright. il diags Arch Forum 120:124-9+ My '64

P/A eleventh annual design awards; United California bank building, Palo Alto. il plans diag Prog Arch 45:122-3 Ja '64

Sculptured piers support office tower. il plans Prog Arch 45:76 Ap '64

Small banks. il plans Arch Rec 135:117-32 Ja '64

Small banks, a credit to their communities. il plans diags Prog Arch 45:120-39 Jl '64

Stronger steels cut column cost. il Eng N 173:171 S 17 '64

Two banks invest in design and draw eye interest. il Eng N 173:20 S 3 '64

Uncambered truss cuts stresses. il plan Eng N 172:138+ Mr 19 '64

Yamasaki puts bank behind bars. il Eng N 173:19 N 5 '64

Air conditioning

Recover gas engine heat to supplement heat pump. J. B. Olivieri. diag Heating-Piping 35:119-22 N '63

Heating and ventilation

Recover gas engine heat to supplement heat pump. J. B. Olivieri. diag Heating-Piping 35:119-22 N '63

Lighting

Bank lighting features semi-indirect system. W. Miller. il diag Elec Constr & Maint 63: 109 S '64

Relighting a high-bay banking area. H. J. Chindlund and O. Hill. il diags Elec Constr & Maint 63:88-91 Ap '64

Team work for a distinctive bank installation. il Illum Eng 59:528-9 Ag '64

Two views of bank lighting. il Illum Eng 59:394-8 sec 2 My '64

BANK loans. See Loans, Bank

BANKS and banking

See also

Checks

Drive-in and curb services

See Drive-in and curb services

BANTUS. See South Africa—Native races

BARBITURATES

Comparing barbiturates. Drug & Cosmetic Ind 93:889 D '63

BARBITURIC acid

Effect of barbituric acid, chlortetracycline and carbohydrates upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 82: 93-8 Ja '64

X-ray fluorescence spectrometric analysis of rubidium(I) and cesium(I) salts of 5-nitrobarbituric acid. K. E. Daugherty and others. Anal Chem 36:2372-3 N '64

See also

Thiobarbituric acids

BARBITURIC acid—*Continued*

Analysis

Identification of the pyrolyzates of substituted barbituric acids by gas chromatography. D. F. Nelson and P. L. Kirk. bibliog Anal Chem 36:875-8 Ap '64

BARCHANS. See Sand dunes

BARGES

Barge industry plays major role in Tennessee Valley economy. B. B. Carr. Marine Eng/Log 68:95 D '63

Barge owners see bright future in coal transport to utility power plants. il Elec World 162:20-2 Ag 17 '64

Barge rig digs faster on land than water. il Eng N 173:32-3 S 24 '64

California firm uses dredge-barge setup to dredge and deliver sand. il Pit & Quarry 57:44 S '64

Combination deck and tank barges for Puerto Rico being delivered by Dravo. il Marine Eng/Log 69:55 Ja '64

Hopper-type dump barges converted to dredges at Bethlehem Steel's yard. il Marine Eng/Log 69:44A-44B S '64

How to dredge with a barge. il Eng N 173:41 S 3 '64

Kenai, Seattle-Alaska train barge is launched at Alameda. il Marine Eng/Log 69:41 F '64

McAllister sees resurgence in New York harbor barge traffic. il Marine Eng/Log 70:61 My '64

Mooring system prevents anchor-chain breakage; oil-storage barge is connected by two nylon ropes to the carousel buoy. il Oil & Gas J 62:115 O 19 '64

National marine reefer barges have 5000-ton payload. il Marine Eng/Log 69:43 Je '64

New self-dumping scow announced by Manitowoc. il Marine Eng/Log 69:75 Ap '64

Power plant on barge is floated to operating site. T. D. Coyne and F. Mele. il diag Power Eng 67:49-51 N '63

Willow trees a mooring do not make. Marine Eng/Log 69:59 Mr '64

See also

Loading and unloading—Barges

Tank barges

BARGES, Aluminum

Aluminum wants transport market; metal's use grows in highway, rail and marine hauling. P. J. Cathey. il Iron Age 193:88-9 F 20 '64

Avondale delivers largest aluminum barge. il Marine Eng/Log 69:56 Ja '64

200 tons of aluminum used in big barge. il Mod Metals 19:74 D '63

Why aluminum for barge construction? C. W. Leveau. il plan Marine Eng/Log 69:67-9 Ap '64

BARGES, Oil well drilling

Biggest inland barge boasts 6,000 hp. F. Manning. il Oil & Gas J 62:108-10 Jl 6 '64

Blue Water launches part of rough-water barge. il Oil & Gas J 62:61 Mr 9 '64

Drilling barges slated for action off S.E. Australia. map Oil & Gas J 62:127 Je 15 '64

Drilling vessel remodeled, renamed. il Oil & Gas J 61:203 D 2 '63

Marine drilling and well completions from floating platforms. C. M. Shields. bibliog diag J Pet Tech 16:605-9 Je '64

New barge to tackle deepest water yet. il Oil & Gas J 62:54 Jl 13 '64

New drill barge packs a lot of muscle. L. C. Rogers. il diags Oil & Gas J 61:155+ D 30 '63

Penrod unveils new electromechanical rig. L. C. Rogers. il Oil & Gas J 62:144-6 Ap 27 '64

Western Offshore 3 ready to drill in 600 ft of water. T. Armstrong. il Oil & Gas J 62:128-30 Ag 17 '64

See also

Petroleum—Offshore drilling structures

BARITE

Barite, 1963. R. Rowand. Eng & Min J 165:149-50 F '64

Barite zoning in the Illinois-Kentucky fluorspar district. E. A. Brecke. maps Econ Geol 59:299-302 Mr '64

Kinetics of a replacement reaction. L. L. Ames, jr. bibliog diags Econ Geol 58:1229-36 D '63

BARIUM

Analysis

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

(Ethylenedinitrilo)tetraacetic acid titration of barium in presence of other alkaline earth elements. H. F. Combs and E. L. Grove. Anal Chem 36:400-2 F '64

BARIUM carbonate

Synthesis of $MBa(CO_3)_2$ compounds. L. L. Y Chang. Am Mineralogist 49:1142-3 Jl '64

BARIUM compounds

Polymerization in the crystalline state; electron spin resonance study of the propagating species in a polymerizing single crystal of barium methacrylate dihydrate. J. H. O'Donnell and others. bibliog Am Chem Soc J 86:2322-5 Je 20 '64

Spectrophotometric micro and submicro determination of sulfur in organic substances with barium chloranilate. P. Stoffyn and W. Keane. Anal Chem 36:397-400 F '64

Systems $BaO-MgO-P_2O_5$ and $BaO-ZnO-P_2O_5$ compounds and fluorescence. M. V. Hoffman. diags Electrochem Soc J 110:1223-7 D '63

Thermal decomposition of some substituted barium titanyl oxalates and its effect on the semiconducting properties of the doped materials. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 46:567-73 D '63

BARIUM ferrate

Better materials make permanent magnet stronger. Materials in Design Eng 59:135+ Mr '64

Rubber-bonded permanent magnets. diags Electro-Tech 74:99-102 Ag '64

BARIUM hydroxide

Conductometric determination of carbon using carbonate-saturated barium hydroxide absorbent. E. J. Violante. bibliog Anal Chem 36:856-8 Ap '64

BARIUM nitrate

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

BARIUM silicates

Cymrite in a copper deposit, Brooks Range, Alaska. D. D. Runnells. bibliog il Am Mineralogist 49:158-65 Ja '64

Phase relations between cymrite, $BaAlSi_3O_8(OH)$, and celsian, $BaAl_2Si_2O_8$. Y. Seki and G. C. Kennedy. diag Am Mineralogist 49:1407-26 bibliog(p 1425-6) S '64

BARIUM sulfate

New applications of the Wohlers effect in spot test analysis. F. Feigl and others. Anal Chem 36:1657-9 Jl '64

Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64

See also

Barite

BARIUM titanate

Accurate determination of the ordinary-ray refractive index in $BaTiO_3$. W. N. Lawless and R. C. DeVries. bibliog J Ap Phys 35:2638-9 S '64

Barium titanates with improved insulation resistance and time constant. S. R. Hoh. and F. E. Pirigyi. bibliog Am Cer Soc J 46:516-18 N '63

Determination of the oxygen nonstoichiometry in barium titanate. J. Novák and H. Arend. Am Cer Soc J 47:530 O '64

Electrical conductivity of niobium-doped barium titanate. F. Brown and C. E. Taylor. J Ap Phys 35:2554-6 Ag '64

Electrostrictively generated and modulated fracture in barium titanate ceramics. G. Goodman. il J Ap Phys 35:2725-6 S '64

Etch pits in $BaTiO_3$ single crystals. W. S. Rothwell. il Am Cer Soc J 47:409-11 Ag '64

Floating-zone $BaTiO_3$: preparation and properties. F. Brown and W. H. Todt. bibliog il diags J Ap Phys 35:1594-8 My '64

Growth of single crystals of $BaTiO_3$ by exaggerated grain growth. R. C. DeVries. il diag Am Cer Soc J 47:134-6 Mr '64

Microcrystalline $BaTiO_3$ by crystallization from glass. A. Herczog. bibliog il diag Am Cer Soc J 47:107-15 Mr '64

Nucleation and growth of ferroelectric domains in $BaTiO_3$ at fields from 2 to 450 kv/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il diag J Ap Phys 34:3255-60 N '63

Random nucleation of new domains in $BaTiO_3$ crystals at 20 kV/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il J Ap Phys 35:2625-8 S '64

BARIUM titanate—*Continued*

Resistivity anomaly in doped barium titanate. W. Heywang. bibliog il diags Am Cer Soc J 47:484-90 O '64

Temperature dependence of 180° domain wall velocity in $BaTiO_3$. H. L. Stadler and P. J. Zachmanidis. bibliog il J Ap Phys 35:2895-9 O '64

BARIUM zirconate

Barium zirconate modified with lanthanum, a high-temperature capacitor dielectric. J. Koenig and B. Jaffe. bibliog Am Cer Soc J 47:87-9 F '64

BARK

Dirt contribution values for natural dirt in red oak chips; sulfate digestion. J. Piper and others. il Tappi 47:368-71 Je '64

Extracts and reaction products from bark. W. J. Burgon. Tappi 47:sup 124A-6A My '64

Further studies on the isolation of glucosides from the barks and leaves of populus tremuloides and populus grandidentata. I. A. Pearl and S. F. Darling. bibliog Tappi 47:377-80 Je '64

(+)-Tembetarine. [N-methyl-(+)-reticuline] in fagara species; oxidation to (+)-laurifoline. S. M. Albonico and others. bibliog Chem & Ind p 1580-1 S 12 '64

BARKHAUSEN effect

Spectrum of Barkhausen noise for periodic magnetisation of ferromagnetic materials in bulk. K. G. Warren and K. B. Reed. bibliog diags Inst E E Proc 111:387-92 F '64

BARLEY

Oxidation of dry products of oats and barley. H. Astrup. Chem & Ind p 107-8 Ja 18 '64

BARNACLES

Upper limit of barnacles as an index of sea-level change on the New England Coast during the past 100 years. C. A. Kaye. bibliog J Geol 72:580-600, pl 1-3 S '64

BARNESITE. See Sodium vanadate

BARNS and stables

Air conditioning

Livestock environments. T. E. Hazen and G. L. Hahn. bibliog ASHRAE J 6:64-7 Jl '64

Heating and ventilation

Livestock environments. T. E. Hazen and G. L. Hahn. bibliog ASHRAE J 6:64-7 Jl '64

BAROMETERS

Barometers measuring up. il Product Eng 35:65 O 12 '64

BARREL finishing. See Tumbling barrels

BARRELENE. See Bicyclooctatriene

BARRELS, Plating. See Plating barrels

BARRIER creams. See Ointments

BARROW, Geoffrey

Memorial. O. C. Wheeler. por Am Assn Pet Geologists Bul 48:730-1 My '64

BARS, Metal. See Metal bars

BARTON, Henry A.

Compton medal; presentation and response. pors Phys Today 17:54-6 Mr '64

BARTON reaction

Mechanism of the Barton reaction. M. Akhtar and M. M. Pechet. bibliog Am Chem Soc J 86:265-8 Ja 20 '64

BARYSILITE. See Lead silicates

BASALT

Chemical definition of alkali basalts and tholeiites. A. Poldervaart. bibliog diags Geol Soc Bul 75:229-32 Mr '64

Potassium-argon dates of three pleistocene interglacial basalt flows from the Sierra Nevada, California. G. B. Dalrymple. bibliog map Geol Soc Bul 75:753-7 Ag '64

BASCULE bridges. See Bridges, Bascule

BASEBALL stadiums. See Stadiums

BASEMENTS

This rain, it's plain, didn't go down the drain; a refreshing course on what to do about leaky basements. Dom Eng 203:82-3 F '64

BASES (chemistry)

Anomalous formation of Lewis salts from bases and protonating acids. D. Cook. bibliog Chem & Ind p 1259 Jl 11 '64

Base-ctatalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Hard and soft acids and bases. R. G. Pearson. bibliog diags Am Chem Soc J 85:3533-9 N 20 '63

Hydrogen exchange of azulenes; acid-base equilibria in aqueous solutions. F. A. Long and J. Schulze. bibliog Am Chem Soc J 86:327-31 F 5 '64

Interaction and association of bases and nucleosides in aqueous solutions. P. O. P. Ts'o and S. I. Chan. bibliog Am Chem Soc J 86:4176-88 O 5 '64

Mechanism of the base-catalyzed addition of thiols to maleic anhydride. B. Dmuchovsky and others. bibliog Am Chem Soc J 86:2874-7 Jl 20 '64

Mercury(II) complexes of guanidine and ammonia, and a general discussion of the complexing of mercury(II) by nitrogen bases. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4325-9 O 20 '64

Organometallic azides are Lewis bases; abstract. J. S. Thayer and R. West. Chem & Eng N 42:53 Ap 20 '64

Salt effects and medium effects on indicator acid-base equilibria in a methanol-water solvent. D. Rosenthal and others. bibliog Am Chem Soc J 86:549-54 F 20 '64

Solvent deuterium isotope effects on acid-base equilibria. P. Salomaa and others. bibliog Am Chem Soc J 86:1-7 Ja 6 '64

Solvent effects in organic chemistry; the failure of tertiary aromatic amines as Hammett bases. E. M. Arnett and G. W. Mach. bibliog Am Chem Soc J 86:2671-7 Jl 5 '64

Theories of acids and bases. G. T. Austin and H. F. Austin. bibliog diag Chem Eng 71:105-8+ Ag 3 '64

Wool fabric stabilization by interfacial polymerization; improvement through the use of strong bases. W. L. Wasley and others. Textile Res J 34:736-8 Ag '64

See also

Schiff bases

BASIC brick. See Fire brick

BASICITY

Factors influencing the basicities of triarylcarbinols: the synthesis of sesquixanthydrol. J. C. Martin and R. G. Smith. bibliog Am Chem Soc J 86:2252-6 Je 5 '64

Influence of basicity of benzylic carbanion on the *ortho*-substitution rearrangement of certain α-carbonyl benzyltrimethylammonium compounds. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1108-10 Mr 20 '64

Lewis basicity of a transition metal: a boron trifluoride adduct of biscyclopentadienyltungsten dihydride. D. F. Shriver. diag Am Chem Soc J 85:3509-10 N 5 '63

Protonation of indoles; basicity studies: the dependence of acidity functions on indicator structure. R. L. Hinman and J. Lang. bibliog Am Chem Soc J 86:3796-806 S 20 '64

Use of basicity and oxidative coupling potential to obtain group electronegativity. D. H. McDaniel and A. Yingst. bibliog Am Chem Soc J 86:1334-6 Ap 5 '64

BASOLO, Fred

American chemical society award in inorganic chemistry. por Chem & Eng N 42:86 Mr 23 '64

BAST fibers

See also

Jute

BASTNAESITE

Fluorite-bastnaesite deposits of the Gallinas Mountains, New Mexico and bastnaesite paragenesis. R. M. Perhac and E. W. Heinrich. il map Econ Geol 59:226-39 bibliog (p238-9) Mr '64

BASTOW, Stewart H.

Obituary. I. W. Wark. por Chem & Ind p827-8 My 16 '64

BATABANO, Gulf of

Foraminiferal biofacies in sediments of Gulf of Batabano, Cuba, and their geologic significance. O. L. Bandy. bibliog maps Am Assn Pet Geologists Bul 48:1666-79 O '64

Molluscan biofacies in calcareous sediments, Gulf of Batabano, Cuba. C. W. Hoskins. bibliog il maps Am Assn Pet Geologists Bul 48:1680-704 O '64

BATH oil. See Bath preparations

BATH preparations

Aerosol bath powders. il Soap & Chem Spec 40:105-7 O '64

Basic bubble bath powder formulations. Soap & Chem Spec 39:157 N '63

Cosmetic and therapeutic application of oil during bathing. R. Haensch. Am Perfumer 79:29-30 Jl '64

Formulation of bubble baths, liquid and paste. C. Sass. Soap & Chem Spec 40:160 F '64

Liquid bubble bath preparations. Soap & Chem Spec 40:180 Ja '64

BATHING

Are our criteria for bathing-water pollution valid? D. L. Muss. Civil Eng 33:37-8 N '63

Water quality for sea bathing; abstract. M. Flynn. WPCF J 36:308-9 Mr '64

BATHOLITHS
Stability relations of carbon mineral assemblages in the southern California batholith. R. F. Mueller and K. C. Condie. bibliog maps J Geol 72:400-11, pl 1-2 Jl '64

BATHROOM fixtures
Order of the bath. il plans diags Dom Eng 204:sup OB A-X O '64
Products for the bath; illustrations with text. Dom Eng 204:70-1+ O '64

BATHS (chemical apparatus)
Combined heater and stirrer; installed in universal water bath. il Engineer 216:1073 D 27 '63
Inexpensive laboratory oil bath. C. J. H. Monk. il Chem & Ind p925-6 My 30 '64

BATHS, Shower. See Shower baths

BATHS, Vapor
Residential steam baths. il diags Dom Eng 203:59-67 Ja '64

BATHTUBS
Osuro; polypropylene selected for Japanese fixture. il Plastics World 22:38 Jl '64

BATHTUBS, Plastic
Acrylic for tubs; high style, low cost. K. B. Bartlett. il diag Mod Plastics 41:106-7+ My '64

BATHYSCAPH
Buoyancy systems for deep submergence structures. E. C. Hobaica. bibliog Naval Eng J 76:733-41 O '64
Side-looking sonar provides new eyes for Trieste. il Machine Design 36:10 S 10 '64
Trieste II. L. A. Shumaker. il Naval Eng J 76:513-19 Ag '64

BATTERIES, Electric. See Electric batteries

BAUER, Edmond
Obituary. K. K. Darrow. por Phys Today 17:86-7 Je '64

BAUSCHINGER effect
Bauschinger effect in explosively loaded mild steel. O. E. Jones and J. R. Holland. bibliog diag J Ap Phys 35:1771-3 Je '64

BAUXITE
Bauxite deposits of British Guiana and Surinam in relation to underlying unconsolidated sediments suggesting two-step origin. J. H. Moses and W. D. Michell. il maps diags Econ Geol 58:250-62 Mr '63; Discussion. 58:1002-8, 1160-2; 59:161-2 S-N '63, Ja '64
Critical factors in the genesis, extent, and grade of some residual bauxite deposits. P. L. C. Grubb. bibliog diag Econ Geol 58:1267-77 D '63
Geochemical approach to the problem of bauxite genesis in British Guiana. G. Harden and J. H. Bateson. bibliog diag Econ Geol 58:1301-8 D '63
Growth seen for bauxite, alumina and metal. il map Min Eng 16:111-16 O '64
Industrial engineering, inventory control, maintenance at Jamaica's mines. M. Eigo. il Eng & Min J 165:112-14 My '64
Jamaica keeps growing; two new projects will boost bauxite shipments to the U.S. M. Eigo. il maps diags Eng & Min J 165:50-7 Ja '64
Jamaica; planning for versatile mining. M. Eigo. flow sheet il map diag Eng & Min J 165:78-84 Mr '64
See also
Alumina
Boehmite
Laterite

BEACH, Floyd Kellogg
Memorial. J. S. Irwin. por Am Assn Pet Geologists Bul 48:1593-4 S '64

BEACH architecture
Dining pavilion over water. il plan Arch Rec 136:208-9 S '64
Restaurant on the beach at Waikiki. il Arch Rec 136:214-15 S '64
South Pacific long house on waterfront. il plan Arch Rec 136:216 S '64
Three vacation houses by Wurster. il plans Arch Rec 136:221-4 S '64

BEACHES
Ages of zircon and feldspar concentrates from North American beach and river sands. D. Ledent and others. bibliog map J Geol 72:112-22 Ja '64
Model tests of coastal protective structures in USSR. O. W. Kabelac. diags Am Soc C E Proc 89 [WW 1 no 3433]:21-34 F '63; Discussion. P. P. Goldstern. 89 [WW 4 no 3703]:99-102 N '63; Reply. 90 [WW 2 no 3917]:29-32 My '64
Study of beach pollution in tidal waters; abstract. H. R. Oakley. WPCF J 36:316 Mr '64
Whale of a problem. J. Creisler. Pub Works 95:80-1 Ja '64
See also
Shore lines

BEACONS
Nuclear navigational beacon. diags Mech Eng 86:57 F '64
Plastics and electronics for sea lights. il Engineering 197:589 Ap 24 '64
Stone-Chance marine lighting. il diags Engineering 197:386-8 Mr 13 '64
Sunken SNAP beams out navigational signals. il diag Machine Design 36:8 Ag 13 '64
See also
Radio beacons

BEADS, Glass. See Glass beads

BEADS, Plastic. See Plastic beads

BEAMS and girders
Analysis and design of a cantilever staircase. P. L. Gould. il diags Am Concrete Inst J 60:881-99 Jl '63; Discussion. 61:1945-8 Mr '64
Analysis of composite beam bridges by orthotropic plate theory. V. Vitols and others. bibliog diags Am Soc C E Proc 89 [ST 4 no 3584]:71-94 Ag '63; Discussion. K. H. Chu and G. Krishnamoorthy. 90 [ST 1 no 3812]:247-50 F '64; Reply. 90 [ST 5 no 4066]:199-201 O '64
Analysis of laterally loaded gridworks. T. Wah. Am Soc C E Proc 90 [EM 2 no 3865]:83-106 Ap '64
Anchor zone stresses in prestressed concrete beams. P. K. Som and K. Ghosh. bibliog diags Am Soc C E Proc 90 [ST 4 no 3996]:49-62 Ag '64
Automatically-welded steel beams. il Engineer 216:1034 D 20 '63
Beam column experiments. R. C. Van Kuren and T. V Galambos bibliog il diags Am Soc C E Proc [ST 2 no 3876]:223-56 Ap '64
Behavior of prestressed composite steel beams. P. G. Hoadley. diags Am Soc C E Proc 89 [ST 3 no 3534]:21-34 Je '63; Discussion. 89 [ST 6 no 3743]:453 D '63; 90 [ST 1 no 3812]:231-3 F '64
Behavior of reinforced concrete beams with closely spaced reinforcement. J. P. Romualdi and G. B. Batson. bibliog il diags Am Concrete Inst J 60:775-90 Je '63; Discussion. 60:1901-12 D '63
Bending moments of continuous beams. S. Kravitz. Product Eng 35:107-8 My 11 '64
Cantilever roof spans 197 ft; (Alitalia's) new service hangars at Fiumicino airport. il Eng N 173:29 O 29 '64
Cantilevered stands carry round arena's long-span roof. il diag Eng N 173:26-7 O 29 '64
Circularly curved beams transversely loaded. P. J. Spyropoulos. diags Am Concrete Inst J 60:1457-70 O '63; Discussion. 61:2045-52 pt 2 Je '64
Computer verifies beam design; advances capacity of lightweight storage racks L. Hall. il diags Iron Age 193:76-7 My 7 '64
Curved beams. C. G. B. Mitchell. diags Roy Aeronautical Soc J 68:134-7 F '64
Deflection and slope of beams with varying I. O. Ondra. diags Am Soc C E Proc 89 [ST 1 no 3409]:25-48 F '63; Discussion. 89 [ST 3 no 3560]:217-21 Je; [ST 5 no 3688]:301-27 O; [ST 6 no 3743]:429-33 D '63; Reply. 90 [ST 3 no 3940]:349-71 Je '64
Deflection of circular curved I-beams. R. A. Close. diags Am Soc C E Proc 90 [ST 1 no3804]:203-7 F '64; Discussion. 90 [ST 5 no 4066]:221-7 O '64
Deflections of prestressed concrete members. diags Am Concrete Inst J 60:1697-728 bibliog(p 1726-7) D '63; Discussion. 61:2071-7; Reply. 2078-9 pt 2 Je '64
Deformations and stresses in an axially restrained beam. H. Switzky. AIAA J 2:109-10 Ja '64
Design, fabrication and construction of the Calcasieu River bridge. J. Karol. il maps diags Welding J 42:867-80 N '63
Design of haunched beams by fixed points. S. E. Huey. diags Am Soc C E Proc 90 [ST 2 no 3858]:13-29 Ap '64
Die cutting cuts cost of open-web beams. L. Kates. il diags Civil Eng 34:40-2 Jl '64
Discrete dynamic models for elasto-inelastic beams. R. K. Wen and T. Toridis. bibliog diags Am Soc C E Proc 90 [EM 5 no 4081]:71-102 O '64
Double-cantilever cleavage mode of crack propagation. P. P. Gillis and J. J. Gilman. bibliog diags J Ap Phys 35:647-58 Mr '64
Dynamic analysis of inelastic multi-degree systems. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 89 [EM 6 no 3730]:193-215 D '63
Dynamic response of lattice-type structures. B. S. Berger and S. Shore. diag Am Soc C E Proc 89 [EM 2 no 3484]:47-70 Ap '63; Correction. 90 [EM 1 no 3811]:159 F '64

BEAMS and girders—*Continued*

Eigen-matrix method for beams and plates. B. Tanimoto. bibliog diags Am Soc C E Proc 89 [ST 5 no 3681]:173-215 O '63; Discussion. K. T. Sundara Raja Iyengar. 90 [ST 2 no 3886]:401 Ap '64; Reply. 90 [ST 6 no 4157]:309-14 D '64

Error statistics for reinforced concrete beams. T. Zsutty. bibliog Am Soc C E Proc 89 [ST 6 no 3732]:235-70 D '63; Discussion. 90 [ST 4 no 4001]:321-3 Ag '64

Experimental and theoretical investigation of the plastic deformation of cantilever beams subjected to impulsive loading. S. R. Bodner and P. S. Symonds. bibliog il diags A S M E Trans ser E 29:719-28 D '62; Discussion. 30:637-8 D '63

Fabricated beams demand further welding. il Engineering 198:215 Ag 14 '64

Finite beam-columns on elastic foundation. K. T. Sundara Raja Iyengar and S. Anantharamu. diags Am Soc C E Proc 89 [EM 6 no 3720]:139-60 D '63; Discussion. 90 [EM 2 no 3882]:257-9 Ap; [EM 3 no 3936]:289-90 Je '64; Reply. 90 [EM 6 no 4160]:249-52 D '64

Flexure of perpendicular mutually supported cantilevers. P. J. Spyropoulos. diags Am Concrete Inst J 61:231-8 F '64; Discussion. 61:1211-12 S '64

Flow graph of moment distribution. C. C. Feng and R. D Benton bibliog diags Am Soc C E Proc 90 [ST 2 no 3870]:153-77 Ap '64

Formwork: time-saver standards. S. Howard. diags Arch Rec 136:254 S '64

Free lateral oscillations of a supported grillage. T. Wah. diags Franklin Inst J 277: 349-60 Ap '64

Free-standing stairs. F. Sauter. bibliog diags Am Concrete Inst J 61:847-70 Jl '64

Girders rest on elastomeric pads. il diag Eng N 172:101 Ap 2 '64

Glulam timber beams stiffened with steel. il Engineering 198:260 Ag 28 '64

Graphical method for determining reactions and bending moments in beams; data sheet. R. Feng. diag Machine Design 36:191-4 F 13 '64

How do you find answers when several concentrated loads act on a beam? S. Kravitz. Product Eng 35:137-8 F 17 '64

How to calculate end slope and deflection of conical tubular beams; data sheet. W. F. Schick. diags Machine Design 36:193-4 O 8 '64

Influence functions for beams on elastic foundations. A. Dodge. diags Am Soc C E Proc 90 [ST 4 no 4002]:63-101 Ag '64

Influence-line spectrum by graphical construction. C. G. Salmon and D. R. Buettner. diags Civil Eng 34:54-5 Jl '64

Integration of discontinuous expressions arising in beam theory. J. T. Weissenburger. bibliog diags AIAAJ 2:106-8 Ja '64

Lamella beams and grids D. L. Dean. bibliog diags Am Soc C E Proc 90 [EM 2 no 3869]:107-29 Ap '64

Large elastic, plastic, and creep deflections of curved and axisymmetric shells. J. A. Stricklin and others. bibliog diags AIAA J 2:1613-20 S '64

Lateral stability of glued laminated beams. R. F. Hooley and B. Madsen. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3948]: 201-18 Je '64

Load-balancing method for design and analysis of prestressed concrete structures. T. Y. Lin. bibliog diags Am Concrete Inst J 60: 719-42 Je '63; Discussion. 60:1843-78; Reply. 1878-81 D '63

Method for determining deflections in beams of variable stiffness. K. T. Krishnaswamy. diags Am Concrete Inst J 60:157-60 Ja '63; Discussion. V. Petcu. 61:239-43 F '64

Method for solving beam column problems. W. Griffel. Product Eng 35:172-4 S 14 '64

Model studies of beams resting on a silt subgrade. A. B. Vesić and W. H. Johnson. bibliog il diags Am Soc C E Proc 89 [SM 1 no 3406]:1-31 F '63; Correction. 89 [SM 4 no 3578]:237 Jl '63; Discussion. H. Grasshoff. 89 [SM 5 no 3654]:101-2 S '63; Reply. 90 [SM 3 no 3907]:159-61 My '64

Moment coefficients for fixed-end beams to be used in the three-moment equation. T. D. Y. Fok and T. F. Mosure. diags Civil Eng 34:78 Ag '64

Nonlinear response of a beam to shock pulse. A. B. Schultz. bibliog diags Franklin Inst J 276:385-93 N '63

Orthotropic beams under polynomial loads. I. K. Silverman. diags Am Soc C E Proc 90 [EM 5 no 4101]:293-319 O '64

Partial fixity method for designing beams in structures; abstract. W. J. Sutcliffe. diag Engineering 196:510 O 18 '63

Phoenix airport terminal building; prestressed challenge. W. E. Riley. il diags Am Concrete Inst J 61:137-50 F '64

Plastic deformation of a cantilever beam with strain-rate sensitivity under impulsive loading. T. C. T. Ting. bibliog diags A S M E Trans ser E 31:38-42 Mr '64

Plate girders curve for 550 ft. il Eng N 172: 21 Ap 9 '64

Preliminary analysis of continuous curved girder frames. D. C. Carman and J. J. Tuma. bibliog Am Soc C E Proc 90 [ST 4 no 4012]:191-204 Ag '64

Prestressed steel girders carry prestressed concrete floor. il Eng N 172:24-5 Mr 26 '64

Prestressed steel makes a bridge. il diag Eng N 173:24+ N 5 '64

Reinforcement requirements for girder web openings. E. P. Segner, jr. il diags Am Soc C E Proc 90 [ST 3 no 3919]:147-64 Je '64

Repeated loading in the plastic design of crane girders. M. R. Horne and J. M. Davies. diags Engineer 216:1053-7 D 27 '63

Section modulus of beams with unsymmetrical cover plates. T. L. Underwood. Civil Eng 34:66 Mr '64

Shear of thin plates with flexible edge members. E. R. Bryan and W. M. El-Dakhakhni. bibliog il diags Am Soc C E Proc 90 [ST 4 no 3991]:1-14 Ag '64

Skylighted column; First national bank in Loveland; selected detail. Prog Arch 45:133 Jl '64

Some considerations on a naturally curved and twisted slender beam. K. Washizu. J Math & Phys 43:111-16 Je '64

Some properties and applications of singularity functions based on the theory of distributions. W. D. Pilkey. diags Franklin Inst J 277:464-97 bibliog(p495-7) My '64

Southwell plot applied to lateral instability of beams. C. Massey. Engineer 218:320 Ag 28 '64

Standard prestressed concrete bridge beams. diag Engineering 197:229 F 7 '64

Steel cables suspend 220-ft-dia roof from concrete cantilevers. il Eng N 172:40-1 Je 11 '64

Strength of the compression slab of T-beams subject to simple bending. G. Brendel. bibliog diags Am Concrete Inst J 61:57-76 Ja '64; Discussion. A. Siev. 61:1183-4 S '64

Stresses in point supported composite walls. S. Rosenhaupt. bibliog diags Am Concrete Inst J 61:795-810 Jl '64

Structural design of the Terminal building for Edmonton international airport. E. M. Rensaa. il plans diags Eng J 47:21-7 Je '64; Discussion. 47:78+ S '64

Tape machining of steel beams. G. DeGroat. il Am Mach 108:66-7 Ja 6 '64

Tapered girders cut gym cost. R. S. Fling. il diag Eng N 172:148+ Mr 19 '64

Thermal expansion of complex beams. R. Isakower. Product Eng 35:172-4 O 26 '64

Three-dimensional elasticity solution for continuous beams. L. R. Herrmann. bibliog diags Franklin Inst J 278:75-83 Ag '64

Time-dependent effects in composite concrete beams. D. E. Branson. bibliog diags Am Concrete Inst J 61:213-30 F '64; Discussion. G. J. R. van der Meulen. 61:1207-9 S '64

Welded stainless beam may change future bridges. il Welding Eng 49:50 Jl '64

Welded Universal beams up to 78 in. deep. il Engineering 197:20 Ja 3 '64

See also

Trusses

Testing

Behavior of hybrid beams subjected to static loads. R. W. Frost and C. G. Schilling. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3928]:55-88 Je '64; Discussion. M. G. Lay. 90 [ST 5 no4066]:245-6 O '64

Cyclic loading machine for slow fatigue tests. P. W. Turner and R. Royles. il diags Engineer 217:264-6 F 7 '64

Damping characteristics of prestressed concrete. J. Penzien. bibliog il Am Concrete Inst J 61:1125-48 S '64

Durability and behavior of pretensioned beams. E. C. Roshore. bibliog il diags Am Concrete Inst J 61:811-46 Jl '64

Elastic and inelastic lateral instability of I-beams. C. Massey. bibliog Engineer 216: 672-4 O 25 '63

Flexural fatigue tests of prestressed steel I-beams. W. D. Reneker and C. E. Ekberg, jr. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3868]:131-51 Ap '64; Discussion. J. W. Fisher and B. T. Yen. 90 [ST 4 no 4001]: 341-3 Ag '64

BEAMS and girders—Testing—*Continued*

General computer analysis of beams. J. E. Goldberg and others. diags Am Soc C E Proc 90 [EM 3 no 3943]:135-46 Je '64

Guide for determination of bond strength in beam specimens. diags Am Concrete Inst J 61:129-35 F '64

Plastic analysis of circular balcony girders. K. H. Chu and A. Thelen. bibliog diags Am Soc C E Proc 89 [ST 6 no 3726]:159-86 D '63; Discussion. L. W. Lu. 90 [ST 3 no 3940]:415-16 Je '64

Rate of loading effect on moment-curvature relation in prestressed concrete beams. I. O. Oladapo. il diags Am Concrete Inst J 61:871-87 Jl '64

Response of singly reinforced beams to cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:1021-38 Ag '64

Riddle of shear failure and its solution G. N. J. Kani. diags Am Concrete Inst J 61:441-67 Ap '64

Strength of elastically stabilized beams. R. W. Haussler. bibliog diags Am Soc C E Proc 90 [ST 3 no 3951]:219-64 Je '64; Correction. 90 [ST 5 no 4066]:247 O '64

Stresses in end blocks of a post-tensioned prestressed beam. T. Huang. bibliog diags Am Concrete Inst J 61:589-602 My '64

Ultimate strength behavior study by regression analysis of beam test data. T. C. Zsutty. bibliog Am Concrete Inst J 60:635-54 My '63; Discussion. 60:1835-8; Reply. 1838-41 D '63

Welded constructional alloy steel plate girders. P. B. Cooper and others. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3784]:1-36 F '64

Vibration

Damping characteristics of prestressed concrete. J. Penzien. bibliog il Am Concrete Inst J 61:1125-48 S '64

Dynamic response functions. B. S. Berger. Am Soc C E Proc 90 [EM 4 no 4017]:131-48 Ag '64

Effect of rotatory inertia and shear in beam vibration. W. C. Hurty and M. F. Rubinstein. diag Franklin Inst J 278:124-32 Ag '64

Frequency analysis of beams by flexibility method. J. W. Gillespie and B. D. Liaw. bibliog diags Am Soc C E Proc 90 [EM 1 no3798]:23-46 F '64; Discussion. 90 [EM 4 no 4000]:181-4 Ag; [EM 5 no 4093]:423-8 O '64

Lumping of mass in calculating vibration reponse. V. H. Neubert. bibliog Am Soc C E Proc 90 [EM 1 no3801]:47-67 F '64; Discussion. D. H. Merkle. 90 [EM 5 no 4093]:429-31 O '64

Phase shift in a massless vibrating beam. J. Genin. diags AIAA J 2:118-19 Ja '64

Random vibrations of a Myklestad beam. Y. K. Lin. diags AIAA J 2:1448-51 Ag '64

Vibration frequencies for uniform beams with central masses. W. E. Baker. diags A S M E Trans ser E 31:335-7 Je '64

Vibration frequencies of tapered bars and circular plates. H. D. Conway and others. diags A S M E Trans ser E 31:329-31 Je '64

Viscoelastic boundary damping of beams and plates. T. J. Mentel. bibliog il diags A S M E Trans ser E 31:61-71 Mr '64

BEANS

Chemical factors influencing host selection by the Mexican bean beetle epilachna varivestis muls. J. B. LaPidus and others. bibliog J Agri & Food Chem 11:462-3 N '63

Chlorophyll losses in blanched snap beans. J. P. Van Buren and others. bibliog Food Tech 18:1203-6 Ag '64

Nutritive value of proteins in canned navy beans. W. D. Powrie and E. Lamberts. bibliog Food Tech 18:111-13 Ja '64

See also
Lima beans

BEANS, Dried

Cooking time of dry beans after extended storage. P. Muneta. Food Tech 18:1240-1 Ag '64

BEARING materials

Aromatic polyimide compositions for solid lubrication. bibliog il diags Lub Eng 20:225-30 Je '64

Bearing research spins along. il diags Iron Age 194:102-3 Jl 23 '64

Bearings for high temperature use. E. E. Bisson and W. J. Anderson. Metal Prog 86:148+ Jl '64

Fluorocarbon tape serves as seal and bearing. il Materials in Design Eng 59:132+ My '64

Plastics in ball bearings. il Automobile Eng 54:321 Jl '64

Powder metal + solid lubrication = a new bearing material. J. W. Van Wyk. il Metal Prog 86:101-3 S '64

Precious Metal Depositors silver plated helicopter engine bearings. il Metallurgia 69:83-4 F '64

Spherical aircraft bearings. R. B. Ziccarelli. il Materials in Design Eng 59:132 Ap '64

Teflon fabric lubricates bearings. il Iron Age 193:79 F 27 '64

BEARING metals

Aluminum made into bearings by new powder process. C. L. Kobrin. il Iron Age 193:135-6 Ap 30 '64

Effect of inclusions on the properties of one per cent C-Cr bearing steels; abstract. J. D. Murray and R. F. Johnson. Metal Prog 85:156+ Ap '64

High-tin aluminum alloy bearing material displays exceptional physical properties. Automotive Ind 131:96 Jl 15 '64

Oxygen analyzer for determining oxygen content of vacuum degassed steel for ball bearings. il Mech Eng 86:55 Je '64

Stainless high speed steel for aerospace applications. B. L. Johnson. il Metal Prog 86:116-18 S '64

What about aluminum bearings? R. L. Hatschek. il Mill & Factory 73:58-60 D '63

BEARINGS

Aerodynamics in very small spaces; gas-lubricated bearings. C. H. Vivian. il diags Comp Air Mag 69:11-15 Ap '64

Air bearing grinding spindles. il Engineer 217:584 Mr 27 '64

Air bearings. il Product Eng 34:73 D 9 '63

Air-turbine rotor spins on gas bearings at 73,600 rpm. il Machine Design 36:8 My 21 '64

Application of air bearings to an electrodynamic vibration standard. T. Dimoff and B. F. Payne. il diags J Res Nat Bur Stand 67C:327-33 O '63

Bearing down on bearings. M. D. Rochelle. il Textile World 114:79-80 Ja '64

Camella restricted-clearance bearings. il diags Naval Eng J 76:219-22 Ap '64

Determining instrument bearing torque. P. A. Christopher. diags Machine Design 36:197-9 O 22 '64

Feedback stiffens air bearings. H. L. Wunch and C. A. Scoles. diag Control Eng 11:99 Ap '64

Filled resin bearing puts skids to maintenance. Materials in Design Eng 59:119-20 F '64

Fixture holds bearing shells in bench vise. M. H. Day. diag Am Mach/Metalworking Manuf 107:154 N 11 '63

Gas lubrication in specialized machines. G. W. K. Ford. bibliog il diag Engineer 198:369-71 S 18 '64

Gas, magnetic, and MHD bearings filling new needs. J. W. Beams and others. il diags S A E J 72:72-5 Mr '64

Grinding machines; hydrostatic bearing supports spindle. il Product Eng 35:59 Mr 30 '64

Guide for evaluating rolling vs sliding bearings E. R. Booser. il diags Product Eng 35:119-27 Ap 27 '64

High purity air compressor supplies Pershing air bearings. J. W. Mahanay. il diag Hydraulics & Penumatics 17:121-5 S '64

How to transmit power through an air bearing. diag Mod Materials Handling 19:67 N '64

Hydrostatic bearing system offers accuracy, less friction. il Mach 70:131 D '63

Magnetic bearings. J. W. Beams. diags Machine Design 36:204+ Mr 12 '64

Magnetohydrodynamic bearings. D. C. Kuzma. bibliog il diags Machine Design 36:206-10 Ap 23 '64

New frontiers in gas bearings. B. Sternlicht. diags Machine Design 36:162+ Ap 9 '64

Nominal clearance of the foil bearing. H. K. Baumeister. diags Lub Eng 20:377-80 O '64

Plain bearing research and development; Glacier metal co. il Engineer 218:509-10 S 25 '64

Predicting bearing torque in large-diameter, thin-section bearings. L. Burgmeier. bibliog il Machine Design 36:118-23 Ja 30 '64

Regulating gas bearings. diag Comp Air Mag 69:21 O '64

Sliding bearings for large structures. il Engineering 198:239 Ag 21 '64

Three-in-one bearings refine alignment. diag Iron Age 194:70 O 1 '64

See also
Bearing metals
Bridge bearings
also subdivision Bearings under special subjects, e.g.
Airplane engines
Airplanes
Automobiles

BEARINGS—See also—*Continued*
Cars
Compressors
Electric motors
Gas turbines
Instruments
Pumps

Bibliography

Lubrication review; developments in bearings and lubricants; digest of literature, 1961-1962. R. P. Shevchenko and G. S. Reichenbach, eds. A S M E Trans ser D 86:367-86 bibliog(p380-6) Je '64

Design

Application of flow and stability theory to the design of externally pressurized spherical gas bearings. R. L. Grossman. bibliog il diag A S M E Trans ser D 85:495-502 D '63
Bearing research spins along. il diags Iron Age 194:102-3 Jl 23 '64
Bearings for high temperature use. E. E. Bisson and W. J. Anderson. Metal Prog 86:148+ Jl '64
Design data on TFE-fabric bearings. H. A. Cress and J. R. Goldgraben. bibliog il Machine Design 36:154-61 Ja 16 '64
Design of hydrostatic bearings. H. C. Rippel. bibliog il diags Machine Design 35:108-17 Ag 1; 122-6 Ag 15; 132-8 Ag 29; 170-2 S 12; 182-90 S 26; 201-8 O 10; 185-92 O 24; 189-94 N 7; 199-206 N 21; 158-62 D 5 '63
Design practices to minimize sleeve-bearing fatigue. R. F. Jacobs. il diags Machine Design 35:134-9 D 19 '63
Effect of the 150-degree partial bearings on rotor-unbalance vibration. P. C. Warner and R. J. Thoman. A S M E Trans ser D 86:337-45; Discussion. 345-7 Je '64
How to specify tolerances for precision bearings. R. W. Moran. diag Tool & Manuf Eng 52:69-71 Ja '64
Radial gate trunnion bearing. R. A. Steele. diags Engineer 218:328-9 Ag 28 '64

Failure

Engine bearing failure pictures show cause at a glance. il Diesel Equip Supt 41:33-5 N '63
How to keep bearings rolling. il diags Iron Age 194:56-7 Jl 30 '64
Investigate fretting corrosion in unexplained bearing failures. Plant Eng 18:112-13 Mr '64
Standard-priced bearing lasts six times as long. Machine Design 36:8 Ja 2 '64

Lubrication

Analysis of plain cylindrical journal bearings in turbulent regime. E. B. Arwas and others. bibliog A S M E Trans ser D 86:387-94; Discussion. 394-5 Je '64
Anisoelasticity in gas lubricated support systems. G. B. Speen and R. C. Turnblade. diags Lub Eng 19:449-55; Discussion. 455-6 N '63
Bearings for space. Product Eng 35:50 S 28 '64
Cryogenic bearings. H. Hanau. bibliog il diags Machine Design 36:122-8 Je 4 '64
Design of hydrostatic bearings. H. C. Rippel. bibliog il diags Machine Design 35:108-17 Ag 1; 122-6 Ag 15; 132-8 Ag 29; 170-2 S 12; 182-90 S 26; 201-8 O 10; 185-92 O 24; 189-94 N 7; 199-206 N 21; 158-62 D 5 '63
Dry film lubrication of highly loaded bearings in vacuum. E. C. McKannan and K. E. Demorest. il Lub Eng 20:134-41 Ap '64
Dynamics of externally-pressurized sliders with incompressible and compressible films. L. Licht and J. W. Cooley. bibliog diags A S M E Trans ser D 86:396-403; Discussion. 403-4 Je '64
Fighting friction's drag on motion. J. J. Obrzut. il Iron Age 193:133-4+ My 21 '64
Finite magnetohydrodynamic journal bearing. D. C. Kuzma. bibliog diags A S M E Trans ser D 86:445-8 S '64
Gas lubrication in turbulent regime. V. N. Constantinescu. bibliog diags A S M E Trans ser D 86:475-82 S '64
Influence of finite-wall conductance on load capacity of the magnetohydrodynamic slider bearing. W. T. Snyder. bibliog diag A S M E Trans ser D 86:436-40 S '64
Linearized *ph* stability theory for translatory half-speed whirl of long, self-acting gas-lubricated journal bearings. J. S. Ausman. bibliog diag A S M E Trans ser D 85:611-18; Discussion. 618-19 D '63
Lubrication of small motor bearings for unattended service in automatic equipment. G. H. Kitchen. il Lub Eng 20:311-15 Ag '64
Lubrication review; developments in bearings and lubricants; digest of literature, 1961-1962. R. P. Shevchenko and G. S. Reichenbach, eds. A S M E Trans ser D 86:367-86 bibliog(p380-6) Je '64
Magnetohydrodynamic squeeze films. D. C. Kuzma. bibliog diags A S M E Trans ser D 86:441-4 S '64
New bearing handles heavy loads with precision; abstract. D. D. Fuller. S A E J 71:90-1 D '63
Self-lubricated bearings; special review. R. W. Carson and others. bibliog il Product Eng 35:79+ Ap 13 '64
Short-bearing solution for pressure distribution in a non-Newtonian lubricant. R. I. Tanner. A S M E Trans ser E 31:350-1 Je '64
Some analytical methods for the analysis of gas-lubricated journal bearings. V. N. Constantinescu. bibliog A S M E Trans ser D 85:475-7 S '63; Correction. 86:416 Je '64
Theory of a stable high speed externally pressurized gas lubricated bearing. H. Sixsmith and W. A. Wilson. bibliog diags J Res Nat Bur Stand 68C:101-14 Ap '64
Transformations in solid lubricants effected by shear, pressure and temperature. E. N. Klemgard. bibliog Lub Eng 20:184-8 My '64
Variational principle and Lagrange equations in studies of gasdynamic lubrication. L. N. Tao. bibliog A S M E Trans ser E 31:43-6 Mr '64

Maintenance and repair

Advice on bearing care. il Steel 154:50-1 F 3 '64
Longer life for sleeve bearings. il Mill & Factory 75:68-70 Ag '64

Manufacture

Clevite story. J. Geschelin. il Automotive Ind 130:40-4+ Je 1 '64
Smart handling slashes workplace waiting time. il Mod Materials Handling 19:56-7 S '64

Specifications

Preferred dimensional specifications for powder metallurgy oil-impregnated bearings; data sheet. Mach 70:167-8 Je '64

Tables, calculations, etc.

Comparison between theories and experiments for the threshold of instability of rigid rotor in self-acting, plain-cylindrical journal bearings. C. H. T. Pan and B. Sternlicht. bibliog diags A S M E Trans ser D 86:321-7 Je '64
Compressible squeeze films and squeeze bearings. E. O. J. Salbu. bibliog il diags A S M E Trans ser D 86:355-64; Discussion. S. B. Malanoski and C. H. T. Pan. 364-6 Je '64
How to predict temperature increases in rolling bearings. T. A. Harris. il diags Product Eng 34:89-98 D 9 '63
Hydrostatic gas journal bearing with journal rotation and vibration. J. W. Lund. diag A S M E Trans ser D 86:328-36 Je '64
Load capacity of short journal bearings with oscillating effective speed. B. K. Gupta and R. M. Phelan. bibliog diags A S M E Trans ser D 86:348-53; Discussion. 353-4 Je '64
Stability of unloaded gas-lubricated bearings. R. A. McCann. diag A S M E Trans ser D 85:513-17; Discussion. 517-18 D '63
Static and dynamic characteristics of self-acting, partial-arc, gas journal bearings. R. J. Wernick and C. H. T. Pan. bibliog diags A S M E Trans ser D 86:405-13 Je '64

Testing

Bearing rejects strike out in anvil-bounce tests. il Iron Age 194:88-9 S 17 '64
Bearing research, SKF industries, inc. il Mech Eng 85:67 N '63
Computer helps SKF boost testing capacity. il Steel 154:60-2 Je 22 '64
Critical aspects in bearing fatigue testing. J. F. Moult. Lub Eng 19:503-9; Discussion. 509-11 D '63
Geometry effects on the threshold of half-frequency whirl in self-acting, gas-lubricated journal bearings. B. Sternlicht and L. W. Winn. bibliog diags A S M E Trans ser D 86:313-20 Je '64
Glacier expands plain bearing research. il Engineering 198:404 S 25 '64
High temperature oil evaluation in full-scale bearing fatigue tests. J. H. Gustafson. diag Lub Eng 20:65-8 F '64
Hydrodynamic bearing test apparatus. N. H. Cook. il diags Lub Eng 20:178-9 My '64
Load capacity and stability of rotors in self-acting gas lubricated plain cylindrical journal bearings. B. Sternlicht and L. W. Winn. bibliog il diags A S M E Trans ser D 85:503-11; Discussion. 511-12 D '63

BEARINGS—Testing—*Continued*

Machinery flags its own troubles; ultrasonic noise acts as early warning system. il Iron Age 194:62-3 O 22 '64

New bearing fatigue testing machine from Distington. il diag Metallurgia 69:50 Ja '64

BEARINGS, Anti-friction

Bearings sealed for life. Product Eng 35:83 O 26 '64

Unique linear antifriction bearings roll those heavy loads. il diags Mach 71:122-8 S '64

Lubrication

Prediction of temperature in a rolling contact bearing assembly. T. A. Harris. bibliog diag Lub Eng 20:145-9; Discussion. 149-50 Ap '64

BEARINGS, Ball

Application criteria for evaluating ball screw drive mechanisms. J. A. Hope. il Automation 11:49-54 Ja '64

Ball bearing screws simplify lift mechanism design. diags Mod Materials Handling 19: 59 Ap '64

Bearings roll into new markets. T. M. Rohan. il Iron Age 193:74 Mr 26 '64

Four-point contact bearing. H. A. Duguid. il diags Machine Design 36:150-4 S 24; 164-8 O 8 '64

High speed ball bearings; limitation and thrust requirements. P. S. Kliman. il Lub Eng 20:151-4 Ap '64

Increased use of plastics in ball bearings. il Engineering 197:477 Ap 3 '64

Maintenance of ball bearing machine tool spindles. S. V. Swanson, jr. il Mill & Factory 74:104-7 My '64

Rear wheel bearing process. T. Dickinson. Automotive Ind 130:71-2+ Ap 1 '64

Universal ball coupling. il Engineer 218:567 O 2 '64

See also

Bearings, Anti-friction

Design

Four-point contact bearing; design rules. H. A. Duguid. diags Machine Design 36:164-8 O 8 '64

Standard precision bearings + kid-glove treatment = unusual-precision bearings. H. Hanau and L. Burgmeier. diags Machine Design 36:148-53 F 27 '64

Failure

Ball bearing upkeep. R. W. Parkinson. il Textile Ind 127:136-7+ N '63

Machining under in use stresses. F. A. Schick. il Am Mach 108:49 Ag 31 '64

Maintenance seminars tell you how to stretch ball-bearing life; questions and answers. il Power 108:69-71 Ap '64

Through-hardening steels for ball bearings; effect of inclusions on endurance; abstract. L. O. Uhrus. Metal Prog 85:188+ Mr '64

Lubrication

Bearing steel extrudes before molybdenum disulfide breaks down. il Machine Design 36:8 S 10 '64

Long term operation and practical limitations of dry, self-lubricated bearings from 1 x 10^{-5} torr to atmospheric. D. J. Boes. bibliog il diag Lub Eng 19:137-42 Ap '63; Abstract. Metal Prog 85:168+ Je '64

MoS_2 solid lubricant extends ball bearing lifetime. il Bell Lab Rec 42:296-7 S '64

MoS_2 stretches ball bearing life. il Iron Age 194:66 Ag 6 '64

Retainer keeps high speed bearings cool. il Steel 155:51 Ag 31 '64

Manufacture

Better quenching for better bearings. P. K. Pearson. diags Am Mach 108:64-5 My 25 '64

Chip disposal at new ball bearing plant. il Mech Eng 85:63 N '63

Hoffmann miniature precision bearings. il Engineering 197:450-2 Mr 27 '64

Standard precision bearings + kid-glove treatment = unusual-precision bearings. H. Hanau and L. Burgmeier. diags Machine Design 36:148-53 F 27 '64

Welding ball bearing retainers. il Metal Prog 86:119-20 Jl '64

Testing

Ball bearing inspection machine. il Engineer 218:285 Ag 21 '64

Bearings get new odds on survival. C. L. Kobrin. il Iron Age 192:71-4 N 28 '63

Effects of misalignment on the forces acting on the retainer of ball bearings. K. Kakuta. bibliog diags A S M E Trans ser D 86:449-54; Discussion. 454-6 S '64

Fatigue tests for ball bearing steels. Engineering 197:61 Ja 10 '64

Long term operation and practical limitations of dry, self-lubricated bearings from 1 x 10^{-5} torr to atmospheric. D. J. Boes. bibliog il diag Lub Eng 19:137-42 Ap '63; Abstract. Metal Prog 85:168+ Je '64

Review of techniques for investigation of friction and wear in aerospace ball and roller bearings. L. C. Lipp and E. N. Klemgard. bibliog il Lub Eng 19:495-502 D '63

Rolling fatigue testing machine. il Engineering 197:41 Ja 10 '64

BEARINGS, Jewel

Synthetic jewel bearings make accurate gas flow meter; with nomograph. G. Golub. Chem Eng 71:146 O 26 '64

BEARINGS, Needle

Improved needle roller bearings. il Engineering 197:317 F 28 '64

Pick a needle bearing; design roundup. G. Gehrke. il diags Product Eng 35:55-62 Ag 31 '64

Manufacture

Needle bearings get new life. il Iron Age 194: 122 Ag 27 '64

BEARINGS, Plastic

Design data TFE-fabric bearings. H. A. Cress and J. R. Goldgraben. bibliog il Machine Design 36:154-61 Ja 16 '64

Increased use of plastics in ball bearings. il Engineering 197:477 Ap 3 '64

Plastic bearing materials. R. J. Fabian. Materials in Design Eng 59:90-5 Mr '64

BEARINGS, Roller

Analysis of an improved planetary gear-transmission bearing. T. A. Harris and J. L. Broschard. bibliog il diags A S M E Trans ser D 86:457-61; Discussion. 461-2 S '64

Caged needle roller bearings. il Engineer 217: 109 Ja 10 '64

Casts ductile iron bearing retainers. R. S. Thompson. il Foundry 92:91-2 F '64

Computer designs spherical roller bearings. il Mech Eng 86:49 O '64

Design criteria for rolling element airframe bearings for high temperature and high altitude use. J. B. Havewala and J. H. Johnson. bibliog il diags Lub Eng 20:25-33; Discussion. 33-5 Ja '64

How to predict temperature increases in rolling bearings. T. A. Harris. il diags Product Eng 34:89-98 D 9 '63

Improved needle roller bearings. il Engineering 197:317 F 28 '64

Link-Belt announces spherical roller bearing line. il Mach 70:134-5 Ag '64

Load/life ratings for rolling bearings; with nomographs. Engineering 197:766-7 Je 5 '64

Pick a needle bearing; design roundup. G. Gehrke. il diags Product Eng 35:55-62 Ag 31 '64

Re-circulating roller bearings for linear motion. il Engineering 197:696 My 22 '64

Spherical roller bearings. Product Eng 35:87 Je 22 '64

Unique linear antifriction bearings roll those heavy loads. il diags Mach 71:122-8 S '64

Variable pre-load spindle bearing. il Engineering 198:8 Jl 3 '64

See also

Bearings, Anti-friction

Bearings, Needle

Failure

Misaligned roller bearings; how fast will they fail? D. W. Dareing and E. I. Radzimovsky. bibliog diags Machine Design 36:175-9 F 13 '64

Lubrication

Bearings run cool at higher speeds. Iron Age 194:66 Jl 2 '64

Engineers put friction to rout via new lubrication concept. J. E. Sandford. il diags Iron Age 193:51-3 Ja 23 '64

Machine tests oils for roller bearings. il Engineering 197:813 Je 12 '64

Rheological behavior of the lubricant in the contact zone of a rolling contact system. J. C. Bell and others. bibliog diags A S M E Trans ser D 86:423-32; Discussion. 432-4; Reply. 434-5 S '64

Manufacture

Advanced optics solve quality-control problems. il Mach 70:132-3 Mr '64

Infrared method of controlling carburizing gases to promote quality in roller bearings; abstract. O. W. McMullan. Metal Prog 86: 240+ O '64

One gallon of soluble oil does the work of two. L. W. Collins, jr. il Mach 71:118-21 S '64

BEARINGS, Roller—*Continued*

Testing

Review of techniques for investigation of friction and wear in aerospace ball and roller bearings. L. C. Lipp and E. N. Klemgard. bibliog il Lub Eng 19:495-502 D '63

BEARINGS, Thrust

Effect of misalignment on a circular, externally pressurized, gas-lubricated bearing. L. Licht and R. K. Kaul. diag A S M E Trans ser E 31:141-3 Mr '64

High-speed rotor suspension formed by fully floating hydrodynamic radial and thrust bearings. J. Dworski. il diags A S M E Trans ser A 86:149-60 Ap '64

Performance of centrally pivoted sector thrust-bearing pads; sea trials aboard USS Barry (DD 993). R. C. Elwell and others. bibliog il diags A S M E Trans ser D 86: 483-96; Discussion. 496-7 S '64

BEARTHTOOTH MOUNTAINS

Layered mylonite from Beartooth Mountains, Montana. M. Prinz and A. Poldervaart. bibliog map Geol Soc Bul 75:741-4, pl 1 Ag '64

BEATING process. See Paper making—Beating

BEAUFORT, South Carolina

Water supply

Beaufort's big switch: wells to surface water supply. E. H. Williamson, jr. maps Water Works & Wastes Eng 1:32-4 O '64

BEDOUINS

Nutrition of the Bedouins in the Negev Desert. J. J. Groen and others. bibliog il Am J Clinical Nutrition 14:37-46 Ja '64

BEDPLATES. See Machinery—Bedplates

BEEF

Aseptic canning of foods; chemical and flavor changes in strained beef. B. S. Luh and others. bibliog Food Tech 18:212-15 F '64

Beef microbial quality determined by extract-release volume (ERV). J. M. Jay. Food Tech 18:1637-41 O '64

Changing patterns in the beef industry. H. E. Drews. Food Tech 18:442+ Ap '64

Characterization of the eating quality of four beef muscles from animals of different ages by panel scores, shear-force values, extensibility of muscle fibers, and collagen content. S. J. Ritchey and R. L. Hostetler. bibliog Food Tech 18:1067-70 Jl '64

Color and pigment stability of packaged refrigerated beef. A. A. El-Badawi and others. bibliog Food Tech 18:753-7 My '64

Effect of cooking temperature and time on the tenderness of beef. J. M. Tuomy and others. bibliog Food Tech 17:1457-60 N '63

Effect of degree of doneness on collagen nitrogen and collagenous tissue in two muscles of beef. M. Skelton and others. bibliog Food Tech 17:1431-3 N '63

Further comparisons of dry-heat methods for round steak. C. Rodgers and others. Food Tech 18:252 F '64

Further studies on the qualities of beef as affected by cooking at very low temperatures for long periods. V. D. Bramblett and G. E. Vail. bibliog Food Tech 18:245-8 F '64

Headspace constituents of canned beef. M. J. Brennan and R. A. Bernhard. bibliog Food Tech 18:743-6 My '64

Influence of low freezer temperatures on rate of temperature change in beef. W. J. Costello and R. L. Henrickson. bibliog Food Tech 18:209-11 F '64

Pigment changes in anaerobically packaged ground beef. A. J. Cutaia and Z. J. Ordal. bibliog Food Tech 18:757-60 My '64

Release of aqueous extracts by beef homogenates, and factors affecting release volume. J. M. Jay. diag Food Tech 18: 1633-6 O '64

BEER

Beer concentrate controversy continues. Chem & Eng N 41:32 N 18 '63

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Filter replaces pasteurizer, produces bottled beer with tap flavor. F. K. Lawler. flow diag il diags Food Eng 35:45-7 D '63

Formation, nature, and prevention of precipitates in frozen and thawed beers. G. J. Haas and A. I. Fleischman. J Agri & Food Chem 12:409-11 S '64

Membrane filters block beer spoilage. il Chem Eng 71:62+ F 17 '64

Microfiltration reduces beer spoilage. il Chem & Eng 41:48-9 D 2 '63

Nutritional aspects of alcoholic beverages. E. C. Barton-Wright. Chem & Ind p506-7 Mr 21 '64

See also

Breweries

BEER containers

Beer can with a built-in can-opener. il Engineering 198:457 O 9 '64

Budweiser and Hamm's go to market in aluminum cans. Mod Metals 19:74 N '63

Clean all the way; unique carrier keeps can tops clean. il Food Eng 36:146 My '64

Promise for beer cases. il diags Mod Plastics 41:96-8+ My '64

Will can revolution shake packaging? F. J. Starin. il Iron Age 192:130 N 14 '63

BEER law

Statistical methods and Beer's law; ultraviolet absorption study of binary solutions containing a nitroparaffin. R. L. Foley and others. bibliog Anal Chem 36:1100-3 My '64

BEES

Sound communication in honeybees. A. M. Wenner. il diags Sci Am 210:116-22+ Ap '64

BEETLES

Chemical factors influencing host selection by the Mexican bean beetle epilachna varivestis muls. J. B. LaPidus and others. bibliog J Agri & Food Chem 11:462-3 N '63

BEHAVIOR (psychology)

Method for use in epidemiologic studies of behavior disorders in children. R. Lapouse and others. bibliog Am J Pub Health 54: 207-22; Discussion. B. MacMahon. 223-5 F '64

Psychological aspects of disaster. L. C. McGonagle. bibliog Am J Pub Health 54:638-43 Ap '64

Teacher ratings in psychiatric case-finding. A. Goldfarb. bibliog Am J Pub Health 53:1919-27 D '63

BEHAVIORAL science. See Social sciences

BELFAST

See also

Airports—Belfast

BELGIUM

See also

Gas, Natural—Belgium, Supply to

also subdivision Belgium under special subjects, e.g.

Atomic power plants

Canals

Railroads—Electrification

Steel works

Textile industry

BELL, Alan

Bell receives Southern Chemist award. por Chem & Eng N 42:78 N 2 '64

BELL telephone system

Evolution of work vehicles. C. S. Herrmann. il Bell Lab Rec 42:298-9 S '64

Quality survey; an administrative control. G. R. Gause. Ind Quality Control 20:17-20 Ja '64

BELL towers

Welded steel cut bell tower cost 51 per cent. G. A. Crawford and M. W. Jackson. il Welding Eng 49:44 N '64

BELLEVILLE, Illinois

Sewerage

Belleville licks sludge bulking; abstract. I. G. Knoebel. Pub Works 94:132+ N '63

BELLEVILLE spring washers. See Washers (machinery)

BELLEVUE, Nebraska

Water supply

Master plan permits water system improvements to pace demands. B. L. Heber and E. B. Meier. il Pub Works 95:96-8 Ap '64

BELLOWS

How to prevent stress corrosion cracking of 300 series stainless steel bellows expansion joints used in steam and htw heating systems. R. B. Hill and A. R. C. Markl. il Heating-Piping 36:103-7 O '64

How to stiffen bellows with springs; drawings with text. R. O. Parmley. Product Eng 35:100-1 O 26 '64

Metal-bellows type seals. J. B. Stevens. il diags Machine Design 36:40-3 Je 11 '64

Proper pre-weld practice produces better aluminum cryogenic bellows. R. H. Raymond. il Mod Metals 19:46+ N '63

BELT conveyors. See Conveying machinery—Belt conveyors

BELT drive. See Belting

BELTING

Automotive V-belt. C. C. Gates, jr. il diags Materials in Design Eng 59:124-5 Ap '64

Bead-belt drives. B. Wasko. diags Machine Design 35:154-9 N 7 '63

BELTING—*Continued*

Guide to variable-speed mechanical drives. D. Z. Dvorak. il diags Product Eng 35:90-3 F 3 '64

Projecting pins keep new drive belt from slipping. il Machine Design 36:12 Je 4 '64

V-belt drives; design guide. il diags Machine Design 36:179-202 Ja 16 '64

See also

Pulleys

Tables, calculations, etc.

Length of open and closed belts and center distance of belt drives. S. Kravitz. diags Product Eng 34:141-2 D 9 '63

BELTING, Conveyor

Air springs, engine tests, and belt tests. il Comp Air Mag 69:24 Ja '64

Belt steels itself for wear. il Iron Age 194:64 Jl 30 '64

Heavy-duty conveyor belt joint. il Engineer 217:449 Mr 6 '64

New belt material rolls with the punches. il Mod Materials Handling 18:43 D '63

BELTS, Abrasive. See Abrasive belts

BENDING

Analysis of fracture probabilities in nonuniformly stressed brittle materials. N. A. Weil and I. M. Daniel. bibliog il diags Am Cer Soc J 47:268-74 Je '64

Asymmetrical buckling of spherical caps under uniform pressure. G. A. Thurston. bibliog AIAA J 2:1832-3 O '64

Axisymmetric deflections of shallow conical shells. G. A. Wempner. bibliog diags Am Soc C E Proc 90 [EM 2 no 3877]: 181-93 Ap '64

Beam column experiments. R. C. Van Kuren and T. V. Galambos. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3876]:223-56 Ap '64

Beat buckling in truck frames. S. J. Shomberger and E. A. Wingerson. diag S A E J 72:66-7 Ja '64

Behavior of hybrid beams subjected to static loads. R. W. Frost and C. G. Schilling. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3928]:55-88 Je '64; Discussion. M. G. Lay. 90 [ST 5 no 4066]:245-6 O '64

Bend test for measuring the strain limit of surfaces. A. F. Mohrnheim. bibliog diags Plating 50:1094-9 D '63

Bending analysis for clamped rectangular plates. L. R. Herrmann. bibliog diags Am Soc C E Proc 90 [EM 3 no 3934]:71-86 Je '64

Bending of rectangular orthotropic plates with small initial curvature. N. R. Rajappa. Roy Aeronautical Soc J 68:280 Ap '64

Bending of rhombic plates. W. E. Warren. diag AIAA J 2:166-8 Ja '64

Bending strength in the plastic range; data sheet. R. Gavalis. diags Machine Design 36:129-33 Jl 2 '64

Bending stress in a cracked plate on an elastic foundation. D. D. Ang and others. bibliog diags A S M E Trans ser E 30:245-51 Je '63; Discussion. 31:365-7 Je '64

Better tooling for better welding. J. D. Brown. il Am Mach/Metalworking Manuf 107:123-4 O 14 '63

Brake bending of aerospace parts; reference book sheet. diags Am Mach 108:81 Ja 6 '64

Buckling criterion for linear viscoelastic columns. S. L. De Leeuw. bibliog diags AIAA J 1:2665-6 N '63

Buckling load of bars with variable stiffness; simple numerical method. A. V. Srinivasan. AIAA J 2:139-40 Ja '64

Buckling loads for stepped columns. J. W. Harvey. bibliog diags Am Soc C E Proc 90 [ST 2 no 3873]:201-22 Ap '64; Discussion. 90 [ST 5 no 4066]:231-40 O '64

Buckling of a prestressed circular ring. J. E. Goldberg and J. L. Bogdanoff. diags Am Soc C E Proc 90 [ST 4 no 4018]:235-50 Ag '64

Buckling of a thin-walled circular cylindrical shell heated along an axial strip. N. J. Hoff and others. diags A S M E Trans ser E 31:253-8 Je '64

Buckling of a very thin cylindrical shell due to an impulsive pressure. H. E. Lindberg. bibliog il diag A S M E Trans ser E 31:267-72 Je '64

Buckling of bars of variable rigidity with varying axial load. K. T. Sundara Raja Iyengar and S. Anantharamu. bibliog diags Roy Aeronautical Soc J 67:734-6 N '63

Buckling of circular arches under nonuniform pressure. W. Wempner and T. Ewbank. diag Am Soc C E Proc 89 [EM 4 no 3597]:17-20 Ag '63; Discussion. R. Schmidt. 89 [EM 6 no 3774]:275-6 D '63; Reply. 90 [EM 3 no 3936]:279-80 Je '64

Buckling of columns. P. R. Paslay and D. B. Bogy. A S M E Trans ser B 86:252-6 Ag '64

Buckling of cylindrical shells under dynamic loads. J. D. Wood and L. R. Koval. bibliog il diags AIAA J 1:2576-82 N '63

Buckling of drill pipe in an inclined hole. D. B. Bogy and P. R. Paslay. bibliog diags A S M E Trans ser B 86:214-18; Discussion. 219-20 My '64

Buckling of longitudinally stiffened cylinders. J. C. Shang and others. bibliog il diags Am Soc C E Proc 90 [ST 5 no 4115]:161-95 O '64

Buckling of shear buildings. P. Dayaratnam. Am Soc C E Proc 88 [ST 6 no 3350]:149-59 D '62; Discussion. M. L. Moody. 89 [ST 5 no 3688]:285-93 O '63; Reply. 90 [ST 1 no 3812]:213-15 F '64

Buckling of steel columns under arbitrary end loads. S. L. Lee and G. F. Hauck. bibliog diags Am Soc C E Proc 90 [ST 2 no 3872]:179-200 Ap '64

Buckling of thin walled tubes under axial impact. R. G. Redwood. il Roy Aeronautical Soc J 68:418-19 Je '64

Controlling spring back in forming stainless. E. L. Fowler and J. J. Moran. il diag Metal Prog 86:111-14 Ag '64

Creep buckling of reinforced concrete columns. S. Mauch and M. J. Holley. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3610]:451-81 Ag '63; Discussion. 90 [ST 2 no 3886]:371-9 Ap '64; Reply. 90 [ST 4 no 4001]:271-2 Ag '64

Deflection of circular curved I-beams. R. A. Close. diags Am Soc C E Proc 90 [ST 1 no. 3804]:203-7 F '64; Discussion. 90 [ST 5 no 4066]:221-7 O '64

Deflection of hinged rings under uniform pressure. J. A. Cheney. diags Am Soc C E Proc 89 [EM 6 no 3721]:161-76 D '63; Discussion. 90 [EM 3 no 3936]:291-4 Je; [EM 4 no 4000]:171-4 Ag '64

Deflection of rectangular orthotropic plates under lateral loads. N. R. Rajappa. Roy Aeronautical Soc J 68:483-4 Jl '64

Deflection tests on a thrust block for a prototype set of marine propulsion machinery of 22 000 s.h.p. H. E. C. Hims. plans diags Engineer 217:1128-31 Je 26 '64

Deflections of prestressed concrete members. diags Am Concrete Inst J 60:1697-728 bibliog(p 1726-7) D '63; Discussion. 61:2071-7; Reply. 2078-9 pt 2 Je '64

Deflections of straddle-mounted shafts; nomographs. R. L. Peters. diag Product Eng 35:103-4 Ap 13 '64

Deformations and stresses in axially loaded and heated cylindrical shells. K. Fung and others. AIAA J 1:2654-5 N '63

Design to prevent buckling in rectangular plates; data sheet. R. W. Peach. diags Machine Design 35:145-7 D 19 '63

Development of boundary layers in buckled plates. E. F. Masur and C. H. Chang. bibliog Am Soc C E Proc 90 [EM 2 no 3863]:33-50 Ap '64

Eigen-matrix method for beams and plates. B. Tanimoto. bibliog diags Am Soc C E Proc 89 [ST 5 no 3681]: 173-215 O '63; Discussion. K. T. Sundara Raja Iyengar. 90 [ST 2 no 3886]:401 Ap '64; Reply. 90 [ST 6 no 4157]:309-14 D '64

Elastic and inelastic buckling of portal frames. K. H. Chu and A. Pabarcius. bibliog diags Am Soc C E Proc 90 [EM 5 no 4094]:221-49 O '64

Elastic buckling of rigidly-jointed braced frames. S. J. Britvec and A. H. Chilver. bibliog il diags Am Soc C E Proc 89 [EM 6 no 3736]:217-55 D '63; Discussion. N. C. Lind. 90 [EM 2 no 3882]:261-2 Ap '64; Reply. 90 [EM 6 no 4160]:257-63 D '64

Elastic stability of near-perfect shallow spherical shells. M. A. Krenzke and T. J. Kiernan. bibiog diag AIAA J 1:2855-7 D '63

Elongation, strain and minimum bend radius of rod and wire. A. F. Mohrnheim. bibliog diags Wire & Wire Prod 39:1182-6+ Ag '64

Experimental buckling of thin shells of revolution. J. J. Burns, jr. il diags Am Soc C E Proc 90 [EM 3 no 3946]:171-93 Je '64

Experiments on stability on spherical caps. T. C. Loo and R. M. Evan-Iwanowski. bibliog diags Am Soc C E Proc 90 [EM 3 no 3956]:255-70 Je '64

Flexibility method of coupling redundant complex structures. C. J. Meissner and R. S. Levy. bibliog diags Am Soc C E Proc 89 [ST 6 no 3742]:325-64 D '63; Correction. 90 [ST 4 no 4001]:333-5 Ag '64

BENDING—*Continued*

Flexural motions of plates at the cut-off frequency. C. C. Chao and Y. H. Pao. diags A S M E Trans ser E 31:22-4 Mr '64

Flexure by a concentrated force of the infinite plate on a circular support. J. Dundurs and T. M. Lee. bibliog diags A S M E Trans ser E 30:225-31 Je '63; Discussion. 31:364-5 Je '64

Formability of sheet metals for product design; brake bending. W. W. Wood. diags Materials in Design Eng 59:89-90 Je '64

Formulas for angular deflection of nonuniform shafts. diags Product Eng 35:125-6 Ag 17 '64

Frames of solid bars of varying cross sections. E. J. Krynicki and Z. E. Mazurkiewicz. Am Soc C E Proc 90 [ST 4 no 4010]: 145-74 Ag '64

Generalization of the direct-stiffness method of structural analysis. R. E. Jones. bibliog diags AIAA J 2:821-6 My '64

Graphs simplify selection of dimensions to limit post-buckling deflection of heated rectangular plates; data sheet. M. Newman and M. Forray. diag Machine Design 35:163-5 D 5 '63

How to calculate end slope and deflection of conical tubular beams; data sheet. W. F. Schick. diags Machine Design 36:193-4 O 8 '64

How to determine thermal buckling and post-buckling of circular bulkheads; data sheets. M. Forray. diags Machine Design 36:201-3 Mr 12 '64

Initial buckling of slightly curved panels under combined longitudinal and circumferential direct stresses. K. H. Sayers. bibliog diag Roy Aeronautical Soc J 68:271-4 Ap '64

Instrument to measure transverse strain. A. J. Lobdell and others. il diag Materials Res & Stand 4:8-11 Ja '64

Iterative and power series solutions for the large deflection of an annular membrane. A. B. Pifko and M. A. Goldberg. AIAA J 2:1340-2 Jl '64

Laboratory investigation of unstiffened triangular bracket plates. C. G. Salmon and others. diags Am Soc C E Proc 90 [ST 2 no 3879]:257-78 Ap '64

Large deflection of sandwich plates with orthotropic cores. A. M. Alwan. bibliog diags AIAA J 2:1820-2 O '64

Large elastic, plastic, and creep deflections of curved beams and axisymmetric shells. J. A. Stricklin and others. bibliog diags AIAA J 2:1613-20 S '64

Lateral resistance of piles in cohesionless soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 3 no 3909]:123-56 My '64

Lateral stability of glued laminated beams. R. F. Hooley and B. Madsen. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3948]: 201-18 Je '64

Linear bending theory of laminated cylindrical shells under axisymmetric load. B. Paul. diags A S M E Trans ser E 30:98-102 Mr '63; Discussion. 31:155-7 Mr '64

Mechanical stresses during the oxidation of copper and their influence on oxidation kinetics. W. Jaenicke and others. bibliog il diags Electrochem Soc J 111:1031-7 S '64

Method for determining deflections in beams of variable stiffness. K. T. Krishnaswamy. diags Am Concrete Inst J 60:157-60 Ja '63; Discussion. V. Petcu. 61:239-43 F '64

New design formulas for varying section rings. T. H. Lee. diags Product Eng 35:74-8 Jl 6 '64

New method for determining Poisson's ratio. S. C. Crow. bibliog il diags Materials Res & Stand 3:996-1002 D '63

Noncircular rings under radial load. F. Romano and D. Ranlet. bibliog diags Franklin Inst J 277:444-63 My '64

Nonlinear response of cylindrical shells subjected to dynamic axial loads. R. S. Roth and J. M. Klosner. bibliog diag AIAA J 2:1788-94 O '64

Numerical analysis of unsymmetrical bending of shells of revolution. B. Budiansky and P. P. Radkowski. diags AIAA J 1:1833-42 Ag '63; Discussion. G. A. Greenbaum. 2:590-2 Mr '64

Numerical methods in bending and buckling of plates. A. N. Sherbourne. bibliog Am Soc C E Proc 89 [ST 4 no 3588]:137-50 Ag '63; Discussion. W. C. Lennox. 90 [ST 2 no 3886]:367-8 Ap '64

Postbuckling behavior of heated skin panels. G. S. Johnston. diags AIAA J 2:141-2 Ja '64

Postbuckling behavior of orthotropic cylinders under axial compression. B. O. Almroth. AIAA J 2:1795-9 O '64

Sandwich cylinder instability under nonuniform axial stress. R. A. Gellatly and R. H. Gallagher. bibliog diag ALAA J 2:398-400 F '64

Scatter of observed buckling loads of pressurized shells. F. W. Niedenfuhr. bibliog diags AIAA J 1:1923-5 Ag '63; Discussion. 2:1165-6 Je '64

Shear of thin plates with flexible edge members. E. R. Bryan and W. M. El-Dakhakhni. bibliog il diags Am Soc C E Proc 90 [ST 4 no 3991]:1-14 Ag '64

Simple test for evaluating stress relaxation in bending. A. Fox. diags Materials Res & Stand 4:480-1 S '64

Solution of buckling problems by reduction method. P. Shuleshko. diags Am Soc C E Proc 90 [EM 3 no 3945]:147-69 Je '64

Southwell plot applied to lateral instability of beams. C. Massey. Engineer 218:320 Ag 28 '64

Stability of internally pressurized conical shells under torsion. V. I. Weingarten. bibliog il diag AIAA J 2:1782-8 O '64

Strength of elastically stabilized beams. R. W. Haussler. bibliog diags Am Soc C E Proc 90 [ST 3 no 3951]:219-64 Je '64; Correction. 90 [ST 5 no 4066]:247 O '64

Strength of the compression slab of T-beams subject to simple bending. G. Brendel. bibliog diags Am Concrete Inst J 61:57-76 Ja '64; Discussion. A. Siev. 61:1183-4 S '64

Theory of buckling of a porous slab and its thermoelastic analogy. M. A. Biot. diags A S M E Trans ser E 31:194-8 Je '64

Theory of internal buckling of a confined multilayered structure. M. A. Biot. bibliog diags Geol Soc Bul 75:563-8 Je '64

Thermoelasticity of heterogeneous aeolotropic plates. Y. Stavsky. bibliog Am Soc C E Proc 89 [EM 2 no 3486]:89-105 Ap '63; Discussion. R. Schmidt. 89 [EM 4 no 3616]:97 Ag '63; Reply. 90 [EM 1 no 3811]:161-2 F '64

Twisting and bending of plates with holes. W. Griffel. diags Product Eng 35:85-91 Mr 16 '64

Ultimate load of H-columns under biaxial bending. C. Birnstiel and J. Michalos. bibliog diags Am Soc C E Proc 89 [ST 2 no 3503]:161-97 Ap '63; Discussion. 89 [ST 5 no 3688]:363-6 O '63; Reply. 90 [ST 2 no 3886]:361-3 Ap '64

Ultimate strength of columns with biaxially eccentric loads. J. L. Meek. bibliog diags Am Concrete Inst J 60:1053-64 Ag '63; Discussion. 61:1999-2008 Mr '64

Uniqueness theorem for the nonlinear axisymmetric bending of circular plates. E. L. Reiss. bibliog AIAA J 1:2650-2 N '63

Unsymmetrical bending made easy by new formula. E. Czerniak. Eng N 172:146-7 Mr 19 '64

Useful solution for short cylindrical shells and other applications. S. E. Moore. bibliog diags Franklin Inst J 276:490-506 D '63

Variation in buckle shape in cylindrical shells under external pressure and axial load. W. H. Horton and S. C. Durham. bibliog AIAA J 2:943-4 My '64

See also

Pipe bending

Tube bending

BENDING machines

Specials make turbine blades. R. L. Hatschek. il Am Mach 108:84-6 O 12 '64

See also

Pipe bending machines

Numerical control

N/c cuts bender setup time. il diag Tool & Manuf Eng 52:75 F '64

Pines n/c bending machine bends steel or non-ferrous tubing 3/16 to two in. in diameter. il Am Mach/Metalworking Manuf 107:115 D 9 '63

BENDING moment

Allowable bearing capacity of initially bent piles. B. B. Broms. bibliog diags Am Soc C E Proc 89 [SM 5 no 3651]:73-90 S '63; Correction. 90 [SM 3 no 3907]:179 My '64

Analysis of long rectangular tanks resting on flat rigid supports. J. D. Davies. diags Am Concrete Inst J 60:487-99 Ap '63; Discussion. 60:1775-82 D '63

Bending moments of continuous beams. S. Kravitz. Product Eng 35:107-8 My 11 '64

Circular plates with bending moments applied at several points along the boundary. N. Gajendar. diag Roy Aeronautical Soc J 68:702-3 O '64

BENDING moment—*Continued*

Collapse of arches under repeated loading. V. Franciosi and others. bibliog diags Am Soc C E Proc 90 [ST 1 no 3803]:165-201 F '64; Discussion. 90 [ST 5 no 4066]:219-20 O '64

Discrete dynamic models for elasto-inelastic beams. R. K. Wen and T. Toridis. bibliog diags Am Soc C E Proc 90 [EM 5 no 4081]: 71-102 O '64

Elastic and inelastic lateral instability of I-beams. C. Massey. bibliog Engineer 216: 672-4 O 25 '63

Fillet rolling boosts fatigue life and bending moment of crankshafts. H. Chase. il diag Mach 70:140-3 Mr '64

Graphical method for determining reactions and bending moments in beams; data sheet. R. Feng. diag Machine Design 36:191-4 F 13 '64

Load-moment-curvature characteristics of reinforced concrete cross sections. E. O. Pfrang and others. diags Am Concrete Inst J 61:763-78 Jl '64

Moment coefficients for fixed-end beams to be used in the three-moment equation. T. D. Y. Fok and T. F. Mosure. diags Civil Eng 34:78 Ag '64

Rate of loading effect on moment-curvature relation in prestressed concrete beams. I. O. Oladapo. il diags Am Concrete Inst J 61: 871-87 Jl '64

Reinforcement requirements for girder web openings. E. P. Segner, jr. il diags Am Soc C E Proc 90 [ST 3 no 3919]:147-64 Je '64

Stability of frames under primary bending moments. L. W. Lu. bibliog il diags Am Soc C E Proc 89 [ST 3 no 3547]:35-62 Je '63; Discussion. 89 [ST 5 no 3688]:367-71 O; [ST 6 no 3743]:455-8 D '63; 90 [ST 1 no 3812]:235-9 F '64; Reply. 90 [ST 4 no 4001]:255-6 Ag '64

BENEFIT plans, Employees. See Employees benefit plans

BENTONITE

Bentonite, challenge for Canadian industry. J. S. Ross. il Can Min & Met Bul 57:648-52 Je '64

Bentonite films to protect steel from oxidation. S. Ray and W. O. Williamson. bibliog il J Ap Chem 13:509-16 N '63

Bentonite travels in air stream. il Iron Age 194:80-1 Ag 13 '64

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

New fast, accurate test measures bentonite in drilling mud. F. O. Jones, jr. Oil & Gas J 62:76-8 Je 1 '64

Rheological factors for bentonite suspensions. W. F. Gabrysh and others. bibliog diags Am Cer Soc J 46:523-9 N '63

Semi-permeability of bentonite membranes to brines. I. H. Milne and others. bibliog diags Am Assn Pet Geologists Bul 48:103-5 Ja '64

Spreading of organo-bentonites on water. W. H. Slabaugh. J Colloid Sci 19:165-72 F '64

Use of organo-clays as gas chromatographic stationary phases. J. V. Mortimer and P. L. Gent. bibliog Anal Chem 36:754-6 Ap '64

See also
Montmorillonite

BENZAL chloride. See Dichlorotoluene

BENZALDEHYDE

List of ferrocene-type polymers growing. D. S. Trifan and E. W. Neuse. diag Chem & Eng N 42:46-7 S 7 '64

BENZAMIDE

Condensations at the methyl groups of N-acetylbenzamide and diacetylimide by means of potassium amide in liquid ammonia. S. D. Work and others. bibliog Am Chem Soc J 86:872-6 Mr 5 '64

Mechanism of cyclisation of *o*-cyanobenzamide. J. Zabicky. Chem & Ind p236-7 F 8 '64

BENZENE

Alkylation of benzene with 1-hexene using aluminum chloride-nitroalkane catalysts. H. S. N. Setty and H. W. Prengle, jr. bibliog Ind & Eng Chem Fundamentals 3: 300-4 N '64

Alkylbenzenes. R. M. Roberts and others. bibliog Am Chem Soc J 86:2846-57 Jl 20 '64

Alkylbenzenes; dealkylation and fragmentation reactions induced by aluminum chloride-water. R. M. Roberts and others. bibliog Am Chem Soc J 85:3454-8 N 5 '63

Aromatic substitution; acetylation of benzene, alkylbenzenes, and halobenzenes with methyloxocarbonium (acetylium) hexafluoro- and hexachloroantimonate. G. A. Olah and others. bibliog Am Chem Soc J 86:2203-9 Je 5 '64

Aromatic substitution; ferric chloride and aluminum chloride catalyzed chlorination of benzene, alkylbenzenes, and halobenezenes. G. A. Olah and others. bibliog Am Chem Soc J 86:1055-60 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of benzene and alkylbenzenes with bromine in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-44 Mr 20 '64

Aromatic substitution; Friedel-Crafts acetylation of benzene, alkylbenzenes, and halobenzenes with acetyl halides and acetic anhydride. G. A. Olah and others. bibliog Am Chem Soc J 86:2198-202 Je 5 '64

Aromatic substitution; Friedel-Crafts isopropylation of benzene and methylbenzenes with isopropyl bromide and propylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1046-54 Mr 20 '64

Aromatic substitution; Friedel-Crafts *t*-butylation of benzene and methylbenzenes with *t*-butyl bromide and isobutylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1060-4 Mr 20 '64

Aromatic substitution; intact and dealkylating nitration of propylated and butylated alkylbenzenes with nitronium tetrafluoroborate. G. A. Olah and S. J. Kuhn. bibliog Am Chem Soc J 86:1067-70 Mr 20 '64

Benzene could be clue to oil finding. Oil & Gas J 62:125-6 Je 15 '64

Cis-azoxybenzenes; synthesis and structure. D. L. Webb and H. H. Jaffé. bibliog Am Chem Soc J 86:2419-21 Je 20 '64

Composition of straight chain alkylbenzenes by gas chromatography. W. J. Carnes. bibliog Anal Chem 36:1197-200 Je '64

Conversion of hexasubstituted benzenes to cyclohexadienones. A. J. Waring and H. Hart. bibliog Am Chem Soc J 86:1454-6 Ap 5 '64

Cupric bromide and alkylbenzenes; influence of water on nuclear bromination vs. side-chain attack. P. Kovacic and K. E. Davis. bibliog Am Chem Soc J 86:427-32 F 5 '64

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Electron spin resonance of triplets from benzene 1,4-diazooxides. E. Wasserman and R. W. Murray. bibliog Am Chem Soc J 86:4203-4 O 5 '64

Electrophilic attack of iodine monochloride on hexamethyl- and hexaethylbenzene in carbon tetrachloride. L. J. Andrews and R. M. Keefer. Am Chem Soc J 86:4158-61 O 5 '64

Formation of biphenyls from derivatives of benzene-1,4-diazooxide; electrophilic substitution. M. J. S. Dewar and K. Narayanaswami. bibliog Am Chem Soc J 86:2422-7 Je 20 '64

Ionization potentials of substituted benzenes and their charge-transfer spectra with tetracyanoethylene. E. M. Voigt and C. Reid. bibliog diags Am Chem Soc J 86: 3930-4 O 5 '64

Kinetic and equilibrium studies of benzene hydrogenation in batch recycle reactor. P. F. Korbach and W. E. Stewart. bibliog flow plan Ind & Eng Chem Fundamentals 3:24-7 F '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

Make phenol by radiation of benzene. A. Danno. bibliog diag Hydrocarbon Process & Pet Refiner 43:131-7 Ap '64

Mass spectrometric study of photoionization; apparatus and initial observations on acetylene, acetylene-d_2, benzene, and benzene-d_6. V. H. Dibeler and R. M. Reese. bibliog il diag J Res Nat Bur Stand 68A: 409-17 Jl '64

Metal containers for aqueous benzene-phenol dosimeters. F. W. Bloch and others. bibliog Nucleonics 22:77 Mr '64

Moderate growth ahead for benzene. Oil & Gas J 62:56-7 My 25 '64

Multiple charge-transfer bands in complexes involving aromatic donors. E. M. Voight. bibliog diags Am Chem Soc J 86:3611-17 S 20 '64

BENZENE—*Continued*

New linear law and effects relating the ultraviolet spectra of substituted benzenes and the migration (spectroscopic) moment. M. Ballester and others. bibliog Am Chem Soc J 86:4276-82 O 20 '64

Orbital degeneracy and the electron spin resonance spectrum of the benzene-1-*d* negative ion. R. G. Lawler and others. bibliog Am Chem Soc J 86:520-1 F 5 '64

Photochemical isomerization of di-*t*-butylbenzenes. A. W. Burgstahler and P. L. Chien. bibliog Am Chem Soc J 86:2940-1 Jl 20 '64

Photoisomerization of dialkylbenzenes. K. E. Wilzbach and L. Kaplan. Am Chem Soc J 86:2307-8 Je 5 '64

π-complex interactions; methyl substituted benzenes and naphthalenes with tetracyanoethylene. A. R. Lepley. bibliog diag Am Chem Soc J 86:2545-9 Jl 5 '64

Quaternary liquid system benzene-furfural-iso-octane-cyclohexane. C. J. Henty and others. bibliog diag J Ap Chem 14:148-55 Ap '64

Question of a benzene cation insertion reaction; a novel intramolecular electrophilic substitution. T. Cohen and J. Lipowitz. bibliog Am Chem Soc J 86:2515-16 Je 20 '64

Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64

Single-triplet crossing is efficient at low pressures; abstract. C. S. Parmenter. Chem & Eng N 42:46 S 14 '64

Studies of the chemistry of mercury in aqueous solution; the equilibrium quotient of aromatic mercuration for benzene and *p*-methoxyanisole. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4322-5 O 20 '64

Tautomerism in diazoaminobenzenes. T. Mitsuhashi and O. Simamura. Chem & Ind p578-9 Ap 4 '64

Use of frozen benzene as a filler while bending thin wall metal tubing. A. L. Blancett and F. B. Canfield. R Sci Instr 35:1088 Ag '64

Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diags Can J Chem Eng 42:82-4 Ap '64

Variations in the hyperfine splitting of benzene negative ion and on the value of Q. R. W. Fessenden and S. Ogawa. bibliog Am Chem Soc J 86:3591-2 S 5 '64

See also
Chlorobenzene

Analysis

Determination of total sulfur in benzene. bibliog diags Anal Chem 36:339-42 F '64

Manufacture

Benzene-from-toluene units being expanded. il Chem & Eng N 42:23-4 Jl 20 '64

Detol; Houdry process & chemical corp. flow diag Hydrocarbon Process & Pet Refiner 42:161 N '63

Hydeal; Universal oil products co. diag Hydrocarbon Process & Pet Refiner 42:180 N '63

Hydrodealkylation; the Atlantic refining co., Hydrocarbon research, inc. diag Hydrocarbon Process & Pet Refiner 42:178 N '63

Kerylbenzene (Rheinpreussen AG); Lurgi corp. diag Hydrocarbon Process & Pet Refiner 42:190 N '63

Kinetics of catalytic xylene hydrodealkylation. A. H. Weiss and L. C. Doelp. bibliog Ind & Eng Chem Proc Design 3:73-8 Ja '63

Litol; Houdry process & chemical co. diag Hydrocarbon Process & Pet Refiner 42:192 N '63

Thermal hydrodealkylation (THD); Gulf research and development co. flow diag Hydrocarbon Process & Pet Refiner 42:228 N '63

Spectra

Excited state p*K*'s; azobenzene and azoxybenzene. H. H. Jaffé and others. diag Am Chem Soc J 86:2932-4 Jl 20 '64

BENZENE hexachloride. See Hexachlorocyclohexane

BENZENESULFONATES

Aerobic biodegradability of linear alkylbenzene sulfonate. W. A. Sweeney. Soap & Chem Spec 40:45-7+ Mr '64

Allied to make linear alkylbenzene for soft detergents. Chem & Eng N 42:24 Mr 23 '64

ACS symposium on new processes in synthetic detergents, Chicago, Aug. 31. Soap & Chem Spec 40:63-6 S '64

Battle is shaping up in liquid syndets. diags Can Chem Process 48:71-2+ Je '64

Destruction of linear alkylate sulfonates in biological waste treatment by field test. C. E. Renn and others. il diag WPCF J 36:864-79 Jl '64

Detergent sulfonation with SO_3. W. Carasik and J. R. Hughey. il diags Soap & Chem Spec 40:49-52 Je '64

Development of a biologically degradable alkyl benzene sulfonate; abstract. R. C. Tarring. WPCF J 36:278 Mr '64

Effects of detergents on surface and ground water problems. W. A. Kline. bibliog il Am Oil Chem Soc J 40:656-9 N '63

Effects of synthetic detergents on lime-soda ash treatment. J. F. Malina, jr. and S. Tiyaporn. bibliog Am Water Works Assn J 56:727-38 Je '64

Esso takes some wraps off new detergent process. flowsheet Chem Eng 71:100 O 12 '64

Ion association in polyvalent symmetrical electrolytes; the conductance of manganese (II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64

New etchant brings out grain boundaries in martensitic steels. G. A. Dreyer and others. il Metal Prog 86:116-17 Jl '64

New insight into technology-market interplay. il Chem Eng 71:28 Ag 31 '64

New Ultra detergent intermediates facility. Soap & Chem Spec 40:249 My '64

Performance of LAS syndets. C. J. Stanberry, jr. and others. Soap & Chem Spec 40:43-6 Jl '64

Retardation of ABS in different aquifers. M. J. Suess. bibliog Am Water Works Assn J 56:89-91 Ja '64

Role of external variables in degradation of straight chain ABS. R. Fuhrmann and others. bibliog Soap & Chem Spec 40:51-3+ F '64

Synthetic detergents based on LAS. D. J. Foster and R. R. Fields. Soap & Chem Spec 40:49-52 Ag '64

Test compares detergent degradabilities. S. A. Klein and P. H. McGauhey. Chem & Eng N 42:44 Jl 27 '64

Transient intermediates in the biodegradation of straight chain ABS. R. D. Swisher. bibliog WPCF J 35:1557-64 D '63

Analysis

Infrared determination of alkyl branching in detergent ABS. C. D. Frazee and R. O. Crisler. Am Oil Chem Soc J 41:334-5 Ap '64

BENZHYDROL. See Benzohydrol

BENZIDINE

Microdetermination of selenium with 3,3′-diaminobenzidine by the ring oven technique and its application to air pollution studies. P. W. West and C. Cimerman. bibliog Anal Chem 36:2013-16 S '64

BENZIL

Effect of lithium ion on the mechanism of the polarographic reduction of benzil in dimethylformamide. R. H. Philp, jr. and others. Electrochem Soc J 111:1189-90 O '64

Fluorescence of the europium and terbium dibenzoylmethides. M. Metlay. bibliog Electrochem Soc J 111:1253-5 N '64

Stable trianion radicals. N. L. Bauld. Am Chem Soc J 86:3894-5 S 20 '64

BENZOATES

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Ion pairs and dissociated ions from trityl benzoate in moist acetone. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2720-1 Jl 5 '64

Ion pairs in reactions of trityl benzoate. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2718-20 Jl 5 '64

Mechanism of decomposition of sodium peroxybenzoate in alkaline solution. K. Akiba and O. Simamura. Chem & Ind p705-6 Ap 25 '64

Molecular and crystal structure of di-*p*-bromobenzoate of the methyl ester of gibberellic acid. J. A. Hartsuck and W. N. Lipscomb. bibliog diags Am Chem Soc J 85:3414-19 N 5 '63

Solvolysis of tricyclopropylcarbinyl benzoate. H. Hart and P. A. Law. bibliog Am Chem Soc J 86:1957-9 My 20 '64

BENZOCYCLOBUTADIENE

Cyclobutadiene fuses to one aromatic nucleus. M. P. Cava and others. il Chem & Eng N 42:36-7 Ja 20 '64

BENZOCYCLOPROPENE

Synthesis of a benzocyclopropene derivative. R. Anet and F. A. L. Anet. bibliog Am Chem Soc J 86:525-6 F 5 '64

BENZODIAZEPINE

Polarography of some benzodiazepines. B. Z. Senkowski and others. bibliog Anal Chem 36:1991-4 S '64

Stability of di- and trimethyl-1, 5-benzodiazepines and their salts. J. O. Halford and R. M. Fitch. bibliog Am Chem Soc J 85:3354-8 N 5 '63

BENZOFURAN

Formation of *cis*- and *trans*-perhydrobenzofurans from 2-(2-methoxycyclohexyl)ethanol derivatives; reactions proceeding through methoxyl participation. S. E. Cantor and D. S. Tarbell. bibliog Am Chem Soc J 86:2902-9 Jl 20 '64

BENZOHYDROL

Inhibition of light-induced reactions by mercaptans and disulfides; benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64

Photochemical studies in an alkali halide matrix; an *o*-nitrobenzaldehyde actinometer and its application to a kinetic study of the photoreduction of benzophenone by benzhydrol in a pressed potassium bromide disk. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:3606-10 S 20 '64

Reactions of 2-nitrobenzhydrol, including a novel aromatic nucleophilic displacement. W. B. Dickinson. bibliog Am Chem Soc J 86:3580-1 S 5 '64

BENZOHYDRYLIDENE. See Diphenyl methane

BENZOIC acid

Determination of polychlorinated benzoic acid herbicide residues by gas chromatography. J. J. Kirkland and H. L. Pease. bibliog diag J Agri & Food Chem 12:468-72 S '64

Direct conversion of pyridine to benzoic acid. L. Schmerling and W. G. Toekelt. Am Chem Soc J 86:1259 Mr 20 '64

Ionization constants of 3,5-dimethyl 4-substituted benzoic acids. J. P. Schaefer and T. J. Miraglia. bibliog Am Chem Soc J 86:64-7 Ja 5 '64

ρ-σ-π analysis; a method for the correlation of biological activity and chemical structure. C. Hansch and T. Fujita. bibliog Am Chem Soc J 86:1616-26 Ap 20 '64

Segregation of benzoic acid-*d* from benzoic acid by zone melting. G. J. Sloan. diag Am Chem Soc J 85:3899-900 D 5 '63

Analysis

Quantitative determination of maleic anhydride, benzoic acid, naphthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

Manufacture

Benzoic acid, dimethyl terephthalate and terephthalic acid; Mid-Century corp. diags Hydrocarbon Process & Pet Refiner 42:152 N '63

BENZONITRILE

Reaction of triphenylaluminium with benzonitrile. G. K. J. Gibson and D. W. Hughes. Chem & Ind p544 Mr 28 '64

BENZOPHENANTHRENE

Synthesis and ionization constants of the six aminobenzo[*c*]phenanthrenes. M. S. Newman and J. Blum. bibliog Am Chem Soc J 86:1835-9 My 5 '64

BENZOPHENONE

Excited states in the photolysis of carbonyl compounds; the photosensitized decomposition by benzophenone. P. Borrell. Am Chem Soc J 86:3156-7 Ag 5 '64

Hydrogen abstraction by the triplet state of benzophenone. C. Walling and M. J. Gibian. bibliog Am Chem Soc J 86:3902-3 S 20 '64

Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64

Inhibition of light-induced reactions by mercaptans and disulfides; benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64

Isolation of intermediate alkali salt in *ortho*-substitution rearrangement of benzyltrimethylammonium ion as benzophenone adduct. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1105-7 Mr 20 '64

Photochemical studies in an alkali halide matrix; an *o*-nitrobenzaldehyde actinometer and its application to a kinetic study of the photoreduction of benzophenone by benzhydrol in a pressed potassium bromide disk. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:3606-10 S 20 '64

Possible formation of crossed pinacols in the photolysis of benzaphenone mixtures. H. W. Johnson, jr. and others. Chem & Ind p 1493 Ag 22 '64

Submicrodetermination of oxygen-18-benzophenone by infrared spectrometry. I. Laulicht and S. Pinchas. Anal Chem 36:1980-1 S '64

Ultra-violet absorbers in finishing materials. Ind Finishing 40:108-10 N '63

BENZOPYRENE

Application of thin layer chromatography to the analysis of atmospheric pollutants and determination of benzo[*a*]pyrene. E. Sawicki and others. bibliog Anal Chem 36:497-502 Mr '64

Photochemical addition of benzo[*a*]pyrene to pyrimidine derivatives. J. M. Rice. Am Chem Soc J 86:1444-6 Ap 5 '64

Studies of hydrocarbons on mineral dusts. J. S. Harington and M. Smith. bibliog Archives Environmental Health 8:453-8 Mr '64

BENZOPYRYLIUM compounds

Benzopyrylium salts; reaction of flavylium perchlorate with ethyl esters of α-amino acids. R. L. Shriner and R. Sutton. bibliog Am Chem Soc J 85:3989-91 D 20 '63

Benzopyrylium salts; the synthesis and properties of 7-dimethylaminoflavylium salts. W. C. Baird, jr. and R. L. Shriner. bibliog Am Chem Soc J 86:3142-5 Ag 5 '64

Some benzopyrylium compounds potentially useful as color additives for fruit drinks and juices. L. Jurd. Food Tech 18:559-61 Ap '64

BENZOTHIAZOLE

Three kinds of polymers show thermal stability; polyimides near commercialization; polybenzothiazoles, polyquinoxalines at earlier stage. il Chem & Eng N 42:55-7 Ap 13 '64

Vulcanization; fate of curing system during sulfur curing of NR accelerated by MBT derivatives and activated by zinc stearate. R. H. Campbell and R. W. Wise. bibliog Rubber Chem & Tech 37:650-67 Jl '64

Vulcanization; fate of curing system during the sulfur vulcanization of natural rubber accelerated by benzothiazole derivatives. R. H. Campbell and R. W. Wise. bibliog diag Rubber Chem & Tech 37:635-49 Jl '64

Vulcanization; the formation of cross-links in the system; natural rubber-sulfur-MBT-zinc ion. A. Y. Coran. bibliog Rubber Chem & Tech 37:679-88 Jl '64

BENZOTRIAZOLE

Analysis

Determination of 2,6-di-*tert*-butyl-*p*-cresol and 2(2′hydroxy, 5′-methylphenyl) benzotriazole in polystyrene by gas liquid chromatography. C. B. Roberts and J. D. Swank. Anal Chem 36:271-3 F '64

BENZOTRIFLUORIDE. See Trifluorotoluene

BENZOXEPIN

1,6-Oxido[10]annulene and 1-benzoxepin. F. Sondheimer and A. Shani. Am Chem Soc J 86:3168-9 Ag 5 '64

BENZOYLBENZOATE

Mechanisms of esterification of 2-benzoylbenzoic acids. M. S. Newman and C. Courduvelis. Am Chem Soc J 86:1893-4 My 5 '64

BENZOYL compounds

New crystalline derivatives of sugars; *p*-benzoylaminobenzoyl esters. J. Kiss. Chem & Ind p32 Ja 4 '64

BENZYLAMINE

Extraction of uranium(VI) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Studies of oxidation of benzylamines with neutral potassium permanganate and the chemistry of the products thereof. H. Shechter and others. bibliog Am Chem Soc J 86:1701-5 My 5 '64

BENZYL chloride. See Chlorotoluene

BENZYL compounds

Extraction of thorium from nitric acid solutions by some cyclohexyl- and benzyl-alkylamines. T. Sato. bibliog J Ap Chem 14:41-6 Ja '64

Polarographic studies in acetonitrile and dimethylformamide. S. Wawzonek and others. bibliog Electrochem Soc J 111:74-8 Ja '64

BENZYLOXYCARBONYL group

Specific determination of barbobenzyloxy groups. A. Yaron and others. bibliog diag Anal Chem 36:1387-9 Je '64

BENZYNE

Benzyne. R. S. Berry and others. Am Chem Soc J 86:2738-9 Jl 5 '64

BERGEN COUNTY, New Jersey

See also

Sewerage—Bergen County, New Jersey

BERLIN, Theodore H.

Work of T. H. Berlin in statistical mechanics. M. Kac. por Phys Today 17:40-2 O '64

BERLIN

Architecture

Acoustics in-the-round at the Berlin Philharmonic. R. S. Lanier. il plans diag Arch Forum 120:98-105 My '64

BERMUDA

See also

Geology—Bermuda

Rock products industry—Bermuda

BERRIES

See also

Boysenberries

Cranberries

BERYLLIOSIS. See Beryllium poisoning

BERYLLIUM

Beryllium and fiberglass new gas turbine lightweights? D. B. King and others. il diag S A E J 72:76-82 Je '64

Beryllium as a structural material. S. Gelles and others. bibliog il diags J Metals 15:843-8 N '63

Beryllium brakes. il Light Metal Age 22:20 Je '64

Beryllium brakes refused to wear out on Foyt's Indy-500 racer. il Machine Design 36:6 Je 18 '64

Beryllium gains as a structural material. il Chem & Eng N 42:27 F 24 '64

Beryllium, 1963. N. W. Bass. Eng & Min J 165:124 F '64

BeO phase transformation. J. B. Conway and R. A. Hein. bibliog Nucleonics 22:71 Je '64

Distribution of beryllium in the Oslo region, Norway; a geochemical, stream sediment study. J. W. Brinck and A. Hofmann. bibliog map Econ Geol 59:79-96 Ja '64

First beryllium spacer for missile structure. il Materials in Design Eng 59:113+ My '64

Internal friction in beryllium. C. Y. Ang and K. T. Kamber. J Ap Phys 34:3405-7 N '63

International conference on beryllium technology, 2d, Philadelphia, Oct. 15-17; abstracts of papers. J Metals 16:693-9 S '64

Orientation of vacuum-deposited Be thin films. R. R. Verderber. il diags J Ap Phys 35:1642-4 My '64

Preparation of beryllium specimens for transmission electron microscopy by the Knuth system of electropolishing. F. J. Wilhelm. bibliog diag J Sci Instr 41:343-4 My '64

Pressure-bonding beryllium. il Nucleonics 21:72 O '63

Properties of materials; hafnium, thorium, uranium, vanadium, beryllium; wrought; tables. Materials in Design Eng 60:180 Mid-O '64

Rare alkali and beryllium mineralization in volcanic tuffs, Honey Comb Hills, Juab County, Utah. W. N. McAnulty and A. A. Levinson. map Econ Geol 59:768-74 Ag '64

Soldering of beryllium metal. E. E. Weismantel and K. C. Taber. il Welding J 43:sup57-62 F '64

Technique for minimizing the specific weight of a finned beryllium space radiator. B. S. Leo. diag AIAA J 1:2847-8 D '63

Time resolution of streak cameras equipped with rotating mirrors of beryllium. J. K. Landré. il diags R Sci Instr 35:796-801 Jl '64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

Analysis

Analysis of total beryllium in beryllium metal by gamma activation. H. L. Rook. bibliog diags Anal Chem 36:2211-12 O '64

Emission spectrometric determination of beryllium in oilfield waters using plasma arc. A. G. Collins and C. A. Pearson. bibliog Anal Chem 36:787-9 Ap '64

Metallography

Fusion welding of beryllium. E. M. Passmore. bibliog il diag Welding J 43:sup 116-25 Mr '64

Welding

Fusion welding of beryllium. E. M. Passmore. bibliog il diag Welding J 43:sup 116-25 Mr '64

BERYLLIUM alloys

Beryllium alloy used in pressure vessel. il Chem & Eng N 42:50+ Je 15 '64

Beryllium-aluminum alloys, promising new structural metals. R. W. Fenn, jr. and others. il Materials in Design Eng 60:103-5 S '64

Beryllium copper alloy has new applications. il Welding Eng 49:68 S '64

Beryllium-copper alloys. K. G. Wikle and L. D. Alspach. il diags Machine Design 36:153-71 Jl 16 '64

Beryllium nickel plungers. O. H. Samuelson. il Glass Ind 45:249-50 My '64

Beryllium teams up with aluminum; Lockalloy. Iron Age 194:90 S 17 '64

Develop tougher beryllium with higher elastic limit. il Mod Metals 19:52 N '63

Ductile beryllium-aluminum alloys broaden potential uses. R. W. Fenn, jr. and D. D. Crooks. Space/Aeronautics 42:73+ O '64

High temperature oxidation resistance of the beryllides. R. M. Paine and others. Corrosion 20:307-13 O '64

Highly workable new alloy of beryllium + aluminum; Lockalloy. il Mod Metals 20:72-3 S '64

How to heat treat beryllium copper. J. B. Kuhn. il Metallurgia 68:155-9 O '63

Mechanical properties of beryllium copper wire and springs. R. D. Crooks and W. R. Johnson. Metal Prog 85:89-91 My '64

Metal selector; beryllium-containing alloys. Steel 155:sup S 19 O 12 '64

New beryllium nickel alloy sheet in production. il Light Metal Age 21:10 O '63

Probable berylliosis from beryllium alloys. J. Lieben and others. bibliog Archives Environmental Health 9:473-7 O '64

Welding of submarine cable repeaters. H. W. Garbe and P. A. Yeisley. il Welding J 43:287-95 Ap '64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

BERYLLIUM compounds

Oxidation kinetics of $ZrBe_{13}$ and $NbBe_{12}$. G. Ervin, jr. and M. M. Nakata. bibliog il diags Electrochem Soc J 110:1103-10 N '63

BERYLLIUM metallurgy

High beryllium recoveries possible from low-grade ore. Chem & Eng N 42:45 Ag 31 '64

Production problems associated with the element beryllium. P. H. Evans. il Chem & Ind p632-44 Ap 18 '64

BERYLLIUM ores

Association of beryllium with tin deposits rich in fluorite. C. L. Sainsbury. bibliog Econ Geol 59:920-6 Ag '64

BERYLLIUM oxide

Calcination of BeO from basic acetate-derived $Be(OH)_2$. R. C. Rau. bibliog il Am Cer Soc J 47:179-84 Ap '64

Cleavages of BeO and other minerals having the wurtzite structure. V. D. Frechette and C. F. Cline. Am Mineralogist 48:1381-3 N '63

Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64

Crystal structure and polarity of beryllium oxide. D. K. Smith and others. bibliog il diags Electrochem Soc J 111:78-87 Ja '64

Dielectric; composite material features increased thermal conductivity. Plastics World 22:48 F '64

Metal-filled encapsulant; beryllium oxide raises thermal conductivity. il Plastics World 22:36 O '64

Method and apparatus for determination of small isotopic oxygen variations in beryllium oxide. R. A. Meyer and others. bibliog diags Anal Chem 35:2144-6 D '63

BERYLLIUM phosphates

Crystallography of faheyite, Sapucaia pegmatite mine, Minas Gerais, Brazil. M. L. Lindberg. diag Am Mineralogist 49:395-8 Mr '64

BERYLLIUM poisoning

Biological action of beryllium; reaction of the monkey to inhaled aerosols. G. W. H. Schepers. bibliog il Ind Med 33:1-16 Ja '64

Effectiveness of aurin tricarboxylic acid (ATA) as an antidote for beryllium poisoning. M. E. King and others. bibliog Ind Med 33:566-9 Ag '64

Probable berylliosis from beryllium alloys. J. Lieben and others. bibliog Archives Environmental Health 9:473-7 O '64

Production problems associated with the element beryllium. P. H. Evans. il Chem & Ind p632-44 Ap 18 '64

Two approaches to exhausting toxic particles. M. Birken. il diags Plant Eng 18:126-9 Ap '64

BERYLLIUM work

Beryllium blast-off. il Mod Metals 20:70+ Mr '64

Beryllium goes structural. il Mach 70:144 Ap '64

Beryllium machining made easy. A. Waigandt. il Am Mach/Metalworking Manuf 107: 108-9 O 14 '63

Beryllium research opens new markets in aerospace. il Steel 154:57 F 24 '64

Beryllium structures. R. N. Kelly. il diag Space/Aeronautics 42:64-73 Jl '64

Electric discharge machining of beryllium. il Light Metal Age 22:15 F '64

New beryllium nickel alloy sheet in production. il Light Metal Age 21:10 O '63

BESSEL functions

Expansion of the generalized exponential integral in terms of Bessel functions. A. S. Meligy and E. M. El Gazzy. bibliog J Math & Phys 43:60-4 Mr '64

Integral $\int_0^1 s^v(1 - s)^v \,|\sin xs|\, ds$, with an application to Schlomilch series. M. L. Glasser. bibliog J Math & Phys 43:158-62 Je '64

Quadrature of some exponential transforms of cylindrical functions. J. Kane. J Math & Phys 43:140-3 Je '64

Some infinite sums involving zeros of $J_0(X)$. L. F. Epstein. bibliog J Res Nat Bur Stand 68B:17-26 Ja '64

Zeroes of Bessel functions and eigenvalues of non-self adjoint boundary value problems. D. S. Cohen. bibliog J Math & Phys 43:133-9 Je '64

BETA rays

Thickness measurement of polymer films for infrared spectrometry by beta-ray absorption. T. A. Veerkamp and others. Anal Chem 36:2277-8 N '64

Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64

Measurement

Low-level beta counting and absorption measurement with liquid scintillators. P. K. Zutshi. bibliog diags Nucleonics 21:50-3 S '63

Measurement uses

Beta gauge measures thin metallic films. diag Can Chem Process 48:73+ Ap '64

Beta radiation hardness gage. W. A. Wilson. bibliog il diag I S A J 10:64-8 D '63

Blast wave density gauge using beta-radiation. J. M. Dewey and W. A. Anson. bibliog diags J Sci Instr 40:568-72 D '63

Closed loop control of basis weight; application of a beta gage system. J. G. Dipre. il diags Tappi 46:sup 178A-81A N '63

Electronics watch cigarette filling. P. J. Robins. il diag Ind Electronics 2:135-7 Mr '64

Film extrusion with beta gages; quality up, costs down. G. R. Gerhard. Plastics Tech 10:39-43 F '64

Non-destructive thickness measurement; beta-ray back-scatter method. B. B. Joffe and R. S. Modjeska. diags Metal Finishing 61:44-9 D '63

Ohmart beta gage system inspects sheet thickness or basis weight continuously. il Am Mach/Metalworking Manuf 107:117 N 25 '63

System described for automating extruder die adjustment; beta gage seminar. Plastics Tech 10:59 My '64

BETATRON

31mev betatron for the radiography of steel castings. il Engineer 216:779 N 8 '63

BEVEL gearing. See **Gearing, Bevel**

BEVERAGES

Carbon dioxide stability in beverages. F. J. Miller. Food Tech 18:850-3 Je '64

Cola to be sold in aluminum cans. Mod Metals 20:86 Jl '64

Sensory testing guide for panel evaluation of foods and beverages. bibliog Food Tech 18:1135-41 Ag '64

Some benzopyrylium compounds potentially useful as color additives for fruit drinks and juices. L. Jurd. Food Tech 18:559-61 Ap '64

Stands by itself; flat-bottom pouch for soft drinks. il Food Eng 36:70 Jl '64

See also

Beer

Fruit juices

Wine

BICYCLES

Moulton's new bicycle is first basic change since 1876. diags Product Eng 34:41 D 23 '63

Sturmey-Archer AW three-speed hub. il diags Engineering 198:114-16 Jl 24 '64

BICYCLOBUTANE

Simple synthesis of bicyclo[1.1.0]butane and its relation to the internal conversion of electronic energy in 1,3-butadiene. R. Srinivasan. bibliog Am Chem Soc J 85:4045-6 D 20 '63

BICYCLOHEPTADIENE

Detailed analysis of the 7-norbornadienyl carbonium ion nuclear magnetic resonance spectrum. P. R. Story and others. bibliog diags Am Chem Soc J 85:3630-4 N 20 '63

Mechanism of the pyrolysis of bicyclo[2.2.1] heptadiene; kinetics of the bicyclo[2.2.1] heptadiene to toluene isomerization. W. C. Herndon and L. L. Lowry. bibliog Am Chem Soc J 86:1922-6 My 20 '64

Nuclear magnetic resonance spectra of some norbornadienes and norbornenes. E. I. Snyder and B. Franzus. bibliog Am Chem Soc J 86:1166-71 Mr 20 '64

Nuclear magnetic resonance study of the products from an unusual reaction of norbornadiene: the ionic addition of N-chlorodiethylamine in sulfuric acid-acetic acid. R. S. Neale and E. B. Whipple. bibliog Am Chem Soc J 86:3130-7 Ag 5 '64

Photolysis of $\Delta^{2,5}$-bicyclo[2.2.1] heptadiene in the vapor phase. B. C. Roquitte. Am Chem Soc J 85:3700 N 20 '63

Preparation and reactions of some 7-silanorbornadienes; an approach to dimethylsilylene. H. Gilman and others. bibliog Am Chem Soc J 86:1596-9 Ap 20 '64

Solvent-senitive rearrangement of 7-substituted norbornadienes to cycloheptatriene using complex hydrides. B. Franzus and E. I. Snyder. bibliog Am Chem Soc J 85: 3902-3 D 5 '63

BICYCLOHEPTENE

Analysis of the nuclear magnetic resonance spectra of norbornene derivatives. P. Laszlo and P. V. Schleyer. bibliog Am Chem Soc J 86:1171-9 Mr 20 '64

Deuterium tracer studies on the course of addition to norbornene. H. Kwart and J. L. Nyce. bibliog Am Chem Soc J 86:2601-6 Jl 5 '64

Norbornene forms cis adducts with NOCl. J. Meinwald and others. Chem & Eng N 42: 40-2 O 12 '64

Nuclear magnetic resonance spectra of some norbornadienes and norbornenes. E. I. Snyder and B. Franzus. bibliog Am Chem Soc J 86:1166-71 Mr 20 '64

Reaction of acyl azides with norbornylene. L. H. Zalkow and others. Chem & Ind p 1556-7 S 5 '64

Substituent effects on nuclear magnetic resonance chemical shifts in *para*-substituted phenylhexachlorobicyclo[2.2.1]heptenes and ethylbenzenes. K. L. Williamson and others. bibliog Am Chem Soc J 86:4021-5 O 5 '64

BICYCLOHEXANE

Kinetics of the thermal isomerization of bicyclo[2.1.1]hexane. R. Srinivasan and A. A. Levi. Am Chem Soc J 85:3363-5 N 5 '63

BICYCLONONANE

Proximity effects; solvolysis of *cis*-bicyclo [6.1.0]nonane. A. C. Cope and G. L. Woo. bibliog Am Chem Soc J 85:3601-8 N 20 '63

BICYCLONONATRIENE

Thermal and photochemical valence tautomerism of bicyclo[6.1.0]-nona-2,4,6-triene derivatives. G. J. Fonken and W. Moran. bibliog Chem & Ind p 1841-2 N 16 '63

Thermal rearrangement of 9-ethoxycarbonylbicyclo[6.1.0]nona-2,4,6-triene. K. F. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:905-8 Mr 5 '64

BICYCLOOCTANE

2-*Exo,cis*-bicyclo[3.3.0]octane derivatives via free-radical additions to *cis,cis*-1,5-cyclooctadiene. L. Friedman. Am Chem Soc J 86:1885-6 My 5 '64

BICYCLOOCTATRIENE

Chemistry of barrelene; a remarkable transformation to naphthalene derivatives. H. E. Zimmerman and G. L. Grunewald. bibliog Am Chem Soc J 86:1434-6 Ap 5 '64

Heat of hydrogenation of bicyclo [2.2.2] octa-2,5,7-triene. R. B. Turner. Am Chem Soc J 86:3586-7 S 5 '64

BICYCLOOCTENE

Oxymercuration of olefins; *cis*- and *trans*-oxymercuration of bicyclo[2.2.2]oct-2-ene. T. G. Traylor. diags Am Chem Soc J 86:244-8 Ja 20 '64

Stereochemistry of the copper-salt-catalyzed reaction of *t*-butyl perbenzoate with optically active bicyclo[3.2.1]octene-2. H. L. Goering and U. Mayer. bibliog Am Chem Soc J 86:3753-6 S 20 '64

BIDDING (contracts). See Contracts, Letting of

BILE acids

Enhancement of calcium absorption in man by a bile acid sequestrant. A. M. Briscoe and C. Ragan. Am J Clinical Nutrition 13:277-84 bibliog(p283-4) N '63

BILLING

Bill carries per-day cost of electricity. il Elec World 162:61 Jl 27 '64

Data processing firmly entrenched in billing. Elec World 161:111 Ap 20 '64

Summer billing. F. J. Maguire. Am Gas Assn Mo 46:25-6 My '64

BILLINGSLEY, Paul

Memorial; with bibliography of his publications. M. S. Hedley. por Geol Soc Bul 75: sup 133-7 S '64

BINAPHTHYL. See Dinaphthyl

BINARY number system. See Numeration

BINDING materials

Investigation of binders for solid lubricants at elevated temperatures. B. C. Stupp and J. W. Wright. il Lub Eng 19:463-8; Discussion. 469 N '63

Petroleum residuals in prebaked carbon anode binders. M. B. Dell. il Ind & Eng Chem Product Res & Develop 3:250-1 S '64

Using catalyzed dextrose binder in dry sand molds. F. H. Hohn. il Foundry 92:186+ O '64

See also

Adhesives
Resinous products—Binding materials
Road materials

BINS

Design your bins for free flow. A. W. Jenike. il diags Mod Materials Handling 19:48-51 N '64

Dynamic pressure of granular material in deep bins. A. M. Turitzin. bibliog diags Am Soc C E Proc 89 [ST 2 no 3479]:49-73 Ap '63; Discussion. 89 [ST 5 no 3658]:337-46 O; [ST 6 no 3743]:451-2 D '63; Reply. 90 [ST 2 no 3886]:357-9 Ap '64

Large PE bin for fruit-picker is vacuum formed of ½-in. sheet. il Mod Plastics 42:111 O '64

New design criteria for hoppers and bins. J. R. Johanson and H. Colijn. bibliog il diags Iron & Steel Eng 41:85-98; Discussion. 98-104 O '64

1964 materials handling and packaging directory: storage equipment. il Mod Materials Handling 19:241-66 My '64

Rational approach to bulk bin-storage-system design; abstract. J. E. Kersten. Combustion 35:28 Ja '64

Segregation of particles in the storage of materials. J. F. Van Denburg and W. C. Bauer. bibliog diags Chem Eng 71:135-40+ S 28 '64

Why bins don't flow. A. W. Jenike. il diags Mech Eng 86:40-3 My '64; Excerpts. Combustion 35:27-8 Ja '64

Wirebound returnables serve double purpose. il Mod Materials Handling 18:77 D '63

BINS, Aluminum

Containers boost plant capacity. il Mod Materials Handling 18:71 D '63

BIOASSAY. See Biological assay

BIOCHEMICAL oxygen demand. See Sewage—Testing; Trade waste—Testing

BIOCHEMICAL research

British Petroleum expands protein-from-oil research. Chem & Eng N 42:41 Ja 20 '64

Role of the electroanalytical chemist in biochemical research. W. C. Purdy. bibliog il Anal Chem 36:sup29A-39A Ap '64

BIOCHEMISTRY

Availability of microbially synthesized thiamine in the rat. J. Yudkin. bibliog J Nutrition 81:183-6 N '63

Biochemical changes in progressive muscular dystrophy. N. K. Sarkar and U. Srivastava. bibliog J Nutrition 83:193-201 Jl '64

Biochemistry of industrial micro-organisms. C. Rainbow and A. H. Rose, eds. Review, by L. A. Allen. Chem & Ind p877-80 My 23 '64

Biochemistry of lignin. F. F. Nord. bibliog Tappi 47:624-8 O '64

Biochemistry of lungs in relation to silicosis; effect of quartz dust on the protein amino acids of guinea pig lung tissue. P. Baily and others. bibliog Archives Environmental Health 8:547-54 Ap '64

Biochemists see new nitrogen fixation path. R. W. F. Hardy and A. J. D'Eustachio. Chem & Eng N 42:23-4 Ap 6 '64

Biologically active organosilicons found. R. J. Fessenden and M. D. Coon. il Chem & Eng N 42:60 S 14 '64

Biosynthesis of anabasine; origin of the nitrogen of the piperidine ring. E. Leete and others. bibliog Am Chem Soc J 86:3907-8 S 20 '64

Biosynthesis of azetidine-2-carboxylic acid. E. Leete. Am Chem Soc J 86:3162 Ag 5 '64

Biosynthesis of coniine from four acetate units. E. Leete. Am Chem Soc J 85:3523-4 N 5 '63

Biosynthesis of cordycepin. R. J. Suhadolnik and others. bibliog Am Chem Soc J 86:948-9 Mr 5 '64

Biosynthesis of gramine; the immediate precursors of the alkaloid. B. G. Gower and E. Leete. bibliog Am Chem Soc J 85:3683-5 N 20 '63

Biosynthesis of nicotine in nicotiana glutinosa from carbon-14 dioxide. W. L. Alworth and others. bibliog Am Chem Soc J 86:1608-16, 3375-81 Ap 20, Ag 20 '64

Biosynthesis of the alkaloids of colchicum. E. Leete. bibliog Am Chem Soc J 85:3666-9 N 20 '63

Biosynthesis of the hemlock alkaloids; the incorporation of acetate-1-C^{14} into coniine and conhydrine. E. Leete. bibliog Am Chem Soc J 86:2509-13 Je 20 '64

Biosynthesis of the nicotiana alkaloids; the incorporation of glycerol-2-C^{14} into the pyridine ring of anabasine. E. Leete and A. R. Friedman. bibliog Am Chem Soc J 86:1224-6 Mr 20 '64

Concerning the nonphotochemical biosynthesis of vitamin D$_3$ in fish. G. A. Blondin and others. bibliog Am Chem Soc J 86:2528-9 Je 20 '64

DNA and the chemistry of inheritance. B. Commoner. bibliog diags Am Scientist 52:365-88 S '64

Endogenous formation of Δ^{5,7,24}-cholestatrien-3β-ol. D. Dvornik and others. bibliog Am Chem Soc J 86:2739-41 Jl 5 '64

Heriot-Watt college, Edinburgh. Department of brewing and applied biochemistry. Chem & Ind p 1828-9 N 16 '63

Labatt's diversifies into biochemicals. il Can Chem Process 48:58-9 Mr '64

Method for assaying thiamine status in man and animals. H. Baker and others. bibliog Am J Clinical Nutrition 14:197-201 Ap '64

Possible intermediates in the biosynthesis of deoxyribonucleotides; the synthesis of cytidine 2′-phosphate 5′-diphosphate. J. P. H. Verheyden and J. G. Moffatt. bibliog Am Chem Soc J 86:1236-41 Mr 20 '64

Review of fundamental developments in analysis; biochemical analysis. P. B. Hamilton. Anal Chem 36 [no 5]:3R-13R bibliog(p 10R-13R) Ap '64

Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

See also

Antigens and antibodies
Enzymes
Fermentation
Fungicides
Hemoglobin
Microorganisms
Nucleoproteins
Porphyrins
Proteins

Study and teaching

Training for the fermentation industry. J. J. H. Hastings. Chem & Ind p 1475-9 Ag 22 '64

BIOCHEMISTRY—*Continued*

Technique

Techniques de laboratoire; vol. 1, Chimie physique-chimie biologique. J. Loiseleur, ed. Review, by B. N. Bowden. Chem & Ind p 1016-18 Je 13 '64

BIOLOGICAL apparatus

See also
Electrocardiograph

BIOLOGICAL assay

Assay of phosphatase activity by direct spectrophotometric determination of phenolate ion. L. L. Salomon and others. bibliog Anal Chem 36:1162-4 My '64

Comparison of vitamin B_6 values of selected food samples by bioassay and microbiological assay. E. W. Toepfer and others. bibliog J Agri & Food Chem 11:523-5 N '63

Detection of pesticides in water by biochemical assay. C. M. Weiss and J. H. Gakstatter. bibliog WPCF J 36:240-53 F '64

Essential fatty acid contents of various fats; interpretations of values by physico-chemical tests. R. B. Alfin-Slater and D. Melnick. bibliog Am Oil Chem Soc J 41:145-50 F '64

Gambusia; industrial effluent monitors. R. C. Davis. Water & Sewage Works 111:259-61 Je '64

Liquid scintillation counting of promethium-147, bioassay procedure. J. D. Ludwick. Anal Chem 36:1104-6 My '64

Microbiological and enzymatic assays of riboflavin analogues. C. S. Yang and others. bibliog J Nutrition 84:167-72 O '64

Photodynamic bioassay of polycyclic air pollutants. S. S. Epstein and others. bibliog Archives Environmental Health 7:531-7 N '63

BIOLOGICAL laboratories

Equipment

Nuclear instrumentation for medicine and biology; special report. bibliog il diags Nucleonics 21:45-68 O '63

Test new electric incinerator design for sterilizing laboratory air. G. J. Harris and others. bibliog diag Heating-Piping 36:94-5 F '64

BIOLOGICAL materials

Cryogenic biological container. R. F. O'Connell and W. Haumann. il Materials in Design Eng 59:133 Ap '64

Sols allow rebuilding biological materials; rebuild cow's aorta from sols of its three main layers. H. Thiele. il Chem & Eng N 42:40-1 Je 15 '64

See also
Urine

Analysis

Adaptation of a galvanic cell for microanalysis of oxygen. H. Lipner and others. bibliog diags Anal Chem 36:204-6 Ja '64

Chemical analysis in silicosis research. J. S. Harington and T. A. Kilroe-Smith. bibliog Archives Environmental Health 9:395-7 S '64

Determination of acetic acid in blood and other tissues by vacuum distillation and gas liquid chromatography. D. Lester. bibliog diag Anal Chem 36:1810-12 Ag '64

Determination of carbohydrates in glycolipides and gangliosides by gas chromatography. C. C. Sweeley and B. Walker. bibliog Anal Chem 36:1461-6 Jl '64

Determination of hydrolytically-stable boron hydrides in biological materials. A. H. Soloway and J. R. Messer. bibliog Anal Chem 36:433-4 F '64

Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64

Determination of nitrate nitrogen in bovine blood, milk, urine, and rumen liquor. T. Greweling and others. J Agri & Food Chem 12:139-40 Mr '64

Determination of submicrogram amounts of selenium in biological materials. W. H. Allaway and E. E. Cary. bibliog Anal Chem 36:1359-62 Je '64

Estimation of a few nonograms of fluoride in presence of phosphate by use of liver esterase. C. McGaughey and E. C. Stowell. bibliog Anal Chem 36:2344-50 N '64

Faster analysis for Pb^{210} in biological specimens. A. L. Aronson and P. B. Hammond. bibliog Nucleonics 22:90+ F '64

Liquid scintillation counting of biological compounds in aqueous solution. H. Takahashi and others. bibliog Anal Chem 35:1982-3 N '63

Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64

Radiochemical determination of radium-228 and thorium-228 in biological and mineral samples. H. G. Petrow and others. Anal Chem 36:1600-3 Jl '64

Rapid method for the determination of selenium in biological material. L. M. Cummins and others. bibliog Anal Chem 36:382-4 F '64

Rapid spectrophotometric method for the determination of lead in bone ash. F. H. Ilcewicz and others. bibliog Anal Chem 36:1132-5 My '64

Simple apparatus for combustion of samples containing C^{14}-labeled pesticides for residue analysis. G. N. Smith and others. bibliog diags J Agri & Food Chem 12:172-5 Mr '64

Simultaneous determination of mercury and arsenic in biological and organic materials by activation analysis. B. Sjöstrand. bibliog diag Anal Chem 36:814-19 Ap '64

Spectrophotometric determination of nanogram amounts of total cholesterol in microgram quantities of tissue or microliter volumes of serum. D. Glick and others. bibliog Anal Chem 36:1119-21 My '64

Spectrophotometric determination of nitrogen in total micro-Kjeldahl digests. L. T. Mann, jr. bibliog Anal Chem 35:2179-82 D '63

Spectrophotometric micro and submicro determination of sulfur in organic substances with barium chloranilate. P. Stoffyn and W. Keane. Anal Chem 36:397-400 F '64

BIOLOGICAL pigments. See Pigments, Biological

BIOLOGICAL research

Activation analysis finds its place in the life sciences. R. E. Wainerdi. diag Nucleonics 22:57-60 F '64

Criteria for design of a microbiological research laboratory. A. G. Wedum and G. B. Phillips. bibliog il ASHRAE J 6:46-52+ F '64

Electron microscope for biology. il Engineer 216:862-3 N 22 '63

Living in space. S. Barnes. il diags Machine Design 36:90-4 Ja 30 '64

OECD sponsors research into biological deterioration. Engineering 197:32 Ja 3 '64

Optical device to contact dolphins. il diag Electronics 36:46+ N 22 '63

See also
Biochemical research

BIOLOGY

Biological system of stream classification used by the Trent River board. F. S. Woodiwiss. bibliog Chem & Ind p443-7 Mr 14 '64

Mathematics in the biological sciences. E. F. Moore. diags Sci Am 211:148-54+ S '64

Recent developments in molecular biology; abstract. S. Arnott. Chem & Ind p434 Mr 14 '64

Use of biology in the study of water pollution. H. B. N. Hynes. Chem & Ind p435-6 Mr 14 '64

See also
Biological research
Ecology
Environment
Evolution
Fresh water biology
Genetics
Growth

Study and teaching

City of Liverpool college of technology regional college; Department of chemistry and biology. K. S. W. Sing. bibliog il Chem & Ind p994-8 Je 13 '64

BIOMECHANICS

Biomechanical engineering. G. A. Simon and F. Alt. il Mech Eng 86:32-5 My '64

BIOMEDICAL engineering

Analysis of signals from intact nerve. N. A. Normann and J. U. Casby. diags Archives Environmental Health 9:303-7 S '64

Bioastronautic research: interdisciplinary approach. R. J. Preston. plans Archives Environmental Health 9:292-7 S '64

Biomedical engineering. J. A. Millard. Heating-Piping 35:129-30 D '63

New stage for biomedics. I S A J 11:26+ Je '64

BIOPHYSICS

Perspectives on recent progress in biophysics. A. G. Tweet. il Phys Today 16:34-6+ D '63

See also

Biomedical engineering

BIOSTATISTICIANS. See Statisticians

BIOSYNTHESIS. See Biochemistry

BIOTIN

Effect of propionate on the dietary vitamin B_{12}, biotin and folic acid requirement of the rat. D. E. Hogue and J. M. Elliot. bibliog J Nutrition 83:171-5 Je '64

BIOTITE

Biotite mica effect in *X*-ray spectrographic analysis of pressed rock powders. A. Volborth. bibliog Am Mineralogist 49:634-43 My '64

Physical properties of synthetic biotites on the join phlogopite-annite. D. R. Wones. bibliog Am Mineralogist 48:1300-21 N '63

BIPHENYL. See Diphenyl

BIPHENYLENE. See Cyclobutadibenzene

BIRCH

Laboratory-spun rayon fibers from birch pulp. B. Hackman and others. il diag Tappi 46:722-6 D '63

Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64

BIRD cages

Leaning arches frame giant bird cage. il Eng N 173:44-5 O 1 '64

BIRD repellents

Laboratory method for evaluating chemicals as bird repellents. R. I. Starr and others. bibliog J Agri & Food Chem 12:342-4 Jl '64

BIRDS

Photoperiodic control of reproductive cycles in birds. D. S. Farner. il diags Am Scientist 52:137-56 bibliog(p 154-6) Mr '64

Antarctic regions

Antarctic skua. C. R. Eklund. il map Sci Am 210:94-8+ F '64

Australia

Evolution of bowerbirds. E. T. Gilliard. il diag Sci Am 209:38-46 Ag '63; Discussion. 209:10+ D '63

New Guinea

Evolution of bowerbirds. E. T. Gilliard. il diag Sci Am 209:38-46 Ag '63; Discussion. 209:10+ D '63

BIRDS, Habits and behavior of

Evolution of bowerbirds. E. T. Gilliard. il diag Sci Am 209:38-46 Ag '63; Discussion. 209:10+ D '63

BIREFRINGENCE. See Refraction. Double

BIRTH control

Competition sharpens in oral contraceptives. Chem & Eng N 42:23-4 Mr 9 '64

Family planning program using volunteers as health educators. C. Zalduondo. Am J Pub Health 54:301-7 F '64

Health education for responsible parenthood: preliminary considerations. M. S. Calderone. Am J Pub Health 54:1735-40 O '64

New birth-control devices. Sci Am 210:54-5 Ja '64

Oral contraception. Drug & Cosmetic Ind 94:601 Ap '64

Study in fertility control. B. Berelson and R. Freedman. il maps Sci Am 210:29-37 My '64

BIRTH rate

Population; problem and puzzle; editorial. bibliog Am J Pub Health 54:1143-4 Jl '64

BISCUITS

Nutritional quality of survival biscuits and crackers. J. B. Longenecker and H. P. Sarett. bibliog Am J Clinical Nutrition 13:291-6 N '63

BISMUTH

Bismuth, 1963. D. E. Moulds. Eng & Min J 165:128-9 F '64

Bismuth substitution in yttrium iron aluminum garnets. S. Geller and others. J Ap Phys 35:1754-6 Je '64

Changes in morphology of graphite in bismuth-treated cast irons. J. Pelleg. bibliog il Iron & Steel Inst J 202:739-45 S '64

Compact lead-bismuth annealing plant. W. N. Jenkins; D. W. Games. bibliog il diags Iron & Steel Eng 41:106-14; Discussion. 114-16 Jl '64

Lead debismuthizing by the Jollivet-Penarroya process. L. Jollivet and P. Guichard. flow sheet il J Metals 16:235-7 Mr '64

Thermomagnetic figure of merit: bismuth. R. B. Horst. bibliog J Ap Phys 34:3246-54 N '63

BISMUTH, Molten

Galvanic cell measurement of the thermodynamic interaction between cadmium and tin in liquid bismuth. W. M. Boorstein and R. D. Pehlke. bibliog diag Electrochem Soc J 111:1269-72 N '64

BISMUTH alloys

Growth of bismuth-antimony single-crystal alloys. D. M. Brown and F. K. Heumann. bibliog J Ap Phys 35:1947-51 Je '64

BISMUTH compounds

Temperature dependence of the magneto-optic effect and resonance phenomena in oriented MnBi films. D. Chen and Y. Gondō. bibliog J Ap Phys 35:1024-5 pt 2 Mr '64

BISMUTH oxides

Polymorphism of bismuth sesquioxide. E. M. Levin and R. S. Roth. bibliog J Res Nat Bur Stand 68A:189-206 Mr '64

Synthesis of thorianite crystals from bismuth oxide-lead fluoride melts. A. B. Chase and J. A. Osmer. il Am Mineralogist 49:1469-71 S '64

BISMUTH sesquioxide. See Bismuth oxides

BISMUTH sulfides

Preparation and electrical properties of bismuth trisulfide. A. C. Glatz and V. F. Meikleham. bibliog il Electrochem Soc J 110:1231-4 D '63

BISMUTH telluride

Analysis of mixtures of antimony and bismuth tellurides containing selenium and iodine. K. L. Cheng and B. L. Goydish. Anal Chem 35:1965-7 N '63

Laue patterns and zone structure of Bi_2Te_3. H. H. Soonpaa. bibliog il diags J Ap Phys 34:3600-2 D '63

BISMUTH titanate

Effects of constant dc fields on the hysteresis loops of ferroelectric $Bi_4Ti_3O_{12}$ crystals. S. E. Cummins. bibliog il J Ap Phys 35:3045-6 O '64

BISMUTOTANTALITE

Synthesis and stability of bismutotantalite, stibiotantalite and chemically similar ABO_4 compounds. R. S. Roth and J. L. Waring. bibliog Am Mineralogist 48:1348-56 N '63

BISPHENOL A. See Dihydroxydiphenyl dimethylmethane

BISPHENOLS. See Dihydroxydiphenyl

BISULFITES. See Sulfites

BITS

Drill-bit costs going down. Oil & Gas J 61:91 N 4 '63

For jet bits; new fluid-passage design reduces trip surge pressures. G. M. McKown. diags Oil & Gas J 62:118-19 F 10 '64

How to grind and use spur bits. R. E. Clement. diags Am Mach 108:113-14 Ja 20 '64

Studies of drillability and drilling bits in the U.S.S.R. J. Delacour. J Pet Tech 15:1080-6 O '63

BITUMEN

Hydrogenation of a coker distillate derived from Athabasca bitumen. A. R. Aitken and others. bibliog flow sheet diag Can J Chem Eng 42:234-8 O '64

Study of the oil component of the Athabasca bitumen. M. L. Boyd and D. S. Montgomery. bibliog Inst Pet J 49:345-52 N '63

BITUMINOUS concrete association, National. See National bituminous concrete association

BITUMINOUS concrete curbs. See Curbs, Bituminous concrete

BITUMINOUS concrete pavements. See Pavements, Bituminous concrete

BITUMINOUS concrete roads. See Roads, Bituminous concrete

BITUMINOUS materials

Two-part ceramic stucco preserves guard rails. il Materials in Design Eng 59:164+ Ap '64

See also

Asphalt
Gilsonite
Roads—Foundations—Bituminous materials
Tar

Specifications

Some ripe observations on bituminous plant operation and control. J. E. Ward. Roads & Sts 106:72-6 D '63

BITUMINOUS pavements. See Pavements, Bituminous

BITUMINOUS roads. See Roads, Bituminous

BITUMINOUS sand
How hydrogen will be used to upgrade Athabasca tar to sweet crude oil. A. D. Hoskins. diags Oil & Gas J 62:122-4 My 18 '64; Same. Hydrocarbon Process & Pet Refiner 43:122-4 My '64
Shell eyeing Venezuela's tar belt. map Oil & Gas J 62:64+ Jl 13 '64
Tar sands; big profits for Sun Oil? flow sheet il Can Chem Process 48:40-5 Ag '64

BLACK body
Effective emittance of a blackbody cavity at nonuniform temperature; abstract. P. F. O'Brien and B. J. Heckert. Illum Eng 59: 601-2 S '64

BLACK death. See Plague

BLACK liquor. See Paper and pulp mills—Waste

BLANCHING
Chlorophyll losses in blanched snap beans. J. P. Van Buren and others. bibliog Food Tech 18:1204-6 Ag '64
Retains vegetable green; new pH-control additives for blanching and canning. G. J. Malecki. Food Eng 36:93-4 Je '64

BLANKETS
Comfort properties of blankets. R. J. Rowlands. bibliog diags Textile Res J 33:343-50; 34:459-61 My '63, My '64

Manufacture

Big news in nonwoven blankets. diags Textile World 114:68-9 S '64
Blankets without looms; needling process converts fibers to fabrics fast. il Mod Textiles Mag 45:26+ S '64
Cotton leno warms 'em up. il Textile Ind 128:66-8 Mr '64

BLAST cleaning. See Grit blasting; Sand blast; Shot blasting

BLAST furnace gas
Cowper stoves in the light of regenerator theory. J. I. T. Green. diag Iron & Steel Inst J 202:833-9; Discussion. 849-55 O '64

Cleaning

Adjustable circular wedge scrubber on market in compact unit. il diag Iron & Steel Eng 40:155-6 D '63

BLAST furnace slag. See Slag

BLAST furnace stoves
Cowper stoves in the light of regenerator theory. J. I. T. Green. diag Iron & Steel Inst J 202:833-9; Discussion. 849-55 O '64
Hot blast stoves. J. Schofield and others. bibliog diags Iron & Steel Inst J 199:229-40; 201:497-508; 202:839-48 N '61, Je '63, O '64; Discussion. 202:849-55 O '64
Measurement of heat transfer coefficients for stove checkers. J. M. Ridgion and B. Kerrison. bibliog il diags Iron & Steel Inst J 202:315-18 Ap '64; Discussion. 202:849-55 O '64
Present state of construction of Cowper stoves. D. Petit. diags Iron & Steel Inst J 202:305-13 Ap '64; Discussion. 202:849-55 O '64
Progress in blast-furnace stove operation at Appleby-Frodingham. S. H. Brooks and F. Fitzgerald. bibliog diags Iron & Steel Inst J 202:818-32; Discussion. 849-55 O '64
To modernize furnace stoves at Lackawanna. Iron & Steel Eng 41:291-2 S '64

BLAST furnaces
Amanda and Bellefonte; answers to ironmaking. J. L. Brady and others. il diags J Metals 16:637-43 Ag '64
Armco shows its new blast furnace, oxygen facilities. Steel 153:31+ D 2 '63
Blast-furnace for melting copper scrap. il Engineering 198:179 Ag 7 '64
Blast furnace materials handling. J. E. Allen. il Iron & Steel Eng 40:101-6; Discussion. 106-7 N '63
Blast furnace operation at high blast temperatures. R. T. Hanna. il diags J Metals 16: 161-4 F '64
Close-up of a revamped steel giant; Armco steel corp. N. P. Chopey. il Chem Eng 71:30-1 Ja 6 '64
Hardfacing saves furnace bell. J. K. Wilson. il Welding Eng 49:80-1 N '64
Improvements in blast furnace operation. C. M. Nitchie. diag Iron & Steel Eng 41: 77-80 Ja '64
Jones & Laughlin dedicates blast furnace at Cleveland works. il Iron & Steel Eng 41: 115-16 Ja '64
Metallurgical coke from substitute coals. H. R. Brown and W. R. Hesp. bibliog il J Metals 16:346-51 Ap '64
New concept of steelmaking, hot-blast cupola with an oxygen converter. D. H. Tessmer. diags Iron & Steel Eng 41:189+ Jl '64
New technology of iron and steel; ore reduction. F. C. Price. Chem Eng 71:183 S 14 '64
Recent developments in zinc blast-furnace technology. S. W. K. Morgan. il diag J Metals 16:33-6 Ja '64
Royal Netherlands blast furnaces and steelworks. A. Drijver. il map plan diags Iron & Steel Eng 40:53-84 D '63
Silica reduction reaction in the blast-furnace. D. A. R. Kay and J. Taylor. Iron & Steel Inst J 201:67-70; 202:420-3 Ja '63, My '64; Discussion. 202:221-4 Mr '64
Soviet three-bell blast furnace, a success? S. Henkel. diags J Metals 15:733-4 O '63
Structural rebuild of a blast furnace at Gary steel works. R. J. Prybyl and others. il Iron & Steel Eng 40:100-2 D '63
3500-ton per day blast furnace starts operation in Japan. il Iron & Steel Eng 41:182 O '64
Three bells aid operation at high top pressure. il Steel 153:81+ D 2 '63
Tiny blast furnace feeds on scrap. il diag Iron Age 194:140-1 O 29 '64
Tobata no. 3 blast furnace sets record. il Iron & Steel Eng 41:187-8 Je '64
See also
Iron metallurgy

Air supply

See also
Blast furnace stoves

Charging

Armco's new blast furnace is charged automatically. il Steel 153:108+ D 9 '63
Automatic bin gate operator increases blast furnace charging rate. diags Iron & Steel Eng 40:163-4 D '63
Blast furnace charged by automatic controller. il Westinghouse Eng 24:115 Jl '64
Blast furnace is charged automatically. il Iron & Steel Eng 41:165 Je '64
Feeding a hungry blast furnace. P. G. Sammet. il diags Iron Age 193:148-9 Je 11 '64
How high top pressure affects blast furnace performance. Iron Age 193:84-5 My 7 '64
J&L's big Susan feeds voracious converters. Steel 153:34+ D 23 '63
Lead blast furnace feeding at Cominco. E. A. Mitchell and S. G. Smillie. diags Can Min & Met Bul 56:895-9 D '63
Pre-reduction of blast furnace burdens using the S-L process. F. J. Pearce. diag Can Min & Met Bul 57:429-33 Ap '64
Raw materials handling and preparation facilities at the Dunkirk integrated iron- and steelworks. M. Pedotti. il plan diags Iron & Steel Inst J 202:147-57 F '64
Reducibility measurement of blast furnace burdens. T. B. Beeton. bibliog diag Iron & Steel Inst J 201:913-22 N '63
Scrap and sinter; new bedfellows. il Iron Age 193:97-9 Mr 26 '64
Turnings, borings strengthen sintered ore. il Steel 154:54+ Mr 23 '64

Control

Automated blast furnace. il diag Instruments & Control Systems 37:87-8 F '64
Blast furnace charged by automatic controller. il Westinghouse Eng 24:115 Jl '64
Continuous immersion thermocouple aids blast furnace control. Iron & Steel Eng 41:179-80+ Jl '64
New steel giant is born; Taranto plant of Italsider. W. N. Redstreake. il Iron Age 194:60-2 Jl 9 '64

Equipment

Adjustable circular wedge scrubber on market in compact unit. il diag Iron & Steel Eng 40:155-6 D '63
J&L's big Susan feeds voracious converters. Steel 153:34+ D 23 '63

Fuel

Blast-furnace fuel injection. J. C. Agarwal. diags Mech Eng 85:52-5 N '63
Gas boosts steel production. il Gas 40:81-2 N '64
How high top pressure affects blast furnace performance. Iron Age 193:84-5 My 7 '64

Lining

Ford Motor uses a special brick in B blast furnace. il Iron & Steel Eng 41:204+ Jl '64
Pneumatic placement of castable refractories. M. V. Probst. il diags Iron & Steel Eng 41:151-3 S '64
Refractory for hard-driven blast furnaces. Engineer 216:703 O 25 '63

BLAST furnaces—*Continued*

Numerical control

Blast furnace controlled by punched paper tape. L. Walter. il diags Metallurgia 69: 161-6 Ap '64

Computer control in the Japanese ironmaking industry. diag J Metals 16:285-6 Ap '64

Computer control of blast furnace. J. Shibuya. bibliog diags Iron & Steel Eng 41:81-6 F '64

Tapping

Lead blast furnaces continuously tapped. J. T. Roy and J. R. Stone. il diags J Metals 15:827-9 N '63

BLASTING

Blast control engineering pays on large interchange. il Roads & Sts 107:32-6 Mr '64

Blast hole production with the air-fuel jet burner. D. R. Boynton. il diags Can Min & Met Bul 57:927-31 S '64

Blasting agents for mining. il Ind & Eng Chem 56:63 Je '64

Blasting design criteria. M. Gates. Civil Eng 34:54-5 Ja '64

Boom! there's enough stone for a season; engineered blast nets 400,000 tons of limestone for Warner co. il Rock Prod 67:70-2 S '64

Bulk loading of ammonium nitrate blasting agents. J. E. Wilson. il Min Cong J 49:60-3 D '63

Canadian mine manufactures ammonium nitrate; builds a better prill; Cominco. Eng & Min J 165:68 Ja '64

Contractors blast hard rock to build vital road interchange. il Eng N 173:26-8 Jl 16 '64

Detailed response of some rock targets to jets from lined-cavity shaped charges. C. F. Austin and J. K. Pringle. bibliog il diags J Pet Tech 16:41-9 Ja '64

European blasting today. R. Ironman. il Rock Prod 66:60+ D '63; 67:94+ Ja '64

Ground displacements from air-blast loading. S. D. Wilson and E. A. Sibley. bibliog diags Am Soc C E Proc 88 [SM 6 no 3346]:1-31 D '62; Discussion. 89 [SM 4 no 3578]:207-10 Jl '63; Reply. 90 [SM 1 no 3781]:99-100 Ja '64

Ground vibration from shallow sub-surface blasts. B. Davies and others. bibliog il diags Engineer 217:553-9 Mr 27 '64

How to boost open-pit productivity; materials preparation, the key to productivity. B. R. Henderson. il plans Eng & Min J 164:74-81 N '63

Large diameter drill holes in overburden blasting. W. G. Piper. il Min Cong J 49: 33-5 N '63

MS-80, a safe blasting agent. il Eng N 172:39-40 Je 4 '64

Mechanics of rock breakage; material properties, powder factor, blasting cost. R. L. Ash. diags Pit & Quarry 56:109-11+ N '63

New drilling procedure born in extensive research; jet piercing, chambering, percussion drilling combined. il Pit & Quarry 56:129-31 N '63

New light on blasting vibration effects. H. H. White. il Civil Eng 34:61-3 Ap '64

Pillar blasting at the Pine Creek mine. L. A. Wright. il plans diags Min Eng 16:79-83 My '64

Presplitting studied at Cincinnati transportation conference. Civil Eng 34:40-1 My '64

Recent trends in the use of explosives in mining. M. D. Saunders. il Can Min & Met Bul 57:933-8 S '64

Review of current blast strength theory. F. A. Loving. bibliog il diags Eng & Min J 165:164-7 Je '64

Russians blast through landslide dam. map Eng N 172:24 My 7 '64

Safety and efficiency in hole loading and blasting with AN-FO. G. H. Damon. bibliog diags Pit & Quarry 56:89-94 D '63

Slide-blocked river flows again; Russia's Zeravshan River. il Eng N 172:28 My 14 '64

Small diameter AN-FO blasting methods cut underground mining costs at Aguilar. M. Rossetti and G. Preisz. il diags Eng & Min J 164:94-7 D '63

Sometimes it's faster to blast. il Gas Age 131:28-9 Mr '64

Special drill-blast techniques notch mountain for urban freeway. il Roads & Sts 107:36-40 Ja '64

Successful aluminum slurry blasts paved way for Dow's explosives algebra. C. H. Grant. il diags Eng & Min J 165:98-102 Ag '64

Swedish blasting method used at Genoa. Engineer 217:329 F 14 '64

Texas operator boosts production with blasting change, mobile loader. il Pit & Quarry 56:44 D '63

Truck delivers directly to blast holes so contractor can blast without handling explosives. il Eng N 173:30 Jl 30 '64

Truck mixes and charges AN-fuel oil at job. il Coal Age 69:116 Ag '64

Use of shaped charges in mining. C. F. Austin. il diags Min Cong J 50:56-61 Jl '64

Vertical drilling and new bulk AN/cab fuel oil blasting system; Enos coal mining div. of Interlake iron corp. J. R. Kerr. il Min Cong J 50:56-9 S '64

See also

Atomic blasting
Explosives
Petroleum—Well blasting
Quarries and quarrying

BLASTING, Subaqueous

Divers drill and shoot a trench in rock under mud and water. il Eng N 173:34-6 Ag 27 '64

BLEACHERIES

Maintenance and repair

Organization sparks bleachery maintenance. il Textile World 114:74-6 Ja '64

BLEACHING

Coloring, bleaching, and finishing developments. Published in monthly numbers of Textile industries

Improvement of iron bleaching in clays through potentiometric control of sodium dithionite addition. R. F. Conley and others. bibliog Ind & Eng Chem Proc Design 3:183-8 Ap '64

What's ahead in wet processing. il diags Textile Ind 128:54-7 S '64

See also

Dyes and dyeing
Oils and fats—Bleaching
Paper making—Bleaching
Wood pulp—Bleaching

Cotton

Keys to bleaching colored-yarn goods. H. G. Smolens. il Textile Ind 128:111+ Ja '64

Practical aspects of the bleaching of cellulosic materials. C. Garrett. Soc Dyers & Col J 80:117-23 Mr '64

Practical pressure bleaching. B. K. Easton and G. T. Gallagher. il Textile Ind 128:193+ O '64

Wool

Bleaching of wool with hydrogen peroxide in presence of different stabilisers. J. Cegarra and others. bibliog Soc Dyers & Col J 80:123-9 Mr '64

BLEACHING materials

Dry bleach blending. il Soap & Chem Spec 40:157-8+ Ag '64

See also

Chlorine
Hydrogen peroxide

BLENDERS. See Mixers

BLENDING. See Mixing

BLIMPS. See Airships

BLIND

See also

Blindness

BLIND, Printing for

Braille typewriter. il Plastics World 22:28 My '64

BLINDNESS

Make them see what blindness means. L. S. Milley. Safety Maint 127:12-13 Ja '64

Use of vital records for blindness research. I. D. Goldberg and others. bibliog Am J Pub Health 54:278-85 F '64

BLOCH, Konrad E.

Cholesterol work cited in Nobel award; biochemist in U.S. and chemist in West Germany share $52,700 prize in medicine. por Chem & Eng N 42:34 O 26 '64

BLOCK caving. See Mining methods

BLOOD

Blood cell transaminase activity in human vitamin B_6 deficiency. N. Raica, jr. and H. E. Sauberlich. bibliog Am J Clinical Nutrition 15:67-72 Ag '64

Blood lipid responses to feedings of a polyunsaturated fat nutritional preparation and milk-cream mixture. D. Berkowitz. bibliog Am J Clinical Nutrition 15:218-22 O '64

Chemical elements of the blood of man. J. W. Gofman and others. bibliog Archives Environmental Health 8:105-9; Discussion. 110-14 Ja '64

BLOOD—*Continued*

Cobalt-60 irradiator for extracorporeal blood irradiation. O. A. Kuhl and others. diags Nucleonics 22:79-80+ Ap '64

Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64

Experimental human magnesium depletion; clinical observations and blood chemistry alterations. M. E. Shils. Am J Clinical Nutrition 15:133-43 bibliog(p 142-3) S '64

Free amino acids in plasma and tissues of rats fed a vitamin B_6-deficient diet. M. E. Swendseid and others. bibliog J Nutrition 82:206-8 F '64

Long-term excretion of Co^{57}-vitamin B_{12} and turnover within the plasma. C. A. Hall and J. G. Hegeman. bibliog Am J Clinical Nutrition 14:156-62 Mr '64

Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64

Sources of variation in repeated measurement of plasma free fatty acids in rested fasting subjects. L. E. Hollister and J. E. Overall. bibliog Am J Clinical Nutrition 15:149-57 S '64

Trace metal levels in human serum and blood. E. M. Butt and others. bibliog Archives Environmental Health 8:52-7; Discussion. 110-14 Ja '64

See also

Erythrocytes

Hemoglobin

Serum

Analysis

Blood pepsin as marker of susceptibility to duodenal ulcer disease. J. C. Niederman and others. bibliog Archives Environmental Health 8:540-6 Ap '64

Determination of acetic acid in blood and other tissues by vacuum distillation and gas liquid chromatography. D. Lester. bibliog diag Anal Chem 36:1810-12 Ag '64

Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64

Determination of diazepam (valium) in blood by gas liquid chromatography. J. A. de Silva and others. bibliog flow diag Anal Chem 36:2099-105 O '64

Fluorometric method for the determination of urea in blood. J. E. McCleskey. bibliog Anal Chem 36:1646-8 Jl '64

Cholesterol content

Constancy of red blood cell lipids in man during extreme variations of dietary fat intake. J. G. Hill and others. bibliog Am Oil Chem Soc J 41:393-7 Je '64

Drugs affecting lipid synthesis. W. L. Holmes. bibliog Am Oil Chem Soc J 41:702-7 O '64

Effect of controlled breakfast on serum cholesterol and triglycerides. F. J. Schilling and others. bibliog Am J Clinical Nutrition 15:1-5 Jl '64

Effects of gormandizing and semicontinuous eating of equicaloric amounts of formula-type high fat diets on plasma cholesterol and triglyceride levels in human volunteer subjects. S. N. Jagannathan and others. bibliog Am J Clinical Nutrition 15:90-3 Ag '64

Free and total cholesterol in human blood fractions. B. E. Hawthorne and others. J Nutrition 81:241-8 bibliog(p247-8) N '63

Magnitude of the hypocholesterolemic effect of dietary sitosterol in man. J. M. R. Beveridge and others. bibliog J Nutrition 83:119-22 Je '64

Role of polyunsaturated fatty acids in nutrition. F. A. Kummerow. bibliog Food Tech 18:839-43 Je '64

Serum lipid levels, fat, nitrogen, and mineral metabolism of young men associated with kind of dietary carbohydrate. M. I. Irwin and others. bibliog J Nutrition 82:338-42 Mr '64

Studies of serum cholesterol in 4,244 men and women: an epidemiological and pathogenetic interpretation. F. J. Schilling and others. Am J Pub Health 54:461-76 bibliog(p474-6) Mr '64

Study of the hypocholesterolemic activity of the ethyl esters of the polyunsaturated fatty acids of cod liver oil in the rat. S. G. Kahn. bibliog J Nutrition 83:262-6 Jl '64

Weight reduction and serum cholesterol levels. A. B. Caldwell and others. bibliog Am J Clinical Nutrition 12:401-5 Je '63; Discussion. 15:54-5 Jl '64

Circulation

Cinemicrophotography of blood flow in man. R. E. Wells, jr. and others. bibliog il SMPTE J 73:627-8 Ag '64

Master switch of life. P. F. Scholander. diags Sci Am 209:92-6+ D '63

Coagulation

Manufacture of heparin. H. G. Hind. bibliog il Manuf Chem 34:510-14 N '63

Diseases

Certain environmental conditions and hematological disorders. F. I. Haurani and L. M. Tocantins. Archives Environmental Health 8:778-804 bibliog(p794-804) Je '64

Sickle cell trait in relation to infection. W. Weiss. bibliog Archives Environmental Health 8:480-2 Mr '64

See also

Anemia

Hemophilia

Leukemia

Sugar

Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15:85-9 Ag '64

Effects of large doses of L-leucine in animals and man. L. G. McArthur and others. bibliog Am J Clinical Nutrition 13:285-90 N '63

Significance of a low blood sugar in a screening program for the detection of diabetes mellitus. C. P. Kimball. bibliog Ind Med 33:652-5 S '64

Tolbutamide-induced hypoglycemia. J. D. Brown and D. B. Stone. bibliog Am J Clinical Nutrition 15:144-8 S '64

Vitamin content

Effect of vitamin A and vitamin A acid on cerebrospinal fluid pressure and blood and liver vitamin A concentrations in the pig. E. C. Nelson and others. bibliog J Nutrition 82:263-8 F '64

BLOOD groups

A, B, and H blood-group substances yield highly active fragments. Chem & Eng N 42:38-9 Ja 13 '64

Blood pepsin as marker of susceptibility to duodenal ulcer disease. J. C. Niederman and others. bibliog Archives Environmental Health 8:540-6 Ap '64

BLOOD pressure

Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64

Hypertension and cardiovascular abnormalities in starved-refed swine. G. S. Smith and others. bibliog il J Nutrition 82:173-82 F '64

Management of critical and chronic hypertension. A. A. Mozan and P. Mastrapa. bibliog Ind Med 33:556-9 Ag '64

New hypotensives. Drug & Cosmetic Ind 94:602 Ap '64

BLOOD vessels

See also

Arteries

BLOTTING paper

Simplified method of air-couching standard test sheets; proposed change to TAPPI standard T 205. J. d'A. Clark. Tappi 47:249-53 My '64

BLOWERS

Plannair air control systems. il diags Engineering 197:715-17 My 22 '64

See also

Soot blowers

BLOWING of plastics. See Plastics—Blowing

BLUE

Variations in assessment of light fastness and in rates of fading and spacing of the blue standards. S. M. Jaeckel and others. bibliog Soc Dyers & Col J 79:702-14; Discussion. 714-22 D '63

BLUEBERRIES

Explosive puffing applied to apples and blueberries. N. H. Eisenhardt and others. flow sheet il Food Eng 36:53-5 Je '64

See also

Blueberry juice

BLUEBERRY juice

Effect of various treatments on yield and composition of blueberry juice. T. Fuleki and G. W. Hope. bibliog Food Tech 18:568-70 Ap '64

BLUEPRINTS
Designers trim production costs by clarifying blueprints. P. D. Prudden. diags Iron Age 193:74-6 Ja 16 '64

BOARD, Paper. See Paper board

BOATS, Aluminum
Aluminum houseboat provides luxury, economy. Mod Metals 20:88 Jl '64
Aluminum-hulled boat has foam flotation core. Mod Metals 19:84-5 D '63
Boat business back on growth tack. il Mod Metals 19:38+ N '63
Challenge; all-welded auxiliary keel sloop. E. Gunnell and R. A. Hay. il Welding J 43:205-7 Mr '64
Largest aluminum boat serves offshore rigs. il Pet Management 36:101 Jl '64
Painting aluminum boats; recommendations of the marine committee of the Aluminum association. Light Metal Age 22:5 Ag '64

BOATS, Plastic
Cellulose acetate butyrate; new boat material debuts. il Plastics Tech 10:15 Ag '64
New approach to boat building. il Plastics World 22:38-9 Ag '64
Seamless boat hulls in butyrate and PE-via thermoforming. il Mod Plastics 42:119 O '64
Vacuum forming polyethylene boats. il Plastics World 22:16-17 My '64

BOATS and boating
See also
Freight ships
Hydrofoils
Marinas
Sailboats
Yachts and yachting

BOBBINS
Block creeler's hero; slubber lay counter. il Textile Ind 128:69-70 F '64
Waste at roving; how much is too much? F. C. Wilson. il Textile World 114:78-9 S '64

BODY fat. See Fat

BODY lice. See Lice

BOEHMITE
Effect of silica on transformations of fibrillar colloidal boehmite and gamma alumina. R. K. Iler. bibliog Am Cer Soc J 47:339-41 Jl '64

BOËL, René
Baron Boël; 1964 Messel medallist. por Chem & Ind p 1095 Je 27 '64

BOILER cleaning
Chemical cleaning experience at steam-electric power plants of the Tennessee Valley authority; abstract. C. Cain, jr. and C. C. Schonhoff. Combustion 35:24 My '64
Chemical cleaning of utility boilers. H. A. Klein and K. L. Atwood. bibliog il diags Combustion 36:20-9 S '64
For steam plant care, chemical cleaning. il Engineering 198:206-7 Ag 14 '64
Slurry spray for black liquor boilers. R. E. Chappell and J. W. Tester. diags Tappi 47:193-6 Ap '64
Some aspects of corrosion and chemistry in the Citrosolv process. W. E. Bell. bibliog Combustion 35:23-6 Ap; 25-8 My '64
Steam boiler must be clean. J. M. Hartman. Heating-Piping 36:128 S '64
See also
Soot blowers

BOILER explosions
Are your boiler controls updated? G. M. Woods. Heating-Piping 36:102 O '64
Don't give low-pressure boilers a chance to explode! A. R. Dow. il Plant Eng 18:138-9 Ap '64
Inerting prevents furnace explosions. H. C. Luff. il Elec World 162:23 Ag 3 '64
Preventing auxiliary fuel explosions in recovery units. D. P. Congdon and others. diag Tappi 47:sup 142A-3A F '64
Progress report of the subcommittee for research on smelt-water reactions. W. W. Clarke. Tappi 47:sup 149A-50A F '64
Report of subcommittee on development of emergency shutdown procedures to prevent explosions. M. J. Osborne. Tappi 47:sup 143A-4A F '64
Why boilers explode. J. Todd. il Power 108:60-1 Jl '46

BOILER feed pumps. See Pumps, Feed water

BOILER feed water. See Feed water

BOILER furnaces. See Furnaces, Boiler

BOILER plants
Boiler room floor cracks as results of poor design. F. G. Bastick. diags Heating-Piping 36:150 S '64
Problems in steam design. H. H. Klug. diags ASHRAE J 6:43-9 Ap '64
Tips for contemporary industrial plant steam system design. P. J. Scaglione diags Heating-Piping 36:95-9 O '64
See also
Boilers
Chimneys
Steam plants

Equipment

Children's home gets new central boiler plant. il diag Heating-Piping 36:148-51 Ja '64
Coal feeders for pulverising mills. il Engineer 217:187 Ja 24 '64
Industrial steam boiler plants and piping. W. J. Tallafuss. ASHRAE J 6:39-44 Jl '64
1964 energy system design survey; industrial steam systems trends and typical installations. Power 108:sup 12-21 O '64
Split second timing enables steam plant modernization. S. L. Bunting. il Heating-Piping 36:128-30 Ap '64
See also
Coal handling
Feed water heaters
Feed water regulators
Pumps, Feed water
Soot blowers

Safety measures

Power-operated relief valves. il diags Power 108:66-8 Ap '64
Power relief valve sensing unit should be in the control room. J. J. Gill. diag Power Eng 67:40 S '63; Discussion. D. H. Roethenbach. 68:53 F '64
Valve provides three-way safety. il Eng N 172:50 Mr 5 '64

BOILER plants, Portable
Temporary heating in the atomic age. il Heating-Piping 35:26 D '63

BOILER pumps. See Pumps, Feed water

BOILER scale
Scaling and corrosion problems in boilers. Engineer 217:431 Mr 6 '64
Should we specify water treatment? S. A. Littmann. diags Air Cond Heat & Ven 61:74-8 O '64

BOILER tubes
Forming tubes for boilers. il Engineering 198:368 S 18 '64
Steam generation; firetube boilers; watertube designs. R. J. Bender. il diags Power 108:sup 10-23 Je '64
See also
Soot blowers

Testing

Boiler inspection camera. il Engineer 216:819 N 15 '63
Overheat deformation studies in mild steel boiler tubes. A. J. Ristaino. il diag Naval Eng J 76:27-34 F '64

BOILERS
Large boilers; equipment, efficiencies, and codes. Am Gas Assn Mo 46:16+ O '64
Six possible causes of boiler flooding; question and answer. diag Dom Eng 203:93 F '64
Soap plant observer; Clayton Kerrick steam generator. W. J. Beach. diags Soap & Chem Spec 40:195-6+ O '64
Steam generation; special report. R. J. Bender. flow diag il diags Power 108:sup 1-48 Je '64 (reprints $1)
Vereinigung der grosskesselbesitzer (V.G.B.) (Association of large boiler operators) annual meeting, Cologne; abstracts of papers. Combustion 36:49-50 O '64
Vereinigung der grosskessel-besitzer (VGB) association of large boiler operators annual meeting, Hamburg; abstracts of papers. Combustion 35:48-9 N '63
Vital statistics of the huge Universal pressure boiler. il Power Eng 68:58 My '64
Which packaged boiler is best; fire tube or water tube? H. Dean. diags Plant Eng 18:144-7+ Ag '64
See also
Air preheaters
Feed water
Furnaces, Boiler

Cleaning

See Boiler cleaning

Control

Automated system developed for coal pulverizers, burners. diag Elec World 161:68 Je 1 '64
Boiler control. C. H. Smoot and F. J. Karlov. il diags Electronics 37:85-93 Je 15 '64
Boiler water level indication. W. A. Huss. il diags Combustion 35:45-7 Je '64
Control has standard components. L. Kipnis. diag I S A J 10:70 O '63

BOILERS—Control—*Continued*

Damper with a linear characteristic. M. H. Barker. il Engineer 217:1131-2 Je 26 '64

Dynamic optimisation of a boiler. H. Nicholson. bibliog flow diag diags Inst E E Proc 111:1479-99 Ag '64

Faster boiler instruments and controls raise fuel efficiency. diag Power Eng 68:47 Je '64

Installation of steam boiler pressure switches. diags Elec Constr & Maint 63:112+ Je '64

National power instrumentation symposium, 7th, Denver, May 18-20; abstracts of papers. Combustion 36:29-34 Jl '64

Power relief valve sensing unit should be in the control room. J. J. Gill. diag Power Eng 67:40 S '63; Discussion. D. H. Roethenbach. 68:53 F '64

What controls should be used on a boiler supplying both heat and domestic water? question and answer. diag Dom Eng 203:85 Ap '64

Corrosion

Corrosion problems affecting boiler plant. A. E. Lock. il Engineer 217:939-42 My 29 '64

Current trends in corrosion control at West Thurrock power station. A. Sherry and E. R. Gill. il Chem & Ind p 102-6 Ja 18 '64

Improved basis for coordinated phosphate-pH control of boiler water. V. M. Marcy and S. L. Halstead. bibliog Combustion 35:45-7 Ja '64

Internal corrosion of boilers. G. M. W. Mann. bibliog il diag Chem & Ind p 1584-90 S 12 '64

Laboratory simulation of waterside boiler corrosion. E. C. Potter and G. M. W. Mann. Chem & Ind p 1768 N 2 '63

Marchwood conference on corrosion by fuel impurities; a review; abstract. W. T. Reid and J. Jonakin. Combustion 35:29 Ja '64

National power conference Hydrogen damage symposium, Cincinnati, Sept. 22-25. A S M E Trans ser A 86:299-352 Jl '64

New designs for htw. O. S. Lieberg. diags Air Cond Heat & Ven 61:55-7 Je '64

New way to prevent corrosion in idle equipment. Power 108:129 Ja '64

Problems of soot emission and low temperature corrosion in domestic oil-fired boilers. J. Vaerman. bibliog diags Inst Pet J 50:155-62; Discussion. 163-8 Jl '64

Scaling and corrosion problems in boilers. Engineer 217:431 Mr 6 '64

Six rules for protecting heating boilers from corrosion. J. M. Hartman. Heating-Piping 36:135 My '64

Use of ammonia for reducing air-heater corrosion at Bankside generating station, C.E.G.B. J. T. S. Gundry and others. bibliog plan diags Combustion 36:39-47 O '64

Water vapor and SO_2 are prime factors in low-temperature corrosion. Power 107:76-7 D '63

See also

Boiler scale

Design

Boiler r&d program boosts availability. G. Kessler. Elec World 161:58-60 Ja 27 '64

1964 energy systems design survey; industrial steam systems trends and typical installations. Power 108:sup 12-21 O '64

Some basic data on design of once-through steam generators. W. D. Stevens and A. J. Zipay. diags Power Eng 68:52-5 Ag '64

Steam generation; special report. R. J. Bender. flow diag il diags Power 108:sup 1-48 Je '64 (reprints $1)

Efficiency

Calculator helps minimize heat rate loss. H. Ferguson. il diag Power 108:64-5 Ag '64

Exact damper setting gains lab boiler efficiency in the field. J. M. Hartman. Heating-Piping 36:96 F '64

Low boiler output traced to combustion air bypass in added sub-base. J. M. Hartman. diag Heating-Piping 36:132 Mr '64

Procedure for solution of gas-turbine and other combustion heat-balance problems with predetermined airflow. R. W. Foster-Pegg. diag A S M E Trans ser A 86:50-6 Ja '64

Equipment

Boiler fan corrosion that is no longer. il Engineering 196:776 D 20 '63

How accurate are modern water-level gages? W. F. Cantieri. diags Power 107:60-1 N '63

See also

Feed water heaters

Feed water regulators

Explosions

See Boiler explosions

Failure

Hydrogen damage in a pure-water boiler. A. M. Guy. Mech Eng 86:116-17 Ap '64

Six possible causes of boiler shutdown; question and answer. Dom Eng 203:119-20 Je '64

Firing

Combustion safety. J. W. Bishop. Combustion 36:46 Ag '64

Furnace temperature as a factor is combustion safety. E. S. Monroe, jr. diags Combustion 35:45-7 N; 32 D '63

Hot water boiler. il diag Engineer 216:920 N 29 '63

Progress in furnace protection system development. V. Z. Caracristi and others. diags Power Eng 68:42-5 Je; 36-8 Jl; 57-8 Ag '64

Role of burner flames in combustion safety; their relation to localized furnace temperatures in the burner area. T. S. Voorheis. il Combustion 35:31-2 F '64

Special section on boilers, firing and flame protection. il diags Power Eng 68:40-7 Je '64

Steam generation; steam generators for special applications; use of energy from gaseous, solid or liquid by-products. R. J. Bender. il diags Power 108:sup39-41 Je '64

Fuel

See Boilers—Firing

Furnaces

See Furnaces, Boiler

Gas firing

Elimination of destructive vibrations in large, gas- and oil-fired utility units. L. J. Cohan and W. J. Deane. bibliog diags Combustion 36:26-32 O '64

Maintenance and repair

Report of subcommittee on operator training and proper maintenance of recovery units and associated equipment. W. B. Parker. Tappi 47:sup 147A-8A F '64

Role of preventive maintenance in boiler safety. W. B. Parker. Combustion 35:46-50 Jl '63; Same cond. il diag Mech Eng 85:42-5 N '63

Steam generation; maintenance and operation. R. J. Bender. diags Power 108:sup 44-8 Je '64

Manufacture

Extensions at packaged boiler works; John Thompson (Wilson boilers) ltd. il Engineer 218:453-4 S 18 '64

Large boiler and pressure vessel fabrication; Babcock and Wilcox ltd. il Engineer 218:401-5 S 11 '64

Oil firing

Elimination of destructive vibrations in large, gas- and oil-fired utility units. L. J. Cohan and W. J. Deane. bibliog il diags Combustion 36:26-32 O '64

How low for excess air. R. J. Bender. il Power Eng 108:63-5 Mr '64

Low excess air combustion of fuel oil at Merksem power station (Belgium); abstract. J. Remeysen. Combustion 35:45 F '64

Low excess air firing lowers heat rate at large utility; tests on fuel oil. D. R. Cooper. flow diag il diags Combustion 36:28-34 Ag '64

New investigation and experiences with oil-fired steam generators. H. Niepenberg. bibliog il diags Combustion 35:39-46 Mr '64

Oil heating goes central. il Engineering 197:784 Je 5 '64

Small packaged steam generator burning heavy fuel. il Engineer 216:645 O 18 '63

See also

Boilers, Heating—Oil firing

Peat firing

Peat power in Ireland. il Mech Eng 85:61 D '63

Protection

American power conference 26th annual meeting, Chicago, April 14-16; panel discussion on prevention of boiler furnace explosions. Power Eng 68:63-4 Je '64 (to be cont)

Combustion safety. J. W. Bishop. Combustion 36:46 Ag '64

Inerting prevents furnace explosions. H. C. Luff. il Elec World 162:23 Ag 3 '64

Low-pressure safety valve offers poppet plus emergency eutectic and other relief features. il diags Power 107:108 N '63

BOILERS—Protection—*Continued*

New technology developed to protect large, efficient boilers. il Power Eng 68:40-1 Je '64

Progress in furnace protection system development. V. Z. Caracristi and others. diags Power Eng 68:42-5 Je; 36-8 Jl; 57-8 Ag '64

Role of burner flames in combustion safety: their relation to localized furnace temperatures in the burner area. T. S. Voorheis. il Combustion 35:31-2 F '64

Safety devices for boilers. J. H. Griffith. il diag Instruments & Control Systems 37:123-4 Ap '64

Valving enhances standby steam boiler protection. A. Krapek. diags Heating-Piping 36:113-15 Ap '64

Why boilers explode. J. Todd. il Power 108:60-1 Jl '64

Pulverized coal firing

Automated system developed for coal pulverizers, burners. diag Elec World 161:68 Je 1 '64

Is coal the fuel for MHD power? D. Bienstock and others. bibliog flow diag diags Mech Eng 85:38-41 O '63; Discussion. 86:155-7 Ap '64

Scale

See Boiler scale

Standards

ASME boiler and pressure vessel code (cont). Mech Eng 86:76-7 Ja; 95 F; 158-9 Ap; 85 Je; 78-9 Ag; 83-4 O '64

Testing

Why the boiler burst under test. il Engineering 198:254 Ag 28 '64

Vibration

Elimination of destructive vibrations in large, gas- and oil-fired utility units. L. J. Cohan and W. J. Deane. bibliog il diags Combustion 36:26-32 O '64

BOILERS, Heating

Htw with packaged pressurizing units; design considerations. J. N. Saunders. il Air Cond Heat & Ven 61:54-7 Ag '64

Hot water boiler and heating system must work together. L. A. Roethe. diag Power 107:68-9 N '63

Hot water boiler damage; causes and remedies. L. A. Roethe. Plant Eng 17:111-13 N '63

New boilers for home heating. il Engineering 196:544 O 25 '63

Six rules for protecting heating boilers from corrosion. J. M. Hartman. Heating-Piping 36:135 My '64

What's the remedy for boiler flooding in apartment house? question and answer. diags Dom Eng 202:58-9+ D '63

Gas firing

Improved central heating. il Engineering 198:64 Jl 10 '64

Oil firing

Fundamentals of fuel oil firing. A. A. Abrahams. diags Heating-Piping 36:132-4 S; 134-8 O '64

Oil heating at home. il Engineering 197:94 Ja 17 '64

Problems of soot emission and low temperature corrosion in domestic oil-fired boilers. J. Vaerman. bibliog diags Inst Pet J 50:155-62; Discussion. 163-8 Jl '64

BOILERS, Marine

Internal pressure cyclic fatigue test of an HY-80 marine boiler drum. I. Berman and D. H. Pai. il diags Welding J 43:sup24-32 Ja '64

Overheat deformation studies in mild steel boiler tubes. A. J. Ristaino. il diag Naval Eng J 76:27-34 F '64

Control

Automate or capitulate. il I S A J 11:51-2 Ag '64

Boiler automation. il diags Marine Eng/Log 69:43-6 Jl '64

Computer in the boiler room rejuvenates old ore carrier. il Machine Design 36:8 Jl 2 '64

Pure fluid controls for ship's boiler. E. M. Dexter and J. R. Colston. il diags Control Eng 11:96-7 S '64

Firing

W. N. Best demonstrates fuel-firing systems. Marine Eng/Log 69:110-11 S '64

BOILERS, Portable

Do you need a handy portable electric steam generator? L. McWilliams. il diag Power Eng 68:39-40 Jl '64

Simplifies cleaning; portable unit supplies 100-psi steam for one hour. il Food Eng 36:148 My '64

BOILERS, Waste heat

CO-boiler payout to come solely from fuel saving. D. H. Stormont. il Oil & Gas J 62:90 Ap 13 '64

Economy in planning and designing of BOF waste gas-cooling and dust-collecting plants. R. Kemmetmuller. flow diag il diags Iron & Steel Eng 41:203-17 S '64

Energy recovery for profit. P. R. Des Jardins. bibliog il diags Chem Eng 71:161-8 My 11 '64

Gas turbines boost horsepower at two Transco stations. H. C. Bozeman. il diags Oil & Gas J 62:104-5 My 11 '64

Interrelation of surface effects and acceleration in the burnout heat flux problem. C. P. Costello and C. A. Heath. diags A I Ch E J 10:278+ Mr '64

Preventing auxiliary fuel explosions in recovery units. D. P. Congdon and others. diag Tappi 47:sup 142A-3A F '64

Special CO boiler has three-year payout in small refinery. il Power Eng 68:46 Je '64

Steam generation from incineration. E. R. Shequine. diags Pub Works 95:92-4 Ag '64

Steam generation; steam generators for special applications; use of energy from gaseous, solid or liquid by-products. R. J. Bender. il diags Power 108:sup39-41 Je '64

Zero ambient boosts gas turbine's capability 50 per cent, soaks up waste heat. R. W. Wade and others. diags Elec World 161:24-5 Je 8 '64

BOILERS, Water tube

Steam generation; watertube designs. R. J. Bender. il diags Power 108:sup 16-23 Je '64

See also

Boiler tubes

BOILING

Analysis of the critical heat-flux condition in high-pressure boiling water flows. F. E. Tippets. bibliog diags A S M E Trans ser C 86:23-33; Discussion. il 33-6; Reply. 36-8 F '64

Boiling burnout heat flux measurements in a non-Newtonian suspension. D. M. Eissenberg. bibliog diags A I Ch E J 10:684-7 S '64

Boiling heat transfer with cryogenic fluids at standard, fractional, and near-zero gravity. H. Merte, jr. and J. A. Clark. bibliog il diags A S M E Trans ser C 86:351-8; Discussion. 358-9 Ag '64

Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:50-8 F '64

Critical heat flux for nearly saturated water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il diags A S M E Trans ser C 86:59-67 F '64

Critical heat flux for subcooled water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il A S M E Trans ser C 86:68-74 F '64

Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86:12-22 F '64

Determination of forced convection surface-boiling heat transfer. A. E. Bergles and W. M. Rohsenow. bibliog diags A S M E Trans ser C 86:365-72 Ag '64

Dominant unstable wavelength and minimum heat flux during film boiling on a horizontal cylinder. J. H. Lienhard and P. T. Y. Wong. bibliog il diags A S M E Trans ser C 86:220-5; Discussion. 225-6 My '64

Effect of applied voltage on boiling heat transfer. M. Markels, jr. and R. L. Durfee. bibliog il A I Ch E J 10:106-10 Ja '64

Effect of surface tension on factors in boiling heat transfer. J. B. Roll and J. E. Myers. bibliog A I Ch E J 10:530-4 Jl '64

Effects of reduced gravity on nucleate boiling bubble dynamics in saturated water. R. Siegel and E. G. Keshock. bibliog diags A I Ch E J 10:509-17 Jl '64

Experimental investigation of boiling heat transfer and pressure-drop characteristics of Freon 11 and Freon 113 refrigerants. T. A. Blatt and R. R. Adt, jr. bibliog flow diag A I Ch E J 10:369-73 My '64

Experimental investigation of the inherent uncertainty in pool boiling critical heat fluxes to saturated water. W. Gambill. bibliog diags A I Ch E J 10:502-8 Jl '64

BOILING—*Continued*
Experimental study of surface cooling by bubbles during nucleate boiling of water. T. F. Rogers and R. B. Mesler. bibliog il diag A I Ch E J 10:656-60 S '64
Film boiling of steam-water mixtures in annular flow at 800, 1100, and 1400 psi. E. E. Polomik and others. bibliog il diags A S M E Trans ser C 86:81-7; Discussion. 87-8 F '64
Film boiling on a horizontal tube in increased gravity fields. M. L. Pomerantz. bibliog il diags A S M E Trans ser C 86:213-18; Discussion. 218-19 My '64
Flow resistance with boiling refrigerants. B. Pierre. diags ASHRAE J 6:58-65 S; 73-7 O '64
Forced convection boiling of potassium-mercury systems. Y. S. Tang and others. bibliog il diag A I Ch E J 10:617-20 S '64
Free-falling capsule to study weightless boiling. il Chem Eng 71:92 Je 22 '64
Generalized peak heat flux for dilute binary mixtures. D. M. McEligot. A I Ch E J 10:130-1 Ja '64
Heat transfer in film boiling with pulsating pressures. D. A. Di Cicco and R. J. Schoenhals. bibliog diags A S M E Trans ser C 86:457-60; Discussion. J. D. Parker. 460; Reply. 460-1 Ag '64
Improved nucleate boiling heat transfer. R. K. Young and R. L. Hummel. bibliog il diag Chem Eng Prog 60:53-8 Jl '64
Instabilities in the flow of a boiling liquid. A. H. Stenning. diags A S M E Trans ser D 86:213-17 Je '64
Plastic spots enhance heat transfer. il Can Chem Process 48:69+ O '64
Prediction of low-quality boiling voids. P. Griffith. bibliog A S M E Trans ser C 86:327-33 Ag '64
Roles of capillary wicking and surface deposits in the attainment of high pool boiling burnout heat fluxes. C. P. Costello and W. J. Frea. bibliog diags A I Ch E J 10:393-8 My '64
Some effects of the orientation of the heating surface in nucleate boiling. P. M. Githinji and R. H. Sabersky. A S M E Trans ser C 85:379 N '63
Studies of the critical heat-flux for some binary mixtures and their components. M. Carne. bibliog il diags Can J Chem Eng 41:235-41 D '63

BOILING points
Distillation of lubricating oils using a single-stage centrifugal molecular still. W. L. Thomas. bibliog Anal Chem 36:1047-54; Discussion. 1151-2 My '64
Easy way to figure equilibrium flash vaporization and true boiling point. M. Van Winkle. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Ap '64
Method for calculating gas chromatographic relative retention values for high boiling phenothiazine derivatives. H. F. Martin and others. bibliog Anal Chem 35:1901-4 N '63
Now you can calculate crude tbp curves by computer. H. B. Henderson. bibliog Oil & Gas J 62:76-81 Ag 24 '64

BOILING water reactors. See Nuclear reactors—Boiling water reactors

BOLIVIA
See also
Copper mines and mining—Bolivia
Geology—Bolivia
Mines and mineral resources—Bolivia
Petroleum industry and trade—Bolivia

BOLOMETERS
Germanium bolometer detector of millimeter wavelength thermal energy. D. G. Galloway and G. W. Tolbert. il diags R Sci Instr 35:628-30 My '64
Measurement of power at short millimeter wavelengths. Q. V. Davis and others. il diags R Sci Instr 35:561-5 My '64
Measuring high frequency voltage with photometric bolometers. K. H. Klarer. il diags I S A J 11:69-72 Jl '64

BOLTS and nuts
Arc-welded stud is Y-shaped to hold concrete refractories. il Welding Eng 49:54 My '64
Art and science of stud driving. W. S. Brown. diags Mach 70:107-16 Je '64
Bolt force to flatten warped flanges. S. Levy. diags A S M E Trans ser B 86:269-72 Ag '64
Calibration of A325 bolts. J. L. Rumpf and J. W. Fisher. bibliog il diags Am Soc C E Proc 89 [ST 6 no 3731]:215-34 D '63; Discussion. E. Chesson, jr. 90 [ST 4 no 4001]:317-19 Ag '64
Choosing the best structural fastener. H. J. Stetina. il diags Civil Eng 33:50-3 N '63
Coating of bolts to prevent seizure. P. E. White. bibliog il Chem & Ind p 1486-90 Ag 22 '64
Correct fastener tightening prevents unscheduled downtime. T. Green. il diags Plant Eng 18:118-21 O '64
Determining preload in a bolted joint. T. C. Baumgartner and F. R. Kull. bibliog il diags Machine Design 36:180-5 F 13 '64
Die cuts miniature bolt heads. J. S. Brown. diags Am Mach 108:86 Ja 6 '64
Fasteners keep their heads. il diag Iron Age 193:156 Je 11 '64
For repeated high loads, try press-fit studs. J. H. Stroebel nad T. L. Johnson. il diags Product Eng 35:99-103 My 25 '64
Foundation bolts for heavy drives. C. A. Lee. diags Am Concrete Inst J 61:189-93 F '64; Discussion. P. Fischer. 61:1203-6 S '64
Gasket bolts in pressure vessel design. diags Product Eng 35:85-7 S 14 '64
Guide to automotive fasteners. J. Geschelin; N. M. Lloyd. il diags Automotive Ind 129:78-80+ O 15; 68-70 N 15 '63; 130:63-5 Ja 15; 37-40 Mr 1; 57-8 Ap 1; 81-2 My 15 '64
How to calculate and design for stress in preloaded bolts. A. G. Hopper and G. V. Thompson. diags Product Eng 35:81-4+ S 14 '64
Improving screw nut performance. W. Loecher. il diags Iron & Steel Eng 40:173-4 D '63
Long bolted joints. R. A. Bendigo and others. bibliog il diags Am Soc C E Proc 89 [ST 6 no 3727]:187-213 D '63; Discussion. 90 [ST 3 no 3940]:417-19 Je; [ST 4 no 4001]:311-15 Ag '64
Mechanical fasteners in the National design specification. J. G. Shope. Wire & Wire Prod 39:891-3+ Je '64
Metal-in-plastic inserts; illustrations with text. F. Strasser. Machine Design 36:174-8 Ja 16 '64
New formulas for fasteners loaded off center. T. R. Higgins. diags Eng N 172:102-4 My 21 '64
New welding stud design speeds refractory installation. il Steel 154:74 My 11 '64
Nut shows when it is tight. Eng N 172:104 My 21 '64
Proper wiredrawing improves cold heading. F. L. Gill and W. M. Baldwin, jr. il Metal Prog 85:83-5 F '64
Riveted and bolted joints; truss-type tensile connections. E. Chesson, jr. and W. H. Munse. bibliog il diags Am Soc C E Proc 89 [ST 1 no 3412]:67-106 F '63; Discussion. A. J. Francis. 89 [ST 5 no 3688]:329-30 O '63; Reply. 90 [ST 2 no 3886]:351-2 Ap '64
Rover bolts body assemblies. il Steel 153:157-8 D 9 '63
Sealing methods for bolted and screwed connections. H. W. Hamm. diags Chem Eng 71:122 Ag 3 '64
Stud welding gun cuts costs 50 per cent. il Welding Eng 49:54 Jl '64
Studs gain grip on snow tire market. il Chem & Eng N 42:30-1 F 10 '64
Tapping replaces hobbing in transfer machining of ball nuts. il Mach 70:103-4 D '63
Threaded fasteners have come a long way. il Mill & Factory 75:56-7 Jl '64
Use of stud welded connectors for field bolting of structural steel. il Welding J 43:518-19 Je '64
Y-shaped studs anchor castable or gunited refractories. il Iron & Steel Eng 41:158 My '64
See also
Mine roof bolting

Manufacture

Automatic heat treating line improves bolt uniformity. il diag Iron Age 194:66-7 O 1 '64
Cold heading machines. il Engineer 217:666 Ap 10 '64

Testing

Development and testing of an explosive-anchored rockbolt. E. W. Parsons. il diags Min Cong J 50:28-32 Je '64
Pull tests as a measure of roof bolt efficiency and of roof bolt design. T. S. Cochrane and F. Grant. diags Can Min & Met Bul 56:877-9 D '63
Roof bolt anchorage at Michel colliery. L. M. Dwarkin. diags Can Min & Met Bul 56:880-4 D '63

BOLTZMANN equation

Transport properties of a simple gas. E. A. Desloge. Am J Phys 32:733-42 O '64

Velocity modulation of a relativistic electron beam. P. C. T. DeBoer. J Ap Phys 35:2789-92 O '64

BOMBS

Bombs: detection or detonation? Product Eng 35:49 Ja 20 '64

BOMBS, Aerial

See also

Guided missiles

BONDED web. See Textile fabrics—Bonded web

BONDS

Bond contractors on their ability, too. Roads & Sts 107:147 Je '64

BONDS, Adhesive. See Adhesives

BONDS, Chemical. See Chemical bonds

BONDS, Government

See also

Municipal bonds

BONES

Bone density and skeletal maturation as indexes of mineral status in children. D. E. Williams and others. bibliog Am J Clinical Nutrition 14:91-7 F '64

For bone degreasing; a package plant. il Engineering 198:536 O 23 '64

Rapid spectrophotometric method for the determination of lead in bone ash. F. H. Ilcewicz and others. bibliog Anal Chem 36:1132-5 My '64

See also

Fractures
Rickets

Diseases

Determinants of serum antirachitic activity: special reference to involutional osteoporosis. R. W. Smith, jr. and others. bibliog Am J Clinical Nutrition 14:98-108 F '64

BONNEVILLE power administration

Contest to build California; BPA interties turns into sweepstakes. Elec World 160:72-3 N 18 '63

Keep BPA line out Idahoans plead. map Elec World 161:83-4 My 18 '64

BONUS system

Measured daywork becoming fashionable. Engineering 197:797 Je 12 '64

BOOK handling

Building-block system cuts distribution costs. J. A. Eaton. il diags Mod Materials Handling 19:44-7 Mr '64

BOOKBINDING

Books offset in stacks by counter control. il diag Automation 10:89-90 N '63

Wire stitching, binding and trimming machines. il Engineer 218:225 Ag 7 '64

BOOLEAN algebra. See Algebra, Boolean

BORAGINACEAE

Search for new industrial oils; oils of boraginaceae. R. Kleiman and others. Am Oil Chem Soc J 41:459-60 Jl '64

BORANES. See Boron hydrides

BORATES

AP&CC's new process separates borates from ore by extraction. C. R. Havighorst. flowsheet il Chem Eng 70:228-32 N 11 '63

Borate land withdrawal draws fire. map plan Chem & Eng N 42:24-7 My 18 '64

Calorimetric properties of some alkali pentaborate hydrates from 15 to 370°K. G. T. Furukawa and others. bibliog diags J Res Nat Bur Stand 68A:381-9 Jl '64

Cross-linking of borate polymer chains by means of silicates. J. Krogh-Moe. bibliog Am Cer Soc J 47:307 Je '64

High-temperature energy relations in borates: alkaline-earth and lead borate compounds and their glasses. D. R. Stewart and G. E. Rindone. bibliog Am Cer Soc J 46:593-6 D '63

Tetraphenylcyclobutenium difluoroborate. H. H. Freedman and A. E. Young. Am Chem Soc J 86:734-5 F 20 '64

See also

Cadmium borate

Spectra

Infrared spectra of the crystalline inorganic borates. C. E. Weir and R. A. Schroeder. bibliog J Res Nat Bur Stand 68A:465-87 S '64

BORAZINE. See Borazole

BORAZOLE

Condensation of β-aminoborazines with dimethylformamide and amine hydrochlorides. R. H. Toeniskoetter and K. A. Killip. bibliog Am Chem Soc J 86:690-4 F 20 '64

Diamagnetic anisotropy of a borazole ring. H. Watanabe and others. bibliog Am Chem Soc J 82:3294-7 Jl 5 '60; Correction. K. A. Muszkat. 86:1250; Reply. 1251 Mr 20 '64

Preparation of β-hydroxyborazoles. R. K. Bartlett and others. Chem & Ind p 1026-7 Je 13 '64

BOREHOLES

Borehole gravity meter and its application. R. R. Goodell and C. H. Fay. bibliog il diags Geophysics 29:774-82 O '64

Closed circuit tv for borehole inspection. il Engineering 196:525 O 25 '63

Determination of Bouguer density in shallow holes. S. Thyssen-Bornemisza. bibliog Geophysics 29:445-6 Je '64

Lead-compensated thermistor probe. A. M. Jessop. diag J Sci Instr 41:503-4 Ag '64

Recording temperatures in deep boreholes. G. S. Marshall and R. H. Henderson. il Engineering 196:540 O 25 '63

Theoretical prediction of seismic noise in a deep borehole. R. L. Sax and R. A. Hartenberger. bibliog Geophysics 29:714-20 O '64

Vertical gravity gradient in borehole exploration. S. Thyssen-Bornemisza. bibliog Geophysics 28:1072-3 D '63

BORERS, Marine. See Marine borers

BORIC acid

Chemical-shim control for nuclear reactors. P. Cohen and H. W. Graves, jr. diags Westinghouse Eng 24:90-3 My '64; Nucleonics 22:75-6+ My '64

Heats of solution, transition, and formation of three crystalline forms of metaboric acid. M. V. Kilday and E. J. Prosen. bibliog il diag J Res Nat Bur Stand 68A:127-37 Ja '64

Solvent extraction gains in hydrometallurgy. il Chem & Eng N 42:48-50 Ap 6 '64

Steel gains protective blanket during heat treating cycle; Scaleflux. il Iron Age 193:146-7 Je 11 '64

BORIDES

Synthesis of tetraisoamylammonium tetraisoamylboride; a reference electrolyte for the evaluation of single ion conductivities. J. F. Coetzee and G. P. Cunningham. Am Chem Soc J 86:3403-4 Ag 20 '64

See also

Silicon borides

BORING bars

Big boring bar speeds generator casing job. il Steel 153:87+ N 18 '63

Boring bar is made from steam tube. J. Waller. diag Am Mach 108:101 Ap 27 '64

Facing head mounts on boring bar. J. Waller. diag Am Mach 108:126 F 17 '64

BORING machinery. See Drilling and boring machinery

BORNEO

See also

Petroleum—Borneo

BORNITE

Experimental determination of the reaction chalcopyrite + sulfur = pyrite + bornite from 350 to 500°C. P. B. Barton, jr. and P. Toulmin, 3d. bibliog diags Econ Geol 59:747-52 Ag '64

Possible solution to the paradox of the sedimentary bornite. E. Gaucher. bibliog il Econ Geol 59:303-8 Mr '64

Sulfur-rich bornites. R. Brett and R. A. Yund. bibliog il diags Am Mineralogist 49:1084-98 Jl '64

BORON

Boron. A. G. Massey. diags Sci Am 210:88-94+ Ja '64

Boron, 1963. P. Colefax. Eng & Min J 165:119-20 F '64

Boron-substituted pyrimidines. T. K. Liao and others. bibliog Am Chem Soc J 86:1869-70 My 5 '64

Dissolution of elemental boron. J. M. Donaldson and F. Trowell. Anal Chem 36:2202 O '64

Dissolution of elemental boron. A. R. Eberle and M. W. Lerner. Anal Chem 36:674-5 Mr '64

Incorporation of boron into epitaxially grown silicon. Y. Matukura and others. diag Electrochem Soc J 111:491-2 Ap '64

Infrared photoconductive characteristics of boron-doped germanium. H. Shenker and others. bibliog diag J Ap Phys 35:2965-70 O '64

Iron-rich hard spots formed by silicon and boron in brasses. D. A. Hudson. bibliog il diag Inst Metals J 92:280-8 '63-64

Patent tells more about boron extractants: Ampot borax process. Chem & Eng N 42:40-1 Ja 20 '64

BORON—*Continued*

Photoluminescence and polytypism in boron doped silicon carbide. A. Addamiano. Electrochem Soc J 111:1294 N '64

Simple electron bombardment apparatus for evaporating boron. K. L. Erdman and others. diag R Sci Instr 35:122-3 Ja '64

Single-crystal boron films on silicon. A. F. Armington and others. il J Ap Phys 35:730-1 Mr '64

Strong for space; filament or thread of boron. il Pet Management 36:148 Mr '64

Transfer reactions involving boron; dihydroboration of acetylenes; proposed product formation involving participation by neighboring boron during hydrolysis. D. J. Pasto. bibliog Am Chem Soc J 86:3039-47 Ag 5 '64

Transfer reactions involving boron; reactions of the intermediate organoboranes formed by hydroboration of enol ethers. D. J. Pasto and C. C. Cumbo. bibliog Am Chem Soc J 86:4343-50 O 20 '64

See also
Soils—Boron content

Analysis

Dissolution and assay of elemental boron. A. R. Eberle and others. Anal Chem 36:1282-5 Je '64

Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64

Flame photometric microdetermination of boron in organoboron compounds. T. Yoshizaki. Anal Chem 35:2177-9 D '63

Spectrophotometric determination of traces of boron in silicon tetrachloride utilizing an extractive separation. C. S. Haas and others. Anal Chem 36:245-6 Ja '64

Isotopes

Isotope effects in mercurideboronations measured by neutron absorption. D. S. Matteson and others. bibliog Am Chem Soc J 86:3781-3 S 20 '64

BORON carbide

Grinding boron carbide. F. M. Giordano. il Tool & Manuf Eng 53:57-9 Jl '64

Phase equilibria in the system boron carbide-silicon carbide. D. R. Secrist. il Am Cer Soc J 47:127-30 Mr '64; Discussion. P. T. B. Shaffer and A. L. Hannam. 47:594-5 N '64

BORON chlorides

Reaction of sodium hydride with boron trichloride to form diborane. H. D. Batha and others. diag J Ap Chem 14:257-61 Je '64

BORON compounds

Amineborane reductions in aqueous acid media. H. C. Kelly and others. bibliog Am Chem Soc J 86:3882-4 S 20 '64

Boron-11 nuclear magnetic resonance spectra (32.1 mc.) of alkylated derivatives of dicarbahexaborane(8) and 1-iododecaborane (14). R. E. Williams and T. P. Onak. bibliog diags Am Chem Soc J 86:3159-60 Ag 5 '64

Convenient preparation of $B_{12}H_{12}^{-2}$ salts. I. A. Ellis and others. Am Chem Soc J 85:3885 D 5 '63

Conversion of baikiain to ***trans***-5- and ***trans***-4-hydroxypipecolic acids by hydroboration. Y. Fujita and others. Am Chem Soc J 86:1844-6 My 5 '64

Dicarbaundecaborane(13) and derivatives. R. A. Wiesboeck and M. F. Hawthorne. bibliog Am Chem Soc J 86:1642-3 Ap 20 '64

Existence of phenylboron bromochloride. A. Finch and J. C. Lockhart. Chem & Ind p497-8 Mr 21 '64

High molecular weight boron sulfides; identification, relative intensities, appearance potentials, and origins of the ions. F. T. Greene and P. W. Gilles. bibliog Am Chem Soc J 86:3964-9 O 5 '64

Hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:1791-807 My 5 '64

Hydroboration of terpenes; the hydroboration of α- and ß-pinene, the absolute configuration of the dialkylborane from the hydroboration of α-pinene. G. Zweifel and H. C. Brown. bibliog Am Chem Soc J 86:393-7 F 5 '64

Hydroboration of ureido-substituted olefins. D. N. Butler and A. H. Soloway. Am Chem Soc J 86:2961 Jl 20 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *cis*-acyclic, cyclic, and bicyclic olefins; a convenient synthesis of optically active alcohols and olefins of high optical purity and established configuration. H. C. Brown and others. bibliog Am Chem Soc J 86:397-403 F 5 '64

Hydroboration; the reaction of diisopinocampheylborane with representative 2-methyl-1-alkenes; a convenient synthesis of optically active 2-methyl-1-alkanols. G. Zweifel and others. bibliog Am Chem Soc J 86:1076-9 Mr 20 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *trans* and hindered olefins; triisopinocampheyldiborane as a reagent for the configurational assignment of alcohols and olefins via hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:1071-6 Mr 20 '64

Isotope effects in mercurideboronations measured by neutron absorption. D. S. Matteson and others. bibliog Am Chem Soc J 86:3781-3 S 20 '64

Lithium tetraborate hydrates. G. S. Perry. Chem & Ind p 1025-6 Je 13 '64

Molecular structure of a carborane (1,2-dicarbaclovododecarborane) derivative $B_{10}Cl_8H_2C_2H_2$. J. A. Potenza and W. N. Lipscomb. bibliog Am Chem Soc J 86:1874 My 5 '64

New carborane, $B_9C_2H_{11}$, and its derivatives. F. Tebbe and others. bibliog Am Chem Soc J 86:4222-3 O 5 '64

New organoborane compounds are stable; carboranes. M. S. Cohen and others. il diags Chem & Eng N 41:62-70 D 9 '63

Nitrosocarboranes from nitrosyl chloride. J. M. Kauffman and others. bibliog Am Chem Soc J 86:4210-11 O 5 '64

Organoboron chemistry; v. 1, Boron-oxygen and boron-sulphur compounds. H. Steinberg. Review. by W. Gerrard. Chem & Ind p 1456-9 Ag 15 '64

2-Phenyl-2,1-borazarene and derivatives of 1,2-azaboracycloalkanes. D. G. White. bibliog Am Chem Soc J 85:3634-6 N 20 '63

Preparation of carbon-14 and tritium labelled compounds by hydroboration procedures. R. W. Numrich and others. Chem & Ind p 1269 Jl 11 '64

Preparation of 1-[1,2-dicarbaclovododecaboranyl (12)]-1,2-dicarbaclovododecaborane (12). J. A. Dupont and M. F. Hawthorne. bibliog Am Chem Soc J 86:1643 Ap 20 '64

Reaction of organoboranes with chloramine and with hydroxylamine-O-sulfonic acid; a convenient synthesis of amines from olefins *via* hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:3565-6 S 5 '64

Reductive alkylation of quinones with trialkylboranes. M. F. Hawthorne and M. Reintjes. Am Chem Soc J 86:951 Mr 5 '64

Structure of borosilicate and borogermanate melts at 1300°C; a viscosity and density study. E. F. Riebling. bibliog Am Cer Soc J 47:478-83 O '64

Structure of $C_2B_5H_7$. R. A. Beaudet and R. L. Poynter. bibliog diag Am Chem Soc J 86:1258-9 Mr 20 '64

Studies of boron-nitrogen compounds. D. F. Gaines and others. bibliog Am Chem Soc J 85:3592-4; 86:1503-7 N 20 '63, Ap 20 '64

Synthesis of carboranes from dihydrocarboranes. T. P. Onak and others. bibliog diags Am Chem Soc J 85:3378-80 N 5 '63

BORON fluorides

Lewis basicity of a transition metal; a boron trifluoride adduct of biscyclopentadienyltungsten dihydride. D. F. Shriver. diag Am Chem Soc J 85:3509-10 N 5 '63

BORON hydrides

Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64

Azo coupling of aryldiazonium and $B_{10}H_{10}^{-2}$ ions. M. F. Hawthorne and F. P. Olsen. bibliog Am Chem Soc J 86:4219-20 O 5 '64

$B_{10}H_8(N_2)_2$ used to make disubstituted derivatives of polyhedral boranes. Chem & Eng N 42:45-6 Ja 27 '64

Borane complexes of transition metals. G. W. Parshall. bibliog Am Chem Soc J 86:361-4 F 5 '64

Boron-11 nuclear magnetic resonance spectrum of $B_{20}H_{18}^{-2}$ at 60 mc./sec. R. L. Pilling and others. bibliog Am Chem Soc J 86:3568-9 S 5 '64

BORON hydrides—*Continued*

Chemistry of boranes; amination of $B_{10}H_{10}^{-2}$ and $B_{12}H_{12}^{-2}$ with hydroxylamine-O-sulfonic acid. W. R. Hertler and M. S. Raasch. bibliog diags Am Chem Soc J 86:3661-8 S 20 '64

Chemistry of boranes; borane cations $H_2B(base)_2^+$. N. E. Miller and E. L. Muetterites. bibliog Am Chem Soc J 86:1033-8 Mr 20 '64

Chemistry of boranes; derivative chemistry of $B_{10}H_{10}^{-2}$ and $B_{12}H_{12}^{-2}$. W. H. Knoth and others. bibliog Am Chem Soc J 86:3973-83 O 5 '64

Diborane as a mild reducing agent for the conversion of primary, secondary, and tertiary amides into the corresponding amines. H. C. Brown and P. Heim. Am Chem Soc J 86:3566-7 S 5 '64

Diborane pyrolyzes to borane, triborane. F. E. Stafford and others. Chem & Eng N 42:54 S 7 '64

Direct detection of the borane molecule and the boryl radical by mass spectrometry. T. P. Fehlner and W. S. Koski. bibliog Am Chem Soc J 86:2733-4 Jl 5 '64

Fluorinated boron hydride synthesized. Franklin Inst J 277:509-10 My '64

Fragmentation of some boron hydrides by electron impact. T. P. Fehlner and W. S. Koski. bibliog Am Chem Soc J 86:581-6 F 20 '64

Gas phase radiolysis of pentaborane-9. V. V. Subbanna and others. bibliog Am Chem Soc J 86:1304-6 Ap 5 '64

Ionization and appearance potentials of selected ions from decaborane-16, B_5H_8I and B_5H_8Br. L. H. Hall and others. bibliog Am Chem Soc J 86:3969-73 O 5 '64

Isolation and characterization of $B_{20}H_{19}^{-3}$ and $B_{20}H_{18}^{-4}$ ions. M. F. Hawthorne and others. Am Chem Soc J 85:3704-5 N 20 '63

Kinetics of the decomposition of BH_3CO and the bond dissociation energy of B_2H_6. M. E. Garabedian and S. W. Benson. bibliog Am Chem Soc J 86:176-82 Ja 20 '64

Mechanical properties of paper made from periodate oxycellulose pulp and from the same pulp after reduction with borohydride. S. H. Zeronian and others. bibliog Tappi 47:557-64 S '64

New boron hydride $B_{20}H_{16}$. N. E. Miller and E. L. Muetterties. diag Am Chem Soc J 85:3506 N 5 '63

Optically active borane compounds made. W. R. Hertler. diags Chem & Eng N 42:39 Jl 27 '64

Preparation and structure of a new boron hydride $B_{20}H_{16}$. L. B. Friedman and others. diag Am Chem Soc J 85:3505 N 5 '63

Preparation, isolation, and structure of B_8H_{12}. R. E. Enrione and others. bibliog diag Am Chem Soc J 86:1451-2 Ap 5 '64

Preparation of optically active polyhedral borane derivatives. W. R. Hertler. bibliog diags Am Chem Soc J 86:2949-50 Jl 20 '64

Pyrolysis of diborane. R. J. Polak and C. Obenland. bibliog flow diag diag Ind & Eng Chem Product Res & Develop 3:234-8 S '64

Reaction of sodium hydride with boron trichloride to form diborane. H. D. Batha and others. diag J Ap Chem 14:257-61 Je '64

Reaction of the $B_{20}H_{18}^{-2}$ ion with hydroxide ion. M. F. Hawthorne and others. Am Chem Soc J 85:3704 N 20 '63

Synthesis of polyhedral boranes. H. C. Miller and others. Am Chem Soc J 85:3885-6 D 5 '63

Unsaturation determined on Micro scale. il Chem & Eng N 42:79 N 9 '64

Unstable species and the isotope effect in the pyrolysis of diborane in a shock tube. T. P. Fehlner and W. S. Koski. bibliog diags Am Chem Soc J 86:1012-18 Mr 20 '64

See also
Sodium borohydride

Analysis

Determination of hydrolytically-stable boron hydrides in biological materials. A. H. Soloway and J. R. Messer. bibliog Anal Chem 36:433-4 F '64

BORON nitrides

New pyrolytic boron nitride. M. Basche and D. Schiff. bibliog il diag Materials in Design Eng 59:78-81 F '64

Submicron size boron nitride as a grease thickener. R. D. Allen and others. il diag Lub Eng 20:339-44 S '64

BORON oxides

Exo-Flux welding of stainless steel type alloys. R. A. Long and others. flow sheet il Welding J 43:sup259-64 Je '64

Phase equilibrium studies in the system ThO_2-B_2O_3. D. E. Rase and G. Lane. il Am Cer Soc J 47:48-9 Ja '64

Surface contamination of La_2O_3 and Nd_2O_3 by B_2O_3; a source of error in X-ray diffractometry. S. Stecura and W. J. Campbell. Am Cer Soc J 47:468 S '64

Ultrasonic relaxation loss in SiO_2, GeO_2, B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64

BORON phosphide

Preparation and properties of the boron phosphides. J. L. Peret. bibliog Am Cer Soc J 47:44-6 Ja '64

Preparation, optical properties, and band structure of boron monophosphide. C. C. Wang and others. bibliog diag RCA R 25:159-67 Je '64

BORON sulfides

New class of boron sulfides detected. Chem & Eng N 42:38-9 O 12 '64

BORON trichloride. See Boron chlorides

BORON trifluoride. See Boron fluorides

BORONIC acids

Electrophilic displacement reactions; metal ion catalysis in the protodeboronation of areneboronic acids. H. G. Kuivila and others. bibliog Am Chem Soc J 86:2666-70 Jl 5 '64

BOSTON

See also
Building—Boston

Architecture

Another major project. il plan Prog Arch 45:62-4 F '64

Boston architectural center design chosen. il Arch Rec 135:14-15 Ap '64

Boston; offices, shops, and apartments hung on a treelike spine. il plans Arch Forum 121:204-5 Ag-S '64

Boston; special issue. il maps plans diags Arch Forum 120:63-124 Je '64

Boston's new City Hall; bold beauty. il diag Eng N 172:35 F 20 '64

Boston's State government center approved. il Arch Rec 135:26 Ja '64

Integrated campus for Boston university's landlocked site. il plans Arch Rec 135:161-70 My '64

New Center for Boston. il plan Arch Forum 120:88-9 F '64

Office building complexes: Prudential master plan. il map plans diags Arch Rec 135:190-200 Mr '64

Sewerage

Boston district attacks water pollution problems. il map diag Eng N 172:42-4 F 20 '64

Streets

Big Boston turnpike job shifts into high. H. J. McKeever. il Roads & Sts 107:56-9 My '64

Boston gets a hard-to-build, but badly needed expressway. il Eng N 172:40-1 F 20 '64

Turnpike extension poses unusual maintenance problems. G. G. Hyland. il plans Pub Works 95:82-3 Ag '64

Water supply

Boston digs a hole for 50 per cent more water. il Water Works & Wastes Eng 1:53 F '64

BOTANICAL chemistry

See also
Photosynthesis

BOTANY

See also
Plant cells and tissues

Physiology

See also
Plants—Translocation

BOTTLE caps and seals

Closure materials. il Drug & Cosmetic Ind 95:520-2+ O '64

BOTTLED goods

See also
Wine

BOTTLES

Ceramic labels: a designers view. W. Joachim. Glass Ind 45:20-3 Ja '64

Decorated beverage bottles. R. A. Hennings. diag Glass Ind 45:289-92+ Je '64

BOTTLES—*Continued*

Eases bottle movement on filling lines; invisible coating allows greater lubricity. il Food Eng 36:103 Ag '64

Lestoil flask promotion under way. il Soap & Chem Spec 40:113 Jl '64

Titanium makes bottles tougher. Product Eng 35:65 Mr 16 '64

See also

Thermos bottles

Manufacture

Copper alloys mold more and better bottles. il Product Eng 35:51-2 My 11 '64

BOTTLES, Plastic

Battle for bottles. il Mod Plastics 41:99-103+ Je '64

Blow-molding system makes bottles without side seams. Chem & Eng N 42:56-7 My 18 '64

Liquid detergents in plastic containers. E. D. Wilcox, jr. Soap & Chem Spec 39:84-7 D '63

Plastic packaging of drugs and cosmetics; rigid plastic bottle and plastic dispensing bottle. A. Hirsch. diags Drug & Cosmetic Ind 94:686-7+ My '64

Production and properties of rigid PVC bottles. H. A. Williams. il diags Brit Plastics 37:198-201 Ap '64

They went thattaway! Food Tech 18:875 Je '64

Manufacture

Adhesion of printing inks and adhesives on pretreated polyolefin surfaces. K. F. Büchel. bibliog il Brit Plastics 37:142-5 Mr '64

Electronically sealed vinyl for low-cost bottle. il diag Mod Plastics 42:90-1+ O '64

75,000 one-quart bottles a day! il diag Mod Plastics 41:96-9+ Ag '64

BOTTLING machines

Fluid logic fills bottles fast. R. N. Auger. il diag Control Eng 11:98-9 S '64

Quick-disconnects help bottle milk. il Hydraulics & Pneumatics 17:26 My '64

BOTTLING plants

Teamwork builds a plant; Coca-Cola co. J. W. Shaw. il Food Eng 36:64-6 S '64

Equipment

Automatic regulator for fluid-bottling line. F. Gibadlo. diags Chem Eng 71:156 Ja 20 '64

New bottling plant in London. Engineering 197:25 Ja 3 '64

Switch from steel to phenolic in uncaser saves 50 percent. il Mod Plastics 41:114 Ag '64

BOTULISM

Acceptance of the Nicholas Appert award. K. F. Meyer. Food Tech 17:1488+ D '63

Botulism outbreak from smoked whitefish. Food Tech 18:71-2+ Ja '64

Development of clostridium botulinum in experimentally inoculated sterile skim milk held at low temperatures. O. W. Kaufmann and A. R. Brillaud. bibliog Am J Pub Health 54:1514-21 S '64

Metals for food containers; the electromotive series and clostridium botulinum. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18:360-2 Mr '64

What you should know about botulism. il Food Eng 36:104-6 Jl '64

BOULDER, Colorado

Sewerage

Instrumentation and automation in pollution control. E. M. Hamilton. il Water Works & Wastes Eng 1:91-2+ S '64

BOULTON, Matthew

Some new light on M. Boulton. R. A. Pelham. Engineer 217:503-5 Mr 20 '64

BOUND water. See Water—Bound water

BOUNDARY layer

Aircraft leading edge. O. Ball. il diag Materials in Design Eng 59:137-8 Ap '64

Application of a new method of approximation in the solution of ordinary differential equations to the Blasius equation. E. D. Kennedy. bibliog A S M E Trans ser E 31:112-14 Mr '64

Application of quasilinearization to boundary-layer equations. J. R. Radbill. bibliog AIAA J 2:1860-2 O '64

Approximate nonequilibrium air ionization in hypersonic flows over sharp cones. E. S. Levinsky and F. L. Fernandez. diags AIAA J 2:565-8 Mr '64

Approximate solution for laminar boundary layer flow. R. L. Kosson. bibliog AIAA J 1:1088-96 My '63; Discussion. 2:587-8 Mr '64

Approximate solution of second-order boundary-layer equations. L. Devan and M. M. Oberai. AIAA J 2:1838-40 O '64

Axisymmetrical turbulent jet; Tollmien's problem extended. Z. Rotem. AIAA J 1:2633-5 N '63

Behaviour and effects of laminar separation bubbles on aerofoils in incompressible flow. J. W. Ward. bibliog diags Roy Aeronautical Soc J 67:783-90 D '63

Blowing effects on pressure interaction associated with cones. N. A. Thyson and E. E. H. Schurmann. AIAA J 1:2179-80 S '63; Discussion. 2:1868-9 O '64

Boundary flow along a circular cylinder. R. O. Reid and B. W. Wilson. bibliog diags Am Soc C E Proc 89 [HY 3 no 3512]:21-40 My '63; Discussion. 89 [HY 6 no 3708]:277 N '63; Reply. 90 [HY 3 no 3911]:321-6 My '64

Boundary layer control system lands jet planes. diags Product Eng 35:56-7 O 12 '64

Boundary-layer effects in reverse osmosis. U. Merten and others. bibliog Ind & Eng Chem Fundamentals 3:210-13 Ag '64

Boundary-layer problem associated with magnetogasdynamic channel flow. F. E. C. Culick. bibliog AIAA J 1:2666-8 N '63

Boundary-layer transition on a slender cone in hypersonic flow. A. Martellucci. bibliog AIAA J 2:771-2 Ap '64

Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:50-8 F '64

Calculation of the discharge coefficient of profiled choked nozzles and the optimum profile for absolute air flow measurement. B. S. Stratford. bibliog diags Roy Aeronautical Soc J 68:237-45 Ap '64

Chemical nonequilibrium boundary layer. F. G. Blottner. bibliog AIAA J 2:232-40 F '64

Correlation of boost phase turbulent heating flight data. M. G. Dunn. bibliog AIAA J 2:122-4 Ja '64

Development of boundary layers in buckled plates. E. F. Masur and C. H. Chank. bibliog Am Soc C E Proc 90 [EM 2 no 3863]:33-50 Ap '64

Diffusion-thermo effects in stagnation-point flow of air with injection of gases of various molecular weights into the boundary layer. E. M. Sparrow and others. bibliog AIAA J 2:652-9 Ap '64

Effect of high humidity environments on the strength of adhesive joints. D. J. Falconer and others. Chem & Ind p 1230-1 Jl 4 '64

Effect of shock-induced vorticity on the compressible boundary layer along a flat plate. L. Ting. bibliog diag AIAA J 2:490-3 Mr '64

Effect of the boundary layer upon the flow in a conical hypersonic nozzle. M. Sichel. bibliog AIAA J 2:180-3 Ja '64

Effect of variable Lewis number on heat transfer in a binary gas. K. R. Enkenhus. bibliog AIAA J 2:747-9 Ap '64

Effects of controlled roughness on boundary-layer transition at a Mach number of 6.0. J. R. Sterrett and P. F. Holloway. AIAA J 1:1951-3 Ag '63; Discussion. J. L. Potter and J. D. Whitfield. 2:407-8; Reply. 408-9 F '64

Eigenvalues for the equation of species conservation with heterogeneous reaction. G. S. Janowitz and P. A. Libby. bibliog AIAA J 2:1849-50 O '64

Equilibrium turbulent boundary layers. G. L. Mellor. AIAA J 2:1650-1 S '64

Experimental measurement of pitot pressure in the boundary layer on a model in a hypersonic gun tunnel. A. J. Cable. il AIAA J 2:944-5 My '64

Falkner-Skan equation for wakes. K. Stewartson. AIAA J 2:1327-8 Jl '64

Family of similar solutions for axisymmetric incompressible wakes. T. Kubota and others. AIAA J 2:1493-5 Ag '64

First-order perturbations of laminar free-convection boundary layers on a vertical plate. K. T. Yang and E. W. Jerger. bibliog diag A S M E Trans ser C 86:107-15 F '64

Flow in the three-dimensional boundary layer on a spinning body of revolution. O. Parr. bibliog AIAA J 2:361-3 F '64

Friction factors for fully developed turbulent flow in ducts with and without heat transfer. G. W. Maurer and B. W. LeTourneau. bibliog il diags A S M E Trans ser D 86:627-36 S '64

BOUNDARY layer—*Continued*

Friction factors in open channels; progress report. bibliog Am Soc C E Proc 89 [HY 2 no 3464]:97-143 Mr '63; Discussion. diag 89 [HY 4 no 3580]:283-93 Jl; [HY 5 no 3656]:169-70 S; [HY 6 no 3708]:265-76 N '63; Reply. 90 [HY 4 no 3980]:223-7 Jl '64

Heat and mass transport in multiparticle systems. R. Pfeffer. bibliog Ind & Eng Chem Fundamentals 3:380-3 N '64

Heat transfer from nonequilibrium ionized argon gas. C. Park. bibliog AIAA J 2:169-71 Ja '64

Improved Pohlhausen-type method of calculating the two-dimensional laminar boundary layer in a pressure gradient. B. E. Launder. diag A S M E Trans ser C 86:360-4 Ag '64

Initial development of the laminar separated shear layer. E. Baum. diag AIAA J 2:128-31 Ja '64

Insulator boundary layers in magnetohydrodynamic channels. F. J. Hale and J. L. Kerrebrock. bibliog AIAA J 2:461-9 Mr '64

Laminar boundary-layer development on yawed cone. S. M. Yen and B. Singh. diag AIAA J 2:775-6 Ap '64

Laminar boundary layer near the plane of symmetry of a hypersonic inlet. P. A. Libby and others. bibliog diags AIAA J 1:2732-40 D '63

Laminar boundary layer with fluid injection. A. R. Maddox. AIAA J 2:133-5 Ja '64

Laminar flow control cuts wing friction drag for greater range. W. L. Collins and others. il diags S A E J 72:56-60 Jl '64

Laminar free-convection wake above a heated vertical plate. K. T. Yang. bibliog A S M E Trans ser E 31:131-8 Mr '64

Laminar, transitional, and turbulent heat transfer after a sharp convex corner. V. Zakkay and others. bibliog diag AIAA J 2:1389-95 Ag '64

Lift on an oscillating ellipsoid of revolution. M. Sevik. bibliog il diags AIAA J 2:646-51 Ap '64

Local similarity expansions of the boundary-layer equations. W. B. Bush. AIAA J 2:1857-8 O '64

Mass transfer from solid spheres. R. B. Keey and J. B. Glen. bibliog il Can J Chem Eng 42:227-32 O '64

Momentum integral approximation for compressible magnetogasdynamic boundary-layer flow. J. J. Kauzlarich and A. B. Cambel. bibliog diag A S M E Trans ser E 30:269-74 Je '63; Discussion. 31:358-9 Je '64

Nonequilibrium hypersonic flat-plate boundary-layer flow with a strong induced pressure field. G. R. Inger. bibliog AIAA J 2:452-60 Mr '64

Nonequilibrium, nonsimilar solutions of the laminar boundary-layer equations. A. J. Pallone and others. bibliog AIAA J 2:1706-13 O '64

Nonequilibrium sodium ionization in laminar boundary layers. J. J. Kane. AIAA J 2:1651-3 S '64

Pressure distribution for hypersonic boundary-layer flow. M. S. Sastry. diag AIAA J 1:2398-9; 2:961-2 O '63, My '64

Recent studies of the laminar base-flow region. E. Baum and others. bibliog il diags AIAA J 2:1527-34 S '64

Separation, reattachment, and redevelopment of incompressible turbulent shear flow. T. J. Mueller and others. bibliog A S M E Trans ser D 86:221-5; Discussion. 225-6 Je '64

Shock curvature effect on the outer edge conditions of a laminar boundary layer. I. Rubin. AIAA J 1:2850-2 D '63

Shock detachment distance for blunt bodies in argon at low Reynolds number. A. B. Bailey and W. H. Sims. bibliog il AIAA J 1:2867-8 D '63

Shock tube test time limitation due to turbulent-wall boundary layer. H. Mirels. bibliog diags AIAA J 2:84-93 Ja '64

Similar solutions of boundary-layer equations for power-law fluids. J. N. Kapur and R. C. Srivastava. A I Ch E J 10:775+ S '64

Singular solutions at boundary intersections in two dimensional quasi-linear homogeneous partial differential equations. C. W. Gear. bibliog J Math & Phys 43:100-10 Je '64

Stagnation-point heat-transfer measurements in partially ionized air. P. H. Rose and J. O. Stankevics. il AIAA J 1:2752-63 bibliog(p2762-3) D '63

Structure of the boundary layer at the leading edge of a flat plate in hypersonic slip flow. J. A. Laurmann. bibliog diag AIAA J 2:1655-7 S '64

Study of laminar hypersonic cavity flows. K. M. Nicoll. bibliog il diag AIAA J 2:1535-41 S '64

Study of the incompressible turbulent boundary layer with pressure gradient. P. A. Libby and others. bibliog AIAA J 2:445-52 Mr '64

Temperature and velocity profiles along a vertical hot plate in a compressible fluid considering the effect of buoyancy. S. Ghoshal. AIAA J 2:364-5 F '64

Theory of stagnation-point heat transfer in a partially ionized diatomic gas. J. A. Fay and N. H. Kemp. bibliog AIAA J 1:2741-51 D '63

Thermal probe for segregation detection. J. H. Westbrook and others. bibliog diags Electrochem Soc J 111:888-91 Jl '64

Three-dimensional boundary layers with a normal wall velocity. R. J. Gribben. bibliog AIAA J 2:164-5 Ja '64

Transcendental approximation for laminar boundary layers. P. D. Richardson. AIAA J 1:2659 N '63

Transformations of the compressible turbulent boundary layer with heat exchange. L. Crocco. bibliog AIAA J 1:2723-31 D '63

Transonic flow past two-dimensional aerofoils. D. W. Holder. il diags Roy Aeronautical Soc J 68:501-16 bibliog(p515-16) Ag '64

Transpiration cooling of a turbulent boundary layer in an axisymmetric nozzle. J. Librizzi and R. J. Cresci. bibliog diag AIAA J 2:617-24 Ap '64

Turbulent boundary layers with transpiration. T. N. Stevenson. bibliog AIAA J 2:1500-2 Ag '64

Turbulent flow at the plane of symmetry of a collateral three-dimensional boundary layer. F. J. Pierce. bibliog diags A S M E Trans ser D 86:227-33 Je '64

Unsteady boundary-layer flow of a non-Newtonian fluid on a flat plate. C. S. Wells, jr. AIAA J 2:951-2 My '64

Upstream separation point for an internal corner in a two-dimensional channel flow. J. F. Barrows. bibliog il diags A S M E Trans ser E 30:505-8 D '63

Velocity defect law for a transpired turbulent boundary layer. H. S. Mickley and others. AIAA J 1:1685; 2:173-4 Jl '63, Ja '64; Discussion. 1:2676-7; 2:414-15 N '63, F '64

Viscous and nonviscous nonequilibrium nozzle flows. J. J. Brainerd and E. S. Levinsky. bibliog diags AIAA J 1:2474-81 N '63

Von Mises transformation for boundary layer theory. C. S. Song. bibliog diags Am Soc C E Proc 90 [EM 2 no 3861]:17-32 Ap '64

Wake-like solutions of the laminar boundary-layer equations. E. D. Kennedy. bibliog diags AIAA J 2:225-31 F '64

Weak interacting hypersonic flow over cones. W. Hoelmer and M. Saarlas. bibliog AIAA J 2:1846-7 O '64

Wind-tunnel screens; flow instability and its effect on aerofoil boundary layers. P. Bradshaw. diags Roy Aeronautical Soc J 68:198 Mr '64

BOUNDARY value problems

Anchor zone stresses in prestressed concrete beams. P. K. Som and K. Ghosh. bibliog diags Am Soc C E Proc 90 [ST 4 no 3996]:49-62 Ag '64

Asymptotic expansions for circular cylindrical shells. E. Reissner. A S M E Trans ser E 31:245-52 Je '64

Boundary value problems in two-dimensional elasticity by conducting paper analogue. D. S. Ross and I. H. Qureshi. diags J Sci Instr 40:513-17 N '63

Boundary value problems of soil mechanics. W. D. L. Finn. bibliog diags Am Soc C E Proc 89 [SM 5 no 3648]:39-72 S '63; Discussion. T. H. Wu. 90 [SM 2 no 3850]:211-12 Mr '64; Reply. 90 [SM 4 no 3979]:191-2 Jl '64

Class of boundary value problems for the biharmonic equation and the Stokes repeated operator equation. K. B. Ranger. J Math & Phys 43:75-82 Mr '64

Diffraction of steady elastic waves by surfaces of arbitrary shape. R. P. Banaugh and W. Goldsmith. bibliog diags A S M E Trans ser E 30:589-97 D '63

Dynamic stresses and displacements around cylindrical discontinuities due to plane harmonica shear waves. C. C. Mow and L. J. Mente. bibliog diags A S M E Trans ser E 30:598-604 D '63

BOUNDARY value problems—*Continued*

Effects of boundary conditions on the stability of cylinders subject to lateral and axial pressures. L. H. Sobel. bibliog diags AIAA J 2:1437-40 Ag '64

Electromagnetic scattering coefficients for concentric spheres and the problem of interference from enclosures. R. A. Eldred and others. diag J Res Nat Bur Stand 68D:1145-54 O '64

Exponential solutions of a boundary value problem of the Helmholtz equation related to change in phase. H. Bueckner and G. Horvay. diags J Math & Phys 43:227-33 S '64

Falkner-Skan equation for wakes. K. Stewartson. AIAA J 2:1327-8 Jl '64

Family of similar solutions for axisymmetric incompressible wakes. T. Kubota and others. AIAA J 2:1493-5 Ag '64

Finite difference analogue of an elliptic boundary problem which is neither diagonally dominant nor of non-negative type. J. H. Bramble and B. E. Hubbard. bibliog J Math & Phys 43:117-32 Je '64

Inequalities for solutions of mixed boundary value problems for elastic plates. J. H. Bramble and L. E. Payne. bibliog J Res Nat Bur Stand 68B:75-92 Ap '64

Numerical solution of problems allowing mixed boundary conditions. D. Greenspan. bibliog diags Franklin Inst J 277:11-30 Ja '64

Pointwise bounds in the first biharmonic boundary value problem. J. H. Bramble and L. E. Payne. bibliog J Math & Phys 42:278-86 D '63

Propagation characteristics of capillary ripples: theory of velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen and J. A. Mann, jr. bibliog J Ap Phys 35:152-8 Ja '64

Residual analysis for circular cylindrical shells under segmental line-load. J. Sheng and J. Kempner. bibliog diags AIAA J 1:2558-64 N '63; Correction. 2:784 Ap '64

Simplification of the mathematical description of boundary and initial value problems. J. D. Hellums and S. W. Churchill. bibliog A I Ch E J 10:110-14 Ja '64

Simulation of boundary conditions in heat conduction problems in a resistance-capacitance electrical analogue. K. S. Chan and K. R. Rushton. diags J Sci Instr 41:535-40 S '64

Solution of variational problems by means of a generalized Newton-Raphson operator. R. McGill and P. Kenneth. bibliog diag AIAA J 2:1761-6 O '64

Table roll drainage as a boundary layer problem. H. Meyer. bibliog diag Tappi 47:114-19 F '64

Theory of stationary electrode polarography; single scan and cyclic methods applied to reversible, irreversible, and kinetic systems. R. S. Nicholson and I. Shain. bibliog Anal Chem 36:706-23 Ap '64

Use of the adjoint system in the solution of two-point boundary value problems. O. T. Schultz. AIAA J 1:2673-4 N '63

Wake-like solutions of the laminar boundary-layer equations. E. D. Kennedy. bibliog diags AIAA J 2:225-31 F '64

Zeroes of Bessel functions and eigenvalues of non-self-adjoint boundary value problems. D. S. Cohen. bibliog J Math & Phys 43:133-9 Je '64

BOUNTY ISLANDS

See also

Geology—Bounty Islands

BOUSSINGAULT, Jean Baptiste

Sketch. G. R. Cowgill. bibliog por J Nutrition 84:2-9 S '64

BOW thrusters. See Steering gear

BOWLING alleys

Equipment

Automatic bowling scorekeeper. il diags Product Eng 35:44-5 Ja 6 '64

BOXES

Boxes become sophisticated. il Mod Plastics 42:106-7+ O '64

See also

Crates

Mailboxes

BOXES, Paper. See Paper boxes

BOXWOOD

Buxus alkaloids. K. S. Brown, jr. and S. M. Kupchan. bibliog Am Chem Soc J 86:4414-33 O 20 '64

BOYLE law

Pressure set using Boyle's law. S. Siegel. il diags I S A J 10:69-70 D '63

BOYSENBERRIES

Brief review of the problems in developing boysenberry products. S. Leonard. il diags Food Tech 18:516-19+ Ap '64

BRACHIOPODS, Fossil

Metamorphosed Silurian brachiopods from New Hampshire. A. J. Boucot and J. B. Thompson, jr. bibliog maps Geol Soc Bul 74:1313-33, pl 1-10 N '63

BRACING

Interaction of shear walls and frames. F. R. Khan and J. A. Sbarounis. bibliog diags Am Soc C E Proc 90 [ST 3 no 3957]:285-335 Je '64

BRACKETS

Bracket for airborne radar equipment. C. Allen. il diags Engineer 218:511-13 S 25 '64

BRAILLE. See Blind, Printing for

BRAIN

Chemical stimulation of the brain. A. E. Fisher. il diags Sci Am 210:60-8 Je '64

Great cerebral commissure. R. W. Sperry. il diags Sci Am 210:42-52, cover Ja '64

Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63

Living neuro-electronic systems. P. M. Kelly. bibliog diags Space/Aeronautics 42:52-9 S '64

Measuring and computation by brains and machines. J. Z. Young. bibliog Engineer 216:1022-4 D 20 '63

Shoring up blood vessels in the human brain. Product Eng 35:65 F 17 '64

Visual cortex of the brain. D. H. Hubel. il diags Sci Am 209:54-62 N '63

See also

Electroencephalography

BRAKE drums

RCA machine that uses precision air-to-electronic gaging for checking brake drums. il Mach 70:148-9 F '64

BRAKE lining

Icing problems and solutions. il Diesel Equip Supt 42:39 Mr '64

BRAKE shoes

Sheet-forming welder heads brake shoe line at Fiat. D. Scott. il Automotive Ind 129:42-3 N 1 '63; 130:48-9 F 1 '64

BRAKES

Design formulas for floating-shoe brakes and clutches. M. F. Spotts. diags Product Eng 35:84-6 S 28 '64

See also

Braking, Dynamic

BRAKES, Automobile

Anti-skid device controlled by suspension movement. diag Engineering 197:216 F 7 '64

Beryllium brakes. il Light Metal Age 22:20 Je '64

Beryllium brakes refused to wear out on Foyt's Indy-500 racer. il Machine Design 36:6 Je 18 '64

Caliper disk brakes. il Mech Eng 86:56-7 Ag '64

Disc brakes, a big question for American cars. il diags Machine Design 35:110-16 D 19 '63

Disc brakes, favorite of Europe, are orphan child in U.S. R. C. Parker and others. bibliog il diags S A E J 72:40-7 Ag '64

Fiat 1300 and 1500; braking system. diags Automobile Eng 54:343-4 Ag '64

Improved braking system for B.M.C. cars with six-cylinder engines. diags Automobile Eng 54:355-7 Ag '64

International design review; brakes. il diags Automobile Eng 54:243-9 My 20 '64

Jaguar Mark X; the braking system, integral chassis-body structure, fuel system and electrical equipment. il diags Automobile Eng 53:474-80 N '63

Jet brake combines accelerator and wheel brakes into one foot pedal. diag Product Eng 34:47 N 25 '63

Lockheed inertia valve resists rear wheel locking. il Engineering 198:341 S 11 '64

1965 passenger-car engineering trends; brakes. il S A E J 72:46-9 N '64

Panic-proof brake system reduces skid hazard. il diags Machine Design 36:142-3 My 7 '64

Renault plant steps up disk-brake manufacture. D. Scott. il diags Automotive Ind 131:87-90 O 15 '64

Split system hydraulic brakes fail safe. R. L. Atkin and others. il diags S A E J 72:56-9 Ja '64

Work done by brakes. T. P. Newcomb. bibliog Automobile Eng 54:98-100 Mr '64

BRAKES, Automobile—*Continued*

Control

Electromagnetic brake activated by eyebrow muscles. L. Vodovnik. il Electronic Eng 36:694-5 O '64

Testing

Control of brake performance tests. V. Leah. diags Automobile Eng 54:178-81 My '64

Performance and characteristics of the disc brake. R. C. Parker and T. P. Newcomb. diags Machine Design 36:180+ Jl 16 '64

BRAKES, Disk

Caliper disk brakes. il Mech Eng 86:56-7 Ag '64

Disc brake pads spray lacquered. il Engineering 197:390 Mr 13 '64

Disc brakes, a big question for American cars. il diags Machine Design 35:110-16 D 19 '63

Disc brakes, favorite of Europe, are orphan child in U.S. R. C. Parker and others. bibliog il diags S A E J 72:40-7 Ag '64

Disks are here. il Product Eng 35:62 S 14 '64

Heavy duty disc brake. il Engineering 198:463 O 9 '64

International design review; brakes. il diags Automobile Eng 54:243-9 My 20 '64

Performance and characteristics of the disc brake. R. C. Parker and T. P. Newcomb. diags Machine Design 36:180+ Jl 16 '64

Railway type disc brakes control uncoiler tension. il Steel 155:86+ S 28 '64

Renault plant steps up disk-brake manufacture. D. Scott. il diags Automotive Ind 131:87-90 O 15 '64

Work done by brakes. T. P. Newcomb. bibliog Automobile Eng 54:98-100 Mr '64

BRAKES, Eddy current. See Brakes, Magnetic

BRAKES, Hydraulic

Braking cranes by remote control. G. M. Coffey. il diag Plant Eng 18:111-13 Jl '64

Split system hydraulic brakes fail safe. R. L. Atkin and others. il diags S A E J 72:56-9 Ja '64

Udal hydraulic arrester for power press. il diag Metallurgia 70:110-11 S '64

BRAKES, Magnetic

Eddy-current brake for fractional horsepower motors. il Engineer 217:875 My 15 '64

Electromagnetic brake activated by eyebrow muscles. L. Vodovnik. il Electronic Eng 36:694-5 O '64

BRAKES, Motor bus

Safe braking for commercial vehicles. il diags Automobile Eng 54:442-3 O '64

BRAKES, Motor truck

Heavy duty disc brake. il Engineering 198:463 O 9 '64

Load-controlled braking for road vehicles. Engineer 216:1039 D 20 '63

Load-torque analysis is basis for legal stop ability design. G. P. Mathews. diag S A E J 72:60-5 Ja '64

Safe braking for commercial vehicles. il diags Automobile Eng 54:442-3 O '64

Split system hydraulic brakes fail safe. R. L. Atkin and others. il diags S A E J 72:56-9 Ja '64

Truck lessor, lessee and driver report on Jacobs engine brake for Series 71 engines. il diag Diesel Equip Supt 42:42-4 Jl '64

Truck operating conditions are brake balance headache. G. P. Mathews. il S A E J 72:60-1 Mr '64

Update and legalize service, parking brakes. il Diesel Equip Supt 41:40-2 N '63

See also
Motor trucks—Retarders

Testing

Dynamic brake tester-dynamometer combination provides means of checking total performance. il Diesel Equip Supt 42:42-3 Je '64

BRAKING, Dynamic

D.c. dynamic braking for direct determination of rotor impedance and power factor of induction machines. M. R. Krishnamurthy. bibliog diags Inst E E Proc 111:1299-304 Jl '64

BRAND names. See Trade marks

BRASS

Brass dezincification surprise. T. H. Turner. Engineer 217:552 Mr 27 '64

Dezincification of alpha brasses. C. Breckon and P. T. Gilbert. il Chem & Ind p35-6 Ja 4 '64

Properties of materials; copper-base alloys, cast; tables. Materials in Design Eng 60:151-5 Mid-O '64

Spontaneous strain aging embrittlement in 70-30 brass; abstract. C. C. Koch and A. R. Troiano. Metal Prog 86:290+ O '64

Metallography

Character, formation, and prevention of hard spots in high-tensile brasses. D. C. Stock and W. J. Smellie. il Inst Metals J 92:275-80 '63-64

Crystallography of the martensitic transformation in β-brass. W. Jolley and D. Hull. bibliog il Inst Metals J 92:129-35 '63-64

Iron-rich hard spots formed by silicon and boron in brasses. D. A. Hudson. bibliog il diag Inst Metals J 92:280-8 '63-64

Metal fatigue in near-safe specimens, illustrated by copper and brass under alternating torsion. W. A. Wood and others. il Inst Metals J 91:391-4 '62-63; Abstract. Metal Prog 85:176+ Je '64

Relationship between grain size and intergranular cavitation in an aluminum-1¼ per cent manganese alloy and 70:30 α-brass. D. M. R. Taplin and V. N. Whittaker. bibliog il Inst Metals J 92:426-8 '63-64

Protection

Tin coating copper and brass. R. L. Seth and others. bibliog Metal Finishing 62:66 Ag '64

BRASS founding

Brass and bronze; AFS congress; abstracts of papers. Foundry 92:129-31 Jl '64

Character, formation, and prevention of hard spots in high-tensile brasses. D. C. Stock and W. J. Smellie. il Inst Metals J 92:275-80 '63-64

New plant features brass and iron foundries. N. F. Wood. il Foundry 92:130+ Mr '64

BRASS tubes. See Tubes, Brass

BRASS work

Automatic bar machine cuts production costs 32 per cent. E. Karie. il diags Mach 70:109-11 N '63

BRASS works

Air-pollution problems of the wrought-brass industry. N. H. Jackson. bibliog Inst Metals J 92:200-4 '63-64

Electric equipment

Plant radial power: brass mill in Paramount, Calif. il diags Elec Constr & Maint 62:89-93 N '63

Power

Plant radial power; brass mill in Paramount, Calif. il diags Elec Constr & Maint 62:89-93 N '63

BRAWLEY, California

Water supply

Water supply improvements will meet heavy demands. H. F. Ludwig and others. maps Pub Works 95:97-9 N '64

BRAZIL

Street lighting is good politics in Brazil. il Elec World 162:107 S 21 '64

See also subdivision Brazil under special subjects, e.g.
Coal mines and mining
Electricity supply
Geology
Gold mines and mining
Mines and mineral resources
Petroleum
Standards
Television broadcasting

BRAZING

Brazing alloys. J. J. Lawless, jr. il Machine Design 36:174-84 Ag 27 '64

Brazing copper-nickel alloys. Welding Eng 49:74+ N '64

Brazing holds close tolerances in electron tubes. il Metal Prog 86:124+ S '64

Brazing in hydrogen by a glow discharge method. B. Brandt. J Sci Instr 40:542 N '63

Brazing of ceramics. C. W. Fox and G. M. Slaughter. bibliog il Welding J 43:591-7 Jl '64

Brazing of columbium D36 honeycomb structures. A. H. Freedman and E. B. Mikus. bibliog il diag Welding J 43:sup385-92 S '64

Brazing rings perform to rigid specifications. il Welding J 43:692-3 Ag '64

Ceramic to metal seal made by brazing. il Steel 154:64+ My 18 '64

Copper; a study of its alloys, character, and its weldability; with engineering data sheet. il Welding Eng 48:33-7 N '63

BRAZING—*Continued*

Development of alloys for brazing columbium. C. W. Fox and others. bibliog il diag Welding J 42:sup535-40 D '63

Development of butt brazing techniques for joining copper conductors. A. Madura. il diags Welding J 43:sup320-8 Jl '64

Development of partially volatile filler alloys for high-temperature brazing. N. Bredzs and others. diags Welding J 43:sup63-70 F '64

Dip brazing aluminum. R. H. Haines. il Mod Metals 20:28+ Mr '64

Dip brazing of aluminum. M. Sinclaire. il diag Metal Prog 86:84-7 S '64

Electron beam joins brazed refractory metals. P. Jacobson and M. Schwartz. il diags Welding Eng 49:48-50 Ap '64

Fabrication of the Molten-salt reactor experiment heat exchanger core. R. G. Donnelly and G. M. Slaughter. bibliog il diags Welding J 43:118-24 F '64

Fiber metal for joining. J. F. Rury. il Welding J 42:sup529-34 D '63

Flux-injection unit cuts brazing time. il Welding Eng 49:62+ F '64

Insulating blanket levels brazing temperature. Steel 154:66 My 18 '64

Joining and fastening; soldering fluxes; brazing filler metal; tables. Materials in Design Eng 60:538 Mid-O '64

Manufacture of egcr core 1 fuel assemblies. G. M. Tolson and M. G. Arlotti. bibliog il diags Welding J 43:280-6 Ap '64

New brazing system reduces rejects of copper tube condensers. E. H. Conway. il diag Welding Eng 48:46-7 N '63

Nickel brazing cuts fabrication costs. il Welding J 43:302+ Ap '64

Nitriding, sintering and brazing by glow discharge. C. K. Jones and S. W. Martin. il diag Metal Prog 85:94-8 F '64

North American Aviation offers tips on bimetallic joining. L. F. Gatzek. il Steel 155:160+ S 14 '64

Preformed brazing rings maintain integrity of vacuum units. il Welding Eng 49:68 My '64

Sandwich structure brazed by new technique. P. W. Warren. il diags S A E J 72:57-9 F '64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Soldering and brazing; automation speeds operations, ups quality. il Steel 155:48-9 S 21 '64

Vacuum brazing of honeycomb panel structures. C. M. Marshall and N. R. Williams. il diag Mach 71:158-61 O '64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

When should you use brazing? Welding Eng 49:62+ Ja '64

Working with refractory metals; joining. R. C. Bertossa. il Metal Prog 85:130+ Ap '64

See also
Silver solder
Solder and soldering

BRAZING, Silver. See Silver solder

BREAD

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-94 bibliog(p392-4) Mr '64

Laminated and coated polyolefin films. G. Jordan. il Plastics World 22:56-7 Ap '64

Studies of the nutritive loss of supplemental lysine in baking; loss in a standard white bread containing four per cent nonfat dry milk. G. R. Jansen and others. bibliog Food Tech 18:367-71 Mr '64

Studies on the nutritive loss of supplemental lysine in baking; loss in water bread and in breads supplemented with moderate amounts of nonfat dry milk. G. R. Jansen and others. bibliog Food Tech 18:372-5 Mr '64

Translocation and equilibration of moisture in canned frozen bread. K. G. Weckel and others. bibliog Food Tech 18:1480-2 S '64

Use of amyloglucosidase in breadmaking. Y. Pomeranz and others. bibliog Food Tech 18:1642-4 O '64

BREADBOARDS (electronics). See Electronic circuits

BREAKDOWN, Electric. See Dielectrics; Electric discharges

BREAKWATERS

Model tests of coastal protective structures in USSR. O. W. Kabelac. diags Am Soc C E Proc 89 [WW 1 no 3433]:21-34 F '63; Discussion. P. P. Goldstern. 89 [WW 4 no 3703]:99-102 N '63; Reply. 90 [WW 2 no 3917]:29-32 My '64

Sliding of composite-type breakwaters by breaking waves. S. Nagai. il plans diags Am Soc C E Proc 89 [WW 1 no 3428]:1-20 F '63; Discussion. T. Hayashi. 89 [WW 4 no 3703]:91-7 N '63; Reply. 90 [WW 2 no 3917]:27 My '64

Steel H-piles anchor breakwater. diag Eng N 173:31 O 29 '64

Vertical breakwaters with low coefficients of reflections. R. Boivin. il diags Eng J 46:42-8 N '63

Wave breakers on a beach and surges on a dry bed. J. C. Freeman and B. LeMéhauté. bibliog diags Am Soc C E Proc 90 [HY 2 no 3834]:187-216 Mr '64

BREAST cancer. See Cancer

BREAST feeding. See Infants—Nutrition

BREATH. See Respiration

BREMSSTRAHLUNG

Determination of sulphur content of hydrocarbons by bremsstrahlung absorption measurement. T. B. Rowley. bibliog diags Radio & Electronic Eng 26:298-304 O '63

BREUER, Marcel

Architectural details. Arch Rec 135:121-36 F '64

BREWERIES

Hexagon shaped brewery store. il Engineering 198:211 Ag 14 '64

Labatt's diversifies into biochemicals. il Can Chem Process 48:58-9 Mr '64

Equipment

Carton handling system sorts by brand and size. T. M. Comella. il diag Automation 11:58-61 Jl '64

Cooks brewer's grits continuously. il Food Eng 36:150 S '64

Filter replaces pasteurizer, produces bottled beer with tap flavor. F. K. Lawler. flow diag il diags Food Eng 35:45-7 D '63

Pabst brewing co. quickly checks oxygen in head-space gas. il Food Eng 35:91 N '63

Peter Hand brewing co. programs tank cleaning. V. Ecimovich and others. il diag Food Eng 35:44-5 N '63

Pre-assembled or shop-built, which drive is cheaper? S. Stein. il Plant Eng 17:110-11 D '63

Quality control

Beer flavor and problems of beer tasting. B. Trolle. bibliog il diag Food Tech 18:644-9 My '64

BREWING

Heriot-Watt college, Edinburgh, Department of brewing and applied biochemistry. Chem & Ind p 1828-9 N 16 '63

Microfiltration reduces beer spoilage. il Chem & Eng N 41:48-9 D 2 '63

BRICK construction

See also
Walls, Brick

BRICK walls. See Walls, Brick

BRICK works

New brick factory opened by the Redland group. il Chem & Ind p824 My 16 '64

Equipment

Perforated clay brick manufacture. il Engineer 217:821-2 My 8 '64

Research's better brick in production. il diag Engineering 197:709-10 My 22 '64

Power

Analyzing costs for total energy. N. J. Mazzocco. il Heating-Piping 36:133-7 Ja '64

BRICKLAYING machines

Bricklaying machine cost $3,000. Eng N 173:58 S 10 '64

BRICKMAKING

Perforated clay brick manufacture. il Engineer 217:821-2 My 8 '64

Research's better brick in production. il diag Engineering 197:709-10 My 22 '64

BRICKS

Sand-fly-ash bricks. M. Mateos. bibliog Materials Res & Stand 4:427-30 Ag '64

Moisture content

Accelerated moisture expansion in clay brick. G. V. Cullen and others. Am Cer Soc J 47:415 Ag '64

BRICKS, Insulating

See also

Fire brick

BRIDGE approaches

Better approaches for bridge. plan Engineering 196:822 D 27 '63

Bridge approaches in Louisiana; unit prices. Eng N 173:65 Jl 9 '64

Viaducts and approach roads; Forth Road bridge. il Engineer 218:361-3 S 4 '64

BRIDGE bearings

Elastomeric bearing pads. E. E. Thielker. il diags Rubber World 150:62-8 Je '64

Girders rest on elastomeric pads. il diag Eng N 172:101 Ap 2 '64

BRIDGE design

Additional Cooper River bridge. F. H. Sterbenz. il plan diags Civil Eng 34:41-5 O '64

Analysis of composite beam bridges by orthotropic plate theory. V. Vitols and others. bibliog diags Am Soc C E Proc 89 [ST 4 no 3584]:71-94 Ag '63; Discussion. K. H. Chu and G. Krishnamoorthy. 90 [ST 1 no 3812]:247-50 F '64; Reply. 90 [ST 5 no 4066]:199-201 O '64

Artistic orthotropic design also saves money. E. J. Shields. il diags Eng N 171:26-8+ N 21 '63

California's orthotropic bridge set to go; San Mateo-Hayward bridge. il diags Eng N 173:22-3+ O 29 '64

Office buildings planned for Thames River bridge. il Eng N 171:135 D 19 '63

Port Mann bridge. G. W. C. Lake. bibliog il map plans diags Eng J 47:27-33 My '64

Prestressed steel makes a bridge. il diag Eng N 173:24+ N 5 '64

Pylons support welded steel span. il Eng N 171:42 N 28 '63

Severn bridge approach includes stayed girder. il diags Eng N 171:130 D 19 '63

Steel deck bridges with long rib spans. R. Wolchuk. plans diags Civil Eng 34:53-5 F '64

See also

Bridges, Suspension

BRIDGE failures

Cracks and bulges found in concrete bridge piles. Eng N 172:20 F 27 '64

Failure of King's bridge in Melbourne. il diags Engineer 217:520-2 Mr 20 '64

Floods down dam, prize bridge. il Eng N 172:63 Je 18 '64

I-24 bridge collapse injures ten. il Eng N 172:24 Ap 23 '64

Report of Royal commission into the failure of Kings bridge, State of Victoria; review. J. L. Duncan. il Engineering 197:610-11 My 1 '64

BRIDGE painting

Dip painting Forth bridge suspenders. il Engineering 197:714 My 22 '64

BRIDGE railings

Luminous bridge railing. J. F. McPartland. il diags Elec Constr & Maint 62:54-6 D '63

BRIDGES

Composite design lowers county bridge costs. il diag Eng N 172:22-3 Mr 26 '64

Dams substitute for bridges. R. A. Zink. il diags Pub Works 94:72-3 N '63

Major transportation projects. il map Eng N 172:75+ Ja 23 '64

1¾ mile motorway viaduct nears completion. il Engineering 198:465 O 9 '64

Plate girders curve for 550 ft. il Eng N 172:21 Ap 9 '64

Soil conservation program replaces county bridges. C. P. Mayhugh. il Pub Works 95:100-1 N '64

See also

Bridge approaches
Bridge design
Hudson River bridges
Pipe lines—Bridge crossing
San Francisco Bay bridges
Trestles

also subdivision Bridges under names of cities, e.g.

Budapest
Cadiz
Charleston, South Carolina
Kiev, Russia
London
New Orleans
New York (city)
Newport, England
Portland, Oregon
St Louis
Sydney, Australia

Abutments

Analysis of relief bridge scour. E. M. Laursen. bibliog diags Am Soc C E Proc 89 [HY 3 no 3516]:93-118 My '63; Discussion. S. V. Chitale. 90 [HY 1 no 3783]:287 Ja '64

Approaches

See Bridge approaches

Architecture

Big stones face little bridge. il Eng N 171:32+ N 28 '63

Design for the Calder motorway bridge. il plans diags Engineer 217:203-6, 228-9, 262-4 Ja 31-F 7 '64

105 designs for a motorway bridge. il diags Engineering 197:230-1 F 7 '64

Welded steel bridges win awards for beauty. il Welding Eng 49:43 Mr '64

Bearings

See Bridge bearings

Costs

Bids are close for orthotropic spans; San Mateo-Hayward bridge. Eng N 173:20 O 29 '64

Bridge approaches in Louisiana; unit prices. Eng N 173:65 Jl 9 '64

Bridge bid is below estimate; unit prices. Eng N 173:130-1+ S 17 '64

Bridge costs in California. H. K. Mauzy and W. J. Yusavage. il Civil Eng 34:50-1 My '64

Bridge tower job winner cuts 25 per cent off estimate; unit prices. Eng N 173:61 Jl 16 '64

Close bidding prices a bargain bridge; second Delaware memorial bridge span. Eng N 173:16 O 29 '64

Concrete price takes bridge job; unit prices. Eng N 172:51 My 28 '64

Four-bridge Alaska river crossing; unit prices. maps Eng N 172:148 F 13 '64

Ohio River bridge substructure; unit prices. Eng N 173:131 Ag 6 '64

Phase one, Delaware memorial bridge twin; unit prices. il Eng N 172:124 Je 18 '64

Prestressed deck units for 400-ft Connecticut bridge; unit prices. Eng N 173:142 S 17 '64

Rouge River bridge, Detroit, Mich.; unit prices. Eng N 171:118+ D 19 '63

Erection

Austrians prefabricate arched falsework for an arch bridge. il Eng N 171:40-1 D 5 '63

Bascule erected in only 48 hours. il Eng N 173:37 Jl 16 '64

Bendorf bridge, a new world record in prestressed concrete. il diags Eng N 173:60-2+ O 8 '64

Best planned bridge project shows value of sequence charting. il diags Roads & Sts 107:40-3+ Ag '64

Bridge building speeded by polythene shelters. il Engineering 197:429 Mr 20 '64

Bridge construction in Germany and Austria; illustrations with text. Engineer 217:94-5 Ja 10 '64

Bridge work resumes; Astoria-Megler bridge across the Columbia River. Eng N 173:19 Jl 23 '64

Bridging of the Firth of Forth 1926-1964. il map diags Engineering 198:293-7 S 4 '64

Chesapeake Bay bridge-tunnel project; symposium. il Civil Eng 33:44-52 D '63

Closure of the Forth Road bridge; illustrations with text. Engineer 217:14-15 Ja 3 '64

Firth of Forth bridge combines beauty with economy. il diags Eng N 172:24-8+ My 28 '64

George Street bridge, Newport. il diag Engineer 217:683-4 Ap 17 '64

How CPM was used on a large bridge project. J. C. Bullard. il Roads & Sts 106:22-5 N '63

Manpower, machines and concrete conquer stormy Chesapeake Bay. il diags Eng N 171:24-6+ N 28 '63

Narrows bridge gets final link. il Eng N 172:21 My 7 '64

Portugal builds the longest suspension bridge in Europe. E. A. Soost. il map diags Eng N 171:26-8+ D 12 '63

Precast segmental construction for long-span bridges. B. C. Gerwick, jr. il diags Civil Eng 34:43-7 Ja '64

Progress of the Severn suspension bridge; illustrations with text. Engineer 217:26-7 Ja 3 '64

Quick new bridge at Newport, Monmouthshire. il diags Engineering 197:582-3 Ap 24 '64

Safety nets on Narrows bridge. Eng N 171:21 D 12 '63

Short span takes long to build. Eng N 171:20 N 28 '63

BRIDGES—Erection—*Continued*

Tower crane traveler expedites Swedish bridge project. il Roads & Sts 107:59 Mr '64

Welded box girder bridge uses alloy steels. il diag Eng N 173:36-9 O 1 '64

See also
Bridges—Welding operations

Floors

Can joints at bridge ends be omitted? diag Eng N 173:51 Ag 27 '64

Committee action to restore and protect bridge decks. J. Badaluco. il diag Pub Works 95:96-7 Mr '64

Cracking corrected; epoxy overlay stops concrete failure due to temperature extremes. il Plastics World 22:42 Je '64

Epoxy/coal tar cement prevents cold-weather deck failures. il Roads & Sts 107:75-6 My '64

Fast deck job; pavers rode right over joints. il Roads & Sts 107:109-10+ Mr '64

Floor truss erection begins at the Narrows. il Eng N 171:64-6+ N 14 '63

Imaginative methods, rigs speed rehabilitation of a major bridge. il Eng N 172:70-2+ Ap 2 '64

New bridge deck protected with synthetic resin. il Roads & Sts 106:54-5 D '63

Paving took ingenuity on Chesapeake Bay bridge. il Roads & Sts 107:136-7+ Je '64

Polythene film in bridge work. il Engineering 198:401 S 25 '64

Rapid gain is prospect for bridge-repair epoxies. Chem & Eng N 42:52+ My 4 '64

Steel bridge decks sound after 27 years. R. Wolchuk. il Eng N 172:54 Je 11 '64

Steel deck bridges with long rib spans. R. Wolchuk. plans diags Civil Eng 34:53-5 F '64

Stud welding for highway safety. R. J. Walsh. il Pub Works 94:88-9 D '63

Suspended deck is prestressed. diag Eng N 172:138 Mr 19 '64

Two-inch bonded concrete overlay for the Port Mann bridge. N. Hilton. il diags Eng J 47:39-44 My '64

Welding builds longest bridge floor. il Welding Eng 49:90 N '64

Foundations and piers

Backhoe excavates for cofferdam. il Eng N 171:167 D 19 '63

Big piles precision set with floating template. G. H. Andrews and T. G. Gray. il map diag Roads & Sts 107:84+ My '64

Bridge piers designed to flex. il Eng N 172:19 F 6 '64

Building a major bridge on weak subsoil; Van Brienenoord bridge near Rotterdam. il diags Engineering 197:810-11 Je 12 '64

Construction of the foundations of the Port Mann bridge. W. G. F. Davie. diags Eng J 47:25-31 S '64

Cracks and bulges found in concrete bridge piles. Eng N 172:20 F 27 '64

Design of the main foundations of the Port Mann bridge. H. Q. Golder and G. C. Willeumier. bibliog plan diags Eng J 47:22-9 Ag '64

Foundation aspects of the Rainy Lake causeway. M. A. J. Matich and others. bibliog il plans diags Eng J 46:23-31 N '63; Discussion. 46:40 D '63

Greenhouses protected winter bridge concreting. il diag Roads & Sts 106:38-9+ D '63

Hollow prestressed piles help span Missouri. H. K. Glidden. il diags Roads & Sts 107:48-51+ Ja '64

New piers for old while deck raised on blocks. il diags Roads & Sts 107:48-9+ Jl '64

Old piers support modern bridge; Elizabeth bridge, Budapest. il Eng N 172:38 Mr 5 '64

Pier shifts help out tendons in prestressing a curved bridge. il diags Eng N 173:34-6 O 22 '64

Pile-supported plate girders soar over New Orleans waterway. il Eng N 172:26-8 Ap 23 '64

Port Mann bridge. G. W. C. Lake. bibliog il map plans diags Eng J 47:27-33 My '64

Pylons support welded steel span. il Eng N 171:42 N 28 '63

Seismic analysis of bridges on long piles. J. Penzien and others. diags Am Soc C E Proc 90 [EM 3 no 3953]:223-54 Je '64

Tall piers go up fast with 3½ hour form sequence. il Roads & Sts 107:48-51 My '64

Two types of caissons support tall piers for Louisiana bridge. il Eng N 173:28-9 S 3 '64

Welded box girder bridge uses alloy steels. il diag Eng N 173:36-9 O 1 '64

See also
Caissons

History

Country's first reinforced concrete bridge. il Am Concrete Inst J 61:sup 12-13 S '64

Lighting

Dramatic lighting of towers of the George Washington bridge. H. Wenson and H. Lewis. il plan diags Elec Constr & Maint 63:88-93 Je '64

Luminous bridge railing. J. F. McPartland. il diags Elec Constr & Maint 62:54-6 D '63

Maintenance and repair

Committee action to restore and protect bridge decks. J. Badaluco. il diag Pub Works 95:96-7 Mr '64

Making an old bridge like new; Pasco-Kennewich bridge. P. Thomson. il Pub Works 95:118-19 Mr '64

New bridge deck protected with synthetic resin. il Roads & Sts 106:54-5 D '63

Problems in bridge maintenance. F. H. Blackwell. il Pub Works 95:94-6 F '64

Rapid gain is prospect for bridge-repair epoxies. Chem & Eng N 42:52+ My 4 '64

Scaffold reaches under bridges. il Eng N 173:46 Ag 13 '64

Steel net saves money as well as lives; repairing the Bourne bridge over Cape Cod canal. il Eng N 173:34-6+ Ag 20 '64

Stud welding for highway safety. R. J. Walsh. il Pub Works 94:88-9 D '63

See also
Bridges—Reconstruction

Model testing

Model balsa-wood bridges in education. B. C. Ringo. il Civil Eng 34:48-9 F '64

Painting

See Bridge painting

Raising

Bridges raised to accommodate missiles. il Pub Works 95:187 O '64

Reconstruction

Greenhouses protected winter bridge concreting. il diag Roads & Sts 106:38-9+ D '63

Imaginative methods, rigs speed rehabilitation of a major bridge. il Eng N 172:70-2+ Ap 2 '64

New piers for old while deck raised on blocks. il diags Roads & Sts 107:48-9+ Jl '64

Old swing span begins a new life. il Eng N 173:31 Jl 23 '64

Pontchartrain bridge repaired rapidly. il Eng N 172:21 Je 25 '64

Railway bridge adds tenth track. il Eng N 171:94 N 14 '63

State saves a year and $2 million by rebuilding an old bridge. il Eng N 172:30-2 Mr 12 '64

Stresses

Concrete bridge destroyed to test it. il diags Engineering 197:484-5 Ap 3 '64

Direct stress analysis of orthotropic bridge slabs. A. Coull. diag Am Soc C E Proc 90 [ST 2 no 3856]:1-12 Ap '64

Vibration

Seismic analysis of bridges on long piles. J. Penzien and others. diags Am Soc C E Proc 90 [EM 3 no 3953]:223-54 Je '64

Welding operations

Design, fabrication and construction of the Calcasieu River bridge. J. Karol. il maps diags Welding J 42:867-80 N '63

Multi-steel bridge spans the Ohio. R. L. LaBounty. il diag Welding Eng 48:38-40 N '63

Sub-arc, A441 save $200,000. il Welding Eng 48:66 D '63

Welded bascule bridges return to Florida. J. E. Sawyer and E. R. Estes, jr. il map diags Welding J 43:27-33 Ja '64

Welded bridge features clean lines, economy. il Welding Eng 49:73 Ap '64

Welded bridge girders. O. W. Blodgett. il diags Civil Eng 34:50-3 Ja '64

Welded stainless beam may change future bridges. il Welding Eng 49:50 Jl '64

Welded steel bridges prove economical. il Pub Works 95:139 O '64

Welded steel bridges win awards for beauty. il Welding Eng 49:43 Mr '64

Welding builds longest bridge floor. il Welding Eng 49:90 N '64

BRIDGES—Welding operations—*Continued*

Welding for bridges; AWS specifications. L. Grover. il Civil Eng 33:60-3 D '63

Welding gives pedestrian bridge good appearance, easy cleaning. H. V. Sargent. il Welding Eng 49:46 N '64

Welding speeds viaduct repairs. M. H. Frank. il Welding J 42:892-3 N '63

Wichita's welded pedestrian bridge. il Welding Eng 49:58+ Ag '64

Alaska

Four-bridge Alaska river crossing; unit prices. maps Eng N 172:148 F 13 '64

Australia

Precast girders make Australian bridge. il Eng N 172:94-5 F 13 '64

Austria

Austrians prefabricate arched falsework for an arch bridge. il Eng N 171:40-1 D 5 '63

Bridge construction in Germany and Austria; illustrations with text. Engineer 217:94-5 Ja 10 '64

British Columbia

Construction of the foundations of the Port Mann bridge. W. G. F. Davie. diags Eng J 47:25-31 S '64

California

Bridge costs in California. H. K. Mauzy and W. J. Yusavage. il Civil Eng 34:50-1 My '64

Long steel arch waits for traffic. il Eng N 171:54 D 19 '63

Germany

Bendorf bridge, a new world record in prestressed concrete. il diags Eng N 173:60-2+ O 8 '64

Bridge construction in Germany and Austria; illustrations with text. Engineer 217:94-5 Ja 10 '64

Pylons support welded steel span. il Eng N 171:42 N 28 '63

Great Britain

British open stayed girder bridge. il Eng N 172:150 Je 18 '64

Severn bridge approach includes stayed girder. il diags Eng N 171:130 D 19 '63

Thelwall bridge and M6. il Engineer 217:13-14 Ja 3 '64

Louisiana

Two types of caissons support tall piers for Louisiana bridge. il Eng N 173:28-9 S 3 '64

Portugal

Portugal builds the longest suspension bridge in Europe. E. A. Soost. il map diags Eng N 171:26-8+ D 12 '63

Scotland

Firth of Forth bridge combines beauty with economy. il diags Eng N 172:24-8+ My 28 '64

Firth of Forth road bridge open. il Eng N 173:27 S 10 '64

Sweden

Swedes build a suspension bridge. il Eng N 172:35 F 6 '64

Venezuela

Ship cuts Lake Maracaibo bridge. il Eng N 172:28 Ap 16 '64

BRIDGES (instruments). See Electric instruments; Wheatstone bridge

BRIDGES, Aluminum

Aluminum in structural engineering; aluminum for bridges. R. M. Davies. il diags Mod Metals 20:56+ Jl '64

BRIDGES, Arched

Austrians prefabricate arched falsework for an arch bridge. il Eng N 171:40-1 D 5 '63

For Wales; bridges of continental grace. il diags Engineering 197:712 My 22 '64

Record concrete span opens; Australia's Gladesville bridge. il Eng N 173:31 O 1 '64

BRIDGES, Bascule

Bascule erected in only 48 hours. il Eng N 173:37 Jl 16 '64

Bridge would rejuvenate Spanish port. il maps Eng N 173:83 Jl 2 '64

Building a major bridge on weak subsoil; Van Brienenoord bridge near Rotterdam. il diags Engineering 197:810-11 Je 12 '64

Unique draw-footbridge guards picturesque harbor; Ogunquit, Maine. D. O. Woodbury. il Pub Works 95:184 S '64

Welded bascule bridges return to Florida. J. E. Sawyer and E. R. Estes, jr. il map diags Welding J 43:27-33 Ja '64

BRIDGES, Cantilever

Additional Cooper River Bridge. F. H. Sterbenz. il plan diags Civil Eng 34:41-5 O '64

Bridge built atop the scenery with cantilevered travelers. il diags Eng N 172:72-5 Je 18 '64

Quick new bridge at Newport, Monmouthshire. il diags Engineering 197:582-3 Ap 24 '64

BRIDGES, Concrete

Bendorf bridge, a new world record in prestressed concrete. il diags Eng N 173:60-2+ O 8 '64

Bridge and trestle construction; Chesapeake Bay bridge-tunnel project. J. W. Fowler. il Civil Eng 33:50-2 D '63

Bridge built atop the scenery with cantilevered travelers. il diags Eng N 172:72-5 Je 18 '64

Concrete in the Chesapeake Bay bridge-tunnel. il Am Concrete Inst J 61:sup3-5 Jl '64

Concrete price takes bridge job; unit prices. Eng N 172:51 My 28 '64

Concrete ribbon bridge spans 1,500 ft. il Eng N 172:23 Mr 12 '64

Country's first reinforced concrete bridge. il Am Concrete Inst J 61:sup 12-13 S '64

Design for the Calder motorway bridge. il plans diags Engineer 217:203-6, 262-4 Ja 31-F 7 '64

Economical bridge replacement. A. R. Pagan. il Pub Works 95:105-7 Jl '64

For Wales; bridges of continental grace. il diags Engineering 197:712 My 22 '64

Futuristic concrete bridge designs for M1 extension. il Engineering 197:875 Je 26 '64

Highway bridges get softer look. il Eng N 172:20 Ap 30 '64

I-24 bridge collapse injures ten. il Eng N 172:24 Ap 23 '64

Lightweight, prestressed concrete beams span the Suwanee River. il Eng N 172:26-7 Je 4 '64

105 designs for a motorway bridge. il diags Engineering 197:230-1 F 7 '64

Pier shifts help out tendons in prestressing a curved bridge. il diags Eng N 173:34-6 O 22 '64

Precast girders make Australian bridge. il Eng N 172:94-5 F 13 '64

Precast segmental construction for long-span bridges. B. C. Gerwick, jr. il diags Civil Eng 34:43-7 Ja '64

Precast units make up multiple-arch Russian bridge. il Eng N 173:36-7 Ag 13 '64

Prestressed box section motorway bridge over the Rhine. il Engineering 197:19 Ja 3 '64

Record concrete span opens; Australia's Gladesville bridge. il Eng N 173:31 O 1 '64

Seattle viaduct redesigned using CPM. R. W. Morse and others. il diag Civil Eng 34: 46-7 O '64

Standard prestressed concrete bridge beams. diag Engineering 197:229 F 7 '64

Suspended deck is prestressed. diag Eng N 172:138 Mr 19 '64

Costs

Low bid on concrete wins bridge and road award. Eng N 173:48 S 3 '64

Testing

Concrete bridge destroyed to test it. il diags Engineering 197:484-5 Ap 3 '64

BRIDGES, Ferry. See Ferry bridges

BRIDGES, Foot

Adaptable pedestrian bridge. il Engineer 217: 669 Ap 10 '64

Bridges built with new-process treated wood. il Roads & Sts 107:82 My '64

Foot bridges are prefabricated. diag Eng N 173:45 Ag 13 '64

Plywood footbridge; Reed college, Portland, Ore.; selected detail. il diags Prog Arch 44:136-7 D '63

Rods support end of pedestrian bridge. il diag Eng N 172:94 My 21 '64

Unique draw-footbridge guards picturesque harbor; Ogunquit, Maine. D. O. Woodbury. il Pub Works 95:184 S '64

Welded steel pedestrian bridges from standard parts. il Engineering 197:653 My 8 '64

Welding gives pedestrian bridge good appearance, easy cleaning. H. V. Sargent. il Welding Eng 49:46 N '64

Wichita's welded pedestrian bridge. il Welding Eng 49:58+ Ag '64

BRIDGES, Iron and steel
Adaptable pedestrian bridge. il Engineer 217: 669 Ap 10 '64
Analysis of orthotropic plate bridges. R. J. Clifton and others. bibliog diags Am Soc C E Proc 89 [ST 5 no 3675]:133-71 O '63; Discussion. 90 [ST 2 no 3886]:395-9 Ap; [ST 3 no 3940]:393-401 Je '64; Reply. 90 [ST 6 no 4157]:297-308 D '64
Artistic orthotropic design also saves money. E. J. Shields. il diags Eng N 171:26-8+ N 21 '63
Bowstring girder for new bridge over the Tyne. il Engineering 198:372 S 18 '64
Bridge and trestle construction; Chesapeake Bay bridge-tunnel project. J. W. Fowler. il Civil Eng 33:50-2 D '63
Bridge piers designed to flex. il Eng N 172: 19 F 6 '64
British open stayed girder bridge. il Eng N 172:150 Je 18 '64
California's orthotropic bridge set to go; San Mateo-Hayward bridge. il diags Eng N 173:22-3+ O 29 '64
Closure of the Forth Road bridge; illustrations with text. Engineer 217:14-15 Ja 3 '64
850-ft girders will bridge Rhine. il Eng N 172: 45 Je 11 '64
Expected life of girder-work. Engineer 216: 738-9 N 1 '63
For a motorway viaduct; a steel spine. il plan diag Engineering 198:151-2 Jl 31 '64
Forth Road bridge. il Engineer 218:358-63 S 4 '64
Fylde junction higher bridge. il plan Engineer 218:125-6 Jl 24 '64
Long box girder spans the Danube. il diag Eng N 172:154 Je 18 '64
Long steel arch waits for traffic. il Eng N 171:54 D 19 '63
Multi-steel bridge spans the Ohio. R. L. LaBounty. il diag Welding Eng 48:38-40 N '63
Old swing span begins a new life. il Eng N 173:31 Jl 23 '64
Pile-supported plate girders soar over New Orleans waterway. il Eng N 172:26-8 Ap 23 '64
Port Mann bridge. G. W. C. Lake. bibliog il map plans diags Eng J 47:27-33 My '64
Pre-planning helped set big girders across track jungle. il Roads & Sts 107:52-5+ Je '64
Remote steel bridge completed; Arizona's Virgin River crossing. il Eng N 172:27 Je 11 '64
Rods support end of pedestrian bridge. il diag Eng N 172:94 My 21 '64
Severn bridge approach includes stayed girder. il diags Eng N 171:130 D 19 '63
State saves a year and $2 million by rebuilding an old bridge. il Eng N 172:30-2 Mr 12 '64
Steel bridge is prefabricated. il diag Eng N 173:42-3 N 5 '64
Steel deck bridges with long rib spans. R. Wolchuk. plans diags Civil Eng 34:53-5 F '64
Steel truss evolution exemplified by Newburgh-Beacon bridge. il Roads & Sts 106: 60, cover N '63
Thelwall bridge and M6. il Engineer 217:13-14 Ja 3 '64
Welded box girder bridge uses alloy steels. il diag Eng N 173:36-9 O 1 '64
Welded bridge features clean lines, economy. il Welding Eng 49:73 Ap '64
Welded bridge girders. O. W. Blodgett. il diags Civil Eng 34:50-3 Ja '64
Welded steel bridges prove economical. il Pub Works 95:139 O '64
Welded steel bridges win awards for beauty. il Welding Eng 49:43 Mr '64
Welded steel pedestrian bridges from standard parts. il Engineering 197:653 My 8 '64
Welding for bridges; AWS specifications. L. Grover. il Civil Eng 33:60-3 D '63

BRIDGES, Lift
See also
Bridges, Bascule

BRIDGES, Pedestrian. See Bridges, Foot

BRIDGES, Prefabricated
Foot bridges are prefabricated. diag Eng N 173:45 Ag 13 '64
Railroad prefabricates bridge spans. il Eng N 172:91 My 21 '64
Steel bridge is prefabricated. il diag Eng N 173:42-3 N 5 '64

BRIDGES, Railroad
Expected life of girder-work. Engineer 216: 738-9 N 1 '63
Long Island railroad eliminates grade crossings. il plan diags Eng N 171:90-1+ D 19 '63
Railroad prefabricates bridge spans. il Eng N 172:91 My 21 '64
Railway bridge adds tenth track. il Eng N 171:94 N 14 '63

BRIDGES, Steel. See Bridges, Iron and steel

BRIDGES, Suspension
Bridging of the Firth of Forth 1926-1964. il map diags Engineering 198:293-7 S 4 '64
Firth of Forth bridge combines beauty with economy. il diags Eng N 172:24-8+ My 28 '64
Firth of Forth road bridge open. il Eng N 173:27 S 10 '64
Floor truss erection begins at the Narrows. il Eng N 171:64-6+ N 14 '63
Forth Road bridge. il Engineer 218:358-63 S 4 '64
Long bridge may span the Baltic; would link Denmark and Germany. il map Eng N 172: 82 My 21 '64
Longest span proposed for Britain's Humber River. il diags Eng N 172:16 Ap 30 '64
Oldest suspension bridge in the West to be replaced; Bidwell Bar bridge. il Civil Eng 34:90 O '64
Portugal builds the longest suspension bridge in Europe. E. A. Soost. il map diags Eng N 171:26-8+ D 12 '63
Progress of the Severn suspension bridge; illustrations with text. Engineer 217:26-7 Ja 3 '64
Swedes build a suspension bridge. il Eng N 172:35 F 6 '64
World's great suspension bridges compared. C. H. Gronquist. diags Civil Eng 34:80 Ap '64

BRIDGES, Wooden
Bridges built with new-process treated wood. il Roads & Sts 107:82 My '64

BRIGGS, John Frederick
Obituary. W. A. Dickie and A. J. Daly. por Chem & Ind p 1869-70 N 23 '63

BRIGHAM CITY, Utah

Sewerage

Unexpected population growth speeds Brigham City expansion. G. E. Torgerson. il diag Water Works & Wastes Eng 1:36-8+ Mr '64

BRIGHTNESS
Brightness control improves plant lighting comfort. V. Kempf. il diags Plant Eng 18: 118-21 Mr '64
See also
Glare
Paper—Brightness

BRILLOUIN effect
High-current density Brillouin-focused electron beam. L. Kikushima and C. C. Johnson. diag IEEE Proc 52:82-3 Ja '64
Modern views on the electron theory of metals and alloys. E. R. Petty. bibliog diags Metallurgia 70:12-17 Jl '64

BRINE
Alkaline chloride electrolysis. il Ind Chem 39: 637-40 D '63
AP&CC's new process separates borates from ore by extraction. C. R. Havighorst. flowsheet il Chem Eng 70:228-32 N 11 '63
Clearing of weathered wool shrinkproofed by the permanganate/brine process. O. A. Swanepoel and D. P. Veldsman. il Textile Res J 34:457-8 My '64
Improved process to convert saline water. diags Chem & Eng N 42:50-1 Je 22 '64
Industry helps handle brine problems. Oil & Gas J 61:60-1 D 16 '63
Interest in steam wells perks up in the Salton Sea area of extreme southern California. map Oil & Gas J 61:100-1 N 11 '63
Lean brines become prime iodine source. il diag Chem Eng 71:98+ Je 8 '64
Louisiana battling brine pollution. maps Oil & Gas J 62:45 Je 1 '64
Magnesium chloride from naturally occurring brines and evaporites. A. F. Nylander and J. H. Jensen. bibliog flow sheets J Metals 16:718-20 S '64
Minerals from sea salt. J. A. Tallmadge and others. bibliog il Ind & Eng Chem 56:44-65 Jl '64
Pilot plant planned for developing geothermal brine. il Chem & Eng N 42:20 Ag 31 '64
Possible mechanism for concentration of brines in subsurface formations. J. D. Bredehoeft and others. bibliog diags Am Assn Pet Geologists Bul 47:257-69 F '63; Discussion. 48:234-6; Reply. 236-8 F '64
Semi-permeability of bentonite membranes to brines. I. H. Milne and others. bibliog diags Am Assn Pet Geologists Bul 48:103-5 Ja '64

BRINE—*Continued*

Water-lift and disposal operations in low-pressure shallow gas wells. C. G. Melton and R. L. Cook. diag J Pet Tech 16:619-22 Je '64

See also
Calcium chloride
Sea water

BRINELL hardness test

Controlling Brinell hardness in production castings. F. E. Kasch. diag Foundry 92:52-6 Mr '64

Modified Brinell test measures brittleness. Materials in Design Eng 59:115 F '64

BRIQUETS (fuel)

Coal pelletizing studies for the vertical shaft carbonization process. W. J. Riva and others. bibliog Can Min & Met Bul 57:52-6 Ja '64

BRISTLES

High-speed photography .in bristle materials research. G. L. Jones. il Res/Develop 14:19-21 D '63

BRISTOL, England

Streets

Britons go for three-level traffic segregation. Eng N 172:35 F 6 '64

BRITISH association for the advancement of science

Annual meeting, Southampton, Aug. 26-Sept. 2; with abstracts of papers. Engineer 218:397-8, 447 S 11-18 '64

BRITISH chemical manufacturers, Association of. See Association of British chemical manufacturers

BRITISH chemical plant manufacturers association

Annual dinner, London, Oct. 30. Chem & Ind p 1800 N 9 '63

BRITISH coal utilisation research association

Annual report, 1963. Chem & Ind p965 Je 6 '64

BRITISH COLUMBIA

See also subdivision British Columbia under special subjects, e.g.
Bridges
Copper mines and mining
Electricity supply
Gas, Natural
Geology
Gold mines and mining
Hydroelectric plants
Mines and mineral resources

BRITISH GUIANA

See also
Mines and mineral resources—British Guiana

BRITISH non-ferrous metals research association

Research association's work in the non-ferrous field. il Metallurgia 70:31-4 Jl '64

BRITISH plastics federation

Furthering overseas trade; work of the overseas trade committee of the BPF. A. Renfrew. Brit Plastics 37:295-7 Je '64

BRITTLENESS

Analysis of fracture probabilities in nonuniformly stressed brittle materials. N. A. Weil and I. M. Daniel. bibliog il diags Am Cer Soc J 47:268-74 Je '64

Analysis of the diametral-compression test. A. Rudnick and others. bibliog il diags Materials Res & Stand 3:283-9 Ap '63; Discussion. 4:24-5, 481-2 Ja, S '64

Assault on fracture pays off. A. Q. Mowbray. il Materials Res & Stand 4:103-6 Mr '64; Same. Naval Eng J 76:632-4 Ag '64

Beryllium as a structural material. S. Gelles and others. bibliog il diags J Metals 15:843-8 N '63

Brittle engineering materials. D. R. Wilder. bibliog diags Chem Eng 70:209-16 N 11 '63

Brittle metals turn ductile in hydrodynamic forming. il diags Iron Age 193:68-70 My 28 '64

Comparison of the brittle behavior of metallic and nonmetallic materials. G. T. Hahn and R. I. Jaffree. Metal Prog 85:177-8+ My '64

Crack extension in plates under plane loading and transverse shear. F. Erdogan and G. C. Sih. bibliog il diags A S M E Trans ser D 85:519-25; Discussion. F. A. McClintock. 525-7; Reply. 527 D '63

Failure criterion for fracture during cleavage. I. Krause. diag J Ap Phys 35:461-2 F '64

Fracture of brittle solids; maxima in the differential probability distribution for single fracture. J. J. Gilvarry and B. H. Bergstrom. bibliog J Ap Phys 35:1644-6 My '64

Fracture of cold-worked iron. N. P. Allen and others. bibliog il diag Iron & Steel Inst J 202:808-17 O '64

Hydrogen embrittlement of titanium alloys. D. N. Williams. bibliog il Inst Metals J 91:147-52 '62-63; Abstract. Metal Prog 85:154+ Mr '64

Low temperature metals. A. Hurlich. bibliog il Chem Eng 70:104-12 N 25 '63

Metallography of an iron-21 per cent chromium alloy subjected to 475°C embrittlement. M. J. Blackburn and J. Nutting. bibliog il Iron & Steel Inst J 202:610-13 Jl '64

Modified Brinell test measures brittleness. Materials in Design Eng 59:115 F '64

National power conference Hydrogen damage symposium, Cincinnati, Sept. 22-25. A S M E Trans ser A 86:299-352 Jl '64

Observing crack growth with the field emission microscope. S. A. Hoenig and D. L. Creighton. bibliog il diag Materials Res & Stand 3:899-901 N '63

Preventing sigma phase embrittlement in nickel base superalloys. W. J. Boesch and J. S. Slaney. il Metal Prog 86:109-11 Jl '64

Spontaneous strain aging embrittlement in 70-30 brass; abstract. C. C. Koch and A. R. Troiano. Metal Prog 86:290+ O '64

Strength-porosity relation involving different pore geometry and orientation. S. D. Brown and others. bibliog diags Am Cer Soc J 47:320-2 Jl '64

Tantalum grains resist growth. il Iron Age 194:63 Jl 9 '64

Temperature-dependence of yield and brittle-fracture stresses in polycrystalline molybdenum. A. Wronski. bibliog Inst Metals J 92:376-7 '63-64

See also
Steel—Brittleness

BROACHING

Broaching notches in Charpy impact specimens. M. B. Reynolds. il Materials Res & Stand 4:211 My '64

Broaching shapes king-size gears. il Iron Age 194:80-1 S 17 '64

Shaper broaches keyways in fiber blocks. W. Keller. diag Am Mach 108:127 F 17 '64

Special tool broaches hex shafts. G. Rausina. diag Am Mach 108:87 Ja 6 '64

BROACHING machines

Automatic broaching of grooves in piston wrist-pin holes. il Mach 70:111 D '63

Broaching and drilling machine. il Engineer 217:668 Ap 10 '64

Broaching setups gain variety, flexibility. R. H. Eshelman. il Iron Age 194:105 O 8 '64

Continuous broaching machine. il Engineer 216:1040 D 20 '63

Novel straight-through broach eliminates production bottleneck. il Mach 70:112-14 D '63

Ten-ton vertical machine arranged for pot broaching. il Mach 71:174-5 O '64

What's new in broaching? Am Mach/Metalworking Manuf 107:119 N 11 '63

Control

Automatic broaching machine equipped for notching small steel shafts. il Mach 70:201 Jl '64

Small-size automatic pull-down broaching machine. il Mach 71:164 S '64

Numerical control

N/c used on vertical broach. il Automation 11:43 S '64

BROCCOLI

Identification of metabolites of Zectran insecticide in broccoli. E. Williams and others. bibliog J Agri & Food Chem 12:453-7 S '64

BROMATES

See also
Sodium bromate

Analysis

Colorimetric determination of bromate with *o*-aminobenzoic acid. M. H. Hashmi and others. Anal Chem 36:2028-9 S '64

BROMIDES

Chronopotentiometry of the bromide-bromine couple at platinum and carbon paste electrodes. D. G. Davis and M. E. Everhart. bibliog Anal Chem 36:38-40 Ja '64

Competitive elimination-substitution reactions; some dramatic differences between bromides and tosylates. P. Veeravagu and others. bibliog Am Chem Soc J 86:3072-5 Ag 5 '64

Electrophilic addition reactions of 1,1-dimethyldiazenium bromide with 1,3-dienes and styrenes. W. H. Urry and others. bibliog Am Chem Soc J 86:2224-9 Je 5 '64

BROMIDES—*Continued*

Mass spectrometry in structural and stereochemical problems; mass spectrometric fragmentation of isohexyl bromide and five deuterated derivatives. D. H. Williams and others. bibliog Am Chem Soc J 86:877-9 Mr 5 '64

Polarography of organic halogen compounds; sterically hindered alicyclic bromides. F. L. Lambert and others. Am Chem Soc J 86: 3155-6 Ag 5 '64

See also

Alkyl bromides
Cesium bromide
Chromium bromides
Cobalt bromides
Copper bromides
Cyanogen bromide
Iron bromides
Isopropyl bromide
Lithium bromide
Nitrosyl bromide
Potassium bromide
Silver bromides
Zinc bromide

BROMINATION

Allylic brominations with 1,2-dibromotetrachloroethane. E. S. Huyser and D. N. DeMott. Chem & Ind p 1954 D 14 '63

Aromatic substitution; ferric chloride catalyzed bromination of benzene and alkylbenzenes with bromine in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-44 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of halobenzenes in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1044-6 Mr 20 '64

Bromination of chlorobenzene. K. R. Buck and others. Chem & Ind p494 Mr 21 '64

Cupric bromide and alkylbenzenes; influence of water on nuclear bromination vs. side-chain attack. P. Kovacic and K. E. Davis. bibliog Am Chem Soc J 86:427-32 F 5 '64

Determination of normal alpha-olefins by hydrobromination. J. C. Suatoni. Anal Chem 35:2196-8 D '63

Electron affinity residue determination of CIPC, monuron, diuron, and linuron by direct hydrolysis and bromination. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:46-8 Ja '64

Heat stability of brominated epoxy resins. B. J. Bremmer. Ind & Eng Chem Product Res & Develop 3:55-60 Mr '64

Kinetic studies with electrogenerated halogens; bromination of 8-quinolinol and 2-methyl-8-quinolinol. G. S. Kozak and others. bibliog Anal Chem 36:296-300 F '64

Purine nucleosides; direct bromination of adenosine, deoxyadenosine, guanosine, and related purine nucleosides. R. E. Holmes and R. K. Robins. bibliog Am Chem Soc J 86:1242-5 Mr 20 '64

Rapid determination of diphenylamine in apples by direct bromination and gas chromatography. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:468-70 N '63

Stereochemical evidence for bridged radicals; photobromination of *cis*- and *trans*-4-bromo-*t*-butylcyclohexane. P. S. Skell and P. D. Readio. bibliog diags Am Chem Soc J 86: 3334-7 Ag 20 '64

Synthesis, brominolysis, and pyrolysis of a Dewar anthracene; a free radical displacement on carbon. D. E. Applequist and R. Searle. bibliog Am Chem Soc J 86:1389-91 Ap 5 '64

Two new stable polybrominated salicylanilides for antibacterial use in soap and detergent products. N. M. Molnar and S. Baron. bibliog Am Oil Chem Soc J 41:478-80 Jl '64

BROMINE

Bromine-zinc secondary cells. S. Barnartt and D. A. Forejt. bibliog il diags Electrochem Soc J 111:1201-4 N '64

Chemical equilibrium in the germanium-iodine and germanium-bromine systems by weight-loss measurements. F. Jona and others. bibliog diag Electrochem Soc J 111: 413-17 Ap '64

Chronopotentiometry of the bromide-bromine couple at platinum and carbon paste electrodes. D. G. Davis and M. E. Everhart. bibliog Anal Chem 36:38-40 Ja '64

Spectrophotometric study of the system I_2 + Br^-. E. Eyal and A. Treinin. bibliog Am Chem Soc J 86:4287-90 O 20 '64

Technique puts bromine in polyesters. Chem & Eng N 42:56-7 Mr 2 '64

Tritium-labeled compounds X; isotope effects in the oxidation of aldoses-*1-t* with bromine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:145-51 Mr '64

See also

Bromination

Spectra

Analysis of the spectrum of neutral atomic bromine (Br I). J. L. Tech. bibliog il J Res Nat Bur Stand 67A:505-54 N '63

Matrices of spin-orbit interaction in the electron configurations $np^3 n' p$ and $np^4 n' p$. J. L. Tech. J Res Nat Bur Stand 67A: 555-9 N '63

BROMINE compounds

Oxidations of sugar derivatives with bromocarbamide. J. Kiss. Chem & Ind p73 Ja 11 '64

BROMINE fluorides

Solvolysis reactions in chlorine trifluoride and bromine pentafluoride; preparation of the tetrafluorochlorates and hexafluorobromates of potassium, rubidium, and cesium. E. D. Whitney and others. bibliog Am Chem Soc J 86:2583-6 Jl 5 '64

BROMINE pentafluoride. See Bromine fluorides

BROMINOLYSIS. See Bromination

BROMOBENZENE sulfonates

Carbonium ion behavior of nopinyl derivatives. E. C. Friedrich and S. Winstein. Am Chem Soc J 86:2721-2 Jl 5 '64

Dissociated ions and ion pairs in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and others. Am Chem Soc J 86:2072-3 My 20 '64

Estimation of nonassisted solvolysis rates; the structures of the nopinyl *p*-bromobenzenesulfonates. P. V. Schleyer and others. bibliog Am Chem Soc J 86:2722-3 Jl 5 '64

Nonclassical bridged ion in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and R. Baker. bibliog Am Chem Soc J 86:2071-2 My 20 '64

BROMOCHLOROTRIFLUOROETHANE

Discovery of the anaesthetic halothane, an example of industrial research. J. Ferguson. bibliog diag Chem & Ind p818-24 My 16 '64

BROMOETHANE

Manufacture

Making chemicals via radiation; Dow's ethyl bromide process. D. E. Harmer and J. S. Beale. bibliog flow sheet il diags Chem Eng Prog 60:33-6 Ap '64

Radiation catalysis of ethyl bromide; six months on-stream. D. E. Harmer and J. S. Beale, jr. diag Nucleonics 21:76-7 S '63

BROMOLACTONE. See Lactones

BROMOSUCCINIC acid

Analysis

Determination of *dl*- and *meso*-dibromosuccinic acids in aqueous solutions. R. Annino and D. J. Manzo. Anal Chem 36:1343-5 Je '64

BROMOSUCCINIMIDE

Differential oxidation of protein-bound tryptophan and tyrosine by N-bromosuccinimide in urea solution. M. Funatsu and others. Am Chem Soc J 86:1846-8 My 5 '64

Reaction of sulphides with *N*-bromosuccinimide; oxidation of sulphide to sulphoxide. W. Tagaki and others. bibliog Chem & Ind p 1624-6 S 19 '64

BROMOTRIFLUOROMETHANE

Research ship uses exotic fire system. il Safety Maint 128:35-6 Jl '64

BRONZE

Chemical analysis of the alkali metal tungsten bronzes. B. A. Raby and C. V. Banks. bibliog diags Anal Chem 36:1106-10 My '64

Nylon bushings outwear bronze. il Eng N 172:39 Ap 23 '64

Phosphor bronze as a Fourdrinier wire material. E. W. Beggs. Wire & Wire Prod 38:1702-3+ N '63

Properties of materials; copper-base alloys; cast; tables. Materials in Design Eng 60: 151-5 Mid-O '64

Strength constant specification for bronze sinterings. H. R. Biehl. diags Materials Res & Stand 4:422-5 Ag '64

See also

Aluminum bronze

Analysis

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

BRONZE founding
Brass and bronze; AFS congress; abstracts of papers. Foundry 92:129-31 Jl '64
Improved bronze tubes for stern bearings. il Engineering 196:775-6 D 20 '63
Procedure for making billets. Foundry 91:72 N '63

BRONZE plating
Steel base electronic parts are bronze plated. il Steel 154:71 Ap 6 '64

BROWN, Barnum
Memorial; with bibliography of his publications. G. E. Lewis. por Geol Soc Bul 75:sup 19-27 bibliog(p25-7) F '64; Same cond. Am Assn Pet Geologists Bul 48: 1595-7 S '64

BROWNIAN movements
Brownian motion in many-particle systems; forced interdiffusion of two species. G. W. Woodbury, jr. and S. Prager. bibliog Am Chem Soc J 86:3417-21 S 5 '64
Coagulation of hydrosols by Brownian motion and laminar shear flow. D. L. Swift and S. K. Friedlander. bibliog J Colloid Sci 19:621-47 S '64
Contribution to the theory of Brownian motion. R. J. Rubin. bibliog Am Chem Soc J 86:3413-16 S 5 '64
Inexpensive optical-level amplifier for studying the Brownian motion of a galvanometer. K. S. White. bibliog diags Am J Phys 31:922-5 D '63

BROWNING
Carbohydrate browns maple sirup. E. E. Stinson. il Chem & Eng N 42:66 S 14 '64
Effect of moisture on the accumulation of carbonyl-amine browning intermediates in freeze-dried peaches during storage. I. Y. Huang and H. N. Draudt. bibliog Food Tech 18:1234-6 Ag '64
Effect of relative humidity, air, and vacuum on browning of dehydrated orange juice. M. Karel and J. T. R. Nickerson. bibliog diag Food Tech 18:1214-18 Ag '64
Measurement of fat autoxidation and browning aldehydes in food vapors by direct vapor injection gas-liquid chromatography. R. G. Buttery and R. Teranishi. bibliog J Agri & Food Chem 11:504-7 N '63
Mechanism of inhibition of non-enzymic browning by sulphite. E. F. L. J. Anet and D. L. Ingles. bibliog Chem & Ind p 1319 Jl 18 '64
Mustard seed processing; simple methods for following heat damage to protein meals. J. E. McGhee and others. bibliog Am Oil Chem Soc J 41:359-62 My '64
Non-enzymatic browning: routes to the production of melanoidins from aldoses and amino-compounds. H. S. Burton and D. J. McWeeny. bibliog Chem & Ind p462-3 Mr 14 '64
Thiol interactions in sugar-amine systems. D. L. Ingles. bibliog Chem & Ind p 1901-2 N 30 '63

BRUCINE
Brucine method for determination of nitrate in ocean, estuarine, and fresh waters. D. Jenkins and L. L. Medsker. bibliog Anal Chem 36:610-12 Mr '64

BRUNNER, J. Robert
ACS award in the chemistry of milk. por Chem & Eng N 42:117 F 3 '64

BRUSH plating. See Electroplating

BRUSHES
See also
Bristles

BRUSHES (electric machinery)
Brush holders for electric motors. J. C. H. Bone. il diag Engineer 217:1141-3 Je 26 '64

BRUSHES, Industrial
Advancement in scratch brushing aluminum work rolls. il diags Light Metal Age 22: 18-19 Ag '64
Brush finishing finds its niche. il Iron Age 194:135-6 S 10 '64
Brush polishing paper and paperboard. A. J. Christensen. il diags Tappi 47:sup 172A-4A F '64

BUBBLE baths. See Bath preparations

BUBBLE caps. See Distillation apparatus

BUBBLE chambers
Bright-field bubble chamber illumination using a beaded reflective screen. W. M. Powell and others. il diags R Sci Instr 34:1426-9 D '63
Bright field photography in a hydrogen bubble chamber. D. R. Firth. bibliog il diags R Sci Instr 34:1393-8 D '63
British national bubble chamber at C.E.R.N.; illustrations with text. Engineer 218:148 Jl 24 '64
British national hydrogen bubble chamber at C.E.R.N. Geneva. il Electronic Eng 36: 599-600 S '64
Bubble chamber. Phys Today 17:65 S '64
Internal hydrogen targets for heavy liquid bubble chamber. L. Carlino and others. il diags R Sci Instr 35:1274-7 O '64
Silicon controlled rectifier circuit for the control of high wattage projection lamps. J. R. Wilson and F. Oppenheimer. diag R Sci Instr 35:1013-14 Ag '64
Two-part feet allow bubble chamber to shuffle in any direction. il diags Machine Design 36:94-5 Ja 2 '64
Welding the world's largest stainless steel bubble chamber. il Welding Eng 49:47-8 N '64

BUBBLES
Accuracy of the bubble meter method for gas flow measurements. A. Levy. bibliog diag J Sci Instr 41:449-53 Jl '64
Application of the source theory to the solution of problems involving phase change; growth and collapse of bubbles. W. J. Yang and J. A. Clark. bibliog diag A S M E Trans ser C 86:207-12 My '64
Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:50-8 F '64
Bubble-induced nucleation and crystal growth in glass. C. Klingsberg. bibliog il diags Am Cer Soc J 47:97-100 F '64
Effect of reduced gravity on nucleate boiling bubble dynamics in saturated water. R. Siegel and E. G. Keshock. bibliog diags A I Ch E J 10:509-17 Jl '64
Experimental study of surface cooling by bubbles during nucleate boiling of water. T. F. Rogers and R. B. Mesler. bibliog il diag A I Ch E J 10:656-60 S '64
How to avoid aeration in hydraulic circuits. A. T. J. Hayward. diags Hydraulics & Pneumatics 16:79-83 N '63
Prediction of low-quality boiling voids. P. Griffith. bibliog A S M E Trans ser C 86: 327-33 Ag '64
Transition from slug to homogeneous two-phase flows. R. Moissis. bibliog diags A S M E Trans ser C 85:366-70 N '63
Two-phase flow in capillary tubes. M. Suo and P. Griffith. bibliog diags A S M E Trans ser D 86:576-82 S '64

BUCKETS
Bucket wheel automates Chalk Point coal handling. il Elec World 162:23-4 O 26 '64
Bucket wheel reclaimer. il Engineer 218:74-5 Jl 10 '64
First large bucket wheel reclaimer in the UK. il Engineering 197:653 My 8 '64
For low-cost tonnage; bucket-wheel reclaiming. il Mod Materials Handling 19:46-7 O '64
Loaders and buckets spotlight earthmoving products array. il Coal Age 68:119 N '63
Redesign, CO_2-Mig cut bucket cost 49 per cent. N. G. Steinmann. diags Welding Eng 49:54+ S '64

BUCKEYE, Arizona

Water supply

Conversion to quality water results in water conservation. K. G. Barnhill. bibliog flow sheet il Pub Works 95:106-8 O '64

BUCKLING. See Bending

BUDAPEST

Bridges

Old piers support modern bridge, Elizabeth bridge. il Eng N 172:38 Mr 5 '64

BUDGET

United States

Congress ponders budget details. Chem & Eng N 42:27 Ja 27 '64
New budget; weapons procurement cut $2 billion. J. F. Mason. Electronics 37:10-11+ F 7 '64
Politics and technology in the aerospace budget requests. Space/Aeronautics 41:10-11+ F '64

BUDGET, Business
Science of plant utilities control; developing budget forecast sheet. E. J. Weiss. Plant Eng 18:156-9 Mr '64

BUENOS AIRES

Architecture

Skyscrapers grow in a cluster in Buenos Aires. Eng N 173:50 S 10 '64

BUFFER solutions
Absolute differential electrolytic potentiometry as index of poising capacity. E. Bishop and G. D. Short. bibliog Anal Chem 36:730-2 Ap '64

BUFFER solutions—*Continued*

Buffer solutions of potassium dihydrogen phosphate and sodium succinate at 25°C. M. Paabo and others. bibliog J Res Nat Bur Stand 67A:573-6 N '63

Kinetics of proton exchange in aqueous solutions of acetate buffer. Z. Luz and S. Meiboom. bibliog Am Chem Soc J 85:3923-5 D 20 '63

Pitting and uniform corrosion of aluminum by *p*H 3.5 citrate buffer solution. E. L. Koehler and S. Evans. bibliog diags Electrochem Soc J 111:17-21 Ja '64

BUILDERS equipment

International building exhibition, London, Nov. 13-27. il Engineering 196:618, 624, 653 N 15-22 '63

BUILDERS hardware. See Hardware

BUILDING

Analysis of construction education survey; progress report. Am Soc C E Proc 89 [CO 1 no 3456]:73-7 Mr '63; Discussion. 89 [CO 2 no 3653]:141-7 S '63; 90 [CO 1 no 3851]:67-9 Mr '64; Reply. 90 [CO 2 no 4051]:55-7 S '64

Apartment boom is losing its bang. Eng N 171:25-6 D 5 '63

Architectural engineering. Published in monthly numbers of Architectural record

Big year past, housing thinks ahead. Elec World 160:39-42 D 23 '63

Building; a long look ahead. Eng N 173:19-20 Ag 27 '64

Building and housing techniques and trends. il Eng N 172:54-6 Ja 23 '64

Choosing a Critical-Path scheduling program. B. O. Szuprowicz. Eng N 172:78-80 Je 18 '64

Construction outlook at midyear. G. A. Christie. Arch Rec 136:18 Jl '64

Construction; review and forecast. J. G. Kostka. il Pit & Quarry 56:92-7 Ja '64

Cost of operating a field construction office. J. D. Bristor. bibliog Am Soc C E Proc 89 [CO 2 no 3643]:75-89 S '63; Discussion. 90 [CO 1 no 3851]:99-101 Mr '64; Reply. 90 [CO 2 no 4051]:63-4 S '64

Foreclosure rate stirs unrest. Eng N 173:19-20 O 22 '64

Good communication means safe construction. J. E. Johnson. Am Gas Assn Mo 46:16-17 F '64

Governors ask building programs. Eng N 172:16 Ja 16 '64

Hospital construction; very healthy. H. C. F. Arnold. Arch Rec 135:26 Ap '64

LBJ calls for public building funds. Eng N 172:17 Ja 16 '64

Major building projects. il map Eng N 172:58+ Ja 23 '64

100 biggest building clients in the U.S. Arch Forum 121:14-16 Jl '64

Operations research in construction planning. R. L. Nicholls. bibliog Am Soc C E Proc 89 [CO 2 no 3640]:59-74 S '63; Discussion. 90 [CO 1 no 3851]:95-8 Mr '64; Reply. 90 [CO 2 no 4051]:61-2 S '64

Outlook for 1964; record construction year. W. T. Stuart. Elec Constr & Maint 63:61-4+ Ja '64

Quality control is everybody's business; seminar on quality control in construction, New York. Eng N 172:24 My 7 '64

Resident engineer responsibility. I. Kett. Civil Eng 34:56-7 Ja '64

Review of civil engineering activity during 1963 and a preview for the coming year. il Civil Eng 33:32-9 D '63

Successful contract looks at management. W. M. Blount. Roads & Sts 107:42-3 Mr '64

Today's homebuilder; houses plus. il Eng N 171:47-8 D 19 '63

Value of management in the construction industry. H. C. Turner, jr. Civil Eng 34:59-60 F '64

See also

Arches
Architecture
Atomic bombs and building
Balconies
Building materials
Ceilings
Chimneys
Columns
Concrete construction
Concrete houses
Contractors
Earthquakes and building
Fireproof construction
Flashing
Foundation soils
Foundations
Framing (building)
Grandstands
Hot water supply
Houses
Masonry
Paneling
Partitions
Piles and pile driving
Roofs
Shipbuilding
Shoring and underpinning
Skylights
Stone construction
Strains and stresses
Structures, Theory of
Trusses
Underground construction
Ventilation
Walls
Wind pressure
Windowless construction
Winter construction
Wood construction

Accidents

See Building accidents

Costs

Building construction costs. M. L. Matthews. Published in monthly numbers of Architectural record

Homebuilding cost study counts nickels and dimes. il Eng N 117:40-1 D 12 '63

Philadelphia agency probes to see why bids soar above estimates. Eng N 173:18 N 5 '64

Unit prices around the world; tables. Civil Eng 34:75-7 Ag '64

Who pays for the unexpected in construction? report of the committee on contract administration. Am Soc C E Proc 89 [CO 2 no 3635]:23-58 S '63; Discussion. 90 [CO 1 no 3851]:75-94 Mr '64

See also

School buildings—Costs

Estimates

Guide to estimating construction cost. diags Plant Eng 18:110-15 S '64

How much to make to cover costs; breakeven chart. W. R. Park. Eng N 171:168+ D 19 '63

How one large office uses construction cost estimates. W. B. Foxhall. Arch Rec 135:106+ My '64

New code simplifies, expands cost estimating by computer. M. L. Beutel. Eng N 172:30-2+ My 14 '64

Pre-design estimates in civil engineering projects. W. R. Park. Am Soc C E Proc 89 [CO 2 no 3627]:11-22 S '63; Discussion. M. Gates. 90 [CO 1 no 3851]:73-4 Mr '64

Quantity surveys for cost estimates. G. W. Heller. Am Soc C E Proc 90 [CO 1 no 3836]:37-46 Mr '64

Finance

Bond proposals meet resistance. Eng N 171:53-4 N 14 '63

Interest on capital invested in construction. J. F. Muir and E. Ruus. Am Soc C E Proc 89 [PO 1 no 3622]:1-8 S '63; Discussion. R. H. Griffin. 90 [PO 2 no 3977]:21-3; Reply. 23-4 Jl '64

Johnson takes on Congress. Eng N 171:23-4 D 5 '63

New loans spur Latin American projects. Eng N 172:25 Mr 5 '64

See also

Housing finance
Mortgages

Heating aspects

Energy systems take on major role in booming commercial building field. R. H. Marks. il diags Power 108:143-50 Ja '64 (reprints 25c)

Heat from lights re-used for economy. R. B. Darling. flow diag il Arch Rec 136:211-12 O '64

How heat gains affect fuel bills. C. C. Thomas. Air Cond Heat & Ven 60:61-6 N '63

Inside-out design developed for low-temperature buildings. C. S. Meyer. il diags ASHRAE J 6:50-2+ Ap '64

Selective reflectance; new approach to solar heat control. J. I. Yellott. bibliog il diags ASHRAE J 6:87-106 Ja '64

Solar heat gain factors and shading coefficients. D. J. Vild. ASHRAE J 6:47-50 O '64

Solar heat gain through double glass with between-glass shading. W. A. Smith and C. W. Pennington. bibliog ASHRAE J 6:50-3 O '64

Thermal characteristics of structures. E. P. Palmatier. diags ASHRAE J 6:81-9+ Mr '64

BUILDING—Heating aspects—*Continued*

Total heat conservation concept advanced; abstract. E. R. Ambrose. Elec World 161: 82 Mr 9 '64

See also

Solar heating

Weatherstripping

International aspects

Productivity in construction work generally low abroad. W. L. Nelson. Oil & Gas J 62:102 F 24 '64

Selling U.S. engineering abroad. Eng N 173: 27-8 O 1 '64

Rapid construction

Spanish pavilion is a beauty, but a beast to build. il Eng N 173:22-4 Jl 30 '64

See also

Houses, Prefabricated

Repair and reconstruction

Brushed-on coating replaces brick veneer. R. B. Gilray. il plan Plant Eng 18:127 Je '64

Raise lab to build basements under it. il Eng N 172:25 Ap 23 '64

See also

Houses, Remodeled

Safety measures

Code makes hoist safe for men and materials. il Eng N 173:106-7 Ag 6 '64

Construction industry's safety needs. Safety Maint 128:26-8 N '64

Safety battle for Kwajalein. il Safety Maint 126:20-1 D '63

Safety gets tougher in space age. Eng N 173:23 N 5 '64

Safety nets make safe business. il Eng N 172:76-7 Mr 19 '64

Safety sets stage for World's fair. il Safety Maint 127:14-16+ Ja '64

See also

Wrecking—Safety measures

Specifications

Suggested specifications for structural concrete for buildings. Am Concrete Inst J 60: 1321-73 O '63; Discussion. 61:2017-22; Reply. 2022-9 pt 2 Je '64

Standards

American standards help build the Fair. il Mag of Stand 35:67-70, cover Mr '64

Better specifications should be engineers' goal. T. R. Harper. Eng N 172:43-4 My 7 '64

FHA plans changes in standards. Eng N 173: 23 N 5 '64

See also

Modular coordination (architecture)

Statistics

Current trends in construction. Published in monthly numbers of Architectural record

Dodge construction outlook for 1965. Arch Rec 136:82a-82h O '64

Heavy construction plans up 57 per cent. Eng N 173:25-7 Jl 9 '64

New contracts for first half take big leap over last year. Eng N 173:28-9 Ag 20 '64

1963 heavy construction contracts top $22.4 billion for new high. Eng N 172:22-3 F 20 '64

1965 will be biggest year ever. Eng N 173: 51-3 O 8 '64

100 biggest building contractors in the United States. Arch Forum 120:18-20 My '64

Alaska

Rebuilding funds rushed to Alaska quake area. Eng N 172:24-5 Je 4 '64

Anchorage, Alaska

Building is risky in Anchorage. il Eng N 173: 30 Jl 9 '64

Antarctic regions

Antarctic bases build for 30 years of research. S. Payne. il Eng N 172:22-3 Ja 16 '64

Arctic regions

Long thermopile. E. L. Long. il diag Civil Eng 34:36-9 Ap '64; Abstract. Eng N 171: 62 N 14 '63

Refrigerated pile permits heat flow from but not into the ground. Eng N 171:62 N 14 '63

Boston

Boston renewal stresses quality and rehabilitation. il map Eng N 172:28-9+ F 20 '64

Boston's Prudential Tower puts new life into Back Bay. il Eng N 172:38-9 F 20 '64

Canada

Canadian builders battle taxes. Eng N 172:49 F 13 '64

Chicago

Hand-dug holes finish caissons for office buildings over tracks. il Eng N 172:44-5 Ap 16 '64

Detroit

Detroit gets fiscal and physical face-lift. il plan Eng N 172:32-5 Ap 16 '64

Düsseldorf, Germany

Reconstruction was only the start for wartorn Düsseldorf. B. Bendow. il Eng N 172:78-80+ Ap 2 '64

Great Britain

British system builds from the top down. il plan diags Arch Forum 120:92-5 Mr '64

Future trends in the building industry. D. Gibson. Engineer 217:688-9 Ap 17 '64

Labor victory clouds building outlook. Eng N 173:22 O 22 '64

1964 prospects for all engineerings; civil engineering and building industries. il Engineering 197:97-100 Ja 17 '64

Greece

Greek builders ignore government slowdown on building. A. Kitroeff. il Eng N 173: 98-100 Ag 6 '64

Guatemala

Curtain walls revolutionize Guatemala. W. Hunter. il Eng N 172:80-2 F 13 '64

Hawaii

Round plan exploits surf-slide lot. il plan Eng N 171:35 N 21 '63

Hong Kong

Haste pays off in Hong Kong. il Eng N 173: 42 Ag 27 '64

Hungary

Hungary rushes apartment drive. il Eng N 172:43+ Je 11 '64

New York (city)

$59-million job shaken to stop? vibration of piledriving has raised fears for the safety of nearby structures. Eng N 171:20-1 N 28 '63

Tall towers will sit on deep foundations. M. S. Kapp. il diags Eng N 173:36-8 Jl 9 '64

Twin towers to go 110 stories; World trade center in New York City. il diags Eng N 172:33-4 Ja 23 '64

Philippine Islands

Development program picks up speed in the Philippines. R. Halloran. il maps Eng N 172:38-9 Ap 9 '64

San Francisco

Golden Gateway redevelopment project; symposium. il plans diags Civil Eng 34:31-9 Ja '64

South America

New loans spur Latin American projects. Eng N 172:25 Mr 5 '64

Toronto

Two towers planned for Toronto. il Eng N 172:24 Ap 23 '64

United States

ENR survey lists 400 largest construction contractors. Eng N 173:69-72+ Ag 6 '64

100 largest architectural firms in the U.S. Arch Forum 120:14-16 Ap '64

Western states

What's where on the way to Salt Lake City. il Civil Eng 34:40-1 Ap '64

BUILDING, Underground. See Underground construction

BUILDING accidents

Cairo building collapse kills 31. il Eng N 173: 15 O 29 '64

Formwork collapse injures seven. il Eng N 173:61 S 17 '64

How a state cut construction accidents. il Eng N 173:35 O 1 '64

Paris building collapse kills 15. il Eng N 172:39 Ja 23 '64

BUILDING block design. See Machine tools—Unit construction

BUILDING contracts

Changed conditions clause in construction contracts. R. F. Borg. Am Soc C E Proc 90 [CO 2 no 4035]:37-48 S '64

Construction contract. B. Tomson and N. Coplan. Prog Arch 44:152 D '63

BUILDING contracts—*Continued*
CPM lowers risk of high penalties. il diag Eng N 173:24-5 Jl 23 '64
86 firms rank as top contractors. Eng N 173: 53-4 Jl 2 '64
Game that nobody won. Eng N 173:20 Ag 27 '64
Single-contract rule brings indictment. Eng N 172:18 F 6 '64
Single or multiple contracts? M. J. Horsch. Air Cond Heat & Ven 61:85-6 O '64
Who pays for the unexpected in construction? report of the committee on contract administration. Am Soc C E Proc 89 [CO 2 no 3635]:23-58 S '63; Discussion. 90 [CO 1 no 3851]:75-94 Mr '64
See also
Architects—Law
Heating contracts

BUILDING costs. See Building—Costs

BUILDING estimates. See Building—Estimates

BUILDING failures
Buckling of shear buildings. P. Dayaratnam. Am Soc C E Proc 88 [ST 6 no 3350]:149-59 D '62; Discussion. M. L. Moody. 89 [ST 5 no 3688]:285-93 O '63; Reply. 90 [ST 1 no 3812]:213-15 F '64
Collapse ends long legal fight. il Eng N 172: 66 Je 18 '64
Diagnosis of distress and failure in structures. J Feld. bibliog il Eng J 46:43-7 My '63; Discussion. 46:58+ O '63
Field observation of structures damaged by settlement. D. McKinley. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4054]:249-68 S '64
Timber dome spanned 240 ft until guying cables parted. il Eng N 173:14 O 29 '64
VA hospital scandal; building and politics. il Arch Forum 120:10 Mr '64
Wall splits bowling alley building. il Eng N 173:15 O 29 '64
See also
Bridge failures
Concrete construction—Failure
Roofs—Failure

BUILDING finance. See Building—Finance

BUILDING fittings
Building exhibition report; plastics make their impact on building. il Brit Plastics 36:662-7 D '63
Design of building products. il plan diags Prog Arch 45:142-204 Je '64
See also
Faucets
Hardware

BUILDING laws and regulations
American standards help build the Fair. il Mag of Stand 35:67-70, cover Mr '64
Congress ok's college construction bill. Eng N 171:48-9 D 19 '63
Hospital engineering; applicable codes and requirements. R. J. Barnecut. il diag Air Cond Heat & Ven 61:64-9 Jl '64
New welding code for buildings. A. Amirikian. diags Civil Eng 34:56-8 Ag '64
Programming standards for tomorrow's home; National conference on standards report. Mag of Stand 35:110-12 Ap '64
Set asides remain a fixture. Eng N 173:25-6 Ag 20 '64
Single-contract rule brings indictment. Eng N 172:18 F 6 '64
See also
Mechanics lien
Plumbing laws and regulations

California

Natural periods of vibration of buildings. G. W. Housner and A. G. Brady. bibliog diags Am Soc C E Proc 89 [EM 4 no 3613]:31-65 Ag '63; Discussion. 89 [EM 6 no 3774]:279-82 D '63; 90 [EM 2 no 3882]:245-53 Ap '64; Reply. 90 [EM 4 no 4000]:161-2 Ag '64

Great Britain

Changes in building regulations. Engineer 217:440 Mr 6 '64

Illinois

Revise Chicago code to approve direct-fired makeup air units. F. J. Ford. Heating-Piping 36:99-101 Ag '64

New York (city)

New building code for New York City; performance or specification? C. E. Schaffner. il Mag of Stand 35:291-4 O '64

BUILDING loans
See also
Mortgages

BUILDING materials
Building materials; supply position worse. Engineering 198:184 Ag 7 '64
CE goes to the fair. il Chem Eng 71:121-8 Je 22 '64
Concrete; architects explore its textures; illustrations with text. Eng N 172:74-5 My 21 '64
Design of building products. il plan diags Prog Arch 45:142-204 Je '64
Heat-of-solution calorimeter for inorganic building materials. H. G. McAdie. bibliog il diags Materials Res & Stand 4:413-17 Ag '64
Homebuilders top off good year, plan further gains in '64. K. W. Bennett. il Iron Age 192:47-8 D 19 '63
New products. Published in monthly numbers of Progressive architecture
World's fair products. il Prog Arch 45:91-6 Jl '64
See also
Aluminum, Structural
Asbestos
Bricks
Cement
Concrete, Reinforced
Concrete blocks
Concrete slabs
Glass, Structural
Gravel
Gunite
Gypsum
Marble
Masonry
Mortar
Plaster and plastering
Plywood
Roofing
Sheet metal, Enameled
Siding (building)
Steel, Structural
Tiles
Wall board
Weatherstripping
Wood

Plastics

Architect looks at plastics in housing. A. Quarmby. plan diags Brit Plastics 37:28-31 Ja '64
Building exhibition report; plastics make their impact on building. il Brit Plastics 36:662-7 D '63
Building panels; acrylic skin over polyurethane foam provides superior insulation. il Plastics World 21:70 N '63
Fair forecast of the future of plastics in building construction. il Plastics World 22: 24-7 Jl '64
Favoring plastics use; more custom-built homes. Chem Eng 71:102 N 9 '64
Guarantee for PVC structural products. R. L. Van Boskirk. Mod Plastics 41:206+ N '63
How plastics were used to solve design problems at the World's fair. M. Immermann. il Plastics World 22:28-31 Jl '64
Industrialized building systems and components exhibition, London, June 23-July 4. il Brit Plastics 37:418-19 Ag '64
New York world's fair; fiber glass, a structural material which increases design possibilities. il Glass Ind 45:67-9 F '64
New York world's fair; plastics by the acre; illustrations with text. Brit Plastics 37:382-5 Jl '64
New York world's fair: testing ground for plastics. il diag Mod Plastics 41:88-94 F; 94-8 Mr '64
Plastic domes give ceiling fine finish. il Eng N 173:47 Ag 27 '64
Plastics building revolution; fact or myth. Civil Eng 34:94 Mr '64
Plastics in building. il Brit Plastics 36:622-7 N '63
Plastics in the U.S. building industry. I. Skeist. il Brit Plastics 37:190-5 Ap '64
Plastics markets in the U.S. construction industry. P. W. Sherwood. il Brit Plastics 36:628-33 N '63
Prefabricated reinforced plastic construction. il Plastics World 22:46 Ap '64
Sculptured 3-D acrylic panels; plastics curtain walls and fascias. il Plastics World 21:64 N '63
Spiral generation; foam board construction saves time and cost. il Plastics World 22: 28-9 O '64
Station Esso built from oil. il Oil & Gas J 62:33 Mr 30 '64
Structural shapes. il Plastics World 22:18 Jl '64
Urethane foam seal. il Plastics World 22:47 Jl '64

BUILDING materials—Plastics—*Continued*
Versatile acrylics shine in new markets. il diag Mod Plastics 41:82-7+ D '63
Vinyl siding makers gear for battle. il Chem & Eng N 42:26-7 O 19 '64
See also
Buildings, Plastic
Houses, Plastic

Standards

Programming standards for tomorrow's home; National conference on standards report. Mag of Stand 35:110-12 Ap '64

Testing

Effects of ocean on construction materials tested. il Civil Eng 34:80 My '64
Twelve year evaluation of painted aluminium buildings. W. H. Ailor. il diags Metallurgia 68:151-4 O '63

BUILDING research
Building research board report. Engineer 218:66 Jl 10 '64
Building research in Australia. Am Concrete Inst J 61:sup3+ Je '64
Building research station's work on engineering services. Engineering 197:366 Mr 6 '64
Commerce may yet aid construction research. Eng N 172:22-3 Mr 12 '64
Design of building products; builder/manufacturer research. il Prog Arch 45:191-2 Je '64
Future of research. R. Llewelyn-Davies and P. Cowan. Arch Rec 136:105+ S '64
New York state's new Public Works test labs are mechanized and automated. il Eng N 172:24-6+ Ja 16 '64
Research and development expenses are no luxury; construction machinery. Eng N 173:87 O 8 '64

BUILDING research institute
Spring conferences, Washington, April 21-23. ASHRAE J 6:96 Je '64

BUILDING sites
See also
Factories—Location
Foundation soils
Hillside architecture

BUILDING trades
Contractors' profits improving. Eng N 173:25-6 S 10 '64
Experts see a continuing building boom. Arch Forum 119:5+ D '63
When it comes to profits, all contractors agree higher markups should be attempted. Eng N 173:30 O 1 '64
See also
Associated general contractors of America
Contractors
National association of home builders

Exhibitions

Industrialised building systems and components exhibition. June 23-July 4, C. J. Keattch. Chem & Ind p 1393 Ag 1 '64

Labor conditions

Government needles construction on bias. Eng N 172:25-6 Je 11 '64
What Civil rights bill means to construction. Eng N 172:61-2 Je 18 '64

BUILDINGS
Buildings dominate nominations for civil engineering achievement for 1964. il Civil Eng 34:40-1 F '64
Buildings in the news. Published in monthly numbers of Architectural record
Projects; illustrations with text. Published in monthly numbers of Architectural forum
See also
Airport buildings
Architecture
Bank buildings
Building failures
Capitols
Churches
College architecture
College buildings
Concrete buildings
Dampness in buildings
Electric utilities—Buildings
Exhibition buildings
Factories
Floors
Framed structures
Gas companies—Buildings
Gymnasiums
High buildings
Highway departments—Buildings
Industrial buildings
Mechanical equipment of buildings
Medical buildings
Military buildings
Municipal buildings
Office buildings
Offices
Oil companies—Buildings
Public buildings
Public utilities—Buildings
School buildings
Shopping centers
Society buildings
Steel buildings
Steel construction
Theaters
Water departments—Buildings

Cleaning

Construction boom spurs building maintenance. Safety Maint 128:48 Jl '64

Demolition

See Wrecking

Exterior lighting

Floodlighting progress at the National geographic building. il Illum Eng 59:484-5 Jl '64
Floodlighting system brightens up bank. il Elec World 162:163 Ag 10 '64
Good lighting on display. il Illum Eng 59:538-43 Ag '64
Industry seeks one name for private lighting. Elec World 162:141 O 5 '64
Police campaign to keep lights on. il Elec World 161:51 Ja 13 '64
Private lighting serves new needs. il Elec World 160:66+ D 30 '63

Sunlight exposure

See also
Sun breaks

Vibration

Aeroelastic vibration of a steel arch. R. R. Bradshaw. il diags Am Soc C E Proc 90 [ST 3 no 3921]:1-17 Je '64; Discussion. 90 [ST 5 no 4066]:243-4 O '64
Effects of sonic boom on buildings; symposium. bibliog il diags Materials Res & Stand 4:581-623 N '64
Natural periods of vibration of buildings. G. W. Housner and A. G. Brady. bibliog diags Am Soc C E Proc 89 [EM 4 no 3613]:31-65 Ag '63; Discussion. 89 [EM 6 no 3774]:279-82 D '63; 90 [EM 2 no 3882]:245-53 Ap '64; Reply. 90 [EM 4 no 4000]:161-2 Ag '64
Sonic boom is no threat to buildings. il Eng N 173:55 Jl 2 '64

Wrecking

See Wrecking

BUILDINGS, Concrete. See Concrete buildings

BUILDINGS, Plastic
Fiberglass buildings house microwave stations. J. P. O'Donnell. il Oil & Gas J 62:97+ F 3 '64
New system speeds erection of polystyrene foam structures. il Mod Plastics 41:116 Ag '64
See also
Air pressure support
Houses, Plastic

BUILDINGS, Portable
Portable nylon shelters with inflatable frame. il Engineering 197:395 Mr 13 '64
Traveling shows bolt together. il Eng N 172:84 My 21 '64
Walter Kidde inflatable frame building. il diags Engineering 197:738-9 My 29 '64

BUILDINGS, Prefabricated
Future of urban environment. il plans diags Prog Arch 45:162-222 O '64
Latest prefab components. R. J. Atkinson. il diag Food Eng 36:78+ S '64
Modular motel. il Mod Plastics 41:99-101 F '64
Prefabricated building made of triangular prestressed components. Z. A. Zielinski. il plans diags Am Concrete Inst J 61:383-98 Ap '64
Prefabricated school components; better but cheaper. il diags Eng N 172:22-4 Ja 30 '64
Prefabricated welded framing helps Wisconsin get to the Fair. il diags Welding Eng 49:45-7 Ag '64
Prototype school passes mid-term test. il Eng N 173:66-7 S 17 '64
Round hospital flies to the fair. il Eng N 171:20 N 28 '63
Swiss prefabrication; apartment complex near Zurich. il plan diags Arch Forum 120:82-3 Mr '64
See also
Houses, Prefabricated

BUILDINGS, Remodeled
Church split unifies congregation. il Eng N 173:34-5 Ag 13 '64

BUILDINGS, Temporary
Bridge building speeded by polythene shelters. il Engineering 197:429 Mr 20 '64
See also
Air pressure support

BULGUR
Bulgur production by continuous atmospheric-pressure process. G. S. Smith and others. bibliog diag Food Tech 18:89-92 Ja '64
Wafers go commercial; Bulgur wafer. il Food Eng 36:99 Jl '64

BULLDOZERS. See Excavating machinery

BULLEN, Keith Edward
Citation of the Arthur L. Day medalist; with acceptance address. K. B. Krauskopf. por Geol Soc Bul 74:sup 159-62 D '63

BULLETS
Experimental determination of air drag on a textile yarn struck transversely by a high-velocity projectile. J. C. Smith and others. bibliog il J Res Nat Bur Stand 68C:177-81 Jl '64
New small-diameter perforating method aids sand control. F. O. Bohn. il diag Oil & Gas J 62:72-3 Je 15 '64
Stress-strain relationships in yarns subjected to rapid impact loading; stress-strain curves obtained by impacts with rifle bullets. J. C. Smith and others. bibliog il Textile Res J 33:919-34 N '63

BUMPERS. See Automobiles—Bumpers

BUNKERS, Coal. See Coal bunkers

BUNSEN burner
Micro burners from Bunsen burners. J. T. Haysom. Chem & Ind p 1269-70 Jl 11 '64

BUNTING, Mary Ingraham
Radcliffe president to be first woman AEC commissioner. por Nucleonics 22:19 My '64

BUOYANCY
Buoyancy systems for deep submergence structures. E. C. Hobaica. bibliog diags Naval Eng J 76:733-41 O '64
Temperature and velocity profiles along a vertical hot plate in a compressible fluid considering the effect of buoyancy. S. Ghoshal. AIAA J 2:364-5 F '64

BUOYS
Deep-sea buoy systems. S. C. Daubin. bibliog il diags I S A J 11:49-53 Mr '64
Epoxy resin; formulation features low water absorption. il Plastics World 21:112 N '63
Underwater ears are supported by welded buoys. il Welding Eng 49:54-5 F '64

Lighting

Plastics and electronics for sea lights. il Engineering 197:589 Ap 24 '64

BUREAU of public roads. See United States—Public roads, Bureau of

BUREAUCRACY

Anecdotes, facetiae, satire, etc.

Free enterprise patriot. J. Rickey. il Res/Develop 14:35-7 S; 30-2 O; 21-3 N; 30-2 D '63; 15:34-6 Ja; 26-8 F; 89-91 Mr; 35-7 Ap '64

BURETS
Motor-piston buret with analog and digital output. G. Kateman and P. J. Stornebrink. diags Anal Chem 36:253-4 Ja '64
Precision burette for use in concentration-conductance calibration. S. Martin and others. diags J Sci Instr 41:237-8 Ap '64

BURGLAR alarms
Ultrasonics stops burglars! J. H. Fasal. il diags Radio-Electronics 35:25-7 My '64

BURNERS
Diffusion flame burner for continuous combustion of hydrogen. D. Gupta and others. bibliog diags Ind & Eng Chem Proc Design 3:70-3 Ja '64
Diverting valves cool burners. C. L. Mamzic and B. L. Johnson. il diag Control Eng 11:94-5 S '64
Effect of acoustic environment on the burning rate of solid propellants. J. E. Crump and E. W. Price. bibliog diags AIAA J 2:1274-8 Jl '64
High performance fuel burner. Engineer 218:338 Ag 28 '64
Preferred frequency oscillatory combustion of solid propellants. J. L. Eisel and others. bibliog il diags AIAA J 2:1319-23 Jl '64
Process waste burner destroys liquid organic chemical wastes safely. R. E. Mills. il diag Water & Sewage Works 111:337-40 Jl '64
T-burner method of determining the acoustic admittance of burning propellants. R. L. Coates and others. bibliog diags AIAA J 2:1119-22 Je '64
Use of the one-dimensional T-burner to study oscillatory combustion. M. D. Horton. bibliog diags AIAA J 2:1112-18 Je '64
See also
Oil burners

BURNERS, Gas. See Gas burners

BURNISHING. See Polishing

BUSBARS
Constructing electrical systems; busways. il Elec Constr & Maint 63:84-5 My '64
Cubicle cuts bus welding cost. F. S. Dlouhy. il Elec World 160:65 D 16 '63
Floor-stands support plant busway system. il Elec Constr & Maint 63:117 Ag '64
Rigid ring bus serves 240-kv substation's special conditions. M. E. Bishop. il Elec World 161:26-7 F 3 '64
Single-bus design proves best for substations. W. S. Einwechter and R. M. Pennypacker. il diags Elec World 162:60-1+ N 2 '64

Design

Design criteria for integral web and universal angle buses. R. M. Milton and others. bibliog il diags IEEE Trans Power Apparatus & Systems p928-37; Discussion. 937-40; Reply. 940-1 D '63

Protection

Shrinkable vinyl tubing improves products. il Materials in Design Eng 60:178+ O '64

BUSES, Motor. See Motor buses

BUSHINGS
Die-set bushings speed up presses. il diag Am Mach 108:70 Mr 30 '64
Nylon bushings outwear bronze. il Eng N 172:39 Ap 23 '64

BUSHINGS, Insulating
Use hollow hot stick to spray silicone. il Elec World 161:75 Ap 6 '64

BUSINESS
See also
Competition
Export trade
Partnership
Risk

Foreign expansion

Investment abroad keeps luring U.S. capital. il Chem Eng 71:90-1 S 14 '64
Starting up abroad. Engineering 198:130 Jl 31 '64

Political aspects

Personnel and politics. Gas Age 131:32-3 Ja '64

Small business

Finding finance for the small business. J. Bates. Engineering 196:607-8 N 8 '63
Long-term financing for small business firms. R. H. Butz. Pit & Quarry 56:97 F '64
So you want to start a company? G. B. Baty. Machine Design 36:122-31 Mr 12 '64

BUSINESS conditions
See also
Business forecasting
United States—Economic conditions

BUSINESS conferences
Get ready to lead a conference. D. F. Tyer. Hydrocarbon Process & Pet Refiner 43:196-7+ Ap '64

BUSINESS consolidations
Abbot and Nuclear-Chicago plan merger. Chem & Eng N 42:21-2 Ag 10 '64
Agfa and Gevaert agree on tie-up. Chem & Eng N 42:23-4 F 24 '64
Carbide, General Tire join in fissiochemistry. Chem & Eng N 42:27 Mr 9 '64
Cosmetic industry of today. P. Vautin. Drug & Cosmetic Ind 93:788-90+ D '63
Ethyl corp. buys Visking. Chem & Eng N 41:24 N 11 '63
Lanvin, Charles of the Ritz. P. Vautin; R. Salomon. Drug & Cosmetic Ind 94:342-5+ Mr '64
Merger-go-round. L. H. Dulberger. il Electronics 37:91-3 Je 29 '64
Pennsylvania railroad merger plans include Buckeye pipe line co. map Oil & Gas J 62:82-3 F 17 '64
Planning a merger? A. A. Imberman. Textile Ind 127:117-18+ N '63; Same. Paper Ind 45:488-9 D '63
Research and development evaluation important in acquisitions; abstract. R. F. Messing. Chem Eng N 42:28 Ap 20 '64
To merge or not to merge. E. P. Fillion, jr. Mod Textiles Mag 45:22-4 My '64; Same. Foundry 92:159-60+ S '64
Tool builders turn to mergers as profit squeeze tightens. J. D. Baxter. Iron Age 192:134-7 D 5 '63
See also
Oil companies—Consolidation

BUSINESS cycles
Timing and capital expenditures. A. N. McLeod. Paper Ind 46:189-91 Je '64

BUSINESS districts
Planning the downtown center; building types study; office building complexes. il map plans diags Arch Rec 135:177-200 Mr '64
Redevelopment proposed for downtown Honolulu. il plans Prog Arch 45:73 Ap '64
See also
Industrial districts
Shopping centers

BUSINESS ethics
Paint samples ethical and unethical practices. Ind Finishing 40:52+ D '63
See also
Trade secrets

BUSINESS failures
Why small electronic firms fail. P. Geddes. Electronic Ind 23:34-6+ Mr '64

BUSINESS forecasting
Business climate for 1964 looks healthy. Chem & Eng N 42:27 Ja 13 '64
Business looks good through 1965. Chem & Eng N 42:28 S 28 '64
Business spending plans; four per cent more in '64. Elec World 160:111-13 N 18 '63
Facts and figures for the chemical process industries; business outlook. D. M. Kiefer. Chem & Eng N 42:58-85 S 7 '64
Firmer prices brighten industry forecasts. Chem Eng 71:46+ F 3 '64
Forecasting to even out inventory. N. L. Enrick. Textile World 114:67-71 Ap '64
Forecasts; Rx for feast or famine? Am Mach 108:71 Mr 30 '64
Industry leaders see upturn. Pet Management 36:75-9+ Ja '64
Loneliness of the long range forecaster. L. S. Mumford. Chem & Ind p 1788-96 N 9 '63
1964, good business year expected. Chem & Eng N 42:9-13 Ja 6 '64
1964 outlook; bright and rosy. Mech Eng 86:102-3 F '64
1964 prospects bright for better prices and good demand gain worldwide. Oil & Gas J 61:77-9 D 30 '63
1964; what's ahead for electric utilities? Elec World 160:55-62 D 30 '63
Oil, gas future wins vote of confidence. Pet Management 35:188-9 D '63

BUSINESS ideas. See Ideas in business

BUSINESS management
Analyze ventures this way. F. C. Jelen. Hydrocarbon Process & Pet Refiner 43:125-8 Mr '64
Automation and corporate efficiency. R. R. Eppert. Automation 11:134-9 Ap '64
Bayesian statistics. L. G. Locke. Ind Quality Control 20:18-22 Ap '64
Contractor group pushes for better company management. Roads & Sts 107:78-9 Ja '64
Designing identification codes for business systems integration. J. W. Fulton. Automation 11:89-92 O '64
Exception reporting; abstract. C. C. Haley, jr. Automation 11:141-3 Ag '64
Management pitfall; decisions by the rate of return method. M. Klein. Chem Eng Prog 60:64-9 S '64
Millennium for decision makers; abstract. N. Ream. Automation 11:145-6 Je '64
Planning for growth. R. R. Dockson. Am Gas Assn Mo 45:25 D '63
Seven challenges to management. J. J. Adams. Automation 11:54-8 Je '64
Successful contractor looks at management. W. M. Blount. Roads & Sts 107:42-3 Mr '64
Try these steps to better decision making. D. Tyer. Hydrocarbon Process & Pet Refiner 43:165-8 Jl '64
See also
Business forecasting
Diversification in industry
Executives
Factory management

Study and teaching

Business schools reappraised. Engineering 198:417 O 2 '64
Management education crystallises out; Lord Franks' report. Engineering 196:708 D 6 '63

BUSINESS men
See also
Executives

BUSINESS reports
How to write better business reports. J. Bedford. Rubber Age 95:589 Jl '64
What's right in business writing? Elec World 161:133-6 Je 15 '64

BUSINESS statistics
See also
Business forecasting

BUTADIENE
Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63
Butadiene-styrene block copolymer for molded and extruded goods. H. E. Railsback and others. Rubber Age 94:583-9 Ja '64
Catalytic species in some alkyl aluminum titanium iodide catalysts for *cis*-1,4-polybutadiene. W. M. Saltman and T. H. Link. bibliog Ind & Eng Chem Product Res & Develop 3:199-203 S '64
Compressibilities of *n*-butane, *iso*-butane, and 1,3-butadiene; nomographs. A. M. P. Tans. Ind Chem 40:196 Ap '64
Copolymerization of butadiene and isoprene through use of complex organometallic catalysts. L. S. Bresler and others. bibliog Rubber Chem and Tech 37:121-7 Ja '64
1,5-Cyclooctadiene by the catalytic dimerization of butadiene. G. Bosmajian and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:117-19 Je '64
Delayed action accelerators in polybutadiene/SBR blends. A. R. Davis and R. A. Naylor. Rubber World 149:54-7 D '63
Developing ABS resin technology brings forth new varieties. il Chem & Eng N 42:42-3 Mr 30 '64
Electrolytic reductive coupling; some derivatives of 1,3-butadiene. M. M. Baizer and J. D. Anderson. bibliog Electrochem Soc J 111:226-8 F '64
Mass spectral mechanisms; homoallylic participation in fragmentation of butadiene-maleic anhydride adduct. S. J. Weininger and others. bibliog Am Chem Soc J 86:3732-5 S 20 '64
Molecular structure and properties of polybutadiene rubbers. H. Blümel. bibliog il diags Rubber Chem & Tech 37:408-33 Ap '64
New noncyclic butadiene oligomer; *trans*-3-methylhepta-1,4,6-triene. S. Otsuka and others. Am Chem Soc J 85:3709-10 N 20 '63
New synthetic rubbers from copolymerization of butadiene and ene-yne diols. V. I. Nikitin. Rubber Chem & Tech 37:774-5 Jl '64
Non-Newtonian viscosity of polybutadiene solutions. G. R. Seely. bibliog A I Ch E J 10:56-60 Ja '64
Photomechanical law for stereospecific polybutadiene. H. Becker and H. Hamilton. il diag J Ap Phys 35:1651-2 My '64
Preparation of 1-acyl-1,3-butadiene derivatives from acylmethyl-π-allylcobalt tricarbonyls. R. F. Heck. bibliog Am Chem Soc J 85:3383-7 N 5 '63
Reactions between peroxide and polydiolefins. B. H. E. van der Hoff. bibliog Ind & Eng Chem Product Res & Develop 2:273-8 D '63
Separation of butene isomers and butadiene by gas liquid chromatography. C. E. Higgins and W. H. Baldwin. bibliog Anal Chem 36:473-5 Mr '64
Simple synthesis of bicyclo[1.1.0]butane and its relation to the internal conversion of electronic energy in 1,3-butadiene. R. Srinivasan. bibliog Am Chem Soc J 85:4045-6 D 20 '63
Structure effects and related polymer properties in polybutadiene: preparation and characterization. M. Berger and D. J. Buckley. bibliog il Rubber Chem & Tech 37:169-85 Ja '64
Synthesis of the monomers. W. Hofmann. diags Rubber Chem & Tech 37:12-34 pt 2 Ap '64
Thermal cyclization of hexafluorobutadiene to hexafluorocyclobutene. E. W. Schlag and W. B. Peatman. bibliog diags Am Chem Soc J 86:1676-9 My 5 '64

Analysis

Analysis of bound styrene-butadiene content of copolymers by infrared absorbance ratio method. A. S. Wexler. Anal Chem 36:1829-31 Ag '64
Analysis of polymerization grade butadiene-1,3. diags Inst Pet J 50:96-102 Ap '64

Manufacture

Selected process flow sheets for petrochemicals. Oil & Gas J 62:111 S 7 '64

BUTAMER process. See Isobutane—Manufacture

BUTANE
Calculation of thermal diffusion factors for the methane-n-butane system in the critical and liquid regions. W. M. Rutherford. bibliog A I Ch E J 9:841-3 N '63

BUTANE—*Continued*

Compressibilities of *n*-butane, *iso*-butane, and 1,3-butadiene; nomographs. A. M. P. Tans. Ind Chem 40:196 Ap '64

Critical temperatures and critical pressures for the ethane-*n*-butane-*n*-pentane system. V. S. Mehra and G. Thodos. bibliog J Ap Chem 14:265-8 Je '64

Find *n*-butane/propane compressibility: nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:156 Jl '64

Kinetics of *n*-butane adsorption on various particle sizes of silica gel by gas-solid chromatography. P. E. Eberly, jr. bibliog J Ap Chem 14:330-7 Ag '64

Low pressure solubility of *n*-butane in water. J. G. LeBreton and J. J. McKetta. Hydrocarbon Process & Pet Refiner 43:136-8 Je '64

Phase behavior of the n-butane-hydrogen sulphide system. D. B. Robinson and others. bibliog diags Can J Chem Eng 42:143-6 Ag '64

Manufacture

MEK and sec-butyl alcohol (Maruzen); Scientific design co. diag Hydrocarbon Process & Pet Refiner 42:194 N '63

Storage

Kuwait Oil completes two successful years of refrigerated storage. J. L. Coulter. il Oil & Gas J 62:104-6 Mr 16 '64

BUTANEDIOL

Absolute configurations of 2-phenylbutan-2-ol, 2-hydroxy-2-phenylbutyric acid and 3-phenylbutane-1,3-diol. S. Mitsui and others. bibliog Chem & Ind p233-4 F 8 '64

BUTANOL. See Butyl alcohol

BUTENE. See Butylene

BUTENOLIDE. See Butyrolactone

BUTENYNE

Determination of 1-butene-3-yne in C_4 hydrocarbons by gas liquid chromatography. S. A. Pollard. bibliog Anal Chem 36:999-1002 My '64

BUTOXY group

Positive halogen compounds; solvent effects in the reactions of *t*-butoxy radicals. C. Walling and P. J. Wagner. bibliog Am Chem Soc J 86:3368-75 Ag 20 '64

BUTTER

See also

Butterfat

BUTTERFAT

Flavor studies of solidified water-in-milk fat emulsions. J. B. Mickle and others. bibliog Food Tech 18:1483-5 S '64

Forced volatilization cleanup of butterfat for gas chromatographic evaluation of organochlorine insecticide residues. D. E. Ott and F. A. Gunther. bibliog diags J Agri & Food Chem 12:239-43 My '64

Triglyceride composition of native and rearranged butter and coconut oils. A. Kuksis and others. bibliog Am Oil Chem Soc J 41:201-5 Mr '64

Triglyceride gas chromatography as a means of detecting butterfat adulteration. A. Kuksis and M. J. McCarthy. Am Oil Chem Soc J 41:17-21 Ja '64

BUTTERFLIES

See also

Lepidoptera

BUTYL acetate

Pyrolysis of *sec*-butyl acetate; stereospecific *cis* elimination. P. S. Skell and W. L. Hall. bibliog Am Chem Soc J 86:1557-8 Ap 20 '64

BUTYL alcohol

Formation of copper(I) chloride by the action of copper(I) ion on carbon tetrachloride in 2-butanol. I. V. Nelson and others. Am Chem Soc J 86:364-6 F 5 '64

Manufacture

MEK and sec-butyl alcohol (Maruzen); Scientific design co. diag Hydrocarbon Process & Pet Refiner 42:194 N '63

BUTYLAMINE

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

BUTYL chloride

Isotope effects for solvolysis of *t*-butyl chloride and *t*-butyl-d_9 chloride in solvent mixtures of constant ionizing power. G. J. Frisone and E. R. Thornton. Am Chem Soc J 86:1900-1 My 5 '64

BUTYL compounds

Anchimerically accelerated bond homolysis; decomposition of an oxygen-18 labeled *t*-butyl perester. J. C. Martin and T. W. Koenig. Am Chem Soc J 86:1771-5 My 5 '64

Aromatic substitution; Friedel-Crafts *t*-butylation of benzene and methylbenzenes with *t*-butyl bromide and isobutylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1060-4 Mr 20 '64

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

Preparation and decomposition of *p*-nitrobenzoic-t-butylcarbonic anhydride. C. J. Michejda and D. S. Tarbell. Chem & Ind p369-70 F 29 '64

BUTYL group

Carbonium ions; the fate of the *t*-butyl cation in 96 per cent H_2SO_4. N. C. Deno and others. Am Chem Soc J 86:1745-8 My 5 '64

Optical rotatory dispersion studies; the octant rule and the *t*-butyl group; synthesis of steroidal *t*-butyl ketones. C. Djerassi and others. bibliog Am Chem Soc J 86:78-85 Ja 5 '64

BUTYL halides

Electron diffraction determination of the molecular structure of the butyl halides; the structure and conformational analysis of isobutyl chloride G. H. Pauli and others. bibliog Am Chem Soc J 86:1286-8 Ap 5 '64

BUTYLLITHIUM

Cyclopropylcarbinyllithium is isolated. P. T. Lansbury and others. Chem & Eng N 42:46-7 Ap 27 '64

Influence of tetrahydrofuran on the reaction of *n*-butyllithium with benzyl chloride; halogen-metal interconversion vs. α-hydrogen-metal interconversion. D. F. Hoeg and D. I. Lusk. Am Chem Soc J 86:928-9 Mr 5 '64

Structure of butyllithium in ether; a solvated dimer. Z. K. Cheema and others. diag Am Chem Soc J 85:3517-18 N 5 '63

Analysis

Determination of butyllithium in hydrocarbons by thermometric titration with butanol. W. L. Everson. Anal Chem 36:854-6 Ap '64

BUTYL peroxide

Reactions of radicals; butyl peroxide. W. A. Pryor and G. L. Kaplan. bibliog Am Chem Soc J 86:4234-7 O 20 '64

Reactions of radicals; ethyl peroxide, isopropyl peroxide, and *sec*-butyl peroxide. W. A. Pryor and others. bibliog Am Chem Soc J 86:4237-43 O 20 '64

Reactions of radicals; *t*-butyl peroxide. W. A. Pryor and others. bibliog Am Chem Soc J 86:4229-34 O 20 '64

BUTYL rubber. See Rubber, Artificial

BUTYLENE

Dehydrogenation of n-butylenes over calcium nickel phosphate; determination of relative adsorption coefficients. J. Firko and D. S. Alexander. bibliog Can J Chem Eng 42:183-6 Ag '64

Poly(1-butene) chain flexibility from sorption data. G. M. Pavlyuchenko and others. bibliog Rubber Chem & Tech 36:1003-4 O '63

Separation of butene isomers and butadiene by gas liquid chromatography. C. E. Higgins and W. H. Baldwin. bibliog Anal Chem 36:473-5 Mr '64

Thermal degradation of fractionated high and low molecular weight polyisobutylene. D. McIntyre and others. bibliog diag J Res Nat Bur Stand 68A:153-7 Mr '64

Two methods give polybutene-2. H. Z. Friedlander. Chem & Eng N 42:42 F 10 '64

Manufacture

Butane dehydrogenation; Houdry process and chemical co. flow diag Hydrocarbon Process & Pet Refiner 43:227 S '64

Polybutenes; Standard oil company (Indiana). diag Hydrocarbon Process & Pet Refiner 42:214 N '63

BUTYRIC acid

Absolute configurations of 2-phenylbutan-2-ol, 2-hydroxy-2-phenylbutyric acid and 3-phenylbutane-1,3-diol. S. Mitsui and others. bibliog Chem & Ind p233-4 F 8 '64

Degradation of 4-(2,4-dichlorophenoxy)-butyric acid [4-(2,4-DB)] in plants. D. L. Linscott. bibliog J Agri & Food Chem 12:7-10 Ja '64

BUTYRIC acid—*Continued*

Determination of isomer distribution ratio in mixtures of the monoisobutyrates of 2,2,4-trimethyl-1,3-pentanediol by nuclear magnetic resonance. H. F. White and others. Anal Chem 36:1659-61 Jl '64

Tissue distribution of α-aminoisobutyric acid and nitrogen metabolism in the rat; effects of environmental temperature and dietary imbalance. L. A. Bavetta and M. E. Nimni. J Nutrition 82:379-84 Mr '64

BUTYROLACTONE

Synthesis of butenolides via a vinylogous acid halide. Y. S. Rao and R. Filler. bibliog Chem & Ind p280 F 15 '64

BUXUS. See Boxwood

BUYING motives

What motivates a man to buy? M. Blumenfeld. Drug & Cosmetic Ind 94:44-5 Ja '64

C

CERN. See European organization for nuclear research

CIGRE. See International conference on large high tension electric systems

CPM. See Schedules

CABINETS (furniture)

See also

Loud speaking apparatus—Cabinets

Phonograph cabinets

CABLE laying and supply ships

Cable and repeater handling system. O. D. Grismore. il diag Bell System Tech J 43:1373-94 Jl '64

Cable laying facility. R. D. Ehrbar. il Bell System Tech J 43:1367-72 Jl '64

Cable repair ship Cable Enterprise. il Engineer 218:241-2 Ag 14 '64

Cable repair ship of 4,300 gt. il Marine Eng/Log 70:18B+ My '64

Design and powering of cable ship Long Lines. J. H. Butler and others. plans diags Bell System Tech J 43:1435-59 Jl '64

Distinctive ships; cable ship Long Lines presents unique profile. il Marine Eng/Log 68:68-9+ D '63

Submarine cable laying system. R. D. Ehrbar. il diags Bell Lab Rec 42:86-93 Mr '64

CABLES

Cable movements under two-dimensional loads. W. T. O'Brien and A. J. Francis. diags Am Soc C E Proc 90 [ST 3 no 3929]: 89-123 Je '64

Cables prestress 18-ft window-wall. il Eng N 172:50 Je 11 '64

Cupronickel-clad cable resists the ocean depths. il Machine Design 36:15 Jl 30 '64

Girder-carried cables replace columns. F. Kramrisch. il diags Eng N 172:101+ F 13 '64

New type cable cuts installation time on pneumatic control system. il Oil & Gas J 61:114-15 O 28 '63

Prestressed cables brace big cube; Vertical Assembly building housing the Moon-rocket booster. il Eng N 172:67 Mr 19 '64

Steel cables suspend 220-ft-dia roof from concrete cantilevers. il Eng N 172:40-1 Je 11 '64

Stress analysis of prestressed suspended roofs. A. Siev and J. Eidelman. Am Soc C E Proc 90 [ST 4 no 4008]:103-21 Ag '64

Tiller cable; nylon/piano-wire conduit steers boats, controls tools. il Plastics World 22:20 Je '64

Wire-reinforced nylon and PE cable improves steering controls. il Mod Plastic 41:112 Jl '64

See also

Anchorage

Electric cables

Electric cables, Submarine

Telephone cables

Wire rope

CABLEWAYS

Nepalese carried components to erect a tramway by hand. il Eng N 173:35 Jl 23 '64

CACAO

Diseases and pests

Cocoa yield increase by control of capsids (miridae). A. J. Vernon. Chem & Ind p320-1 F 22 '64

CADIZ

Bridges

Bridge would rejuvenate Spanish port. il maps Eng N 173:83 Jl 2 '64

CADMIUM

Cadmium, 1963. P. E. Caron. Eng & Min J 165:123-4 F '64

Cadmium solder preforms join manifold tubes. il Materials in Design Eng 60:146 O '64

Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64

Electrical measurements on photographic grains containing cadmium. L. E. Brady and J. F. Hamilton. il diag J Ap Phys 35:1565-9 My '64

Galvanic cell measurement of the thermodynamic interaction between cadmium and tin in liquid bismuth. W. M. Boorstein and R. D. Pehlke. bibliog diag Electrochem Soc J 111:1269-72 N '64

Industry urges sale of surplus cadmium. Chem & Eng N 42:29 Ap 20 '64

Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

Shaping and polishing of cadmium single crystals. P. F. Messer and S. Weintroub. J Sci Instr 41:648 O '64

See also

Water supply—Cadmium content

Analysis

Chemiluminescent indicator titration of cadmium with potassium ferricyanide. F. Kenny and others. bibliog Anal Chem 36:529-32 Mr '64

Correlation of electrical measurements with chemical analysis in zinc-and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Determination of zinc, cadmium, and mercury by atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. Anal Chem 36:165-8 Ja '64

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

CADMIUM alloys

Annealing spectrum of cold-worked silver-cadmium alloys. R. Kamel and E. A. Attia. bibliog Inst Metals J 92:270-4 '63-64

Densities of cadmium-rich cadmium-magnesium solid solutions. N. Ridley. bibliog Inst Metals J 93:46-7 '64-65

One atom in 7700 changes alloy structure; abstract. G. R. B. Elliott and R. B. Roof. Chem & Eng N 42:54+ Ap 20 '64

Stacking fault probabilities of some alloys of copper and silver with zinc and cadmium. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3398-402 N '63

Yield effect in a zinc-aluminium-cadmium alloy. J. A. Sabato and H. Destaillatz. diags Inst Metals J 92:252 '63-64

CADMIUM arsenide

Solid solutions in the system Zn_3As_2-Cd_3As_2. H. J. Naake and S. C. Belcher. J Ap Phys 35:3064-5 O '64

CADMIUM borate

X-ray study of a cadmium borate glass. S. Block and others. Am Cer Soc J 46:557 N '63

CADMIUM fluoride

Preparation of $Cd_2Nb_2O_7$ single crystals from a CdF_2 melt. M. Kestigian. bibliog Am Cer Soc J 46:563-4 N '63

CADMIUM in the body

Chromium, lead, cadmium, nickel and titanium in mice: effect on morality, tumors and tissue levels. H. A. Schroeder and others. bibliog J Nutrition 83:239-50 Jl '64

Fate of Cd^{109} in the mouse. M. Berlin and S. Ullberg. bibliog il Archives Environmental Health 7:686-93 D '63

CADMIUM metallurgy

Electrometallurgy

Cadmium purification practice in zinc smelting: a survey of producers in the Western Hemisphere. R. E. Lund. and R. E. Sheppard. il J Metals 16:724-30 S '64

CADMIUM niobate

Conduction properties of $Cd_2Nb_2O_7$ and $Pb_{1.5}Nb_2O_{6.5}$. R. Mazelsky and W. E. Kramer. diag Electrochem Soc J 111:528-33 My '64

Preparation of $Cd_2Nb_2O_7$ single crystals from a CdF_2 melt. M. Kestigian. bibliog Am Cer Soc J 46:563-4 N '63

CADMIUM nitrate

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

CADMIUM phosphates

Cadmium halophosphate phosphors. R. C. Ropp. Electrochem Soc J 111:1091-3 S '64

Phase equilibria and manganese-activated luminescence in portions of the system $Zn(PO_3)_2$-$Cd(PO_3)_2$-$Mg(PO_3)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111:660-5 Je '64

Phase equilibria and manganese-activated luminescence in the system $Zn_3(PO_4)_2$-$Cd_3(PO_4)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 110:1218-23 D '63

Phase equilibria and manganese-activated luminescence in the systems CdO-P_2O_5 and $Zn_2P_2O_7$-$Cd_2P_2O_7$; summary for the system ZnO-CdO-P_2O_5. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64

CADMIUM phosphide

Preparation and semiconducting properties of Cd_3P_2. G. Haacke and G. A. Castellion. bibliog diag J Ap Phys 35:2484-7 Ag '64

CADMIUM plating

Practical problems in bright cadmium barrel plating. H. Geduld. bibliog Metal Finishing 62:52-6 Ag; 64-7+ S '64

Zinc and cadmium thickness determination; weigth-area method employing EDTA. S. Konishi. Metal Finishing 62:84-6 My '64

CADMIUM selenide

Direct demodulation and frequency conversion of microwave-modulated light in a CdSe bulk photoconductor. M. DiDomenico, jr. bibliog diags J Ap Phys 35:1353-4 Ap '64

Electric field excitation of electrons from shallow traps in CdSe thin-film triodes. T. O. Poehler and D. Abraham. J Ap Phys 35:2452-5 Ag '64

Evaluation of cadmium selenide films for use in thin-film transistors. F. V. Shallcross. bibliog diags RCA R 24:676-87 D '63

Microwave signal-to-noise performance of CdSe bulk photoconductive detectors. M. DiDomenico, jr. and L. K. Anderson. bibliogs diags IEEE Proc 52:815-22 Jl '64

Optical second-harmonic generation in ZnS-CdS and CdS-CdSe alloys. R. A. Soref and H. W. Moos. bibliog diag J Ap Phys 35:2152-8 Jl '64

Photoconductive mixing in CdSe single crystals. O. Svelto and others. bibliog diags J Ap Phys 34:3182-6 N '63

Photoelectronic properties of imperfections in cadmium sulfo-selenide solid solutions. R. H. Bube. bibliog diag J Ap Phys 35:586-96 Mr '64

CADMIUM sulfide

CdS thin-film formation by the method of co-evaporation. P. A. Pizzarello. diag J Ap Phys 35:2730-2 S '64

Cubic phase in vapor-deposited CdS films. C. A. Escoffery. bibliog il diags J Ap Phys 35:2273-4 Jl '64

Dependence of photoconductivity gain on photon energy in CdS : I : Cu crystals. R. H. Bube and E. Young. J Ap Phys 35:462-3 F '64

Dislocation structure and growth mechanism of cadmium sulfide crystals. J. I. Chikawa and T. Nakayama. bibliog il diags J Ap Phys 35:2493-501 Ag '64

Evaporated metallic contacts to conducting cadmium sulfide single crystals. A. M. Goodman. bibliog diags J Ap Phys 35:573-80 Mr '64

Hall-effect studies in deposited CdS thin films. R. S. Muller and B. G. Watkins. IEEE Proc 52:425-6 Ap '64

Hollow cadmium sulfide crystals. D. H. Mash and F. Firth. il diag J Ap Phys 34:3636-7 D '63

Hollow center CdS crystals. A. Dreeben. il J Ap Phys 35:2549 Ag '64

Optical second-harmonic generation in ZnS-CdS and CdS-CdSe alloys. R. A. Soref and H. W. Moos. bibliog diag J Ap Phys 35:2152-8 Jl '64

Photoelectronic properties of imperfections in cadmium sulfo-selenide solid solutions. R. H. Bube. bibliog diag J Ap Phys 35:586-96 Mr '64

Precipitation of impurities in large single crystals of CdS. A. Dreeben. bibliog il Electrochem Soc J 111:174-9 F '64

Purification of CdS by partial sublimation in a gas flow. A. Vecht and others. diags Electrochem Soc J 111:666-8 Je '64

Recovery of the high-pressure phase of cadmium sulfide. J. A. Corll. bibliog J Ap Phys 35:3032-3 O '64

Ultrasonic attenuation in cadmium sulphide above room temperature. R. Truell and others. bibliog J Ap Phys 35:1483-5 My '64

CADMIUM telluride

Phase diagram for the pseudo-binary system $CdTe$-In_2Te_3. L. Thomassen and others. bibliog diag Electrochem Soc J 110:1127-31 N '63

Refractive index of ZnSe, ZnTe, and CdTe. D. T. F. Marple. bibliog diag J Ap Phys 35:539-42 Mr '64

Semiconducting properties of peritectic compounds from the pseudo-binary system of $CdTe$-In_2Te_3. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 110:1132-6 N '63

CAFETERIAS, Employees. See Lunchrooms and cafeterias, Employees

CAISSONS

Building a major bridge on weak subsoil; Van Brienenoord bridge near Rotterdam. il diags Engineering 197:810-11 Je 12 '64

Drilled caissons cut underpinning cost. V. C. Sloane. il diags Eng N 173:36+ S 3 '64

Floating caisson gives dry environment for dam maintenance. il Elec World 161:69 Ja 13 '64

Golden Gateway; foundation design. W. W. Moore. il diags Civil Eng 34:33-5 Ja '64

Hand-dug holes finish caissons for office buildings over tracks. il Eng N 172:44-5 Ap 16 '64

Tank cars line caisson foundations. il diag Eng N 173:84-5 Jl 2 '64

Two types of caissons support tall piers for Louisiana bridge. il Eng N 173:28-9 S 3 '64

Underground silo for rocket tests built by caisson method. il Eng N 172:70-2 My 21 '64

CALCINATION

Calcination of BeO from basic acetate-derived $Be(OH)_2$. R. C. Rau. bibliog il Am Cer Soc J 47:179-84 Ap '64

Calcination of radioactive liquid wastes. Engineering 197:365 Mr 6 '64

Calcination of radioactive liquid wastes. Franklin Inst J 277:380-1 Ap '64

Coker-calciner complex. H. C. Bozeman. il Oil & Gas J 61:152-4 N 11 '63

Fluidized solids lime process. M. W. Brandt and others. bibliog flow sheets il diag Tappi 47:sup 137A-41A My '64

Hot cyclone development improves lime yield. M. Shafer. flow sheet il diags Chem Eng Prog 59:95-9 N '63

Improved fluid bed calcination hikes lime production; process flowsheet. C. R. Havighorst. il Chem Eng 71:104-6 O 26 '64

Kinetics of particle growth in the fluidized bed calcination process. E. S. Grimmett. bibliog il diags A I Ch E J 10:717-22 S '64

Lime industry pacesetter takes another impressive step forward; Ash Grove lime and portland cement co. B. C. Herod. il diags Pit & Quarry 56:88-92+ N '63

New application for fluidized calciners. D. MacAskill. diag Ind & Eng Chem 56:9-10 S '64

New approach to the vertical shaft kiln. M. F. Parsons. diag Pit & Quarry 57:124-5+ Ag '64

Super rotary kiln. V. J. Azbe. diags Rock Prod 67:56-63 Jl; 96-8+ Ag '64

CALCITE

Dynamic interpretation of calcite twin lamellae in a naturally deformed fossil. M. Friedman and F. B. Conger. bibliog diags J Geol 72:361-8, pl 1 My '64

CALCIUM

Anion exchange separation of calcium and strontium. J. S. Fritz and others. bibliog Anal Chem 36:900-3 Ap '64

Calcium is built up as a reducing agent. F. J. Starin. il Iron Age 192:30 D 26 '63

Composition of stearic acid monolayers from calcium-containing substrates. J. Bagg and others. bibliog Am Chem Soc J 86:2759-63 Jl 20 '64

Effect of calcium phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64

CALCIUM—*Continued*

Effect of impurities on precipitation of calcium. E. Schonfeld. bibliog Am Water Works Assn J 56:767-73 Je '64

Exchange reaction between calcium and carboxyl in cellulose. E. S. Putnam. bibliog il diag Tappi 47:549-54 S '64

Methods for producing high-purity calcium. H. A. Wilhelm and O. N. Carlson. bibliog il diag J Metals 16:170-4 F '64

Separation of calcium and strontium by liquid ion exchange; determination of total radiostrontium in milk. F. E. Butler. bibliog Anal Chem 35:2069-71 D '63

Analysis

Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

Derivatives of glyoxal bis(2-hydroxyanil) as direct calcium reagents. F. Lindstrom and C. W. Milligan. bibliog Anal Chem 36:1334-8 Je '64

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64

Effects of aliphatic acids and their salts on the flame spectrometric emission of calcium. A. C. West. bibliog Anal Chem 36:310-14 F '64

Method for simultaneous determination of calcium and magnesium. H. Katz and R. Navone. Am Water Works Assn J 56:121-3 Ja '64

Sensitive and selective spectrophotometric reaction for determination of trace amounts of calcium. M. Herrero-Lancina and T. S. West. bibliog Anal Chem 35:2131-5 D '63

Simultaneous spectrophotometric determination of calcium and magnesium with chlorophosphonazo III. J. W. Ferguson and others. bibliog Anal Chem 36:796-9 Ap '64

Spectrophotometric determination of calcium in milk using 2,2′-(ethanediylidenedinitrilo) diphenol [glyoxal bis(2-hydroxyanil)]. T. A. Nickerson and others. bibliog Anal Chem 36:1676-7 Jl '64

CALCIUM acetate

Dietary production of parathyroid cysts. H. Selye and others. il J Nutrition 84:97-9 O '64

CALCIUM aluminate

Carbon monoxide disintegration of calcium aluminate cements in refractory castables. W. H. Gitzen and others. bibliog il diag Am Cer Soc Bul 43:518-22 Jl '64

Evaluation of five commercial calcium-aluminate cements. J. T. Shapland and A. F. Livovich. il Am Cer Soc Bul 43:510-13 Jl '64

See also

Ettringite

CALCIUM carbonate

Investigation of trace impurities in solids by electron paramagnetic resonance; distribution of manganese in calcium carbonate. S. Fujiwara. bibliog Anal Chem 36:2259-61 N '64

Rheological study of high-solids calcium carbonate slurries using high-shear rotational viscometers. C. W. Leaf and I. C. MacGugan. il Tappi 47:162-7 Mr '64

Some aspects of the chemical evolution of cave waters. H. D. Holland and others. bibliog maps diags J Geol 72:36-67 Ja '64

See also

Calcite
Dolomite

Analysis

Determination of soil carbonates by a rapid gasometric method. M. W. M. Leo. bibliog il map J Agri & Food Chem 11:452-5 N '63

CALCIUM chloride

Calcium chloride dires their LPG. A. L. Salusinszky. bibliog diags Hydrocarbon Process & Pet Refiner 43:157-60 O '64

Calcium chloride versus sodium chloride. J. Geschelin. Automotive Ind 130:47 F 1 '64; Abstract. Metal Prog 85:161-2 Ap '64

Combined base for a large interstate project. il diags Roads & Sts 107:40-2+ My '64

Detroit faces new battle against rust. il Steel 154:79-80 Mr 2 '64

Galvanic corrosion in concrete containing calcium chloride. T. E. Wright and I. H. Jenks. il diags Am Soc C E Proc 89 [ST 5 no 3669]:117-32 O '63; Discussion. 90 [ST 1 no 3812]:281 F; [ST 2 no 3886]:393-4 Ap '64

Study of the mechanism through which calcium chloride accelerates the set of portland cement. A. M. Rosenberg. bibliog il Am Concrete Inst J 61:1261-9 O '64

Wellhead dehydration of natural gas with calcium chloride. O. W. Fowler. il diag Oil & Gas J 62:123-4 Ag 3 '64

CALCIUM citrate

Urolithiasis in the rat; influence of amino acid supplements on the occurrence of citrate calculi. R. Van Reen and others. bibliog J Nutrition 83:358-64 Ag '64

CALCIUM compounds

Metallic scattering centers in $CaWO_4$ laser crystals. J. R. Shappirio and others. il J Ap Phys 34:3643-4 D '63

Oxygen deficiency in perovskite-type compounds of calcium. R. V. Coates and J. W. McMillan. bibliog J Ap Chem 14:346-50 Ag '64

CALCIUM fluoride

Association of beryllium with tin deposits rich in fluorite. C. L. Sainsbury. bibliog Econ Geol 59:920-6 Ag '64

Controlled massively defective crystalline solutions with the fluorite structure. D. M. Roy and R. Roy. bibliog Electrochem Soc J 111:421-9 Ap '64

Epitaxial temperature of germanium deposited on calcium fluoride. A. Catlin and others. il J Ap Phys 35:251-2 Ja '64

Fluorite-bastnaesite deposits of the Gallinas Mountains, New Mexico and bastnaesite paragenesis. R. M. Perhac and E. W. Heinrich. il map Econ Geol 59:226-39 bibliog(p238-9) Mr '64

Removal of radioactive actinides and lanthanides from aqueous solutions with calcium fluoride prior to flame photometric determination of lithium. H. P. Holcomb. Anal Chem 36:2360-1 N '64

Separation of americium from curium with calcium fluoride. H. P. Holcomb. bibliog diag Anal Chem 36:2329-32 N '64

Slip casting calcium fluoride and lime-stabilized zirconia. C. R. Masson and others. bibliog Am Cer Soc Bul 42:745-7 D '63

Stimulated emission in $CaF_2:Er^{3+}$. S. A. Pollack. il diag IEEE Proc 51:1793-4 D '63

Uses of the electroslag remelting process. A. C. Williams. bibliog il Iron & Steel Inst J 202:581-7 Jl '64

X-ray line broadening in calcium fluoride. D. Lewis and H. Pearson. J Ap Phys 35:1939-41 Je '64

CALCIUM hydroxide

Biochemical oxygen demand reduction of sulfite waste liquor. S. A. Zieminski and B. T. Coyle. bibliog diag Tappi 47:138-42 Mr '64

CALCIUM in the body

Calcium metabolism and skeletal dynamics of laying pullets. W. J. Mueller and others. bibliog J Nutrition 84:20-6 S '64

Calcium, strontium and phosphorus utilization by chicks as influenced by nutritional and endocrine variations. P. E. Waibel and F. R. Mraz. bibliog J Nutrition 84:58-64 S '64

Effect of egg white diets on calcium metabolism in the rat. G. W. Engstrom and H. F. DeLuca. bibliog J Nutrition 81:218-22 N '63

Effect of lysine on calcium metabolism in man. H. Spencer and J. Samachson. bibliog J Nutrition 81:301-6 D '63

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Enhancement of calcium absorption in man by a bile acid sequestrant. A. M. Briscoe and C. Ragan. Am J Clinical Nutrition 13:277-84 bibliog(p283-4) N '63

In vivo intestinal transport of calcium and water from solutions recycled through healed gut loops in dogs. C. F. Cramer. bibliog J Nutrition 84:118-24 O '64

Lactose and calcium transport in gut sacs. Y. O. Chang and D. M. Hegsted. bibliog J Nutrition 82:297-300 Mr '64

Mineral balance studies with the baby pig; effects of dietary phosphorus level upon calcium and phosphorus balance. E. R. Miller and others. bibliog J Nutrition 82:111-14 Ja '64

Mineral utilization in the rat; restoration of normal tissue levels of magnesium and calcium following magnesium deficiency. R. M. Forbes. bibliog J Nutrition 83:44-8 My '64

CALCIUM in the body—*Continued*

Phosphorous, calcium and magnesium relationships in ovine urolithiasis. L. V. Packett and J. P. Hauschild. bibliog J Nutrition 84:185-90 O '64

Physiological aspects of aging; calcium and magnesium metabolism in senescent mice. H. H. Draper. bibliog J Nutrition 83:65-72 My '64

CALCIUM iodide

CaI_2 and CaI_2(Eu) scintillation crystals. R. Hofstadter and others. bibliog R Sci Instr 35:246-7 F '64

CALCIUM molybdate

Study of the calcium molybdate-rare earth niobate systems. L. H. Brixner. bibliog il diag Electrochem Soc J 111:690-7 Je '64

CALCIUM niobate

Calcium niobate $Ca(NbO_3)_2$; new laser host crystal. A. A. Ballman and others. bibliog J Ap Phys 34:3155-6 N '63

CALCIUM oxide. See Lime

CALCIUM phosphates

Calcium ammonium orthophosphates. A. W. Frazier and others. bibliog J Agri & Food Chem 12:198-201 My '64

Dehydrogenation of n-butylenes over calcium nickel phosphate; determination of relative adsorption coefficients. J. Firko and D. S. Alexander. bibliog Can J Chem Eng 42:183-6 Ag '64

Role of calcium manganese orthophosphate in halophosphate phosphors. J. G. Rabatin and G. R. Gillooly. bibliog Electrochem Soc J 111:542-6 My '64

Vitreous calcium metaphosphate; some properties of its aqueous systems. E. H. Brown and J. R. Lehr. bibliog diag J Agri & Food Chem 12:201-4 My '64

CALCIUM scandates

Preparation and crystallographic properties of $A^{2+}B_2^{3+}O_4$ type calcium and strontium scandates. J. R. Carter and R. S. Feigelson. bibliog Am Cer Soc J 47:141-4 Mr '64

CALCIUM silicates

Dehydration series in the system $CaSiO_3$-SiO_2-H_2O. R. I. Harker. bibliog il Am Cer Soc J 47:521-9 O '64

Dissolution in ceramic systems; molecular diffusion, natural convection, and forced convection studies of sapphire dissolution in calcium aluminum silicate. A. R. Cooper, jr. and W. D. Kingery. bibliog diags Am Cer Soc J 47:37-43 Ja '64

Dry-liquids concept; Micro-Cel E. il Chem Eng Prog 60:119 Ag '64

Reexamination of the polymorphism of Ca_3SiO_5. H. Miyabe and D. M. Roy. bibliog Am Cer Soc J 47:318-19 Jl '64

Use of dry liquid concentrates proposed by Johns-Manville; Micro-Cel E. Chem & Eng N 42:53 Jl 6 '64

CALCIUM sulfate

See also

Gypsum

Plaster of Paris

CALCIUM sulfate hemihydrate. See Plaster of Paris

CALCIUM sulfide

Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64

CALCIUM tungstate

Calcium tungstate; observation of dislocations. H. J. Levinstein and others. il J Ap Phys 34:3603-8 D '63

Dependence of the optical-maser threshold on neodymium concentration in sodium-compensated calcium tungstate. A. E. Paladino and others. J Ap Phys 35:249-50 Ja '64

Dissolution of calcium tungstate with an acid-hydrogen peroxide mixture. R. H. Curry and J. R. Carter. Anal Chem 36:926-7 Ap '64

Photolytic and reduction coloring of $CaWO_4$:Nd. D. C. Cronemeyer and M. W. Beaubien. bibliog diag J Ap Phys 35:1779-85 Je '64

CALCIUM uranite

See also

Autunite

CALCIUM vanadate

Calcium-orthovanadate. L. H. Brixner and others. Electrochem Soc J 111:873-4 Jl '64

CALCIUM zirconate

Electrical conductivity in the system ZrO_2-$CaZrO_3$. T. Y. Tien. bibliog il Am Cer Soc J 47:430-3 S '64

CALCULATING devices

New tool is shortcut in investment analysis. il Oil & Gas J 62:107 Jl 6 '64

Speed primary voltage drop studies with new calculator. E. P. McLean. il Elec World 161:26 F 17 '64

See also

Slide rule

CALCULATING machines

Artificial neurons; for machines that learn. H. Moraff. diags Electronic Ind 22:52-6 D '63

Automatic bowling scorekeeper. il diags Product Eng 35:44-5 Ja 6 '64

Big general-purpose computers announced. Oil & Gas J 62:94 Ag 24 '64

Business computer system. il Engineer 218:70 Jl 10 '64

Clerk Maxwell memorial lecture, 5th. G. Radley. il Radio & Electronic Eng 28:3-12 Jl '64

Compatible computer system. il Engineer 218:560 O 2 '64

Computer aid with examination results. B. Downs and N. J. Cubitt. Engineering 196:661 N 22 '63

Computer-aided instrumentation system for studies in tactual perception; abstract. J. C. Bliss and H. D. Crane. Electronics 37:116-17 Je 29 '64

Computer versus Kepler. O. Gingerich. bibliog il diags Am Scientist 52:218-26 Je '64

Computerized telegraph system. il Electronic Ind 23:92 Mr '64

Computers. il Mech Eng 86:46-7 Ja '64

Computers. A. R. Edmonds. J Sci Instr 41:251-2 My '64

Computers. S. M. Ulam. il diags Sci Am 211:202-8+ S '64

Computers and management; abstract. E. Playfair. Engineer 216:636 O 18 '63

Computers are coming. Mech Eng 86:57 O '64

Computers; competition gets stiffer. il Product Eng 34:38-9 D 23 '63

Computers in engineering design. T. H. Korelitz. diags Res/Develop 15:15-17 Ag '64

Computers of future may talk over your problems. Steel 154:28 Ja 20 '64

Computers poised for more design, tooling jobs. Steel 154:29+ Ap 27 '64

Computers; SHARE first annual Design automation workshop, Atlantic City, June 24-26. Product Eng 35:54-6 Jl 20 '64

Computers unlimited. il Mech Eng 86:62-3 Jl '64

Creation of comprehensive colour ranges by computer. J. R. Bell and others. flow chart diags Soc Dyers & Col J 79:613-17 D '63

Cutting the price. diag Electronics 37:27-8 My 18 '64

Design automation for numeric machine tools. G. M. Cooley. Automation 10:144+ N '63

Developments in optics and computers. R. H. Müller. Anal Chem 36:sup 115A My '64

Educational computer; illustration with text. I S A J 11:38 Ap '64

Electronic desk-calculator. il Mech Eng 86:60 Jl '64

Europe; newest battleground for U.S. computer companies. P. Jackson. il Electronics 37:100-4 S 21 '64

Evaluation of a pseudorandom normal number generator. R. Kronmal. bibliog Assn for Computing Mach J 11:357-63 Jl '64

Fast switching of a parametric subharmonic oscillator. T. Williams and W. D. Ryan. diags IEEE Proc 52:1050-1 S '64

Fluid computers. O. L. Wood and H. L. Fox. il diags Naval Eng J 76:248-56 Ap '64

Forecasting ahead for research. Engineering 197:334 F 28 '64

Four simultaneous tasks by one small computer. il Engineering 197:862 Je 26 '64

General Electric offers new computers. il Chem & Eng N 41:28 D 16 '63

High speed logic circuits using a tunnel diode transistor feedback amplifier. G. G. Scarrott and R. W. Mitchell. il diags Radio & Electronic Eng 26:485-91 D '63

Hints for using a desk computer. S. Kravitz. Product Eng 35:91-2 Ja 20 '64

Imperial college's IBM 7090 computer. Engineering 197:659 My 15 '64

Initial condition determination. K. Peterson. il diag Instruments & Control Systems 37:149 Mr '64

IBM; little parts, big money; computing equipment, called system 360. il Eng N 172:40 Ap 23 '64

IBM ties computer to drawings. il Eng N 173:22 N 5 '64

Interpolating multipliers and related interpolators. A. Nathan. diags IEEE Proc 51:1549-54 N '63

Jacks of all trades. Product Eng 35:54-5 My 11 '64

CALCULATING machines—*Continued*

Keeping an eye on development costs. il diags Engineering 198:224-5 Ag 21 '64

Loading calculator for cargo ships. il Engineering 196:683 N 29 '63

Low cost electronic arithmetic. D. W. Thomasson. il diags Radio & Electronic Eng 27:219-28 Mr '64

Measuring and computation by brains and machines. J. Z. Young. bibliog Engineer 216:1022-4 D 20 '63

Negative resistance computing element. A. K. Godden and T. Cookes. diags Electronic Eng 35:751-3 N '63

New approaches to computer-aided design. D. K. Merris. il diags Product Eng 35:84-7 F 3 '64

New code simplifies, expands cost estimating by computer. M. L. Beutel. Eng N 172:30-2+ My 14 '64

New color computer offers high speed, accuracy. il Plastics Tech 9:13 N '63

New computer line expands control capabilities. il Iron & Steel Eng 41:147-8+ My '64

New computers may provide big-job planning assistance. il Arch Rec 135:86+ Mr '64

New direct accounting computer. Franklin Inst J 277:376-7 Ap '64

New large-scale computer has big memory capacity. il Oil & Gas J 62:110 Ag 3 '64

1964 prospects of all engineerings; data processing equipment and office machinery. il diag Engineering 197:132-4 Ja 17 '64

Nonlinear threshold element; discussion. H. Ishida. IEEE Proc 52:1077 S '64

Now count the computer way. R. H. Cortes. Hydrocarbon Process & Pet Refiner 43:95-100 F '64

Optimum control of discrete systems subject to saturation. J. T. Tou. IEEE Proc 52:88-9 Ja '64

Performance of an all-magnetic shift register. D. J. Morris. bibliog diags Inst E E Proc 111:291-302 F '64

Product Engineering fifth annual master design awards; computer for business applications. il diag Product Eng 35:115 Ap 27 '64

Quiet new calculator provides instant answers. il Machine Design 36:8 Je 4 '64

Race going on in Russia between creeping capitalism and the electronic computer. Electronics 37:121-2 N 2 '64

Servo actuator stacks slugs of hydraulic fluid to produce an accurate digital readout. il diag Product Eng 34:36 D 23 '63

Significant advance in computing systems. il Food Tech 18:1050 Jl '64

Six more computers announced. S. B. Gray. il Electronics 36:10-11 D 13 '63

Superconducting-to-normally conducting transitions in strip transmission line structures. A. R. Sass and F. J. Friedlaender. bibliog diags J Ap Phys 35:1494-500 My '64

To ascertain the shape of the future. J. Diebold and others. Automation 11:22-3 O '64

Tunnel diode circuits for computers. Electronic Eng 36:107 F '64

Two firms beef up their computer lines. il Elec World 160:106+ D 16 '63

You and your computer. D. Holstein. flow chart il diags Product Eng 35:86-94 Jl 20 '64 (to be cont)

See also

Accounting—Mechanical aids
Adding machines
Automation
Automatons (calculating machines)
Cybernetics
Data processing service centers
Electronic data processing
Information storage and retrieval systems
Integrators
Magnetic memory (calculating machines)
Memory devices (calculating machines)
Numerical control
Translating machines

Aeronautic applications

Airborne navigation computer. il Engineer 216:783 N 8 '63

Collection of inspection data through the use of computers. W. N. Moore. il Ind Quality Control 20:10-13 Je '64

Computation: aerospace computers in aircraft, missiles, and spacecraft. H. C. Kreide and D. W. Lambert. Space/Aeronautics 42 no4:75-8 '64-65

Computer applications in the development of efficient aircraft structures. I. C. Taig. diags Roy Aeronautical Soc J 67:706-10; Discussion. 715 N '63

Computer guides Saturn I payload into orbit. Franklin Inst J 278:154-5 Ag '64

Computer simulation of the electron mixing mechanism in ion propulsion. O. Buneman and G. Kooyers. bibliog diags AIAA J 1:2525-8 N '63

IBM system/360 uses microelectronic logic circuits. il Space/Aeronautics 41:121+ Je '64

Iterative analog determination of burning time and weight distribution in a two-stage rocket. K. S. Cook. il diags Instruments & Control Systems 36:129+ D '63

Majority voting protects aircraft and pilot. H. Moreines and others. il diags Electronics 37:85-91 My 18 '64

Method of calculating maximum permissible take-off weights using a digital computer. A. Wilson and B. A. Graham. diag Roy Aeronautical Soc J 68:692-3 O '64

Molecular interconnections for integrated circuits. W. A. England. il diag Astronautics & Aeronautics 2:54-6 Ap '64

Need info pdq? edp can give it! S. I. Greenberg. S A E J 72:77 S '64

Simple mechanical analog-to-digital converter. M. Jackson, ed. diags Space/Aeronautics 41:112 Je '64

Simulation of space vehicle with reaction jet control system. J. P. Landauer. il diags Instruments & Control Systems 37:130-4 F '64

Simulation using perturbation methods. J. A. McDonnell. diags Instruments & Control Systems 37:127-8 F '64

Western simulation council meeting, San Diego, July 17; abstracts of papers. Instruments & Control Systems 36:121+ O '63

Analog computers

Analac general-purpose analogue computer. il diags Automobile Eng 54:403-5 S '64

Analog and digital computers in distribution system analysis. R. C. Loehr. bibliog Am Water Works Assn J 56:1001-8 Ag '64

Analog comparator with digital accuracy. H. Schmid. bibliog diags Electro-Tech 74:108+ S '64

Analogue computation of diffusion controlled recombination equations. H. J. Wintle. bibliog diag J Sci Instr 41:178-9 Mr '64

Analogue computer application in operations research. D. Longley. diags Electronic Eng 36:378-81 Je '64

Analog computer design of an ethylene glycol system. W. A. Parker and J. W. Prados. il diags Chem Eng Prog 60:74-8 Je '64

Analog computer for plasma thermometry. J. B. Shumaker, jr. and C. R. Yokley. Franklin Inst J 276:441-2 N '63

Analog computer method for designing a cooler-condenser with fog formation. D. R. Coughanowr and E. O. Stensholt. bibliog diag Ind & Eng Chem Proc Design 3:369-73 O '64

Analog computer simulation. C. F. Simone. il diags Bell Lab Rec 42:182-7 Je '64

Analog computer study of unstable spin waves. F. R. Morgenthaler. J Ap Phys 35:900-1 pt 2 Mr '64

Analog computers and kinetics of hydrogenation. R. O. Butterfield and others. diags Am Oil Chem Soc J 41:29-32 Ja '64

Analog computer's repetitive mode operation speeds solution of problems. il Control Eng 11:107 F '64

Analogue computers speed hydraulic system design. R. N. Franzle. diags Hydraulics & Pneumatics 17:73-6 Ap '64

Analog ratio computer uses Hall multiplier. H. H. Wieder. il diags Electronics 36:46-7 N 8 '63

Analog simulation. R. P. Benedict. bibliog diags Electro-Tech 72:73-90 D '63 (reprints $1)

Analog simulation of chemical reaction kinetics. T. Matthews. bibliog diags Chem Eng 71:137-40+ Jl 6; 93-6 Ag 3; 77-9 Ag 31 '64

Analogs can do more jobs than ever before. I. C. Gruet. il diags Chem Eng Prog 60:70-4 Mr '64

Application of an analog computer in analytical chromatographic and electrophoretic separations. K. Abel and F. W. Noble. bibliog diag Anal Chem 36:1855-6 Ag '64

Applying analogue computers to industrial process control. W. E Willison. bibliog il diags Ind Electronics 2:62-7 F '64

Automatic analog solution of algebraic equations and plotting of root loci by generalized Mitrović method. P. Kokotović and D. D. Šiljak. bibliog diags IEEE Trans Applications & Ind 83:324-8 S '64

CALCULATING machines—Analog computers —*Continued*

Automatic computation of the area under indicator dilution curves. C. F. Hepner and others. bibliog diags IEEE Trans Com & Electronics 83:541-4 S '64; Correction. 83:705 N '64

Biaxial flexure of columns by analog computers. S. P. Prawel, jr. and G. C. Lee. bibliog diags Am Soc C E Proc 90 [EM 1 no 3805]:83-111 F '64; Discussion. 90 [EM 4 no 4000]:185-7 Ag '64

Blending by analog computer. E. E. L. Mitchell and G. R. Marr, jr. bibliog diags Control Eng 10:107-10 N '63

Circuit to simulate latent heat effects for thermal analog computers. J. E. Sunderland and R. J. Grosh. bibliog diags Food Tech 18:1455-6 S '64

Classification of analog multipliers. O. Celinski and I. H. Rimawi. Instruments & Control Systems 37:149-53+ bibliog(p 155-6) Je '64

Color measurement and the colorant mixture computer in the textile industry. D. Graham. il diags Am Dyestuff Rep 53:673-8 Ag 3 '64

Computer control in the oil industry; analog control computers. G. L. Farrar. il diags Oil & Gas J 62:112+ O 26 '64

Computer for the evaluation of the crimp diameter of textile fibers. M. Shiloh and others. bibliog il diag Textile Res J 34:430-4 My '64

Computer mode control. R. C. Lonick and T. W. Connolly. il diags Instruments & Control Systems 37:139-42 Mr '64

Computer processing of automatic diffractometer data. A. C. T. North. J Sci Instr 41:42-5 Ja '64

Control the real variable. G. T. Byer. bibliog il diags Chem Eng 71:125-30 Jl 6 '64

Converting process equations for analog computer control. G. Platt. diags Control Eng 11:65-8 F '64

Cube-root coordinate color-difference computer. M. E. Faulhaber and P. D. Schnelle. bibliog diags R Sci Instr 35:1157-60 S '64

Desk-top analogue computer. il Engineering 197:796 Je 12 '64

Direct analogue equipment for the study of water distribution networks. R. W. Williams. il diags Ind Electronics 2:457-9 O '64

Direct analogue of a magnetic amplifier. R. E. King. bibliog il diags Radio & Electronic Eng 28:61-6 Jl '64

Electric analogs in time-settlement problems. P. Domenico and G. Clark. bibliog diags Am Soc C E Proc 90 [SM 3 no 3892]:33-51 My '64

Electronic analog. C. R. Horney. diags I S A J 11:61-8 F '64

Energy and vector record-sections. V. Baranov and C. H. Picou. il diags Geophysics 29:17-37 F '64

Equalizer for an electro-magnetic vibrator system employing analogue computing techniques. E. J. Ellis. bibliog il diags Radio & Electronic Eng 27:125-32 F '64

Heath analog computer as a versatile analytical tool. G. W. Ewing and T. H. Brayden, jr. diags Anal Chem 35:1826-8 N '63

Hydrogeologic electric analog computers. W. C. Walton and T. A. Prickett. bibliog diags Am Soc C E Proc 89 [HY 6 no 3695]:67-91 N '63; Discussion. J. Bear. 90 [HY 4 no 3980]:321-3 Jl '64

MURAC, a multiple reflection analog computer. D. Silverman and others. il diags Geophysics 28:975-89 D '63

Napthalene via hydrodealkylation. C. R. Anderson and D. E. Lamb. bibliog diags Ind & Eng Chem Proc Design 3:177-82 Ap '64

Network analogy for linear structures. W. R. Spillers. bibliog diags Am Soc C E Proc 89 [EM 4 no 3601]:21-9 Ag '63; Discussion. 89 [EM 6 no 3774]:277-8 D '63; 90 [EM 1 no 3811]:175-6 F '64; Reply. 90 [EM 4 no 4000]:159 Ag '64

New method for simulation of multicomponent distillation. E. C. Deland and M. B. Wolf. bibliog diags Ind & Eng Chem Proc Design 3:100-6 Ap '64

No problem too small for computers. W. R. Moreland. il S A E J 72:70-1 N '64

Now; solid-state process analog-computer systems. il Oil & Gas J 61:160 D 30 '63

Optimization by Pontryagin's maximum principle on the analog computer. E. S. Lee. bibliog diags A I Ch E J 10:309-15 My '64

Practical instrument synthesizer. C. F. Morrison. bibliog diags Anal Chem 35:1820-6 N '63

Product convertors and their applications. A. Nathan. diags Electronic Eng 36:106-7 F '64

Pulp makers can now tailor control approach. il Chem & Eng N 42:38-9 Ag 24 '64

Putting analog control computers to work. F. M. Ryan. diags Control Eng 11:53-8 Ag '64

Scaling for analog simulation. C. Page. diags Instruments & Control Systems 37:168-72 S '64

Series type d.c. negative resistance for analogue computers. P. V. Indiresan and S. Sataindra. bibliog diags Radio & Electronic Eng 26:417-20 N '63

Simulation and optimal control of chemical processes. E. B. Dahlin and J. M. Nelson. diags Chem Eng Prog 60:49-56 Mr '64

Six-channel adaptive computer. J. L. Douce and K. C. Ng. bibliog diags Inst E E Proc 111:1757-65 O '64

Small analogue computer. il Engineer 217:1164 Je 26 '64

Small analog computers; mighty midgets for solving refining and petrochemical control problems. G. T. Byer. bibliog il diags Oil & Gas J 62:104+ Mr 9 '64

Square-root computer uses Hall multiplier. H. H. Wieder. diags Electronics 37:30-1 Ja 24 '64

Statistical methods for computing over-all system accuracy. C. S. Zalkind and F. G. Shinskey. diags I S A J 10:63-6 O '63

Students use analog computer to stimulate complex reactions for kinetic studies; abstract. R. Griswold and J. F. Haugh. Chem & Eng N 42:74 Ap 13 '64

Study of thermal environment in underground survival shelters using an electronic analog computer. E. E. Drucker and J. T. Haines. diags ASHRAE J 6:81-4 Jl '64

Try signal flow graphs to simplify analog programming; data file. S. M. Becker. diags Control Eng 11:109-11 S '64

Use of an analogue computer to calculate rise-times in transistor logic stages. E. M. Stafford. diags Electronic Eng 36:49 Ja '64

Analog-digital converters

See Calculating machines—Input-output equipment

Automobile engineering applications

Analac general-purpose analogue computer. il diags Automobile Eng 54:403-5 S '64

Better and faster design by machine. L. S. Gomolak. il diags Electronics 37:64-71 Je 1 '64

Chrysler's assembly line computers provide instant quality control data. J. Geschelin. flow chart il Automotive Ind 130:37-9 Je 1 '64

Computer analysis of leaf springs. R. J. Allwood. diags Automobile Eng 54:393-5 S '64

Computers analyze vehicle frames. C. W. Schwabenlender. S A E J 72:33 Ap '64

Ford's digital computer; powerful aid for design and research projects. il Automobile Eng 54:186-8 My '64

From clay to tape to die; a revolution comes to diemaking. il diags Steel 155:50-5 Jl 20 '64

How Chrysler uses computers. J. Geschelin. Automotive Ind 130:91-2 Je 15 '64

More design means less development. il Engineering 197:316 F 28 '64

New tools for quality. L. D. Miller. il Automation 11:37+ My '64

Bibliographic applications

Automatic document classification. H. Borko and M. Bernick. bibliog Assn for Computing Mach J 10:151-62; 11:138-51 Ap '63, Ap '64

Chemical engineering applications

Analog simulation of chemical reaction kinetics; simulating continuous reaction processes. T. Matthews. diags Chem Eng 71:93-6 Ag 3 '64

Analogs can do more jobs than ever before. I. C. Gruet. il diags Chem Eng Prog 60:70-4 Mr '64

Application of a modified conditional probability computer to chemical process optimization. E. B. Tinker and P. N. Nikiforuk. bibliog diags Can J Chem Eng 42:126-31 Je '64

Computer calculation of pressure drop. P. Taylor. il Chem Eng Prog 60:67-70 Ap '64

Computer control of distillation reflux. diags Instruments & Control Systems 37:144 Ap '64

Computer optimization of mixed liquid phases for gas chromatography. R. S. Porter and others. bibliog flow diag Anal Chem 36:260-2 F '64

CALCULATING machines—Chemical engineering applications—*Continued*

Computer soup. Mech Eng 86:130-1 Ap '64
Computers for engineering calculations; how do you figure dollar benefits? Chem Eng 71:111-12 Mr 2 '64
Control the real variable. G. T. Byer. bibliog il diags Chem Eng 71:125-30 Jl 6 '64
Experimental analysis of components. W. E. Schiesser. bibliog diags Chem Eng Prog 60:84-7 Ag '64
Experimental determination of the vapour-liquid equilibrium data for the system acetone-methanol-*iso*propanol. P. Allen and K. A. Pike. bibliog diag Ind Chem 40:260-6 My '64
Feed enthalpy computer control of a distillation column. diags Instruments & Control Systems 37:147 Mr '64
Heat and mass balancing on a digital computer. A. E. Ravicz and R. L. Norman. il diags Chem Eng Prog 60:71-6 My '64
Hybrid simulation of multistage system dynamics. R. G. E. Franks. bibliog flow diag il diags Chem Eng Prog 60:65-9 Mr '64
Large computers gain favor with engineers. il Chem & Eng N 42:48-50 My 4 '64
New methods for simulation of multicomponent distillation. E. C. Deland and M. B. Wolf. bibliog diags Ind & Eng Chem Proc Design 3:100-6 Ap '64
Process heat and material balances. L. M. Naphtali. flow sheets il Chem Eng Prog 60:70-4 S '64
Process optimization by hybrid computer. J. M. Andrews and others. bibliog flow charts il diags Chem Eng Prog 60:57-64 Mr '64
Project engineers to get an on-line computer. diag Chem Eng 71:42+ Mr 30 '64
Role of computers in process development. R. K. Wolfe. bibliog Chem Eng 71:221-4 N 9 '64
Yield studies in packed tubular reactors; results of computed cases. H. S. Mickley and R. W. M. Letts. bibliog Can J Chem Eng 42:21-7 F '64

Civil engineering applications

Computer streamlines pipelaying schedule. J. J. Kennedy. il Pub Works 95:67-9 Ja '64
Cooperative computer center. C. P. C. Tung and D. Carsen. il plan Civil Eng 34:56-9 S '64
Push button programming for the county engineer. il Pub Works 94:97-8 D '63

Control applications

Adaptive controller for a metal cutting process. R. M. Centner and J. M. Idelsohn. bibliog flow diags diags IEEE Trans Applications & Ind 83:154-61 My '64
Applying analogue computers to industrial process control. W. E. Willison. bibliog il diags Ind Electronics 2:62-7 F '64
Automation makes rapid strides in the power field; special section. il diag Power Eng 68:34-41 My '64
Car body finishing temperatures monitored. il Engineering 197:89 Ja 17 '64
Common control for an electronic private branch exchange. E. L. Seley and F. S. Vigliante. il diags IEEE Trans Com & Electronics 83:321-9 Jl '64
Commuter and computer. L. S. Gomolak. il Electronics 37:87-9 Jl 13 '64
Compounding by computer. J. C. Fritz. flow chart diag Rubber Age 94:286-9 N '63
Computer calculates mill settings during rolling. il Automation 11:59-61 Je '64
Computer control comes of age. G. L. Farrar. bibliog il diag Oil & Gas J 61:77-84+ O 28 '63
Computer control for plate mill. Engineer 218:588 O 9 '64
Computer control grows on job; Prodac 50. W. N. Redstreake. il Iron Age 193:65 My 14 '64
Computer control in the oil industry. G. L. Farrar. bibliog il diags Oil & Gas J 62:89-114 O 26 '64
Computer control of cement kiln feed blending. I. Hay. il diags Instruments & Control Systems 37:134-8 Jl '64
Computer control of materials handling; abstract. R. P. Noonan. Automation 11:146+ Je '64
Computer control of steelworks production. J. T. Jones and N. J. Williams. il plan diags Inst E E Proc 111:1183-92 Je '64
Computer control; power plants join industry-wide advance. R. K. Evans. il diags Power 108:189-94 S '64
Computer-controlled testing system. H. P. Briar. bibliog il diag Instruments & Control Systems 37:119-20 Je '64
Computer controls continuous digester in manufacture of paper pulp. W. E. Smith and E. C. Fox. il diag Automation 11:82-6 F '64
Computer controls quality. il Tool & Manuf Eng 52:78-9 Je '64
Computer controls two kilns at Japanese cement plant. V. A. Kaiser and Y. Schioya. il diag Rock Prod 67:88+ F '64
Computer for process control applications. il Automation 11:97 S '64
Computer helps SKF boost testing capacity. il Steel 154:60-2 Je 22 '64
Computer impact on control technology. R. G. Lex, jr. and W. P. Hamilton. il Automation 11:73-5 Je '64
Computer in the boiler room rejuvenates old ore carrier. il Machine Design 36:8 Jl 2 '64
Computer is developed specifically for major industrial processes. Iron & Steel Eng 41:208 O '64
Computer keeps tabs on new EDF plant near Paris. P. Liebray and B. Copin. il diags Elec World 162:46-9 Ag 24 '64
Computer mode control. R. C. Lonick and T. W. Connolly. il diags Instruments & Control Systems 37:139-42 Mr '64
Computer regulates gas flow. F. N. Woodruff. diag Oil & Gas J 62:90-2 My 4 '64
Computer-run warehousing; blended automation and men. J. A. Eaton. il diag Mod Materials Handling 19:38-42 N '64
Computer to control plate mill. il Engineering 198:451 O 9 '64
Computerized system improves machinery maintenance efficiency. L. W. Collins, jr. il diags Mach 70:101-10 My '64
Computers in cement. Electronics 37:34 Ag 10 '64
Computers talk back, keep process in line. il Plant Eng 18:148-9 O '64
Computing power station performance. P. Westercamp. diags Control Eng 10:72-5 D '63
Consider all potential savings when justifying process control computers. R. F. Jakubik and others. Automation 11:81-4 Mr '64
Control computers boom in Britain. D. Barlow. Control Eng 11:30 Je '64
Control of kiln operations with a digital computer; Riverside division of American cement corp. L. W. Weeks. il Min Cong J 50:42-5 Je '64
Control theory. R. Bellman. il diags Sci Am 211:186-90+ S '64
DSI 1000 digital computer now ready for use. il Oil & Gas J 62:203 S 21 '64
Design for ddc employs plug-in programming. il Control Eng 11:97 Jl '64
Digital adaptive control system employing a normalised performance index. J. M. Nightingale. bibliog flow chart diags Inst E E Proc 111:165-72 Ja '64
DigiTele control computer. il Mach 70:202 Je '64
Direct digital control at the threshold. H. F. Kloch and J. D. Schoeffler. bibliog il diags Electronics 37:49-55 Mr 23 '64
DDC, direct digital control; symposium, 6th, Anaheim, April 6-8; abstracts of papers. Instruments & Control Systems 37:95-8 Je '64
Direct digital control; first two years are the hardest. diag I S A J 11:22 Je '64
Direct digital control in industry; special report. L. S. Gomolak. il diags Electronics 37:73-96 O 5 '64
Direct digital control nears readiness. il Chem & Eng N 42:21-2 My 18 '64
Direct digital control of plant. il Engineer 218:587 O 9 '64
Direct-digital-control study started as joint effort. diag Oil & Gas J 62:80 Ag 10 '64
Direct digital control takes shape. diags Chem & Eng N 42:66-7 O 26 '64
Do control computers look good on paper? D. Aronson. il Control Eng 11:18-19 My '64
Electronic-private-branch-exchange telephone switching system. W. A. Depp and M. A. Townsend. diags IEEE Trans Com & Electronics 83:329-31 Jl '64
Electronics in a new steel plant. il Ind Electronics 2:419-20 S '64
Exit computers. Electronics 37:27-8 Mr 23 '64
Expandable system remotely controls 138/34.5-kv substation. S. J. Brocato and A. B. Stevens. il diags Elec World 160:57-9 O 21 '63
Hot strip steel mills; computer control begins to pay out. diags Control Eng 10:24-5 D '63

CALCULATING machines—Control applications *—Continued*

How computers align phased-array radars. A. G. Kramer and A. Slocum. diags Electronics 36:29-33 N 15 '63

How Sara Lee tackled computerized handling. G. C. Thomas. diag Mod Materials Handling 19:34-7 Ag '64

How to evaluate control computers. G. C. Hendrie and R. W. Sonnenfeldt. flow chart Combustion 35:22-8 D '63

How to plan for a computer system. N. D. Payne and J. W. Pierce. flow chart Steel 154:29-31 Ja 13 '64

Low-cost computer control system for industrial applications. il diag Engineer 218:470-2 S 18 '64

Marketing industrial control computers. S. Feldman. il Electronic Ind 22:32-6 D '63

National power instrumentation symposium, 7th. Denver, May 18-20; abstracts of papers. Combustion 36:29-34 Jl '64

New computer control system at Northwestern States Iowa plant. R. E. Campbell. Pit & Quarry 56:134-6 F '64

New formula for management control NAMDA + computer = on-time deliveries. G. L. Morrisroe. il Tool & Manuf Eng 53: 45-8 O '64

New GE process computer system previewed at Chicago premiere. il Pit & Quarry 57: 24 S '64

New world of industrial control. B. K. Ledgerwood. il diags Mech Eng 86:37-49 Jl '64

Northwestern States' computer-controlled kiln in operation. il Rock Prod 67:122 Mr '64

Optimal synthesis of linear pulse-width-modulated computer-controlled systems. G. J. Murphy and T. Meksawan. bibliog diags Franklin Inst J 277:128-39 F '64

Papermill computer keeps the books. F. M. Ryan. il diags Control Eng 11:110-16 O '64

Phillips petroleum co. tries DDA computer for distillation columns control. M. L. Johnson and others. il diags Control Eng 11:68-73 Ag '64

Priority considerations in control computers. R. S. Banks and R. E. Hohmeyer. il Automation 10:83-5 N '63

Putting analog control computers to work. F. M. Ryan. diags Control Eng 11:53-8 Ag '64

Simple computer cuts billets five ways. J. P. Clyne. diags Control Eng 11:81-4 F '64

Solution to the sampled, minimum-time problem. R. W. Koepcke. bibliog A S M E Trans ser D 86:145-50 Mr '64

Standard analogue digital elements. il Engineer 217:623 Ap 3 '64

Startup at Riverside. E. J. Kompass. il Control Eng 11:69-73 Ja '64

Successful start, operation of 300-mw unit verifies computer control. il diag Elec World 161:64-7+ My 4 '64

Taking the giant step in power plant automation; Gulf States Utilities' Riverside station. H. S. Drewry and J. R. Howard. il diag I S A J 11:53-60 Jl '64

Time system features versatile school facilities programing at multi-building Eden Sawyer junior high school in Cincinnati. J. P. Goode and G. W. Archiable. il diags Elec Constr & Maint 63:91-3 Ag '64

Universal bonding with a computer. il diags Am Mach 108:112 Ja 20 '64

Users see no big changes for direct digital control. I S A J 11:20 Je '64

Warehouse computer links order picking with invoicing. C. L. Philps and L. Rowland. il diag Control Eng 11:101-2 Mr '64

Westinghouse introduces low-cost computing control system. il Automation 11:12 Je '64

Design

Approach to artificial intelligence. R. W. House and T. Rado. diags IEEE Trans Com & Electronics p 111-16 Ja '64

Case for magnetic logic. J. Rogers and J. King. il diags Electronics 37:40-7 Je 1 '64

Computer features microelectronics. il Electronic Ind 23:166-8 My '64

Computer simulation of digital systems. A. Baker. diags Electro-Tech 74:87-9 S '64

Computers, a microelectronic triumph. il Product Eng 35:89-90 Ap 27 '64

Control of properties of magnetic thin films for shifting registers. A. C. Tickle. J Ap Phys 35:768-9 pt 2 Mr '64

Design and application of computers for radar data processing. R. A. Ballard and L. Moore. Radio & Electronic Eng 26: 407-15 N '63

Designing noise immunity into high-speed circuits. D. R. Gipp. diags Electronics 37:66-72 S 7 '64

Detail design in the electronic computer industry. F. L. Westwater. il diags Engineer 217:998-9 Je 5 '64

Developing a computer system; IBM's 360 family. il Engineer 217:1159 Je 26 '64

Digital Loran-C receiver uses microcircuits. R. L. Frank and A. H. Phillips. il diags Electronics 37:23-7 Ja 31 '64

Direct digital control in industry; special report. L. S. Gomolak. il diags Electronics 37:73-96 O 5 '64

How to achieve majority and threshold logic with semiconductors. W. A. Sauer. bibliog diags Electronics 36:23-5 N 29 '63

Impact of the users' needs on the design of data processing systems; conference, Edinburgh, March 31-April 3. Engineer 217:651 Ap 10 '64

Interwoven redundant logic. W. H. Pierce. bibliog diags Franklin Inst J 277:55-85 Ja '64

Microelectronic computer. il Mech Eng 86: 58-9 Je '64

New circuits for computers. H. Moss. Electronics 37:25-6 O 19 '64

New computer system offered in six models; IBM's System/360. il diag Oil & Gas J 62: 152-3 My 11 '64

New microelectronic computer system. Franklin Inst J 278:68 Jl '64

New radiation-resistant computer circuits. Franklin Inst J 278:69-70 Jl '64

New semiconductor networks reduce system complexity. C. R. Cook, jr. and B. M. Martin. il(cover) diags Electronics 37:25-9 Ja 10 '64

Plug-together units form fastest computer for any problem. il Machine Design 36:14 Ap 23 '64

Realisation of fourth-order rational transfer functions with adjustable coefficients. R. J. A. Paul. diags Inst E E Proc 111:877-82 My '64

Redundancy in computers. W. H. Pierce. il diags Sci Am 210:103-6+ F '64

Seven configurations for real-time computer systems. R. V. Head. diags Control Eng 11: 104-8 Je '64

Signal switching with magnetic elements. H. D. Crane and W. K. English. bibliog il diags IEEE Trans Com & Electronics 83: 486-94 S '64

Solid logic computer. il Engineer 217:708 Ap 17 '64

Digital computers

ADDAPS; Automatic digital dispatch and processing system. H. W. Lydick and J. F. Sutherland. il map diag Westinghouse Eng 24:66-71 My '64

ALPAK system for nonnumerical algebra on a digital computer. W. S. Brown; J. P. Hyde. bibliog diags Bell System Tech J 42:2081-119; 43:785-804, 1547-62 S '63, Mr, pt 2 Jl '64

Analog and digital computers in distribution system analysis. R. C. Loehr. bibliog Am Water Works Assn J 56:1001-8 Ag '64

Analysis of pipeline networks. D. M. Ingels and J. E. Powers. bibliog il diags Chem Eng Prog 60:65-70 F '64

Analysis of the relative information rates in digital systems using case coding. P. T. Bason. bibliog diags Inst E E Proc 111:685-92 Ap '64; Discussion. 111:1421 Ag '64

Application of a small digital computer to research and development work. G. B. Pratt. bibliog il Food Tech 18:512-15 Ap '64

Automatic circuit tester. K. Wakeen. il diags Electronics 37:76-80 Jl 27 '64

Automatic drafting and plotting units produce drawings from digital information. il Iron & Steel Eng 41:166 Ap '64

Calculation of total-intensity magnetic anomalies for certain bodies by digital computer. J. T. Hughson. maps diags Geophysics 29: 54-66 F '64

Computation of surface tension and of contact angle by the sessile-drop method. D. N. Staicopolus. bibliog J Colloid Sci 17:439-47; 18:793-4 Je '62, O '63

Computer as a design tool; MIT approach. bibliog diags Electro-Tech 72:112-15+ N '63

Computer color matching. E. I. Stearns. bibliog Am Dyestuff Rep 53:668-72 Ag 3 '64

Computer control in the oil industry; digital control computers in petrochemicals. G. L. Farrar. Oil & Gas J 62:103-4+ O 26 '64

CALCULATING machines—Digital computers— *Continued*

Computer control in the paper mill. E. S. Savas. bibliog diags Tappi 47:sup 164A-8A F; sup 149A-52A Mr; sup 181A-8A Ap; sup 127A-33A My '64

Computer equipment comparisons (cont). Control Eng 11:103-8 Mr; 115-20 Ap; 115-20 My; 77-83 Jl '64

Computer; fluid logic. il Product Eng 35:78 O 26 '64

Computer programs for circuit design. H. Falk. Electro-Tech 73:101-4+ Mr '64

Computer schedules instrument inspection. K. L. Alvey and W. F. Parker. il Plant Eng 18:146-7 Jl '64

Computer simplifies control of Candu. il Can Chem Process 48:65-7 My '64

Computer simulation of digital systems. A. Baker. diags Electro-Tech 74:87-9 S '64

Computer study of transient spin-wave build-up in ferrites. K. J. Harker and H. J. Shaw. J Ap Phys 35:902-3 pt 2 Mr '64

Computing the performance of gasoline engines. G. Walker. bibliog Engineer 217:562-8 Mr 27 '64

Conditioned-reflex circuits. J. C. Wehr. bibliog diags Electronics 37:66-70 Ag 24 '64

Continuous carbon determination in the basic oxygen processes. J. Dumont-Fillon and others. il diag J Metals 16:508-11 Je '64

Control model formulation for the pulp and paper industry. T. K. McMahon. bibliog flow diag Tappi 47:84-8 F '64

Control traverses and their adjustment. E. D. Morse. bibliog maps diag Am Soc C E Proc 89 [SU 2 no 3546]:39-53 Je '63; Discussion. 89 [SU 3 no 3684]:225-8 O '63; 90 [SU 1 no 3885]:81-4 Ap '64

Conversion of laboratory data for computer analysis. H. E. Tompkins. bibliog Am J Pub Health 53:1953-9 D '63

Darcy equation for pipe network analysis. K. M. Yao. bibliog diag Am Water Works Assn J 56:703-9 Je '64

Data-handling equipment for a high-speed wind tunnel. F. Shaw. il diags Ind Electronics 2:316-20 Jl '64

DSI 1000 digital computer now ready for use. il Oil & Gas J 62:203 S 21 '64

Design principles of the magnetic tape system for the Atlas computer. D. B. G. Edwards and others. bibliog diags Radio & Electronic Eng 27:65-73 Ja '64

Desk computer. P. Linebarger. il diag Instruments & Control Systems 37:145-53+ O '64

Digital analysis of electron-optical systems. B. A. Carré and W. M. Wreathall. bibliog diags Radio & Electronics Eng 27:446-54 Je '64

Digital computer analysis of the tunnel diode relaxation oscillator. A. L. Riemenschneider and C. W. Cox. diags Electronic Eng 36:382-5 Je '64

Digital computer applied to styrene cracking. V. S. Morello. il diags Oil & Gas J 62:90-3 F 24 '64

Digital-computer iterative methods. R. Townsend. bibliog flow chart diags Electro-Tech 72:102-4+ D '63

Digital-computer method for the calculation of power flow in an a.c.-d.c. interconnected power system. T. Horigome and N. Ito. bibliog flow chart diags Inst E E Proc 111:1137-44 Je '64

Digital computer schedules Colonial operations from startup. R. Techo and others. diags Oil & Gas J 62:94-100 Ap 13 '64

Digital computer simulation of a four-phase data transmission system. M. A. Rappeport. bibliog diags Bell System Tech J 43:927-64 My '64

Digital computer system for dynamic analysis of speech and sound feedback mechanisms. K. U. Smith and others. il diags Assn for Computing Mach J 11:240-51 Ap '64

Digital computers and environmental control. G. P. Fisher and W. R. Lynn. Am Soc C E Proc 90 [PP 1 no 3749]:15-20 Ja '64

Digital computers in communications design. D. Wood and others. diags Electro-Tech 73:39-43 F '64

Digital counter logic. H. F. Najjár. bibliog diags Electro-Tech 74:26-36 Jl '64

Digital instrumentation; special report. G. J. Flynn. bibliog il diags Electronics 37:57-72, cover My 18 '64

Digital techniques for an attitude-control system. C. S. Burlingham and H. C. Daubert, jr. diags Electro-Tech 73:34-8 Ap '64

Digital voltmeter (DVM). il Instruments & Control Systems 37:101-7 Je '64

Digitally controlled display system. il Automation 11:185 Ap '64

Direct digital control at the threshold. H. F. Kloch and J. D. Schoeffler. bibliog il diags Electronics 37:49-55 Mr 23 '64

Direct digital control; first two years are the hardest. diag I S A J 11:22 Je '64

Direct digital control hardware now available. il Ind & Eng Chem 56:71 Jl '64

Direct-digital control in automation spotlight. Chem Eng 71:88+ Je 22 '64

Direct digital control in industry; special report. L. S. Gomolak. il diags Electronics 37:73-96 O 5 '64

Direct digital control of plant. il Engineer 218:587 O 9 '64

Direct-digital-control study started as joint effort. diag Oil & Gas J 62:80 Ag 10 '64

Electronic digital ratio equipment. A. Russell. bibliog il diags Radio & Electronic Eng 27:197-207 Mr '64

Error analysis and compensation with a differential digital analyzer. C. Page. Instruments & Control Systems 37:141-4 Jl '64

Esso joins direct digital control ranks. il Chem & Eng N 42:58 My 11 '64

Experimental digital computer operates on pneumatic system. Chem & Eng N 42:74+ O 26 '64

For nuclear-particle analysis; computers or multichannel analyzers? R. J. Spinrad. bibliog diag Nucleonics 21:46-9 D '63

Function evaluation in unnormalized arithmetic. R. L. Ashenhurst. Assn for Computing Mach J 11:168-87 Ap '64

Generating random numbers. C. Hammer and L. G. Green. il Instruments & Control Systems 37:149-50 My '64

Heat and mass balancing on a digital computer. A. E. Ravica and R. L. Norman. il diags Chem Eng Prog 60:71-6 My '64

In-line blending spurred by digital control. il diag Chem Eng 71:80-2 Ap 27 '64

Incremental digital recorder puts more data on less tape. F. Beeler. il diags Electronics 37:48-51 Je 29 '64

Input data source limitations for real-time operation of digital computers. R. Schroeder. Assn for Computing Mach J 11:152-8 Ap '64

Instrumenting cement plants for digital computer control. D. D. Bedworth and J. R. Faillace. flow chart il diags I S A J 10:47-54 N '63

IBM burns its bridges. L. H. Young. il diag Electronics 37:101-3 Ap 20 '64

IBM redesigns computer line. il Automation 11:13-14 My '64

IBM system/360. il I S A J 11:32+ Je '64

Japanese steelmen hedge on computer processing. Electronics 37:73 F 7 '64

Machine computation of association constants from spectrophotometric data; an analysis of errors. K. Conrow and others. bibliog Am Chem Soc J 86:1025-9 Mr 20 '64

Maximum demand power indicator. G. Cooper. il diags Ind Electronics 2:267-72 Je '64

Message route control in a large teletype network. M. Pollack. bibliog diags Assn for Computing Mach J 11:104-16 Ja '64

Microelectronics in equipment design. S. S. Forte. il diags Electronic Eng 36:586-90 S '64

New computers are changing printing industry production techniques. J. N. Pannullo. il plan Inland Ptr/Am Lithogr 153:60-1 Je '64

New computers claimed reliable for ten years. Steel 154:47 F 10 '64

No problem too small for computers. W. R. Moreland. il S A E J 72:70-1 N '64

On-line computer control of a hot strip finishing mill for steel. R. G. Beadle. il diags Iron & Steel Eng 41:71-8; Discussion. 78-80 Jl '64

On-line operation of a digital computer in nuclear physics experiments. J. F. Whalen and others. il diags R Sci Instr 35:682-90 Je '64

Performance and the flux patterns of a special shape multi-aperture device. D. J. Morris. bibliog il diags Radio & Electronic Eng 27:153-63 F '64

Picking a plantsite by digital computer. il Chem Eng 71:88+ Ja 20 '64

Prepare data tables for digital computer use. A. E. Harkins. diag Hydrocarbon Process & Pet Refiner 43:93-4 F '64

Principles of digital filtering. E. A. Robinson and S. Treitel. bibliog diags Geophysics 29:395-404 Je '64

Proposed optoelectronic method of achieving very fast digital logic. E. H. Cooke-Yarborough and others. bibliog diags Inst E E Proc 111:1641-52 O '64

CALCULATING machines—Digital computers— *Continued*

Role of computers in process development. R. K. Wolfe. bibliog Chem Eng 71:221-4 N 9 '64

Scanning and measuring projector. P. G. Davey and others. bibliog il diags R Sci Instr 35:1134-46 S '64

Single-scan techniques for the translation of arithmetic expressions in ALGOL 60. B. Randell and L. J. Russell. bibliog Assn for Computing Mach J 11:159-67 Ap '64

Small computer suited to direct digital control. il Control Eng 11:117 Je '64

Small engineering computers. F. J. Lavoie. il diag Machine Design 36:154-63 O 22 '64

Solution to the sampled, minimum-time problem. R. W. Koepcke. bibliog A S M E Trans ser D 86:145-50 Mr '64

Successful start, operation of 300-mw unit verifies computer control. il diag Elec World 161:64-7+ My 4 '64

Symposium on process automation, 6th, Anaheim, April 6-8; abstracts of papers on direct digital control. Instruments & Control Systems 37:95-8 Je '64

Synthesis of linear time-varying systems by Fourier approximation in the frequency domain. R. F. Brown. bibliog diags Inst E E Proc 111:1151-8 Je '64

Take two tons of flour; Nabisco's batching system controlled by computer. L. S. Gomolak. il diags Electronics 37:82-9 Ap 20 '64

Three computers debut in New York. I S A J 11:32 My '64

Time-averaging units make nmr and epr systems more sensitive. Chem & Eng N 42:48 Mr 23 '64

Time-shared time-of-flight analysis by computer. R. E. Chrien and others. bibliog flow diag diags R Sci Instr 35:1150-6 S '64

Univac displays fluid operated digital computer. il Steel 155:42-3 O 19 '64

Universality of tag systems with $P = 2$. J. Cocke and M. Minsky. bibliog Assn for Computing Mach J 11:15-20 Ja '64

Users see no big changes for direct digital control. I S A J 11:20 Je '64

What to expect from direct-digital control. T. J. Williams. bibliog diags Chem Eng 71:97-102+ Mr 2 '64

Words in the history of a Turing machine with a fixed input. M. O. Rabin and H. Wang. Assn for Computing Mach J 10:526-7 O '63

Electric engineering applications

All-digital utility computer system. Westinghouse Eng 24:56 Mr '64

Arizona public service co's automatic digital dispatch and processing system in operation. il Elec World 160:128-9 D 2 '63

Automate transformer design-engineering. il Elec World 161:73-4 Ja 13 '64

Automated design: electronic relief from routine. il Machine Design 36:150-3 F 13 '64

Automatic digital computer program for setting transmission line directional overcurrent relays. H. Y. Tsien. flow charts diags IEEE Trans Power Apparatus & Systems 83:1048-53 O '64

Automatic dispatch links two utilities. V. Converti. il map Elec World 161:24-6 Ap 13 '64

Automation makes rapid strides in the power field; special section. il diag Power Eng 68:34-41 My '64

Cards speed line profile calculation. R. P. Davenport. il diag Elec World 161:48 F 10 '64

Central station computer systems achieve worldwide application. il diag Power 108: 74-5 O '64

Computer analysis of dc motor control. R. S. Hamby. diags Control Eng 10:100-2 N '63

Computer applications; texts of papers. bibliog flow diags IEEE Trans Power Apparatus & Systems 83:305-421 Ap '64; Discussion. 83:442-9, 542-51 Ap-My '64

Computer control of power systems. il diag Engineer 218:535-6 O 2 '64

Computer-directed control set for '66. il Elec World 162:62 N 2 '64

Computer directs analog control system. K. K. Dols and others. il Elec World 161: 92-3+ Je 15 '64

Computer model picks ehv conductors. J. J. Laforest and C. B. Lindh. il Elec World 160:91-3 D 2 '63

Computer procedure for single-phase induction motor calculation and design. K. J. Waldschmidt. bibliog flow chart diag IEEE Trans Power Apparatus & Systems p867-75 D '63

Computer produces engineering designs. Franklin Inst J 277:290 Mr '64

Computer program applies, sets, checks relays. R. E. Albrecht and others. flow diag Elec World 161:92-3 My 18 '64

Computer programs for circuit design. H. Falk. Electro-Tech 73:101-4+ Mr '64

Computer puts finger on hidden heat loads. R. C. Stevenson, jr. diags Elec World 161: 18-19 Ja 20 '64

Computer smooths pumped-storage intricacies. J. W. Skooglund. diags Elec World 161:90-1 My 18 '64

Computer studies of transient stability of power systems. Engineer 217:239 Ja 31 '64

Computer study guides grid growth. R. H. Arnold. diag Elec World 162:45+ Ag 24 '64

Computer techniques applied to exchange outside plant engineering. R. W. Amory and R. A. Trachy. diags IEEE Trans Com & Electronics p46-54 Ja '64

Computer to cope with catastrophe; automatic control of the National electricity grid. il Engineering 198:450-1 O 9 '64

Computer uses logic to direct engineering. P. J. Cathey. il Iron Age 193:84-6 Mr 26 '64

Computerize transformers design engineering. W. Long. il Elec World 161:136+ Ap 6 '64

Computers and engineers. J. R. Mortlock. bibliog diags Inst E E Proc 111:153-6 Ja '64

Computers make progress at two utilities. il Elec World 160:72-3 O 21 '63

Design of single-phase induction motors using a digital computer. L. M. Buchanan and T. F. Winters. diags IEEE Trans Power Apparatus & Systems p891-6 D '63

Design of small d-c machines with a digital computer. L. E. Welch. flow diags diag IEEE Trans Power Apparatus & Systems p 1099-106 D '63

Digital-computer method for the calculation of power flow in an a.c.-d.c. interconnected power system. T. Horigome and N. Ito. bibliog flow chart diags Inst E E Proc 111: 1137-44 Je '64

Digital computer program speeds voltage-drop calculations. R. G. Myers. diag Elec World 160:44+ D 30 '63

Digital load flow program for 1,000-bus systems. J. H. Cronin and M. B. Newman. flow diag IEEE Trans Power Apparatus & Systems 83:718-20 Jl '64

Direct analogue of a magnetic amplifier. R. E. King. bibliog il diags Radio & Electronic Eng 28:61-6 Jl '64

Direct calculation of transmission loss formula. H. H. Happ and others. IEEE Trans Power Apparatus & Systems 83:702-7; Discussion. 757-60 Jl '64

Electronic system compiles takeoffs. il Eng N 172:74-5 Je 4 '64

Expandable system remotely controls 138/34.5-kv substation. S. J. Brocato and A. B. Stevens. il diags Elec World 160:57-9 O 21 '63

First computer-controlled power plant, Riverside station, Gulf states utilities co. J. A. Reich and T. H. Bloodworth. il Mech Eng 86:40-3 Je '64

Gaming techniques guide system design. Elec World 161:138+ F 24 '64

How the grid is designed to take it. diag Engineering 198:187-8 Ag 7 '64

Machine-aided preparation of electrical diagrams. H. M. Kalish. il diags Bell Lab Rec 41:338-45 O '63

Machine printing of flow diagrams for digital load-flow solutions. J. L. Bloodworth. diag IEEE Trans Power Apparatus & Systems p901-3 D '63

Mathematical models help automate Iowa power pool planning. C. E. Parks and H. E. Lokay. flow diag Power Eng 67:71-2 N '63

Numerical techniques in solution of power-system load-flow problems. M. A. Laughton and M. W. H. Davies. bibliog flow diag diags Inst E E Proc 111:1575-88 S '64

On-line control computers are increasing. H. L. Smith. diag Elec World 162:56-7+ S 7 '64

On the way to full automation of power plants; three papers. H. Zwetz and others. bibliog diags Combustion 35:31-41 N '63

Optimize Hawaiian underground distribution. J. F. Richardson, jr. and others. flow chart diags Elec World 162:64-6+ Ag 10 '64

Plan digital dispatch of 12 units. W. B. Simonds. map Elec World 161:56-7 Ja 27 '64

Power-system governor simulation. J. L. Dineley and E. T. Powner. bibliog diags Inst E E Proc 111:115-24 Ja '64; Discussion. 111:1446-52 Ag '64

CALCULATING machines—Electric engineering applications—*Continued*

Probability math shows benefits of pooling. J. H. Cronin. Elec World 162:66-8 Jl 13 '64

Secondary system distribution planning for load growth. R. M. Webler and others. bibliog flow diag diags IEEE Trans Power Apparatus & Systems p908-23; Discussion. 923-7 D '63

Spotting of transmission towers by computer. L. H. Bartelink. diags Eng J 47:25-32 Jl '64

Stabilized doubly fed synchronous-induction machine; test results and computer solutions. N. L. Schmitz and V. D. Albertson. bibliog diags IEEE Trans Power Apparatus & Systems 83:858-64 Ag '64

Study of power-system transient stability by a combined computer. L. J. Dineley. bibliog diags Inst E E Proc 111:107-14 Ja '64; Discussion. 111:1446-52 Ag '64

Synthesis of linear time-varying systems by Fourier approximation in the frequency domain. R. F. Brown. bibliog diags Inst E E Proc 111:1151-8 Je '64

Techniques for the diagnosis of switching circuit failures. J. M. Galey and others. bibliog diags IEEE Trans Com & Electronics 83:509-14 S '64

Three computers give automated control. il Elec World 162:65 O 5 '64

Transformers being manufactured at the I-T-E circuit breaker co. are computer-designed. il Product Eng 35:47 Ja 20 '64

Using a computer for circuit analysis. H. M. Wall. il diags Electronics 37:56-61 N 2 '64

Using the computer for integrated circuit analysis. L. C. Drew and A. G. Atwood. diags Electronic Ind 23:52-7 Jl '64

Utilities pass milestone in automated power plants. il Elec World 160:78 N 4 '63

Failure

Dual power supplies boost computer reliability. C. J. Armour. diag Control Eng 11:103 Ja '64

Interwoven redundant logic. W. H. Pierce. bibliog diags Franklin Inst J 277:55-85 Ja '64

Gas engineering applications

Automated compressor station overcame severe winter test; Mountain Fuel Supply's Nightingale station. Oil & Gas J 62:105-7 My 4 '64

Automating remote stations. J. W. Joyner and B. P. Elder. diags J Pet Tech 16:757-9 Jl '64

Computer defines gas field in record time. Gas 40:131 N '64

Computer regulates gas flow. F. N. Woodruff. diag Oil & Gas J 62:90-2 My 4 '64

Computered dispatching cuts costs, ups efficiency for Pacific Gas. il diag Oil & Gas J 62:146+ Ag 3 '64

Computerized pipeline data-gathering and control. R. P. Sanders and R. E. Schauer. il map diag Gas Age 131:21-5 O '64

Computers control wellhead, replace chart meters in Louisiana gas field. W. B. Bleakley. il diag Oil & Gas J 61:184+ N 11 '63

Cut vessel flange costs by computer. T. H. Korelitz. diags Hydrocarbon Process & Pet Refiner 43:125-9 Jl '64

Designing distribution systems by computer. G. K. Dippon. map plans Gas 40:51-61 S '64

Dividends from edp. E. C. Zajac. il Gas 40:51-5 Ap '64

Flow computers for gas measurement. M. J. Sergesketter. il Am Gas Assn Mo 46:27-9 O '64

Gas-flow computations now electronically performed. Oil & Gas J 62:94 S 28 '64

Largest well-data system shaping up. map Oil & Gas J 62:82-3 My 11 '64

Pipeline operation by the numbers. flow charts il diag Gas Age 131:34-6 Jl '64

Pocket computers control remote engines on TGP pipeline. F. A. Schmidt. il Oil & Gas J 62:64-6 Ag 31 '64

Hybrid computers

Computer to count on; hybrid integrated circuits are making the guidance computer for Saturn V. il diags Electronics 37:82-4 N 2 '64

Hybrid computation techniques in simulation; abstracts of papers. diags Instruments & Control Systems 36:149-51+ N '63

Hybrid computations applied to countercurrent processes. A. Frank and L. Lapidus. bibliog il diag Chem Eng Prog 60:61-6 Ap '64

Hybrid computer; end of an argument? S. B. Ruth. il Electronic Ind 22:38-41 D '63

Hybrid computer with added flexibility. il Engineering 196:637 N 15 '63

Hybrid computers at the University of Arizona. T. Korn and H. K. Skramstad. il Instruments & Control Systems 36:119-20 O '63

Hybrid computing system. il Mech Eng 86:56 S '64

Hybrid simulation of multistage system dynamics. R. G. E. Franks. bibliog flow diag il diags Chem Eng Prog 60:65-9 Mr '64

More hybrid computers become available. il Chem & Eng N 42:51-2 My 4 '64

Process optimization by hybrid computer. J. M. Andrews and others. bibliog flow charts il diags Chem Eng Prog 60:57-64 Mr '64

Hydraulic engineering applications

Adaptive, digital river flow predictor for power dispatch. E. B. Dahlin and E. Kindingstad. bibliog diags IEEE Trans Power Apparatus & Systems 83:320-7 Ap '64

Hydrogeologic electric analog computers. W. C. Walton and T. A. Prickett. bibliog diags Am Soc C E Proc 89 [HY 6 no 3695]:67-91 N '63; Discussion. J. Bear. 90 [HY 4 no 3980]:321-3 Jl '64

Lost River system, a water quality management study. G. T. Orlob and P. C. Woods. bibliog flow diags map plan Am Soc C E Proc 90 [HY 2 no 3815]:1-22 Mr '64

Project yields by a probability method. W. D. Maughan and R. Y. Kawano. bibliog map Am Soc C E Proc 89 [HY 3 no 3513]:41-60 My '63; Correction. 89 [HY 5 no 3656]:171 S '63; Discussion. 89 [HY 6 no 3708]:279-86 N '63; 90 [HY 1 no 3783]:273-6 Ja '64; Reply. 90 [HY 3 no 3911]:327-30 My '64

Solution of highly curvilinear gravity flows. T. S. Strelkoff. bibliog diags Am Soc C E Proc 90 [EM 3 no 3950]:195-221 Je '64; Discussion. H. Rouse. 90 [EM 5 no 4093]:467-70 O '64

Streamflow records by digital computer. E. J. Kennedy. il Am Soc C E Proc 89 [IR 3 no 3625]:29-36 S '63; Discussion. R. C. Rice. 89 [IR 4 no 3746]:71-2 D '63; Reply. 90 [IR 3 no 4028]:75-6 S '64

Waterhammer analysis of pipelines. V. L. Streeter. bibliog diags Am Soc C E Proc 90 [HY 4 no 3974]:151-72 Jl '64

Input-output equipment

A.E.I. introduce an alpha-numeric display. il Ind Electronics 2:217-18 My '64

Analog-to-digital conversion of any k out of n signals. R. J. Spinrad. R Sci Instr 34:1269-70 N '63

Application of a repetitive function synthesizer to generation of very low frequency signals and noise. J. R. James and M. H. N. Potok. il diags Electronic Eng 36:12-15 Ja '64

Automatic film-badge reader improved. R. B. Purcell and others. il diag Nucleonics 21:66-8 N '63

Cathode-ray tube input-output station for computers. il Electronics 37:58-9 Mr 6 '64

Character recognition, information interchange headed for world standardization. Mag of Stand 35:217-18 Jl '64

Chart reader and statistical analyser. J. A. Phillips. il diags Electronic Eng 36:216-20 Ap '64

Computer runs message center. A. A. McKenzie. il Electronics 37:64 F 7 '64

Computer talks on the telephone to answer questions. il Machine Design 36:14 F 27 '64

Computers speak with pictures. diags Product Eng 35:66-7 S 14 '64

Cube-root coordinate color-difference computer. M. E. Faulhaber and P. D. Schnelle. bibliog diags R Sci Instr 35:1157-60 S '64

Cylindrical coding tube for 8-digit code. H. Heynisch. bibliog il diags IEEE Proc 51:1536-41 N '63

Data acquisition system expects the unexpected. L. D. Shergalis. il diags Electronics 37:57-61 Je 1 '64

Design of second-harmonic detector heads and their application to the reading of digital information and the measurement of low speeds of rotation. D. B. G. Edwards and others. bibliog il diags Radio & Electronic Eng 27:99-116 F '64

Design principles of the magnetic tape system for the Atlas computer. D. B. G. Edwards and others. bibliog diags Radio & Electronic Eng 27:65-73 Ja '64

CALCULATING machines—Input-output equipment—*Continued*

Developments in electronic reading machines. J. B. Rudkin. il diags Ind Electronics 2: 397-9, 410-14, 475-7 Ag-O '64

Digital automatic radar data extraction equipment. J. V. Hubbard. il diags Radio & Electronic Eng 26:397-404 N '63

Digital data processing considerations in radar. P. J. Child. bibliog diags Radio & Electronic Eng 27:75-83 Ja '64

Digital number generator. J. D. E. Beynon and K. G. Nichols. il diags Electronic Eng 36:34-8 Ja '64

Digital signal conversion. E. N. Kaufman. il Instruments & Control Systems 37:117-18 F '64

Digital-to-analog conversion can be performed at the flow-valve instead of inside the computer. il diag Electronics 37:95-6 O 5 '64

Digitally controlled display system. il Automation 11:185 Ap '64

Digitizer for application of computers to automatic amino acid analysis. W. L. Porter and E. A. Talley. diag Anal Chem 36:1692-3 Jl '64

Direct read-out measuring equipment for machine tools. il Engineer 217:246 Ja 31 '64

Display of automatically processed radar information. D. R. Jarman. il diags Radio & Electronic Eng 26:469-76 D '63

Displaying the contents of a computer register. J. J. Collins. diags Electronics 37: 72 Jl 27 '64

Electronic eye hunts overlooked oil. il Oil & Gas J 61:20-1 D 23 '63

Electronic scanner-computer for determining the non-metallic inclusion content of steels. R. A. Bloom and others. il diags Iron & Steel Inst J 202:107-12 F '64; Abstract. Metal Prog 86:162-4 Jl '64

Feeding computers from scalers. A. J. Oxley. diags Electronic Eng 35:801-5 D '63

Frequency sensor stabilizes triangular-wave generator. D. E. Cottrell. il diags Electronics 37:38-40 F 28 '64

Generation of alpha-numeric flight data on bright displays. G. E. Fenimore. diags Inst E E Proc 111:514-18 Mr '64

Graphical display. D. J. Logan. il Instruments & Control Systems 37:115-16 Jl '64

Gray-code conversion. D. Kaye. diags Electro-Tech 72:107-8 D '63

Gray reading of binary coded disks. P. M. Will. diag J Sci Instr 41:177-8 Mr '64

High-accuracy 9-bit digital-to-analog converter operating at 12 mc. E. F. Kovanic. il diags IEEE Trans Com & Electronics p 185-91 Mr '64

High-speed character generator. Franklin Inst J 276:576 D '63

High speed character generator. W. R. Sloan. il diags Electronic Ind 23:174-6+ Mr '64

How to design high-speed digital-analog converters. C. R. Pearman and A. E. Popodi. il diags Electronics 37:28-32 F 21 '64

Incremental magnetic tape recorders. R. A. Curtis, jr.; J. T. Boag. il diags Control Eng 11:51-7 Jl '64

Linking on-line data acquisition to general purpose computers. M. Bain. diags Control Eng 11:92-5 Ap '64

Magnetic tape and random access devices for 16 more medium to large computers. Control Eng 11:115-20 My '64

Measuring 100 pressures in 15 seconds. R. H. Cerni. il diag Control Eng 11:89 Jl '64

Memory orders of states of an automaton. C. L. Liu. bibliog diags Franklin Inst J 277: 37-49 Ja '64

Mixed congruential random number generators for binary machines. T. E. Hull and A. R. Dobell. bibliog Assn for Computing Mach J 11:31-40 Ja '64

New ways to instruct computers. Eng N 171:58 N 14 '63

No. one electronic switching system scanner. signal distributor, and central pulse distributor. L. Freimanis and others. il diags Bell System Tech J 43:2255-82 pt 2 S '64

Non-linear cr circuits using silicon carbide varistors. W. G. P. Lamb. diags Electronic Eng 36:692-3 O '64

Optical machine that reads printed document directly into computer without scanning. Product Eng 35:63-4 F 17 '64

Optimal control of discrete systems with constrained inputs. P. E. Sarachik and G. M. Kranc. bibliog diag Franklin Inst J 277:237-55 Mr '64

Output devices for industrial computer systems. J. F. Roth. il diags Ind Electronics 1:511-14 Jl '63; Discussion. 1:751 N '63

Peripheral transfer system for a fast computer. A. W. Nicholson. diags Inst E E Proc 111:15-26 Ja '64

Philco corp. print reader systems will read typed or printed (not script) pages without the use of stylized or magnetic ink letters. il Product Eng 34:39 D 23 '63

Print reader system. il diag Mech Eng 86:64 F '64

Problem; standardizing instruments, solution; digital systems. D. Gertz and L. Leavitt. il diags Electronics 37:65-70 O 19 '64

Readout by the numbers. il diags Product Eng 35:55 My 11 '64

Recognizing patterns with threaded cores. R. Roy. diags Electronic Ind 23:86-7 Ag '64

Resistive loss in transmission lines as a limit to computer store size. M. J. W. Taylor. diag IEEE Proc 52:1270 O '64

Sampling ten million words a second. A. Hakimoglu and R. D. Kulvin. il diags Electronics 37:52-4 F 7 '64

Selecting sample rates. L. W. Gardenhire. bibliog diags I S A J 11:59-64 Ap '64

Simple digital to analogue convertor. K. H. Edwards. diags Electronic Eng 36:178-80 Mr '64

Simple mechanical analog-to-digital converter. M. Jackson, ed. diags Space/Aeronautics 41:112 Je '64

Solid state digitizer for mass spectrometers. E. M. Thomason. il diags Anal Chem 35: 2155-7 D '63

Structure of a cryogenic associative processor. J. D. Barnard and others. bibliog diags IEEE Proc 52:1182-90 O '64

Synthesis of cyclic code generators. P. E. K. Chow and A. C. Davies. diags Electronic Eng 36:253-9 Ap '64

Talking computer. il Mech Eng 86:60-1 My '64

Techniques in processing large quantities of audio spectrum analysis data. M. R. Weiss and C. M. Harris. il diags Audio Eng Soc J 12:147-52 Ap '64

Test and display equipment for multi-aperture shift registers. P. Broomer. bibliog diags Radio & Electronic Eng 26:338-46 O '63

Time coding analog-to-digital converter. B. T. Cronhjort. diags IEEE Proc 51:1541-9 N '63

Time-varying sequential machines. A. Gill. bibliog diags Franklin Inst J 276:519-39 D '63

Transistorized non-linear function generator. P. Kundu and S. Banerji. bibliog diags Ind Electronics 2:35-41 Ja '64

Truth table logic speeds binary-coded-decimal, binary conversions. D. Cohen. diags Control Eng 11:78-81 Mr '64

Use of threshold logic in character recognition. S. B. Akers, jr. and B. H. Rutter. bibliog il diags IEEE Proc 52:931-8 Ag '64

Whistle while you work. il Electronics 37:32 Mr 23 '64

Lighting engineering applications

Computers in lighting design; abstract. C. E. Elliott and R. E. Levin. Illum Eng 59:611 S '64

Three-surface analog computer an aid in point-by-point calculations in interiors. J. R. Jones. bibliog il diag Illum Eng 59: 357-62; Discussion. 362-4 My '64

Maintenance and repair

Circuit converts one-trace scopes to raster display. B. S. White. il diags Electronics 36:33-5 N 29 '63

Manufacture

Computer programmed press makes computer parts. D. G. Foster. il Tool & Manuf Eng 53:57-8 S '64

GE and Bull outline partnership plan. il Chem & Eng N 42:48 Ag 10 '64

Molded phenoxy frames bring major economies to data processing systems. il Mod Plastics 42:125 S '64

Power distribution in Univac computer engineering center. J. Molnar. il diags Elec Constr & Maint 63:86-90 Ag '64

Repeatable cycles at lower temperatures. il Plastics World 22:46 O '64

U.S. licensing spurs Japanese computer industry. C. Cohen. il Electronics 37:63-5 Ja 3 '64

Mechanical engineering applications

Analogue computers speed hydraulic system design. R. N. Franzle. diags Hydraulics & Pneumatics 17:73-6 Ap '64

CALCULATING machines—Mechanical engineering applications—*Continued*

Computer in design engineering. C. F. Smith. bibliog Mech Eng 86:29-35 Ap '64

Digital computer as an engineering tool in water chiller design. W. J. Radle. diags ASHRAE J 6:57-61 Jl '64

IBM has ADE plan for busy engineers. il Iron Age 193:41 Ja 16 '64

Piston temperatures solved by computer. Engineering 197:816 Je 12 '64

Series solution of skewed stiffened plates. J. B. Kennedy and M. W. Huggins. bibliog diag Am Soc C E Proc 90 [EM 1 no 3795]:1-22 F '64; Discussion. A. Coull. 90 [EM 4 no 4000]:179-80 Ag '64

Technique automates design engineering. Steel 154:29 Ja 20 '64

Medical applications

Automated multiphasic screening and diagnosis. M. F. Collen and others. bibliog il Am J Pub Health 54:741-50 My '64

Automatic computation of the area under indicator dilution curves. C. F. Hepner and others. bibliog diags IEEE Trans Com & Electronics 83:541-4 S '64; Correction. 83:705 N '64

Computer analyzes X-rays. J. M. Carroll. il Electronics 36:38-9 N 1 '63

Computer diagnoses heart disease. Electronics 36:80+ D 6 '63

Computer techniques. S. Aronow. bibliog diag Nucleonics 21:66-8 O '63

Digital or analog methods for radioisotope measurement? B. Kawin and F. V. Huston. bibliog Nucleonics 22:86+ Jl '64

Studies in atherosclerosis; electronic computers in the processing of dietary data. M. H. R. Goodloe and others. bibliog flow sheet Am J Clinical Nutrition 13:304-11 N '63

Meteorological applications

International minerals & chemical corp. predicts impact of weather on crops. Chem & Eng N 42:28 My 4 '64

Low-cost digital system records weather data. F. J. Goldwater. bibliog il diags Electronics 37:34-6 Ja 10 '64

Weather forecast; sensors will take climate data. S. Payne. il Control Eng 11:19-20 S '64

Military applications

Big computer goes in small package. il Electronics 37:28-9 Mr 13 '64

New breed of computer sought. T. Maguire. il Electronics 36:24-5 D 20 '63

Next for navy; integrated avionics. J. F. Mason. Electronics 37:43 F 28 '64

Programing a shipboard real-time computer system. G. G. Chapin. il diags Naval Eng J 76:231-40 Ap '64

SAC gets ultrafast system for information handling. il Steel 155:29+ Jl 20 '64

Miniaturization

Brain sized computer now possible, says National research corp. Steel 154:51 F 24 '64

Compact mechanical calculator. il diags Mech Eng 85:48-9 D '63

Digital Loran-C receiver uses microcircuits. R. L. Frank and A. H. Phillips. il diags Electronics 37:23-7 Ja 31 '64

Microcomputer comes off the line. il Electronics 36:14-15 N 1 '63

Modules by the millions. A. Ashburn. il Am Mach 108:66-7 Ap 27 '64

Secretary-sized computer debut. il Electronics 37:28-9 Mr 13 '64

Mining engineering applications

Analog computers find application in control of flotation circuits. T. M. Morris and R. M. Edwards. diag Min Eng 16:67-9 Ag '64

Computer helps IMC engineers produce a year-ahead mine plan in minutes. B. Barnes. il Eng & Min J 165:106-11 My '64

Role of computers in mining research. I. F. Jackson. bibliog il Min Cong J 50:81-4 Ag '64

Univac speeds identification of minerals at University of North Carolina. il Min Eng 16:70-2 Je '64

Noise

Wiring installation methods in static switching, analog and digital control. F. Geisheimer. bibliog diags Iron & Steel Eng 41:131-8; Discussion. 138-40 Jl '64

Nuclear engineering applications

Computer-controlled monitoring for Wylfa nuclear power-station. il Engineer 217:792 My 1 '64

Computer sizes parameters of a pneumatic scram system. R. H. Larson. il diags Hydraulics & Pneumatics 17:94-101 O '64

Heat generation by radioactive wastes. E. F. Gloyna and others. bibliog Am Soc C E Proc 90 [SA 1 no 3793]:43-66 F '64; Discussion. R. L. Bradshaw. 90 [SA 5 no 4097]:55-7 O '64

Time-shared time-of-flight analysis by computer. R. E. Chrien and others. bibliog flow diag diags R Sci Instr 35:1150-6 S '64

Petroleum engineering applications

Aids to forecasting the performance of water floods. R. V. Higgins and others. bibliog flow diag diags J Pet Tech 16:Trans 1076-82 S '64

Amoco refineries reflect control gains. il Pet Management 35:206-8 D '63

Atlantic Pipe Line's new computer frees dispatchers from routine calculations. map Oil & Gas J 62:52-3 Ja 20 '64

Computer aid to production. W. R. Tankersley and S. B. Coleman. diags J Pet Tech 15:1199-202 N '63

Computer control comes of age. G. L. Farrar. bibliog il diag Oil & Gas J 61:77-84+ O 28 '63

Computer control in the oil industry. G. L. Farrar. bibliog il diags Oil & Gas J 62:89-114 O 26 '64

Computer control of ultraforming. diags Oil & Gas J 61:160+ N 18 '63

Computer designs process piping system. diag Pet Management 36:128 Jl '64

Computer helps map oil structures. D. F. Merriam and J. W. Harbaugh. bibliog maps Oil & Gas J 61:158-9+ N 25 '63

Computer joins Permian Basin search. il Oil & Gas J 62:49-51 Ja 20 '64

Computer makes surge-pressure calculations useful. F. J. Schuh. bibliog Oil & Gas J 62:96-8+ Ag 3 '64

Computer points the way to more profits. R. N. Sauer and others. flow diag Hydrocarbon Process & Pet Refiner 43:84-92 F '64

Computer schedules four product pipelines. S. K. Pringle and J. O. Rogers. il diags Oil & Gas J 62:152-4+ My 18 '64

Computer techniques for refinery planning and control. J. V. Withey. bibliog flow diag diag Oil & Gas J 62:76-80 Ja 20 '64

Computer turns talents to piping drawings. diag Oil & Gas J 62:144 My 18 '64

Computer updates accounts and data on field transactions. il Oil & Gas J 62:101 Ag 24 '64

Computers demand comfort. il Pet Management 36:136 Ap '64

Computers' future job; finding strat traps. Oil & Gas J 62:82 My 18 '64

Computers lick management problems. G. T. Kinney. il Oil & Gas J 62:44-5 Ja 20 '64

Computers project European refining five years ahead. Oil & Gas J 61:79 N 25 '63

Data-logging computers help study of fluid cat cracker operation. D. H. Stormont. il diag Oil & Gas J 61:142-4 N 18 '63

Digital computer applied to styrene cracking. V. S. Morello. il diags Oil & Gas J 62:90-3 F 24 '64

Digital computer control and gasoline blending. D. B. Brandon. bibliog Instruments & Control Systems 36:123-4 D '63

Digital computer programming for automatic analysis of well logs. S. H. Southwick and T. W. Adair. 3d. bibliog flow charts diags J Pet Tech 16:35-40 Ja '64

Digital computer schedules Colonial operations from startup. R. Techo and others. diags Oil & Gas J 62:94-100 Ap 13 '64

Exploration needs more idiots. W. J. Gillingham. Oil & Gas J 61:95 N 11 '63

Feedforward analog computer control of a superfractionator. E. C. MacMullan and F. G. Shinskey. il diags Control Eng 11:69-74 Mr '64

Instrumentation for simplified commingling and well-testing operations. G. Kite. il diags J Pet Tech 16:732-8 Jl '64

Integrating corporate functions for optimum performance. G. M. Stankiewicz. diags Automation 10:63-5 N '63

IBM unveils new generation computer. il Pet Management 36:146+ My '64

Largest well-data system shaping up. map Oil & Gas J 62:82-3 My 11 '64

Modern control and instrumentation techniques applied to refinery operations. S. W. J. Wallis. diags Inst Pet J 49:329-34; Discussion. 334-9 N '63

New analog computer aids instrumentation. diags Oil & Gas J 61:174+ N 18 '63

New process-control computer announced by General Electric. Oil & Gas J 62:204 S 21 '64

CALCULATING machines—Petroleum engineering applications—*Continued*

Now; solid-state process analog-computer systems. il Oil & Gas J 61:160 D 30 '63

Now you can calculate crude tbp curves by computer. H. B. Henderson. bibliog Oil & Gas J 62:76-81 Ag 24 '64

On-line closed-loop computer control proved feasible for pipelines. G. L. Schuman. il map diags Oil & Gas J 62:88-94 Ap 20 '64

Plant-wide computer system planned. diag Oil & Gas J 61:60-1 O 21 '63

Punch-card operation blends wax faster, more accurately. D. H. Stormont. flow plan il diag Oil & Gas J 62:98-100 Mr 23 '64

Refinery performance reported via computerized reports. R. T. O'Neil and W. E. Stanley, jr. il Oil & Gas J 62:96-100 O 19 '64

Routing pipelines by computer. R. P. Jefferis, 3d and K. A. Fegley. map diags Oil & Gas J 62:184-6 O 12 '64

Small analog computers; mighty midgets for solving refining and petrochemical control problems. G. T. Byer. bibliog il diags Oil & Gas J 62:104+ Mr 9 '64

Three more computer setups for oil refining. il Chem Eng 70:100+ D 9 '63

Yield accounting plays new role. R. F. Cook and others. diags Hydrocarbon Process & Pet Refiner 42:115-20 D '63

Power supply

New versatile power supplies. Franklin Inst J 277:295-6 Mr '64

Uninterrupted power for computer system. L. R. Stensland and E. A. Bacquet. il diag Elec World 162:68 Ag 10 '64

Print-out equipment

Card, punched tape, and printing devices for 16 more medium to large computers. Control Eng 11:103-8 Mr '64

Cathode-ray printer tube. R. H. Compton. diags Electro-Tech 74:128-30 Jl '64

Machine printing of flow diagrams for digital load-flow solutions. J. L. Bloodworth. diag IEEE Trans Power Apparatus & Systems p901-3 D '63

Pipe layouts by computer. diag Mech Eng 86:57 Je '64

Programming

Automatic data processing, interpreting, and reporting of results of emission spectrographic analyses. D. D. Tunnicliff and J. R. Weaver. Anal Chem 36:2318-21 N '64

Automatic digital computer program for setting transmission line directional overcurrent relays. H. Y. Tsien. flow charts diags IEEE Trans Power Apparatus & Systems 83:1048-53 O '64

Automatic heating and air-conditioning calculations. D. D. Eschbach, jr. ASHRAE J 6:62-3 My '64

Automatic lens design; further notes for optical engineers. B. Brixner. bibliog diags SMPTE J 73:314-20 Ap '64

Automatic pressure calibration systems. R. C. Schumacher. il Instruments & Control Systems 37:83-5 F '64

Binary time programs. J. P. O'Meara. il diag Instruments & Control Systems 37:129 Je '64

Computer calculation of stoichiometry and errors in scrambling reactions. L. C. D. Groenweghe and others. bibliog Anal Chem 36:303-7 F '64

Computer points the way to more profits. R. N. Sauer and others. flow diag Hydrocarbon Process & Pet Refiner 43:84-92 F '64

Computer program to optimize times of irradiation and decay in activation analysis. T. L. Isenhour and G. H. Morrison. flow diags Anal Chem 36:1089-92 My '64

Computer routines for neutron activation analysis of lubricating oils. D. E. Hull and J. T. Gilmore. bibliog Anal Chem 36:2072-7 O '64

Computers used as tool to teach mathematics. flow chart il Chem & Eng N 41:50-1 N 18 '63

Consumer's preplanning and controls for corrugated automation. W. Scally. Tappi 47:sup 175A-8A Ap '64

Correction of luminescence spectra and calculation of quantum efficiencies using computer techniques. H. V. Drushel and others. bibliog Anal Chem 35:2166-72 D '63

Desk computer. P. Linebarger. il diag Instruments & Control Systems 37:145-53+ O '64

Dictionary for minimum redundancy encoding. E. S. Schwartz. bibliog diags Assn for Computing Mach J 10:413-39 O '63

Digital computer program for the general axially symmetric thin-shell problem. W. K. Sepetoski and others. diags A S M E Trans ser E 29:655-61 D '62; Discussion. 31:154-5 Mr '64

Digital computer protective device coordination program. R. E. Albrecht and others. diags IEEE Trans Power Apparatus & Systems 83:402-10 Ap '64 (to be cont)

Digital load flow program for 1,000-bus systems. J. H. Cronin and M. B. Newman. flow diag IEEE Trans Power Apparatus & Systems 83:718-20 Jl '64

Estimation of power spectral density by filters. E. J. Gauss. bibliog Assn for Computing Mach J 11:98-103 Ja '64

Experiments with a heuristic compiler. H. A. Simon. flow diag Assn for Computing Mach J 10:493-506 O '63

Generating charts for quality control. E. J. Dennard, jr. Automation 11:62-4 My '64

Heuristic program that solves symbolic integration problems in freshman calculus. J. R. Slagle. bibliog diags Assn for Computing Mach J 10:507-20 O '63

Information processing in computer and man. H. A. Simon and A. Newell. bibliog Am Scientist 52:281-300 S '64

Interval arithmetic. Mech Eng 86:54-5 O '64

Languages of tape. R. A. Thomas. diags Am Mach 108:73-80 Ja 6 '64 (reprints 50c)

Machines that think like people. G. V. Novotny. il diags Electronics 37:90+ Jl 13 '64

Mechanism of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:1078-86 S '64

Model for current reversal chronopotentiometry with second-order kinetic complications. S. W. Feldberg and C. Auerbach. bibliog Anal Chem 36:505-9 Mr '64

New formula for management control NAMDA + computer = on-time deliveries. G. L. Morrisroe. il Tool & Manuf Eng 53:45-8 O '64

New programming to cut computer costs. Engineering 198:167 Ag 7 '64

New ways to instruct computers. Eng N 171:58 N 14 '63

No. one electronic switching system call processing. D. H. Carbaugh and others. flow charts diags Bell System Tech J 43:2483-531 pt 2 S '64

N/c programming from undimensioned drawings. R. C. McCarty. il diag Tool & Manuf Eng 53:65-7 O '64

Optimal control of discrete systems with constrained inputs. P. E. Sarachik and G. M. Kranc. bibliog diag Franklin Inst J 277:237-55 Mr '64

Organization of the No. one electronic switching system stored program. J. A. Harr and others. diags Bell System Tech J 43:1923-59 S '64

Planning and programming n/c. J. C. Keebler. il diag Automation 11:58-67 S '64

Predicting casting solidification patterns with a computer. J. G. Henzel, jr. and J. Keverian. il Foundry 92:50-3 My '64

Prepare data tables for digital computer use. A. E. Harkins. diag Hydrocarbon Process & Pet Refiner 43:93-4 F '64

Priority considerations in control computers. R. S. Banks and R. E. Hohmeyer. il Automation 10:83-5 N '63

Process III, a compiler-assembler for No. one electronic switching system. N. A. Martellotto and others. flow chart diag Bell System Tech J 43:2457-81 pt 2 S '64

Production man's guide to APT-ADAPT. R. A. Kelley. diags Am Mach/Metalworking Manuf 108:97-112 Je 22 '64 (reprints 50c)

Programming batch distillation. H. G. Haring and others. bibliog Chem Eng 71:159-62 Mr 16 '64

Programing for computer control. W. R. Adams. Tappi 47:sup 140A-1A Jl '64

Programming of a stretch-reducing mill at TAMSA, Mexico. R. Raimondi. bibliog il diags Iron & Steel Eng 41:131-43 My '64

Quiktran; 40 phone-in stations share a computer's time. Machine Design 36:8 Ag 27 '64

Quotients of context-free languages. S. Ginsburg and E. H. Spanier. bibliog Assn for Computing Mach J 10:487-92 O '63

SNOBOL, a string manipulation language. D. J. Farber and others. Assn for Computing Mach J 11:21-30 Ja '64

Secondary system distribution planning for load growth. R. M. Webler and others. bibliog flow diag diags IEEE Trans Power Apparatus & Systems p908-23; Discussion. 923-7 D '63

Simplified computer programming. Engineer 218:189 Jl 31 '64

CALCULATING machines—Programming—*Cont.*

Simultaneous relative orientation of multiple cameras. H. M. Karara and A. A. Elassal. bibliog diag Am Soc C E Proc 90 [SU 2 no 3982]:109-16 Jl '64

Smoothing and differentiation of data by simplified least squares procedures. A. Savitzky and M. J. E. Golay. bibliog Anal Chem 36:1627-39 Jl '64

Solvability of machine mappings of regular sets to regular sets. S. Ginsburg and T. N. Hibbard. Assn for Computing Mach J 11: 302-12 Jl '64

Time system features versatile school facilities programing at multi-building Eden Sawyer junior high school in Cincinnati. J. P. Goode and G. W. Archiable. il diags Elec Constr & Maint 63:91-3 Ag '64

Try signal flow graphs to simplify analog programming; data file. S. M. Becker. diags Control Eng 11:109-11 S '64

Radio engineering applications

Computer in the microcircuit design room. M. F. Wolff. il diags Electronics 37:100-2+ Mr 23 '64

Digital computer analysis of the tunnel diode relaxation oscillator. A. L. Riemenschneider and C. W. Cox. diags Electronic Eng 36:382-5 Je '64

Digital computers in communications design. D. Wood and others. diags Electro-Tech 73:39-43 F '64

Man and machine in the extraction and use of radar information. R. Benjamin. diags Radio & Electronic Eng 26:309-16 O '63

Readout systems

Bi-directional decade counter with anti-coincidence network and digital display. A. F. Tassinari. diags Electronic Eng 36:173-7 Mr '64

Converting digital data to voice. J. R. Rawley. diags Electronic Ind 23:84-6 Ap '64

Data display system works in microseconds. F. W. Kime and A. Hartley-Smith. il diags Electronics 36:26-9 N 29 '63

High-speed alpha-numeric display. il Engineer 217:276-7 F 7 '64

Jig borer with digital read-out. il Engineering 197:200 Ja 31 '64

Low friction computer tape. J. E. Snyker. il Materials in Design Eng 59:128 Ap '64

Multilayer dielectric- and magnetic-film memory cell designed for optical read out. D. O. Smith. bibliog diag J Ap Phys 35: 772-3+ pt 2 Mr '64

New look for the old telegraph. R. K. Andres and L. P. Correard. il diags Electronics 37:85-90 Mr 23 '64

Piggyback twistor. il diags Bell Lab Rec 42: 206-7 Je '64

Process data presented instantaneously. il diag Engineering 197:268-9 F 14 '64

Size and speed capabilities of destructive read-out film memories. A. V. Pohm and others. bibliog diags IEEE Trans Com & Electronics 83:267-74 My '64

Slow speed readout. diags Instruments & Control Systems 37:136 F '64

Talk-along checkout patterned by weathercaster. Electronics 36:82-3 D 6 '63

This computer talks back. il Steel 154:56 F 24 '64

Tunnel diode storage system with non-destructive read-out. D. B. G. Edwards and M. J. Lanigan. bibliog diags Radio & Electronic Eng 26:359-72 N '63

Weather readout is automated. il diag Electronics 36:42-3 D 27 '64

Scientific applications

Element maps direct complete mass spectra. K. Biemann and others. Chem & Eng N 42: 42-4 Jl 6 '64

Programmer for a two-dimensional pulse-height analyzer. T. J. Kennett. diags R Sci Instr 35:1230-1 S '64

Simulation programs

Adaptive-predictive model for nonlinear processes with two-level inputs. R. Roy and others. diags IEEE Trans Applications & Ind 83:173-8 My '64

Analog computer simulation. C. F. Simone. il diags Bell Lab Rec 42:182-7 Je '64

Analog simulation. R. P. Benedict. bibliog diags Electro-Tech 72:73-90 D '63 (reprints $1)

Analog simulation of chemical reaction kinetics: simulating dynamics of reactor systems. T. Mathews. bibliog diags Chem Eng 71:77-9 Ag 31 '64

Analog simulation of zone melting. H. L. Mason. il diags Instruments & Control Systems 37:121-3 Ja '64

Can computer cut out debugging period? R. H. Eshelman. il Iron Age 193:53 F 6 '64

Charge-control equivalent circuit for predicting transient radiation effects in transistors. C. R. Rosenberg and others. diags IEEE Trans Com & Electronics 83:494-501 S '64

Circuit to simulate latent heat effects for thermal analog computers. J. E. Sunderland and R. J. Grosh. bibliog diags Food Tech 18:1455-6 S '64

Computer experiments in chemistry. D. L. Bunker. il diags Sci Am 211:100-8 Jl '64

Computer program to simulate rapid-transit system operation. Westinghouse Eng 24:150 S '64

Computer simulation of digital systems. A. Baker. diags Electro-Tech 74:87-9 S '64

Computer simulation of floc formation in a colloidal suspension. M. J. Vold. bibliog diag J Colloid Sci 18:684-95 S '63

Computer simulation of the electron mixing mechanism in ion propulsion. O. Buneman and G. Kooyers. bibliog diags AIAA J 1: 2525-8 N '63

Developments in traffic simulation and control. R. F. Baker. il diag Pub Works 95: 98-101 Mr '64

Digital computer simulation of a four-phase data transmission system. M. A. Rappeport. bibliog diags Bell System Tech J 43:927-64 My '64

Digital simulation of traffic. A. Glickstein. bibliog diags Am Soc C E Proc 89 [EM 6 no 3709]:1-13 D '63; Discussion. A. G. Thurman. 90 [EM 4 no 4000]:163-4 Ag '64

Elements of inventory simulation. W. H. Lawson. Automation 11:65-7 Ja '64

Establishment and replenishment comparison of synchronous and medium altitude satellite systems; simulation approach. G. C. Sponsler and others. IEEE Proc 52: 756-62 Jl '64

Fire trajectory program; example of automated simulation techniques. R. C. Brown. diag Instruments & Control Systems 36:153-5 N '63

Ground-water management for the Nation's future; computer simulation of ground-water basins. H. N. Tyson, jr. and E. M. Weber. bibliog flow chart map diags Am Soc C E Proc 90 [HY 4 no 3973]:59-77 Jl '64

Human responses to heat stress; simulation by analog computer. P. E. Smith, jr. and E. W. James, 2d. bibliog diags Archives Environmental Health 9:332-42 S '64

Mathematics as an educational discipline for the engineer. P. L. Taylor. diags Inst E E Proc 110:775-84 Ap '63; Discussion. 110:2300-4 D '63

NEASIM; a general-purpose computer simulation program for load-loss analysis of multistage central office switching networks. R. F. Grantges and N. R. Sinowitz. diags Bell System Tech J 43:965-1004 bibliog(p 1003-4) My '64

Network analyzer for system simulation. J. M. Spurlock and J. I. Gonzales. bibliog diags Electro-Tech 73:126-7 Mr '64

Oil-globule path simulation. il diags Instruments & Control Systems 37:142-3 My '64

Operators run simulated refinery for pre-startup experience. R. E. Lieber. il diags Control Eng 11:105-7 S '64

Sampled data system simulation. D. B. Bruck. diag Instruments & Control Systems 37:147 My '64

Scaling for analog simulation. C. Page. diags Instruments & Control Systems 37:168-72 S '64

Simulating an inverted pendulum. diags Instruments & Control Systems 36:127-8 O '63

Simulating projectile trajectory. H. H. Hara. diag Instruments & Control Systems 37: 145-6 My '64

Simulating tactical radar and sonar. R. G. Hundley. il diags Electronics 36:25-31 D 13 '63

Simulating ventricular pump action. H. H. Hara. diags Instruments & Control Systems 37:158-9 Je '64

Simulation: key to Nike-Hercules system testing. R. D. Johnson. il diags Bell Lab Rec 41:388-93 N '63

Simulation of a non-linear control system. il diags Instruments & Control Systems 37:144-5 Mr '64

Simulation of a stirred tank reactor. diags Instruments & Control Systems 37:146-7 Je '64

Simulation of an automobile suspension system. diags Instruments & Control Systems 37:143 O '64

CALCULATING machines—Simulation programs —*Continued*

Simulation of radio antenna radiation. diags Instruments & Control Systems 37:129 Ja '64
Simulation of space vehicle with reaction jet control system. J. P. Landauer. il diags Instruments & Control Systems 37:130-4 F '64
Simulation of transport delay. il diag Instruments & Control Systems 37:145 Ap '64
Simulation of unsteady-state heat conduction. diags Instruments & Control Systems 37:124-6 Ag '64
Simulation using perturbation methods. J. A. McDonnell. diags Instruments & Control Systems 37:127-8 F '64
Simulator assessment of tandem cold-rolling-mill automatic gauge-control systems. G. F. Bryant and M. H. Butterfield. bibliog diags Inst E E Proc 111:393-405 F '64; Discussion. 111:1615-18 S '64
Simulator for teaching of process control. il Engineer 217:242 Ja 31 '64
Solution of the identification problem. J. K. Lubbock and H. A. Barker. bibliog il diags IEEE Trans Applications & Ind 83:166-73 My '64
Traffic simulation. W. O. Turner. il diags Bell Lab Rec 41:346-50 O '63
Two process-control simulators. C. R. Horney; L. M. Zoss and C. A. Wagner. il diags I S A J 11:61-8 F '64

Structural engineering applications

Bibliography on the use of digital computers in structural engineering; progress report. Am Soc C E Proc 89 [ST 6 no 3740]: 461-91 bibliog(p467-87) D '63
Computer analysis of cylindrical shells. A. C. Scordelis and K. S. Lo. bibliog diags Am Concrete Inst J 61:539-61 My '64
Computer calls the design shots for structural fabrication. G. Peery. il Iron Age 194:64-5 Ag 6 '64
Computer details reinforcing. Eng N 173:31 Jl 30 '64
Computer service designs steel buildings. plan Eng N 173:38-9 Ag 27 '64
Computer systems for matrix operations. H. Rothman and P. Reilly. Am Soc C E Proc 90 [ST 3 no 3933]:125-46 Je '64
Computer verifies beam design; advances capacity of lightweight storage racks. L. Hall. il diags Iron Age 193:76-7 My 7 '64
Direct stiffness solution for folded plates. A. DeFries-Skene and A. C. Scordelis. bibliog diags Am Soc C E Proc 90 [ST 4 no 3994]: 15-47 Ag '64
General computer analysis of beams. J. E. Goldberg and others. diags Am Soc C E Proc 90 [EM 3 no 3943]:135-46 Je '64
General computer program for limit analysis. C. K. Wang. flow chart diags Am Soc C E Proc 89 [ST 6 no 3719]:101-17 D '63; Discussion. 90 [ST 2 no 3886]:415-18 Ap; [ST 4 no 4001]:297-8 Ag '64
How to calculate footing soil bearing by computer. E. Czerniak. il diags Hydrocarbon Process & Pet Refiner 43:109-14 Mr '64
Integrated structural steel design program. A. H. Palmer and others. bibliog diags Am Soc C E Proc 89 [PO 1 no 3649]:67-82 S '63; Discussion. M. Zar. 90 [PO 1 no 3849]: 107-8 Mr '64; Reply. 90 [PO 2 no 3977]:29-30 Jl '64
Moment equations for computer analysis of frames. S. S. Tezcan. bibliog flow chart diags Am Soc C E Proc 90 [ST 3 no 3926]: 35-53 Je '64
Preliminary design of concrete dams by computers. R. Weaver. flow diag diags Civil Eng 34:43-7 F '64
Propagation of shock waves in the ground. T. Ginsburg. bibliog diags Am Soc C E Proc 90 [ST 1 no 3800]:125-63 F '64
Simplified formulation of stiffness matrices. P. M. Wright. diags Am Soc C E Proc 89 [ST 2 no 3478]:33-48 Ap '63; Discussion. S. S. Tezcan. 89 [ST 6 no 3743]:445-9 D '63
Structural analysis of multistory buildings. R. W. Clough and others. diags Am Soc C E Proc 90 [ST 3 no 3925]:19-34 Je '64
Symmetrical frame solution by computer. E. Litton and J. S. Roper. Engineering 197: 82 Ja 17 '64
Ultimate load of H-columns under biaxial bending. C. Birnstiel and J. Michalos. bibliog diags Am Soc C E Proc 89 [ST 2 no 3503]:161-97 Ap '63; Discussion. 89 [ST 5 no 3688]:363-6 O '63; Reply. 90 [ST 2 no 3886]:361-3 Ap '64
Use ultimate strength method for reinforced concrete column design. E. Czerniak. bibliog flow chart il diags Hydrocarbon Process & Pet Refiner 43:114-20 Jl '64

Study and teaching

Digital computer among undergraduates. il Engineering 197:850-1 Je 26 '64
Evaluating and using programmed instruction. G. A. Keluche. il Electronic Ind 23: 123-9 Jl '64
High school students use computers. il Chem & Eng N 42:48+ Ap 27 '64
Improved analogue computer trainer. il Engineering 196:812 D 27 '63

Terminology

Analog simulation of chemical reaction kinetics; learning computer language. T. Matthews. diags Chem Eng 71:137-40+ Jl 6 '64
Production man's guide to APT-ADAPT. R. A. Kelley. Am Mach/Metalworking Manuf 108:107-12 Je 22 '64

Testing

Checking in data processing. C. F. Page. il Instruments & Control Systems 37:129-31 Ag '64
Computer reliability nine times better specified. Engineer 216:1042 D 20 '63

Traffic control applications

Automatic Telephone and Electric's type 54 traffic controller. il diags Engineering 198: 422-3 O 2 '64
Computer aids in urban transportation planning. I. E. Granville. il Pub Works 95:128-9 O '64
Computer control of traffic signals. il Engineer 217:405-6 F 28 '64
Traffic computer; a better policeman? Engineering 197:339 Mr 6 '64
Traffic men talk controls. H. Vandernoot. Control Eng 11:27 O '64
Vehicular traffic control poses challenging problems. I S A J 11:25 F '64

Traffic engineering applications

Computers and the traffic engineer. E. Nussbaum. Traffic Q 18:49-62 Ja '64
Open shop vs. the giant brain. J. C. Barrett. Traffic Q 18:523-34 O '64

CALCULI, Urinary

Phosphorus, calcium and magnesium relationships in ovine urolithiasis. L. V. Packett and J. P. Hauschild. bibliog J Nutrition 84:185-90 O '64
Urolithiasis in the rat; influence of amino acid supplements on the occurrence of citrate calculi. R. Van Reen and others. bibliog J Nutrition 83:358-64 Ag '64

CALCULUS

Beating about the calculus bush. I. M. Freeman. Am J Phys 32:319-20 Ap '64; Discussion. R. Weinstock. 32:644-5 Ag '64
Continuation of the idea of heaviside in the operational calculus. S. Bellert. bibliog Franklin Inst J 276:411-40 N '63
Heuristic program that solves symbolic integration problems in freshman calculus. J. R. Slagle. bibliog diags Assn for Computing Mach J 10:507-20 O '63
Linear vibration analysis. J. Sklerov. diags Electro-Tech 73:103-9 Je '64
Matrix division. G. Kostro. Am Soc C E Proc 89 [EM 3 no 3538]:9-20 Je '63; Discussion. 89 [EM 5 no 3687]:107-8 O; [EM 6 no 3774]:267-9 D '63; Reply. 90 [EM 2 no 3882]:235-9 Ap '64
New derivation of the Kuhn-Tucker conditions. B. Bernholtz. Op Res 12:295-9 Mr '64
See also
Interpolation

CALCULUS of variations

Comparison of approaches to the optimization of industrial processes. A. E. Beecher. Tappi 47:sup 188A-91A Ap '64
Form of variationally derived shell equations. E. Reissner. bibliog diags A S M E Trans ser E 31:233-8 Je '64
Modification of Weierstrass-Erdmann corner conditions in space navigations. R. N. Bhattacharya and M. Bhattacharjee. AIAA J 2:1145-7 Je '64
Optimal programming problems with inequality constraints. A. E. Bryson, jr. and others. bibliog AIAA J 1:2544-50; 2:25-34 N '63, Ja '64
Remarks on Hamilton's principle. G. Leitmann. A S M E Trans ser E 30:623-5 D '63
Remarks on variational principles in elastodynamics. Y. Chen. bibliog Franklin Inst J 278:1-7 Jl '64
Solution of variational problems by means of a generalized Newton-Raphson operator. R. McGill and P. Kenneth. bibliog diag AIAA J 2:1761-6 O '64

CALCULUS of variations—*Continued*

Variational calculus. M. Forray. diags Product Eng 35:141-3 Ag 3; 123-5 Ag 17; 95-7 Ag 31; 171-2 S 14; 125-8 S 28 '64

CALENDERS

Automated liner tables improve calendering. Rubber Age 95:753 Ag '64

Calender nip relieving. G. H. Kettering. diags Tappi 47:sup 137A-40A Ag '64

Calender roll crown compensation by the swimming roll method. C. H. Hillman. diags Tappi 47:sup 141A-3A Ag '64

Calender stack installation and operation using deflecting bottom roll. G. F. Schreiner. diags Paper Ind 46:299-301 Jl '64

CALIBRATION

Accelerometer calibration. J. Johansson. diags Instruments & Control Systems 36:79-81 D '63

Accuracy of the bubble meter method for gas flow measurements. A. Levy. bibliog diag J Sci Instr 41:449-53 Jl '64

Answer to the measurements pinch. C. M. Whitt. il Mag of Stand 35:238-9 Ag '64

Automatic pressure calibration systems. R. C. Schumacher. il Instruments & Control Systems 37:83-5 F '64

Barometers measuring up. il Product Eng 35:65 O 12 '64

By-the-book procedures certify instruments. il diag Plant Eng 18:112-13 Je '64

Calibrating load cells. Engineer 216:957 D 6 '63

Calibrating thermal conductivity gauges. J. M. Benson. il Instruments & Control Systems 37:115-17 S '64

Calibrating vacuum gauges below 10^9 Torr. W. Kreisman. il diag Res/Develop 14:58-60 D '63

Calibration of A325 bolts. J. L. Rumpf and J. W. Fisher. bibliog il diags Am Soc C E Proc 89 [ST 6 no 3731]:215-34 D '63; Discussion. E. Chesson, jr. 90 [ST 4 no 4001]: 317-19 Ag '64

Calibration of bell provers. H. V. Beck. diags Am Gas Assn Mo 46:30-2 S '64

Calibration of density-measuring instruments. F. R. Gilmer and C. M. Drummond. I S A J 11:91-3 My '64

Calibration of kinematic viscometers. L. A. Holcomb. bibliog il diags Instruments & Control Systems 37:109-15 F '64

Calibration of nuclear magnetic resonance chemical shift scale. J. L. Jungnickel. Anal Chem 35:1985-6 N '63

Calibration of potentiometers by resistance bridge methods. D. Ramaley. bibliog diags Instruments & Control Systems 37:106-8 Ja '64

Calibration of sinusoidal shear generator used to study viscoelasticity. D. O. Miles and G. C. Knollman. J Ap Phys 35:2549-50 Ag '64

Calibration of 30-cm Faraday cup. J. N. Palmieri and R. Goloskie. bibliog diags R Sci Instr 35:1023-6 Ag '64

Calibration system with microinch precision at temperatures to 500°C. J. C. Spanner and B. B. Brenden. il diags R Sci Instr 35:944-9 Ag '64

Calibrators; laser in the machine shop. il diag Product Eng 35:44 S 28 '64

Correction of luminescence spectra and calculation of quantum efficiencies using computer techniques. H. V. Drushel and others. bibliog Anal Chem 35:2166-72 D '63

Dead weight gauge utilizing an air loading device to measure varying pressures. S. K. Nisbet. bibliog diags J Sci Instr 41:415-20 Jl '64

Design modified for rate-measuring funnel. Paper Ind 46:620 O '64

Device for the precise measurement of small temperature changes. R. C. La Force and others. diags R Sci Instr 35:729-32 Je '64

Digital flow monitor-calibrator. A. H. Hurst. il diags Instruments & Control Systems 37:127-8 Je '64

Elements of gage control. E. G. Schilling and J. R. Lampus, jr. bibliog il Ind Quality Control 21:131-6 S '64

Empirical method for electron microanalysis. T. O. Ziebold and R. E. Ogilvie. Anal Chem 36:322-7 F '64

Fluorescent compounds for calibration of excitation and emission units of spectrofluorometer. R. J. Argauer and C. E. White. bibliog Anal Chem 36:368-71 F '64

Further consideration of emergent column correction in mercury thermometry. L. H. Pemberton. J Sci Instr 41:234-6 Ap '64

Instrument to measure velocity electrical conductivity of arc plasmajets. A. E. Fuhs. bibliog il diags AIAA J 2:667-73 Ap '64

International comparison of voltage-transformer calibrations to 350 kv. F. K. Harris and others. bibliog il diags IEEE Trans Com & Electronics p 13-18; Discussion. p 18-19 Ja '64

Laser calibrator for the shop. il Steel 155:97 S 28 '64

Laser equipment performs precise linear measurements. il diag Automation 11:36+ O '64

Low-voltage sensitivities of aromatic hydrocarbons. H. E. Lumpkin and T. Aczel. Anal Chem 36:181-4 Ja '64

Making accurate microwave power measurements. R. F. Pramann. il diags Electronic Ind 23:126-32 Ap '64

Mass flowmeter calibration. L. N. Mortenson. il diag Instruments & Control Systems 37:133-6 Mr '64

Non-contacting self-calibrating vibration transducer. G. B. Foster. il diag Instruments & Control Systems 36:83-4 D '63

On site system calibration. D. B. Jones. il diags I S A J 11:71-4 S '64

Precision burette for use in concentration-conductance calibration. S. Martin and others. diags J Sci Instr 41:237-8 Ap '64

Recalibration of the NBS glass standards of spectral transmittance. H. J. Keegan and others. bibliog J Res Nat Bur Stand 67A:577-84 N '63

Relative energy calibration of mono-energetic electron beams. S. M. Horszowski. bibliog diags J Sci Instr 40:532-4 N '63

600-watt wattmeter calibrator. B. Green and G. Phillips. il diag Instruments & Control Systems 36:98-9 D '63

Tester improves breaker quality. W. D. Cupps. il Automation 11:56-7 Ja '64

Three-axis fluxgate controls magnetic environment. N. Wolff. il diag Control Eng 11:127 My '64

Voltage-current calibrator. Franklin Inst J 277:290-1 Mr '64

Watthour calibrator refers directly to dc volt and amps. R. F. Estoppey. il diags Elec World 160:101+ D 16 '63

When in doubt, calibrate! R. N. Centerville. diags Radio-Electronics 35:58-60 N '64

CALIFORNIA

See also subdivision California under special subjects, e.g.

Air pollution
Architecture
Architecture, Domestic
Atomic power plants
Bridges
Canals
Electric utilities
Electricity supply
Gas, Natural
Gas industry
Geology
Hydroelectric plants
Iron mines and mining
Mines and mineral resources
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Public health
Roads
Soils
Tungsten mines and mining
Water supply

CALIFORNIA, Lower

See also

Geology—California, Lower

CALIFORNIUM

Isotopes

Direct nondestructive method for determination of californium-252. F. L. Moore and J. S. Eldridge. bibliog Anal Chem 36:808-11 Ap '64

CALKING compositions

Radome caulked with G-E silicone. il Rubber Age 94:805 F '64

CALLAO, Peru

Harbor

Peru's Callao gets two new piers. il map Eng N 172:40 My 28 '64

CALORIMETERS and calorimetry

Analysis of a temperature-controlled scanning calorimeter. M. J. O'Neill. bibliog diags Anal Chem 36:1238-45 Je '64

Calorimeter and cryostat for measuring heats of physical adsorption. G. L. Kington and P. S. Smith. bibliog diags J Sci Instr 41:145-8 Mr '64

Calorimeter for enthalpy analysis in the range 0 to 300°C. K. A. Sherwin and J. C. Dickins. diags J Sci Instr 41:7-14 Ja '64

Calorimeter for measuring heat transfer. diag Franklin Inst J 277:291-3 Mr '64

CALORIMETERS and calorimetry—*Continued*

Calorimetric heating-rate probe for maximum-response-time interval. R. H. Kirchhoff. diags AIAA J 2:966-7 My '64

Calorimetric properties of some alkali pentaborate hydrates from 15 to 370 °K. G. T. Furukawa and others. bibliog diags J Res Nat Bur Stand 68A:381-9 Jl '64

Calorimetric studies by differential thermal analysis. E. M. Barrall, 2d and others. bibliog diag Anal Chem 36:2172-4 O '64

Calorimetry conference, 18th, Bartlesville, Okla. Oct. 16-18. Phys Today 17:50+ F '64

Calorimetry of fluorescent luminaires; abstract. T. L. Ballman and others. diag Illum Eng 59:622-3 S '64

Determination of self-heating rates of coal. J. F. Cudmore. diags Chem & Ind p 1720-1 O 10 '64

Differential scanning calorimeter for quantitative differential thermal analysis. E. S. Watson and others. bibliog il diag Anal Chem 36:1233-8 Je '64

Dynamic adiabatic calorimeter; an improved calorimetric apparatus. C. Solomons and J. P. Cummings. bibliog diags R Sci Instr 35:307-10 Mr '64

Electrical resistances of wires of low temperature coefficient of resistance useful in calorimetry (10°-380°K). G. T. Furukawa and others. R Sci Instr 35:113-14 Ja '64

Electronic integrator for use with a differential calorimeter. J. J. Eichholz and J. B. Darby, jr. diag R Sci Instr 34:1274-5 N '63

Heat-of-solution calorimeter for inorganic building materials. H. G. McAdie. bibliog il diags Materials Res & Stand 4:413-17 Ag '64

Heater lead problem in calorimetry. D. C. Ginnings and E. D. West. bibliog diag R Sci Instr 35:965-7 Ag '64

High temperature differential calorimeter. C. V. Thomasson and D. A. Cunningham. bibliog diags J Sci Instr 41:308-10 My '64

High temperature differential resistance bridge calorimeter. T. K. Engel and others. il diags R Sci Instr 35:875-80 Jl '64

Hot-wire calorimeter study of ion production and acceleration. V. A. Sandborn and L. V. Baldwin. bibliog diags AIAA J 2:660-6 Ap '64

Isothermal calorimeter with sample temperature control. L. L. Van Zyl. diags J Sci Instr 41:197-202 Ap '64

Limits on wall-thickness in the thin-wall calorimeter heat flux gauge. S. A. Gordon. bibliog diag A S M E Trans ser C 86:291-3 My '64

Measurement of power at short millimeter wavelengths. Q. V. Davis and others. il diags R Sci Instr 35:561-5 My '64

New device speeds and simplifies transition measurements of polymers. N. Brenner and V. J. Bartolot, jr. diags Plastics Tech 10:56-9 S '64

Power calorimetry of fast-particle beams. E. S. Chambers. bibliog diags R Sci Instr 35:95-7 Ja '64

Prototype of a portable microcalorimeter for measurement of absorbed dose. E. R. Schleiger and N. Goldstein. bibliog diag R Sci Instr 35:890-4 Jl '64

Recording gas calorimeter. il Engineer 217:318 F 14 '64

Simple aneroid calorimeter with replaceable reaction cells. S. R. Gunn. bibliog diag R Sci Instr 35:183-7 F '64

Simple device for the measurement of electrical ignition energy in combustion calorimetry. R. H. Boyd. bibliog diag R Sci Instr 35:1086-7 Ag '64

Theory of boil-off calorimetry. R. B. Jacobs. bibliog diag R Sci Instr 35:828-32 Jl '64

Thermal testing; hypersonic testing. A. R. Mendelsohn and W. A. Barron. map Space/Aeronautics 42 no 4:196-9 '64-65

Thin heater calorimeter. N. E. Hager, jr. diags R Sci Instr 35:618-24 My '64

CAMBIUM

Cambial chemistry; a way of looking at a stick of pulpwood. R. E. Kremers. bibliog il diag Tappi 47:292-6 My '64

CAMERA shutters

Applications of the high-speed focal-plane shutter camera to explosives research. T. P. Liddiard, jr. and others. il diags SMPTE J 72:927-30 D '63

Focal plane flash problems with single-lens reflexes. D. L. Miller. il Mod Phot 28:82-3+ Mr '64

High speed shutter mechanism. J. O. Clayton. il diag R Sci Instr 34:1391-2 D '63

Shutter for continuous square wave modulation of a pencil of light. R. G. Berry and O. C. Jones. diags J Sci Instr 41:92-4 F '64

Sinar shutter. M. Gordon. il Ind Phot 13:40+ Ja '64

Solid-state shutter foils smug shutter bug. il diags Machine Design 35:126-7 D 5 '63

CAMERA tripods

Fictions, fantasies and truths about tripods. il Mod Phot 28:76-9+ Ag '64

Most unusual tripod; unusual angle shots with the use of a CarPac; a platform mounted on top of a car. il Ind Phot 13:36 Mr '64

What you should know about tripods. A. Feininger. Mod Phot 28:36+ Ja '64

CAMERAS

Amateur scientist; constructing high-speed cameras for photographing fleeting events. W. Gannaway. il diags Sci Am 211:118-24+ Jl '64

Beseler Topcon Super D. L. Stern. Ind Phot 13:43+ Ja '64

Camera delivers instant print with sequence of eight pictures. il Engineering 197:400 Mr 13 '64

Complete SLR guide. D. L. Miller. il Mod Phot 28:85-100 Jl '64

Eight top rangefinder camera buys. D. L. Miller. il Mod Phot 28:80-1+ My '64

High-speed focal-plane shutter framing camera. S. J. Jacobs and others. il diag SMPTE J 72:923-6 D '63

How do single-lens reflex cameras differ? E. Meyers. diags Mod Phot 28:64-5 S '64

Large camera. A. Feininger. Published in monthly numbers of Modern photography

Modern tests. Published in monthly numbers of Modern photography

Multiple-pin-hole camera for microelectronics. T. E. Price. il diags Ind Electronics 2:85-8 F '64

New Instamatic cameras. il Product Eng 35:63-4 Mr 30 '64

Out of this world cameras. diags Ind Phot 13:55-7 F '64

Polaroid and the Princess; a tale of two concepts. J. Proctor. il Product Eng 35:110-13 Je 22 '64

Product Engineering fifth annual master design awards; transistor-controlled pack camera. il diag Product Eng 35:113 Ap 27 '64

Put together a complete single-lens reflex outfit for under $100; illustrations with text. E. Meyers. Mod Phot 28:84-5 Mr '64

Shock speed measurement by a modified streak camera. T. Akamatsu. il diags J Sci Instr 41:508-9 Ag '64

Simple camera for high temperature microscopy. P. Feltham. il diags J Sci Instr 41:176-7 Mr '64

Simple electron diffraction camera for the examination of alkali antimonide photoelectric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64

Single-lens reflex. H. Keppler. Published in monthly numbers of Modern photography

Streak camera for laser emission studies. J. L. Helfrich and G. F. Blizard, jr. il diags R Sci Instr 34:1229-32 N '63

Super bargains in Polaroid Land roll film cameras may not be so super, so watch your step. J. Wolbarst. il Mod Phot 28:12 My '64

They said it couldn't be done, and it wasn't; Voigtlander cameras that weren't made. H. Keppler. il Mod Phot 28:58-61 F '64

Time resolution of streak cameras equipped with rotating mirrors of beryllium. J. K. Landré. il diags R Sci Instr 35:796-801 Jl '64

Well traveled camera. Published in monthly numbers of Modern photography

Why build a special camera for space travel? B. Sherman. il Mod Phot 28:12-13 Jl '64

See also

Lenses, Photographic

Moving picture cameras

Control

Automatic 100 Polaroid Land camera. il diag Wireless World 69:575 N '63

Control and trigger system for application in rotating mirror cameras. K. Vogel. bibliog diags J Sci Instr 40:535-8 N '63

Manufacture

Making Minolta cameras; Japanese camera industry. R. E. Green. il Mach 70:84-9 Ja '64

Protection

Caring for your camera; what to look for in a camera case and how to keep your camera clean. A. Feininger. Mod Phot 28:30+ Ap '64

CAMERAS—*Continued*

Small size

Boiler inspection camera. il Engineer 216:819 N 15 '63

CAMERAS, Gamma ray. See Gamma ray cameras

CAMERAS, Moving picture. See Moving picture cameras

CAMERAS, Television. See Television cameras

CAMERAS, X ray. See X ray cameras

CAMPHENE

Condensation of camphene and phenol; product formation via a direct 2,6-hydride transfer. W. F. Erman. bibliog diags Am Chem Soc J 86:2887-97 Jl 20 '64

CAMPING

See also

Camping outfits

CAMPING outfits

Casual furniture firms face problems amidst prosperity. A. G. Rosenthal. il Mod Metals 19:23+ N '63

Out and about. il Engineering 197:240 F 7 '64

Student designers develop creative ideas in aluminum. il Mod Metals 19:56-7 Ja '64

CAMPS

Oneness of form and material; Hidden Valley, contemporary interpretation. il plans diags Prog Arch 44:110-17 D '63

CAMS

Cam compensator for jig borer lead-screws. F. Zagar. il Mach 70:128 N '63

Cam-controlled differential mechanism. P. W. Jensen. diags Mach 71:156 O '64

Cams multiply low pressure input forces. K. P. Schubert. diags Hydraulics & Pneumatics 16:86-7 N '63

Screws permit minute adjustments on cams. J. Waller. diags Am Mach 108:102 Mr 2 '64

Design

New charts quickly lead to minimum cam size. P. W. Jensen. diags Product Eng 35:69-76 Mr 2 '64

Manufacture

Reliability of numerical control proved by ten years of precision machining. E. C. Johnson and R. J. Nymberg. il diags Mach 71:137-41 O '64

CANADA

See also subdivision Canada under special subjects, e.g.

Aeronautic research
Air pollution
Atomic power plants
Automobile industry and trade
Building
Chemical industries
Coal mines and mining
Coal trade
Cosmetic industry and trade
Drug trade
Electric industries
Electric lines
Electric plants (central stations)
Electric utilities
Electricity supply
Electronics industry
Engineering
Engineering education
Engineers
Fertilizer industry
Fuel supply
Gas, Natural
Gas, Natural—Pipe lines
Gasoline industry
Geology
Iron industry and trade
Iron mines and mining
Iron ores
Metal trade
Mineral industries
Mines and mineral resources
Mining industry and finance
Oil shales
Paper industry and trade
Petroleum
Petroleum industry and trade
Petroleum pipe lines
Petroleum products pipe lines
Plastics industries
Potash industry and trade
Potash mines and mining
Roads
Rubber industry and trade
Steel industry and trade
Sulfur industry and trade
Television broadcasting
Textile industry
Tire industry and trade
Uranium mines and mining
Water supply

Industries and resources

Future of automation in Canada. E. W. Leaver. bibliog Eng J 46:28-31 D '63

Research and productivity. J. Convey and V. A. Haw. Can Min & Met Bul 57:45-8 Ja '64

World of design; Canadian engineering. il diags Product Eng 35:57-66 Jl 6 '64

Navy

New hydrofoil to be ready in three years for Royal Canadian navy. il Naval Eng J 75:914 D '63

CANADIAN institute of mining and metallurgy

Annual general meeting, 66th, Montreal, April 13-15. Can Min & Met Bul 57:601-11 Je '64

Annual general meeting, 66th, Montreal, April 13-15; program and abstracts of papers. Can Min & Met Bul 57:193+, 241, 313-23 Mr '64

Annual meeting, 66th, Montreal; with abstracts of papers. Pit & Quarry 57:111-13+ S '64

Annual western meeting, held jointly with the Pacific Northwest metals & minerals conference, A.I.M.E.; Vancouver, Oct. 25-28; program. Can Min & Met Bul 57:903+ S '64

Directory, 1963-1964. Can Min & Met Bul 56:915-90 D '63

Officers and council, 1964-65. Can Min & Met Bul 57:612-14, 769-71, 871-4 Je-Ag '64

Organization, 1964-1965; committees, technical divisions. Can Min & Met Bul 57:765-8 Jl '64

Ralph D. Parker, president, C.I.M. Can Min & Met Bul 57:447 Ap '64

Report of council for the year ended December 31, 1963. map Can Min & Met Bul 57:376-85 Ap '64

Metallurgy division

Annual conference of metallurgists, 3d, Montreal, Sept. 9-11; program. Can Min & Met Bul 57:711-14 Jl '64

Conference of metallurgists, 3d, Sept. 9-11. Can Min & Met Bul 57:1023-6 O '64

Meeting, 2d, Quebec (city), Sept. 3-6; with abstracts of papers. J Metals 15:866-8 N '63; Metal Prog 85:174+ Ap '64

CANADIAN manufacturers of chemical specialties association

Annual convention, 7th, Montreal, Oct. 26-28. Soap & Chem Spec 40:108-9 O '64

Annual meeting, Toronto, Oct. 20-23; with program. Soap & Chem Spec 39:85-6 O; 71-3 N '63

CANALS

Artificial aeration of canals in Chicago. A. J. Kaplovsky and others. bibliog il plan WPCF J 36:463-74 Ap '64

Big draglines carve out Cape Coral canals and marinas. il Eng N 172:45-6 F 27 '64

Costs of nuclear-blasted canals drop. map Eng N 172:17 F 6 '64

H-blasted canal; five years off. Eng N 172:29 Je 11 '64

Low countries plan a water link. Eng N 172:140+ Mr 19 '64

Nuclear excavation of a sea-level Isthmian canal. E. Graves, jr. il maps Civil Eng 34:48-55 O '64

Reality of inland navigation; abstract. J. Aubert. Engineer 216:750-1 N 1 '63

Sea-level canal to link the Atlantic and the Pacific. W. G. Magnuson. il map diags Civil Eng 34:70-2 Ag '64

Transitions for canals and culverts. W. P. Simmons. il diags Am Soc C E Proc 90 (HY 3 no 3918):115-53 My '64

See also

Locks (hydraulic engineering)
Panama Canal
Waterways

Lighting

Aisles of light for the Panama Canal. R. H. Goodman. il map Illum Eng 59:143-5 Mr '64

Belgium

Lighting canal traffic by inclined plane. il Engineering 197:18-19 Ja 4 '64

California

$300-million water-supply canal asked. Eng N 173:21 S 24 '64

Europe

Opening of Moselle canal. il Engineer 217:970-1 My 29 '64

Florida

U.S. starts anew on an old canal; Cross-Florida barge canal. il map Eng N 172:21 F 27 '64

Work starts on Cross-Florida barge canal. Marine Eng/Log 69:77-8 Ap '64

CANALS—*Continued*

New York (state)

New life on the New York state barge canal. F. E. Newcombe. diag Pub Works 95:99 N '64

CANCER

Cancer of the skin; abstract. J. J. Eller. Ind Med 33:482-3 Jl '64

Carcinogenesis tests of two inorganic arsenicals. C. Baroni and others. bibliog Archives Environmental Health 7:668-74 D '63

Carcinogenic implications of inhaled pollutants. N. Nelson. bibliog Archives Environmental Health 8:100-4; Discussion. 110:14 Ja '64

Carcinoma and anthracosilicosis. T. F. Nealon, jr. bibliog Archives Environmental Health 8:882-5 Je '64

Challenge of our environment. R. E. Eckardt. bibliog Archives Environmental Health 9: 127-32 Jl '64

Defective cancer virus; the Rous sarcoma virus is uniquely efficient in producing tumors. H. Rubin. il diags Sci Am 210:46-52 Je '64

Effect of adjusting for competing mortality risks. F. Ederer. bibliog Am J Pub Health 54:1129-33 Jl '64

Electronic weapon against cancer; clinical linear accelerator. N. A. Austin. il diags Electronics 37:88-92 Ap 6 '64

Environment in relation to cancer. L. Wade. bibliog Archives Environmental Health 7: 172-8 Ag '63; Discussion. 7:737-8 D '63

Familial factors in human lung cancer and smoking. G. K. Tokuhata. bibliog diag Am J Pub Health 54:24-32 Ja '64

Inhibition of carcinogenesis; the effect of polycyclic hydrocarbons and related compounds. H. L. Falk and others. bibliog Archives Environmental Health 9:169-79 Ag '64

Lactation and menstrual function as related to cancer of the breast. M. L. Levin and others. bibliog Am J Pub Health 54:580-7 Ap '64

New tools for lung cancer; editorial. J. Wolf. bibliog Archives Environmental Health 9: 141-2 Ag '64

Occupation and cancer. L. Wade. bibliog il Archives Environmental Health 9:364-74 S '64

Photodynamic bioassay of polycyclic air pollutants. S. S. Epstein and others. bibliog Archives Environmental Health 7:531-7 N '63

What changes are occurring in public opinion toward cancer; national public opinion survey. D. Horn and S. Waingrow. Am J Pub Health 54:431-40 Mr '64

Diagnosis

Effect of cytologic program on pelvic examinations. I. N. Dubin and others. Archives Environmental Health 9:514-20 O '64

Some preliminary findings on physical complaints from a prospective study of 1,064,004 men and women. E. C. Hammond. Am J Pub Health 54:11-23 Ja '64

Statistical evaluation of recurrent medical examinations. T. L. Lincoln and G. H. Weiss. bibliog Op Res 12:187-205 Mr '64

CANCER research

Cancer research; an important report on progress. D. A. Darcy. Manuf Chem 35:58+ Jl '64

Identification of nitro-olefins in the combustion products of hydrocarbons. K. F. Lampe and W. B. Deichmann. bibliog diag Ind Med 33:281-3 My '64

Laser beams do kill cancer. P. E. McGuff. Electronics 36:17 N 8 '63

Metabolism of carcinogen shows sex-linked differences. il Chem & Eng N 42:43-4 Je 8 '64

Optimization of a scanning method using Tc^{99m}. P. V. Harper and others. bibliog il Nucleonics 22:50-4 Ja '64

Polycyclic hydrocarbons as carcinogens for man. H. L. Falk and others. Archives Environmental Health 8:721-30 bibliog (p728-30) My '64

Video tube probes human cells. C. R. Whetstone. il(cover) diag Electronics 37:40-1 Ja 31 '64

CANDIED fruit. See Fruit, Candied

CANDY

See also

Marshmallows

CANDY boxes

How Whitman handles package image with care. J. T. Barksdale. il Food Eng 36:54-5 Mr '64

CANDY factories

Equipment

Automatic candy packer may aid metalworkers. Steel 154:142 Ap 13 '64

Cuts twist-wrap costs 33 per cent. F. K. Lawler. il Food Eng 36:102 Je '64

Six ways to bigger profits; illustrations with text. Food Eng 36:94 Ag '64

CANNED food

Effect of postharvest temperature of fresh peas on the quality of the canned peas. K. G. Weckel and others. bibliog Food Tech 18:1207-10 Ag '64

Effect of some fungicides on the flavor of canned strawberries. G. W. Hope. bibliog J Agri & Food Chem 12:189-91 Mr '64

Heat processing. C. R. Stumbo. Food Tech 18: 1373-5 S '64

Nutritive value of proteins in canned navy beans. W. D. Powrie and E. Lamberts. bibliog Food Tech 18:111-13 Ja '64

Shipping damage to canned foods. il Food Tech 18:1157-9 Ag '64

USDA variables control chart plan applied to fill weights. R. P. Bartlett, jr. and H. W. Weatherspoon. bibliog il(cover) Food Tech 18:830-2+ Je '64

See also

Canned meat

Spoilage

Antibiotics and the control of spoilage in canned foods. E. Wheaton and G. L. Hays. bibliog Food Tech 18:549-51 Ap '64

Storage

Factors influencing storage stability of canned tomato paste. B. S. Luh and others. bibliog Food Tech 18:561-4 Ap '64

Thermal degradation of pigments and relative biochemical changes in canned apricots and cherries. K. B. Dalal and D. K. Salunkhe. bibliog Food Tech 18:1198-200 Ag '64

CANNED meat

Certain properties of canned hams as influenced by conditions of thermal processing. E. Karmas and J. E. Thompson. bibliog Food Tech 18:248-51 F '64

Effect of gamma irradiation on the spoilage of canned pork luncheon meat. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18: 1078-80 Jl '64

Headspace constituents of canned beef. M. J. Brennan and R. A. Bernhard. bibliog Food Tech 18:743-6 My '64

Zip top for meat cans. il Product Eng 35:62 Mr 30 '64

CANNERIES

Small town creates new water system for new industry. D. Larsen and W. Osborn. il diag Water Works Eng 116:966-7+ D '63; Abstract. Pub Works 95:154+ F '64

Equipment

Countdown for cherries; counting into fruit cocktail cans. il Food Eng 36:97-8 Mr '64

Crateless retorting effects big savings. G. Howard. il diag Food Eng 36:67-8 Ap '64

Flash 18 sequel to aseptic canning. J. V. Ziemba. il diag Food Eng 36:122-4+ Mr '64

Improves process and product. il Food Eng 36:69 Jl '64

Libby redesigns canning lines for greater flexibility. J. V. Ziemba. il diags Food Eng 36:44-6 F '64

Non-stop flow paces cannery. W. McGuire and E. F. May. il diag Food Eng 36:90-2 Je '64

Simple in-line unit rejects low-vacuum cans. il diag Food Eng 36:48-9 F '64

Quality control

In-plant quality control. R. A. Stewart. Food Tech 18:42-4 Ja '64

CANNING and preserving

Acceptance of the Nicholas Appert award. K. F. Meyer. Food Tech 17:1488+ D '63

Aseptic canning of foods. S. Leonard and others. bibliog Food Tech 18:81-8, 212-18, 363-6 Ja-Mr '64

Brief review of the problems in developing boysenberry products. S. Leonard. il diags Food Tech 18:516-19+ Ap '64

Continuous cranberry sauce. il diag Food Eng 36:52-4 F '64

Effect of pH adjustment and high-temperature short-time processing on color and pigment retention in spinach purée. S. M. Gupte and F. J. Francis. bibliog Food Tech 18:1645-8 O '64

Flash 18 sequel to aseptic canning. J. V. Ziemba. il diag Food Eng 36:122-4+ Mr '64

CANS
Easy-open can. il Engineer 218:593 O 9 '64

Manufacture

Automatic heat-treatment improves quality. B. Strothman. il diag Mach 70:134-6 Mr '64
R-f heating reduces soldering costs. Engineering 198:155 Jl 31 '64

Testing

Experiments with new can coating process. il Soap & Chem Spec 40:125 Ag '64
Simple in-line unit rejects low-vacuum cans. il diag Food Eng 36:48-9 F '64

CANS, Aluminum
Budweiser and Hamm's go to market in aluminum cans. Mod Metals 19:74 N '63
Cola to be sold in aluminum cans. Mod Metals 20:86 Jl '64
Sausage sold in aluminum zip-top can. il Mod Metals 20:78 My '64
Will can revolution shake packaging? F. J. Starin. il Iron Age 192:130 N 14 '63
Zip top for meat cans. il Product Eng 35:62 Mr 30 '64

CANS, Oil. See Oil cans

CANTILEVER beams. See Beams and girders

CANTILEVER bridges. See Bridges, Cantilever

CANTON, Ohio

Architecture

Miniature Rockefeller Plaza in a Midwest city. il plan Arch Forum 120:98-101 Ja '64

CANYONS, Submarine
Congo submarine canyon. B. C. Heezen and others. bibliog il maps diags Am Assn Pet Geologists Bul 48:1126-49 Jl '64
Large rectangular cores from submarine canyons and fan valleys. A. H. Bouma and F. P. Shepard. bibliog il maps Am Assn Pet Geologists Bul 48:225-31 F '64
Turbidites and topography of north end of San Diego Trough, Calif. B. M. Hand and K. O. Emery. bibliog maps J Geol 72:526-42, pl 1-5 S '64

CAPACITANCE. See Electric capacitance

CAPACITORS. See Electric capacitors

CAPE COD
Pleistocene geology of outer Cape Cod, Mass. J. M. Zeigler and others. bibliog maps diags Geol Soc Bul 75:705-14, pl 1 Ag '64

CAPELL, Leonard T.
Dr L. T. Capell to retire. por Chem & Eng N 42:48 Ag 24 '64

CAPILLARIES
Capillary coil helps to control small gas flows. R. W. Gallant. diag Chem Eng 71:118 Ag 3 '64
Large-bore capillary and low-pressure-drop packed columns. R. Teranishi and T. R. Mon. Anal Chem 36:1490-2 Jl '64
Multicomponent diffusion in capillaries. P. L. Silveston. bibliog A I Ch E J 10:132-3 Ja '64
Production of uniform size drops at controllable frequency and spacing from a vibrating capillary. B. J. Mason and J. L. Brownscombe. il J Sci Instr 41:258 My '64
Propagation characteristics of capillary ripples; theory of velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen and J. A. Mann, jr. bibliog J Ap Phys 35:152-8 Ja '64
Roles of capillary wicking and surface deposits in the attainment of high pool boiling burnout heat fluxes. C. P. Costello and W. J. Frea. bibliog diags A I Ch E J 10:393-8 My '64
Small diameter thin-walled gelatin capillaries for powder X-ray diffraction use. J. M. Williams. R Sci Instr 34:1430 D '63
Theory and experiment of a capillary-type emitter. D. L. Dresser and others. bibliog il diags AIAA J 2:52-8 Ja '64
Thin-walled Pyrex capillaries for single-crystal X-ray diffraction of pyrophoric compounds. J. Tanaka and E. L. Amma. R Sci Instr 35:634 My '64
Two-phase flow in capillary tubes. M. Suo and P. Griffith. bibliog diags A S M E Trans ser D 86:576-82 S '64
Use of glass capillary columns with modified internal area in gas chromatography. F. A. Bruner and G. P. Cartoni. bibliog Anal Chem 36:1522-6 Jl '64

CAPILLARITY
Capillary-wave-damping by insoluble organic monolayers. W. D. Garrett and J. D. Bultman. J Colloid Sci 18:798-801 O '63
Propagation characteristics of capillary ripples; instrumentation for measurement of ripple velocity and amplitude. J. A. Mann, jr. and R. S. Hansen. bibliog il diag J Colloid Sci 18:757-71, 805-19 O, D '63
See also
Brownian movements

CAPITAL
Don't invite insolvency; protect your capital base! H. J. Ashe. Pit & Quarry 56:121-2 Je '64
Find what money costs your company. P. D. Moskovits. bibliog Hydrocarbon Process & Pet Refiner 43:129-34 Ag '64
New chart finds capital charges. W. Resnick. bibliog Chem Eng 71:229-30 Je 8 '64
See also
Investments

CAPITAL spending. See Industrial expansion

CAPITALISM
Private enterprise, a catalyst of progress; Messel medal address. R. Boël. Chem & Ind p 1370-5 Ag 1 '64

CAPITOLS
New statehouse for North Carolina. il plan Arch Forum 119:86-93 D '63
See also
Russia—Capitol
United States—Capitol

Lighting

Capitol lighting; Sacramento's 200-ft-wide capitol mall. il diags Elec Constr & Maint 62:68-9 D '63
New light for old. il diags Elec Constr & Maint 63:108-10 Mr '64

CAPROLACTAM
Britain to get first caprolactam plant; Fisons and Staatsmijnen will build a 20,000 ton-a-year plant. il Chem & Eng N 42:42 Jl 13 '64
Caprolactam capacity swells in Europe. Chem & Eng N 42:65-7 O 12 '64
Optically active polyamides; poly-D-(—)-β-methyl-ε-caprolactam. C. G. Overberger and H. Jabloner. bibliog Am Chem Soc J 85:3431-5 N 5 '63
PPG, Dutch state mines form venture to make caprolactam. Chem & Eng N 42:26 Jl 27 '64

CAPRYLIC acid
Aerosol studies by light scattering; preparation of octanoic acid aerosols of narrow and reproducible size distributions. E. Matijević and others. diags J Colloid Sci 19:223-7 Mr '64

CAPSID bugs. See Miridae

CAPSTAN
Fluid-clutched capstan gives computer tape split-second starts and stops. il diags Machine Design 36:102-3 Jl 2 '64
Incremental magnetic tape recorders; stepping techniques for computer compatible tapes. J. T. Boag. il diags Control Eng 11:54-7 Jl '64
New B.I.S.R.A. narrow gap capstan improves cooling efficiency on drawing machines. G. M. Sturgeon. il diags Wire & Wire Prod 39:220-5+ F '64

CAPSULES
About sustained release. V. M. Hermellin. Drug & Cosmetic Ind 94:36-7+ Ja '64
Indium encapsulation technique for introducing weighed samples in gas chromatography. A. G. Nerheim. bibliog diags Anal Chem 36:1686-8 Jl '64
Pipeline flow of capsules. G. W. Hodgson and others. bibliog diags Can J Chem Eng 41:43-51; 42:1-8, 69-76, 155-61, 168-73, 201-6 Ap '63, F-Ap, Ag, O '64; Discussion. 41:181, 212 Ag, O '63

CAPSULES, Gelatin
Encapsulation of flavours. P. Moxey. il Manuf Chem 35:68-9 S '64

CAR axles
Car axles get high speed cold extrusion. il Engineering 198:537 O 23 '64

CAR cleaning
Washing on the railroad. il Soap & Chem Spec 40:78 S '64

CAR couplings
Tool helps open rail car couplings. il Elec World 160:76 D 16 '63

CAR dumpers
Coal tippler anti-breakage device. diags Engineering 197:489 Ap 3 '64
Double pumps supply telescoping cylinders of unloading platform. W. A. Kostick. il diags Hydraulics & Pneumatics 16:84-5 N '63
Use of Koepe hoists and Swedish type of car dumps at Meramec mine. B. L. Beal, jr. il Min Cong J 49:80-3 O '63

CAR painting and finishing
Painting railroad passenger cars. L. J. Legters. il Ind Finishing 40:50-2+ Mr '64

CAR painting and finishing—*Continued*

Painting setup for railroad tank cars. J. Krohne. il Ind Finishing 40:42-4 F '64

Painting Worlds fair monorail cars. H. R. von Dorster. il Ind Finishing 40:46-8 S '64

CAR retarders

Redesign of the Westardair. O. S. Nock. il diags Engineer 217:1071-4 Je 19 '64

Strachan and Henshaw wagon handling equipment. il diag Engineering 197:634-5 My 8 '64

CAR trucks

Air springs in railway vehicles. Engineer 216:777 N 8 '63

CAR wheels

Manufacture

Railway wheel lathe. il Engineer 217:532 Mr 20 '64

CARBAMATES

Cross-linking cotton cellulose with long-chain reactants. E. I. Valko and others. bibliog Textile Res J 34:849-57 O '64

Durability of wash-wear properties of cotton finished with dimethylol ethyl carbamate by the deferred cure process. R. M. H. Kullman and others. bibliog Am Dyestuff Rep 53:167-8 Mr 2 '64

Mass spectra of ethyl *N*-phenylcarbamate and ethyl *N*-ethylcarbamate. C. P. Lewis. bibliog Anal Chem 36:176-80 Ja '64

Nature of certain carbamate metabolites of the insecticide Sevin. H. W. Dorough and J. E. Casida. bibliog il diags J Agri & Food Chem 12:294-304 Jl '64

New solvent for aromatics extraction. G. Cousserans. bibliog diags Hydrocarbon Process & Pet Refiner 43:149-52 Je '64

Para-substituted meta-xylenyl diethyl phosphates and *N*-methylcarbamates as anticholinesterases and insecticides. R. L. Metcalf and others. bibliog J Agri & Food Chem 12:231-6 My '64

Analysis

Colorimetric determination of *o*-isopropoxyphenyl-N-methylcarbamate. P. Bracha. bibliog J Agri & Food Chem 12:461-3 S '64

Determination of 3-(p-chlorophenoxy)-1,2-propanediol 2-carbamate in 3-(p-chlorophenoxy)-1,2-propanediol 1-carbamate by nuclear magnetic resonance. G. Slomp and others. Anal Chem 36:375-80 F '64

Mass spectra of *N*-substituted ethyl carbamates. C. P. Lewis. Anal Chem 36:1582-8 Jl '64

CARBANIONS

Acidity of hydrocarbons; relative stabilities of triphenylmethyl and bridgehead triptycyl carbanions. A. Streitwieser, jr. and others. Am Chem Soc J 86:3578-9 S 5 '64

Carbanions; cleavage of 2,2-dimethylpropyl-, 2,2,2-triphenylethyl-, and 3,3,3-triphenylpropyltrimethylammonium iodides by sodium in liquid ammonia. E. Grovenstein, jr. and L. C. Rogers. bibliog Am Chem Soc J 86:854-61 Mr 5 '64

Electron spin resonance follows electron transfer reactions. G. A. Russell and others. Chem & Eng N 42:49-50 Ap 20 '64

Electron-transfer processes; the scope of the reaction between carbanions or nitranions and unsaturated electron acceptors. G. A. Russell and others. bibliog diags Am Chem Soc J 86:1807-14 My 5 '64

Fluorocarbanions; rates of base-catalyzed hydrogen-deuterium exhange, isotope effects, and acidity of monohydrofluorocarbons. S. Andreades. bibliog Am Chem Soc J 86:2003-10 My 20 '64

α-Halosulfones; conformation requirements of α-sulfonyl carbonions in the synthesis of phenanthrenes from 2-chloro-2,7-dihydro-3,4-5,6-dibenzothiepin 1,1-dioxides. L. A. Paquette. bibliog Am Chem Soc J 86:4085-9 O 5 '64

Influence of basicity of benzylic carbanion on the *ortho*-substitution rearrangement of certain α-carbonyl benzyltrimethyl ammonium compounds. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1108-10 Mr 20 '64

Stereochemical consequences of ion-pair formation involving carbanions. D. J. Cram and L. Gosser. Am Chem Soc J 85:3890-1 D 5 '63

Structural requirements for second-row-element functional groups to preserve asymmetry of carbanions. D. J. Cram and others. bibliog Am Chem Soc J 86:2731-3 Jl 5 '64

X-ray diffraction study of nonplanar carbanion structures. C. Bugg and others. Am Chem Soc J 86:3157 Ag 5 '64

CARBAZOLE

Polymerisation of *N*-vinylcarbazole by π-complex-forming electron acceptors. L. P. Ellinger. bibliog Chem & Ind p 1982-3 D 21 '63

Reaction pathways in the photochemical conversion of diphenylamines to carbazoles. H. Linschitz and K. H. Grellman. Am Chem Soc J 86:303-4 Ja 20 '64

Redox-initiated polymerisation of *N*-vinylcarbazole and 4-vinylpyridine by metal ions. C. H. Wang. Chem & Ind p751-2 My 2 '64

Analysis

Fluorescent detection and spectrophotofluorometric characterization and estimation of carbazoles and polynuclear carbazoles separated by thin-layer chromatography. D. F. Bender and others. bibliog Anal Chem 36:1011-17 My '64

CARBENES

Alkylidenecarbenes. M. Tanabe and R. A. Walsh. Am Chem Soc J 85:3522-3 N 5 '63

Carbene insertion into the carbon-mercury bond; formation of stable dichlorocarbene insertion products which undergo an unusual thermal breakdown. J. A. Landgrebe and R. D. Mathis. bibliog Am Chem Soc J 86:524-5 F 5 '64

Evidence for existence of dimethylsilene found by U.S. and U.S.S.R. chemists. Chem & Eng N 42:40-1 Ap 6 '64

Preparation and etherification reaction of fatty dichlorocyclopropanes. H. E. Kenney and others. bibliog Am Oil Chem Soc J 41:82-5 Ja '64

Reaction of carbethoxycarbene with biphenylene. A. S. Kende and P. T. MacGregor. bibliog Am Chem Soc J 86:2088-9 My 20 '64

CARBIDE cutting tools. See Cutting tools, Carbide

CARBIDES

Direct path from refractory oxides to carbides. diag Chem Eng 70:134+ N 11 '63

Fusion bonding fastens machinable carbide. il Materials in Design Eng 59:128+ Je '64

Fusion process bonds carbide to steel. il Iron Age 193:92 Mr 19 '64

High-temperature thermal expansion behavior of refractory materials; selected monocarbides and binary carbides. B. R. Miccioli and P. T. B. Shaffer. bibliog diags Am Cer Soc J 47:351-6 Jl '64; Correction. 47:536 O '64

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

New idea in diamond wheels. il Am Mach 108:56-7 Ag 31 '64

Rubbing contact materials for face type mechanical seals. J. W. Abar. il diag Lub Eng 20:381-6 O '64

Steel-bonded carbides; reference sheet. Tool & Manuf Eng 52:115-16 Mr '64

Thermal expansion of certain group IV and group V carbides at high temperatures. C. R. Houska. bibliog Am Cer Soc J 47:310-11 Je '64

What modified M2 offers the user. G. Steven and S. J. Smialek. il Metal Prog 85:80-2 My '64

When diamonds grind carbide: how to measure efficiency, economy. E. Ratterman. Tool & Manuf Eng 52:81-4 Je '64

See also

Boron carbide
Cutting tools, Carbide
Hafnium carbide
Iron carbides
Plutonium carbide
Silicon carbide
Tantalum carbide
Thorium carbides
Titanium carbide
Uranium carbide
Zirconium carbide

CARBINOLS

Acid-catalyzed rearrangement of diphenylbicyclo[6.1.0]nona-2,4,6-trien-9-ylcarbinol. K. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:1159-60 Mr 20 '64

Factors influencing the basicities of triarylcarbinols; the synthesis of sesquixanthydrol. J. C. Martin and R. G. Smith. bibliog Am Chem Soc J 86:2252-6 Je 5 '64

Selective oxidation of arylcarbinols to aldehydes. V. J. Traynelis and W. L. Hergenrother. Am Chem Soc J 86:298-9 Ja 20 '64

CARBOBENZYLOXY group. See Benzyloxycarbonyl group

CARBODIIMIDE. See Imides

CARBOHYDRATES

Accessibility of wood and wood carbohydrates measured with tritiated water. Y. Sumi and others. bibliog Tappi 47:621-4 O '64

Carbohydrate and fat metabolism and response to insulin in vitamin B_6-deficient rats. A. M. Huber and others. bibliog J Nutrition 82:371-8 Mr '64

Carbohydrate browns maple sirup. E. E. Stinson. il Chem & Eng N 42:66+ S 14 '64

Changes in retail market food supplies in the United States in the last seventy years in relation to the incidence of coronary heart disease, with special reference to dietary carbohydrates and essential fatty acids. M. A. Antar and others. Am J Clinical Nutrition 14:169-78 bibliog(p 177-8) Mr '64

Effect of dietary carbohydrate on glucokinase and mannokinase activities of various rat tissues. S. Abraham and others. bibliog J Nutrition 83:273-88 Jl '64

Influences of dietary carbohydrate-fat combinations on various functions associated with glycolysis and lipogenesis in rats. C. Carroll. bibliog J Nutrition 79:93-100; 82:163-72 Ja '63, F '64

Mass spectrometry in carbohydrate chemistry; diethyl dithioacetal and dithioketal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:3149-54 Ag 5 '64

Mass spectrometry in carbohydrate chemistry; ethylene dithioacetal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:4027-30 O 5 '64

New plant growth regulators are derived from carbohydrates. il Chem & Eng N 42:60+ My 25 '64

Nucleosides; the introduction of unsaturation into the carbohydrate of a pyrimidine nucleoside via a 2,3′-anhydro bond. J. P. Horwitz and others. Am Chem Soc J 86:1896-7 My 5 '64

Optical rotatory dispersion of carbohydrates. N. Pace and others. Am Chem Soc J 86:3160-2 Ag 5 '64

Serum lipid levels, fat, nitrogen, and mineral metabolism of young men associated with kind of dietary carbohydrate. M. I. Irwin and others. bibliog J Nutrition 82:338-42 Mr '64

Some factors affecting mobility measurements in paper electrophoresis. R. H. Hackman and M. Goldberg. bibliog Anal Chem 36:1220-2 Je '64

Synthesis of deoxy-compounds from carbohydrate toluene -*p*-sulphonylhydrazones. A. N. de Belder and H. Weigel. Chem & Ind p 1689 O 3 '64

Unexpected conversion of carbohydrate mesyl esters to ethers with retention of configuration by reaction with alkoxides in dimethyl sulfoxide. D. H. Ball and others. bibliog Am Chem Soc J 86:3579-80 S 5 '64

See also

Polysaccharides
Starch
Sugars

Analysis

Determination of carbohydrates in glycolipides and gangliosides by gas chromatography. C. C. Sweeley and B. Walker. bibliog Anal Chem 36:1461-6 Jl '64

CARBOLINE. See Pyridindole

CARBON

Carbene insertion into the carbon-mercury bond; formation of stable dichlorocarbene insertion products which undergo an unusual thermal breakdown. J. A. Landgrebe and R. D. Mathis. bibliog Am Chem Soc J 86:524-5 F 5 '64

Carbon as a carrier mechanism for irritant gases. H. G. Boren. bibliog il(p 115-16) Archives Environmental Health 8:119-24; Discussion. 129-31 Ja '64

Carbon-carbon bond energies. J. C. Earl. Chem & Ind p 149 Ja 25 '64

Carbon-carbon bond fission in cyclopropanes. R. T. LaLonde and others. bibliog Am Chem Soc J 85:3767-75 D 5 '63

Carbon-carbon bond fisson in cyclopropanes; the acid-promoted opening of the three-membered ring in *exo*-7-methylbicyclo[4.1.0]heptane and *exo*-6-methylbicyclo[3.1.0]hexane. R. T. LaLonde and M. A. Tobias. bibliog Am Chem Soc J 86:4068-73 O 5 '64

Carbon chokes gases in steel. G. Taylor. il diag Iron Age 194:60-1 Ag 20 '64

Cellulose forms carbon fibers; abstract. M. M. Tang and R. Bacon. Chem & Eng N 42:62 Ap 13 '64

Comparison of pyrolytic carbon film electrode with wax-impregnated graphite electrode. A. L. Beilby and others. bibliog il Anal Chem 36:22-6 Ja '64

Cubane system. P. E. Eaton and T. W. Cole, jr. bibliog Am Chem Soc J 86:962-4 Mr 5 '64

Effect of carbon content on corrosion and tensile properties of Zircaloy-2. S. Kass and J. D. Grozier. il diag Corrosion 20:158-65 My '64

Effects of baking on the excess noise produced by carbon composition resistors. A. G. J. Holt and others. Radio & Electronic Eng 27:384-6 My '64

Graphite and carbon. G. W. Merelli and F. Rusinko, jr. il Chem Eng 70:69-76 D 23 '63

How to measure hardness of pyrolytic carbon. T. M. Kegley, jr and B. C. Leslie. il diags Nucleonics 21:62-4 D '63

Image contrasts in thin carbon films observed by shadow electron microscopy. D. B. Dove. il J Ap Phys 35:1652-3 My '64

Imine insertion into the aluminium carbon bond. K. Hoegerle and P. E. Butler. Chem & Ind p933 My 30 '64

Investigation of the mechanism of the friction and wear of carbon. J. W. Midgley and D. G. Teer. bibliog il diags A S M E Trans ser D 85:488-93; Discussion. 493-4 D '63

Kinetics of adsorption on carbon from solution. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 89 [SA 2 no 3483]:31-59 Ap; [SA 6 no 3745]:53-5 D '63

Nitrene insertion into a C-H bond at an asymmetric carbon atom with retention of optical activity; thermally generated nitrenes. G. Smolinsky and B. I. Feuer. bibliog Am Chem Soc J 86:3085-8 Ag 5 '64

Novel reduction of an allylic carbon-nitrogen bond. G. B. Butler and G. L. Statton. bibliog Am Chem Soc J 86:518 F 5 '64

Phase relations in the system uranium-carbon-oxygen. R. F. Stoops and J. V. Hamme. bibliog diag Am Cer Soc J 47:59-62 F '64

Presence of carbon in aluminum borides. V. I. Matkovich and others. bibliog diag Am Chem Soc J 86:2337-40 Je 20 '64

Raman spectra of diamines and diammonium ions; effects of ionization on carbon-hydrogen stretching frequencies. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:559-64 F 20 '64

Reactions of carbon vapor with hydrogen and with methane in a high intensity arc. R. F. Baddour and J. L. Blanchet. bibliog Ind & Eng Chem Proc Design 3:258-66 Jl '64

Simplified preparation method for carbon replicas and carbon film for specimen support in electron microscopy. G. Münch. bibliog R Sci Instr 35:524 Ap '64

Solvent effects on the C^{13} chemical shift of the substituted carbon atom of phenol. G. E. Maciel and R. V. James. bibliog Am Chem Soc J 86:3893-4 S 20 '64

Studies of reactions of atomic carbon by a double tracer technique. J. Dubrin and others. Am Chem Soc J 86:959-60 Mr 5 '64

Study of hindered divalent carbon species and diazo compounds. H. E. Zimmerman and D. H. Paskovich. bibliog Am Chem Soc J 86:2149-60 Je 5 '64

See also

Coal
Coke
Graphite

Analysis

Carbon determination in ferrous metals by gas chromatography. J. M. Walker and C. W. Kuo. bibliog diag Anal Chem 35:2017-19 D '63

Combustion, conductometric determination of less than ten p.p.m. carbon in tungsten. W. A. Gordon and others. bibliog Anal Chem 36:1396-8 Je '64

Combustion-gas chromatographic method for the simultaneous determination of carbon and sulfur in ferrous metals. W. K. Stuckey and J. M. Walker. diag Anal Chem 35:2015-17 D '63

Combustion, thermal-conductivity analyzer for carbon in steel. L. L. Lewis and M. J. Nardozzi. bibliog diag Anal Chem 36:1329-31 Je '64

Conductometric determination of carbon using carbonate-saturated barium hydroxide absorbent. E. J. Violante. bibliog Anal Chem 36:856-8 Ap '64

Continuous carbon determination in the basic oxygen processes. J. Dumont-Fillon and others. il diag J Metals 16:508-11 Je '64

CARBON—Analysis—*Continued*

Determination of carbon in sodium by isotope dilution mass spectrometry. K. Y. Eng and others. diag Anal Chem 36:1832-4 Ag '64

Determination of carbon in wastewaters by high-temperature wet oxidation. W. J. Weber, jr. and J. C. Morris. bibliog il diag WPCF J 36:573-86 My '64

Determination of free carbon in hafnium carbide. G. Feick and W. Giustetti. Anal Chem 36:2198-9 O '64

Determination of total carbon and sodium carbonate in sodium metal. S. Kallmann and R. Liu. bibliog diags Anal Chem 36:590-2 Mr '64

Determination of total carbon in water by combustion gas chromatography. D. L. West. Anal Chem 36:2194-5 O '64

Development and application of rapid carbon determination for open-hearth control. W. G. Hines and others. il J Metals 16:165-9 F '64

Direct method for the determination of organic carbon in sediments. J. L. Ellingboe and J. E. Wilson. bibliog Anal Chem 36:434-5 F '64

Gas chromatographic determination of microgram amounts of carbon in sodium metal. T. G. Mungall and others. diags Anal Chem 36:70-2 Ja '64

Modification of electron probe to detect carbon. J. Merritt and others. il Anal Chem 35:2209 D '63

Use of infrared analyzer for total carbon determination. C. E. Van Hall and V. A. Stenger. il Water & Sewage Works 111:266-70 Je '64

Isotopes

Analysis of pentaerythritol tetranitrate and its hydrolysis products by thin layer chromatography and radio scanning. F. J. DiCarlo and others. bibliog il Anal Chem 36:2301-3 N '64

Biosynthesis of nicotine in nicotiana glutinosa from carbon-14 dioxide. W. L. Alworth and others. bibliog Am Chem Soc J 86:1608-16 Ap 20 '64

Carbon-13 magnetic resonance. E. G. Paul and D. M. Grant. bibliog Am Chem Soc J 86:2977-90 Ag 5 '64

Determination of carbon-14 in halogenic compounds by an oxygen flask method. H. E. Dobbs. Anal Chem 36:687-9 Mr '64

Improved technique for determination of C^{14} and H^3 by flask combustion. H. P. Baden. il Anal Chem 36:960 Ap '64

Low-level carbon-14 counting technique. L. T. Freeland. bibliog diags Anal Chem 36:2055-7 O '64

Metabolism of phthalimidomethyl-*O,O*-dimethylphosphorodithioate (Imidan) in cotton plants. J. J. Menn and J. B. McBain. bibliog il J Agri & Food Chem 12:162-6 Mr '64

Preparation of carbon-14 and tritium labelled compounds by hydroboration procedures. R. W. Numrich and others. Chem & Ind p 1269 Jl 11 '64

Rapid carbon test for coliform bacteria in water. R. M. Scott and others. bibliog Am J Pub Health 54:827-44 My '64

Simple apparatus for combustion of samples containing C^{14}-labeled pesticides for residue analysis. G. N. Smith and others. bibliog diags J Agri & Food Chem 12:172-5 Mr '64

Studies on the limitations of the Schmidt degradation method by use of carbon-14 labeled compounds. J. L. Rabinowitz and B. Pritzker. bibliog Anal Chem 36:403-4 F '64

Use of carbon-14 in the study of metal-carbon dioxide reactions. W. B. Jepson. bibliog diag J Ap Chem 14:309-15 Ag '64; Abstract. Chem & Ind p332 F 22 '64

Variations in the oxygen and carbon isotope ratios of Florida Bay mollusks and their environmental significance. R. M. Lloyd. bibliog maps J Geol 72:84-111 Ja '64

Variations in the O^{18}/O^{16} and C^{13}/C^{12} ratios of diagenetically altered limestones in the Bermuda Islands. M. G. Gross. map diag J Geol 72:170-94 bibliog(p 193-4) Mr '64

CARBON, Activated

Adsorption in heterogeneous aqueous systems. W. J. Weber, jr. and J. C. Morris. bibliog Am Water Works Assn J 56:447-56 Ap '64

Advances in taste and odor removal with granular carbon filters. M. E. Flentje and D. G. Hager. bibliog il diag Water & Sewage Works 111:76-9 F '64

Chromatographic evaluation of activated carbon. R. A. Baker. bibliog Am Water Works Assn J 56:92-8 Ja '64

Correlation of adsorption equilibria of pure gases on activated carbon. W. H. Cook and D. Basmadjian. bibliog Can J Chem Eng 42:146-51 Ag '64

Equilibria and capacities for adsorption on carbon. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 90 [SA 3 no 3952]: 79-107 Je '64

Granular-activated-carbon beds for odor removal. R. L. Woodward and others. bibliog flow diag diags Am Water Works Assn J 56:287-95 Mr '64

New solvent system for improved extraction of activated charcoal. C. E. Hamilton. Water & Sewage Works 110:422-3 D '63

Problem, musty water; the culprit, actinomycetes. R. E. Hansen. il map Water Works & Wastes Eng 1:45-9 Ja '64

Recovery of organic solvents from polluted air; abstract. N. R. Rowe. Air Cond Heat & Ven 60:35-6 D '63

Reevaluation of granular-carbon filters for taste and odor control. M. E. Flentje and D. G. Hager. bibliog Am Water Works Assn J 56:191-7 F '64

CARBON, Structural

Carbon ring oil-free air compressors. il diag Engineering 197:570 Ap 24 '64

Forms and shapes of materials; ceramic, glass, carbon and graphite; tables. Materials in Design Eng 60:472-3 Mid-O '64

Properties of materials; carbon, graphite, molded, extruded; tables. Materials in Design Eng 60:338 Mid-O '64

Seven methods for fastening carbon and graphite parts. L. F. Simbeck and V. A. Nolan. il diags Machine Design 36:147-50 Ap 9 '64

When and how to employ graphite parts. L. S. Simbeck and V. A. Nolan. il Product Eng 35:54-7 Mr 2 '64

CARBON arc. See Electric arc

CARBON black

Acetylene black is now a domestic product. il Chem Eng 71:80 Je 22 '64

ASTM committee D-24 on carbon black, meeting. Rubber World 150:86+ Ag '64

Application of carbon blacks for the stabilization of high density polythene. R. N. Haward and others. bibliog il Brit Plastics 36:692-7 D '63

Black magic D. Walker. Rubber World 151:92-5 O '64

Black structure; ASTM rubber groups symposiums. Rubber World 149:72 Ja; 89-92 Mr '64; Excerpt. Rubber Age 94:962-3 Mr '64

Carbon black effect on engine mount compounds. T. A. Knurek and R. P. Salisbury. il diags Rubber World 150:46-57 Ag '64

Dielectric phenomena related to the use of carbon black paper screening in high-voltage fully impregnated paper cables. P. Gazzana-Priaroggia and others. bibliog diags IEEE Trans Power Apparatus & Systems p 137-51; Discussion. 151-2 F '64

Dispersant-free aqueous slurries of carbon black; viscosity, techniques of handling, and use in latex masterbatching. A. I. Medalia and E. Hagopian. bibliog diags Ind & Eng Chem Product Res & Develop 3:120-5 Je '64

Elasticity of carbon black networks. A. R. Payne. bibliog diag J Colloid Sci 19:744-54 O '64

Electrical conductance of carbon black. A. Voet. bibliog Rubber Age 95:746-53 Ag '64

Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64

Graphitized carbon black as a support for gas liquid chromatography. T. F. Brodasky. bibliog Anal Chem 36:1604-6 Jl '64

Handling system moves dusty materials, without dust: Goodyear tire & rubber co. J. R. Borgerding. il diag Plant Eng 18:114-17 Jl '64

Internal field emission in carbon black-loaded natural rubber vulcanizates. L. K. H. van Beek and B. I. C. F. van Pul. il Rubber Chem & Tech 37:348-54 Ap '64

Low pH furnace black. H. E. Railsback and others. bibliog Rubber World 150:71-6 Je '64

Low structure blacks. H. J. Collyer. Rubber World 150:43-8 Ap '64

CARBON black—*Continued*

Micro beads coated with a porous thin layer as column packing in gas chromatography; some properties of graphited carbon black as the stationary phase. I. Halász and C. Horváth. bibliog il Anal Chem 36:1178-86 Je '64

New carbon-black plant aimed at specialty market. il diag Chem Eng 71:82+ O 26 '64

New dispersible carbon blacks. A. Voet. Rubber World 150:33-6 Je '64

New high structure carbon blacks. S. d'Adolf. il Rubber World 150:84-97 S '64

Parameters affecting the increase in dielectric loss, caused by carbon black paper screens, for oil paper dielectrics. R. B. Blodgett and F. H. Gooding. bibliog IEEE Trans Power Apparatus & Systems p 121-8; Discussion. 128-9; Reply. 129-30 F '64

Pyrolysis conditions for carbon-black recovery from polyethylene compounds. H. P. Schreiber. Materials Res & Stand 4:288-9 Je '64

Reinforcement of butyl with carbon black. A. M. Gessler. bibliog Rubber Age 94:598-610, 750-8 Ja-F '64

Superprocessing furnace black proves valuable in neoprenes. J. W. Messner and H. V. Krakowski. Rubber Age 94:748-9 F '64

Surface area of nonporous carbon blacks and area of the adsorbed nitrogen molecule. A. Voet. bibliog Rubber Chem & Tech 37:630-4 Jl '64

United invading new markets. il Oil & Gas J 62:51 Ag 24 '64

Manufacture

Carbide begins acetylene black production. il Chem & Eng N 42:23 My 18 '64

Carbon black (oil black); Continental carbon co. diag Hydrocarbon Process & Pet Refiner 42:155 N '63

Selected process flow sheets for petrochemicals. Oil & Gas J 62:116 S 7 '64

Specialty black plant placed on stream by United. il Chem Eng Prog 60:34 S '64

United Carbon enters specialty market; starts new plant designed to turn out carbon blacks. il Chem & Eng N 42:26-7 Ag 31 '64

CARBON compounds

Method for determining carboxyl content of insoluble carbonaceous materials. J. I. Fester and W. E. Robinson. bibliog Anal Chem 36:1392-4 Je '64

See also

Carbohydrates

Hydrocarbons

CARBON dioxide

Adsorption of gases on Raney nickel. J. R. Huff and others. bibliog Ind & Eng Chem Proc Design 3:159-64 Ap '64

Algae dine sumptuously from carbon dioxide feeder. H. J. Lugt. diag Chem Eng 71:175-6 Mr 16 '64

Biosynthesis of nicotine in nicotiana glutinosa from carbon-14 dioxide. W. L. Alworth and others. bibliog Am Chem Soc J 86:1608-16, 3375-81 Ap 20, Ag 20 '64

Carbon dioxide and ammonia in aqueous ammonium nitrate solutions. D. F. Othmer and G. J. Frohlich. bibliog diags Ind & Eng Chem Proc Design 3:270-9 Jl '64

Carbon dioxide stability in beverages. F. J. Miller. Food Tech 18:850-3 Je '64

Effect of argon addition on shock-layer radiance of CO_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64

Engine exhaust gas boosts heavy oil recovery. N. J. Clark and others. diag Pet Management 36:83-4+ Ag '64

Experimental determination of the drift velocity of low-energy electrons in Ar, N_2, CO_2, several Ar-N_2 mixtures, and several Ar-CO_2 mixtures. N. E. Levine and M. A. Uman. bibliog il diags J Ap Phys 35:2618-24 S '64

Ferredoxin acts in primary CO_2 fixation. B. B. Buchanan and others. il Chem & Eng N 42:48-9 S 21 '64

Field and laboratory results of carbon dioxide and nitrogen in well stimulation. G. H. Neill and others. bibliog diags J Pet Tech 16:244-8 Mr '64

Kinetics of absorption of carbon dioxide in monoethanolamine solutions at short contact times. J. K. A. Clarke. bibliog diags Ind & Eng Chem Fundamentals 3:239-45 Ag '64

Loading pressurized products with soluble gases as propellants. H. Z. Sokol. Soap & Chem Spec 40:139-40+ Mr; 147-8+ Ap '64

Measuring gas escape from a landfill. Pub Works 95:163 S '64

Nonvolatile organic acids and core breakdown of Bartlett pears. M. W. Williams and M. E. Patterson. bibliog J Agri & Food Chem 12:80-3 Ja '64

Origin and occurrence of carbon dioxide and gaseous mineral waters, Variscian platform, central Europe. J. Vrba. bibliog map Econ Geol 59:874-82 Ag '64

Oxidation of aluminum by carbon dioxide in the presence of cryolitic electrolyte. S. Gjerstad and B. J. Welch. bibliog diag Electrochem Soc J 111:976-80 Ag '64

Phase relations in the system PbO-CO_2 and the decomposition of cerussite. D. A. Grisafe and W. B. White. bibliog Am Mineralogist 49:1184-98 S '64

Recovery of oxygen. C. S. Coe. Chem Eng Prog 60:33-5 F '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

Study of the vaporization of crude oil by carbon dioxide repressuring. D. E. Menzie and R. F. Nielsen. bibliog flow diag diags J Pet Tech 15:Trans 1247-52 N '63

Surface diffusion of carbon dioxide on alumina. J. B. Rivarola and J. M. Smith. bibliog flow diag diag Ind & Eng Chem Fundamentals 3:308-13 N '64

Unsteady state absorption of carbon dioxide by dilute sodium hydroxide solutions. T. R. Rehm and others. bibliog diag A I Ch E J 9:760-5 N '63

Use of carbon-14 in the study of metal-carbon dioxide reactions. W. B. Jepson. bibliog diag J Ap Chem 14:309-15 Ag '64; Abstract. Chem & Ind p332 F 22 '64

Analysis

Continuous determination of bath carbon in the basic oxygen process. D. A. Dukelow and others. diag Iron & Steel Eng 41:67-71 O '64

Determination of carbon dioxide in boiler feedwater. H. Gaunt and C. Shanks. flow diag diag Chem & Ind p651-3 Ap 18 '64

Intrascintillation vial reaction tube. G. G. Slater and others. diag Anal Chem 36:1888 Ag '64

Rapid routine separation and analysis of ^{14}CO and $^{14}CO_2$ in mixtures of low activity. F. S. Feates. diag J Sci Instr 41:641-2 O '64

See also

Flue gas—Analysis

Industrial applications

Carbonation and shrinkage studies of nonplastic, expanded slag concrete containing fly ash. G. W. Washa and R. L. Fedell. Am Concrete Inst J 61:1109-24 S '64; Supplement. pt 2:1-9 '65

In-process gases aid quality. J. V. Ziemba. il Food Eng 36:61-3 Ja; 75-7 F '64

Plant drying and carbonation of concrete block; NCMA-PCA cooperative program. H. T. Toennies and J. J. Shideler. diags Am Concrete Inst J 60:617-33 My '63; Discussion. 60:1833-4 D '63

Use of carbon dioxide for water injectivity improvement. H. J. Ramsay, jr. and F. R. Small. bibliog J Pet Tech 16:25-31 Ja '64

See also

Electric welding, Arc—Carbon dioxide shielding

CARBON dioxide, Liquid

Bunker fires can be prevented with this CO_2 inerting system. H. M. Rayner. diag Power Eng 68:49-51 My '64

Internal cooling for blow moldings. R. C. Gasmire and A. J. Scalora. diags Mod Plastics 41:130-2 Mr '64

Liquid CO_2 refrigeration system tested vs mechanical for transport. diag Food Eng 36:87 F '64

Remote level indicators for CO_2 storage tanks. W. A. Huss. diags Chem Eng 71:182+ My 11 '64

West Des Moines recarbonation: proportional, two-stage application of liquid CO_2 with one V-notch feeder. A. C. Ward. il diag Water Works Eng 116:882-3 N '63

CARBON disulfide

Fluorescence of carbon disulfide vapor. J. Heicklen. bibliog diag Am Chem Soc J 85:3562-5 N 20 '63

Manufacture

Carbon bisulfide; Thacker engineers, inc. diag Hydrocarbon Process & Pet Refiner 42:154 N '63

CARBON monoxide

Adsorption of gases on Raney nickel. J. R. Huff and others. bibliog Ind & Eng Chem Proc Design 3:159-64 Ap '64

Carbon monoxide disintegration of calcium aluminate cements in refractory castables. W. H. Gitzen and others. bibliog il diag Am Cer Soc Bul 43:518-22 Jl '64

Carbon monoxide insertion reactions; the reaction of methylmanganese pentacarbonyl with amines and phosphines. R. J. Mawby and others. bibliog Am Chem Soc J 86:3994-9 O 5 '64

Catalytic syntheses of acrylic acid and ethyl acrylate from acetylene, carbon monoxide, and water or ethanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog Ind & Eng Chem Proc Design 3:169-76 Ap '64

Catalytic synthesis of methyl acrylate from acetylene, carbon monoxide and methanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog J Ap Chem 13:498-505 N '63

Effect of vanadium pentoxide on gas-phase combustion; the carbon monoxide-sulphur dioxide-oxygen system. C. F. H. Tipper and B. H. Williams. bibliog J Ap Chem 14:315-24 Ag '64

Oxidation of 80Ni-20Cr alloys in carbon monoxide at high temperatures. K. Osthagen. bibliog Corrosion 20:252-5 Ag '64

PF_3 replaces CO in metal carbonyls. Chem & Eng N 42:52-3 O 26 '64

Study of adsorption and oxidation of carbon monoxide on platinum using constant current pulses. T. B. Warner and S. Schuldiner. bibliog Electrochem Soc J 111:992-7 Ag '64

Visible laser transitions in ionized oxygen, nitrogen, and carbon monoxide. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

Analysis

Rapid routine separation and analysis of ^{14}CO and $^{14}CO_2$ in mixtures of low activity. F. S. Feates. diag J Sci Instr 41:641-2 O '64

Spectra

O-2 transition of CO in condensed oxygen, nitrogen, and argon. S. Abramowitz and H. P. Broida. bibliog J Res Nat Bur Stand 68A:331-3 My '64

CARBON monoxide as fuel

CO-boiler payout to come solely from fuel saving. D. H. Stormont. il Oil & Gas J 62:90 Ap 13 '64

Oxygen converter gas recovery. diag Engineer 216:1008 D 13 '63

CARBON monoxide poisoning

Effects of mild carbon monoxide intoxication. J. H. Schulte. bibliog Archives Environmental Health 7:524-30 N '63

Evaluation of fluctuating carbon monoxide exposures. J. R. Goldsmith and others. bibliog diag Archives Environmental Health 7:647-63 D '63

Occupational carbon monoxide hazard of commercial vehicle drivers. W. A. Cook. bibliog Ind Med 33:118-20 Mr '64

CARBON oxides

Carbon suboxide structure proven linear. Franklin Inst J 277:379-80 Ap '64

CARBON paper

How to select correct one-time carbon. Inland Ptr/Am Lithogr 153:70-1 Ap '64

CARBON paste electrodes. See Polarography

CARBON suboxide. See Carbon oxides

CARBON tetrachloride

Charge-transfer complexes in solution; spectrophotometric studies of aromatic hydrocarbon-aromatic nitro compounds dissolved in carbon tetrachloride. N. B. Jurinski and P. A. D. de Maine. bibliog Am Chem Soc J 86:3217-22 Ag 20 '64

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Electrophilic attack of iodine monochloride on hexamethyl- and hexaethylbenzene in carbon tetrachloride. L. J. Andrews and R. M. Keefer. Am Chem Soc J 86:4158-61 O 5 '64

Formation of copper(I) chloride by the action of copper(I) ion on carbon tetrachloride in 2-butanol. I. V. Nelson and others. Am Chem Soc J 86:364-6 F 5 '64

Gas phase reactions between carbon tetrachloride and mass analyzed ions of nitrogen between three and 200 e.v. E. R. Weiner and others. bibliog diags Am Chem Soc J 86:788-93 Mr 5 '64

Oxidation of secondary alcohols with carbon tetrachloride. W. J. Jackson, jr. bibliog Ind & Eng Chem Product Res & Develop 3:100-5 Je '64

Relative hepatotoxicity. Z. T. Wirtschafter and M. W. Cronyn. bibliog Archives Environmental Health 9:180-5 Ag '64

Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system; measurements accurate to 0.0001°. D. R. Thompson and O. K. Rice. bibliog diags Am Chem Soc J 86:3547-53 S 5 '64

Studies on improved recovery of protein from rendering-plant raw materials and products; liquid cyclone separation with carbon tetrachloride. L. G. Criswell and others. bibliog flow sheet diag Food Tech 18:1489-93 S '64

Manufacture

Carbon tetrachloride (Progil-electrochimie process); Progil. diag Hydrocarbon Process & Pet Refiner 42:156 N '63

CARBON tetrachloride poisoning

CCl_4-induced liver damage. G. L. Plaa and R. E. Larson Archives Environmental Health 9:536-43 bibliog(p542-3) O '64

CCl_4 toxicity; hepato-structural and enzymatic change. B. D. Dinman and others. il Archives Environmental Health 7:630-6 bibliog(p645-6) D '63

CARBON tetrafluoride

Constant-volume heat capacity of gaseous tetrafluoromethane. Y. T. Hwang and J. J. Martin. bibliog A I Ch E J 10:89-91 Ja '64

CARBONATES

Build-up and control of carbonates in cyanide copper plating solution. J. R. Crain. bibliog diags Plating 51:31-8 Ja '64

Carbonate sands of Isla Perez, Alacran reef complex, Yucatán. R. L. Folk and R. Robles. bibliog il maps diags J Geol 72:255-92, pl 1-4 My '64

Diisopropyl peroxydicarbonate offers new route to phenols. P. Kovacic and S. T. Morneweck. Chem & Eng N 42:42-3 S 28 '64

Glass formation in carbonate systems. R. K. Datta and others. Am Cer Soc J 47:153 Mr '64

New lens material undergoes tests. il Safety Maint 128:11-13 S '64

Petroleum in carbonate rocks. E. W. Owen. Am Assn Pet Geologists Bul 48:1727-30 O '64

Polarization studies of molten carbonate fuel cell electrodes. I. Trachtenberg. il diag Electrochem Soc J 111:110-13 Ja '64

Pore geometry as related to carbonate stratigraphic traps. J. L. Stout. bibliog il Am Assn Pet Geologists Bul 48:329-37 Mr '64

Recovering carbonate water softening sludge with kraft causticizing mud. M. M. Schirtzinger and H. A. Smith. flow diag Tappi 47:sup 184A-6A Ja '64

Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72:477-83 Jl '64

See also

Alkali metal carbonates
Calcium carbonate
Copper carbonate
Dolomite
Iron carbonates
Lead carbonate
Magnesium carbonate
Potassium carbonates

Manufacture

Polycarbonates; General electric co. diag Hydrocarbon Process & Pet Refiner 42:215 N '63

CARBONIFEROUS period. See Geology, Stratigraphic—Carboniferous

CARBONIUM compounds

Bridgehead adamantane carbonium ion reactivities. R. C. Fort, jr. and P. V. Schleyer. bibliog Am Chem Soc J 86:4194-5 O 5 '64

Carbonium ion behavior of nopinyl derivatives. E. C. Friedrich and S. Winstein. Am Chem Soc J 86:2721-2 Jl 5 '64

Carbonium ion rearrangements; mechanism of the rearrangement of neopentyl compounds. G. J. Karabatsos and others. bibliog Am Chem Soc J 86:1994-7 My 20 '64

Carbonium ions. N. C. Deno and others. bibliog Am Chem Soc J 86:1741-8 My 5 '64

Carbonium ions in solution. N. C. Deno. diags Chem & Eng N 42:88-94+ O 5 '64

CARBONIUM compounds—*Continued*

Carbonium ions; the direct observation of saturated and unsaturated acyl cations and their equilibria with protonated acids. N. C. Deno and others. bibliog Am Chem Soc J 86:4370-2 O 20 '64

Chemical shifts and long range shielding effects in the nuclear magnetic resonance spectra of phenyldimethyl, diphenyl, triphenyl, and related carbonium ions. D. G. Farnum. bibliog Am Chem Soc J 86:934-5 Mr 5 '64

Crystal and molecular structure of a carbonium ion; 3-chloro-1,2,3,4-tetraphenylcyclobutenium pentachlorostannate. R. F. Bryan. diags Am Chem Soc J 86:733-4 F 20 '64

Detailed analysis of the 7-norbornadienyl carbonium ion nuclear magnetic resonance spectrum. P. R. Story and others. bibliog diags Am Chem Soc J 85:3630-4 N 20 '63

Dicarbonium ion as solvolysis intermediate. W. P. Giddings and R. F. Buchholz. Am Chem Soc J 86:1261-3 Mr 20 '64

Electromotive force cell for carbonium ion stabilization energies. E. D. Jenson and R. W. Taft. bibliog Am Chem Soc J 86:116-17 Ja 5 '64

Hydrolysis of dicarbonium ions; kinetics and mechanism. H. Hart and N. R. Roobol. bibliog Am Chem Soc J 86:1373-5 Ap 5 '64

Hyperconjugation theory of carbonium ion reactions. S. Ehrenson. bibliog Am Chem Soc J 86:847-54 Mr 5 '64

Isolation of a 3α,5α-bridged carbonium ion perchlorate. J. W. Blunt and others. Chem & Ind p 1955 D 14 '63

Nonclassical carbonium ion problem; reaction rates. P. von Ragué Schleyer. bibliog Am Chem Soc J 86:1856-7 My 5 '64

One-electron transfer from an olefin to a dicarbonium ion. H. Hart and others. bibliog Am Chem Soc J 86:2079-80 My 20 '64

Quadricyclic carbonium ion; solvolysis of 7-quadricyclo[$2.2.1.0^{2,6}.0^{3,5}$]heptane derivatives. P. R. Story and S. R. Fahrenholtz. bibliog diags Am Chem Soc J 86:527-8 F 5 '64

Ring expansion route to bicyclic carbonium ions. J. A. Berson and others. bibliog diags Am Chem Soc J 86:595-616 F 20 '64

Silicon forms carbonium ion analogs. R. West and J. Y. Corey. Chem & Eng N 41:32-3 D 30 '63

Solvent effects in organic chemistry; solvation of stable carbonium and ammonium ions in water; the temperature coefficient of the H_R acidity scale. E. M. Arnett and R. D. Bushick. bibliog Am Chem Soc J 86:1564-71 Ap 20 '64

Stable carbonium ions; alkylcarbonium hexafluoroantimonates. G. A. Olah and others. bibliog Am Chem Soc J 86:1360-73 Ap 5 '64

Stable carbonium ions; nuclear magnetic resonance investigation of the diphenylcarbonium, diphenylmethylcarbonium, and phenyldimethylcarbonium ions. G. A. Olah. bibliog Am Chem Soc J 86:932-4 Mr 5 '64

Stable carbonium ions; nuclear magnetic resonance investigation of the triphenyl-C^{13}-carbonium ion. G. A. Olah and others. Am Chem Soc J 86:1265 Mr 20 '64

Stable carbonium ions; the 1-adamantyl cation. P. V. Schleyer and others. bibliog Am Chem Soc J 86:4195-7 O 5 '64

Toward an understanding of nonclassical carbonium ions. R. Hoffmann. bibliog Am Chem Soc J 86:1259-61 Mr 20 '64

CARBONYL chloride

Demand for phosgene is on the upsurge. il Chem & Eng N 41:30-1 N 11 '63

CARBONYL compounds

Addition of acylcobalt carbonyls to acetylenes; π-(2,4)-(alkeno-4-lactonyl)cobalt tricarbonyl derivatives and their conversion to 2,4-pentadieno-4-lactones. R. F. Heck. bibliog Am Chem Soc J 86:2819-24 Jl 20 '64

π-Allyliron carbonyl complexes. R. F. Heck and C. R. Boss. bibliog Am Chem Soc J 86:2580-3 Jl 5 '64

Carbon monoxide insertion reactions; the reaction of methylmanganese pentacarbonyl with amines and phosphines. R. J. Mawby and others. bibliog Am Chem Soc J 86:3994-9 O 5 '64

Carbonyl-stretching absorptions in the pentacarbonyl hydrides of manganese, technetium, and rhenium. D. K. Huggins and H. D. Kaesz. bibliog Am Chem Soc J 86:2734-6 Jl 5 '64

Cyclopropenone metal carbonyl complex. C. W. Bird and E. M. Hollins. Chem & Ind p 1362 Jl 25 '64

Degradation of monocarbonyls from autoxidizing lipids. D. A. Lillard and E. A. Day. bibliog Am Oil Chem Soc J 41:549-52 Ag '64

Diazonium and carbonyl derivatives of polyhedral boranes. W. H. Knoth and others. diag Am Chem Soc J 86:115-16 Ja 5 '64

Direct quantitative isolation of monocarbonyl compounds from fats and oils. D. P. Schwartz and others. bibliog Anal Chem 35:2191-4 D '63

Donor properties of some carbonyl compounds. R. L. Middaugh and others. bibliog Am Chem Soc J 86:388-92 F 5 '64

Excited states in the photolysis of carbonyl compounds; the photosensitized decomposition by benzophenone. P. Borrell. Am Chem Soc J 86:3156-7 Ag 5 '64

Five-coordinate hydrido-carbonyl complexes of rhodium and iridium and their analogy with CoH(CO)$_4$. S. S. Bath and L. Vaska. bibliog Am Chem Soc J 85:3500-1 N 5 '63

Gas chromatographic separation of 2,4-dinitrophenylhydrazone derivatives of carbonyl compounds. R. J. Soukup and others. bibliog Anal Chem 36:2255-6 N '64

Higher recoveries of carbonyl compounds in flash exchange gas chromatography of 2.4-dinitrophenylhydrazones. J. W. Ralls. Anal Chem 36:946 Ap '64

Hydridocarbonyl complexes of osmium by reaction with alcohols. L. Vaska. bibliog Am Chem Soc J 86:1943-50 My 20 '64

Influence of basicity of benzylic carbanion on the *ortho*-substitution rearrangement of certain α-carbonyl benzyltrimethylammonium compounds. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1108-10 Mr 20 '64

Keto-enol tautomerism in β-dicarbonyls studied by nuclear magnetic resonance spectroscopy; proton chemical shifts and equilibrium constants of pure compounds. J. L. Burdett and M. T. Rogers. bibliog Am Chem Soc J 86:2105-9 Je 5 '64

New types of organosulfur derivatives of metal carbonyls. R. B. King and M. B. Bisnette. bibliog Am Chem Soc J 86:1267-8 Mr 20 '64

Organometal carbonyl containing covalent bonds from iron to mercury to cobalt. S. V. Dighe and M. Orchin. bibliog Am Chem Soc J 86:3895-6 S 20 '64

PF$_3$ replaces CO in metal carbonyls. R. J. Clark and P. I. Hoberman. Chem & Eng N 42:52-3 O 26 '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; cobalt and manganese complexes. R. G. Hayter. bibliog Am Chem Soc J 86:823-8 Mr 5 '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; reactions of tetrakis (trifluoromethyl) diarsine with some metal carbonyl compounds. W. R. Cullen and R. G. Hayter. bibliog Am Chem Soc J 86:1030-2 Mr 20 '64

Polarographic studies in acetonitrile and dimethylformamide; behavior of α,β-unsaturated carbonyl compounds. S. Wawzonek and A. Gundersen. bibliog Electrochem Soc J 111:324-8 Mr '64

Pro-oxidant effect of some carbonyl compounds in vegetable oils. R. H. Anderson and T. E. Huntley. bibliog Am Oil Chem Soc J 41:686-8 O '64

Synthesis of hypophosphite esters from orthocarbonyl compounds. S. J. Fitch. Am Chem Soc J 86:61-4 Ja 5 '64

See also

Iron carbonyls

Tungsten carbonyls

Analysis

Determination of the volatile or free carbonyl content of fats. C. H. Lea and H. A. F. Jackson. bibliog Chem & Ind p 1429-30 Ag 8 '64

Gas chromatographic determination of the carbonyl forms of sugars. E. Bayer and R. Widder. bibliog Anal Chem 36:1452-5 Jl '64

Rapid determination of binary mixtures by pseudo first-order differential reaction rates; conductometric determination of carbonyl compounds. L. J. Papa and others. Anal Chem 35:1889-91 N '63

Spectrophotometric determination of trace concentrations of carbonyl compounds. D. E. Jordan and F. C. Veatch. Anal Chem 36:120-4 Ja '64

CARBONYL group

Changes in carbonyl spectrum during bleaching, steeping, and aging. H. Sihtola and L. Neimo. bibliog Tappi 46:730-4 D '63

CARBONYL group—*Continued*

Ester, ether, and carbonyl functions as *ortho* participants in the dissociation of iodobenzene dichloride. L. J. Andrews and others. bibliog Am Chem Soc J 86:687-90 F 20 '64

Molecular rearrangements; chlorine migration in the epoxide-carbonyl rearrangement. R. N. McDonald and P. A. Schwab. bibliog Am Chem Soc J 85:4004-9 D 20 '63

Neighboring group effects on ester hydrolysis; neighboring carbonyl groups. Y. Shalitin and S. A. Bernard. Am Chem Soc J 86:2292 Je 5 '64

Organic syntheses by means of noble metal compounds; catalytic carbonylation of allylic compounds with palladium chloride. J. Tsuji and others. bibliog Am Chem Soc J 86:4350-3 O 20 '64

Organic syntheses by means of noble metal compounds; preparation of a new type of π-allylic palladium chloride complex and its carbonylation. J. Tsuji and others. Am Chem Soc J 86:4491 O 20 '64

Reduction of carbonyl groups by a model for a coenzyme. D. C. Dittmer and R. A. Fouty. bibliog Am Chem Soc J 86:91-5 Ja 5 '64

Sensitization and catalysis of light-induced decarbonylation of aldehydes. J. D. Berman and others. bibliog Am Chem Soc J 85:4010-13 D 20 '63

Simplified modification of Wolff-Kishner reduction for hindered or masked carbonyl groups. W. Nagata and H. Itazaki. bibliog Chem & Ind p 1194-5 Je 27 '64

Solvent effects on the C^{13} chemical shift of the carbonyl group of acetone. G. E. Maciel and G. C. Ruben. bibliog Am Chem Soc J 85:3903-4 D 5 '63

Transfer of alkyl-substituted methylenes from sulfonium alkylides to carbonyl groups. E. J. Corey and W. Oppolzer. bibliog Am Chem Soc J 86:1899-900 My 5 '64

CARBONYLHEMOGLOBIN

Occupational carbon monoxide hazard of commercial vehicle drivers. W. A. Cook. bibliog Ind Med 33:118-20 Mr '64

CARBOXYL group

Catalysis of the decarboxylation of dimethyloxaloacetate by manganese(II), nickel(II), and their complexes. J. V. Rund and R. A. Plane. bibliog Am Chem Soc J 86:367-71 F 5 '64

Crosslinking reactions of carboxylic elastomers. H. P. Brown. Rubber Chem & Tech 36:931-62 bibliog(p961-2) O '63

Exchange reaction between calcium and carboxyl groups in cellulose. E. S. Putnam. bibliog il diag Tappi 47:549-54 S '64

Oxidative decarboxylation. L. F. Fieser and M. J. Haddadin. bibliog Am Chem Soc J 86:2392-5 Je 20 '64

Phosphonic acids and esters; intramolecular electrophilic catalysis of phosphonate ester hydrolysis by neighboring carboxyl. M. Gordon and others. bibliog Am Chem Soc J 86:1898-9 My 5 '64

Analysis

Determination of functional groups in copolymers by infrared spectrometry. F. D. Brako and A. S. Wexler. Anal Chem 35:1944-7 N '63

Method for determining carboxyl content of insoluble carbonaceous materials. J. I. Fester and W. E. Robinson. bibliog Anal Chem 36:1392-4 Je '64

CARBOXYLATES

Dimethyl acetylenedicarboxylate, indene adduct; a novel Diels-Alder reaction. K. W. Muir and others. bibliog Chem & Ind p 1581-2 S 12 '64

Effects of solvent and structure on the low intensity $(n \rightarrow \pi^*)$ electronic transition of carboxylate esters. W. D. Closson and P. Haug. bibliog Am Chem Soc J 86:2384-9 Je 20 '64

Electron transfer through organic structural units; aromatic and heterocyclic carboxylates as bridging groups in oxidation-reduction reactions. E. S. Gould and H. Taube. bibliog Am Chem Soc J 86:1318-28 Ap 5 '64

Kinetics of the thermal decomposition of methyl cyclobutanecarboxylate. M. Zupan and W. D. Walters. bibliog Am Chem Soc J 86:173-6 Ja 20 '64

Nuclear magnetic resonance studies of metal aminopolycarboxylate complexes. R. J. Day and C. N. Reilley. bibliog Anal Chem 36:1073-6 My '64

Nuclear magnetic resonance studies of protonation of polyamine and aminocarboxylate compounds in aqueous solution. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1698-706 Ag '64

Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64

Preparation of dimethyl-2,6-naphthalenedicarboxylate. H. J. Peterson and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:230-3 S '64

Reaction of dimethyl acetylenedicarboxylate with malonic acid derivatives. P. Bamfield and others. Chem & Ind p 1313-14 Jl 18 '64

Solutions of alkali metal carboxylate mixtures in hydrocarbons. E. Kissa. bibliog J Colloid Sci 19:279-89 Mr '64

Stereochemistry of asymmetric silicon; carboxylate and tosylate leaving groups. L. H. Sommer and others. bibliog Am Chem Soc J 86:3280-3 Ag 20 '64

CARBOXYLATION

Chelation as a driving force in organic reactions: a generic synthesis of amino acids by the carboxylation and alkylation of 3-phenylhydantoin. H. Finkbeiner. Am Chem Soc J 86:961-2 Mr 5 '64

CARBOXYLIC acids

Biosynthesis of azetidine-2-carboxylic acid. E. Leete. Am Chem Soc J 86:3162 Ag 5 '64

Catalytic esterification of saturated carboxylic acids with ethylene under high pressure. S. K. Bhattacharyya and C. R. Lahiri. bibliog J Ap Chem 13:544-7 D '63

Coulometric determination of carboxylic acid hydrazides. A. F. Krivis and others. bibliog Anal Chem 35:1955-7 N '63

Crystal structure of 3,4-furandicarboxylic acid. D. E. Williams and R. E. Rundle. bibliog Am Chem Soc J 86:1660-6 My 5 '64

Facilitated reversible formation of amides from carboxylic acids in aqueous solutions; intermediate production of acid anhydride. T. Higuchi and others. Am Chem Soc J 85:3655-60 N 20 '63

Gravimetric determination of zirconium and hafnium by aromatic carboxylic acids. A. K. Mukerji. Anal Chem 36:1064-6 My '64

Influence of hydrogen and hydrophobic bonds on the stability of the carboxylic acid dimers in aqueous solution. E. E. Schrier and others. bibliog Am Chem Soc J 86:3444-9 S 5 '64

New general heterocycle synthesis; use of acetylene dicarboxylic esters. J. B. Hendrickson and others. bibliog Am Chem Soc J 86:107-11 Ja 5 '64

Tert-butyl and *tert*-pentyl esters of 6-methyl-3-cyclohexene-1-carboxylic acid as attractants for the Mediterranean fruit fly. M. Beroza and others. J Agri & Food Chem 12:258-9 My '64

Analysis

Partition chromatographic separation and determination of *cis*- and *trans*-1,3-cyclopentanedicarboxylic acids. E. C. Bossert and others. bibliog diag Anal Chem 36:1213-17 Je '64

CARBOXYMETHYL cellulose

Carboxymethylation of a eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:107-10 F '64

CARBOXYMETHYL compounds

Behavior of salts of a carboxymethylated eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:170-6 Mr '64

CARBOXYMETHYLATION

Some effects of cross-linking and carboxymethylation on cotton fabrics. A. L. Bullock and others. Textile Res J 34:741-6 S '64

CARBOXYPEPTIDASE

Polymerization of bovine pancreas carboxypeptidase A. J. L. Bethune. bibliog Am Chem Soc J 85:4047-8 D 20 '63

Studies on the esterase action of carboxypeptidase A; kinetics of the hydrolysis of acetyl-L-mandelate. E. T. Kaiser and F. W. Carson. bibliog Am Chem Soc J 86:2922-6 Jl 20 '64

CARBURETORS

Fuel-saver for LP-gas; pressure-injection carburetion system. il diag Mod Materials Handling 19:43 N '64

CARBURIZATION. See Case hardening

CARBURIZING furnaces. See Furnaces, Carburizing

CARD system in business

See also

Punched card system

CARDING
Fact file 1964; carding, drawing and combing. diags Textile World 114:56+ Jl '64
First survey on card web regularity. A. Barella and others. diag Textile Res J 34:559-61 Je '64
New electronic device for counting and classifying neps in card web. A. Viaplana and others. bibliog il diags Textile Res J 34:675-81 Ag '64
See also
Cotton carding

CARDING machines
Carding; phase two. J. Ellington. il diags Textile Ind 128:69-96 Je '64
15 cards do the work of 66; Crescent spinning co. il Textile World 114:60-1 Je '64
Instrumentation studies on the carding machine. T. Kawakami and others. il diags Textile Res J 34:889-901 O '64

CARDIOGRAPH
See also
Electrocardiograph

CARGO handling
Biennial technical conference of the International cargo handling coordinating association, 6th, London, Oct. 1-3; with abstracts of papers. Marine Eng/Log 68:61-2 N '63
Bulk cargo handling compressor. il Engineer 216:1071 D 27 '63
Cranes and cargo handling equipment; illustrations with text. Engineer 217:44-5 Ja 3 '64
Handling cargoes on and off ships. J. H. Jellett. il diag Engineering 198:405-7 S 25 '64
Moving cargo directly from ship to shore. il Engineering 198:538 O 23 '64
See also
Loading and unloading—Airplanes
Loading and unloading—Ships

CARGO ships. See Freight ships

CARIBBEAN region
See also subdivision Caribbean region under special subjects, e.g.
Chemical industries
Geology
Radio communication

CARNAUBA wax

Specifications

Specifications for genuine pure carnauba wax. Soap & Chem Spec Blue Book p 273 '64

CARNOT, Nicolas Léonard Sadi
World of Carnot. W. L. Cisler. Mech Eng 85:40-1 D '63

CARNOT cycle
Carnot function. J. H. Potter. bibliog diags Franklin Inst J 276:507-18 D '63
Idealized limited-pressure compression-ignition cycle. P. Van Der Werf. bibliog diag A S M E Trans ser A 86:201-8 Ap '64

CAROTENE
Reaction of carotene with nitrite solutions. D. L. Pugh and G. B. Garner. bibliog J Agri & Food Chem 11:528-9 N '63
Vitamin A in serum and liver of weanling pigs fed a protein-deficient diet and fixed intakes per unit of live weight of carotene in oil. H. D. Eaton and others. bibliog J Nutrition 82:343-52 Mr '64

CAROTENOIDS
Carotenoids in manufactured foods; abstract and discussion. G. H. Clement. Chem & Ind p24 Ja 4 '64
Carotenoids of diospyros kaki (Japanese persimmons). J. Brossard and G. Mackinney. bibliog J Agri & Food Chem 11:501-3 N '63

CAROTHERS, Wallace Hume
Carothers elected to Rubber hall of fame. por Rubber Age 94:462 D '63
Sketch. R. Adams. Rubber Chem & Tech 37:sup xxviii-xxxiv Ja '64

CARPET beetles
Textile resistance test: Chemical specialties manufacturers association; latest revision. bibliog Soap & Chem Spec Blue Book p233-6 '64

CARPET factories

Equipment

For producing high quality yarns for tufting Whitin's sliver-to-yarn system. F. M. Johnson. flow chart il Mod Textiles Mag 45:60+ Je '64
Small mill in a hurry; Palmetto spinning corp. il plan Textile World 114:62-5 N '64

Management

Now, a fast, easy way to predict your carpet-yarn costs. S. I. Kelen. diags Textile World 114:66-9 N '64

CARPET industry
Carpet industry's rise helps synthetic fibers. il Chem & Eng N 42:32-3 F 17 '64
Record carpet sales expected. L. P. Weicker. Mod Textiles Mag 45:21-2 F '64

CARPETS
For producing high quality yarns for tufting Whitin's sliver-to-yarn system. F. M. Johnson. flow chart il Mod Textiles Mag 45:60+ Je '64
Growth patterns in the U.S. carpet industry. W. A. Reynolds. Am Dyestuff Rep 53:451-4 Je 8 '64
How to tuft Herculon. P. C. Kochhar. il Textile Ind 127:130-2 N '63
Outlook bright for home furnishing fabrics. il Mod Textiles Mag 45:15-20 F '64
Processing and performance characteristics of Chemstrand's Acrilan acrylic fiber in carpets. D. B. Finn. Am Dyestuff Rep 53:464-7 Je 8 '64
Tuft a little louder; the housewife needs to be told of tufted carpets. J. Ellington. il Textile Ind 128:81-3+ My '64
Tufters see billion dollar sales ahead, hear of need for more styling, research. il Mod Textiles Mag 45:22-4 Je '64
See also
Dyes and dyeing—Carpets

Manufacture

Barwick mills, producer of tufted carpets and rugs, enters the contract field with Colorset; a continuous printing and finishing process. il Textile Ind 128:79-80 My '64
Changing technology of the carpet industry. J. J. Hanlon. Am Dyestuff Rep 53:455-7 Je 8 '64
Hints for nylon tufters. il Textile Ind 128:101+ My '64
What's new for tufted textile makers. il Textile Ind 128:100B+ My '64

CARRAGEENAN
Precipitation reaction of carrageenan with gelatin. E. A. MacMullan and F. R. Eirich. bibliog J Colloid Sci 18:526-37 Ag '63

CARRIER current control
Experimental evaluation of power-line carrier propagation on a 500-kv line. D. E. Jones and B. Bozoki. bibliog diag IEEE Trans Power Apparatus & Systems p 16-20; Discussion. 20-3 Ja '64
Method for the design of a phase-lag demodulating compensator for use in carrier control systems. G. J. Murphy and A. Knox. bibliog diags IEEE Trans Applications & Ind 83:252-7 Jl '64
Method of analysis of power line carrier problems on three-phase lines. M. C. Perz. diags IEEE Trans Power Apparatus & Systems 83:686-91; Discussion. 754-5; Reply. 755-6 Jl '64
Natural modes of power line carrier on horizontal three-phase lines. M. C. Perz. bibliog diags IEEE Trans Power Apparatus & Systems 83:679-86; Discussion. 748-53; Reply. 753-4 Jl '64
Symposium on remote control of material handling equipment. J. W. Bauer, jr.; W. A. Robinson. il Iron & Steel Eng 41:93-7 Je '64

CARRIER current telegraph. See Telegraph, Carrier current

CARRIER current telephone. See Telephone, Carrier current

CARRIERS of infection
Challenge of the validity of the Vi test for the detection of chronic typhoid carriers. V. Bokkenheuser and others. bibliog Am J Pub Health 54:1507-13 S '64
Detection of typhoid carriers. V. Bokkenheuser. Am J Pub Health 54:477-86 bibliog (p484-6) Mr '64

CARS
Automatic recording of gross, tare and net weights. il Engineer 218:342 Ag 28 '64
Minimum weight factors for railway equipment. Materials in Design Eng 59:86 Mr '64
See also
Car couplings
Car trucks
Freight cars
Mine cars
Motor cars (railroad)
Railroads—Rolling stock
Tank cars

Axles

See Car axles

Bearings

Infrared detector. il Mech Eng 86:52 Ja '64

CARS—*Continued*

Design

More room in latest British railways carriages. il Engineering 197:765 Je 5 '64

Electric equipment

Auxiliary equipment of electric trains. Engineer 217:351-2 F 21 '64

Riding qualities

Air springs in railway vehicles. Engineer 216:777 N 8 '63

CARS, Aluminum

Aluminum rapid transit system. il Light Metal Age 22:29 Ag '64

CARS, Inspection

Overhead equipment inspection train. il Engineer 217:756 Ap 24 '64

Rail flaw detector really mobile now. il Welding Eng 49:52 Je '64

CARS, Steel

Railroads sparkle with new stainless cars. il Materials in Design Eng 59:170+ Ap '64

CARSON, Rachel

Obituary. por Chem & Eng N 42:24 Ap 20 '64

CARTOONS

Dietary cartoons in creating patient good will. R. S. Hoyt and E. P. Dickinson. Am J Clinical Nutrition 14:123-4 F '64

New fad in plumbing; the industry's playing footsies. diags Dom Eng 203:70-1 Ja '64

This rain, it's plain, didn't go down the drain; a refreshing course on what to do about leaky basements. Dom Eng 203:82-3 F '64

See also

Moving pictures—Animated cartoons

CARTRIDGE cases, Plastic

Designing for toughness; polyethylene mortar shell casings. il diags Mod Plastics 41:91+ N '63

CARTS

Mechanical switch-cart systems; towed platform carts, mechanically programmed. W. L. DeWent. il diag Mech Eng 85:34-7 D '63

CARVOMENTHOLS. See Menthanol

CARYOPHYLLENE

Structure and stereochemistry of α-caryophyllene alcohol. A. Nickon and others. bibliog Am Chem Soc J 86:1437-8 Ap 5 '64

Structure of α-caryophyllene alcohol. K. W. Gemmell and others. bibliog Am Chem Soc J 86:1438-9 Ap 5 '64

Total synthesis of α-caryophyllene alcohol. E. J. Corey and S. Nozoe. bibliog Am Chem Soc J 86:1652-3 Ap 20 '64

Total synthesis of *d,l*-caryophyllene and *d,l*-isocaryophyllene. E. J. Corey and others. bibliog Am Chem Soc J 86:485-92 F 5 '64

CASCADE process. See Gasoline—Manufacture

CASE hardening

Controlling the case hardening of precision parts. N. P. Milano. il diag Metal Prog 84:78-81 N '63

Easy way to age form titanium. R. E. Layton. il Am Mach 108:77-9 S 14 '64

Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450°C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64

Flame and induction-hardened gears; reference book sheet. diags Am Mach 108:79+ My 25 '64

Heat treating truck parts in a modern plant. R. A. Grayson. il Metal Prog 86:74-9 Jl '64

Heavy duty carburizing steel. Materials in Design Eng 60:147-9 O '64

High temperature carburizing; the process works. W. E. Jominy. il Metal Prog 85:70-3 My '64

Infrared method of controlling carburizing gases to promote quality in roller bearings; abstract. O. W. McMullan. Metal Prog 86:240+ O '64

New gas solves flame hardening problem. il Am Mach 108:71 Ja 6 '64

Swinden laboratories research on carburising steels. Engineer 216:916 N 29 '63

Use of CH_4-H_2 mixture for controlled carburization of alpha-iron. D. Driver and P. Barrand. diag Iron & Steel Inst J 202:614-15 Jl '64

Electric hardening

Automated induction hardening of converter pump hubs. il Mach 70:118 D '63

Automatic induction hardening line. il Metal Prog 85:121-2 Je '64

Characteristics of induction hardened axles. R. K. Wuerfel. il Metal Prog 84:93-5 D '63

Gas carburizing

Gas carburising at Halewood. il Metallurgia 70:20 Jl '64

High temperature carburizing; furnaces do the job. E. E. Staples. il Metal Prog 85:74-6 My '64

High temperature carburizing; users like the process. L. E. Arnold and others. Metal Prog 85:77-9 My '64

Structure anomalies in the surface zone of gas carburized, case hardened steel; abstract. S. Gunnarson. il Metal Prog 85:150+ Ap '64

Nitriding process

Nitriding problems and their solutions. D. A. Dashfield. il Metal Prog 85:88-93 F '64

Nitriding, sintering and brazing by glow discharge. C. K. Jones and S. W. Martin. il diag Metal Prog 85:94-8 F '64

Nitriding today. W. Leeming. il Metal Prog 85:86-7 F '64

Short account of the nitriding process. W. H. Cunningham. il Engineer 217:168-70 Ja 24 '64

Soft nitriding. F. M. Giordano. il Tool & Manuf Eng 52:121-4 Ap '64

CASEIN

Effect of phytic acid on the availability of zinc in amino acid and casein diets fed to chicks. H. J. A. Likuski and R. M. Forbes. bibliog J Nutrition 84:145-8 O '64

Observations on the stability of commercial casein in cold wave lotion. A. Shansky. bibliog diags Am Perfumer 79:39-41 Ap '64

CASHEW apple

Studies on concentrating the juice of the cashew apple (anacardium occidentale). J. S. Pruthi and others. bibliog Food Tech 17:1433-6 N '63

CASPIAN SEA

Regulation of the Caspian Sea. O. W. Kabelac. bibliog map diags Am Soc C E Proc 90 [WW 1 no 3794]:103-13 F '64

CASSITERITE

Association of beryllium with tin deposits rich in fluorite. C. L. Sainsbury. bibliog Econ Geol 59:920-6 Ag '64

CAST iron

Aluminum spurs iron founders. H. F. Jones. il Iron Age 194:31 Jl 2 '64

America's cast iron age. il Arch Forum 120:110-13 Ap '64

Cast irons and steels. J. F. Wallace and L. Leonard. bibliog il Machine Design 36:169-200 Mr 12 '64

Cast roll production; Johnsons rolls ltd. il Engineer 216:1020-1 D 20 '63

Casts ductile iron bearing retainers. R. S. Thompson. il Foundry 92:91-2 F '64

Changes in morphology of graphite in bismuth-treated cast irons. J. Pelleg. bibliog il Iron & Steel Inst J 202:739-45 S '64

Colorcast frying pan. il Engineering 197:677 My 15 '64

Determining carbon equivalence of ductile cast iron. J. Pelleg. Foundry 92:60-2 Mr '64

Dial press shapes up castings. R. H. Eshelman. il Iron Age 194:60-1 Ag 6 '64

Dimensional tolerances for malleable-iron castings. diags Machine Design 36:140-2 Ag 13 '64

Drilling malleable iron; reference book sheet. H. J. Heine. Am Mach 108:151+ Ja 20 '64

Drilling malleable iron; reference sheet. Tool & Manuf Eng 52:93-4 Je '64

Ductile iron; AFS congress; abstracts of papers. Foundry 92:169-70+ Je '64

Ductile iron is made with magnesium-impregnated coke. W. E. Snow. Foundry 92:99-100+ N '64

Ductile iron research builds a better trap for elusive magnesium. P. K. Trojan and R. A. Flinn. S A E J 72:60-1 Ap '64

Ductile iron society annual meeting, Atlantic City, April 30. Foundry 92:220+ Je '64

Ductile iron society meeting, Cleveland, Sept. 19-20; abstracts of papers. Foundry 91:180+ N '63

Ductile iron society meeting, Saginaw, Mich. Sept. 16-17; abstracts of papers. Foundry 92:2013-15 N '64

Ductile iron society winter meeting, Chicago, Feb. 20; abstracts of papers. Foundry 92:242+ Ap '64

Ductile irons and alloy irons. W. E. Gheen. il Iron & Steel Eng 41:110-14 F '64

Effects of test bar diameter on the kinetics of first-stage graphitization of white cast iron. J. Piaskowski. bibliog il Iron & Steel Inst J 202:22-7 Ja '64

CAST iron—*Continued*
Engineering applications of ductile iron in the mining industry. W. R. Moggridge. bibliog il Can Min & Met Bul 57:747-50 Jl '64
Engineering for economy with gray iron. il Metal Prog 85:109-10 Ja '64
Factors affecting production of thin section cast iron. T. R. Baruch. bibliog il diags Foundry 92:72-5 Je; 56-9 Jl '64
Fast drilling of malleable iron. Iron Age 193: 72-3 Mr 5 '64
Fluidized-bed process for coating castings. P. C. Bardin. il Ind Finishing 40:86-7 D '63; Discussion. 40:103-4 F '64
Foundry for machine tool castings; Cincinnati milling machines ltd. il Engineer 218:506-7 S 25 '64
Gray iron; AFS congress; abstracts of papers. Foundry 92:131+ Jl '64
Gray-iron castings. J. B. Caine. Machine Design 36:200 O 22 '64
Gray iron research institute celebrates 25th anniversary. R. H. Herrmann. il Foundry 92:76-7 My '64
Guidelines for ductile iron stress structure control. il Iron Age 193:96-8 My 14 '64
Hardenability of alloy cast irons containing copper. T. R. Baruch and I. B. Elman. Foundry 91:106-8 D '63
Harder, stronger gray iron castings; customer rejects reduced to ½ of one per cent. il Automotive Ind 130:320+ Mr 15 '64
How to machine nodular iron. il Am Mach 108:59-61 Mr 30 '64
Japanese experiments with ductile cast iron pay off. il Steel 154:49 Ja 20 '64
Making thin-section malleable iron castings. J. F. Wallace and H. Kunsmann. bibliog il diags Foundry 92:96-101 S '64
Malleable foundry mechanizes production of medium size castings. R. H. Herrmann. il Foundry 92:88-9 Je '64
Malleable iron; AFS congress; abstracts of papers. Foundry 92:192+ Je '64
Malleable iron auto parts increased. il Automotive Ind 130:57-8 My 1 '64
Malleable irons. il Materials in Design Eng 59:101-8 Ja '64 (reprints 35c)
Manufacturing and performance experience with ingot molds and steels. K. E. Kansikas. il diags Iron & Steel Eng 41:174-80; Discussion. 181-2 S '64
Meeting, Philadelphia, Nov. 20; abstracts of papers. Foundry 92:158+ Ja '64
Metal selector; ferrous castings. Steel 155: sup S 15-17 O 12 '64
Molybdenum-bearing nodular irons. J. W. Goth. il Foundry 92:66-71 My '64
New ductile iron foundry installs induction melting. G. McClellan. il Foundry 92:213-14 Je '64
New heat treat line offers production flexibility. F. J. Crowley. il Foundry 92:116+ Ja '64
New moldmaking process shears costs; N-Process. il Steel 154:69 Ja 27 '64
New plant for Hale and Hale ltd. il Chem & Ind p 1227 Jl 4 '64
Ni-Hard cast iron, an improved material for grinding media. A. J. Rickard. il Engineer 217:559-61 Mr 27 '64
Nodular iron microstructures in constructional castings. J. G. Frantzreb and others. il Foundry 92:54-7 F '64
Processing is key to ductile iron quality. C. R. Loper, jr. and others. il Foundry 92:65-9 O '64
Properties of materials; irons and steels; tables. Materials in Design Eng 60:63-8 Mid-O '64
Relaxation of pearlitic cast iron. V. D. Davies and others. bibliog diags Iron & Steel Inst J 202:343-6 Ap '64
Role of alloys in engineering gray iron castings. F. G. Sefing. bibliog Foundry 92:84-8 S '64
Seven winners picked in gray iron design contest. il Foundry 91:139-40 D '63
Study provides data on drilling malleable iron. Foundry 92:291+ Ap '64
Tin improves mechanical and structural properties of nodular (ductile) and flake (cast) irons. Product Eng 35:70 F 17 '64
Tolerances obtainable on malleable castings. il diag Foundry 92:158+ O '64
Victoria subway sparks new tunnel making methods. il plan Eng N 172:26-9 Ap 30 '64
World's most beautiful foundry; Cincinnati milling machines limited. il diag Engineering 198:366-7 S 18 '64
See also
Foundry practice
Gray iron founders society
Iron founding
Pig iron

Defects

Shrinks occur at the flange; question and answer. Foundry 92:66 F '64

Graphitization

See Iron—Metallography

Protection

Polyethylene protects cast iron. il Chem Eng 71:156 O 26 '64
Polyethylene protects cast iron from corrosive chemicals. il Oil & Gas J 62:91 Ap 13 '64

Specifications

Guidelines set for malleable tolerances. il Steel 155:68+ Ag 17 '64

Strength

Effect of carbon equivalence and section size on tensile strengths of gray irons. J. F. Wallace. bibliog il diags Foundry 91:40-4 D '63
Maintaining high impact properties in ductile iron. S. F. Carter and C. K. Donoho. diags Foundry 92:80-4 Je '64
Simple strength test for the foundry. J. H. Lamble and J. F. C. Morden. diags Engineering 198:218-19 Ag 14 '64
Tin additions boost gray iron strength. J. B. Long. il S A E J 72:86-9 Ap '64

Testing

Hale & Hale development programme; new melting plant and analytical facilities. il Metallurgia 70:18-20 Jl '64
Machinability of nodular cast irons. I. Ham and others. bibliog il A S M E Trans ser B 83:142-54; 84:282-8; 86:141-9 My '61, My '62, My '64
Shrinkage test for gray iron. J. F. Wallace. il diag Foundry 92:40-3 Ja '64
Simple strength test for the foundry. J. H. Lamble and J. F. C. Morden. diags Engineering 198:218-19 Ag 14 '64
Sounding out cast structures. il Iron Age 193: 146 My 21 '64
William Fairbairn and mechanical properties of materials. A. I. Smith. bibliog il diags Engineer 216:543-5, 1015-17 O 4, D 20 '63

Tin content

Tin additions improve cast iron. J. B. Long. bibliog il Foundry 92:42-5 Ag '64
Tin in cast iron: from vice to virtue. il Engineering 197:758-9 Je 5 '64

Welding

How to correct deposit peeling in cast iron welds. Welding Eng 48:64+ N '63
Makeshift equipment used by navy to solve welding problem. il Welding Eng 49:60+ S '64
New electrode permits welding of cast iron without preheat. il Iron & Steel Eng 41: 175-6 Je '64

CAST iron pipes. See Pipes, Cast iron

CASTERS
Choose casters and wheels for the job. G. J. Berkwitt. Mill & Factory 37:52-3 D '63
Polycarbonate caster is stronger than spoked steel wheel, costs less. il Mod Plastics 42: 109 O '64

CASTING, Centrifugal
Centrifugally cast tubes; users comment. il Engineering 197:344 Mr 6 '64

CASTING machines
Aluminum casting problems solved by fiber refractories. T. R. Tate. il Mod Metals 20: 44+ My '64
Big steel attacks Chicago with continuous casting. Steel 154:33+ My 11 '64
Can new technology meet test of specialty steels? G. J. McManus. il Iron Age 194:25-6 Ag 13 '64
Casting high quality aluminum rolling ingot. il Mod Metals 20:52+ Mr '64
Continuous aluminum rod. D. B. Cofer. il diags Wire & Wire Prod 38:1858-61+ D '63
Continuous casting. il diags Mod Metals 20: 40-2+ Mr; 54+ Ap; 56+ My; 44+ Je '64 (to be cont)
Continuous casting and processing of copper base alloy wire and rod. J. D. Berwick. il Wire & Wire Prod 39:1340-2+ S '64
Continuous casting and rolling of copper rod. J. A. Bell and D. B. Cofer. bibliog il diags Wire & Wire Prod 39:1031-4+ Jl '64
Continuous casting around the world. Iron & Steel Eng 41:67-70 Jl '64
Continuous casting at Appleby-Frodingham. R. Johnson and others. il diags Iron & Steel Inst J 202:193-208 Mr '64; Excerpts. J Metals 16:352-6 Ap '64

CASTING machines—*Continued*

Continuous casting at Connors Steel. il Steel 155:144-7 S 14 '64

Continuous casting at Motala, Sweden. il plan Engineer 217:591-2 Mr 27 '64

Continuous casting at Roanoke electric steel corp. I. Harter, jr. and J. J. Barrett. il diag Iron & Steel Eng 41:73-5; Discussion. 76 Ja '64

Continuous casting development. il Engineer 217:53 Ja 3 '64

Continuous casting; experience gives it a stamp of approval. G. J. McManus. il Iron Age 194:55-7 Jl 2 '64

Continuous casting facilities planned. Iron Age 194:29 S 3 '64

Continuous casting in decisive period. G. J. McManus. il Iron Age 193:91 F 20 '64

Continuous casting machine comes of age. I. Rossi. il diag Iron & Steel Eng 41:125-9; Discussion. 130 F '64

Continuous casting of aluminum may pick up. Steel 154:132+ Mr 30 '64

Continuous casting of aluminium; symposium. il diags Engineer 217:596-8, 634-8 Mr 27-Ap 3 '64

Continuous casting of copper billets. il Engineer 217:983-4 Je 5 '64

Continuous casting of round steel sections. B. Tarmann and W. Poppmeier. il J Metals 16:406-9 My '64

Continuous casting of steel. L. V. Gallagher and B. S. Old. il diags Sci Am 209:74-88 D '63

Continuous casting of steel billets. R. Easton. il Iron & Steel Eng 41:121-3; Discussion. 123-4 Ag '64

Continuous casting of steel billets in western Canada; abstract. L. J. Gibson. Metal Prog 85:168+ Mr '64

Continuous casting of wide slabs. K. Saigo. il diags Iron & Steel Eng 41:71-6; Discussion. 76-7 Ap '64

Continuous casting round the bend. il Engineering 197:57 Ja 10 '64

Continuous casting steel slabs. E. Plöckinger and B. Tarmann. bibliog il J Metals 15:835-9 N '63

Continuous casting takes cues from strategic controls. J. F. Paparella. il diag Iron Age 194:62-3 Ag 6 '64

Copper quality and output rise in continuous casting setup. il diag Iron Age 194:60-1 O 15 '64

Curved mould continuous casting. il diag Engineer 217:608-9 Ap 3 '64

Dip-formed copper rod-pilot to production. R. P. Carreker, jr. and R. Hurst. il diags Wire & Wire Prod 39:1161-3+ Ag '64

Dip-forming; a continuous casting process. R. P. Carreker, jr. bibliog il diag J Metals 15:774-80 O '63

Engineering problems involved in direct casting steels. E. V. Akerlow. diags Iron & Steel Eng 41:79-85 Mr '64

Future of continuous casting. F. L. Byrom. il Iron & Steel Eng 40:73-6 N '63

High-speed continuous casting boosts sheet production. il Mod Metals 20:60 F '64

High speed continuous traveling mold casting machine. il Light Metal Age 22:11+ Ap '64

How we'll make metals tomorrow. il diags Steel 154:88-97 F 10 '64

Hunter process casts wide reroll sheet. G. Deitz. il diags Mod Metals 20:41-2+ Mr '64

Lead sheet formed from melt on cooled roll. il Steel 154:144+ Ja 6 '64

Lower priced continuous casting machine revealed. Steel 154:33+ Ap 27 '64

Metal level is controlled automatically in continuous casting machine. il Iron & Steel Eng 41:168 O '64

Modified semi-continuous casting processes. G. Trapied. diags Inst Metals J 92:305-11 '63-64

Mould lubrication for continuous casting of steel. diags Engineer 217:310 F 14 '64

New frictionless molds spur continuous casting. il Steel 155:31-2 Jl 6 '64

New technology of iron and steel; continuous casting of steel. F. C. Price. diags Chem Eng 71:189-90 S 14 '64

New USS strip mill fed by continuous casting. Iron Age 193:47 My 7 '64

Olin conductors' method of EC redraw rod production. T. E. Colston and C. M. Fredrickson. il diags Wire & Wire Prod 39:67-8+ Ja '64

Overhanging piston rod of automatic die lubricator extends without binding. F. T. Stone. il diag Hydraulics & Pneumatics 16:104-5 N '63

Pilot steelmaking and continuous casting plant at Brierley Hill laboratory. il plan Engineer 217:72-4 Ja 10 '64

Present status of continuous casting in the steel industry. D. L. McBride. bibliog diags Iron & Steel Eng 41:69-75 Je '64

Pressure pouring steel shapes now on stream; Amsted's controlled pressure pouring process. il J Metals 15:814 N '63

Progress in curved continuous casting. il diag Engineering 197:453-5 Mr 27 '64

Report on continuous casting; process exceeds estimates at Roanoke electric steel corp. il Automation 10:24 N '63

Some practical concepts of continuous casting. B. M. Hamilton. bibliog il diags Iron & Steel Eng 41:85-92 S '64

Steel's one per cent; continuous casting. il plan Engineering 197:26-7 Ja 3 '64

Tube Investments' new pilot plant for steelmaking and continuous casting. il Metallurgia 69:80-1 F '64

Tubes made from continuous cast strips. il Engineering 196:762-3 D 13 '63

U.S. Steel gives go-ahead for hot strip mill and continuous casting unit at Gary. il Iron & Steel Eng 41:153 Je '64

World's "most continuous" continuous casting facility. il diag J Metals 16:390-1 My '64

See also
Die casting machines

CASTINGS

Castable cobalt-tungsten alloys for high temperature service. J. C. Freche and R. L. Ashbrook. il Foundry 92:76-9 O '64

Casting applications for ordnance broaden. W. G. Gude. Foundry 92:207-8+ Je '64

Casting producers forecast; 1964 shipments to rise six to seven per cent. Foundry 92:23+ Ja '64

Castings: limits defined. il diag Product Eng 35:47-8 Ag 17 '64

Cleavage fracture in cast molybdenum of high purity. H. R. Limb. bibliog il Inst Metals J 92:423-6 '63-64

Composite materials; bimetallic castings. Materials in Design Eng 60:431 Mid-O '64

Controlling Brinell hardness in production castings. F. E. Kasch. diag Foundry 92:52-6 Mr '64

Cummins engine co. creates effective piece price for buying castings. V. V. Boll. Foundry 92:57-60 Ja '64

Guaranteeing castings adds customers at Dalton foundries inc. W. M. Dalton. il Foundry 92:61 Ja '64

Guaranteeing castings costs very little at Morris Bean & co. D. E. Scott. il Foundry 92:60 Ja '64

Sand castings take shape fast with consumable patterns. A. W. Young. il Iron Age 194:82-3 N 5 '64

Using grade designations as casting trademarks. A. W. Gray. Foundry 92:194+ S '64

See also
Die casting
Molds (for casting)
Steel castings

Cleaning

Blast cleaner combines core knockout. il Steel 153:31-2 D 23 '63

Blast cleaning of metal castings. P. C. Bardin. Ind Finishing 40:70 Ja '64

Production tips improve secondary operations on diecastings. E. J. Bartholomew. il diags Foundry 92:124-8 Je '64

Properties and applications of cut wire. W. Zieler and P. U. Schmithals. bibliog il Wire & Wire Prod 38:1842-51+ D '63

Updated blast equipment saves production time and money. il Foundry 91:161-2 D '63

Defects

Computer solves casting mysteries. il Iron Age 194:71-3 N 5 '64

Deoxidation and pinhole formulation in heavy steel castings. S. Bergh and A. Josefsson. bibliog il diags Iron & Steel Inst J 202:356-66 Ap '64

Flaws no key to casting failures. diags Materials in Design Eng 58:88-9 N '63

Ford guards productivity with huge castings impregnator. il plan Automotive Ind 129:71-4 N 15 '63

Influence of clay and water on expansion defects. B. C. Yearley. il diags Foundry 92:73-7 N '64 (to be cont)

Job shop finds pores in castings with low cost leak testing. il Iron Age 193:76-7 Mr 5 '64

Winter weather can cause scrap castings. C. A. Sanders. il Foundry 92:48-50 F '64

CASTINGS—*Continued*

Design

Gray-iron castings. J. B. Caine. Machine Design 36:200 O 22 '64

Predicting casting solidification patterns with a computer. J. G. Henzel, jr. and J. Keverian. il diag Foundry 92:50-3 My '64

SFSA provides data on steel casting design. il Foundry 91:156+ N '63

Winners of the Malleable founders society annual design contest. il Product Eng 34:34 D 23 '63

Repair

Screws aid in repairing castings. il Welding Eng 49:60+ F '64

Slabbing mill shears casting failure; Metalock repair effected in fortnight. il diags Metallurgia 70:81-2 Ag '64

World's largest impregnator safeguards die-cast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

Specifications

ASTM 67th annual meeting; two casting committees to merge. Foundry 92:130+ Ag '64

New specification for high-strength magnesium castings. K. E. Nelson. il Foundry 91:58-61 D '63

Testing

Arsenal double checks X-ray with ultrasonics. il Steel 155:100 S 28 '64

Care is essential in selecting test specimens. J. B. Caine. diags Foundry 92:40-3 Jl '64

Influence of nickel and molybdenum on the mechanical properties of cast Stellite cobalt base alloys. H. Griffiths and R. E. Phelps. il Metallurgia 69:203-5 My '64

Job shop finds pores in castings with low cost leak testing. il Iron Age 193:76-7 Mr 5 '64

Making sense of welding and casting radiographs. B. Pecora. diags Mill & Factory 75:77-9 S '64

New method simplifies leak tests; differential air pressure method. il Foundry 92:122-3 My '64

New techniques improve casting quality and reliability. M. J. Diamond. diags Foundry 92:92-5 S '64

Plastic checks die profiles. M. K. Young. il Iron Age 193:80-1 F 27 '64

Sonic testing, a simple nondestructive test for verifying casting quality; abstract. A. G. Fuller and others. diag Metal Prog 84:169+ D '63

Tests insure sound castings. il Iron Age 193:128-9 F 20 '64

Ultrasonic measurement of casting section thickness. il Foundry 92:143+ Mr '64

CASTINGS, Ornamental

Castings as art. A. Duca. il Materials in Design Eng 58:85-7 D '63

Man above matter. A. Price. il Foundry 92:118-19 Je '64

CASTOR beans

Studies on the changes in fatty acid composition in developing seeds; ricinus communis. K. S. Chandra. bibliog il Am Oil Chem Soc J 41:251-4 Ap '64

CASTOR oil

Rigid urethane foams from blown castor oils. C. K. Lyon and others. bibliog Am Oil Chem Soc J 41:23-5 Ja '64

Studies on the changes in fatty acid composition in developing seeds; ricinus communis. K. S. Chandra. bibliog il Am Oil Chem Soc J 41:251-4 Ap '64

Urethane foams based on castor polyols. A. Ehrlich and T. C. Patton. bibliog Mod Plastics 41:154+ Mr '64

CATALOGS

Program for the automatic issue and revision of illustrated parts catalogs. W. H. Maurer and M. L. Reynolds. diags IEEE Trans Applications & Ind 83:137-42 My '64

CATALYSIS

Acid-catalyzed cyclization of acyclic dienes. H. E. Ulery and J. H. Richards. bibliog Am Chem Soc J 86:3113-17 Ag 5 '64

Acid-catalyzed rearrangement of diphenylbicyclo[6.1.0]nona-2,4,6-trien-9-ylcarbinol. K. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:1159-60 Mr 20 '64

Acid-catalyzed rearrangements of medium ring cycloalkene glycols. J. G. Traynham and P. M. Greene. bibliog Am Chem Soc J 86:2657-60 Jl 5 '64

Anatomy of an enzymatic catalysis; α-chymotrypsin. M. L. Bender and others. bibliog Am Chem Soc J 86:3714-21 S 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of benzene and alkylbenzenes with bromine in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-44 Mr 20 '64

Autocatalysis mechanism clarified. W. E. Walles. Chem & Eng N 42:36-7 Jl 20 '64

Base catalysis of imidazole catalysis of ester hydrolysis. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:833-7 Mr 5 '64

Base-catalyzed oxidation of mercaptans in the presence of inorganic transition metal complexes. T. J. Wallace and others. bibliog diag Ind & Eng Chem Proc Design 3:237-41 Jl '64

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Catalysis in water and ice; the reaction of thiolactones with morpholine in frozen systems. T. C. Bruice and A. R. Butler. bibliog Am Chem Soc J 86:4104-8 O 5 '64

Catalysis of the decarboxylation of dimethyloxaloacetate by manganese(II), nickel(II), and their complexes. J. V. Rund and R. A. Plane. bibliog Am Chem Soc J 86:367-71 F 5 '64

Catalysis of the decomposition of *N*-nitrosotriacetonamine by a polymeric quaternary hydroxide. M. S. M. Alger and others. bibliog Chem & Ind p2008-9 D 28 '63

Catalysis over supported metals. D. J. C. Yates and others. bibliog Am Chem Soc J 86:2996-3001 Ag 5 '64

Catalytic dehydrogenation of methyl isobutyrate to methyl methacrylate over alumina catalysts. E. L. McDaniel and H. S. Young. bibliog diag Ind & Eng Chem Product Res & Develop 2:287-92 D '63

Catalytic effectiveness in multicomponent and variable diffusivity systems. J. B. Butt. bibliog A I Ch E J 9:707-8+ S '63; Correction. 10:430 My '64

Catalytic oxidation of hydrocarbons. R. S. Mann and D. Rouleau. bibliog flow diag Ind & Eng Chem Product Res & Develop 3:94-6 Je '64

Catalytic synthesis of methyl acrylate from acetylene, carbon monoxide and methanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog J Ap Chem 13:498-505 N '63

Catalytic vapour-phase transformation of isoquinoline to phthalimide. S. K. Ray and others. J Ap Chem 14:129-31 Mr '64

Catalyzed reaction of alkylmagnesium halides with alkyl halides. V. D. Parker and others. bibliog diag Am Chem Soc J 86:1110-16 Mr 20 '64

Chemical behavior of charge-transfer complexes; phenanthrene catalysis in acetolysis of 2,4,7-trinitro-9-fluorenyl *p*-toluenesulfonate. A. K. Colter and others. bibliog Am Chem Soc J 86:3106-13 Ag 5 '64

Chemistry of the autocatalytic reduction of copper by alkaline formaldehyde. R. M. Lukes. bibliog Plating 51:1066-8 N '64

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog(608-10) Ap '64

Designing laboratory catalytic reactors. J. J. Carberry. bibliog il diags Ind & Eng Chem 56:39-46 N '64

Eigenvalues for the equation of species conservation with heterogeneous reaction. G. S. Janowitz and P. A. Libby. bibliog AIAA J 2:1849-50 O '64

Electrophilic catalysis; the hydrolysis of phosphoramidate. W. P. Jencks and M. Gilchrist. bibliog Am Chem Soc J 86:1410-17 Ap 5 '64

Electrophilic displacement reactions; metal ion catalysis in the protodeboronation of areneboronic acids. H. G. Kuivila and others. bibliog Am Chem Soc J 86:2666-70 Jl 5 '64

Esterolytic catalysis of poly-4(5)-vinylimidazole and poly-5(6)-vinylbenzimidazole. C. G. Overberger and others. bibliog Am Chem Soc J 85:3513-15 N 5 '63

High-temperature reaction between formaldehyde and cellulose. E. Klein and B. E. M. Bingham. bibliog diag Textile Res J 34:585-93 Jl '64

Homogeneous catalysis; double bond migration in *n*-olefins, catalyzed by group VIII metal complexes. J. F. Harrod and A. J. Chalk. bibliog Am Chem Soc J 86:1776-9 My 5 '64

Hydrogen exchange of azulenes; kinetics and mechanism of the acid-catalyzed detritiation reaction. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:331-5 F 5 '64

CATALYSIS—*Continued*

Influence of the state of aggregation on the specific acid-catalyzed hydrolysis of sodium dodecyl sulfate. V. A. Motsavage and H. B. Kostenbauder. bibliog J Colloid Sci 18:603-15 S '63
Ion exchange resin catalysis of sucrose inversion in fixed beds. E. W. Reed and J. S. Dranoff. bibliog Ind & Eng Chem Fundamentals 3:304-7 N '64
Isolation of enzyme-substrate complex aids study of enzymic catalysis. K. Yagi. Chem & Eng N 42:34 Ag 10 '64
Kinetic evidence for the migration of reactive intermediates in surface catalysis. J. H. Sinfelt and P. J. Lucchesi. bibliog Am Chem Soc J 85:3365-7 N 5 '63
Kinetic method for analysis of mixtures employing enzyme-catalyzed reactions. H. B. Mark, jr. bibliog Anal Chem 36:1668-9 Jl '64
Kinetics of the catalytic oxidation of sulfur dioxide. B. Davidson and G. Thodos. bibliog diag A I Ch E J 10:568-73 Jl '64
Methanesulfonic acid-catalyzed additions; additions to methyl linoleate. A. Eisner and others. bibliog Am Oil Chem Soc J 41:557-8 Ag '64
Non-steric directive effects in catalytic hydrogenation. T. J. Howard. Chem & Ind p 1899 N 30 '63
Organic syntheses by means of noble metal compounds; catalytic carbonylation of allylic compounds with palladium chloride. J. Tsuji and others. bibliog Am Chem Soc J 86:4350-3 O 20 '64
Phosphate esters; catalytic hydrolysis of *p*-nitrophenyl dihydrogen phosphate by ceric ion precipitates in the pH range 2-7. F. Millich and E. L. Hayes, jr. bibliog Am Chem Soc J 86:2914-18 Jl 20 '64
Phosphonic acids and esters; intramolecular electrophilic catalysis of phosphonate ester hydrolysis by neighboring carboxyl. M. Gordon and others. bibliog Am Chem Soc J 86:1898-9 My 5 '64
Promote catalysis with tellurium. V. Kollonitsch and C. H. Kline. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Je '64
Quantitative saponification of highly hindered esters by perchlorate anion catalysis. D. E. Jordan. bibliog Anal Chem 36:2134-8 O '64
Radiation catalysis of ethyl bromide; six months on-stream. D. E. Harmer and J. S. Beale, jr. diag Nucleonics 21:76-7 S '63
Reclamation of damaged nuclear reactor coolant by catalytic hydrocracking. L. E. Gardner and W. M. Hutchinson. Ind & Eng Chem Product Res & Develop 3:28-33 Mr '64
Relation between dislocation density and catalytic activity and effects of physical treatment. J. W. Hall and H. F. Rase. bibliog diags Ind & Eng Chem Fundamentals 3:158-67 My '64
Relative electrocatalytic activity of noble metals in the oxidation of ethylene. H. Dahms and J. O. Bockris. diag Electrochem Soc J 111:728-36 Je '64
Selective catalysis involving reversible association of a synthetic polymeric catalyst and substrate. R. L. Letsinger and I. Klaus. bibliog Am Chem Soc J 86:3884-5 S 20 '64
Selectivity factor in vapor-phase hydrocarbon oxidation catalysis. J. L. Callahan and R. K. Grasselli. bibliog diags A I Ch E J 9:755-60 N '63
Sensitization and catalysis of light-induced decarbonylation of aldehydes. J. D. Berman and others. bibliog Am Chem Soc J 85:4010-13 D 20 '63
Silica-alumina catalysis theory unfolds. M. R. Basila and others. Chem & Eng N 42:42-4 O 5 '64
Stereochemistry and the mechanism of catalytic hydrogenation of cycloalkenes; isomers of dimethylcyclopentene. S. Siegel and B. Dmuchovsky. bibliog Am Chem Soc J 86:2192-8 Je 5 '64
Study of base-catalyzed and salt-catalyzed acetylation of hydroxyl groups. G. H. Schenk and others. bibliog Anal Chem 36:914-19 Ap '64
Technical aspects of ortho-parahydrogen conversion. G. E. Schmauch and A. H. Singleton. bibliog il Ind & Eng Chem 56:20-31 My '64
See also
Catalysts
Oxo process

CATALYSTS

Adsorption of alkanes on cracking catalysts: a study of the exchange between isobutane and its adsorbed radioactive analog. J. G. Larson and W. K. Hall. bibliog Am Chem Soc J 85:3570-5 N 20 '63
Alkylation of benzene with 1-hexene using aluminum chloride-nitroalkane catalysts. H. S. N. Setty and H. W. Prengle, jr. bibliog Ind & Eng Chem Fundamentals 3:300-4 N '64
Aluminum alkyls to join Ethyl's stable. il Can Chem Process 48:46-9 Ag '64
Aromatic nitriles by ammoxidation. S. Sakuyama and others. il diag Chem Eng Prog 60:48-9 S '64
Atlantic collects dust to reclaim catalyst. il Pet Management 35:197-8 N '63
Building a mathematical model for catalyst regeneration in fixed beds. B. L. Schulman. il diags Ind & Eng Chem 55:44-9 D '63
Catalyst selection. W. G. Hunter and R. Mezaki. bibliog il Ind & Eng Chem 56:38-40 Mr '64
Catalysts. il Can Chem Process 47:45-57 N '63
Catalysts are made shape-selective; abstract. P. B. Weisz and others. Chem & Eng N 42:45 F 10 '64
Catalysts for selective hydrogenation of soybean oil. C. H. Riesz and H. S. Weber. bibliog flow diag diag Am Oil Chem Soc J 41:380-3, 400-3, 464-8 My-Jl '64
Catalytic activity of selenium. V. Kollonitsch and C. H. Kline. il diag Ind & Eng Chem 55:18-26 bibliog(p25-6) D '63
Catalytic control of carbon deposition in steam-hydrocarbon reforming. J. M. Fox and J. C. Yarze. il Ind Chem 40:65-9 F '64
Catalytic selectivity in complex systems. J. B. Butt. bibliog Can J Chem Eng 42:211-15 O '64
Catalytic species in some alkyl aluminum titanium iodide catalysts for *cis*-1,4-polybutadiene. W. M. Saltman and T. H. Link. bibliog Ind & Eng Chem Product Res & Develop 3:199-203 S '64
Catalytic syntheses of acrylic acid and ethyl acrylate from acetylene, carbon monoxide, and water or ethanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog Ind & Eng Chem Proc Design 3:169-76 Ap '64
Catalytic vapour-phase oxidation of xylenes in fluidised bed. S. K. Bhattacharyya and R. Krishnamurthy. flow diag J Ap Chem 13:547-52 D '63
Chemisorption and surface chemistry of ethylene on supported platinum catalysts. P. J. Lucchesi and others. bibliog Am Chem Soc J 86:1494-7 Ap 20 '64
Clean FCCU catalyst magnetically. R. L. Curfman. il diag Hydrocarbon Process & Pet Refiner 43:260 S '64
Competition grows for peroxide catalysts. Chem & Eng N 42:25-6 F 24 '64
Copolymerization of butadiene and isoprene through use of complex organometallic catalysts. L. S. Bresler and others. bibliog Rubber Chem & Tech 37:121-7 Ja '64
Cracking catalysts are metal-acid aluminosilicates; Durabead 5; abstract. C. J. Plank. il Chem & Eng N 42:70 Ap 20 '64
Dehydrogenation of n-butylenes over calcium nickel phosphate: determination of relative adsorption coefficients. J. Firko and D. S. Alexander. bibliog Can J Chem Eng 42:183-6 Ag '64
Demetalization of cracking catalysts. R. L. Foster and others. bibliog Ind & Eng Chem Product Res & Develop 2:328-32 D '63
Determination of metallic platinum in platinum-alumina catalysts by X-ray diffraction. R. A. Van Nordstrand and others. bibliog Anal Chem 36:819-24 Ap '64
Development of catalysts and reactor systems for methanation. J. H. Field and others. bibliog il diags Ind & Eng Chem Product Res & Develop 3:150-3 Je '64
Diffusion and reaction in porous catalysts. N. Wakao and J. M. Smith. bibliog diag Ind & Eng Chem Fundamentals 3:123-7 My '64
Durabead 5 versus clay cracking catalyst. C. D. Edgcumbe and S. Valentine, 3d. Oil & Gas J 62:89-92 Ag 10 '64
Examination of catalysts by physical and physico-chemical methods. F. S. Stone. bibliog Chem & Ind p 1810-16 N 16 '63
Fiber-reactive dyes applied by batchwise exhaustion with the assistance of a catalyst. M. Peter. Am Dyestuff Rep 52:901-4 N 11 '63
Fluid cracking catalyst designed to maximize liquid yields. A. Voorhies, jr. and others. Oil & Gas J 62:108-11 My 18 '64
Four smog devices okd by California. H. F. Jones. il Iron Age 193:55 Je 25 '64
Fresh look at solvent decarbonizing. P. T. Atteridg. diags Oil & Gas J 61:72-7 D 9 '63

CATALYSTS—*Continued*

Handling of benzoyl and MEK peroxides. J. D. Malkemus. il Mod Plastics 41:119-20+ D '63

High temperature catalytic effects on polyphenyls. D. A. Scola and R. J. Wineman. bibliog Ind & Eng Chem Product Res & Develop 2:322-8 D '63

Homogeneous hydrogenation in the absence of transition-metal catalysts. C. Walling and L. Bollyky. bibliog Am Chem Soc J 86:3750-2 S 20 '64

Hydrogen sulfide poisoning of nitrided and carbided iron catalysts in the Fischer-Tropsch synthesis. F. S. Karn and others. bibliog Ind & Eng Chem Product Res & Develop 3:33-8 Mr '64

Hydrogenation of linolenate; comparison of products formed with platinum and nickel catalysts. C. R. Scholfield and others. bibliog Am Oil Chem Soc J 41:615-19 S '64

Improved catalyst is key to synthetic rubber. il Oil & Gas J 62:88 N 2 '64

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils; on the metal catalysed oxidation of oils. N. K. Chakravarty. bibliog Inst Pet J 49:353-8 N '63

Intraparticle pressure gradients in porous catalysts. S. Otani and others. diag A I Ch E J 10:130+ Ja '64

Magnetic study of cobalt molybdenum oxide catalysts. J. T. Richardson. bibliog Ind & Eng Chem Fundamentals 3:154-8 My '64

Microcatalytic tracer studies of the isomerization of cyclopropane over silica-alumina catalysts. W. K. Hall and others. Am Chem Soc J 85:3711-12 N 20 '63

Modified preparation of Raney nickel catalysts. J. H. P. Tyman. bibliog Chem & Ind p404-5 Mr 7 '64

New catalysts boost gasoline yield. Oil & Gas J 62:52-3+ Ap 13 '64

New catalysts enhance the economics of hydrocracking. D. H. Stormont. Oil & Gas J 62:60-1 O 19 '64

New catalysts for the exchange of deuterium between hydrogen gas and liquid ammonia. A. R. Kenyon and D. Pepper. bibliog diag J Ap Chem 14:399-405 S '64

New fluid cracking catalyst increases gasoline yields. R. W. Baker and others. Oil & Gas J 62:78-84 My 4 '64

New reforming catalyst cuts carbon laydown in producing hydrogen from refinery feeds. Oil & Gas J 62:88-9 Ja 20 '64

Novel cyclisation of alkenylarenes catalysed by potassium. E. Lewicki and others. bibliog Chem & Ind p 154-5 Ja 25 '64

Olefins disproportionated by new catalytic process; abstract. R. L. Banks and G. C. Bailey. Chem & Eng N 42:70-1 Ap 20 '64

Peroxide catalysts for polyesters. M. E. Marks. il Plastics Tech 10:44-7 F '64

Platinum metals as selective hydrogenation catalysts; abstract and discussion. P. B. Wells. Chem & Ind p666-7 Ap 18 '64

Preformed aluminum triisobutyl-titanium tetrachloride catalysts for isoprene polymerization. E. Schoenberg and others. bibliog Rubber Chem & Tech 37:103-20 Ja '64

Radiotracer analysis of catalyst flow distribution. D. E. Hull and F. F. Ball. diags Ind & Eng Chem Proc Design 3:356-61 O '64

Raney nickel catalyst of improved stability and reactivity in the hydrogenation of triglycerides. H. V. Tümer and others. bibliog Am Oil Chem Soc J 41:212-14 Mr '64

Reaction mechanism and fixation of monochloro-*s*-triazine dyes on cellulose using tertiary amine catalysts. T. L. Dawson. pl Soc Dyers & Col J 80:134-43 Mr '64

Reactions between secondary alcohols, ketones, and hydrogen on metallic catalysts. J. Newham and R. L. Burwell, jr. bibliog Am Chem Soc J 86:1179-86 Mr 20 '64

Reactions of acetylenes on noble metal catalysts in the absence of hydrogen. D. Bryce-Smith. Chem & Ind p239 F 8 '64

Simple gas electrode structure for the evaluation of catalysts (electrocatalysts) in working fuel cells. W. T. Grubb and C. J. Michalske. bibliog il Electrochem Soc J 111: 477-8 Ap '64

Smog control. diag Product Eng 35:63-4 Mr 16 '64

Soluble catalysts for the hydrogenation of olefins. M. F. Sloan and others. bibliog Am Chem Soc J 85:4014-18 D 20 '63

Some palladian observations. Food Tech 18:1573-4 O '64

Some physical and chemical properties of sprayed silver alloy catalysts. G. L. Osberg and others. bibliog il Can J Chem Eng 41: 260-4 D '63

Use of adiabatic experiments for kinetic studies in fixed catalyst beds. J. P. Schmidt and others. bibliog diags A I Ch E J 10:149-54 Mr '64

Venting of high pressure fixed-bed catalytic reactors. D. Basmadjian. Can J Chem Eng 42:104-6 Je '64

What's ahead for catalytic cracking? D. H. Stormont. Oil & Gas J 62:78-81+ Ag 17 '64 (reprints $1)

XZ-15 fluid cracking catalyst increases gasoline production; abstract. R. W. Baker. Chem & Eng N 42:76-7 Ap 20 '64

Testing

Effect of pellet pore structure on catalyst performance in the hydrodesulphurization of straight-run gas oil. D. Van Zoonen and C. T. Douwes. bibliog Inst Pet J 49:383-91 D '63

Vanadium and nickel test accuracy improves. Oil & Gas J 62:177 Je 22 '64

CATAPHORESIS. See Electrophoresis

CATCH basins

Leaves won't clog this catch basin. R. E. Lapar. il diags Pub Works 95:90-1 Mr '64

CATECHOL

New reactions of phosphonitrilic chloride trimer: substitution and cleavage reactions with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 85:4050-1 D 20 '63

Phosphonitrilic compounds; reactions of phosphonitrilic chlorides with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 86:2591-5 Jl 5 '64

Raney nickel desulphurisation of catechol thionocarbonate; a new synthesis of methylenedioxybenzene. M. H. Benn and J. May. Chem & Ind p499-500 Mr 21 '64

CATECHOLAMINES

Gas chromatographic studies of catecholamines, tryptamines, and other biological amines. C. J. W. Brooks and others. bibliog Anal Chem 36:1540-9 Jl '64

CATENARY

Cat's cradle carries catenary. il Prog Arch 44:156-9 N '63

New furniture group employs catenary suspension system. il Arch Rec 134:151 D '63

CATERERS and catering

Craft training; abstract. I. F. Goodhand. Chem & Ind p394-5 Mr 7 '64

CATFORMING process. See Gasoline—Manufacture

CATHEDRALS

Cathedral's hyperboloid steeple; caps canted concrete columns. il Eng N 172:89 F 13 '64

Monumental cathedral for the modern age. il Arch Forum 120:11 Mr '64

Powerful cathedral for San Francisco. il Prog Arch 45:69 Mr '64

Stainless steel roofs cathedral. il Eng N 172: 88 Ap 2 '64

CATHODE followers

Amplitude control in cathode follower circuit. S. Y. Feng. diags R Sci Instr 35:763-4 Je '64

Cathode-follower type power supplies. F. E. Ellis. il diags Q S T 48:30-3, 156+ Ap '64

Checking oscillation in cathode followers. P. D. Blais. diags Electronics 37:52-3 O 19 '64

Hybrid cathode follower for vibration pickups H. M. Nelson. diag J Sci Instr 41:114-15 F '64

CATHODE ray oscillographs. See Oscillographs, Cathode ray

CATHODE ray tubes

Application of fibre-optic faceplates in cathode-ray tubes. L. S. Allard. il Ind Electronics 2:273-5 Je '64

Cathode-ray printer tube. R. H. Compton. diags Electro-Tech 74:128-30 Jl '64

Cathode-ray storage devices; television by telephone line. A. E. Cawkell. bibliog il diags Electronic Eng 36:142-9 Mr '64

Cathode ray tube displays metals' defects. A. Kovacs. diags Control Eng 11:95 Ag '64

Cathode-ray tube input-output station for computers. il Electronics 37:58-9 Mr 6 '64

Chemical aspects of the production of television-tube screens, reaction of potassium silicate in solution; effect of impurities. F. Lines. bibliog J Ap Chem 14:369-76 S '64

Development of a feasibility model of an electron beam film recorder. W. J. Poch. il diag SMPTE J 73:778-82 S '64

Dynamic reconvergence of electron beams in c.r.t. deflection systems; its application to colour displays. E. W. Bull and R. D. Galloway. diags Inst E E Proc 111:1212-18 Jl '64

CATHODE ray tubes—*Continued*

Ease service and sales; with a test crt. A. Margolis. il diags Radio-Electronics 35:32-3 Ja '64

Educational cathode-ray tubes. D. M. Sutherland. il diags Ind Electronics 2:143-6 Mr '64

Electron beam in a cathode-ray tube. C. Weber. bibliog diag IEEE Proc 52:996-1001 S '64

Elimination of astigmatism from a c.r.t. display. E. W. Bull and R. D. Galloway. diag Inst E E Proc 111:1208-11 Jl '64

Graphs aid deflection system design; reference sheets. K. W. Angel diag Electronics 37:59+ F 7 '64

High-gain dc amplifier drives crt display. F. J. Murphree and J. H. Hammond, jr. il diag Electronics 37:53 Je 29 '64

High-resolution cathode ray tube. il diag Engineer 217:143 Ja 17 '64

High resolution c.r.t. il diag Ind Electronics 2:147-8 Mr '64

High resolution cathode-ray tubes. il Electronic Eng 35:725 N '63

High resolution cathode ray tubes. il Engineering 196:637 N 15 '63

High resolution cathode-ray tubes. il Ind Electronics 1:742 N '63

High resolution crt's for precision display systems. H. Moss. bibliog diags Electronic Ind 23:64-6 Ap '64

Magnetic-field spectrum analyzer. L. J. Greenstein and others. il diag R Sci Instr 35:1307-10 O '64

Now operators can read remote data on a cathode ray tube. F. W. Kime. il diag Power Eng 68:T33 Mr '64

One-gun picture tube. Electronics 37:38 S 21 '64

Picture tubes for television displays using quadrupole scan magnification. K. E. Johnson. il diags Radio & Electronic Eng 28:115-28 Ag '64

"S" correction. F. D. Bate. diags Wireless World 70:219-22 My '64

Simple and inexpensive method of tracing cathode-ray tube waveforms. A. W. Gooder. J Sci Instr 41:392 Je '64

Spherical-mesh cathode-ray tube. diags Electro-Tech 73:109-10 F '64

Train descriptions on cathode ray tubes. A. J. Mullarkey. il Engineer 217:610-11 Ap 3 '64

See also

Electron gun

Oscillographs, Cathode ray

Storage tubes

Testing

Cr analyzer (Lafayette TE-46). E. C. Carlson. il diags Radio-Electronics 35:65+ Mr '64

Variable-contrast test pattern source. A. I. Bennett. diag R Sci Instr 35:410-11 Mr '64

CATHODES

Basic theory of the mercury cathode spot. A. W. Hull. bibliog diags J Ap Phys 35:490-6 Mr '64

Cathode-current dependence on pulse width for hydrogen thyratrons. J. E. Creedon. diag IEEE Trans Com & Electronics 83:582-5 S '63

Cathode particle vapors in a glow discharge in pulsed diodes. F. T. Worrell and H. A. Pike. J Ap Phys 34:3491-2 D '63

Effect of photocathode-to-first dynode voltage on photomultiplier noise pulses. P. W. Walton. R Sci Instr 35:518-19 Ap '64

Empirical equations of spherical cathodes used in ebmd experiments. H. L. L. van Paassen and E. C. Muly. il IEEE Proc 52:316-17 Mr '64

Flicker noise in oxide cathodes arising from diffusion and drift of ionized donors. K. M. van Vliet and R. R. Johnson. bibliog J Ap Phys 35:2039-51 Jl '64

Glow discharges in diodes containing oxide-coated cathodes. M. D. Jones and C. H. B. Mee. Inst E E Proc 111:1421-2 Ag '64

Laser-heated cathode. G. C. Dalman and T. S. Wen. il diags IEEE Proc 52:200-1 F '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of cathodic processes on insulated metals in electrolytes. N. D. Tomashov and others. bibliog diag Corrosion 20:218-21 Jl '64

Optical maser action in the negative glow region of a cold cathode glow discharge. J. Smith. J Ap Phys 35:723-4 Mr '64

Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64

Semiconductor cathode preparation for field emission microscopy. W. R. Savage. bibliog diag R Sci Instr 35:605-6 My '64

Studies of field emission and electrical breakdown between extended nickel surfaces in vacuum. I. Brodie. il diags J Ap Phys 35:2324-32 Ag '64

Thermionic emission of vapor-deposited molybdenum cathodes. M. N. Huberman and R. A. Holzl. il diag J Ap Phys 35:1357-8 Ap '64

Two-state operation of a hollow cathode discharge within a microwave cavity. E. C. Muly and R. Frerichs. IEEE Proc 52:202 F '64

CATHODIC protection. See subdivision Cathodic protection under special subjects, e.g. Gas pipes; Metal protection; Pipe lines; Steel; Water pipes

CATION exchange. See Ion exchange

CATIONS

Aliphatic dienyl cations. N. C. Deno and C. U. Pittman, jr. bibliog Am Chem Soc J 86:1871-2 My 5 '64

Carbonium ions; the opening of bicyclic alcohols to cyclohexenyl cations and the further conversion to cyclopentenyl cations. N. C. Deno and J. J. Houser. bibliog Am Chem Soc J 86:1741-3 My 5 '64

Cation and water positions in faujasite. W. H. Baur. bibliog diag Am Mineralogist 49:697-704 My '64

Cationic dispersions of dialdehyde starch. P. J. Borchert and J. Mirza. bibliog Tappi 47:525-8, 583-6 S '64

Cationic distribution in cobalt spinels. J. T. Richardson. bibliog diags J Ap Phys 35:664-8 Mr '64

Cationic skin absorption. I. H. Blank and others. Drug & Cosmetic Ind 94:935 Je '64

Chemistry of boranes; borane cations $H_2B(base)_2^+$. N. E. Miller and E. L. Muetterties. bibliog Am Chem Soc J 86:1033-8 Mr 20 '64

Dielectric loss due to impurity cation migration in α quartz. E. H. Snow and P. Gibbs. bibliog diag J Ap Phys 35:2368-74 Ag '64

Effect of inhibitor cations upon aluminum corrosion; chromate solutions. J. C. Cessna and others. bibliog diags Corrosion 20:1-6 Ja '64

Effect of solvent cage around cations on their mobilities depends on anion size. D. F. Evans and others. il Chem & Eng N 42:50-1 S 7 '64

Removal of cation interference in paper chromatography of concentrated wet-process phosphoric acid. T. C. Woodis, jr. diag Anal Chem 36:1682-3 Jl '64

Separation of certain cations from mixtures of various cations on ion-exchange papers; arsenic, barium, cadmium, tin, and zinc. J. Sherma. Anal Chem 36:690-1 Mr '64

Separation of various cations by reversed-phase partition chromatography using neutral organophosphorus compounds. J. W. O'Laughlin and C. V. Banks. bibliog diags Anal Chem 36:1222-9 Je '64

Small-ring, spiroalkyl cations. J. A. Landgrebe and D. E. Applequist. bibliog Am Chem Soc J 86:1536-49 Ap 20 '64

Some zeolite equilibria with alkaline earth metal cations. L. L. Ames, jr. bibliog Am Mineralogist 49:1099-110 Jl '64

Synthesis and properties of cyclobutenyl cations. T. J. Katz and E. H. Gold. bibliog Am Chem Soc J 86:1600-6 Ap 20 '64

Synthesis and rates of ethanolysis of 2-phenyl-*exo*-norbornyl chloride; the question of a nonclassical 1- and 2-phenylnorbornyl cation. H. C. Brown and others. bibliog Am Chem Soc J 86:1246-7 Mr 20 '64

Temperature studies of coacervating cationic soap solutions. I. Cohen and P. Economou. bibliog Am Oil Chem Soc J 41:461-4 Jl '64

Three-center nonclassical cation in the pentahomocyclopentadienyl system. S. Winstein and others. Am Chem Soc J 86:1867-9 My 5 '64

Tropylium-iron tricarbonyl cation. J. E. Mahler and others. bibliog Am Chem Soc J 86:3589-90 S 5 '64

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

CATS

Pantothenic acid deficiency in cats. S. N. Gershoff and L. S. Gottlieb. bibliog J Nutrition 82:135-8 Ja '64

CATSUP, Tomato. See Tomato catsup

CATTLE

Iodine-131 in bovine thyroid glands from 1957 through 1961. C. Blincoe and others. bibliog J Agri & Food Chem 12:414-19 S '64

See also

Cows

Feeding

Effect of magnesium and sulfur upon cellulose digestion of purified rations by cattle and sheep. J. E. Martin and others. bibliog J Nutrition 83:60-4 My '64

Reaction of carotene with nitrite solutions. D. L. Pugh and G. B. Garner. bibliog J Agri & Food Chem 11:528-9 N '63

CATTLE guards

Road officials give cattle bum steer. il Eng N 173:50-1 O 15 '64

CAULKING compositions. See Calking compositions

CAUSEWAYS

Foundation aspects of the Rainy Lake causeway. M. A. J. Matich and others. bibliog il plans diags Eng J 46:23-31 N '63; Discussion. 46:40 D '63

CAUSTIC soda. See Sodium hydroxide

CAVES

Officer's Cave, a pseudokarst feature in altered tuff and volcanic ash of the John Day formation in eastern Oregon. G. G. Parker and others. bibliog maps diags Geol Soc Bul 75:393-401 pl 1-2 My '64

Some aspects of the chemical evolution of cave waters. H. D. Holland and others. bibliog maps diags J Geol 72:36-67 Ja '64

CAVITATION

Approximate numerical scheme for the theory of cavity flows past obstacles of arbitrary profile. T. Y. T. Wu and D. P. Wang. diags A S M E Trans ser D 86:556-60 S '64

Cavitation in valve-controlled hydraulic actuators. P. K. C. Wang and J. T. S. Ma. bibliog il diags A S M E Trans ser E 30:537-46 D '63

Construction finishes and high-velocity flow. J. W. Ball. bibliog il diags Am Soc C E Proc 89 [CO 2 no 3646]:91-110 S '63; Discussion. 90 [CO 1 no 3351]:103-5 Mr; [CO 2 no 4051]:65-72 S '64

Effect of a cavitating Venturi on wave propagation in a duct. L. R. Iwanicki and O. W. Dykema. bibliog diags AIAA J 2:753-5 Ap '64

Effect of substructure on the nucleation of grain-boundary cavities in magnesium. A. E. B. Presland and R. I. Hutchinson. bibliog il diags Inst Metals J 92:264-9 '63-64

Experimental investigations of incipient and desinent cavitation. A. F. Lehman and J. O. Young. bibliog il diags A S M E Trans ser D 86:275-81; Discussion. 281-4 Je '64

Propellers cavitation as influenced by air content of the water. Naval Eng J 75:1002 D '63

Relationship between grain size and intergranular cavitation in an aluminium-1¼ per cent α-brass. D. M. R. Taplin and V. N. Whittaker. bibliog il Inst Metals J 92:426-8 '63-64

Sudden enlargements in pipelines. J. W. Ball. il diags Am Soc C E Proc 88 [PO 4 no 3340]:15-27 D '62; Discussion. E. R. Tinney. 89 [PO 1 no 3652]:151-2 S '63; Reply. 90 [PO 2 no 3977]:15-16 Jl '64

Supercavitating foils with flaps beneath a free surface. J. Auslaender. bibliog diags A S M E Trans ser D 86:197-204; Discussion. 204-6 Je '64

Symmetric, rotational, supercavitating flow about a slender wedge. R. L. Street bibliog diags A S M E Trans ser D 86:569-75 S '64

Theory for supercavitating flow through an arbitrary form hydrofoil. R. Ōba. A S M E Trans ser D 86:285-90 Je '64

Void fraction measurements in a cavitating Venturi. W. Smith and others. bibliog il diags A S M E Trans ser D 86:265-74 Je '64

Water jet pump. N. H. G. Mueller. bibliog diags Am Soc C E Proc 90 [HY 3 no 3908]:83-113 My '64

Wear considerations in design: corrosion and cavitation damage. C. Lipson. bibliog diags Machine Design 35:142-7 D 5 '63

See also

Hydraulic machinery—Cavitation

CAVITY resonators. See Radio resonators

CEDAR

Structural uses for cedar decking. il Engineering 196:623 N 15 '63

CEILINGS

Air conditioning ceiling panels. il Engineering 197:840 Je 19 '64

Can we employ ventilating ceilings with confidence? answers. Heating-Piping 36:99-100 Ap; 103-4+ My; 89-90 Ag; 96 S '64

Ceiling illuminates and ventilates. il Eng N 172:170 Mr 19 '64

Ceiling of aluminium pyramid sections. il Engineering 197:520 Ap 10 '64

How to deal with plenum leaks in ventilating ceiling systems. T. Mariner. Heating-Piping 35:160-4 N '63

New perspectives with unified ceilings. R. F. Coyne. il diags Air Cond Heat & Ven 61:79-82 My '64

Plastic domes give ceiling fine finish. il Eng N 173:47 Ag 27 '64

Reinforced acrylic ceiling controls light, sound, air distribution. diag Mod Plastics 41:114 Ag '64

School costs cut by new components; integrated ceiling; versatile coffers. B. P. Spring. il diags Arch Forum 120:115 F '64

Space-savers: ceiling-mounted heating panels. il Plant Eng 18:131 F '64

CELANESE corporation of America

Astute marketer, young managers push expansion in U.S. and abroad. il Chem & Eng N 42:26-30 Mr 30 '64

CELERY

Diseases and pests

Skin-blistering agents identified; pink-rot celery blisters pickers' hands. Food Tech 17:1423 N '63

CELESTIAL mechanics. See Mechanics, Celestial

CELLOPHANE

Cellophane bag is reclosable. il Food Eng 36:109 Ap '64

Cellophane industry stages comeback. il Chem & Eng N 42:29 O 19 '64

Cellulose film problems; panel discussion. Tappi 46:sup 137A-43A N '63

Flame-retardant cellulose; a new method of evaluation. P. M. Hay. Am Dyestuff Rep 53:812-15 S 14 '64

Observations connected with the radiation induced grafting of polymers onto cellulose. H. A. Krässig. bibliog Tappi 46:654-6 N '63

CELLS

Effect of potassium on juxtaglomerular cells and the adrenal zona glomerulosa of rats. P. M. Hartroft and E. Sowa. bibliog J Nutrition 82:439-42 Ap '64

Freeze-fixing of cells and tissues to preserve life. il Res/Develop 15:63 N '64

How cells attack antigens. R. S. Speirs. il diags Sci Am 210:58-64 F '64

Salt transport across cell membranes. S. B. Hendricks. il diags Am Scientist 52:306-33 bibliog(p332-3) S '64

Sensitivity of grivet monkey kidney cell line BS-C-1 for propagation and isolation of certain human viruses. N. J. Schmidt and others. bibliog Am J Pub Health 54:1522-30 S '64

See also

Chromosomes

Differentiation (biology)

Plant cells and tissues

CELLS, Electrolytic. See Electrolytic cells

CELLULAR concrete. See Concrete, Porous

CELLULAR glass. See Glass, Cellular

CELLULAR plastics. See Plastics, Foamed

CELLULOSE

Acetylation celluloses from pulping of wood in acetic acid. L. E. Herdle and others. bibliog Tappi 47:617-20 O '64

Alkaline hypochlorite oxidation of cellulose analogs. M. L. Wolfrom and W. E. Lucke. bibliog Tappi 47:189-92 Ap '64

Birefringence of plant fibrous cellulose and microcrystalline cellulose in human stools freezer-stored immediately after evacuation. T. W. Tusing and others. bibliog il J Agri & Food Chem 12:284-7 My '64

Cellulose-epichlorohydrin reaction in the presence of neutral salt and salt-alkali solutions. J. B. McKelvey and others. bibliog Textile Res J 34:759-67 S '64

Cellulose-fiber bonding. A. H. Nissan and S. S. Sternstein. bibliog il Tappi 47:1-6 Ja '64; Discussion. A. J. Stamm. 47:444 Jl '64

Cellulose forms carbon fibers; abstract. M. M. Tang and R. Bacon. Chem & Eng N 42:62 Ap 13 '64

Changes in carbonyl spectrum during bleaching, steeping, and aging. H. Sihtola and L. Neimo. bibliog Tappi 46:730-4 D '63

CELLULOSE—*Continued*
Chemical constituents and molecular weights of cellulose in different parts of jute fiber. M. Bashiruzzaman and others. bibliog Textile Res J 34:910-11 O '64
Chemical effects of light on cotton cellulose and related compounds. G. O. Phillips and J. C. Arthur, jr. bibliog Textile Res J 34: 497-505, 572-80 Je-Jl '64
Crystallinity and the solubility of cellulose in iron-sodium tartrate solution. R. E. Glegg and others. Tappi 47:574-9 S '64
Crystallinity determinations on chloroform-included cellulose. S. H. Zeronian. bibliog Textile Res J 34:83-4 Ja '64
Effect of zinc chloride vulcanization on the structure and properties of cellulose laminate. L. T. C. Lee. bibliog il Tappi 47:386-92 Jl '64
Exchange reaction between calcium and carboxyl groups in cellulose. E. S. Putnam. bibliog il diag Tappi 47:549-54 S '64
Fiber-bonding agents. W. C. Black. Tappi 47:sup201A-4A Ja '64
Graft polymerization onto cellulose; panel discussion. bibliog Tappi 46:652-75 N '63
Grafting to cellulose and its derivatives. V. Stannett. bibliog diag Tappi 47:sup58A+ Mr '64
High-temperature reaction between formaldehyde and cellulose. E. Klein and B. E. M. Bingham. bibliog diag Textile Res J 34: 585-93 Jl '64
Influence of formaldehyde concentration on the cross-links introduced into cotton cellulose. J. D. Guthrie. Textile Res J 33:955-8 N '63
Infrared hydroxyl-stretching band of bacterial cellulose. R. Jeffries. Tappi 47:296-7 My '64
Kinetics of acid catalyzed acetylation of cellulose. W. C. Frith. bibliog il Tappi 46: 739-44 D '63
Plant enzyme system produces cellulose. il Chem & Eng N 42:44-5 F 3 '64
Polymer-homologous series of methyl β-D-glycosides from cellulose. M. L. Wolfrom and S. Haq. bibliog Tappi 47:183-5 Ap '64
Post-irradiation stability of some properties of cotton cellulose. J. C. Arthur, jr. and F. A. Blouin. bibliog Textile Res J 34:733-4 Ag '64
Preliminary study of the refining action on cellulose fibers. J. M. J. Van Stiphout. Tappi 47:sup 189A-91A F '64
Radiation-induced graft polymers of cotton cellulose and styrene. J. C. Arthur, jr. and D. J. Daigle. Textile Res J 34:653-4 Jl '64
Reaction between urea and cellulose. A. C. Nuessle Am Dyestuff Rep 53:43-4 Ja 20 '64
Separation of some inorganic salts in aqueous solution by flow, under pressure, through porous cellulose acetate membranes. S. Sourirajan. bibliog diags Ind & Eng Chem Fundamentals 3:206-10 Ag '64
Some considerations on the aging of alkali cellulose. A. M. Dowell, jr. and K. A. Kuiken. bibliog Tappi 46:726-30 D '63
Structural characteristics of vulcanized cellulose by infrared spectroscopy. L. T. C. Lee and J. J. Griffith. Tappi 47:42-3 Ja '64
Studies in the reaction of formaldehyde with unmodified, modified, and dyed celluloses. K. V. Datye and G. M. Nebar. bibliog Textile Res J 32:825-33, 883-90; 33:500-10; 34: 546-52 O-N '62, Jl '63, Je '64
Synthesis of cellulose by an enzyme system from a higher plant. A. D. Elbein and others. Am Chem Soc J 86:309-10 Ja 20 '64
Thin-layer chromatography on microcrystalline cellulose. M. L. Wolfrom and others. bibliog Chem & Ind p 1065 Je 20 '64
Viscosities of cellulosic polyelectrolytes in organic solvents containing potassium iodide. M. E. Rowley and E. K. Gruschow. Anal Chem 36:616-18 Mr '64
See also
Carboxymethyl cellulose
Cotton
Ethyl cellulose
Hemicellulose
Hydroxyethyl cellulose
Lignin
Viscose

Analysis
Isolation and characterization of cellulose in the coffee bean. M. L. Wolfrom and D. L. Patin. bibliog J Agri & Food Chem 12:376-7 Jl '64

CELLULOSE acetate
All that glitters may not be gold but metallized plastics. il Plastics World 22:16 F '64
Cellulose acetate. M. K. Black and W. M. Land. Machine Design 36:58-9 S 17 '64
Chemcell's Ord; chemical man of 1963. il Can Chem Process 48:39-46 Ja '64
Glass transition and ionic conductivity in cellulose acetate. R. E. Barker, jr. and C. R. Thomas. bibliog J Ap Phys 35:87-94 Ja '64
Haze in cellulose acetate. R. J. Conca and others. bibliog Tappi 46:644-8 N '63
Optical rotation of cellulose acetate. R. J. Fort and others. bibliog Chem & Ind p 108-10 Ja 18 '64
Properties of materials; cellulose acetate; molded, extruded; tables. Materials in Design Eng 60:214 Mid-O '64

CELLULOSE acetate butyrate
Cellulose acetate butyrate. R. O. Hill, jr. Machine Design 36:63-4 S 17 '64
Cellulose acetate butyrate; new boat material debuts. il Plastics Tech 10:15 Ag '64
New approach to boat building. il Plastics World 22:38-9 Ag '64
Properties of materials; cellulose acetate butyrate and cellulose acetate propionate; molded, extruded; tables. Materials in Design Eng 60:215 Mid-O '64
Use of a transparent hot-melt coating material for prolonging storage life of frozen pork chops. J. C. Ayres. bibliog Food Tech 18:1621-4 O '64

CELLULOSE acetate fibers
Interference microscopy in polymer research. V. G. Peck and W. L. Carter. bibliog il diags Textile Res J 34:40-5, pl 1 Ja '64
Printing of Tricel cellulose triacetate fabrics. K. Consterdine. Soc Dyers & Col J 80:469-73 S '64
Tips for finishing Arnel/cotton stripe and check fabrics. Textile Ind 128:129 Je '64
See also
Dyes and dyeing—Cellulose acetate fibers

CELLULOSE esters
Approximate degrees of polymerization of cellulose esters from intrinsic viscosities. L. B. Genung. bibliog Anal Chem 36:1817-21 Ag '64
Cellulosics. Mod Plastics 41:100 Ja '64
Phosphorylation of cotton with inorganic phosphates. D. M. Gallagher. bibliog Am Dyestuff Rep 53:361-3 My 11 '64
Viscosity reduction of cellulose esters in aliphatic acid-anhydride solution with free and combined sulfuric acid catalyst. C. J. Malm and others. bibliog Tappi 47:533-9 S '64

CELLULOSE ethers
Cellulose ether; Klucel. Chem Eng 71:114 Mr 16 '64
Nonionic cellulose ether dissolves in cold water. Chem & Eng N 42:74 N 9 '64

CELLULOSE gum. See Sodium carboxymethylcellulose

CELLULOSE propionate
Cellulose propionate. M. K. Black and W. M. Land. Machine Design 36:60-1 S 17 '64
Properties of materials; cellulose acetate butyrate and cellulose acetate propionate; molded, extruded; tables. Materials in Design Eng 60:215 Mid-O '64

CELLULOSE triacetate. See Cellulose acetate fibers

CEMENT
Carbon monoxide disintegration of calcium aluminate cements in refractory castables. W. H. Gitzen and others. bibliog il diag Am Cer Soc Bul 43:518-22 Jl '64
Effect of sulphate solutions on normal and sulphate-resisting portland cement. L. Heller and M. Ben-Yair. bibliog J Ap Chem 14:20-30 Ja '64
Expansive cement opens era of new concretes. il Chem & Eng N 42:38-9 Ag 10 '64
Guide to portland cement plastering. bibliog il diags Am Concrete Inst J 60:817-34 Jl '63; Discussion. 61:1923-35; Reply. 1935-6 Mr '64
High-magnesia cement that passes autoclave test; discussion. Rock Prod 67:25+ S '64
How much magnesia in portland cement? discussion. N. C. Rockwood. Rock Prod 67: 21+ Mr '64
Shear bond strength between coarse aggregate and cement paste or mortar. M. A. Taylor and B. B. Broms. il diags Am Concrete Inst J 61:939-57 bibliog(p955-6) Ag '64
Soil stabilization with cement and sodium additives. Z. C. Moh. bibliog Am Soc C E Proc 88 [SM 6 no 3356]:81-105 D '62; Discussion. 89 [SM 3 no 3528]:181-7 My; [SM 4 no 3578]:217-18 Jl '63; Reply. 90 [SM 1 no 3781]:103-5 Ja '64
Tensile bond strength between aggregate and cement paste or mortar. T. T. C. Hsu and F. O. Slate. bibliog diags Am Concrete Inst J 60:465-86 Ap '63; Discussion. 60: 1787-824 D '63

CEMENT—*Continued*

X-ray spectrographic analysis of raw materials for the cement industry. J. M. M. Robinson and E. P. Gertiser. bibliog Materials Res & Stand 4:228-31 My '64

See also

Grouting

Gunite

Gypsum products

Mortar

Analysis

Analytical techniques for improved quality control in portland cement plants. P. K. Mehta. bibliog il diags Pit & Quarry 57: 141-5 Jl '64

Expansion and contraction

Effect of restraining forces on the expansion of masonry mortars. T. Ritchie. diags Materials Res & Stand 4:15-19 Ja '64

Expanding cement prevents roof cracks. il Eng N 172:32 Ja 16 '64

Nonshrinking or expansive portland cement concrete. N. C. Rockwood. Rock Prod 66: 16+ D '63

Hydration

Chemistry of concrete. S. Brunauer and L. E. Copeland. il diags Sci Am 210:80-6+ Ap '64

Curing refractory castables; it isn't the heat, it's the humidity. J. F. Wygant and M. S. Crowley. Am Cer Soc Bul 43:1-5 Ja '64

Influence of silica on the hydration of $3CaO.SiO_2$. H. N. Stein and J. M. Stevels. bibliog il J Ap Chem 14:338-46 Ag '64

Sorption of water on compacts of bottle-hydrated cement. R. F. Feldman and P. J. Sereda. bibliog J Ap Chem 14:87-104 F '64

Vacuum-cast refractory castables. D. J. Damiano. diags Am Soc C E Proc 90 [ST 5 no 4107]:85-98 O '64

Vibration flow test for cement mortars. S. L. Weinland and L. A. Weinland. bibliog il Materials Res & Stand 4:165-7 Ap '64

Manufacture

New production techniques can smash price barrier in white cement production. J. Waanders. il Rock Prod 67:89-91+ My '64

100 percent beneficiation in unusual processing system at Southwestern Portland's third Texas plant. B. C. Herod. il plan diag Pit & Quarry 57:104-12+ Jl '64

Southern Cement's new Atlanta plant features. W. E. Trauffer. il plan diag Pit & Quarry 57:120-4+ Jl '64

Will wet clinker grinding produce uniform-colored cement? J. C. Witt. diags Rock Prod 67:80-1 Je '64

See also

Cement kilns

Cement plants—Equipment

Physiological effect

Severe reaction to cement: case report. R. J. Rowe and G. H. Williams. il Archives Environmental Health 7:709-11 D '63

Setting

Study of the mechanism through which calcium chloride accelerates the set of portland cement. A. M. Rosenberg. bibliog il Am Concrete Inst J 61:1261-9 O '64

Terminology

Glossary of terms on cement and concrete technology. bibliog Am Concrete Inst J 59: 1761-70; 60:1689-95; 61:487-508, 913-20 D '62, D '63, My, Ag '64; Discussion(pt 1). 60: 2065-9 pt 2 Je '63

Testing

Consistency of cement-lime mortars. R. Shalon and I. Soroka. Materials Res & Stand 4:465-71 S '64

Evaluation of five commercial calcium-aluminate cements. J. T. Shapland and A. F. Livovich. il Am Cer Soc Bul 43:510-13 Jl '64

X-ray analysis: potent weapon in the battle for quality. il Rock Prod 67:116-19 My '64

Transportation

Bulk trailers serve batch plant. il Eng N 173:49-50 Jl 16 '64

Cement plants of the 60's; packing and shipping. J. H. Bergstrom. il Rock Prod 67:88 My '64

CEMENT clinkers

National modernizes clinker grinding. I. Krabbe. il diag Pit & Quarry 56:117-19 Ap '64

Will wet clinker grinding produce uniform-colored cement? J. C. Witt. diags Rock Prod 67:80-1 Je '64

CEMENT coating

Brushed-on coating replaces brick veneer. R. B. Gilray. il plan Plant Eng 18:127 Je '64

CEMENT handling

Arteries of a cement plant; pneumatic conveying and aeration systems. W. F. Hahn. il diags Rock Prod 67:72-6 Je '64

Continuous weighing of bulk cement. A. Ditcher. il diag Ind Electronics 2:168-70 Ap '64

New high-speed pneumatic system introduced for bulk material transport. il Pit & Quarry 56:33 Je '64

Pump moves bulk cement without delays. il Mod Materials Handling 19:59 S '64

CEMENT industry and trade

Cement imports tumble in 1963. Rock Prod 67:113-14+ My '64

Cement; review and forecast. W. E. Trauffer. il Pit & Quarry 56:98-109+ Ja; 105-6 F '64

1964 forecast; portland cement. il Rock Prod 67:58-9 Ja '64

Portland cement, 1963. W. A. Wecker. il Min Cong J 50:97-8 F '64

Should cement companies own ready-mixed concrete plants? N. C. Rockwood. Rock Prod 67:25+ Ag '64

Statistics

Higher output and lower profits recorded in 1963 cement report. il Pit & Quarry 57:80-1 S '64

Hungary

Hungary's largest cement plant nears completion. R. Ironman. il Rock Prod 67:86-7 Jl '64

Japan

Computer controls two kilns at Japanese cement plant. V. A. Kaiser and Y. Schioya. il diag Rock Prod 67:88+ F '64

CEMENT kilns

Cement plants of the 60's; burning. J. H. Bergstrom. il Rock Prod 67:84-5 My '64

Computer control of cement kiln feed blending. I. Hay. il diags Instruments & Control Systems 37:134-8 Jl '64

Control of kiln operations with a digital computer; Riverside division of American cement corp. L. W. Weeks. il Min Cong J 50:42-5 Je '64

Kiln-cooler operations smoothed with aid of dual tv monitor system. il Pit & Quarry 57:40 S '64

Kiln drives go static. A. C. Lordi. diags Rock Prod 67:104-5+ S '64

Northwestern States' computer-controlled kiln in operation. il Rock Prod 67:122 Mr '64

CEMENT lining

Portable plant cuts cost of cement-lining injection-system pipe. W. B. Bleakley. il Oil & Gas J 61:91-3 D 9 '63

CEMENT plants

Control equipment

Basing cement plant instrumentation on predictable savings. J. W. Peirce. il Pit & Quarry 56:139-40+ Ap '64

Cement plants of the 60's; controls. J. H. Bergstrom. il Rock Prod 67:86-7 My '64

Centralized cement control at Dewey portland cement company's Tulsa plant. L. Nickert. il Comp Air Mag 69:23-6 F '64

Computer control of cement kiln feed blending. I. Hay. il diags Instruments & Control Systems 37:134-8 Jl '64

Computer controls two kilns at Japanese cement plant. V. A. Kaiser and Y. Schioya. il diag Rock Prod 67:88+ F '64

Computers in cement. Electronics 37:34 Ag 10 '64

Control of kiln operations with a digital computer; Riverside division of American cement corp. L. W. Weeks. il Min Cong J 50:42-5 Je '64

IEEE cement industry technical conference, 6th, Pasadena, April 14-17. Rock Prod 67: 92-3 Je '64

IEEE cement industry technical conference, 6th, Pasadena, April 14-16; with abstracts of papers. Pit & Quarry 56:101-5+ Je '64

Instrumentation in minerals processing; Ideal cement co. J. C. Andrews. il Min Cong J 50:24-9 Jl '64

Instrumenting cement plants for digital computer control. D. D. Bedworth and J. R. Faillace. flow chart il diags I S A J 10:47-54 N '63

CEMENT plants—Control equipment—*Cont.*

Material flow configurations for automated cement plants. H. A. Markle, jr. diags Automation 11:69-72 Ja '64

New computer control system at Northwestern States Iowa plant. R. E. Campbell. il Pit & Quarry 56:134-6 F '64

System blends bulk materials by weight. il diag Automation 10:59 D '63

Trends in cement-plant power and control. A. C. Lordi. il diags Westinghouse Eng 24:98-104 Jl '64; Excerpts. Automation 11: 145-6 O '64

Electric equipment

Circuit breakers versus fused interrupters. S. E. McDowell. il diags Rock Prod 66:88+ D '63

Distribution simplified by pullboxes, racks and hangers at Calaveras cement plant in Redding, Calif. il diags Elec Constr & Maint 62:121-2 N '63

How Arkansas Cement solved power dilemma. S. Levine. flow diag il diag Rock Prod 67: 92-6 My '64

Kiln drives go static. A. C. Lordi. diags Rock Prod 67:104-5+ S '64

Equipment

Arteries of a cement plant; pneumatic conveying and aeration systems. W. F. Hahn. il diags Rock Prod 67:72-6 Je '64

Ash Grove grows with Pacific Northwest. il diag Pit & Quarry 56:138-41 Je '64

Ash Grove moves into Northwest. il diag Rock Prod 67:82-3 Je '64

Cement plants of the 60's. J. H. Bergstrom. il Rock Prod 67:77-88 My '64

Floating limestone at Permanente. J. C. Kleiber and G. M. Meisel. flow sheet il Pit & Quarry 57:158-60+ Jl '64

Hungary's largest cement plant nears completion. R. Ironman. il Rock Prod 67:86-7 Jl '64

Ideal Cement adds 18th production facility. flow diag il Pit & Quarry 56:79-85 F '64

Innovations in every department of Missouri Portland's Joppa, Ill. plant. J. H. Bergstrom. il diags Rock Prod 67:60-6 Ap '64

Louisville Cement weigh ahead with nuclear scale. il Rock Prod 67:71+ Ap '64

Missouri Portland boosts capacity of river plant and terminal network. B. C. Herod. il map Pit & Quarry 56:84-90+ Mr '64

National modernizes clinker grinding. I. Krabbe. il diag Pit & Quarry 56:117-19 Ap '64

New Riverside plant to save over $1 million annually; three-phase modernization is now complete. J. H. Bergstrom. diags Rock Prod 67:56-62 O '64

No frills needed at new Atlanta plant; Southern cement co. J. H. Bergstrom. il Rock Prod 66:44-9 D '63

100 percent beneficiation in unusual processing system at Southwestern Portland's third Texas plant. B. C. Herod. il plan diag Pit & Quarry 57:104-12+ Jl '64

Optimization is design criteria at Castle Hayne; Ideal cement co. J. H. Bergstrom. il diags Rock Prod 67:52-8 Mr '64

Oregon Portland develops unusual barge-unloading system. il Pit & Quarry 56: 119-20+ Mr '64

Permanente plant, new Montana bonanza. R. J. Mitchell. il diags Rock Prod 67:56-62 F '64

Problem of ups and downs; getting bulk off a barge. il Mod Materials Handling 19: 52-3 Jl '64

Silicone-ceramic adds vigor to Marquette Cement. il Rock Prod 66:96+ D '63

Southern Cement's new Atlanta plant features. W. E. Trauffer. il plan diag Pit & Quarry 57:120-4+ Jl '64

Space-age tool weighs bulk; radioactivity goes to work in combination with a reversible bulk-belt conveyor. il Mod Materials Handling 18:44 D '63

Television primary part of plant instrumentation at the Clinchfield plant of Penn-Dixie cement corp. P. L. Gantt. il plan Rock Prod 67:84+ Ja '64

Unique calciner breaks all the rules; Ash Grove lime & portland cement co. S. Levine. il diag Rock Prod 66:50-3 D '63

See also

Cement kilns

Maintenance and repair

Automating maintenance functions of cement plants. P. W. Sherwood. il Pit & Quarry 57:117-19 Jl '64

Power

How Arkansas Cement solved power dilemma. S. Levine. flow diag il diag Rock Prod 67:92-6 My '64

Trends in cement-plant power and control. A. C. Lordi. il diags Westinghouse Eng 24:98-104 Jl '64; Excerpts. Automation 11: 145-6 O '64

Quality control

Analytical techniques for improved quality control in portland cement plants. P. K. Mehta. bibliog il diags Pit & Quarry 57: 141-5 Jl '64

X-ray analysis; potent weapon in the battle for quality. il Rock Prod 67:116-19 My '64

CEMENT research

Effect of restraining forces on the expansion of masonry mortars. T. Ritchie. diags Materials Res & Stand 4:15-19 Ja '64

CEMENTITE. See Iron carbides

CEMENTS

Cement holds titanium during hot machining. il Steel 154:63 Je 15 '64

See also

Adhesives

CENOZOIC period. See Geology, Stratigraphic —Cenozoic

CENTER of mass

Motion of the center of gravity of a variable-mass body. V. Punga. AIAA J 2:1482 Ag '64

CENTERING (machine work)

Centers pressed in pinions on combination centering and milling machine. il Mach 70:106 D '63

CENTRAL AMERICA

See also

Transportation—Central America

CENTRAL heating systems. See Heating from central stations

CENTRAL stations. See Electric plants (central stations)

CENTRIFUGAL casting. See Casting, Centrifugal

CENTRIFUGAL compressors. See Compressors

CENTRIFUGAL force

Centrifugal force keeps fluid in groove; liquid shaft seals. S. B. Rothberg. diags Product Eng 34:85-7 N 11 '63

CENTRIFUGAL pumps. See Pumps, Centrifugal

CENTRIFUGATION

Determination of latex particle size distribution by analytical ultracentrifugation. H. W. McCormick. bibliog il J Colloid Sci 19: 173-84 F '64

Study on liquid extraction from cotton fabrics in a centrifugal field. B. A. Short and W. J. Gertz. bibliog il Textile Res J 34:532-8 Je '64

CENTRIFUGES

Accurate resetting of dry reed proximity switch. G. W. Heumann. diag Control Eng 11:104 F '64

Centrifugal dewatering of paper mill waste. R. A. Bamford. il Tappi 47:sup 187A-8A Ja '64

Centrifuges flavor from juice. F. K. Lawler. flow sheet il diag Food Eng 36:42-5 Ag '64

Contractor is easily adapted to many liquid-liquid systems. il Chem Eng 71:60+ Ag 3 '64

Coolant debris goes into tailspin. il Iron Age 194:136-7 O 29 '64

Dewatering flotation slurries in centrifuges at Stotesbury. R. L. Llewellyn. il diag Coal Age 69:88-91 Ap '64

Flight acceleration facility for studying gravitational forces. il Comp Air Mag 69:18 Ag '64

Horizontal scroll centrifuge is designed for high pressures. il Chem Eng 71:100+ Ja 20 '64

Investigation of the dewatering of biological sludge with a new centrifugal apparatus. W. Bischofsberger and V. Stalmann. il diag Water & Sewage Works 110:411-14 N '63

Laboratory centrifugal refining method for control application. W. D. Pohle and others. Am Oil Chem Soc J 40:703-7 D '63

Liquid centrifuge. il Ind & Eng Chem 56:67 Ag '64

Progress in centrifugal separations. S. Danatos. diag Chem Eng 71:205-6 O 12 '64

Scroll centrifuge separates fine particles. diag Chem Eng 71:114 S 14 '64

Stainless alloy allows industrial use of sulfuric acid. il Welding Eng 49:72+ O '64

Two centrifuges introduce novel techniques. diags Chem Eng 71:94 S 28 '64

CERAMIC coating

Cementation coatings for refractory metals. B. S. Payne, jr. il Am Cer Soc Bul 43:567-71 Ag '64

Ceramic-coated metals resist heat, corrosion. R. E. Smith. il Materials in Design Eng 58: 85-7 N '63

Coatings go on fast, evenly with electrophoresis. il Iron Age 193:80-2 My 7 '64

In-pile performance of ceramic coated-particle fuels. C. W. Townley and others. bibliog il Nucleonics 22:43-8 F '64

Industry's parade of new coatings. J. E. Sandford. il Iron Age 194:93-100 Jl 23 '64

Magnesium spinel coating electrochemically formed on magnesium; HAE (modified). H. W. Huggins. Plating 51:317-23 Ap '64

Mold coating raises quality of as-cast steel finishes. il diag Iron Age 192:80-1 D 19 '63

Preliminary investigation of particle-substrate bonding of plasma-sprayed materials; abstract. S. J. Grisaffe and W. A. Spitzig. Metal Prog 86:166-7 Jl '64

Properties of materials; ceramic, cermet and refractory coatings; tables. Materials in Design Eng 60:389 Mid-O '64

Two-part ceramic stucco preserves guard rails. il Materials in Design Eng 59:164+ Ap '64

See also

Enamel and enameling

CERAMIC cutting tools. See Cutting tools. Ceramic

CERAMIC engineers

Ceramic engineering manpower crisis; role of an industrial fellowship program. R. Russell, jr. Am Cer Soc Bul 43:410-12 My '64

See also

National institute of ceramic engineers

CERAMIC industries

Autoramics '64. A. L. Friedberg. il Cer Ind 83:33-8+ S '64

What the retailer needs from ceramists. D. Cardozo. Am Cer Soc Bul 43:626-7 S '64

See also

Cement industry and trade
Color in the ceramic industry
Enamel and enameling
Glass trade
Pottery industry
Refractory materials

Directories

Directory of ceramic companies. 1964. Am Cer Soc Bul 43:38-9+ Ja '64

France

French ceramics bid for common market distribution. H. Thurnauer. il Cer Ind 84:62-3+ Jl '64

Israel

Ceramics in Israel. J. A. Pask. Am Cer Soc Bul 42:760-1 D '63

CERAMIC materials

Brittle engineering materials. D. R. Wilder. bibliog diags Chem Eng 70:209-16 N 11 '63

Ceramic-alumina shapes to aid undersea studies. Chem & Eng N 42:157 S 7 '64

Ceramic double cell for crystal growth by fused salt electrolysis. W. Kunnmann and A. Ferretti. diag R Sci Instr 35:465-6 Ap '64

Ceramic materials used in vibration transducers. il Engineering 198:298 S 4 '64

Ceramic-metal adhesive combinations. J. F. Benzel. il diags Am Cer Soc Bul 42:748-51 D '63

Ceramic oxides. W. E. Hauth, jr. il Chem Eng 70:185-8 D 9 '63

Ceramic substrate improves microcircuit reliability. il Electronics 36:51 N 22 '63

Ceramics. G. R. Pulliam. Space/Aeronautics 42 no 4:156-8 '64-65

Ceramics for nuclear applications; symposium abstracts. Am Cer Soc Bul 43:323+ Ap '64

Ceramics for space application; symposium abstracts. Am Cer Soc Bul 43:331+ Ap '64

Coating ceramic beads; question and answers. Ind Finishing 40:104-6 N '63

Comparisons of materials; melting points of metals and ceramics; tables. Materials in Design Eng 60:22 Mid-O '64

Composition and structure of inorganic nonmetallic solids. T. C. MacAvoy. diags Glass Ind 44:618-24+, 676-8 N-D '63

Decay products of radium in ceramics and their interaction with matter. A. F. Gabrysh and others. bibliog diags Materials Res & Stand 3:902-5 N '63; Discussion. 4:220-1 My '64

Designing with ceramics today. W. E. Brownell. bibliog Mech Eng 86:26-9 Ja '64

Diffusion in crystalline solids; symposium abstracts. Am Cer Soc Bul 43:337+ Ap '64

Diffusion of xenon in ceramic oxides. D. L. Morrison and others. bibliog J Ap Phys 35: 1616-22 My '64

Dissolution in ceramic systems. A. R. Cooper, jr. and W. D. Kingery. bibliog il diags Am Cer Soc J 47:37-43, 249-54 Ja, My '64

Effect of open and closed pores on Young's modulus of polycrystalline ceramics. R. S. Piatasik and D. P. H. Hasselman. bibliog Am Cer Soc J 47:50-1 Ja '64

Electron microscopic technique for determining the percent crystallinity of glass-ceramic materials. G. B. Carrier. bibliog il Am Cer Soc J 47:365-7 Ag '64

Fabrication of high-density calcium oxide ceramics. M. A. Hepworth and J. Rutherford. Am Cer Soc Bul 43:18 Ja '64

Forms and shapes of materials; ceramic, glass, carbon and graphite; tables. Materials in Design Eng 60:472-3 Mid-O '64

Functional relation between creep rate and porosity for polycrystalline ceramics. R. M. Spriggs and T. Vasilos. bibliog Am Cer Soc J 47:47-8 Ja '64

Glass and ceramics for underwater vehicles. J. D. Stachiw. il diag Glass Ind 45:469-72+ S '64

High-alumina ceramics and the electrical industry. F. E. V. Spencer. Inst E E Proc 111:308 F '64

High-temperature materials. I. Stambler. diags Space/Aeronautics 40:81-7 N '63

How to fasten ceramics with tubular rivets; drawings with text. Materials in Design Eng 59:108-9 Ap '64

Improved method of electrical contact to ceramics for high temperature use. J. F. Bacon and R. D. Veltri. il diags R Sci Instr 34:1264-5 N '63

Measurement of thermal conductivity with mercury contacts. C. D. Bopp. bibliog diag Am Cer Soc J 47:151-2 Mr '64

Negative resistance in copper-doped ferric oxide ceramic. S. F. Lo. il IEEE Proc 52: 609-10 My '64

New horizons for industrial ceramics. R. E. Lintner and others. il Metal Prog 84:109-15 N '63

Persistent problems in applications of technical ceramics. S. C. Carniglia. Am Cer Soc Bul 43:358-61 Ap '64

Precision lapping device for the determination of diffusion coefficients in ceramic materials. H. J. de Bruin and R. L. Clark. il R Sci Instr 35:227-8 F '64

Properties of materials; mechanical and electrical ceramics; tables. Materials in Design Eng 60:331-2 Mid-O '64

Properties of materials; refractory ceramics and cermets; tables. Materials in Design Eng 60:333-5 Mid-O '64

Show toppers from ceramographic exhibit. il Am Cer Soc Bul 43:580-2 Ag '64

Solid state reactions in high-talc bodies. E. Planz. bibliog flow diag diags Am Cer Soc Bul 43:443-7 Je '64

Strength-porosity relation involving different pore geometry and orientation. S. D. Brown and others. bibliog diags Am Cer Soc J 47:320-2 Jl '64

Studies concerning the piezoelectric control of an electroluminescent display. Y. Yamamoto and J. Frost. diags IEEE Proc 52:77-8 Ja '64

Talc as an auxiliary flux in plastically formed ceramics. E. W. Emrich and R. C. Hannon. bibliog Am Cer Soc Bul 43:186-90 Mr '64

Thermal conditioning of ceramic materials. C. J. Phillips and S. Divita. Am Cer Soc Bul 43:6-8 Ja '64

Thermal conditioning of polycrystalline alumina ceramics. R. H. Insley and V. J. Barczak. bibliog diag Am Cer Soc J 47:1-4 Ja '64

Thermal emittance of materials for spacecraft radiator coatings. R. J. Hayes and W. H. Atkinson. il Am Cer Soc Bul 43: 616-21 S '64

Translucent engineering ceramic; Stellox. il Engineering 197:249 F 14 '64

Transmission electron microscopy of glass-ceramics. P. E. Doherty and R. R. Leombruno. bibliog il diags Am Cer Soc J 47: 368-70 Ag '64

Vibration method for the elastic constants of small plates. C. D. Bopp. diags R Sci Instr 35:703-7 Je '64

See also

Alumina
Cermets
Clay
Fluorspar

CERAMIC materials—See also—*Continued*

Kyanite
Magnesia
Porcelain
Pyroceram
Pyrophyllite
Refractory materials
Slips (ceramics)
Talc

Electric properties

Alumina and other dielectric ceramics; symposium abstracts. Am Cer Soc Bul 43:353+ Ap '64

Anomalous behaviour of blast pressure gauges with ferroelectric ceramic elements. J. C. Muirhead and W. J. Fenrick. diags J Sci Instr 41:483-4 Jl '64

Barium titanates with improved insulation resistance and time constant. S. R. Hoh and F. E. Pirigyi. bibliog Am Cer Soc J 46:516-18 N '63

Barium zirconate modified with lanthanum, a high-temperature capacitor dielectric. J. Koenig and B. Jaffe. bibliog Am Cer Soc J 47:87-9 F '64

Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64

Dielectric properties and phases of some Ga_2O_3-Nb_2O_5 ceramic compositions. F. A. Philgreen. Am Cer Soc J 47:49-50 Ja '64

Electrical conduction in ceramics, symposium abstracts. Am Cer Soc Bul 43:351 Ap '64

Electrical conductivity in the system ZrO_2-$CaZrO_3$. T. Y. Tien. bibliog il Am Cer Soc J 47:430-3 S '64

Grain boundary conductivity of $Zr_{0.84}Ca_{0.16}O_{1.84}$ ceramics. T. Y. Tien. bibliog il J Ap Phys 35:122-4 Ja '64

H-shaped ceramic filter forms miniature i-f. M. Kawakami and others. il diags Electronics 37:55-7 F 7 '64

Hot-pressed lead zirconate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63

Measurement of permittivity and conductivity at temperatures up to 500° C. R. H. A. Miles. diags Electronic Eng 36:682-7 O '64

Primary pyroelectric effect in the PZT 95/5 ceramic. J. L. Wentz and L. Z. Kennedy. bibliog J Ap Phys 35:1767-70 Je '64

Room-temperature dielectric properties of fast-neutron-irradiated fused silica and α alumina. J. B. MacChesney and G. E. Johnson. bibliog J Ap Phys 35:2784-5 S '64

Thermally activated power cells. B. W. King and others. il Am Cer Soc Bul 43:117-21 F '64

Vacuum breakdown at a glazed ceramic surface. R. Hayes and G. B. Walker. bibliog il diag Inst E E Proc 111:600-4 Mr '64

Expansion and contraction

Diffusion sintering. D. L. Johnson and I. B. Cutler. bibliog diags Am Cer Soc J 46:541-50 N '63

High-temperature thermal expansion behavior of refractory materials. B. R. Miccioli and P. T. B. Shaffer. bibliog diags Am Cer Soc J 47:351-6 Jl '64; Correction. 47:536 O '64

Porcelains having low-firing shrinkage. R. K. Ware and R. Russell, jr. Am Cer Soc Bul 43:383-9 My '64

Residual stresses in two-phase systems as determined by changes in transition temperature. E. H. Bogardus and R. Roy. bibliog diags Am Cer Soc J 46:573-6 D '63

Structure of nickel oxide containing alumina. E. Gillam and J. P. Holden. bibliog il Am Cer Soc J 46:601-4 D '63

Thermal expansion characteristics of polycrystalline tungsten oxides. T. Takamori. bibliog Am Cer Soc J 47:534-5 O '64

Thermal expansion measurements on thoria and hafnia to 4500°F. B. Ohnysty and F. K. Rose. bibliog diag Am Cer Soc J 47:398-400 Ag '64

Thermal expansion of a cubic sodium tungsten bronze. T. Takamori and M. Tomozawa. Am Cer Soc J 47:472 S '64

Thermal expansion of certain group IV and group V carbides at high temperatures. C. R. Houska. bibliog Am Cer Soc J 47:310-11 Je '64

Thermal expansion of polycrystalline lanthanum and neodymium sesquioxides. R. E. Mistler and others. Am Cer Soc J 46:561-2 N '63

Thermal expansion of uranium monocarbide. R. Méndez-Peñalosa and R. E. Taylor. Am Cer Soc J 47:101-2 F '64

Thermal expansion of uranium sesquicarbide. R. Méndez-Peñalosa and R. E. Taylor. bibliog il Am Cer Soc J 47:416-17 Ag '64

Thermal expansion of yttria-stabilized zirconia. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:155 Mr '64

Thermal expansion of yttrium oxide and of magnesium oxide with yttrium oxide. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:256 My '64

Thermal expansion properties of lithium orthogermanate and orthosilicate. N. Soga. Am Cer Soc J 47:469 S '64

Joining

Technique for fusion bonding ceramics. P. F. Stablein and C. Araoz. il R Sci Instr 34:1275-6 N '63

Joining to metal

Bonding of metals to uranium dioxide. A. Milner and C. R. Tottle. bibliog il diags Inst Metals J 93:48-52 '64-65

Brazing of ceramics. C. W. Fox and G. M. Slaughter. bibliog il Welding J 43:591-7 Jl '64

Ceramic-metal sealing techniques for a bakeable, multiple electrical lead-through in metal ultra high vacuum systems. G. Comsa and C. Simionescu. diags J Sci Instr 41:352-3 My '64

Ceramic to metal seal made by brazing. il Steel 154:64+ My 18 '64

Fabricating and joining high strength ceramics. R. E. Lintner and others. flow diag il diags Metal Prog 84:101-6 D '63

Metal-to-ceramic seals for high temperature service; abstract. R. S. Kiwak. Metal Prog 86:250+ O '64

Sealing ceramics to metals; symposium abstracts. Am Cer Soc Bul 43:355 Ap '64

Specialization in ceramic-to-metal bonding to create high vacuum seals. il Welding J 43:517-18 Je '64

Tough ceramic and metal unite to defy heat and corrosion. il Iron Age 193:49-51 Ja 9 '64

Manufacture

Accuracy and precision in industrial screen analysis. B. J. Wahl and P. Larouche. diags Am Cer Soc Bul 43:377-9 My '64

Ceramic toroid splitting device for deflection yokes for television receivers. J. H. Weis. il Am Cer Soc Bul 43:628-9 S '64

Ceramics processed at subconventional temperatures; symposium abstracts. Am Cer Soc Bul 43:343+ Ap '64

Designing tools for electrical porcelain is a fine art; interview with Albert J. Pointon. A. C. Allen. Cer Ind 83:100-1 S '64

Equipment and applications; symposium abstracts. Am Cer Soc Bul 43:349 Ap '64

Fabricating and joining high strength ceramics. R. E. Lintner and others. flow diag il diags Metal Prog 84:101-6 D '63

Fabrication of ceramic internal reflectors for the SNAP 8 experimental reactor. K. Langrod. il diags Am Cer Soc Bul 43:392-4 My '64

Glass and ceramic forming methods. M. G. Britton. il diags Glass Ind 45:75-9+ F; 137-8+ Mr '64

New techniques for new ceramics. A. C. Allen. il Cer Ind 84:49-58+ Jl '64

Vycor, ceramic material heat-treated by gas. il Engineering 197:200 Ja 31 '64

Testing

Analysis of fracture probabilities in nonuniformly stressed brittle materials. N. A. Weil and I. M. Daniel. bibliog il diags Am Cer Soc J 47:268-74 Je '64

Analysis of the diametral-compression test. A. Rudnick and others. bibliog il diags Materials Res & Stand 3:283-9 Ap '63; Discussion. 4:24-5, 481-2 Ja, S '64

Cold crushing strength of small ceramic pellets. C. M. Jones, 2d. Am Cer Soc Bul 43:19 Ja '64

Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64

Design and performance of a high-temperature X-ray diffractometer furnace. R. K. Scott and E. Ruh. bibliog il diag Am Cer Soc J 46:513-15 N '63

Effect of gaseous environment on fracture behavior of Al_2O_3. A. J. Mountvala and G. T. Murray. bibliog il Am Cer Soc J 47:237-9 My '64

CERAMIC materials—Testing—*Continued*

Elastic energy at fracture and surface energy as design criteria for thermal shock. D. P. H. Hasselman. bibliog Am Cer Soc J 46:535-40 N '63

Extrusion properties of non-clay oxides. J. F. White and A. L. Clavel. bibliog diag Am Cer Soc Bul 42:698-702 N '63

High energy forming of glasses and ceramics. R. L. Halise. Am Cer Soc Bul 42:711 N '63

Initial temperatures of zirconia phase changes and solid-solution reactions. T. W. Smoot and J. R. Ryan. bibliog Am Cer Soc J 46:597-600 D '63

Mechanical behavior of hot-pressed MgO containing a dispersed phase. R. D. Carnahan. bibliog il Am Cer Soc J 47:305-6 Je '64

Mechanical properties of pure, dense aluminum oxide as a function of temperature and grain size. R. M. Spriggs and others. bibliog il Am Cer Soc J 47:323-7 Jl '64

Physical properties of polycrystalline silicon borides. R. S. Feigelson and W. D. Kingery. bibliog il Am Cer Soc Bul 42:688-93 N '63

Preparation of stabilized zirconia for microscopic examination. R. M. Slepian. il Am Cer Soc J 47:535-6 O '64

Relation between effects of porosity on strength and on Young's modulus of elasticity of polycrystalline materials. D. P. H. Hasselman. bibliog diag Am Cer Soc J 46:564-5 N '63

Similarities in the impact behavior of glasses and polycrystalline ceramics. C. J. Phillips and S. DiVita. bibliog Am Cer Soc Bul 42:685-7 N '63

Stability of forming characteristics of bodies containing nepheline syenite; review. R. C. Wilson and C. J. Koenig. bibliog Am Cer Soc Bul 42:752-5 D '63

Tensile strengths of dense polycrystalline ceramics by the diametral-compression test. R. M. Spriggs and others. diags Materials Res & Stand 4:218-20 My '64

X-ray spectrographic analysis of raw materials for the cement industry. J. M. M. Robinson and E. P. Gertiser. bibliog Materials Res & Stand 4:228-31 My '64

CERAMIC materials, Cellular

Ceramic that foams; potting compound that protects electronic circuitry. Electronics 37:27-8 Jl 27 '64

Cercor; the development of a product. G. P. Smith. il diags Res/Develop 14:28-31 N '63

Foamed ceramic ablative buffers 3000 F. il Materials in Design Eng 59:113 Ja '64

Low temperature ceramic solves high temperature problems. A. C. Allen. il Cer Ind 83:52-4+ Ag '64

Refractory potting ceramic protects space electronics. Chem & Eng N 42:45-6 Ag 3 '64

CERAMIC research

Design, a vital component. E. F. Osborn. Am Cer Soc Bul 43:505 Jl '64

Hot-pressed lead zirconate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63

Nuclear and space ceramic research; special report. A. C. Allen. il Cer Ind 83:31-43 O '64

Persistent problems in applications of technical ceramics. S. C. Carniglia. Am Cer Soc Bul 43:358-61 Ap '64

See also

Glass research
Refractory research

CERAMICS

Phase diagrams for ceramists, by E. M. Levin and others; review. Am Cer Soc Bul 43:482-3 Je '64

See also

Abrasives
American ceramic society
Building materials
Clay
Enamel and enameling
Frits
Glass
Glass manufacture
Pottery
Slips (ceramics)
Vacuum tubes—Ceramic tubes

Bibliography

Ceramic abstracts. Published in monthly numbers of Journal of the American ceramic society

CEREALS. See Grain

CEREALS, Prepared

Effect of several different BHT treatments on post-storage acceptance of a shredded oat cereal. S. Shmigelsky and others. Food Tech 18:387-9 Mr '64

Package treatment versus direct application as a means of incorporating BHT in shredded breakfast cereals. E. F. Caldwell and others. bibliog Food Tech 18:383-6 Mr '64

CEREBROSPINAL fluid

Effect of vitamin A and vitamin A acid on cerebrospinal fluid pressure and blood and liver vitamin A concentrations in the pig. E. C. Nelso and others. bibliog J Nutrition 82:263-8 F '64

ČERENKOV radiation counter. See Counters (electrons, ions, etc.)

CERIUM

Bonding in ceric-ion initiated graft polymers of polyvinyl chloride on cellulose. F. K. Guthrie. bibliog Tappi 46:656-61 N '63

Kinetic inhibition of cerium(IV) reduction by oxalic acid. G. A. Rechnitz and Y. A. El-Tantawy. Anal Chem 36:2361 N '64

Study of the cerium(IV)-oxalate reaction in acidic sulfate media. Y. A. El-Tantawy and G. A. Rechnitz. bibliog Anal Chem 36:1774-7 Ag '64

Analysis

Radiochemical determination of cerium by solvent extraction method. M. A. Awwal. bibliog Anal Chem 35:2048-50 D '63

Spectrophotometric determination of cerium with thenoyltrifluoroacetone. H. Onishi and C. V. Banks. Anal Chem 35:1887-9 N '63

Spectrophotometric determination of cerium with thenoyltrifluoroacetone after cupferron-chloroform extraction. H. Onishi and Y. Toita. Anal Chem 36:1867-9 Ag '64

CERIUM alloys

Ferromagnetism and incipient superconductivity in a $CeRu_2$+7.3 per cent $GdRu_2$ alloy. J. J. Drautman and others. J Ap Phys 35:974-5 pt 2 Mr '64

One atom in 7700 changes alloy structure; abstract. G. R. B. Elliott and R. B. Roof. Chem & Eng N 42:54+ Ap 20 '64

CERIUM compounds

Thermal decomposition of cerous oxalate and variation of surface area of the products. V. V. Subba Rao and others. bibliog Am Cer Soc J 47:356-60 Jl '64

CERIUM magnesium nitrate

Temperature measurements using small quantities of cerium magnesium nitrate. W. R. Abel and others. bibliog diags R Sci Instr 35:444-9 Ap '64

CERIUM oxides

Metallographic preparation of sintered CeO_2. C. E. Williams and others. il Am Cer Soc J 47:538 O '64

CERIUM phosphates

Comparison of the optical Faraday rotation and magnetic susceptibility of cerous phosphate glass. S. B. Berger and C. B. Rubinstein. bibliog J Ap Phys 35:1798-801 Je '64

CERMETS

Ceramic-coated metals resist heat, corrosion. R. E. Smith. il Materials in Design Eng 58:85-7 N '63

Chromium-magnesia composites. G. C. Reed and W. L. Schalliol. il J Metals 16:175-9 F '64

Coining techniques for the fabrication of medium-volume cermet nuclear fuels. L. H. Cope. il Metallurgia 70:59-63 Ag '64

Improved cermet properties. D. E. Kizer. il Nucleonics 22:71 Je '64

Properties of materials; refractory ceramics and cermets; tables. Materials in Design Eng 60:333-5 Mid-O '64

CERUSSITE. See Lead carbonate

CERVICARCIN. See Antibiotics

CESIUM

Cesium-impregnated inert gas diodes. R. Forman and J. R. Reiss. diags J Ap Phys 35:2885-6 O '64

Cesium vapor dispenser. A. L. Eichenbaum and M. E. Moi. diags R Sci Instr 35:691-3 Je '64

Comparison of commercial, spherical powder, and wire bundle tungsten ionizers. G. Kuskevics and B. L. Thompson. bibliog il diags AIAA J 2:284-94 F '64

Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63

Compatibility of cesium vapor with selected materials at temperatures to 1200 F; abstract. J. M. Lamberti and N. T. Saunders. Metal Prog 85:191-2 Mr '64

Continuous pumping of cesium vapor devices. J. R. Fendley, jr. diags R Sci Instr 35:905-6 Jl '64

CESIUM—*Continued*

Cross section of the electron-induced *6s-6p* transition in cesium. L. K. Hansen. bibliog J Ap Phys 35:254-5 Ja '64

Energy levels of the cesium atom. W. B. Nottingham. IEEE Proc 51:1771-2 D '63

Influence of alkali-vapor atmospheres on pyrometrically determined temperatures; cesium and potassium. M. Lapp and L. P. Harris. bibliog diag J Ap Phys 34:3622-5 D '63

Inorganic ion exchange separation of cesium from Purex-type high-level radioactive wastes. J. L. Nelson and others. bibliog flow sheet Ind & Eng Chem Proc Design 3:143-8 Ap '64

Ion wave resonance and plasma instability in a cesium discharge. J. A. Decker, jr. bibliog il diag J Ap Phys 35:497-501 Mr '64

Ionization mechanism and electron temperature in cesium arcs. J. R. Fendley, jr. and K. G. Hernqvist. bibliog IEEE Proc 52:964 Ag '64

Measurement of electron temperature in low-pressure cesium thermionic energy converters. R. A. Chapman and others. bibliog diags J Ap Phys 35:2813-25 O '64

Method of imaging cesium ion beams. T. C. Sanders. il R Sci Instr 35:1082-3 Ag '64

Theoretical current-voltage curve in low-pressure cesium diode for electron-rich emission. C. M. Goldstein. diag J Ap Phys 35:728-9 Mr '64

Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and in cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64

Use of silver chloride seals for cesium vapor devices. A. L. Eichenbaum and others. il R Sci Instr 35:1056-7 Ag '64

Viscosity of partially ionized gaseous cesium. C. A. Robinson and I. R. McNab. bibliog J Ap Phys 35:1742-5 Je '64

Work function of the (110) face of tantalum in a cesium vapor. W. T. Norris. diag J Ap Phys 35:467-9 Mr '64

Analysis

Collection and flame photometric determination of cesium. C. Feldman and T. C. Rains. bibliog Anal Chem 36:405-9 F '64

Determination of cesium and rubidium after extraction with 4-sec-butyl-2(α-methylbenzyl)phenol. W. J. Ross and J. C. White. bibliog Anal Chem 36:1998-2000 S '64

Liquid-liquid extraction of cesium with 2-thenoyltrifluoroacetone. P. Crother and F. L. Moore. bibliog Anal Chem 35:2081-5 D '63

X-ray fluorescence spectrometric analysis of rubidium(I) and cesium(I) salts of 5-nitrobarbituric acid. K. E. Daugherty and others. Anal Chem 36:2372-3 N '64

Isotopes

Loss of cesium-137 in the ashing of milk samples. R. M. Green and R. J. Finn. Anal Chem 36:692-3 Mr '64

Second defined in terms of energy transition. il diag Chem & Eng N 42:142-4 O 26 '64

Space-age tool weighs bulk; radioactivity goes to work in combination with a reversible bulk-belt conveyor. il Mod Materials Handling 18:44 D '63

CESIUM bromide

Elastic constants of CsBr and CsI from 4.2°K to room temperature. J. Vallin and others. bibliog J Ap Phys 35:1222-3 Ap '64

Mechanical behavior of single-crystal and polycrystalline cesium bromide. L. D. Johnson and J. A. Pask. bibliog il diags Am Cer Soc J 47:437-44 S '64

CESIUM chloride

CsCl-type compounds in binary alloys of rare-earth metals with zinc and copper. C. C. Chao and others. bibliog J Ap Phys 35:257-8 Ja '64

CESIUM compounds

Composition dependence of photoelectric characteristics of Cs-Sb compounds. M. Hagino and others. bibliog diags J Ap Phys 35:2112-18 Jl '64

Thermodynamic properties of cesium chlorotitanates. R. L. Lister and S. N. Flengas. bibliog diag Electrochem Soc J 111:343-8 Mr '64

CESIUM iodide

Elastic constants of CsBr and CsI from 42.2°K to room temperature. J. Vallin and others. bibliog J Ap Phys 35:1222-3 Ap '64

CESIUM metallurgy

Cesium metal; its production and purification. R. J. Moolenaar. bibliog il J Metals 16:21-4 Ja '64

Two processes benefit cesium technology. il Chem & Eng N 41:34-5 D 23 '63

CHAIN conveyors. See Conveying machinery—Chain conveyors

CHAIN drive. See Chain gear

CHAIN gear

Bead chain drive turns shaft on moving perpendicular axes. P. Olney. diags Mach 70:138-9 Mr '64

Guide to variable-speed mechanical drives. D. Z. Dvorak. il diags Product Eng 35:90-3 F 3 '64

Roller chain speed reducers. il diag Plant Eng 17:103 N '63

Roller chains attain higher hp's and speeds; abstract. S A E J 71:88-9 D '63

Sprocket-operated Geneva drive provides wide design possibilities. P. W. Jensen. diag Mach 70:125 Jl '64

CHAINS

Design guide to welded-link chains. E. R. Behnke. il diags Product Eng 34:89-94 N 25 '63

See also

Chain gear

CHAINS, Chemical. See Chemical chains

CHAIRS

Linking, stacking chair contoured for comfort. il Arch Rec 136:195 Jl '64

See also

Airplanes—Seats

CHALCOMENITE. See Copper selenate

CHALCOMYCIN. See Antibiotics

CHALCOPYRITE

Experimental determination of the reaction chalcopyrite + sulfur=pyrite + bornite from 350 to 500°C. P. B. Barton, jr. and P. Toulmin, 3d. bibliog diags Econ Geol 59:747-52 Ag '64

Possible solution to the paradox of the sedimentary bornite. E. Gaucher. bibliog il Econ Geol 59:303-8 Mr '64

Sulfur-rich bornites. R. Brett and R. A. Yund. bibliog il diags Am Mineralogist 49:1084-98 Jl '64

CHANGE, Technological. See Technological change

CHANNELS

Boundary shear stresses in curved trapezoidal channels. A. T. Ippen and P. A. Drinker. il diags Am Soc C E Proc 88 [HY 5 no 3273]:143-79 bibliog(p 176-7) S '62; Discussion. 89 [HY 2 no 3468]:189-91 Mr; [HY 3 no 3529]:327-45 My '63; Reply. 90 [HY 2 no 3853]:351-6 Mr '64

Channel stability in undisturbed cohesive soils. E. M. Flaxman. bibliog diags Am Soc C E Proc 89 [HY 2 no 3462]:87-96 Mr '63; Discussion. 89 [HY 6 no 3708]:259-64 N '63; Reply. 90 [HY 3 no 3911]:317-19 My '64

Characteristics of the backwater curve. H. R. Vallentine. diags Am Soc C E Proc 90 [HY 4 no 3964]:39-49 Jl '64

Control structures for sand-bed channels. F. C. Stepanich and others. bibliog il diags Am Soc C E Proc 90 [WW 2 no 3895]:1-18 My '64

Depth-discharge relations in alluvial channels. D. B. Simons and others. Am Soc C E Proc 88 [HY 5 no 3263]:57-72 S '62; Discussion. H. A. Berdenis van Berlekom. 89 [HY 2 no 3468]:183-7 Mr '63; Reply. 90 [HY 1 no 3783]:249-52 Ja '64

Domain variations in channel seepage flow. H. J. Morel-Seytoux. diags Am Soc C E Proc 90 [HY 2 no 3822]:55-79 Mr '64

End depth for circular channels. N. Rajaratnam and D. Muralidhar. bibliog diags Am Soc C E Proc 90 [HY 2 no 3828]:99-119 Mr '64; Discussion. 90 [HY 5 no 4050]:261-70 S '64

End depth for exponential channels. N. Rajaratnam and D. Muralidhar. bibliog diags Am Soc C E Proc 90 [IR 1 no 3819]:17-39 Mr '64; Discussion. R. M. Advani. 90 [HY 5 no 4050]:253-6 S '64

Estimation of flushing rates from tide height and current data in an inshore marine channel of the Canadian Pacific Coast; abstract. M. Waldichuk. WPCF J 36:318-19 Mr '64

Experiments on small streams in alluvium. P. Ackers. bibliog il Am Soc C E Proc 90 [HY 4 no 3959]:1-37 Jl '64

Flood waves in prismatic channels. F. M. Henderson. Am Soc C E Proc 89 [HY 4 no 3568:39-67 Jl '63; Discussion. 90 [HY 1 no 3783]:329-35 Ja '64; Reply. 90 [HY 4 no 3980]:241-7 Jl '64

CHANNELS—*Continued*

Flow retardance by channel weeds and their control. J. C. Stephens and others. bibliog Am Soc C E Proc 89 [IR 2 no 3550]:31-53 Je '63; Discussion. M. W. Scrivner and P. J. Tilp. 89 [IR 4 no 3746]:65-9 D '63; Reply. 90 [IR 2 no 3941]:53-4 Je '64

Friction factors in open channels; progress report. bibliog Am Soc C E Proc 89 [HY 2 no 3464]:97-143 Mr '63; Discussion. diag 89 [HY 4 no 3580]:283-93 Jl; [HY 5 no 3656]: 169-70 S; [HY 6 no 3708]:265-76 N '63; Reply. 90 [HY 4 no 3980]:223-7 Jl '64

Geometry of river channels. W. B. Langbein. bibliog Am Soc C E Proc 90 [HY 2 no 3846]:301-12 Mr '64; Discussion. W. W. Emmett and L. B. Leopold. 90 [HY 5 no 4050]:277-85 S '64

Hydraulic aspects of Arkansas River stabilization. M. S. Petersen. il map plans Am Soc C E Proc 89 [WW 4 no 3699]:29-65 N '63; Discussion. W. C. Carey. 90 [WW 1 no 3814]:173 F '64

Hydraulic jump in all shapes of horizontal channels. R. Silvester. bibliog il diags Am Soc C E Proc 90 [HY 1 no 3754]:23-55 Ja '64; Discussion. 90 [HY 4 no 3980]:339-58 Jl; [HY 5 no 4050]:177-86 S '64; Reply. 90 HY 6 no 4130]:265-8 N '64

Long wave modification by linear transitions. R. G. Dean. diags Am Soc C E Proc 90 [WW 1 no 3787]:1-29 F '64

Natural roughness effects in rigid open channels. A. G. Mirajgoaker and K. L. N. Charlu. bibliog il Am Soc C E Proc 89 [HY 5 no 3630]:29-44 S '63; Discussion. 90 [HY 3 no 3911]:351-61 My '64; Reply. 90 [HY 6 no 4130]:251-4 N '64

Numerical solution to a dispersion equation. N. Yotsukura and M. B. Fiering. bibliog Am Soc C E Proc 90 [HY 5 no 4046]:83-104 S '64

Parking plaza provided by channel improvement. J. R. Coupal, jr. and P. D'Errico. il Pub Works 95:121-2 O '64

Resistance of cylindrical piers in open-channel flow. T. Hsieh. diags Am Soc C E Proc 90 [HY 1 no 3770]:161-73 Ja '64; Discussion. 90 [HY 5 no 4050]:223-30 S '64

Sediment-transport capability in erodible channels. S. W. Mao and L. Rice. bibliog diag Am Soc C E Proc 89 [HY 4 no 3569]: 69-95 Jl '63; Discussion. 90 [HY 1 no 3783]: 337-47 Ja; [HY 2 no 3853]:367-77 Mr '64; Reply. 90 [HY 4 no 3980]:249-55 Jl '64

Seepage from parallel trapezoidal channels. A. El Nimr. diags Am Soc C E Proc 89 [EM 4 no 3582]:1-11 Ag '63; Discussion. H. Bouwer. 90 [EM 2 no 3882]:241-2 Ap '64

Shear and velocity distribution in shallow channels. H. Lundgren and I. G. Jonsson. diags Am Soc C E Proc 90 [HY 1 no 3752]: 1-21 Ja '64; Discussion. 90 [HY 5 no 4050]: 169-75 S '64

Slipform paver lines drainage channel in broad single passes. il Eng N 173:40-2 O 1 '64

Some observations on the undular jump. L. E. Jones. bibliog diags Am Soc C E Proc 90 [HY 3 no 3901]:69-82 My '64

Stability aspects of flow in open channels. F. F. Escoffier and M. B. Boyd. diags Am Soc C E Proc 88 [HY 6 no 3331]:145-66 N '62; Discussion. 89 [HY 3 no 3529]:407-8 My; [HY 4 no 3580]:259-73 Jl '63; Reply. 90 [HY 1 no 3783]:261-3 Ja '64

Study of channel erosion and sediment transport. C. F. Nordin, jr. bibliog il map diags Am Soc C E Proc 90 [HY 4 no 3984]:173-92 Jl '64

Travel time of waves in backwaters. A. L. Simon. Am Soc C E Proc 89 [HY 6 no 3689]: 1-13 N '63; Discussion. 90 [HY 4 no 3980]: 275-7 Jl '64

Two-dimensional flow over sills in open channels. G. Z. Watters and R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 4 no 3967]:107-40 Jl '64

Two-dimensional jet and cavity flows. R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 2 no 3831]:141-61 Mr '64

See also
Waterways

Costs

Record-breaking Illinois job; unit prices. Eng N 171:49 N 28 '63

Storms slow channel excavation; unit prices. Eng N 173:56 S 24 '64

CHAPELS

New work, a new style; geometry in New Mexico. il plan Arch Forum 121:154-5 Ag-S '64

Religious buildings; chapel in the vale. il plans diags Prog Arch 44:152-5 N '63

Rock in the forest; Chapel of St Rouin, France. il plan Arch Forum 119:74-5 D '63

Unique use of extrusions wins architectural award. il Mod Metals 20:70 Jl '64

CHARCOAL

Comparative study of outgassing charcoals in vacuum and in a stream of nitrogen. B. R. Puri and K. M. Bedi. bibliog Chem & Ind p 1899-900 N 30 '63

CHARGING machines

Delicate handling machine of 400 tons. il diag Engineering 197:318-19 F 28 '64

Refuelling machine for s.g.h.w. reactor. diag Engineer 217:438 Mr 6 '64

Unusual design aspects of Hunterston reactors. A. N. H. Bond. il diag Engineer 217:514-16 Mr 20 '64

CHARLES, Homer Herbert

Memorial. W. B. Weeks. por Am Assn Pet Geologists Bul 47:2065-6 D '63

CHARLESTON, South Carolina

Bridges

Additional Cooper River bridge. F. H. Sterbenz. il plan diags Civil Eng 34:41-5 O '64

CHARLOTTESVILLE, Virginia

See also
Gas supply—Charlottesville, Virginia

Water supply

Potassium permanganate solves a problem. C. G. Haney. Water & Sewage Works 111: 341-2 Jl '64

CHARPY test. See Notched bar testing

CHARTS (calculating)

Bayesian operating characteristic curves for reliability and quality sampling plans. R. E. Schafer. Ind Quality Control 21:118-22 S '64

Ceiling-line temperature; graph; data sheet. J. D. Constance. Power 108:94 S '64

Chart determines pressure drops for pneumatic systems of conveying solids; data sheet. J. D. Constance. Heating-Piping 36:151-2 O '64

Chart for determining the effects of ionospheric tilts using an idealized model. T. A. Croft and R. B. Fenwick. diags J Res Nat Bur Stand 67D:735-45 N '63

Chart gives bleed rates for cooling water circuits; data sheet. J. D. Constance. Heating-Piping 36:145-6 Jl '64

Chart gives bleed rates to freeze protect bare water pipe; data sheet. J. D. Constance. Heating-Piping 36:139-40 Mr '64

Chart showing the relations between electrical quantities on the a-c and d-c sides of a converter. E. W. Kimbark. diags IEEE Trans Power Apparatus & Systems p 1050-4 D '63

Charts and tables speed calculation of thermal stresses in unsymmetrically heated circular rings; data sheet. M. Newman and M. Forray. diag Machine Design 36:125-9 Ja 2 '64

Charts help map performance of turbocharged CI engines. E. T. Vincent. S A E J 71:66-9 D '63

Design to prevent buckling in rectangular plates; data sheet. R. W. Peach. Machine Design 35:145-7 D 19 '63

Dynamic error in transducers; data sheet. H. Weiss. Machine Design 36:127-8 Ja 30 '64

Easy-to-use chart for vswr; reference sheet. G. Hagn and B. Sifford. Electronics 36:38 N 22 '63

Easy way to figure equilibrium flash vaporization and true boiling point. M. Van Winkle. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Ap '64

Graph estimates physical properties of lubricating oil blends. L. W. Okon. diags S A E J 72:94-7 Ja '64

Graphs simplify determination of launder size and slope. C. W. Matthews. il Eng & Min J 165:176-8 Je '64

New chart finds capital charges. W. Resnick. bibliog Chem Eng 71:229-30 Je 8 '64

New chart for analyzing dual duct operation. L. A. Fekete. Air Cond Heat & Ven 61:25-8 F '64

New chart gives quantity, temperature of cooling coil discharge air. W. E. Adams. Heating-Piping 36:113-15 O '64

New charts quickly lead to minimum cam size. P. W. Jensen. diags Product Eng 35: 69-76 Mr 2 '64

New friction-factor chart for pipe flow. R. S. Ramalho and others. Chem Eng 71:153-4 Jl 20 '64

CHARTS (calculating)—*Continued*

Outgoing quality probability limit (OQPL) sampling plan. R. C. Rhodes. Ind Quality Control 21:122-31 S '64

Preliminary estimates for steam-jet air ejectors. Chem Eng 71:120+ F 3 '64

Relation between velocity and velocity pressure for air and other gases; reference data. J. K. Brasch. Air Cond Heat & Ven 61:109-10 Ja '64

Simplify compression tank sizing. J. Bass. diags Heating-Piping 36:112-13 Je '64

Sizing steam traps at air handling units; reference data. R. E. Bolaffio. Air Cond Heat & Ven 60:91-4 N '63

Slide chart, is applicable for equations up to the seventh degree. Product Eng 35: 59-60 Mr 16 '64

Temperature for shrink fits; reference book sheet. T. G. Hicks. Am Mach/Metalworking Manuf 107:75 D 23 '63

Vapor pressures of solvents and propellant mixtures. L. T. Flanner and R. L. Risacher. diags Soap & Chem Spec 40:108+ Ja '64

See also

Nomographs

CHATTAHOOCHEE RIVER

Kerosene contamination of river supply at Atlanta. P. Weir. Am Water Works Assn J 56:1323-5 O '64

CHECKS

What printers need to know about safety papers. diags Inland Ptr/Am Lithogr 152: 54-5 Mr '64

CHEESE

Cheese; abstract. P. Tiersma. Chem & Ind p 1302; Discussion. 1302 Jl 18 '64

Studies to improve the quality of reconstituted milk cheese. I. I. Peters and J. D. Williams. bibliog il Food Tech 18:1615-17 O '64

Manufacture

Enhances process cheese; flavorless phosphate emulsifier. Food Eng 36:104 F '64

CHELATION

Cathodic action of the uranyl-malate complexes at the dropping mercury electrode. T. T. Lai and S. J. Wey. bibliog Electrochem Soc J 111:1283-6 N '64

Chelation as a driving force in organic reactions; a generic synthesis of amino acids by the carboxylation and alkylation of 3-phenylhydantoin. H. Finkbeiner. Am Chem Soc J 86:961-2 Mr 5 '64

Comparison of electron capture and hydrogen flame detectors for gas chromatographic determination of trace amounts of metal chelates. D. K. Albert. bibliog Anal Chem 36:2034-5 S '64

Complexes of 3-amino-1,2,4-triazole in plant metabolism. A. W. Naylor. bibliog il J Agri & Food Chem 12:21-5 Ja '64

Copper(II) chelates of histidylhistidine and related compounds. M. A. Doran and others. bibliog Am Chem Soc J 86:2129-35 Je 5 '64

Determination of molecular weights of polynuclear zirconium and thorium chelates by nonequilibrium ultracentrifugation. R. L. Gustafson and A. E. Martell. bibliog Am Chem Soc J 86:344-9 F 5 '64

1,2-Dicyanoethylene-1,2-dithiolate chelates. J. F. Weiher and others. bibliog diag Am Chem Soc J 86:4329-33 O 22 '64

Distribution coefficients of certain 8-quinolinols and their copper chelates. J. Fresco and H. Freiser. bibliog Anal Chem 36:631-3 Mr '64

Effect of substituent groups on fluorescence of metal chelates. R. J. Argauer and C. E. White. bibliog Anal Chem 36:2141-4 O '64

Fluorescence of the europium and terbium dibenzoylmethides. M. Metlay. bibliog Electrochem Soc J 111:1253-5 N '64

How rare earth chelate lasers work. M. Metlay. bibliog Electronics 36:67-9 N 15 '63

Influence of various chelating agents on the availability of zinc. P. Vohra and F. H. Kratzer. J Nutrition 82:249-56 F '64

Investigation of the dissociation phenomena of quinoline-8-selenol in water and aqueous dioxane. E. Sekido and others. bibliog Anal Chem 36:1768-71 Ag '64

Metal chelates in analytical chemistry; 16th annual analytical symposium. Anal Chem 35:1994-8 D '63

Metal ion induced rearrangements of bisbenzthiazolines to Schiff-base chelates. H. Jadamus and others. bibliog Am Chem Soc J 86:3056-9 Ag 5 '64

Molybdenum(VI) nicotinylhydroxamic acid chelate. R. Rowland and C. E. Meloan. Anal Chem 36:1197-8 S '64

Nicotinylhydroxamic acid chelates of uranium and titanium(IV). R. Rowland and C. E. Meloan. Anal Chem 36:2376 N '64

Nuclear magnetic resonance studies of protonation of polyamine and aminocarboxylate compounds in aqueous solution. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1698-706 Ag '64

Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64

Patent tells more about boron extractants; Ampot borax process. Chem & Eng N 42:40-1 Ja 20 '64

Preparation and properties of methoxo complexes of divalent metal ions. J. A. Bertrand and D. Caine. Am Chem Soc J 86: 2298-9 Je 5 '64

Proton magnetic resonance spectra and structures of ethylenediaminetetraacetic acid, methyliminodiacetic acid, and nitrilotriacetic acid chelates of molybdenum(VI). S. I. Chan and others. bibliog Am Chem Soc J 86:377-9 F 5 '64

Rapid ligand exchange in zirconium(IV) chelates. A. C. Adams and E. M. Larsen. Am Chem Soc J 85:3508-9 N 5 '63

Reactions of coordinated ligands; metal ion control in the synthesis of chelate compounds containing pentadentate and sexadentate macrocyclic ligands. J. D. Curry and D. H. Busch. bibliog Am Chem Soc J 86:592-4 F 20 '64

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators. B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

Solvent extraction of platinum and palladium with derivatives of dithiocarbamic acid. J. T. Pyle and W. D. Jacobs. bibliog Anal Chem 36:1796-9 Ag '64

Some practical aspects of chelation in papermaking. A. J. Gard. Tappi 47:sup 198A-201A Ja '64

Spectrofluorometric study of (2-methyl-8-quino-linolato)zinc(II) chelates in absolute ethyl alcohol. D. A. Carter and W. E. Ohnesorge. bibliog Anal Chem 36:327-30 F '64

Stereochemistry of metal chelates with multidentate ligands. B. Das Sarma and others. Am Chem Soc J 86:14-16 Ja 5 '64

Survey of modern chemistry; unusual chemical bonding creates complex structures. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:91-6 F 3 '64

Volatile chelated-nickel dicarbonyl. A. B. Burg and G. B. Street. Am Chem Soc J 85:3522 N 5 '63

Zinc ion chelates explain delayed-action rubber cures. A. Y. Coran. Chem & Eng N 42: 82 S 14 '64

CHEMICAL abstracts (periodical)

CA publishes three millionth abstract. Chem & Eng N 41:66-7 D 2 '63

CHEMICAL and engineering news (periodical)

C&EN now using teletypesetter. il Chem & Eng N 42:68 Je 8 '64

Fourteen students win C&EN merit awards. Chem & Eng N 42:46-50 My 11 '64

CHEMICAL apparatus

Apparatus for chemical polishing of silver. C. B. Gilpin and F. J. Worzala. il diags R Sci Instr 35:229-30 F '64

Apparatus for determining combustion rate of solid propellants. J. P. Picard and others. il diags Ind & Eng Chem 56:49-52 Ja '64

Apparatus for determining weight loss in an inert atmosphere. J. M. Holovka. diag Anal Chem 36:255-6 Ja '64

Apparatus for the determination of diffusion coefficients in fused salts ($NaNO_3$) at high pressure. S. B. Tricklebank and others. bibliog diags R Sci Instr 35:807-10 Jl '64

Circulating pump and flowmeter for kinetic reaction apparatus. D. Kalló and others. diags J Sci Instr 41:338-40 My '64

Instrumentation and chemistry. H. Melville Instruments & Control Systems 36:94-6 N '63

Internal circulatory method for growing water soluble crystals. C. B. Oliver and E. A. D. White. il diag J Sci Instr 40:598-9 D '63

Micro-Tek starts marketing to dealers. Chem & Eng N 42:35 Mr 2 '64

CHEMICAL apparatus—*Continued*

Modification of the continuous flow apparatus for the measurement of rapid chemical reactions. B. Perlmutter-Hayman and M. A. Wolff. il diags R Sci Instr 35:1002-3 Ag '64

New products. Published in monthly numbers of Analytical chemistry

Simple apparatus for accurate microhydrogenation. I. T. Harrison and S. Harrison. diag Chem & Ind p834 My 16 '64

Simplified freezing point apparatus. G. S. Ross and A. R. Glasgow. diag Anal Chem 36:700-1 Mr '64

Stand-by and operational apparatus for removal of oxygen from commercial nitrogen. P. Arthur. diags Anal Chem 36:701-2 Mr '64

Test of a diffusion measuring apparatus. M. C. Bourne and C. O. Chichester. J Sci Instr 41:577-8 S '64

Vapor-liquid equilibrium; an apparatus for static equilibrium measurements. G. Scatchard and others. bibliog diags Am Chem Soc J 86:125-7 Ja 20 '64

See also

Absorption apparatus
Agitators
Balances
Baths (chemical apparatus)
Burets
Centrifuges
Chemical engineering—Apparatus and supplies
Chemical laboratories—Equipment
Chemical plants—Equipment
Crucibles
Distillation apparatus
Evaporators
Extraction apparatus
Glassware, Laboratory
Osmometers
Pipets
Scrubbers
Spectrometers
Stirrers
Sublimation apparatus
Viscosimeters

also subdivision Apparatus under special subjects, e.g.

Chemistry, Analytic
Gases
Volumetric analysis

CHEMICAL bonds

Addition of silicon hydrides to olefinic double bonds: the addition of trichlorosilane-*d*. J. W. Ryan and J. L. Speier. bibliog Am Chem Soc J 86:895-8 Mr 5 '64

Amide-amide interaction via a cyclol. G. I. Glover and H. Rapoport. bibliog Am Chem Soc J 86:3397-8 Ag 20 '64

Amount of π-bonding in phosphorus-oxygen and sulfur-oxygen bonds. P. Haake and others. bibliog Am Chem Soc J 86:3577-8 S 5 '64

Anchimerically accelerated bond homolysis; decomposition of an oxygen-18 labeled *t*-butyl perester. J. C. Martin and T. W. Koenig. Am Chem Soc J 86:1771-5 My 5 '64

Attempts to form reversible cross-links in cotton. W. A. Mueller and R. Swidler. Textile Res J 34:656 Jl '64

Bisgalvinoxyl, a stable triplet. E. A. Chandross. bibliog Am Chem Soc J 86:1263-4 Mr 20 '64

Bonding in arene metal complexes clearer. L. F. Dahl and M. F. Bailey. Chem & Eng N 42:50+ S 21 '64

Carbene insertion into the carbon-mercury bond; formation of stable dichlorocarbene insertion products which undergo an unusual thermal breakdown. J. A. Landgrebe and R. D. Mathis. bibliog Am Chem Soc J 86:524-5 F 5 '64

Carbon-carbon bond energies. J. C. Earl. Chem & Ind p 149 Ja 25 '64

Carbon-carbon bond fission in cyclopropanes. R. T. LaLonde and others. bibliog Am Chem Soc J 85:3767-75; 86:4068-73 D 5 '63, O 5 '64

Cationic cyclizations involving olefinic bonds. W. S. Johnson and others. bibliog Am Chem Soc J 86:1959-78 My 20 '64

Cellulose-fiber bonding. A. H. Nissan and S. S. Sternstein. bibliog il Tappi 47:1-6 Ja '64; Discussion. A. J. Stamm. 47:444 Jl '64

Chemical cleavage of proline peptide bonds. A. Patchornik and others. Am Chem Soc J 84:1457 Ap 5 '64

Chemistry of the noble gases. H. Selig and others. il diags Sci Am 210:66-77 My '64

Cis and *trans* configurations of the peptide bond in N-monosubstituted amides by nuclear magnetic resonance. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 86:337-41 F 5 '64

Cleavage of tyrosyl-peptide bonds by electrolytic oxidation. H. Iwasaki and others. Am Chem Soc J 85:3701-2 N 20 '63

Computer search for active site configurations. M. O. Dayhoff. diag Am Chem Soc J 86:2295-7 Je 5 '64

Conformational effects and hydrogen bonding in 1,4-diols. L. P. Kuhn and others. bibliog diags Am Chem Soc J 86:650-8 F 20 '64

Conformational studies; intramolecular hydrogen bonding in nonchair conformations of *cis,cis,cis*-2,5-dialkyl-1,4-cyclohexanediols. R. D. Stolow and others. bibliog Am Chem Soc J 86:2165-70 Je 5 '64

Conformational studies; predominance of intramolecularly hydrogen bonded nonchair conformations of *cis,cis,cis*-2,5-di-*t*-alkyl-1,4-cyclohexanediols. R. D. Stolow and M. M. Bonaventura. bibliog diags Am Chem Soc J 85:3636-41 N 20 '63

Continuity of bond force constants between normal molecules and Lennard-Jones pairs. H. S. Johnston. Am Chem Soc J 86:1643-5 Ap 20 '64

Coordination in solutions; acid strengths of 5- and 7-hydroxy-1-indanone and nitro derivatives; hydrogen bonding in *o*-carbonyl phenols. L. B. Magnusson and others. bibliog Am Chem Soc J 86:3958-61 O 5 '64

Crosslinking chlorosulfonated polyethylenes. J. T. Maynard and P. R. Johnson. bibliog Rubber Chem & Tech 36:963-74 O '63

Crosslinking reactions of carboxylic elastomers. H. P. Brown. Rubber Chem & Tech 36:931-62 bibliog(p961-2) O '63

Dependency of vicinal coupling constants on the configuration of electronegative substituents. D. H. Williams and N. S. Bhacca. bibliog Am Chem Soc J 86:2742-3 Jl 5 '64

Determination of double bond position in unsaturated triglycerides by analysis of the oxidation products by gas liquid chromatography. A. P. Tulloch and B. M. Craig. bibliog Am Oil Chem Soc J 41:322-6 Ap '64

Directive effects in the attack of phenyl radicals on carbon-hydrogen bonds. R. F. Bridger and G. A. Russell. bibliog Am Chem Soc J 85:3754-65 D 5 '63

Double bond migration in methyl eleostearate during gas-liquid chromatographic analysis. K. L. Mikolajczak and M. O. Bagby. Am Oil Chem Soc J 41:391 My '64

Elimination reactions of α-halogenated ketones; carbon-halogen and carbon-hydrogen bond strengths as orientation and rate-determining factors; deuterium isotope effects in dehydrobromination of 2-bromo-2-benzyl-1-indanone. D. N. Kevill and others. bibliog Am Chem Soc J 86:1553-7 Ap 20 '64

Empirical model for nonbonded H-H repulsion energies in hydrocarbons. H. E. Simmons and J. K. Williams. bibliog Am Chem Soc J 86:3222-6 Ag 20 '64

Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64

Geminal proton-proton coupling constants in $CH_2{=}N$-systems. B. L. Shapiro and others. bibliog Am Chem Soc J 85:4041-2 D 20 '63

General bond length-bond energy correlation proposed for first-row elements. N. McKelvie. Chem & Eng N 42:47-8 F 17 '64

Graft polymerization onto cellulose; panel discussion. bibliog Tappi 46:652-75 N '63

Graphic representation of proton chemical shifts; general consideration and methyl and methylene groups. K. Nukada and others. bibliog Anal Chem 35:1892-8 N '63

Helix-to-random coil change takes less than microsecond; kinetic studies of hydrogen bond formation. M. Eigen and others. diags Chem & Eng N 41:38-40 D 2 '63

Homogeneous catalysis; double bond migration in *n*-olefins, catalyzed by group VIII metal complexes. J. F. Harrod and A. J. Chalk. bibliog Am Chem Soc J 86:1776-9 My 5 '64

Hydrogen bond; equilibrium between hydrogen bonded and nonbonded conformation of α,ω-diol monomethyl ethers. L. P. Kuhn and R. A. Wires. bibliog Am Chem Soc J 86:2161-5 Je 5 '64

CHEMICAL bonds—*Continued*

Hydrogen bonding effects on triplet energy transfer in solution. H. H. Richtol and F. H. Klappmeier. bibliog Am Chem Soc J 86:1255-6 Mr 20 '64

Hydrogen bonding in gaseous mixtures; nitric acid ether systems. D. J. Millen and O. A. Samsonov. Chem & Ind p 1694-5 O 19 '63

Hydrogen bonding studies; the thermodynamics of hydrogen bonding of phenol to ethers and related compounds. R. West and others. Am Chem Soc J 86:3227-9 Ag 20 '64

Hyperfine coupling constants and rates of exchange for $C^{13}N^-$ with the axial and equatorial positions in $Cr(CN)_5NO^{-3}$. J. B. Spencer and R. J. Myers. bibliog Am Chem Soc J 86:522-3 F 5 '64

Imine insertion into the aluminium carbon bond. K. Hoegerle and P. E. Butler. Chem & Ind p933 My 30 '64

Improved bond angle calculations. J. R. de la Vega and H. F. Hameka. Am Chem Soc J 85:3504-5 N 5 '63

Influence of formaldehyde concentration on the cross-links introduced into cotton cellulose. J. D. Guthrie. Textile Res J 33:955-8 N '63

Influence of hydrogen and hydrophobic bonds on the stability of the carboxylic acid dimers in aqueous solution. E. E. Schrier and others. bibliog Am Chem Soc J 86:3444-9 S 5 '64

Ionomers. Ind & Eng Chem 56:13 O '64

Isotropic proton magnetic resonance shifts in π-bonding ligands coordinated to paramagnetic nickel(II) and cobalt(II) acetylacetonates. W. D. Horrocks, jr. and others. bibliog Am Chem Soc J 86:3031-8 Ag 5 '64

Kinetic demonstration of a metastable intermediate in a nucleophilic displacement at a thiol-ester bond. T. C. Bruice and L. R. Fedor. Am Chem Soc J 86:738-9 F 20 '64

Long range proton spin coupling over four bonds. E. W. Garbisch, jr. bibliog Chem & Ind p 1715-18 O 10 '64

Metal ions hold together a new type of plastic. il Machine Design 36:10 S 24 '64

Microwave absorption and molecular structure in liquids; dielectric relaxation and intramolecular hydrogen bonding in hydroxy- and methoxyacetophenones. A. A. Antony and C. P. Smyth. bibliog Am Chem Soc J 86:156-8 Ja 20 '64

Microwave absorption and molecular structure in liquids; hydrogen bonding and dielectric properties in chloroform mixtures. A. A. Antony and C. P. Smyth. bibliog Am Chem Soc J 86:152-6 Ja 20 '64

Nature of the two-electron chemical bond; electron pairing and H_3^+. H. Shull. bibliog Am Chem Soc J 86:1469-74 Ap 20 '64

New class of materials formed by bonding clays to polymers. P. G. Nahin. Chem & Eng N 42:70+ O 26 '64

New liquid for metal plating plastics; Enplate conditioner 470. Steel 154:98 Ap 13 '64

New method for the formation of the phosphorus-phosphorus bond. L. D. Quin and H. G. Anderson. bibliog Am Chem Soc J 86:2090-1 My 20 '64

New polymers combine covalent, ionic bonds. il Chem & Eng N 42:25 S 7 '64

New synthesis of metal, metal bonds. R. S. Nyholm and K. Vrieze. Chem & Ind p318-19 F 22 '64

Nonenzymatic cleavage of peptide bonds; the half-cystine residues in bovine pancreatic ribonuclease. M. Sokolovsky and A. Patchornik. bibliog Am Chem Soc J 86:1859-60 My 5 '64

Novel reduction of an allylic carbon-nitrogen bond. G. B. Butler and G. L. Statton. bibliog Am Chem Soc J 86:518 F 5 '64

Nuclear magnetic resonance spectroscopy and (p→d) π-bonding in silicon compounds. E. A. V. Ebsworth and S. G. Frankiss. bibliog Am Chem Soc J 85:3516-17 N 5 '63

Nuclear magnetic resonance studies of hydrogen bonding; calculation of the shift upon complex formation. P. J. Berkeley, jr. and M. W. Hanna. bibliog diag Am Chem Soc J 86:2990-4 Ag 5 '64

Nucleophilic displacement reactions at the thiolester bond; hydrazinolysis and morpholinolysis in aqueous solution. L. R. Fedor and T. C. Bruice. bibliog Am Chem Soc J 86:4117-23 O 5 '64

Nucleosides; the introduction of unsaturation into the carbohydrate of a pyrimidine nucleoside via a 2,3′-anhydro bond. J. P. Horwitz and others. Am Chem Soc J 86:1896-7 My 5 '64

Oxidative coupling. J. R. Lewis. bibliog Chem & Ind p 1672-7 O 3 '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; reactions of tetrakis-(trifluoromethyl)diarsine with some metal carbonyl compounds. W. R. Cullen and R. G. Hayter. bibliog Am Chem Soc J 86:1030-2 Mr 20 '64

Polymer chemistry underlies fiber properties and utility. Chem & Eng N 41:40-2 N 18 '63

Proton magnetic resonance studies of the hydrogen-bonding properties of several hydrazines. J. R. Crook and K. Schug. bibliog Am Chem Soc J 86:4271-6 O 20 '64

Proton-^{13}C spin-spin coupling; inadequacy of correlation of proton-^{13}C coupling with s-character. G. J. Karabatsos and C. E. Orzech, jr. bibliog Am Chem Soc J 86:3574-5 S 5 '64

Protonolysis of the tin-hydrogen bond; kinetics and mechanism. H. G. Kuivila and P. L. Levins. bibliog Am Chem Soc J 86:23-7 Ja 5 '64

Question of long/range spin-spin coupling through space; H-F splitting over six bonds. A. H. Lewin. bibliog Am Chem Soc J 86:2303-4 Je 5 '64

Reactions of unsaturated free radicals with nitric oxide; radical-induced scission of carbon-carbon triple bonds. A. G. Sherwood and H. E. Gunning. Am Chem Soc J 85:3506-8 N 5 '63

Reduction of multiple bonds by low-valent transition metal ions; the homogeneous reduction of acetylenes by chromous sulfate. C. E. Castro and R. D. Stephens. bibliog Am Chem Soc J 86:4358-63 O 20 '64

Relation between *E′* centers and hydroxyl bonds in silica. R. A. Weeks and E. Lell. bibliog diag J Ap Phys 35:1932-8 Je '64

Ring inversion and bond shift in cyclooctatetraene derivatives. F. A. L. Anet and others. bibliog Am Chem Soc J 86:3576-7 S 5 '64

Signs of Si^{29}-H^1 and Si^{29}-F^{19} coupling constants. S. S. Danyluk. Am Chem Soc J 86:4504-5 O 30 '64

Solid nitrates may contain metal-to-oxygen bond; abstract. J. Ferraro. Chem & Eng N 41:41 N 25 '63

Some changes in double-bond structure during the vulcanization of natural rubber. F. J. Linnig and others. bibliog J Res Nat Bur Stand 68A:499-511 S '64

Spin-spin coupling in binuclear complexes. W. E. Hatfield and J. S. Paschal. bibliog Am Chem Soc J 86:3888-9 S 20 '64

Strong hydrogen bonds; the hydrogen difluoride ion. S. A. Harrell and D. H. McDaniel. Am Chem Soc J 86:4497 O 20 '64

Studies of the metal-hydrogen bond; structure of $HRh(CO)(P(C_6H_5)_3)_3$. S. J. LaPlaca and J. A. Ibers. bibliog diag Am Chem Soc J 85:3501-2 N 5 '63

Substituent effects; correlation of ^{13}C-F and ^{29}Si-H couplings by pairwise interactions. E. R. Malinowski and T. Vladimiroff. bibliog Am Chem Soc J 86:3575-6 S 5 '64

Survey of modern chemistry. G. T. Austin and H. F. Austin. il diags Chem Eng 70:137-40+ O 28; 119-22 N 25 '63

Survey of modern chemistry; unusual chemical bonding creates complex structures. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:91-6 F 3 '64

Tetra-alkyl esters of phosphorus-phosphoric anhydride as peptide bond-forming reagents. M. Leplawy and others. bibliog diag Chem & Ind p835-6 My 16 '64

Vulcanization; rapid methods for characterizing rubber networks. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:668-72 Jl '64

Vulcanization; the effects of compounding variables on the nature of rubber networks. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:673-8 Jl '64

Vulcanization; the formation of crosslinks in the system; natural rubber-sulfur-MBT-zinc ion. A. Y. Coran. bibliog Rubber Chem & Tech 37:679-88 Jl '64

CHEMICAL chains

Configuration of the poly-(dimethylsiloxane) chain. J. E. Mark and others. bibliog Am Chem Soc J 86:138-52 Ja 20 '64

Cupric bromide and alkylbenzenes; influence of water on nuclear bromination vs. side-chain attack. P. Kovacic and K. E. Davis. bibliog Am Chem Soc J 86:427-32 F 5 '64

Determining structure of paraffinic chains by nmr. K. W. Bartz and N. F. Chamberlain. Anal Chem 36:2151-8 O '64

Infrared determination of alkyl branching in detergent ABS. C. D. Frazee and R. O. Crisler. Am Oil Chem Soc J 41:334-5 Ap '64

CHEMICAL chains—*Continued*

Intermolecular forces and chain flexibilities; internal pressures of polyethylene glycol in the region of its melting point. G. Allen and D. Sims. Rubber Chem & Tech 36: 1000-2 O '63

Linear Si-N polymers prepared. Chem & Eng N 42:26-7 Ja 6 '64

Long chain α-phosphono fatty acids, salts and esters. E. W. Maurer and others. bibliog Am Oil Chem Soc J 41:205-8 Mr '64

Long spacings of polymorphic crystalline forms of long-chain compounds, with special reference to triglycerides. F. D. Gunstone. bibliog Chem & Ind p84-9 Ja 18 '64

Low-frequency electrical response of flexible chain molecules. W. H. Stockmayer and M. E. Baur. bibliog Am Chem Soc J 86:3485-9 S 5 '64

Melting points of linear-chain homologs; the normal paraffin hydrocarbons. P. J. Flory and A. Vrij. bibliog Am Chem Soc J 85: 3548-53 N 20 '63

Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion into dehydroalanine. A. Patchornik and others. bibliog Am Chem Soc J 86:1206-17 Mr 20 '64

Nonionic surface-active agents; the effect of the alkyl and the polyglycol chain length on the critical micelle concentration of some monoalkyl polyethers. J. E. Carless and others. bibliog J Colloid Sci 19:201-12 Mr '64

Poly(1-butene) chain flexibility from sorption data. G. M. Pavlyuchenko and others. bibliog Rubber Chem & Tech 36:1003-4 O '63

Predictability of chain reactions. S. W. Benson. bibliog diags Ind & Eng Chem 56: 18-27 Ja '64

Rate of spherulitic crystallization with chain folds in polyoxymethylene. E. Baer and D. R. Carter. bibliog J Ap Phys 35:1895-7 Je '64

Relationship between molecular structure and flavor perceptibility of aliphatic aldehydes. P. W. Meijboom. bibliog Am Oil Chem Soc J 41:326-8 Ap '64

Statistical thermodynamics of chain molecule liquids. P. J. Flory and others. bibliog Am Chem Soc J 86:3507-20 S 5 '64

Transformations of eburicoic acid; side-chain degradation to 14-methylpregnane derivatives. D. Rosenthal and others. bibliog Am Chem Soc J 85:3971-9 D 20 '63

Vinyl isocyanate gives ladder polymers. C. G. Overberger and others. Chem & Eng N 41: 33-4 D 30 '63

CHEMICAL constants

Chronopotentiometric studies of ferrocene derivatives; determination of substituent constants with substituted phenylferrocenes. W. F. Little and others. bibliog Am Chem Soc J 86:1376-81 Ap 5 '64

Force constants for polar substances; their prediction from critical properties. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:266-9 Mr '64

Machine computation of association constants from spectrophotometric data: an analysis of errors. K. Conrow and others. bibliog Am Chem Soc J 86:1025-9 Mr 20 '64

New method of evaluating *ortho* σ-constants. I. J. Solomon and R. Filler. bibliog Am Chem Soc J 85:3492-6 N 5 '63

CHEMICAL education

Chemist and changing educational patterns. R. C. Brasted. il Chem & Eng N 42:71-6 Ja 27 '64

Inorganic chemistry needs more emphasis. Chem & Eng N 42:44-6 My 18 '64

Research is a part of chemical education; chemists suggest ACS set up training standards for research technicians. Chem & Eng N 42:50-2+ My 25 '64

See also
Chemical engineering—Study and teaching
Chemistry—Study and teaching
Metallurgical education

Australia

Organic chemistry in Adelaide. K. Schofield. il Chem & Ind p 1749-51 N 2 '63

CHEMICAL elements

Activation analysis by absolute gamma-ray counting and direct calculation of weights from nuclear constants. F. Girardi and others. bibliog diag Anal Chem 36:1588-94 Jl '64

Activation analysis of high purity materials. W. J. Ross. bibliog Anal Chem 36:1114-19 My '64

Adsorption of the elements on inorganic ion exchangers from nitrate media. W. J. Maeck and others. Anal Chem 35:2086-90 D '63

Anion exchange characteristics of elements in nitric acid medium. J. P. Faris and R. F. Buchanan. bibliog Anal Chem 36: 1157-8 My '64

Chemical elements of the blood of man. J. W. Gofman and others. bibliog Archives Environmental Health 8:105-9; Discussion. 110-14 Ja '64

Element maps depict complete mass spectra. K. Biemann and others. Chem & Eng N 42:42-4 Jl 6 '64

General bond length-bond energy correlation proposed for first-row elements. N. McKelvie. Chem & Eng N 42:47-8 F 17 '64

Origin of the elements. W. A. Fowler. bibliog il Chem & Eng N 42:90-104 Mr 16 '64 (reprints $1)

Radiochemistry of the elements. G. T. Austin and H. F. Austin. Chem Eng 71:123-6 S 28 '64

Separation of scandium from yttrium, rare earths, thorium, zirconium, uranium, and other elements by anion exchange chromatography in ammonium sulfate media. H. Hamaguchi and others. bibliog Anal Chem 36:2304-6 N '64

Soft X-rays used to detect light elements. Chem & Eng N 41:40-1 N 25 '63

Survey of modern chemistry; periodic law correlates properties of the elements. G. T. Austin and H. F. Austin. bibliog Chem Eng 70:87-92 D 23 '63

See also
Actinide series
Isotopes
Transition elements

CHEMICAL engineering

Chemical engineering aspects of fluid dynamics. M. Weintraub. Ind & Eng Chem 56:43-8 bibliog(p47-8) Ap '64

Chemical engineering, by J. M. Coulson and J. F. Richardson and Chemical engineering practice, by H. W. Cremer and S. B. Watkins; Review. S. A. Gregory. Chem & Ind p 1794-8 O 24 '64

Chemical engineering problems in the pulp and paper industry. Tappi 47:sup 171A Jl '64

Chemical engineering reviews; symposium series abstracts. il Chem Eng Prog 60: 78+ S '64

Chemical product development symposium; abstracts of papers. Chem & Ind p 1681-5 O 19 '63

Chemical reaction engineering. O. Levenspiel. Review. by D. C. Freshwater. Chem & Ind p479-80 Mr 21 '64

Chemical technology reaches into the market; with special section summarizing all the new chemicals and materials. il Ind & Eng Chem 56:60-3+ S '64

Continuous drying. G. C. Bowmer. bibliog il diags Chem & Ind p 1638-48 S 26 '64

Cost indexes, what they do and don't tell us. J. E. Haselbarth. il Chem Eng Prog 60:76-8 Ja '64

Creativity and chemical engineering. Chem Eng Prog 59:33-7 D '63

Economic evaluation of r & d projects. A. J. Weinberger. bibliog Chem Eng 70:123-6 O 28; 113-18 N 25; 81-6 D 23 '63; 71:141-4 Ja 20; 91-4 Mr 30; 165-6+ Ap 27 '64

European chemical engineering congress and exhibition, Frankfurt, Germany, June 19-27. il Engineer 217:1167-9; 218:32-5 Je 26-Jl 3 '64

Ideas from space research: chemical processing. F. G. Sawyer. Hydrocarbon Process & Pet Refiner 43:131-4 O '64

Impact of process control advances on process design. P. S. Buckley. diags Chem Eng Prog 60:62-7 Ag '64

Inorganic chemistry needs more emphasis. Chem & Eng N 42:44-6 My 18 '64

Inventory of new processes and technology. Chem Eng 71:97-104 F 3; 85-92 Ag 3 '64

Mathematical modeling: an engineering approach to marketing. R. A. Labine. bibliog Chem Eng 71-193-6 Ap 13 '64

Mathematics in chemical engineering: annual review. R. F. Sweeny and others. Ind & Eng Chem 56:57-61 bibliog(p60-1) N '64

Model building technique for chemical engineering kinetics. W. G. Hunter and R. Mezaki. flow diag A I Ch E J 10:315-22 My '64

New appraisal of chemical engineering realigning practice with fundamentals. P. L. Goff. bibliog il diags Ind & Eng Chem 56:18-28 Ag '64

CHEMICAL engineering—*Continued*

Nitric acid; smart engineering boosts the yield. B. E. Barnes. flow sheet il Chem Eng 71:38-40 Mr 30 '64

Optimization by a gradient technique. E. S. Lee. bibliog diags Ind & Eng Chem Fundamentals 3:373-80 N '64

Pharmaceutical engineering. H. W. Fowler. bibliog Manuf Chem 35:63-4+ Ap; 42-4 Ag '64

Profile of a profitable project. H. K. Eckert and G. A. Cain. flow diag il Chem Eng Prog 60:81-92 Mr '64

Recent thinking on chemical engineering in the U.S.A. P. N. Rowe. bibliog diags Ind Chem 40:190-5 Ap '64

Technology spreads its gains. il Chem Eng 71:117-32 Ja 20 '64 (reprints 50c)

Theoretical analysis of components. P. Harriott. il diags Chem Eng Prog 60:81-3 Ag '64

Time optimal control of nonlinear systems with constraints. H. E. Grethlein and L. Lapidus. bibliog A I Ch E J 9:230-9 Mr '63; Discussion. J. E. Cotter. 10:585+ Jl '64

See also

Agglomeration
Calculating machines—Chemical engineering applications
Chemical plants—Design
Drying
Evaporation
Flotation process
Fluidization
Food—Manufacture
Leaching
Mixing
Plastics engineering
Sedimentation
Sewage disposal
Sublimation
Unit processes
Water purification

Apparatus and supplies

New products. Published in monthly numbers of Industrial and engineering chemistry

Pocket-size sulphur trioxide plant for sulphonation. A. Davidsohn. flow diag il Ind Chem 39:592-6 N '63

Solid state pH meter. F. R. Zimmerli. il diag I S A J 10:67-8 O '63

Trends and possibilities in the application of plastics in chemical engineering; symposium abstracts. Chem & Ind p 1067-9 Je 20 '64

See also

Agitators
Atomizers
Autoclaves
Chemical industries—Exhibitions
Chromatographic analysis—Apparatus
Concentrators
Condensers
Extraction apparatus
Feeders
Filters and filtration (technical chemistry)
Flow regulators
Heat exchangers
Homogenizers
Mixers
Pressure vessels
Proportioning equipment
Reactors, Chemical
Thickeners
Vacuum apparatus

Bibliography

Technical bookshelf. Published in bi-weekly numbers of Chemical engineering

Estimates

Computer to cut cost of capital estimating. Chem Eng 71:80+ Ag 17 '64

Economic pros and cons pilot plants. E. L. Clark. bibliog il Chem Eng 71:169-84 Ap 13 '64

Estimating manufacturing costs for new processess. bibliog Chem Eng 71:160+ Ag 17 '64

Optimum plant design for a growing market. J. R. Coleman, jr. and R. York. bibliog Ind & Eng Chem 56:28-34 Ja '64

Study and teaching

Chemical engineer and changing educational patterns. R. F. Baddour. il Chem & Eng N 42:77-80 Ja 27 '64

Chemical engineering education under scrutiny. Chem Eng 70:136+ N 11 '63

Manchester college of science and technology Department of chemical engineering. T. K. Ross. il Chem & Ind p 1091-4 Je 27 '64

Project lab proves out at MIT. Chem & Eng N 42:43-4 Jl 20 '64

Tables, calculations, etc.

Algebra of systems of second-order reactions. R. Aris. bibliog Ind & Eng Chem Fundamentals 3:28-37 F '64

Calculating theoretical plates in absorbers or strippers. N. H. Chen. bibliog diags Chem Eng 71:159-60 My 11 '64

Calculation of concentration response to intermittent irradiation. F. B. Hill. bibliog diags A I Ch E J 10:166-73 Mr '64

Dew and bubble isotherm calculational method for binary system phase and volumetric behavior. N. C. Rodewald and others. bibliog diags Ind & Eng Chem Fundamentals 3:8-14 F '64

Economic optimization of feed composition. C. J. Pings. Chem Eng Prog 59:90-2 D '63

Intensity of segregation as a measure of incomplete mixing. P. LaRosa and F. S. Manning. bibliog diag Can J Chem Eng 42:65-8 Ap '64

Optimization by Pontryagin's maximum principle on the analog computer. E. S. Lee. bibliog diags A I Ch E J 10:309-15 My '64

Optimization of some multistage chemical processes. C. S. Wang and L. T. Fan. bibliog Ind & Eng Chem Fundamentals 3:38-42 F '64

Principles of automatic process control. E. F. Johnson. flow diag il diags Chem Eng Prog 60:57-61 Ag '64

Process heat and material balances. L. M. Naphtali. flow sheets il Chem Eng Prog 60:70-4 S '64

Process identification and design. J. O. Hougen and others. bibliog il diags Chem Eng Prog 60:74-80 Ag '64

Safer operation of processing units through arrow diagraming. O. M. Allen and L. H. Vautrain. diag Chem Eng 71:74-5 Jl 6 '64

Separation of H_2 and D_2 by moving-bed adsorption; corroboration of adsorber design equations. D. Basmadjian. bibliog diag Can J Chem Eng 41:269-72 D '63

Solution of the equations of change by Galerkin's method. L. J. Snyder and others. bibliog diag A I Ch E J 10:535-40 Jl '64

Statistical and numerical methods in chemical engineering; symposium series abstracts. Chem Eng Prog 60:84+ My '64

Triplex calculator adjusts dry chemical feeds. A. A. Hirsch. diag Chem Eng 71:154+ Jl 6 '64

Variable density effects and axial dispersion in chemical reactors. J. M. Douglas and K. B. Bischoff. bibliog Ind & Eng Chem Proc Design 3:130-3 Ap '64

See also

Vapor pressure

CHEMICAL engineers

Career opportunities for chemists and chemical engineers; with advertisers in career opportunities. il Chem & Eng N 42:58-125 Ja 27 '64

Changing relationships? S. A. Gregory. bibliog diags Ind Chem 40:79-85 F '64

Chemists seek descriptive information from recruitment advertisements. Chem & Eng N 41:31 D 16 '63

Do you need an employment contract? R. A. Labine. Chem Eng 71:214+ S 14 '64

Employment; how jobs are being filled. Can Chem Process 47:31-2 N '63

Engineering shortage; now you see it, now you don't. R. A. Labine. Chem Eng 71:146+ Ag 17 '64

Home-grown chemical engineers run Israel's process industries. C. H. Chilton. il Chem Eng 71:78+ Jl 6 '64

How many chemical engineers needed? Engineering 197:658 My 15 '64

How to find that better job. D. E. Kaldenberg. Chem Eng 70:190+ D 9 '63

Institution of plant engineers annual dinner, Feb. 21. Chem & Ind p454-5 Mr 14 '64

Job hunting made easy. il Chem Eng Prog 60:18-19 Ag '64

Job hunting over 40. il Chem Eng 71:147-8+ Jl 6 '64

Job outlook 1964. R. A. Labine. Chem Eng 70:124+ N 25 '63

New breed who work in cryogenics; Dr Louis Pogorski of Chemical projects ltd. il Can Chem Process 48:51-3+ F '64

Output of chemical engineers remains static. C. L. Mantell. il Chem Eng Prog 60:17-22 Mr '64

CHEMICAL engineers—*Continued*

Pittsburgh's world premiere; The chemical engineer, a color film. il Chem Eng Prog 60:15-17 Je '64

Science ain't everything. W. R. Marshall, jr. il Chem Eng Prog 60:17-21 Ja '64

Should you get a professional engineers' license? J. D. Constance. Chem Eng 71:114+ Mr 2 '64

What should a technical recruitment ad say? Chem Eng Prog 60:29 F '64

See also

Chemical engineering—Study and teaching

Salaries

ChE starting salaries continue on upswing. Chem Eng 71:118 Mr 2 '64

Four per cent higher salaries to '64 graduates. D. A. H. Roethel. map Chem & Eng N 42:124-30 N 9 '64

Salaries for chem engineers continue up. Chem & Eng N 42:98-100 Mr 9 '64

CHEMICAL engineers, American institute of. See American institute of chemical engineers

CHEMICAL equilibrium

Algebraic representative of equilibrium processes in multicomponent systems. D. R. Swayze. bibliog Ind & Eng Chem Fundamentals 3:269-70 Ag '64

Analysis of the equilibrium stage separations problem, formulation and convergence. J. R. Friday and B. D. Smith. bibliog diag A I Ch E J 10:698-707 S '64

Binary equilibrium data from single-component isotherms. G. J. Minkhoff. Ind & Eng Chem Proc Design 3:409-10 O '64

Calcium ammonium and calcium potassium pyrophosphate systems. E. H. Brown and others. J Agri & Food Chem 12:70-3 Ja '64

Cationic dyeing equilibria on polyacrylonitrile fibers. S. Rosenbaum. bibliog Textile Res J 33:899-910 N '63

Chemical equilibrium in the germanium-iodine and germanium-bromine systems by weight-loss measurements. F. Jona and others. bibliog diag Electrochem Soc J 111:413-17 Ap '64

Computation of chemical equilibrium compositions. S. H. Storey and F. Van Zeggeren. bibliog flow diag Can J Chem Eng 42:54-5 Ap '64

Conformational equilibria in trimethylene sulphite and related compounds. D. G. Hellier and others. bibliog Chem & Ind p 1956-7 D 14 '63

Correlation of adsorption equilibria of pure gases on activated carbon. W. H. Cook and D. Basmadjian. bibliog Can J Chem Eng 42:146-51 Ag '64

Dyeing of polyacrylonitrile fibers. S. Rosenbaum. bibliog il diag Textile Res J 33:899-910; 34:52-60 N '63, Ja '64

Effect of methylmercapto, methylsulfinyl, and methylsulfonyl groups on the equilibrium in three-carbon prototropic systems. D. E. O'Connor and W. I. Lyness. bibliog Am Chem Soc J 86:3840-6 S 20 '64

Enthalpy values for hypothetical fluids from vapor-liquid equilibrium data. J. R. Welker and others. bibliog A I Ch E J 10:380-2 My '64

Equilibration of 4-substituted thiane 1-oxides. C. R. Johnson and D. McCants, jr. bibliog Am Chem Soc J 86:2935-6 Jl 20 '64

Equilibria in the hydration of ethylene and of propylene. C. S. Cope. bibliog A I Ch E J 10:277+ Mr '64

Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64

Equilibrium between peroxydisulfuryl difluoride and fluorosulfate free radicals. F. B. Dudley and G. H. Cady. Am Chem Soc J 85:3375-7 N 5 '63

Equilibrium considerations at finite solute concentrations in gas liquid chromatography. R. S. Henly and others. bibliog Anal Chem 36:744-50 Ap '64

Equilibrium distribution of acyl groups between primary and secondary hydroxyl positions in partial esters. J. D. Brandner and R. L. Birkmeier. bibliog Am Oil Chem Soc J 41:367-70 My '64

Equilibrium distribution of metal-fluoride complexes. G. Goldstein. bibliog Anal Chem 36:243-4 Ja '64

Equilibrium effects in determination of sulfur dioxide with pararosaniline and formaldehyde. H. A. Huitt and J. P. Lodge, jr. bibliog Anal Chem 36:1305-8 Je '64

Equilibrium pressures of oxygen over $Mn_3O_3O_4$ at various temperatures. E. M. Otto. bibliog diags Electrochem Soc J 111:88-92 Ja '64

Equilibrium rearrangement of perchlorocarbon compounds. N. E. Aubrey and J. R. Van Wazer. bibliog Am Chem Soc J 86:4380-3 O 20 '64

Equilibrium studies on the solvent extraction of some transition metals with naphthenic acid. A. W. Fletcher and D. S. Flett. bibliog J Ap Chem 14:250-7 Je '64

Exchange of parts between molecules at equilibrium. K. Moedritzer and others. bibliog Am Chem Soc J 86:802-19, 3012-17 Mr 5, Ag 5 '64

Experimental determination of the vapour-liquid equilibrium data for the system acetone-methanol-*iso*propanol. P. Allen and K. A. Pike. bibliog diag Ind Chem 40:260-6 My '64

Hydrogen exchange of azulenes: acid-base equilibria in aqueous solutions. F. A. Long and J. Schulze. bibliog Am Chem Soc J 86:327-31 F 5 '64

Ion-exchange equilibrium data in the design of a cyclic sea water softening process. G. Klein and others. bibliog Ind & Eng Chem Proc Design 3:280-7 Jl '64

Keto-enol tautomerism in β-dicarbonyls studied by nuclear magnetic resonance spectroscopy; proton chemical shifts and equilibrium constants of pure compounds. J. L. Burdett and M. T. Rogers. bibliog Am Chem Soc J 86:2105-9 Je 5 '64

Kinetic and equilibrium studies of benzene hydrogenation in batch recycle reactor. P. F. Korbach and W. E. Stewart. bibliog flow plan Ind & Eng Chem Fundamentals 3:24-7 F '64

Nomograph gives binary vapor-liquid equilibrium. F. Caplan. Chem Eng 71:154 S 28 '64

Phase behavior of the n-butane-hydrogen sulphide system. D. B. Robinson and others. bibliog diags Can J Chem Eng 42:143-6 Ag '64

Preparation and characterization of the lower equilibrated phenylsilsesquioxanes. J. F. Brown, jr. and others. bibliog Am Chem Soc J 86:1120-5 Mr 20 '64

Quaternary liquid system benzene-furfural-iso-octane-cyclohexane. C. J. Henty and others. bibliog diag J Ap Chem 14:148-55 Ap '64

Reduction by iron(II), equilibrium, and rate of isomerization in the *cis-trans*-$Co(NH_3)_4(OH_2)N_3^{+2}$ system. A. Haim. bibliog Am Chem Soc J 86:2352-6 Je 20 '64

Role of sites in dyeing. S. Rosenbaum. bibliog Textile Res J 34:159-67 F '64 (to be cont)

Salt effects and medium effects on indicator acid-base equilibria in a methanol-water solvent. D. Rosenthal and others. bibliog Am Chem Soc J 86:549-54 F 20 '64

Slag-metal equilibrium during stainless steel melting. C. W. McCoy and F. C. Langenberg. bibliog diag J Metals 16:421-4 My '64

Solvent deuterium isotope effects on acid-base equilibria. P. Salomaa and others. bibliog Am Chem Soc J 86:1-7 Ja 5 '64

Some segregation effects in packed-fluidized beds. J. P. Sutherland and K. Y. Wong. bibliog Can J Chem Eng 42:163-7 Ag '64

Spectroscopic studies of keto-enol equilibria; nitrogen-15 substituted Schiff bases. G. O. Dudek and E. P. Dudek. bibliog Am Chem Soc J 86:4283-7 O 20 '64

Studies of the chemistry of mercury in aqueous solution; the equilibrium quotient of aromatic mercuration for benzene and *p*-methoxyanisole. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4322-5 O 20 '64

Studies on the azidoazomethine-tetrazole equilibrium. C. Temple, jr. and J. A. Montgomery. bibliog Am Chem Soc J 86:2946-8 Jl 20 '64

Symmetrical form of the four-suffix Margules equations for quaternary systems. C. S. Lu and Y. L. Wang. bibliog Ind & Eng Chem Fundamentals 3:271-2 Ag '64

Syntheses of the three isomeric diethyl- and dineopentyltetramethylbenzenes. M. S. Newman and others. bibliog Am Chem Soc J 86:868-72 Mr 5 '64

Tautomeric equilibria: substituent effects in dimethylaminoazobenzenes. M. Isaks and H. H. Jaffé. bibliog Am Chem Soc J 86:2209-13 Je 5 '64

CHEMICAL equilibrium—*Continued*

Testing the consistency of vapor-liquid equilibrium data. L. C. Tao. bibliog flow chart Ind & Eng Chem 56:36-41 F '64

Vapor-liquid equilibria at high temperatures; the selenium-tellurium system. J. C. Yannopoulos and N. J. Themelis. bibliog diag Can J Chem Eng 42:219-21 O '64

Vapor-liquid equilibrium. G. Scatchard and others. bibliog diags Am Chem Soc J 86 125-37 Ja 20 '64

Vapor-liquid equilibrium determination by a new apparatus. S. Yerazunis and others. bibliog diags A I Ch E J 10:660-5 S '64

See also

Donnan equilibrium

Phase rule and equilibrium

CHEMICAL formulas

Deriving the formula of a mineral from its chemical analysis. G. Donnay. Am Mineralogist 49:1490-1 S '64

CHEMICAL grouting. See Soils—Chemical consolidation

CHEMICAL industries

Acme chemical company; 70-year-old Milwaukee chemical specialties firm. Soap & Chem Spec 40:53-6+ Ag '64

Brisk demand invites plant expansions. Chem & Eng N 42:23-4 Mr 30 '64

Busy Socony Mobil completes merger with Virginia-Carolina. Chem & Eng N 41:27 D 16 '63

C&EN progress report. Published in weekly numbers of Chemical and engineering news

Chemical business tempts American Metal Climax. Chem & Eng N 41:31 D 16 '63

Chemical competition shows new vitality. Chem & Eng N 42:23-4 Je 15 '64

Chemical industry on top in new foreign ventures. Chem & Eng N 41:20 D 30 '63

Chemical industry; viewpoints and perspectives. C. Berenson, ed. Review. by G. A. Campbell. Chem & Ind p 1214-16 Jl 4 '64

Ethyl corp. buys Visking. Chem & Eng N 41:24 N 11 '63

Kaiser readies for big push into chemicals. il Chem & Eng N 41:47-51 D 9 '63

Koppers prepares for the good years. il Chem & Eng N 42:33-7 S 28 '64

Me-too-ism in chemical marketing. J. L. Johnson. Chem Eng Prog 60:22-3 Ap '64

Petrochemicals '64 growth cycle continues. R. Katzen. bibliog Hydrocarbon Process & Pet Refiner 43:127-9 Ja '64

Record capital outlays expected this year. Chem & Eng N 42:21-2 Ja 20 '64

Shell pushes petrochemical plans abroad. Oil & Gas J 62:68 Jl 13 '64

Skelly, American Can tie up in petrochemicals Chem & Eng N 42:33-4 O 26 '64

Soaring, or the sorry, sixties? C. A. Thomas. Manuf Chem 35:35-6 Ag '64

U.S. chemical firms increase foreign spending. Chem & Eng N 41:23-4 N 11 '63

What's ahead in petro chemicals? M. B. Edwards. Oil & Gas J 61:146-8 N 18 '63

See also

Ceramic industries

Chemicals

Drug trade

Dye industry

Fertilizer industry

Gas industry

Paper industry and trade

Potash industry and trade

Pottery

Rubber industry and trade

Accounting

Why cost estimates go astray. R. Williams, jr. Chem Eng Prog 60:15-18 Ap '64

Advertising

Advertising must relate to marketing plan; abstract. T. F. Casey. Chem & Eng N 42: 30 Ap 20 '64

Directories

Aerosol buyers guide. Manuf Chem 35:90+ Mr '64

Analytical chemistry 1964 buyers' guide; geographical guide, classification list, product guide and company directory. Anal Chem 36 [no 5]:1BG-156BG pt 2 Ap '64

Directory of European sources of textile chemicals and dyes. Am Dyestuff Rep 53: 533-8 Je 22 '64

Materials of construction. 21st biennial report; directory of manufacturers. Chem Eng 71:187-210 N 9 '64

1964 Blue Book catalog; buyers' guide and trade directory. Soap & Chem Spec Blue Book p 13-218 '64

1964 buyers' guide; chemicals, chemical plant, laboratory equipment. Chem & Ind sup C2-56, P3-58, L 1-44 D 7 '63

Semiannual inventory of new plants and facilities. il Chem Eng 71:151-8 Ap 27; 117-24 O 26 '64

Exhibitions

Achema chemical engineering exhibition-congress, Frankfurt/Main, June 19-27. il Chem Eng 71:55-62 Ag 31 '64; Chem & Ind p 1344-8 Jl 25 '64; Chem & Eng N 42:56-8 Jl 6 '64

Canadian chemical and equipment exhibition, Toronto Oct. 27-30; with floor plan and list of exhibitors. il diags Can Chem Process 48:92-6+ O '64

Chemical exhibit at Philadelphia ACS meeting, April 7-9; with floor plan and list of exhibitors. Chem & Eng N 42:112-13 Mr 2 '64

European chemical engineering congress and exhibition, Frankfurt, Germany, June 19-27. il Engineer 217:1167-9; 218:32-5 Je 26-Jl 3 '64

Exposition of chemical industries, 29th, New York, Dec. 2-6. Am Dyestuff Rep 52:970 N 25 '63

Exposition of chemical industries, 29th, New York, Dec. 2-6; with list of exhibitors. il Chem Eng Prog 59:113-14+ N '63

Exposition of modern laboratory equipment; Pittsburgh, March 2-6; list of exhibitors. Anal Chem 36:sup71A-84A F '64

International filtration exhibition, London, Feb. 11-14. il Engineer 217:393 F 28 '64; diag Engineering 197:285 F 21 '64

National chemical exposition, 12th, Chicago, Sept. 1-4; with list of exhibitors and floor plan. Chem & Eng N 42:129-38 Jl 27 '64

Finance

Chemical companies put swelling cash flow to work. Chem & Eng N 42:29-32 My 25 '64

Chemical firms expand credit to customers. Chem & Eng N 42:27-8 Je 29 '64

Chemical industry is well on its way toward achieving the best year ever. Chem & Eng N 42:27-8 My 4 '64

Chemical sales, profits gain in 1963. Chem & Eng N 42:23-4 F 10 '64

Chemical spending makes steady gains. Chem Eng 70:104+ D 9 '63

Facts and figures for the chemical process industries and financial data for 130 companies. Chem & Eng N 42:64-85 S 7 '64

Find what money costs your company. P. D. Moskovits. bibliog diag Hydrocarbon Process & Pet Refiner 43:129-34 Ag '64

Firmer prices brighten industry forecasts. Chem Eng 71:46+ F 3 '64

Midyear reports set stage for record year. Chem & Eng N 42:27-8 Ag 3 '64

Road to new profits. il Chem Eng Prog 60: 19-30 My '64

U.S. chemical industry alluring target for foreign investment. E. V. Anderson. il Chem & Eng N 42:82-92 F 24 '64 (reprints 75c)

See also

Chemical industries—Securities

Chemical plants—Costs

International aspects

Evaluating plant investment strategies. M. T. Tayyabkhan and T. C. Richardson. il map diag Chem Eng Prog 60:58-63 S '64

International trade in chemicals. G. Abrahamson. Ind Chem 40:268-74 My '64

Trade, tariffs, and chemicals. E. V. Anderson. il Chem & Eng N 42:60-84+ Ag 24 '64

U.S. firms to feel the force of foreign know-how. Chem Eng 71:86+ Jl 20 '64

Salesmen

Chemical firms spend 7.6 per cent of sales to sell products. Chem & Eng N 42:37 N 9 '64

Is marketing a good career? Chem Eng Prog 60:16-17 Ag '64

Market orientation strengthens sales setup. R. C. Tower. Chem & Eng N 42:38-9 Ag 17 '64

Professors briefed on chemical marketing; seminar produces ideas on encouraging careers in marketing. Chem & Eng N 42:53 Jl 13 '64

Technical sales jobs require training. Chem & Eng N 42:36-7 Ja 27 '64

Securities

Dividend payments are climbing. Chem & Eng N 42:27-8 Mr 2 '64

Stock options under fire. Chem & Eng N 41: 25-6 D 2 '63

CHEMICAL industries—*Continued*

Statistics

Consumer chemicals market grows six per cent per year. Chem & Eng N 42:28-9 S 14 '64
Facts and figures for the chemical process industries. map Chem & Eng N 42:57-144 S 7 '64 (reprints $2)
Faster petrochemical growth expected. Oil & Gas J 62:49 Ag 24 '64
Market data of chemical process industries. Can Chem Process 48:53-4+ Je; 29-46 Jl '64
Midyear reports set stage for record year. Chem & Eng N 42:27-8 Ag 3 '64
Production and trade figures. Manuf Chem 35:72 My; 56 Ag '64

Taxation

Canada's new tax laws prompt Reichhold to change structure of Canadian subsidiary. il Chem & Eng N 42:26-7 Mr 9 '64
Depreciation reform; how it affects investment decisions. E. G. Mayers. Chem Eng 71:197-8+ Ap 13 '64
Firms want states to untangle tax laws. Chem & Eng N 42:48-50 Jl 13 '64
New tax law adds thrust to chemical profits' rise. Chem & Eng N 42:23 Ap 27 '64

Aruba (island)

First chemical complex in Aruba, Netherland Antilles. Oil & Gas J 62:92+ F 3 '64

Canada

Aluminum alkyls to join Ethyl's stable. il Can Chem Process 48:46-9 Ag '64
Canada soars into solid propellants. il Can Chem Process 47:47-9 D '63
Canada's chemical growth will be moderate. Chem & Eng N 42:28 N 2 '64
Canada's new tax laws prompt Reichhold to change structure of Canadian subsidiary. il Chem & Eng N 42:26-7 Mr 9 '64
Canada's petrochemical growth could be better. H. S. Pylant. il Oil & Gas J 62:110-12 Ap 20 '64
Canadians expand ammonia capacity. Chem & Eng N 42:25 Je 1 '64
Chemical exports double in ten years. G. E. McCormack. il Can Chem Process 48:35+ Mr '64
Fibers, plastics, ammonia, sulfur show good growth prospects. il Oil & Gas J 62:108+ Ag 17 '64
Focus on chemicals; chlorine, USA and Canada. map Manuf Chem 35:59-62 Ap '64
Here's some of the hurdles in exporting. N. Cannon. Can Chem Process 48:41+ Mr '64
Imperial Oil plunges into chemicals. il Can Chem Process 48:35+ Ag '64
Market data of chemical process industries. Can Chem Process 48:53-4+ Je; 29-46 Jl '64
1963 review/64 preview. il Can Chem Process 48:39-59, 63-4 Ja '64

Caribbean region

Caribbean; healthy climate for chemicals. il map Chem & Eng N 42:68-70 My 11 '64

China

Red China turns westward. Chem Eng 71:76 S 28 '64

Europe

Europe to get two new petrochemical plants. Oil & Gas J 62:85 O 26 '64
Europe's chemical output gained ten per cent. Chem & Eng N 42:54+ Mr 23 '64
Focus on chemicals; chlorine; Europe (excluding UK). map Manuf Chem 35:49-53 Mr '64
How labor affects EEC chemical costs. L. H. Frampton. bibliog Hydrocarbon Process & Pet Refiner 43:127-32 F '64
How utilities are affecting petrochemical production costs in the EEC. L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:109-13 Jl '64
Olefins in Europe. il maps Chem & Eng N 42:102-34 Ag 3; 68-88+ Ag 31; 92-108 S 28 '64
Shell broadens its base in European ethylene. il Chem & Eng N 42:60 Jl 20 '64
West Europe, Japan narrow U.S. lead in petrochemicals. R. Landau and P. H. Spitz. Oil & Gas J 62:92-6 S 7 '64

France

Big, versatile plant processes gas, makes petrochemicals; Lacq, France, plant of SNPA. il map diags Oil & Gas J 61:66-71 D 9 '63
France strengthens polyethylene position. Chem & Eng N 42:50 Ag 10 '64
French chemical production rises. 9.5 per cent. il Chem & Eng N 42:57-8 Ap 6 '64
French olefin capacity surges ahead. il Chem & Eng N 42:42 Ja 6 '64
Lacq gas feeds petrochem complex. G. L. Farrar. il diag Oil & Gas J 62:62-4 Ja 6 '64
Lavera complex; second place and growing. il map Pet Management 36:162+ Je '64
Variety spices small French firm's growth. il Chem & Eng N 42:58+ F 10 '64

Germany

Condea set to start up Alfol alcohols plant. il Chem & Eng N 42:68+ My 4 '64
German chemical industry pushes ahead. Chem & Eng N 42:92 F 3 '64
Germany's big three do it again. Chem & Eng N 42:62+ F 17 '64
West German chemical sales up 14 per cent. Chem & Eng N 42:54 Jl 27 '64

Great Britain

Alkali inspectorate look back. J. S. Carter. Chem & Ind p 1970-3 D 21 '63
Big changes ahead in Britain's nylon business. Chem & Eng N 42:25-6 My 4 '64
Changing skyline of Baglan Bay. il Engineering 196:534 O 25 '63
Chemical factory at Baglan Bay. il Engineer 216:733-4 N 1 '63
Competitive position of the U.K. petrochemical industry. E. M. Cairney. il Ind Chem 40:177-82 Ap '64
Economic planning in the chemical industry. G. Abrahamson. il Ind Chem 39:651-6 D '63
Focus on chemicals; chlorine; UK and Japan. il Manuf Chem 35:66-9 My '64
Gas and chemical engineering achievements; illustrations with text. Engineer 217:88-9 Ja 10 '64
ICI changes its Soviet trade policy. Chem & Eng N 42:43 Ja 6 '64
Johnson's British aerosol unit. il Soap & Chem Spec 39:115-18+ D '63
Loneliness of the long range forecaster. L. S. Mumford. Chem & Ind p 1788-96 N 9 '63
Petroleum chemicals enterprise; Heavy organic chemicals division of I.C.I. C. Purvis. il diag Ind Chem 39:625-31 D '63
Shell plans U.K. ethylene expansion. Chem & Eng N 42:94 F 3 '64
UK sales of pesticides and toiletries. Manuf Chem 35:102 Jl '64
U.K.'s phthalic anhydride picture changes. il Chem & Eng N 42:166-7 S 7 '64
See also
British chemical plant manufacturers association

India

Indian chemical industry. il Ind Chem 39:599-600 N '63

Israel

Home-grown chemical engineers run Israel's process industries. C. H. Chilton. il Chem Eng 71:78+ Jl 6 '64
Israel pushes on with its chemical developments. L. Raphael. il Manuf Chem 34:578-9 D '63

Italy

Italians see heavy investments ahead. Chem & Eng N 41:82 N 18 '63
Italy's inflation hampers chemical firms. Chem & Eng N 42:52+ Je 29 '64
Montecatini trims sails. Chem & Eng N 41:94+ D 9 '63
Shell and Montecatini link in petrochemicals. Chem & Eng N 41:17 D 30 '63
Stazione sperimentale olii e grassi. G. Jacini. il Chem & Ind p 1508-11 Ag 29 '64

Japan

Combines quicken Japan's chemical race. il Pet Management 36:66-70 Jl '64
Focus on chemicals; chlorine; UK and Japan. il Manuf Chem 35:66-9 My '64
Radiation chemistry and instrumentation in Japan. E. J. Henley. Nucleonics 21:78+ S '63
West Europe, Japan narrow U.S. lead in petrochemicals. R. Landau and P. H. Spitz. Oil & Gas J 62:92-6 S 7 '64

Latin America

Latin American chemical industry. P. C. Reynoso and others. il Chem Eng Prog 60: 85-8 F; 95-8 Mr; 86-8 Ap; 92-9 My; 94-100 Je '64
Latin Americans seek foreign capital. Oil & Gas J 61:56-7 D 9 '63

CHEMICAL industries—*Continued*

Louisiana

Petrochemical boom hits tiny Geismar. il map Oil & Gas J 62:50-2 My 4 '64

New Zealand

New Zealand news letter (cont). S. G. Brooker. Chem & Ind p 1719-20 O 26 '63

Poland

Poland pushes ambitious chemical plans. il Chem & Eng N 42:63-5 O 5 '64

Puerto Rico

Impact of Puerto Rican plant feared. Oil & Gas J 62:46-7 Ag 10 '64

Oil companies battle over Puerto Rico project. Chem & Eng N 42:23-4 Ag 10 '64

Puerto Rico's chemical base broadens. Chem & Eng N 41:26 D 2 '63

Rumania

Chemicals in Rumania. Manuf Chem 35:67 Je '64

Russia

Look for big doings in the Soviet Union's chemical process industries. Chem Eng 70: 102 D 9 '63

No western reaction yet to U.S.S.R. chemical plans. Chem & Eng N 41:26 D 16 '63

Soviets give petrochemicals shock treatment. il Pet Management 36:84-90 Ap '64

Sicily

Sicily gets refining, petrochemical complex at Gela. il map diag Oil & Gas J 62:132-4 Ag 17 '64

South Africa

South Africa woos chemical industry. Chem & Eng N 41:84+ N 18 '63

Spain

New firms join Spain's petrochemical drive. il Chem & Eng N 42:76-7 My 18 '64

Spain mañana becomes today. il map Chem & Eng N 42:72-86 Ja 20 '64 (reprints $1.)

Spain pushes Puertollano project. il Chem & Eng N 41:40 D 23 '63

Switzerland

Swiss chemical industry; abstract. J. Egli. Chem & Ind p 1464 Ag 15 '64

Trinidad

Trinidad ammonia plant goes on stream. il Oil & Gas J 62:145 My 18 '64

United States

1964 survey of petrochemical-plant construction. R. B. Bizal. il Oil & Gas J 62:119-22+ S 7 '64 (reprints $2)

Petrochemical industry is approaching maturity in United States. R. T. Clark. il Oil & Gas J 62:97+ S 7 '64

CHEMICAL institute of Canada

Division of rubber chemistry

Annual conference, Niagara Falls, Ont. May 8; abstracts of papers. Rubber World 150: 84+ Ap '64; Rubber Age 95:464-6 Je '64

CHEMICAL laboratories

How and why we modified our r&d lab. R. P. McCormick. il Res/Develop 15:40-3 Mr '64

Laboratory of the month. Published in monthly numbers of Analytical chemistry

New laboratories to make white whiter. il Engineering 196:571 N 1 '63

See also
Agricultural laboratories
Chemical plants—Experimental plants
Metallurgical laboratories
Pharmaceutical laboratories
Rubber laboratories

Accidents

Crystalline o-azidobenzoyl peroxide detonates violently. J. E. Leffler. Chem & Eng N 41: 45 D 2 '63

Explosion of diglyme and lithium aluminium hydride. H. R. Watson. Chem & Ind p665 Ap 18 '64

Designs and plans

Designing a chemical research laboratory for the aerospace industry. B. L. Tuffly and others. il Res/Develop 15:44-8 Mr '64

Equipment

Analysts can make choice from broader ranges of instruments. il Chem & Eng N 42:58-61+ Mr 16 '64

Automatic control in the chemical laboratory; abstract. V. S. Griffiths. Chem & Ind p434 Mr 14 '64

Automatic determination of cloud points of nonionic surfactants. H. Baum and others. il Materials Res & Stand 4:26-8 Ja '64

Automatic elemental microanalysis. H. J. Francis, jr. bibliog flow diags il Anal Chem 36:sup31A-42A+ Je '64

Exposition of modern laboratory equipment; Pittsburgh, March 2-6; list of exhibitors. Anal Chem 36:sup71A-84A F '64

Improved greaseless valves. P. R. Sewell. diags Chem & Ind p 1834 N 16 '63

Unsaturation determined on Micro scale. il Chem & Eng N 42:79 N 9 '64

Versatile solubility apparatus. R. L. Coffin and others. diag Anal Chem 36:699 Mr '64

See also
Crucibles
Volumetric analysis—Apparatus

Heating and ventilation

Laboratory hood ventilation. R. S. Brief. diags Air Cond Heat & Ven 61:51-3 Ap '64

CHEMICAL literature

Chemical structures set from punched tape; abstract. J. H. Kuney. Chem & Eng N 42: 105-6 S 14 '64

Experiments for young chemists, by E. H. Coulson and A. E. J. Trinder; Chemistry, a modern approach, by J. C. Hogg and others. Review. by P. C. Smethurst. Chem & Ind p 190-1 F 1 '64

U.S. chemical information network remote; mechanized national system is at least five years in the future; abstract. W. M. Carlson. Chem & Eng N 42:104-5 S 14 '64

See also
Chemical abstracts (periodical)
Chemical and engineering news (periodical)

CHEMICAL patents

Chemical processes for sale or lease. R. A. Labine. il Chem Eng 71:142-58 My 11 '64 (reprints 50c)

Don't overlook patents. R. C. Willson, jr. Chem Eng 71:79-84 F 3; 105-9 Mr 2 '64

Du Pont to be granted cyanoethylene patent. Chem & Eng N 42:23-4 Mr 23 '64

Foreign firms get more U.S. patents. Chem & Eng N 42:28 Mr 9 '64

Italy's Montecatini gets two U.S. polypropylene patents. il Chem & Eng N 41:10 D 23 '63

New patents. Published in monthly numbers of Manufacturing chemist

New patents. Published in monthly numbers of Soap and chemical specialties

Patent tells more about boron extractants; Ampot borax process. Chem & Eng N 42: 40-1 Ja 20 '64

When seeking engineering information: don't overlook patents. R. C. Willson, jr. Chem Eng 71:79-84 F 3 '64

See also
Drugs—Patents
Lubrication and lubricants—Patents

CHEMICAL plant manufacturers association, British. See British chemical plant manufacturers association

CHEMICAL plants

Buying job taxes skill of project manager; construction of Aerojet-General's rocket fuel plant. il Eng N 172:72-3 My 21 '64

Cedar Bayou plant doubles Gulf's ethylene capacity. flow diag il Oil & Gas J 62:210-12 '64

Cyclohexane oxidation plant is started. Oil & Gas J 61:100-1 O 21 '63

Double pile resists subsoil acid. il diag Eng N 172:96-7 F 13 '64

First U.S. synthetic lactic acid unit goes on stream. il Oil & Gas J 62:94 F 3 '64

Foreign petrochemical construction. il Oil & Gas J 62:130-1+ S 7 '64

New butyl-rubber plant operating. H. S. Pylant. il diag Oil & Gas J 61:132-3 D 2 '63

New Crystal Soap and Chemical plant; Lansdale, Pa. il Soap & Chem Spec 39:145+ N '63

Petrochemical construction; 80 projects under way or planned in the U.S. and Canada. R. B. Bizal. il Oil & Gas J 62:128+ Ap 27 '64

U.S. firms complete 955 HPI projects in 39 months. Hydrocarbon Process & Pet Refiner 43:204+ My '64

See also
Drug factories
Fertilizer factories
Metallurgical plants
Petroleum refineries

CHEMICAL plants—*Continued*

Accidents

Acute hydrogen sulfide intoxication; an unusual source of exposure. M. Kleinfeld and others. bibliog Ind Med 33:656-60 S '64

Control equipment

Aldehyde plant; quite small but fully automatic. il diag Chem Eng 71:92+ S 14 '64
Applying photometric techniques to chemical analyses. R. A. Hagstrom and S. Siggia. flow diags il diags Automation 10:82-8 D '63
Automatic control in the chemical processes and allied industries conference, Liverpool, April 14-16; program. Chem & Ind p411-12 Mr 7 '64
Automatic controller. H. S. Wilson. diags Chem Eng Prog 60:68-73 Ag '64
Chemical analysis by inferential techniques. R. W. Negus. diags Instruments & Control Systems 37:87-96 Ag '64
Choose one for four types of analyzers. il diag Can Chem Process 48:97-9 S '64
Computers, automation, and process control; annual review. T. J. Williams. Ind & Eng Chem 56:47-56 bibliog(p52-6) N '64
Consider all potential savings when justifying process control computers. R. F. Jakubik and others. Automation 11:81-4 Mr '64
Continuous analyzer monitors hydrogen in gaseous mixes. Chem & Eng N 41:56 N 18 '63
Direct digital control of plant. il Engineer 218:587 O 9 '64
Direct digital control takes shape. diags Chem & Eng N 42:66-7 O 26 '64
Gulf reveals analytical scheme for alpha olefins control. il Chem & Eng N 41:48-9 D 16 '63
Impact of process control advances on process design. P. S. Buckley. diags Chem Eng Prog 60:62-7 Ag '64
Practical dynamic analysis. W. C. Towner. diags Instruments & Control Systems 36:138-44 N '63
Principles of automatic process control. E. F. Johnson. flow diag il diags Chem Eng Prog 60:57-61 Ag '64
Process control, the weak link is communication; panel discussion. il Ind & Eng Chem 55:36-43 D '63
Programer times sequence of process variables. Chem & Eng N 42:54+ S 28 '64
Project engineers to get an on-line computer. diag Chem Eng 71:42+ Mr 30 '64
Small computer suited to direct digital control. il Control Eng 11:117 Je '64
Stream analyzer senses crystallization point. diags Control Eng 11:119 S '64
Stream analyzers; good payout if, they are carefully selected and then watched over continually by a competent technician. il diags Can Chem Process 48:93-4+ S '64
Technology spreads its gains; control exploits familiar routes, poises for direct digital fling. il Chem Eng 71:126-7 Ja 20 '64
Theoretical analysis of components. P. Harriott. il diags Chem Eng Prog 60:81-3 Ag '64
Use of modern instruments in control of chemical specialties. B. Berkeley. bibliog il Soap & Chem Spec 40:155+ My '64
What to expect from direct-digital control. T. J. Williams. bibliog diags Chem Eng 71:97-102+ Mr 2 '64
X-ray spectroscopy; its role in process stream analysis. R. H. Munch. bibliog il diags I S A J 11:49-54 F '64

Corrosion

Corrosion forum. Published in every other number of Chemical engineering
Fertilizer-plant corrosion licked. J. Sordo G. il diag Oil & Gas J 62:84-6 Je 1 '64
How to prevent attack by acids/alkalis. H. G. Bennett. il diag Can Chem Process 48:71-4 Ja '64
Materials of construction; 21st biennial report: plastics for process equipment. O. Fenner. il Chem Eng 71:170-86 N 9 '64
Reinforced fiberglas polyester solves corrosion problem. F. D. Johnson. il Can Chem Process 48:76-7 F '64

Costs

Capital cost data for electrical systems in process plants. Chem Eng 71:178+ Jl 20 '64
Comparing overall cost of prime movers. R. E. Holmes. Power 108:68-9 F '64
Cost file index for 1958 to 1963. Chem Eng 70:104 D 23 '63
Cost indexes, what they do and don't tell us. J. E. Haselbarth. il Chem Eng Prog 60:76-8 Ja '64
Costograms. Ind Chem 39:90-1, 146-7, 198-9, 257-8, 314-15, 368-9, 482-3, 536-7, 590-1, 649-50; 40:34-5, 90-1, 144, 199, 267 F-Jl, S '63-My '64
CPM; how it fits into overall system of project control. E. J. Mark. diag Heating-Piping 36:118-22 Mr '64
Direct costing aids in making operating decisions. F. C. Bunk. Chem Eng 71:234+ N 9 '64
Estimating manufacturing costs for new processes. bibliog Chem Eng 71:160+ Ag 17 '64
Find what money costs your company. P. D. Moskovits. bibliog diag Hydrocarbon Process & Pet Refiner 43:129-34 Ag '64
How to estimate chemical plant costs. diag Can Chem Process 48:69+ F '64
How utilities are affecting petrochemical production costs in the EEC. L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:109-13 Jl '64
Incremental return on investment gives economic optimization. A. W. Gessner. Chem Eng 71:150 My 25 '64
New chart finds capital charges. W. Resnick. bibliog Chem Eng 71:229-30 Je 8 '64
Up-to-date manual on costs of process equipment. H. E. Mills. Chem Eng 71:133-56 Mr 16 '64 (reprints $1.50)
Why cost estimates go astray. R. Williams, jr. Chem Eng Prog 60:15-18 Ap '64

Design

Importance of chemistry in process design. R. L. Buchanan. il diags Ind & Eng Chem 55:50-2 D '63
New polyether and propylene oxide plants of the Pfizer group. il Ind Chem 40:188-9 Ap '64
Optimum plant design for a growing market. J. R. Coleman, jr. and R. York. bibliog Ind & Eng Chem 56:28-34 Ja '64
Safety considerations in plant design. E. Jenett. bibliog il Chem Eng 71:139-44 Ag 17; 63-8 Ag 31; 207-12 S 14 '64 (reprints 75c)
Scale-up element in plant design. R. E. Johnstone. il Ind Chem 40:206-8 Ap '64
Tenneco Chemical sues Kellogg and SBA for gross errors in acetylene plant. Chem & Eng N 42:24 Ap 20 '64

Electric equipment

Capital cost data for electrical systems in process plants. Chem Eng 71:178+ Jl 20 '64
Electrical codes vs. process hazards. D. R. Abbey. Chem Eng 71:133-4 Ag 17 '64
Electrical design. D. Silverman. bibliog il diags Chem Eng 71:131-6 My 25; 133-40 Je 22; 121-4 Jl 6; 161-4 Jl 20 '64
Remote motors power machinery. il Elec Constr & Maint 63:105-6 F '64

Employees

See Chemical workers

Equipment

Aluminum and its alloys in the CPI. J. C. Kuli. il Chem Eng Prog 60:45-8 My '64
Aluminum; its applications in the chemical and food industries; tr. by W. C. E. Barnes. P. Junière and M. Sigwalt. Review. by E. W. Skerrey. Chem & Ind p 1724-6 O 10 '64
Capacitance is basis for on-stream analyzer. il diags Can Chem Process 48:68-70 Ja '64
Caring for glass-lined equipment. D. B. Johnson. il Chem Eng 71:244+ Je 8 '64
Changing skyline of Baglan Bay. il Engineering 196:534 O 25 '63
Chemical factory at Baglan Bay. il Engineer 216:733-4 N 1 '63
Chemical plants at Nottingham. il Engineer 217:893-4 My 22 '64
Chemical resistance of polyester resins. E. H. G. Sargent. bibliog Ind Chem 40:36-9 Ja '64
Compressors for process plants. il diag Chem Eng 71:163-8 Mr 16 '64
Corrosion control with glass-reinforced Hetrons. W. A. Szymanski and R. C Talbot. bibliog il Ind & Eng Chem 56:38-42 Ap '64
Corrosion resistant materials for the chemical industry; abstract. Metal Prog 85:174+ Mr '64
Cost file index for 1958 to 1963. Chem Eng 70:104 D 23 '63
Cost of compressor drives. diags Chem Eng 71:116 Ja 6 '64
Costograms. Ind Chem 39:90-1, 146-7, 198-9, 257-8, 314-15, 368-9, 482-3, 536-7, 590-1, 649-50; 40:34-5, 90-1, 144, 199, 267 F-Jl, S '63-My '64
Designing with fluorocarbons for chemical applications. O. H. Fenner. il Mod Plastics 42:148+ O '64

CHEMICAL plants—Equipment—*Continued*

Equipment and performance guarantees. N. H. Parker. Chem Eng 71:113-16 S 28 '64

Experimental analysis of components. W. E. Schiesser. bibliog diags Chem Eng Prog 60: 84-7 Ag '64

Field stress relief of process vessels. il Welding Eng 49:52 Jl '64

Flash evaporator meets high-pressure boiler demand for top quality makeup. G. Ostroot, jr. and W. L. Buettner. il diags Power 108: 70-3 F '64

How to specify, evaluate and operate steam-jet air ejectors. R. B. Power. bibliog diag Hydrocarbon Process & Pet Refiner 43:121-6 F; 138-42 Mr; 149-52 Ap '64

Instrumentation. R. H. Müller. Published in monthly numbers of Analytical chemistry

Materials of construction; annual reviews. bibliog Ind & Eng Chem 56:35-64 Ag '64

Materials of construction, 21st biennial report, with directory of manufacturers and inventory of literature. bibliog il Chem Eng 71:169-220 N 9 '64

New ammonia plant features Texas-size equipment. E. P. Wells and others. il diag Oil & Gas J 62:92-5 Jl 20 '64

New plant and instrumentation. Published in monthly numbers of Industrial chemist

New steel cuts cost of process piping. N. E. Whitcomb. il Chem Eng 71:71-4 Ja 6 '64

Package detergent plant. il Soap & Chem Spec 40:70-1 My '64

Petrochemical equipment on last leg of journey. il Oil & Gas J 61:115 O 28 '63

Phenolic and furan resins in chemical equipment. H. D. Barton. il Ind & Eng Chem 56:66-9 Jl '64

Pipe heated by new electrical method at Allied Chemical plant. Oil & Gas J 61:177 N 18 '63

Plant and equipment. Published in monthly numbers of Manufacturing chemist

Process weighing. D. M. Considine. bibliog il diags Chem Eng 71:113-32 Ag 17; 199-206 S 14 '64 (reprints $1)

Profiting by mechanical-seal advances. diags Chem Eng 71:83-90 Mr 2 '64

Progress in process instrumentation. Published in monthly numbers of Industrial chemist

Quick-disconnect coupling use increasing. il Chem & Eng N 42:65-6 My 18 '64

Reciprocating flow fixed bed contactor. I. H. Spinner and R. F. Hunter. bibliog diags Can J Chem Eng 42:28-34 F '64

Reinforced polyester equipment in the chemical process industry. A. F. Torres. bibliog il diag Ind & Eng Chem 56:32-6 Je '64

Rotary seal for chemical plant. il Engineering 198:198 Ag 14 '64

Seller's market looms for process equipment. il Chem & Eng N 42:60-2 Ag 17 '64

Soap plant observer; Clayton Kerrick steam generator. W. J. Beach. diags Soap & Chem Spec 40:195-6+ O '64

Soap plant observer; piping. W. J. Beach. Soap & Chem Spec 40:185-6+ Je '64

Soft-detergent know-how gets crated for overseas. il Chem Eng 71:90 Je 8 '64

Steels for the chemical industry. W. G. Renshaw; R. R. Christian. bibliog il diag Chem Eng Prog 60:98-105 S; 93-9 O '64

Structural glass for chemical plants. Ind & Eng Chem 56:11-12 N '64

Technology spreads its gains; construction and maintenance are chalking up impressive gains. il Chem Eng 71:123-5 Ja 20 '64

Up-to-date manual on costs of process equipment. H. E. Mills. Chem Eng 71: 133-56 Mr 16 '64 (reprints $1.50)

Upgrading by-products. S. M. Parkhill. il diags Comp Air Mag 69:8-13 Ja '64

Who's who in cryogenic equipment. diag Can Chem Process 48:54-5 F '64

See also
Agitators
Calculating machines—Chemical engineering applications
Chemical engineering—Apparatus and supplies
Chemical industries—Exhibitions
Concentrators
Crystallizers
Extraction apparatus
Heat exchangers
Mixers
Piping
Pressure vessels
Pulverizers
Pumps, Centrifugal
Thickeners

Experimental plants

Automate your pilot plants. L. C. Hardison and R. A. Lengemann. flow diag il Chem Eng 71:129-32 Je 22 '64

Design and operation of a pilot-scale plant for hydrocarbon synthesis in the slurry phase. R. Farley and D. J. Ray. bibliog il diags Inst Pet J 50:27-44; Discussion. 45-6 F '64

Design pilot plants for safety. J. Ligi. bibliog il Hydrocarbon Process & Pet Refiner 43: 181-4 O '64

Economic pros and cons of pilot plants. E. L. Clark. bibliog il Chem Eng 71:169-84 Ap 13 '64

Experimental transient response of a pilot-plant distillation column; response of a ten-tray column. W. L. Luyben and others. bibliog A I Ch E J 10:357-64 My '64

Fermentation course includes pilot plant work; Rutgers university. il Chem & Eng N 42:46-7 Jl 6 '64

Pilot plant planned for developing geothermal brine. il Chem & Eng N 42:20 Ag 31 '64

Plasticizers made from phthalic acid esters; abstract. H. R. Gamrath and L. O. Raether. diag Chem & Eng N 42:85-6 Ap 13 '64

See also
Petroleum refineries—Experimental plants

Fires and fire protection

Basic fire-protection systems for chemical plants. J. A. Landy. bibliog flow diag il plan diags Chem Eng 71:139-44 Ap 27 '64

Coping with the fire menace. H. E. Webb, jr. il Chem Eng 70:196+ D 9 '63

Exploding valves guard rocket-propellant plant. il diag Machine Design 36:174-5 O 22 '64

Here's fire protection Monsanto style. R. Wilson. il diags Hydrocarbon Process & Pet Refiner 43:185-8 Ap '64

How to handle fertilizer plant fires. Safety Maint 126:33 D '63

Lighting

Electrical design; lighting. D. Silverman. Chem Eng 71:121-4 Jl 6 '64

Location

New foreign-trade zone chosen as plant site. map Oil & Gas J 62:52-3 Jl 20 '64

Maintenance and repair

Analyzer check-up improves engine-compressor performance. G. A. Gabriles. il diag Power 108:78-9 F '64

Chemical metallurgical plant maintenance at Sherritt Gordon mines, Fort Saskatchewan. C. R. Crook. bibliog flow sheets il Can Min & Met Bul 57:530-6 My '64

Do you know what you're getting for your repair dollar? R. J. Stratmeyer. il Chem Eng 71:120+ Mr 2 '64

How Dow applies nondestructive testing. L. G. Seitsinger. il Oil & Gas J 62:84-6 Ja 6 '64

Hurdling housekeeping handicaps. T. A. Goldman. il Chem Eng 71:110+ F 3 '64

Plant inspection should provide payout. J. D. Palmer. diags Can Chem Process 47: 71-4 N '63

Technology spreads its gains; construction and maintenance are chalking up impressive gains. il Chem Eng 71:123-5 Ja 20 '64

Management

Better product-distribution methods can reap important savings. Oil & Gas J 62: 134-6 Mr 2 '64

Chemcell's Ord; chemical man of 1963. il Can Chem Process 48:39-46 Ja '64

Chemical industry; viewpoints and perspectives. C. Berenson, ed. Review. by G. A. Campbell. Chem & Ind p 1214-16 Jl 4 '64

Communications between maintenance, design and production. J. W. Tracht. Chem Eng 71:174+ Ap 27 '64

Cumberland moves up in polyvinyl chloride. il Chem & Eng N 42:28-9 Je 22 '64

Executives take home more pay. Chem Eng 71:167-8 Jl 20 '64

How process companies evaluate capital investments. W. R. Earley. bibliog Chem Eng 71:111-12+ Mr 30 '64

How to calculate best product mix. R. L. Martino. Can Chem Process 48:76+ O '64

It's a tougher job to manage nowadays. R. L. Martino. il Can Chem Process 48:65-6 S '64

CHEMICAL plants—Management—*Continued*

Plant evaluation. D. J. Oriolo. bibliog Oil & Gas J 62:62-4 F 3; 87-9 F 10; 93-5 F 17; 122+ F 24; 104-7 Mr 2; 82-3 Mr 9; 145-7 Mr 16 '64

Responsibility reporting; International minerals & chemical corp. P. F. Mataich. il Min Cong J 49:102-4 O '63

Road to new profits; bridging the development-manufacturing gap. J. A. Mueller. il Chem Eng Prog 60:26-8 My '64

What management expects of quality control in the chemical industry. C. S. Brown. Ind Quality Control 21:144-7 S '64

See also

Drug factories—Management

Painting

Maintenance painting. F. R. Charlton. il diags Chem Eng 70:158+ O 28; 140+ N 25; 106+ D 23 '63

Power

Comparing overall cost of prime movers. R. E. Holmes. Power 108:68-9 F '64

Electrical design. D. Silverman. bibliog il diags Chem Eng 71:131-6 My 25; 133-40 Je 22; 121-4 Jl 6; 161-4 Jl 20 '64

House rejects southern Idaho power line. Chem & Eng N 42:26 Je 22 '64

Quality control

Some reliability problems in the chemical industry. H. Smith and S. D. Dubey. bibliog il diag Ind Quality Control 21:64-70 Ag '64

Use of modern instruments in control of chemical specialties. B. Berkeley. bibliog il Soap & Chem Spec 40:155+ My '64

What management expects of quality control in the chemical industry. C. S. Brown. Ind Quality Control 21:144-7 S '64

Safety measures

Anticipating hazards, the key to safe operation. K. G. Carpenter. il diags Chem Eng Prog 60:37-40 Ap '64

Association of British chemical manufacturers and safety. Ind Chem 40:275-84 My '64

Chemical plant preaches and practices the many sides of safety. J. Polizoto. il Safety Maint 128:21-2 N '64

Chemical plant safety; the insurance company viewpoint. J. E. Collier. il Chem Eng 71:207-12 O 12 '64

Design pilot plants for safety. J. Ligi. bibliog il Hydrocarbon Process & Pet Refiner 43:181-4 O '64

Designing for safety. bibliog il diags Chem Eng 71:135-52 Jl 20 '64 (reprints 75c)

Electrical codes vs. process hazards. D. R. Abbey. Chem Eng 71:133-4 Ag 17 '64

Handling flammable dusts. C. I. Fishkin and R. L. Smith. il Chem Eng Prog 60:45-8 Ap '64

He gets paid to sing the blues. il Safety Maint 127:8-12 F '64

One industry's concerted safety effort; National industrial safety conference. Engineering 197:640 My 8 '64

Safety considerations in plant design. E. Jenett. bibliog il Chem Eng 71:139-44 Ag 17; 63-8 Ag 31; 207-12 S 14 '64 (reprints 75c)

Safety in solvent plant operation and miscella refining. G. C. Cavanagh. Am Oil Chem Soc J 41:sup4+ O '64

Waste

Automated phosphoric acid plant controls pollution. H. O. Grant. il Water Works & Wastes Eng 1:54-6 O '64

Deep well disposal of nylon waste water M. E. Batz. il diags Chem Eng Prog 60:85-8 O '64

Disposing of halogenated hydrocarbon waste. J. H. S. Haggin. il Ind & Eng Chem 56:10+ Ja '64

Handling and treating petrochemical plant wastes; case history. E. S. Shannon. il diags Water & Sewage Works 111:240-5 My '64; Excerpts. Pub Works 95:126+ Jl '64

Here's how petrochemical companies dispose of wastes. H. S. Pylant. il diags Oil & Gas J 61:118-20 N 4 '63

High-temperature combustion of chemical residues solves pollution problem. il Lub Eng 20:371 O '64

Process waste burner destroys liquid organic chemical wastes safely. R. E. Mills. il diag Water & Sewage Works 111:337-40 Jl '64

System offered to dispose of chlorinated hydrocarbon waste. Chem & Eng N 41:54 D 16 '63

Technology spreads its gains; water problems engage the talents of growing numbers of engineers. il Chem Eng 71:131-2 Ja 20 '64

See also

Acid waste

Paper and pulp mills—Waste

CHEMICAL reaction

Application of the Ritter reaction to α-olefins. T. Clarke and others. bibliog Am Oil Chem Soc J 41:78-82 Ja '64

3,2,1-Bicyclic reaction path. M. S. Newman and C. Courduvelis. Am Chem Soc J 86:2942-3 Jl 20 '64

Characteristics of single- and multiple-hole orifice plates for gas-liquid reactions. D. M. Ottmers and H. F. Rase. bibliog flow diag diags Ind & Eng Chem Fundamentals 3:106-10 My '64

Chemical mechanisms contributing to wear of single-crystal sapphire on steel. W. R. Brown and others. bibliog il diags Am Cer Soc J 47:157-62 Ap '64

Chemical reactions in nonaqueous solvents. G. T. Austin and H. F. Austin. Chem Eng 71:81-3 Ag 31 '64

Chemical reactions in shock tubes; symposium. Phys Today 17:52-4 S '64

Chemical reactions involved in the catalytic hydrogenation of oils. S. S. Chang and others. diags Am Oil Chem Soc J 40:721-4 D '63

Chemical reactions of refrigerant 22. H. O. Spauschus and G. C. Doderer. bibliog ASHRAE J 6:54-8 O '64

Chemical reactivity of solids; symposium preview. Ind & Eng Chem 56:37-8 N '64

Chemiluminescence of luminol; the chemical reaction. E. H. White and others. bibliog Am Chem Soc J 86:940-1 Mr 5 '64

Cyclic chronopotentiometry; electron transfer with following chemical reaction. H. B. Herman and A. J. Bard. bibliog diag Anal Chem 36:510-14 Mr '64

Determination of higher alkoxyl groups by direct chemical reaction and nonaqueous titration. S. Ehrlich-Rogozinski and A. Patchornik. bibliog Anal Chem 36:840-3 Ap '64

Determining true residence times in flow-system reactions. J. C. R. Turner. Ind & Eng Chem Fundamentals 3:88 F '64

Diffusion and reaction in porous catalysts. N. Wakao and J. M. Smith. bibliog diag Ind & Eng Chem Fundamentals 3:123-7 My '64

Diffusionally controlled surface reactions in tube-wall reactors. R. S. Alwitt and R. S. Kapner. A I Ch E J 10:417+ My '64

Economic optimization of feed composition. C. J. Pings. Chem Eng Prog 59:90-2 D '63

Effects of nonpolar solvents on an ionic reaction; the ionic decomposition of *tert*-butylperoxy formate. R. E. Pincock. bibliog Am Chem Soc J 86:1820-6 My 5 '64

Electrophilic displacement reactions; metal ion catalysis in the protodeboronation of areneboronic acids. H. G. Kuivila and others. bibliog Am Chem Soc J 86:2666-70 Jl 5 '64

Electrophilic displacement with inversion. D. S. Matteson and J. O. Waldbillig. bibliog Am Chem Soc J 86:3778-81 S 20 '64

Evaluation of the relative importance of charge-dipole interactions and steric strain acceleration in conformationally mobile systems. H. Kwart and T. Takeshita. bibliog diags Am Chem Soc J 86:1161-6 Mr 20 '64

Influence of hydrogen crowding on the rates of reactions; the addition of *cis* reagents to the dimethanonaphthalene ring system. J. K. Stille and D. R. Witherell. bibliog Am Chem Soc J 86:2188-92 Je 5 '64

Inhibition reactions of hindered phenols. G. M. Coppinger. Am Chem Soc J 86:4385-8 O 20 '64

Inorganic reaction mechanisms; abstracts of papers. Chem & Ind p325-7 F 22 '64

Ionic penetration theory for mass transfer with chemical reaction. P. L. T. Brian and others. bibliog A I Ch E J 10:727-33 S '64

Ionization and proton exchange of amines in acetic acid; effect of structure on reactivity and the reaction mechanism. E. Grunwald and E. Price. bibliog Am Chem Soc J 86:2970-7 Ag 5 '64

Mechanism of elimination reactions; kinetic preference for *exo-cis* bimolecular eliminations with *trans*-2,3-dihalonorbornanes. N. A. LeBel and others. bibliog Am Chem Soc J 86:4144-7 O 5 '64

CHEMICAL reaction—*Continued*

Mechanisms of elimination reactions; sulfur isotope effects in some reactions of *t*-butyldimethylsulfonium iodide. W. H. Saunders, jr. and S. E. Zimmerman. Am Chem Soc J 86:3789-91 S 20 '64

Modification of the Fujiwara reaction for determination of polyhalogenated organic compounds. K. C. Leibman and J. D. Hindman. bibliog Anal Chem 36:348-51 F '64

Nature of the polar effect in reactions of atoms and radicals; reactions of chlorine atoms and peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2357-64 Je 20 '64

Neutron thermalization theory applied to hot atom chemical reactions; consideration of isotropic and asymmetric scattering. C. H. Hsiung and A. A. Gordus. bibliog Am Chem Soc J 86:2782-9 Jl 20 '64

New chemiluminescent reaction is general. E. A. Chandross and F. I. Sonntag. il Chem & Eng N 42:32+ Ag 31 '64

New insertion reaction of cationic oxygen. R. A. Sneen and N. P. Matheny. Am Chem Soc J 86:3905-6 S 20 '64

Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion to dehydroalanine (DHAL); the specific chemical cleavage of cysteinyl peptides. M. Sokolovsky and others. bibliog Am Chem Soc J 86:1212-17 Mr 20 '64

Novel reaction of the oxiirane and thiirane ring. J. F. McGhie and others. Chem & Ind p460-1 Mr 14 '64

Optimization of some multistage chemical processes. C. S. Wang and L. T. Fan. bibliog Ind & Eng Chem Fundamentals 3:38-42 F '64

Pressure effects on reaction rates; the compressibility of transition states. S. W. Benson and J. A. Berson. bibliog Am Chem Soc J 86:259-61 Ja 20 '64

Quasi-one-dimensional treatment of chemical reactions in turbulent wakes of hypersonic objects. S. C. Lin and J. E. Hayes. bibliog AIAA J 2:1214-22 Jl '64

Radicals may cause displacement reactions by Walden inversion mechanism. W. A. Pryor and H. Guard. il Chem & Eng N 42:38-9 Mr 30 '64

Reaction of producing hydrogen peroxide in liquid ammonia. K. E. Mironov and others. bibliog AIAA J 1:2915-16 D '63

Reactions in strong acids; new concept in amino acid chemistry; C-derivatization of amino acids. J. Kollonitsch and others. bibliog Am Chem Soc J 86:1857-8 My 5 '64

Reactions of fatty acids and their derivatives in alkalis. M. F. Ansell and B. C. L. Weedon. bibliog Ind Chem 40:70-3 F '64

Reactions of formaldehyde with aromatic amines. W. V. Farrar. bibliog J Ap Chem 14:389-99 S '64

Reactions of 1-iodo-2-(perfluoroalkyl)cyclohexane conformers; products of elimination and reduction; rates and mechanisms. N. O. Brace. bibliog Am Chem Soc J 86:2428-34 Je 20 '64

Reactivity of lime and related oxides. D. R. Glasson. bibliog J Ap Chem 13:111-27; 14:121-5 Mr '63, Mr '64

Recoil tritium reactions; methyl chloride. Y. N. Tang and others. bibliog Am Chem Soc J 86:1280-6 Ap 5 '64

Short-pulse techniques; kinetics of the triiodide/iodide reaction on a platinum electrode in neutral solution. S. Schuldiner and C. H. Presbrey, jr. bibliog il diags Electrochem Soc J 111:457-65 Ap '64

Some reactions of ethyl crotonate. R. H. Peters and others. Chem & Ind p37 Ja 4 '64

Specificity of the electron-impact induced elimination of water from alcohols and related reactions in the mass spectrometer. W. Benz and K. Biemann. bibliog Am Chem Soc J 86:2375-8 Je 20 '64

Spontaneous reaction of aromatic thiols with sulphoxides. T. J. Wallace. Chem & Ind p501-2 Mr 21 '64

Statistical behavior of a turbulent multicomponent mixture with first-order reactions. Y. H. Pao. bibliog diag AIAA J 2:1550-9 S '64

Stereochemistry of no-mechanism reactions; transfer of asymmetry in the reaction of olefins with dienophiles. R. K. Hill and M. Rabinovitz. bibliog Am Chem Soc J 86:965-6 Mr 5 '64

Survey of modern chemistry; reaction mechanisms. G. T. Austin and H. F. Austin. diags Chem Eng 71:143-6+ My 25 '64

Survey of modern chemistry; thermodynamics of chemical reactions. G. T. Austin and H. F. Austin. bibliog Chem Eng 71:101-4 Mr 30 '64

Transport of gallium arsenide in the vapor phase by chemical reaction. R. R. Fergusson and T. Gabor. bibliog diag Electrochem Soc J 111:585-92 My '64

Turbulent pipe flow heat transfer with a simultaneous chemical reaction of finite rate. P. L. T. Brian. bibliog A I Ch E J 9:831-41 N '63

Use of differential reaction rates to analyze mixtures of organic materials containing the same functional group; application to amides and nitriles. S. Siggia and others. Anal Chem 36:227-8 Ja '64

See also

Addition compounds
Alkylation
Barton reaction
Bromination
Catalysis
Combustion
Decomposition
Disproportionation
Friedel-Crafts reaction
Hydrolysis
Mannich reaction
Michael reaction
Molecular compounds
Nitration
Oxidation
Oxo process
Photochemistry
Polymerization
Precipitation (chemistry)
Reactors, Chemical
Reduction, Chemical
Substitution (chemistry)
Sulfonation
Wittig reaction
Wolff-Kishner reaction

Velocity

Acceleration of glycidyl epoxy resin-anhydride reactions. R. J. Arnold. Mod Plastics 41:149-50+ Ap '64

Ammonia synthesis plant kinetics. G. E. Hays and others. bibliog il Chem Eng Prog 60:61-5 Ja '64

Analog computer design of an ethylene glycol system. W. A. Parker and J. W. Prados. il diags Chem Eng Prog 60:74-8 Je '64

Analog simulation of chemical reaction kinetics. T. Matthews. bibliog diags Chem Eng 71:137-40+ Jl 6; 93-6 Ag 3; 77-9 Ag 31 '64

Analysis of mixtures of hydroxyl compounds using differential reaction rates. F. Willeboordse and F. E. Critchfield. bibliog Anal Chem 36:2270-4 N '64

Application of thin layer chronopotentiometry to kinetic studies. C. R. Christensen and F. C. Anson. bibliog Anal Chem 36:495-7 Mr '64

Autocatalysis mechanism clarified. W. E. Walles. Chem & Eng N 42:36-7 Jl 20 '64

Automatic method for measuring slopes of rate curves applied to quantitative determination of cystine. H. L. Pardue. diag Anal Chem 36:633-6 Mr '64

Chemical kinetic analysis of rocket exhaust temperature measurements. F. P. Boynton. AIAA J 2:577-8 Mr '64

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog (p608-10) Ap '64

Decomposition of acetyl peroxide in solution; kinetics and use of radical traps. H. J. Shine and others. bibliog Am Chem Soc J 85:3613-21 N 20 '63

Determination of chemical kinetics for multiple reaction systems. R. W. M. Letts and H. S. Mickley. bibliog Can J Chem Eng 42:56-60 Ap '64

Differential kinetic analysis of mixtures using a continuous flow method. J. G. Hanna and S. Siggia. bibliog diag Anal Chem 36:2022-3 S '64

Diffusion and reaction rates in the orthohydrogen conversion. M. R. Rao and others. bibliog flow diag Ind & Eng Chem Fundamentals 3:127-31 My '64

Electrochemical study of kinetics of a chemical reaction coupled between two charge transfer reactions; potentiostatic reduction of *p*-nitrosophenol. G. S. Alberts and I. Shain. bibliog diag Anal Chem 35:1859-66 N '63

Fast mixing apparatus for studying rapid reaction kinetics R. Thompson and G. Gordon. bibliog diags J Sci Instr 41:480-1 Jl '64

CHEMICAL reaction—Velocity—*Continued*

Helix-to-random coil change takes less than microsecond: kinetic studies of hydrogen bond formation. M. Eigen and others. diags Chem & Eng N 41:38-40 D 2 '63

High-temperature reaction between formaldehyde and cellulose. E. Klein and B. E. M. Bingham. bibliog diag Textile Res J 34:585-93 Jl '64

Hydrogen exchange of azulenes; kinetics and mechanism of the acid-catalyzed detritiation reaction. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:331-5 F 5 '64

pH effects on the kinetics of the cystine-cyanide reaction. O. Gawron and others. bibliog Am Chem Soc J 86:2283-6 Je 5 '64

Hydrolysis of dicarbonium ions; kinetics and mechanism. H. Hart and N. R. Roobol. bibliog Am Chem Soc J 86:1373-5 Ap 5 '64

Introduction of particle-size distribution into kinetics of solid-state reaction. H. Sasaki. bibliog diag Am Cer Soc J 47:512-16 O '64

Kinetic and equilibrium studies of benzene hydrogenation in batch recycle reactor. P. F. Korbach and W. E. Stewart. bibliog flow plan Ind & Eng Chem Fundamentals 3:24-7 F '64

Kinetic and tracer studies on the alkaline hydrolysis of $Co(NH_3)_5O_2CCF_3^{+2}$. R. B. Jordan and H. Taube. Am Chem Soc J 86:3890-1 S 20 '64

Kinetic consequences of the acyl-enzyme mechanism for the reactions of specific substrates with chymotrypsin. B. Zerner and M. L. Bender. bibliog Am Chem Soc J 86:3669-74 S 20 '64

Kinetic evidence for the formation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolyses of specific substrates. B. Zerner and others. bibliog Am Chem Soc J 86:3674-9 S 20 '64

Kinetic evidence for the migration of reactive intermediates in surface catalysis. J. H. Sinfelt and P. J. Lucchesi. bibliog Am Chem Soc J 85:3365-7 N 5 '63

Kinetic order of irreversible reactions following electrolysis. R. C. Pinkerton. bibliog Electrochem Soc J 111:596-601 My '64

Kinetic studies of the catalytic hydrolysis of 1,3-dicarboxyphenyl 2-phosphate and 1-methoxycarbonyl-3-carboxyphenyl 2-phosphate. Y. Murakami and A. E. Martell. bibliog Am Chem Soc J 86:2119-29 Je 5 '64

Kinetic studies with electrogenerated halogens: bromination of 8-quinolinol and 2-methyl-8-quinolinol. G. S. Kozak and others. bibliog Anal Chem 36:296-300 F '64

Kinetic study of sulfur dioxide in aqueous solution with radioactive tracers. J. C. Wang and D. M. Himmelblau. bibliog diags A I Ch E J 10:574-80 Jl '64

Kinetic study of the imidazole groups of chymotrypsinogen, chymotrypsin and some derivatives, using the temperature-jump method. A. Yapel and R. Lumry. Am Chem Soc J 86:4499-500 O 20 '64

Kinetics and mechanism of iodination of pyrazole; comparative reactivities of pyrazole and imidazole. J. D. Vaughan and others. bibliog Am Chem Soc J 86:2857-61 Jl 20 '64

Kinetics and mechanisms of reactions of chromium(VI) and iron(II) species in acidic solution. J. H. Espenson and E. L. King. bibliog Am Chem Soc J 85:3328-33 N 5 '63

Kinetics of absorption of carbon dioxide in monoethanolamine solutions at short contact times. J. K. A. Clarke. bibliog diags Ind & Eng Chem Fundamentals 3:239-45 Ag '64

Kinetics of acid catalyzed acetylation of cellulose. W. C. Frith. bibliog il Tappi 46:739-44 D '63

Kinetics of anionic polymerization and copolymerization of the vinylnaphthalenes and styrene: the intramolecular charge-transfer complexes. F. Bahsteter and others. bibliog Am Chem Soc J 85:3909-18 D 20 '63

Kinetics of anodic oxidation of iron in neutral solution. N. Sato and M. Cohen. bibliog Electrochem Soc J 111:512-22 My '64

Kinetics of aromatic nitration. R. C. Miller and others. bibliog diags Ind & Eng Chem 56:43-53 Je '64

Kinetics of α-chymotrypsin reactions in the presence of added nucleophiles. M. L. Bender and others. bibliog Am Chem Soc J 86:3697-703 S 20 '64

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Kinetics of displacement of halides from substituted quinones by sulfite. C. A. Bishop and others. bibliog Am Chem Soc J 85:3991-8 D 20 '63

Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman. bibliog diags A I Ch E J 10:652-5 S '64

Kinetics of hydrolysis of diethyl glutarate and β-substituted diethyl glutarates by α-chymotrypsin. S. G. Cohen and J. Crossley. bibliog Am Chem Soc J 86:1217-20 Mr 20 '64

Kinetics of hydrolysis of N,N′-diarylformamidines in alkaline dioxane solutions. R. H. DeWolfe. bibliog Am Chem Soc J 86:864-8 Mr 5 '64

Kinetics of ionic processes in the radiolysis of liquid cyclohexane F. Williams. bibliog Am Chem Soc J 86:3954-7 O 5 '64

Kinetics of methyl linoleate emulsion autoxidation in the presence of polyhydroxy compounds. A. F. Mabrouk. bibliog Am Oil Chem Soc J 41:331-4 Ap '64

Kinetics of nitration of pyridine 1-oxide and isoquinoline 2-oxide. R. B. Moodie and others. Chem & Ind p 1577 S 12 '64

Kinetics of proton exchange in aqueous solutions of acetate buffer. Z. Luz and S. Meiboom. bibliog Am Chem Soc J 85:3923-5 D 20 '63

Kinetics of some outer-sphere electron-transfer reactions. J. F. Endicott and H. Taube. bibliog Am Chem Soc J 86:1686-91 My 5 '64

Kinetics of the addition of Grignard reagents to ketones. S. G. Smith and G. Su. bibliog Am Chem Soc J 86:2750-1 Jl 5 '64

Kinetics of the aging of anodic oxide film on iron. N. Sato and M. Cohen. Electrochem Soc J 111:624-5 My '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

Kinetics of the catalytic oxidation of sulfur dioxide. B. Davidson and G. Thodos. bibliog diag A I Ch E J 10:568-73 Jl '64

Kinetics of the copper-ferric chloride reaction and the effects of certain inhibitors. W. H. Burrows and others. bibliog diag Ind & Eng Chem Proc Design 3:149-59 Ap '64

Kinetics of the decomposition of BH_3CO and the bond dissociation energy of B_2H_6. M. E. Garabedian and S. W. Benson. bibliog Am Chem Soc J 86:176-82 Ja 20 '64

Kinetics of the exchange of sulfur-35 between thiosulfate and sulfide. E. Ciuffarin and W. A. Pryor. bibliog Am Chem Soc J 86:3621-6 S 20 '64

Kinetics of the oxidation of ethylene by aqueous palladium(II) chloride. P. M. Henry. bibliog Am Chem Soc J 86:3246-50 Ag 20 '64

Kinetics of the reaction of cyclohexyl aryl ketones with nitrous acid in sulfuric acid. Y. Ogata and others. Am Chem Soc J 85:3649-50 N 20 '63

Kinetics of the reaction of niobium pentachloride with water vapor. T. R. Ingraham and B. J. P. Whalley. bibliog diags Can J Chem Eng 41:265-8 D '63

Kinetics of the reduction of some cobalt(III) complexes by chromium(II), vanadium(II), and europium(II). J. P. Candlin and others. bibliog Am Chem Soc J 86:1019-22 Mr 20 '64

Kinetics of the thermal decomposition of methyl cyclobutanecarboxylate. M. Zupan and W. D. Walters. bibliog Am Chem Soc J 86:173-6 Ja 20 '64

Kinetics of the thermal isomerization of bicyclo[2.1.1]hexane. R. Srinivasan and A. A. Levi. Am Chem Soc J 85:3363-5 N 5 '63

Kinetics of thermal dealkylation of alkylnaphthalenes. J. C. Bixel and others. Ind & Eng Chem Proc Design 3:78-84 Ja '64

Kinetics of vapor-phase hydration of magnesium oxide. G. K. Layden and G. W. Brindley. bibliog il diag Am Cer Soc J 46:518-22 N '63

Measurement of gas evolution rates. H. Block. diags J Sci Instr 41:370-2 Je '64

Mechanism of the periodate oxidation of aromatic systems: a kinetic study of the periodate oxidation of hydroquinone and *p*-methoxyphenol in acidic solution. E. T. Kaiser and S. W. Weidman. bibliog Am Chem Soc J 86:4345-8 O 20 '64

Modification of the continuous flow apparatus for the measurement of rapid chemical reactions. B. Perlmutter-Hayman and M. A. Wolff. il diags R Sci Instr 35:1002-3 Ag '64

CHEMICAL reaction—Velocity—*Continued*
New theoretical method used to calculate reaction rates. M. Karplus and others. Chem & Eng N 42:44-6 Ap 6 '64
Numerical integration of rate equations. I. D. Gay. Am Chem Soc J 86:2747-8 Jl 5 '64
Numerical study of hydrogen-fluorine kinetics in nozzles. K. A. Wilde. bibliog AIAA J 2:374-6 F '64
Oxidation kinetics of zirconium in the temperature range 400°-600°C. R. J. Hussey and W. W. Smeltzer. bibliog il Electrochem Soc J 111:564-8 My '64
Possible mechanisms of complex reactions involving consecutive steps. P. C. Milner. bibliog Electrochem Soc J 111:228-32 F '64
Predictability of chain reactions. S. W. Benson. bibliog diags Ind & Eng Chem 56:18-27 Ja '64
Protonolysis of the tin-hydrogen bond; kinetics and mechanism. H. G. Kuivila and P. L. Levins. bibliog Am Chem Soc J 86:23-7 Ja 5 '64
Pulse generator system for fast-reaction experiments using a time-of-flight mass spectrometer. J. S. Riney and W. C. Gardiner, jr. diags R Sci Instr 35:384-7 Mr '64
Reaction kinetics of the formation of hexamethylenetetramine. R. K. Wood and W. F. Stevens. bibliog flow diag J Ap Chem 14:325-30 Ag '64
Reactions of metal-ammonia solutions; kinetics of potassium-liquid ammonia reaction at room temperature. D. Y. P. Chou and others. bibliog Am Chem Soc J 85:3530-1 N 5 '63
Reactions of thiols with sulfoxides; kinetics and mechanistic implications. T. J. Wallace and J. J. Mahon. bibliog Am Chem Soc J 86:4099-103 O 5 '64
Reinterpretation of chronopotentiometric study of kinetics of a chemical reaction coupled between two charge transfer reactions. D. H. Evans. Anal Chem 36:2027-8 S '64
Review of fundamental development in analysis; kinetic aspects of analytical chemistry. G. A. Rechnitz. bibliog Anal Chem 36 [no 5]:453R-7R Ap '64
Rocket recombination losses. R. R. Koppang and others. Chem Eng Prog 60:41-3 F '64
Students use analog computer to simulate complex reactions for kinetic studies; abstract. R. Griswold and J. F. Haugh. Chem & Eng N 42:74 Ap 13 '64
Study of kinetics of iridium(III)-chlorate reaction by steady-state controlled-potential coulometry. G. A. Rechnitz and J. E. McClure. bibliog Anal Chem 36:2265-70 N '64
Survey of modern chemistry; kinetics of chemical reactions. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:159-62+ Ap 27 '64
Synergistic effects in analyses based on differential reaction rates. S. Siggia and J. G. Hanna. Anal Chem 36:228-30 Ja '64
Treatment of rate data for complex reactions in liquid phase. H. S. N. Setty and others. bibliog Ind & Eng Chem Fundamentals 3:294-9 N '64
Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63
Use of adiabatic experiments for kinetic studies in fixed catalyst beds. J. P. Schmidt and others. bibliog diags A I Ch E J 10:149-54 Mr '64
Vulcanization; a model and treatment for scorch delay kinetics. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:689-97 Jl '64
Vulcanization of elastomers; the kinetics of crosslinking. W. Scheele and K.-H. Hillmer. bibliog Rubber Chem & Tech 37:698-708 Jl '64

CHEMICAL reactors. See Reactors, Chemical

CHEMICAL reagents
Allyl alcohol as a sensitive and specific reagent for the detection of mercurous ions. M. Qureshi and others. bibliog Anal Chem 36:2040-1 S '64
Application of di-β-naphthylthiocarbazone as a quantitative trace heavy metal spectrophotometric reagent. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1316-20 Je '64
Di-β-naphthylthiocarbazone (dinaphthizone) compared with dithizone as an analytical reagent for the determination of trace metals in natural waters. O. W. Lombardi. bibliog Anal Chem 36:415-18 F '64
Environmentally-sensitive reagent with selectivity for the tryptophan residue in proteins. D. E. Koshland, jr. and others. bibliog Am Chem Soc J 86:1448-50 Ap 5 '64
Metallographic reagent for identification of sulphide inclusions. E. Beraha. il Iron & Steel Inst J 202:696-8 Ag '64
Nature of Benedict's arsenophosphotungstic acid reagent. E. Vandalen and M. G. Mellon. bibliog Anal Chem 36:1068-71 My '64
New digestion reagent for the determination of microgram quantities of phosphorus in organic compounds. P. M. Saliman. Anal Chem 36:112-14 Ja '64
New spectrophotometric determination of unsaturated 3-keton steroids using 4-aminoantipyrine hydrochloride reagent. E. P. Schulz and others. Anal Chem 36:1624-7 Jl '64
New spray reagents for the detection of thiophosphate insecticides on paper chromatograms. M. C. Dutt and P. H. Seow. bibliog J Agri & Food Chem 11:467 N '63
Ortho- (*p*-toluenesulfonamido) aniline (T-sulfonamidine) as a new type of analytical reagent; spectrophotometric determination of cupric ion. J. H. Billman and R. Chernin. bibliog Anal Chem 36:552-4 Mr '64
Some properties of the trace heavy metals spectrophotometric reagent, di-β-naphthylthiocarbazone. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1313-16 Je '64
Spectrophotometric determination of nickel with 4-*tert*-butyl-1,2,cyclohexanedionedioxime. M. M. Barling and C. V. Banks. bibliog Anal Chem 36:2359-60 N '64
Spectrophotometric determination of nitrate with 4-methylumbelliferone. J. J. Skujins. Anal Chem 36:240-1 Ja '64
Spectrophotometric determination of silicon in ethyl and polyethyl silicates by the molybdovanadate method. R. B. Lew and W. Oyung. Anal Chem 36:1857-8 Ag '64
Stability of hypobromite and hypoiodite reagents. M. H. Hashmi and others. bibliog Anal Chem 36:1379-82 Je '64

See also
Fischer reagent
Grignard reagents
Indicators and test papers
Isocyanates
Nessler reagent

CHEMICAL reduction. See Reduction, Chemical

CHEMICAL research
ARPA loses chemistry programs; closing of energy conversion work follows loss of high-energy propellant program. Chem & Eng N 42:32 Ja 13 '64
Aspects of recent research into silicones. M. J. Newlands. Chem & Ind p701-3 Ap 25 '64
Chemistry's status in defense r&d deplored. Chem & Eng N 41:23-4 N 25 '63
Laboratory of the government chemist, 1842-1963, Department of scientific and industrial research. D. T. Lewis. bibliog il Chem & Ind p 1702-13 O 26 '63
NAS committee to survey research. Chem & Eng N 42:24 My 25 '64
Research is a part of chemical education; chemists suggest ACS set up training standards for research technicians. Chem & Eng N 42:50-2+ My 25 '64
Research productivity lagging. F. W. Hammesfahr. Chem Eng Prog 60:20-2 Je '64
Switching network analysis methods. R. M. De Baun. bibliog diags Chem & Eng N 42:84-91 Je 22 '64
Winds of change in industrial chemical research. D. M. Kiefer. il Chem & Eng N 42:88-109 Mr 23 '64 (reprints $1.25)

See also
Biochemical research
Ceramic research
Chemical laboratories
Chemical plants—Experimental plants
Dye research
Electron microscope
Gas research
Industrial research
Metallurgical research
Paper research
Petroleum research
Pharmaceutical research
Plastics research
Rubber research
Textile research
Wood research

Bibliography

Research roundup for 1963. Chem Eng Prog 60:71-5 Ja '64

CHEMICAL research—*Continued*

Germany

Research laboratory at Birlinghoven Castle in West Germany adds new buildings. il Anal Chem 36:sup93A-5A Jl '64

Great Britain

Unilever research laboratory at Port Sunlight. K. Durham and R. J. Taylor. il Chem & Ind p 1936-43 D 14 '63

Yarsley research laboratories. V. E. Yarsley. il Chem & Ind p 168-78 F 1 '64

CHEMICAL societies

See also

American institute of chemical engineers

Electrochemical society

CHEMICAL specialties manufacturers association

Annual meeting, 50th, Hollywood, Fla, Dec. 9-12; with program and abstracts of papers. Soap & Chem Spec 39:111-14 D '63; 40:83-90+ Ja '64

CSMA aerosol promotion being expanded. Soap & Chem Spec 40:145 Mr '64

Midyear meeting, 50th, Chicago, May 18-20; with program and abstracts of papers. Soap & Chem Spec 40:109-12+ My; 77-82+ Je '64

Salute to CSMA: highlights of the history since its founding in 1914. il Soap & Chem Spec 39:64-71+ D '63

CHEMICAL stability

Stability of di- and trimethyl-1,5-benzodiazepines and their salts. J. O. Halford and R. M. Fitch. bibliog Am Chem Soc J 85:3354-8 N 5 '63

Surface forces and the stability of colloids and disperse systems. B. V. Derjaguin and others. il diags J Colloid Sci 19:113-35 bibliog(p 134-5) F '64

CHEMICAL standards

Availability of standard reference materials. Anal Chem 36:sup23A-9A N '64

Precise method for assay of potassium iodate by comparison with (primary standard) arsenic trioxide. S. M. Tuthill and others. bibliog Anal Chem 36:1994-6 S '64

CHEMICAL warfare

See also

Gases, Asphyxiating and poisonous

CHEMICAL workers

Automation and the CPI labor unions. A. E. Adams. il Chem Eng 71:224+ O 12 '64

Chemical industry may triple technician total. il Chem & Eng N 42:40-1 Ja 13 '64

Chemical labor unions face big decisions. Chem & Eng N 42:25-6 Ja 27 '64

Chemical process industries manpower and the 1964 Civil rights law. H. Popper. Chem Eng 71:240+ N 9 '64

Chemical process industries manpower; the dynamic trends and what they mean. Chem Eng 71:189-204 O 12; 225-8 N 9 '64

Chemical technician's certificate. B. W. V. Hawes. Chem & Ind p91-2 Ja 18 '64

Pensions prod early retirement. il Chem & Eng N 42:34-6 My 11 '64

Progress in programmed instruction. M. Van Auken. il Chem Eng 71:145-50 Ap 27 '64

Research is a part of chemical education; chemists suggest ACS set up training standards for research technicians. Chem & Eng N 42:50-2+ My 25 '64

Teachers are needed to train technicians; membership in ACS might upgrade status. Chem & Eng N 42:42+ Mr 23 '64

See also

Chemical engineers

Chemists

International chemical workers union

Oil, chemical and atomic workers international union

CHEMICALS

Alcolac diversifies into specialty monomers. Chem & Eng N 41:29 D 16 '63

Chemical lock bonds fittings; Loctite retaining compound. il diags Iron Age 192:78-9 N 28 '63

Chemical technology reaches into the market; with special section summarizing all the new chemicals and materials. il Ind & Eng Chem 56:60-3+ S '64

Chemicals in consumer market gain steadily. Chem & Eng N 42:26 Je 1 '64

Cities Service streamlines chemical sales. il Chem & Eng N 41:32+ N 25 '63

Concrete additives from the viewpoint of the large contractor. C. Hobbs. bibliog Chem & Ind p526-35 Mr 28 '64

How to commercialize specialties. F. W. Hammesfahr. il Chem Eng Prog 60:19-21 Ap '64

Paint industry as a user of heavy organic chemicals. H. G. Rains. Chem & Ind p 1047-58 Je 20 '64

Techniques for evaluation of chemicals as marine antifoulants. S. M. Miller. il Ind & Eng Chem Product Res & Develop 3:226-30 S '64

Trade mark applications. Published in monthly numbers of Manufacturing chemist

See also

Alcohols

Catalysts

Chemical industries

Cleaning compositions

Drugs

Emulsifiers

Indicators and test papers

Insecticides

Petroleum chemicals

Plasticizers

Propellants

Refrigerants

Rubber chemicals

Sanitary chemicals

Solvents

Surface active substances

Textile chemicals

Manufacture

Fine chemicals manufacture. M. Sulzbacher. bibliog Manuf Chem 33:366-7; 34:71-2, 580+ S '62, F, D '63; 35:53-4 F; 50+ My; 39-41+ Ag '64

U.S. Steel to increase chemicals capacity. il Chem & Eng N 42:25-6 O 5 '64

Prices

Chemicals move closer to pure competition. Chem Eng 71:36-8 Ag 3 '64

Prices hiked for some major chemicals. Chem & Eng N 41:40 D 9 '63

Semiannual report on current chemical prices. Chem & Eng N 42:55-66+ F 3; 65-88 Ag 3 '64

Safety measures

Chemical clothing check list. Safety Maint 128:15-17 S '64

Handling of benzoyl and MEK peroxides. J. D. Malkemus. il Mod Plastics 41:119-20+ D '63

Maleic anhydride and tertiary amines form dangerous mix. W. R. Davie. Chem & Eng N 42:41 F 24 '64

MCA Chem-Cards. Safety Maint 128:28-9 S '64

National academy of sciences to help coast guard define hazardous materials. il Chem & Eng N 42:21-2 Mr 30 '64

Relationship between short- and long-term feeding studies in designing an effective toxicity test. C. S. Weil and D. D. McCollister. bibliog J Agri & Food Chem 11:486-91 N '63

Truck safety program under way; MCA issues safety cards to guide drivers hauling dangerous chemicals. Chem & Eng N 42:50 Jl 13 '64

Statistics

Facts and figures for the chemical process industries; organic and inorganic chemicals; chemical specialties. Chem & Eng N 42:107-23, 141-4 S 7 '64

Storage

Handling and storage of process materials; symposium. Chem & Ind p400-2 Mr 7 '64

Ozone is stabilized by strong bases. L. J. Heidt and V. R. Landi. diag Chem & Eng N 42:38-9 Jl 27 '64

Transportation

Chemical carriers shave distribution costs. il Chem & Eng N 42:25 F 10 '64

Chemical rolling stock on the upswing. Chem & Eng N 42:26 F 17 '64

Effective distribution of chemicals. il map Chem Eng Prog 60:13-21 F; 23-34 Mr '64

How Du Pont attacks distribution costs. il maps diags Mod Materials Handling 19:36-43 S '64

ICC aerosol rules changes. Soap & Chem Spec 40:120-2+ S '64

National academy of sciences to help coast guard define hazardous materials. il Chem & Eng N 42:21-2 Mr 30 '64

Pipelines for chemicals. B. W. G. Ayling. Chem & Ind p 128-31 Ja 25 '64

Truck safety program under way; MCA issues safety cards to guide drivers hauling dangerous chemicals. Chem & Eng N 42:50 Jl 13 '64

See also

Lime—Transportation

CHEMISORPTION. See Adsorption

CHEMISTRY

Chemical aspects of nuclear reactors. J. K. Dawson and R. G. Sowden. Review, by C. M. Nicholls. Chem & Ind p 1649-53 S 26 '64

Expanding universe of chemistry. J. C. Bailar, jr. Chem & Eng N 42:110-14+ Ap 20 '64

Importance of chemistry in process design. R. L. Buchanan. il diags Ind & Eng Chem 55:50-2 D '63

XIXth International congress of pure and applied chemistry. Review, by R. W. Moncrieff. Chem & Ind p 1307-9 Jl 18 '64

Studies of the chemistry of mercury in aqueous solution. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4314-18, 4322-5 O 20 '64

Survey of modern chemistry. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 70:97-100 S 30; 137-40+ O 28; 119-22 N 25; 87-92 D 23 '63; 71:91-6 F 3; 91-6 Mr 2; 101-4 Mr 30; 159-62+ Ap 27; 143-6+ My 25; 141-4+ Je 22; 105-8+ Ag 3; 81-3 Ag 31; 123-6 S 28; 129-32 O 26; 139-44 N 23 '64

See also

Basicity
Catalysis
Chemicals
Chemists
Crystallography
Dissociation
Dyes and dyeing—Chemistry
Electrolysis
Evaporation
Geochemistry
Molecules
Oxidation
Photochemistry

Anecdotes, facetiae, satire, etc.

Describes AOCS symposium in new Hiawatha poem. H. Sinclair. Am Oil Chem Soc J 41:sup6+ O '64

Bibliography

Abstracts. Published in monthly numbers of Journal of applied chemistry

Book reviews. Published in semi-monthly numbers of Journal of the American chemical society

Book reviews (cont). Chem & Ind p 1678-80, 1721-3, 1756-7, 1824-7, 1865-8, 1894-5, 1920-3, 1946-8, 2001-2 O 19-26, N 2, 16-D 14, 28 '63; p25-9, 67-72, 100-1, 198-200, 227-31, 277-9, 316-17, 413-15, 452-3, 484-90, 571-3, 614-17, 761-2, 800-2, 846-9, 888-90, 918-23, 1023-4, 1061-2, 1233-4, 1274-8, 1321-4, 1342-3, 1381-4, 1416-18, 1528, 1558, 1616, 1680 Ja 4-18, F 1-22, Mr 7-21, Ap 4-11, My 2-30, Je 13-20, Jl 4-Ag 8, 29-S 5, 19, O 3 '64

Books. A I Ch E J 10:2+ Ja '64

Bookshelf. Published in monthly numbers of Industrial chemist

Chemical press abstracts. Published in monthly numbers of Industrial chemist

Highlights from current literature. A. R. Katritzky and others. Chem & Ind p 1714-18 O 26 '63 [cont monthly]

New books. Published in monthly numbers of Canadian chemical processing

Selected abstracts of publications of the National bureau of standards (cont). J Res Nat Bur Stand 67A:639-45; 68A:139-44, 253-8, 335-42, 419-23, 541-6 N '63-S '64

Experiments

Computer experiments in chemistry. D. L. Bunker. il diags Sci Am 211:100-8 Jl '64

History

History of chemistry. vol. II, 1961, vol. III, 1962. J. R. Partington. Review, by F. W. Gibbs. bibliog Chem & Ind p306-10 F 22 '64

Periodicals

See also

Chemical and engineering news (periodical)

Study and teaching

City of Liverpool college of technology regional college; Department of chemistry and biology. K. S. W. Sing. bibliog il Chem & Ind p994-8 Je 13 '64

Doctoral education in chemistry; a report of current needs and problems by the ACS committee on professional training. Chem & Eng N 42:76-84 My 4 '64

Experiments for young chemists, by E. H. Coulson and A. E. J. Trinder; Chemistry, a modern approach, by J. C. Hogg and others. Review, by P. C. Smethurst. Chem & Ind p 190-1 F 1 '64

Flexibility urged in graduate support. Chem & Eng N 41:42-4 N 25 '63

Junior colleges need unique chemistry program. C. G. Vlassis. Chem & Eng N 42:62+ Ap 20 '64

Louisiana state university in New Orleans set to start graduate program; Chemistry department leads Graduate division. il Chem & Eng N 42:38-9 Ja 20 '64

Modern texts are needed to update college chemistry courses; freshmen often ready for quantum chemistry, thermodynamics. Chem & Eng N 42:42-4 F 17 '64

Paperbacks indicate teaching changes. G. M. Barrow. Chem & Eng N 42:62 Ap 20 '64

Physical chemistry; Inorganic chemistry; Organic chemistry. C. W. Wood and A. K. Holliday. 3v Review, by P. Sykes. Chem & Ind p 1892-3 N 30 '63

Report of a conference on physical science courses. Am J Phys 32:428-32 Je '64

See also

Chemistry students

Tables, calculations, etc.

Computation of chemical equilibrium compositions. S. H. Storey and F. Van Zeggeren. bibliog flow diag Can J Chem Eng 42:54-5 Ap '64

Textbooks

Paperbacks indicate teaching changes. G. M. Barrow. Chem & Eng N 42:62 Ap 20 '64

CHEMISTRY, Analytic

Anachem conference. 12th, Detroit, Oct. 21-23; program. Anal Chem 36:sup65A-9A S '64

Analysis of a profession. D. N. Hume. Anal Chem 35:sup29A-32A D '63

Analytical chemistry (cont) C. A. Johnson. bibliog Manuf Chem 34:26-9 Ja; 480-2+ O '63; 35:81-2+ Ja; 54-6 My; 75-7 S '64

Analytical chemistry; a scientific discipline in itself. I. M. Kolthoff. Chem & Eng N 42:146-8+ Jl 27 '64

Changing steel technology and the analytical chemist. il Anal Chem 36:sup27A-35A O '64

Collaborative tests; symposium abstracts. Chem & Ind p 1224-5 Jl 4 '64

Conference on analytical chemistry and applied spectroscopy, 15th, Pittsburgh, March 2-6; program. Anal Chem 35:sup54A-68A F '64

Critical study of different methods for determination of chlorite. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 35:2194-5 D '63

Industrial applications of recent developments in physical methods of chemical analysis; symposium abstracts. il Chem & Ind p 1658 S 26 '64

Metal chelates in analytical chemistry; 16th annual analytical symposium. Anal Chem 35:1994-8 D '63

Operational amplifiers symposium. bibliog il diags Anal Chem 35:1770-833 N '63

Purity determination by dielectric cryometry. Franklin Inst J 277:374-5 Ap '64

Radioactive tracers in analytical chemistry. S. A. Reynolds and G. W. Leddicotte. Nucleonics 21:128-42 bibliog(p 135-42) Ag '63

Radioisotopes for on-stream analysis. J. W. Haffner. diags I S A J 11:78-82 Ap '64 (to be cont)

Review of fundamental developments in analysis. Anal Chem 36 [no 5]:1R-472R Ap '64

Second-order interference in activation analysis. E. Ricci and F. F. Dyer. bibliog Nucleonics 22:45-50 Je '64

Standard methods of chemical analysis; vol. 2. F. J. Welcher, ed. Review, by N. Evers. Chem & Ind p611-12 Ap 11 '64

Storage and retrieval of instrumental analytical data. W. C. Kenyon. bibliog il Anal Chem 35:sup27A-39A N '63

Symposium on modern methods of analytical chemistry, Baton Rouge, Jan. 27-30. Anal Chem 36:sup50A-8A Ap '64

Symposium on the analytical characterization of materials, Princeton, Jan. 20-21. il diags Phys Today 17:24-6+ Jl '64

Techniques for the use of radioisotopes in analysis. D. A. Lambie. Review, by J. Haslam. Chem & Ind p693-4 Ap 25 '64

See also

Biological assay
Chromatographic analysis
Colorimetric analysis
Combustion analysis
Dye analysis

CHEMISTRY, Analytic—See also—*Continued*

Electrochemical analysis

Fluorometric analysis

Gas analysis

Indicators and test papers

Microanalysis

Mineralogical analysis

Phosphorimetry

Plants—Chemical analysis

Precipitation (chemistry)

Radiochemical analysis

Soil analysis

Spectrum analysis

also **subdivision Analysis under special subjects, e.g.**

Carbon dioxide

Flue gas

Gasoline

Glass

Niobium

Paper

Petroleum

Sewage

Steel

Uranium

Water

Apparatus

Analysts can make choice from broader ranges of instruments. il Chem & Eng N 42:58-61+ Mr 16 '64

Analytical chemistry 1964 buyers' guide; geographical guide, classification list, product guide and company directory. Anal Chem 36 [no 5]:1BG-156BG pt 2 Ap '64

Analytical instruments in modern chemistry. G. T. Austin and H. F. Austin. bibliog il diag Chem Eng 71:141-4+ Je 22 '64

Analyzer for propellant blends. H. R. Felton. il diags Soap & Chem Spec 40:79-82+ Mr '64

Annual symposium on recent developments in research methods and instrumentation, Bethesda, Md. Oct. 5-8; program and list of exhibitors. Anal Chem 36:sup45A-54A+ S '64

Apparatus for quantitative determination of fluorine in a mixture of oxygen and fluorine. S. W. Comer. diag Anal Chem 36:1693-4 Jl '64

Applying photometric techniques to chemical analyses. R. A. Hagstrom and S. Siggia. flow diags il diags Automation 10:82-8 D '63

Automatic analysis in industry and medicine. J. F. Marten. Chem & Ind p553-4 Mr 28 '64

Automatic reagent-addition analyzer utilizing continuous external coulometry. L. R. White and others. il diags Tappi 47:129-34 Mr '64

Automating wet chemical procedures; Technicon Instruments. diag Can Chem Process 48:55+ Ag '64

Challenges in instrumental analysis; panel discussion. Anal Chem 36:sup25A-6A+ S '64

Chemical analysis by inferential techniques. R. W. Negus. diags Instruments & Control Systems 37:87-96 Ag '64

Choose one of our types of analyzers. il diag Can Chem Process 48:97-9 S '64

Differential thermal analysis apparatus. E. M. Barrall, 2d and others. bibliog il diags Anal Chem 35:1837-40 N '63

Instrumental analysis in the evaluation of rare and expensive essential oils. C. Mann. Am Perfumer 78:15-16 N '63

Instrumentation as applied to a number of aromatic and flavoring materials: abstract. V. D. Johnston. Am Perfumer 78:24 N '63

Instrumentation; its place in the citrus oil industry. J. A. Rogers, jr. diags Am Perfumer 78:17-23 N '63

Package approach to purchasing an analytical tool for detergents. il Soap & Chem Spec 40:62-3 Ap '64

Perfume and flavor research facility in Switzerland has developed special analytical instruments; Firmenich & cie. il Anal Chem 36:sup79A-81A Ag '64

Programmed gradient elution chromatography with the steroid analyzer. D. Francois and others. Anal Chem 35:2019-22 D '63

Simple instrument for the direct determination of dielectric constants of liquids over a wide range of values. P. P. Maloney and R. N. Smith. bibliog il diags Anal Chem 35:2161-4 D '63

Stream analyzers: good payout if, they are carefully selected and then watched over continually by a competent technician. il diags Can Chem Process 48:93-4+ S '64

Bibliography

New books. Published in monthly numbers of Analytical chemistry

Qualitative

Qualitative analysis by gas chromatography; choice of a retention data system. G. Guiochon. bibliog Anal Chem 36:1672-4 Jl '64

Quantitative

Chemical analysis of the alkali metal tungsten bronzes. B. A. Raby and C. V. Banks. bibliog diags Anal Chem 36:1106-10 My '64

Direct enthalpimetry, a new thermochemical approach to quantitative analysis. J. C. Wasilewski and others. bibliog Anal Chem 36:2131-3 O '64

Quantitative analysis based on automatic measurement of slopes of nonlinear rate curves. H. L. Pardue. diags Anal Chem 36:1110-12 My '64

Quantitative determination of *o*- and *p*-dihydric phenols in presence of monohydric phenols by use of a phosphotungstic acid reagent. E. J. Behrman and M. N. D. Goswami. bibliog Anal Chem 36:2189-91 O '64

Use of a quaternary ammonium compound for quantitative estimation of active sites in water-soluble polyanions. L. Stoloff and J. Blethen. Anal Chem 36:2192-4 O '64

See also

Gravimetric analysis

Mass spectrometric analysis

Polarographic analysis

Turbidimetric analysis

Volumetric analysis

Statistical methods

Review of fundamental developments in analysis; statistical methods in chemistry. B. N. Nelson. Anal Chem 36 [no5]:344R-6R bibliog(p345R-6R) Ap '64

Statistical approach in analytical chemistry; why it is important. A. B. Calder. bibliog diags Anal Chem 36:sup25A-32A+ Ag '64

Tables, calculations, etc.

Calculation of the limit of detectability in atomic absorption flame spectrometry. J. D. Winefordner and T. J. Vickers. bibliog Anal Chem 36:1947-54 S '64

Calculation of the limit of detectability in atomic emission flame spectrometry. J. D. Winefordner and T. J. Vickers. bibliog Anal Chem 36:1939-46 S '64

CHEMISTRY, Inorganic

Infra-red methods in inorganic analysis. R. J. Magee. bibliog Ind Chem 40:209-11, 286-8 Ap-My '64

Inorganic chemistry needs more emphasis. Chem & Eng N 42:44-6 My 18 '64

Inorganic reaction mechanisms; abstracts of papers. Chem & Ind p325-7 F 22 '64

New laboratory is center for research on fertilizers and inorganic chemicals; Armour. il Anal Chem 35:sup93A-5A N '63

1963 review/64 preview; inorganics. Can Chem Process 48:63-4+ Ja '64

Review of fundamental developments in analysis; inorganic microchemistry. P. W. West. Anal Chem 36 [no 5]:144R-50R bibliog (p 148R-50R) Ap '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for inorganic compounds. W. H. McCurdy, jr. and D. H. Wilkins. Anal Chem 36 [no 5]:381R-90R bibliog(p388R-90R) Ap '64

Stereochemistry of complex inorganic compounds; the Walden inversion in the base hydrolysis of optically active cobalt(III) complexes. L. J. Boucher and others. bibliog diag Am Chem Soc J 86:3656-60 S 20 '64

See also

Chlorides

CHEMISTRY, Medical and pharmaceutical

Annual symposium on recent developments in research methods and instrumentation, Bethesda, Md. Oct. 5-8; program and list of exhibitors. Anal Chem 36:sup45A-54A+ S '64

Clinical chemistry laboratory features direct readout instruments. il Anal Chem 36:sup 107A-9A Ap '64

Instruments for clinical chemistry labs. il Chem & Eng N 41:112-24+ D 9; 112-26 D 16 '63 (reprints $1.25)

Medicinal chemistry; vol. 6. E. E. Carpaigne and W. N. Hartung. Review, by R. Slack. Chem & Ind p450-1 Mr 14 '64

Pharmaceutical chemistry, international symposium, Florence, Italy, 1962; review, J. F. Cavalla. Chem & Ind p 1413-15 Ag 8 '64

CHEMISTRY, Medical and pharmaceutical—*Continued*

Bibliography

Industry's books. Published in monthly numbers of Drug and cosmetic industry

Reviews of recent books. Am J Clinical Nutrition 14:128, 310; 15:57-8, 115 Mr, My, Jl-Ag '64

Technical abstracts (cont). diags Am Perfumer 78:45-7 D '63; 79:40+ Ja; 58-60 My; 93-6 Je; 54-5 Jl; 45-8 Ag; 38+ S '64

CHEMISTRY, Organic

Applications of instrumental techniques in structural monosaccharide chemistry. R. J. Ferrier and N. R. Williams. Chem & Ind p 1696-707 bbilog(p 1706-7) O 10 '64

Aquametric methods in organic analysis. J. Mitchell, jr. bibliog Anal Chem 36:2050-2 O '64

Aspects of molecular dissymmetry; symposium abstracts. Chem & Ind p736-7 My 2 '64

Automatic preparative-scale gas chromatography as a short-cut in synthetic organic chemistry. H. Boer. bibliog diags J Ap Chem 14:275-9 Jl '64

Chelation as a driving force in organic reactions; a generic synthesis of amino acids by the carboxylation and alkylation of 3-phenylhydantoin. H. Finkbeiner. Am Chem Soc J 86:961-2 Mr 5 '64

Determination of organic compounds in dilute aqueous solution by gas liquid chromatography. J. J. Cincotta and R. Feinland. Anal Chem 36:488-91 Mr '64

Effects of deuterium substitution on the rates of organic reactions; the solvolyses of 4-chloro-4-methyl-2-pentyne and its deuterated analogs. V. J. Shiner, jr. and G. S. Kriz, jr. bibliog Am Chem Soc J 86:2643-5 Jl 5 '64

Electrooxidation or reduction of organic compounds into aqueous solutions using carbon paste electrode. T. Kuwana and W. G. French. Anal Chem 36:241-2 Ja '64

Fortschritte der chemie organischer naturstoff, generalregister I-XX, 1938-1962 and vol. XXI. L. Zechmeister, ed. Review, by C. A. Finch. Chem & Ind p 1793-4 O 24 '64

Future of spectroscopy in organic chemistry; review of four books. D. H. Whiffen. Chem & Ind p967-9 Je 6 '64

Hydrogen nuclear magnetic resonance chemical shift correlation charts for organic compounds. M. W. Dietrich and R. E. Keller. bibliog Anal Chem 36:258-9 F '64

Isotopic exchange of oxygen between alumina and organic compounds. D. Samuel and I. Wasserman. bibliog Chem & Ind p891-2 My 23 '64

Mass scale based on CH_2=14.0000 for high resolution mass spectrometry of organic compounds. E. Kendrick. bibliog diags Anal Chem 35:2146-54 D '63

Mechanisms of oxidation of organic compounds, by W. A. Waters; Oxidation mechanisms; applications to organic chemistry, by R. Stewart; review. J. R. Lewis. Chem & Ind p 1217-19 Jl 4 '64

Mechanistic and exploratory organic photochemistry; phenyl migration in the irradiation of 4,4-diphenylcyclohexenone. H. E. Zimmerman and J. W. Wilson. bibliog Am Chem Soc J 86:4036-42 O 5 '64

Modification of the Fujiwara reaction for determination of polyhalogenated organic compounds. K. C. Leibman and J. D. Hindman. bibliog Anal Chem 36:348-51 F '64

Organic intermediates strong in 1963. Can Chem Process 48:47 F '64

Organic quantum chemistry; calculation of the near-ultraviolet spectra of polyolefins. N. L. Allinger and M. A. Miller. bibliog Am Chem Soc J 86:2811-19 Jl 20 '64

Organic specialists top all others; ACS study based on National science foundation data. Chem & Eng N 42:56+ Ja 20 '64

Radiation effects on organic materials. R. O. Bolt and J. G. Carroll, eds. Review, by C. E. H. Bawn. Chem & Ind p273-4 F 15 '64

Review of fundamental developments in analysis; organic microchemistry. T. S. Ma and M. Gutterson. Anal Chem 36 [no 5]:150R-63R bibliog(p 159R-63R) Ap '64

Review of fundamental developments in analysis; organic polarography. S. Wawzonek and D. J. Pietrzyk. Anal Chem 36 [no 5]: 220R-39R bibliog(p230R-9R) Ap '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for organic compounds. W. T. Smith, jr. and others. Anal Chem 36 [no 5]: 391R-9R bibliog(p397R-9R) Ap '64

Solvent effects in organic chemistry; sulfolane, a weakly basic aprotic solvent of high dielectric constant. E. M. Arnett and C. F. Douty. bibliog Am Chem Soc J 86: 409-12 F 5 '64

Solvent effects in organic chemistry; the failure of tertiary aromatic amines as Hammett bases. E. M. Arnett and G. W. Mach. bibliog Am Chem Soc J 86:2671-7 Jl 5 '64

Spectrometric identification of organic compounds. R. M. Silverstein and G. C. Bassler. Review, by J. C. Roberts. Chem & Ind p 1676-7 O 19 '63

Synthesis and electronic properties of polypyridylacetylenes. Y. Okamoto and D. Alia. bibliog Chem & Ind p 1311-12 Jl 18 '64

Synthetic methods of organic chemistry; vol. 16. W. Theilheimer; Five-and six-membered compounds with nitrogen and oxygen (excluding oxazoles). R. H. Wiley, ed. Review, by A. R. Katritzky. Chem & Ind p 1944-5 D 14 '63

Technique of organic chemistry; vol 11. A. Weissberger, ed; Elucidation of structures by physical and chemical methods. K. W. Bentley, ed. Review, by R. J. Ferrier. Chem & Ind p64-6 Ja 11 '64

See also

Acids, Organic
Alcohols
Amines
Aromatic compounds
Carbohydrates
Carbon
Cyclic compounds
Essential oils
Esters
Hydrocarbons
Methyl group
Organometallic compounds
Proteins
Sugars
Wood—Chemistry

Study and teaching

Organic chemistry in Adelaide. K. Schofield. il Chem & Ind p 1749-51 N 2 '63

CHEMISTRY, Physical and theoretical

Conference on physical chemistry and metallurgy, Shanghai, Dec. 7-13, 1962. J Metals 16:215-16 Mr '64

Effect of solvent cage around cations on their mobilities depends on anion size. D. F. Evans and others. il Chem & Eng N 42:50-1 S 7 '64

Examination of catalysts by physical and physico-chemical methods. F. S. Stone. bibliog Chem & Ind p 1810-16 N 16 '63

Physical chemistry of nonionic detergents. M. J. Schick. bibliog Am Oil Chem Soc J 40:680-7 N '63

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86: 3434-8 S 5 '64

Space and time in chemistry. A. Maccoll. Chem & Ind p908-15 My 30 '64

Survey shows shortage of colloid chemists. Chem & Eng N 42:42-3 Ag 3 '64

See also

Adhesion
Azeotropes
Catalysis
Chemical equilibrium
Colloids
Compressibility
Coordination (chemistry)
Critical point
Crystallization
Crystallography
Diffusion
Dissociation
Equation of state
Evaporation
Flocculation
Ions
Liquids
Molecular weights
Phase rule and equilibrium
Photochemistry
Solids
Solubility
Stoichiometry
Thermodynamics
Thixotropy
Valence
Vapor pressure

CHEMISTRY, Physical and theoretical—*Cont.*

Bibliography

Book review. J Colloid Sci 18:292-3, 599-600; 19:102-3, 493-4 Mr, Ag '63, Ja, Je '64

Study and teaching

Freshmen are learning physical chemistry. Chem & Eng N 42:146+ S 7 '64

CHEMISTRY, Technical

See also
Alkalies
Bleaching
Calcination
Cellulose
Chemical industries
Chemicals
Corrosion and anti-corrosives
Cosmetics
Cotton—Chemistry
Dyes and dyeing—Chemistry
Electrochemistry
Emulsions
Extraction processes
Filters and filtration (technical chemistry)
Fuel
Glass manufacture
Paper
Paper making
Petroleum distillation
Petroleum refining
Pottery
Refractory materials
Refrigerants
Rubber
Rubber, Artificial
Textile fibers, Synthetic
Textile industry
Unit processes
Vulcanization

Bibliography

Abstracts. Published in monthly numbers of Journal of applied chemistry

Book reviews. Manuf Chem 35:106+ F; 142 Mr; 100+ Ap; 106+ My; 113 Je; 73-4 Jl; 71-2 Ag; 131 S; 112+ O '64

Technical bookshelf. Published in bi-weekly numbers of Chemical engineering

CHEMISTRY students

Fourteen students win C&EN merit awards. Chem & Eng N 42:46-50 My 11 '64

CHEMISTRY teachers

ACS local sections honor students, teachers. Chem & Eng N 42:68+ Je 22 '64

Developing countries need more chemistry teachers. il Chem & Eng N 42:68-72 Ap 13 '64

Reports on teaching college chemistry are distributed. Chem & Eng N 42:45 Mr 23 '64

CHEMISTS

Analysis of a profession. D. N. Hume. Anal Chem 35:sup29A-32A D '63

Career opportunities for chemists and chemical engineers; with advertisers in career opportunities. il Chem & Eng N 42:58-125 Ja 27 '64

Chemically trained refugees doing well. il Chem & Eng N 42:56-7 Je 1 '64

Chemists seek descriptive information from recruitment advertisements. Chem & Eng N 41:31 D 16 '63

Employment: how jobs are being filled. Can Chem Process 47:31-2 N '63

Organic specialists top all others; ACS study based on National science foundation data. Chem & Eng N 42:56+ Ja 20 '64

Survey shows shortage of colloid chemists. Chem & Eng N 42:42-3 Ag 3 '64

See also
Chemical engineers

Salaries

Engineering salaries; basic rate goes up. Chem Eng 70:94+ D 23 '63

Four per cent higher salaries to '64 graduates. D. A. H. Roethel. map Chem & Eng N 42:124-30 N 9 '64

1962 salaries up $1000. D. A. H. Roethel. map Chem & Eng N 41:54-61 D 30 '63

Salaries for chem engineers continue up. Chem & Eng N 42:98-100 Mr 9 '64

CHEMOTHERAPY

Chemotherapy of rheumatoid arthritis. S. Oldham. Manuf Chem 35:45-9 O '64

New chemotherapeutics. Manuf Chem 35:108 Ja; 82 Mr; 88 Ap; 97 My '64

New tools for lung cancer; editorial. J. Wolf. bibliog Archives Environmental Health 9:141-2 Ag '64

Response to treatment in silicotuberculosis. K. S. Howlett, jr. and F. C. Warring, jr. bibliog il Archives Environmental Health 9:343-54 S '64

See also
Pharmaceutical research

CHERRIES

Countdown for cherries; counting into fruit cocktail cans. il Food Eng 36:97-8 Mr '64

Production of a standard comparator for the skin color of mature cherries. N. Brearley and others. il Food Tech 18:1477-9 S '64

Thermal degradation of pigments and relative biochemical changes in canned apricots and cherries. K. B. Dalal and D. K. Salunkhe. bibliog Food Tech 18:1198-200 Ag '64

CHERRY, R. Homer

American chemical society award in chemical instrumentation. por Chem & Eng N 42:81 Mr 16 '64

CHESAPEAKE BAY

Chesapeake Bay bridge-tunnel project; symposium. il Civil Eng 33:44-52 D '63

Futile search for fresh water by drilling through the sea-bottom at the mouth of Chesapeake Bay. E. E. Halmos, jr. il Water & Sewage Works 111:288-9 Je '64

Historical bridge-tunnel route. il map diag Comp Air Mag 69:22-4 Ap '64

Paving took ingenuity on Chesapeake Bay bridge. il Roads & Sts 107:136-7+ Je '64

17.6-mile bridge-tunnel opened. il map Eng N 172:25 Ap 16 '64

Zinc concentrations in rivers of the Chesapeake Bay region. J. T. O'Connor and others. bibliog Am Water Works Assn J 56:280-6 Mr '64

CHESTER, Pennsylvania

Water supply

New home for Chester municipal authority. il map Water Works & Wastes Eng 1:55 Ja '64

CHEWING gum

High-speed packaging machine cuts and wraps stick gum. H. Mosedale, jr. il Automation 11:52-3 My '64

CHICAGO

See also
Airports—Chicago
Building—Chicago

Architecture

Innovation in Chicago. il plans Arch Rec 135:133-8 Ja '64

Refinement in Chicago; Eugenie Lane apartments. il plans Arch Forum 120:76-7 Mr '64

Rapid transit

Chicago drafts a master plan. map Eng N 173:19 S 3 '64

Sanitary affairs

Artificial aeration of canals in Chicago. A. J. Kaplovsky and others. bibliog il plan WPCF J 36:463-74 Ap '64

Streets

Chicago opens a new expressway. il Eng N 173:23 O 22 '64

Chicago's plan; bare streets for peak traffic loads. E. Garrity. il Pub Works 95:110-11+ Ag '64

Water supply

Chicago's Southwest pumping station. il maps Water & Sewage Works 110:419-21 D '63

Instrumentation and automation in Chicago's Central district plant. M. Roth. il map diag Water Works & Wastes Eng 1:71-4 My; 36-9 Je '64

Now all Chicago drinks filtered water. il Eng N 173:28 O 15 '64

CHILD birth

Epidemiological analysis of the hemoglobin picture in parturient women of Jerusalem. S. L. Kark and others. bibliog Am J Pub Health 54:947-60 Je '64

CHILD health conferences. See Children—Care and hygiene

CHILD study

Method for use in epidemiologic studies of behavior disorders in children. R. Lapouse and others. bibliog Am J Pub Health 54:207-22; Discussion. B. MacMahon. 223-5 F '64

CHILDREN

See also
Clothing and dress—Children
Kindergarten
Playgrounds
School children
Youth

CHILDREN—*Continued*

Care and hygiene

Child health station personnel; a profile. M. Goldman and others. Am J Pub Health 54:1302-11 Ag '64

Children in day care; a health-focused look at current practices in a community. N. M. Morris and others. bibliog Am J Pub Health 54:44-52 Ja '64

Follow-up study of children seen in the diagnostic centers for handicapped children. J. R. Stifler and others. Am J Pub Health 53:1743-50 N '63

How well are well children? H. Jacobziner and others. bibliog Am J Pub Health 53:1937-52 D '63

Interviewer response bias in a survey of handicapping conditions among children. W. P. Richardson and others. Am J Pub Health 54:1092-9 Jl '64

Reaction of mothers to literature on child rearing. M. S. Brooks and others. Am J Pub Health 54:803-11 My '64

Study of reports of services for a dental treatment center for handicapped children. E. Wollin and others. Am J Pub Health 53:1685-98 O '63

Day care

See Day nurseries

Diseases

Death and disease in infants and toddlers of preindustrial countries. M. Béhar. Am J Pub Health 54:1100-5 Jl '64

Ecology of childhood disease in the Karamojong of Uganda. D. B. Jelliffe and others. bibliog il map Archives Environmental Health 9:25-36 Jl '64

Handicapped ranking scale among parents of handicapped children. R. H. Barsch. Am J Pub Health 54:1560-7 S '64

Public health program for children with heart disease or rheumatic fever; Manhattan cardiac program. K. D. Brownell and R. K. Stix. Am J Pub Health 53:1587-93 O '63

Reovirus infections in children and young adults. F. M. El-Rai and A. S. Evans. bibliog Archives Environmental Health 7:700-4 D '63

Law

Legal restrictions on minors' smoking. C. H. Hawkins. Am J Pub Health 54:1741-4 O '64

Nutrition

Amino acid requirements of children; nitrogen balance at the minimal level of essential amino acids. I. Nakagawa and others. bibliog J Nutrition 83:115-18 Je '64

Bone density and skeletal maturation as indexes of mineral status in children. D. E. Williams and others. bibliog Am J Clinical Nutrition 14:91-7 F '64

Effects of high dietary calcium and phosphorus on calcium, phosphorus, nitrogen and fat metabolism in children. L. Lutwak and others. bibliog Am J Clinical Nutrition 14:76-82 F '64

How to reach the preschool child; symposium. P. György. Am J Clinical Nutrition 14:65-9 F '64

Infant feeding patterns and oral habits of overweight and underweight children. R. W. Hillman. bibliog Am J Clinical Nutrition 13:326-30 N '63

See also
Infants—Nutrition

CHILDREN, Backward

Facilities for the mentally retarded; integrated or separate but equal. L. B. Klebanoff. bibliog Am J Pub Health 54:244-8 F '64

CHILDREN, Photography of. See Photography of children

CHILDRENS homes

Children's home gets new central boiler plant. il diag Heating-Piping 36:148-51 Ja '64

CHILDRENS literature

Bibliography

Annual Scientific American survey of children's books about science. Review. by J. R. Newman. Sci Am 209:161-2+ D '63

CHILE

See also subdivision Chile under special subjects, e.g.
Copper mines and mining
Geology
Iron mines and mining
Iron ores
Mines and mineral resources
Petroleum industry and trade

CHIMNEYS

Chimney design trends pose problems. il Chem & Eng N 42:50-1 F 17 '64

How to design drain type stacks; data sheet. diags Heating-Piping 36:143-4 Je '64

How to estimate gap size for drain type stacks. J. Halitsky. diags Heating-Piping 36:132-7 Ap '64; Discussion. J. H. Clarke. il 36:93+ My '64

Keeping rain out of stacks without defeating their purpose. H. H. Clarke. diags Heating-Piping 35:111-13 O '63; Discussion. 35:78+; Reply. 80+ D '63

No special foundation needed for lightweight plastic chimney. C. B. McCreadie. il Power Eng 67:46 D '63

Practical applications of stacks to minimize air pollution problems; abstract. Oil & Gas J 62:164 Jl 27 '64

Problems with high chimneys. M. Zar. il diags Civil Eng 34:32-5 F '64

Reinforced plastic stack; three sections go up fast. il Eng N 173:162 S 17 '64

Reinforced plastics chimney. il Engineer 218:256 Ag 14 '64

Why does chimney breast sweat? question and answer. Dom Eng 203:128 F '64

See also
Fireplaces

CHIMNEYS, Concrete

Chimney foundations. J. W. Smith and M. Zar. bibliog diags Am Concrete Inst J 61:673-700 Je '64

Slipform technique raises chimney rapidly. il Engineering 197:876 Je 26 '64

Slip-forming a 450ft high chimney. il Engineer 218:25 Jl 3 '64

CHIMNEYS, Steel

250 ft chimney put up in 14 days. il Engineering 198:513 O 23 '64

CHIMONANTHINE. See Alkaloids

CHIMPANZEES

Arithmetic behavior in chimpanzees. C. B. Ferster. il diags Sci Am 210:98-104+ My '64

Cafeteria for chimps. il diag Product Eng 35:42-3 Je 8 '64

CHINA

See also subdivision China under special subjects, e.g.
Aluminum industry and trade
Coal trade
Copper industry and trade
Copper mines and mining
Hydroelectric plants
Petroleum industry and trade

CHINAMPAS

Chinampas of Mexico. M. D. Coe. il maps diags Sci Am 211:90-8 Jl '64

CHINESE cookery. See Cookery, Chinese

CHIPBOARD. See Fiber board

CHLORAL

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

Reaction of chloral with 1,4-polyisoprene. C. Pinazzi and others. Rubber Chem & Tech 36:1056-8 O '63

Reaction products of chloral with *cis*-1,4-polyisoprene. C. Pinazzi and others. bibliog Rubber Chem & Tech 36:1054-5 O '63

CHLORAMINE

Raschig synthesis of hydrazine; investigation of chloramine formation reaction. S. R. M. Ellis and others. bibliog diag Ind & Eng Chem Proc Design 3:18-22 Ja '64

Raschig synthesis of hydrazine; the stability of chloramine in the reaction solution. G. V. Jeffreys and J. T. Wharton. bibliog diag J Ap Chem 14:203-9 My '64

Reaction of organoboranes with chloramine and with hydroxylamine-O-sulfonic acid; a convenient synthesis of amines from olefins *via* hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:3565-6 S 5 '64

CHLORANIL

Molecular complexes and their spectra; the iodine and the chloranil complexes with thianthrene analogs. A. Kuboyama. bibliog diag Am Chem Soc J 86:164-7 Ja 20 '64

Organic rectifying junction. J. E. Meinhard. diag J Ap Phys 35:3059-60 O '64

CHLORANILIC acid

Use of chloranilates in colorimetric analysis. L. S. Bark. bibliog Ind Chem 40:153-5 Mr '64

CHLORATES

Determination of chloride, hypochlorite, chlorite, chlorate, perchlorate, and chlorine dioxide in composite mixtures. L. A. Prince. bibliog Anal Chem 36:613-16 Mr '64

Study of kinetics of iridium(III)-chlorate reaction by steady-state controlled-potential coulometry. G. A. Rechnitz and J. E. McClure. bibliog Anal Chem 36:2265-70 N '64

CHLORELLA. See Algae

CHLORIDES

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Anodic potentiostatic polarization of iron in sulfuric acid; effect of chloride ions. K. Nobe and R. F. Tobias. bibliog diag Corrosion 20:263-6 Ag '64

Chlorides cause stainless-steel failure. il Oil & Gas J 62:176 Je 22 '64

Corrosion resistance of type 329 stainless steel in nitric acid containing chloride ion. I. I. Tingley. il diag Corrosion 19:408-13 D '63

Effect of chloride ions on the kinetics of the oxidation of chromium(II) by iron(III). G. Dulz and N. Sutin. bibliog Am Chem Soc J 86:829-32 Mr 5 '64

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

Epitaxial deposition of silicon and germanium layers by chloride reduction. E. F. Cave and B. R. Czorny. bibliog il diags RCA R 24:523-45 D '63

Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64

Halide fusion reprocesses reactor fuels; abstract. G. A. Bennett and others. Chem & Eng N 42:78 S 14 '64

Initiation of stress corrosion cracking; migration of chloride in oxide films on austenitic stainless steel. C. R. Bergen. bibliog diags Corrosion 20:269-74 S '64

Interaction of benzamidoxime with fluoroacyl chlorides; some novel 1,2,4-oxadiazoles. J. P. Critchley and others. bibliog Chem & Ind p806-7 My 9 '64

Mechanochemical anodic dissolution of austenitic stainless steel in hot chloride solution at controlled electrode potential. T. P. Hoar and J. C. Scully. bibliog diag Electrochem Soc J 111:348-52 Mr '64

Nature of initial corrosion of stressed austenitic stainless steel by chloride ions; platinum decoration of active sites. N. A. Nielsen. bibliog il Corrosion 20:104-9; Discussion. 109-10 Mr '64

Oxidation of iron(II) by cobalt(III) in the presence of chloride ions. T. J. Conocchioli and others. Am Chem Soc J 86:1453-4 Ap 5 '64

Reaction of acyl chlorides with aminized cotton. P. E. Robbins and H. H. Perkins. Am Dyestuff Rep 52:915-19 N 11 '63

Solvolysis of arylphenylmethyl chlorides in 90 per cent acetone. L. Verbit and E. Berliner. bibliog Am Chem Soc J 86:3307-12 Ag 20 '64

Solvolysis with t-alkyl hydroperoxides of t-alkyl and aryl chlorides and polychloro-compounds activated by aromatic rings. N. A. Milas and others. bibliog Chem & Ind p423-4 Mr 7 '64

Stress corrosion of type 304 stainless steel in chloride environments. K. C. Thomas and others. bibliog diag Corrosion 20:89-92 Mr '64

Studies on chloride deficiency in chicks. R. M. Leach, jr. and M. C. Nesheim. bibliog J Nutrition 81:193-9 N '63

Use of *p*-phenylazobenzoyl chloride for chromatographic analysis of fatty alcohols. I. Katz and M. Keeney. bibliog Anal Chem 36:231-4 Ja '64

Wool fabric stabilization by interfacial polymerization; relative rates of hydrolysis of acid chlorides. W. L. Wasley and others. bibliog Textile Res J 33:1029-32 D '63

See also
Aluminum chloride
Ammonium chloride
Arsenic chlorides
Boron chlorides
Calcium chloride
Carbon tetrachloride
Carbonyl chloride
Chromium chlorides
Copper chlorides
Isobutyl chloride
Lithium chloride
Palladium chloride
Phosphorus chlorides
Silicon chlorides
Silver chloride

Analysis

Determination of chloride, hypochlorite, chlorite, chlorate, perchlorate, and chlorine dioxide in composite mixtures. L. A. Prince. bibliog Anal Chem 36:613-16 Mr '64

Determination of microgram quantities of chloride in high purity titanium by X-ray spectrochemical analysis. J. S. Rudolph and R. J. Nadalin. Anal Chem 36:1815-17 Ag '64

CHLORINATION

Apparatus for continuous extraction of nonpolar compounds from water applied to determination of chlorinated pesticides and intermediates. L. Kahn and C. H. Wayman. diag Anal Chem 36:1340-3 Je '64

Aromatic substitution; ferric chloride and aluminum chloride catalyzed chlorination of benzene, alkylbenzenes, and halobenzenes. G. A. Olah and others. bibliog Am Chem Soc J 86:1055-60 Mr 20 '64

Chlorination of ores and concentrates as applied to extracting tantalum, columbium, and tungsten. A. W. Henderson. bibliog diags J Metals 16:155-60 F '64

Chlorination studies of unsaturated materials in nonpolar media; solvent effects on radical addition of chlorine to chloroethylenes. M. L. Poutsma and R. L. Hinman. bibliog Am Chem Soc J 86:3807-14 S 20 '64

Competition between ionic and free-radical reactions during chlorination of cyclohexene spontaneous generation of radicals. M. L. Poutsma. bibliog Am Chem Soc J 85:3511-12 N 5 '63

Electrochemical chlorination of n-dodecane. F. N. Ruehlen and others. diag Electrochem Soc J 111:1107-9 O '64

5- and 8-chlorination of quinoline in concentrated sulphuric acid. M. K. Din and A. K. Choudhury. bibliog Chem & Ind p 1840 N 16 '63

Increased electrophilic chlorinating agents lower inter- and intramolecular selectivity. L. M. Stock. Chem & Eng N 42:44+ S 28 '64

Nuclear magnetic resonance spectra-structure correlation for chlorinated propanes. H. F. White. Anal Chem 36:1291-4 Je '64

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Small-ring, spiroalkyl cations; solvolysis studies on 4- and 5-chlorospirohexane; the vapor phase chlorination of spirohexane and spiro[2.4]heptane. D. E. Applequist and J. A. Landgrebe. bibliog Am Chem Soc J 86:1543-9 Ap 20 '64

Sulfochlorination of cyclohexane induced by gamma radiation. A. Schneider and J. C. Chu. bibliog il diags Ind & Eng Chem Proc Design 3:164-9 Ap '64

Synthesis of *ar*-chloromethylstyrene by direct chlorination of *ar*-methylstyrene. D. S. Hoffenberg. bibliog diags Ind & Eng Chem Product Res & Develop 3:113-16 Je '64

Synthetic resins the backbone of modern finishes; cyclized and chlorinated rubber. H. P. Pruess. bibliog il Metal Finishing 62:72-5 Mr '64

See also
Sewage disposal—Chlorination
Water purification—Chlorination
Wool—Chlorination

CHLORINATION of water. See Water purification—Chlorination

CHLORINE

Absorption of chlorine by wool. I. C. Watt and R. Morris. bibliog Textile Res J 34:701-5 Ag '64

Chlorine-neon Geiger-Müller counters with energy-independent gamma-ray efficiency. V. Danchenko and N. Mitrofanov. R Sci Instr 35:1076-7 Ag '64

1,4-Chlorine shift and an estimate of the rate enhancement owing to chlorine participation in the addition of trifluoroacetic acid to 5-chloro-1-hexene. P. E. Peterson and E. V. P. Tao. Am Chem Soc J 86:4503-4 O 20 '64

Deadly chlorine safely weighed. il Safety Maint 128:12 Jl '64

CHLORINE—*Continued*

Effective scrubber to remove chlorine from aluminium-factory gaseous effluents. W. E. Race and R. Lewis. il diags Inst Metals J 92:205-7 '63-64

Focus on chemicals; chlorine. il maps Manuf Chem 35:49-53 Mr; 59-62 Ap; 66-9 My '64

Hot chlorine gas deburrs, machines. il Materials in Design Eng 59:111+ Ja '64

How to program chlorine deliveries. A. A. Hirsch. Water Works & Wastes Eng 1:66-7 F '64

Hydrogen chloride electrolysis (Hoechst-Uhde); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:179 N '63

Molecular rearrangement; chlorine migration in the epoxide-carbonyl rearrangement. R. N. McDonald and P. A. Schwab. bibliog Am Chem Soc J 85:4004-9 D 20 '63

Nature of the polar effect in reactions of atoms and radicals; reactions of chlorine atoms and peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2357-64 Je 20 '64

New chlorine sanitizing system in plastic pouch; Chlor-O-Sac. il Soap & Chem Spec 40:185 Mr '64

Production of high purity chromium oxide and recovery of chlorine from hydrogen chloride. R. L. Hamilton. bibliog flow diag Ind & Eng Proc Design 3:188-90 Ap '64

Stereochemistry of the replacement of chlorine atoms in alkyl halides by chlorine-38 activated in the (n,γ) process. C. M. Wai and others. bibliog Am Chem Soc J 86:2525-6 Je 20 '64

See also
Chlorination
Sewage disposal—Chlorination
Water purification—Chlorination

Analysis

Specific spot detection of chlorine in inorganic and nonvolatile organic compounds. F. Feigl and others. Anal Chem 36:885-6 Ap '64

Isotopes

Radiochemical investigation of polymer unsaturation; reaction of butyl rubber with radiochlorine. I. C. McNeill. bibliog diag Rubber Chem & Tech 36:1071-80 O '63

Stereochemistry of the replacement of chlorine atoms in alkyl halides by chlorine-38 activated in the (n,γ) process. C. M. Wai and others. bibliog Am Chem Soc J 86:2525-6 Je 20 '64

Manufacture

Alkaline chloride electrolysis. il Ind Chem 39:637-40 D '63

Fiber filters now clean chlorine. J. H. Nichols and J. A. Brink, jr. flow sheet il diag Chem Eng 71:221-2 Je 8 '64

New chlorine source; byproduct hydrochloric; process flowsheet. F. B. Grosselfinger. il Chem Eng 71:172-4 S 14 '64

Process converts HCl directly to chlorine and hydrogen. Chem & Eng N 42:41+ Ag 24 '64

Transportation

Handling chlorine. G. L. Danielson; H. P. Nelson. il diag Chem Eng Prog 60:86-9 S '64

CHLORINE compounds

Forced volatilization cleanup of butterfat for gas chromatographic evaluation of organochlorine insecticide residues. D. E. Ott and F. A. Gunther. bibliog diags J Agri & Food Chem 12:239-43 My '64

Formulating with dichloroisocyanurates. J. S. Thompson. il Soap & Chem Spec 40:45-8+ Je '64

Rapid cleanup of dairy products for analysis of chlorinated insecticide residue by electron capture gas chromatography. B. E. Langlois and others. bibliog J Agri & Food Chem 12:243-5 My '64

CHLORINE dioxide. See Chlorine oxides

CHLORINE fluorides

Solvolysis reactions in chlorine trifluoride and bromine pentafluoride; preparation of the tetrafluorochlorates and hexafluorobromates of potassium, rubidium, and cesium. E. D. Whitney and others. bibliog Am Chem Soc J 86:2583-6 Jl 5 '64

CHLORINE oxides

Erco plans new twists in ER-2 process. flow diag Can Chem Process 47:59 D '63

Manganese in the chlorine dioxide bleaching of kraft pulp. R. E. Press. J Ap Chem 14:240-4 Je '64

Analysis

Determination of chloride, hypochlorite, chlorite, chlorate, perchlorate, and chlorine dioxide in composite mixtures. L. A. Prince. bibliog Anal Chem 36:613-16 Mr '64

Problems in determination of chlorine dioxide residuals. J. Z. Feuss. Am Water Works Assn J 56:607-15 bibliog(p614-15) My '64

CHLORITE (mineral)

Chrome-nickel pennine from serpentinite, Jambur chromite mines, Mysore State, India. S. Varadarajan. Am Mineralogist 49:420-4 Mr '64

Determination of the heavy atom content in chlorite by means of the X-ray diffractometer. W. Petruk. bibliog diag Am Mineralogist 49:61-71 Ja '64

Distinction between kaolinite and chlorite in recent sediments by *X*-ray diffraction. P. E. Biscaye. Am Mineralogist 49:1281-9 bibliog(p 1288-9) S '64

Lazurite, talc and chlorite in the Green River formation of Wyoming. W. H. Bradley. Am Mineralogist 49:778-81 My '64

Nickeliferous serpentines, chlorites, and related minerals found in two lateritic ores. J. W. Montoya and G. S. Baur. bibliog Am Mineralogist 48:1227-38 N '63

Occurrence of regularly interstratified chlorite-vermiculite as a weathering product of chlorite in a soil. L. J. Johnson. bibliog il Am Mineralogist 49:556-72 My '64

CHLORITES

Critical study of different methods for determination of chlorite. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 35:2194-5 D '63

CHLOROACETANILIDE

Determination of *p*-chloroacetanilide in phenacetin; a polarographic method. R. Jones and B. C. Page. bibliog Anal Chem 36:35-8 Ja '64

Spectrophotometric determination of *p*-chloroacetanilide in phenacetin-acid hydrolysis method. W. B. Crummett and others. bibliog Anal Chem 36:1834-7 Ag '64

CHLOROACETIC acid

Multistage process for the synthesis of vinyl chloroacetate. P. J. Paré and others. bibliog Ind & Eng Chem Product Res & Develop 3:239-43 S '64

CHLOROBENZENE

Bromination of chlorobenzene. K. R. Buck and others. Chem & Ind p494 Mr 21 '64

CHLOROCYCLOPROPANE

Hexachlorocyclopropane. S. W. Tobey and R. West. bibliog Am Chem Soc J 86:56-61 Ja 5 '64

CHLORODIFLUOROMETHANE

Heat transfer to boiling refrigerants 12 and 22; tr. by O. J. Nussbaum. G. V. Ratiani and D. V. Agaliani. bibliog diag ASHRAE J 5:53-5 D '63

CHLORODINITROBENZENE

Nucleophilic displacement reactions in aromatic systems; rates and mechanism for the reaction of 2,4-dinitrochlorobenzene with 1,4-diazabicyclo[2.2.2]octane in acetonitrile. S. D. Ross and others. bibliog Am Chem Soc J 85:3999-4003 D 20 '63

CHLOROETHANE

Manufacture

Ethyl chloride; Shell development co. diag Hydrocarbon Process & Pet Refiner 42:175 N '63

CHLOROETHYLENE

Chlorination studies of unsaturated materials in nonpolar media: solvent effects on radical addition of chlorine to chloroethylenes. M. L. Poutsma and R. L. Hinman. bibliog Am Chem Soc J 86:3807-14 S 20 '64

Chloroethylene oxide. M. Zief and C. H. Schramm. bibliog Chem & Ind p660-1 Ap 18 '64

See also
Trichloroethylene
Vinyl chloride

CHLOROFLUOROMETHANES

Catalytic methane chlorofluorination. M. Vecchio and others. bibliog flow sheet il Chem Eng Prog 60:50-4 S '64

Freons. G Corfield. Gas 40:15 N '64

Freons flammable with oxygen. V. C. Vannicola. il IEEE Proc 52:866-7 Jl '64

CHLOROFORM

Crystallinity determinations on chloroform-included cellulose. S. H. Zeronian. bibliog Textile Res J 34:83-4 Ja '64

Effect of pressure on the rate of hydrolysis of chloroform; the nature of the transition state. W. J. le Noble and M. Duffy. Am Chem Soc J 86:4512 O 20 '64

CHLOROFORM—*Continued*

Extraction of submicrogram amounts of molybdenum with cupferron-chloroform using molybdenum-99. W. B. Healy and W. J. McCabe. Anal Chem 35:2117-19 D '63

Microwave absorption and molecular structure in liquids; hydrogen bonding and dielectric properties in chloroform mixtures. A. A. Antony and C. P. Smyth. bibliog Am Chem Soc J 86:152-6 Ja 20 '64

Rapid semi-micro method for preparation of methyl esters from triglycerides using chloroform, methanol, sulphuric acid. K. V. Peisker. Am Oil Chem Soc J 41:87-8 Ja '64

Spectrophotometric determination of cerium with thenoyltrifluoroacetone after cupferron-chloroform extraction. H. Onishi and Y. Toita. Anal Chem 36:1867-9 Ag '64

CHLOROHYDRINS

Stereochemistry of chlorohydrin formation. M. J. Collis and G. T. Merrall. bibliog diags Chem & Ind p711-12 Ap 25 '64

CHLOROMETHANE

Recoil tritium reactions; methyl chloride. Y. N. Tang and others. bibliog Am Chem Soc J 86:1280-6 Ap 5 '64

Thermodynamic properties of methyl chloride. C. C. Hsu and J. J. McKetta. bibliog A I Ch E J 9:794-6 N '63

Manufacture

Chloromethanes; C F Braun & co. diag Hydrocarbon Process & Pet Refiner 42:157 N '63

CHLOROPHYL

Chlorophyll losses in blanched snap beans. J. P. Van Buren and others. bibliog Food Tech 18:1204-6 Ag '64

Exchangeable hydrogen in chlorophyll and the path of hydrogen in photosynthesis. J. J. Katz and others. bibliog Am Chem Soc J 86:4220-1 O 5 '64

Hydrogen exchange at methine and C-10 positions in chlorophyll. J. J. Katz and others. bibliog Am Chem Soc J 85:4049-50 D 20 '63

Infrared spectra, molecular weights, and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, and pheophytins in various solvents. J. J. Katz and others. bibliog Am Chem Soc J 85:3801-9 D 5 '63

Nuclear magnetic resonance spectra and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, pheophytins, and methyl pheophorbides. G. L. Closs and others. bibliog Am Chem Soc J 85:3809-21 D 5 '63

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Preparation and properties of pyrochlorophyll *a*, methyl pyrochlorophyllide *a*, pyropheophorbide *a* derived from chlorophyll by decarbomethoxylation. F. C. Pennington and others. bibliog Am Chem Soc J 86:1418-26 Ap 5 '64

CHLOROPHYLLIN

Photochemical properties of chlorophyllin *a*. G. Oster and others. bibliog Am Chem Soc J 86:1313-18 Ap 5 '64

Spectral properties of chlorophyllin *a*. G. Oster and others. bibliog Am Chem Soc J 86:1309-13 Ap 5 '64

CHLOROPLASTS

See also
Phototaxis

CHLOROPRENE

Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63

Determination of polychloroprene isomers by high resolution infrared spectrometry. R. C. Ferguson. Anal Chem 36:2204-5 O '64

CHLOROPROPIONATE

Methyl β-methylsulphonyl α-chloro- and β-chloropropionate. M. Asscher. Chem & Ind p32-3 Ja 4 '64

CHLOROTOLUENE

Influence of tetrahydrofuran on the reaction of *n*-butyllithium with benzyl chloride; halogen-metal interconversion vs. α-hydrogen-metal interconversion. D. F. Hoeg and D. I. Lusk. Am Chem Soc J 86:928-9 Mr 5 '64

CHLOROTRIFLUOROETHYLENE

Bell laboratories develop method to bond Kel-F. H. Schonhorn and L. H. Sharpe. Chem & Eng N 42:53 Jl 6 '64

CHLORTETRACYCLINE. See Tetracycline

CHOCOLATE

Chocolate; abstract. R. Egli. Chem & Ind p 1303; Discussion. 1303-4 Jl 18 '64

Tips on bulk handling, storage of chocolate. Food Eng 35:69 N '63

Manufacture

Hershey of Canada puts new plant into operation. il Power 107:59 N '63

CHOLESTANE

Mass spectrometry in structural and stereochemical problems; mass spectrometric fragmentation and hydrogen transfer reactions in 16-keto steroids; a novel synthesis of side chain labeled cholestanes. C. Beard and others. bibliog Am Chem Soc J 86:269-84 Ja 20 '64

CHOLESTENONE

Synthesis of 26-acetoxy-22-nitro-5-α cholesten-3β-ol-20-one. S. V. Kessar and A. L. Rampal. Chem & Ind p 1957-8 D 14 '63

CHOLESTEROL

Adrenal lipids of cholesterol-fed guinea pigs and rats. R. Ostwald and others. J Nutrition 82:443-51 bibliog(p450-1) Ap '64

Dietary considerations with regard to type of fat. L. W. Kinsell and others. il diags Am J Clinical Nutrition 15:198-204 O '64

Dietary fat and coronary heart disease; abstract. A. N. Howard and G. A. Gresham. Chem & Ind p 1220-1 Jl 4 '64

Dynamic aspects of cholesterol ester metabolism in rabbits with atherosclerosis. L. Swell and others. bibliog J Nutrition 81:263-70 N '63

Effects of dietary cholesterol on skin lesions of rats with subacute magnesium deficiencies. E. J. Olson and H. E. Parker. bibliog J Nutrition 83:73-8 My '64

Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64

Endogenous formation of Δ^{5,7,24}-cholestatrien-3β-ol. D. Dvornik and others. bibliog Am Chem Soc J 86:2739-41 Jl 5 '64

Evidence that cholesterol sulfate is a precursor of steroid hormones. K. D. Roberts and others. bibliog Am Chem Soc J 86:958-9 Mr 5 '64

Influence of nicotinic, picolinic and pyridine-3-sulfonic acids on cholesterol metabolism in the rat. D. Kritchevsky and S. A. Tepper. bibliog J Nutrition 82:157-61 Ja '64

Lipid, cholesterol and triglyceride levels in obese women. S. H. Waxler and L. S. Craig. bibliog Am J Clinical Nutrition 14:128-32 Mr '64

Serum and aortic lipids in rabbits fed cholesterol and linoleic acid stereoisomers. B. I. Weigensberg and G. C. McMillan. bibliog J Nutrition 83:314-24 Ag '64

See also
Blood—Cholesterol content

Analysis

Spectrophotometric determination of nanogram amounts of total cholesterol in microgram quantities of tissue or microliter volumes of serum. D. Glick and others. bibliog Anal Chem 36:1119-21 My '64

Tomatine and digitonin as precipitating agents in the estimation of cholesterol. C. H. Edwards and others. bibliog Anal Chem 36:420-1 F '64

CHOLESTEROLEMIA

Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64

Effect of polyunsaturated fat diet on serum lipids of hypercholesteremic patients with peptic ulcer. G. McHardy and others. bibliog Am J Clinical Nutrition 15:229-34 O '64

See also
Blood—Cholesterol content

CHOLIC acid

Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64

CHOLINE

Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64

Glycerol metabolism in choline-deficient rats. W. J. Longmore and A. B. Hastings. bibliog J Nutrition 83:103-6 Je '64

CHOLINESTERASE

Cholinesterase variation as a factor in organophosphate selectivity in insects. W. C. Dauterman and R. D. O'Brien. bibliog J Agri & Food Chem 12:318-19 Jl '64

Insecticidal properties of some diethyl nitronaphthyl phosphates. T. R. Fukuto and others. bibliog J Agri & Food Chem 12:228-31 My '64

Polarographic determination: cholinesterase activity. V. Fiserova-Bergerova. Archives Environmental Health 9:438-44 O '64

Residue analysis of ethion by cholinesterase inhibition after oxidation. T. E. Archer and others. bibliog diag J Agri & Food Chem 11:471-4 N '63

See also

Anticholinesterase

CHRISTMAS cards

Design your own Christmas card this year. il Inland Ptr/Am Lithogr 152:62-3 N '63

Olsen Press; printer of great art masterpieces. J. N. Pannullo. il Inland Ptr/Am Lithogr 153:80-1 Ap '64

CHRISTMAS gifts

Christmas packs 1964. il Manuf Chem 35:71-4 O '64

CHRISTMAS lighting

Brighten block is Christmas theme. il Elec World 160:15 D 23 '63

Holiday lighting brings queries; Electric building, Buffalo. il Elec World 160:15 D 23 '63

CHROMATES

Chromate conversion coatings. Materials in Design Eng 59:105-8 My '64 (reprints 35c)

Effect of inhibitor cations upon aluminum corrosion; chromate solutions. J. C. Cessna and others. bibliog diags Corrosion 20:1-6 Ja '64

New process recovers chromates from cooling-tower water. Oil & Gas J 62:122 Ap 27 '64

Self-regulating chromium baths; Russian tetrachromate electrolyte. L. Domnikov. bibliog il Metal Finishing 61:65-8+ N '63

Systems recover chromate from cooling tower water discharge. il Chem & Eng N 42:43-4+ Mr 30 '64

See also

Magnesium chromates

CHROMATOGRAPHIC analysis

Accurate multicomponent analyses by gas chromatography. B. D. Smith and W. W. Bowden. Anal Chem 36:87-9 Ja '64

Amino acids yield to quantitative gas chromatography. C. W. Gehrke and W. M. Lamkin. Chem & Eng N 42:62 S 14 '64

Analysis of alcohols, hydroxy esters, glycerides, and glyceryl ethers as nitrates by thin layer chromatography and infrared spectrometry. D. C. Malins and others. bibliog Anal Chem 36:658-61 Mr '64

Analysis of aromatic hydrocarbons from pitch oils by liquid chromatography on gas chromatography analog. C. Karr, jr. and others. Anal Chem 36:2105-8 O '64

Analysis of corrosive halogen compounds by gas chromatography. R. A. Lantheaume. diags Anal Chem 36:486-8 Mr '64

Analysis of elastometers by gas chromatography. H. Hulot and P. Lebel. bibliog diags Rubber Chem & Tech 37:297-309 Ja '64

Analysis of naphthalene homologs by gas chromatography. F. J. Kabot and L. S. Ettre. bibliog Anal Chem 36:250-2 Ja '64

Analysis of pentaerythritol tetranitrate and its hydrolysis products by thin layer chromatography and radio scanning. F. J. DiCarlo and others. bibliog il Anal Chem 36:2301-3 N '64

Analysis of polyester resins by gas chromatography. C. C. Luce and others. il diag Anal Chem 36:482-6 Mr '64

Analysis of polymerization grade butadiene-1,3. diags Inst Pet J 50:96-102 Ap '64

Analysis of polyphenyls by gas-solid chromatography on inorganic salt columns. P. W. Solomon. bibliog Anal Chem 36:476-80 Mr '64

Analysis of toxic gaseous combustion products. A. Fish and others. J Ap Chem 13:506-9 N '63

Analysis of triglycerides by consecutive chromatographic techniques. C. Litchfield and others. bibliog il Am Oil Chem Soc J 41:588-92 S '64

Analysis of volatile fatty acids in sewage by gas chromatography. E. Hindin and others. bibliog Water & Sewage Works 111:92-5 F '64

Analysis of volatile inorganic fluorides by gas liquid chromatography. A. D. Hamlin and others. bibliog il diags Anal Chem 35:2037-44 D '63

Analytical and preparative applications of liquid-liquid partition chromatography. S. M. Lambert and P. E. Porter. bibliog diags Anal Chem 36:99-104 Ja '64

Apparent conformational changes of liquid phases in gas liquid chromatography. C. Chen and D. Gacke. Anal Chem 36:72-6 Ja '64

Application of an analog computer in analytical chromatographic and electrophoretic separations. K. Abel and F. W. Noble. bibliog diag Anal Chem 36:1855-6 Ag '64

Application of gas chromatography to the detection of *tert*-amine oxides. J. C. Craig and others. bibliog Anal Chem 36:1142-3 My '64

Application of gas chromatography to the determination of sulphur dioxide and sulphur trioxide. R. L. Bond and others. bibliog diags Chem & Ind p 1902-3 N 30 '63

Application of pyrolysis-gas chromatography to polymer characterization. B. Groten. bibliog diag Anal Chem 36:1206-12 Je '64

Application of specific response factors in the gas chromatographic analysis of methyl esters of fatty acids with flame ionization detectors. R. G. Ackman and J. C. Sipos. bibliog Am Oil Chem Soc J 41:377-8 My '64

Application of thin layer chromatography to the analysis of atmospheric pollutants and determination of benzo[α]pyrene. E. Sawicki and others. bibliog Anal Chem 36:497-502 Mr '64

Are you getting the most out of your gas chromatograph? bibliog Food Tech 18:699 My '64

Assignment of *cis-trans* configuration to mono-olefin pairs by gas chromatography. R. A. Hively. bibliog Anal Chem 35:1921-4 N '63

Automatic preparative-scale gas chromatography as a short-cut in synthetic organic chemistry. H. Boer. bibliog diags J Ap Chem 14:275-9 Jl '64

Autoradiography of tritium-containing thin layer chromatograms. H. Sheppard and W. H. Tsien. il Anal Chem 35:1992 N '63

Azeotropes in gas chromatography and in extractive distillation. P. F. Tiley. Chem & Ind p 1320 Jl 18 '64

Behavior of demeton in electron affinity detectors. J. E. Barney, 2d and others. bibliog diag Anal Chem 35:2206-8 D '63

Better lab practices in chromatography. J. Q. Walker. il diag Hydrocarbon Process & Pet Refiner 43:117-18 Ap '64

Bracket method for molecular weight determination of pyrolysis products using gas chromatography with a gas density detector. J. S. Parsons. diag Anal Chem 36:1849-52 Ag '64

Breath analysis of chemical exposures. il Safety Maint 128:40-2 Jl '64

Carbon determination in ferrous metals by gas chromatography. J. M. Walker and C. W. Kuo. bibliog diag Anal Chem 35:2017-19 D '63

Characterization and routine determination of nonbasic nitrogen types in cracked gas oils by linear elution adsorption chromatography. L. R. Snyder and B. E. Buell. bibliog Anal Chem 36:767-73 Ap '64

Characterization of flavonoids and coumarins by their absorption spectra on paper chromatograms. M. J. Saxby. Anal Chem 36:1145-6 My '64

Characterization of selected heavy-metal salts as adsorbents for gas chromatography. A. G. Altenau and L. B. Rogers. bibliog Anal Chem 36:1726-35 Ag '64

Chemical oxidation of selected organic pesticides. C. A. Buescher and others. bibliog diag WPCF J 36:1005-14 Ag '64

Chromatographic analysis of gases from soils and vegetation, related to geochemical prospecting for petroleum. G. H. Smith and M. M. Ellis. bibliog Am Assn Pet Geologists Bul 47:1897-903 N '63

Chromatographic analysis of seed oils; fatty acid composition of dimorphotheca oil. R. G. Binder and others. bibliog Am Oil Chem Soc J 41:108-11 F '64

Chromatographic analysis of sucrose esters of long chain fatty acids. H. Mima and N. Kitamori. bibliog Am Oil Chem Soc J 41:198-200 Mr '64

Chromatographic evaluation of activated carbon. R. A. Baker. bibliog Am Water Works Assn J 56:92-8 Ja '64

Chromatographic method for determination of trace impurities in grade-A helium. A. Purer and C. A. Seitz. diags Anal Chem 36:1694-5 Jl '64

CHROMATOGRAPHIC analysis—*Continued*

Chromatographic separation of *cis* and *trans* fatty esters by argentation with a macroreticular exchange resin. E. A. Emken and others. bibliog diag Am Oil Chem Soc J 41:388-90 My '64

Chromatographic separation of polycyclic aromatic hydrocarbons on columns containing *s*-trinitrobenzene. R. Tye and Z. Zell. Anal Chem 36:1612-15 Jl '64

Chromatographic separations of acetylated sugars. C. D. Hurd and H. T. Miles. bibliog Anal Chem 36:1375-8 Je '64

Citral determination using thin-layer chromatography. N. G. M. Nadal and others. bibliog diags Am Perfumer 79:43-5 Ap '64

Column chromatography with a polynitrostyrene resin stationary phase. J. T. Ayres and C. K. Mann. Anal Chem 36:2185-6 O '64

Column partition chromatography of vitamins A and D on Fluoropak 80. P. S. Chen, jr. and others. Anal Chem 35:2030-2 D '63

Combustion-gas chromatographic method for the simultaneous determination of carbon and sulfur in ferrous metals. W. K. Stuckey and J. M. Walker. diag Anal Chem 35:2015-17 D '63

Comparison of electron capture and hydrogen flame detectors for gas chromatographic determination of trace amounts of metal chelates. D. K. Albert. bibliog Anal Chem 36:2034-5 S '64

Comparison of the theoretical limit of separating ability in gas and liquid chromatography. J. C. Giddings. Anal Chem 36:1890-2 S '64

Complementary methods of polymer analysis by infra-red spectroscopy and gas-phase chromatography. G. Guiochon and J. Henniker. bibliog Brit Plastics 37:74-81 F '64

Complete gas chromatographic analysis of fixed gases with one detector using argon as gas carrier. D. P. Manka. flow diag Anal Chem 36:480-2 Mr '64

Composition of straight chain alkylbenzenes by gas chromatography. W. J. Carnes. bibliog Anal Chem 36:1197-200 Je '64

Computer optimization of mixed liquid phases for gas chromatography. R. S. Porter and others. bibliog flow diag Anal Chem 36:260-2 F '64

Construction and performance of an infrared chromatographic fraction analyzer. P. A. Wilks, jr. and R. A. Brown. bibliog diag Anal Chem 36:1896-9 S '64

Continuous flow analyzer for recording of light absorption and radioactivity in the eluates from chromatographic columns. C. I. Sjöberg and G. Agren. bibliog il diags Anal Chem 36:1017-21 My '64

Continuous separation by the method of thin layer chromatography. S. Turina and others. il diags Anal Chem 36:1905-7 S '64

Contribution of interfacial resistance to band broadening in chromatography. G. J. Krige and V. Pretorius. bibliog Anal Chem 35:2009-15 D '63

Correlation of structure of phosphate pesticides with response in electron affinity detectors. C. E. Cook and others. bibliog diags Anal Chem 36:2354-8 N '64

Detection of dichlorophene, hexachlorophene, and other related bisphenols by gas liquid chromatography. P. J. Porcaro. bibliog Anal Chem 36:1664-6 Jl '64

Detection of traces of polynuclear aromatics in hydrocarbons by gas chromatography. H. J. Dawson, jr. Anal Chem 36:1852-3 Ag '64

Determination of acetic acid in blood and other tissues by vacuum distillation and gas liquid chromatography. D. Lester. bibliog diag Anal Chem 36:1810-12 Ag '64

Determination of amiben in tomatoes by electron affinity gas chromatography. C. A. Bache and others. bibliog J Agri & Food Chem 12:185-7 Mr '64

Determination of antioxidants in certain food products and packaging materials by gas chromatography. W. M. Schwecke and J. H. Nelson. bibliog J Agri & Food Chem 12:86-9 Ja '64

Determination of argon and oxygen by gas chromatography. J. W. Swinnerton and others. diag Anal Chem 36:1669-71 Jl '64

Determination of argon in the presence of oxygen and other atmospheric gases by adsorption chromatography. K. Abel. bibliog diags Anal Chem 36:953-4 Ap '64

Determination of aspirin by gas chromatography. R. C. Crippen and H. C. Freimuth. bibliog Anal Chem 36:273-5 F '64

Determination of atmospheric pollutants in the part-per-billion range by gas chromatography; simple trapping system for use with flame ionization detectors. T. A. Bellar and others. diags Anal Chem 35:1924-7 N '63

Determination of 1-butene-3-yne in C_4 hydrocarbons by gas liquid chromatography. S. A. Pollard. bibliog Anal Chem 36:999-1002 My '64

Determination of C_6 to C_{11} *n*-paraffins and hydrocarbon types in gasoline by gas chromatography. D. K. Albert. bibliog diags Anal Chem 35:1918-21 N '63

Determination of diazepam (valium) in blood by gas liquid chromatography. J. A. F. de Silva and others. bibliog flow diag Anal Chem 36:2099-105 O '64

Determination of 2,6,-di-*tert*-butyl-*p*-cresol and 2(2′-hydroxy, 5′-methylphenyl) benzotriazole in polystyrene by gas liquid chromatography. C. B. Roberts and J. D. Swank. Anal Chem 36:271-3 F '64

Determination of double bond position in unsaturated triglycerides by analysis of the oxidation products by gas liquid chromatography. A. P. Tulloch and B. M. Craig. bibliog Am Oil Chem Soc J 41:322-6 Ap '64

Determination of hydrocarbons in crude oil by capillary-column gas chromatography. R. L. Martin and J. C. Winters. bibliog diag Anal Chem 35:1930-3 N '63

Determination of hydrophile-lipophile balance by gas-liquid chromatography. P. Becher and R. L. Birkmeier. bibliog flow diag diag Am Oil Chem Soc J 41:169-72 Mr '64

Determination of hydroxyethyl group in hydroxyethyl starch by pyrolysis; gas chromatography technique. H. Tai and others. diags Anal Chem 36:108-10 Ja '64

Determination of lactic acid in shortening containing lactylated glycerides, by liquid-liquid partition chromatography. R. J. Buswell. Am Oil Chem Soc J 41:457-9 Jl '64

Determination of lead alkyls by gas chromatography with electron capture detector. E. J. Bonelli and H. Hartmann. Anal Chem 35:1980-1 N '63

Determination of lipstick dyes by thin layer chromatography. T. P. Cotsis and J. C. Garey. bibliog il Drug & Cosmetic Ind 95:172-5+ Ag '64

Determination of mercaptans in sour natural gases by gas liquid chromatography and microcoulometric titration. E. M. Fredericks and G. A. Harlow. bibliog diags Anal Chem 36:263-6 F '64

Determination of moisture in foods by gas chromatography. W. M. Schwecke and J. H. Nelson. Anal Chem 36:689-90 Mr '64

Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64

Determination of organic compounds in dilute aqueous solution by gas liquid chromatography. J. J. Cincotta and R. Feinland. Anal Chem 36:488-91 Mr '64

Determination of permanent gases dissolved in water by gas chromatography. A. A. Kilner and G. A. Ratcliff. flow diag Anal Chem 36:1615-17 Jl '64

Determination of phenylacetic acid in penicillin fermentation media by means of gas chromatography. A. O. Niedermayer. Anal Chem 36:938-9 Ap '64

Determination of phosphine in air by gas chromatography. T. Dumas. J Agri & Food Chem 12:257-8 My '64

Determination of polychlorinated benzoic acid herbicide residues by gas chromatography. J. J. Kirkland and H. L. Pease. bibliog diag J Agri & Food Chem 12:468-72 S '64

Determination of residual monomers and other volatile components in styrene based polymers by gas chromatography. P. Shapras and G. C. Claver. bibliog Anal Chem 36:2282-3 N '64

Determination of residual monomers in latex by gas chromatography. L. B. Wilkinson and others. bibliog Anal Chem 36:1759-62 Ag '64

Determination of salicylsalicylic acid in salicylic acid using thin layer chromatography. R. W. Bailey. il Anal Chem 36:2021 S '64

Determination of serum creatinine by ion exchange chromatography and ultraviolet spectrophotometry. W. S. Adams and others. bibliog diags Anal Chem 36:2209-11 O '64

Determination of the glyceride structure of fats; analysis of 14 animal and vegetable fats. M. R. Subbaram and C. G. Youngs. Am Oil Chem Soc J 41:595-6 S '64

CHROMATOGRAPHIC analysis—*Continued*

Determination of the glyceride structure of fats; gas liquid chromatography of oxidized glycerides. C. G. Youngs and M. R. Subbaram. bibliog Am Oil Chem Soc J 41: 218-21 Mr '64

Determination of total carbon in water by combustion gas chromatography. D. L. West. Anal Chem 36:2194-5 O '64

Determination of volatile acids by gas chromatography. J. F. Andrews and others. bibliog Water & Sewage Works 111:206-10 Ap '64

Dilan residue determination by microcoulometric gas chromatography. H. Beckman and A. Bevenue. bibliog J Agri & Food Chem 12:245-7 My '64

Dimethoxypropane induced transesterification of fats and oils in preparation of methyl esters for gas chromatographic analysis. M. E. Mason and G. R. Waller. bibliog Anal Chem 36:583-6 Mr '64

Direct determination of hydrocarbon sulfides in kraft gases by gas-liquid chromatography. E. W. Thomas. bibliog Tappi 47: 587-8 S '64

Double bond migration in methyl eleostearate during gas-liquid chromatographic analysis. K. L. Mikolajczak and M. O. Bagby. Am Oil Chem Soc J 41:391 My '64

Effect of hydrogen bonds on the relative retention during gas-liquid chromatography with β-cyanoethyl polyvalent alcohols. J. Ratuský and L. Baštař. bibliog Chem & Ind p579-80 Ap 4 '64

Effect of particle size and average velocity on resolution under normalized time conditions. B. L. Karger and W. D. Cooke. Anal Chem 36:991-5 My '64

Effect of temperature on water solubility of phorate and disulfoton. K. A. Lord and P. E. Burt. bibliog Chem & Ind p 1262-3 Jl 11 '64

Electron affinity residue determination of CIPC, monuron, diuron, and linuron by direct hydrolysis and bromination. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:46-8 Ja '64

Electron drift velocity detector for gas chromatography. V. N. Smith and J. F. Fidiam. diags Anal Chem 36:1739-44 Ag '64

Equilibrium considerations at finite solute concentrations in gas liquid chromatography. R. S. Henly and others. bibliog Anal Chem 36:744-50 Ap '64

Estimation of tropane alkaloids by thin layer chromatography. M. Ikram and M. K. Bakhsh. bibliog Anal Chem 36:111-12 Ja '64

Etched glass beads as gas chromatographic support. R. W. Ohline and R. Jojola. Anal Chem 36:1681-2 Jl '64

Evaluation of the internal standard method for the quantitative estimation of oil polymer content by gas chromatography. W. L. Zielinski, jr. Am Oil Chem Soc J 41:249-51 Ap '64

Exploitation of the selectivity of various chromatographic techniques for the study of the triglyceride structure of natural fats. M. J. McCarthy and A. Kuksis. bibliog Am Oil Chem Soc J 41:527-30 Ag '64

Fast paper chromatography of different valence states of mercury and antimony. M. Qureshi and M. A. Khan. Anal Chem 35:2050-2 D '63

Fatty acid composition of rice lipids by gas-liquid chromatography. J. C. Lugay and B. O. Juliano. bibliog Am Oil Chem Soc J 41:273-5 Ap '63

Feed volume corrections in gas chromatography. H. Purnell and D. T. Sawyer. Anal Chem 36:668-9 Mr '64

Fluorescent detection and spectrophotofluorometric characterization and estimation of carbazoles and polynuclear carbazoles separated by thin-layer chromatography. D. F. Bender and others. bibliog Anal Chem 36:1011-17 My '64

Fluorine-containing polymers as solid supports in gas chromatography. J. J. Kirkland. bibliog Anal Chem 35:2003-9 D '63

Forced volatilization cleanup of butterfat for gas chromatographic evaluation of organochlorine insecticide residues. D. E. Ott and F. A. Gunther. bibliog diags J Agri & Food Chem 12:239-43 My '64

Further applications of chromatography in dyeing and finishing. J. C. Brown. bibliog 2pls Soc Dyers & Col J 80:185-95 Ap '64

Gas chromatographic analysis of amino acids as *N*-trifluoroacetylamino acid methyl esters. P. A. Cruickshank and J. C. Sheehan. bibliog Anal Chem 36:1191-7 Je '64

Gas chromatographic analysis of hydrogen-helium gas mixtures. E. H. Baum. Anal Chem 36:438-9 F '64

Gas chromatographic and colorimetric measurement of dimethoate residues. C. H. Van Middelem and R. E. Waites. bibliog J Agri & Food Chem 12:178-82 Mr '64

Gas chromatographic and gravimetric studies of uranium oxidation mechanism. T. Kondo and others. bibliog il diags Corrosion 20:314-20 O '64

Gas chromatographic determination of acetylsalicylic acid. J. G. Nikelly. bibliog Anal Chem 36:2248-50 N '64

Gas chromatographic determination of alkyl substituted ureas. R. W. Reiser. Anal Chem 36:96-8 Ja '64

Gas chromatographic determination of free phenol and free formaldehyde in phenolic resins. M. P. Stevens and D. F. Percival. Anal Chem 36:1023-4 My '64

Gas chromatographic determination of isomers of phenylenediamine. W. H. Bryan. Anal Chem 36:2025-6 S '64

Gas chromatographic determination of microgram amounts of carbon in sodium metal. T. G. Mungall and others. diag Anal Chem 36:70-2 Ja '64

Gas chromatographic determination of organophosphorus insecticides using the Zeisel alkoxyl reaction. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11: 470-1 N '63

Gas chromatographic evaluation of the formation of volatile substances in stored peas. B. Bengtsson and I. Bosund. bibliog Food Tech 18:773-6 My '64

Gas chromatographic head space techniques for the quantitative determination of volatile components in multicomponent aqueous solutions. R. E. Kepner and others. bibliog Anal Chem 36:77-82 Ja '64

Gas chromatographic method for silvex. W. H. Gutenmann and D. J. Lisk. Am Water Works Assn J 56:189-90 F '64

Gas chromatographic response to plug-shaped sample inputs; calculation of plate height from response curve. J. W. Ashley, jr. and others. Anal Chem 36:1369-71 Je '64

Gas chromatographic separation of amines and amides. J. F. O'Donnell and C. K. Mann. Anal Chem 36:2097-9 O '64

Gas chromatographic separation of 2,4-dinitrophenylhydrazone derivatives of carbonyl compounds. R. J. Soukup and others. bibliog Anal Chem 36:2255-6 N '64

Gas chromatographic separation of gibberellins. N. Ikekawa and others. bibliog Chem & Ind p 1728-9 O 26 '63

Gas chromatography in lipid investigations. E. C. Horning and W. J. A. Vandenheuvel. bibliog Am Oil Chem Soc J 41:707-16 O '64

Gas chromatography in the fat and oil industry. L. D. Metcalfe. il Am Oil Chem Soc J 41:sup4+ My '64

Gas chromatography of aqueous solutions; determination of hydrocarbons and halocarbons. E. S. Jacobs. Anal Chem 35:2035-7 D '63

Gas chromatography of *cis-trans* fatty acid isomers on nitrile silicone capillary columns. C. Litchfield and others. bibliog Am Oil Chem Soc J 41:52-5 Ja '64

Gas chromatography of free fatty acids. J. G. Nikelly. bibliog Anal Chem 36:2244-8 N '64

Gas chromatography retention times and sensitivity data for insecticides and herbicides. E. J. Bonelli and others. bibliog diag J Agri & Food Chem 12:333-6 Jl '64

Gas liquid chromatographic analysis of high-boiling polar compounds utililizing nichrome helices as the support material. J. F. T. Kung and R. J. Romagnoli. Anal Chem 36: 1161-2 My '64

Gas-liquid chromatography in coal tar technology. D. W. Grant. bibliog il diags Ind Chem 40:126-30, 240-5 Mr, My '64

Gas-liquid chromatography of fat-soluble vitamins. K. K. Carroll and D. C. Herting. bibliog Am Oil Chem Soc J 41:473-4 Jl '64

Gas-liquid chromatography of polar fatty derivatives. R. A. Morrissette and W. E. Link. bibliog Am Oil Chem Soc J 41:415-18 Je '64

Gas liquid chromatography of retinol (vitamin A) derivatives. P. E. Dunagin, jr. and J. A. Olson. bibliog Anal Chem 36:756-9 Ap '64

General method for the chromatographic separation of nonionic surface-active agents and related materials. M. J. Rosen. bibliog Anal Chem 35:2074-7 D '63

CHROMATOGRAPHIC analysis—*Continued*

Glass paper chromatography and elatography of triglycerides. J. R. Swartwout and R. J. Gross. il diags Am Oil Chem Soc J 41:378-80 My '64

Gradient loaded columns in gas chromatography. D. C. Locke and C. E. Meloan. bibliog diag Anal Chem 36:2234-43 N '64

Graphitized carbon black as a support for gas liquid chromatography. T. F. Brodasky. bibliog Anal Chem 36:1604-6 Jl '64

Gravimetric gas chromatography. E. V. Piel. bibliog Anal Chem 36:696-7 Mr '64

Hand-sorted punched card system for gas chromatographic data. R. E. Simson and J. A. Micallef. bibliog Chem & Ind p743-5 My 2 '64

Higher recoveries of carbonyl compounds in flash exchange gas chromatography of 2,4-dinitrophenylhydrazones. J. W. Ralls. Anal Chem 36:946 Ap '64

Identification of elastomers by gas chromatography applied to pyrolyzates. A. Fiorenza and G. Bonomi. bibliog diags Rubber Chem & Tech 37:741-57 Jl '64

Identification of surface active agents in admixture by thin layer chromatography. C. T. Desmond and W. T. Borden. bibliog Am Oil Chem Soc J 41:552-3 Ag '64

Identification of the methyl esters of the stable Krebs cycle acids by gas liquid chromatography. H. H. Luke and others. bibliog Anal Chem 35:1916-18 N '63

Identification of the pyrolyzates of substituted barbituric acids by gas chromatography. D. F. Nelson and P. L. Kirk. bibliog Anal Chem 36:875-8 Ap '64

Indium encapsulation technique for introducing weighed samples in gas chromatography. A. G. Nerheim. bibliog diags Anal Chem 36:1686-8 Jl '64

Inorganic salts for gas-solid chromatography. J. A. Favre and L. R. Kallenbach. Anal Chem 36:63-5 Ja '64

International symposium on advances in gas chromatography, Houston, Tex. March 23-26. Anal Chem 36:1410-573 Jl '64

Interpretation of linear carrier gas velocity in gas chromatography. P. C. van Berge and V. Pretorius. bibliog Anal Chem 36:693-5 Mr '64

Ion exchangers for gas solid chromatography. G. Urbach. Anal Chem 36:2368 N '64

Isolation, concentration, separation, and identification of amino acids in potatoes by ion exchange and paper chromatography. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:112-14 Mr '64

Isolation, identification, and gas chromatographic estimation of some esters and alcohols of lemon oil. R. M. Ikeda and E. M. Spitler. bibliog J Agri & Food Chem 12:114-17 Mr '64

Keeping properties of edible oils; identity of trace materials adsorbed from peanut oil by chromatography on alumina. A. Crossley and A. Thomas. bibliog Am Oil Chem Soc J 41:95-100 F '64

Kinetic origin of tailing in chromatography. J. C. Giddings. bibliog Anal Chem 35:1999-2002 D '63

Kinetics of *n*-butane adsorption on various particle sizes of silica gel by gas-solid chromatography. P. E. Eberly, jr. bibliog J Ap Chem 14:330-7 Ag '64

Kováts retention index system. L. S. Ettre. bibliog Anal Chem 36:sup31A-41A Jl '64

Lipids of dehydrated alfalfa (medicago sativa). J. W. Van Der Veen and H. S. Olcott. bibliog J Agri & Food Chem 12:287-9 My '64

Liquid chromatography with operating conditions analogous to those of gas chromatography. J. C. Giddings. bibliog Anal Chem 35:2215-16 D '63

Liquid surface effects in gas chromatography. R. L. Pecsok and others. bibliog Anal Chem 36:452-7 Mr '64

Measurement of fat autoxidation and browning aldehydes in food vapors by direct vapor injection gas-liquid chromatography. R. G. Buttery and R. Teranishi. bibliog J Agri & Food Chem 11:504-7 N '63

Method for calculating gas chromatographic relative retention values for high boiling phenothiazine derivatives. H. F. Martin and others. bibliog Anal Chem 35:1901-4 N '63

Methyl oct-*cis*-2-enoate; its synthesis, GLC behaviour and infrared spectra. O. Mercuri and others. bibliog Am Oil Chem Soc J 41:89-92 F '64

Micro beads coated with a porous thin layer as column packing in gas chromatography; some properties of graphited carbon black as the stationery phase. I. Halász and C. Horváth. bibliog il Anal Chem 36:1178-86 Je '64

Microcoulometric gas chromatographic analysis of grapes and cottonseed for chlorobenzilate residues. H. Beckman and A. Bevenue. J Agri & Food Chem 12:183-5 Mr '64

Microreactor; gas chromatographic method for the identification of polymeric materials. B. C. Cox and B. Ellis. bibliog diag Anal Chem 36:90-6 Ja '64

Minimizing time for gas chromatographic analysis of complex mixtures. T. B. Rooney and W. Aznavourian. bibliog Anal Chem 36:2112-15 O '64

Mixed solvents in gas liquid chromatography. R. A. Keller and G. H. Stewart. bibliog Anal Chem 36:1186-91 Je '64

Modified thermal conductivity detector for capillary columns. J. A. Petrocelli. diags Anal Chem 35:2220-1 D '63

Multidimensional chromatography of arenes produced during combustion. M. Mukai and others. bibliog diag Anal Chem 36:1126-30 My '64

New applications of the Wohlers effect in spot test analysis. F. Feigl and others. Anal Chem 36:1657-9 Jl '64

New spray reagents for the detection of thiophosphate insecticides on paper chromatograms. M. C. Dutt and P. H. Seow. bibliog J Agri & Food Chem 11:467 N '63

New technique for functional group analysis in gas chromatography; syringe reactions. J. E. Hoff and E. D. Feit. il diag Anal Chem 36:1002-8 My '64

New technique for the preparation of coated glass-bead column for gas chromatography. J. Lysyj and P. R. Newton. diag Anal Chem 36:949-50 Ap '64

Organic acids by column chromatography. F. G. Pohland and B. H. Dickson, jr. bibliog Water Works & Wastes Eng 1:54-5+ Jl '64

Organic acids in digester liquor by chromatography. A. F. Westerhold. WPCF J 35:1431-3 N '63

Paper chromatographic separation, identification, and determination of diglycerols. H. Siegel and others. bibliog Anal Chem 36:502-5 Mr '64

Paper chromatography of monohydroxyphenols in vanilla extract. M. H. Anwar. bibliog Anal Chem 35:1974-6 N '63

Paper chromatography of phenylphenols. D. L. Gumprecht. bibliog Anal Chem 36:1154-5 My '64

Paper chromatography of the 2,4-dinitrophenylhydrazones of alk-1-en-3-ones. D. A. Forss and W. Stark. bibliog Anal Chem 36:941-2 Ap '64

Paper chromatography of very long chain phosphates. S. Ohashi and J. R. Van Wazer. bibliog Anal Chem 35:1984-5 N '63

Paper partition chromatographic determination of per cent solute extracted into organic phase. P. Kabasakalian. bibliog Anal Chem 36:2202-4 O '64

Partition chromatographic separation and determination of *cis*- and *trans*-1,3-cyclopentanedicarboxylic acids. E. C. Bossert and others. bibliog diag Anal Chem 36:1213-17 Je '64

Peak width vs. retention time in gas liquid chromatography on packed columns. B. D. Blaustein and G. M. Feldman. bibliog Anal Chem 36:65-70 Ja '64

Phospholipids of the South African pilchard (sardina ocellata jenyns). M. H. Silk and A. J. De Koning. bibliog Am Oil Chem Soc J 41:619-22 S '64

Photogrammetry of estrogens on thin layer chromatograms by a one-step photographic procedure. G. M. Jacobsohn. il diag Anal Chem 36:2030-2 S '64

Porous glass as an adsorbent for thin layer chromatography. J. K. G. Karmer and others. bibliog Anal Chem 36:2379-80 N '64

Porous layer glass bead column packing in gas adsorption layer chromatography. I. Halász and C. Horváth. bibliog Anal Chem 36:2226-9 N '64

Precipitation chromatography; separation of metals as ferrocyanides on filter paper. A. M. Liimatta and J. D. Spain. bibliog il Anal Chem 35:1898-900 N '63

Preparation and analysis of some food fats and oils for fatty acid content by gas-liquid chromatography. K. J. Hivon and others. bibliog Am Oil Chem Soc J 41:362-6 My '64

CHROMATOGRAPHIC analysis—*Continued*

Problems of applying gas chromatographs to process control. E. M. Thomason. il diags I S A J 10:56-8 D '63

Process chromatograph operates at 0° C. Chem & Eng N 42:56 Je 22 '64

Programmed gas chromatography. Manuf Chem 35:64-5 Je '64

Programmed gradient elution chromatography with the steroid analyzer. D. Francois and others. Anal Chem 35:2019-22 D '63

Qualitative analysis by gas chromatography; choice of a retention data system. G. Guiochon. bibliog Anal Chem 36:1672-4 Jl '64

Qualitative analysis of naphthalenes by capillary gas chromatography. J. Q. Walker and D. L. Ahlberg. Anal Chem 35:2028-30 D '63

Quantitation of estrone, estradiol, and estriol on thin layer chromatograms by a photogrammetric procedure. G. M. Jacobsohn. bibliog il Anal Chem 36:275-9 F '64

Quantitative analysis of aromatic hydrocarbons by capillary gas chromatography. J. Q. Walker and D. L. Ahlberg. bibliog Anal Chem 35:2022-7 D '63

Quantitative analysis of bisphenol A by gas liquid chromatography. H. H. Gill. Anal Chem 36:1201-3 Je '64

Quantitative analysis of lipids by thin-layer chromatography. M. L. Blank and others. bibliog il Am Oil Chem Soc J 41:371-6 My '64

Quantitative analysis of low-boiling phenols by capillary column separation of trimethylsilyl ethers. R. W. Freedman and G. O. Charlier. bibliog Anal Chem 36:1880-1 Ag '64

Quantitative chromatographic determination of cysteic acid in amino acid mixtures on ion exchange papers. J. Hartel and A. J. G. Pleumeekers. bibliog il Anal Chem 36:1021-2 My '64

Quantitative determination of chromium(III) hexafluoroacetylacetonate by gas chromatography. W. D. Ross and G. Wheeler, jr. bibliog Anal Chem 36:266-8 F '64

Quantitative determination of maleic anhydride, benzoic acid, naphthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

Quantitative determination of parts-per-million quantities of nitrogen dioxide in nitrogen and oxygen by electron-capture detection in gas chromatography. M. E. Morrison and others. Anal Chem 36:2256-9 N '64

Quantitative gas chromatographic analysis of hydrocarbons with capillary columns and flame ionization detector. H. Bruderreck and others. bibliog Anal Chem 36:461-73 Mr '64

Quantitative gas liquid chromatography of phenols by complete trimethylsilylation of hindered phenols in presence of acidic oxides. R. W. Freedman and P. P. Croitoru. bibliog Anal Chem 36:1389-90 Je '64

Quantitative pyrolytic gas chromatography by internal standard. G. G. Esposito. bibliog Anal Chem 36:2183-5 O '64

Quantitative recovery and programmed temperature gas chromatographic analysis of periodate-permanganate oxidative cleavage products. D. F. Kuemmel. bibliog Anal Chem 36:426-9 F '64

Rapid analysis of condensate systems by chromatography. D. M. Kehn. il diag J Pet Tech 16:Trans 435-40 Ap '64

Rapid cleanup of dairy products for analysis of chlorinated insecticide residue by electron capture gas chromatography. B. E. Langlois and others. bibliog J Agri & Food Chem 12:243-5 My '64

Rapid detection and determination of mineral oil on dried fruit by thin layer chromatography. F. Radler and M. V. Grncarevic. bibliog il J Agri & Food Chem 12:266-7 My '64

Rapid determination of diphenylamine in apples by direct bromination and gas chromatography. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:468-70 N '63

Rapid-scan far ultraviolet spectrophotometer for monitoring gas chromatograph effluent. W. Kaye and F. Waska. Anal Chem 36:2380-1 N '64

Rapid scanning infrared-gas chromatography instrument. A. M. Bartz and H. D. Ruhl. diag Anal Chem 36:1892-6 S '64

Rate extractive distillation solvents. M. R. Sheets and J. M. Marchello. bibliog Hydrocarbon Process & Pet Refiner 42:99-103 D '63

Reaction of ethers with acetyl chloride and the identification of products by gas chromatography. P. Waszeciak and H. G. Nadeau. bibliog Anal Chem 36:764-7 Ap '64

Removal of alcohols from complex mixtures during gas chromatography. R. M. Ikeda and others. Anal Chem 36:2188-9 O '64

Removal of cation interference in paper chromatography of concentrated wet-process phosphoric acid. T. C. Woodis, jr. diag Anal Chem 36:1682-3 Jl '64

Reproducibility of R_f and correlation of chromatographic patterns on paper and thin layer plates. T. F. Brodasky. bibliog Anal Chem 36:996-9 My '64

Resolution of neomycin and catenulin antibiotic complexes by ion exchange resin chromatography. H. Maehr and C. P. Schaffner. bibliog il Anal Chem 36:104-8 Ja '64

Retention indices in programmed temperature gas chromatography. G. Guiochon. Anal Chem 36:661-3 Mr '64

Retention indices in programmed temperature gas chromatography. H. W. Habgood and W. E. Harris. Anal Chem 36:663-5 Mr '64

Reversed-phase partition chromatographic separation of several alkaline earths from each other and from yttrium. J. W. O'Laughlin and others. bibliog Anal Chem 36:2110-12 O '64

Review of fundamental developments in analysis; chromatography. E. Heftmann. Anal Chem 36 [no 5]:14R-35R bibliog(p21R-35R) Ap '64

Review of fundamental developments in analysis; gas chromatography. R. S. Juvet, jr. and S. Dal Nogare. Anal Chem 36 [no 5]: 36R-51R bibliog(p45R-51R) Ap '64

Review of fundamental developments in analysis; ion exchange chromatography. H. F. Walton. Anal Chem 36 [no 5]:51R-5R bibliog(p54R-5R) Ap '64

Role of column pressure drop in gas chromatographic resolution. J. C. Giddings. bibliog Anal Chem 36:741-4 Ap '64

Routine determination of aromatic hydrocarbon types in catalytically cracked gas oils by linear elution adsorption chromatography. L. R. Snyder. bibliog diag Anal Chem 36:774-81 Ap '64

Routine separation and determination of total saturated hydrocarbons in heavy petroleum samples by adsorption chromatography. L. R. Snyder and W. F. Roth. bibliog Anal Chem 36:128-32 Ja '64

Scan rate considerations in combined gas chromatography-mass spectrometry. W. H. McFadden and E. A. Day. bibliog Anal Chem 36:2362-3 N '64

Separation and analysis of alkylpolynitrates by gas chromatography. E. Camera and D. Pravisani. bibliog Anal Chem 36:2108-9 O '64

Separation and analysis of nonylphenoxy polyethylene glycol ether adducts by programmed temperature gas chromatography. H. G. Nadeau and others. bibliog Anal Chem 36:1914-17 S '64

Separation and identification of the steam volatile phenols present in cigarette smoke condensate by capillary column gas liquid chromatography. G. A. L. Smith and D. A. King. bibliog Chem & Ind p540-1 Mr 28 '64

Separation of butene isomers and butadiene by gas liquid chromatography. C. E. Higgins and W. H. Baldwin. bibliog Anal Chem 36:473-5 Mr '64

Separation of isomeric toluidines by gas liquid partition chromatography using Ucon oil as stationary phase. J. S. Parsons and J. C. Morath. Anal Chem 36:237-8 Ja '64

Separation of isomeric xylidine by gas liquid chromatography. W. Funasaka and others. Anal Chem 36:2214-15 O '64

Separation of isotopic position isomers of tritium-labeled olefins by gas chromatography. E. K. C. Lee and F. S. Rowland. bibliog Anal Chem 36:2181-3 O '64

Separation of molybdenum in steels by reversed-phase chromatography. J. S. Fritz and C. E. Hedrick. bibliog Anal Chem 36:1324-6 Je '64

Separation of planktonic algal pigments by thin layer chromatography. H. Rai and G. F. Lee. bibliog diags Anal Chem 36:2208-9 O '64

CHROMATOGRAPHIC analysis—*Continued*

Separation of scandium from yttrium, lanthanum, and the rare earths by cation exchange chromatography. F. W. E. Strelow and C. J. C. Bothma. bibliog Anal Chem 36:1217-20 Je '64

Separation of triglycerides by column chromatography on silica impregnated with silver nitrate. B. de Vries. bibliog Am Oil Chem Soc J 41:403-6 Je '64

Separation of various cations by reversed-phase partition chromatography using neutral organophosphorus compounds. J. W. O'Laughlin and C. V. Banks. bibliog diags Anal Chem 36:1222-9 Je '64

Silicic acid-silver nitrate chromatography as an enrichment technique in fatty acid analysis. M. K. Bhatty and B. M. Craig. Am Oil Chem Soc J 41:508-10 Jl '64

Simple flame ionization detector cell. L. L. T. Bradley and W. E. Falconer. diag J Sci Instr 40:606 D '63

Simultaneous determination of crude oil boiling range distribution and hydrocarbon-type distribution by gas chromatography. V. F. Gaylor and others. bibliog Anal Chem 36:1606-12 Jl '64

Some hydrocarbons of the gas phase of cigarette smoke. R. J. Philippe and others. bibliog Anal Chem 36:859-65 Ap '64

Some palladian observations. Food Tech 18:1573-4 O '64

Soybean unsaponifiables; chromatographic investigation of shell drain condensate from a commercial deodorizer. R. L. Hoffman and others. Am Oil Chem Soc J 41:116-19 F '64

Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63

Spent sulfite liquor; gas chromatographic analysis of volatile components in spent sulfite liquors. B. F. Hrutfiord and J. L. McCarthy. bibliog Tappi 47:381-6 Jl '64

Studies of the liquid phase mass-transfer term in gas chromatography. J. K. Barr and D. T. Sawyer. bibliog Anal Chem 36:1753-9 Ag '64

Studies of the phospholipids, glycolipids and sterols of wheat endosperm. M. E. McKillican. bibliog Am Oil Chem Soc J 41:554-7 Ag '64

Study of cross-linking using vapor-phase chromatography. J. P. Dundon. bibliog Textile Res J 34:340-6 Ap '64

Study of solid support and partition liquid interactions in gas chromatographic separation of ethanol-methanol mixtures. E. D. Smith and others. Anal Chem 36:1750-3 Ag '64

Styrenated isophthalic alkyds. W. K. Seifert and D. F. Percival. bibliog Ind & Eng Chem Product Res & Develop 3:222-5 S '64

Substrates containing silver nitrate for gas chromatography. A. Zlatkis and others. Anal Chem 36:2354 N '64

Sulfonation and dehydrogenation as an aid to gas chromatography in evaluating 90° to 150°C. petroleum fractions. W. J. Hines and D. E. Smith. bibliog diag Anal Chem 36:2250-4 N '64

Taurine as reference standard in chromatography of plant material extracts. J. G. Karas and others. bibliog Anal Chem 36:1671-2 Jl '64

Techniques for quantitative thin layer chromatography. M. A. Millett and others. bibliog diags Anal Chem 36:491-4 Mr '64

(+)-Tembetarine, [N-methyl-(+)-reticuline] in fagara species; oxidation to (+)-laurifoline. S. M. Albonico and others. bibliog Chem & Ind p 1580-1 S 12 '64

Theoretical prediction of the stationary phase contribution to the plate height in chromatography. S. M. Gordon and others. bibliog Anal Chem 36:750-3 Ap '64

Theory of gas-solid chromatography; potential for analytical use and the study of surface kinetics. J. C. Giddings. bibliog Anal Chem 36:1170-5 Je '64

Thin layer chromatographic separation of orthophosphate and pyrophosphate. N. L. Clesceri and G. F. Lee. bibliog diag Anal Chem 36:2207-8 O '64

Thin layer chromatography. G. B. Levy. bibliog il Drug & Cosmetic Ind 94:176-7+ F '64

Thin-layer chromatography; abstract. H. Halpaap. il Manuf Chem 34:517 N '63

Thin layer chromatography; abstract. L. J. Morris. Chem & Ind p 1325; Discussion. 1325-6 Jl 18 '64

Thin layer chromatography of vitamin A and related compounds. T. N. R. Varma and others. bibliog Anal Chem 36:1864-5 Ag '64

Thin-layer chromatography on microcrystalline cellulose. M. L. Wolfrom and others. bibliog Chem & Ind p 1065 Je 20 '64

Thiourea as substrate for gas chromatography of fluorocarbons. J. C. Mailen and others. Anal Chem 36:1883 Ag '64

Through-put limitations in preparative gas chromatography. D. T. Sawyer and H. Purnell. bibliog Anal Chem 36:457-60 Mr '64

Triglyceride gas chromatography as a means of detecting butterfat adulteration. A. Kuksis and M. J. McCarthy. Am Oil Chem Soc J 41:17-21 Ja '64

Two techniques are combined to isolate minor components. J. Q. Walker. Hydrocarbon Process & Pet Refiner 43:154 F '64

Use of a mass spectrometer as a detector and analyzer for effluents emerging from columns. R. Ryhage. bibliog diag Anal Chem 36:759-64 Ap '64

Use of gas chromatography in analysis of floor polishes. W. K. Miller and others. bibliog flow diag diag Soap & Chem Spec 39:135+ D '63

Use of organo-clays as gas chromatographic stationary phases. J. V. Mortimer and P. L. Gent. bibliog Anal Chem 36:754-6 Ap '64

Use of *p*-phenylazobenzoyl chloride for chromatographic analysis of fatty alcohols. I. Katz and M. Keeney. bibliog Anal Chem 36:231-4 Ja '64

Use of rubber columns for the chromatographic separation of triglycerides and other non-polar compounds. J. R. Trowbridge and others. Am Oil Chem Soc J 41:306-8 Ap '64

Use of trifluorotrichloroethane-methylene chloride in absorption elution chromatography. J. A. Attaway. Anal Chem 36:2224 O '64

Useful thin layer chromatography techniques. T. L. Brown and J. Benjamin. il Anal Chem 36:446-7 F '64

Vapor pressure of stationary phases over gas chromatographic supports. S. J. Hawkes and J. C. Giddings. bibliog Anal Chem 36:2229-30 N '64

Volatile sulfur compounds in potatoes. M. R. Gumbmann and H. K. Burr. bibliog J Agri & Food Chem 12:404-8 S '64

Water determination by gas chromatography. O. F. Bennett. bibliog Anal Chem 36:684 Mr '64

Wedge-layer chromatography for pesticide residue clean-up. D. C. Abbott and J. Thomson. Chem & Ind p481 Mr 21 '64

Zone melting considered as a chromatographic separation technique. W. G. Pfann. bibliog diag Anal Chem 36:2231-4 N '64

Apparatus

Adaptation of a gas chromatograph for analysis of radioactive gas samples. A. D. Horton and others. diag Anal Chem 35:1988-9 N '63

Automatic gas chromatograph distillation analyzer. H. J. Maier and others. il diag Instruments & Control Systems 37:75-6 Ag '64

Automatic, programmed, chromatographic analyzer. il diags Product Eng 34:54-5 N 25 '63

Backflushing and two-stage operation of capillary columns in gas chromatography. D. J. McEwen. bibliog diags Anal Chem 36:279-82 F '64

Capillary gas chromatography using micro-volume thermal conductivity detectors. D. L. Camin and others. bibliog diags Anal Chem 36:1175-8 Je '64

Carbon skeleton chromatography using hot-wire thermal-conductivity detection. M. Beroza and R. Sarmiento. bibliog diags Anal Chem 36:1744-50 Ag '64

Chromatographic analyzer geared to on-line composition control. il diag Water & Sewage Works 110:430-2 D '63

Concentration and mass flow rate sensitive detectors in gas chromatography. I. Halász. Anal Chem 36:1428-30 Jl '64

Conditioning on-line vapor fraction analyzer signals for process control. W. R. Thompson. diags I S A J 11:67-8 Je '64

Curtain-flow chromatograph prepares samples for analysis. Chem & Eng N 42:52 O 19 '64

Effect of column length on resolution under normalized time conditions. B. L. Karger and W. D. Cooke. bibliog Anal Chem 36:985-91 My '64

CHROMATOGRAPHIC analysis—Apparatus—*Continued*

Effect of pressure gradient on chromatographic column efficiency. J. C. Sternberg. Anal Chem 36:921-2 Ap '64
Gas bubble and liquid flow detector, an automatic control system for column chromatography. G. C. Riggle and J. H. Weisburger. il diag Anal Chem 36:1167-8 My '64
Gas chromatograph device detects polar vapors. Chem & Eng N 42:59 Je 8 '64
High-resolution mass spectra of compounds emerging from a gas chromatograph. J. T. Watson and K. Biemann. bibliog diag Anal Chem 36:1135-7 My '64
High-temperature inlet manifold for coupling a gas chromatograph to the time-of-flight mass spectrometer. D. O. Miller. il diag Anal Chem 35:2033-5 D '63
Hydro-chromagraph, a process-type water analyzer combining chromatographic separation and electrolysis cell detecton. C. J. Penther and L. J. Notter. il diags Anal Chem 36:283-6 F '64
Instrument for radiochromatogram reading. E. Musyck. diags J Sci Instr 41:445-8 Jl '64
Ion exchange chromatography of amino acids; single column, high resolving, fully automatic procedure. P. B. Hamilton. bibliog diags Anal Chem 35:2055-64 D '63
Is license needed for chromatography? diags Can Chem Process 48:59+ Jl '64
Moisture analyzer prepares stream sample by chromatograph technique. il Control Eng 11:99 Ag '64
Multiple-port fraction collector for gas chromatography. R. L. Hoffmann and A. Silveira, jr. il diags Anal Chem 36:447-8 F '64
New design of an internal proportional flow counter for radio-gas chromatography. F. Schmidt-Bleek and F. S. Rowland. diags Anal Chem 36:1695-6 Jl '64
New method for the automatic detection of zones eluted from the liquid chromatogram. A. T. James and others. diag Chem & Ind p746-8 My 2 '64
Particle-to-column diameter ratio effect on band spreading. J. C. Sternberg and R. E. Poulson. bibliog Anal Chem 36:1492-502 Jl '64
Prediction of response factors for thermal conductivity detectors. B. D. Smith and W. W. Bowden. bibliog diag Anal Chem 36:82-6 Ja '64
Preliminary study of characteristics of photoionization detector for gas chromatography. J. F. Roesler. bibliog diags Anal Chem 36:1900-3 S '64
Principles of low pressure-drop packed columns. J. C. Sternberg and R. E. Poulson. bibliog diags Anal Chem 36:58-63 Ja '64
Process gas chromatographic distillation analyzer. J. A. Petrocelli and others. diags Anal Chem 36:1008-11 My '64
Programmed preparative-scale gas chromatograph. H. Boer. diags J Sci Instr 41:365-9 Je '64
Quantitative reproducibility of a programmed temperature gas chromatographic system with constant pressure drop using packed and Golay columns. L. S. Ettre and F. J. Kabot. bibliog Anal Chem 34:1431-4 O '62; Discussion. W. A. Wiseman. 36:421-2; Reply. 422-3 F '64
Recycling chromatograph. il Engineer 218:347 Ag 28 '64
Satisfactory gas-liquid chromatography column for the determination of epoxyoleic acid in seed oils. S. F. Herb and others. bibliog Am Oil Chem Soc J 41:222-4 Mr '64
Simple equipment for the preparation of chromatostrips and chromatoplates. M. J. D. van Dam and S. P. J. Maas. diags Chem & Ind p 1192 Je 27 '64
Simple variable-temperature sample inlet for Beckman GC-2 gas chromatograph. T. F. Kelley. Anal Chem 36:2374 N '64
Simplified design model for an ion exclusion column. H. A. Johnson and T. D. Wheelock. bibliog il diags Ind & Eng Chem Fundamentals 3:201-6 Ag '64
Simplified peak trapping technique for gas chromatography. F. L. Snelson. bibliog diag Chem & Ind p575-6 Ap 4 '64
Solid sample injector for gas liquid chromatography. R. R. Lowry. il diags Anal Chem 36:1407-8 Je '64
Two chromatography innovations. il Control Eng 11:96 Jl '64
Use of a Hersch cell as a detector in gas chromatography. T. R. Phillips and others. bibliog diags Anal Chem 36:450-2 Mr '64
Use of combination columns in gas liquid chromatography. G. P. Hildebrand and C. N. Reilley. bibliog diags Anal Chem 36:47-58 Ja '64

CHROMIC acid

Epoxidation of ethylenic linkages by chromic acid; oxidation of triphenyl(tolyl)ethylene by chromic oxide. G. E. M. Moussa. bibliog J Ap Chem 13:470-2 O '63
Formation of polynuclear species during the electroreduction of chromic acid. J. Levitan. bibliog Electrochem Soc J 111:286-9 Mr '64

CHROMITE

Chromite deposits of the Keonjhar district, Orissa, (India). O. P. Varma. bibliog il map plan diags Econ Geol 59:799-825 Ag '64
Chromite from Kondapalle, Kristna district, Andhra Pradesh, India. J. S. R. Krishna Rao. il Econ Geol 59:678-83 Je '64
Microstructure of chromite-periclase at 1650° to 2310° C. P. E. Scheerer and others. bibliog il Am Cer Soc J 47:297-305 Je '64
Zincian chromite from Outokumpu, Finland. T. P. Thayer and others. bibliog Am Mineralogist 49:1178-83 S '64

CHROMIUM

Chrome ore, 1963. J. M. Warde. Eng & Min J 165:143-4 F '64
Chromium-magnesia composites. G. C. Reed and W. L. Schalliol. il J Metals 16:175-9 F '64
Diffusion of chromium in nickel. S. P. Murarka and others. bibliog J Ap Phys 35:1339-41 Ap '64
Effect of chloride ions on the kinetics of the oxidation of chromium(II) by iron(III). G. Dulz and N. Sutin. bibliog Am Chem Soc J 86:829-32 Mr 5 '64
Effect of nitride-formers upon the ductile-brittle transition in chromium. F. Henderson and others. bibliog il Inst Metals J 92:111-17 '63-64
Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64
Growth of α-SiC single crystals from chromium solution. L. B. Griffiths and A. I. Mlavsky. bibliog il diags Electrochem Soc J 111:805-10 Jl '64
Influence of thermal and mechanical history on Young's modulus and damping anomalies near 40°C in chromium. M. J. Klein and others. bibliog J Ap Phys 35:1994-5 Je '64
Kinetics and mechanisms of reactions of chromium(VI) and iron(II) species in acidic solution. J. H. Espenson and E. L. King. bibliog Am Chem Soc J 85:3328-33 N 5 '63
Kinetics of the reduction of some cobalt(III) complexes by chromium(II), vanadium(II), and europium(II). J. P. Candlin and others. bibliog Am Chem Soc J 86:1019-22 Mr 20 '64
Ligand bridging in the oxidation of chromium(II) at mercury electrodes. J. G. Jones and F. C. Anson. bibliog Anal Chem 36:1137-8 My '64
Nature of chromium(VI) in acid solution and its relation to alcohol oxidation. D. G. Lee and R. Stewart. bibliog Am Chem Soc J 86:3051-6 Ag 5 '64
Ordering of Fe and Cr in chrysoberyl. R. Newnham and others. bibliog Am Mineralogist 49:427-30 Mr '64
Oxidation of vanadium(IV) by chromium(VI) in acidic solution. J. H. Espenson. Am Chem Soc J 86:1883-4 My 5 '64
Passivity of chromium and stainless steel in hydrofluoric acid. C. C. Seastrom. bibliog il Corrosion 20:179-83 Je '64
Preparation of semi-insulating gallium arsenide by chromium doping. G. R. Cronin and R. W. Haisty. bibliog Electrochem Soc J 111:874-7 Jl '64
Rates of adsorption and desorption of polystyrene on chrome surface. R. R. Stromberg and others. bibliog J Res Nat Bur Stand 68A:391-9 Jl '64
Solvation of chromium(III) ion in acidic water-methanol mixed solvents. J. C. Jayne and E. L. King. bibliog Am Chem Soc J 86:3989-94 O 5 '64
Spectrophotometric determination of chromium concentration in ruby. D. M. Dodd and others. bibliog diag J Ap Phys 35:1183-6 Ap '64

See also
Water supply—Chromium content

CHROMIUM—*Continued*

Analysis

Amperometric titration of chromium in mixtures of fluoride salts. R. F. Apple and H. E. Zittel. bibliog Anal Chem 36:983-5 My '64
Rapid chemical analysis of refractory chrome ores and chrome-bearing refractories. C. S. Richards and E. C. Boyman. bibliog Anal Chem 36:1790-3 Ag '64
Rapid neutron activation method for determining chromium in ruby maser and laser crystals. J. R. Weiner and others. bibliog il Electrochem Soc J 110:1160-2 N '63
Separation, identification, and spectra of the anionic chromium(III)-thiocyanate complexes. S. Kaufman and L. S. Keyes. Anal Chem 36:1777-8 Ag '64

Metallography

Fracture of chromium. A. Gilbert and others. bibliog il Inst Metals J 92:351-6 '63-64

CHROMIUM alloys
Appearance of columnar grains in a uranium-chromium alloy. A. Bar-Or and P. Wynblatt. bibliog il Inst Metals J 92:183-4 '63-64
Chromium-5 per cent magnesia for high temperature service. W. C. O'Neal. il Metal Prog 85:96-100 Mr '64
Dispersion strengthening of chromium; abstract. N. E. Ryan and C. S. Landau. Metal Prog 85:164+ My '64
Magnetic properties of Ni-Fe-Cr films. M. S. Cohen. J Ap Phys 35:834-5 pt 2 Mr '64
Oxidation of 80Ni-20Cr alloys in carbon monoxide at high temperature. K. Osthagen. bibliog Corrosion 20:252-5 Ag '64
Some metallurgical factors influencing the thermal-fatigue resistance of wrought nickel-chromium-base high-temperature alloys. A. W. Franklin and others. bibliog il diag Inst Metals J 92:313-22 '63-64
Welding of 60 chromium-40 nickel alloy to low carbon and stainless steels. H. J. Lander and others. bibliog il diags Welding J 43:sup 198-201 My '64
See also
Iron alloys—Chromium nickel alloys

CHROMIUM bromides
Preparation of $CrBr_3$ samples. J. F. Dillon, jr and M. Teague. il diag R Sci Instr 35:747-8 Je '64

CHROMIUM chlorides
Nuclear magnetic resonance studies in antiferromagnetic $CrCl_3$. A. Narath. J Ap Phys 35:838 pt 2 Mr '64

CHROMIUM compounds
Bonding in arene metal complexes clearer. L. F. Dahl and M. F. Bailey. Chem & Eng N 42:50+ S 21 '64
Determination of microfluoride content in presence of high chromium(VI) concentrations. V. L. Eggebraaten and J. L. Nugent. Anal Chem 36:1150-1 My '64
Quantitative determination of chromium(III) hexafluoroacetylacetonate by gas chromatography. W. D. Ross and G. Wheeler, jr. bibliog Anal Chem 36:266-8 F '64

CHROMIUM in the body
Chromium, lead, cadmium, nickel and titanium in mice; effect on mortality, tumors and tissue levels. H. A. Schroeder and others. bibliog J Nutrition 83:239-50 Jl '64

CHROMIUM molybdenum steel
Effects of neutron irradiation at 250°C on the tensile and impact properties of a one per cent Cr-0.5 per cent Mo pressure vessel steel. D. R. Harries and others. bibliog il diags Iron & Steel Inst J 202:445-53 My '64
Improved properties of extra high-purity steel at tensile strengths up to 150 tons/in^2. C. L. M. Cottrell and others. bibliog il Iron & Steel Inst J 201:1032-7 D '63
Is 9-Cr 1-Mo steel temper brittle? industrial experience of an isolated case. H. M. Wilten. bibliog il diag Hydrocarbon Process & Pet Refiner 43:115-18 Ja '64

CHROMIUM nickel manganese steel
Wrought austenitic stainless steels. Materials in Design Eng 60:115-26 O '64 (reprints 35c)

CHROMIUM nickel steel
Ausforming behaviour of En24, En30B, and an experimental three per cent Cr-Ni-Si steel. W. E. Duckworth and others. bibliog il Iron & Steel Inst J 202:135-42 F '64; Abstract. Metal Prog 86:164-6 Jl '64
Corrosion of steels and nickel alloys in superheated steam. W. E. Ruther and S. Greenberg. bibliog il diag Electrochem Soc J 111:1116-21 O '64
Effect of supplementary alloying elements on pitting corrosion susceptibility on 18Cr-14Ni stainless steel. N. D. Tomashov and others. bibliog il diag Corrosion 20:166-73 My '64
Electron microscope study of the precipitation of M_3Si and σ-phase formation in a 12 per cent Cr-4 per cent Ni steel. J. V. Hardy and G. T. Brown. il Iron & Steel Inst J 202:437-40 My '64
Intergranular brittleness of cast chromium-nickel steels. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 200:1060-7 D '62; Discussion. 202:225-35 Mr '64
Thermodynamics of the interaction of atmospheres with alloy steels. R. Littlewood. bibliog Iron & Steel Inst J 202:143-6 F '64
Total hemispherical emissivity of 20 per cent Cr:25 per cent Ni:Nb-stabilized steel. D. A. Howl and A. F. Davis. diags Iron & Steel Inst J 202:523-6 Je '64
Wrought austenitic stainless steels. Materials in Design Eng 60:115-26 O '64 (reprints 35c)

CHROMIUM nickel titanium steel
Effect of heat treatment, composition and microstructure on corrosion of 18Cr-8Ni-Ti stainless steels in acids. M. A. Streicher. bibliog il Corrosion 20:57-72 F '64

CHROMIUM oxides
Colorimetric analysis of chromic oxide used to study food utilization by phytophagous insects. A. J. McGinnis and R. Kasting. bibliog J Agri & Food Chem 12:259-62 My '64
Electrical conductivity of single-crystal Cr_2O_3. J. A. Crawford and R. W. Vest. bibliog J Ap Phys 35:2413-18 Ag '64
Modified ferromagnetic chromium dioxide. B. Kubota and others. bibliog il Am Cer Soc J 46:550-6 N '63
Production of high purity chromium oxide and recovery of chlorine from hydrogen chloride. R. L. Hamilton. bibliog flow diag Ind & Eng Chem Proc Design 3:188-90 Ap '64
System manganese oxide-Cr_2O_3 in air. D. H. Speidel and A. Muan. bibliog Am Cer Soc J 46:577-8 D '63

CHROMIUM plating
Advances in electroplating decorative, micro-cracked chromium. W. H. Safranek and H. R. Miller. bibliog il Plating 51:543-50 Je '64
Chrome plating hits deep spots; Duramir 200 bath. il Iron Age 193:101-2 Je 18 '64
Chromium plate with corrosion resistance. il Engineering 197:159 Ja 24 '64
Corrosion testing of decorative chromium plating by the Corrodkote procedure; ASTM standard. Plating 51:435-6 My '64
Effect of surface preparation on cracking and structure of chromium deposits. D. W. Hardesty. bibliog il diags Electrochem Soc J 111:912-19 Ag '64
Electrodeposited coatings of multi-layer nickel plus chromium on steel. Plating 51:324-5 Ap '64
Electrodeposition of chromium; influence of ultrasonic vibrations. L. Domnikov. bibliog Metal Finishing 61:55-8 D '63
Evaluation of the Adcock chemical and vacuum fusion methods for oxygen in electrodeposited chromium. A. Lench and others. bibliog Anal Chem 36:337-9 F '64
How chrome plate performs outdoors. G. F. Bush. il Materials in Design Eng 58:100-1 D '63
Increased throwing-covering power offered by chromium plates. Mach 71:147 S '64
New systems available for chrome platers. il Chem & Eng N 42:40 Je 29 '64
Paint adhesion over chromium electroplate. B. K. Dent. il Plating 50:1100-3 D '63
Plastic balls cut chrome-plating costs. Engineering 197:223 F 7 '64
Plastics in electro plating; economies effected by a blanket of floating polypropylene spheres. il Automobile Eng 54:407 S '64
Plated plastics invade the metal parts market. il Chem Eng 71:106+ Je 8 '64
Platers put dirt to work. C. L. Kobrin. il Iron Age 193:77-9 F 13 '64
Science for electroplaters; black chromium. L. Serota. Metal Finishing 62:81-3 O '64
Science for electroplaters: chromium. L. Serota. il diags Metal Finishing 62:73-4+ Ag; 79-81 S '64
Science for electroplaters; chromium deposition. L. Serota. diags Metal Finishing 62:68-71 F; 76-9 Mr '64

CHROMIUM plating—*Continued*

Science for electroplaters; chromium; fluoride-fluosilicate baths. L. Serota. il Metal Finishing 62:94-5 Je; 65-8+ Jl '64

Science for electroplaters; chromium-hardness. L. Serota. il Metal Finishing 61:71-4+ D '63; 62:60-1 Ja '64

Science for electroplaters; chromium-inclusions. L. Serota. il Metal Finishing 61:90+ O; 83-6+ N '63

Science for electroplaters; chromium-ion exchange. L. Serota. diags Metal Finishing 62:72-5 Ap '64

Science for electroplaters; chromium; rinse waste. L. Serota. flow diags diags Metal Finishing 62:103-6 My '64

Self-regulating chromium baths; Russian tetrachromate electrolyte. L. Domnikov. bibliog il Metal Finishing 61:65-8+ N '63

Specifications

Tentative specification for electrodeposited coatings of multi-layer nickel plus chromium on zinc and zinc-base alloys. Plating 51:44-5 Ja '64

Testing

Investigations into the corrosion resistance of decorative nickel and chromium electrodeposits; abstract. J. K. Dennis and T. E. Such. Metal Prog 85:177-8 F '64

CHROMIUM steel

Embrittlement in an ausformed 12 per cent chromium steel. G. T. Brown and others. bibliog il Iron & Steel Inst J 202:660-5 Ag '64

Slag-metal equilibrium during stainless steel melting. C. W. McCoy and F. C. Langenberg. bibliog diag J Metals 16:421-4 My '64

Which free-machining chromium stainless steel? W. C. Clarke. Am Mach 108:47-50 Ag 3 '64

See also

Chromium nickel steel

CHROMIUM sulfates

Reduction of multiple bonds by low-valent transition metal ions; the homogeneous reduction of acetylenes by chromous sulfate. C. E. Castro and R. D. Stephens. bibliog Am Chem Soc J 86:4358-63 O 20 '64

CHROMIZING

Chromium impregnated steel; a new muffler material. B. Trock and G. W. Myrick. il Metal Prog 85:115-17 Ap '64

How diffused chromium boosts permeability. Iron Age 193:71 My 28 '64

Inland Steel test marketing new alphatized steel. Steel 154:51 My 4 '64

New coating system protects columbium at high temperature. diag Steel 154:128 Mr 16 '64

Relay reliability is increased by chromium diffusion coating. E. Krieger. Electro-Tech 74:110 O '64

Versatile chromium diffusion process. A. L. Baldi. il Metal Prog 85:109-14 Ap '64

CHROMOGENS

Sensitive new methods for autocatalytic spectrophotometric determination of nitrite through free-radical chromogens. E. Sawicki and others. bibliog Anal Chem 35:2183-91 D '63

CHROMOPHORES

Intramolecular interactions between non-bonded chromophores; the spectra of some phenylsilanes and siloxanes. J. F. Brown, jr. and P. I. Prescott. bibliog Am Chem Soc J 86:1402-9 Ap 5 '64

Streptolydigin; chromophore and structure. K. L. Rinehart, jr. and others. bibliog Am Chem Soc J 85:4038-9 D 20 '63

CHROMOSOMES

Chromosome puffs. W. Beermann and U. Clever. il diags Sci Am 210:50-8 Ap '64

Mosaic females. Sci Am 209:70+ N '63

CHROMYL acetates

Oxidation of aromatic aldehydes by chromyl acetate. K. B. Wiberg and P. A. Lepse. bibliog Am Chem Soc J 86:2612-19 Jl 5 '64

CHRONIC diseases. See Diseases, Chronic

CHRONOMETERS

Digital technique for rapid measurement of time lags. D. F. Binns and others. bibliog diags R Sci Instr 35:365-7 Mr '64

CHRONOPOTENTIOMETRY. See Voltammetry

CHRYSOBERYL

Flux growth of chrysoberyl and alexandrite. E. F. Farrell and J. H. Fang. il Am Cer Soc J 47:274-6 Je '64

Magnetic properties of chromium chrysoberyl. R. P. Santoro and R. E. Newnham. bibliog diag Am Cer Soc J 47:491-2 O '64

Ordering of Fe and Cr in chrysoberyl. R. Newnham and others. bibliog Am Mineralogist 49:427-30 Mr '64

CHRYSOTILE

Concentration and study of the interstitial material in chrysotile asbestos. E. Martinez and J. J. Comer. bibliog il Am Mineralogist 49:153-7 Ja '64

Effect of sodium silicate on the filtration rate of asbestos fiber. E. Martinez. Can Min & Met Bul 57:1042-4 O '64

CHUCKING machines

Setup times on chuckers cut 90 per cent with quick-change turret plates. J. Peterson. il diags Am Mach 108:94-5 Mr 16 '64

CHUCKS

Collet chuck. il Engineer 216:823 N 15 '63

Diemaking with an oval chuck. M. J. Goldstein. il diags Am Mach/Metalworking Manuf 108:94-5 Je 22 '64

Lever operated collet chuck. il Engineer 218:460 S 18 '64

Parallel grip collet chuck. il Engineering 198:391 S 25 '64

CHURCH architecture

Cathedral's hyperboloid steeple; caps canted concrete columns. il Eng N 172:89 F 13 '64

Church of the Autostrada. J. M. Fitch. il plan Arch Forum 121:100-9 Jl '64

Episcopal church by Belluschi. il plan diag Arch Rec 135:145-8 Mr '64

National program honors ten churches with design awards. il diag Arch Rec 135:12-13 Je '64

New work, a new style; California, mighty piers. il plan Arch Forum 121:152-3 Ag-S '64

New work, a new style; Connecticut prayer tent. il plans Arch Forum 121:126-9 Ag-S '64

Precast and site cast concrete used in combination. il Engineering 197:621 My 1 '64

Precast TTs form pyramidal roof. il Eng N 172:33 My 28 '64

Religious architecture since World war II. il Prog Arch 45:50-1 Ja '64

Religious buildings. il plans diag Prog Arch 44:128-55 N '63

Saarinen's church; North Christian church, Columbus, Ind. il plans diags Arch Rec 136:185-90 S '64

St Sophia's structure; a new assessment of the half-domes. R. L. Van Nice. il plan diags Arch Forum 121:45-9 Ag-S '64

Strength or banality; church design. il plans diags Arch Forum 119:68-83 D '63

See also

Cathedrals

Chapels

Sunday school buildings

Synagogs

CHURCHES

Church split unifies congregation. il Eng N 173:34-5 Ag 13 '64

Jack poles lift concrete roof. il Eng N 173:41 Ag 27 '64

See also

Cathedrals

Church architecture

Air conditioning

Design church cooling system to satisfy varying occupancy. il Heating-Piping 36:232-3 Jl '64

Heating and ventilation

Choose warm air to heat church. J. R. Rush. il plan diag Heating-Piping 36:130-1 Ag '64

Congregation listens to anvil chorus from heating system instead of sermon; what to do? question and answer. il diags Dom Eng 203:90-2 F '64

Fan assisted convectors for church heating. il Engineering 197:325 F 28 '64

Lighting

Indirect technique in a church; St Rita of Cascia church. V. L. Goodman. il diag Illum Eng 58:650-3 N '63

Lighting and control for a community church. W. K. Grommes. il plan Illum Eng 59:504-5 Jl '64

Quartz units light church interior. il Elec Constr & Maint 62:77 D '63

Search for architectural principles; University Reformed church, Ann Arbor, Mich. il diags Prog Arch 45:186-91 S '64

Simplicity and economy; two solutions for church interiors. il Illum Eng 59:436-9 Je '64

Solution for an oval church. il Illum Eng 59: sup 14A Jl '64

CHUTES
See also
Ore chutes

CHYMOTRYPSIN
Active center histidine peptide of α-chymotrypsin. E. B. Ong and others. bibliog Am Chem Soc J 86:1271-2 Mr 20 '64
Acylation of α-chymotrypsin by N-acetyl-L-tryptophan. F. J. Kézdy and M. L. Bender. bibliog Am Chem Soc J 86:938-40 Mr 5 '64
Anatomy of an enzymatic catalysis; α-chymotrypsin. M. L. Bender and others. bibliog Am Chem Soc J 86:3714-21 S 20 '64
Correlation of the pH (pD) dependence and the stepwise mechanism of α-chymotrypsin-catalyzed reactions. M. L. Bender and others. bibliog Am Chem Soc J 86:3680-90 S 20 '64
Current status of the α-chymotrypsin mechanism. M. L. Bender and F. J. Kézdy. bibliog Am Chem Soc J 86:3704-14 S 20 '64
Hydrolysis of D(-)-ethyl β-phenyl-β-hydroxypropionate and D(-)-ethyl β-phenyl-β-acetamidopropionate by α-chymotrypsin. S. G. Cohen and S. Y. Weinstein. bibliog Am Chem Soc J 86:725-8 F 20 '64
Kinetic consequences of the acyl-enzyme mechanism for the reactions of specific substrates with chymotrypsin. B. Zerner and M. L. Bender. bibliog Am Chem Soc J 86:3669-74 S 20 '64
Kinetic evidence for the formation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolyses of specific substrates. B. Zerner and others. bibliog Am Chem Soc J 86:3674-9 S 20 '64
Kinetic study of the imidazole groups of chymotrypsinogen, chymotrypsin and some derivatives, using the temperature-jump method. A. Yapel and R. Lumry. Am Chem Soc J 86:4499-500 O 20 '64
Kinetics of α-chymotrypsin reactions in the presence of added nucleophiles. M. L. Bender and others. bibliog Am Chem Soc J 86:3697-703 S 20 '64
Kinetics of hydrolysis of diethyl glutarate and β-substituted diethyl glutarates by α-chymotrypsin. S. G. Cohen and J. Crossley. bibliog Am Chem Soc J 86:1217-20 Mr 20 '64
Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolysis of specific ester substrates at low pH. F. J. Kézdy and M. L. Bender. Am Chem Soc J 86:937-8 Mr 5 '64
Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed reactions of N-acetyl-L-tryptophan derivatives at low pH. F. J. Kézdy and others. bibliog Am Chem Soc J 86:3690-6 S 20 '64
Synthesis of an octapeptide corresponding to a sequence around the reactive serine of chymotrypsin. H. T. Cheung and others. bibliog Am Chem Soc J 86:4200-2 O 5 '64

CHYMOTRYPSINOGEN
Thermodynamics of protein denaturation: a model of reversible denaturation and interpretations regarding the stability of chymotrypsinogen. J. F. Brandts. bibliog diags Am Chem Soc J 86:4302-14 O 20 '64
Thermodynamics of protein denaturation; the denaturation of chymotrypsinogen. J. F. Brandts. bibliog Am Chem Soc J 86:4291-301 O 20 '64

CICERO, Illinois

Sewerage

Tunnel beneath Cicero. P. Meyer. il diag Comp Air Mag 69:8-9 Ag '64

CIGARET lighters
Unique handling devices serve cigarette lighter assembly machine. B. Green. il diags Automation 10:75-7 D '63

CIGARETS
See also
Smoking

Manufacture

Electronics watch cigarette filling. P. J. Robins. il diag Ind Electronics 2:135-7 Mr '64

CIGARS
Making cigars; Continental cigar co. R. L. Moxey. il diag Comp Air Mag 69:6-11 S '64

CILIATA
See also
Paramecium

CINNABAR
Solubility of cinnabar in Na_2S solutions at 50-250°C and 1-1,800 bars, with geologic applications. F. W. Dickson. bibliog diag Econ Geol 59:625-35 Je '64

CINNAMIC acid
Direct oxidation of *cis*-cinnamic acids to coumarins. J. Russell and others. Chem & Ind p34 Ja 4 '64
ρ-ρ relation and the reaction of *trans*-cinnamic acids with diphenyldiazomethane the basis of the Hammett equation. J. D. S. Ritter and S. I. Miller. bibliog Am Chem Soc J 86:1507-12 Ap 20 '64

CINNAMOYL compounds
Synthesis of the four mono-*O*-cinnamoylquinic acids. K. R. Hanson. bibliog Chem & Ind p 1691-2 O 19 '63

CINNOLINE
Structure of 1-phenyl-4-cinnolone. E. Lunt and T. L. Threlfall. bibliog Chem & Ind p 1805-6 O 24 '64

CIRCLES
Generalized circle diagrams and their application to protective gear. P. Mathews and B. D. Nellist. bibliog diags IEEE Trans Power Apparatus & Systems p 165-73 F '64

CIRCUIT breakers, Electric. See Electric circuit breakers

CITIES and towns
Architecture as total community; underlying dynamics of social-physical development. A. Mayer and C. Stein. Arch Rec 135:141-6 Je; 136:157-62 Jl '64
Build a roof over cities and save fuel. Eng N 172:20-1 F 6 '64
Cumbernauld; a citadel of many levels for both men and machines. il plans Arch Forum 121:206-7 Ag-S '64
Megacity; can tomorrow's architecture create a workable city of man? il diag Arch Forum 121:208-9 Ag-S '64
New approach to new-town planning. il map plans diags Arch Forum 121:194-9 Ag-S '64
See also
Metropolitan districts

Growth

Future of cities and urban areas. H. M. Mayer. Traffic Q 18:371-82 Jl '64

CITRAL

Analysis

Citral determination using thin-layer chromatography. N. G. M. Nadal and others. bibliog diags Am Perfumer 79:43-5 Ap '64

CITRATES
Phosphate rock solubilization by repeated extractions with citrate solutions. W. M. Hoffman and H. J. Breen. J Agri & Food Chem 12:344-6 Jl '64
Pitting and uniform corrosion of aluminum by *p*H 3.5 citrate buffer solution. E. L. Koehler and S. Evans. bibliog diags Electrochem Soc J 111:17-21 Ja '64
Stearyl monoglyceridyl citrate as an emulsifier enhancer. J. J. Geminder. Am Oil Chem Soc J 41:92-4 F '64

CITRIC acid
Hypothesis for the change in potential of iron on uncoupling from tin in citric acid solution. W. R. Buck, 3d and others. il Electrochem Soc J 111:386-92 Ap '64

Analysis

Spectrophotometric determination of alpha-hydroxy carboxylic acids; application to citric acid. R. M. Matulis and J. C. Guyon. bibliog Anal Chem 36:118-20 Ja '64

CITRONELLA oil
Acetylation of citronella oil. V. D. Johnston. Am Perfumer 79:63-4 Je '64

CITRUS fruit
See also
Oranges

CITRUS fruit industry
Activated sludge treatment of citrus waste. M. H. Dougherty. bibliog il diag WPCF J 36:72-9 Ja '64

CITRUS oils

Analysis

Instrumentation; its place in the citrus oil industry. J. A. Rogers, jr. diags Am Perfumer 78:17-23 N '63

CITY halls. See Municipal buildings

CITY improvement. See Municipal improvement

CITY planning
Another major project for Boston. il plan Prog Arch 45:62-4 F '64
Architecture as total community; the challenge ahead; new towns and fresh in-city communities. A. Mayer. il maps plans Arch Rec 136:129-38 Ag '64

CITY planning—*Continued*

Boston renewal stresses quality and rehabilitation. il map Eng N 172:28-9+ F 20 '64
Cities; the new scale. il plans Arch Forum 121:171-209 Ag-S '64
Computer aids in urban transportation planning. I. E. Granville. il Pub Works 95:128-9 O '64
Downtown's dramatic comeback. D. B. Carlson. il plans Arch Forum 120:98-103 F '64
Evaluating urban transportation systems. G. Haikalis and E. W. Campbell. plans Am Soc C E Proc 89 [CP 1 no 3626]:1-15 S '63; Discussion. J. Horowitz. diag 90 [UP 1 no 4034]:35-7 S '64
Five challenges to our cities. P. M. Klutznick. Arch Forum 120:106-8 My '64
Future of urban environment. il plans diags Prog Arch 45:162-222 O '64
Group proposes south Manhattan master plan. Prog Arch 45:74+ F '64
House numbers for urban and fringe areas. J. H. Vogel. plans Pub Works 94:121-3 D '63
Interdisciplinary education for urban planning. H. L. Michael. Am Soc C E Proc 90 [PP 1 no 3751]:29-33 Ja '64; Discussion. J. M. Abernathey. 90 [PP 2 no 3910]:67-8 My '64
Master plan proposed for Pennsylvania Avenue. il plan Prog Arch 45:68-9 Jl '64
Motor road: forerunner of the universal city. C. T. Larson. maps Traffic Q 18:459-90 O '64
New ways to see land use and transportation. J. D. Carroll, jr. Civil Eng 34:62-3 Ag '64
Paris plans its way out of a century of random urban sprawl. A. Erikson. il map Eng N 173:40-2+ O 22 '64
Pennsylvania Avenue. il plans Arch Forum 121:65-75 Jl '64
Plan prescribes a grand national axis for redevelopment of Pennsylvania Avenue. il plans Arch Rec 136:23+ Jl '64
Planners define their future problems. Arch Forum 119:10 D '63
Planning for parking in urban renewal projects. I. Candeub. 4pls Traffic Q 18:17-29 Ja '64
Planning, transportation, and the small city. R. A. Gakenheimer. Traffic Q 18:282-95 Ap '64
Reconstruction was only the start for wartorn Düsseldorf. B. Bendow. il Eng N 172: 78-80+ Ap 2 '64
Rensselaer polytechnic institute students design integrated urban core. il plan Prog Arch 45:77 Ap '64
Reston, an answer to suburban sprawl; urban living in the country. il maps plans diags Arch Rec 136:119-34 Jl '64
Suburban town centers. M. L. Hancock and W. O. Billing. pl Traffic Q 18:233-49 Ap '64
Suburbanites cast their votes for city planning; survey by New York's regional plan assn. Arch Forum 119:84-5 D '63
Theory of optimization and its impact on urban development. R. T. Howe. Traffic Q 18:554-60 O '64
Town planning in the age of the car. J. A. Proudlove. il plans diags Engineering 198: 311-13 S 4 '64
Transportation and urban development. W. R. McGrath. Traffic Q 18:491-501 O '64
Urban change and planning. A. T. Row, jr. and H. S. Levinson. Traffic Q 18:5-16 Ja '64
Urban planning and public works. S. N. Grimm. Pub Works 95:104-5 Ap '64
Urban planning definitions; report of the committee on terminology used in the practice of city planning. Am Soc C E Proc 90 [UP 1 no 4033]:15-19 S '64

See also
Business districts
Industrial districts
Metropolitan districts
Parks
Regional planning
Slums
Streets
Suburban development

CIVIC centers. See Municipal centers

CIVIL defense

Mathematical model for strategic movement. S. D. Stearns. diags Op Res 12:237-54 Mr '64; Discussion. W. I. Zangwill. 12:634-6 Jl '64
Role of the civil engineer in civil defense. N. FitzSimons. il Civil Eng 34:58-9 Mr '64

See also
Atomic bomb shelters

CIVIL engineering

ASCE environmental engineering conference, Salt Lake City, May 11-15; with abstracts of papers. Civil Eng 34:42-8 Je '64
Blasting design criteria. M. Gates. Civil Eng 34:54-5 Ja '64
Buildings dominate nominations for civil engineering achievement for 1964. il Civil Eng 34:40-1 F '64
Challenge to civil engineering. H. Brooks. Am Soc C E Proc 90 [PP 1 no 3750]:21-8 Ja '64; Discussion. J. M. Abernathey. 90 [PP 2 no 3910]:65-6 My '64
Civil engineering education. W. H. Wisely. Civil Eng 34:37 O '64
Civil engineering function in urban renewal. R. E. Barkley. Traffic Q 18:349-70 Jl '64
Civil engineering models exhibited. Engineer 217:1137 Je 26 '64
Civil engineers build for the Fair. W. Whipple, jr. il plan Civil Eng 34:50-3 Je '64
Competence is what counts most; president's inaugural address. W. G. Bowman. Civil Eng 33:35-6 N '63
Educational requirements for water resource engineers. A. R. Golzé. Am Soc C E Proc 90 [PP 2 no 3890]:7-13 My '64
Geological engineering. R. F. Goodman. bibliog il Min Eng 16:78-80 F '64
Glen Canyon dam is no. one; Dulles airport honored, in Civil engineering achievement awards. il Eng N 172:21 F 20 '64
Los Angeles section, ASCE has golden anniversary. il Civil Eng 34:85+ Ag '64
Man-machine communications in civil engineering. C. L. Miller. bibliog il diags Am Soc C E Proc 89 [ST 4 no 3594]:5-29 Ag '63; Discussion. G. Bugliarello. 90 [ST 1 no 3812]:253-5 F '64
New dimensions for civil engineering. W. G. Bowman. Civil Eng 34:39-41 Je '64
1964 prospects for all engineerings: civil engineering and building industries. il Engineering 197:97-100 Ja 17 '64
Outstanding civil engineering achievement of the year; Glen Canyon dam project. il Am Concrete Inst J 61:sup23 Ap '64
Pre-design estimates in civil engineering projects. W. R. Park. Am Soc C E Proc 89 [CO 2 no 3627]:11-22 S '63; Discussion. M. Gates. 90 [CO 1 no 3851]:73-4 Mr '64
Professional development; symposium. Civil Eng 34:54-7 Ap '64
Professional practice of surveying and mapping within civil engineering. Civil Eng 33:56-8 N '63
Profile of a successful career. W. H. Wisely. Civil Eng 34:47-9 My '64
Review of civil engineering activity during 1963 and a preview for the coming year. il Civil Eng 33:32-9 D '63
Scope of civil engineering. C. L. Miller. Civil Eng 34:73-4 Ag '64
Tabular summary of British civil engineering contracts, 1964. Engineer 216:supp 1-131 D 27 '63
What's where in the Pacific Northwest. il map Civil Eng 34:44-6 Ag '64

See also
Airports
American society of civil engineers
Arches
Blasting
Breakwaters
Bridges
Building
Cofferdams
County engineering
Dams
Docks
Drainage
Dredging
Drilling and boring (earth and rocks)
Dry docks
Embankments
Excavation
Flood control
Foundations
Highway engineering
Irrigation
Marine engineering
Masonry
Mechanical engineering
Mining engineering
Piers
Piles and pile driving
Pipe laying
Railroad engineering
Retaining walls
Roads
Sanitary engineering
Sewerage

CIVIL engineering—See also—*Continued*

Soil mechanics
Strains and stresses
Surveying
Tunnels and tunneling
Underground construction
Water supply engineering

Bibliography

Bibliography on the use of digital computers in structural engineering; progress report. Am Soc C E Proc 89 [ST 6 no 3740]:461-91 bibliog(p467-87) D '63

Recent books added to the Engineering societies library. Published in monthly numbers of Civil engineering

Study and teaching

Analysis of construction education survey; progress report. Am Soc C E Proc 89 [CO 1 no 3456]:73-7 Mr '63; Discussion. 89 [CO 2 no 3653]:141-7 S '63; 90 [CO 1 no 3851]:67-9 Mr '64; Reply. 90 [CO 2 no 4051]:55-7 S '64

Civil engineering education in the university. A. M. Neville. bibliog Eng J 47:29-31; Discussion. 36+ Ja '64

Civil engineering education; what educators and employers think. C. A. Moore. Civil Eng 33:64-6 D '63

Civil engineering professor quits teaching after 27 years, protests trend. Eng N 173:14-15 Jl 30 '64

Civil engineers need advanced training. Engineering 197:467 Ap 3 '64

Education and training of public works personnel. E. J. Cleary. Pub Works 95:68+ Mr '64

How to spark civil engineering; new enthusiasm at M.I.T. C. L. Miller. Eng N 172:54-6 F 13 '64

Model balsa-wood bridges in education. B. C. Ringo. il Civil Eng 34:48-9 F '64

Role of surveying in civil engineering education. M. O. Schmidt. Am Soc C E Proc 89 [SU 1 no 3420]:27-33 F '63; Discussion. 89 [SU 2 no 3563:95-6 Je; [SU 3 no 3684]:185-9 O '63; Reply. 90 [SU 1 no 3885]:65-6 Ap '64

Training for civil engineer managers; abstract. A. J. Hill. Engineering 197:372 Mr 13 '64

Trends in water resources education. C. E. Kindsvater. Am Soc C E Proc 90 [PP 2 no 3889]:1-6 My '64

See also
Structural engineering—Study and teaching

Tables, calculations, etc.

Adjusted traverse lengths and bearings by graphics. D. E. Edge. diag Civil Eng 34:63 Ap '64

Exam gems. R. Strashn. Published in monthly numbers of Civil engineering

Orthonormal equations for surveying adjustment. H. L. Su. bibliog diag Am Soc C E Proc 89 [SU 1 no 3438]:77-90 F '63; Discussion. 89 [SU 3 no 3648]:201-12 O '63; Reply. 90 [SU 2 no 3978]:171-3 Jl '64

CIVIL engineers

Can the civil engineer be a manager? H. L. Payne. Civil Eng 34:51-2 Jl '64

Civil engineers are too specialized. W. L. Chadwick. Eng N 173:37-9 O 29 '64

Civil engineers in government service. E. E. Halmos, jr. Civil Eng 33:53-5 D '63

Civil engineers need advanced training. Engineering 197:467 Ap 3 '64

Continuing education; a professional imperative. R. M. Green. Am Soc C E Proc 89 [PP 1 no 3403]:93-8 Ja '63; Discussion. 90 [PP 1 no 3776]:57-61 Ja '64; Reply. [PP 2 no 3910]:63 My '64

Forefront of civil engineers of tomorrow. S. T. Li. Am Soc C E Proc 89 [PP 1 no 3397]:23-30 Ja '63; Discussion. 90 [PP 1 no 3776]:47-51; Reply. 51-5 Ja '64

Looking ahead. A. J. S. Pippard. Engineer 217:549-50 Mr 27 '64

Resident engineer responsibility. I. Kett. Civil Eng 34:56-7 Ja '64

Role of the civil engineer in civil defense. N. FitzSimons. il diags Civil Eng 34:58-9 Mr '64

See also
American society of civil engineers

Public relations

ASCE activity in public affairs. Civil Eng 34:35-7 Ag '64

Salaries

ASCE survey shows increased salaries for civil engineers. Civil Eng 34:68-70 Ap '64

1963 ASCE salary survey; report of the committee on employment conditions. map Am Soc C E Proc 90 [PP 2 no 3897]:31-60 My '64

CIVIL engineers, American society of. See American society of civil engineers

CIVIL war. See United States—History—Civil war

CIVILIZATION

God's own junkyard; review. P. Blake. il Arch Forum 120:94-7 Ja '64

Where are we? 1964 Jackling lecture. A. A. Brant. bibliog Min Eng 16:51-7 Ap '64

CIVILIZATION and science. See Science and civilization

CLAD metals. See Metals, Clad

CLADOCERA

Function of cladocera in oxidation ponds; abstract. C. L. Loedolff. WPCF J 36:286 Mr '64

CLAIMS

See also
Damages

CLAISEN rearrangement. See Molecular rearrangements

CLAMPS

Floating clamps solve holding problem. il diags Tool & Manuf Eng 52:116-17 Ap '64

Hydraulic clamping on car engine assembly. il Engineering 197:331 F 28 '64

IPC line-type specimen clamp. W. A. Wink and others. il Tappi 47:13-15 Ja '64

Tips on toggle-action clamps. C. Emerson. il Am Mach 108:102-4 Mr 16 '64

Tool clamping for a horizontal boring machine spindle. C. A. Sparkes. il diags Engineer 218:182-4 Jl 31 '64

CLAMS

Clam pests in Tennessee water supplies. R. M. Sinclair. bibliog il diags Am Water Works Assn J 56:592-9 My '64

Preservation of fresh unfrozen fishery products by low-level radiation; effects of radiation pasteurization on amino acids and vitamins in clams. R. O. Brooke and others. bibliog Food Tech 18:1060-4 Jl '64

Preservation of fresh unfrozen fishery products by low-level radiation; organoleptic studies on radiation-pasteurized soft-shell clam meats. T. J. Connors and M. A. Steinberg. Food Tech 18:1057-60 Jl '64

CLARK equipment company

Saga of Clark Equipment. J. Geschelin. il Automotive Ind 130:88-93+ Ap 15 '64

CLASSIFICATION

Automatic document classification. H. Borko and M. Bernick. bibliog Assn for Computing Mach J 10:151-62; 11:138-51 Ap '63, Ap '64

Classifying 250,000 drawings by the Brisch system. W. J. Hallett. diags Machine Design 36:140-4 F 13 '64

Effect of misclassification on estimated relative prevalence of a characteristic. A. Keys and J. K. Kihlberg. diag Am J Pub Health 53:1656-65 O '63

See also
Files and filing (documents, etc.)

CLASSIFIERS

Classifier becomes commercial unit; Dorr-Oliver's SiphonSizer. diag Chem & Eng N 41:54-5 N 18 '63

Gravity-feed classifying system pulls sand costs down; Brown County stone co. R. J. Mitchell. il diags Rock Prod 66:54-5+ D '63

See also
Air separators
Centrifuges

CLASSROOMS

Lighting a high-ceiling classroom; installation at school no. 2, Ridgefield, N. J.; lighting data sheet. F. Thurkauf, jr. il Illum Eng 58:685-6 N '63

CLAUSTHALITE

Binary system PbS-PbSe. D. R. Simpson. bibliog Econ Geol 59:150-3 Ja '64

CLAY

Celandonite; synthesis, thermal stability and occurrence. W. S. Wise and H. P. Eugster. il diags Am Mineralogist 49:1031-83 bibliog (p 1080-3) Jl '64

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

Clay mineralogy; symposium abstracts. Am Cer Soc Bul 43:341+ Ap '64

Complexes of Ca-montmorillonite with primary monohydric alcohols (clay-organic studies). G. W. Brindley and S. Ray. bibliog Am Mineralogist 49:106-15 Ja '64

CLAY—*Continued*

Compressibility of clay. G. A. Leonards and A. G. Altschaeffl. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4049]:133-55 S '64

Consolidation of nonhomogeneous clay layers. R. L. Schiffman and R. E. Gibson. bibliog diags Am Soc C E Proc 90 [SM 5 no 4043]: 1-30 S '64

Development of clay mineral zones during deltaic migration. G. M. Griffin and B. S. Parrott. maps diags Am Assn Pet Geologists Bul 48:57-69 Ja '64

Electric analogs in time-settlement problems. P. Domenico and G. Clark. bibliog diags Am Soc C E Proc 90 [SM 3 no 3892]:33-51 My '64

Flexibility of clay and cracking of earth dams. G. A. Leonards and J. Narain. il diags Am Soc C E Proc 89 [SM 2 no 3460]: 47-98 bibliog(p96-7) Mr '63; Discussion. 89 [SM 6 no 3701]:109-22 N '63; Reply. 90 [SM 4 no 3979]:135-7 Jl '64

Flow of clay-water suspensions. C. D. D. Howard. Am Soc C E Proc 89 [HY 5 no 3641]:89-97 S '63; Discussion. 90 [HY 1 no 3783]:367-9 Ja; [HY 2 no 3853]:393-6 Mr '64; Reply. 90 [HY 4 no 3980]:269-74 Jl '64

Gas-producing agents in the production of lightweight aggregates. S. K. Chopra and others. bibliog J Ap Chem 14:181-5 My '64

How clay and water affect dry strength. R. C. Yearley and J. D. Hedberg. Foundry 92:76-9 Je; 60-2 Jl '64

Improvement of iron bleaching in clays through potentiometric control of sodium dithionite addition. R. F. Conley and others. bibliog Ind & Eng Chem Proc Design 3:183-8 Ap '64

Influence of chemical composition of water on clay blocking of permeability. F. O. Jones, jr. bibliog diags J Pet Tech 16:Trans 441-6 Ap '64

Internal mutual flocculation in clay suspensions. H. van Olphen. bibliog J Colloid Sci 19:313-22 Ap '64

Interpretation of the consolidation test. C. B. Crawford. bibliog Am Soc C E Proc 90 [SM 5 no 4056]:87-102 S '64

Origin of Pennsylvanian underclays in the Illinois Basin. N. R. O'Brien. bibliog diags Geol Soc Bul 75:823-32 S '64

Plastic limit as a binary packing phenomenon. G. E. H. Ballard. bibliog diag Materials Res & Stand 4:366-74 Jl '64

Pore pressures and bearing capacity of layered clays. T. C. Kenney. bibliog diags Am Soc C E Proc 90 [SM 4 no 3960]:27-55 Jl '64

Push-button system for hard-to-handle clay. il Mod Materials Handling 19:84 N '64

Quick clay. P. F. Kerr. il maps diags Sci Am 209:132-8+ N '63

Rotational diffusion of some polydisperse clay mineral sols. W. T. Granquist and C. A. Hollingsworth. bibliog J Colloid Sci 18: 538-54 Ag '63

Stress-strain modulus of clay in undrained shear. C. C. Ladd. diags Am Soc C E Proc 90 [SM 5 no 4039]:103-32 bibliog(p 128-30) S '64

Subsurface stabilization of organic silty clay by precompression. E. Jonas. il Am Soc C E Proc 90 [SM 5 no 4031]:363-76 S '64

See also
Bentonite
Illite
Kaolin
Kaolinite
Laterite
Montmorillonite
Slips (ceramics)

Analysis

Studies on fire clays of Bansi, Southwestern Mirzapur, Uttar Pradesh. K. Mohan and D. Prakash. bibliog Econ Geol 59:1140-52 S '64

Expansion and contraction

Expansion of a cavity in a saturated clay medium. B. Ladanyi. bibliog diags Am Soc C E Proc 89 [SM 4 no 3577]:127-61 Jl '63; 90 [SM 4 no 3979]:181-2 Jl '64

Influence of clay and water on expansion defects. B. C. Yearley. il diags Foundry 92:73-7 N '64 (to be cont)

Installing building sewers in unstable soils. H. N. Eaton. bibliog diags Water & Sewage Works 111:140-3 Mr '64

Moisture content

Humidity drying of plastic clay. B. W. Lancaster and E. R. McCartney. bibliog il diags Am Cer Soc J 47:291-6 Je '64

Testing

Shear strength of a soil after freezing and thawing. B. B. Broms and L. Y. C. Yao. bibliog diag Am Soc C E Proc 90 [SM 4 no 3958]:1-25 Jl '64

Shear strength of an anisotropically consolidated clay. B. B. Broms and M. V. Ratnam. bibliog diags Am Soc C E Proc 89 [SM 6 no 3691]:1-26 N '63; Discussion. T. S. Nagaraj. 90 [SM 4 no 3979]:193-4 Ja '64

India

Studies on fire clays of Bansi, Southwestern Mirzapur, Uttar Pradesh. K. Mohan and D. Prakash. bibliog Econ Geol 59:1140-52 S '64

CLAY industries
See also
Pottery

CLAY products

Danish lightweight aggregate sweeps Europe. R. Ironman. il diag Rock Prod 67:82+ O '64

SCR veri-lite promises clay product advances. il Am Cer Soc Bul 43:408-9 My '64

See also
Bricks
Pottery
Tiles

CLAY products plants

Equipment

Automating ceramic wall tile production. F. S. Carpenter. il diags Automation 11:50-4 Jl '64

Triple-threat loader keeps plant working. il Mod Materials Handling 18:64 N '63

CLEAN rooms (factories). See Factories—Cleanliness

CLEANING

Colour fastness to dry-cleaning. W. K. Rhodes. bibliog 2pls Soc Dyers & Col J 80:20-33 Ja '64

Look at dry cleaning. Am Dyestuff Rep 53: 625 Jl 20 '64

New dry cleaning solvent system under field test. il Chem & Eng N 41:57 N 25 '63

New National institute of drycleaning guide is aimed at clarifying performance terms. Am Dyestuff Rep 53:790 Ag 31 '64

See also
Boiler cleaning
Car cleaning
Cleaning machinery
Cotton cleaning
Dyes and dyeing
Laundry
Metal cleaning
Sewer cleaning
Shot blasting
Tunnel cleaning
also subdivision Cleaning under special subjects, e.g.
Castings
Food factories
Lubrication and lubricants (cutting and grinding)
Machinery
Motor trucks
Moving picture films
Paper making machinery
Pipes
Road making machinery
Road signs
Sewage tanks
Spinning machinery
Street lighting fixtures

CLEANING compositions

ACS symposium on new processes in synthetic detergents, Chicago, Aug. 31. Soap & Chem Spec 40:63-6 S '64

Carbide announces biodegradable nonionics. il Soap & Chem Spec 40:180+ F '64

Changing scene in the detergent industry. E. Jungermann. Am Oil Chem Soc J 40:sup6+ N '63

Consumer looks at detergents. B. Strawn. il Soap & Chem Spec 40:56-8+ Je '64

Degradable detergents prove out. Eng N 172: 157+ Mr 19 '64

Detergent cleaning best for thin film removal, tests show; abstract. G. B. Vos. il S A E J 71:91-2 D '63

Detergent sulfonation with SO_3. W. Carasik and J. R. Hughey. il diags Soap & Chem Spec 40:49-52 Je '64

Detergents and surface active agents. L. Raphael. bibliog diags Manuf Chem 32: 270-2, 554-7; 33:114-16, 323-6 Je, D '61, Mr, Ag '62; 35:59-60+ Mr, 57-9 O '64

CLEANING compositions—*Continued*

Electrophoretic properties in aqueous detergent systems. M. E. Ginn and others. bibliog il Am Oil Chem Soc J 41:112-16 F '64

Hydrotropes; solubilising agents for detergent powders; manufacture of sodium p-toluene sulphonate. M. A. Phillips. bibliog diags Manuf Chem 34:575-7 D '63

Industrial developments in the detergent field. H. Stupel. Chem & Ind p470-2 Mr 21 '64

International congress on surface active substances, 4th, Brussels, Sept. 7-12; with abstracts of papers. Soap & Chem Spec 40:67-71+ O '64

Keeping up with sanitation product developments. il Safety Maint 128:52-6 Jl '64

Lectures of the 1963 short course on advances in soaps and detergents. bibliog flow diag il diags Am Oil Chem Soc J 40:609-98 N '63

Lestoil flask promotion under way. il Soap & Chem Spec 40:113 Jl '64

Liquid detergents in plastic containers. E. D. Wilcox, jr. Soap & Chem Spec 39:84-7 D '63

New detergents for coin-ops. il Soap & Chem Spec 40:71-2 S '64

New hookup for commercial hot water-detergent mixture. il diag Dom Eng 202:158-61 N '63

New insight into technology-market interplay. il Chem Eng 71:28+ Ag 31 '64

New nonionic detergents derived from epoxidized oils. K. L. Johnson. bibliog il Am Oil Chem Soc J 41:191-8 Mr '64

1963 review/64 preview; chemical specialties. Can Chem Process 48:56 Ja '64

Oakite foamizer. il Comp Air Mag 69:28 Ap '64

Oil chemists view detergents; American oil chemists' society 55th annual meeting; abstracts of papers. Soap & Chem Spec 40:75-7+ My '64

Performance of LAS syndets. C. J. Stanberry, jr. and others. Soap & Chem Spec 40:43-6 Jl '64

Petrochemical projects; new detergents boost construction. R. B. Bizal. il Oil & Gas J 61:59-60+ D 23 '63

Secondary alcohol ethoxylates as degradable detergent materials. R. C. Myerly and others. bibliog Soap & Chem Spec 40:78-80+ My '64

Sodium dialkyl phosphates: surfactant properties and use in heavy duty detergents. R. S. Cooper and A. D. Urfer. Am Oil Chem Soc J 41:337-40 My '64

Soft detergent intermediates. il Chem Eng 71:54+ Mr 2 '64

Soil removal as a rate process. L. Loeb and others. bibliog Am Oil Chem Soc J 41:120-4 F '64

Spray method cuts cleaning costs 80 per cent. L. Nielson. il Plant Eng 18:133-4 F '64

Stainless steel piping distributes detergent for hospital sanitation. E. A. Kaplun. diags Heating-Piping 36:122-3 Jl '64

Structure of thin detergent films; abstract and discussion. J. M. Corkill. Chem & Ind p58-9 Ja 11 '64

Studies in detergency correlation. A. M. Mankowich. bibliog Am Oil Chem Soc J 41:47-50 Ja '64

Synthetic detergents based on LAS. D. J. Foster and R. R. Fields. Soap & Chem Spec 40:49-52 Ag '64

Three approaches to chemical cleaning. diags Oil & Gas J 61:136-8 D 2 '63

Union Carbide to make soft nonionics. Chem & Eng N 42:28-9 F 3 '64

What biodegradable detergents are. R. C. Myerly. Textile World 114:101 Je '64

See also

Hand cleaners
Metal cleaning
Sewage disposal—Cleaning compositions effect
Shampoos
Silver polish
Solvents
Water supply—Cleaning compositions content

Analysis

Analysis of detergent mixtures containing amine oxides. H. Y. Lew. bibliog Am Oil Chem Soc J 41:297-300 Ap '64

Analytical separation of surface active agents. E. W. Blank and R. M. Kelley. bibliog Am Oil Chem Soc J 41:137-9 F '64

Package approach to purchasing an analytical tool for detergents. il Soap & Chem Spec 40:62-3 Ap '64

Rapid, accurate test for surfactant aerobic biodegradability. W. A. Sweeney and J. K. Foote. il diag WPCF J 36:14-37 bibliog(p27-8) Ja '64

Bibliography

Report of the literature review committee; annual review of the literature on fats, oils, and detergents. V. Mahadevan. Am Oil Chem Soc J 41:559-84, 623-48 Ag-S '64

Laws and regulations

Soapers testify on Muskie bill. Soap & Chem Spec 40:51-2 Ja '64

Manufacture

Alkyl aryl sulfonates; Continental oil co. diag Hydrocarbon Process & Pet Refiner 42:142 N '63

Battle is shaping up in liquid syndets. diags Can Chem Process 48:71-2+ Je '64

California Standard building plant for soft-detergent raw materials. Oil & Gas J 62:114-15 F 17 '64

Containers boost plant capacity. il Mod Materials Handling 18:71 D '63

Continuous sulphur trioxide sulphonation plant for detergents. flow diag il Ind Chem 40:197-8 Ap '64

Detergent makers switch to linear alkylated sulfonates. P. J. Weaver. bibliog Hydrocarbon Process & Pet Refiner 43:101-3 Mr '64

Detergents via new SO_3 process. diag Soap & Chem Spec 40:189 O '64

Esso takes some wraps off new detergent process. flowsheet Chem Eng 71:100 O 12 '64

Evaluation and formulation of detergent tablets. E. Jungermann and others. Am Oil Chem Soc J 40:699-702 N '63

Extract *n*-paraffins for new biodegradable detergents. K. A. Scott. bibliog Hydrocarbon Process & Pet Refiner 43:97-100 Mr '64

How to make biodegradable detergents. L. F. Hatch. bibliog diags Hydrocarbon Process & Pet Refiner 43:91-6 Mr '64

Impact of technology on surface active agents market. H. E. Bramston-Cook. diags Soap & Chem Spec 40:67-70+ S '64

Kerylbenzene (Rheinpreussen AG); Lurgi corp. diag Hydrocarbon Process & Pet Refiner 42:190 N '63

Package detergent plant. il Soap & Chem Spec 40:70-1 My '64

Selected process flow sheets for petrochemicals; detergent alkylate. Oil & Gas J 62:113 S 7 '64

Soft-detergent know-how gets crated for overseas. il Chem Eng 71:90 Je 8 '64

Tableting of detergents. J. P. Mallee. Am Oil Chem Soc J 40:621-4 N '63

Third-generation detergents coming? Oil & Gas J 62:60 My 25 '64

Specifications

ASTM committee D-12 on soaps and other detergents meeting, New York, March 9-10. Soap & Chem Spec 40:53-6 Ap '64

Testing

Biodegradation of nonionics. F. A. Blankenship and V. M. Piccolini. bibliog Soap & Chem Spec 39:75-8+ D '63

Caking test for dried detergents. H. Watanabe and W. L. Groves. il Am Oil Chem Soc J 41:311-15 Ap '64

Chemical cleaning of utility boilers. H. A. Klein and K. L. Atwood. bibliog il diags Combustion 36:20-9 S '64

Correlation of detergency with physiochemical factors. A. M. Mankowich. bibliog Am Oil Chem Soc J 40:674-9 N '63

Destruction of linear alkylate sulfonates in biological waste treatment by field test. C. E. Renn and others. il diag WPCF J 36:864-79 Jl '64

Detergent effects of ultrasonics. O. E. Ford. bibliog Am Oil Chem Soc J 41:543-5 Ag '64

Dynamic foam test. W. G. Spangler. bibliog il Am Oil Chem Soc J 41:300-6 Ap '64

Effectiveness of detergent solutions. L. K. Bradacs and W. Schetelig. Am Oil Chem Soc J 41:161-7 Mr '64

Evaluation and formulation of detergent tablets. E. Jungermann and others. Am Oil Chem Soc J 40:699-702 N '63

Evaluation of household detergents. Manuf Chem 35:65-6 Je '64

Experiments in the formulation of heavy duty liquid detergents from tallow. R. G. Bistline, jr. and A. J. Stirton. bibliog Am Oil Chem Soc J 41:654-6 O 64

CLEANING compositions—Testing—*Continued*
Measuring biodegradability. Soap & Chem Spec 40:84 O '64
Miniature plant assists biodegradability studies. il Chem Eng 71:76 O 26 '64
New accelerated test for rapid measurement of detergent biodegradability. D. O. Hitzman. Am Oil Chem Soc J 41:593-5 S '64
New physical evaluation techniques. M. E. Ginn. bibliog il diags Am Oil Chem Soc J 40:662-9 N '63
Soap and syndet foam evaluation. A. Shansky. bibliog diags Soap & Chem Spec 40:57-61 Ap '64
Soap plant observer; biodegradability tests. W. J. Beach. il diag Soap & Chem Spec 39:255-6+ D '63
Soil redeposition. H. B. Trost. bibliog Am Oil Chem Soc J 40:669-74 N '63
Surfactant test developed. N. T. Crabb and H. E. Persinger. Chem & Eng N 42:62-3 Ap 27 '64
Test compares detergent degradabilities. S. A. Klein and P. H. McGauhey. Chem & Eng N 42:44 Jl 27 '64

CLEANING machinery
Machine cleans rough concrete slab. il Engineering 198:121 Jl 24 '64
Underground vacuum cleaning plant for collieries. il Engineer 218:288 Ag 21 '64
Water cleans better than sand. il Eng N 171:48 N 28 '63
See also
Washing machines (for metal parts)

CLEANLINESS
See also
Factories—Cleanliness

CLEVELAND

Architecture

Offset plan produces six corners; Winton Place, Lakewood, Ohio. il plan Arch Rec 136:120-1 Ag '64

Streets

Pre-planning helped set big girders across track jungle. il plans Roads & Sts 107:52-5+ Je '64

CLEVITE corporation
Clevite story. J. Geschelin. il Automotive Ind 130:40-4+ Je 1 '64

CLIFTON, Roland Leroy
Memorial. J. L. Muir. por Am Assn Pet Geologists Bul 48:1597-600 S '64
Memorial; with bibliography of his publications. J. L. Muir. por Geol Soc Bul 75: sup29-33 F '64

CLIMATOLOGY
Radio climatology. bibliog J Res Nat Bur Stand 68D:553-4 My '64
Tell-tale dust. P. B. Sears. Am Scientist 52: 1-15 Mr '64
See also
Paleoclimatology
Rain and rainfall

CLINICAL chemistry. See Chemistry, Medical and pharmaceutical

CLINICAL nutrition, American Society for. See American society for clinical nutrition

CLINICS
Follow-up study of children seen in the diagnostic centers for handicapped children. J. R. Stifler and others. Am J Pub Health 53:1743-50 N '63
New clinic design for mental health needs beyond the metropolis. P. A. Kirkpatrick. Am J Pub Health 54:239-43 F '64
Rates of attendance and reasons for nonattendance at a clinic of handicapping conditions. W. P. Richardson and others. Am J Pub Health 54:1177-83 Ag '64
Six clinics. il plans Arch Forum 120:90-7 F '64
Two-level clinic for community service; Fairmont clinic, West Virginia. il plans Arch Rec 135:204-5 Ap '64

CLINICS, Dental. See Dental clinics

CLINKERS, Cement. See Cement clinkers

CLINOPTILOLITE. See Zeolites

CLOCKS
Check clock frequencies remotely. L. A. Watson. il diags Elec World 161:98 Je 1 '64
See also
Tower clocks

Atomic clocks

American work on atomic time scale. il Engineering 198:460 O 9 '64
Atomic frequency and time interval standards. R. C. Mockler. J Res Nat Bur Stand 68D:523-7 bibliog(p525-7) My '64
Second defined in terms of energy transition. il diag Chem & Eng N 42:142-4 O 26 '64

CLOCKS, Electric
Amateur scientists; a tuning fork with electric drive can make an inexpensive and highly accurate clock. C. L. Stong. diags Sci Am 210:136-7+ Ap '64
Slim clocks. il Plastics World 22:21 Jl '64
Time systems. J. P. Goode. il diags Instruments & Control Systems 37:104-6 O '64

CLOCKS, Electronic
Electronic timepiece has no moving parts. il Product Eng 35:76 Je 22 '64
Nonlinear effects of noise in electronic clocks. P. Grivet and A. Blaquiere. bibliog diags IEEE Proc 51:1606-14 N '63
Transistorized time. il diags Product Eng 35:58 Ag 17 '64

CLOSE-up photography. See Photography, Close-up

CLOSED circuit television. See Television—Closed circuit

CLOSTRIDIUM
Incidence and effects of the anaerobic bacteria, clostridium, in paper mill systems. L. L. Wolfson and R. J. Michalski. il Tappi 47:197-9 Ap '64

CLOSURES (containers)
Closure materials. il Drug & Cosmetic Ind 95:520-2+ O '64
Coming up, multi-million lb. market; polyethylene reclosure lids. il Mod Plastics 41:93 D '63
Designing closures for a dual purpose. il diags Mod Plastics 42:116-19+ S '64
It's a snap with PE cap; self-tightening closure. il diag Mod Plastics 41:97 Ap '64

CLOTH. See Textile fabrics

CLOTHES dryers
Ideal home exhibition in London were the new Parnall spinwasher de luxe and the Thermair heated spin dryer. il Engineering 197:496 Ap 3 '64

Painting and finishing

Finishing Whirlpool clothes dryers. W. D. Kennedy. il Ind Finishing 40:62-6+ F '64

CLOTHING, Protective
Air-conditioned clothing cools workers in hot areas. il Oil & Gas J 62:95 Je 15 '64
Asbestos gets tough; new safety garments for molten metal handlers. il Safety Maint 128:25-6 N '64
Better garments for hazardous work or play. R. W. Moncrieff. il Textile Ind 128: 131-2+ Je '64
Bonding vinyl-foam protective padding. il Plastics World 22:48-9 Ap '64
Chemical clothing check list. Safety Maint 128:15-17 S '64
Clothing for radiation protection. T. J. Seery. Mod Textiles Mag 45:42 F '64
Compressed air in a nuclear laundry. F. Kutnewsky. il Comp Air Mag 68:24 D '63
Development in the ventilation of protective clothing. Engineering 196:703 N 29 '63
Fire-resistant clothing; no inventory problem. il Safety Maint 128:8-9 Ag '64
Heat protective clothing. B. Metz. Ind Med 33:140-1 Mr '64
Kaiser develops personal air coolers. il Rock Prod 67:63 O '64
Keeping up with protective clothing developments. il Safety Maint 128:24-8 O '64
Man cooling by a vortex tube device. W. F. Lienhard and others. bibliog il diag Archives Environmental Health 9:377-86 S '64
Polyvinyl chloride coated garments safeguard workers in spraying and dusting operations. il Safety Maint 127:13-14 F '64
Protective clothes; PVC coated rayon safeguards men who spray and dust insecticides. il Plastics World 21:56 N '63
Protective patches prevent knee injuries. T. N. Karlen. il Safety Maint 127:12-14+ Mr '64
Suit with coolth. il Safety Maint 128:24 N '64
Vortex tube cools protective clothing. il Product Eng 34:27-8 D 23 '63
Worker wears own air conditioner. il Iron Age 193:143 Mr 12 '64
See also
Gloves, Safety
Shoes, Safety

Testing

Behavior of liquids on various cords for seams in chemical and biological protective overgarments. P. P. Hall. bibliog diags Textile Res J 34:617-27 Jl '64

CLOTHING and dress

Children

Wearing qualities of selected New Mexico wools. J. S. Lee and others. bibliog il diags Textile Res J 31:540-50; 33:855-63; 34:124-43 Je '61, O '63, F '64

CLOTHING trade

Millions and millions of garments for millions and millions of people; Colonial corp. of America. T. Henke. il Mod Textiles Mag 45:20-2+ Jl '64

CLOUD chambers

Three-dimensional track simulator. M. B. M'Clements Lambie. diag J Sci Instr 41:643-4 O '64

See also

Bubble chambers

CLOUD points

Automatic determination of cloud points of nonionic surfactants. H. Baum and others. il Materials Res & Stand 4:26-8 Ja '64

CLOUD seeding. See Rain making

CLOUDS

Angels, insects, and weather. A. H. LaGrone and others. bibliog il J Res Nat Bur Stand 68D:895-901 Ag '64

Instability of three-row vortex streets. C. Tung. AIAA J 2:1143-4 Je '64

Noctilucent clouds. Phys Today 17:62 Ag '64

Radar meteorology and cloud physics. bibliog J Res Nat Bur Stand 68D:555-7 My '64

CLUBHOUSES

Restaurant on the beach at Waikiki. il Arch Rec 136:214-15 S '64

CLUTCHES

Air permits design of compact high speed clutch. K. Schubert. il diags Hydraulics & Pneumatics 17:94 Jl '64

Clutch/converter/transmission combination offers many advantages. diags Diesel Equip Supt 42:32-3 Ja '64

Clutch cuts motor size for powered conveyor. il Mod Materials Handling 19:60 Mr '64

Clutches for big boom. il diags Product Eng 35:62-3 Jl 20 '64

Design formulas for floating-shoe brakes and clutches. M. F. Spotts. diags Product Eng 35:84-6 S 28 '64

Expansion and cone clutches; with nomographs. W. Griffel. Product Eng 34:95-7 D 23 '63

Fluidrive Synchro-Self-Shifting clutch. il diags Engineering 196:498-500 O 18 '63

Ins and outs of centrifugal clutches. J. G. Bussell and J. R. Kirkhoff. il diags Mill & Factory 74:76-9 Ap '64

New design formulas for long-shoe centrifugal clutches. M. F. Spotts. diags Product Eng 35:89-93 F 17 '64

Slip clutch suitable for tape drives. J. G. Smith. diags Mach 71:157 O '64

Sprag type clutch automatically engages front wheels when rear wheels slip on 2½-ton truck. C. J. Kelly. il diags Automotive Ind 130:105+ Ap 15 '64

See also

Automobiles—Clutches

CLUTCHES, Magnetic

Applying electromagnetic clutch drives for positioning applications. B. King. il diags Automation 11:56-8 Mr '64

COACERVATION

Coacervating soap-electrolyte solutions. I. Cohen and A. Libackyj. bibliog J Colloid Sci 19:650-70 Ag '64

Preparation and properties of fractions from high density polyethylenes. G. R. Williamson and others. bibliog J Ap Chem 14:131-40 Mr '64

COACHELLA VALLEY

Wind-driven sand in Coachella Valley, Calif. R. P. Sharp. bibliog map diags Geol Soc Bul 75:785-803, pl 1-2 S '64

COAGULATION

Coagulation of aerosols. S. E. Devir (Weinstock). bibliog diags J Colloid Sci 18:744-56 O '63

Coagulation of colloidal gold. B. V. Enüstün and J. Turkevich. bibliog il Am Chem Soc J 85:3317-28 N 5 '63

Coagulation of hydrosols by Brownian motion and laminar shear flow. D. L. Swift and S. K. Friedlander. bibliog J Colloid Sci 19:621-47 S '64

Coagulation symposium. bibliog diag J Colloid Sci 19:291-398 Ap '64

Separation of oil from oil/water dispersions by coagulation; abstract and discussion. F. H. H. Valentin and R. Farley. Chem & Ind p 1976-7 D 21 '63

See also

Sewage disposal—Coagulation

Water purification—Coagulation

COAL

Australian coal-fired gas turbine. il diag Engineer 217:282 F 7 '64

Coal girds for new expansion. E. J. Sandy. Min Eng 16:86 F '64

Destruction of caking properties of coal by pretreatment in fluidized bed. A. J. Forney and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:48-53 Mr '64

Destruction of the caking quality of bituminous coal in a fixed bed. S. J. Gasior and others. bibliog il diags Ind & Eng Chem Product Res & Develop 3:43-7 Mr '64

Lignite, coal make synthesis gas. Oil & Gas J 61:101 O 21 '63

What hydrogen from coal costs. S. Katell and J. H. Faber. Hydrocarbon Process & Pet Refiner 43:143-6 Mr '64

See also

Boilers—Firing

Coal preparation

Coal trade

Coke

Lignite

Analysis

Studies on coal macerals. M. M. Roy. bibliog Econ Geol 58:347-52 My '63; Discussion. B. Mukherjee. 58:1347-8 D '63

Blending

Coal loading facility features selective blending. il Automation 11:40-2 Ja '64

Grindability tests; short cut to blending coals for strong coke. J. W. Leonard. Min Eng 16:45-7+ Mr '64

How to blend washed coals automatically. il diags Coal Age 69:106 Ja '64

Chemistry

Effect of dehydrogenation on the pyrolysis of two coals. P. H. Dicker and others. bibliog J Ap Chem 13:455-63 O '63

Effect of dehydrogenation on the structure of two coals. P. H. Dicker and others. bibliog J Ap Chem 13:444-54 O '63

Percentage oxygen in coal; nomograph. D. S. Davis. Ind Chem 40:86 F '64

Freezing

Radiant thawers minimize cost-hazards in unit trainloads. il Elec World 162:84-5 O 5 '64

Wabamun coal handling facilities. Z. Kolisnyk. il diag Eng J 46:46-50 O '63

Moisture content

Continuous monitoring of coal possible. R. F. Stewart and others. il Chem & Eng N 42:151-2 S 7 '64

New instrument successfully records coal moisture at Jamison preparation plant, Salina, Pa. il diag Coal Age 69:94-6 Je '64

Prices

Lower fuel prices seen by NPS group. map Elec World 161:19-20 Ap 13 '64

Nuclear estimates set ceiling for coal. A. F. Tegen. Elec World 162:22 Jl 20 '64

Prospecting

Better drill logging by gamma rays and resistivity; Peabody coal co. B. J. Archer, jr. and M. Warrick. Coal Age 69:79-81 S '64

Standards

Progress report on international standardization relating to coal and coke. R. L. Coryell and W. H. Ode. il Min Cong J 49:49-51 D '63

Sulfur content

Controls solids in coal fumes. Chem & Eng N 42:60 My 4 '64

Testing

Determination of self-heating rates of coal. J. F. Cudmore. diags Chem & Ind p 1720-1 O 10 '64

Initiation of cracks in coal specimens by blunted wedges. J. A. Dalziel and E. Davies. bibliog diags Engineer 217:217-20 Ja 31 '64

Strength and the stress-strain characteristics of coal in triaxial compression. D. W. Hobbs. bibliog diag J Geol 72:214-31, pl 1 Mr '64

Transportation

Barge owners see bright future in coal transport to utility power plants. il Elec World 162:20-2 Ag 17 '64

Coal speeds from mine to mill. il Coal Age 69:26 Mr '64

COAL—Transportation—*Continued*
Energy transportation conference, 1st, St Louis. Power Eng 67:44-5 D '63
Energy transportation conference, 1st, St Louis, Nov. 10-12; abstracts of papers. Elec World 160:99-106 D 2 '63; Coal Age 68:122-6 D '63
How Tunnelton designed for unit-train shipment. il Coal Age 69:78-83+ Ap '64
Mammoth four-wheel rear-dump truck. il Coal Age 68:140 D '63
Power system eases unit-train movement. il Coal Age 69:26 O '64
Rail logistics favor big trains. J. Tierney. il Elec World 160:86-9 N 4 '63
Unit train coal delivery; Commonwealth Edison co., Joliet station. H. M. Jensen. il map diags Combustion 36:23-8 Jl '64
Unit train; planning, operating, financing. R. D. Snouffer and V. D. Hanson. il diags Coal Age 69:54-61 Mr '64
Utility buys own coal train. il Elec World 161:58 Je 29 '64
See also
Coal pipe lines

Weighing
See Coal weighing

COAL, Pulverized
Australian success with coal-fired gas turbine. il diag Combustion 35:45 Ap '64
Coal-fired gas turbine completes run with new blades. R. W. Cargill and others. il diag Power Eng 68:47-8 My '64
Coal-fired gas turbine makes its first 1500-hour trial run. il Power Eng 67:48 N '63
Coal-resid mix proposed as feedstock. Oil & Gas J 62:59 Mr 23 '64
Feeding coal to a gas turbine (cont). D. C. Strimbeck and others. bibliog il diags Combustion 35:41-4 Ja '64
Fluidized coal bed temperature control. diags Engineering 197:489 Ap 3 '64
Low-volatile coal fines as a filler-extender. W. J. Mueller and others. Rubber Age 95:407-12 Je '64
See also
Boilers—Pulverized coal firing

Preparation
Coal pelletizing studies for the vertical shaft carbonization process. W. J. Riva and others. bibliog Can Min & Met Bul 57:52-6 Ja '64
Coal saved, pollution controlled by Guyan one fine-coal plant. flow sheet il Coal Age 69: 87-8 Mr '64
Cyclones with plain water for fine-coal cleaning. W. L. Chen. bibliog diags Coal Age 69:90-2 Ag '64
Reclaiming fine coal from settling ponds. F. X. Ferney. il diags Min Cong J 50:48-50 Ap '64
Review of coal preparation advances abroad. W. L. Crentz and A. W. Deurbrouck. il diags Min Cong J 49:88-92+ O '63
Today's plant meets tomorrow's needs; Cadogan plant of the Allegheny River mining co. flow diag il plan Coal Age 68:74-9 D '63
Total cleaning yields premium product at Island Creek's Algoma plant. il diag Coal Age 68:96-9 N '63
Use of cyclones in modern coal preparation plants. G. L. Reynolds. flow diags Min Cong J 50:85-9 Je '64

COAL association, National. See National coal association

COAL breakers
Impeller bars for the rotor of an impact breaker. P. Stephenson. il diags Engineer 217:524-5 Mr 20 '64

COAL bunkers
Automatic control of mineral bunkers. G. Cooper. il diags Ind Electronics 2:460-5 O '64
Bunker fires can be prevented with this CO₂ inerting system. H. M. Rayner. diag Power Eng 68:49-51 My '64

COAL cars
$1 million of unit-train cars ordered by Pennsylvania Power & Light. Elec World 160:73 O 21 '63
Rail logistics favor big trains. J. Tierney. il Elec World 160:86-9 N 4 '63
Railroad builds 100-ton, unit-train coal car. il Elec World 160:31 N 11 '63
Stockpile designs for unit train loadings. C. E. Packard. il plans diags Min Eng 16:62-6 Ag '64

COAL cars, Steel
N&W road tests 150-ton coal hopper car. il Coal Age 69:26 Ja '64

COAL cleaning
See also
Coal, Pulverized—Preparation
Coal preparation
Coal washing

COAL cutters
Initiation of cracks in coal specimens by blunted wedges. J. A. Dalziel and E. Davies. bibliog diags Engineer 217:217-20 Ja 31 '64
New heat treating line for coal mining equipment. C. P. Little and P. A. Williams. il Metal Prog 86:88-90 S '64
Powerful cutter digs deep in high seams. il Coal Age 68:118 N '63

COAL distillation
Converting coal to more valuable fuels. S. B. Alpert and others. bibliog flow sheet il Chem Eng Prog 60:35-40 Je '64

COAL docks
New machine speeds barge unloading. il Min Cong J 50:84 Jl '64
Norfolk and Western railway's coal pier 6 at Norfolk, Va. il Min Cong J 49:30-1 N '63
World's largest coal pier; Lamberts Point, Norfolk, Va. il plan Mech Eng 86:42-3 Ja '64

COAL dust
Control of the coal dust explosion hazard in European mines. D. S. Kingery and D. W. Mitchell. diags Min Eng 16:117-117D Jl '64

COAL gasification. See Gas manufacture

COAL handling
All-electric-drive coal scraper. il Engineer 217:185 Ja 24 '64
Automated railroad car loading; Freeman coal mining corp. G. R. Swanson. il Min Cong J 50:27-9 Ja '64
Automatic control of mineral bunkers. G. Cooper. il diags Ind Electronics 2:460-5 O '64
Bag handling system saves $9,000 per year. il Mod Materials Handling 19:65 Mr '64
Barge unloading at Ferrybridge. il Engineering 198:139 Jl 31 '64
Bucket wheel automates Chalk Point coal handling. il Elec World 162:23-4 O 26 '64
Bucket wheel reclaimer. il Engineer 218:74-5 Jl 10 '64
Coal feeders for pulverising mills. il Engineer 217:187 Ja 24 '64
Coal loading facility features selective blending. il Automation 11:40-2 Ja '64
Coal tippler anti-breakage device. diags Engineering 197:489 Ap 3 '64
Coal trip automated; manpower cut. R. S. Pollock. il Elec World 162:22+ S 14 '64
Continuous barge-unloader. il Mech Eng 86:54-5 S '64
Continuous bucket unloader speeds up coal handling. il Power 108:71 Ag '64
Diesel electric coal scraper. il Engineering 197:169 Ja 24 '64
Elevator unloads ton of coal in seconds. il Elec World 162:68 Ag 24 '64
Faster coal moving gets bigger depot. il plan Engineering 196:824 D 27 '63
First large bucket wheel reclaimer in the UK. il Engineering 197:653 My 8 '64
New bucket wheel to stock Chalk Point coal. il Elec World 161:66 Je 1 '64
New for coal-handling; electronic fingers on the pulse. il diags Mod Materials Handling 18:46-7 N '63
Newest coal-handling facility can load 20,000 tons per hour, Norfolk and Western's coal pier 6. il Power Eng 67:52-3 D '63
Remote controls make possible high-speed bulk transfer from train to plant; illustrations with text. Mod Materials Handling 19:54-5 Mr '64
Stockpile designs for unit train loadings. C. E. Packard. il plans diags Min Eng 16: 62-6 Ag '64
Tippler for coal barges. il Engineer 218:28 Jl 3 '64
Wabamun coal handling facilities. Z. Kolisnyk. il diag Eng J 46:46-50 O '63
Wheel-type scrapers, loaders optimize stockpiling. il Elec World 161:109-10 Je 1 '64
See also
Coal docks

COAL liquefaction
Census of federal coal research given at SME fall meeting in Salt Lake City. Min Eng 15:51-5 N '63
Converting coal to more valuable fuels. S. B. Alpert and others. bibliog flow sheet il Chem Eng Prog 60:35-40 Je '64
Estimates on commercial corona processing of coal. S. J. Lawrence. il diags Chem Eng Prog 60:45-51 Je '64

COAL loading machines

Loaders and buckets spotlight earthmoving products array. il Coal Age 68:119 N '63

COAL miners

Foremen's forum. Published in monthly numbers of Coal age

Diseases and hygiene

Comparative pulmonary function studies; coal miner's silicosis vs nonsilicotic emphysema and fibrosis. H. L. Motley. bibliog Archives Environmental Health 8:850-65 Je '64

Cor pulmonale pathogenesis in coal workers in Wales. J. Gough. bibliog Archives Environmental Health 8:886-8 Je '64

Environmental exposure of British coal miners. J. W. J. Fay and J. R. Ashford. bibliog Archives Environmental Health 9:144-59 Ag '64

Mortality rates among coal miners. P. E. Enterline. bibliog Am J Pub Health 54:758-68 My '64

Training

Some fundamental aspects of the process of teaching others. Coal Age 69:104+ My '64

COAL mines and mining

AIME Society of mining engineers annual meeting, New York, Feb. 17-20; coal subjects. Coal Age 69:109-10 Mr '64

Coal Age mining guidebook. flow sheets il plans diags Coal Age 69:161-268 Jl '64

Illinois mining institute 71st annual meeting, Springfield, Oct. 18; with abstracts of papers. Coal Age 68:104-5 D '63

Indiana coal mining institute meeting, Evansville, Ind. April 4; abstracts of papers. Coal Age 69:94-5 My '64

Kentucky mining institute 24th annual meeting, Lexington, Oct. 25-26; with abstracts of papers. Coal Age 68:106-8+ D '63

New bituminous coal contract signed. Coal Age 69:26 My '64

1964 model mining number; Consol centennial issue. il maps plans diags Coal Age 69:81-224 O '64

Operating ideas. Published in monthly numbers of Coal age

Rocky Mountain coal mining institute, Estes Park, Colo. June 28-30; with abstracts of papers. Coal Age 69:105-7 Ag '64

Underground coal mining, 1963. N. T. Camicia. il Min Cong J 50:37-9+ F '64

West Virginia coal mining institute and AIME Central Appalachian section annual meeting, White Sulphur Springs, Nov. 8-9; with abstracts of papers. Coal Age 68:116-18 D '63

West Virginia coal mining institute spring meeting, Huntington, April 24-25; abstracts of papers. Coal Age 69:106-7+ Je '64

See also

American institute of mining, metallurgical and petroleum engineers—Society of mining engineers—Coal division

Coal breakers

Accidents and explosions

Coal-mine safety in 1963. Coal Age 69:85 F '64

Control of the coal dust explosion hazard in European mines. D. S. Kingery and D. W. Mitchell. diags Min Eng 16:117-117D Jl '64

Fire explosions and recovery; Federal no. 1 mine. il plan diags Coal Age 68:78-85+ N '63

See also

Coal mines and mining—Safety measures

Costs

Pins and loops read out miner deployment data. A. J. Spencer. diags Control Eng 11:123 My '64

Drainage

See Mine drainage

Electric equipment

Cable fixing in a 1,000 yard pit shaft. il Engineering 198:53 Jl 10 '64

Coal Age mining guidebook; efficient power designs. il diag Coal Age 69:251-8 Jl '64

DeKoven no. 6 first; 13.2 kv distribution in low coal; Pittsburgh & Midway coal co. il diags Coal Age 69:84-8 Je '64

Electricity in coal mines. C. D. Wilkinson. Engineer 216:764-6 N 8 '63

Hauling coal with battery powered tractors and trailers. R. B. Williamson. il diags Min Cong J 50:50-3 My '64

High-voltage termination kits for mine use. il Coal Age 69:238 O '64

Profitable battery-powered face haulage at Amigo smokeless coal co. il plan diag Coal Age 69:60-5 Je '64

Rectifiers; ignitron-to-silicon conversion. J. A. Viola. il diags Coal Age 69:88-90 Ja '64

Silicon diodes for frame grounding; U.S. Bureau of mines requirements. L. H. Harrison. Min Cong J 50:53-4 Mr '64

Switchgear, terminal blocks, contactors. il Coal Age 69:182+ Ap '64

See also

Coal mines and mining—Power

Electric locomotives, Mine

Equipment

Coal Age mining guidebook; buying directory. Coal Age 69:277-81+ Jl '64

Coal mining unearths new look. T. M. Rohan. il Iron Age 193:109-10 My 21 '64

Compressed air side dump loader in colliery. il Engineering 197:521 Ap 10 '64

Hydraulic equipment and fluids; principles, systems, functions, maintenance. il diags Coal Age 69:69-84 Ja '64

Modern equipment ups mining efficiency; Duquesne Light's Warwick no. 2 mine. il diags Coal Age 69:58-63 My '64

Modernization payoff; 100-ton boost in section output at Cadogan no. 2 mine, Allegheny River mining co. il diag Coal Age 68:70-3 D '63

New equipment news. Published in monthly numbers of Coal age

Underground vacuum cleaning plant for collieries. il Engineer 218:288 Ag 21 '64

See also

Coal loading machines

Coal mining machinery

Mine cars

Fires and fire protection

Extinguishing agents for fire-fighting today. il Coal Age 68:94-5+ D '63

Fire explosions and recovery; Federal no. 1 mine. il plan diags Coal Age 68:78-85+ N '63

Haulage

See Mine haulage

Law

See Mining law

Longwall system

Effect of longwall mining on mine safety. T. Pollard. il diags Min Cong J 50:36-41 Ag '64

Longwall mining; breakthrough in United States coal production technology. L. C. Campbell. il Min Cong J 50:85-7 Ag '64

Longwall progress at Eastern associated mines. D. B. Shupe. Coal Age 69:76-8 S '64

Recent advances in longwall mining. D. W. MacFadgen. Can Min & Met Bul 57:826-7 Ag '64

Remotely operated longwall face. Engineer 217:272-3 F 7 '64

Safety aspects of longwall powered support control systems. H. Aram and D. G. A. Thomas. il diags Min Cong J 50:51-5 Jl '64

Statistical evaluation of blasting tests in longwall slashing. G. Anders. Can Min & Met Bul 57:49-51 Ja '64

Utilization of self-advancing hydraulic support in longwall mining. R. K. Singhal. il diags Min Cong J 50:35-8 Ap '64

Management

Coal Age mining guidebook; management steps in improving safety. il plan diag Coal Age 69:265-8 Jl '64

Consol employee relations and community relations. il Coal Age 69:222-4 O '64

Industrial engineering in the mining industry. D. W. Glossbrenner. Min Cong J 50:90-5 Je '64

Methods

Advances in coal mining technology. E. B. Nelson. il Min Eng 16:87-8 F '64

Coal Age mining guidebook; deep mining guidebook. il plans diags Coal Age 69:164-201 Jl '64

Consol deep mining; recovery, methods, projections. il plans Coal Age 69:93-103 O '64

Continuous mining in thin seams; Imperial colliery co. C. L. Christian, jr. plans diags Min Cong J 50:30-3 Jl '64

Continuous mining with a Wilcox auger miner in low coal. J. C. Marsh. il plan Can Min & Met Bul 57:1033-7 O '64

COAL mines and mining—Methods—*Continued*
Conventional mining in low coal. G. W. Lockin. il plans Min Cong J 49:22-6 N '63
Deep mining, surface mining and coal preparation in 1963. il Coal Age 69:76-81 F '64
High tonnage and full-range power. il plan Coal Age 69:92-3+ F '64
How Scotia designs for long life. il plan diags Coal Age 69:58-68 Ag '64
Interesting new coal mining method. il Can Min & Met Bul 57:305 Mr '64
Modernization and expansion pay off for Kentland-Elkhorn. il diag Coal Age 69:58-67 S '64
Sizing and type of fuel produced by mechanical mining at the Four Star mine. J. C. Marsh. diag Can Min & Met Bul 57:829-33 Ag '64
Switching to continuous miners. il Coal Age 69:62-6 Mr '64
3-D mining at Petitto bros.; deep, surface, auger. il diag Coal Age 69:64-5+ My '64
See also
Coal mines and mining—Longwall system
Coal mines and mining—Stripping operations

Power

Coal Age mining guidebook; efficient power designs. il diag Coal Age 69:251-8 Jl '64
Consol power systems; deep and strip. il diags Coal Age 69:171-81 O '64
High tonnage and full-range power. il plan Coal Age 69:92-3+ F '64
How to apply and use cable fault locators. T. M. Urban and J. E. Johnson. il diags Coal Age 68:100-2+ N '63
Mining industry technical conference, Wheeling, W.Va. April 1; abstracts of papers. Coal Age 69:95-6 My '64

Rock dusting

Bulk rockdusting for efficiency and economy at SEGGO mine no. 1. il Coal Age 69:82-4+ S '64
Control of the coal dust explosion hazard in European mines. D. S. Kingery and D. W. Mitchell. diags Min Eng 16:117-117D Jl '64
Modern bulk rockdust handling. il Coal Age 69:106-8+ F '64

Safety measures

Accident prevention in underground coal mines. A. S. Leitch. Can Min & Met Bul 57:659-60 Je '64
Coal Age mining guidebook; management steps in improving safety. il plan diag Coal Age 69:265-8 Jl '64
Coal-mine safety in 1963. Coal Age 69:85 F '64
Consol safety; organization, program, results. il Coal Age 69:204-12 O '64
Effect of longwall mining on mine safety. T. Pollard. il diags Min Cong J 50:36-41 Ag '64
National safety congress coal mining section annual meeting, Chicago, Oct. 28-30; with abstracts of papers. Coal Age 68:112-14+ D '63
Role of public relations in coal-mine safety. Coal Age 69:172+ Ap '64
Roof supports; what remains to be done. P. Lingo. il Min Cong J 50:91-3 Ap '64
Safe practices with belt haulage. J. E. Breland. il Min Cong J 50:42-5 Ja '64
Safety aspects of longwall powered support control systems. H. Aram and D. G. A. Thomas. il diags Min Cong J 50:51-5 Jl '64
Safety in coal mining, 1963. G. C. Trevorrow. il Min Cong J 50:70-2 F '64
Sentinels of safety trophy presented to Karen mine employees. il Min Cong J 50:45 S '64
Storage life of self-rescuer cartridges. E. J. Kloos. il Min Cong J 49:97-9 O '63
See also
Coal mines and mining—Rock dusting
Safety lamps, Electric

Stores systems

Coal Age mining guidebook; modern purchasing and warehousing. il Coal Age 69:259-64 Jl '64
Consol supplies; purchasing and warehousing. il Coal Age 69:196-203 O '64

Stripping operations

Big dragline increases Ohio Edison's coal output. il Coal Age 68:106-8 N '63
Blackfoot no. 5 story; Enos coal mining co. flowsheet il Coal Age 69:74-81 Jl '64
Coal Age mining guidebook; efficient strip mining. il diags Coal Age 69:202-21 Jl '64
Coal stripping in Santa Catarina, Brazil. L. Stewart. il Min Cong J 50:22-4 Ja '64
Consol reclamation; trees, farms, recreation areas. il Coal Age 69:147-53 O '64
Consol strip mining; methods and equipment applications. il Coal Age 69:128-46 O '64
Deep mining, surface mining and coal preparation in 1963. il Coal Age 69:76-81 F '64
Dredging coal for Victoria power. il Min Eng 16:102-5 O '64
Epoxy joins welding in tough build-up job. il diag Welding Eng 49:45 Jl '64
Fast 40-yd walker ups Caney Creek productivity. il Coal Age 69:66-8 Je '64
Flexible mountaintop surface mining; Hardburly mine, Caperton coal co. il diags Coal Age 69:118-21 Ap '64
Horizontal drilling and shooting with large diameter holes; Stonefort coal mining co. C. E. Bratten. il Min Cong J 50:70-3 Je '64
Knife River doubles production. il Coal Age 69:68-71 S '64
Land conservation in Pennsylvania open pit mines. W. G. Jones. il Min Cong J 49:52-6 O '63
Large diameter drill holes in overburden blasting. W. G. Piper. il Min Cong J 49:33-5 N '63
Navajo mine; Utah construction & mining co. il maps plan diag Coal Age 68:56-64 N '63
Operation green earth; its importance to power field; strip-mined coal, producers reclaim land areas. il Power Eng 68:48-9 Jl '64
Predicting outslopes of spoil banks. R. F. May. diag Min Cong J 50:104-5 Ap '64
Reclamation program of Ohio power co. R. R. Krause. il Min Cong J 50:78-80 Ag '64
Second largest shovel ups tonnage and life at mine 19. il diags Coal Age 69:96-100+ F '64
Strip mine's daily operation relies on welding. G. Brinkman. il Welding Eng 49:88-9 N '64
Surface-mine reclamation; continuing research challenge. R. F. May. il Coal Age 69:98-9+ Mr '64
Surface mine reclamation; why and how. A. E. Lamm. il Min Cong J 50:23-7 Mr '64
Surface mining of coal, 1963. A. E. Lamm. il Min Cong J 50:54-7 F '64
Three-product separation in a dense media vessel; Greenwood mining co. J. Fauzio. il Min Cong J 50:36-8 Jl '64
Turn waste into sales. il Rock Prod 67:121-2 My '64
Two 60-cu yd draglines up Pittsburgh & Midway coal mining co. uncovering capacity. il Coal Age 69:78-81 Ag '64
United electric coal companies land-use program. P. N. Seastrom. il Min Cong J 49:26-8+ D '63
Vertical drilling and new bulk AN/fuel oil blasting system; Enos coal mining div. of Interlake iron corp. J. R. Kerr. il Min Cong J 50:56-9 S '64

Ventilation

See Mine ventilation

Waste disposal

Operator looks at acid mine drainage. W. Bellano. bibliog il map diags Min Cong J 50:66-74 Ag '64
See also
Coal waste

Alabama

Bulk rockdusting for efficiency and economy at SEGGO mine no. 1. il Coal Age 69:82-4+ S '64

Alaska

Alaskan coal industry. S. McCutcheon. il map Coal Age 69:98-100+ Jl '64

Alberta

Accident prevention in underground coal mines. A. S. Leitch. Can Min & Met Bul 57:659-60 Je '64
Hydraulic pitch mining; Vicary Creek system. il plan Coal Age 69:94-6+ Ap '64

Australia

Dredging coal for Victoria power. il Min Eng 16:102-5 O '64
Peabody boosts Queensland coal. il Min Eng 16:105-6 O '64

Brazil

Coal stripping in Santa Catarina, Brazil. L. Stewart. il Min Cong J 50:22-4 Ja '64

COAL mines and mining—*Continued*

Canada

Forum on roof bolting by the C.I.M.'s Coal division, annual general meeting, Edmonton, April 2; papers presented. Can Min & Met Bul 56:877-86; Discussion. 887 D '63

Germany

Lignite mining in East Germany. il Engineer 216:830-1 N 15 '63

Rationalised mine tub turn-round. il diag Engineer 216:868-9 N 22 '63

Great Britain

Problems of a contracting mining community; British experience. J. V. Wood. Min Eng 16:55-7 Je '64

Remotely operated longwall face. Engineer 217:272-3 F 7 '64

Illinois

Horizontal drilling and shooting with large diameter holes; Stonefort coal mining co. C. E. Bratten. il Min Cong J 50:70-3 Je '64

Peabody mine no. 10. J. Craggs. Min Cong J 50:41-2+ Mr '64

India

Petrological characteristics of barakar coal, metamorphosed by lamprophyre sill, in Jharia coalfield, India. H. S. Pareek. bibliog Econ Geol 59:926-9 Ag '64

Indiana

Blackfoot no. 5 story; Enos coal mining co. flowsheet il Coal Age 69:74-81 Jl '64

Kentucky

Conventional mining in low coal. G. W. Lockin. il plans Min Cong J 49:22-6 N '63

DeKoven no. 6 first; 13.2 kv distribution in low coal; Pittsburg & Midway coal co. il diags Coal Age 69:84-8 Je '64

Fast 40-yd walker ups Caney Creek productivity. il Coal Age 69:66-8 Je '64

Flexible mountaintop surface mining; Hardburly mine, Caperton coal co. il diags Coal Age 69:118-21 Ap '64

How Scotia designs for long life. il plan diags Coal Age 69:58-68 Ag '64

Modernization and expansion pay off for Kentland-Elkhorn. il diag Coal Age 69:58-67 S '64

Two 60-cu yd draglines up Pittsburgh & Midway coal mining co. uncovering capacity. il Coal Age 69:78-81 Ag '64

New Mexico

Navajo mine; Utah construction & mining co. il maps plans diag Coal Age 68:56-64 N '63

North Dakota

Knife River doubles production. il Coal Age 69:68-71 S '64

Nova Scotia

Continuous mining with a Wilcox auger miner in low coal. J. C. Marsh. il plan Can Min & Met Bul 57:1033-7 O '64

Roof bolting practices, Dominion coal company, Sydney. D. MacFadgen. Can Min & Met Bul 56:885-6 D '63

Sizing and type of fuel produced by mechanical mining at the Four Star mine. J. C. Marsh. diag Can Min & Met Bul 57:829-33 Ag '64

Ohio

Big dragline increases Ohio Edison's coal output. il Coal Age 68:106-8 N '63

Giant trucks carry 100-ton payload; Hanna coal co. il Coal Age 69:62-3+ Ja '64

Reclamation program of Ohio power co. R. R. Krause. il Min Cong J 50:78-80 Ag '64

Pennsylvania

How Tunnelton designed for unit-train shipment. il Coal Age 69:78-83+ Ap '64

Land conservation in Pennsylvania open pit mines. W. G. Jones. il Min Cong J 49:52-6 O '63

Modern equipment ups mining efficiency; Duquesne Light's Warwick no. 2 mine. il diags Coal Age 69:58-63 My '64

Modernization payoff: 100-ton boost in section output at Cadogan no. 2 mine, Allegheny River mining co. il diag Coal Age 68:70-3 D '63

Operating experience with the Gateway belt system. W. G. Kegel and H. E. Steinman. il Min Cong J 50:23-7 Je '64

Problems of a contracting mining community; Pennsylvania experience. G. F. Deasy and P. R. Griess. maps Min Eng 16:62-4 Je '64

Three-product separation in a dense media vessel; Greenwood mining co. J. Fauzio. il Min Cong J 50:36-8 Jl '64

Utah

Quality with efficiency: the Carbon Fuel story. il plan Coal Age 69:54-61 Ja '64

Virginia

High productivity with safety; Prescott mine of the Stonega coke & coal co. il plans diag Coal Age 69:82-6+ Jl '64

West Virginia

Continuous mining in thin seams; Imperial colliery co. C. L. Christian, jr. plans diags Min Cong J 50:30-3 Jl '64

Dewatering flotation slurries in centrifuges at Stotesbury. R. L. Llewellyn. il diag Coal Age 69:88-91 Ap '64

Fire, explosions and recovery: Federal no. 1 mine. il plan diags Coal Age 68:78-85+ N '63

Longwall progress at Eastern associated mines. D. B. Shupe. Coal Age 69:76-8 S '64

Profitable battery-powered face haulage at Amigo smokelss coal co. il plan diag Coal Age 69:60-5 Je '64

Switching to continuous miners. il Coal Age 69:62-6 Mr '64

3-D mining at Petitto bros.: deep, surface, auger. il diag Coal Age 69:64-5+ My '64

Ventilating for continuous miners in northern West Virginia. A. E. Belton. il plans Coal Age 69:74-9+ Mr '64

COAL mining institute of America

Annual meeting. 77th, Pittsburgh, Dec. 12-13; with abstracts of papers. Coal Age 69:98-100 Ja '64

COAL mining machinery

Coal mine mechanisation, 1963; illustrations with text. Engineer 217:48 Ja 3 '64

Continuous scraper coal mining. diag Engineer 217:483 Mr 13 '64

See also

Coal breakers
Coal cutters
Coal loading machines
Shoveling machines

Control

Automatic control of mineral bunkers. G. Cooper. il diags Ind Electronics 2:460-5 O '64

Push-button mining; principles, practice, performance. J. A. Drain and M. C. Kelce. il Coal Age 68:68-72 N '63

Safety aspects of longwall powered support control systems. H. Aram and D. G. A. Thomas. il diags Min Cong J 50:51-5 Jl '64

Conveyors

Automatic hydraulic takeups; installation and operation. D. R. Murphy. diags Coal Age 68:98-100+ D '63

How to control coasting in long conveyor belt design; Gateway coal co. mine. il plan Power Eng 68:60-1 Ap '64

Hydraulic takeup improves belt installation. il diag Coal Age 69:176+ Ap '64

Safe practices with belt haulage. J. E. Breland. il Min Cong J 50:42-5 Ja '64

Subterranean belt conveyor. il Mech Eng 86:65 F '64

Suspended conveyor system ideal for underground use. il plan diag Automation 10:76-7 N '63

Maintenance and repair

Coal Age mining guidebook; maintenance engineering. il plans diag Coal Age 69:238-50 Jl '64

Consol maintenance backstopping production advances. il plan diags Coal Age 69:182-95 O '64

Controlling engine corrosion. Coal Age 69:108 Ja '64

Getting ready for winter. il Coal Age 68:110+ N '63

How to apply and use cable fault locators. T. M. Urban and J. E. Johnson. il diags Coal Age 68:100-2+ N '63

Hydraulic maintenance underground; status report. J. S. Schroeder. il diags Coal Age 69:105-8 Ap '64

Maintenance ideas. Published in monthly numbers of Coal age

COAL mining machinery—Maintenance and repair—*Continued*
Mining industry technical conference, Wheeling, W.Va., April 1; abstracts of papers. Coal Age 69:95-6 My '64
Organization and training for effective maintenance. A. Hyslop, jr. il Min Cong J 50:34-6+ Mr '64
Strip mine's daily operation relies on welding. G. Brinkman. il Welding Eng 49:88-9 N '64
Welding system for maintenance. il Coal Age 69:182 Ap '64

Statistics

1963 sales; coal mining and cleaning equipment. W. H. Young and R. L. Anderson. Coal Age 69:86-8 F'64; Same. Min Cong J 50:132-5 F '64

COAL patents
Current coal patents. Published in monthly numbers of Coal age

COAL pipe lines
Automating the coal pipeline. W. J. Halvorsen. il Coal Age 69:107-8 Jl '64
Coal by pipeline to Wakefield power-station. il Engineer 217:959 My 29 '64
Comparison of Canadian energy prospects; potential of coal-in-oil fuels. G. A. Vissac and R. P. Charbonnier. bibliog map Eng J 47:23-8 Ap '64
Getting working data of coal pipelines. A. G. Bain. diags Combustion 35:38-41 D '63
Refractory lining stops erosion in pulverized coal supply line. E. W. Schwarm and W. J. Mayberry. il Power Eng 67:73 N '63

COAL preparation
Blackfoot no. 5 story; Enos coal mining co. flowsheet il Coal Age 69:74-81 Jl '64
Building new preparation plants versus moving old ones; Peabody coal co. N. W. Teague. il Min Cong J 50:35-8 S '64
Coal Age mining guidebook; coal preparation. flow sheets il diags Coal Age 69:222-37 Jl '64
Coal preparation, 1963. R. A. Mullins. il Min Cong J 50:65-7 F '64
Consol preparation; quality for all markets. il plans diag Coal Age 69:158-70 O '64
Deep mining, surface mining and coal preparation in 1963. il Coal Age 69:76-81 F '64
Economics of proper coal preparation. W. Smith. Combustion 35:46-9 Ap '64
Froth flotation in modern coal preparation plants. R. E. Zimmerman. il diag Min Cong J 50:26-32 My '64
How Scotia designs for long life. il plan diags Coal Age 69:58-68 Ag '64
How the British train preparation men. A. Rowan and D. W. Horsfall. Coal Age 69: 94-6 Ja '64
Modernization and expansion pay off for Kentland-Elkhorn. il diag Coal Age 69:58-67 S '64
New improvements shown in coal preparation. E. R. Palowitch and A. W. Deurbrouck. diag Min Eng 16:89-90 F '64
Republic's Banning no. 4 preparation plant. J. S. Neill. il diags Min Cong J 49:42-4+ D '63
Review of coal preparation advances abroad. W. L. Crentz and A. W. Deurbrouck. il diags Min Cong J 49:88-92+ O '63
Special materials for cutting coal plant maintenance. P. Levin. Min Eng 16:85-7 Je '64
See also
Coal, Pulverized—Preparation
Coal washing

COAL products
Coal processing; symposium. bibliog flow sheets il diags Chem Eng Prog 60:35-73 Je '64
Steels for the chemical industry; corrosive applications in coal-chemical plants. R. R. Christian. il diag Chem Eng Prog 60:93-9 O '64
See also
Coal tar
Coke
Coke manufacture—By-products

COAL research
Census of federal coal research given at SME fall meeting in Salt Lake City. Min Eng 15:51-5 N '63
Coal processing; symposium. bibliog flow sheets il diags Chem Eng Prog 60:35-73 Je '64
Coal research in Canada, 1963. N. Berkowitz. Can Min & Met Bul 57:956-8 S '64
Coal research, 1963. J. W. Leonard and O. B. Bucklen. il Min Cong J 50:40-4 F '64
Consol research benefiting coal and consumer. il Coal Age 69:213-15 O '64
Hydraulic mining research; progress report. E. R. Palowitch and W. T. Malenka. il plan diags Min Cong J 50:66-73 S '64
Production and utilization influenced by research. R. L. Grace. il Min Eng 16:91-2 F '64
Research brightens coal's future. N. P. Cochran. il diag Chem Eng Prog 60:28-30 O '64
See also
United States—Interior, Department of—Coal research, Office of

COAL research, Office of. See United States—Interior, Department of—Coal research, Office of

COAL storage
Density and moisture gauges for the inventory of coal in storage. F. F. Rieke and R. A. Semmler. Combustion 35:25-7 Mr '64
Faster coal moving gets bigger depot. il plan Engineering 196:824 D 27 '63
Stockpile designs for unit train loadings. C. E. Packard. il plans diags Min Eng 16:62-6 Ag '64
See also
Coal bunkers

COAL supply
Economics of power plant use of coal. C. F. Hardy and J. S. Laird. il Min Cong J 49:38-40 N '63
See also
Coal trade

COAL tar
Epoxy/coal tar cement prevents cold-weather deck failures. il Roads & Sts 107:75-6 My '64

COAL tar pitch. See Pitch

COAL tar products
Coal chemicals production to increase; will result from oxygen steelmaking processes, which require more pig iron and less scrap metal. il Chem & Eng N 42:59-60 My 25 '64
Gas-liquid chromatography in coal tar technology. D. W. Grant. bibliog il diags Ind Chem 40:126-30, 240-5 Mr, My '64
Quantitative infrared microanalysis of high-boiling aliphatic neutral oil fractions. P. A. Estey and C. Karr, jr. bibliog Anal Chem 36:2215-18 O '64
See also
Pitch

COAL trade
Anthracite, 1963. W. Bellano. il Min Cong J 50:119-21 F '64
Bituminous coal economics, 1963. G. E. Sorensen. il Min Cong J 50:95-6+ F '64
Coal, electricity unite to fight gas heat. Gas 40:155-7 Mr '64
Coal industry blasts atomic power subsidy; abstract. J. E. Moody. Chem & Eng N 42:34 Mr 16 '64
Coal industry displays its amazing vitality. H. L. Lovell. il Min Eng 15:98-100 D '63
Coal picture, 1963-1964. Coal Age 69:70-5 F '64
Coal producers hit desalination proposal. Chem & Eng N 42:29 Ag 10 '64
Consol marketing; philosophy and technique. il Coal Age 69:216-21 O '64
How an industry was saved. Automation 11: 96-100+ Ap '64
Outlook for bituminous coal; 1964-1975. il diags Coal Age 69:73-80 My '64
Posture of our economy; outlook for coal industry is good. L. A. Jennings. Min Cong J 50:65 Jl '64
Vast potential seen for U.S. coal abroad. il Coal Age 68:26-7 N '63
Will King Coal's market be atomized? Elec World 162:83-6 N 2 '64
See also
Gas industry—Coal trade competition
National coal association

Canada

Coal research in Canada, 1963. N. Berkowitz. Can Min & Met Bul 57:956-8 S '64
Japan; export market for western Canadian bituminous coal. T. G. Ewart. Can Min & Met Bul 57:537-9 My '64

China

Recent trends in coal production in the U.S.S.R. and Communist China. P. Averitt. Econ Geol 59:323-4 Mr '64

Europe

Oil beats coal for EEC energy. L. H. Frampton. bibliog Hydrocarbon Process & Pet Refiner 43:103-8 Jl '64
See also
European coal and steel community

Great Britain

More solid fuel progress. il Engineering 198: 220 Ag 14 '64

COAL trade—*Continued*

Russia

Recent trends in coal production in the U.S.S.R. and Communist China. P. Averitt. Econ Geol 59:323-4 Mr '64

COAL washing

How to blend washed coals automatically. il diags Coal Age 69:106 Ja '64

Today's plant meets tomorrow's needs; Cadogan plant of the Allegheny River mining co. flow diag il plan Coal Age 68:74-9 D '63

See also
Coal, Pulverized—Preparation
Flotation process (coal)

COAL waste

Coal saved, pollution controlled by Guyan one fine-coal plant. flow sheet il Coal Age 69:87-8 Mr '64

Reclaiming fine coal from settling ponds. F. X. Ferney. il diags Min Cong J 50:48-50 Ap '64

See also
Briquets (fuel)

COAL weighing

Scale weighs 82 cars in nine minutes. il Coal Age 68:139 D '63

COAST changes

Upper limit of barnacles as an index of sea-level change on the New England Coast during the past 100 years. C. A. Kaye. bibliog J Geol 72:580-600, pl 1-3 S '64

COATED glass. See Glass—Coating

COATED paper. See Paper, Coated

COATINGS. See Finishing materials; Metal protection

COAXIAL cables. See Radio lines; Telephone cables—Coaxial cables

COBALT

Cationic distribution in cobalt spinels. J. T. Richardson. bibliog diags J Ap Phys 35:664-8 Mr '64

Cobalt, 1963. B. H. Lim. Eng & Min J 165:139-40 F '64

Evidence for adsorption of cobalt(III)-(ethylenedinitrilo) tetraacetate at platinum electrodes. F. C. Anson. bibliog Anal Chem 36:520-3 Mr '64

Expanded cobalt. il Ind Electronics 2:425 S '64

External symmetry of cobalt particles produced by hydrogen reduction of $CoBr_2$. M. A. Gedwill and others. il J Ap Phys 35:2266-7 Jl '64

Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64

Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

Oxidation of iron(II) by cobalt(III) in the presence of chloride ions. T. J. Conocchioli and others. Am Chem Soc J 86:1453-4 Ap 5 '64

Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

Pressure dependence of the ^{59}Co nuclear magnetic resonance in hexagonal cobalt. D. H. Anderson and G. A. Samara. bibliog J Ap Phys 35:3043-4 O '64

Pressure dependence of the magnetization of cobalt. J. S. Kouvel and C. C. Hartelius. bibliog J Ap Phys 35:940-1 pt 2 Mr '64

Properties of materials; cobalt and cobalt-base superalloys; wrought and cast; tables. Materials in Design Eng 60:134-6 Mid-O '64

Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

Static magnetization reversal in thin films of Co-Ni-P. G. Bate and others. J Ap Phys 35:972-3 pt 2 Mr '64

Structure of electroless cobalt films. R. D. Fisher and D. E. Koopman. il Electrochem Soc J 111:263-4 F '64

Torque and rotational hysteresis in fcc single-crystal cobalt films. W. D. Doyle. bibliog J Ap Phys 35:929-30 pt 2 Mr '64

Analysis

Indirect volumetric determination of cobalt in ferrous alloys with EDTA as indicated by Eriochrome Black T. G. A. Bauer. Anal Chem 36:691-2 Mr '64

Precise microdetermination of cobalt. R. S. Ondrejcin. Anal Chem 36:937-8 Ap '64

Use of anhydrous cobaltous bromide as a standard in cobalt analysis. J. O. Page. Anal Chem 36:2377 N '64

X-ray fluorescence determination of cobalt, zinc, and iron in organic matrices. S. A. Bartkiewicz and E. A. Hammatt. bibliog Anal Chem 36:833-6 Ap '64

Isotopes

AEC lowers Co-60 prices; too little or too much? Nucleonics 21:19 N '63

Cell for the small scale electrodeposition of radioactive metals. P. M. Dryburgh. diag J Sci Instr 41:640 O '64

Cobalt-60 irradiator for extracorporeal blood irradiation. O. A. Kuhl and others. diags Nucleonics 22:79-80+ Ap '64

Effect of Co-60 gamma irradiation on surface energy of KCl. T. K. Bhattacharya and others. J Ap Phys 35:1352-3 Ap '64

Hot-atom chemistry of radiocobalt in oxalatocobalt(III) complex salts. N. Saito and others. bibliog Chem & Ind p 1622-3 S 19 '64

Long-term excretion of Co^{57}-vitamin B_{12} and turnover within the plasma. C. A. Hall and J. G. Hegeman. bibliog Am J Clinical Nutrition 14:156-62 Mr '64

Man who turns cobalt into money. il diag Can Chem Process 48:58-62 My '64

Radiolysis of methanol and methanolic solutions; comparison of radiolysis by Co^{60} γ-rays and by $B^{10}(n,\alpha)Li^7$ recoils. M. Imamura and others. bibliog Am Chem Soc J 85:3565-70 N 20 '63

Radiolysis of methanol and methanolic solutions; the effect of oxygen on the radiolysis of liquid methanol by ^{60}Co γ-rays and by $^{10}B(n,\alpha)^7Li$ recoils. S. U. Choi and N. N. Lichtin. bibliog Am Chem Soc J 86:3948-53 O 5 '64

Metallography

Domain structure of hcp and fcc cobalt above room temperature. P. J. Grundy and R. S. Tebble. il J Ap Phys 35:923-4 pt 2 Mr '64

Growth habits of electrodeposited nickel and cobalt. D. R. Cliffe and J. P. G. Farr. bibliog il Electrochem Soc J 111:299-306 Mr '64

COBALT, Powdered

Properties and applications of cobalt strip. R. W. Fraser and others. il diags Metal Prog 86:80-4 Jl '64

COBALT alloys

Castable cobalt-tungsten alloys for high temperature service. J. C. Freche and R. L. Ashbrook. il Foundry 92:76-9 O '64

Cobalt-base alloys for space-power systems. J. C. Freche and others. bibliog il J Metals 15:928-34 D '63

Cobalt in high speed steels. F. R. Morral. Metal Prog 85:150+ Je '64

Influence of certain composition and fabrication variables on the stress rupture properties of a cobalt base alloy consolidated by powder metallurgy; abstract. P. A. Clarkin and others. Metal Prog 84:158-60 N '63

Influence of nickel and molybdenum on the mechanical properties of cast Stellite cobalt base alloys. H. Griffiths and R. E. Phelps. il Metallurgia 69:203-5 My '64

New ductile magnetic alloy has highest known remanence; Remendur. Bell Lab Rec 42:102 Mr '64

Nickel-cobalt-copper ternary alloy deposition from the pyrophosphate bath. M. Sarojamma and T. L. Rama Char. bibliog Chem & Ind p620-1 Ap 11 '64

Nickel-cobalt-iron ternary alloy deposition from the pyrophosphate bath. D. V. Subrahmanyam and T. L. Rama Char. Chem & Ind p2010-11 D 23 '63

Properties of materials; cobalt and cobalt-base superalloys; wrought and cast; tables. Materials in Design Eng 60:134-6 Mid-O '64

Structure, properties, and applications of UMCo-50 alloy. M. Urbain and others. bibliog il J Metals 16:837-42 O '64

Work hardening and dislocation arrangement of fcc single crystals; electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

COBALT bromides

External symmetry of cobalt particles produced by hydrogen reduction of $CoBr_2$. M. A. Gedwell and others. il J Ap Phys 35:2266-7 Jl '64

Use of anhydrous cobaltous bromide as a standard in cobalt analysis. J. O. Page. Anal Chem 36:2377 N '64

COBALT carbonyls

Addition of acyl- and alkylcobalt carbonyls to conjugated dienes. R. F. Heck. bibliog Am Chem Soc J 85:3381-3 N 5 '63

Preparation of 1-acyl-1,3-butadiene derivatives from acylmethyl-π-allylcobalt tricarbonyls. R. F. Heck. bibliog Am Chem Soc J 85:3383-7 N 5 '63

Triphenylphosphine derivations of π-cyclopentenonylcobalt tricarbonyls and their dehydrogenation to π-cyclopentadienonecobalt dicarbonyl triphenylphosphine cations. R. F. Heck. bibliog Am Chem Soc J 85:3387-90 N 5 '63

COBALT compounds

Addition of acylcobalt carbonyls to acetylenes; π-(2,4)-(alkeno-4-lactonyl)cobalt tricarbonyl derivatives and their conversion to 2,4-pentadieno-4-lactones. R. F. Heck. bibliog Am Chem Soc J 86:2819-24 Jl 20 '64

Adsorption of cobalt(III) trisethylenediamine at mercury electrodes. H. A. Laitinen and L. M. Chambers. Anal Chem 36:1881-2 Ag '64

Anation of the *trans*-aquonitrobis-(ethylenediamine)-cobalt(III) ion in a tetramethylene sulfone-water mixture. C. H. Langford and M. P. Johnson. Am Chem Soc J 86:229-32 Ja 20 '64

Configurations of the complex dithiocyanatobis(triethylphosphine)cobalt(II). A. Turco and others. Am Chem Soc J 85:3510-11 N 5 '63

Eight-coordinate complexes of cobalt(II); a principle influencing the occurrence of high coordination numbers. F. A. Cotton and J. C. Bergman. Am Chem Soc J 86:2941-2 Jl 20 '64

Hot-atom chemistry of radiocobalt in oxalatocobalt(III) complex salts. N. Saito and others. bibliog Chem & Ind p 1622-3 S 19 '64

Interconvertible four-, five-, and six-coordinate cobalt complexes. C. H. Langford and others. Am Chem Soc J 86:2958-9 Jl 20 '64

Isotropic proton magnetic resonance shifts in π-bonding ligands coordinated to paramagnetic nickel(II) and cobalt(II) acetylacetonates. W. D. Horrocks, jr. and others. bibliog Am Chem Soc J 86:3031-8 Ag 5 '64

Kinetic and tracer studies on the alkaline hydrolysis of $Co(NH_3)_5O_2CCF_3^{+2}$. R. B. Jordan and H. Taube. Am Chem Soc J 86:3890-1 S 20 '64

Kinetics of the reduction of some cobalt(III) complexes by chromium(II), vanadium(II), and europium(II). J. P. Candlin and others. bibliog Am Chem Soc J 86:1019-22 Mr 20 '64

Mn, Ni, Co, and UO_2 perchlorate complexes made. D. K. Straub and Y. M. Yung. Chem & Eng N 42:53-5 S 21 '64

New univalent cobalt complex. N. Maki and others. Am Chem Soc J 86:514 F 5 '64

Nuclear magnetic resonance study of structures of cobalt(II)-histidine complexes. C. C. McDonald and W. D. Phillips. bibliog Am Chem Soc J 85:3736-42 D 5 '63

Proton magnetic resonance, anion-exchange, and polarographic studies of the cobalt-glycylglycine-oxygen complex. P. Tang and N. C. Li. bibliog Am Chem Soc J 86:1293-6 Ap 5 '64

Reduction by iron(II), equilibrium, and rate of isomerization in the *cis-trans*-$Co(NH_3)_4(OH_2)N_3^{+2}$ system. A. Haim. bibliog Am Chem Soc J 86:2352-6 Je 20 '64

Spin densities in tetrahedral cobalt complexes by nuclear magnetic resonance contact shifts; evidence for a pseudo contact interaction. W. D. Horrocks, jr. and G. N. La Mar. bibliog Am Chem Soc J 85:3512-13 N 5 '63

Stereochemistry of complex inorganic compounds; the Walden inversion in the base hydrolysis of optically active cobalt(III) complexes. L. J. Boucher and others. bibliog diag Am Chem Soc J 86:3656-60 S 20 '64

Stereospecific influences in metal complexes containing optically active ligands: the equilibrium ratios and isolation of some of the isomers in the mixture tris-((±)-propylenediamine)-cobalt(III) chloride. F. P. Dwyer and others. Am Chem Soc J 86:590-2 F 20 '64

Study of nickel(II) and cobalt(II) phosphate complexes. G. G. Hammes and M. L. Morrell. bibliog Am Chem Soc J 86:1497-502 Ap 20 '64

Tetrameric structure of anhydrous, crystalline cobalt(II) acetylacetonate. F. A. Cotton and R. C. Elder. Am Chem Soc J 86:2294-5 Je 5 '64

Tracer experiments on alkaline hydrolysis of some oxalate ammonia cobalt(III) complexes. C. Andrade and H. Taube. bibliog Am Chem Soc J 86:1328-30 Ap 5 '64

See also

Vitamins—Vitamin B_{12}

COBALT fluorides

Antiferromagnetic resonance in CoF_2, NiF_2, and $MnCO_3$. P. L. Richards. bibliog J Ap Phys 35:850-1 pt 2 Mr '64

Theory of antiferromagnetic resonance absorption in CoF_2. H. Kamimura. bibliog J Ap Phys 35:844-6 pt 2 Mr '64

COBALT halides

Proton resonance study of the magnetic structure of antiferromagnetic $CoCl_2 \cdot 6H_2O$, $CoBr_2 \cdot 6H_2O$, $NiCl_2 \cdot 6H_2O$, and $NiBr_2 \cdot 6H_2O$. R. D. Spence and others. diags J Ap Phys 35:854-5 pt 2 Mr '64

COBALT metallurgy

Automatic process controls are a success at Union Miniere's Luilu copper plant. il diag Eng & Min J 164:88-91 D '63

Fluid-bed roasting reactions of copper and cobalt sulfide concentrates. F. J. Thoumsin and R. Coussement. bibliog J Metals 16:831-4 O '64

Leaching burnt pyrite ore is new way to recover cobalt; process flowsheet. E. C. Dominguez and L. H. Windsor. Chem Eng 71:78-80 Ag 3 '64

Refinery features ammonia and acid pressure leaching and hydrogen reduction; process flowsheet. Can Chem Process 48:57-8 S '64

COBALT oxides

Magnetic study of cobalt molybdenum oxide catalysts. J. T. Richardson. bibliog Ind & Eng Chem Fundamentals 3:154-8 My '64

Observation of antiferromagnetic domains in cobaltous oxide by means of the electron microscope. G. Remaut and others. bibliog il J Ap Phys 35:1351-2 Ap '64

Phase diagram of cobalt monoxide at high temperatures. B. Fisher and D. S. Tannhauser. bibliog Electrochem Soc J 111:1194-6 O '64

COBALT plating

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Electrodeposition of cobalt. F. R. Morral. bibliog il Metal Finishing 62:82-7 Je; 59-64 Jl '64

Growth habits of electrodeposited nickel and cobalt. D. R. Cliffe and J. P. G. Farr. bibliog il Electrochem Soc J 111:299-306 Mr '64

COBALT sulfates

Thermal diffusion of salt solutions in single-stage cells and in continuous horizontal columns; the system copper sulfate-cobalt sulfate-water. G. T. Fisher and others. bibliog diags A I Ch E J 9:786-93 N '63

COBALT sulfides

Lattice parameters and expansion coefficients of FeS_2 (natural and synthetic), and of CoS_2. M. E. Straumanis and others. bibliog Am Mineralogist 49:206-12 Ja '64

Metastable solid solution relations in the system FeS_2-CoS_2-NiS_2. G. Springer and others. bibliog il diags Econ Geol 59:475-91 My '64

COCCIDIOSIS

Mechanism of interaction between dietary protein levels and coccidiosis in chicks. W. M. Britton and others. bibliog J Nutrition 82:306-10 Mr '64

COCHINEAL

Thousand years of cochineal; a lost but traditional Mexican industry on its way back. N. P. Wright. il diags Am Dyestuff Rep 52:635-9 Ag 19 '63; Abstract. Am Perfumer 79:39 Ja '64

COCKROACHES

Cockroach aerosol test method; tentative official method of the CSMA; latest revision. il Soap & Chem Spec Blue Book p229-30+ '64

Cockroach spray method; evaluating liquid household insecticides against crawling insect pests, latest revision. Soap & Chem Spec Blue Book p231-2 '64

Eliminating pests from a pool facility. il Pub Works 95:132 O '64

COCONUT
See also
Copra

COCONUT oil
Triglyceride composition of native and rearranged butter and coconut oils. A. Kuksis and others. bibliog Am Oil Chem Soc J 41:201-5 Mr '64

COD
Cold storage of cod fillets treated with polyphosphates. E. Tanikawa and others. bibliog il Food Tech 17:1425-30 N '63

COD, CAPE. See Cape Cod

COD liver oil
Cod liver oil refinery. il Engineer 216:774-5 N 8 '63
Study of the hypocholesterolemic activity of the ethyl esters of the polyunsaturated fatty acids of cod liver oil in the rat. S. G. Kahn. bibliog J Nutrition 83:262-6 Jl '64

CODEHYDROGENASES
Estimation of pyridine nucleotides in a crude tissue extract by color reaction of nucleotide ribose with orcinol and ferric chloride. A. Devi and U. Srivastava. bibliog Anal Chem 36:882-4 Ap '64
Influence of gelatin on growth and liver pyridine nucleotide concentration of the rat. J. R. Savage and A. E. Harper. bibliog J Nutrition 83:158-64 Je '64

COENZYMES
Coenzyme Q; novel cyclization of quinones to chromanols and possible iron-coenzyme Q complexes. H. W. Moore and K. Folkers. bibliog diags Am Chem Soc J 86:3393-4 Ag 20 '64
Oxygen-dependent ring opening of cyclobutanone catalysed by a model for a coenzyme. D. C. Dittmer and others. bibliog Chem & Ind p 152-3 Ja 25 '64
Reduction of carbonyl groups by a model for a coenzyme. D. C. Dittmer and R. A. Fouty. bibliog Am Chem Soc J 86:91-5 Ja 5 '64
See also
Codehydrogenases

COFFEE

Analysis

Isolation and characterization of cellulose in the coffee bean. M. L. Wolfrom and D. L. Patin. bibliog J Agri & Food Chem 12:376-7 Jl '64

COFFEE pots, percolators, etc.
Molded coffee pot. il Plastics World 22:20 Jl '64

COFFERDAMS
Analyse et solution du problème d'étanchéité au batardeau amont de l'aménagement de Manicouagan 5. C. A. Dagenais and G. Turenne. maps plan diags Eng J 47:19-24; Discussion. 52 Ja '64
Backhoe excavates for cofferdam. il Eng N 171:167 D 19 '63
Concrete cutoff wall drilled down 250 ft. I. V. Galbiati. il diags Civil Eng 33:59-61 N '63
Till cofferdam dumped in water. J. I. Adams and D. J. Bazett. il diags Eng J 46:51-6 O '63
Unwatering Akosombo cofferdams. D. J. Bleifuss. il diags Am Soc C E Proc 90 [SM 2 no 3842]:111-25 Mr '64
See also
Bridges—Foundations and piers

COHESION
Cohesion phenomena in cotton rovings and yarns. A. Barella and A. Sust. bibliog il diag Textile Res J 32:217-26; 33:75-9; 34:283-90 Mr '62, Ja '63, Ap '64
Consolidation coefficient; cohesive soil mixtures. R. L. Kondner and J. R. Vendrell, jr. Am Soc C E Proc 90 [SM 5 no 4021]: 31-42 S '64
Semi-automatic system for the measurement of cohesion test results, using the West Point cohesion tester. D. R. Gentry. diags Textile Res J 34:813-14 S '64

COHN, Waldo E.
ACS award in chromatography and electrophoresis. por Chem & Eng N 42:116 F 3 '64

COILS, Electric. See Electric coils

COILS, Induction. See Induction coils

COILS, Pipe
Coils that cool and dehumidify. M. Ramsey. Air Cond Heat & Ven 61:49-51 F '64
How to figure cooling coils. M. A. Ramsey. diags Air Cond Heat & Ven 60:67-70 N; 50-2 D '63
Industrial application of freeze protection for ventilation and air-conditioning systems. J. J. Burke. diags ASHRAE J 6:52-4 Jl '64
Sizing coils without catalogs. M. Ramsey. diags Air Cond Heat & Ven 61:89-91 Mr '64
Unconventional design and why it failed. F. F. Stevenson. diag Heating-Piping 36:132-3 Ag '64
Where to locate vacuum breakers for air heating coils. J. M. Thompson. diags Heating-Piping 35:140-1 N '63

COINAGE
Industry battles coins for silver supply. Chem & Eng N 42:26-7 Ag 24 '64

COINCIDENCE counting
Polarity coincidence detector for the measurement of very small signal-to-noise ratios. M. Raether and D. Bitzer. bibliog diag R Sci Instr 35:837-41 Jl '64
Timing slow pulses for fast coincidence measurements. M. G. Strauss. diags R Sci Instr 34:1248-53 N '63

COINS
Automatic coin segregating and counting machine. il Electronic Eng 36:102 F '64
Automatic coin segregating, counting and bagging. il Ind Electronics 2:112 Mr '64
Coin counting and sorting. il Engineer 217: 56-6 Ja 3 '64

COINS, Roman
X-ray fluorescence analysis of Roman coins. G. F. Carter. bibliog Anal Chem 36:1264-8 Je '64

COKE
Burning fluid coke at the Delaware City power station: abstract. R. C. McConnell. Combustion 35:45-6 F '64
Coke breeze backfill for anodes. M. E. Parker. Gas 40:19 F '64
Ductile iron is made with magnesium-impregnated coke. W. E. Snow. Foundry 92: 99-100+ N '64
Grindability tests; short cut to blending coals for strong coke. J. W. Leonard. Min Eng 16:45-7+ Mr '64
See also
Coal
Petroleum coke

Standards

Progress report on international standardization relating to coal and coke. R. L. Coryell and W. H. Ode. il Min Cong J 49:49-51 D '63
What properties users want in foundry coke. il Foundry 92:66-7 Mr '64

Sulfur content

What properties users want in foundry coke. il Foundry 92:66-7 Mr '64

COKE industry

Statistics

Coke and by-products in 1962. C. J. Labee and I. E. Madsen. Iron & Steel Eng 40:111-16 D '63

COKE manufacture
Continuous coking process shows metallurgical promise. Steel 154:31 Mr 9 '64
Improved puening movable wall oven. A. L. Bower. diags Iron & Steel Eng 41:219-24 S '64
Metallurgical coke from substitute coals. H. R. Brown and W. R. Hesp. bibliog il J Metals 16:346-51 Ap '64

By-products

Coal chemicals production to increase; will result from oxygen steelmaking processes, which require more pig iron and less scrap metal. il Chem & Eng N 42:59-60 My 25 '64
Coke and by-products in 1962. C. J. Labee and I. E. Madsen. Iron & Steel Eng 40: 111-16 D '63
Upgrading coke oven aromatics. A. K. Logwinuk and others. bibliog flow diag Ind & Eng Chem 56:20-6 Ap '64
See also
Coke oven gas

COKE oven gas
Variation in concentration of some tar constituents in coke-oven gas. G. W. Girling and E. G. Ormerod. bibliog diags J Ap Chem 14:36-40 Ja '64

COKE ovens
Improved puening movable wall oven. A. L. Bower. diags Iron & Steel Eng 41:219-24 S '64
See also
Coke oven gas

COKE plants

Equipment

Steelmen extend nuclear gaging. diags Iron Age 193:144-5 Mr 12 '64

COKE plants, By-product
See also
Coke manufacture—By-products

COKE research
Coking western coals. il diag Coal Age 68:90-2 D '63

COLCHICINE
Biosynthesis of the alkaloids of colchicum; the incorporation of phenylalanine-2-C^{14} into colchicine and demecolcine. E. Leete. bibliog Am Chem Soc J 85:3666-9 N 20 '63

COLD
Cold weather can mean trouble with Polacolor film. J. Wolbarst. il Mod Phot 28:32 Ja '64
See also
Freezing
Frost
Refrigeration and refrigerating machinery
Temperature—Physiological effect

Physiological effect

Metabolic studies of an amino acid imbalance in cold-exposed rats. G. J. Klain and R. L. Winders. bibliog J Nutrition 82:333-7 Mr '64

COLD (disease)
See also
Influenza

COLD cathode tubes. See Vacuum tubes—Cold cathode tubes

COLD storage
Cold storage of retail-packed fillets of mackerel and herring. A. Liljemark. bibliog Food Tech 18:380-2 Mr '64
Rates of moisture loss of apples under refrigerated storage conditions. C. P. Lentz and E. A. Rooke. bibliog diags Food Tech 18:1229-31 Ag '64
Simple grain storage. il Engineer 218:343 Ag 28 '64
See also
Food, Frozen—Storage
Refrigeration and refrigerating machinery

COLD storage warehouses
Fish cold storage plant; Mutwal, Ceylon. A. W. Lantz. plan diags ASHRAE J 6:38-40 Ag '64
Heat and air transfer in cold storage insulation. W. A. Lotz. ASHRAE J 6:53 Ap '64
Inside-out design developed for low-temperature buildings. C. S. Meyer. il diags ASHRAE J 6:50-2+ Ap '64
Mid-South refrigerated warehouse co. uses foam insulation to maximum advantage. il Food Eng 36:95 Mr '64
Pet milk co. constructs from inside out; storage racks support roof and walls in unique warehouse. il Food Eng 35:84 D '63
What is the best way to handle refrigerant leakage? answers. Power 108:162-3 Ag '64

COLD treatment of aluminum. See Aluminum, Cold treatment of

COLD welding. See Welding—Cold welding

COLD working of metals. See Metals, Cold working of

COLD working of steel. See Steel, Cold working of

COLIFORM bacteria. See Escherichia coli

COLLAGEN
Characterization of the eating quality of four beef muscles from animals of different ages by panel scores, shear-force values, extensibility of muscle fibers, and collagen content. S. J. Ritchey and R. L. Hostetler. bibliog Food Tech 18:1067-70 Jl '64
Effect of degree of doneness on collagen nitrogen and collagenous tissue in two muscles of beef. M. Skelton and others. bibliog Food Tech 17:1431-3 N '63

COLLATING machines
New Dart collator-interleaver for business forms industry introduced by Western Gear. Inland Ptr/Am Lithogr 152:90 N '63
Review of 1964's business forms equipment. il Inland Ptr/Am Lithogr 153:66-9 Ap '64

COLLECTING of accounts
Collection of overdue accounts. D. Manesse. Rubber Age 95:759 Ag '64
See also
Billing

COLLECTIVE bargaining
Thorn-strewn primrose path known as compulsory arbitration. H. J. Lambeth. Rock Prod 67:63-5 F '64

COLLEGE architecture
A and A; postscript to the Arts and architecture building. J. D. Lowenfish; R. H. Mutrux. Prog Arch 45:179-80 Jl '64
Another art center by Rudolph unveiled. il plans Prog Arch 45:57 My '64
Beckman auditorium, California institute of technology, Pasadena. il plan Arch Rec 136:156-7 O '64
College buildings; building types study. il plans diags Arch Rec 135:161-92 My '64
College program sparks community development. il plan Prog Arch 45:96 O '64
Dramatic renewal on campus. il plans diag Arch Forum 121:114-17 Jl '64
Education, there's no biz like show biz; college hall designed for tv teaching. il plan diags Eng N 172:52-3 Mr 19 '64
Experimentation in the Harvard tradition; Hoffman laboratory of experimental geology. il plans Prog Arch 45:144-7 Mr '64
High-rise and low-rise grouping for Michigan campus. il plan Arch Rec 135:165-8 Ap '64
Hillside institute to make most of site; Agricultural and technical institute, Canton. il Prog Arch 45:76 Jl '64
Human scale for the humanities; Humanities building, Western Washington state college. il plans Prog Arch 45:148-51 Mr '64
Kahn's second phase at Pennsylvania; new biology building. il diag Prog Arch 45:208-13 S '64
Many-faceted stage for the performing arts; Clowes memorial hall, Butler university, Indianapolis. il plans Arch Forum 119:98-105 D '63
New work, a new style; big campus for Chicago. il plan Arch Forum 121:148-51 Ag-S '64
Opposites; expressionism and formalism at Yale. I. M. Reese and J. T. Burns, jr. Prog Arch 45:128-9 F '64
Passing of the Ark. W. W. Wurster. il Prog Arch 45:166-71 Jl '64
Planning the community college. il plans diags Arch Rec 135:123-32 Je '64
President opens Newhouse journalism building. il plan Prog Arch 45:91-2 S '64
P/A eleventh annual design awards; Cowell college for regents, Univ. of Calif. il plans Prog Arch 45:134-5 Ja '64
Rallying point for campus renewal; Olivet college collegiate center. il plans diags Prog Arch 45:152-5 Mr '64
Research pavilions to be center of Northwestern campus. il Prog Arch 45:73 Jl '64
Rudolph designs for Colgate. il plans Arch Rec 135:10 My '64
School for the arts at Yale. il plans Arch Rec 135:111-20 F '64
Small units comprise residence complex for University of Rhode Island. il plan Arch Rec 134:15 N '63
Swiss school is a lesson in concrete. il plan diag Arch Forum 120:78-81 Ja '64
Thin shell petal design for dome roof. il Engineering 198:245 Ag 21 '64
Tricky tower for teachers. il plan Prog Arch 45:53 Ja '64
Universities; tall new symbols of their significance. il maps plan Arch Forum 120:114-23 Je '64
University of Lagos, Lagos, Nigeria; McMillan associates. il Prog Arch 45:241-2 O '64
Yale School of art and architecture. il plans diags Prog Arch 45:109-27 F '64
See also
Dormitories
Princeton university

COLLEGE buildings
A building that is an event; Yale's school of art and architecture. il plans diags Arch Forum 120:62-84 F '64
Congress ok's college construction bill. Eng N 171:48-9 D 19 '63
Education squabble. Eng N 171:55 N 14 '63
First tower at M.I.T.; Earth sciences building, designed by alumnus I. M. Pei. il Arch Rec 136:135-8 O '64
New developments in engineering education; illustrations with text. Engineer 217:82-3 Ja 10 '64
Parisians lay an egg underground. il plan Eng N 172:24 Ja 2 '64
Projecting mechanical demands. W. J. McGuinness. Prog Arch 45:206 Je '64
Residential tower block for Southampton university. il Engineering 197:360 Mr 6 '64
Structure plays leading role in latest Yamasaki designs; Princeton building with colonnaded facade. il plan diag Arch Rec 134:108-10 D '63

COLLEGE buildings—*Continued*

System building for college hostels. il plans Engineering 197:359-60 Mr 6 '64

Tripod supports bandshell roof. il Eng N 172:30 F 6 '64

See also

College architecture

Dormitories

Engineering colleges

Gymnasiums

Housing projects, College

Air conditioning

Central system for 1700 acre campus. il Heating-Piping 36:116-18 Ap '64

Htw system promises lower building and maintenance costs at Chicago Circle campus, University of Illinois. E. G. Magnuson. plan diag Power 108:67-70 S '64

Operating staff designs own centralized control for air conditioning. C. S. Dawson. il Heating-Piping 36:123-7 Je '64

Statistics on college air conditioning released. Air Cond Heat & Ven 61:62 Je '64

Electric equipment

College dormitory goes all electric. Elec World 160:126 D 16 '63

Heating and ventilation

High temperature water distribution system supplies heat to building complex. il Heating-Piping 36:227 Mr '64

High-temperature water for district heating. il diags Power 108:49-51 Ja '64

Htw system promises lower building and maintenance costs at Chicago Circle campus, University of Illinois. E. G. Magnuson. plan diag Power 108:67-70 S '64

Operating staff designs own centralized control for air conditioning. C. S. Dawson. il Heating-Piping 36:123-7 Je '64

Lighting

Yale's Art and architecture building revisited. S. R. Shemitz. il Illum Eng 59:509-17 Ag '64

COLLEGE education

See also

Liberal education

COLLEGE graduates

Bachelor's master's totals to double by 1975. Chem & Eng N 42:45-6 O 12 '64

Career opportunities in oil. T. Armstrong. Oil & Gas J 61:109-18+ N 11 '63 (reprints 50c)

See also

Engineering graduates

COLLEGE housing projects. See Housing projects, College

COLLEGE hygiene

Clinical aspects of the college student's health. S. E. Leard. Archives Environmental Health 8:846-9 Je '64

COLLEGE libraries

Inward-looking college library; Colorado college. il plan diag Arch Forum 120:84-7 My '64

New campus focus in Pennsylvania; Lafayette college's new library. il plan Arch Forum 120:90-1 My '64

New university core in Missouri; John M. Olin library, Washington university, St Louis. il plan diag Arch Forum 120:96-7 My '64

New work, a new style; bold masses in Tokyo. il plan Arch Forum 121:156-7 Ag-S '64

Symbolic monument in the South; LeMoyne college library. il plan Arch Forum 120:94-5 My '64

University library employs radial plan. il Arch Rec 136:15 Jl '64

Yale rare book and manuscript library. il plans Prog Arch 45:130-3 F '64

COLLEGE professors and instructors

Engineering, science teachers paid best. Chem & Eng N 42:44-5 Mr 23 '64

Oak Ridge chemists teach at Tennessee. Chem & Eng N 41:35 D 30 '63

See also

Chemistry teachers

COLLEGE students

Bright students challenged at Berkeley. Chem & Eng N 42:45-6 O 19 '64

Reovirus infections in children and young adults. F. M. El-Rai and A. S. Evans. bibliog Archives Environmental Health 7:700-4 D '63

Students and companies profit from summer job programs. J. S. Strong. il Chem & Eng N 42:88-92 Ja 27 '64

See also

Chemistry students

COLLEGES and universities

Illinois and Colorado form engineering co-op. Chem & Eng N 42:47-8 Je 22 '64

See also

College architecture

College graduates

Columbia university

Engineering colleges

Harvard university

Medical colleges

Princeton university

Scholarships and fellowships

Yale university

Curriculum

Bright students challenged at Berkeley. Chem & Eng N 42:45-6 O 19 '64

Curriculum offers students alternatives. R. Walter. Chem & Eng N 41:52-3 N 18 '63

Evaluation of college curricula and continuing education for metallurgists. M. Teig. J Metals 16:662-4 Ag '64

Freshmen are learning physical chemistry. Chem & Eng N 42:146+ S 7 '64

Georgetown university strives to become major science center. il Chem & Eng N 42:46-7 Mr 2 '64

Industrial pharmacy curriculum at the University of Iowa. il Drug & Cosmetic Ind 94:836-7 Je '64

Modern texts are needed to update college chemistry courses; freshmen often ready for quantum chemistry, thermodynamics. Chem & Eng N 42:42-4 F 17 '64

Open letter on high-speed photography and education. J. H. Waddell. Res/Develop 14:43-4 N '63

Progress report of the Commission on college physics. Am J Phys 32:398-427 Je '64

Science is part of all human activity. W. H. C. Rueggeberg and R. H. Crist. Chem & Eng N 42:60+ O 26 '64

Students learn generality of thermodynamics quickly. J. L. Dye. Chem & Eng N 42:149 S 7 '64

Undergraduate curricula in physics; report on the Princeton conference on curriculum S. E. L. Jossem. Am J Phys 32:491-7 Je '64

University of Maine pulp and paper curriculum. L. H. Elliott. Tappi 47:sup51A+ F '64

University of Maine pulp and paper programs. L. C. Jenness. il Tappi 47:sup58A+ Je '64

Graduate work

Doctoral education in chemistry; a report of current needs and problems by the ACS committee on professional training. Chem & Eng N 42:76-84 My 4 '64

Fermentation course includes pilot plant work; Rutgers university. il Chem & Eng N 42:46-7 Jl 6 '64

Flexibility urged in graduate support. Chem & Eng N 41:42-4 N 25 '63

Louisiana state university in New Orleans set to start graduate program; Chemistry department leads Graduate division. il Chem & Eng N 42:38-9 Ja 20 '64

Oak Ridge chemists teach at Tennessee. Chem & Eng N 41:35 D 30 '63

U.S. schools will double number of doctoral degrees by 1969. Chem & Eng N 41:28-9 D 23 '63

Relations with business

Campus recruiting. F. Coss. Chem Eng 71:202+ Ap 13 '64

Campus recruiting. R. N. Stapleton. Chem Eng 71:106-8 Mr 30 '64

Research

Agencies oppose cost limit on r&d grants. Chem & Eng N 42:32-3 My 18 '64

Four receive $50,000 Petroleum research fund grants. Chem & Eng N 42:58-9 Je 29 '64

Government support of university research. M. A. Williamson. Res/Develop 14:32-5 N '63

Government university basic research relations. M. A. Williamson. Res/Develop 15:11-12 Jl '64

Japan beckons U.S. postdoctorates. map Chem & Eng N 42:56+ Ag 17 '64

Kansas State to dedicate research institute, continue ASHRAE environmental program. E. A. Bajster. il plans ASHRAE J 5:27-30 N '63

Kansas state university dedicates its Institute for environmental research. il Heating-Piping 35:23-4 D '63

Mutual irritations. Sci Am 210:58-9 My '64

National academy of sciences drafts guidelines for research support. Chem & Eng N 42:27-8 Mr 23 '64

COLLEGES and universities—Research—*Cont.*

R&d contracts preferred to grants. L. A. DuBridge. Chem & Eng N 42:34-5 Je 1 '64

Schools pay only 15 per cent of research costs. Chem & Eng N 42:48+ Mr 9 '64

France

Science and the citizen. Sci Am 210:58-9 My '64

Great Britain

City of Liverpool college of technology regional college. il Chem & Ind p992-1006 Je 13 '64

College of advanced technology, Birmingham. Chem & Ind p657-8 Ap 18 '64

Heriot-Watt college, Edinburgh. Department of brewing and applied biochemistry. Chem & Ind p 1828-9 N 16 '63

Manchester, a great university centre. G. Spencer. il plan Chem & Ind p 1082-8 Je 27 '64

Japan

Japan beckons U.S. postdoctorates. map Chem & Eng N 42:56+ Ag 17 '64

COLLIMATORS

Autocollimator for measuring small angular displacements. il diag Engineer 217:798 My 1 '64

COLLISION phenomena

Collisional detachment and the formation of an ionospheric *C* region. E. T. Pierce. bibliog diag J Res Nat Bur Stand 67D:525-32 S '63; Discussion. H. R. Arnold. 68D:215-17 F '64

Discussion of the theory of ionospheric cross modulation. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1109-22 O '64

Effect of size distribution on the rate constants for collisions in disperse systems. T. Gillespie. bibliog J Colloid Sci 18:562-7 Ag '63

Electron collision frequency in the ionospheric *D* region. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1123-6 O '64

Focused microwave technique for measurement of the ionization rate and collision frequency. W. Scharfman and T. Morita. bibliog il diag J Ap Phys 35:2016-20 Jl '64

Hot-atom reactions data fit kinetic theory. R. Wolfgang and A. H. Rosenberg. il Chem & Eng N 42:47-8+ S 14 '64

Stopping by elastic collisions of particles from a unidirectional plane source. E. M. Baroody. bibliog J Ap Phys 35:2074-85 Jl '64

COLLISIONS at sea

Ship cuts Lake Maracaibo bridge. il Eng N 172:28 Ap 16 '64

Tanker smashes Venezuela's Lake Maracaibo bridge. il diag Civil Eng 34:79 My '64

COLLOIDS

Coagulation of aerosols. S. E. Devir (Weinstock). bibliog diags J Colloid Sci 18:744-56 O '63

Coagulation of colloidal gold. B. V. Enüstün and J. Turkevich. bibliog il Am Chem Soc J 85:3317-28 N 5 '63

Coagulation of hydrosols by Brownian motion and laminar shear flow. D. L. Swift and and S. K. Friedlander. bibliog J Colloid Sci 19:621-47 S '64

Colloid-chemical properties of manganese dioxide. J. J. Morgan and W. Stumm. bibliog J Colloid Sci 19:347-59 Ap '64

Colloidal electrohydrodynamic energy converter. A. L. Cox. bibliog il diags AIAA J 1:2491-7 N '63

Computer simulation of floc formation in a colloidal suspension. M. J. Vold. bibliog diag J Colloid Sci 18:684-95 S '63

Effect of silica on transformations of fibrillar colloidal boehmite and gamma alumina. R. K. Iler. bibliog Am Cer Soc J 47:339-41 Jl '64

Electromobility values of particulate matter in domestic wastewater. S. D. Faust and M. C. Manger. bibliog Water & Sewage Works 111:73-5 F '64

Extrusion properties of non-clay oxides. J. F. White and A. L. Clavel. bibliog diag Am Cer Soc Bul 42:698-702 N '63

Formation of platelike colloidal gold. Y. S. Chiang and J. Turkevich. bibliog il J Colloid Sci 18:772-83 O '63

Gel phase in natural rubber. P. W. Allen and G. M. Bristow. bibliog il diags Rubber Chem & Tech 36:1024-34 O '63

Hydration of micelles of association colloidal electrolytes. P. Mukerjee. bibliog J Colloid Sci 19:722-8 O '64

Hydrocolloids in cosmetic and pharmaceutical dispersions. B. N. Patel. Drug & Cosmetic Ind 95:337-41+, 509-12 S-O '64 (to be cont)

Interaction of macromolecules with silver bromide sols. S. Kratohvil and others. bibliog J Colloid Sci 19:373-83 Ap '64

Measurement of the particle weight of a colloid by electron diffraction. Y. Yamaguchi. il J Colloid Sci 18:596-8 Ag '63

Morphology of collodial gold; a comparative study. W. O. Milligan and R. H. Morriss. bibliog il Am Chem Soc J 86:3461-7 S 5 '64

Number of particles in colloidal suspensions of silver bromide. E. J. Meehan and G. Chiu. Am Chem Soc J 86:1443-4 Ap 5 '64

Reversal of charge of lyophobic colloids by hydrolyzed metal ions; aluminum nitrate. E. Matijević and others. bibliog J Colloid Sci 19:333-46 Ap '64

Rotational diffusion of some polydisperse clay mineral sols. W. T. Granquist and C. A. Hollingsworth. bibliog J Colloid Sci 18:538-54 Ag '63

Simple method for particle size determination by turbidity measurement. G. Deželić and others. bibliog J Colloid Sci 18:888-92 D '63

Sols allow rebuilding biological materials; rebuild cow's aorta from sols of its three main layers. H. Thiele. il Chem & Eng N 42:40-1 Je 15 '64

Studies on the electrokinetic behavior of monodisperse silver halide sols. R. H. Ottewill and R. F. Woodbridge. bibliog J Colloid Sci 19:606-20 S '64

Surface forces and the stability of colloids and disperse systems. B. V. Derjaguin and others. il diags J Colloid Sci 19:113-35 bibliog(p 134-5) F '64

Surface properties and flow behavior of kaolinite; electrophoretic mobility and stability of kaolinite sols. R. J. Hunter and A. E. Alexander. J Colloid Sci 18:820-32 bibliog(p831-2) D '63

Surface properties and flow behavior of kaolinite; flow of kaolinite sols through a silica column. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:846-62 D '63

Survey shows shortage of colloid chemists. Chem & Eng N 42:42-3 Ag 3 '64

Viscosity of small particle, electrolyte- and soap-deficient synthetic latex gels. C. F. Fryling. bibliog J Colloid Sci 18:713-32 O '63

Viscosity of synthetic latex gels. J. G. Brodnyan and E. L. Kelley. J Colloid Sci 19:488-90 Je '64

Volume change with constant specific surface area; a topological remark. T. Katsurai and M. Ariyama. diags J Colloid Sci 19:585-9 Ag '64

Zeta-Meter aids research into colloids. il diag Can Chem Process 47:77-8 D '63

Zeta potential and pitch control; the application of the Zeta-Meter. N. A. Jacobson and R. Schmut. il diags Tappi 47: sup210A-13A Ja '64

Zeta potential measurement, applications in the paper industry. R. Schmut. il diag Ind & Eng Chem 56:28-33 O '64

See also
Aerosols
Brownian movements
Coacervation
Collagen
Dispersion
Electrophoresis
Emulsions
Films
Flocculation
Gelatin
Micelles
Particles
Silica gel
Suspensions
Thixotropy

COLOGNE, Germany

Bridges

850-ft girders will bridge Rhine. il Eng N 172:45 Je 11 '64

COLOMBIA

See also
Petroleum—Colombia
Petroleum pipe lines—Colombia

COLOR

Artificial daylight. H. Greber. Illum Eng 58:664 N '63

Color phenomena in polymer fracture. S. B. Newman and I. Wolock. bibliog il diags J Res Nat Bur Stand 67A:625-38 N '63

COLOR—*Continued*
Cube-root coordinate color-difference computer. M. E. Faulhaber and P. D. Schnelle. bibliog diags R Sci Instr 35:1157-60 S '64
See also
Colorimeters and colorimetry
Concrete—Color
Cotton—Color
Dichroism
Discoloration
Dyes and dyeing
Food—Color
Light, Colored
Paper—Color
Television—Color
Water—Color
Water purification—Color removal

Standards

Color standards for collapsible metal tubes. G. Waleck. il Drug & Cosmetic Ind 94:54-5+ Ja '64
Fading of the British dyed-wool light-fastness standards in the U.K.; some energy measurements. O. Rawland. bibliog Soc Dyers & Col J 79:697-701; Discussion. 714-22 D '63
Spacing of the higher ISO light-fastness standards. K. McLaren. bibliog Soc Dyers & Col J 80:250-2 My '64

COLOR codes
Display systems design. J. L. Seminara and S. O. Parsons. il diags Machine Design 35:165-76 N 7 '63
Electronics color codes. diags Electronics 36:37-40 N 15 '63
High speed band marking of insulated conductors. G. Lehnert and J. V. McBride. bibliog il diags Wire & Wire Prod 39:533-7+ Ap '64
High speed rotating disc dot dash coding apparatus for application of vinyl ink marks on PVC insulated conductors. H. L. Woellner. il diags Wire & Wire Prod 39:1026-8+ Jl '64

COLOR filters. See Light filters

COLOR in industry
See also
Color codes

COLOR in plastics
Colored acrylic sheet; via ultrasonics. il Mod Plastics 41:95 Ag '64
Instrumental colour control in plastics. A. F. Tosh. Brit Plastics 37:89-91 F '64
Some applications of the Davidson and Hemmendinger colorant mixture computer to paints and plastics. D. L. Tilleard. bibliog Soc Dyers & Col J 79:590-600; Discussion. 601-3 D '63

COLOR in the ceramic industry
Ceramic color compositions. P. Henry. Am Cer Soc Bul 43:140-1 F '64
Color; symposium abstracts. Am Cer Soc Bul 43:321+ Ap '64
Effect of corrosion on the appearance of colored enamels. A. C. Bersticker and B. J. Sweo. bibliog il diags Am Cer Soc Bul 43:191-2+ Mr '64

COLOR in the textile industry
Measuring the colour of very small patterns. P. R. Bunkall. Soc Dyers & Col J 80:255-6 My '64
White? red white? or blue white? G. Edwards. Textile Ind 128:131+ F '64
See also
Dyes and dyeing

COLOR matching
Color matching. N. Macbeth, jr. and W. B. Reese. bibliog il Illum Eng 59:461-71 Je '64
Color matching and adhesion trouble; question and answer. Ind Finishing 40:104 Mr '64
Color matching; tests for personnel. Ind Finishing 40:68-9 S '64
Color measurement and the colorant mixture computer in the textile industry; abstract. D. Graham. Textile Ind 127:114 D '63
Computer color matching. E. I. Stearns. bibliog Am Dyestuff Rep 53:668-72 Ag 3 '64
Cyanamid announces 24-hour computer color matching service. Am Dyestuff Rep 52:1037 D 9 '63
ICI computer color matching service to be offered in US. Am Dyestuff Rep 52:934 N 11 '63
Instruments for color matching of paper products. Paper Ind 45:493-4 D '63
Lighting for special purposes. J. Schachner. il diags Mill & Factory 75:46-50 Jl '64
Practical exploitation of instrumental match prediction. J. V. Alderson and others. diags Soc Dyers & Col J 79:723-9; Discussion. 729-30 D '63
System of instrumental colour control for the textile industry. H. R. Davidson and others. bibliog il diags Soc Dyers & Col J 79:577-89; Discussion. 601-3 D '63
Use of instrumental match prediction for recipes for wool-nylon carpet yarn. R. Walton. Soc Dyers & Col J 80:429-30 Ag '64
See also
Color measurement

COLOR measurement
CIE committee agrees on method of rating lamps for color rendering. Illum Eng 59:57-8 Ja '64
Colour discrimination. F. L. Warburton. bibliog il Soc Dyers & Col J 79:740-8; Discussion. 749-52 D '63
Color measurement and the colorant mixture computer in the textile industry. D. Graham. il diags Am Dyestuff Rep 53:673-8 Ag 3 '64
Color rendering of light sources; CIE method of specification and its application; abstract. D. Nickerson and C. W. Jerome. Illum Eng 59:594-5 S '64
Colorede; color measurement for continuous textile dyeing. E. L. Lewis. il diags Am Dyestuff Rep 53:635-40 Jl 20 '64; Excerpts. Textile Ind 127:114+ D '63
Continuous color measuring system suitable for industrial processes. il diag Automation 11:13 Ja '64
Filters facilitate color measurements. Franklin Inst J 278:70-1 Jl '64
Gradient method; a contribution to metameric colour formulation on the basis of colour-difference measurments. U. Gugerli and P. Buchner. Soc Dyers & Col J 79:637-48; Discussion. 648-50 D '63
Measuring the colour of very small patterns. P. R. Bunkall. Soc Dyers & Col J 80:255-6 My '64
New color computer offers high speed, accuracy. il Plastics Tech 9:13 N '63
Production of a standard comparator for the skin color of mature cherries. N. Brearley and others. il Food Tech 18:1477-9 S '64
See also
Color matching
Colorimeters and colorimetry

COLOR of flowers
Flower pigments. S. Clevenger. il diags Sci Am 210:84-8+ Je '64

COLOR of food. See Food—Color

COLOR of plants
See also
Color of flowers

COLOR photography
Are winners really winners? il Mod Phot 28:38-9+ Ag '64
Better Polacolor pictures with model 100 Polaroid Land cameras. J. Wolbarst. Mod Phot 28:10+ Mr '64
Color films compared! D. L. Miller. Mod Phot 28:84-5 O '64
Color seminar. Ind Phot 13:29-30+ Ja; 30-2 F '64
Color, the eye, and the film. J. H. Waddell. Res/Develop 15:17-18 S '64
Color workshop. F. Bond. Published in monthly numbers of Modern photography
Compare! compare! to mask (Kodacolor-X) or not to mask (Agfacolor CN 14), that is the question. E. Meyers. il Mod Phot 28:74-5+ Ap '64
Confined? cut loose with single-lens reflex color. P. Caulfield. il Mod Phot 28:60-3 S '64
Expose Ektachrome-X exposure index 500. E. Meyers. il Mod Phot 28:84-7+ My '64
In/out? out-of-focus foregrounds are in with color. P. Caulfield. il Mod Phot 28:66-71 O '64
Instant color correction. C. S. McCamy. Mod Phot 28:66-7 Ja '64
It works; simple way to process color prints at home; illustrations with text. E. Meyers. Mod Phot 28:84-9, 102 Je '64
Kodachrome II? Kodachrome-X? H/S Ektachrome? Ektachrome-X? H. Keppler. il Mod Phot 28:78-83 O '64
Newspapers instant color. il Ind Phot 13:94 Ap '64
Polacolor portfolio; illustrations with text. Ind Phot 13:45-52 Ap '64
Shooting color often very personal matter; here's the way I work. H. Keppler. Mod Phot 28:14-15 O '64
Stop wasting your time with Kodachrome? E. Meyers. il Mod Phot 28:78-9 Mr '64
Superachromat lenses. B. Sherman. diags Mod Phot 28:24-5+ My '64
Use of color film in manufacture of color map transparencies for radar trainers. E. E. Griffith. il diags SMPTE J 73:849-53 O '64

COLOR photography—*Continued*

Why settle for one? P. Caulfield. il Mod Phot 28:68-73 Jl '64

See also

Moving pictures, Colored

Television—Color

COLOR printing

Color revolution will double market for web-offset. H. Safran. Inland Ptr/Am Lithogr 154:66-7+ O '64

New methods speed positioning of color plates on rotary press. G. Marsh. il Inland Ptr/Am Lithogr 152:72-3 Mr '64

Two-colour offset press. il diag Engineer 216:761 N 8 '63

See also

Color photography

Silk screen printing

COLOR sense

Color, the eye, and the film. J. H. Waddell. Res/Develop 15:17-18 S '64

Retinex. E. H. Land. bibliog il Am Scientist 52:247-64 Je '64

COLORADO

See also subdivision Colorado under special subjects, e.g.

Gas, Natural

Gas supply

Geology

Hydroelectric plants

Mines and mineral resources

Petroleum

Petroleum industry and trade

Public health

Roads

Water supply

COLORADO RIVER

Arizona plan for Colorado River water. O. C. Stout. map Water Works & Wastes Eng 1:66 Mr '64

Dredge rids river of silt from irrigation water. il Eng N 172:38-9 My 14 '64

Power utilization

Drought foils Colorado River plans. il map Elec World 161:17-18 My 25 '64

Moratorium sets on lower Colorado. il Elec World 162:47 S 7 '64

COLORED light. See Light, Colored

COLORED moving pictures. See Moving pictures, Colored

COLORIMETERS and colorimetry

Better H_2S analysis in natural gas. D. M. Mason. bibliog diags Hydrocarbon Process & Pet Refiner 43:145-50 O '64

Colorede; color measurement for continuous textile dyeing. E. L. Lewis. il diags Am Dyestuff Rep 53:635-40 Jl 20 '64

Colorimetric determination of *o*-isopropoxyphenyl-N-methylcarbamate. P. Bracha. bibliog J Agri & Food Chem 12:461-3 S '64

Design parameters and performance of a miniaturized colorimetric recording air analyzer. B. E. Saltzman and A. L. Mendenhall, jr. il diag Anal Chem 36:1300-4 Je '64

Development of filters for a thermoelectric colorimeter. S. H. Emara and R. P. Teele. bibliog diag J Res Nat Bur Stand 67C:319-25 O '63

Electrochemical calorimetry. A. Brenner and S. L. Catey. bibliog diags Electrochem Soc J 111:1225-30 N '64

Heat flow through cryogenic insulation. il diag Engineering 197:164 Ja 24 '64

High-accuracy colorimetry; a review of some recent work. S. Johnson and others. bibliog diags Soc Dyers & Col J 79:731-8; Discussion. 738-9 D '63

International intercomparison of photometric and colorimetric measurements of fluorescent lamps. Illum Eng 59:497-8 Jl '64

See also

Colorimetric analysis

Reflectometers

COLORIMETRIC analysis

Analysis of alkaline pulping liquors; automatic colorimetric determination of total and active alkali in white and green liquors. R. B. Kesler. flow diag Tappi 47:167-70 Mr '64

Colorimetric analysis of chromic oxide used to study food utilization by phytophagous insects. A. J. McGinnis and R. Kasting. bibliog J Agri & Food Chem 12:259-62 My '64

Colorimetric detection and spectrophotometric determination of vanadium using a specific reaction. P. L. Sarma. bibliog Anal Chem 36:1076-8 My '64

Colorimetric determination of bromate with *o*-aminobenzoic acid. M. H. Hashmi and others. Anal Chem 36:2028-9 S '64

Colorimetric determination of dexon residues in crops. C. A. Anderson and J. M. Adams. J Agri & Food Chem 11:474-7 N '63

Colorimetric determination of glucose, fructose, and sucrose in plant materials using a combination of enzymatic and chemical methods. G. Johnson and others. bibliog J Agri & Food Chem 12:216-19 My '64

Colorimetric determination of large amounts of iron. H. L. Watts. Anal Chem 36:364-6 F '64

Colorimetric determination of 6-methyl-2,3-quinoxalinedithiol cyclic carbonate (Morestan) residues in apples and pears. R. Havens and others. J Agri & Food Chem 12:247-8 My '64

Colorimetric determination of vitamin A and its derivatives with trifluoroacetic acid. R. E. Dugan and others. bibliog Anal Chem 36:114-17 Ja '64

Colorimetric method for determining free fatty acids in vegetable oils. D. Baker. Am Oil Chem Soc J 41:21-2 Ja '64

Colorimetric procedure for the microdetermination of sulfonamides in animal tissues. R. P. Mooney and N. R. Pasarela. J Agri & Food Chem 12:123-7 Mr '64

Critical study of two procedures for the determination of piperine in black and white pepper. C. Genest and others. bibliog J Agri & Food Chem 11:508-12 N '63

Determination of acetaldehyde by colorimetry. D. J. Clancy and D. E. Kramm. Anal Chem 35:1987-8 N '63

Determination of peroxide by automatic colorimetry. E. K. Dukes and M. L. Hyder. flow diag Anal Chem 36:1689-90 Jl '64

Determination of the oxygen nonstoichiometry in barium titanate. J. Novák and H. Arend. Am Cer Soc J 47:530 O '64

Gas chromatographic and colorimetric measurement of dimethoate residues. C. H. Van Middelem and R. E. Waites. bibliog J Agri & Food Chem 12:178-82 Mr '64

Simple, interference-free determination of fluoride in water. A. T. Palin. Water & Sewage Works 111:461-4 O '64

System of instrumental colour control for the textile industry. H. R. Davidson and others. bibliog il diags Soc Dyers & Col J 79:577-89; Discussion. 601-3 D '63

Total phosphorus technique for determining organophosphorus pesticide residues using Schöniger flask combustion. R. C. Blinn. bibliog J Agri & Food Chem 12:337-8 Jl '64

Use of chloranilates in colorimetric analysis. L. S. Bark. bibliog Ind Chem 40:153-5 Mr '64

See also

Indicators and test papers

COLORING matter in food

Apo-carotenal, a potent color. G. K. Parman and B. Borenstein. Food Eng 36:77-8 My '64

Carotenoids in manufactured foods; abstract and discussion. G. H. Clement. Chem & Ind p24 Ja 4 '64

Color legislation. R. D. McMurray. Drug & Cosmetic Ind 94:664-6 My '64

Some benzpyrylium compounds potentially useful as color additives for fruit drinks and juices. L. Jurd. Food Tech 18:559-61 Ap '64

COLORS

See also

Blue

COLUMBIA, South Carolina

Sewerage

Plant growth and operating experiences at Columbia. H. O. Bellinger. il Pub Works 95:117 Ag '64

COLUMBIA RIVER

Water management planning for the Columbia River Basin. W. W. Towne and others. bibliog WPCF J 36:380-94 Mr '64

Power utilization

British Columbia hydro review board named. Eng N 173:19 Jl 23 '64

Columbia pact ok'd, work starts. Eng N 172:66 Je 18 '64

Construction begins on Columbia River treaty dams. il map Eng N 173:20-1 N 5 '64

Hopes raised for Columbia hydro plan. map Eng N 172:18 Ja 9 '64

US, Canada near accord on power pact. Elec World 161:22 Ja 6 '64

COLUMBIA university

Dramatic renewal on campus. il plans diag Arch Forum 121:114-17 Jl '64

COLUMBIUM. See Niobium

COLUMNS

Analysis and design of struts with tension ties. K. H. Chu and S. S. Berge. il diags Am Soc C E Proc 89 [ST 1 no 3414]:127-63 F '63; Reply. 90 [ST 2 no 3886]:355-6 Ap '64

Analysis of an inelastic column. J. V. Huddleston. diags Am Soc C E Proc 90 [EM 4 no 3992]:1-21 Ag '64

Biaxial flexure of columns by analog computers. S. P. Prawel, jr. and G. C. Lee. bibliog diags Am Soc C E Proc 90 [EM 1 no 3805]:83-111 F '64; Discussion. 90 [EM 4 no 4000]:185-7 Ag '64

Buckling criterion for linear viscoelastic columns. S. L. De Leeuw. bibliog diags AIAA J 1:2665-6 N '63

Buckling of columns. P. R. Paslay and D. B. Bogy. diag A S M E Trans ser B 8:252-6 Ag '64

Compact formal analysis of beam columns. J. E. Brock. AIAA J 2:1824-5 O '64

Dynamic stability of a uniform straight column excited by a pulsating load. L. A. Pipes. bibliog diags Franklin Inst J 277:534-51 Je '64

Finite beam-columns on elastic foundation. K. T. Sundara Raja Iyengar and S. Anantharamu. diags Am Soc C E Proc 89 [EM 6 no 3720]:139-60 D '63; Discussion. 90 [EM 2 no 3882]:257-9 Ap; [EM 3 no 3936]:289-90 Je '64; Reply. 90 [EM 6 no 4160]:249-52 D '64

Girder-carried cables replace columns. F. Kramrisch. il diags Eng N 172:101+ F 13 '64

How to determine maximum stress in spring-restrained columns; data sheet. M. Forray. diag Machine Design 36:169-70 My 7 '64

Stability of elasto-plastic wide-flange columns. G. F. Hauck and S. L. Lee. bibliog diags Am Soc C E Proc 89 [ST 6 no 3738]:297-324 D '63; Discussion. M. G. Lay and T. V. Galambos. 90 [ST 2 no 3886]:419-20 Ap '64; Reply. 90 [ST 5 no 4066]:205 O '64

Ultimate load of H-columns under biaxial bending. C. Birnstiel and J. Michalos. bibliog diags Am Soc C E Proc 89 [ST 2 no 3503]:161-97 Ap '63; Discussion. 89 [ST 5 no 3688]:363-6 O '63; Reply. 90 [ST 2 no 3886]:361-3 Ap '64

Walls become columns, and vice versa. W. C. Wing. il plans diag Arch Rec 135:202-4 Mr '64

Testing

Buckling loads for stepped columns. J. W. Harvey. bibliog diags Am Soc C E Proc 90 [ST 2 no 3873]:201-22 Ap '64; Discussion. 90 [ST 5 no 4066]:231-40 O '64

COLUMNS, Concrete

Biaxial eccentricities in ultimate load design. A. Aas-Jakobsen. bibliog diags Am Concrete Inst J 61:293-315 Mr '64

Creep buckling of reinforced concrete columns. S. Mauch and M. J. Holley. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3610]:451-81 Ag '63; Discussion. 90 [ST 2 no 3886]:371-9 Ap '64; Reply. 90 [ST 4 no 4001]:271-2 Ag '64

Formula for spiral reinforcement. T. Huang. Am Concrete Inst J 61:351-3 Mr '64; Discussion. 61:1241-6; Reply. 1247-8 S '64

Formwork; time-saver standards. S. Howard. diags Arch Rec 136:255 S '64

Precast columns, five stories high, cut erection time. B. Hall and A. Cavaliere. il Eng N 171:70-1 N 14 '63

Regression analysis of reinforced concrete columns. H. C. Shah. bibliog diags Am Soc C E Proc 90 [ST 1 no 3785]:37-59 F '64

Slip forming New York State World's fair pavilion. M. Madison. il Am Concrete Inst J 61:755-62 Jl '64

Ultimate strength of columns with biaxially eccentric loads. J. L. Meek. bibliog diags Am Concrete Inst J 60:1053-64 Ag '63; Discussion. 61:1999-2008 Mr '64

Use ultimate strength method for reinforced concrete column design. E. Czerniak. bibliog flow chart il diags Hydrocarbon Process & Pet Refiner 43:114-20 Jl '64

Testing

Behavior of concrete columns reinforced with high strength steels. C. E. Todeschini and others. il diags Am Concrete Inst J Supplement to Title 61:40:1-32 pt 2 '64

Behavior of restrained reinforced concrete columns. E. O. Pfrang and C. P. Siess. bibliog diags Am Soc C E Proc 90 [ST 5 no 4111]:113-36 O '64

Dynamic tests of reinforced concrete columns. K. F. Reinschmidt and others. bibliog diags Am Concrete Inst J 61:317-33 Mr '64

Influence of ties on the behavior of reinforced concrete columns. J. F. Pfister. bibliog il diags Am Concrete Inst J 61:521-37 My '64

Predicting structural behavior analytically. E. O. Pfrang and C. P. Siess. diags Am Soc C E Proc 90 [ST 5 no 4110]:99-111 O '64

Restrained long concrete column as a part of a rectangular frame. J. E. Breen and P. M. Ferguson. bibliog il diags Am Concrete Inst J 61:563-87 My '64; Supplement. pt 2:1-32 '65

Test of reinforced concrete columns with high slenderness ratios. L. P. Sáenz and I. Martín. bibliog il diags Am Concrete Inst J 60:589-616 My '63; Discussion. 60:1825-9; Reply. 1829-31 D '63

COLUMNS, Steel

Beam column experiments. R. C. Van Kuren and T. V. Galambos. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3876]:223-56 Ap '64

Buckling of steel columns under arbitrary end loads. S. L. Lee and G. F. Hauck. bibliog diags Am Soc C E Proc 90 [ST 2 no 3872]:179-200 Ap '64

How columns will be designed for 110-story buildings of New York's World trade center. il diags Eng N 172:48-9 Ap 2 '64

Steel pipe columns support 20-story walls. il Eng N 173:66-8 O 8 '64

Stronger steels cut column cost. il Eng N 173:171 S 17 '64

COMBS

Rotating combs size materials. il diag Iron Age 193:79 F 6 '64

COMBUSTION

Acid's value enhanced by submerged combustion. C. R. Havighorst. il diag Chem Eng 71:26-7 Ja 6 '64

Analysis of toxic gaseous combustion products. A. Fish and others. J Ap Chem 13:506-9 N '63

Combustion instability in solid propellant rockets; AIAA conference, Palo Alto, Calif. Jan. 29-31; texts of papers. bibliog il diags AIAA J 2:1100-34, 1270-323 Je-Jl '64

Correlation of motor and strand composite propellant burning rate. L. E. Herrington. AIAA J 2:1671-3 S '64

Diffusion flame burner for continuous combustion of hydrogen. D. Gupta and others. bibliog diags Ind & Eng Chem Proc Design 3:70-3 Ja '64

Effect of vanadium pentoxide on gas-phase combustion; the carbon monoxide-sulphur dioxide-oxygen system. C. F. H. Tipper and B. H. Williams. bibliog J Ap Chem 14:315-24 Ag '64

Effects of interface combustion and mixing on shock-tunnel conditions. J. A. Copper. bibliog diags AIAA J 2:1669-71 S '64

Flyash sampling; guide to better combustion. H. C. Skaggs, jr. il Elec World 162:119-20 S 21 '64

Forms for combustion calculations. B. L. Sturdevant and W. C. Battey. Air Cond Heat & Ven 61:85-7 Mr '64

High-temperature combustion of chemical residues solves pollution problem. il Lub Eng 20:371 O '64

International conference on combustion and the conversion of energy, Paris; abstracts of papers. Engineering 197:764-5 Je 5 '64

Molten zirconium reacts with N_2 in air. L. S. Nelson. il Chem & Eng N 42:45-6 S 14 '64

Multidimensional chromatography of arenes produced during combustion. M. Mukai and others. bibliog diag Anal Chem 36:1126-30 My '64

Similar solutions for the laminar mixing of reactive gases. A. Casaccio. bibliog diags AIAA J 2:1403-9 Ag '64

Spectrophotometric determination of trace fluoride in organic compounds following combustion in oxyhydrogen flame-quartz combustion tube. D. E. Willis and W. T. Cave. bibliog diags Anal Chem 36:1821-5 Ag '64

Study of forward combustion in a radial system bounded by permeable media. G. W. Thomas. bibliog J Pet Tech 15:Trans 1145-9 O '63; Discussion. 15:Trans 1370-1 D '63

Surface combustion of hydrogen. D. Gidaspow and R. T. Ellington. bibliog diag A I Ch E J 10:707-16 S '64

Velocity effects in transverse mode liquid propellant rocket combustion instability. F. H. Reardon and others. bibliog diags AIAA J 2:1631-41 S '64

See also

Boilers—Firing
Bunsen burner
Detonation

COMBUSTION—See also—*Continued*
Flames
Flash point
Fuel
Gas burners
Ignition
Inflammable mixtures
Oxidation
Spontaneous combustion

COMBUSTION, Heat of
Heat of combustion values of the protein and fat in the body and wool of sheep. O. L. Paladines and others. bibliog J Nutrition 82:145-9 Ja '64
Heats of combustion of aliphatic long chain peroxyacids, *t*-butyl peroxyesters, and related acids and esters. H. A. Swain, jr. and others. bibliog Am Chem Soc J 86:2562-6 Jl 5 '64

COMBUSTION analysis
Analysis for deuterium in organic compounds by combustion; infrared spectrometry. J. L. Lambert and others. bibliog diags Anal Chem 36:2148-51 O '64
Cold combustion for the quantitative determination of amalgable metals in the presence of their oxides in treated ores. M. G. Habashy. diag Anal Chem 36:1781-3 Ag '64
Combustion, conductometric determination of less than ten p.p.m. carbon in tungsten. W. A. Gordon and others. bibliog Anal Chem 36:1396-8 Je '64
Combustion-gas chromatographic method for the simultaneous determination of carbon and sulfur in ferrous metals. W. K. Stuckey and J. M. Walker. diag Anal Chem 35:2015-17 D '63
Combustion separation of phosphorus in the microdetermination of sulfur. J. M. Corliss and E. J. W. Rhodes. bibliog il diag Anal Chem 36:394-7 F '64
Combustion, thermal-conductivity analyzer for carbon in steel. L. L. Lewis and M. J. Nardozzi. bibliog diag Anal Chem 36:1329-31 Je '64
Determination of carbon-14 in halogenic compounds by an oxygen flask method. H. E. Dobbs. Anal Chem 36:687-9 Mr '64
Determination of microgram amounts of total sulfur in rocks; combustion method. J. G. Sen Gupta. bibliog diag Anal Chem 35:1971-3 N '63
Determination of molybdenum and sulfur in solid lubricants. I. L. Kalnin. bibliog Anal Chem 36:886-8 Ap '64
Determination of total carbon in water by combustion gas chromatography. D. L. West. Anal Chem 36:2194-5 O '64
Fire assay for osmium in sulfide concentrates. J. C. Van Loon and F. E. Beamish. bibliog diag Anal Chem 36:872-5 Ap '64
Improved technique for determination of C^{14} and H^3 by flask combustion. H. P. Baden. il Anal Chem 36:960 Ap '64
Rapid method for the determination of micro amounts of sulfur in selenium. L. Acs and S. Barabas. bibliog diag Anal Chem 36:1825-9 Ag '64
Simple apparatus for combustion of samples containing C^{14}-labeled pesticides for residue analysis. G. N. Smith and others. bibliog diags J Agri & Food Chem 12:172-5 Mr '64
Total phosphorus technique for determining organophosphorus pesticide residues using Schöniger flask combustion. R. C. Blinn. bibliog J Agri & Food Chem 12:337-8 Jl '64

COMBUSTION research
Acoustic absorption coefficients of combustion gases. D. W. Blair and others. AIAA J 2:392-3 F '64
Admittance measurements of solid propellants by an acoustic oscillator technique. S. N. Foner and others. bibliog il diags AIAA J 2:1123-9 Je '64
Alumina size distributions from high-pressure composite solid-propellant combustion. L. A. Povinelli and R. A. Rosenstein. bibliog diags AIAA J 2:1754-60 O '64
Apparatus for determining combustion rate of solid propellants. J. P. Picard and others. il diags Ind & Eng Chem 56:49-52 Ja '64
Calculated temperature histories of vaporizing droplets to the critical point. P. R. Wieber. bibliog AIAA J 1:2764-70 D '63
Chuffing and nonacoustic instability phenomena in solid propellant rockets. R. A. Yount and T. A. Angelus. bibliog diags AIAA J 2:1307-13 Jl '64
Combustion report ready. Oil & Gas J 61:78 N 25 '63
Conductivity probe measurements in flames. R. A. Olson and E. C. Lary. bibliog il diag AIAA J 1:2513-16 N '63
Deflagration characteristics of ammonium perchlorate strands. L. J. Shannon and E. E. Petersen. bibliog diag AIAA J 2:168-9 Ja '64
Driving mechanism for high frequency combustion instability in liquid fuel rocket engines. P. D. McCormack. bibliog il Roy Aeronautical Soc J 68:633-7 S '64
Effect of acoustic environment on the burning of solid propellants. J. E. Crump and E. W. Price. bibliog diags AIAA J 2:1274-8 Jl '64
Experiments with a solid-propellant acoustic oscillator. J. F. Engler and W. Nachbar. bibliog diags AIAA J 2:1279-84 Jl '64
Gas burner combustion noise study. H. L. McPherson. il Am Gas Assn Mo 46:19 O '64
Heterogeneous reactions in ignition and combustion of solid propellants. R. Anderson and others. bibliog AIAA J 2:179-80 Ja '64
High intensity combustion for pulsating and sonic heating systems. L. B. Geller and others. bibliog diags ASHRAE J 6:41-7 S '64
Low-frequency acoustic oscillatory combustion. M. D. Horton and others. bibliog diag AIAA J 1:2652-4 N '63
Photography of burning gases. J. H. Waddell. il Res/Develop 15:38-9 N '64
Review of problems in application of supersonic combustion. A. Ferri. bibliog diags Roy Aeronautical Soc J 68:575-95; Discussion. 595-7 S '64
Shock-induced combustion with oblique shocks; comparison of experiment and kinetic calculations. P. M. Rubins and R. P. Rhodes, jr. bibliog il diags AIAA J 1:2778-84 D '63
Shock wave model of unstable rocket combustors. W. A. Sirignano and L. Crocco. bibliog AIAA J 2:1285-96 Jl '64
Supersonic combustion progress. A. Ferri. bibliog il diags Astronautics & Aeronautics 2:32-7 Ag '64
T-burner method of determining the acoustic admittance of burning propellants. R. L. Coates and others. bibliog diags AIAA J 2:1119-22 Je '64
Technique for measuring burning rates of solid propellants. J. R. Osborne and H. E. Bethel. bibliog il diags R Sci Instr 35:1130-4 S '64
Technique for studying the combustion of small single drops of liquid fuel. M. T. Monaghan. bibliog il diags J Sci Instr 41:206-9 Ap '64
Theory of low-frequency combustion instability in solid rocket motors. R. Sehgal and L. Strand. bibliog diags AIAA J 2:696-702 Ap '64
Use of the one-dimensional T-burner to study oscillatory combustion. M. D. Horton. bibliog diags AIAA J 2:1112-18 Je '64
Variable compression ratio. S. G. Timoney. bibliog il diags Automobile Eng 54:182-4 My '64
Vortex generation in solid propellant rockets. J. Swithenbank and G. Sotter. bibliog diags AIAA J 2:1297-302 Jl '64
See also
Internal combustion engines—Combustion research

COMETS
Intercepting a comet. R. A. Park. il diags Astronautics & Aeronautics 2:54-8 Ag '64

COMMERCE
Novel U.N. plan for aid via trade. Chem Eng 71:40 Mr 30 '64
See also
Export trade

COMMERCIAL law
See also
Agency (law)
Patent laws and regulations

COMMERCIAL photography. See Photography, Commercial

COMMITTEES (in management)
See also
Safety committees

COMMON market. See European economic community

COMMONWEALTH mining and metallurgical congress
Congress, 8th, February 27-April 15. Min Eng 16:68-9 O '64

COMMUNICATION
Champions of conversation. Product Eng 34:74-5 N 11 '63
Communications between maintenance, design and production. J. W. Tracht. Chem Eng 71:174+ Ap 27 '64
Communications' role in environmental health. Soap & Chem Spec 39:171 N '63
Information from air jets; tactile perception method. il Comp Air Mag 69:22 Ja '64

COMMUNICATION—*Continued*

Man-machine communications in civil engineering. C. L. Miller. bibliog il diags Am Soc C E Proc 89 [ST 4 no 3594]:5-29 Ag '63; Discussion. G. Bugliarello 90 [ST 1 no 3812]:253-5 F '64

Technical reading, writing and editing (cont). M. H. Aronson and R. C. Nelson. Instruments & Control Systems 36:91-2 N; 73-5 D '63

COMMUNICATION, Military

Through the political fog; hard facts about our military communications. il map Electronics 37:93-6 O 19 '64

See also

Military telephone

Radio communication, Military

COMMUNICATION, Theory of

Adaptive communication systems. G. S. Glinski. bibliog diags IEEE Trans Com & Electronics p 176-81 Mr '64

Comparison of orthogonal and block codes. R. H. Aronstein. diags Inst E E Proc 110: 1965-7 N '63

Data transmission over a self-contained error detection and retransmission channel. F. E. Froehlich and R. R. Anderson. bibliog diags Bell System Tech J 43:375-98 pt 2 Ja '64

Definition of self-organizing systems. G. G. Lendaris. diag IEEE Proc 52:324-5 Mr '64

Dictionary for minimum redundancy encoding. E. S. Schwartz. bibliog diags Assn for Computing Mach J 10:413-39 O '63

Digital data acquisition system. D. E. Block. il diags Instruments & Control Systems 37:97-102 Ag '64

Discrete spectral densities of Markov pulse trains. R. D. Barnard. bibliog flow diag Bell System Tech J 43:233-59 Ja '64

Geometry of automatic character recognition. R. Townsend. diags Electro-Tech 73:54-7+ My '64

Guided waves in statistically random media. A. E. Karbowiak. bibliog diags Inst E E Proc 111:222-30 F '64

High-speed pcm coding tube. H. G. Cooper and others. il diags Bell Lab Rec 42:266-72 S '64

Information rates of Gaussian signals under criteria constraining the error spectrum. R. A. McDonald and P. M. Schultheiss. diag IEEE Proc 52:415-16 Ap '64

Intermodulation distortion in analog fm troposcatter systems. E. D. Sunde. bibliog diags Bell System Tech J 43:399-435 pt 2 Ja '64

Measuring communications intelligibility. diags Mag of Stand 35:207-8 Jl '64

Myoelectric surface potentials for machine control. R. R. Michael and F. R. Crawford. diags Elec Eng 82:689-91 N'63

Optimization of network configurations through queueing theory. F. P. Randazzo. bibliog diags Elec Com 38 no 4:511-23 '63

Permutation decoding of systematic codes. J. MacWilliams. Bell System Tech J 43: 485-505 pt 2 Ja '64

Power-frequency relations in nonlinear two-poles. J. Kudrewicz. bibliog IEEE Proc 51:1599-605 N '63

Reciprocity theorems and irreversible processes. H. B. G. Casimir. bibliog IEEE Proc 51:1570-3 N '63

Reduction in system dimensionality as an aid in nonlinear system stabilization. J. A. Knudson. diag IEEE Proc 52:203-4 F '64

Signal distortion in nonlinear feedback systems. I. W. Sandberg. bibliog diags Bell System Tech J 42:2533-50 N '63

Some bandwidth compression systems for speech transmission. J. S. Williams. bibliog diags Radio & Electronic Eng 27:459-71; Discussion. 471-2 Je '64

Some comments on entropy and information. P. Rodd. Am J Phys 32:333-5 My '64

Spectra of wave-shaped binary sequences. N. Solat. IEEE Proc 52:424 Ap '64

Stability of active transmission lines with arbitrary imperfections. H. E. Rowe. bibliog diags Bell System Tech J 43:293-328 Ja '64

Techniques for digital communication via satellites. F. Assadourian and E. M. Bradburd. diags RCA R 25:67-84 Mr '64

Traffic simulation and its application in telephony. G. Dietrich and H. Wagner. bibliog diags Elec Com 38 no 4:524-33 '63

Try permutation codes. F. H. Fowler, jr. diags Control Eng 11:75-7 Ja '64

Upper bound of channel capacity with a peak-power limitation for small SNR. H. Akima. IEEE Proc 52:1081 S '64

Wideband spectrum analyser-synthesizer for the prediction and smoothing of interrupted speech. P. V. Indiresan. bibliog diags Radio & Electronic Eng 28:55-60 Jl '64

Wide-bandwidth communications. L. S. Schwartz. diags Space/Aeronautics 40:84-9 D '63

COMMUNICATION and traffic

See also

Radio communication

Railroads

Telephone

COMMUNICATION in management

Communication? or is it really how to sell your ideas. A. N. McKnight. Product Eng 35:70-4 My 11 '64

Communication; special report. Hydrocarbon Process & Pet Refiner 43:97-116 Ag '64

Communications can't be taught. Elec World 161:31-4 Mr 2; 75-8 Mr 9 '64

Communications, key to improved labor relations. M. Lum. Rubber Age 95:429 Je '64

Communications managers and their role in management. F. V. Long. Gas 40:94+ Je '64

Getting answers the easy way. W. G. Shepherd. Textile World 114:127-8 Je '64

Getting ideas to management's attention. il Chem Eng Prog 59:23-32 D '63

How to lay out communications circuits. J. F. Holmes. Control Eng 10:87-9 D '63

Making the most of meetings. E. Raudsepp. Machine Design 36:152-6 My 21 '64

Malady of poor communication. R. Holguin. Ind Quality Control 21:203 O '64

Perspective on communications in management. M. L. Shotzberger. Paper Ind 46: 98-100 My '64

Putting ideas into action: through better communications. P. R. Heinmiller. Tool & Manuf Eng 52:45-7 Ja '64

See also

Factory communication

COMMUNICATIONS in industry. See Communications in management

COMMUNISM and democracy

Communist activities in the battle for industrial supremacy. C. W. Wright. Min Eng 16:52-4 Ja '64

COMMUNITY life

Development of community health service centers; present and future. bibliog Am J Pub Health 54:140-6 Ja '64

Human health, community life, and the rediscovery of the environment. G. Rosen. bibliog Am J Pub Health 54:1-6 pt 2 Ja '64

Specialization and the community; challenge of two cultures. F. Mayes. Archives Environmental Health 8:503-9 Ap '64

COMMUNITY planning. See Regional planning

COMMUTATORS

Commutation phenomena in a static power convertor. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:125-34 Ja '64

Commutation reactance of the transformer in a static power convertor. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:135-42 Ja '64

Time ratio control with combined scr and sr commutation. R. E. Morgan. bibliog diags IEEE Trans Com & Electronics 83:366-71 Jl '64

See also

Electric motors

Manufacture

SEM commutator lathe. il Engineering 196: 818-19 D 27 '63

COMPACT cars. See Automobiles—Small size

COMPARATORS

Analog comparator with digital accuracy. H. Schmid. bibliog diags Electro-Tech 74:108+ S '64

Automatic thermocouple comparator. il Instruments & Control Systems 37:91-2 My '64

Comparator controls battery charging rate. A. Anton. diag Electronics 37:72 Mr 23 '64

Current comparator for the precision measurement of d-c ratios. N. L. Kusters and others. il diags IEEE Trans Com & Electronics p 22-7 Ja '64

Frequency comparator has increased precision. diags Electro-Tech 72:122+ N '63

COMPASS

Navy tries solid-state compass. C. M. Wiley. il diags Electronics 37:57-8 F 14 '64

See also

Gyro compass

COMPETITION

Chemical competition shows new vitality. Chem & Eng N 42:23-4 Je 15 '64

Chemicals move closer to pure competition. Chem Eng 71:36-8 Ag 3 '64

Competition grows for peroxide catalysts. Chem & Eng N 42:25-6 F 24 '64

COMPETITION—*Continued*

FTC orders P&G to sell Clorox. Soap & Chem Spec 40:49-50 Ja '64
My responsibility in keeping my company competitive. E. B. Hall. Paper Ind 46:194-5 Je '64
Quality through competition. H. E. Chesebrough. Ind Quality Control 20:31-2 My '64
U.S. firms to feel the force of foreign know-how. Chem Eng 71:86+ Jl 20 '64

COMPOSING rooms. See Printing offices—Composing rooms

COMPOSITION (photography)

K.K. on komposition. A. Kraszna-Krausz. il Mod Phot 28:80-1 Je; 17+ Jl '64

COMPOSTS. See Refuse as fertilizer

COMPRESSED air

Air and dollmaking at Model Plastics. R. L. Moxey. il Comp Air Mag 69:20-3 Je '64
Air distribution system for pneumatically powered tools. il Mech Eng 86:57 S '64
Air in a hurry; Northrop Norair hypersonic wind tunnel facility. H. M. Karaszewski. il Comp Air Mag 68:8-11 D '63
Air springs, engine tests, and belt tests. il Comp Air Mag 69:24 Ja '64
Compressed air as a grinding fluid. il Comp Air Mag 68:22-3 D '63
Compressed air breathing apparatus. il Engineer 218:254 Ag 14 '64
Compressed air in a nuclear laundry. F. Kutnewsky. il Comp Air Mag 68:24 D '63
Compressed air must be clean and dry. Ind Finishing 40:95 My '64
Distribut-Air system for distributing compressed air to pneumatically powered tools. il Mach 70:140-1 Jl '64
Douglas Aircraft elects to purchase chilled and ht water, compressed air. flow diag il plan Air Cond Heat & Ven 60:69-71 D '63
Filtering compressed air efficiently. diag Engineering 198:359 S 18 '64
Fitting compressed air capacity to production. T. M. Joyce. il Hydraulics & Pneumatics 17:16+ My '64
Instant air; mobile unit replenishes air supplies for breathing apparatus on-the-spot. il Safety Maint 128:36-7 O '64
New method simplifies leak tests; differential air pressure method. il Foundry 92:122-3 My '64
Pneumatic dunnage. C. E. Davis. il Comp Air Mag 68:26-8 N '63
Portable system furnishes air for mechanized spotwelding. R. R. Irving. il Iron Age 193:52-3 Ja 9 '64
Precision, safety keynote design for hyperbaric oxygen facilities; Lutheran general hospital. W. D. Ludwig. il diag Heating-Piping 36:109-15 My '64
Starting jet engines with plant air. R. A. Morley. il diag Hydraulics & Pneumatics 17:64-6 F '64
Taking trout eggs pneumatically. il diag Comp Air Mag 69:16-17 Mr '64

See also

Pneumatic control
Pneumatic conveying
Pneumatic machinery
Pneumatic tools
Pneumatic transmission
Spraying apparatus

Moisture content

Blast cleaning ship's tanks before painting. W. E. Hill. il Ind Finishing 40:84+ Je '64
Desiccant dryer routs many plant problems. il Steel 155:92+ Jl 27 '64
Dry air in extrusion. il Plastics World 22:22 F '64
Dry compressed air. Ind Finishing 40:98 Ja '64
Float for an automatic drain valve. C. J. Kirk. diags Engineer 217:1036-7 Je 12 '64
How to get clean, dry air for plant use. D. W. Benner. il Welding Eng 49:70+ Ag '64
Mechanical and chemical action dries compressed air. W. E. Hill. diag Iron & Steel Eng 41:175 Jl '64
Twin-absorber air dryers. il Engineer 217:317 F 14 '64

COMPRESSED air lines

Air takes a trolley to work. il Iron Age 193:143 My 21 '64
Compressed air tapping; stationary or on the run. il diag Tool & Manuf Eng 53:60-1 Jl '64
Danger! air-line explosions ahead. J. E. Mallow. Hydrocarbon Process & Pet Refiner 43:157 Mr '64
How to get clean, dry air for plant use. D. W. Benner. il Welding Eng 49:70+ Ag '64
New type cable cuts installation time on pneumatic control system. il Oil & Gas J 61:114-15 O 28 '63
Now, a plug-in air supply. il Mod Materials Handling 19:49 Je '64
Operating a low-maintenance compressed-air system. J. C. Guffy. il diags Textile World 114:80-2 Ap '64
Put air where you need it. il Mill & Factory 74:84 Je '64
Sufficient air for a tire recapping shop. il diags Comp Air Mag 69:12-15 Jl '64

Tables, calculations, etc.

Design for compressed air. A. J. Ferrara. diag Air Cond Heat & Ven 61:62-6 Ag '64
Nomographs quickly select the right compressed air system. F. Caplan. Plant Eng 17:129-30 D '63

COMPRESSED gases. See Gases, Compressed

COMPRESSED wood. See Wood, Compressed

COMPRESSIBILITY

Compressibilities of *n*-butane, *iso*-butane, and 1,3-butadiene; nomographs. A M. P. Tans. Ind Chem 40:196 Ap '64
Compressibility of ammonia and its mixtures with nitrogen and hydrogen. I. M. Lichtblau and others. bibliog diag A I Ch E J 10:486-90 Jl '64
Compressibility of clay. G. A. Leonards and A. G. Altschaeffl. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4049]:133-55 S '64
Compressibility of natural rubber at pressures below 500 kg/cm^2. L. A. Wood and G. M. Martin. J Res Nat Bur Stand 68A:259-68 bibliog(p267-8) My '64
Compressible discharge coefficient of a Borda pipe and other nozzles. T. H. Frost. diag Roy Aeronautical Soc J 68:346-9 My '64
Find *n*-butane/propane compressibility; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:156 Jl '64
More accuracy in liquid propane compressibility. L. C. Kahre and R. J. Livingston. Hydrocarbon Process & Pet Refiner 43:119-21 Ap '64
Rapid methods for estimating reservoir compressibilities. H. J. Ramey, jr. bibliog J Pet Tech 16:Trans 447-54 Ap '64
Report on the AGA manual for the determination of supercompressibility factors for natural gas. P. H. Miller. Gas 40:128-9 My '64; Same. Am Gas Assn Mo 46:11-13 Ap '64
Some comparisons between compressible and incompressible treatments of compressible fluids. R. P. Benedict. A S M E Trans ser D 86:527-37 S '64
Theory of a slotted-sphere antenna immersed in a compressible plasma. J. R. Wait. bibliog diag J Res Nat Bur Stand 68D:1127-43 O '64
Truth about liquids under pressure. A. T. J. Hayward. il diags Engineering 198:314-15 S 4 '64
Velocity profiles from compressible wall jets. R. L. Lawrence. diag AIAA J 2:574-5 Mr '64
Zs of methane and ethane at low pressure. C. B. Wallace, jr. and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 O '64

See also

Elasticity

COMPRESSION

Analysis of the diametral-compression test. A. Rudnick and others. bibliog il diags Materials Res & Stand 3:283-9 Ap '63; Discussion. 4:24-5, 481-2 Ja, S '64
Behavior of mortar filled steel tubes in compression. H. J. Salani and J. R. Sims. bibliog Am Concrete Inst J 61:1271-83 O '64
Classical buckling load of circular cylindrical shells under axial compression. R. C. Tennyson. il diags AIAA J 1:475-6; 2:1351-3 F '63, Jl '64; Discussion. R. W. Leonard. 1:2194-5; Reply. 2195-6 S '63
Hot-pressed lead zironate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63
NPL's improved force measuring device. B. Swindells and E. P. Goymour. il diags Engineering 198:185 Ag 7 '64
Plane-strain cam plastometer for use in metal-working studies. J. A. Bailey and A. R. E. Singer. il diag Inst Metals J 92:288-9 '63-64
Postbuckling behavior of orthotropic cylinders under axial compression. B. O. Almroth. AIAA J 2:1795-9 O '64
Predicting compressive strength from properties of the fresh concrete. V. M. Malhotra. bibliog Materials Res & Stand 3:483-5 Je '63; Discussion. 4:296-7 Je '64

COMPRESSION—*Continued*

Simple compression packings. M. M. Main and G. R. McKillop. diags Machine Design 36: 44-9 Je 11 '64

Size and speed effects from lubricant breakdown in plastic compression. G. W. Pearsall and W. A. Backofen. bibliog il A S M E Trans ser B 85:329-34 N '63

Temperature effects on the hydrodynamic compression treatment of spot welds. G. Welter and J. A. Choquet. bibliog il Welding J 43:sup202-8 My '64

Yielding and locking of confined sand. R. V. Whitman and others. bibliog diags Am Soc C E Proc 90 [SM 4 no 3966]:57-84 Jl '64

COMPRESSOR stations. See Gas, Natural—Pipe lines—Compressor stations

COMPRESSORS

Absorption or compression for air-conditioning systems; which? F. C. Wood. il Power 107:59-62 D '63; Correction. 108:98+ Ap '64

Compressor design requirements; users outlook; abstract. P. H. Rohr. Combustion 35: 26-7 Ja '64

Compressor selection for process industry applications; abstract. R. J. Hamaker. Combustion 35:26 Ja '64

Compressors for process plants. il diag Chem Eng 71:163-8 Mr 16 '64

Cost of compressor drives. diags Chem Eng 71:116 Ja 6 '64

Flow distribution in centrifugal impellers. P. Polak. diags Engineer 218:175-6 Jl 31 '64

Lack of air saps theater's new system. A. D. Sullivan. Heating-Piping 36:163-5 Ja '64

Powering compressors for the process industries. W. B. Wilson. il diags Combustion 35:36-42 F '64

Rotary actuators; fluid power component selection charts. Hydraulics & Pneumatics 17: 115 Ja '64

See also

Air compressors
Gas compressors

Bearings

How to install and maintain gas-engine driven compressor bearings. V. E. Ford. diags Oil & Gas J 61:80-2 N 25 '63

Cooling

Hermetic compressors in modern applications. R. T. Divers and W. West. bibliog diags ASHRAE J 6:55-61 Ap '64

Design

Automotive air-conditioning compressor; design challenge. G. H. Moore, jr. and K. B. Bjorkman. il ASHRAE J 6:49-52+ My '64

Compressor design requirements; users' outlook. P. H. Rohr. Combustion 35:30-4 Mr '64

Failure

System contamination and cleanup. E. F. Wojtkowski. il ASHRAE J 6:49-52 Je '64

Lubrication

Lubricant selection for refrigeration compressors. R. T. Divers. diags Power 107:66-8 D '63

Maintenance and repair

Investigate short-cycling of compressor. A. D. Sullivan. Heating-Piping 36:142-4 Jl '64

Wet refrigerant piping system stops compressor. A. D. Sullivan. Heating-Piping 35: 131-2 D '63

Manufacture

Vapor-shielded arc welding doubles output. il Mach 71:166-7 O '64

Tables, calculations, etc.

Experiment with aspect ratio as a means of extending the useful range of a transonic inlet stage of an axial flow compressor. W. C. Swan. il A S M E Trans ser A 86: 243-6 Jl '64

Reynolds number effects in cascades and axial flow compressors. J. H. Horlock and others. bibliog A S M E Trans ser A 86:236-42 Jl '64

Study of induced vorticity in centrifugal compressors. G. O. Ellis. bibliog il diags A S M E Trans ser A 86:63-73; Discussion. 73-5; Reply. 75-6 Ja '64

Testing

Compressor cylinder pressure measurements. E. C. Harry. il A S M E Trans ser A 86: 89-94; Discussion. 94-5 Ja '64

Vibration

Pulsation and vibration, causes and cures. W. S. Everett. diags Instruments & Control Systems 37:161-4 S '64

COMPTON effect

Compton effect; a simple laboratory experiment. A. A. Bartlett. il diags Am J Phys 32:127-34 F '64

Compton effect; experiment for the advanced laboratory. A. A. Bartlett and others. il diags Am J Phys 32:135-42 F '64

Compton effect; historical background. A. A. Bartlett. diag Am J Phys 32:120-7 F '64

COMPUTATION, Approximate. See Approximate computation

COMPUTERS. See Calculating machines

CONCENTRATORS

Butte mining perks up with new concentrator; Anaconda facility for concentrating copper ore. il diag Chem & Eng N 42:40-2+ Jl 27 '64

Concentrated nitric acid. H. G. Graham, jr. and others. bibliog flow sheets il Chem Eng Prog 60:77-84 Jl '64

Minerals beneficiation in 1963; concentration. B. C. Mariacher. bibliog il diag Min Eng 16:107-10 F '64

See also

Evaporators

CONCRETE

Chemistry of concrete. S. Brunauer and L. E. Copeland. il diags Sci Am 210:80-6+ Ap '64

Concrete additives from the viewpoint of the large contractor. C. Hobbs. bibliog Chem & Ind p526-35 Mr 28 '64

Russian machine tools use concrete. il Engineering 197:396-7 Mr 13 '64

See also

American concrete institute
Cement
Concrete, Reinforced
Concrete construction
Grouting
Gunite
Pavements, Concrete
Roads, Concrete

Aggregate

Dry aggregate decorates facades. Eng N 172: 114 Ap 2 '64

Effects of aggregate properties on strength of concrete. D. L. Bloem and R. D. Gaynor. bibliog Am Concrete Inst J 60:1429-55 O '63; Discussion. 61:2035-42; Reply. 2042-3 pt 2 Je '64

Gas-producing agents in the production of lightweight aggregates. S. K. Chopra and others. bibliog J Ap Chem 14:181-5 My '64

Lightweight aggregate from fly ash. A. S. Pearson. il diags Civil Eng 34:50-3 S '64

Lightweight aggregates in blocks, screeds and panels. J. D. Llewellin. bibliog il Chem & Ind p601-9 Ap 11 '64

Maximum size of aggregate affects strength of concrete. E. C. Higginson and others. il Civil Eng 33:38-41 N '63

New super-lightweight aggregate yields high-strength concrete. H. F. Utley. il Pit & Quarry 56:160-1+ My '64

1964 forecast; lightweight aggregates. Rock Prod 67:64 Ja '64

Physical properties of lightweight aggregates and concretes. C. Hobbs. bibliog il diags Chem & Ind p594-600 Ap 11 '64

Prepacked concrete. H. J. Rosen. Prog Arch 44:184 N '63

Replacement of lightweight aggregate fines with natural sand in structural concrete. J. A. Hanson. bibliog Am Concrete Inst J 61:779-93 Jl '64

Shear bond strength between coarse aggregate and cement paste or mortar. M. A. Taylor and B. B. Broms. il diags Am Concrete Inst J 61:939-57 bibliog(p955-6) Ag '64

Sheer strength of reinforced structural lightweight aggregate concrete slabs. E. Hognestad and others. bibliog diags Am Concrete Inst J 61:643-56 Je '64

Sintering profit from a waste-disposal problem. D. MacDonald. il diag Chem Eng 71: 34+ Ag 31 '64

Tensile bond strength between aggregate and cement paste or mortar. T. T. C. Hsu and F. O. Slate. bibliog diags Am Concrete Inst J 60:465-86 Ap '63; Discussion. 60:1787-824 D '63

Variables in concrete aggregates and portland cement paste which influence the strength of concrete. W. A. Cordon and H. A. Gillespie. il Am Concrete Inst J 60:1029-52 bibliog(p 1049-50) Ag '63; Discussion. 61:1981-98 Mr '64

CONCRETE—Aggregate—*Continued*

Vermiculite insulating concrete; pumped and sprayed. C. T. Grimm. il Civil Eng 33:67-9 N '63

See also

Gravel

Air entrainment

Durability and behavior of pretensioned beams. E. C. Roshore. bibliog il diags Am Concrete Inst J 61:811-46 Jl '64

Preliminary study of the effects of water-reducing retarders on the strength, air void characteristics, and durability of concrete. T. D. Larson and others. bibliog il Am Concrete Inst J 60:1739-53 D '63; Discussion. 61:2085-7 pt 2 Je '64

Bibliography

Current reviews of significant contributions in foreign and domestic publications. Published in monthly numbers of Journal of the American concrete institute

Color

Will wet clinker grinding produce uniform-colored cement? J. C. Witt. Rock Prod 67:80-1 Je '64

Cracks

Behavior of reinforced concrete beams with closely spaced reinforcement. J. P. Romualdi and G. B. Batson. bibliog il diags Am Concrete Inst J 60:775-90 Je '63; Discussion. 60:1901-12 D '63

Cracking concrete; consultants review analyses of D. C. stadium troubles. Eng N 173:67 Ag 6 '64

Cracking corrected; epoxy overlay stops concrete failure due to temperature extremes. il Plastics World 22:42 Je '64

Cracking in Norfork dam. F. W. Sims and others. bibliog il diags Am Concrete Inst J 61:265-85 Mr '64; Discussion. D. McHenry and N. W. Hanson. 61:1213-18 S '64

FHA investigates partition cracking. Eng N 172:18 Mr 26 '64

Flexural cracking in two-way concrete slabs reinforced with high strength welded wire fabric. E. G. Nawy. il diag Am Concrete Inst J 61:997-1008 Ag '64

Fracture of plain concrete. J. Glucklich. diag Am Soc C E Proc 89 [EM 6 no 3715]:127-38 D '63; Discussion. A. Hrennikoff. 90 [EM 4 no 4000]:165-7; Reply. 167-9 Ag '64

Mathematical analysis of shrinkage stresses in a model of hardened concrete. T. T. C. Hsu. bibliog il diags Am Concrete Inst J 60:371-90 Mr '63; Discussion. 60:1787-824 D '63

Mechanics of crack arrest in concrete. J. P. Romualdi and G. B. Batson. il diags Am Soc C E Proc 89 [EM 3 no 3558]:147-68 Je '63; Discussion. 90 [EM 1 no 3811]:167-73 F '64

Microcracking of plain concrete and the shape of the stress-strain curve. T. T. C. Hsu and others. bibliog il maps diags Am Concrete Inst J 60:209-24 F '63; Discussion. 60:1787-824 D '63

Spalled concrete traced to conduit. il Eng N 172:28-9 Mr 12 '64

Strains and stresses of concrete at initiation of cracking and near failure. M. F. Kaplan. Am Concrete Inst J 60:853-80 bibliog(p877-9) Jl '63: Discussion. 61:1937-43 Mr '64

X-rays for study of internal structure and microcracking of concrete. F. O. Slate and S. Olsefski. il Am Concrete Inst J 60:575-88 My '63; Discussion. bibliog 60:1787-824 D '63

Curing

Effect of sampling and job curing procedures on compressive strength of concrete. W. K. Wagner. bibliog Materials Res & Stand 3:629-34 Ag '63; Discussion. 4:355-7 Jl '64

Low pressure steam curing. Am Concrete Inst J 60:953-86 bibliog(p984-5) Ag '63; Discussion. 61:1957-63; Reply. 1963-4 Mr '64

Plant drying and carbonation of concrete block; NCMA-PCA cooperative program. H. T. Toennies and J. J. Shideler. diags Am Concrete Inst J 60:617-33 My '63; Discussion. 60:1833-4 D '63

Rapid field assessment of strength of concrete by accelerated curing and Schmidt rebound hammer. C. A. P. Boundy and G. Hondros. bibliog Am Concrete Inst J 61:77-84 Ja '64; Discussion. 61:1185-8; Reply. 1188-90 S '64

Retarding agent helped pave in hot, dry wind. il Roads & Sts 107:86+ Ap '64

Cutting

Concrete sawing trims time on repairs. il Plant Eng 18:135 Ag '64

Hydraulic guillotine beheads concrete piles. il diags Eng N 172:92-3 My 21 '64

Tandem diamond saws kept pace on record job. il Roads & Sts 107:63 Je '64

Tandem saws speed joint cutting. il Eng N 172:36 F 6 '64

Drying

Retarding agent helped pave in hot, dry wind. il Roads & Sts 107:86+ Ap '64

Durability

Imported chemical process toughens concrete; Ocrating. il Chem Eng 71:84 S 28 '64

Expansion and contraction

Carbonation and shrinkage studies of nonplastic, expanded slag concrete containing fly ash. G. W. Washa and R. L. Fedell. Am Concrete Inst J 61:1109-24 S '64; Supplement. pt 2:1-9 '65

Construction's new boon; concrete that won't shrink. il Plant Eng 18:114-16 Mr '64

Expansive cement opens era of new concretes. il Chem & Eng N 42:38-9 Ag 10 '64

Expansive concrete. J. Joseph. il Prog Arch 44:178+ N '63

Mathematical analysis of shrinkage stresses in a model of hardened concrete. T. T. C. Hsu. bibliog il diags Am Concrete Inst J 60:371-90 Mr '63; Discussion. 60:1787-824 D '63

Nonshrinking or expansive portland cement concrete. N. C. Rockwood. Rock Prod 66:16+ D '63

Plant drying and carbonation of concrete block; NCMA-PCA cooperative program. H. T. Toennies and J. J. Shideler. diags Am Concrete Inst J 60:617-33 My '63; Discussion. 60:1833-4 D '63

Time-dependent effects in composite concrete beams. D. E. Branson. bibliog diags Am Concrete Inst J 61:213-30 F '64; Discussion. G. J. R. van der Meulen. 61:1207-9 S '64

Failure

Porosity; key to corrosion of concrete. H. G. Bennett. il Can Chem Process 48:74-6 Mr; 111+ Je '64

Riddle of shear failure and its solution. G. N. J. Kani. diags Am Concrete Inst J 61:441-67 Ap '64

Strains and stresses of concrete at initiation of cracking and near failure. M. F. Kaplan. Am Concrete Inst J 60:853-80 bibliog(p877-9) Jl '63; Discussion. 61:1937-43 Mr '64

Test of reinforced concrete columns with high slenderness ratios. L. P. Sáenz and I. Martín. bibliog il diags Am Concrete Inst J 60:589-616 My '63; Discussion. 60:1825-9; Discussion. 1829-31 D '63

Variables in concrete aggregates and portland cement paste which influence the strength of concrete. W. A. Cordon and H. A. Gillespie. il Am Concrete Inst J 60:1029-52 bibliog(p 1049-50) Ag '63; Discussion. 61:1981-98 Mr '64

See also

Concrete—Cracks

Finishing

Exposed concrete surfaces. S. Howard. il Arch Rec 136:250-3 S '64

Prepacked concrete. H. J. Rosen. Prog Arch 44:184 N '63

Freezing

Concrete admixture improves freeze-thaw durability. B. C. Carlson and others. il Pub Works 95:133-5 O '64

Durability and behavior of pretensioned beams. E. C. Roshore. bibliog il diags Am Concrete Inst J 61:811-46 Jl '64

See also

Concrete construction in winter

Mixing

See Concrete mixing

Moisture content

Optimization of a neutron scattering water content gauge for soils or concretes. K. Preiss and P. J. Grant. bibliog diags J Sci Instr 41:548-51 S '64

Preliminary study of the effects of water-reducing retarders on the strength, air void characteristics, and durability of concrete. T. D. Larson and others. bibliog il Am Concrete Inst J 60:1739-53 D '63; Discussion. 61:2085-7 pt 2 Je '64

CONCRETE—*Continued*

Prestressing

Additional Cooper River bridge. F. S. Sterbenz. il plan diags Civil Eng 34:41-5 O '64
Alternate design proves economy of precast prestressed design for pier shed. W. H. Rucker, jr. il diag Civil Eng 34:42-6 My '64
Analysis of prestressed cylindrical shell roofs. R. Dabrowski. bibliog diags Am Soc C E Proc 89 [ST 5 no 3668]:91-116 O '63; Discussion. 90 [ST 3 no 3940]:385-91 Je '64
Anchor zone stresses in prestressed concrete beams. P. K. Som and K. Ghosh. bibliog diags Am Soc C E Proc 90 [ST 4 no 3996]: 49-62 Ag '64
Bendorf bridge, a new world record in prestressed concrete. il diags Eng N 173:60-2+ O 8 '64
Bridge built atop the scenery with cantilevered travelers. il diags Eng N 172:72-5 Je 18 '64
Concrete pressure vessel for Wylfa. il Engineer 218:273 Ag 21 '64
Damping characteristics of prestressed concrete. J. Penzien. bibliog il Am Concrete Inst J 61:1125-48 S '64
Deflections of prestressed concrete members. diags Am Concrete Inst J 60:1697-728 bibliog(p 1726-7) D '63; Discussion. 61:2071-7; Reply. 2078-9 pt 2 Je '64
Development of stabilized wire and strand. T. Cahill. bibliog il Wire & Wire Prod 39:1535-7+ O '64
Durability and behavior of pretensioned beams. E. C. Roshore. bibliog il diags Am Concrete Inst J 61:811-46 Jl '64
Elastic-plastic behaviour of pre-stressed materials. J. Pietrzykowski. bibliog diags Engineer 217:385-8 F 28 '64
Evaluation and location of critical stresses in pretensioned structures. K. Csibi. diags Am Concrete Inst J 60:391-431 Mr '63; Correction. 61:sup5+ pt 2 Je '64
Friction supports 14-story building. il diags Eng N 173:46-9 Ag 20 '64
Hollow prestressed piles help span Missouri. H. K Glidden. il diags Roads & Sts 107: 48-51+ Ja '64
Improved wire and strand for prestressed concrete. R. Martin, 3d. bibliog il Wire & Wire Prod 39:1529-31+ O '64
Lightweight, prestressed concrete beams span the Suwanee River. il Eng N 172:26-7 Je 4 '64
Load-balancing method for design and analysis of prestressed concrete structures. T. Y. Lin. bibliog diags Am Concrete Inst 60: 719-42 Je '63; Discussion. 60:1843-78; Reply. 1878-81 D '63
Logging strains at Oldbury. il Engineering 197:783 Je 5 '64
Optimum design of prestressed plates. G. I. N. Rozvany and A. J. K. Hampson. diags Am Concrete Inst J 60:1065-82 Ag '63; Discussion. 61:2009-11 Mr '64
Phoenix airport terminal building; prestressed challenge. W. E. Riley. il diags Am Concrete Inst J 61:137-50 F '64
Pier shifts help out tendons in prestressing a curved bridge. il diags Eng N 173:34-6 O 22 '64
Precast TTs form pyramidal roof. il Eng N 172:33 My 28 '64
Prefabricated building made of triangular prestressed components. Z. A. Zielinski. il plans diags Am Concrete Inst J 61:383-98 Ap '64
Prestressed box section motorway bridge over the Rhine. il Engineering 197:19 Ja 3 '64
Prestressed bridge will be jet runway. il diags Eng N 172:54-5 Mr 19 '64
Prestressed concrete railroad ties. il Mech Eng 85:53 D '63
Prestressed concrete soars 308 ft. il Eng N 172:21 Ap 9 '64
Pre-stressed concrete stands up to Alaskan earthquake. il Safety Maint 128:73-4 N '64
Prestressed slabs, ¾-in. thick span 14-ft-sq school shelters. il Eng N 172:174 Je 18 '64
Prestressed steel girders carry prestressed concrete floor. il Eng N 172:24-5 Mr 26 '64
Prestressed units form inverted dome. il diags Arch Rec 136:198-201 O '64
Prestressing nuclear pressure vessels. S. C. C. Bate and others. il diags Engineering 197:492-5 Ap 3 '64
Rate of loading effect on moment-curvature relation in prestressed concrete beams. I. O. Oladapo. il diags Am Concrete Inst J 61: 871-87 Jl '64
Standard prestressed concrete bridge beams. diag Engineering 197:229 F 7 '64
Strain measurement in concrete pressure vessels. il Engineer 217:960-1 My 29 '64
Stresses in end blocks of a post-tensioned prestressed beam. T. Huang. bibliog diags Am Concrete Inst J 61:589-602 My '64
Suggested design of joints and connections in precast structural concrete. diags Am Concrete Inst J 61:921-37 Ag '64
Suspended deck is prestressed. diag Eng N 172:138 Mr 19 '64
Tendons tie down core walls. il diag Eng N 172:31 Ap 23 '64
27-story Ilikai apartment hotel overlooking Waikiki Beach is world's tallest building with precast, prestressed concrete framing. il Eng N 172:24 Ja 9 '64
U.S. progress in preassembly. il plans diags Prog Arch 45:201-20 O '64
West German pioneers in concrete; Ulrich Finsterwalder. Eng N 173:99-100 O 8 '64

Protection

Effect of linseed oil coatings on resistance of concrete to scaling. W. E. Grieb and R. Appleton. il Pub Roads 33:1-4 Ap '64
Wrong de-icers harm concrete. Safety Maint 127:61-2 Mr '64

Shrinkage

See Concrete—Expansion and contraction

Specifications

Concrete admixtures. H. J. Rosen. Prog Arch 45:208 Je; 184 Jl '64
Effect of sampling and job curing procedures on compressive strength of concrete. W. K. Wagner. bibliog Materials Res & Stand 3: 629-34 Ag '63; Discussion. 4:355-7 Jl '64

Standards

Formwork; time-saver standards. S. Howard. diags Arch Rec 136:254-6 S '64

Strength

Accuracy of models used in research on reinforced concrete. Z. Y. Alami and P. M. Ferguson. bibliog il diags Am Concrete Inst J 60:1643-63 N '63; Discussion. 61: 2067-9; Reply. 2070 pt 2 Je '64
Behavior of reinforced concrete frames subjected to repeated reversible loads. V. V. Bertero and G. McClure. bibliog il diags Am Concrete Inst J 61:1305-30 O '64
Carbonation and shrinkage studies of nonplastic, expanded slag concrete containing fly ash. G. W. Washa and R. L. Fedell. Am Concrete Inst J 61:1109-24 S '64; Supplement. pt 2:1-9 '65
Change of stress in reinforcement with time. J. M. Plowman. il diags Engineer 217:335-40 F 21 '64
Concrete strength tests affected by mold type. Roads & Sts 107:100 My '64
Economical design of reinforced concrete slabs using ultimate strength theory. E. Traum. diags Am Concrete Inst J 60:763-74 Je '63; Discussion. 60:1893-9; Reply. 1899-900 D '63
Effect of sampling and job curing procedures on compressive strength of concrete. W. K. Wagner. bibliog Materials Res & Stand 3:629-34 Ag '63; Discussion. 4:355-7 Jl '64
Effects of aggregate properties on strength of concrete. D. L. Bloem and R. D. Gaynor. bibliog Am Concrete Inst J 60: 1429-55 O '63; Discussion. 61:2035-42; Reply. 2042-3 pt 2 Je '64
Effects of heat on concrete strength. D. J. Hannant. il diag Engineering 197:302 F 21 '64
Elastic-plastic behaviour of pre-stressed materials. J. Pietrzykowski. bibliog diags Engineer 217:385-8 F 28 '64
Equation for the stress-strain curve of concrete. P. Desayi and S. Krishnan. bibliog diag Am Concrete Inst J 61:345-50 Mr '64; Discussion. 61:1227-38; Reply. 1238-9 S '64
Guide for determination of bond strength in beam specimens. diags Am Concrete Inst J 61:129-35 F '64
Investigation of standard concrete cylinders. G. R. Williamson. Am Concrete Inst J 61:151-4 F '64; Discussion. 61:1197-9 S '64
Low pressure steam curing. Am Concrete Inst J 60:953-86 bibliog(p984-5) Ag '63; Discussion. 61:1957-63; Reply. 1963-4 Mr '64
Mathematical analysis of shrinkage stresses in a model of hardened concrete. T. T. C. Hsu. bibliog il diags Am Concrete Inst J 60:371-90 Mr '63; Discussion. 60:1787-824 D '63

CONCRETE—Strength—*Continued*

Maximum size of aggregate affects strength of concrete. E. C. Higginson and others. il Civil Eng 33:38-41 N '63

Method of proportioning normal and no-fines concrete mixtures. K. H. Eyman. Am Concrete Inst J 60:927-43 Jl '63; Correction. 61:sup9 pt 2 Je '64; Discussion. 61:1949-50; Reply. 1950-5 Mr '64

Microcracking of plain concrete and the shape of the stress-strain curve. T. T. C. Hsu and others. bibliog il maps diags Am Concrete Inst J 60:209-24 F '63; Discussion. 60:1787-824 D '63

Predicting compressive strength from properties of the fresh concrete. V. M. Malhotra. bibliog Materials Res & Stand 3:483-5 Je '63; Discussion. 4:296-7 Je '64

Preliminary study of the effects of water-reducing retarders on the strength, air void characteristics, and durability of concrete. T. D. Larson and others. bibliog il Am Concrete Inst J 60:1739-53 D '63; Discussion. 61:2085-7 pt 2 Je '64

Proposed revision of recommended practice for evaluation of compression test results of field concrete [ACI 214-57]. Am Concrete Inst J 61:1057-72 S '64

Rapid field assessment of strength of concrete by accelerated curing and Schmidt rebound hammer. C. A. P. Boundy and G. Hondros. bibliog Am Concrete Inst J 61:77-84 Ja '64; Discussion. 61:1185-8; Reply. 1188-90 S '64

Replacement of lightweight aggregate fines with natural sand in structural concrete. J. A. Hanson. bibliog Am Concrete Inst J 61:779-93 Jl '64

Restrained long concrete column as a part of a rectangular frame. J. E. Breen and P. M. Ferguson. bibliog il diags Am Concrete Inst J 61:563-87 My '64; Supplement. pt 2:1-32 '65

Shear bond strength between coarse aggregate and cement paste or mortar. M. A. Taylor and B. B. Broms. il diags Am Concrete Inst J 61:939-57 bibliog(p955-6) Ag '64

Sheer strength of reinforced structural lightweight aggregate concrete slabs. E. Hognestad and others. bibliog diags Am Concrete Inst J 61:643-56 Je '64

Statistical evaluation of concrete strength tests. P. D. Cady. bibliog Am Soc C E Proc 89 [CO 1 no 3453]:19-31 Mr '63; Discussion. 89 [CO 2 no 3653]:131-5 S '63; 90 [CO 1 no 3851]:61-2 Mr '64; Reply. 90 [CO 2 no 4051]:51-2 S '64

Strains and stresses of concrete at initiation of cracking and near failure. M. F. Kaplan. Am Concrete Inst J 60:853-80 bibliog(p877-9) Jl '63; Discussion. 61:1937-43 Mr '64

Strength of concrete test cylinders cast in waxed paper molds. A. R. Cusens. il Am Concrete Inst J 61:287-92 Mr '64; Discussion. 61:1219-21; Reply. 1222-3 S '64

Strength of the compression slab of T-beams subject to simple bending. G. Brendel. bibliog diags Am Concrete Inst J 61:57-76 Ja '64; Discussion. A. Siev. 61:1183-4 S '64

Stress-strain relations for concrete under cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:195-211 F '64

Tensile bond strength between aggregate and cement paste or mortar. T. T. C. Hsu and F. O. Slate. bibliog diags Am Concrete Inst J 60:465-86 Ap '63; Discussion. 60:1787-824 D '63

Tensile strength of concrete. D. J. McNeely and S. D. Lash. bibliog il diag Am Concrete Inst J 60:751-61 Je '63; Discussion. 60:1883-90; Reply. 1890-1 D '63

Tensile strength of concrete affected by uniformly distributed and closely spaced short lengths of wire reinforcement. J. P. Romualdi and J. A. Mandel. diag Am Concrete Inst J 61:657-71 Je '64

Test of reinforced concrete columns with high slenderness ratios. L. P. Sáenz and I. Martín. bibliog il diags Am Concrete Inst J 60:589-616 My '63; Discussion. 60:1825-9; Discussion. 1829-31 D '63

Ultimate strength behavior study by regression analysis of beam test data. T. C. Zsutty. bibliog Am Concrete Inst J 60:635-54 My '63; Discussion. 60:1835-8; Reply. 1838-41 D '63

Ultimate strength of columns with biaxially eccentric loads. J. L. Meek. bibliog diags Am Concrete Inst J 60:1053-64 Ag '63; Discussion. 61:1999-2008 Mr '64

Ultimate strength of reinforced concrete flat slabs. M. W. Self. il diags Am Soc C E Proc 90 [ST 4 no 4013]:205-33 Ag '64

Ultimate strength with high strength reinforcing steel with an indefinite yield point. N. C. Sinha and P. M. Ferguson. il diags Am Concrete Inst J 61:399-418 Ap '64

Variables in concrete aggregates and portland cement paste which influence the strength of concrete. W. A. Cordon and H. A. Gillespie. il Am Concrete Inst J 60:1029-52 bibliog(p 1049-50) Ag '63; Discussion. 61:1981-98 Mr '64

Temperature effect

Effects of heat on concrete strength. D. J. Hannant. il diag Engineering 197:302 F 21 '64

Tensile strength of concrete. D. J. McNeely and S. D. Lash. bibliog il diag Am Concrete Inst J 60:751-61 Je '63; Discussion. 60:1883-90; Reply. 1890-1 D '63

Terminology

Glossary of terms on cement and concrete technology. bibliog Am Concrete Inst J 59:1761-70; 60:1689-95; 61:487-508, 913-20 D '62, D '63, My, Ag '64; Discussion(pt 1). 60:2065-9 pt 2 Je '63

Testing

Concrete admixture improves freeze-thaw durability. B. C. Carlson and others. il Pub Works 95:133-5 O '64

Concrete strength tests affected by mold type. Roads & Sts 107:100 My '64

Experiences with the Kelly ball test. K. Komlos. Am Concrete Inst J 60:791-2 Je '63; Discussion. 61:111-12 Ja '64

How to make samples for testing sprayed concrete. T. R. Crom. il Eng N 172:166-7 Je 18 '64

Investigation and repair of damage to concrete caused by formwork and falsework fire. P. Smith. il diags Am Concrete Inst J 60:1535-66 bibliog(p 1564-5) N '63; Discussion. 61:2065-6 pt 2 Je '64

Investigation of standard concrete cylinders. G. R. Williamson. Am Concrete Inst J 61:151-4 F '64; Discussion. 61:1197-9 S '64

Natural weathering of concrete specimens prepared with cements used in the long-time study. W. E. Grieb and G. Werner. bibliog il diags Pub Roads 33:57-67 O '64

Predicting compressive strength from properties of the fresh concrete. V. M. Malhotra. bibliog Materials Res & Stand 3:483-5 Je '63; Discussion. 4:296-7 Je '64

Proper technique for conducting slump test of portland cement concrete. il Am Concrete Inst J 61:sup24 Mr '64

Proposed revision of recommended practice for evaluation of compression test results of field concrete [ACI 214-57]. Am Concrete Inst J 61:1057-72 S '64

Rapid field assessment of strength of concrete by accelerated curing and Schmidt rebound hammer. C. A. P. Boundy and G. Hondros. bibliog Am Concrete Inst J 61:77-84 Ja '64; Discussion. 61:1185-8; Reply. 1188-90 S '64

Simple penetration test using vibration. K. Komlos. il Am Concrete Inst J 61:108-10 Ja '64

Statistical evaluation of concrete strength tests. P. D. Cady. bibliog Am Soc C E Proc 89 [CO 1 no 3453]:19-31 Mr '63; Discussion. 89 [CO 2 no 3653]:131-5 S '63; 90 [CO 1 no 3851]:61-2 Mr '64; Reply. 90 [CO 2 no 4051]:51-2 S '64

Strain measurements in a reinforced concrete winding tower. L. J. Thomas. bibliog il diags Engineer 218:491-6 S 25 '64

Strength of concrete test cylinders cast in waxed paper molds. A. R. Cusens. il Am Concrete Inst J 61:287-92 Mr '64; Discussion. 61:1219-21; Reply. 1222-3 S '64

Stress-strain relations for concrete under cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:195-211 F '64

Test ok's most concrete admixtures. J. J. White. Roads & Sts 107:57-9 Jl '64

CONCRETE, Ornamental

Concrete: architects explore its textures; illustrations with text. Eng N 172:74-5 My 21 '64

Concrete blends with mountains for a research center in Colorado. il Eng N 173:23 Jl 16 '64

Decorative concrete panels. il Prog Arch 45:168 Mr '64

Dry aggregate decorates facades. Eng N 172:114 Ap 2 '64

Hartford office tower clad in preglazed panels. il Eng N 172:23 Je 25 '64

Textured concrete and air ducts mesh like a Chinese puzzle. il diags Eng N 173:30-2 O 22 '64

CONCRETE, Porous

Novel uses for aqueous foams. A. R. Aidun and others. bibliog Chem Eng 71:145-6+ F 17 '64

Thermalite building blocks. il Engineering 198:12-13 Jl 3 '64

CONCRETE, Precast

Alternate design proves economy of precast prestressed design for pier shed. W. H. Rucker, jr. il diag Civil Eng 34:42-6 My '64

Arches support floors, shade curtain walls. il Eng N 172:22-3 Ap 23 '64

Beams cast atop lift-slab roof. il Eng N 172:67 F 13 '64

Bridge and trestle construction; Chesapeake Bay bridge-tunnel project. J. W. Fowler. il Civil Eng 33:50-2 D '63

Cables tie down stacked-up shear wall. il diag Eng N 173:38-9 S 24 '64

Consider pre-engineered materials and techniques. P. M. Green. il Food Eng 36:83-4 S '64

Factory for industrialised housing. il Engineer 216:1025 D 20 '63

52-ft panels form bearing walls. il Eng N 173:27 S 3 '64

Foam panel core; concrete panels insulated with expanded polystyrene. il Plastics World 22:12 S '64

Forms make form maker's office. il Eng N 171:31 D 5 '63

Friction supports 14-story building. il diags Eng N 173:46-9 Ag 20 '64

Industrialized housing at Kirkby; illustrations with text. Engineer 218:160 Jl 31 '64

Marble strips distinguish precast concrete facades. il Arch Rec 135:184 Je '64

Moisture barrier pre-cast manholes aid in providing 345-kv splicing environment. il Elec World 161:86+ F 10 '64

Panels stacked like dominoes make a building. il diag Eng N 173:62-3 S 17 '64

Plastic forms shape striated surfaces of concrete trees. il Eng N 173:32-3 N 5 '64

Precast and site cast concrete used in combination. il Engineering 197:621 My 1 '64

Precast annular embassy. il plans diags Prog Arch 45:155-63 F '64

Precast columns, five stories high, cut erection time. B. Hall and A. Cavaliere. il Eng N 171:70-1 N 14 '63

Precast concrete toroidal vault. R. R. Bradshaw. il diags Am Concrete Inst J 61: 257-64 Mr '64

Precast folded plates become standard products. W. C. Harry. il diags Am Concrete Inst J 60:1375-87 O '63; Discussion. R. M. Goodwin and J. Chinn. 61:2031-2 pt 2 Je '64

Precast frame has column-free interior. il diag Eng N 172:77-8 My 21 '64

Precast girders make Australian bridge. il Eng N 172:94-5 F 13 '64

Precast load-bearing exterior wall; Dearborn Towers, Dearborn, Mich. il plan Arch Rec 136:122-3 Ag '64

Precast members reduce roof costs. il Eng N 172:16 Ja 30 '64

Precast outside drop manholes use rubber gasket joints. D. F. Hanley. il diag Pub Works 95:93 Jl '64

Precast panels on a frame; Northeast regional library, Philadelphia. il plans diags Prog Arch 45:156-61 S '64

Precast segmental construction for long-span bridges. B. C. Gerwick, jr. il diags Civil Eng 34:43-7 Ja '64

Precast sunshade; Western Washington state college; selected detail. Prog Arch 45:207 S '64

Precast T's and slabs make culverts quickly. J. F. Lenard. il diags Civil Eng 34:64-5 O '64

Precast TTs enclose huge plant. il diags Eng N 173:32-3 O 1 '64

Precast TTs form pyramidal roof. il Eng N 172:33 My 28 '64

Precast tension roof wins award. il Eng N 173:24 Ag 13 '64

Precast units make a culvert. il diag Eng N 172:42 My 28 '64

Precast units make up multiple-arch Russian bridge. il Eng N 173:36-7 Ag 13 '64

Precast vaults support a pour; Burndy library, Norwalk, Conn. il plans diags Prog Arch 45:162-5 S '64

Precast walls support police headquarters. il Eng N 172:73 Mr 19 '64

Precasting cuts construction time. il Eng N 171:134 D 19 '63

Precasting cuts cost of shells. il Eng N 172: 23 Ja 9 '64

Precasting in Detroit; Dearborn towers apartment building. il plan Arch Forum 120:80 Mr '64

Prefabricated building made of triangular prestressed components. Z. A. Zielinski. il plans diags Am Concrete Inst J 61:383-98 Ap '64

Retaining wall has precast panels. R. C. Kenmir. il diag Eng N 172:162-4 Je 18 '64

Structural and artistic combination; concrete made from Capstone aggregate. il diag Engineering 197:262-3 F 14 '64

Stud welding cuts costs in precast concrete panel erection. il Welding J 43:610 Jl '64

Suggested design of joints and connections in precast structural concrete. diags Am Concrete Inst J 61:921-37 Ag '64

Suggested design of joints and connections in precast structural concrete; report of the joint ACI-ASCE committee 512(712). diags Am Soc C E Proc 90 [ST 4 no 4011]: 175-90 Ag '64

Synagogue by Yamasaki, Glencoe, Ill. il plans Arch Rec 136:191-6 S '64

System building for college hostels. il plans Engineering 197:359-60 Mr 6 '64

Tests for precast wall panels. Am Concrete Inst J 61:369-82 Ap '64

Tractors shuttle big Ts on site. il Eng N 172:33 My 7 '64

27-story Ilikai apartment hotel overlooking Waikiki Beach is world's tallest building with precast, prestressed concrete framing. il Eng N 172:24 Ja 9 '64

U.S. progress in preassembly. il plans diags Prog Arch 45:201-20 O '64

CONCRETE, Prestressed. See Concrete—Prestressing

CONCRETE, Ready-mixed. See Concrete mixing—Ready-mixed concrete

CONCRETE, Refractory

Curing refractory castables; it isn't the heat, it's the humidity. J. F. Wygant and M. S. Crowley. Am Cer Soc Bul 43:1-5 Ja '64

Vacuum-cast refractory castables. D. J. Damiano. diags Am Soc C E Proc 90 [ST 5 no 4107]:85-98 O '64

CONCRETE, Reinforced

Behavior of reinforced concrete beams with closely spaced reinforcement. J. P. Romualdi and G. B. Batson. bibliog il diags Am Concrete Inst J 60:775-90 Je '63; Discussion. 60:1901-12 D '63

Cantilevered stands carry round arena's long-span roof. il diag Eng N 173:26-7 O 29 '64

Cast-in-place in two finishes; Public library, Worcester, Mass. il plans diags Prog Arch 45:166-71 S '64

Closer control of concrete construction. W. Howe. Arch Rec 136:156 Ag '64

Construction of the foundations of the Port Mann bridge. W. G. F. Davie. diags Eng J 47:25-31 S '64

Convention hall dodges floods. il Eng N 172: 77 Je 18 '64

Country's first reinforced concrete bridge. Am Concrete Inst J 61:sup 12-13 S '64

Creep buckling of reinforced concrete columns. S. Mauch and M. J. Holley. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3610]:451-81 Ag '63; Discussion. 90 [ST 2 no 3886]:371-9 Ap '64; Reply. 90 [ST 4 no 4001]:271-2 Ag '64

Deflections of prestressed concrete members. diags Am Concrete Inst J 60:1697-728 bibliog(p 1726-7) D '63; Discussion. 61:2071-7; Reply. 2078-9 pt 2 Je '64

Dynamic nonlinear response of reinforced concrete arches. V. N. Gupchup and J. M. Biggs. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3596]:225-48 Ag '63; 90 [ST 4 no 4001]:261-5 Ag '64

Economic aspects in the design of some reinforced concrete structural members. D. G. Norman. bibliog Am Concrete Inst J 61: 419-40 Ap '64; Correction. 61:sup23 Jl '64

Economical design of reinforced concrete slabs using ultimate strength theory. E. Traum. diags Am Concrete Inst J 60:763-74 Je '63; Discussion. 60:1893-9; Reply. 1899-900 D '63

Electrochemical behavior of steel in concrete. D. A. Hausmann. bibliog il diags Am Concrete Inst J 61:171-88 F '64

Error statistics for reinforced concrete beams. T. Zsutty. bibliog Am Soc C E Proc 89 [ST 6 no 3732]:235-70 D '63; Discussion. 90 [ST 4 no 4001]:321-3 Ag '64

Flexure of perpendicular mutually supported cantilevers. P. J. Spyropoulos. diags Am Concrete Inst J 61:231-8 F '64; Discussion. 61:1211-12 S '64

Formula for spiral reinforcement. T. Huang. Am Concrete Inst J 61:351-3 Mr '64; Discussion. 61:1241-6; Reply. 1247-8 S '64

CONCRETE, Reinforced—*Continued*

Galvanic corrosion in concrete containing calcium chloride. T. E. Wright and I. H. Jenks. il diags Am Soc C E Proc 89 [ST 5 no 3669]:117-32 O '63; Discussion. 90 [ST 1 no 3812]:281 F; [ST 2 no 3886]:393-4 Ap '64

Gravity flow reinforced concrete pipe design. H. F. Peckworth and J. G. Hendrickson. diags Am Soc C E Proc 90 [PL 1 no 3771]: 33-48 Ja '64

Hiley formula simplified without graphs. G. M. Cornfield. bibliog Engineering 196: 781 D 20 '63

International symposium on the flexural mechanics of reinforced concrete, Miami, Nov. 10-12; program. Am Concrete Inst J 61:sup9-11 S '64

Investigation of multiple-panel reinforced concrete floor slabs. M. A. Sozen and C. P. Siess. il diags Am Concrete Inst J 60:999-1028 bibliog(p 1025-7) Ag '63; Discussion. 61:1965-77; Reply. 1978-9 Mr '64

Limited design of reinforced concrete slabs. R. E. Crawford. bibliog diags Am Soc C E Proc 90 [EM 5 no 4105]:321-42 O '64

Load-moment-curvature characteristics of reinforced concrete cross sections. E. O. Pfrang and others. diags Am Concrete Inst J 61:763-78 Jl '64

Mobile boom-up units cut fabric handling cost. il Roads & Sts 107:40-1+ Mr '64

Post-tensioned shallow roof shells. W. E. Riley. il plan diags Civil Eng 34:64-6 Jl '64

Pressure testing of thick reinforced concrete cell. S. H. Fistedis. il diags Am Soc C E Proc 90 [ST 2 no 3860]:31-54 Ap '64

Regression analysis of reinforced concrete columns. H. C. Shah. bibliog diags Am Soc C E Proc 90 [ST 1 no 3785]:37-59 F '64

Reinforced concrete design for Shakespeare centre. il Engineering 197:713 My 22 '64

Review of code requirements for torsion design. G. P. Fisher and P. Zia. diags Am Concrete Inst J 61:1-44 bibliog(p20-2) Ja '64; Discussion. 61:1163-73; Reply. 1173-4 S '64

Shell shelters aluminum smelter. il Eng N 172:23 Ja 2 '64

Special rigs speed continuous-steel paving. il Roads & Sts 107:68-9+ Ap '64

Spillway cage is no greenhouse. il Eng N 171:24 D 12 '63

Strain measurements in a reinforced concrete winding tower. L. J. Thomas. bibliog il diags Engineer 218:491-6 S 25 '64

Stresses in point supported composite walls. S. Rosenhaupt. bibliog diags Am Concrete Inst J 61:795-810 Jl '64

Structural and artistic combination; concrete made from Capstone aggregate. il diag Engineering 197:262-3 F 14 '64

Structural design of the Terminal building for Edmonton international airport. E. M. Rensaa. il plans diags Eng J 47:21-7 Je '64; Discussion. 47:78+ S '64

Temperature stresses in tall reinforced concrete buildings. P. Weidlinger. il diags Civil Eng 34:58-61 Ag '64

Two-course reinforced concrete pavement built without forms. il Eng N 173:38-40 S 10 '64

Ultimate strength behavior study by regression analysis of beam test data. T. C. Zsutty. bibliog Am Concrete Inst J 60: 635-54 My '63; Discussion. 60:1835-8; Reply. 1838-41 D '63

Ultimate strength of columns with biaxially eccentric loads. J. L. Meek. bibliog diags Am Concrete Inst J 60:1053-64 Ag '63; Discussion. 61:1999-2008 Mr '64

Use ultimate strength method for reinforced concrete column design. E. Czerniak. bibliog flow chart il diags Hydrocarbon Process & Pet Refiner 43:114-20 Jl '64

Welded mats replace hand tying. il Eng N 172:104 F 13 '64

Standards

Building code requirements for reinforced concrete (ACI 318-63). Am Concrete Inst J 59:145-276, 1821-47; 60:809-15 F, D '62, Jl '63; Discussion. bibliog diags 59:1273-321, 1535-68, 1653-760, 1899-902; 60:2081-100; 61: 1915-21 S-D '62, pt 2 Je '63, Mr '64

Proposed code of practice for reinforced concrete. Engineer 217:172 Ja 24 '64

Proposed revision to ACI manual of standard practice for detailing reinforced concrete structures [ACI 315-57]. diags Am Concrete Inst J 61:1073-90 S '64

Towards an international code of practice for reinforced concrete. Engineering 197:197 Ja 31 '64

Testing

Accuracy of models used in research on reinforced concrete. Z. Y. Alami and P. M. Ferguson. bibliog il diags Am Concrete Inst J 60:1643-63 N '63; Discussion. 61: 2067-9; Reply. 2070 pt 2 Je '64

Behavior of concrete columns reinforced with high strength steels. C. E. Todeschini and others. il diags Am Concrete Inst J Supplement to Title 61-40:1-32 pt 2 '64

Behavior of reinforced concrete frames subjected to repeated reversible loads. V. V. Bertero and G. McClure. bibliog il diags Am Concrete Inst J 61:1305-30 O '64

Behavior of restrained reinforced concrete columns. E. O. Pfrang and C. P. Siess. bibliog diags Am Soc C E Proc 90 [ST 5 no 4111]:113-36 O '64

Change of stress in reinforcement with time. J. M. Plowman. il diags Engineer 217:335-40 F 21 '64

Creep behaviour of concrete in tension. R. L. Wajda and L. Holloway. diag Engineering 198:209 Ag 14 '64

Elastic-plastic behaviour of pre-stressed materials. J. Pietrzykowski. bibliog diags Engineer 217:385-8 F 28 '64

Flexural cracking in two-way concrete slabs reinforced with high strength welded wire fabric. E. G. Nawy. il diag Am Concrete Inst J 61:997-1008 Ag '64

Guide for determination of bond strength in beam specimens. diags Am Concrete Inst J 61:129-35 F '64

Influence of ties on the behavior of reinforced concrete columns. J. F. Pfister. bibliog il diags Am Concrete Inst J 61:521-37 My '64

Response of singly reinforced beams to cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:1021-38 Ag '64

Restrained long concrete column as a part of a rectangular frame. J. E. Breen and P. M. Ferguson. bibliog il diags Am Concrete Inst J 61:563-87 My '64; Supplement. pt 2:1-32 '65

Riddle of shear failure and its solution. G. N. J. Kani. diags Am Concrete Inst J 61: 441-67 Ap '64

Study made on masonry wall reinforcing. il Am Concrete Inst J 61:sup 15 Jl '64

Tensile strength of concrete affected by uniformly distributed and closely spaced short lengths of wire reinforcement. J. P. Romualdi and J. A. Mandel. Am Concrete Inst J 61:657-71 Je '64

Test of reinforced concrete columns with high slenderness ratios. L. P. Sáenz and I. Martín. bibliog il diags Am Concrete Inst J 60:589-616 My '63; Discussion. 60:1825-9; Reply. 1829-31 D '63

Testing program for lateral pressure of concrete. D. E. Fleming and W. H. Wolf. diags Am Concrete Inst J 60:567-74 My '63; Discussion. 60:1783-5 D '63

Ultimate strength with high strength reinforcing steel with an indefinite yield point. N. C. Sinha and P. M. Ferguson. il diags Am Concrete Inst J 61:399-418 Ap '64

CONCRETE blocks

Block grill shields laboratory. il Eng N 172: 22 F 27 '64

Building with concrete blocks. Engineering 197:171 Ja 24 '64

Six cylinders stack concrete blocks. diags Hydraulics & Pneumatics 17:18+ S '64

Thermalite building blocks. il Engineering 198:12-13 Jl 3 '64

Manufacture

Lightweight aggregates in blocks, screeds and panels. J. D. Llewellin. bibliog il Chem & Ind p601-9 Ap 11 '64

CONCRETE bridges. See Bridges, Concrete

CONCRETE buildings

Alternate design proves economy of precast prestressed design for pier shed. W. H. Rucker, jr. il diag Civil Eng 34:42-6 My '64

Beams cast atop lift-slab roof. il Eng N 172:67 F 13 '64

Cables tie down stacked-up shear wall. il diag Eng N 173:38-9 S 24 '64

Cairo building collapse kills 31. il Eng N 173:15 O 29 '64

Concrete blends with mountains for a research center in Colorado. il Eng N 173:23 Jl 16 '64

Concrete skyscraper; shear walls built on the cross. il plan Eng N 173:70-2 O 8 '64

Contractor casts roof on rolling forms mounted on crane brackets. il diag Eng N 172:78-9 F 13 '64

CONCRETE buildings—*Continued*

Convention hall dodges floods. il Eng N 172:77 Je 18 '64

52-ft panels form bearing walls. il Eng N 173:27 S 3 '64

Forms make form maker's office. il Eng N 171:31 D 5 '63

Friction supports 14-story building. il diags Eng N 173:46-9 Ag 20 '64

Golden Gateway; construction. D. Gillis. il Civil Eng 34:38-9 Ja '64

Hotel houses ramped garage for guest parking; San Francisco Hilton hotel. W. C. Wing. il plan diag Eng N 172:28-30+ Mr 5 '64

IBM building, Sydney, Australia. il Am Concrete Inst J 61:sup6-8 Ag '64

Johnson dedicates school enclosed with 20-ton panels. il Eng N 173:20-1 Ag 13 '64

New ideas in concrete give treatment plants a modern look. E. P. Sellner. il Pub Works 95:124-6 Je '64

Plastic forms give smooth finish to building's concrete facade. il Eng N 171:44-6 D 12 '63

Plastic forms shape striated surfaces of concrete trees. il Eng N 173:32-3 N 5 '64

Precast columns, five stories high, cut erection time. B. Hall and A. Cavaliere. il Eng N 171:70-1 N 14 '63

Precasting cuts construction time. il Eng N 171:134 D 19 '63

Reinforced concrete design for Shakespeare centre. il Engineering 197:713 My 22 '64

Residential tower block for Southampton university. il Engineering 197:360 Mr 6 '64

Round plan exploits surf-side lot. il plan Eng N 171:35 N 21 '63

System building for college hostels. il plans Engineering 197:359-60 Mr 6 '64

Temperature stresses in tall reinforced concrete buildings. P. Weidlinger. il diags Civil Eng 34:58-61 Ag '64

Three buildings are cheaper than one. il Eng N 173:78-9 Jl 2 '64

27-story Ilikai apartment hotel overlooking Waikiki Beach is world's tallest building with precast, prestressed concrete framing. il Eng N 172:24 Ja 9 '64

Undulating slab follows stress. il plan diag Eng N 172:43-4 Je 25 '64

Unusual design for first floor pavilion extension. il Engineering 198:372 S 18 '64

Vines will cover concrete trellis; new Kahala Hilton hotel in Hawaii. il Eng N 172:23 Mr 5 '64

See also

Concrete construction

Concrete houses

CONCRETE chimneys. See Chimneys, Concrete

CONCRETE columns. See Columns, Concrete

CONCRETE construction

Arches support floors, shade curtain walls. il Eng N 172:22-3 Ap 23 '64

Box-type mat solves foundation problem. F. A. Hahn. il diag Civil Eng 34:62-3 Jl '64

British system builds from the top down. il plan diags Arch Forum 120:92-5 Mr '64

Cantilevered stands carry round arena's long-span roof. il diag Eng N 173:26-7 O 29 '64

Church of the Autostrada. J. M. Fitch. il plan Arch Forum 121:100-9 Jl '64

Closer control of concrete construction. W. Howe. Arch Rec 136:156 Ag '64

CBS headquarters: two hoists, two cranes pace four-day cycle. il diag Eng N 172:64-7 My 21 '64

Concrete cutoff wall drilled down 250 ft. I. V. Galbiati. il diags Civil Eng 33:59-61 N '63

Concrete dinosaur is a service station. il Eng N 172:26-7 Ap 16 '64

Concrete mushrooms sprout in station. il Oil & Gas J 62:42-3 Ja 20 '64

Concrete solutions for three libraries. il plans diags Prog Arch 45:154-71 S '64

Concrete tubes float through a city to make a subway. il Eng N 173:46-8 O 15 '64

Contractor casts roof on rolling forms mounted on crane brackets. il diag Eng N 172:78-9 F 13 '64

Contractor casts two-mile tunnel with 80-ft-long ganged forms. il Eng N 172:82-3 Je 18 '64

Forms make form maker's office. il Eng N 171:31 D 5 '63

Golden Gateway; construction. D. Gillis. il Civil Eng 34:38-9 Ja '64

Load-balancing method for design and analysis of prestressed concrete structures. T. Y. Lin. bibliog diags Am Concrete Inst J 60:719-42 Je '63; Discussion. 60:1843-78; Reply. 1878-81 D '63

Long joists span Madison garage. il Eng N 172:164 Je 18 '64

Marble strips distinguish precast concrete facades. il Arch Rec 135:184 Je '64

New ideas in concrete give treatment plants a modern look. E. P. Sellner. il Pub Works 95:124-6 Je '64

Precast and site cast concrete used in combination. il Engineering 197:621 My 1 '64

Precast frame has column-free interior. il diag Eng N 172:77-8 My 21 '64

Precast members reduce roof costs. il Eng N 172:16 Ja 30 '64

Precast TTs enclose huge plant. il diags Eng N 173:32-3 O 1 '64

Precasting cuts construction time. il Eng N 171:134 D 19 '63

St Louis floodwall is doweled to rock. il diags Eng N 172:32-3 Ap 9 '64

Structural and artistic combination: concrete made from Capstone aggregate. il diag Engineering 197:262-3 F 14 '64

Structural concrete; illustrations with text. Engineer 217:102 Ja 10 '64

Tea will be served atop London tower. il diag Eng N 172:42+ Ap 9 '64

Tendons tie down core walls. il diag Eng N 172:31 Ap 23 '64

Tractors shuttle big Ts on site. il Eng N 172:33 My 7 '64

West German pioneers in concrete; Ulrich Finsterwalder. Eng N 173:99-100 O 8 '64

See also

Bridges, Concrete

Concrete, Reinforced

Concrete houses

Concrete lining

Concrete mixing

Concrete piling

Concrete placing

Concrete slabs

Culverts, Concrete

Dams, Concrete

Footings, Concrete

Piers, Concrete

Retaining walls, Concrete

Roofs, Concrete

Sewage tanks, Concrete

Stairways, Concrete

Steel construction—Concrete composite

Walls, Concrete

Water pipes, Concrete

Bibliography

Current reviews of significant contributions in foreign and domestic publications. Published in monthly numbers of Journal of the American concrete institute

Costs

Economic aspects in the design of some reinforced concrete structural members. D. G. Norman. bibliog Am Concrete Inst J 61:419-40 Ap '64; Correction. 61:sup23 Jl '64

See also

Concrete slabs—Costs

Design

Approximate analysis of shear walls subject to lateral loads. R. Rosman. diags Am Concrete Inst J 61:717-33 Je '64

Biaxial eccentricities in ultimate load design. A. Aas-Jakobsen. bibliog diags Am Concrete Inst J 61:293-315 Mr '64

Chimney foundations. J. W. Smith and M. Zar. bibliog diags Am Concrete Inst J 61:673-700 Je '64

Concrete shell structures practice and commentary. Am Concrete Inst J 61:1091-108 bibliog(p 1105-7) S '64

Concrete skyscraper; shear walls built on the cross. il plan Eng N 173:70-2 O 8 '64

Continuity of prismatic northlight sheds through their window planes. A. Ghali. diags Am Concrete Inst J 61:1009-20 Ag '64

Design of isolated square column footing. C. Rodriguez. diags Am Concrete Inst J 61:889-90 Jl '64

Economic advantages of ultimate-strength design. T. W. Taylor. Civil Eng 33:65-6 N '63

Economic aspects in the design of some reinforced concrete structural members. D. G. Norman. bibliog Am Concrete Inst J 61:419-40 Ap '64; Correction. 61:sup23 Jl '64

Economical design of reinforced concrete slabs using ultimate strength theory. E. Traum. diags Am Concrete Inst J 60:763-74 Je '63; Discussion. 60:1893-9; Reply. 1899-900 D '63

Flat plate structures. J. F. Brotchie and J. J. Russell. diags Am Concrete Inst J 61:959-96 bibliog(p990-1) Ag '64; Supplement. pt 2:1-17 '65

CONCRETE construction—Design—*Continued*

Free-standing stairs. F. Sauter. bibliog diags Am Concrete Inst J 61:847-70 Jl '64

Helicoidal staircase study. A. R. Cusens and S. Trirojna. bibliog il diags Am Concrete Inst J 61:85-102 Ja '64; Discussion. 61:1191-4; Reply. 1195-6 S '64

Laboratory study of a 45-foot square flat plate structure. S. A. Guralnick and R. W. La Fraugh. bibliog il plans diags Am Concrete Inst J 60:1107-85 S '63; Discussion. 61:2013-15 Mr '64

Load-moment-curvature characteristics of reinforced concrete cross sections. E. O. Pfrang and others. diags Am Concrete Inst J 61:763-78 Jl '64

Mechanics of crack arrest in concrete. J. P. Romualdi and G. B. Batson. il diags Am Soc C E Proc 89 [EM 3 no 3558]:147-68 Je '63; Discussion. 90 [EM 1 no 3811]:167-73 F '64

Method for design of flat slabs without drop panels. J. B. Yesselman. diags Am Concrete Inst J 61:155-70 F '64; Discussion. S. Lichardus. 61:1201-2 S '64

Prestressing nuclear pressure vessels. S. C. C. Bates and others. il diags Engineering 197:492-5 Ap 3 '64

Review of code requirements for torsion design. G. P. Fisher and P. Zia. diags Am Concrete Inst J 61:1-44 bibliog(p20-2) Ja '64; Discussion. 61:1163-73; Reply. 1173-4 S '64

Strength of the compression slab of T-beams subject to simple bending. G. Brendel. bibliog diags Am Concrete Inst J 61:57-76 Ja '64; Discussion. A. Siev. 61:1183-4 S '64

Suggested design of joints and connections in precast structural concrete. diags Am Concrete Inst J 61:921-37 Ag '64

Textured concrete and air ducts mesh like a Chinese puzzle. il diags Eng N 173:30-2 O 22 '64

Ultimate moment resisting capacity of reinforced concrete sections. K. R. Patel. diags Am Concrete Inst J 61:103-7 Ja '64

Ultimate strength behavior study by regression analysis of beam test data. T. C. Zsutty. bibliog Am Concrete Inst J 60:635-54 My '63; Discussion. 60:1835-8; Reply. 1838-41 D '63

Use ultimate strength method for reinforced concrete column design. E. Czerniak. bibliog flow chart il diags Hydrocarbon Process & Pet Refiner 43:114-20 Jl '64

See also
Columns, Concrete
Footings, Concrete

Failure

Bad joints caused tank collapse. il Eng N 172:48-9 F 13 '64

Beam collapses during stressing. il Eng N 171:21 D 12 '63

Fire resistance

Investigation and repair of damage to concrete caused by formwork and falsework fire. P. Smith. il diags Am Concrete Inst J 60:1535-66 bibliog(p 1564-5) S '63; Discussion. 61:2065-6 pt 2 Je '64

Forms

Construction loads on slabs with shored formwork in multistory buildings. P. Grundy and A. Kabaila. Am Concrete Inst J 60:1729-38 D '63; Discussion. 61:2081-3; Reply. 2084 pt 2 Je '64

Formwork burns on two projects; ignited by propane-fueled salamanders. il Eng N 172:17 Ja 9 '64

Formwork collapse injures seven. il Eng N 173:61 S 17 '64

Formwork; time-saver standards. S. Howard. diags Arch Rec 136:254-6 S '64

Getting the best results with release agents. Engineering 197:83 Ja 17 '64

Glass fibre moulds for concrete columns. il Engineering 198:416 O 2 '64

Mobile form speeds Y-wall construction. il Eng N 172:48-9 Je 11 '64

Movable forms speed concrete pour. H. E. B. Anderson, ed. il Plant Eng 18:94 My '64

New techniques enhance slipform potential. il plan Arch Rec 136:157-8 Ag '64

Plastic domes give ceiling fine finish. il Eng N 173:47 Ag 27 '64

Plastic forms build concrete umbrellas. il Eng N 172:86 My 21 '64

Plastic forms give smooth finish to building's concrete facade. il Eng N 171:44-6 D 12 '63

Plastic forms shape striated surfaces of concrete trees. il Eng N 173:32-3 N 5 '64

Reinforced plastic forms produce sharply detailed concrete facade. il Arch Rec 135:182-3 Je '64

Reusable forms solve pier variables. il Roads & Sts 107:64-7 F '64

Slipform technique raises chimney rapidly. il Engineering 197:876 Je 26 '64

Slip-forming a 450ft high chimney. il Engineer 218:25 Jl 3 '64

Slip forming New York State World's fair pavilion. M. Madison. il Am Concrete Inst J 61:755-62 Jl '64

Slipforms accelerate erection of concrete towers. J. F. Camellerie. il diag Eng N 172:24-5 Je 25 '64

Sophisticated slipforming produces a floor a day. il Eng N 173:56-7 Jl 2 '64

Special plywoods for concrete formwork. Engineering 197:557 Ap 17 '64

Tall piers go up fast with 3½ hour form sequence. il Roads & Sts 107:48-51 My '64

Testing program for lateral pressure of concrete. D. E. Fleming and W. H. Wolf. diags Am Concrete Inst J 60:567-74 My '63; Discussion. 60:1783-5 D '63

True to form, if it's reinforced polyester. il Mod Plastics 41:94-5 My '64

Inspection

Proposed ACI standard: recommended practice for concrete inspection. J. J. Waddell. bibliog Am Concrete Inst J 60:1525-34 N '63; Discussion. 61:2059-63 pt 2 Je '64

Joints

Sealer, insulator is foamed into and seals curtain wall joints. il Plant Eng 18:94 Jl '64

Suggested design of joints and connections in precast structural concrete. diags Am Concrete Inst J 61:921-37 Ag '64

Suggested design of joints and connections in precast structural concrete; report of the joint ACI-ASCE committee 512(712). Am Soc C E Proc 90 [ST 4 no 4011]:175-90 Ag '64

Rapid construction

Slipforms accelerate erection of concrete towers. J. F. Camellerie. il diag Eng N 172:24-5 Je 25 '64

Sophisticated slipforming produces a floor a day. il Eng N 173:56-7 Jl 2 '64

Walls cast non-stop 23 stories. il Eng N 172:81 My 21 '64

Repair

Concrete sawing trims time on repairs. il Plant Eng 18:135 Ag '64

Standards

Building code requirements for reinforced concrete (ACI 318-63). Am Concrete Inst J 59:145-276, 1821-47; 60:809-15 F, D '62, Jl '63; Discussion. bibliog diags 59:1273-321, 1535-68, 1653-760, 1899-902; 60:2081-100; 61:1915-21 S-D '62, pt 2 Je '63, Mr '64

Proposed revision of recommended practice for evaluation of compression test results of field concrete [ACI 214-57]. Am Concrete Inst J 61:1057-72 S '64

Proposed revision to ACI manual of standard practice for detailing reinforced concrete structures [ACI 315-57]. diags Am Concrete Inst J 61:1073-90 S '64

Responsibility in concrete. R. H. Corbetta. Am Concrete Inst J 61:481-6 My '64

Review of code requirements for torsion design. G. P. Fisher and P. Zia. diags Am Concrete Inst J 61:1-44 bibliog(p20-2) Ja '64; Discussion. 61:1163-73; Reply. 1173-4 S '64

Suggested specifications for structural concrete for buildings. Am Concrete Inst J 60:1321-73 O '63; Discussion. 61:2017-22; Reply. 2022-9 pt 2 Je '64

Tables, calculations, etc.

Computer analysis of cylindrical shells. A. C. Scordelis and K. S. Lo. bibliog diags Am Concrete Inst J 61:539-61 My '64

Evaluation and location of critical stresses in pretensioned structures. K. Csibi. diags Am Concrete Inst J 60:391-431 Mr '63; Correction. 61:sup 5+ pt 2 Je '64

Post-tensioned shallow roof shells. W. E. Riley. il plan diags Civil Eng 34:64-6 Jl '64

Selecting reinforcing for bond requirements. A. J. Hulshizer. diags Am Concrete Inst J 61:603-10 My '64

CONCRETE construction, Subaqueous

See also
Bridges—Foundations and piers
Bridges, Concrete

CONCRETE construction, Underground
Parisians lay an egg underground. il plan Eng N 172:24 Ja 2 '64
Underground silo for rocket tests built by caisson method. il Eng N 172:70-2 My 21 '64

CONCRETE construction in winter
Greenhouses protected winter bridge concreting. il diag Roads & Sts 106:38-9+ D '63
Investigation and repair of damage to concrete caused by formwork and falsework fire. P. Smith. il diags Am Concrete Inst J 60:1535-66 bibliog(p 1564-5) N '63; Discussion. 61:2065-6 pt 2 Je '64
No hibernation for concreters at Manic two. W. W. Jacobus, jr. il Eng N 171:74-6+ N 14 '63
Russians build plant in sub-zero weather; Bratsk dam and hydroplant. Elec World 161:98 Ja 13 '64

CONCRETE culverts. See Culverts, Concrete

CONCRETE dams. See Dams, Concrete

CONCRETE domes. See Domes, Concrete

CONCRETE floors. See Floors, Concrete

CONCRETE footings. See Footings, Concrete

CONCRETE handling
Pumpcrete PC3 mechanical concrete pump. il diags Engineering 198:334-6 S 11 '64

CONCRETE houses
Development house expresses the character of concrete. il plan diag Arch Rec 135:72-5 Mid-My '64
Factory starts producing Liverpool flats. il Engineering 198:210 Ag 14 '64
In situ concrete houses save time and manpower. il Engineering 198:440 O 2 '64
Industrialized housing at Kirkby; illustrations with text. Engineer 218:160 Jl 31 '64

CONCRETE lining
Contractor's view on unlined tunnels. A. M. Petrofsky. bibliog Am Soc C E Proc 90 [PO 3 no 4086]:91-104 O '64
Fast tunnelling by mechanized shuttering. il diags Engineering 197:518 Ap 10 '64
Slipform paver lines drainage channel in broad single passes. il Eng N 173:40-2 O 1 '64
Subway tunnel construction in New York City. G. B. Knight. il diags Am Soc C E Proc 90 [CO 2 no 4032]:15-36 S '64
Tunnel needed fast, special lining forms to rescue. il diag Roads & Sts 107:50-1 Ap '64
Victoria subway sparks new tunnel making methods. il plan Eng N 172:26-9 Ap 30 '64
See also
Concrete placing

CONCRETE manholes. See Manholes, Concrete

CONCRETE mixers
Flame-cutting drops ring gear cost. W. Wright. il diags Welding Eng 9:83-4 N '64
Front discharge truck mixer. il Engineer 217:1163 Je 26 '64
Rex broadens transit mixer line. il Eng N 172:39 My 7 '64

CONCRETE mixing
Admixtures for concrete. B. E. Foster. Am Concrete Inst J 60:1481-524 bibliog(p 1519-23) N '63; Discussion. 61:2053-8 pt 2 Je '64
Central mixing of paving concrete. G. Maxon and A. E. Miller. diags Roads & Sts 107:36-7+ Jl '64
Concrete admixtures. H. J. Rosen. Prog Arch 45:208 Je; 184 Jl '64
Method of proportioning normal and no-fines concrete mixtures. K. H. Eyman. Am Concrete Inst J 60:927-43 Jl '63; Correction. 61:sup9 pt 2 Je '64; Discussion. 61:1949-50; Reply. 1950-5 Mr '64
Simple penetration test using vibration. K. Komlos. il Am Concrete Inst J 61:108-10 Ja '64
Tables for concrete mix proportioning. S. Popovics. bibliog Am Concrete Inst J 61:45-56 Ja '64; Discussion. J. Grases. 61:1175-6; Reply. 1176-81 S '64
Test ok's most concrete admixtures. J. J. White. Roads & Sts 107:57-9 Jl '64

Ready mixed concrete

New gravel plant supplies Mississippi; ready-mix, products firm: Jackson Ready-Mix Concrete. W. E. Trauffer. il Pit & Quarry 56:156-9 My '64
Should cement companies own ready-mixed concrete plants? N. C. Rockwood. Rock Prod 67:25+ Ag '64
Small operator builds for specific service; Forrest City ready mix. B. C. Herod. il Pit & Qarry 56:98-100+ F '64

CONCRETE panels. See Concrete slabs

CONCRETE pavements. See Pavements, Concrete

CONCRETE piers. See Piers, Concrete

CONCRETE piling
Big piles precision set with floating template. G. H. Andrews and T. G. Gray. il map diag Roads & Sts 107:84+ My '64
Bored 'n poured piles, Texas style. il Roads & Sts 107:60-1+ Mr '64
Concrete pile bids under estimate; unit prices. il Eng N 172:126+ Je 18 '64
Cracks and bulges found in concrete bridge piles. Eng N 172:20 F 27 '64
45-story tower sits on 180-ton piles. il Eng N 173:65 Ag 6 '64
Hiley formula simplified without graphs. G. M. Cornfield. bibliog Engineering 196:781 D 20 '63
Hollow prestressed piles help span Missouri. H. K. Glidden. il diags Roads & Sts 107:48-51+ Ja '64
Hydraulic guillotine beheads concrete piles. il diag Eng N 172:92-3 My 21 '64
Post-tensioned concrete piles support 115-kv tower line across Albemarle Sound. L. V. Woodson. il Elec World 161:80-2 Je 1 '64
St Louis floodwall is doweled to rock. il diags Eng N 172:32-3 Ap 9 '64
Structural bonding of concrete piling. il Am Concrete Inst J 61:sup32 S '64

CONCRETE pipes. See Pipes, Concrete

CONCRETE placing
Concrete sprayer has a long reach. il Eng N 172:34 Ap 30 '64
How to make samples for testing sprayed concrete. T. R. Crom. il Eng N 172:166-7 Je 18 '64
Rig pumps concrete at 30 cu yd per hour. il diag Eng N 172:107 F 13 '64
Rock bolts stabilize cut slope. il Eng N 172:150 Mr 19 '64
60 hp concrete pump feeds work points. il Engineering 198:121 Jl 24 '64
Sprayed mortar forms joints. il Eng N 173:45 S 24 '64
Switch speeds concrete placement. il Eng N 172:45 F 6 '64
Thin cutoff goes deep to seal dam foundation. il diag Eng N 173:30-3 Ag 27 '64
Vermiculite insulating concrete; pumped and sprayed. C. T. Grimm. il Civil Eng 33:67-9 N '63
See also
Gunite

CONCRETE plants
High capacity batching and mixing plant. il Engineering 198:152 Jl 31 '64
See also
Concrete mixing—Ready-mixed concrete

Control equipment

Two batch plants run by one electronic console. il Roads & Sts 107:63 Jl '64

Quality control

Check list for batch plant inspection. L. S. Bray and O. Keifer, jr. Am Concrete Inst J 61:625-42 Je '64

CONCRETE plants, Portable
Batch plant is highly mobile. il Eng N 173:110 Ag 6 '64
Batch plants come in two sizes. il Eng N 173:52 Ag 27 '64
Central mixing of paving concrete. G. Maxon and A. E. Miller. diags Roads & Sts 107:36-7+ Jl '64
Efficiency trio on freeway paving job. il Roads & Sts 107:41-4+ Ja '64
Mobile batching plant. il Engineer 217:320-1 F 14 '64
Mobile plant mixes 500 cu yd per hour. il Eng N 172:107 My 21 '64
Trailer proportions concrete on job. il Eng N 173:49 S 24 '64
Transportable cement and aggregate batching plant. il Engineering 197:293 F 21 '64

CONCRETE poles. See Poles, Concrete

CONCRETE products
See also
Concrete slabs
Pipes, Concrete
Sewer pipes, Concrete

CONCRETE research
Accuracy of models used in research on reinforced concrete. Z. Y. Alami and P. M. Ferguson. bibliog il diags Am Concrete Inst J 60:1643-63 N '63; Discussion. 61:2067-9; Reply. 2070 pt 2 Je '64
Building research in Australia. Am Concrete Inst J 61:sup3+ Je '64
Linseed oil tested for concrete treatment. Chem & Eng N 42:41 Ja 20 '64

CONCRETE roads. See Roads, Concrete

CONCRETE roofs. See Roofs, Concrete

CONCRETE sewer pipes. See Sewer pipes, Concrete

CONCRETE slabs

Concrete panels soak up sound. il Eng N 172:49 F 27 '64

Construction loads on slabs with shored formwork in multistory buildings. P. Grundy and A. Kabaila. Am Concrete Inst J 60:1729-38 D '63; Discussion. 61:2081-3; Reply. 2084 pt 2 Je '64

Direct stress analysis of orthotropic bridge slabs. A. Coull. diag Am Soc C E Proc 90 [ST 2 no 3856]:1-12 Ap '64

Engineering measurements for Port Allen lock. R. I. Kaufman and W. C. Sherman, jr. Am Soc C E Proc 90 [SM 5 no 4020]:221-47 S '64

Flat plate structures. J. F. Brotchie and J. J. Russell. diags Am Concrete Inst J 61:959-96 bibliog(p990-1) Ag '64; Supplement. pt 2:1-17 '65

Formwork; time-saver standards. S. Howard. diags Arch Rec 136:254 S '64

Investigation of multiple-panel reinforced concrete floor slabs. M. A. Sozen and C. P. Siess. il diags Am Concrete Inst J 60:999-1028 bibliog(p 1025-7) Ag '63; Discussion. 61:1965-77; Reply. 1978-9 Mr '64

Limited design of reinforced concrete slabs. R. E. Crawford. bibliog diags Am Soc C E Proc 90 [EM 5 no 4105]:321-42 O '64

Method for design of flat slabs without drop panels. J. B. Yesselman. diags Am Concrete Inst J 61:155-70 F '64; Discussion. S. Lichardus. 61:1201-2 S '64

Optimum design of prestressed plates. G. I. N. Rozvany and A. J. K. Hampson. diags Am Concrete Inst J 60:1065-82 Ag '63; Discussion. 61:2009-11 Mr '64

Panels stacked like dominoes make a building. il diag Eng N 173:62-3 S 17 '64

Pressure grouting technique raises sunken slabs. F. Anderson. il Pub Works 95:97-8 Je '64

Prismatic folded plates; simplified procedure of analysis. E. Traum. bibliog diags Am Concrete Inst J 61:1285-303 O '64

Slab handling with fork-truck. il Engineer 217:445 Mr 6 '64

Costs

Economical design of reinforced concrete slabs using ultimate strength theory. E. Traum. diags Am Concrete Inst J 60:763-74 Je '63; Discussion. 60:1893-9; Reply. 1899-900 D '63

Testing

Flexural cracking in two-way concrete slabs reinforced with high strength welded wire fabric. E. G. Nawy. il diag Am Concrete Inst J 61:997-1008 Ag '64

Laboratory study of a 45-foot square flat plate structure. S. A. Guralnick and R. W. La Fraugh. bibliog il plans diags Am Concrete Inst J 60:1107-85 S '63; Discussion. 61:2013-15 Mr '64

Sheer strength of reinforced structural lightweight aggregate concrete slabs. E. Hognestad and others. bibliog diags Am Concrete Inst J 61:643-56 Je '64

Tests for precast wall panels. Am Concrete Inst J 61:369-82 Ap '64

Ultimate strength of reinforced concrete flat slabs. M. W. Self. il diags Am Soc C E Proc 90 [ST 4 no 4013]:205-33 Ag '64

CONCRETE stairways. See Stairways, Concrete

CONCRETE tanks. See Tanks, Concrete

CONCRETE towers. See Towers, Concrete

CONCRETE walls. See Walls, Concrete

CONCRETE water pipes. See Water pipes, Concrete

CONCRETE water tanks. See Water tanks, Concrete

CONDEMNATION of land. See Eminent domain

CONDENSATE wells. See Gas, Natural—Condensate wells

CONDENSATION

Adsorption and condensation processes. J. B. Hudson and S. Ross. bibliog il diags Ind & Eng Chem 56:30-6 N '64

Bubble-induced nucleation and crystal growth in glass. C. Klingsberg. bibliog il diags Am Cer Soc J 47:97-100 F '64

Condensation heat transfer in the presence of a noncondensable gas. E. M. Sparrow and S. H. Lin. bibliog diag A S M E Trans ser C 86:430-6 Ag '64

Condensation of metal vapors during rapid expansion; liquid drop nucleation theory. P. G. Hill and others. bibliog A S M E Trans ser C 85:303-14; Discussion. 314-16; Reply. 316-17 N '63

Condensation studies in hotshot tunnels. B. J. Griffith and others. AIAA J 2:1645-7 S '64

Condensing from vapor-gas mixtures. F. Votta, jr. bibliog il Chem Eng 71:223-8 Je 8 '64

Formation of nitric acid mists. G. G. Goyer. bibliog J Colloid Sci 18:616-24 S '63

Heat recovery for paint bake ovens. Ind Finishing 40:86-7 N '63

How to prevent condensation in heating this swimming pool? D. H. Snyder. il diags Heating-Piping 35:126-8 N '63

Industrial application of freeze protection for ventilation and air-conditioning systems. J. J. Burke. diags ASHRAE J 6:52-4 Jl '64

Mathematical solution for the condensation of vapors from noncondensing gases in laminar flow inside vertical cylinders. W. D. Baasel and J. C. Smith. bibliog A I Ch E J 9:826-30 N '63

Nucleation characteristics of static liquid nitrogen and liquid hydrogen. J. Hord and others. bibliog il diags A S M E Trans ser A 86:485-94 O '64

Promotion of dropwise condensation by monolayers of radioactive fatty acids. D. W. Tanner and others. bibliog il J Ap Chem 14:361-9 S '64

Secondary nucleation from aqueous solution. T. P. Melia and W. P. Moffitt. bibliog Ind & Eng Chem Fundamentals 3:313-17 N '64

Turbulent film condensation. J. Lee. bibliog diags A I Ch E J 10:540-4 Jl '64

Vapor condensation in the mixing zone of a jet. G. M. Hidy and S. K. Friedlander. bibliog il diag A I Ch E J 10:115-24 Ja '64

Vapor condensation on a horizontal tube using Teflon to promote dropwise condensation. C. A. Depew and R. L. Reisbig. bibliog diag Ind & Eng Chem Proc Design 3:365-9 O '64

CONDENSATION, Chemical

Condensation of camphene and phenol; product formation via a direct 2,6-hydride transfer. W. F. Erman. bibliog diags Am Chem Soc J 86:2887-97 Jl 20 '64

Condensation-polymerization of pentamethyldisilanyl cyanide and related compounds. J. V. Urenovitch and A. G. MacDiarmid. bibliog Am Chem Soc J 85:3372-5 N 5 '63

Condensation reactions of aromatic aldehydes in dimethyl sulfoxide solution; asymmetric tricarbon condensation involving dimethyl sulfoxide. G. A. Russell and H. D. Becker. bibliog Am Chem Soc J 85:3406-10 N 5 '63

Condensations at the methyl groups of N-acetylbenzamide and diacetylimide by means of potassium amide in liquid ammonia. S. D. Work and others. bibliog Am Chem Soc J 86:872-6 Mr 5 '64

Cyclohexanone self-condensation reactions. G. R. Pettit and E. G. Thomas. bibliog Chem & Ind p 1758-9 N 2 '63

Direct condensation of 2-deoxy-D-ribose with purines; structure of the products. J. A. Carbon. Am Chem Soc J 86:720-5 F 20 '64

Effect of reaction path and initial distribution on molecular weight distribution of irreversible condensation polymers. H. Kilkson. bibliog diag Ind & Eng Chem Fundamentals 3:281-93 N '64

Flavylium salt-phloroglucinol condensation reactions. L. Jurd and A. C. Waiss, jr. Chem & Ind p 1708-9 O 10 '64

See also

Phenol condensation products

CONDENSERS

Condensing from vapor-gas mixtures. F. Votta, jr. bibliog il Chem Eng 71:223-8 Je 8 '64

Need marine condenser for plant air conditioning. A. D. Sullivan. Heating-Piping 36:146-7 My '64

New brazing system reduces rejects of copper tube condensers. E. H. Conway. il Welding Eng 48:46-7 N '63

Design

Analog computer method for designing a cooler-condenser with fog formation. D. R. Coughanowr and E. O. Stensholt. bibliog diag Ind & Eng Chem Proc Design 3:369-73 O '64

CONDENSERS (steam)

Shall we replace or abandon buried condensate lines? answers. Power 108:162-3 Mr '64

See also

Steam plants—Equipment

Steam turbines

CONDENSERS (steam)—*Continued*

Cooling

Air-cooled condenser proves out. J. Munro and J. Y. Parce. il Elec World 160:23 D 23 '63

Problems in using seawater for condenser cooling in thermal power stations; abstract. M. Yamazaki. WPCF J 36:317 Mr '64

Corrosion behavior of condenser-tube alloy materials. E. A. Tice and C. P. Venizelos. il Power 107:64-6 N '63

Current trends in corrosion control at West Thurrock power station. A. Sherry and E. R. Gill. il Chem & Ind p 102-6 Ja 18 '64

Design

300mw condenser design; new approach. il diags Engineering 197:746-8 My 29 '64

Manufacture

Axial condenser for 500mw turbine. il Engineer 216:698-9 O 25 '63

Testing

Check your condenser performance. R. B. Leeming. Power 108:128 Ja '64

Dense soapsuds find and plug leaks in our condensers. L. G. Smith. il diag Power 108:212-13 Je '64

CONDUCTIVITY, Electric. See Electric conductivity

CONDUCTIVITY, Heat. See Heat conductivity

CONDUITS

See also

Manholes

CONDUITS, Concrete

See also

Water conduits, Concrete

Water pipes, Concrete

CONDUITS, Electric. See Electric conduits

CONES

Ablation-products radiation from cones. W. C. Davy and others. bibliog il diag AIAA J 2:1583-9 S '64

Air ionization in the hypersonic laminar wake of sharp cones. F. L. Fernandez and E. S. Levinsky. bibliog AIAA J 2:1829-32 O '64

Approximate nonequilibrium air ionization in hypersonic flows over sharp cones. E. S. Levinsky and F. L. Fernandez. diags AIAA J 2:565-8 Mr '64

Blowing effects on pressure interaction associated with cones. N. A. Thyson and E. E. H. Schurmann. AIAA J 1:2179-80 S '63; Discussion. 2:1868-9 O '64

Boundary-layer transition on a slender cone in hypersonic flow. A. Martellucci. bibliog AIAA J 2:771-2 Ap '64

Correlation of the critical pressure of conical shells with that of equivalent cylindrical shells. J. Singer. AIAA J 1:2675-6 N '63

Effect of mass injection on the drag of a slender cone in hypersonic flow. H. H. King and L. Talbot. bibliog diags AIAA J 2:836-44 My '64

Effect of shock curvature on turbulent heating on sphere-cones. C. T. Edquist. AIAA J 2:1486-7 Ag '64

Effect of transient creep on the collapse time of cylinders and cones under external pressure. E. Z. Stowell and E. M. Briggs. AIAA J 1:2663-4 N '63

Hypersonic cone wake velocities obtained from streak pictures. W. K. Washburn and others. bibliog il diag AIAA J 2:1465-7 Ag '64

Hypersonic laminar wakes and transition studies. A. Pallone and others. bibliog il AIAA J 2:855-63 My '64

Hypersonic viscous drag effects on blunt slender cones. J. D. Whitfield and B. J. Griffith. bibliog il diags AIAA J 2:1714-22 O '64

Hypersonic wake characteristics behind spheres and cones. Z. J. Levensteins. bibliog il AIAA J 1:2848-50 D '63

Laminar boundary-layer development on yawed cone. S. M. Yen and B. Singh. diag AIAA J 2:775-6 Ap '64

Laminar heat transfer to spherically blunted cones at hypersonic conditions. B. J. Griffith and C. H. Lewis. bibliog diags AIAA J 2:438-44 Mr '64

Mechanics of conventional spinning of cones. H. C. Sortais and others. bibliog il diags A S M E Trans ser B 85:346-50 N '63

Natural frequencies of meridional vibration in thin conical shells. R. E. Keeffe. diag AIAA J 2:1825-7 O '64

Nonequilibrium flow over a cone. R. Sedney and N. Gerber. bibliog diags AIAA J 1:2482-6 N '63

Recent studies of the laminar base-flow region. E. Baum and others. bibliog il diags AIAA J 2:1527-34 S '64

Shock-layer radiation for sphere-cones with radiative decay. J. H. Chin and L. F. Hearne. bibliog AIAA J 2:1345-7 Jl '64

Skin friction of slender cones in hypersonic flow. J. Raat. AIAA J 2:755-6 Ap '64

Stability of internally pressurized conical shells under torsion. V. I. Weingarten. bibliog il diag AIAA J 2:1782-8 O '64

Storage area measurements; conical piles. C. W. Matthews. diag Rock Prod 67:56 Je '64

Study of laminar hypersonic cavity flows. K. M. Nicoll. bibliog il diag AIAA J 2:1535-41 S '64

Vibrational characteristics of thin-wall conical frustum shells. J. D. Watkins and R. R. Clary. diags AIAA J 2:1815-16 O '64

Wake transition. K. S. Wen. bibliog AIAA J 2:956-7 My '64

Weak interacting hypersonic flow over cones. W. Hoelmer and M. Saarlas. bibliog AIAA J 2:1846-7 O '64

CONFECTIONERY

Confectionery fats; their current status and potential market. R. O. Feuge. Am Oil Chem Soc J 41:sup4+ Ap '64

Sugar confectionery; abstract. A. G. Sansome. Chem & Ind p 1303; Discussion. 1303-4 Jl 18 '64

CONFERENCE rooms

New dimensions for conference rooms. il Prog Arch 45:204-5 S '64

CONFERENCES

Computer sets up a conference. Chem Eng 70:62 N 25 '63

See also

Business conferences

CONGLOMERATE

Crushed pebble conglomerate of southwestern Montana. W. F. Tanner. bibliog map diags J Geol 71:637-41 S '63; Discussion. R. Scholten. 72:486-9; Reply. 489-92 Jl '64

Uran v drevnykh konglomeratakh. V. N. Kotlyar, ed. Review. by C. F. Davidson. bibliog Econ Geol 59:168-77 Ja '64

CONGO RIVER

Congo submarine canyon. B. C. Heezen and others. bibliog il maps diags Am Assn Pet Geologists Bul 48:1126-49 Jl '64

CONGRESS. See United States—Congress

CONIFERS

Patterns of variation in specific gravity of southern pines and other coniferous species. H. L. Mitchell. bibliog il maps Tappi 47:276-83 My '64

See also

Metasequoia

CONIINE. See Alkaloids

CONIUM maculatum

Biosynthesis of coniine from four acetate units. E. Leete. Am Chem Soc J 85:3523-4 N 5 '63

Biosynthesis of the hemlock alkaloids; the incorporation of acetate-1-C^{14} into coniine and conhydrine. E. Leete. bibliog Am Chem Soc J 86:2509-13 Je 20 '64

CONJUGATION (chemistry)

Addition of acyl- and alkylcobalt carbonyls to conjugated dienes. R. F. Heck. bibliog Am Chem Soc J 85:3381-3 N 5 '63

Conjugation effects in phenylcyclopropanes. A. L. Goodman and R. H. Eastman. bibliog diags Am Chem Soc J 86:908-11 Mr 5 '64

Cross-conjugated cyclohexadienones show versatile photochemical behavior. P. J. Kropp and W. F. Erman. il Chem & Eng N 42:50-1 Ap 20 '64

Cumulative influence of conjugated substituents on the π-system properties of aromatic hydrocarbons; the methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 85:3933-6 D 20 '63

Hydrogenation of conjugated fatty acids with hydrazine. T. Takagi and B. M. Craig. bibliog Am Oil Chem Soc J 41:660-1 O '64

Hyperconjugation theory of carbonium ion reactions. S. Ehrenson. bibliog Am Chem Soc J 86:847-54 Mr 5 '64

New method for elution of conjugated steroids from paper strips. L. Kornel. bibliog diags Anal Chem 36:443-4 F '64

Question of homoconjugation in *cis,cis,cis*-1,4,7-cyclononatriene. W. R. Roth and others. Am Chem Soc J 86:3178-9 Ag 5 '64

Question of homoconjugation in 1,4,7-cyclononatriene. S. Winstein and F. P. Lossing. bibliog Am Chem Soc J 86:4485-6 O 20 '64

CONJUGATION (chemistry)—*Continued*
Some new products including dibasic and tribasic acids, from conjugated fatty esters; abstract and discussion. P. A. Toseland and R. V. Crawford. Chem & Ind p244-5 F 8 '64
Some stereoregular polymerizations of conjugated dienes. M. H. Lehr. Rubber Chem & Tech 36:1571-82 bibliog(p 1581-2) D '63

CONJUNCTIVITIS
Prevention of trachoma with vaccine. J. T. Grayston and others. bibliog il Archives Environmental Health 8:518-26 Ap '64
Trachoma. G. H. Werner and others. il map diags Sci Am 210:79-84+ Ja '64

CONNECTICUT
See also
Architecture, Domestic—Connecticut
Geology—Connecticut

CONNECTING rods
Design of a connecting rod. S. H. Henshall. il diags Engineer 217:435-7 Mr 6 '64

CONNECTIVE tissues
Effect of magnesium, fluoride, and ascorbic acid on metabolism of connective tissue. D. J. Thompson and others. bibliog J Nutrition 84:27-30 S '64

CONNECTORS, Electric. See Electric connectors

CONSOLIDATION coal company
1964 model mining number; Consol centennial issue. il maps plans diags Coal Age 69:81-224 O '64

CONSOLIDATIONS, Business. See Business consolidations

CONSTITUTIONS
See also
United States—Constitution

CONSTRUCTION equipment
Can-do McHugh, Bucks County construction co. il Diesel Equip Supt 42:26-8 Ag '64
Choosing equipment for overseas jobs. L. G. Wilder, jr. S A E J 72:96 Jl '64
Climbing jacks raise heavy loads. il Eng N 172:160 Je 18 '64
Columbium treated steel improves construction equipment. G. H. Walter. il Metal Prog 84:82-5 D '63
Construction units may be down but not out. G. S. McGrath. S A E J 72:70-1 Ag '64
Electronics spark recent FCIM advances; farm, construction and industrial machinery meeting, Milwaukee, Sept. 14-17. S A E J 72:34-49 S '64
Latest advances in powered construction equipment. C. A. Weinert. il Automotive Ind 130:70-9 Je 15 '64
Latest trends in construction and farm equipment. M. Ainsworth. il Automotive Ind 130: 59-62 Je 15 '64
Power field construction needs a multitude of tools and equipment. il Power Eng 68: 36-40 O '64
Trends in hydraulic equipment for mobile construction machinery. P. C. Mortenson. Automotive Ind 130:63-5 Je 15 '64 (to be cont)
Winning the war on poverty with farm and construction equipment. H. W. Barclay. il Automotive Ind 130:47-50 Je 15 '64
See also
Associated equipment distributors
Cranes, derricks, etc.
Excavating machinery
Grading (earthwork)
Motor trucks in construction work
Roads—Construction equipment

Cold weather operation

Carefully planned cold weather servicing. R. N. Smith. flow diag il diags Pit & Quarry 56:100-3 D '63; 157-61+ Ja '64
Winterizing art gains but new problems develop for arctic machinery operators. J. P. Gardner and others. il diags S A E J 72: 57-9 My '64

Exhibitions

International construction equipment and road show, Moscow. il Eng N 173:22-3 S 3 '64
Site equipment demonstration, Denham, Buckinghamshire, May 12-14. il Engineering 197: 637 My 8 '64
U.S. equipment makers shun Moscow exhibition. Eng N 172:20-1 Mr 5 '64

Lubrication

What should be done about fuels and lubricants for construction equipment? G. K. Brower. S A E J 72:48-50 F '64

Maintenance and repair

Equipment care is important cost contingency. Roads & Sts 107:95+ Mr '64
Equipment superintendent, Jack Keller, Mangla dam contractors, West Pakistan. il Diesel Equip Supt 42:18-21 Ag '64
Fighting dust at Mangla project, West Pakistan. il Diesel Equip Supt 42:22-3 Ag '64
Keeping construction equipment operating. il Welding Eng 49:41-3 My '64
See also
Construction equipment—Cold weather operation

Manufacture

Caterpillar builds a technical center. il Eng N 172:38-9 Mr 5 '64
Interchangeable dog bars speed automatic milling of various weldments. C. E. Reeb. il Mach 70:128-9 Mr '64
Research center for tomorrow's equipment; Caterpillar technical center. il Roads & Streets 107:68-9+ Mr '64
Third generation welding fixture fabricates box sections four times faster. F. Mackenbach. il diags Welding J 43:299-300+ Ap '64

Specifications

Heavy-duty and off-highway truck specifications, 1964; tables. Automotive Ind 130: 236-53 Mr 15 '64

Transportation

Boom wheel for crane in transit. il Roads & Sts 106:52 D '63

CONSTRUCTION industry. See Building trades

CONSULTANTS
Consultant barometer set fair. Engineering 197:435 Mr 27 '64
Ground rules on using business consultants. Textile Ind 128:92 F '64
Paint purchase bonus; free consultation. R. B. Lett. Ind Finishing 40:98-100 O '64
You can keep 'em on the payroll. M. E. Lynch and C. B. Lepak. Hydrocarbon Process & Pet Refiner 43:185-8+ O '64

CONSULTING engineers
Changing role of the consulting engineer. Engineering 197:243 F 14 '64
Conservative design entails innovation; consultants' consultant Raymond A. Hill. Eng N 172:40-3 Ap 30 '64
Consultant Louis Berger seeks all types of work on every continent because foreign jobs make domestic ones profitable. Eng N 172:56-7+ My 14 '64
Consultants want California road work. Eng N 173:59-60 S 17 '64
CIEPS; tops in Mexico, busier abroad. Eng N 173:104+ O 8 '64
Consulting and advisory role of the engineer of tomorrow. J. H. Pitchford. il diags Inst Mech Eng Proc 177:1-13 '63
Consulting engineer and freeze protection. R. M. Stern. ASHRAE J 6:55-6 Jl '64
Consulting engineering in foreign countries. E. M. Fucik. Am Soc C E Proc 90 [PP 1 no 3760]:37-43 Ja '64
Contracted r&d begets benefits. F. L. Bonem. il diags Res/Develop 15:24-7 Ap '64
Design for a consulting engineer's office. il Illum Eng 59:440-2 Je '64
Engineering registration: consultants area. F. E. Lyford. Mech Eng 86:22-3 My '64
For services rendered. J. P. Nielsen. J Metals 16:843-5 O '64
GM accelerates building program. Eng N 172:37-8 Mr 26 '64
110 engineering firms at work on AID jobs abroad. Eng N 172:22-3 My 28 '64
Opening foreign markets; one way. G. W. Volckhausen. flow chart il Wire & Wire Prod 39:1330+ S '64
Senate backs federal engineering curb. Eng N 171:24 N 21 '63
Specialist needed by consultants for proper application of instrumentation to the water works field. J. R. Danekar. Water Works & Wastes Eng 1:51-3 Je '64
Starting a consulting business. J. S. Ward. Civil Eng 34:48-50 Ja '64
U.S. consultants get only ten per cent of overseas work. Eng N 172:22-3 My 28 '64
When design help is needed hire an outside agency. Product Eng 35:52-3 F 3 '64
Where seniority is a tradition; consulting firm of Greeley & Hansen. il Eng N 171:53-4 N 21 '63
See also
National society of professional engineers

CONSULTING engineers council
National convention, 1st, Denver. Eng N 172:19-20 Je 4 '64; Air Cond Heat & Ven 61:90-1 Jl '64
William Moore assumes presidency of Consulting engineers council. il Eng N 172:42-4 Je 4 '64

CONSUMER panels
Consumer preference evaluation of the storage stability of foods. D. R. Peryam. bibliog Food Tech 18:1460-3 S '64
Home-use test by consumers of the flavor effects of disodium inosinate in dried soup. J. F. Caul and S. A. Raymond. Food Tech 18:353-7 Mr '64
Objectives of acceptance testing. J. A. Coleman. Am Perfumer 78:29-31 N '63

CONSUMER surveys
Electricity consumer research. Engineer 217:398-9 F 28 '64

CONSUMERS
Automation and the American consumer. R. W. Bolz. bibliog diag Automation 11:14-18+ Ap '64
Consumer confidence, major food industry asset. C. W. Cook. Food Tech 18:1570+ O '64
Consumer looks at detergents. B. Strawn. il Soap & Chem Spec 40:56-8+ Je '64
Technical research on consumer products. S. J. Strianse. il Drug & Cosmetic Ind 95:504-6, 640+ O '64

CONSUMPTION (economics)
Items for the affluent; consumer durables. il Steel 153:100-4 D 9 '63

CONTACT angle
Computation of surface tension and of contact angle by the sessile-drop method. D. N. Staicopolus. bibliog J Colloid Sci 17:439-47; 18:793-4 Je '62, O '63

CONTACTORS, Electric. See Electric contactors

CONTACTS, Electric. See Electric contacts

CONTAINER industry
See also
Paper board industry

CONTAINER system (freight handling)
Alaska Steamship inaugurates full vanship service. il Marine Eng/Log 69:32A Jl '64
Australians adopt container shipping. il Marine Eng/Log 69:134 S '64
Have marine containers made the grade? N. K. Rogers. il Marine Eng/Log 69:51-3 Ag '64
International freight container sizes. Engineer 218:137 Jl 24 '64
New containerization idea; interchange-on-the-move. il Mod Materials Handling 18:59 D '63
Piggyback transfer unit. il Mech Eng 86:52 O '64
Piggybacking; a rail problem. il Mod Materials Handling 19:5 O '64

CONTAINERS
Cryogenic biological container. R. F. O'Connell and W. Haumann. il Materials in Design Eng 59:133 Ap '64
Impact of container design on printing. E. H. Merz. il Drug & Cosmetic Ind 93:642-3+ N '63
1964 materials handling and packaging directory: storage equipment. il Mod Materials Handling 19:241-66 My '64
Novel storing-moving system; containers that come alive. il Mod Materials Handling 19:42-3 Jl '64
Superfluid helium container of Mylar construction. T. H. Moss and others. diag R Sci Instr 34:1267-8 N '63
What's new in reusable containers? il Mill & Factory 75:88-91 O '64
See also
Beer containers
Bins
Bottles
Cans
Capsules
Closures (containers)
Food containers
Gas containers
Hoppers
Labels
Milk containers
Oil cans
Package design
Package goods
Packing for shipment
Paper boxes
Paper containers
Trays (containers)

Manufacture

Composites catch on in booming can market; foil and paper combinations. il diag Steel 153:78+ N 18 '63

CONTAINERS (for shipping)
Bulk shipper cuts costs; Hex-Keg. il Food Eng 35:98 D '63
Container cuts costs four ways. il Mod Materials Handling 19:73 O '64
Container cuts shipping costs. il Iron Age 194:68 O 22 '64
Corrugated shipper reduces poultry waste. L. Davis. il Food Eng 36:78-80 Ag '64
New air-support system from Fruehauf stresses mobility for containers. il Mod Materials Handling 19:3 Je '64
New container handling problems. il Soap & Chem Spec 39:249+ D '63
Saving on shipping containers. il diags Mod Plastics 41:113+ Je '64
Shipper builds company image; Sara Lee. il Food Eng 36:107 Jl '64
See also
Crates

CONTAINERS, Aluminum
Container usage of aluminum shows record growth rate. Mod Metals 20:74 Jl '64
Ups handling efficiency; aluminum bulk container. il Food Eng 36:105 Ap '64

CONTAINERS, Dispensing
Designing closures for a dual purpose. il diags Mod Plastics 42:116-19+ S '64
Plastic packaging of drugs and cosmetics; rigid plastic bottle and plastic dispensing bottle. A. Hirsch. diags Drug & Cosmetic Ind 94:686-7+ My '64

CONTAINERS, Food. See Food containers

CONTAINERS, Glass. See Glass containers

CONTAINERS, Metal
Metal containers for aqueous benzene-phenol dosimeters. F. W. Bloch and others. bibliog Nucleonics 22:77 Mr '64
Metal packages for automotive products. B. Morgan. il Soap & Chem Spec 40:121+ Mr '64
Metals for food containers; the electromotive series and clostridium botulinum. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18:360-2 Mr '64
Packaging in metal containers of water base insecticides. A. S. Glessner. Soap & Chem Spec 40:83-6+ Ag '64

CONTAINERS, Paper. See Paper containers

CONTAINERS, Plastic
All-plastics aerosol containers. il Brit Plastics 36:679 D '63
Beer case; injection molded of tough polyethylene. il Plastics World 21:25 N '63
Boxes become sophisticated. il Mod Plastics 42:106-7+ O '64
Celanese announces plastic aerosol containers. il Soap & Chem Spec 40:198+ My '64
Designing plastics containers for automatic production lines. S. Hetherington. il diags Plastics World 22:18-19 F '64
Extruded netting set to snare big markets. il Mod Plastics 41:80-3+ N '63
Injection-molded rigid vinyl container. il Plastics World 22:70 Jl '64
Motor oil packages. il Plastics World 22:9 Ag '64
New concept in self-service packaging; Slotkowski sausage co. L. P. Slotkowski. il Food Eng 36:86-8 Mr '64
New day for thin-wall containers. il Mod Plastics 41:84-8+ My '64
Plastic packaging considerations. R. C. Cross. Soap & Chem Spec 40:133+ Ap '64
Plastics invade container markets on wide front. il Chem Eng 71:56-8 F 17 '64
Polyethylene jerrycan gets ok. il Mod Plastics 41:86-7 F '64
Promise for beer cases. il diags Mod Plastics 41:96-8+ My '64
Thin-wall rigid vinyl adds new dimension to packaging. il Mod Plastics 41:115 Je '64
See also
Bags, Plastic
Bottles, Plastic

CONTAINERS, Pressurized
Acrolite to boost aerosol output 200 per cent. Soap & Chem Spec 39:135 N '63
Aero-Chem expands, diversifies. il Soap & Chem Spec 39:81-2 D '63
Aerosol and pressurized space spray insecticide test method for flying insects; official method of CSMA. Soap & Chem Spec Blue Book p226-8+ '64
Aerosol bath powders. il Soap & Chem Spec 40:105-7 O '64
Aerosol buyers guide. Manuf Chem 35:90+ Mr '64
Aerosol containers. il Plastics World 22:17 Ap '64
Aerosol fly sprays. A. H. Yeomans and others. Soap & Chem Spec 40:110+ O '64
Aerosol propellant vaporization. E. C. Burgard. Soap & Chem Spec 40:151-2 Je '64

CONTAINERS, Pressurized—*Continued*

Aerosol review, 1964. il Manuf Chem 35:101-42 Mr '64
Aerosol statistics, 1963. Drug & Cosmetic Ind 95:29-31 Jl '64
Aerosol success hinges on r&d effort. Soap & Chem Spec 40:157 Ja '64
Aerosol techniques, inc., world's largest aerosol filler. il Soap & Chem Spec 40:107+ S '64
Aerosol vs. pump. Drug & Cosmetic Ind 95:427 S '64
Aerosols at Macropak exhibition, Amsterdam. il Manuf Chem 35:93-4+ Je '64
Aerosols continue growth patterns. Chem & Eng N 42:26-7 My 25 '64
Aerosols in Christmas packs. il Manuf Chem 35:98-9 O '64
All-plastics aerosol containers. il Brit Plastics 36:679 D '63
Analyzer for propellant blends. H. R. Felton. il diags Soap & Chem Spec 40:79-82+ Mr '64
Azeotropic aerosol propellants. J. R. Haase and R. J. Scott. bibliog Soap & Chem Spec 40:105+ Ag '64
Basic system for water based aerosol space sprays. R. J. Scott and M. E. Clayton. il Soap & Chem Spec 40:151-2+ S '64
Capitol co. packaging aims high; contract aerosol packager gets boost from Alberto-Culver merger. il Soap & Chem Spec 40:118-19+ Ap '64
Carbide opens propellant center on Coast. il Soap & Chem Spec 40:160+ Je '64
Catalytic methane chlorofluorination. M. Vecchio and others. bibliog flow sheet il Chem Eng Prog 60:50-4 S '64
Celanese announces plastic aerosol containers. il Soap & Chem Spec 40:198+ My '64
Challenge in creativity for aerosol cosmetics. E. V. Wandersee. Am Perfumer 79:70-2 Mr '64
Checking net weight of aerosol foam products. Soap & Chem Spec 40:134-5 S '64
CSMA aerosol design winners. il Drug & Cosmetic Ind 94:210 F '64
CSMA aerosol package contest award winners. il Soap & Chem Spec 39:238-9 D '63
CSMA aerosol promotion being expanded. Soap & Chem Spec 40:145 Mr '64
CSMA survey of non-food aerosols and pressurized products filled by 146 firms in U.S. and Canada in 1962 and 1963. Soap & Chem Spec 40:83-4 Je '64
Clean bill for hair sprays. P. Alexander. bibliog il Manuf Chem 35:61-2+ Ag '64
Cockroach aerosol test method; tentative official method of the CSMA; latest revision. il Soap & Chem Blue Book p229-30+ '64
DDT aerosols containing WARF anti-resistant. J. H. Fales and O. F. Bodenstein. Soap & Chem Spec 40:96-7 Ap '64
Deal packages for aerosols. R. P. McGhie. Soap & Chem Spec 40:97+ F '64
Densimetry in aerosol products. W. G. Gorman and G. D. Hall. bibliog Soap & Chem Spec 40:213-14+ My '64
DDVP in aerosols insecticides. J. H. Fales and others. Soap & Chem Spec 40:99+ Je '64
DDVP insecticide sprays. L. F. Sekula. Soap & Chem Spec 40:82+ F '64
European contributions to aerosol technology. H. Kubler. bibliog Am Perfumer 79:37-9 Ja '64
Filler's approach to water-based insecticides. H. C. Cook. Soap & Chem Spec 40:125-6+ Jl '64
Filling aerosol colognes. F. Present. Drug & Cosmetic Ind 95:182+ Ag '64
Filling pharmaceutical aerosols. il Manuf Chem 35:83-4 My '64
Formulation of aerosols. J. Yakubik. Drug & Cosmetic Ind 95:36-8+ Jl '64
G. Barr building a new and enlarged plant. il Soap & Chem Spec 40:153 Ap '64
How to design, select, and apply pressurized containers. C. C. Higgins. il diags Product Eng 35:69-75 Ja 6 '64
Hysan expands aerosol production facilities. il Soap & Chem Spec 39:201 D '63
International congress of Federation of European aerosol associations, 4th, Brighton, England, Oct. 7-11; with program. Soap & Chem Spec 39:155+ S; 77-8+ N; 222+ D '63
ICC aerosol rules changes. Soap & Chem Spec 40:120-2+ S '64
Japanese can makers visit U.S. aerosol plants. il Soap & Chem Spec 39:130 N '63
Johnson's British aerosol unit. il Soap & Chem Spec 39:115-18+ D '63
Lambing kit uses aerosols. il Manuf Chem 35:78-9 F '64
Loading pressurized products with soluble gases as propellants. H. Z. Sokol. Soap & Chem Spec 40:139-40+ Mr; 147-8+ Ap '64
Novel package for aerosol tire inflator-sealant. il Soap & Chem Spec 40:133-4 S '64
PM, Reader's Digest articles blast aerosols. Soap & Chem Spec 40:126 Ap '64
Polyacetal aerosol containers. J. J. May. il diags Soap & Chem Spec 40:135-6+ Ag '64
Pressure packaged permanent wave lotion. Soap & Chem Spec 40:171-2 S '64
Pressure packaging. Published in monthly numbers of Soap and chemical specialties
Pressure packs and the law. L. J. Schuddeboom. Manuf Chem 35:82+ Jl '64
Pressurized packages. il diags Engineering 196:658-9 N 22 '63
Pressurized water based space sprays. J. B. Moore and G. J. Baker. Soap & Chem Spec 40:75-8+ Jl '64
Propellant transfer and blending equipment. il Soap & Chem Spec 40:150 Mr '64
Safety of oil base insecticides. G. W. Fiero. bibliog il Soap & Chem Spec 40:94-5+ Ja '64
Simplified valve design increases aerosol filling rate. Chem & Eng N 41:50-1 D 2 '63
Some impressions of the aerosol industry in USA. il Manuf Chem 35:104-8+ S '64
Technical aspects of automotive aerosols. M. A. Johnsen. bibliog il Soap & Chem Spec 40:113-16+ My '64
Use of vinyl chloride monomer as a constituent of aerosol propellants. Manuf Chem 35:91-2 Ja '64
Valves for water based insecticides. J. Pizzurro. Soap & Chem Spec 40:163-4 O '64
Vapor pressures of solvents and propellant mixtures. L. T. Flanner and R. L. Risacher. diags Soap & Chem Spec 40:108+ Ja '64
West German production of aerosol products jumps 26 per cent. Chem & Eng N 42:54-5 Jl 27 '64

Patents

Aerosol patents. Published in monthly numbers of Soap and chemical specialties

Testing

CSMA aerosol flammability test changes. Soap & Chem Spec 40:144 F '64

CONTAINERS, Rubber

Rubber and plastics in road transport. Engineer 217:686 Ap 17 '64

CONTAINERS, Steel

Oversize drums: broaden bulk grease handling. D. W. Twomey. il diag Iron & Steel Eng 41:105-8 Je '64
See also
Pressure vessels
Tanks, Steel

Re-use

Reconditions drums chemically. il Food Eng 36:109 Ja '64

CONTAMINATION control, American association for. See American association for contamination control

CONTESTS. See Prize contests

CONTINENTAL shelf

Atlantic sediments, erosion rates, and the evolution of the continental shelf; some speculations. J. Gilluly. bibliog maps Geol Soc Bul 75:483-92 Je '64
Grand Banks slump. B. C. Heezen and C. L. Drake. bibliog maps Am Assn Pet Geologists Bul 48:221-5 F '64
Origin of continental slopes. R. S. Dietz. bibliog diags Am Scientist 52:50-69 Mr '64
Sedimentary framework of continental terrace off Norfolk, Va. and Newport, R.I. D. G. Moore and J. R. Curray. bibliog map diags Am Assn Pet Geologists Bul 47:2051-4 D '63
Who owns the continental shelf? map Eng & Min J 165:85 O '64

CONTINENTS

Measurement of continental drift and earth movement with lasers. W. Honig. diag IEEE Proc 52:430 Ap '64
Measurement of earth tides and continental drift with laser interferometer. V. Vali and W. Vali. diag IEEE Proc 52:857-8 Jl '64

CONTOURING. See Machine work—Copying processes

CONTRACEPTION. See Birth control

CONTRACTORS

Big-job contractor tells how he supervises 20 jobs at once. R. Smith. il Dom Eng 202:84+ D '63

Boiler room floor cracks as result of poor design. F. G. Bastick. diags Heating-Piping 36:150 S '64

Bond contractors on their ability, too. Roads & Sts 107:147 Je '64

Commercial remodeling equation: big jobs = complex problems = big profits. il Dom Eng 204:88-91 S '64

Concrete additives from the viewpoint of the large contractor. C. Hobbs. bibliog Chem & Ind p526-35 Mr 28 '64

Construction boom spurs building maintenance. Safety Maint 128:48 Jl '64

Contractors' profits get fatter. Eng N 172:17-19 My 28 '64

Contractors' profits improving. Eng N 173:25-6 S 10 '64

Contractors regain interest in dams. Eng N 173:21 O 22 '64

Contractor's view on unlined tunnels. A. M. Petrofsky. bibliog Am Soc C E Proc 90 [PO 3 no 4086]:91-104 O '64

CPM; a new management tool for mechanical contractors. diags Dom Eng 203:74-8+ Je; 204:80-7 Jl '64 (to be cont)

Customer service work; use of contractors. W. M. Kelly. Gas Age 131:32-4 My '64

Designing for safety: contractor's viewpoint. E. Jenett. il diags Chem Eng 71:136-43 Jl 20 '64

86 firms rank as top contractors. Eng N 173:53-4 Jl 2 '64

ENR survey lists 400 largest construction contractors. Eng N 173:69-72+ Ag 6 '64

Europe lowers contractor bars. Eng N 173:64 Ag 6 '64

Expanding universe of the mechanical contractor; H. Sand & co. il Dom Eng 204:75-81+ Ag '64

How a safety program can protect your investment. J. V. Otter. il Roads & Sts 107:90+ Je '64

James A. MacAlarney engineers Ford's new plants. Eng N 171:51-2 D 5 '63

Law on contractor's liability. E. Mitchell. Engineer 216:980-1 D 13 '63

100 biggest building contractors in the United States. Arch Forum 120:18-20 My '64

Pipelines to profit. il Dom Eng 204:94-7 Jl '64

Senate and the Feds squeeze contractor. Eng N 172:15 Ja 30 '64

Successful contractor looks at management. W. M. Blount. Roads & Sts 107:42-3 Mr '64

Today's homebuilder; houses plus. Eng N 171:47-8 D 19 '63

Value engineering hits contracting. Eng N 172:23-5 My 14 '64

Value of management in the construction industry. H. C. Turner, jr. Civil Eng 34:59-60 F '64

When it comes to profits, all contractors agree higher markups should be attempted. Eng N 173:30 O 1 '64

Young builder has the Midas touch; Jerry Wolman. Eng N 173:55-6 Jl 16 '64

See also

Associated general contractors of America
Electric contractors
Engineering contracts
Estimates
Petroleum—Well drilling contractors
Petroleum pipe lines—Contractors
Pipe line contractors association
Road contractors
Solomon, Charles

Insurance requirements

As a contractor, do you carry adequate insurance? J. Midwinter. il Civil Eng 34:64-6 Ag '64

Contractors blast wrap-up insurance. Eng N 172:50 Ap 2 '64

Taxation

Canadian builders battle taxes. Eng N 172:49 F 13 '64

CONTRACTS

AIA general conditions. H. J. Rosen. Prog Arch 45:168 Ag '64

Defense cutbacks and the aerospace industry. M. L. Weidenbaum. bibliog Astronautics & Aeronautics 2:60-4 Je '64

How much do you know about contracts? G. T. Medlock and R. D. Stevens. Pit & Quarry 57:114-15 Ag '64

Inducing a breach of contract. B. Tomson and N. Coplan. Prog Arch 45:192 Ap; 198 My '64

See also

Agency (law)
Building contracts
Engineering contracts
Heating contracts
Labor contracts
Petroleum—Well drilling—Contracts
Roads—Contracts

Subcontracting

Critical-path method (CPM) in electrical construction; relation of subcontractor to plan. J. J. O'Brien. plan Elec Constr & Maint 63:70-3 Ja '64

Default in performance. B. Tomson and N. Coplan. Prog Arch 45:228 S '64

CONTRACTS, Government

AGC loses decision on force-account. Eng N 173:53 O 8 '64

Concentration of defense r&d unavoidable. Chem & Eng N 42:34-5 S 21 '64

Engineer's view of the government electronics market. P. M. Kelly. il Electronic Ind 23:38-44 Ap '64

Major bids taken for record building; pile-driving ends, steelwork starts moon rocket assembly plant at Cape Kennedy. il Eng N 172:15 Ja 16 '64

Making money in space. J. A. Strasser. il Electronics 37:124-6 Je 15 '64

Mills find defense contract production tests costly; Riegel textile corp. Textile Ind 128:97 F '64

Research and development contract opportunities. Electronics 37:R23-6 Jl 25 '64

Value engineering hits contracting. Eng N 172:23-5 My 14 '64

Value engineering's profit potential raised. Eng N 173:17-18 N 5 '64

See also

Purchasing, Government

Subcontracting

AGC swears by single contract. Eng N 172:19-20 Mr 12 '64

Details bog down sublisting test. Eng N 172:18 F 6 '64

Sublisting again; second federal agency tests listing of subcontractors. Eng N 171:23 D 12 '63

CONTRACTS, Letting of

Alternates and the base bid. B. Tomson and N. Coplan. Prog Arch 45:186 Jl '64

AGC loses decision on force-account. Eng N 173:53 O 8 '64

Better bidding is contractor association theme. Roads & Sts 107:62-3 Jl '64

Bidding the gas-processing plant. K. Brooks. Oil & Gas J 62:92-4 Jl 13 '64

Competitive bidding; let's cut down the odds. A. Johnson. Dom Eng 203:100-1 Ap '64

Evaluation system boosts job shop's bidding average. W. T. Stark. Steel 155:46-7 S 21 '64

New firm expands through planned bidding and close job control; Macon construction and engineering corp. il Roads & Sts 106:56-7+ N '63

$114.5-million job goes begging; Yuba County river project. map diag Eng N 173:19-20 S 24 '64

Philadelphia agency probes to see why bids soar above estimates. Eng N 173:18 N 5 '64

Should you bid plastic jobs? Am Mach/Metalworking Manuf 108:96 Je 22 '64

Unlawful lending of plumbing licenses; how big a factor in bidding? W. Weintraub. Dom Eng 203:82-3 My '64

CONTRACTS, Maintenance. See Maintenance contracts

CONTROL boards

Control-panel valves set pressure and flow for remote components. C. H. Tepas and A. Antram. il diags Hydraulics & Pneumatics 17:98+ My '64

New control center will monitor 19-building complex; Memphis' Baptist memorial hospital. il Plant Eng 18:138-9 Mr '64

Operability. R. C. Winton. il diags Ind Electronics 2:323-5 Jl '64

Portable automation for a small press shop. H. A. Joerger, jr. il Am Mach 108:69 Jl 20 '64

CONTROL charts

Comparison of process inspection schemes. E. S. Page. bibliog Ind Quality Control 21:245-9 N '64

Generating charts for quality control. E. J. Dennard, jr. Automation 11:62-4 My '64

CONTROL charts—*Continued*

Median, midrange chart using run-size subgroups. E. B. Ferrell. Ind Quality Control 20:22-5 Ap '64

Quality plan uses graphic reports; Chevrolet's Buffalo, N.Y. gear and axle plant. R. Dyment. il Automotive Ind 129:65-7 N 15 '63

Quick, new way to check exacting specifications; control charts. N. L. Enrick. Textile World 113:68-70 D '63

Some uses of statistical control charts in the pharmaceutical industry. H. L. Breunig. bibliog Ind Quality Control 21:79-86 Ag '64

Status board promotes office efficiency. il Pub Works 95:98 Ja '64

USDA variables control chart plan applied to fill weights. R. P. Bartlett, jr. and H. W. Weatherspoon. bibliog il(cover) Food Tech 18:830-2+ Je '64

CONTROL equipment

Abstracts. Published in monthly numbers of Control engineering

Adaptive optimal control of nonlinear processes. A. E. Pearson. diags A S M E Trans ser D 86:151-9 Mr '64

Analysis of piecewise linear systems by the method of integral equations. C. N. Shen and H. Wang. diags A S M E Trans ser D 86:139-44 Mr '64

Annual equipment specification digest; controls and instruments. il diags Air Cond Heat &Ven 61:95-6+ Ja '64

Asymptotic stability of a class of saturating sampled-data systems. J. B. Pearson, jr. and J. E. Gibson. bibliog diags IEEE Trans Applications & Ind p81-5; Discussion. 85-6 Mr '64

Automated dairy-plant systems. il Food Eng 36:96-7 Ap '64

Automated Yankee Clipper; SS Louise Lykes. diag Product Eng 35:58-9 F 17 '64

Automatic controls in ship operation. Engineer 216:642 O 18 '63

Basic types of self-adaptive control systems. D. R. Towill. bibliog diags Engineer 216:1066-8 D 27 '63

Better startups for process control. C. L. Pleasance. il diags Instruments & Control Systems 37:121-2 My '64

Combination control systems. N. A. Anderson. il diags Instruments & Control Systems 37:126-31 Mr '64

Control system compensation. J. S. Jackson. il diags Electronic Ind 22:188-90 N '63

Control valve sizing. J. R. Grabill. Instruments & Control Systems 37:120-1 F '64

Controlling sound-reinforcement systems. D. L. Klepper. il diags Audio 47:19-23+ D '63

Describing function for nonlinear systems with memory subject to random input. V. S. Levadi and R. L. Cosgriff. bibliog diags IEEE Trans Applications & Ind p73-6 Mr '64

Digital techniques in industry. G. Cooper. il diags Ind Electronics 2:185-90, 233-8 Ap-My '64

Direct-digital control in automation spotlight. Chem Eng 71:88+ Je 22 '64

Ditcher feels way along string. il Eng N 171:61 D 5 '63

Effect of control systems on filter performance. M. E. Rogers. bibliog flow chart diags Am Water Works Assn J 56:907-14 Jl '64

Electric versus pneumatic actuators. R. Reut. il diag Instruments & Control Systems 37:119-20 My '64

Elliott sequence control system. G. S. Smith. il diag Ind Electronics 2:309-12 Jl '64

Finding optimum controller settings. P. M. E. M. van der Grinten. diags Control Eng 10:51-6 D '63

Frequency response methods. G. A. Coon. I S A J 11:77-8 S; 81-2 O '64

Frequency response through impulse excitation. J. K. Scully. diags Electro-Tech 74:53-6 Jl '64

Graphic solution of higher-order equations. B. L. Deekshatulu. diags Instruments & Control Systems 37:130-3 Ja '64

Hall effect; key to higher-performance instrumentation. N. G. Sakiotis and A. L. Aden. bibliog il diags I S A J 10:51-5 D '63

Intrinsic safety. F. M. Ryan. bibliog il diags Control Eng 11:73-7 Je '64

Intrinsic safety. C. J. Swartwout and F. L. Maltby. bibliog il diags Instruments & Control Systems 36:93-7 O '63

Joint automatic control conference, 5th, Stanford, Calif. I S A J 11:21 Ag '64

Joint automatic control conference, Palo Alto, Calif. June 24-26; with program. I S A J 11:50+ My '64; Mech Eng 86:95-7 My '64

Liapunov functions of high order nonlinear systems. Y. H. Ku and N. N. Puri. Franklin Inst J 276:349-64 bibliog(p363-4) N '63

Light-activated switch expands uses of silicon-controlled rectifiers. E. K. Howell. il diags Electronics 37:53-61 My 4 '64

Limit switch a low-cost sense of touch. il diags Mod Materials Handling 19:52-5 S '64

Look at the future; power and drives. J. Schachner and R. H. Wilcox. il diags Mill & Factory 75:100-12 N '64

Mathematical models for control systems. R. Feit. diags Electro-Tech 73:71-90 Mr '64 (reprint $1)

Merchant marine pipes controls aboard. D. Aronson. il Control Eng 11:20-2 Mr '64

Minimum fuel control of a second-order linear process with a constraint on time-to-run. H. O. Ladd, jr. and B. Friedland. bibliog diags A S M E Trans ser D 86:160-8 Mr '64

Minimum-fuel control of second-order systems with real poles. M. Athans. diags IEEE Trans Applications & Ind 83:148-53 My '64

Multiple accelerometer vibration control system. P. Longrigg. il diags Electronic Eng 35:817-21 D '63

Nature of living control systems. J. H. Milsum. bibliog diags Eng J 47:34-8 My '64

New asphalt-blending system cuts truck-loading time 33 minutes. O. O. Wells and C. L. Massa. il diag Oil & Gas J 62:124-7 Mr 2 '64

New components. Published in monthly numbers of Automation

New products. Published in monthly numbers of Control engineering

New; remote control over towline systems. H. P. Thatcher. il diags Mod Materials Handling 19:66-9 O '64

New world of industrial control. B. K. Ledgerwood. il diags Mech Eng 86:37-49 Jl '64

1964 materials handling and packaging directory; systems components. il Mod Materials Handling 19:303-14 My '64

No. 101 ESS control unit. E. G. Hughes and R. G. Taylor. il diag Bell Lab Rec 42:61-6 F '64

Optimal control of self-adjoint systems. M. Athans and others. bibliog diags IEEE Trans Applications & Ind 83:161-6 My '64

Optimization of discrete control systems through linear programming. H. C. Torng. diag Franklin Inst J 278:28-44 Jl '64

Optimum settings for controllers. J. G. Ziegler and N. B. Nichols. I S A J 11:73-4 Je; 75-6 Jl; 63-4 Ag '64

Problems of applying gas chromatographs to process control. E. M. Thomason. il diags I S A J 10:56-8 D '63

Process control systems. F. D. Marton. diags Instruments & Control Systems 37:111-12 Ja; 123-4 F; 123-4 Mr '64

Products. Published in monthly numbers of ISA journal

Real-frequency stability criteria for linear time-varying systems. J. J. Bongiorno, jr. diags IEEE Proc 52:832-41 Jl '64; Correction. 52:1127-8 O '64

Remote control of marine Diesel engines. il Engineering 196:559 N 1 '63

Response of nonlinear control systems to periodic input signals. I. W. Sandberg. bibliog Bell System Tech J 43:911-26 My '64

Russians push control hard under new central direction. S. Ramsey. Control Eng 10:31-2+ D '63

Second method of Liapunov and Routh's canonical form. N. N. Puri and C. N. Weygandt. bibliog diags Franklin Inst J 276:365-84 N '63

Selecting instrument controller modes. J. W. Roth. Instruments & Control Systems 37:119 Ja '64

Self-adaptive control system with several time-scale loops. H. Ziebolz. bibliog diags Instruments & Control Systems 37:126-9 Ap '64

Self-optimizing and learning control systems; abstract. J. E. Gibson and K. S. Fu. Automation 11:116 Ja '64

Self-organizing control systems. M. D. Mesarović. bibliog diags IEEE Trans Applications & Ind 83:265-9 S '64

Self-zeroing self-adaptive control system. P. N. Nikiforuk and E. K. Lashyn. bibliog diags Inst E E Proc 110:2280-4 D '63

17 ways to track the edge; drawings with text. S. L. Sorsen. Control Eng 11:77-80 My '64

Simulation of a non-linear control system. il diags Instruments & Control Systems 37:144-5 Mr '64

CONTROL equipment—*Continued*

Skelly automates down the middle. L. A. Murphy. il Pet Management 36:110+ Ap '64

Sonac sensing and switching devices. il diag Engineering 198:270-1 Ag 28 '64

Stability of closed-loop control systems. A. W. Langill. diags Electro-Tech 73:77-86 F '64

State-variable techniques for control systems. M. G. Rekoff, jr. diags Electro-Tech 73:36-47 My '64

Step-analysis method of finding time constant. N. A. Anderson. il diags Instruments & Control Systems 36:130-5 N '63

Suboptimal on-line discrete controller with bounded control variables. F. H. Kishi. bibliog diags IEEE Trans Applications & Ind 83:216-22 Jl '64

Summertime learning; automatic control and instrumentation-oriented courses for 1964. I S A J 11:87-90 My '64

Ten aids for plant engineers; Plant engineering and maintenance show, Cleveland. il Food Eng 36:100-1 Ap '64

Time-domain matrix analysis of nonlinear hybrid control systems. R. E. King and D. Williamson. bibliog diags Inst E E Proc 111:1607-14 S '64

Transfer function tracking of a linear time-varying system by means of auxiliary simple lag networks. N. N. Puri and C. N. Weygandt. bibliog diags IEEE Trans Applications & Ind p70-2 Ja '64; Discussion. 83:263-4 Jl '64

Turbines are bridge-controlled in Denmark's biggest ship. il Marine Eng/Log 69:54-5 Ag '64

Two-wire system controls waterflood. W. B. Bleakley. il Oil & Gas J 62:72-3 Ag 10 '64

See also

Calculating machines
Electrohydraulic control
Electronic control
Electropneumatic control
Feedback control systems
Governors (machinery)
Hydraulic control
Liquid level control
Machinery, Automatic
Magnetic control
Numerical control
Pneumatic control
Servomechanisms
Telemetering
Temperature—Regulation

also subdivision Control and Control equipment under special subjects, e.g.

Air conditioning equipment
Airplanes
Airplanes, Military
Atomic power plants
Bakers and bakeries
Blast furnaces
Boilers
Cement plants
Chemical plants
Concrete plants
Cotton mills
Cranes, derricks, etc.
Crushing machinery
Diesel engines
Diesel engines, Marine
Electric plants (central stations)
Elevators
Gas burners
Gas compressors
Gas turbines
Guided missiles
Heat exchangers
Heat treatment shops
Helicopters
Hydroelectric plants
Lathes
Machine tools
Machinery
Metal working plants
Metallurgical plants
Milling machines
Nuclear reactors
Packaging machinery
Paper and pulp mills
Paper cutting machines
Paper making machinery
Petroleum refineries
Plastics machinery
Plating shops
Power plants
Presses
Printing presses
Pumping machinery, Electric
Pumps, Feed water
Rock products plants
Rolling mills
Space vehicles
Steam plants
Steam turbines
Steel works
Textile machinery
Textile mills
Traffic signals
Valves
Valves, Hydraulic

Bibliography

New books. Published in monthly numbers of Control engineering

Design

Amplitude frequency response analysis and synthesis of unfactored transfer functions. J. S. Ausman. diags A S M E Trans ser D 86:32-6 Mr '64

Analytical synthesis of a class of model-reference time-varying control systems. J. G. Hiza and C. C. Li. bibliog diags IEEE Trans Applications & Ind p356-62 N '63

Application of dynamic programming to the synthesis of high-order multivariable control systems. A. R. M. Noton. bibliog diags Inst E E Proc 111:1353-8 Jl '64

Bumpless transfer between automatic and manual control. D. R. Hyer. il diags Power Eng 67:61-3 D '63

Compensating for dynamics in digital control. J. B. Slaughter. bibliog diags Control Eng 11:109-14 My '64

Computing the time response of a deadtime process; data file. M. Tyner. Control Eng 11:79-81 Ap '64

Contribution to the transform calculus used in the synthesis of control systems. N. N. Puri and C. N. Weygandt. bibliog Franklin Inst J 277:337-48 Ap '64

Control modes by step analysis. N. A. Anderson. diags Instruments & Control Systems 36:113-17 D '63

Control through digital filtering by signal decomposition with application to highly elastic boosters. J. Zaborszky and others. bibliog diags IEEE Trans Applications & Ind p87-98 Mr '64

Converting speed-torque curves graphically. J. Miro. diags Control Eng 11:69-72 Jl '64

Cutting controller costs. E. S. Ida and D. W. St Clair. il diags Control Eng 11:86-91 O '64

Designing sampled-data control systems by linear programming. K. A. Fegley. bibliog diags IEEE Trans Applications & Ind 83:198-200 My '64

Determine process characteristics simply by filtering plant data. P. M. E. M. van der Grinten. diags Control Eng 11:61-4 Jl '64

Finding quintic-equation roots; data file. C. R. Seliger. Control Eng 11:107-8 My '64

High-capacity reaction-wheel attitude control. M. L. Dertouzos and J. K. Roberge. bibliog il diags IEEE Trans Applications & Ind p99-104 Mr '64

How to check linear systems stability. C. H. Hoffman. diags Control Eng 11:75-80 Ag '64

How to design low-cost digital controls. R. M. Centner. diags Control Eng 11:75-80 F '64

How to use silicon controlled rectifiers in series or parallel. A. R. Mulica. il diags Control Eng 11:95-9 My '64

Inspection and testing as a problem in man-machine systems control engineering. H. A. Thompson and E. A. Reynolds. bibliog Ind Quality Control 21:21-3 Jl '64

Linear digital control. F. J. Mullin and J. de Barbeyrac. bibliog A S M E Trans ser D 86:61-6 Mr '64

Linearisation of backlash in control systems with random inputs. W. A. Brown. bibliog diags Inst E E Proc 111:379-86 F '64

Measurement for control. il diags Instruments & Control Systems 37:103-12 Ag '64

Minimal-fuel satellite attitude controls. J. S. Meditch. bibliog diags IEEE Trans Applications & Ind p 120-8 Mr '64

New approach to the stability and control of nonlinear processes. J. F. Leathrum and others. bibliog diags A I Ch E J 10:16-25 Ja '64

Nonlinear compensation of a second-and third-order system with dry friction. C. N. Shen and H. Wang. bibliog diags IEEE Trans Applications & Ind p 128-36 Mr '64

Optimal and adaptive control systems. S. M. Shinners. bibliog diags Electro-Tech 74:63 Jl '64 (reprints $1)

Optimal bang-bang control with quadratic performance index. W. M. Wonham and C. D. Johnson. bibliog diags A S M E Trans ser D 86:107-15 Mr '64

CONTROL equipment—Design—*Continued*

Optimum control of distributed-parameter systems. P. K. C. Wang and F. Tung. bibliog diags A S M E Trans ser D 86:67-79 Mr '64

Parameter optimization by hybrid techniques. F. Melanson and P. Lanner. diags Instruments & Control Systems 37:125-8 Ja '64

Power and control circuits. E. E. Von Zastrow. bibliog il diags Electronics 36:51-60 D 6 '63

Practical dynamic analysis. W. C. Towner. diags Instruments & Control Systems 36:138-44 N '63

Precise power control utilizing a new actuator concept embodying all-mechanical power flow. J. L. Harned and others. il diags A S M E Trans ser D 86:121-31 Mr '64

Relative stability via the direct method of Lyapunov. W. G. Vogt. A S M E Trans ser D 86:87-90 Mr '64

Response of nonlinear characteristics to several inputs and the use of the modified nonlinearity concept in control systems. D. P. Atherton and G. F. Turnbull. bibliog diags Inst E E Proc 111:157-64 Ja '64

Some applications of the maximum principle to second-order systems, subject to input saturation, minimizing error, and effort. G. Boyadjieff and others. bibliog diags A S M E Trans ser D 86:11-21; Discussion. 21-2 Mr '64

Synthesis of discrete systems subject to control-signal saturation. J. T. Tou. bibliog diags Franklin Inst J 277:401-13 My '64

Ten ways to find the optimum; optimizing controllers. J. M. Idelsohn. bibliog diags Control Eng 11:97-102 Je '64

Testing for plant transfer functions in presence of noise and nonlinear response. T. Hennig. bibliog diags Control Eng 10:67-70 Je; 119-24 S '63; 11:95-100 Mr '64

Directories

Annual specifying and buying directory of products for instruments and controls, 1963-64. Air Cond Heat & Ven 60:107-28 D '63

Instruments and control systems 1964 buyers guide. Instruments & Control Systems 36:1-244 pt 2 O '63

Instruments and control systems 1965 buyers' guide. Instruments & Control Systems 37:1-266 pt 2 O '64

1964 Power Engineering telemetry buyers' guide. Power Eng 68:T34-6 Mr '64

Programmers. R. C. Nelson. il diag Instruments & Control Systems 37:93-100 O '64

Exhibitions

East show, West show. D. Barlow. il map Control Eng 11:102-4 S '64

Instrument society of America exhibit, New York, Oct. 12-15; control products preview. il Control Eng 11:123-30+ S '64

MESUCORA, quadrennial French show, Paris. il Product Eng 34:75-6 D 9 '63

Failure

Disturbances; their effect upon control systems. J. G. Balchen. diags Ind Chem 39:582-9 N '63

Emergency power supplies. M. F. Brown. diags Control Eng 11:65-7 Ja '64

Maintenance and repair

Modules simplify telemetry system maintenance. R. G. Gabrielson. il Power Eng 68. T26-7 Mr '64

Update your thinking on procedures for servicing automatic equipment. A. R. Wood. il Plant Eng 18:114-17 Ja '64

Standards

What's new in control standards. H. L. Mason. Control Eng 11:85-7 Je '64

Testing

Frequency response analysis. N. A. Anderson. diags Instruments & Control Systems 37:113-18 Ja '64

Testing OGO's attitude controls. N. H. Beachley and others. il diags Control Eng 11:93-7 O '64

CONTROL rods. See Nuclear reactors—Control rods

CONTROLLERS, Electric. See Electric controllers

CONVECTION, Heat. See Heat convection

CONVENTIONS

Curvilinear buildings support convention hall. il diag Prog Arch 45:82 Je '64

CONVENTS

North Dakota community for the Benedictine sisters. il plan Arch Rec 134:95-102 D '63

CONVERSION tables

Comparisons of materials; conversion factors. Materials in Design Eng 60:43-4 Mid-O '64

Conversion chart for aqueous ethyl alcohol. D. S. Davis. Am Perfumer 79:28-9 Ag '64

Metric conversion factors. Automobile Eng 54:267 Je '64

CONVERTERS, Electric. See Electric converters

CONVEYING machinery

Acetal rails reduce packaging damage. il Plastics World 21:67 N '63

Approaches in solving a materials handling problem. S. V. Worth. diags Plant Eng 17:118-20 D '63

Barbed-rod conveyor keeps chips on the move. il Plant Eng 18:155 Ja '64

Cable conveyor. il Iron & Steel Eng 41:247+ Mr '64

Chip conveyor helps to boost production. il Mod Materials Handling 19:63 F '64

Chip disposal at new ball bearing plant. il Mech Eng 85:63 N '63

Computer-run warehousing; blended automation and men. J. A. Eaton. il diag Mod Materials Handling 19:38-42 N '64

Conveyor solves wool hat problem. il Textile Ind 127:167+ N '63

Conveyors all over, miles of them; Standard knitting mills inc. il Textile World 114:44-8 Ag '64

Conveyors do bigger jobs in steel handling. il diag Mod Materials Handling 19:62 O '64

Delrin guide rails curb container damage. il Food Eng 35:124 N '63

Electric motors aid conveyor operation. il Pet Management 35:198-9 N '63

Flow-line assembly of lathes. il Engineer 217:1068-9 Je 19 '64

Fluid coupling cuts shocks on conveyor. il Mod Materials Handling 18:72+ D '63

Four ways to avoid jams on converging conveyors. S. Worth. diags Mod Materials Handling 19:57 F '64

Ingenuity solves conveyor problems. S. V. Worth. diags Plant Eng 18:119-20 Ap '64

Linear motors give gentle sorting action. il diag Mod Materials Handling 19:59 Mr '64

New for bulk and packages; conveying without contact. il Mod Materials Handling 19:44-5 Je '64

New for coal-handling; electronic fingers on the pulse. il diags Mod Materials Handling 18:46-7 N '63

1964 materials handling and packaging directory; conveying equipment. il Mod Materials Handling 19:167-94 My '64

Paint-line conveyors in new AMF plant. W. H. Braun. il Ind Finishing 40:46-8+ N '63

Rapid spoil removal from tunnel face. plan Engineering 197:735 My 29 '64

Remove chips automatically. il diag Safety Maint 127:58-9 F '64

Review of current improvements in drag type sludge collectors. il Water & Sewage Works 111:471-2 O '64

Smart handling fosters smooth flow of polymer. il diag Chem Eng 71:110 O 12 '64

Trouble; too little room and a low conveyor. Ind Finishing 40:106-7 Ag '64

Ultrasonic power speeds cleaning in large conveyorized lines. il Iron Age 194:64-5 S 3 '64

Utilizing gravity in handling cylindrical products. F. J. Gleischauer. il diags Automation 11:67-71 Mr '64

When should you think about shaft-mounted drives? C. W. Dorman. il diags Pit & Quarry 56:129-30 Ja '64

Which conveyor where? B. Curry. il Plant Eng 18:108-11 Je '64

See also

Coal handling
Cranes, derricks, etc.
Electric driving—Conveying machinery
Feeders
Hoisting machinery
Hydraulic conveying
Loading and unloading
Mechanical handling
Mine haulage
Mine hoisting
Monorail conveyors
Ore handling
Pneumatic conveying
Sheet metal handling

CONVEYING machinery—*Continued*

Belt conveyors

Bucket wheel reclaimer. il Engineer 218:74-5 Jl 10 '64
Bulk system is fast for unloading salt. il Mod Materials Handling 18:59 N '63
Casting conveyor cuts costs. K. Shaw. il Cer Ind 83:52-3+ O '64
Conveyor goes under to bring efficiency up. diag Mod Materials Handling 19:49 Ap '64
Conveyors: new vertical-belt friction drive for the Futurama ride at the World's fair. diags Product Eng 35:35 Jl 6 '64
Deep-trough idlers. diags Min Cong J 49:86-7 O '63
Deep-trough idlers. diags Pit & Quarry 56:99+ D '63
Dual drives regulate inclined conveyor. il diags Plant Eng 18:129-31 Mr '64
Flat belt conveyor can make turns. R. T. Sheehan. Ind Finishing 40:61 D '63
Marcona downhill conveyor system. J. R. Miller. il maps diag Min Cong J 50:30-5 Ja '64
Newest way to drive conveyors found at the World's fair. il diag Mod Materials Handling 19:41 Je '64
Operating experience with the Gateway belt system. W. G. Kegel and H. E. Steinman. il Min Cong J 50:23-7 Je '64
Powerful underground belt drive. il Engineer 218:424 S 11 '64
Problems of belt scale weighing. C. D. Cross. il I S A J 11:78-9 F '64
Properly applied skirtboards minimize spillage, belt repairs. il diags Eng & Min J 165:96 Jl '64
Raw materials handling and preparation facilities at the Dunkirk integrated iron-and steelworks. M. Pedotti. il plan diags Iron & Steel Inst J 202:147-57 F '64
Rotating combs size materials. il diag Iron Age 193:79 F 6 '64
Safe practices with belt haulage. J. E. Breland. il Min Cong J 50:42-5 Ja '64
Simple deflectors make it easy to sort boxes by size. S. Worth. diags Mod Materials Handling 19:63 N '64
Skirtboards and flashings. il diags Rock Prod 67:70 My '64
Skirtboards and flashing; why, where, and how to apply them. il diags Pit & Quarry 56:129+ Ap '64
Steel belt conveyors distribute molding sand. il Foundry 91:146 D '63
Steel belt conveyors; hot and cold workers. il Plant Eng 18:123-5 Ag '64
Subterranean belt conveyor. il Mech Eng 86:65 F '64
Sutcliffe conveyor idler. il diags Engineering 197:761-3 Je 5 '64
Trends in sewage bed spanning conveyors. il Engineering 197:734 My 29 '64
Why, where and how to apply conveyor skirtboards and flashing. il diags Coal Age 69:90+ Mr '64
See also
Belting, Conveyor
Coal mining machinery—Conveyors
Conveying machinery (long distance)

Chain conveyors

Chain conveyor for cooling castings. il Metallurgia 70:76 Ag '64
Conveyor combination speeds roll handling. il Mod Materials Handling 18:71-2 N '63
Vertical conveyors. il diag Engineer 216:820 N 15 '63

Control

Automatic hydraulic takeups; installation and operation. D. R. Murphy. diags Coal Age 68:98-100+ D '63
Automation of pneumatic conveying systems. J. Fischer and W. S. Holmes. Automation 10:126-8 D '63
Centralized handling steps up distribution; Nabisco's panel-controlled conveyor system. il diag Food Eng 36:93+ F '64
Conveyor dispatch systems. J. B. Hewitt. il diags Automation 10:67-74 D '63
Conveyor system monitored by closed-circuit television: White pine copper co. il Min Cong J 49:46-7 N '63
Dual drives regulate inclined conveyor. il diags Plant Eng 18:129-31 Mr '64
Mechanical memory controls distribution conveyor. il Automation 11:64 Ja '64
New; remote control over towline systems. H. P. Thatcher. il diags Mod Materials Handling 19:66-9 O '64
Photoelectric systems control without contact. il diags Mod Materials Handling 19:48-51 Mr '64
Power for a salt jetslinger. il diag Elec Constr & Maint 63:98-101 Je '64
Synchronizing conveyor lines with servo controlled drives. il diag Automation 11:84-5 O '64
Tow cart system serves multiple shipping areas. flow diag il Automation 11:80 Mr '64
Transfer techniques link wheel finishing operations. R. W. Miklitsch. il diag Automation 11:57-61 My '64

Maintenance and repair

Maintenance stars in handling profits; illustrations with text. Mill & Factory 74:74-7 Ja '64

Screw conveyors

All about screw conveyors. J. D. Bush. diags Rock Prod 67:67-71+ Jl '64

Switching

Coded conveyor system directs press plates. il Automation 10:68 N '63

CONVEYING machinery (long distance)
After 1¾-million tons of iron ore, long belt shows hardly any wear. A. T. Yu. il diags Eng & Min J 165:96-7 Mr '64
Head and tail drive interaction keeps cement moving. il Machine Design 36:132 F 27 '64
Hoisting by conveyor at Gaspe copper mines, ltd. R. L. Coleman. flow sheet il diag Can Min & Met Bul 57:837-41 Ag '64
How to control coasting in long conveyor belt design; Gateway coal co. mine. il plan Power Eng 68:60-1 Ap '64
Marcona downhill conveyor system. J. R. Miller. il maps diag Min Cong J 50:30-5 Ja '64
Operating experience with the Gateway belt system. W. G. Kegel and H. E. Steinman. il Min Cong J 50:23-7 Je '64
Skirtboards and flashing; why, where, and how to apply them. il diags Pit & Quarry 56:129+ Ap '64
Why, where and how to apply conveyor skirtboards and flashing. il diags Coal Age 69:90+ Mr '64

CONVEYING machinery, Portable
Mobile conveyor is hydraulic driven. il Eng N 172:34 Ap 30 '64

CONVEYOR belting. See Belting, Conveyor

COOK, Willard Beach
W. B. Cook: pioneer distributor of narrow-gage safety films and equipment. W. F. Kruse. bibliog por SMPTE J 73:576-80 Jl '64

COOKERY
See also
Baking
Electronic cooking

Effect on food value

Folic acid activity of Indian dietary articles and the effect of cooking on it. D. K. Banerjee and J. B. Chatterjea. bibliog Food Tech 18:1081-3 Jl '64
Nutrient content of variety meats; effects of cooking on vitamin A, ascorbic acid, iron, and proximate composition. L. Kizlaitis and others. Food Tech 18:103-4 Ja '64

Meat

Certain properties of canned hams as influenced by conditions of thermal processing. E. Karmas and J. E. Thompson. bibliog Food Tech 18:248-51 F '64
Effect of cooking conditions upon the yield and palatability of pork loin roasts. C. E. Weir and others. bibliog Food Tech 17:1567-8 D '63
Effect of cooking temperature and time on the tenderness of beef. J. M. Tuomy and others. bibliog Food Tech 17:1457-60 N '63
Effect of cooking temperature and time on the tenderness of pork. J. M. Tuomy and R. J. Lechnir. bibliog Food Tech 18:219-22 F '64
Effect of degree of doneness on collagen nitrogen and collagenous tissue in two muscles of beef. M. Skelton and others. bibliog Food Tech 17:1431-3 N '63
Further comparisons of dry-heat methods for round steak. C. Rodgers and others. Food Tech 18:252 F '64
Further studies on the qualities of beef as affected by cooking at very low temperatures for long periods. V. D. Bramblett and G. E. Vail. bibliog Food Tech 18:245-8 F '64
Nutrient content of variety meats; effects of cooking on vitamin A, ascorbic acid, iron, and proximate composition. L. Kizlaitis and others. Food Tech 18:103-4 Ja '64

COOKERY—*Continued*

Poultry

Acceptability of blast-frozen and liquid-frozen turkey hens and toms. P. J. Barrie and others. bibliog Food Tech 18:565-7 Ap '64
Cooked meat yields from roasters and heavy and light hens. L. J. Minor and others. bibliog Food Tech 18:1097-100 Jl '64
Effect of phosphate treatment and cooking method on moisture losses of poultry meat. J. A. Monk and others. bibliog Food Tech 18:226-9 F '64
Factors affecting the quality of roasted turkey rolls. C. G. Marquess and others. bibliog il diags Food Tech 17:1582-6+ D '63
Treating hen carcasses with polyphosphates to control hydration and cooking losses. E. P. Schermerhorn and W. J. Stadelman. bibliog Food Tech 18:101-2 Ja '64

Vegetables

Cooking time of dry beans after extended storage. P. Muneta. Food Tech 18:1240-1 Ag '64
Stability studies with cooked legume powders. M. M. Boggs and others. Food Tech 18:1618-21 O '64
Use of the automatic recording shear press in cooking studies of large dry lima beans (phaseolus lunatus) L. J. Binder and L. B. Rockland. bibliog Food Tech 18:1071-4 Jl '64

COOKERY, Chinese
Oriental expression; Chun King corp. K. J. Hannigan. il Food Eng 36:84-5 Mr '64
Pleasures of Chinese cooking. A.G.A.-GAMA 16-mm film. il Am Gas Assn Mo 46:6-8+ F '64

COOKERY, Japanese
Distribution of 5′-ribonucleotides in foods and their application to foods. H. Shimazono. bibliog il(cover) Food Tech 18:294+ Mr '64
History and development of flavor nucleotides. A. Kuninaka and others. bibliog il(cover) Food Tech 18:287-93 Mr '64

COOLANTS. See Lubrication and lubricants (cutting and grinding)

COOLING
Choosing current for thermoelectric cooling. Electro-Tech 72:108+ D '63
Influence of rapid cooling and storage conditions on shell egg quality. F. R. Tarver, jr. and R. E. Choate. bibliog Food Tech 18:1604-6 O '64
Magnetothermoelectricity. R. Wolfe. il diags Sci Am 210:70-6+ Je '64
Simple biological freezer provides controlled-rate cryogenic cooling. Franklin Inst J 277:95 Ja '64
Superconductivity; rapid cooling causes gold and germanium mix to become superconductors. Product Eng 35:54 Ag 17 '64
Thermoelectric cooling applied to the absolute measurement of microwave power. A. G. Heaton. diags Inst E E Proc 111:642-6 Ap '64
Thermoelectric systems of cooling and heating. A. B. Newton. il diags Heating-Piping 35:123-7 O; 152-4 N; 125-8 D '63
See also
Air conditioning
Cold storage
Cooling towers
Cryostats
Heat convection
Heat pump
Heat transmission
Refrigeration and refrigerating machinery

COOLING, Industrial
A, B, C's of pump cooling. diag Oil & Gas J 62:185 Je 22 '64
Air-cooled heat exchangers. E. M. Cook. bibliog il diags Chem Eng 71:137-42 My 25; 131-6 Jl 6; 97-104 Ag 3 '64
Art of recuperative cooling. W. G. Bauer. diags Pit & Quarry 56:164-6+ My; 110-12+ Je; 57:66-9+ Jl '64
Controlled cooling for alloy steels. Engineer 217:613 Ap 3 '64
Cooled roofs may save steelmen buck a ton. T. Milhaupt. Steel 153:96-8 D 9 '63
Cooling anodizing baths. C. S. Cave. il Metal Prog 85:120 My '64
Cooling coils in furnace base speed annealing cycles. diags Steel 154:54+ Ja 20 '64
Cooling extends life of steel; furnace roof. il Foundry 92:153-4 Mr '64
Froth-contact heat exchangers. A. Poll and W. Smith. bibliog diag Chem Eng 71:111-16 O 26 '64
Internal cooling for blow moldings. R. C. Gasmire and A. J. Scalora. diags Mod Plastics 41:130-2 Mr '64
New B.I.S.R.A. narrow gap capstan improves cooling efficiency on drawing machines. G. M. Sturgeon. il diags Wire & Wire Prod 39:220-5+ F '64
Resistance welding; reduced operating costs with water line quick-disconnect. il Welding Eng 48:41 N '63
Stelmor process for controlled cooling of rod. bibliog il diags Wire & Wire Prod 39:1605-15+ O '64
Tempered-water system requires no steam. N. B. Shine. diags Chem Eng 71:152 S 28 '64
Water chilling equipment for plastics processing. C. Waters. il diags Plastics World 22:30-3 O '64
Water cools steel floor beams; ferro-alloy furnace in Cleveland. Interlake iron corp. il diag Eng N 173:94 Jl 2 '64
See also
Cooling towers
Cooling water
Metals, Cold working of
Quenching
Shrinkage of metals
Steel, Quenching of
also subdivision Cooling under special subjects, e.g.
Diesel engines
Diesel engines, Automotive
Electric equipment
Electric generators
Electric generators, Alternating current
Electric generators, Synchronous
Electronic apparatus and instruments
Gas engines
Gas turbines, Aircraft
Internal combustion engines
Motor truck engines
Nuclear reactors
Rocket engines
Space vehicles
Synchrotron
Transistors

COOLING equipment
Coefficient of performance of thermoelectric cooling devices. W. M. Pritchard. diag IEEE Proc 52:442-3 Ap '64
Miniature closed-cycle cooler produces 25°K reliably. C. R. Whetstone. il diags Electronics 36:46-7 D 27 '63
Nabisco's tunnel cools product efficiently. il Food Eng 35:54-5 D '63
Steel belt conveyors; hot and cold workers. il Plant Eng 18:123-5 Ag '64
See also
Cooling towers

Design

Art of recuperative cooling. W. G. Bauer. diags Pit & Quarry 56:164-6+ My; 110-12+ Je; 57:66-9+ Jl '64
Digital computer as an engineering tool in water chiller design. W. J. Radle. diags ASHRAE J 6:57-61 Jl '64

COOLING of fruits and vegetables
Improved techniques for vacuum cooling vegetables. J. M. Harvey. ASHRAE J 5:41-4 N '63
Pressure cooling for fruits and vegetables. R. Guillou. bibliog il ASHRAE J 5:45-9 N '63

COOLING of water
Cooling down hot cooling water. H. B. Hester. il diag Water Works & Wastes Eng 1:62-3 Je '64
Digital computer as an engineering tool in water chiller design. W. J. Radle. diags ASHRAE J 6:57-61 Jl '64
Large ice storage systems for process water. W. J. Davis. diag ASHRAE J 6:66-9+ F '64
Water chilling equipment for plastics processing. C. Waters. il diags Plastics World 22:30-3 O '64
See also
Cooling ponds
Cooling towers

COOLING ponds
Cooling pond proves to be the economic choice at Four Corners. A. E. Derrick. il plan diag Power Eng 67:46-7 N '63
Decorative/functional spray pools. R. F. Coyne. flow diag il plan diags Air Cond Heat & Ven 61:63-9 My '64
Estimating forced evaporation from cooling ponds. G. E. Harbeck, jr. Am Soc C E Proc 90 [PO 3 no 4061]:1-9 O '64
Ponded roof cuts 300 tons off a-c load. J. Molnar. il diags Heating-Piping 36:123-7 O '64

COOLING towers

Collapse of cylindrical elastic shells under wind loading. R. F. Rish. il Engineer 216:669-72 O 25 '63

Cooling towers. il diag Power Eng 68:26-33 Ja '64

Cooling towers double up to save space. il Plant Eng 18:139 S '64

Cooling towers used for waste treatment. R. M. Smith. flow diag Oil & Gas J 62:115-16 S 14 '64

Dry vs. wet cooling towers. Oil & Gas J 62:164 Je 8 '64

Keystone cooling towers will be record breaking. il Power Eng 68:47-8 S '64

Let's look at the new wetted-fin combined air-evaporative cooler. L. S. Harris. diag Power F 108:65-7 F '64

New supervisory system cuts cooling tower fan control cost. R. J. Davis. il Elec World 160:18-19 N 25 '63

No towers atop this tower. il Eng N 173:92-3 Ag 6 '64

Selecting motors for air conditioning cooling towers. T. H. Hamilton. il Air Cond Heat & Ven 61:51-4 Je '64

Simplifying cooling tower make-up treatment. F. N. Kemmer. il ASHRAE J 6:42-3 Ja '64

Systems recover chromate from cooling tower water discharge. il Chem & Eng N 42:43-4+ Mr 30 '64

Underground cooling towers serve jet terminal at Memphis, Tenn. il diags Air Cond Heat & Ven 61:117-18 Ja '64

Use of a cooling tower in black liquor evaporation. R. G. Cohn and E. T. Tonn. il diag Tappi 47:sup 163A-5A Mr '64

Use of gas burners eliminates cooling tower fog near expressway. il Heating-Piping 35:62 N '63

Water use and related costs with cooling towers. B. Berg and others. bibliog Am Water Works Assn J 56:311-29 Mr '64

Design

Double action cooling tower. il Eng N 172:23 My 28 '64

Weather data for cooling plant design. map diag Engineering 197:190-1 Ja 31 '64

Maintenance and repair

What is the best way to rejuvenate your cooling towers? B. Burger. il Power 107:69-71 D '63

Protection

Control biological growths in open-circulating cooling-water systems. J. S. Beecher and G. A. Trautenberg. Power 108:80-2 Ap '64

Evaluation of potassium permanganate as an algicide for water cooling towers. G. P. Fitzgerald. bibliog il Ind & Eng Chem Product Res & Develop 3:82-5 Je '64

How to control fungi in cooling towers. C. W. Brown. il diags Hydrocarbon Process & Pet Refiner 43:146-8 Ag '64

Tables, calculations, etc.

How much cooling tower makeup? with nomograph. F. Caplan. Plant Eng 18:131 My '64

COOLING water

Chart gives bleed rates for cooling water circuits; data sheet. J. D. Constance. Heating-Piping 36:145-6 Jl '64

Chemical additive clears mud from water lines; Zimmite. il Steel 155:54+ Ag 31 '64

Chemical puts mud to rout; Zimmite. il Iron Age 194:124-5 O 8 '64

Control biological growths in open-circulating cooling-water systems. J. S. Beecher and G. A. Trautenberg. Power 108:80-2 Ap '64

New process recovers chromates from cooling-tower water. Oil & Gas J 62:122 Ap 27 '64

Piping cooling water for new atom smasher. R. W. Vanvalzah. il plan diags Heating-Piping 36:77-84 F '64

Stainless steel tubes hold sea water coolant. il Elec World 162:36 N 9 '64

Tailored water treatments keep troublemakers under control. il Plant Eng 18:127 Jl '64

Tempered-water system requires no steam. N. B. Shine. diags Chem Eng 71:152 S 28 '64

Water-cooled membrane hoods for basic oxygen furnaces. E. Durham. il plans diags Iron & Steel Eng 41:108-17; Discussion. 117-18 Ap '64

Water for cooling laboratory apparatus. C. Yost. diags Air Cond Heat & Ven 61:83-6 My '64

Water treatments keep hospital air conditioning operating. il Air Cond Heat & Ven 61:93 Jl '64

See also

Cooling ponds

Cooling towers

COOPERATION, International. See International cooperation

COOPERATIVE associations

See also

National rural electric cooperative association

COOPERATIVE education. See Engineering education—Cooperative plan

COOPERATIVE electric plants. See Electric plants, Cooperative

COOPERATIVE research. See Research, Cooperative

COORDINATES

Coordinate concept, an approach to tape punching. D. B. Holland and others. il diag Control Eng 11:60-2 Ag '64

Determining co-ordinate tolerances; data sheet. F. Eaton. diag Machine Design 36:185 Ag 27 '64

General theory of symmetry coordinates. R. E. Wilde. bibliog Am J Phys 32:45-52 Ja '64

Nonsimultaneous measurement of the coordinates used to obtain the length of a uniformly moving body. K. A. Durbin. diags Am J Phys 32:639-41 Ag '64

Plane coordinate systems and map projections. E. Schmid. Am Soc C E Proc 90 [SU 2 no 3962]:17-25 Jl '64

Rotational coordinates. L. Rongved and H. J. Fletcher. diag Franklin Inst J 277:414-21 My '64

Transformation trilinear and quadriplanar coordinates to and from cartesian coordinates. J. B. Mertie, jr. bibliog diag Am Mineralogist 49:926-36 Jl '64

COORDINATES, Polar

Three-dimensional polar coordinates. C. Grubin. diags Am J Phys 32:379-83 My '64

COORDINATION (chemistry)

Coordination in solutions; acid strengths of 5- and 7-hydroxy-1-indanone and nitro derivatives; hydrogen bonding in *o*-carbonyl phenols. L. B. Magnusson and others. bibliog Am Chem Soc J 86:3958-61 O 5 '64

Olefin coordination compounds of rhodium; the barrier to rotation of coordinated ethylene and the mechanism of olefin exchange. R. Cramer. bibliog diags Am Chem Soc J 86:217-22 Ja 20 '64

Reactions of coordinated ligands; metal ion control in the synthesis of chelate compounds containing pentadentate and sexadentate macrocyclic ligands. J. D. Curry and D. H. Busch. bibliog Am Chem Soc J 86:592-4 F 20 '64

Reactions of coordinated ligands; metal ion control in the synthesis of planar nickel(II) complexes of α-diketo-bis-mercaptoimines. M. C. Thompson and D. H. Busch. bibliog Am Chem Soc J 86:213-17 Ja 20 '64

Reactions of coordinated ligands; utilization of the template hypothesis to synthesize macrocyclic ligands *in situ*. C. Thompson and D. H. Busch. bibliog Am Chem Soc J 86:3651-6 S 20 '64

Survey of modern chemistry; unusual chemical bonding creates complex structures. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:91-6 F 3 '64

COPE, Arthur C.

Cope awarded Nichols medal. por Chem & Eng N 42:78 Mr 16 '64

COPOLYMERS. See Polymers

COPPER

CsCl-type compounds in binary alloys of rare-earth metals with zinc and copper. C. C. Chao and others. bibliog J Ap Phys 35:257-8 Ja '64

Chemistry of the autocatalytic reduction of copper by alkaline formaldehyde. R. M. Lukes. bibliog Plating 51:1066-8 N '64

Copper-activated alkaline-earth phosphate phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:538-41 My '64

Copper-activated thorium phosphate phosphors. W. F. Schmid and R. W. Mooney. bibliog Electrochem Soc J 111:668-73 Je '64

Crystallographic texture variations through rolled aluminium and copper sheet. I. L. Dillamore and W. T. Roberts. bibliog diags Inst Metals J 92:193-9 '63-64

Dependence of photoconductivity gain on photon energy in CdS:I:Cu crystals. I. H. Bube and B. Young. J Ap Phys 35:462-3 F '64

COPPER—*Continued*

Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64

Effect of water flow on leaching rates of antifouling paints; consideration of mechanism and preliminary results of laboratory tests. E. T. Wilkie and A. C. Edwards. bibliog il J Ap Chem 14:155-64 Ap '64

Effects of quenching on the structural, photo, and electroluminescent properties of ZnS:Cu phosphors. M. J. Presland and others. bibliog Electrochem Soc J 111:168-74 F '64

Electron probe analyses of copper in meneghinite. K. Fredriksson and C. A. Andersen. il Am Mineralogist 49:1467-9 S '64

Energy distribution of sputtered Cu atoms. R. V. Stuart and G. K. Wehner. bibliog diag J Ap Phys 35:1819-24 Je '64

Formation of electrochemical etch pits on the (111) face of copper. U. Bertocci and others. il diag Electrochem Soc J 110:1190-4 D '63

Influence of copper on structural transformations in ZnS:Cu,Cl. J. Nickerson and others. bibliog Electrochem Soc J 110:1228-30 D '63

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49:353-8 Je '62, N '63

Investigation of the copper-rich portion of the copper-zirconium phase diagram by electron-probe microanalysis. M. J. Donachie, jr. Inst Metals J 92:180 '63-64

Kinetics of the copper-ferric chloride reaction and the effects of certain inhibitors. W. H. Burrows and others. bibliog diag Ind & Eng Chem Proc Design 3:149-59 Ap '64

Low-temperature properties of dilute ferromagnets in copper. M. W. Klein. bibliog J Ap Phys 35:944-5 pt 2 Mr '64

Magnetic and structural properties of metastable Fe—Cu solid solutions. E. F. Kneller. J Ap Phys 35:2210-11 Jl '64

Mass spectrometric study of neutral particles sputtered from Cu by 0- to 100-eV Ar ions. J. R. Woodyard and C. B. Cooper. bibliog diags J Ap Phys 35:1107-17 Ap '64

Mechanical stresses during the oxidation of copper and their influence on oxidation kinetics. W. Jaenicke and others. bibliog il diags Electrochem Soc J 111:1031-7 S '64

Metallic lubricant aids cutting. il Iron Age 194:63 Jl 2 '64

An organometal complex containing a copper-manganese bond. A. S. Kasenally and others. Am Chem Soc J 86:1884 My 5 '64

Oxide films formed on copper single crystal surfaces in water. J. Kruger and J. P. Calvert. bibliog diags Electrochem Soc J 111:1038-41 S '64

Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

Promotion of dropwise condensation by monolayers of radioactive fatty acids; stearic acid on copper surfaces. D. W. Tanner and others. bibliog il J Ap Chem 14:361-9 S '64

Properties of materials; copper and its alloys; wrought; tables. Materials in Design Eng 60:140-50 Mid-O '64

Protection of copper in high temperature air. S. A. Hoenig. R Sci Instr 35:904 Jl '64

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Response of a thermocouple junction to shock waves in copper. E. P. Palmer and G. H. Turner. diag J Ap Phys 35:3055-6 O '64

Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

Selected area X-ray diffraction studies of surface damage in sliding on single-crystal copper. D. D. Roshon, jr. bibliog il diag J Ap Phys 35:1262-9 Ap '64

Single-particle studies of ion exchange in packed beds; cupric ion-sodium ion system. M. Gopala Rao and M. M. David. bibliog A I Ch E J 10:213-19 Mr '64

Spectrophotometric determination of primary amines in aqueous solution with copper-(ethylenedinitrilo)tetraacetic acid. I. M. Citron and A. Mills. Anal Chem 36:208-10 Ja '64

Spiral copper whiskers. P. L. Edwards and A. Svager. bibliog il J Ap Phys 35:421-3 F '64

Sputtering of polycrystalline copper and silver by 30-170 kev argon ions. C. E. Ramer and others. bibliog diag J Ap Phys 35:1673-80 Je '64

Stereochemistry of the copper-salt-catalyzed reaction of *t*-butyl perbenzoate with optically active bicyclo[3.2.1]octene-2. H. L. Goering and U. Mayer. bibliog Am Chem Soc J 86:3753-6 S 20 '64

Sub-lethal copper-zinc pollution in a salmon river, a field and laboratory study; abstract. J. B. Sprague and others. WPCF J 36:273 Mr '64

Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64

Testing the oxidation of motor fuel in the presence of copper. R. Roels. bibliog Inst Pet J 50:22-6 Ja '64

Threshold displacement energies and subthreshold displacements in copper and gold near 10°K. W. Bauer and A. Sosin. bibliog diag J Ap Phys 35:703-9 Mr '64

Yellow and red emitting ZnS: Cu phosphors. M. J. Presland and others. Electrochem Soc J 111:628 My '64

See also

Roofing, Copper
Water supply—Copper content

Analysis

Atomic absorption spectrophotometry and the analysis of silicate rocks for copper and zinc. C. B. Belt, jr. bibliog diag Econ Geol 59:240-58 Mr '64

Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64

Determination of some heavy metal ions by complexometric titration with sodium azide indicator. F. G. Sherif and B. I. Raafat. bibliog Anal Chem 35:2116-17 D '63

Ortho-(*p*-toluenesulfonamido) aniline (T-sulfonamidine) as a new type of analytical reagent; spectrophotometric determination of cupric ion. J. H. Billman and R. Chernin. bibliog Anal Chem 36:552-4 Mr '64

Spectrophotometric determination of copper and iron in red phosphorus. G. Norwitz and others. Anal Chem 36:142-4 Ja '64

Spectrophotometric determination of copper in tellurium and related thermoelectric compounds of the bismuth telluride type with 2,9-dimethyl-1,10-phenanthroline. B. Nebesar. bibliog Anal Chem 36:1961-5 S '64

Spectrophotometric estimation of copper(I) using rubeanic acid. A. Paul. bibliog Anal Chem 35:2119-21 D '63

Thermometric determination of copper by iodometry. E. J. Billingham, jr. and A. H. Reed. Anal Chem 36:1148-9 My '64

Ultraviolet spectrophotometric determination of copper as dipyrophosphatocuprate(II). M. L. Nebel and D. F. Boltz. bibliog Anal Chem 36:144-6 Ja '64

Visible absorption characteristics of the bis-(2,9-dimethyl-1,10-phenanthroline) — and bis-(4.4′.6.6′-tetramethyl-2.2′ - bipyridine) — copper(I) ions. J. R. Hall and others. bibliog Anal Chem 35:2124-6 D '63

Corrosion

How long will copper drainage tube last? J. E. McGinness, jr. Air Cond Heat & Ven 61:85-6 Ap '64

Finishing

How Ingram-Richardson solved a PE copper problem. A. C. Allen. il Cer Ind 83:56-7 O '64

Properties of materials; mechanical finishes for aluminum, copper and stainless steel; tables. Materials in Design Eng 60:399 Mid-O '64

Metallography

Development of preferred orientation in copper electrodeposits by cyclic stressing. M. Suzuki. bibliog il diags Inst Metals J 92:141-5 '63-64

Factors affecting purity and structure of commercial grades of copper. W. R. Opie. il diags Wire & Wire Prod 39:1309-10+ S '64

Growth of copper crystals of low dislocation density. F. W. Young, jr. and J. R. Savage. bibliog il diags J Ap Phys 35:1917-24 Je '64

Growth twins and branching of electrodeposited copper dendrites. F. Ogburn. il Electrochem Soc J 111:870-2 Jl '64

COPPER—Metallography—*Continued*

Metal fatigue in near-safe specimens, illustrated by copper and brass under alternating torsion. W. A. Wood and others. il Inst Metals J 91:391-4 '62-'63; Abstract. Metal Prog 85:176+ Je '64

Microstrain yield stress in neutron-irradiated copper single crystals. T. J. Koppenaal. bibliog J Ap Phys 35:2750-3 S '64

Persistence of voids after annealing of fatigued copper. S. M. Cousland and K. R. Sargant. bibliog il Inst Metals J 92:185-6 '63-64

Room-temperature creep in cold-drawn copper under alternating torsion and tensile load. M. E. Packer and W. A. Wood. bibliog il Inst Metals J 92:413-16 '63-64

Substructure formation in aluminium, copper, and nickel during deformation at high temperatures and high strain rates. H. Ormerod and W. J. M. Tegart. il Inst Metals J 92:297-9 '63-64

Prices

Copper prices; how high? how soon? R. H. Lesemann. Elec World 161:89+ Ap 20 '64

Protection

New lacquer preserves copper. Engineering 197:280 F 21 '64

Tin coating copper and brass. R. L. Seth and others. bibliog Metal Finishing 62:66 Ag '64

Sulfur content

Behavior and effect of sulphur on oxygen-free high purity copper; abstract. M. J. Saarivirta. Metal Prog 86:296 O '64

Copper lowers boom on impurities. il Iron Age 192:152-3 D 5 '63

Testing

Chip formation in high-speed cutting of copper and aluminum. K. J. Trigger and B. F. von Turkovich. il diag A S M E Trans ser B 85:365-73 N '63

Tailored tests upgrade copper. P. Garatoni. il Iron Age 193:92-3 Ap 23 '64

Welding

Copper; a study of its alloys, character, and its weldability; with engineering data sheet. il Welding Eng 48:33-7 N '63

Copper alloys can be resistance welded; with data sheet. C. L. Bulow. il Welding Eng 49:90+ Ap '64; Same cond. Tool & Manuf Eng 52:91-2 My '64

Development of butt brazing techniques for joining copper conductors. A. Madura. il diags Welding J 43:sup320-8 Jl '64

Inert-gas-shielded arc welding of copper. G. W. Scott. il diags Tool & Manuf Eng 53:85-8 Ag '64

Resistance welding of copper-to-copper. il Product Eng 35:51-2 Ap 13 '64

Welding copper-nickel alloys. diag Welding Eng 49:60+ O '64

Welding of pure copper for containers for high-purity molten fluorides with H_2 and HF. C. F. Weaver and others. J Sci Instr 40:543 N '63

World's longest continuous welding project; armorless deep sea cable. H. O. Jones. il diag Welding J 43:737-44 S '64

COPPER, Molten

Dip-forming; a continuous casting process. R. P. Carreker, jr. bibliog il diag J Metals 15:774-80 O '63

COPPER alloys

Age-hardening in copper-base indium alloys. D. J. H. Corderoy and R. W. K. Honeycombe. bibliog il Inst Metals J 92:65-9 '63-64

Antiferromagnetic transition in γ-phase Mn alloys. J. E. Zimmerman and others. bibliog J Ap Phys 35:942-3 pt 2 Mr '64

Antiphase domains in ordered Au_3Cu alloys. R. S. Toth and H. Sato. bibliog il J Ap Phys 35:698-703 Mr '64

Beryllium alloy used in pressure vessel. il Chem & Eng N 42:50+ Je 15 '64

Beryllium copper alloy has new applications. il Welding Eng 49:68 S '64

Beryllium-copper alloys. K. G. Wikle and L. D. Alspach. il diags Machine Design 36:153-71 Jl 16 '64

Brazing copper-nickel alloys. Welding Eng 49:74+ N '64

Continuous casting and processing of copper base alloy wire and rod. J. D. Berwick. il Wire & Wire Prod 39:1340-2+ S '64

Copper; a study of its alloys, character, and its weldability; with engineering data sheet. il Welding Eng 48:33-7 N '63

Copper alloy meets rigid specs for MHD application. il Steel 154:72 Je 15 '64

Copper alloys can be resistance welded; with data sheet. C. L. Bulow. il Welding Eng 49:90+ Ap '64; Same cond. Tool & Manuf Eng 52:91-2 My '64

Copper alloys for extreme temperatures. C. L. Bulow. Chem Eng 71:162+ Ja 20 '64

Copper alloys mold more and better bottles. il Product Eng 35:51-2 My 11 '64

Copper-nickel alloys for feed-water heater service. B. E. Hopkinson. bibliog il Corrosion 20:80-7; Discussion. 88 Mr '64

Coppermen see new alloy creating mass markets. Steel 154:29 My 11 '64

Critical and passive current densities for copper-nickel-zinc alloys in sulfuric acid. N. D. Stolica and H. H. Uhlig. Electrochem Soc J 110:1215-18 D '63

Diffusion in the β phase of the copper-aluminium system. M. K. Asundi and D. R. F. West. il Inst Metals J 92:428-30 '63-64

Dislocation damping in dilute Cu-Ge alloys. N. F. Fiore and C. L. Bauer. bibliog J Ap Phys 35:2242-7 Jl '64

Effect of alternating strain upon the internal oxidation of some copper-silicon alloys. J. A. Kilpatrick and J. W. Martin. bibliog il Metallurgia 70:21-3 Jl '64

Effect of vacancy distributions caused by elastic interaction on the growth of Guinier-Preston zones. W. B. Grupen and G. Sines. bibliog diag J Ap Phys 35:3001-8 O '64

Effect of vacuum annealing of oxide films on the oxidation of copper-nickel alloy. T. Yamashina and T. Nagamatsuya. Electrochem Soc J 111:249-52 F '64

Elongation characteristics of cylindrical titanium and copper alloy tensile specimens with reference to B.S.I. and I.S.O. recommendations for new gauge lengths. R. J. Parker and R. K. Marston. Metallurgia 69:3-6 Ja '64

Factors to watch in diecasting copper alloys. J. Bader. il Foundry 91:54-7 D '63

Fluxing of copper alloy castings. J. F. Wallace and R. J. Kissling. bibliog Foundry 92:60-5 N '64

How to heat treat beryllium copper. J. B. Kuhn. il Metallurgia 68:155-9 O '63

Laboratory extrusion press for copper alloys. N. A. Ratcliff. il diag Metallurgia 68:193-4 O '63

Local ordering in Cu_3Au at low temperatures. L. H. Schwartz and J. B. Cohen. bibliog il J Ap Phys 35:2260-2 Jl '64

Mechanical properties of beryllium copper wire and springs. R. D. Crooks and W. R. Johnson. Metal Prog 85:89-91 My '64

Mechanical stresses during the oxidation of copper and their influence on oxidation kinetics. W. Jaenicke and others. bibliog il diags Electrochem Soc J 111:1031-7 S '64

Mechanism of the oxidation of a uranium-one weight per cent copper alloy. J. E. Antill and K. A. Peakall. diags Electrochem Soc J 110:1146-8 N '63

Metal selector; copper alloys. Steel 155:sup S30-3 O 12 '64

Metal selector; copper casting alloys. Steel 155:sup S 14-15 O 12 '64

Modified semi-continuous casting processes. G. Trapied. diags Inst Metals J 92:305-11 '63-'64

More machinable steels, copper and aluminum alloys; round table discussion. Metal Prog 86:108-17 O '64

Nickel-cobalt-copper ternary alloy deposition from the pyrophosphate bath. M. Sarojamma and T. L. Rama Char. bibliog Chem & Ind p620-1 Ap 11 '64

Plain and extended surface copper alloy tubes. A. F. Duffie. il diag Chem Eng Prog 60:47-52 Jl '64

Properties of materials; copper and its alloys; wrought; tables. Materials in Design Eng 60:140-50 Mid-O '64

Rollability of copper alloys; reference book sheet. D. F. Griffin. Am Mach 108:79+ Jl 6 '64

Semi-continuous casting of copper alloys. Engineer 216:739 N 1 '63

Stacking fault probabilities of some alloys of copper and silver with zinc and cadmium. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3398-402 N '63

Stress-corrosion cracking of short-range-ordered copper-gold single crystals. J. M. Hardwick and R. A. Dodd. bibliog Inst Metals J 92:339-40 '63-'64

Stronger copper-nickel can cut costs. Materials in Design Eng 58:90 D '63

COPPER alloys—*Continued*

Structure of a phase formed in copper-aluminium alloys at low temperatures. J. S. L. Leach. bibliog Inst Metals J 92:93-4 '63-64

Welding copper-nickel alloys. diag Welding Eng 49:60+ O '64

Welding of supbmarine cable repeaters. H. W. Garbe and P. A. Yeisley. il Welding J 43:287-95 Ap '64

X-ray measurements of faulting in α Cu-Ge alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 35:2629-33 S '64

See also

Aluminum bronze
Brass
Bronze
Manganin

COPPER ammonium hydroxide

Action of cuprammonium hydroxide (Schweitzer reagent) on keratin. L. J. Wolfram. Soc Dyers & Col J 80:68-71 F '64

COPPER bromides

Cupric bromide and alkylbenzenes; influence of water on nuclear bromination vs. side-chain attack. P. Kovacic and K. E. Davis. bibliog Am Chem Soc J 86:427-32 F 5 '64

COPPER carbonates

Thermal stability of azurite and malachite. D. R. Simpson and others. Am Mineralogist 49:1111-14 Jl '64

COPPER chlorides

Formation of copper(I) chloride by the action of copper(I) ion on carbon tetrachloride in 2-butanol. I. V. Nelson and others. Am Chem Soc J 86:364-6 F 5 '64

COPPER clad steel. See Steel, Copper clad

COPPER compounds

Copper(II) chelates of histidylhistidine and related compounds. M. A. Doran and others. bibliog Am Chem Soc J 86:2129-35 Je 5 '64

Distribution coefficients of certain 8-quinolinols and their copper chelates. J. Fresco and H. Freiser. bibliog Anal Chem 36:631-3 Mr '64

Electron paramagnetic resonance spectrum of some tris-complexes of copper(II). H. C. Allen, jr. and others. bibliog Am Chem Soc J 86:1023-5 Mr 20 '64

Metamagnetism of some rare-earth copper compounds with $CeCu_2$ structure. R. C. Sherwood and others. bibliog J Ap Phys 35:1049-50 pt 2 Mr '64

Methods of determining centroid X-ray wavelengths; Cu*K*α and Fe*K*α. M. Mack and others. bibliog J Ap Phys 35:1118-27 Ap '64

Tetrahedral tetrachlorocopper(II) complex in molten salt solutions. G. P. Smith and T. R. Griffiths. bibliog Am Chem Soc J 85:4051-2 D 20 '63

Thermoelectric peaks in off-stoichiometric $CuInTe_2$. S. M. Zalar. J Ap Phys 35:1988-90 Je '64

X-ray fluoroescene spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and others. bibliog Anal Chem 36:1098-100 My '64

COPPER fluorides

Fluorination of copper. P. M. O'Donnell and A. E. Spakowski. bibliog diag Electrochem Soc J 111:633-6 Je '64

COPPER foil

Comparison of copper etchants. E. C. Jubb, jr. diags Plating 51:311-16 Ap '64

COPPER formates

Treatment of paper with copper formate. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:144-8 Mr '64

COPPER founding

Continuous casting and rolling of copper rod. J. A. Bell and D. B. Cofer. bibliog il diags Wire & Wire Prod 39:1031-4+ Jl '64

Continuous casting of copper billets. il Engineer 217:983-4 Je 5 '64

Continuous casting of copper rod announced. Iron & Steel Eng 40:171+ N '63

Continuous copper rod casting and rolling installation in Georgia. il diags Engineer 217:252-4 Ja 31 '64

Copper quality and output rise in continuous casting setup. il diag Iron Age 194:60-1 O 15 '64

Factors to watch in diecasting copper alloys. J. Bader. il Foundry 91:54-7 D '63

Fluxing of copper alloy castings. J. F. Wallace and R. J. Kissling. bibliog Foundry 92:60-5 N '64

Hitchiner casts copper high in conductivity. il Steel 154:68 Ap 27 '64

Semi-continuous casting of copper alloys. Engineer 216:739 N 1 '63

See also

Brass founding

COPPER halides

High pressure microscopy of the silver and cuprous halides. A. Van Valkenburg. bibliog il J Res Nat Bur Stand 68A:97-103 Ja '64

COPPER in the body

Cardiovascular lesions in experimental copper deficiency in chickens. W. W. Carlton and W. Henderson. bibliog il J Nutrition 81:200-8 N '63

Copper metabolism in normal subjects. G. E. Cartwright and M. M. Wintrobe. diag Am J Clinical Nutrition 14:224-32 bibliog(p231-2) Ap '64

Effect of the copper status of the rat on the copper-molybdenum-sulfate interaction. L. F. Gray and L. J. Daniel. bibliog J Nutrition 84:31-7 S '64

Effects of isoniazid, chlortetracycline, and copper upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 83:79-84 My '64

Importance of dietary copper in the formation of aortic elastin. B. Starcher and others. bibliog J Nutrition 82:318-22 Mr '64

Mercury and silver interrelationship with copper. C. H. Hill and others. J Nutrition 83:107-10 Je '64

Question of copper deficiency in man. G. E. Cartwright and M. M. Wintrobe. Am J Clinical Nutrition 15:94-110 bibliog (p 108-10) Ag '64

Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog il J Nutrition 81:312-20 D '63

COPPER industry and trade

Copper, 1963. J. M. Boyle. il Min Cong J 50:85-6 F '64

Copper, 1963. C. E. Weed; J. L. Chender. Eng & Min J 165:111-15+ F '64

Expand copper usage 150,000 tons annually in next three to five years. il Steel 155:85-7 Ag 10 '64

China

Copper of Yunnan. E. T. Z. Sun. map diags Min Eng 16:118-24 Jl '64

Great Britain

Development can help sales in the copper industry. E. G. West. Metallurgia 68:267-8 D '63

COPPER iodides

1/f noise in thin films of semiconductors. K. M. Kiser. bibliog il Electrochem Soc J 111:556-60 My '64

COPPER metallurgy

Anode furnace refractory practice at INCO's Copper refining div. E. F. Rabeau. diags Can Min & Met Bul 57:959-65 S '64

Automatic process controls are a success at Union Miniere's Luilu copper plant. il diag Eng & Min J 164:88-91 D '63

Blast-furnace for melting copper scrap. il Engineering 198:179 Ag 7 '64

Continuous converting of copper mattes; new process. F. Sehnalek and others. bibliog il diag J Metals 16:416-20 My '64

Copper of Craigmont and Bethlehem. L. F. Wright. flow sheets il map Min Eng 15:67-72 D '63

Expert compares Soviet bloc and western copper-molybdenum recovery practices. E. H. Crabtree. flow sheets Eng & Min J 164:81-3 D '63

Factors affecting purity and structure of commercial grades of copper. W. R. Opie. il diags Wire & Wire Prod 39:1309-10+ S '64

Fluid-bed roasting reactions of copper and cobalt sulfide concentrates. F. J. Thoumsin and R. Coussement. bibliog J Metals 16:831-4 O '64

Greater purity for oxygen-free copper. Metal Prog 84:124 D '63

How Cowichan Copper built underground mill. J. R. Billingsley. il map diag Min Eng 15:73-5 D '63

Kennecott system improves copper recovery. il diag Chem & Eng N 42:46-7 N 2 '64

Longer rows superior to multiple circuits for rougher flotation at Atlas. L. H. Lange. Min Eng 15:49-50 N '63

Miami Copper mechanizes can handling. il diags Eng & Min J 164:97 N '63

Mount Isa pilots new methods, pushes expansion. il plan diags Min Eng 16:82-9 O '64

Mount Morgan; Queensland copper producer. il Min Eng 16:92-3 O '64

COPPER metallurgy—*Continued*

Precipitation of copper on iron. F. M. Monninger. il Min Cong J 49:48-51 O '63

Tiltable rotary versus reverberatory furnaces for refining copper. J. A. Bell. il diag Wire & Wire Prod 39:77-8+ Ja '64

Treatment of copper-zinc concentrates by pressure hydrometallurgy. D. J. I. Evans and others. bibliog Can Min & Met Bul 57:857-66 Ag '64

See also

Copper founding

Electrometallurgy

Mount Lyell; Tasmania's copper producer. il Min Eng 16:90-1 O '64

COPPER mines and mining

Australia

Copper development bolsters Rum Jungle. il Min Eng 16:94 O '64

Mount Isa pilots new methods, pushes expansion. il plan diags Min Eng 16:82-9 O '64

Mount Morgan; Queensland copper producer. il Min Eng 16:92-3 O '64

Bolivia

Copper mineralization in the Corocoro Basin, Bolivia. P. Ljunggren and H. C. Meyer. bibliog maps diags Econ Geol 59:110-25 Ja '64

British Columbia

Copper of Craigmont and Bethlehem. L. F. Wright. flow sheets il map Min Eng 15:67-72 D '63

Granduc awaits its future. map Min Eng 15:81 D '63

How Cowichan Copper built underground mill. J. R. Billingsley. il map diag Min Eng 15:73-5 D '63

Chile

Birth of a mine, El Salvador. R. J. Nemmers. il maps Comp Air Mag 69:6-13 F '64

China

Copper of Yunnan. E. T. Z. Sun. map diags Min Eng 16:118-24 Jl '64

India

Distribution of radioactivity in the Mosaboni copper mine, Bihar, India. E. V. Gangadharam and others. bibliog map Econ Geol 58:506-14 Je '63; Discussion. A. Mookherjee. 59:501-2 My '64

Geothermometric measurements of sulfide minerals, Mosabhoni copper mine, Singbhum district, Bihar. K. K. Rao. Econ Geol 59:136-41 Ja '64

Maine

Maine reenters mining picture; cooper-zinc production to start in '66; Black Hawk mining co. il Min Eng 16:60-1 S '64

Michigan

Conveyor system monitored by closed-circuit television; White pine copper co. il Min Cong J 49:46-7 N '63

Development drifting with endloader and extendible belts; White pine copper co. L. A. Garfield and C. S. Lekowski. il Min Cong J 49:27-9 N '63

Empire and White Pine mines visited by Director Ankeny of the U.S. Bureau of mines. il Min Cong J 50:39 Jl '64

Ore dilution control increases earnings at White Pine. C. O. Ensign, jr. maps plan diags Min Eng 16:73-80 Ap '64

Some vein-wall rock relationships in the White Pine mine, Ontonagon co., Mich. R. H. Carpenter. bibliog il maps diags Econ Geol 58:643-66 Ag '63; Discussion. 58:1345-6; 59:160-1 D '63-Ja '64; Reply. 59:1179-80 S '64

White Pine engineers improve mining operations, change many techniques. L. A. Garfield. il diag Eng & Min J 164:78-81 D '63

Montana

Anaconda's Butte concentrator; background and design objectives. W. Wraith, jr. and T. G. Fulmor. flow sheets il plan Min Eng 16:54-73 My '64

Butte mining perks up with new concentrator; Anaconda facility for concentrating copper ore. il diag Chem & Eng N 42:40-2+ Jl 27 '64

Recent developments underground at Butte. V. D. O'Leary. il diags Min Eng 15:39-42 N '63

Rock; pebble milling at Anaconda's new Butte concentrator. B. S. Crocker. il diag Min Eng 16:74-8 My '64

New Mexico

Chino completes changeover to trucks. R. Spivey. il Min Eng 16:33-5 Ja '64

Conversion from rail to truck haulage at the Chino pit. R. W. Shilling. il Min Cong J 50:29-32+ Ap '64

Quebec (province)

Hoisting by conveyor at Gaspe copper mines, ltd. R. L. Coleman. flow sheet il diag Can Min & Met Bul 57:837-41 Ag '64

Mattagami Lake mines ltd; some aspects of the geology and ore control. R. H. Hallam. bibliog map diags Can Min & Met Bul 57:389-96 Ap '64

Structure and mineralization of Campbell Chibougamau mines, Cedar Bay division. J. D. Koene. bibliog maps diags Can Min & Met Bul 57:1063-72 O '64

Tasmania

Mount Lyell; Tasmania's copper producer. il Min Eng 16:90-1 O '64

Western states

Copper, a major western product. J. D. Forrester. map Chem Eng Prog 60:25-8 O '64

Zambia

Peterson shaft system gears for large tonnage at Mufulira. il diags Eng & Min J 164:72-6 D '63

COPPER nitrates

Structure of gaseous copper(II) nitrate as determined by electron diffraction. R. E. LaVilla and S. H. Bauer. bibliog Am Chem Soc J 85:3597-600 N 20 '63

COPPER ores

Association of mineralization and algal reef structures on Northern Rhodesian Copperbelt, Katanga, and Australia. W. G. Garlick. bibliog plan diags Econ Geol 59:416-27 My '64

Copper distribution patterns in soils and drainage in central Chile. A. De Grys. Econ Geol 59:636-46 Je '64

Copper mineralization in the Corocoro Basin, Bolivia. P. Ljunggren and H. C. Meyer. bibliog maps diags Econ Geol 59:110-25 Ja '64

Cymrite in a copper deposit, Brooks Range, Alaska. D. D. Runnells. bibliog il Am Mineralogist 49:158-65 Ja '64

Discovery and exploration of the Poirier ore deposit. J. B. Boniwell and R. A. Dujardin. maps diags Can Min & Met Bul 57:945-52 S '64

Geothermometric measurements of sulfide minerals, Mosabhoni copper mine, Singbhum district, Bihar. K. K. Rao. Econ Geol 59:136:41 Ja '64

Possible solution to the paradox of the sedimentary bornite. E. Gaucher. bibliog il Econ Geol 59:303-8 Mr '64

Process innovators concentrate on copper ore. il diag Chem Eng 71:46+ Ag 3 '64

Some vein-wall rock relationships in the White Pine mine, Ontonagon co., Mich. R. H. Carpenter. bibliog il maps diags Econ Geol 58:643-66 Ag '63; Discussion. 58:1345-6; 59:160-1 D '63-Ja '64; Reply. 59:1179-80 S '64

Statistical case study in geochemical prospecting for copper. B. W. Brown. bibliog Econ Geol 59:492-8 My '64

Stromatolites and other algal structures at Mufulira, Northern Rhodesia. S. P. Malan bibliog il diags Econ Geol 59:397-415 My '64

See also

Bornite

Chalcopyrite

COPPER oxides

Catalyzed copper-copper oxide flame reactions of selected organohalogens in the presence of methane and air. E. A. Eads. Anal Chem 36:2373 N '64

Stable mineral assemblages of anhydrous copper and iron oxides. R. A. Yund and G. Kullerud. bibliog Am Mineralogist 49:689-96 My '64

COPPER pipes. See Pipes, Copper

COPPER plating

Build-up and control of carbonates in cyanide copper plating solution. J. R. Crain. bibliog diags Plating 51:31-8 Ja '64

Effect of thiocompounds on the structure of copper electrodeposits. S. C. Barnes. bibliog il Electrochem Soc J 111:296-9 Mr '64

Electroless copper deposition. W. Goldie. bibliog Plating 51:1069-74 N '64

Fabrication by copper electroforming; flush copper helical antenna on epoxy base. L. Missel and M. E. Shaheen. il diags Metal Finishing 62:61-3 S '64

COPPER plating—*Continued*
- Foil gauge of electrodeposited copper; abstract. H. Okubo and K. Hosono. il Engineering 197:232 F 7 '64
- Making chrome plate more ductile; UBAC (Udylite bright acid copper). il Am Mach 108:94 S 28 '64
- New plating processes show bright promise. il Materials in Design Eng 58:138+ D '63
- Nonimmersion technique for electroplating small areas. R. A. Cesena. diag R Sci Instr 35:757-8 Je '64
- Plating through holes in printed circuit boards; evaluation of some copper baths. J. W. Dini. bibliog il Plating 51:119-24 F '64
- Quantitative adhesion measurements of electroless copper to copper and gold. B. F. Rothschild and R. G. Nabors. diags Plating 51:1063-5 N '64
- Relation of partial (110) pale figures to thickness and microstructure of electrodeposited copper. F. Ogburn and C. Newton. il Electrochem Soc J 110:1148-50 N '63
- Spotting out of electrodeposited copper. D. Lundberg. il Plating 50:1009-10 N '63
- Unetched wiring; electroless plating process. Electronics 37:28+ O 19 '64
- Uptake of sulfur from plating brighteners by copper and nickel. J. J. Hoekstra and D. Trivich. bibliog il Electrochem Soc J 111: 162-8 F '64

COPPER quinolinolate

Analysis

- Estimation of copper-8-quinolinolate in treated material by potentiometric titration of 8-hydroxyquinoline. J. C. Chapin. bibliog Am Dyestuff Rep 53:164-6 Mr 2 '64

COPPER rods. See Rods, Copper

COPPER roofing. See Roofing, Copper

COPPER selenate
- *X*-ray powder data for teineite and chalcomenite. J. A. Mandarino. Am Mineralogist 49:1481-5 S '64

COPPER silicates
- *X*-ray study of shattuckite. D. W. Newberg. Am Mineralogist 49:1234-9 S '64

COPPER sulfates
- Crystallization of anhydrous copper sulfate from sulfuric acid; ammonium sulfate mixtures. P. M. Gruzensky. il J Res Nat Bur Stand 68A:313-15 My '64
- New occurrence of langite. S. A. Williams. diags Am Mineralogist 49:1143-5 Jl '64
- Stress corrosion cracking susceptibility of stainless steels and nickel-base alloys in polythionic acids and acid copper sulfate solution. C. H. Samans. diags Corrosion 20:256-61; Discussion. 261-2 Ag '64
- Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64
- Thermal diffusion of salt solutions in single-stage cells and in continuous horizontal columns the system copper sulfate-cobalt sulfate-water. G. T. Fisher and others. bibliog diags A I Ch E J 9:786-93 N '63
- Use of copper sulfate in water and waste treatment. A. A. Hirsch. bibliog Pub Works 95:95-7 Ja '64

COPPER sulfides
- Continuous converting of copper mattes; new process. F. Sehnalek and others. bibliog il diag J Metals 16:416-20 My '64
- Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64

See also

Bornite
Chalcopyrite
Enargite

COPPER tellurate
- *X*-ray powder data for teineite and chalcomenite. J. A. Mandarino. Am Mineralogist 49:1481-5 S '64

COPPER tubes. See Tubes, Copper

COPPER wire. See Wire, Copper

COPPERWORK
- Copper, processing gets new look. G. J. McManus. il Iron Age 194:30 Jl 30 '64

See also

Copper founding

COPRA
- Unsteady-state diffusion through a spherical shell of copra. S. M. M. Haque and P. T. Eubank. bibliog diags Food Tech 18:390-2 Mr '64

COPROPHAGY
- Effects of coprophagy prevention on intestinal microflora in rats. R. J. Fitzgerald and others. J Nutrition 84:155-60 O '64

COPYING processes
- Anhydrous ammonia development in the diazo process. H. Denstman. diag Ind Phot 12:6+ N '63
- Engineering drawings in a hurry. H. R. Preiss. il Pub Works 95:120-1 S '64
- Fords revolutionize their plan copying. il Engineering 197:154 Ja 24 '64
- Fume control for copiers. il diag Product Eng 35:69 O 12 '64
- Half-size prints. il Mech Eng 86:66 Mr '64
- Imagic story. M. Langford. Ind Phot 13:8+ Mr '64
- Liquid development of electrophotographic images for office copy processes. D. E. Hanson. Tappi 47:sup 149A-50A S '64
- Ozalid diazo printing machines. il diag Engineering 196:754-5 D 13 '63
- Put your drawings on active microfilm. il Engineering 198:358 S 18 '64
- Revolution in office copying. il Chem & Eng N 42:114-25+ Jl 13; 84-94+ Jl 20 '64 (reprints 75c)
- Table top copier by Rank Xerox. diag Engineering 198:425 O 2 '64

See also

Duplicating machines
Photomechanical processes
Photostat
Xerography

COPYING processes (machine work). See Machine work—Copying processes

COPYRIGHT
- Tape recorders and the copyright law. E. Darmstaedter. il Audio 48:50+ My '64

CORAL reefs and islands
- Graveyard of ships; John Pennekamp Coral reef state park, Florida. B. Kofoed. il Comp Air Mag 68:22-4 N '63
- Growth-rate estimates of a pleistocene coral reef of Florida. J. E. Hoffmeister and H. G. Multer. bibliog map Geol Soc Bul 75:353-7, pl 1-2 Ap '64

See also

Alacran reef

CORBINO disk
- Magnetoresistance of the Corbino disk at microwave frequencies. C. B. Burckhardt and others. bibliog diags IEEE Proc 52: 277-83 Mr '64

CORD fabrics. See Tire fabrics

CORDYCEPIN. See Nucleosides

CORE sampling
- Absolute dating of deep-sea cores by the Pa^{231}/Th^{230} (ionium) method. J. N. Rosholt and others. J Geol 69:162-85 bibliog(p 183-5) Mr '61; Discussion. G. A. Rusnak. 71:809-10 N '63
- Fixed-position device for sampling soil solution in depth. E. E. Haskell, jr. and W. C. Bianchi. il Am Water Works Assn J 56:664-6 My '64
- Large rectangular cores from submarine canyons and fan valleys. A. H. Bouma and F. P. Shepard. bibliog il maps Am Assn Pet Geologists Bul 48:225-31 F '64
- Orientation of small diameter drill core. P. W. Simmer. il diags Econ Geol 58:1313-25 D '63
- Paleotemperature analysis of the Caribbean cores A254-BR-C and CP-28. C. Emiliani. map Geol Soc Bul 75:129-43 bibliog(p 141-3) F '64
- Pickands Mather develops microfraction splitting. M. H. Childs and S. F. Rantala. Eng & Min J 165:118 Ap '64

See also

Petroleum—Well drilling—Sampling

CORES
- Automatic core machine. il Foundry 92:151 Ap '64
- Blast cleaner combines core knockout. il Steel 153:31-2 D 23 '63
- Method adds strength to ceramic cores. Steel 153:126 D 9 '63
- Preformed ceramic cores improve fluid flow control. J. Webb. il diag Space/Aeronautics 41:254-5 Ja '64
- Reinforced epoxy tooling technology. il Plastics World 22:58 O '64
- Saves money with sand core driers. N. F. Wood. il Foundry 92:124 Jl '64
- Shell molding and coring. C. F. Walton. il Product Eng 34:100-3 N 11 '63
- Use of self-curing binder increases tonnage 40 per cent. E. F. Thomas. il Foundry 92:121-2+ Ag '64

See also

Molds (for casting)

CORIOLIS force

New G-effect tester creates Coriolis forces. il Machine Design 36:6 Jl 30 '64

CORK

Cork cuts cost of missile insulation. il Am Mach 108:148H Ap 13 '64

Epoxy resin loses a round in aerospace. il Chem Eng 71:38 Mr 2 '64

Tips on the care of cork tile. T. V. Fisher. Safety Maint 127:61-2 Mr '64

CORN

Quality control improves pack yields of sweet corn. B. A. Twigg. bibliog Food Tech 18: 184-7 F '64

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals; supplementary value to a maize-tapioca diet. S. Korula and others. bibliog il Food Tech 18:903-6 Je '64

See also

Cornstarch

CORN flour

Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63

CORN oil

Effect of corn oil on metabolic efficiency of energy utilization by chicks. L. B. Carew, jr. and F. W. Hill. bibliog J Nutrition 83:293-9 Ag '64

Effect of heat on triglycerides of corn oil. M. R. Sahasrabudhe and I. G. Farn. bibliog diag Am Oil Chem Soc J 41:264-7 Ap '64

Magnitude of the hypocholesterolemic effect of dietary sitosterol in man. J. M. R. Beveridge and others. bibliog J Nutrition 83:119-22 Je '64

CORN products

Edible corn-carbohydrate food coatings. L. Allen and others. bibliog diags Food Tech 17:1437-46 N '63

See also

Corn flour

CORN sirup

Effect of corn syrup solids on the quality and properties of ice milk. S. Simpfendorfer and W. H. Martin. bibliog Food Tech 18: 357-9 Mr '64

CORNSTARCH

Edible packaging film made from new type of corn. Food Tech 18:877 Je '64

CORONA. See Sun—Corona

CORONA (electricity)

A-c corona in foul weather. L. Boulet and B. J. Jakubczyk. bibliog il diags IEEE Trans Power Apparatus & Systems 83:508-12 My '64; Discussion. 83:648-50 Je '64

Analysis of corona-generated interference in aircraft. R. L. Tanner and J. E. Nanevicz. bibliog diags IEEE Proc 52:44-52 Ja '64

Analysis of radio noise from high-voltage lines. O. Nigol. bibliog IEEE Trans Power Apparatus & Systems 83:524-41; Discussion. 554-7; Reply. 557-8 My '64

Corona detector checks insulation quality. C. E. Mercier. il diags Elec World 162:72-3 Jl 13 '64

Corona discharge promotes adhesion in polyolefin coating operations. Plastics World 21:170 N '63

Corona processing of coal. N. R. Dibelius and others. bibliog flow diag il diags Chem Eng Prog 60:41-4 Je '64

Definition of terms related to corona; AIEE working group on definitions. bibliog IEEE Trans Power Apparatus & Systems p 1044-7; Discussion. 1047-50 D '63

Effect of discharge products upon corona discharge and spark breakdown voltage. F. D. A. Boylett and J. S. T. Looms. bibliog diags Inst E E Proc 110:2292-6 D '63

Effective dielectric constant of the atmosphere during snowstorms and its influence upon corona losses. A. S. Timascheff. bibliog diags IEEE Trans Power Apparatus & Systems 83:492-5 My '64

Estimates on commercial corona processing of coal. S. J. Lawrence. il diags Chem Eng Prog 60:45-51 Je '64

Feedback corona regulator. J. B. Thomas. bibliog diags R Sci Instr 35:170-2 F '64

Insulation requirements, corona losses, and corona radio interference for high-voltage d-c lines. N. Hyltén-Cavallius and others. bibliog il IEEE Trans Power Apparatus & Systems 83:500-8 My '64; Discussion. 83: 646-7; Reply. 647-8 Je '64

Investigation of corona loss and radio interference from transmission line conductors at high direct voltages. R. M. Morris and B. Rakoshdas. bibliog il diags IEEE Trans Power Apparatus & Systems p5-14; Discussion. 14-15; Reply. 15-16 Ja '64

Method of evaluating corona noise generation from measurements on short test lines. M. C. Perz. bibliog IEEE Trans Power Apparatus & Systems p833-9; Discussion. 839-43; Reply. 843-4 D '63

Pulses and radio-influence voltage of direct-voltage corona. B. Rakoshdas. bibliog diag IEEE Trans Power Apparatus & Systems 83:483-91 My '64

Radio noise due to insulator corona. A. Zaazou and others. bibliog il diag Inst E E Proc 111:959-66 My '64

Relationships of corona to life and reliability of polyethylene insulated cable; new test methods for cable. W. T. Starr and J. P. Agrios. il IEEE Trans Com & Electronics p88-97; Discussion. 97-8 Ja '64

Some techniques for the elimination of corona discharge noise in aircraft antennas. J. E. Nanevicz and R. L. Tanner. bibliog il diags IEEE Proc 52:53-64 Ja '64

Voltage endurance tests of insulating materials under corona conditions. G. W. Hewitt and T. W. Dakin. bibliog il diags IEEE Trans Power Apparatus & Systems p 1033-8; Discussion. 1038-9 D '63

Weather, corona, and the decay of trapped energy on transmission lines. J. E. Beehler. bibliog il diags IEEE Trans Power Apparatus & Systems 83:512-20; Discussion. 552-3; Reply. 553-4 My '64

CORPORATIONS

See also

Oil companies

Finance

Finding finance for the small business. J. Bates. Engineering 196:607-8 N 8 '63

See also

Industrial expansion

Profit

Foreign subsidiaries

Astute marketer, young managers push Celanese expansion in U.S. and abroad. il Chem & Eng N 42:26-30 Mr 30 '64

Chemical industry on top in new foreign ventures. Chem & Eng N 41:20 D 30 '63

Dow budgets $20 million for plants in Europe. Chem & Eng N 42:36-7 N 9 '64

Esso expands in European petrochemicals. il Chem & Eng N 42:57 N 2 '64

How Standard oil co. (New Jersey) selects its overseas managers. Pet Management 36:60-1 Jl 15 '64

Spotlight on U.S. companies overseas. Chem Eng 71:80 Ja 20 '64

Two U.S. firms take big step overseas; Pure and Westates subsidiaries join AMI in exploration in Italy, Libya, and Algeria. Oil & Gas J 62:81 Mr 16 '64

U.S. chemical firms increase foreign spending. Chem & Eng N 41:23-4 N 11 '63

CORPULENCE

Body composition of obese subjects. J. E. Christian and others. bibliog il Am J Clinical Nutrition 15:20-8 Jl '64

Changes in the fatty acid pattern of the adipose tissue of obese subjects while on a reducing regimen. I. Macdonald and P. J. C. Barry. Am J Clinical Nutrition 15: 158-60 S '64

Epidemiological approach to obesity. F. W. Nordsiek. bibliog Am J Pub Health 54: 1689-98 O '64

Follow-up studies on obesity. A. M. Wissbaum. Am J Clinical Nutrition 14:179 Mr '64

Lipid, cholesterol and triglyceride levels in obese women. S. H. Waxler and L. S. Craig. bibliog Am J Clinical Nutrition 14: 128-32 Mr '64

New approach to overweight. C. H. Fellner and H. Levitt. bibliog Am J Clinical Nutrition 15:50-3 Jl '64

Overnutrition. F. J. Stare. bibliog Am J Pub Health 53:1795-802 N '63

Physical activity of obese and nonobese adolescent girls appraised by motion picture sampling. B. A. Bullen and others. bibliog Am J Clinical Nutrition 14:211-23 Ap '64

Serum iron and iron-binding capacity in adolescents; comparison of obese and nonobese subjects. C. C. Seltzer and J. Mayer. bibliog Am J Clinical Nutrition 13:354-61 D '63

Starvation diets. Drug & Cosmetic Ind 94: 271 F '64

CORPULENCE—*Continued*
Treating obesity. Drug & Cosmetic Ind 93:727 N '63
Use of chorionic gonadotropin hormone in the treatment of obesity. B. W. Frank. bibliog Am J Clinical Nutrition 14:133-6 Mr '64; Discussion. A. T. W. Simeons. 15: 188-90 S '64
See also
Weight (physiology)

CORRELATION (statistics)
Checking the accuracy of correlations. J. W. DeFarges. diags Chem Eng 71:157-8 Mr 16 '64
Configuration of the poly-(dimethylsiloxane) chain; correlation of theory and experiment. P. J. Flory and others. bibliog Am Chem Soc J 86:146-52 Ja 20 '64
Contribution to the correlation theory for the grinding process. J. Peklenik. bibliog diags A S M E Trans ser B 86:85-94 My '64
Correlation method for binary azeotrope data. L. M. Shorr. bibliog J Ap Chem 14: 376-82 S '64
Correlation of solvolysis rates and estimation of rate enhancements. C. S. Foote. Am Chem Soc J 86:1853-4 My 5 '64
Correlation techniques in studio testing. A. N. Burd. diags Radio & Electronic Eng 27: 387-95 My '64
Correlation times and spectral bandwidths for non-stationary random processes. H. Kaufman. Electronic Eng 35:813 D '63
Frictional pressure drop in two-phase flow: a comparison of existing correlations for pressure loss and holdup. A. E. Dukler and others. bibliog A I Ch E J 10:38-43 Ja '64
Measurement of the complex time-frequency channel correlation functions. P. A. Bello. diag J Res Nat Bur Stand 68D:1161-5 O '64
Property of binary sequences. M. Bernfeld. IEEE Proc 52:744 Je '64
ρ-σ-π analysis; a method for the correlation of biological activity and chemical structure. C. Hansch and T. Fujita. bibliog Am Chem Soc J 86:1616-26 Ap 20 '64
Self-consistent correlation method (S.C.C.M.) applied to ideal Ising and Heisenberg magnetic systems; abstract. P. C. Clapp. J Ap Phys 35:947 pt 2 Mr '64
Specific heat and longitudinal correlation function for the Heisenberg ferromagnet. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35:946-7 pt 2 Mr '64
Study of the correlation technique of generalized spectral analysis. G. W. Smith, jr. and P. R. Clement. bibliog diags Franklin Inst J 278:133-46 Ag '64
Use of electronic computers in searching out nutritional interrelationships. W. H. James. Anal Chem 36:1848-9 Ag '64

CORROSION, Electrolytic. See Electrolytic corrosion

CORROSION and anti-corrosives
Additives for corrosion control. C. W. West. bibliog il Soap & Chem Spec 40:177-8+ S; 192-3+ O '64
Apparatus for controlled-atmosphere differential thermal analysis of corrosive materials. R. J. Pickering. bibliog il Am Mineralogist 48:1383-8 N '63
Aviation gasoline corrosiveness caused by sulfate-reducing bacteria; prevention by growth inhibitors. A. M. Wachs and others. bibliog Ind & Eng Chem Proc Design 3: 65-9 Ja '64
Boiler fan corrosion that is no longer. il Engineering 196:776 D 20 '63
Cast irons and steels; corrosion. J. F. Wallace and L. Leonard. Machine Design 36: 193-5 Mr 12 '64
Choose the right zinc coating for large structures. J. R. Deasen. il Metal Prog 86:95-100 S '64
Coating of bolts to prevent seizure. P. E. White. bibliog il Chem & Ind p 1486-90 Ag 22 '64
Controlling engine corrosion. Coal Age 69: 108 Ja '64
Corrosion and metal finishing exhibition, Leeds, Oct. 15-18. Engineer 216:806-7 N 15 '63
Corrosion behavior of aluminum-clad wire. P. D. Miller and others. il Wire & Wire Prod 39:217-19+ F '64
Corrosion behavior of condenser-tube alloy materials. E. A. Tice and C. P. Venizelos. il Power 107:64-6 N '63
Corrosion characteristics of the rare earth and yttrium metals. L. Lee and N. D. Greene. bibliog Corrosion 20:145-9 My '64
Corrosion engineer's notebook (cont). H. G. Bennett. Can Chem Process 47:73 N '63; 48:74 Ja '64
Corrosion in surgical implants. J. H. Hicks. il Chem & Ind p 1240-6 Jl 11 '64
Corrosion of gold-palladium, nickel and type 347 stainless steel in molten alkali carbonates. G. J. Janz and A. Conte. Corrosion 20:237-8 Jl '64
Corrosion of iron and steel in NH_4NO_3-NH_3-H_2O solutions. G. Schick and H. H. Uhlig. bibliog il Electrochem Soc J 111:1211-15 N '64
Corrosion of iron in an H_2S-CO_2-H_2O system; influence of (single iron) crystal orientation on hydrogen penetration rate. W. F. Brickell and others. il diags Corrosion 20: 235-6 Jl '64
Corrosion of steel is our problem; questions and answers. Ind Finishing 40:96-7 Ja; 102-3 F '64
Corrosion of steels and nickel alloys in superheated steam. W. E. Ruther and S. Greenberg. bibliog il diag Electrochem Soc J 111:1116-21 O '64
Corrosion resistance of type 329 stainless steel in nitric acid containing chloride ion. I. L Tingley. il diag Corrosion 19:408-13 D '63
Corrosion, vols. 1 and 2. L. L. Shreir, ed. Review, by S. C. Britton. Chem & Ind p537-9 Mr 28 '64
Current status of alkaline digester corrosion as reported by regional digester group. H. M. Canavan and Z. S. Blanchard. Tappi 47:sup 124A-7A Ag '64
Dry corrosion of cobalt, chromium and Co-Cr, Ni-Cr and Fe-Cr alloys in hydrogen sulphide atmospheres; abstract. A. Davin and D. Coutsouradis. Metal Prog 85:174-5 My '64
Effect of cold-work on corrosion of iron and steel in hydrochloric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diag Electrochem Soc J 111:522-8 My '64
Effect of corrosion on the appearance of colored enamels. A. C. Bersticker and B. J. Sweo. bibliog il diags Am Cer Soc Bul 43:191-2+ Mr '64
Effect of heat treatment, composition and microstructure on corrosion of 18Cr-8Ni-Ti stainless steels in acids. M. A. Streicher. bibliog il Corrosion 20:57-72 F '64
Effect of plastic deformation on the corrosion of iron and steel. N. D. Greene and G. A. Saltzman. bibliog il Corrosion 20:293-8 S '64
Effect of supplementary alloying elements on pitting corrosion susceptibility on 18 Cr-14Ni stainless steel. N. D. Tomashov and others. bibliog il diag Corrosion 20:166-73 My '64
Effect of velocity and oxygen on corrosion of iron in sulfuric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diags Electrochem Soc J 111:13-17 Ja '64
Electrical double layer and corrosion. R. Parsons. Chem & Ind p2006 D 28 '63
Electrochemical *p*H-stat and its application to corrosion studies. F. A. Posey and others. bibliog diags Electrochem Soc J 110: 1183-90 D '63
Emulsifiable and fire resistant rust preventives. V. Y. S. Hong and D. Bootzin. bibliog il Lub Eng 20:9-15 Ja '64
Exfoliation-type corrosion of cupro-nickel feedwater heater tubes and removal of corrosion products by chemical cleaning. J. M. Decker and J. C. Marsh. il Combustion 36:47-8 Ag '64
15-kv spacer cable on test in Gulf Coast salty air. J. C. Thompson. il Elec World 160:24-5 N 25 '63
Fungitoxic properties of volatile corrosion inhibitors. D. M. Evans and I. Levisohn. il Chem & Ind p 1386-7 Ag 1 '64
Good design approach can prevent corrosion problems. C. G. Munger. il diags Plant Eng 18:131-3 Jl '64
Hard to reach areas protected from corrosion. il Steel 154:66+ Je 22 '64
High temperature mercaptan corrosion of steels. A. S. Couper. bibliog Corrosion 19: 396-401 N '63; Discussion. 20:207-8 Je '64
How coatings can prevent corrosion. W. B. Maass. il Ind Finishing 40:34+ Jl '64
How to provide protection against corrosion in air conditioning systems. P. W. Sherwood. il Air Cond Heat & Ven 61:47-8 F '64
Inhibition of ammonium nitrate corrosion of mild steel. D. Gherardi and others. bibliog il diag Corrosion 20:73-9 Mr '64
Investigate fretting corrosion in unexplained bearing failures. Plant Eng 18:112-13 Mr '64
Ion engine reliability as affected by corrosion of materials. P. M. Winslow. il AIAA J 2: 42-5 Ja '64

CORROSION and anti-corrosives—*Continued*

Iron(II) sulphate in rust. A. G. Tanner. Chem & Ind p 1027-8 Je 13 '64
Lithium chromate; corrosion inhibitor for lithium bromide absorption refrigeration systems. R. H. Krueger and others. il ASHRAE J 6:40-4 F '64
Mechanism of metal protection by volatile inhibitors. I. L. Rosenfeld and others. bibliog Corrosion 20:222-34 Jl '64
Minimizing corrosion in uranium extraction solutions by application of anodic protection. F. P. A. Robinson and L. Golante. bibliog diag Corrosion 20:239-44 Ag '64
New approach to corrosion: the Pourbaix diagram. A. G. Guy and F. N. Rhines. Metal Prog 85:117-20 F '64
New look at corrosion fundamentals. J. G. Parr. bibliog diags Chem Eng 71:160+ Jl 6 '64
New nickel plating process for improved corrosion resistance. R. K. Barnett. il Metal Prog 85:87-90 Je '64
New weapons for corrosion control. C. J. Vlahos. il Mill & Factory 75:62-5 S '64
Oxide films; iron-oxygen reaction. Product Eng 35:89 Je 22 '64
Pitting of 18-8 stainless steel in ferric chloride inhibited by nitrates. H. H. Uhlig and J. R. Gilman. bibliog Corrosion 20:289-92 S '64
Plastic coatings for corrosion protection of wire and wire products. P. W. Sherwood. Wire & Wire Prod 38:1719+ N '63
Practical engineering of corrosion control. A. W. Baumgartner. bibliog J Pet Tech 16:615-18 Je '64
Preventing corrosion by liquid metals. C. Willhelm. diags Materials in Design Eng 58:97-9 N '63
Prevention of corrosion by engine coolants. T. H. Turner. Engineer 216:948-9 D 6 '63
Prevention of pipe failures. H. Thielsch. bibliog il diag Heating-Piping 36:139-47 Ja '64
Role of cementite in the acidic corrosion of steel. D. N. Staicopolus. diag Electrochem Soc J 110:1121-4 N '63
Room temperature oxidation of iron at low pressures. J. Kruger and H. T. Yolken. bibliog il diag Corrosion 20:29-33 Ja '64
Russian ideas on corrosion problems. A. B. Tesmen. diag Chem Eng 71:166+ F 17 '64
Semiquantitative prediction of the erosion of graphite nozzle inserts. L. J. Delaney and others. bibliog AIAA J 2:1428-33 Ag '64
Significance of sulphur in atmospheric corrosion. T. H. Turner. Engineer 217:274-5 F 7 '64
Sodium nitrate as a corrosion inhibitor for mild steel. R. A. Legault and M. S. Walker. bibliog Corrosion 20:282-8 S '64
Some aspects of corrosion and chemistry in the Citrosolv process. W. E. Bell. bibliog Combustion 35:23-6 Ap; 25-8 My '64
Some problems in performance of rubber coverings on paper machine rolls; second report of CA 4026. L. L. Smith. il Tappi 47:sup 118A-21A Ag '64
Sprayed metal/paint systems give best corrosion resistance. A. P. Shepard. il Welding Eng 49:66+ Ap '64
Study of aromatic amine inhibitors by nuclear magnetic resonance. P. F. Cox and others. bibliog Corrosion 20:299-302 S '64
Theory of stainless steel pitting. W. Schwenk. bibliog il Corrosion 20:129-37 Ap '64
Water heater life. E. J. Zimmer. Dom Eng 204:99+ S '64
Wear considerations in design; corrosion and cavitation damage. C. Lipson. bibliog diags Machine Design 35:142-7 D 5 '63
Wear considerations in design; fretting, fretting corrosion, pitting. C. Lipson. bibliog diags Machine Design 35:140-4 D 19 '63
Wear considerations in design; high-temperature corrosion, stress-corrosion cracking. C. Lipson. bibliog diag Machine Design 36:121-4 Ja 2 '64
Zinc protects steel against corrosion. A. Ash. bibliog il Can Chem Process 48:71-3 Jl '64

See also
Aluminum—Protection
Corrosion resisting materials
Electrolytic corrosion
Erosion of metals
Galvanizing
Metal coating
Metal protection
Paint, Protective
Passivity
Water purification—Corrosion control
Water supply—Corrosiveness
also subdivision Corrosion under special subjects, e.g.
Aluminum
Automobiles
Boilers
Chemical plants
Copper
Heat exchangers
Lead
Nickel
Oil tanks
Petroleum—Well casing
Petroleum—Well tubing
Petroleum refineries
Silver
Steam pipes
Steam turbines
Water pipes

Stress corrosion

Chlorides cause stainless-steel failure. il Oil & Gas J 62:176 Je 22 '64
Dislocation substructure vs transgranular stress corrosion susceptibility of single phase alloys. P. R. Swann. il Corrosion 19:102-12 Mr '63; Discussion. 19:427-8 D '63
Effect of potential of mild steel on stress corrosion cracking in ammonium nitrate solutions. Z. Szklarska-Smialowska. bibliog diag Corrosion 20:198-202 Je '64
Effect of residual stresses on the stress-corrosion properties of the aluminium alloy D.T.D. 5054. G. A. Hawkes. il diags Inst Metals J 92:419-22 '63-64
Electrochemical behavior and corrosion of iron crystals in ammonium nitrate solutions J. Flis and others. bibliog il diags Corrosion 20:184-8 Je '64
Electron metallography of chemical attack upon some alloys susceptible to stress corrosion cracking. H. W. Pickering and P. R. Swann. bibliog il diags Corrosion 19:373-89 N '63
Fundamental considerations of stress corrosion. M. C. Huffstutler. bibliog diag Corrosion 19:423-6 D '63
Hollow specimen yields stress corrosion data. il Materials in Design Eng 59:117+ F '64
How to prevent stress corrosion cracking of 300 series stainless steel bellows expansion joints used in steam and htw heating systems. R. B. Hill and A. R. C. Markl. il Heating-Piping 36:103-7 O '64
Implications of the stress aging yield phenomenon with regard to stress corrosion cracking. P. R. Swann and H. W. Pickering. bibliog diags Corrosion 19:369-72 N '63
Initiation of stress corrosion cracking; migration of chloride in oxide films on austenitic stainless steel. C. R. Bergan. bibliog diags Corrosion 20:269-74 S '64
Morphology of stress-corrosion cracks in notched specimens of austenitic stainless steels. J. C. Scully and T. P. Hoar. bibliog il diags Corrosion 20:174-7 My '64
Nature of initial corrosion of stressed austenitic stainless steel by chloride ions; platinum decoration of active sites. N. A. Nielsen. bibliog il Corrosion 20:104-9; Discussion. 109-10 Mr '64
Ordering, stacking faults and stress corrosion cracking in austenitic alloys. D. L. Douglass and others. bibliog il diags Corrosion 20:15-27; Discussion. 27-8 Ja '64
Principles of stress corrosion cracking as related to steels. J. F. Bates and A. W. Loginow. bibliog il Corrosion 20:189-97 Je '64
Special purpose and high strength steels. G. H. Klouman. bibliog il diags Chem Eng Prog 60:100-6 Jl '64
Specimen aids stress corrosion studies of metals. il Tool & Manuf Eng 51:104 N '63
Statistical distribution of stress corrosion endurance. F. F. Booth and others. Corrosion 19:390-5 N '63
Stress corrosion cracking of austenitic stainless steel in uranyl sulfate solutions. J. L. English and J. C. Griess. bibliog il Corrosion 20:138-44 Ap '64
Stress corrosion cracking of 18 per cent nickel marageing steel. L. R. Scharfstein. il Iron & Steel Inst J 202:158-9 F '64
Stress-corrosion cracking of martensitic stainless steels. J. E. Truman and others. bibliog il diags Iron & Steel Inst J 202:745-56 S '64
Stress-corrosion cracking of short-range-ordered copper-gold single crystals. J. M. Hardwick and R. A. Dodd. bibliog Inst Metals J 92:339-40 '63-64

CORROSION and anti-corrosives—Stress corrosion—*Continued*

Stress corrosion cracking study of several high strength steels. R. A. Davis and others. bibliog il Corrosion 20:93-103 Mr '64

Stress corrosion cracking susceptibility of stainless steels and nickel-base alloys in polythionic acids and acid copper sulfate solution. C. H. Samans. diags Corrosion 20:256-61; Discussion. 261-2 Ag '64

Stress corrosion of type 304 stainless steel in chloride environments. K. C. Thomas and others. bibliog diag Corrosion 20:89-92 Mr '64

Stress corrosion studies of stainless steel. H. L. Logan. Franklin Inst J 276:441 N '63

Why high-strength tubular goods fail. S. H. Davis and H. W. Nippert. il Oil & Gas J 62:84-6 Ap 13 '64

Study and teaching

Corrosion, a problem in engineering education. M. E. Holmberg. Naval Eng J 76: 285-7 Ap '64

Education in corrosion. F. L. La Que. Corrosion 20:209-12 Jl '64

Terminology

NACE glossary of corrosion terms. Corrosion 20:267-8 Ag '64

Testing

Cell technique for microscopic observation of selective corrosion. R. Wall and D. I. Roberts. il diags Metallurgia 68:291-4 D '63

Corrosion testing of decorative chromium plating by the Corrodkote procedure; ASTM standard. Plating 51:435-6 My '64

Corrosion theory and accelerated testing procedures. L. Schlossberg. Metal Finishing 62:57-63 Ap; 93-9 My '64

Does the sulphur content of blast furnace slag backfills render them corrosive? J. C. Hudson. bibliog Iron & Steel Inst J 201: 702-4 Ag '63; Discussion. G. M. Wagstaffe and A. M. Edwards. 202:374 Ap '64

Importance of corrosion testing in selecting process equipment. R. R. Christian. bibliog il Tappi 47:sup 124A-30A S '64

Measure corrosion rate, now. J. M. Kilpatrick. il diag Oil & Gas J 62:155-7 Mr 16 '64

Standard part for corrosion test. A. A. Johnson. diag Plating 51:129 F '64

Underground corrosion

Cathodic protection has many applications in the power field. E. H. Thalmann. il Power Eng 68:40-3 Ja '64

See also
Pipe lines—Corrosion
Water pipes—Corrosion

CORROSION research

Dry corrosion being attacked via nonstoichiometry approach. Oil & Gas J 62: 156 Ap 6 '64

Effect of several variables on engine rusting in service tests. P. A. Bennett and G. K. Malone. bibliog il Lub Eng 20:94-8 Mr '64

Fire and water at National chemical laboratory. Engineering 198:208 Ag 14 '64

Three year tidewater corrosion of aluminum alloys. W. H. Ailor, jr. and F. M. Reinhart. bibliog il Naval Eng J 76:443-9 Je '64

CORROSION resisting materials

Approved polyester offers lower-cost corrosion control. diag Food Eng 36:102 F '64

Chromium plate with corrosion resistance. il Engineering 197:159 Ja 24 '64

Corrosion control with glass-reinforced Hetrons. W. A. Szymanski and R. C. Talbot. bibliog il Ind & Eng Chem 56:38-42 Ap '64

Corrosion-hit castings replaced by glass reinforced plastics. il Engineering 197:569 Ap 24 '64

Corrosion resistance in sea water of medium strength aluminum bronzes. B. Upton. il Corrosion 19:204-9 Je '63; Discussion. 19: 429-30 D '63

Corrosion-resistant floors. S. L. Steinberg. il Chem Eng 71:178+ Mr 16 '64

Corrosion resistant materials for the chemical industry; abstract. Metal Prog 85: 174+ Mr '64

Corrosion resistant metals. L. W. Gleekman. il Chem Eng 70:217-24 N 11 '63

Don't overlook lead in corrosion service. il Can Chem Process 48:103-5 Ap '64

Eight alloys resistant to heat and corrosion. W. J. Collins. bibliog Product Eng 34:82-8 N 25 '63

Exotic materials. R. J. Van Thyne. Space/Aeronautics 42 no 4:163-4 '64-65

Fluorocarbon resins in corrosion prevention. C. A. Homsy. bibliog il(cover) diags Ind & Eng Chem 56:20-8 Mr '64

For piping corrosive wastes; glass, metal or plastic? J. C. Sell. Plant Eng 18:121-4 Ap '64

Formable vinyl-clad steel plate resists corrosion. J. W. Pedlow. il Materials in Design Eng 59:86-7 F '64

Improving chemical resistant polyesters. E. J. Kerle. Plastics World 21:22-5 D '63

Metal selector; cast high alloys. Steel 155: sup S22-3 O 12 '64

Molybdenum resists corrosion at high temperatures. F. B. Nair, jr. Materials in Design Eng 60:104-5 O '64

New corrosion-resistant polyester. Plastics Tech 10:14 Mr '64

New flexible polyesters resist corrosion, impact. il Materials in Design Eng 59:178+ Ap '64

New weapons for corrosion control. C. J. Vlahos. il Mill & Factory 75:62-5 S '64

Plastic exhaust system stops corrosion attack. il Steel 155:65 Jl 20 '64

Polyvinylidene fluoride. F. S. Ingraham and D. F. Wooley, jr. Ind & Eng Chem 56:53-5 S '64

Properties of materials; rust preventives; tables. Materials in Design Eng 60:403 Mid-O '64

Resistance of materials to corrosion. Materials in Design Eng 60:45-61 Mid-O '64

Role of plastics in corrosion engineering. R. B. Seymour. Plastics World 22:50-2 Ap '64

Tough ceramic and metal unite to defy heat and corrosion. il Iron Age 193:49-51 Ja 9 '64

See also
Acid resisting materials
Chromium nickel steel
Corrosion and anti-corrosives
Paint, Protective
Rubber
Steel, Stainless
Teflon
Titanium

Testing

Snap-8 materials. C. M. Scheuermann and others. bibliog il diags Astronautics & Aerospace Eng 1:40-3 D '63

CORROSION resisting steel. See Steel, Corrosion resisting

CORRUGATED paper board. See Paper board, Corrugated

CORRUGATED sheet metal. See Sheet metal, Corrugated

CORUNDUM

Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64

COSDEN petroleum corporation

What happens when two oil firms merge? J. Scott. il Pet Management 36:80-7 Ja '64

COSMETIC chemists, Society of. See Society of cosmetic chemists

COSMETIC industry and trade

Are cosmetic demonstrators necessary? L. V. Talamini. Drug & Cosmetic Ind 94:182+ F '64

Cosmetic industry of today. P. Vautin. Drug & Cosmetic Ind 93:788-90+ D '63

Drugs and cosmetics; a growing partnership. Drug & Cosmetic Ind 94:819-20+ Je '64

Equipment leasing in the drug and cosmetic industry. il Drug & Cosmetic Ind 94:672-4 My '64

Finished goods house looks at its suppliers. E. Morgan. Am Perfumer 79:75-6 Je '64

Insights into some retail opinions. il Drug & Cosmetic Ind 94:28-30+ Ja '64

Lanvin, Charles of the Ritz. P. Vautin; R. Salomon. Drug & Cosmetic Ind 94:342-5+ Mr '64

Makeup market. il Drug & Cosmetic Ind 94: 353-6 Mr '64

New face of cosmetic retailing. P. Vautin. il Drug & Cosmetic Ind 93:618-19+ N '63

Role of marketing research in cosmetic distribution. N. A. Campbell. Am Perfumer 79:31-3 Ag '64

This is the cosmetic industry that is! Drug & Cosmetic Ind 95:495+ O '64

See also
Perfumery

COSMETIC industry and trade—*Continued*

Laws and regulations

Color legislation. R. D. McMurray. Drug & Cosmetic Ind 94:664-6 My '64
Thumbnail guide to cosmetic color additives. H. D. Goulden. Drug & Cosmetic Ind 94: 186-7 F '64
What kind of cosmetic legislation? V. A. Kleinfeld. Drug & Cosmetic Ind 94:508-10 Ap '64

Statistics

Cosmetic sales by states. maps Drug & Cosmetic Ind 95:170-1+ Ag '64
Drug and cosmetic operations 1963. J. Kalish. Drug & Cosmetic Ind 94:657-9 My '64
European trade in cosmetics and soap. Manuf Chem 35:90 S '64
Negro cosmetic market. il Drug & Cosmetic Ind 95:32-3+ Jl '64
1963 toilet goods sales up 9½ per cent. Drug & Cosmetic Ind 94:667 My '64

Canada

Canada; sales of toilet preparations, 1962. Drug & Cosmetic Ind 94:180-1 F '64

Great Britain

Gala goes public. il Manuf Chem 35:42-3 Ap '64
SCC cosmetic industry exhibition, Brighton. il Manuf Chem 35:69-70+ Je '64

Greece

Market in Greece for drugs and cosmetics. J. Cross. Manuf Chem 35:56+ Ja '64

India

Progress in the cosmetic industry in India. D. J. Ribeiro. il Am Perfumer 79:47-50+ Ap '64

Israel

Israel, land of milk and honey, and cosmetics. H. C. Janowitz. il Am Perfumer 79: 59-61 Je '64

Italy

Report on the cosmetic industry in Italy. G. Levi. Am Perfumer 79:67-9 Je '64

Japan

Japanese cosmetic industry, 1963. C. R. Keeley. il Drug & Cosmetic Ind 93:802-4+ D '63
Make-up trend of modern Japanese women. F. Kohga. il Am Perfumer 79:61-3 O '64

Russia

Cosmetics in the Soviet Union. C. Lozzi. Am Perfumer 79:71-2 Je '64

COSMETICS

Aerosol review, 1964; cosmetics and toiletries. Manuf Chem 35:104+ Mr '64
Annual guide to cosmetic and perfumery materials. il Manuf Chem 34:520-6+ N '63
Antiperspirants and deodorants. il Manuf Chem 35:50-3+ Ja; 55-7 F; 64-7+ Mr '64; Excerpts. Drug & Cosmetic Ind 94:429-30 Mr '64
Anti-wrinkle preparations. Drug & Cosmetic Ind 94:663+ My '64
Beautiful future. M. Rubinstein. il diag Am Perfumer 79:27-31 O '64
Challenge in creativity for aerosol cosmetics. E. V. Wandersee. Am Perfumer 79:70-2 Mr '64
Comparative differences in formulations between professional products and consumer products; make-up. A. Shansky. Am Perfumer 79:53-5 O '64
Compressed powder antiperspirants. il Manuf Chem 35:50 Je '64
Cosmetic elegance in dermatologic therapy. V. H. Witten and C. H. March. Drug & Cosmetic Ind 93:794+ D '63
Cosmetic talcs. H. T. Mulryan. il diags Am Perfumer 79:85-7 O '64
Cosmetics and toilet preparations (cont). W. W. Myddleton. bibliog il Manuf Chem 34:479-80; 35:71-2+ O '63, Ap '64
Court decisions; mascara causes injury. H. N. Morse. Drug & Cosmetic Ind 93:661 N '63
Cucumber juice, its biological and phytotherapeutical evaluation in cosmetology. V. Vitéz. bibliog Am Perfumer 79:81-2 Je '64
Desiderata. M. G. deNavarre. Published in monthly numbers of American perfumer
Developments in cosmetic emulsifiers; Crodafos. Manuf Chem 35:46-8 Jl '64
Eye make-up. A. L. Fishbach. Am Perfumer 79:47-8+ O '64
Hexadecyl alcohol, a new material for cosmetic formulations. W. W. Edman and W. H. Lowden. Drug & Cosmetic Ind 93:631-2+ N '63
Hydrocolloids in cosmetic and pharmaceutical dispersions. B. N. Patel. Drug & Cosmetic Ind 95:337-41+, 509-12 S-O '64 (to be cont)
Make-up perfumes. E. Youngberg. Am Perfumer 79:79-80 O '64
Make-up products containing titanium dioxide, with comments on their manufacturer and some problems. I. C. R. Bews and N. R. Fisk. il Am Perfumer 79:89-90+ O '64
Medicated make-up. F. Sardo and J. J. Goodman. bibliog Am Perfumer 79:37-40 O '64
Mens' cosmetics; the beginning of a new era. il Drug & Cosmetic Ind 95:496-7+ O '64
New directions in cosmetics. il Manuf Chem 35:54 Mr '64
New horizons for make-up and other cosmetics. G. J. Sperandio. Am Perfumer 79: 75-7 O '64
New season, new fashion, new make-up. S. Rillon. il diags Am Perfumer 79:33-5 O '64
Physiological antiperspirant; abstract. R. B. Stoughton and others. Drug & Cosmetic Ind 94:283 F '64
Place of haircoloring in make-up today. R. Barkann. il Am Perfumer 79:81-3 O '64
Recent advances in preparations for the nail; fingernail elongators and cuticle removers. G. T. Walker. bibliog Am Perfumer 79:77-9 Je '64
Report finds drug and cosmetic packaging missing mark. Drug & Cosmetic Ind 94:369 Mr '64
Some aspects of fats and cosmetics; abstract. D. M. Bryce. Chem & Ind p 113-14; Discussion. 114-15 Ja 18 '64
Wrinkle creams. Drug & Cosmetic Ind 94: 499 Ap '64

See also

Bath preparations
Hair—Dyeing and bleaching
Hair preparations
Toilet goods
Toilet goods association

Bibliography

Technical abstracts (cont). diags Am Perfumer 78:45-7 D '63; 79:40+ Ja; 58-60 My; 93-6 Je; 54-5 Jl; 45-8 Ag; 38+ S '64

Patents

Make-up formulas. Am Perfumer 79:65-8+ O '64
Novel amino acid-allantoin compounds for topical application. I. I. Lubowe. Am Perfumer 79:46-50 Jl '64
Patents and trademarks. T. Cifelli, jr. Published in monthly numbers of Drug and cosmetic industry

Physiological effect

Ammonium persulfate irritant. Drug & Cosmetic Ind 94:10 Ja '64

COSMIC rays

Positrons found in primary radiation. P. Meyer and others. Chem & Eng N 42:39 Ja 13 '64
Spark chamber and magnet system for photographing cosmic-ray tracks at balloon altitudes. J. A. DeShong, jr. and others. bibliog il diags R Sci Instr 35:1035-9 Ag '64

COSMOLOGY

Where are we? 1964 Jackling lecture. A. A. Brant. bibliog Min Eng 16:51-7 Ap '64

COSMOTRON. See Synchrotron

COST

Cost; a reliability factor. P. H. Fowler. Electro-Tech 74:101-3 S '64
Efficient algorithm for finding certain minimum cost procedures for making binary decisions. J. R. Slagle. Assn for Computing Mach J 11:253-64 Jl '64
Extrusion work order cost analysis. Light Metal Age 21:10-11 D '63
Potential of increased pulpwood earnings through efficient use of equipment. T. Walbridge. bibliog diags Paper Ind 46:603-8 O '64

See also

Factory costs
Foundry costs
Mining costs

COST—See also—*Continued*
Office costs
Power cost
also subdivision Costs under special subjects, e.g.
Accidents
Aqueducts
Atomic power plants
Bridges
Building
Channels
Chemical plants
Concrete construction
Dams
Dredging
Electric plants (central stations)
Gasoline plants
Lighting
Paper and pulp mills
Petroleum refineries
Reservoirs
Roads
Sewage disposal plants
Sewerage
Steam plants
Subways
Tunnels and tunneling
Underpasses
Water distribution
Waterworks
Wharves

COST accounting

Feedback; a key to engineering cost control. L. S. Lee. flow chart Machine Design 36:134-9 O 8 '64

Forest management cost control by electronic data processing. O. F. Hall. bibliog Paper Ind 46:109-12 My '64

Good costing can prove the unexpected. J. H. Middleton. Engineering 196:761 D 13 '63

How Du Pont attacks distribution costs. il maps diags Mod Materials Handling 19:36-43 S '64

How to keep tabs on equipment-failure expense. D. R. Fincher and G. L. Nunn. Oil & Gas J 62:151-2+ Ap 27 '64

How to price communications circuits. J. F. Holmes. Control Eng 11:84-7 Ag '64

New code simplifies, expands cost estimating by computer. M. L. Beutel. Eng N 172:30-2+ My 14 '64

Now, a fast, easy way to predict your carpet-yarn costs. S. I. Kelen. diags Textile World 114:66-9 N '64

$X00,000 saving by sampling paperwork. W. J. Hickey, jr. Ind Quality Control 20:6-9 Je '64

See also
Depreciation
Estimates
Machinery, Replacement of
Oil companies—Accounting
Petroleum industry and trade—Accounting
Petroleum refineries—Accounting
Textile mills—Accounting

COTTON

Anhydrous ammonia may find use as cotton defoliant. Chem & Eng N 42:53-4 F 3 '64

Influence of formaldehyde concentration on the cross-links introduced into cotton cellulose. J. D. Guthrie. Textile Res J 33:955-8 N '63

Metabolism of dimethoate in cotton leaves. J. Hacskaylo and D. L. Bull. bibliog J Agri & Food Chem 11:464-6 N '63

Metabolism of phthalimidomethyl-*O,O*-dimethylphosphorodithioate (Imidan) in cotton plants. J. J. Menn and J. B. McBain. bibliog il J Agri & Food Chem 12:162-6 Mr '64

Post-irradiation stability of some properties of cotton cellulose. J. C. Arthur, jr. and F. A. Blouin. bibliog Textile Res J 34:733-4 Ag '64

Reaction of divinyl ethers with cotton. D. M. Jones and N. F. Wood. Chem & Ind p2009-10 D 28 '63

San Joaquin cotton; grade off again. F. L. Gerdes. Textile World 114:70 F '64

Texas cotton; poor yields. F. L. Gerdes. Textile World 113:71 D '63

U.S. millman scores foreign inroads. Mod Textiles Mag 44:46 D '63

See also
Bleaching—Cotton
Cotton fibers
Dyes and dyeing—Cotton

Bleaching

See Bleaching—Cotton

Blending

Automation in opening and picking. C. A. Dean. il diags Textile Ind 128:106-10 Ap '64

Keep these pointers in mind when mercerizing cotton-synthetic blends. S. M. Edelstein. Mod Textiles Mag 45:26+ Ap '64

New stationary card holder for the mechanical blending machine. H. Muramoto and W. E. Larsen. il Textile Res J 34:465-6 My '64

Take the guesswork out of blending with linear programming. V. B. Ram and others. il Textile Ind 128:75-7 F '64

Chemistry

Attempts to form reversible cross-links in cotton. W. A. Mueller and R. Swidler. Textile Res J 34:656 Jl '64

Changes in fibrillate structures of cottons on hydrolysis and oxidation. B. R. Porter and W. R. Goynes, jr. bibliog il Textile Res J 34:467-77 Je '64

Chemical effects of light on cotton cellulose and related compounds. G. O. Phillips and J. C. Arthur, jr. bibliog Textile Res J 34:497-505, 572-80 Je-Jl '64

Cross-linking cotton cellulose with long-chain reactants. E. I. Valko and others. bibliog Textile Res J 34:849-57 O '64

Cross-linking of cellulose by vinyl sulfonium compounds. F. H. Burkitt. Textile Res J 34:336-40 Ap '64

Distribution of oxymethylene groups in formaldehyde-treated cotton fabrics. D. M. Jones. bibliog Textile Res J 34:257-65 Mr '64

Infrared spectra of hydrolysis products of cottons reacted with typical nitrogenous crosslinking agents. S. H. Miles and others. Am Dyestuff Rep 53:440-4 Je 8 '64

Infrared spectra of reactant monomers. J. V. Simonian. Am Dyestuff Rep 53:248-57 Mr 30 '64

Nature of wet crease recovery in cotton; review. J. B. McKelvey. Textile Res J 34:486-96 bibliog(p495-6) Je '64

N-methylol, N-substituted amides as cross-linking reagents for cotton. S. L. Vail and C. M. Moran. bibliog Am Dyestuff Rep 53:282-6 Ap 13 '64

Non-aqueous ester cross-linking of cotton cellulose. T. C. Allen. bibliog Textile Res J 34:331-6 Ap '64

Photochemical degradation of cotton cellulose. B. A. Gingras and others. bibliog Textile Res J 33:1000-4 D '63

Preparation and some properties of the anthranilate of cotton. R. H. Wade and W. A. Reeves. bibliog Textile Res J 34:836-9 O '64

Setting cotton fabric without covalent cross-links. E. M. Kärrholm and H. Åsnes. bibliog il diags Textile Res J 34:220-36 Mr '64

Some effects of cross-linking and carboxymethylation on cotton fabrics. A. L. Bullock and others. Textile Res J 34:741-6 S '64

Study of cross-linking using vapor-phase chromatography. J. P. Dundon. bibliog Textile Res J 34:340-6 Ap '64

Tensile recovery and structure modification in crosslinked cottons. bibliog il Am Dyestuff Rep 52:952-64 N 25 '63

Thermal stress behavior of radiation-induced graft polymers of cotton. J. C. Arthur, jr. and others. Textile Res J 33:896-9 N '63

Cleaning

See Cotton cleaning

Color

Pattern of color change emerges from three-year storage study of cotton grades. D. Nickerson. Textile Res J 34:645-7 Jl '64

Diseases and pests

Crop protection in cotton; abstract and discussion. G. Edmund-Jones. Chem & Ind p60-1 Ja 11 '64

Moisture content

Nature of wet crease recovery in cotton; review. J. B. McKelvey. Textile Res J 34:486-96 bibliog(p495-6) Je '64

Storage

Pattern of color change emerges from three-year storage study of cotton grades. D. Nickerson. Textile Res J 34:645-7 Jl '64

USDA: beware of cotton stored too long. Textile World 114:72-3 N '64

COTTON—*Continued*

Testing

Crystallinity determinations on chloroform-included cellulose. S. H. Zeronian. bibliog Textile Res J 34:83-4 Ja '64

Determination of foreign materials of plant origin in cotton linters. K. A. Jurbergs and D. J. Dowling, jr. il Am Oil Chem Soc J 41:545-7 Ag '64

Evaluation of the SRRL non-lint tester for determining the trash content of lint cotton. R. A. Rusca and others. il Textile Res J 34:61-8 Ja '64

COTTON carding

Canton matic carding system. J. Ellington. il diags Textile Ind 128:92-6+ Ag '64

Card cleaner mops up. il Textile Ind 128:129-30 S '64

Carding emphasis is changing to high-speed conventional cards. Textile World 113:59 N '63

Carding forum, Lexington, N.C. Textile Ind 128:75-6 Ja '64

Carding: phase two. J. Ellington. il diags Textile Ind 128:69-96 Je '64

Carding-spinning powwow at Greenwood: South Carolina div., Southern textile assn. spring meeting. Textile Ind 128:119+ Ag '64

How to cope with chokes. J. Ellington. il Textile Ind 128:60-3 Ja '64

Top quality carding at 22 lb-hr. il Textile Ind 128:76-8 Jl '64

COTTON cleaning

Automation in opening and picking. C. A. Dean. il diags Textile Ind 128:106-10 Ap '64

Card cleaner mops up. il Textile Ind 128:129-30 S '64

Determination of foreign materials of plant origin in cotton linters. K. A. Jurbergs and D. J. Dowling, jr. il Am Oil Chem Soc J 41:545-7 Ag '64

COTTON combing

Effects of cotton fiber length and length distribution on combing. R. A. Mullikin and F. E. Newton. Textile Ind 128:131-3 S '64

COTTON fabrics

Attachment of compounds to aminized cotton fabric by the Mannich reaction. J. D. Guthrie and others. Am Dyestuff Rep 53:626-8 Jl 20 '64

Beattie Plant makes print cloth of combed goods quality without combers. M. C. May. il Textile Ind 128:58-63 F '64

Cotton leno warms 'em up. il Textile Ind 128:66-8 Mr '64

Flame-resistant cotton fabrics from USDA. W. A. Reeves and V. R. Bourdette. bibliog il Textile Ind 128:105-6+ Ja '64

Identification and estimation of finishes based on dichloropropanol. H. R. Cooper and J. G. Roberts. bibliog diag Soc Dyers & Col J 80:428-9 Ag '64

Outlook for cotton stretch fabrics. Mod Textiles Mag 45:34+ F '64

Properties of one-way and two-way stretch cotton fabrics. W. G. Sloan and others. bibliog Am Dyestuff Rep 53:885-8 O 12 '64

Reaction of acyl chlorides with aminized cotton. P. E. Robbins and H. H. Perkins. Am Dyestuff Rep 52:915-19 N 11 '63

Some effects of cross-linking and carboxymethylation on cotton fabrics. A. L. Bullock and others. Textile Res J 34:741-6 S '64

Warm, lofty cotton fabrics; some exploratory studies. J. F. Krasny and others. bibliog il Textile Res J 33:889-96 N '63

See also
Cotton finishing

Creasing

Cellulose-epichlorohydrin reaction in the presence of neutral salt and salt-alkali solutions. J. B. McKelvey and others. bibliog Textile Res J 34:759-61 S '64

Cross-linking cotton cellulose with long-chain reactants. E. I. Valko and others. bibliog Textile Res J 34:849-57 O '64

Durability of wash-wear properties of cotton finished with dimethylol ethyl carbamate by the deferred cure process. R. M. H. Kullman and others. bibliog Am Dyestuff Rep 53:167-8 Mr 2 '64

Durably creased wash-wear cottons. H. B. Goldstein and J. M. May. bibliog il Textile Res J 34:325-31 Ap '64

Effect of relative humidity on the crease recovery of some modified rayon and cotton fabrics. R. A. Gill and R. Steele. bibliog Textile Res J 32:338-49 Ap '62; Discussion. 33:958-9 N '63

Independence of dry crease recovery and fiber swelling in cross-linked cotton fabric. J. G. Frick, jr. and A. G. Pierce, jr. bibliog Textile Res J 34:904-6 O '64

Nature of wet crease recovery in cotton; review. J. B. McKelvey. Textile Res J 34:486-96 bibliog(p495-6) Je '64

ORF develops treatment for cellulosics. Can Chem Process 47:68-9 D '63

Pilot plant and mill applications of tris (1-aziridinyl) phosphine oxide finishes to cotton fabrics. R. B. LeBlanc. Am Dyestuff Rep 53:291-3 Ap 13 '64

Presensitization of cotton by the deposition of polymers of N-methylol compounds. J. H. Margeson and N. F. Getchell. bibliog Textile Res J 34:247-56 Mr '64

Recent developments in the finishing of cotton for wrinkle resistance. L. W. Mazzeno, jr. and others. bibliog Am Dyestuff Rep 52:909-14 N 11 '63

Resin-free creasing of cottons. Mod Textiles Mag 45:46 Je '64

Moisture absorption

Study on liquid extraction from cotton fabrics in a centrifugal field. B. A. Short and W. J. Gertz. bibliog il Textile Res J 34:532-8 Je '64

Water concentration gradient in suspended fabrics in relation to gravitational field strength. L. Loeb. diags Textile Res J 34:767-72 S '64

Protection

Experimental ultraviolet absorbers for cotton. Textile Ind 128:109 Ja '64

Rotproofing of cellulosic fibers by a modified dry cure resin treatment. R. J. Boyle. bibliog Textile Res J 34:319-24 Ap '64

Some microbial-resistant compounds of zirconium and their effect on cotton. C. J. Conner and others. bibliog il Textile Res J 34:347-57 Ap '64

Rayon mixtures

See Rayon fabrics—Cotton mixtures

Strength

Distribution of oxymethylene groups in formaldehyde-treated cotton fabrics. D. M. Jones. bibliog Textile Res J 34:257-65 Mr '64

Method of preventing strength losses during wash-wear finishing of cotton fabric. bibliog Am Dyestuff Rep 53:42-3 Ja 20 '64

Some aspects of abrasion properties of cotton fabrics. W. Żurek and H. Szemik. diags Textile Res J 34:143-52 F '64

Strength of cotton fibers as measured by the Pressley tester and the stelometer. R. Lawson. bibliog il Textile Res J 34:725-31 Ag '64

Testing

Adaptation of Simons' staining technique to the quantitative assessment of wear in cotton fabric. L. Loeb and others. bibliog il Textile Res J 34:611-16 Jl '64

Effect of mercerization and tension on properties of wash-wear cotton. J. D. Reid and others. bibliog Am Dyestuff Rep 52:946-8 N 25 '63

Effects of tension during cross-linking treatments of cotton fabrics. R. S. Orr and others. bibliog diag Textile Res J 34:192-8 Mr '64

Method for measurement of cloudiness of fabrics. R. Subrahmanya Sarma and others. il Textile Res J 34:647-9 Jl '64

X-ray fluorescence analysis of modified cottons. V. W. Tripp and others. bibliog Textile Res J 34:773-7 S '64

See also
Cotton fabrics—Strength

Washability

Delayed-cure resins steal the show at Chemical finishing conference. Textile World 113:86-7 N '63

Durably creased wash-wear cottons. H. B. Goldstein and J. M. May. bibliog il Textile Res J 34:325-31 Ap '64

Improvements in wash-wear cottons reported. Mod Textiles Mag 44:32+ N '63

Presensitization of cotton by the deposition of polymers of N-methylol compounds. J. H. Margeson and N. F. Getchell. bibliog Textile Res J 34:247-56 Mr '64

Progress in wash-wear; National cotton council's 12th annual chemical finishing conference. Textile Ind 127:120+ D '63

Retention of swelling ability in cotton cross-linked with high-temperature curing. A. G. Pierce, jr. and others. bibliog il Textile Res J 34:552-8 Je '64

COTTON fabrics—*Continued*

Weathering

Weathering characteristics of lightweight flame-retardant finishes for cotton fabrics. J. B. Bullock and others. bibliog Textile Res J 34:691-700 Ag '64

COTTON fibers

Effect of filter media microstructure on dust collection. S. F. Duncan. il ASHRAE J 6:37-41 Ap '64

Effects of cotton fiber length and length distribution on combing. R. A. Mullikin and F. E. Newton. Textile Ind 128:131-3 S '64

Fiber hooks; their effect on yarn properties and end breakage in spinning. J. Simpson and others. bibliog il Textile Ind 128:78-83+ Mr '64

Found any of these funny-looking neps? Textile Ind 128:167+ My '64

Growth rings in cotton. L. P. Berriman and H. M. Benedict. Textile Res J 33:1026-7 D '63

Intrinsic tenacities of natural cellulosic fibers. L. B. DeLuca. bibliog Textile Res J 34:110-16 F '64

Investigation of the minimum length of cotton fiber effective in single yarn tenacity. J. D. Tallant and others. bibliog diag Textile Res J 33:1005-12 D '63

Properties of undried cotton. L. P. Berriman. Textile Res J 33:1027-8 D '63

Simple explanation for the formation of reversals in a cotton fiber. R. L. N. Iyengar. il diag Textile Res J 34:368-71 Ap '64

Structural properties of cotton fibers. S. M. Betrabet and others. bibliog Textile Res J 33:720-7; 34:46-52 S '63, Ja '64

Structural properties of cotton fibers; birefringence and structural reversals in relation to mechanical properties. S. M. Betrabet and others. bibliog Textile Res J 33:720-7 S '63; Correction. 34:171 F '64

Tips for finishing Arnel/cotton stripe and check fabrics. Textile Ind 128:129 Je '64

Measurement

Computer for the evaluation of the crimp diameter of textile fibers. M. Shiloh and others. bibliog il diag Textile Res J 34:430-4 My '64

Evaluation of length parameters obtained with the digital fibrograph with special reference to fiber length nonuniformity. J. Prakash. bibliog Textile Res J 34:857-65 O '64

Factors affecting fiber length-scanning measurements. K. L. Hertel and R. Lawson. bibliog il diags Textile Res J 34:866-80 O '64

Testing

Cotton fiber strength tests at ⅛-inch gauge with Pressley and Stelometer instruments. J. T. Rouse. Textile Res J 34:908-10 O '64

Influence of stress and deformation on the structure of the cotton fiber. J. Isings. bibliog il Textile Res J 34:236-46 Mr '64

Mathematical aspects of cotton fiber length distribution under various breakage models. H. N. Shapiro and others. Textile Res J 34:303-7 Ap '64

New stationary card holder for the mechanical blending machine. H. Muramoto and W. E. Larsen. il Textile Res J 34:465-6 My '64

Quick test for short fibers. J. V. Shepherd. il Textile Ind 128:116-17+ Ap '64

Strength of cotton fibers as measured by the Pressley tester and the Stelometer. R. Lawson. bibliog il Textile Res J 34:725-31 Ag '64

Work done in pulling fibers from the cotton seed under impact conditions in relation to fiber properties and ginning behavior. J. Prakash and R. L. N. Iyengar. bibliog Textile Res J 34:444-55 My '64

COTTON finishing

Attachment of compounds to aminized cotton fabric by the Mannich reaction. J. D. Guthrie and others. Am Dyestuff Rep 53:626-8 Jl 20 '64

Delayed-cure resins steal the show at Chemical finishing conference. Textile World 113:86-7 N '63

Effect of graft polymerization on crease resistance of cellulosic fabrics. G. N. Richards and E. F. T. White. bibliog Textile Res J 34:810-12 S '64

Effect of mercerization and tension on properties of wash-wear cotton. J. D. Reid and others. bibliog Am Dyestuff Rep 52:946-8 N 25 '63

Effects of tension during cross-linking treatments of cotton fabrics. R. S. Orr and others. bibliog diag Textile Res J 34:192-8 Mr '64

Five advances in cotton technology. W. A. Reeves. bibliog il Textile World 113:79-80+ N '63

Flame-retardant cellulose; a new method of evaluation. P. M. Hay. Am Dyestuff Rep 53:812-15 S 14 '64

Identification and estimation of finishes based on dichloropropanol. H. R. Cooper and J. G. Roberts. bibliog diag Soc Dyers & Col J 80:428-9 Ag '64

Method of preventing strength losses during wash-wear finishing of cotton fabric. bibliog Am Dyestuff Rep 53:42-3 Ja 20 '64

National cotton council chemical finishing conference, Washington, Oct. 7-8; abstracts of papers. Am Dyestuff Rep 53:836 S 14 '64

Phosphorylation of cotton with inorganic phosphates. D. M. Gallagher. bibliog Am Dyestuff Rep 53:361-3 My 11 '64

Presensitization of cotton by the deposition of polymers of N-methylol compounds. J. H. Margeson and N. F. Getchell. bibliog Textile Res J 34:247-56 Mr '64

Progress in wash-wear; National cotton council's 12th annual chemical finishing conference. Textile Ind 127:120+ D '63

Reaction between urea and cellulose. A. C. Nuessle. Am Dyestuff Rep 53:43-4 Ja 20 '64

Recent developments in the finishing of cotton for wrinkle resistance. L. W. Mazzeno, jr. and others. bibliog Am Dyestuff Rep 52:909-14 N 11 '63

Retention of swelling ability in cotton cross-linked with high-temperature curing. A. G. Pierce, jr. and others. bibliog il Textile Res J 34:552-8 Je '64

Rotproofing of cellulosic fibers by a modified dry cure resin treatment. R. J. Boyle. bibliog Textile Res J 34:319-24 Ap '64

Setting cotton fabric without covalent cross-links. E. M. Kärrholm and H. Åsnes. bibliog il diags Textile Res J 34:220-36 Mr '64

Some aspects of dyeing and finishing in Finland's cotton industry. R. Borgstrom. Am Dyestuff Rep 53:486-7 Je 22 '64

Vinyl sulphone finishes; abstract and discussion. F. Burkitt. Chem & Ind p587-8 Ap 4 '64

Wet soiling of cotton; effect of finishes on the removal of soil from cotton fabrics. J. Berch and others. bibliog Textile Res J 34:29-34 Ja '64

Wet soiling of cotton; effect of thermoplastic finishes. J. Berch and others. Textile Res J 34:844-9 O '64

See also

Bleaching—Cotton

COTTON ginning

Work done in pulling fibers from the cotton seed under impact conditions in relation to fiber properties and ginning behavior. J. Prakash and R. L. N. Iyengar. bibliog Textile Res J 34:444-55 My '64

COTTON linters

Digestion of cotton linters. F. E. Pollock. Tappi 46:sup 148A-9A N '63

Mechanical properties of paper made from periodate oxycellulose pulp and from the same pulp after reduction with borohydride. S. H. Zeronian and others. bibliog Tappi 47:557-64 S '64

COTTON machinery

See also

Cotton combing

COTTON manufacture

Fact file 1964; carding, drawing and combing. diags Textile World 114:56+ Jl '64

See also

Cotton carding
Cotton combing
Cotton finishing
Spooling

COTTON mills

Getting the most from an old mill. il Textile World 114:65-7 S '64

Twin plants story; Spring cotton mills. R. B. Pressley and W. G. Ashmore. il plan Textile World 113:40-53 N '63

Air conditioning

Data system key to control of cotton mill humidity. il Automation 10:73-4 N '63

Is your air conditioning upkeep up to par? Textile Ind 128:69+ Jl '64

Cleaning

Good housekeeping; efficiency up, quality too at Cone Mills' Salisbury, N.C. plant. il Textile World 114:48-51 Je '64

COTTON mills—*Continued*

Control equipment

Twin plants story; monitoring production; a new concept. R. B. Pressley and W. G. Ashmore. il Textile World 113:52-3 N '63

Costs

Cost, quality, and automation. F. W. Roberts. il diag Textile Res J 33:1041-6 D '63

USDA; beware of cotton stored too long. Textile World 114:72-3 N '64

Equipment

Automation in opening and picking. C. A. Dean. il diags Textile Ind 128:106-10 Ap '64

Beattie Plant makes print cloth of combed goods quality without combers. M. C. May. il Textile Ind 128:58-63 F '64

Canton matic carding system. J. Ellington. il diags Textile Ind 128:92-6+ Ag '64

Doubling combed-yarn output at Robinson mills inc. il Textile World 114:50-3 O '64

Efficiency, German style; Lauffenmuehle spinning mill. V. Saxl. il plans Textile Ind 128:156-7+ O '64

Golden belt; faster and better. il Textile Ind 128:134-5+ O '64

Happy weaving song; world's largest battery of draper shuttleless looms at Cannon mills. il Textile Ind 128:134-5+ S '64

Har-Ray; this new mill has spinning knowhow. il Textile World 114:66-8 Je '64

How selective modernization pays off at Pickett cotton mills. il Textile World 114:74-6 N '64

How to cope with chokes. J. Ellington. il Textile Ind 128:60-3 Ja '64

Management of South Carolina Cotton mills is sold on planned progress. il Textile Ind 128:144-6 S '64

Mill design; streamlined for efficiency. Textile World 114:57-62 My '64

No frill twill mill; Estes plant of J. P. Stevens & co. M. C. May. il Textile Ind 128:49-53 Jl '64

Ready to compete with all comers; Springs cotton mills. il Textile Ind 127:84-7 D '63

Stevens' big new Estes plant. il Mod Textiles Mag 45:22+ Ag '64

Twin plants story; handling material the up-to-date-way. R. B. Pressley and W. G. Ashmore. il Textile World 113:48-52 N '63

Updating for still higher-quality yarn and more of it, too. il Textile World 114:62-5 Ja '64

Yarn manufacturing; high-speed, simplified. W. G. Ashmore. Textile World 114:67-71 My '64

Layout

Efficiency, German style; Lauffenmuehle spinning mill. V. Saxl. il plans Textile Ind 128:156-7+ O '64

Maintenance and repair

Keeping tried-and-true maintenance up to date; program at big cotton mill. il diag Textile World 114:48-52 Ja '64

Management

Management of South Carolina Cotton mills is sold on planned progress. il Textile Ind 128:144-6 S '64

Quality control

Cost, quality, and automation. F. W. Roberts. il diag Textile Res J 33:1041-6 D '63

Good housekeeping; efficiency up, quality too at Cone Mills' Salisbury, N.C. plant. il Textile World 114:48-51 Je '64

Way to cleaner cotton yarns. diags Textile Ind 128:134-6 Mr '64

Waste

Biggest waste loss? could be vacuum intake. F. C. Wilson. Textile World 114:52-4 Ap '64

Massive training program cuts waste up to 70 per cent. il Textile World 114:47-8 Ap '64

COTTON research

Big news at Cotton clinic. il diag Textile World 114:42-51 Mr '64

Cotton research clinic, 15th. Mod Textiles Mag 45:32+ My '64

COTTON spinning

Apron sag kayoed. il Textile Ind 128:64-6+ F '64

Automation, bale to cone. H. J. Jones. il diags Textile Res J 33:1036-41 D '63

Biggest waste loss? could be vacuum intake. F. C. Wilson. Textile World 114:52-4 Ap '64

Carding-spinning powwow at Greenwood; South Carolina div., Southern textile assn. spring meeting. Textile Ind 128:119+ Ag '64

Do soft cots spin better? il Textile Ind 128:114+ Ag '64

Draft allocation and tensor setting in a sliver-to-yarn drafting system for cotton. R. Audivert and J. E. Vidiella. bibliog diags Textile Res J 34:265-71 Mr '64

Evaluation of length parameters obtained with the digital fibrograph with special reference to fiber length nonuniformity. J. Prakash. bibliog Textile Res J 34:857-65 O '64

Fiber hooks; their effect on yarn properties and end breakage in spinning. J. Simpson and others. bibliog il Textile Ind 128:78-83+ Mr '64

Fresh look at break drafts. F. E. Newton and S. T. Burley, jr. Textile World 114:43-7 Mr '64

Har-Ray; this new mill has spinning knowhow. il Textile World 114:66-8 Je '64

How to cope with chokes. J. Ellington. il Textile Ind 128:60-3 Ja '64

Ringless spinning updated. G. J. Kyame and H. R. Copeland. il diag Textile World 114:48-51 Mr '64

Spindle speed, does it affect yarn quality? E. H. Shanklin. Textile World 114:70-1 N '64

Spinning forum at Raleigh. Textile Ind 128:74+ Ja '64

COTTON trade

Statistics

Yield of mid-south and southeast cotton crops is big. F. L. Gerdes. Textile World 114:100-1 Ja '64

COTTON yarn

ABC's of textured cotton yarns. G. F. Ruppenicker, jr. and others. il diag Textile Ind 128:54-9 Jl '64

CV building blocks; the way cause factors add up to yarn size variation. il diags Textile Ind 128:70-2 Jl '64

Doubling combed-yarn output at Robinson mills inc. il Textile World 114:50-3 O '64

Found any of these funny-looking neps? Textile Ind 128:167+ My '64

Golden belt; faster and better. il Textile Ind 128:134-5+ O '64

Now, a practical way to measure drafting force. J. Graham. diag Textile World 114:60-2 O '64

Rating of yarns for short-term unevenness. G. M. Bornet. bibliog Textile Res J 34:381-400 My '64

Ringless spinning updated. G. J. Kyame and H. R. Copeland. il diag Textile World 114:48-51 Mr '64

Spindle speed, does it affect yarn quality? E. H. Shanklin. Textile World 114:70-1 N '64

Updating for still higher-quality yarn and more of it, too. il Textile World 114:62-5 Ja '64

Way to cleaner cotton yarns. diags Textile Ind 128:134-6 Mr '64

Yarn manufacturing; high-speed, simplified. W. G. Ashmore. Textile World 114:67-71 My '64

Strength

Draft allocation and tensor setting in a sliver-to-yarn drafting system for cotton. R. Audivert and J. E. Vidiella. bibliog diags Textile Res J 34:265-71 Mr '64

Effect of air pollutants on cotton. M. A. Morris and others. Textile Res J 34:563-4 Je '64

Influences of fiber properties on yarn twists. L. C. Weiss and others. bibliog Textile Res J 34:605-11 Jl '64

Investigation of the minimum length of cotton fiber effective in single yarn tenacity. J. D. Tallant and others. bibliog Textile Res J 33:1005-12 D '63

Single strand or skein? G. L. Louis and others. bibliog Textile Ind 128:71-3 My '64

Testing

Cohesion phenomena in cotton rovings and yarns. A. Barella and A. Sust. bibliog il diag Textile Res J 32:217-26; 33:75-9; 34:283-90 Mr '62, Ja 63, Ap '64

Study of the hairiness of cotton yarns. K. P. R. Pillay. bibliog diag Textile Res J 34:663-74, 783-91 Ag-S '64

COTTONSEED

Work done in pulling fibers from the cotton seed under impact conditions in relation to fiber properties and ginning behavior. J. Prakash and R. L. N. Iyengar. bibliog Textile Res J 34:444-55 My '64

See also

Gossypol

COTTONSEED flour

All-vegetable protein mixtures for human feeding; effect of cooking mixtures containing cottonseed flour on free gossypol content. R. Bressani and others. bibliog Food Tech 18:1599-603 O '64

All-vegetable protein mixtures for human feeding; studies in dogs on the absorption of gossypol from cottonseed flour-containing vegetable protein mixtures. R. Bressani and others. bibliog J Nutrition 83:209-17 Jl '64

COTTONSEED meal

Advanced countries offer market potential for vegetable proteins. Food Tech 18:702+ My '64

Cottonseed proteins; problems and opportunities for world protein deficits. M. Milner. Food Tech 18:1539-40 O '64

Free and total gossypol, epsilon-amino lysine, and biological evaluation of cottonseed meals and flours in Central America. R. Bressani and others. bibliog J Agri & Food Chem 12:278-82 My '64

Urea breakdown activity in cottonseed. J. K. Sikes. bibliog Am Oil Chem Soc J 41:69-71 Ja '64

COTTONSEED oil

Catalytic elimination of cyclopropene-containing acids. A. J. Deutschman, jr. and others. bibliog Am Oil Chem Soc J 41:175-6 Mr '64

Continuous refining of crude cottonseed miscella. L. S. Crauer and H. Pennington. flow diag il Am Oil Chem Soc J 41:656-9 O '64

Methods for the determination of cyclopropenoid fatty acids; application of the step-wise HBr titration method to the analysis of refined and crude cottonseed oils. J. A. Harris and others. bibliog Am Oil Chem Soc J 41:309-11 Ap '64

New plant puts science into cotton seed processing; process flowsheet. H. J. Witz and W. B. Hendrick. il Chem Eng 71:48-50 Ag 31 '64

Physical and chemical properties of alumina bleached cottonseed oil. J. C. Kuck and others. bibliog Am Oil Chem Soc J 41:101-4 F '64

Relation between iodine value and linoleic acid percentage in cottonseed oil. T. Vanden Driessche. Am Oil Chem Soc J 41:248 Mr '64

COUETTE flow

Interaction of an oscillating magnetic field with fluid in Couette flow. F. H. Shair. AIAA J 2:1510-11 Ag '64

Stability of curved flows. R. C. DiPrima. bibliog A S M E Trans ser E 30:486-92 D '63

COUGH

Pharmaceutical aspects of dextromethorphan hydrobromide, N.F. XI; safe non-narcotic, effective antitussive. L. Magid. bibliog Drug & Cosmetic Ind 93:620-2+ N '63

COULOMETRIC titration. See Volumetric analysis

COUMARIN

Characterization of flavonoids and coumarins by their absorption spectra on paper chromatograms. M. J. Saxby. Anal Chem 36:1145-6 My '64

Direct oxidation of *cis*-cinnamic acids to coumarins. J. Russell and others. Chem & Ind p34 Ja 4 '64

Electrooxidation of tyrosyl derivatives; a model for coumarin biosynthesis. A. I. Scott and others. bibliog Am Chem Soc J 85:3702-4 N 20 '63

Mammeigin, a new 4-phenylcoumarin. R. A. Finnegan and W. H. Mueller. bibliog Chem & Ind p 1065-6 Je 20 '64

Mechanisms of photochemical reactions in solution; the photodimerization of coumarin. G. S. Hammond and others. bibliog Am Chem Soc J 86:3103-6 Ag 5 '64

COUNTERCURRENT processes

Analysis of fatty acid-ethylene oxide adducts by countercurrent distribution. F. P. Wetterau and others. bibliog Am Oil Chem Soc J 41:383-7 My '64

Countercurrent distribution with reflux. I. T. Harrison. bibliog Chem & Ind p 1526-7 Ag 29 '64

Countercurrent heat exchange with vaporizing immiscible transfer agent. P. Harriott and H. Wiegandt. bibliog diags A I Ch E J 10:775-8 S '64

Countercurrent separation process. M. Souders. bibliog flow diag il Chem Eng Prog 60:75-82 F '64

Determination of optimum solvent systems for countercurrent distribution from paper chromatographic data. E. Soczewiński and others. bibliog diags Anal Chem 36:1903-5 S '64

Dynamics of a radiant dryer with countercurrent air flow. M. E. Findley and M. W. Maloney. diags Ind & Eng Chem Proc Design 3:89-96 Ap '64

Hybrid computations applied to countercurrent processes. A. Frank and L. Lapidus. bibliog il diag Chem Eng Prog 60:61-6 Ap '64

Mathematical determination of concentration profiles in two-phase continuous countercurrent extractors. N. P. Wilburn. bibliog diag Ind & Eng Chem Fundamentals 3:189-95 Ag '64

Monitoring countercurrent distribution with a recording refractometer. R. O. Butterfield and H. J. Dutton. bibliog diags Anal Chem 36:903-6 Ap '64

Selective separation of polycyclic aromatic compounds by countercurrent distribution with a solvent system containing tetramethyluric acid. J. D. Mold and others. bibliog Anal Chem 35:2071-4 D '63

Two-phase contactor boasts high efficiency. il diag Chem Eng 71:80+ F 17 '64

COUNTERS (electrons, ions, etc.)

Alpha particle energy resolution in a liquid scintillator. D. L. Horrocks. bibliog diags R Sci Instr 35:334-40 Mr '64

Appearance of extra lines on X-ray diffractometer traces due to the large window of the scintillation counter. E. G. Boonstra. J Sci Instr 41:566 S '64

CaI_2 and CaI_2(Eu) scintillation crystals. R. Hofstadter and others. bibliog R Sci Instr 35:246-7 F '64

Central read-out system for radio-isotope assay. il Ind Electronics 2:390 Ag '64

Commercially available semiconductor detectors and preamplifiers; charts. Nucleonics 22:62-7 My '64

Correlation of *I-V* characteristic with noise for ion drifted p-i-n junction particle detectors. L. K. Monteith. bibliog diags R Sci Instr 35:388-92 Mr '64

Curled light pipes for thin organic scintillators. W. A. Gibson. il R Sci Instr 35:1021-3 Ag '64

Description of a device used to measure ion beam emittance. P. H. Rose and others. diags R Sci Instr 35:1283-5 O '64

Design of ^{3}He-filled fast proportional counters. J. L. Friedes and R. E. Chrien. bibliog diags R Sci Instr 35:469-72 Ap '64

Detection of scintillation photons with photodiodes. C. Y. Fan. bibliog diag R Sci Instr 35:158-63 F '64

Determination of europium(II) and total europium in europium-activated lithium iodide scintillation crystals. D. A. Constanzo. bibliog Anal Chem 36:2042-4 S '64

Determination of radioactive noble gases with a liquid scintillator. D. L. Horrocks and M. H. Studier. bibliog diags Anal Chem 36:2077-9 O '64

Energy resolution of CsI(Tl) scintillation counter for 12.5- to 100-kev protons. A. C. Riviere and D. R. Sweetman. diag R Sci Instr 34:1286 N '63

Fast-neutron detector with discrimination against background radiation. R. B. Mendell and S. A. Korff. bibliog diag R Sci Instr 34:1356-60 D '63

For nuclear-particle analysis; computers or multichannel analyzers? R. J. Spinrad. bibliog diag Nucleonics 21:46-9 D '63

Gamma-ray and positron scintillation camera. H. O. Anger. il diags Nucleonics 21:56-9 O '63

Gamma-ray detection efficiency and image resolution in sodium iodide. H. O. Anger and D. H. Davis. R Sci Instr 35:693-7 Je '64

Glass filter paper suspension of precipitates for liquid scintillation counting. D. R. Johnson and J. W. Smith. Anal Chem 35:1991-2 N '63

^{3}He-Ne-CH_4 mixtures in a proportional counter for thermal neutrons. V. E. Krohn, jr. il diags R Sci Instr 35:853-4 Jl '64

High resolution differential Čerenkov counter. R. M. O'Donnell and others. bibliog il diags R Sci Instr 35:360-5 Mr '64

Improved techniques for routinely counting low levels of tritium and krypton-85. M. L. Curtis and H. L. Rook. diags Anal Chem 36:2047-8 S '64

COUNTERS (electrons, ions, etc.)—*Continued*

Instrument for radiochromatogram reading. E. Musyck. diags J Sci Instr 41:445-8 Jl '64

Intrascintillation vial reaction tube. G. G. Slater and others. diag Anal Chem 36:1888 Ag '64

Large volume scintillation chamber for radon counting. H. W. Kraner and others. bibliog il R Sci Instr 35:1259-65 O '64

Light filter for reduction of background in liquid scintillation counting. H. A. Swartz. bibliog diag Anal Chem 36:2080-3 O '64

Liquid scintillation counting of biological compounds in aqueous solution. H. Takahashi and others. bibliog Anal Chem 35:1982-3 N '63

Liquid scintillation counting of doubly-labeled samples. E. T. Bush. bibliog Anal Chem 36:1082-9 My '64

Liquid scintillation counting of promethium-147. bioassay procedure. J. D. Ludwick. Anal Chem 36:1104-6 My '64

Liquid scintillator anticoincidence guard. M. K. Moe and others. diags R Sci Instr 35:370-3 Mr '64

Low-level beta counting and absorption measurement with liquid scintillators. P. K. Zutshi. bibliog diags Nucleonics 21:50-3 S '63

Low-level carbon-14 counting technique. L. T. Freeland. bibliog diags Anal Chem 36:2055-7 O '64

Material for making resilient light pipes to be mounted without silicon grease. A. Strub. diag R Sci Instr 35:1268-9 O '64

Measuring gamma activity with whole-body counters. G. R. Meneely and others. bibliog il Nucleonics 21:46-9 O '63

Modification of the Rosenblum spark counter. M. Jeffries. bibliog diags R Sci Instr 35:22-4 Ja '64

Modifications lead to more accuracy for count method for measuring flow rates; abstract. D. E. Hull and B. A. Fries. il Chem & Eng N 42:72 Ap 20 '64

Multiplate shower counter for high energy gamma rays. S. Homma and others. diag R Sci Instr 35:506-8 Ap '64

New design of an internal proportional flow counter for radio-gas chromatography. F. Schmidt-Bleek and F. S. Rowland. diags Anal Chem 36:1695-6 Jl '64

Nuclear pulse enhancement in silicon p-n junction radiation detectors. R. J. Grainger and N. A. Baily. R Sci Instr 35:232-3 F '64

Optimum counting times for two sources and background in mass spectrometry. J. L. Jaech. Anal Chem 36:1164-5 My '64

Plastic scintillator response to 1-10 keV photons. A. J. Meyerott and others. diag R Sci Instr 35:669-72 Je '64

Scintillation and semiconductor counter symposium, 9th, Washington, Feb. 26-28; program with list of exhibitors. Nucleonics 22:68A+ F '64

Scintillation cameras; autofluoroscope. M. A. Bender and M. Blau. bibliog il diags Nucleonics 21:52-6 O '63

Scintillation counter for the measurement of radon concentration in air. A. J. L. Collinson and A. K. M. M. Haque. bibliog diag J Sci Instr 40:521-3 N '63

Scintillation scanning in clinical medicine. M. B. Glos. il Nucleonics 22:72-5 Ap '64

Scintillographic inspection method. Franklin Inst J 277:95-6 Ja '64

Self-powered neutron detectors for reactor flux monitoring. J. W. Hilborn. bibliog diags Nucleonics 22:69-72+ F '64

Semiconductor counters for nuclear radiations. G. Dearnaley and C. D. Northrop. Review, by G. L. Miller. diags Nucleonics 22:104-5 My '64

Semiconductor detectors; their properties and applications. F. S. Goulding. bibliog diags Nucleonics 22:54-61 My '64

Semiconductors, scintillators and data analysis. M. B. Glos. il diags Nucleonics 22:50-3+ My '64

Statistical aspects of double isotope liquid scintillation counting by internal standard technique. R. J. Herberg. Anal Chem 36:1079-82 My '64

Surface-barrier detectors make isotopic age measurements. W. L. Weiss and E. M. Whatley. Nucleonics 21:66 S '63

Thermoparticulate analysis takes in more applications. F. W. Van Luik, jr. Chem & Eng N 42:47 N 2 '64

Unit monitors neutron flux during reactor start-up. Chem & Eng N 42:77 Ap 20 '64

Versatile total-count method helps operations. D. E. Hull. bibliog il Hydrocarbon Process & Pet Refiner 43:151-6 O '64

Whole-body counter around the world; list. J. Mehl. Nucleonics 21:50-1 O '63

See also

Bubble chambers
Coincidence counting
Geiger-Müller counters
Spark chambers

COUNTERSINKS

Stamped countersinks cost less to make. E. Loeffel and J. Zug. il diags Am Mach/Metalworking Manuf 107:92 N 25 '63

COUNTERWEIGHTS

Counterbalance system for dynamic testing of equipment designed to operate in a zero-g field. J. C. Nicklas. diags A S M E Trans ser D 86:91-6 Mr '64

COUNTING. See Numeration

COUNTING machines and devices

Automatic coin segregating and counting machine. il Electronic Eng 36:102 F '64

Automatic coin segregating, counting and bagging. il Ind Electronics 2:112 Mr '64

Bi-directional decade counter with anti-coincidence network and digital display. A. F. Tassinari. diags Electronic Eng 36:173-7 Mr '64

Bi-quinary scaling; accuracy and simplicity at 500 mc. R. Engelmann. diags Electronics 36:34-6 N 15 '63

Coin counting and sorting. il Engineer 217:55-6 Ja 3 '64

Countdown for cherries; counting into fruit cocktail cans. il Food Eng 36:97-8 Mr '64

Counting pulses on parallel channels. R. G. Farnsworth. il diags Control Eng 11:65-7 Jl '64

Digital counters used in length measurement. G. Cooper. il diags Ind Electronics 2:369-72 Ag '64

Economical silicon switching transistor and its use in ring counters. J. Palmer. diags Electronic Eng 36:519-23 Ag '64

Electronic computer. O. H. Davie. bibliog diags Ind Electronics 2:339-43 Jl '64

Electronic counters. il Ind Electronics 1:743 N '63

Electronic counters today and tomorrow. D. R. Ollington. il diags Ind Electronics 2:163-7 Ap '64

High speed decade pulse counting. R. S. Foote and D. Johnson. il diags R Sci Instr 35:1126-9 S '64

How to design arbitrary-length binary counters. B. W. Meyer. il diags Electronics 36:34-6 D 27 '63

Low-cost statistical analysers. il Ind Electronics 2:146 Mr '64

Measurements using counting techniques. R. L. Chafin and J. Ahlstrom. il diags Instruments & Control Systems 37:109-14 Je '64

New electronic device for counting and classifying neps in card web. A. Viaplana and others. bibliog il diags Textile Res J 34:675-81 Ag '64

New poly-anode counting tube, the Polyatron. Y. Hatta and others. bibliog il diags Radio & Electronic Eng 26:383-7 N '63

One-mc/s bidirectional gas-filled counting tube. K. Apel. bibliog il diags Radio & Electronic Eng 28:147-52 S '64

Sensing discrete pieces during production. G. J. Michel, jr. il diags Control Eng 10:117-20 N '63

Sequential counting control. il Automation 11:109 O '64

Solving the mail count problem. il Automation 11:39 Jl '64

Some simple Dekatron coupling circuits. A. J. Oxley. bibliog diags Electronic Eng 36:227-32 Ap '64

Technical note: footage counter. H. Magargle. il diags SMPTE J 73:491-2 Je '64

Transistorized radiation-field-actuated lightning flash counter. B. S. Sonde. bibliog il diags IEEE Proc 51:1501-6 N '63

Two applications using electronic counters for shuttering scanned image and display devices. W. Rial and S. Bailey. il diags SMPTE J 73:876-9 O '64

Universal counter/timer. Engineer 217:250-1 Ja 31 '64

COUNTRY houses

Sophisticated rusticity for country house. il plan Arch Rec 135:88-91 Mid-My '64

See also

Vacation houses

COUNTY engineering

Status board promotes office efficiency. il Pub Works 95:98 Ja '64

See also

Roads, County

COUNTY roads. See Roads, County

COUPLERS. See Car couplings

COUPLINGS

Automatic coupling for tractors and implements. il Engineering 196:719 D 6 '63

Coupling for varying the displacement between parallel shafts. il Mach 70:145-6 F '64

Coupling operates while varying displacement between parallel shafts. il Iron & Steel Eng 41:163-4 Ap '64

Cross-catenary double-loop coupling. il Electro-Tech 73:132 Ap '64

Cylinders quickly couple 8000-hp coupling. diag Hydraulics & Pneumatics 17:20 S '64

Displaced-shaft coupling. il Mech Eng 86:68 Mr '64

Embassy dairy solves costly problems with simple couplings. il Food Eng 36:70 F '64

Emptying valves for fluid couplings. J. Bilton. diags Engineer 217:576-7 Mr 27 '64

Falk's new family of couplings boasts 12 innovations. il Marine Eng/Log 69:76 Ja '64

Flexible-rigid coupling absorbs shaft-misalignment stresses. il Machine Design 36:14-15 F 27 '64

Flexible rubber block couplings. il Engineer 218:69 Jl 10 '64

Fluid coupling cuts shocks on conveyor. il Mod Materials Handling 18:72+ D '63

Fluid couplings. il Engineer 217:147 Ja 17 '64

Full-flow swivel coupling with low torque. diag Engineering 197:629 My 8 '64

High efficiency from new fluid coupling. il diag Engineering 197:80 Ja 17 '64

High pressure all-metal tube couplings. il diag Engineering 198:516 O 23 '64

Hydroplanetary transmission units. M. Schachter. il diags Automobile Eng 54:278-83 Je '64

Maintenance of gear-type couplings. T. W. Chase and J. J. Kimmel. il diags Iron & Steel Eng 41:72-80; Discussion. 80-4 O '64

New range of Japanese hydraulic couplings. diag Naval Eng J 76:310 Ap '64

Quick connect couplings; fluid power component selection charts. Hydraulics & Pneumatics 17:113-14 Ja '64

Quick-connect progress report. H. L. McPherson. il Am Gas Assn Mo 46:11-12 Mr '64

Quick-disconnect couplings speed cleaning of castings at Ford. C. J. Kelly. il Automotive Ind 129:54 N 1 '63

Quick disconnects help boost gas cylinder pressure testing. il Welding J 43:761 S '64

Universal ball coupling. il Engineer 218:567 O 2 '64

Wrap-around insert couples shafts. il Product Eng 35:108-9 O 12 '64

See also

Clutches, Magnetic

Hose couplings

Joints, Universal

COUPLINGS, Eddy current. See Couplings, Magnetic

COUPLINGS, Magnetic

Controller for induction couplings. il Engineer 218:518 S 25 '64

Eddy-current coupling. il diag Ind Electronics 1:768 D '63

Variable speed eddy current prime mover. il Engineering 197:255 F 14 '64

COURTHOUSES

Lighting

Circular courthouse: tilted, turned and tapered. W. J. Schumaker. il plan diag Illum Eng 59:230-3 Ap '64

COURTS (architecture)

Compact school uses courts for circulation. il plan Arch Rec 135:160-1 F '64

Open plan for a family home; Houston, Tex. il plan diag Arch Rec 135:173-6 Mr '64

COWS

Energy nutrition and milk secretion in the dairy cow. J. A. F. Rook and J. E. Storry. bibliog Chem & Ind p 1778-87 O 24 '64

COXON, George Howard

Obituary. por Inst Pet J 50:129 My '64

CRABS

Freezing of crabmeat. S. V. Gangal and N. G. Magar. bibliog Food Tech 17:1573-8 D '63

CRACKING of concrete. See Concrete—Cracks

CRACKING of metals. See Metals—Failure

CRACKING of steel. See Steel—Failure

CRACKING processes. See Petroleum distillation

CRAMBE abyssinica

Activation and specificity of crambe abyssinica seed lipase. H. L. Tookey and I. A. Wolff. bibliog diag Am Oil Chem Soc J 41:602-4 S '64

CRANBERRIES

Continuous cranberry sauce. il diag Food Eng 36:52-4 F '64

CRANBERRIES, Dried

Storage behavior of powdered dehydrated cranberries. Z. I. Kertesz and others. Food Tech 17:1569-72 D '63

CRANE wheels

Research provides answers to crane wheel failures. il Iron & Steel Eng 41:134 Ag '64

CRANES, derricks, etc.

Aluminum in structural engineering; use of aluminum for crane structures. R. Hicks and J. Strong. il diags Mod Metals 19:47-8+ Ja '64

Atom's-eye view of a reactor. il Mod Materials Handling 19:57 Mr '64

Boom wheel for crane in transit. il Roads & Sts 106:52 D '63

Buying a stacker crane? W. R. Platte. il diags Plant Eng 18:126-8 F '64

Can-do McHugh, Bucks County construction co. il Diesel Equip Supt 42:26-8 Ag '64

CO_2 welding cuts time 50 per cent on mobile crane carrier chassis. il Welding Eng 49:82 S '64

Crane uses fingertip in tunnel. il Eng N 172:39 Ja 16 '64

Cranes and cargo handling equipment; illustrations with text. Engineer 217:44-5 Ja 3 '64

Crawler cranes converted for gantry duty. C. E. Watkins. il Elec World 160:64-5 D 16 '63

Dock crane installation. il Engineer 218:595 O 9 '64

Electro-hydraulic cranes for handling ship's cargo. il Engineer 218:418-19 S 11 '64

Fast-travel lorry-mounted cranes. il diag Engineer 216:944-5 D 6 '63

For ships' cargo; quick deck cranes. il Engineering 198:238 Ag 21 '64

Giant aluminum crane has a delicate touch. il Welding Eng 49:49-50 F '64

Hefty truck crane is versatile. il Eng N 171:140 D 19 '63

How to look into a hot reactor. il Safety Maint 127:48-9+ Mr '64

Hydraulics and bogie wheels drag away Saturn gantry. il diags Machine Design 36:128-9 F 27 '64

Longest self-erecting boom is welded of T-1 steel tubing. il Welding Eng 49:78 S '64

Low magnesium 5183 filler metal alloy speeds welding of world's largest aluminum crane. il Welding J 43:608-9 Jl '64

Missile tower drive prevents slipping and skewing. diags Machine Design 36:146-7 Ag 27 '64

New auger-crane rig proves versatility. il Elec World 162:74 Jl 13 '64

New general purpose fast-travel cranes. il diags Engineering 196:750-1 D 13 '63

1964 materials handling and packaging directory; outdoor-indoor mobile equipment. il Mod Materials Handling 19:195-214 My '64

1964 materials handling and packaging directory; overhead equipment. il Mod Materials Handling 19:215-40 My '64

Portable self-erecting tower crane. il Engineering 197:294 F 21 '64

Republic installs triple-girder crane. il Iron & Steel Eng 41:167-8 O '64

St Louis arch in bootstrap erection stage. il diag Welding Eng 49:56+ Ja '64

Seattle gets first of four multipurpose cranes. T. D. MacMullen. il Marine Eng/Log 69:32A Mr '64

Self-erecting tower crane. il Engineer 217:285-6 F 7 '64

Sky grab shrinks storage yard. J. W. Bridges and G. J. Drango. il Mod Materials Handling 19:47 Ag '64

Stacker crane is key to increased efficiency. il Mod Materials Handling 19:78 Mr '64

Stacker cranes. Iron & Steel Eng 41:197 F '64

Structural rebuild of a blast furnace at Gary steel works. R. J. Prybyl and others. il Iron & Steel Eng 40:100-2 D '63

Tower crane traveler expedites Swedish bridge project. il Roads & Sts 107:59 Mr '64

Truck crane lifts 125 tons, has 330-ft maximum reach. il Eng N 173:116 Ag 6 '64

Vinten's Heron tv camera crane. il diags Engineering 198:50-2 Jl 10 '64

World's largest aluminum semi-gantry crane. il Mod Metals 20:82 Je '64

World's longest self-erecting boom welded of tubular T-1 steel. il Welding J 43:758 S '64

See also

Buckets

CRANES, derricks, etc.—*Continued*

Control

Automated system handles unitized warehouse loads. Chem & Eng N 42:92 Ap 13 '64
Braking cranes by remote control. G. M. Coffey. il diag Plant Eng 18:111-13 Jl '64
Clutches for big boom. il diags Product Eng 35:62-3 Jl 20 '64
Crane electrical drives offer simpler control. H. A. Zollinger. il diags Plant Eng 18:124-7 My '64
Cranes move by remote control. il Iron Age 193:78 F 6 '64
Flow control valves reduce flow requirement, eliminate pump. R. E. Stauffer. il diags Hydraulics & Pneumatics 17:105-8+ O '64
Four-step short cut to selecting crane controls. il Mod Materials Handling 19:53-7 Ap '64
Radio control of electric cranes. il Elec Constr & Maint 63:99-101 Mr '64
Radio guides crane with heavy loads. il Mod Materials Handling 19:67 Ap '64
Radio remote control cuts crane accidents. il Safety Maint 127:17-19 My '64

Design

German cranes today; new design policy. il diags Engineering 197:350-1 Mr 6 '64
Repeated loading in the plastic design of crane girders. M. R. Horne and J. M. Davies. diags Engineer 216:1053-7 D 27 '63

Electric equipment

Adjustable-voltage electric drive for cargo-ship winches. il Marine Eng/Log 69:82+ Mr '64
Crane electrical drives offer simpler control. H. A. Zollinger. il diags Plant Eng 18:124-7 My '64
Crane trolleys; question and answer. diag Elec Constr & Maint 63:141 Mr '64
Four-step short cut to selecting crane controls. il Mod Materials Handling 19:53-7 Ap '64
Winder with built-in motor drive. il Engineer 216:781 N 8 '63

Maintenance and repair

Improved crane maintenance through the aid of repair records. R. C. Cadmus. Iron & Steel Eng 41:113-17; Discussion. 117-19 S '64

Safety measures

Crane overload sounds warning. Eng N 172:26 Ja 2 '64
Inspection of wire rope boom supports for operating safety. R. O. Kasten. il diags Wire & Wire Prod 39:1179-80+ Ag '64
Radio remote control cuts crane accidents. il Safety Maint 127:17-19 My '64

CRANES, Floating
Crawlerless crane turns dredge. il Eng N 171:109 N 14 '63
Self-propelled sea-going 100-tonne floating crane. W. Noller. il diags Engineer 217:492-4 Mr 13 '64

CRANKCASES
Chambered crankcase improves outboard motor efficiency. il diags Machine Design 36:90-1 Jl 30 '64
Long-life lubes are big help in positive-crankcase-ventilation systems. Oil & Gas J 62:52-3 S 28 '64
Progress report on vehicle tests to determine the effect on both engine and crankcase oil of extending oil drain periods. J. Heritage and C. D. Brewer. il diag Inst Pet J 49:371-82 D '63

CRANKSHAFTS
Crank sequence for least external unbalance. J. C. Maltbaek. diags Engineer 218:168-70 Jl 31 '64
Hall multipliers balance crankshafts. N. C. Sethne. diag Control Eng 11:117 S '64

Maintenance and repair

Crankshaft reclamation. il Automobile Eng 54:408-11 S '64
Problems faced in reclaiming a crankshaft. il Welding Eng 49:70 S '64
Surfacing cuts shaker table crankshaft replacement costs by 65 per cent. il Welding J 43:127-8 F '64

Manufacture

Fillet rolling boosts fatigue life and bending moment of crankshafts. H. Chase. il diag Mach 70:140-3 Mr '64
Scissors roll crankshaft radii. il diags Am Mach 108:76-8 Jl 6 '64

Testing

Crankshaft bores automatically classified in 0.0005-inch increments. il Mach 70:123 D '63

CRATERS, Meteorite. See Meteorite craters

CRATES
How to get the most from a shipping crate. diags Mod Materials Handling 19:74 N '64

CRAWLER vehicles. See Motor vehicles—Track layer types

CREAM
Improves portion packaging; polyethylene-coated pack for finger-squeeze metering of coffee cream. J. V. Ziemba. il Food Eng 35:59-60 D '63

CREAMS. See Ointments

CREASING of textiles
Effect of graft polymerization on crease resistance of cellulosic fabrics. G. N. Richards and E. F. T. White. bibliog Textile Res J 34:810-12 S '64
How to stop those creases in your filament fabrics. R. B. Pressley. il Textile World 114:62-4 Ap '64
Mechanical behavior of fabrics. F. C. Brenner and C. S. Chen. bibliog il diags Textile Res J 34:505-17 Je '64
Mechanics of elastic performance of textile materials; filament bending recovery. W. D. Freeston, jr. and M. M. Platt. il diags Textile Res J 34:308-19 Ap '64; Discussion. B. Olofsson. 34:902-3; Reply. 903-4 O '64
Wash-and-wear progress as the cutter sees it. G. W. Edwards. Textile Ind 128:145-6 Je '64

See also
Cotton fabrics—Creasing
Rayon fabrics—Creasing
Woolen and worsted fabrics—Creasing

CREATINE
Effects of dietary creatine and related compounds on tissue glycogen deposition in rats. W. R. Todd and others. bibliog J Nutrition 82:301-5 Mr '64

CREATININE
Determination of serum creatinine by ion exchange chromatography and ultraviolet spectrophotometry. W. S. Adams and others. bibliog diags Anal Chem 36:2209-11 O '64

CREATIVE ability
Creativity. Product Eng 35:83-4 Je 22 '64
Creativity and chemical engineering. Chem Eng Prog 59:33-7 D '63
Creativity and the physical environment. H. L. Hemmingway. il Res/Develop 15:49-52 Mr '64
Creativity can be taught. P. H. Hill. il Machine Design 36:132-5 Ag 27 '64
Creativity, how to find and nurture it; symposium. Product Eng 35:110-21 Ag 3 '64
Creativity in engineering and science. A. H. Nissan. Tappi 47:sup34A+ Je '64
Creativity symposium 1964, Birmingham, July 10; abstracts of papers. Chem & Ind p 1484-5 Ag 22 '64
Do you plod through your designs, or leap-frog? C. J. Freund. diags Product Eng 35:82-3 Ag 17 '64
How to spot creative employees. Iron Age 193:73 Ap 23 '64
It takes art to put payoff in ideas. C. A. Cobb. il Iron Age 193:62-4 Je 25 '64
Object; creativity. B. King. Mech Eng 85:38-41 N '63
Productivity in research symposium, London, Dec. 11-12; abstracts of papers. flow diags Engineering 197:30-1 Ja 3 '64
Proper word isn't creativity; it's innovation we want. D. E. Safford. Product Eng 34:112-13 D 9 '63
Talent; the intangible necessity. L. A. Dubridge. Mech Eng 85:86+ D '63
Thinking unlimited. H. C. Reel. Mech Eng 86:30-1 F '64
We have others, so why not a creative specialist? R. Paulson. Product Eng 34:80-1 N 25 '63
Where are our Edisons (or for that matter, our Marconis and daVincis)? F. V. Long. Gas 40:123+ Mr; 83+ Ap '64

CREDIT
Chemical firms expand credit to customers. Chem & Eng N 42:27-8 Je 29 '64
How to stretch your working capital. L. L. Kohn. Rock Prod 67:125-6+ My '64
Installment financing; neglected sales tool. il Dom Eng 203:90-1 Je '64

See also
Collecting of accounts
Instalment plan

CREDIT cards

Data system cuts credit card work. il diag Pet Management 36:140-1 Ag '64

CREEP of materials

Calibration system with microinch precision at temperatures to 500°C. J. C. Spanner and B. B. Brenden. il diag R Sci Instr 35:944-9 Ag '64

Creep analysis of annular plates. B. Venkatraman and others. bibliog diags Franklin Inst J 275:13-23 Ja '63; 278:248-55 O '64

Creep and relaxation. R. L. Taylor. bibliog AIAA J 2:1659-60 S '64

Creep behaviour of concrete in tension. R. L. Wajda and L. Holloway. diag Engineering 198:209 Ag 14 '64

Creep buckling of reinforced concrete columns. S. Mauch and M. J. Holley. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3610]:451-81 Ag '63; Discussion. 90 [ST 2 no 3886]:371-9 Ap '64; Reply. 90 [ST 4 no 4001]:271-2 Ag '64

Creep deformations in membrane shells. F. A. Cozzarelli and S. A. Patel. bibliog diags Franklin Inst J 278:45-60 Jl '64

Creep of polycrystalline magnesia. T. Vasilos and others. bibliog il Am Cer Soc J 47:203-4 Ap '64

Creep-rupture behavior of MgO bicrystals. G. T. Murray and others. Am Cer Soc J 47:531 O '64

Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64

Estimating stress relaxation from creep data. T. C. Hansen. bibliog Materials Res & Stand 4:12-14 Ja '64; Discussion. 4:490-3 S '64

Extension of unoriented nylon 66 filaments. M. L. Williams and M. F. Bender. Textile Res J 33:1023-6 D '63

Functional relation between creep rate and porosity for polycrystalline ceramics. R. M. Spriggs and T. Vasilos. bibliog Am Cer Soc J 47:47-8 Ja '64

Multiple creep-testing machine. il Engineer 217:355 F 21 '64

Power-function creep analysis for rotating solid disks having variable thickness and temperature. B. M. Ma. bibliog diags Franklin Inst J 277:593-612 Je '64

Tensile strength distribution and creep failure to cellulosic filaments. H. C. Cheung. bibliog Textile Res J 34:597-604 Jl '64

CREEP of metals

Comparison of the creep and fracture behaviour of pure nickel, nickel-0·1 at.-per cent gold, and nickel-0·1 at.-per cent silver alloys at 500 and 600°C. J. P. Dennison and B. Wilshire. Inst Metals J 92:360-3 '63-64

Comparisons of materials; creep strength of metals; tables. Materials in Design Eng 60:35 Mid-O '64

Creep of metals. F. P. J. Rimrott and R. Hartlen. bibliog diags Eng J 47:33-6 Jl '64

Creep-rupture behavior of Hastelloy-X in vacuum. M. J. Donachie, jr. and R. G. Shepheard. bibliog il diag Materials Res & Stand 4:495-8 S '64

Effect of some variations in prestrain treatment on the creep and fracture properties of pure nickel and a dilute nickel alloy. P. W. Davies and others. bibliog il Metallurgia 68:259-63 D '63

Effect of transient creep on the collapse time of cylinders and cones under external pressure. E. Z. Stowell and E. M. Briggs. AIAA J 1:2663-4 N '63

Estimation of slip strain during creep. J. H. Hensler and R. C. Gifkins. Inst Metals J 92:340 '63-64

High-temperature creep and fracture of polycrystalline gold. P. W. Davies and others. bibliog Inst Metals J 92:409-12 '63-64

Large elastic, plastic, and creep deflections of curved beams and axisymmetric shells. J. A. Stricklin and others. bibliog diags AIAA J 2:1613-20 S '64

Plane-stress problem for a doubly connected region in which the medium undergoes elastic and creep deformation. D. L. Platus. bibliog diags A S M E Trans ser E 31:54-60 Mr '64

Pressure dependence of creep in white phosphorus. K. L. DeVries and others. J Ap Phys 35:536 Mr '64

Room-temperature creep in cold-drawn copper under alternating torsion and tensile load. M. E. Packer and W. A. Wood. bibliog il Inst Metals J 92:413-16 '63-64

Shape of creep curves. J. Glen. bibliog il A S M E Trans ser D 85:595-600 D '63

Some observations on the kinetics of ageing reactions during creep of aluminium alloys. V. B. Nileshwar. bibliog il diags Inst Metal J 92:241-5 '63-64

Surface effect in creep due to grain-boundary sliding. P. W. Davies and others. Inst Metals J 93:25-6 '64-65

Unisteel multi-specimen creep testing machine. il diag Engineering 196:526-8 O 25 '63

William Fairbairn and mechanical properties of materials. A. I. Smith. bibliog il diags Engineer 216:543-5, 1015-17 O 4, D 20 '63

See also

Steel—Testing—Temperature effect

CREEP of plastics

Creep in thermoplastics. S. Turner and others. bibliog il diags Brit Plastics 37:322-4, 386-92, 440-4, 501-5, 567-8 Je-O '64 (to be cont)

Stress-strain relations of reinforced plastics parallel and normal to their internal filaments. B. W. Shaffer. bibliog diags AIAA J 2:348-52 F '64

CRESOL

Formation of cresylic acids in petroleum processing. H. L. Coonradt and B. W. Rope. bibliog Ind & Eng Chem Product Res & Develop 2:317-22 D '63

Analysis

Determination of 2,6,-di-*tert*-butyl-*p*-cresol and 2(2′-hydroxy, 5′-methylphenyl) benzotriazole in polystyrene by gas liquid chromatography. C. B. Roberts and J. D. Swank. Anal Chem 36:271-3 F '64

Determination of 2,6-di-*tert*-butyl-*p*-cresol in turbine oils. B. Braithwaite and G. Penketh. bibliog Anal Chem 36:185-8 Ja '64

CRESYLIC acids. See Cresol

CRETACEOUS period. See Geology, Stratigraphic—Cretaceous

CRIME and criminals

See also

Criminal law

Photography, Legal

Punishment

CRIME prevention

Police campaign to keep lights on. il Elec World 161:51 Ja 13 '64

CRIMINAL law

Behavioral science and criminal law. E. J. Sachar. il Sci Am 209:39-45 N '63; Discussion. 210:8-9 Ja '64

CRIMPING of textiles

Computer for the evaluation of the crimp diameter of textile fibers. M. Shiloh and others. bibliog il diag Textile Res J 34:430-4 My '64

Dynamic analysis of coplanar crimped elastic filaments. W. D. Freeston, jr. and others. bibliog il diags Textile Res J 33:993-9 D '63

Influence of crimp on airflow readings. C. C. Kritzinger and others. bibliog Textile Res J 34:82-3 Ja '64

CRISTOBALITE

Orientation of cristobalite formed on the surface of amorphous silica plates. R. F. Hochman and J. D. Fleming. il diag Am Cer Soc J 47:104 F '64

Quartz-cristobalite transformation. F. J. Kuellmer and T. I. Poe. il Am Cer Soc J 47:311-12 Je '64

Tridymite-cristobalite relations and stable solid solutions. D. M. Roy and R. Roy. bibliog diag Am Mineralogist 49:952-62 Jl '64

CRITICAL constants

Analysis of the critical heat-flux condition in high-pressure boiling water flows. F. E. Tippets. bibliog diags A S M E Trans ser C 86:23-33; Discussion. il 33-6; Reply. 36-8 F '64

Critical currents and Lorentz-force model in niobium stannide. G. D. Cody and G. W. Cullen. bibliog RCA R 25:466-78 S '64

Critical heat flux for nearly saturated water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il diags A S M E Trans ser C 86:59-67 F '64

Critical heat flux for subcooled water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il A S M E Trans ser C 86:68-74 F '64

Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86:12-22 F '64

CRITICAL constants—*Continued*

Critical temperature and the equation of state. R. E. Hansen. bibliog Chem Eng Prog 60:49-52 Ap '64

Critical temperature of niobium and tantalum films. J. R. Rairden and C. A. Neugebauer. bibliog diags IEEE Proc 52:1234-8 O '64

Critical temperatures and critical pressures for the ethane-*n*-butane-*n*-pentane system. V. S. Mehra and G. Thodos. bibliog J Ap Chem 14:265-8 Je '64

Critical temperatures and pressures of ternary hydrocarbon mixtures; the ethane-propane-in-butane system. R. B. Grieves and G. Thodos. bibliog J Ap Chem 13:466-70 O '63

Experimental investigation of the inherent uncertainty in pool boiling critical heat fluxes to saturated water. W. Gambill. bibliog diags A I Ch E J 10:502-8 Jl '64

Heat transfer in the critical region: temperature and velocity profiles in turbulent flow. R. D. Wood and J. M. Smith. bibliog diags A I Ch E J 10:180-6 Mr '64

Light scattering measurements near the lower critical solution temperature of the 2,6-dimethylpyridine-water system. R. Pancirov and H. Brumberger. bibliog Am Chem Soc J 86:3562-3 S 5 '64

CRITICAL-path scheduling. See Schedules

CRITICAL point

Calculated temperature histories of vaporizing droplets to the critical point. P. R. Wieber. bibliog AIAA J 1:2764-70 D '63

Critical opalescence of a fluorocarbon-hydrocarbon liquid mixture; normal perfluoroheptane-normal heptane. B. Chu. bibliog Am Chem Soc J 86:3557-61 S 5 '64

Critical point phenomena. E. K. Landis and others. Chem Eng Prog 60:47-8 F '64

Rational equation of state for water and water vapor in the critical region. E. S. Nowak. bibliog A S M E Trans ser C 86:320-6 Ag '64

Small-angle X-ray scattering study of critical opalescence in nitrogen. J. E. Thomas and P. W. Schmidt. bibliog Am Chem Soc J 86:3554-6 S 5 '64

CRITICAL temperature. See Critical constants

CROCONIC acid

Crystal structure of diammonium croconate and molecular orbital calculations on the croconate ion. N. C. Baenziger and J. J. Hegenbarth. bibliog diags Am Chem Soc J 86:3250-7 Ag 20 '64

CROPS

Crop response to urea and urea pyrolysis products. G. L. Terman and others. J Agri & Food Chem 12:151-4 Mr '64

International minerals & chemical corp. predicts impact of weather on crops. Chem & Eng N 42:28 My 4 '64

Portable photointegrating meter for use in crops. J. A. Irvine and P. Harper. diags J Sci Instr 41:231-3 Ap '64

CROSS linkage (chemistry). See Chemical bonds

CRUCIBLES

Ceramic crucibles for electron bombardment heating. J. W. Voigt and K. W. Foster. diags R Sci Instr 35:1087 Ag '64

Simple method for improving gas-melt contact in a crucible-furnace assembly. R. J. W. Peters and others. R Sci Instr 35:761-2 Je '64

Thermal condensation polymerizations of inorganic monomers in platinum-metal crucibles. M. C. Miller and others. bibliog il Ind Chem 40:183-7 Ap '64

CRUCIFERAE

Naturally occurring insecticides in cruciferous crops. E. P. Lichtenstein and others. bibliog J Agri & Food Chem 12:158-61 Mr '64

Oxazolidinethiones and volatile isothiocyanates in enzyme-treated seed meals from 65 species of cruciferae. M. E. Daxenbichler and others. bibliog J Agri & Food Chem 12:127-30 Mr '64

See also

Crambe abyssinica

CRUSHED stone. See Stone, Crushed

CRUSHED stone association, National. See National crushed stone association

CRUSHING

Energy requirements in size reduction. G. E. Agar and J. H. Brown. bibliog Can Min & Met Bul 57:147-51 F '64

Expert reviews the design and evolution of early autogenous grinding systems. F. C. Bond. bibliog diags Eng & Min J 165:105-11 Ag '64

Instrument for determining crushing strength of fuel particles. G. Hallerman and R. J. Gray. il diags R Sci Instr 35:850-2 Jl '64

Ore pebble regrind of sulphide concentrates in the Hardy concentrator, Falconbridge. S. McQuitty and L. S. Rivett. il diags Can Min & Met Bul 57:397-400 Ap '64

Recent trends in autogenous grinding. B. S. Crocker. bibliog il Can Min & Met Bul 56:790-6 O '63; Discussion. T. Heikkinen. flow sheet 57:156-7 F '64

Review of autogenous grinding. B. S. Crocker. il Min Cong J 49:48-51 N '63

Rock; pebble milling at Anaconda's new Butte concentrator. B. S. Crocker. il diag Min Eng 16:74-8 My '64

See also

Ore treatment

CRUSHING machinery

Alnore mineral co. provides specialized grinding service. B. C. Herod. il Pit & Quarry 56:90-1+ Je '64

Cement plants of the 60's; grinding. J. H. Bergstrom. il Rock Prod 67:82-3 My '64

Crusher has design improvements. il Eng N 172:52 Ap 16 '64

Crushing roundup. R. J. Mitchell. il diags Rock Prod 67:59-92 Mr '64

Crushing technique uses shock waves in liquid. Chem & Eng N 42:61 S 21 '64

Is a roller mill the answer to your grinding problem? E. J. Karges. diags Rock Prod 67:82-4 S '64

Metal wear in crushing and grinding. F. C. Bond. il diags Chem Eng Prog 60:90-3 F '64

National modernizes clinker grinding. I. Krabbe. il diag Pit & Quarry 56:117-19 Ap '64

New ideas, equipment spur autogenous boom. F. B. Domaas. il diags Eng & Min J 165:91-5 O '64

Roll crusher. diag Engineer 218:196 Jl 31 '64

Synchronous drives for grinding mills. M. Krebs. diags Rock Prod 66:105-6 N '63

Technical design of autogenous mills. R. C. Meaders and A. R. MacPherson. diags Min Eng 16:81-3 S '64

See also

Ball mills
Coal breakers
Pulverizers

Control

Automatic crusher control means no human errors. J. E. Doyen. flow diags diag Rock Prod 67:64-6 S '64

Maintenance and repair

Hard-facing of crushing equipment. R. J. Mitchell. il diags Rock Prod 67:86+ Mr '64

Maintenance costs slashed with automatic welder. R. S. Torgerson. il Rock Prod 67:78-9 Je '64

CRUSHING machinery, Portable

Mobile stone crushing plant. il Engineer 218:287 Ag 21 '64

Portable units are often the best solution. R. J. Mitchell. il Rock Prod 67:83-5 Mr '64

CRUST of the earth. See Earth—Surface

CRUSTACEA

See also

Cladocera

CRYING

See also

Tears

CRYOGENIC stretching. See Stretching

CRYOGENICS. See Temperature, Low

CRYOLITE

Electrical conductivity of the melts in the system $Na_3AlF_6Al_2O_3$-NaCl. K. Matiasovsky and others. bibliog Electrochem Soc J 111:973-6 Ag '64

Oxidation of aluminum by carbon dioxide in the presence of cryolitic electrolyte. S. Gjerstad and B. J. Welch. bibliog diag Electrochem Soc J 111:976-80 Ag '64

1010° and 800°C isothermal sections in the system Na_3AlF_6-Al_2O_3-SiO_2. D. F. Weill and W. S. Fyfe. bibliog Electrochem Soc J 111:582-5 My '64

CRYOPUMPS. See Vacuum pumps

CRYOSCOPE

Improved high temperature cryoscopic technique. H. B. Bell and C. R. Masson. diag J Sci Instr 41:389 Je '64

Simple cryoscope for molecular weight determination using a thermal detector and phenyl ether as solvent. R. H. Campbell and others. diag Anal Chem 35:1989-90 N '63

CRYOSTATS

Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64

Calorimeter and cryostat for measuring heats of physical adsorption. G. L. Kington and P. S. Smith. bibliog diags J Sci Instr 41:145-8 Mr '64

Cryostat design permitting localized temperature control from 20 to 870°K. J. C. Robinson. diags R Sci Instr 35:1017-20 Ag '64

Cryostat for measurement of heat conduction under mechanical loads. S. D. Probert and others. bibliog diags J Sci Instr 41:88-91 F '64

Cryostat for the range -60°C to 20°C. M. A. Mueez and N. Singer. diag J Sci Instr 41:506 Ag '64

Fast pace of scientific progress. il Comp Air Mag 69:22 F '64

Liquid nitrogen cryostat to facilitate isothermal annealing studies on metals after heavy-particle bombardment. F. Dworschak and others. diags R Sci Instr 35:46-8 Ja '64

Miniature cryostats; design and application to matrix-isolation studies. D. White and D. E. Mann. bibliog il diags R Sci Instr 34:1370-4 D '63

Simple glass ^{3}He cryostat for esr and nmr. J. A. Cowen and others. diag R Sci Instr 35:914-15 Jl '64

Simple semi-automatic cryostat to operate at temperatures above—196°C. A. Grütter and J. C. Shorrock. diag J Sci Instr 41:568-9 S '64

CRYOTRON

Cryogenic d-c power supply. diag Electro-Tech 74:125-6 Ag '64

Cryogenic flux pump switches high currents. T. A. Buchhold. il diags Electronics 37:61-3 Mr 23 '64

Demonstration of linear amplification using cryotrons. P. M. Chirlian and V. A. Marsocci. il IEEE Proc 51:1792 D '63

Dynamic operation of the in-line cryotron in bistable circuits. A. E. Brennemann and others. bibliog il diags IEEE Proc 52:228-38 Mr '64

New crossed-film cryotron structure with superimposed controls. R. E. Fruin and V. L. Newhouse. diags IEEE Proc 51:1732-6 D '63

Photomask-photoresist techniques for cryotron fabrication. J. P. Pritchard, jr. and others. bibliog il diags IEEE Proc 52:1207-15 O '64

Ultrasensitive linear cryotron amplifier. V. L. Newhouse and H. H. Edwards. bibliog il diags IEEE Proc 52:1191-206 O '64

CRYSTAL diodes

About silicon diodes and dc frame grounds. il Coal Age 69:98-100 Ag '64

Absolute measurement of GaAs diodes radiation using solar cells. E. J. Schiel and J. J. Bolmarcich. IEEE Proc 51:1780-1 D '63

Analysis of diode modulators having frequency-selective terminations using computers. C. Kurth. bibliog diags Elec Com 39 no 3:369-78 '64

Analytical expressions for the static characteristic of the tunnel diode. M. P. Beddoes. bibliog diags Inst E E Proc 111:67-72 Ja '64

Anisotropic stress effect on the excess current in tunnel diodes. W. Bernard and others. bibliog J Ap Phys 35:1860-2 Je '64

Antireflection films on GaAs electroluminescent diodes. O. A. Weinreich. bibliog diags Electrochem Soc J 110:1124-6 N '63

Application of semiconductor optical radiators to space communication. B. S. Goldstein and J. D. Welch. bibliog diags IEEE Trans Com & Electronics 83:470-3 S '64

Backward diodes as microwave detectors. H. V. Shurmer. bibliog Inst E E Proc 111:1511-16 S '64

Boost for electronic tuning. L. A. Weldon and R. L. Kopski. il diags Electronics 37:49-53 Ap 6; 61-3 Ap 20 '64

Built-in diodes protect nickel-cadmium cells. diag Electronics 36:50+ D 13 '63

Charge storage varactors boost harmonic power. G. Schaffner. diags Electronics 37:42-7 Jl 13 '64

Controlled etching of tunnel diodes. A. M. Goodman. diags R Sci Instr 35:642-4 My '64

Crystal detector in oversize waveguide. D. L. H. Blomfield. diags J Sci Instr 41:517 Ag '64

Degradation in zinc-doped GaAs tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog J Ap Phys 35:2481-3 Ag '64

Diffused junction diodes of PbSe and PbTe. J. F. Butler. bibliog diag Electrochem Soc J 111:1150-4 O '64

Diodes tolerate high radiation. D. Navon. diags Electronics 36:48-9 N 29 '63

Drivers for optical diodes. E. L. Bonin. bibliog il diags Electronics 37:77-82 Ag 10 '64

Effect of losses in varactor-diode impedance measurements. F. J. Hyde and R. B. Smith. bibliog diags Inst E E Proc 111:471-80 Mr '64

Effect of solution trace impurities on I-V characteristics of electrodeposited surface barrier diodes. G. M. Krembs and M. M. Schlacter. bibliog il diag Electrochem Soc J 111:417-20 Ap '64

Efficient odd harmonic generation with opposingly biased varactor diodes. W. R. Avellino. diags IEEE Proc 52:868-9 Jl '64

Electroluminescent gallium arsenide diodes with negative resistance. K. Weiser and R. S. Levitt. bibliog il diag J Ap Phys 35:2431-8 Ag '64

Epitaxial growth from the liquid state and its application to the fabrication of tunnel and laser diodes. H. Nelson. il diag RCA R 24:603-15 D '63

Epitaxial silicon varactors at low temperatures and microwave frequencies. H. J. Fink and R. L. Rulison. bibliog diag IEEE Proc 52:420 Ap '64

Excess current in gallium arsenide tunnel diodes. R. P. Nanavati and C. A. Morato De Andrade. IEEE Proc 52:869-70 Jl '64

Experimental analysis of the Schottky barrier layer model for reduced rutile diodes. R. Bechtel. diags J Ap Phys 35:2142-4 Jl '64

Five-gigacycle tunnel diode oscillator with nine-milliwatt output from a single diode. M. V. Schneider. il diags Bell System Tech J 42:2972-4 N '63

Formed-point-contact varactor diodes utilizing a thin epitaxial gallium arsenide layer. C. A. Burrus. IEEE Proc 51:1777-8 D '63

45-Gc parametric oscillations and induced negative resistance using varactors. G. W. Fitzsimmons. bibliog IEEE Proc 51:1796-7 D '63

Four-layer diodes form staircase generator. H. W. Wieder. diags Electronics 37:55-7 Jl 13 '64

Frequency dependence of the powers and impedances of varactor frequency multipliers. A. I. Grayzel. IEEE Proc 52:1056-7 S '64

GaP surface-barrier diodes. H. G. White and R. A. Logan. bibliog diag J Ap Phys 34:1990-7 Jl '63; Discussion. M. Cowley and H. Heffner. 35:255-6 Ja '64

Gate-cathode connection for controlled rectifier stacks. R. A. Zakarevicius. diags IEEE Proc 52:1253-4 O '64

Germanium diodes are doped with lithium. Chem & Eng N 42:91 Ap 13 '64

Germanium-silicon alloy heterojunctions. J. Shewchun and L. Y. Wei. bibliog il Electrochem Soc J 11:1145-9 O '64

Gold-epitaxial silicon high-frequency diodes. D. Kahng and L. A. D'Asaro. bibliog diags Bell System Tech J 43:225-32 Ja '64

Au-n-type GaAs Schottky barrier and its varactor application. D. Kahng. bibliog Bell System Tech J 43:215-24 Ja '64

High efficiency millimeter-wave tunnel-diode oscillators. D. T. Young and others. bibliog IEEE Proc 52:1260-1 O '64

High-energy light emission from junctions in $GaAs_xP_{1-x}$ diodes. N. Ainslie and others. bibliog il J Ap Phys 35:105-7 Ja '64

High-power epitaxial silicon varactor diodes. H. Kressel and M. A. Klein. bibliog diags RCA R 24:616-26 D '63

Influence of minority-carrier storage on performance of semiconductor-diode modulator. J. G. Gardiner and D. P. Howson. bibliog diags Inst E E Proc 111:1393-400 Ag '64

Junction diode regulates low-voltage supply. A. K. Scidmore. diags Electronics 37:55-6 O 19 '64

Laser diode boosts small laser signal 1000 times. Space/Aeronautics 41:131 Ap '64

Light emitting characteristics of a GaAs diode having negative resistance. T. Yamamoto. diag IEEE Proc 52:409 Ap '64

Light-emitting diode; its application to a short-path television link. A. J. Goss and A. E. Sarson. bibliog il diags Wireless World 70:377-81 Ag '64

CRYSTAL diodes—*Continued*

Light-emitting, formed-point-contact gallium arsenide and gallium arsenide-phosphide diodes. L. U. Kibler and others. IEEE Proc 52:850-1 Jl '64
Linear delay circuits using constant-current diode. S. S. Hakim. diags Ind Electronics 1:780-1 D '63
Lithium-doped gallium arsenide tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog il J Ap Phys 35:3050-1 O '64
Low inductance tunnel diode mount. M. V. Schneider. il diags IEEE Proc 52:75-6 Ja '64
Making precision measurements of zener diode voltages. W. G. Eicke, jr. bibliog diags IEEE Trans Com & Electronics 83:433-8 S '64
Microwave tunnel-diode amplifiers with large dynamic range. R. Steinhoff and F. Sterzer. bibliog diags RCA R 25:54-66 Mr '64
Microwave tunnel-diode operations beyond cut-off frequency. C. C. Hoffins and K. Ishii. diags IEEE Proc 51:370-1 F '63; Discussion. 51:1265-7; 52:303 S '63, Mr '64
Millimeter-wave generation with *X*-band tunnel diodes. S. V. Jaskolski and K. Ishii. diag IEEE Proc 52:430-1 Ap '64
Mixer and tangential sensitivity measurements on evaporated metal semiconductor diodes at 1 and 10 gc. M. Herndon and A. C. Macpherson. IEEE Proc 52:975-6 Ag '64
Multiplication and division using silicon diodes. H. L. Kahn. diags R Sci Instr 33:235-8 F '62; Discussion. L. Eisenberg. 34:592-3 My '63; Reply. 35:135 Ja '64
Normalized stability plot for tunnel-diode circuits. H. Gruenberg. diag IEEE Proc 52:733 Je '64
Observations of negative-resistance phenomena and oscillations in the MOS diode. T. Hayashi and T. Niimi. il diag IEEE Proc 52:986 Ag '64
Operating X-band tunnel diodes at Q-band. S. V. Jaskolski and K. Ishii. il diags Electronics 36:32-3 D 27 '63
Optical generation spectrum for the electron thermal-injection mechanism in GaAs diodes. W. N. Carr and J. R. Biard. bibliog J Ap Phys 35:2777-9 S '64
Optical heterodyning using point contact germanium diodes. C. K. N. Patel and W. M. Sharpless. il diag IEEE Proc 52:107-8 Ja '64
Passive circuit adjustment of parametric amplifiers incorporating varactor diodes. T. Buckley. diags J Sci Instr 41:333-4 My '64
P-n junctions as radiation sources. M. F. Lamorte and R. B. Liebert. bibliog diags Electronics 37:61-5 Jl 13 '64
Pulse modulation application of the gallium arsenide light emitting diode. C. H. Seashore. il diag IEEE Proc 51:1781 D '63
Reduction of distortion in tunnel-diode amplifiers. G. H. B. Thompson and I. H. Skilton. diag IEEE Proc 52:1069-70 S '64
Semiconductors; industrial giants in small packages. K. H. Sueker. diags Plant Eng 18:106-10 Jl '64
Shaped electroluminescent GaAs diodes. A. R. Franklin and R. Newman. bibliog diags J Ap Phys 35:1153-5 Ap '64
Silicon diodes for frame grounding; U.S. Bureau of mines requirements. L. H. Harrison. Min Cong J 50:53-4 Mr '64
Silicon photodiode vacuum ultraviolet detector. A. J. Tuzzolino. bibliog diags R Sci Instr 35:1332-5 O '64
Silicon planar variable-capacitance diode with high-voltage sensitivity. A. Kondo. diags IEEE Proc 52:1268 O '64
Simulation of diodes with transistors. E. D. Merkl and P. G. Griffith. diags IEEE Proc 52:1071-2 S '64
Some properties of the tunnel diode balanced pair circuit. N. E. Wiseman. bibliog diags Radio & Electronic Eng 26:492-4 D '63
Stability criterion for tunnel diodes. I. T. Frisch. diags IEEE Proc 52:922-3 Ag '64
Switching speed of a tunnel-diode transistor logic inverter. H. C. Josephs. diags Electro-Tech 74:52-6 Ag '64
Tunnel-diode applications. T. Mollinga. bibliog diags Electro-Tech 74:48-53 S '64
Tunnel diode as a cw detector. J. Reindel. il diags IEEE Proc 51:1677-8 N '63
Tunnel diode circuits for computers. Electronic Eng 36:107 F '64
Tunnel-diode circuits invert direct to alternating current. F. M. Carlson. bibliog il diags Electronics 37:56-65 S 21 '64
Tunnel diode frequency divider. A. T. Bayliss. il diags Wireless World 70:303-4 Je '64
Tunnel diode generates two microwave frequencies. D. R. Revall and others. bibliog diag Electronics 37:62-4 Ag 24 '64
Tunnel diode junction capacitance in the vicinity of built-in voltage. R. P. Nanavati and C. A. Morato de Andrade. diags IEEE Proc 51:1679 N '63
Tunnel diode multi recovers quickly. P. Heffner. diags Electronics 37:75-7 S 21 '64
Tunnel diode storage system with non-destructive read-out. D. B. G. Edwards and M. J. Lanigan. bibliog diags Radio & Electronic Eng 26:359-72 N '63
Tunnel diode super-regenerative detector. J. Reindel. diag IEEE Proc 51:1678 N '63
Ultra-stable semiconductor reference diodes. R. H. Murphy. diag Electronic Eng 36:40-3 Ja '64
Using varactors to extend frequency-control range. T. P. Prouty. diags Electronics 36:48-9 N 8 '63
Vapor-deposited, thin-film heterojunction diodes. R. S. Muller and R. Zuleeg. bibliog il diags J Ap Phys 35:1550-6 My '64
Varactor diode doping distribution for high efficiency and large power capability frequency doublers. R. B. Ward. diags IEEE Proc 52:322-3 Mr '64
Varactor-diode parametric amplifiers. F. J. Hyde. bibliog diags Inst E E Proc 111:1080-7 Je '64
Wide dynamic range tunnel diode amplifier employing automatic gain control approach for phase tracking systems. V. Stachejko. IEEE Proc 52:1063 S '64
Zener diode bias supply. R. L. Ives. diag Radio-Electronics 34:38 D '63
Zener diode power supplies. J. Nagy, jr. bibliog diags I S A J 11:65-8 Jl '64
Zener diodes as voltage standards. diag Electro-Tech 73:17-18 Ap '64
Zener diodes used as voltage standards. il diag Engineering 197:9 Ja 3 '64

Design

Stability criteria for tunnel-diode circuits. B. W. Nelson and R. Masens. diags Electro-Tech 73:52-8 Je '64

Testing

Inside a diode. il Electronics 37:30+ Jl 13 '64
New method of analyzing crystal defects. Franklin Inst J 278:225 S '64
Scope adapter for tunnel diode measurements. F. M. Carlson. diags Electronic Ind 23:124-5 Ap '64

CRYSTAL oscillators. See Oscillators, Crystal

CRYSTALLINITY of cellulose. See Cellulose

CRYSTALLIZATION

Afterheater for use with high-temperature vertical crystal pullers. J. D. Ridley and B. Cockayne. diag J Sci Instr 41:647 O '64
Big YIG's grow in salt. J. W. Nielsen. il diags Electronics 37:44-5 Ja 31 '64
Bubble-induced nucleation and crystal growth in glass. C. Klingsberg. bibliog il diags Am Cer Soc J 47:97-100 F '64
Ceramic double cell for crystal growth by fused salt electrolysis. W. Kunnmann and A. Ferretti. diag R Sci Instr 35:465-6 Ap '64
Chemical equilibrium in the germanium-iodine and germanium-bromine systems by weight-loss measurements. F. Jona and others. bibliog diag Electrochem Soc J 111:413-17 Ap '64
Competition between recrystallization and polygonization during annealing of cold work in aluminium single crystals. H. P. Leighly, jr. and others. bibliog il Inst Metals J 92:363-6 '63-64
Crystal growth and magnetic susceptibilities of some rare-earth sodium molybdenum scheelites. M. Schieber and L. Holmes. diag J Ap Phys 35:1004-5 pt 2 Mr '64
Crystalline solubility in the muscovite and phlogopite groups. M. S. Crowley and R. Roy. bibliog diags Am Mineralogist 49:348-62 Mr '64
Crystallization and melting behavior of polyethylene oxide copolymers. F. T. Simon and J. M. Rutherford, jr. bibliog diags J Ap Phys 35:82-6 Ja '64
Crystallization; annual review. J. A. Palermo and G. F. Bennett. Ind & Eng Chem 56:38-52 bibliog(p47-52) O '64
Crystallization characteristics of lead molybdate in low-temperature enamels. R. B. Amin and R. L. Cook. il Am Cer Soc Bul 42:703-7 N '63
Crystallization from aqueous solution. T. P. Melia and W. P. Moffitt. J Colloid Sci 19:433-47 Je '64

CRYSTALLIZATION—*Continued*

Crystallization habit and fiber formation. P. H. Lindenmeyer. bibliog il Textile Res J 34:825-30 O '64

Crystallization of anhydrous copper sulfate from sulfuric acid; ammonium sulfate mixtures. P. M. Gruzensky. il J Res Nat Bur Stand 68A:313-15 My '64

Crystallization of emulsified triglycerides. W. Skoda and M. Van den Temple. bibliog J Colloid Sci 18:568-84 Ag '63

Crystallisation of naphthalene oils. D. K. H. Briggs and W. D. Drake. J Ap Chem 14:46-50 Ja '64

Crystallization P_{O_2} of syenite porphyry from Navajo Mountain, southern Utah. K. C. Condie. bibliog map Geol Soc Bul 75:359-62 Ap '64

Crystallization theory applied to greases. J. Panzer. Chem & Eng N 42:56+ Ap 20 '64

Čzochralski growth of doped single-crystal lanthanum trifluoride (LaF_3) for lasers. M. A. Hiller and O. M. Stafsudd. bibliog il diag J Ap Phys 35:693-5 Mr '64

Czochralski growth of sapphire. A. E. Paladino and B. D. Roiter. il Am Cer Soc J 47:465 S '64

Deformation twins in tungsten. J. L. Taylor. il Metal Prog 84:126+ D '63

Dendrite spacing in tin-lead alloys. J. A. E. Bell and W. C. Winegard. bibliog il diags Inst Metals J 92:357-9 '63-64

Dependence on deposition conditions of the dopant concentration of epitaxial silicon layers. R. Nuttall. bibliog flow diag Electrochem Soc J 111:317-23 Mr '64

Diffusion of impurities during epitaxy. W. Rice. bibliog diags IEEE Proc 52:284-99 Mr '64

Diffusivity of ammonium dihydrogen phosphate in aqueous solutions. J. W. Mullin and T. P. Cook. bibliog il diags J Ap Chem 13:423-9 O '63

Dissolution of iron whiskers. R. M. Shemenski and others. bibliog Corrosion 20:203-4 Je '64

Distinction between natural and synthetic emeralds. I. Sunagawa. il Am Mineralogist 49:785-92 My '64

Distribution of minor components during the formation of minerals. K. Nassau. bibliog Am Mineralogist 49:321-4 Mr '64

Dynamic interpretation of calcite twin lamellae in a naturally deformed fossil. M. Friedman and F. B. Conger. bibliog diags J Geol 72:361-8, pl 1 My '64

Effect of crystallization conditions and heat treatment on polyethylene; lamellar thickness, melting temperature, and density. R. G. Brown and R. K. Eby. bibliog il J Ap Phys 35:1156-61 Ap '64

Effect of deformation on the crystallization of supercooled cured and uncured rubbers. M. F. Bukhina. bibliog Rubber Chem & Tech 37:404-7 Ap '64

Effect of growth rate on stacking-fault density in epitaxial silicon layers. M. R. Notis and G. P. Conard. bibliog il J Ap Phys 35:695-7 Mr '64

Effect of orientation on the electrical properties of epitaxial gallium arsenide. F. V. Williams. bibliog Electrochem Soc J 111:886-8 Jl '64

Effect of powder parameters on grain growth in manganese-zinc ferrite. T. Yamaguchi. bibliog il Am Cer Soc J 47:131-3 Mr '64

Effect of temperature and heating rate on the secondary recrystallization of doped tungsten wires. M. Mannerkoski. bibliog il Inst Metals J 92:149-50 '63-64

Effects of an electric field on epitaxial vapor growth. Y. Tarui and others. il diag Electrochem Soc J 110:1167-9 N '63

Electron microscope observations of the crystallization of anodically formed tantalum and niobium oxide films. R. E. Pawel and J. J. Campbell. bibliog il Electrochem Soc J 111:1230-4 N '64

Epitaxial deposition of silicon and germanium layers by chloride reduction. E. F. Cave and B. R. Czorny. bibliog il diags RCA R 24:523-45 D '63

Epitaxial deposition of silicon by thermal decomposition of silane. S. R. Bhola and A. Mayer. bibliog il diag RCA R 24:511-22 D '63

Epitaxial deposition of silicon layers by pyrolysis of silane. S. E. Mayer and D. E. Shea. bibliog diags Electrochem Soc J 111:550-6 My '64

Epitaxial growth from the liquid state and its application to the fabrication of tunnel and laser diodes. H. Nelson. il diag RCA R 24:603-15 D '63

Epitaxial growth of GaAs using water vapor. G. E. Gottlieb and J. F. Corboy. bibliog il diag RCA R 24:585-95 D '63

Epitaxial growth of gallium arsenide on germanium substrates. T. Gabor. bibliog il diags Electrochem Soc J 111:817-27 Jl '64

Epitaxial growth of GaP by a Ga_2O vapor transport mechanism. C. J. Frosch. bibliog il diag Electrochem Soc J 111:180-4 F '64

Epitaxial growth of homogeneous solid solutions of GaAs-GaP. E. M. Hull. diags Electrochem Soc J 111:1295-6 N '64

Epitaxial growth of silicon by vacuum sublimation. E. T. Handelman and E. I. Povilonis. bibliog il diags Electrochem Soc J 111:201-6 F '64

Epitaxial growth of silicon carbide. R. W. Brander. bibliog il diag Electrochem Soc J 111:881-3 Jl '64

Epitaxial growth of silicon from the pyrolysis of monosilane on silicon substrates. B. A. Joyce and R. R. Bradley. bibliog il diag Electrochem Soc J 110:1235-40 D '63

Epitaxial temperature of germanium deposited on calcium fluoride. A. Catlin and others. il J Ap Phys 35:251-2 Ja '64

Epitaxy of compound semiconductors by flash evaporation. J. L. Richards and others. il J Ap Phys 34:3418-20 N '63

Experimental study of quartz overgrowths and synthetic quartzites. W. G. Ernst and H. Blatt. bibliog J Geol 72:461-70, pl 1-3 Jl '64

Factors affecting the morphology and growth of $FeSn_2$. C. Luner and M. V. Murray. bibliog il diag Electrochem Soc J 111:407-10 Ap '64

Field-emission microscopy of twins in vapor-grown fcc whiskers. A. J. Melmed. bibliog il diags J Ap Phys 34:3325-8 N '63

Flux growth of chrysoberyl and alexandrite. E. F. Farrell and J. H. Fang. il Am Cer Soc J 47:274-6 Je '64

Formation of silicon whiskers. R. W. Roberts and others. il J Ap Phys 35:248 Ja '64

Genesis of plagioclase twinning in the Nonewaug granite. K. E. Seifert. diags Am Mineralogist 49:297-320 bibliog(p318-20) Mr '64

Genesis of potash rocks in middle Devonian prairie evaporite formation of Saskatchewan. W. M. Schwerdtner. bibliog diags Am Assn Pet Geologists Bul 48:1108-15 Jl '64

Grain growth in fully dense magnesia. R. M. Spriggs and others. bibliog il Am Cer Soc J 47:417-18 Ag '64

Growing quartz crystals. il Ind Electronics 2:373 Ag '64

Growth and properties of single crystals of hexagonal ferrites. R. O. Savage and A. Tauber. bibliog il diag Am Cer Soc J 47:13-18 Ja '64

Growth of As_2O_3 on GaAs. M. E. Straumanis and C. D. Kim. il diags Electrochem Soc J 111:1186-7 O '64

Growth of bismuth-antimony single-crystal alloys. D. M. Brown and F. K. Heumann. bibliog il J Ap Phys 35:1947-51 Je '64

Growth of copper crystals of low dislocation density. F. W. Young, jr. and J. R. Savage. bibliog il diags J Ap Phys 35:1917-24 Je '64

Growth of $(Ga_xIn_{1-x})As$ single crystals by vapor phase reaction. R. Sirrine. il Electrochem Soc J 111:750-1 Je '64

Growth of β-Ga_2O_3 by the Verneuil technique. A. B. Chase. il Am Cer Soc J 47:470 S '64

Growth of GaP crystals and *p-n* junctions by a traveling solvent method. M. Weinstein and A. I. Mlavsky. bibliog il diag J Ap Phys 35:1892-4 Je '64

Growth of germanium epitaxial layers by the pyrolysis of germane. E. A. Roth and others. bibliog il diags RCA R 24:499-510 D '63

Growth of oxide crystals by the flux method. M. Schieber. Am Cer Soc J 47:537-8 O '64

Growth of α-SiC single crystals from chromium solution. L. B. Griffiths and A. I. Mlavsky. bibliog il diags Electrochem Soc J 111:805-10 Jl '64

Growth of single-crystal gallium arsenide layers on germanium and metallic substrates. J. A. Amick. bibliog il diag RCA R 24:555-73 D '63

Growth of single-crystal garnets by a modified pulling technique. R. C. Linares. bibliog il diag J Ap Phys 35:433-4 F '64

Growth of single-crystal garnets of the system $\{Bi_{3-2x}Ca_{2x}\}[Fe_2](Fe_{3-x}V_x)O_{12}$. G. P. Espinosa and S. Geller. il J Ap Phys 35:2551-2 Ag '64

Growth of single crystals of $BaTiO_3$ by exaggerated grain growth. R. C. DeVries. il diag Am Cer Soc J 47:134-6 Mr '64

CRYSTALLIZATION—*Continued*

Growth of whiskers due to solid-to-solid phase transformation in zirconium. M. M. Nieto and A. M. Russell. J Ap Phys 35:461 F '64

Growth spirals on $NiBr_2$ platelets. E. N. Sickafus and D. R. Winder. il diags J Ap Phys 35:2541-5 Ag '64

Growth twins and branching of electro-deposited copper dendrites. F. Ogburn. il Electrochem Soc J 111:870-2 Jl '64

High intensity carbon-arc-image furnace and its application to single crystal growth of refractory oxides. G. J. Goldsmith and others. bibliog il diag Electrochem Soc J 111:260-2 F '64

How the crystallization of nylon affects processing and properties. R. T. Steinbuch. bibliog il Mod Plastics 42:137-9+ S '64

Hydrothermal growth of large sound crystals of zinc oxide. R. A. Laudise and others. bibliog il diags Am Cer Soc J 47:9-12 Ja '64

Impurity content of germanium crystallized from the liquid ternary alloy Ge-In-Sb. K. Lehovec and A. Slobodskoy. bibliog diag Electrochem Soc J 111:65-73 Ja '64

In 21 days; a 3,000,000 year process. il Engineering 197:648 My 8 '64

Incomplete liquid mixing in crystal growth from the melt. W. R. Wilcox. bibliog diags J Ap Phys 35:636-43 Mr '64

Incorporation of boron into epitaxially grown silicon. Y. Matukura and others. diag Electrochem Soc J 111:491-2 Ap '64

Incorporation of uranium and silver by hydrothermally synthesized galena. J. J. Hutta and H. D. Wright. bibliog il Econ Geol 59:1003-24 S '64

Incorporation of zinc in vapor grown gallium arsenide. V. J. Silvestri and F. Fang. bibliog il diags Electrochem Soc J 111:1164-7 O '64

Influence of vapor composition on the growth rate and morphology of gallium arsenide epitaxial films. R. E. Ewing and P. E. Greene. il diags Electrochem Soc J 111:1266-9 N '64

Infrared monitoring of semiconductor epitaxial process gas streams. M. J. Rand. bibliog Anal Chem 36:1112-14 My '64

Internal circulatory method for growing water soluble crystals. C. B. Oliver and E. A. D. White. il diag J Sci Instr 40:598-9 D '63

Kinetic study of the system Si-$SiCl_4$. R. R. Monchamp and others. bibliog diag Electrochem Soc J 111:879-81 Jl '64

Kinetics of epitaxial growth of silicon from the trichlorosilane-hydrogen reaction. A. M. Stein. bibliog diag Electrochem Soc J 111:483-4 Ap '64

Laser action in a flux-grown ruby. D. F. Nelson and J. P. Remeika. bibliog il diag J Ap Phys 35:522-9 Mr '64

Luminescence of GaAs grown in oxygen. W. J. Turner and others. diag J Ap Phys 34:3274-6 N '63

Measurement of the resistivity of epitaxial vapor grown films of silicon by an infrared technique. T. G. R. Rawlins. bibliog diags Electrochem Soc J 111:810-14 Jl '64

Mechanism of crystal growth discovered. il diags Bell Lab Rec 42:142-3 Ap '64

Mechanisms of crystallization in binary eutectic systems. V. D. Davies. bibliog il diag Inst Metals J 93:10-14 '64-65

Microcrystalline $BaTiO_3$ by crystallization from glass. A. Herczog. bibliog il diag Am Cer Soc J 47:107-15 Mr '64

Mobility promotes polymer crystal growth. I. Kirshenbaum. il Chem & Eng N 42:53-4 S 7 '64

Modes of operation of an electron beam floating zone melting furnace; growth of single crystals of metals and alloys. H. G. Sell and W. M. Grimes. il diag R Sci Instr 35:64-8 Ja '64

Morphology of isothermally bulk-crystallized linear polyethylene. F. R. Anderson. bibliog il diags J Ap Phys 35:64-70 Ja '64

Multiple slice epitaxial deposition of silicon in resistance heated furnace. B. A. Lombos and T. R. Somogyi. bibliog diags Electrochem Soc J 111:1097-9 S '64

New differential thermal analysis technique for measuring isothermal crystallization rates of high polymers. J. Chiu. bibliog diags Anal Chem 36:2058-61 O '64

New mechanism used to grow crystals; vapor-liquid-solid (VLS) mechanism can be applied. R. S. Wagner and W. C. Ellis. il diags Chem & Eng N 42:48-9 Mr 16 '64; Excerpts. Radio-Electronics 35:8 My '64

Polycrystalline silicon films on foreign substrates. W. J. McAleer and others. il Electrochem Soc J 111:877-8 Jl '64

Preparation and properties of GaAs-GaP, GaAs-Ge, and GaP-Ge heterojunctions. M. Weinstein and others. bibliog il diags Electrochem Soc J 111:674-82 Je '64

Preparation of $GaAs_xP_{1-x}$ by vapor phase reaction. W. F. Finch and E. W. Mehal. diag Electrochem Soc J 111:814-17 Jl '64

Preparation of thin single-crystal tungsten ribbons. G. Tibbetts and F. M. Propst. il R Sci Instr 34:1268-9 N '63

Pressure-induced growth of metal whiskers. C. H. Pitt and R. G. Henning. J Ap Phys 35:459-60 F '64

Quartz crystal production. il Engineer 217:822-3 My 8 '64

Quick and simple methods for studying crystallization behavior of fats. I. Wilton and G. Wode. il diag Am Oil Chem Soc J 40:707-11 D '63

Radiotracer studies on the incorporation of phosphorus in epitaxially grown silicon. S. Nakanuma. diag Electrochem Soc J 111:1199-200 O '64

Rate of spherulitic crystallization with chain folds in polyoxymethylene. E. Baer and D. R. Carter. bibliog J Ap Phys 35:1895-7 Je '64

Role of solute segregation at grain boundaries during final-stage sintering of alumina. P. J. Jorgensen and J. H. Westbrook. bibliog il diags Am Cer Soc J 47:332-8 Jl '64

Secondary crystallization and annealing of polyethylene. A. Peterlin. bibliog J Ap Phys 35:75-81 Ja '64

Si epitaxial growth by iodide transport between piled-up pellets. R. M. A. Lieth and A. G. M. Eggels. il diags J Ap Phys 35:3015-16 O '64

Simple device for growing single crystals by the hot-wire method. J. Fridrichsons and A. M. Mathieson. diag R Sci Instr 34:1270-1 N '63

Single-crystal growth of LaF_3. P. F. Weller and J. A. Kucza. bibliog diag J Ap Phys 35:1945-6 Je '64

Small particles in silicon. G. R. Booker and R. Stickler. il Electrochem Soc J 111:1011-12 Ag '64

Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64

Some crystallisation phenomena in rapidly quenched 6.6 nylon. F. P. Chappel and others. bibliog il diags J Ap Chem 14:12-19 Ja '64

Some variables affecting the rate of crystal growth in aqueous solutions. J. A. Palermo and C. S. Grove, jr. bibliog A I Ch E J 10:351-6 My '64

Spherulitic crystallization from the melt; fractionation and impurity segregation and their influence on crystalline morphology. H. D. Keith and F. J. Padden, jr. bibliog il J Ap Phys 35:1270-85 Ap '64

Spherulitic crystallization from the melt; influence of fractionation and impurity segregation on the kinetics of crystallization. H. D. Keith and F. J. Padden, jr. bibliog il diag J Ap Phys 35:1286-96 Ap '64

Stream analyzer senses crystallization point. diags Control Eng 11:119 S '64

Structural and magnetic properties of sputtered NiFe films grown in a dc discharge environment E. Kay. bibliog il J Ap Phys 35:2936-42 O '64

Structure of borosilicate and borogermanate melts at 1300°C; a visocosity and density study. E. F. Riebling. bibliog Am Cer Soc J 47:478-83 O '64

Studies on the transport and deposition of alpha-aluminum oxide. J. V. Kerrigan. bibliog il J Ap Phys 34:3408-10 N '63

Study of HCl-H_2 and $GeCl_4$-H_2 etching of germanium substrates for epitaxial deposition. K. J. Miller and M. J. Grieco. bibliog Electrochem Soc J 111:1099-101 S '64

Study of the filamentary growth of silicon crystals from the vapor. R. S. Wagner and others. bibliog il diags J Ap Phys 35:2993-3000 O '64

Successive growth of Si and SiO_2 in epitaxial apparatus. W. Steinmaier and J. Bloem. bibliog diag Electrochem Soc J 111:206-9 F '64

Surface nucleation and crystal orientation in lithium silicate glass fibers. C. L. Booth and G. E. Rindone. bibliog il diag Am Cer Soc J 47:25-9 Ja '64

CRYSTALLIZATION—*Continued*

Technique for orientation of bicrystal seeds. B. F. Addis and G. H. Bishop. il R Sci Instr 35:227 F '64
Theory of whisker growth and evaporation. J. A. Simmons and others. bibliog J Ap Phys 35:2271-2 Jl '64
Thorite→huttonite phase transformation as determined by growth of synthetic thorite and huttonite single crystals. C. B. Finch and others. il diag Am Mineralogist 49:782-5 My '64
Three-point probe method for electrical characterization of epitaxial films. J. Brownson. diags Electrochem Soc J 111:919-24 Ag '64
Transmitted phonon drag measurements in epitaxial silicon. R. Gereth and C. Stephens. bibliog diag Electrochem Soc J 111:1012-13 Ag '64
Transport of gallium arsenide by a close-spaced technique. P. H. Robinson. bibliog il diag RCA R 24:574-84 D '63
Twinning and growth of silver bromide microcrystals. J. F. Hamilton and L. E. Brady. bibliog il diags J Ap Phys 35:414-21 F '64
Use of close spacing in chemical-transport systems for growing epitaxial layers of semiconductors. F. H. Nicoll. il diag Electrochem Soc J 110:1165-7 N '63
Vapor-phase synthesis and epitaxial growth of gallium arsenide. N. Goldsmith and W. Oshinsky. bibliog diag RCA R 24:546-54 D '63
Web growth of semiconductors. . O'Hara and A. I. Bennett. bibliog il diags J Ap Phys 35:686-93 Mr '64
Zinc tungstate crystal growth, dislocations, and crystallography. S. O'Hara. bibliog il J Ap Phys 35:1312-16 Ap '64

See also

Crystallizers
Crystals

CRYSTALLIZERS

Aiming for better evaporation, crystallization. il Chem Eng 71:100+ My 11 '64
Engineering study of the rotary drum crystallizer. J. C. Chaty and H. A. O'Hern. bibliog A I Ch E J 10:74-8 Ja '64

CRYSTALLOGRAPHY

Analysing crystal defects by electron beam scanning. il Engineer 218:38 Jl 3 '64
Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64
Azimuthally dispersed polarized light. K. S. Deffeyes. il Am Mineralogist 49:165-9 Ja '64
Calculation of the higher order dipole-dipole effect in paramagnetic crystals. P. H. E. Meijer. J Res Nat Bur Stand 68A:113-19 Ja '64
Causes of optical-crystallographic scatter of plagioclase in grain mounts. T. A. Vogel. diag Geol Soc Bul 74:1403-4 N '63
Cleavage in quartz. F. D. Bloss and G. V. Gibbs. bibliog diags Am Mineralogist 48:821-38 Jl '63; Discussion. A. Hoffer. 49:435-6; Reply. 436-8 Mr '64
Cleavages of BeO and other minerals having the wurtzite structure. V. D. Frechette and C. F. Cline. Am Mineralogist 48:1381-3 N '63
Composition and structure of inorganic non-metallic solids. T. C. MacAvoy. diags Glass Ind 44:618-24+, 676-8 N-D '63
Congress and symposia on crystallography, Rome. J Metals 16:376+ Ap '64
Constitution and microstructure of some binary alkali halide mixtures. J. G. Loxham and A. Hellawell. bibliog il diags Am Cer Soc J 47:184-8 Ap '64
Controlled massively defective crystalline solutions with the fluorite structure. D. M. Roy and R. Roy. bibliog Electrochem Soc J 111:421-9 Ap '64
Cross-linking of borate polymer chains by means of silicates. J. Krogh-Moe. bibliog Am Cer Soc J 47:307 Je '64
Crystal structure of diammonium croconate and molecular orbital calculations on the croconate ion. N. C. Baenziger and J. J. Hegenbarth. bibliog diags Am Chem Soc J 86:3250-7 Ag 20 '64
Crystal structure of diosgenin iodoacetate. E. A. O'Donnell and M. F. C. Ladd. diag Chem & Ind p 1984-5 D 21 '63
Crystal structure of 3,4-furandicarboxylic acid. D. E. Williams and R. E. Rundle. bibliog Am Chem Soc J 86:1660-6 My 5 '64
Crystal structure of securinine hydrobromide dihydrate and the molecular structure of securinine. S. Imado and others. diag Chem & Ind p 1691 O 3 '64
Crystallographic data for rare-earth aluminum garnets. C. B. Rubinstein and R. L. Barns. Am Mineralogist 49:1489-90 S '64
Crystallographic implications of epr in neutron-irradiated diamond. R. M. Denning and E. H. Poindexter. bibliog Am Mineralogist 49:277-85 Mr '64
Crystallographic studies of krypton difluoride. S. Siegel and E. Gebert. Am Chem Soc J 86:3896 S 20 '61
Crystallographic texture variations through rolled aluminium and copper sheet. I. L. Dillamore and W. T. Roberts. bibliog diags Inst Metals J 92:193-9 '63-64
Crystallography and crystal perfection. G. N. Ramachandran, ed. and Art and science of growing crystals. J. J. Gilman, ed. Review, by K. Lonsdale. Chem & Ind p 93-5 Ja 18 '64
Crystallography of faheyite, Sapucaia pegmatite mine, Minas Gerais, Brazil. M. L. Lindberg. diag Am Mineralogist 49:395-8 Mr '64
Crystallography of meta-autunite (I). M. Ross. bibliog il Am Mineralogist 48:1389-93 N '63
Crystallography of the martensitic transformation in β-brass. W. Jolley and D. Hull. bibliog il Inst Metals J 92:129-35 '63-64
Cubane system. P. E. Eaton and T. W. Cole, jr. bibliog Am Chem Soc J 86:962-4 Mr 5 '64
Derivation of the orientation correlation function in semicrystalline polymers. K. J. Smith, jr. J Ap Phys 35:2488 Ag '64
Diffraction; mapping the surfaces. il diag Product Eng 35:49 F 3 '64
Direct determination of the crystal structure of *p*-bromobenzoate-glaucarubin. G. Kartha and D. J. Haas. bibliog diags Am Chem Soc J 86:3630-4 S 20 '64
Dynamical theory of atom jumps in crystals. E. Pearlstein. bibliog diags Am J Phys 31:842-7 N '63
Effect of crystal orientation on Ge-GaAs heterojunctions. F. F. Fang and W. E. Howard. bibliog diags J Ap Phys 35:612-17 Mr '64
Effect of crystal orientation on hardness of silicon carbide. P. T. B. Shaffer. il Am Cer Soc J 47:466 S '64
Effect of crystallographic orientation on the oxidation of tin. W. E. Boggs and others. bibliog il diags Electrochem Soc J 111:636-46 Je '64
Effect of temperature and environment on the structure of thin single-crystal nickel films. E. I. Alessandrini. bibliog il diag J Ap Phys 35:1606-10 My '64
80 diperiodic groups in three dimensions. E. A. Wood. bibliog diags Bell System Tech J 43:541-59 pt 2 Ja '64
Electrochemical behavior and corrosion of iron crystals in ammonium nitrate solutions. J. Flis and others. bibliog il diags Corrosion 20:184-8 Je '64
Electron diffraction for analysis of ferroelectric crystal. S. Yamaguchi. il J Ap Phys 35:2559-60 Ag '64
Electron microscopic technique for determining the percent crystallinity of glass-ceramic materials. G. B. Carrier. bibliog il Am Cer Soc J 47:365-7 Ag '64
Electron optical observations of fine-grained silica minerals. E. A. Monroe. bibliog il Am Mineralogist 49:339-47 Mr '64
Epr spectrometer for studying crystals under high hydrostatic pressure. A. F. Clark and D. F. Wait. bibliog diags R Sci Instr 35:863-6 Jl '64
Electron probe analyses of copper in meneghinite. K. Fredriksson and C. A. Andersen. il Am Mineralogist 49:1467-9 S '64
Elimination of small-angle boundaries in high-purity zinc crystals grown from the melt. C. K. Chyung and W. E. Taylor. il J Ap Phys 35:731-2 Mr '64
Epitaxial p-type germanium and silicon films by the hydrogen reduction of $GeBr_4$, $SiBr_4$, and BBr_3. K. J. Miller and M. J. Grieco. bibliog diag Electrochem Soc J 110:1252-6 D '63
Etching of II-VI and III-V compounds. G. A. Wolff and others. bibliog il diags Electrochem Soc J 111:22-7 Ja '64
Evaluation of concentration distributons by test diffusion and junction delineation. K. M. Busen and others. il diags Electrochem Soc J 111:256-9 F '64

CRYSTALLOGRAPHY—*Continued*

Extinction measurements for the determination of 2V with the universal stage. N. Joel and I. D. Muir. bibliog diags Am Mineralogist 49:286-96 Mr '64

Ferrimagnetic garnets containing pentavalent vanadium. S. Geller and others. bibliog J Ap Phys 35:570-2 Mr '64

General assembly and international congress of the International union of crystallography, 6th, Rome, Sept. 9-18; abstracts of papers. Phys Today 17:37-8+ Ja '64

Glide systems in niobium single crystals in the range 1400-2300°C. B. Harris. bibliog il diags Inst Metals J 92:89-92 '63-64

Gnomonic projector. L. L. Hawes. il diags Am Mineralogist 49:180-3 Ja '64

Group theoretical consideration for the intersection of crystal-ion Zeeman terms. S. A. Marshall and others. bibliog Am J Phys 31:847-53 N '63

Growth of forsterite crystals in a reactive crucible. W. Jordan and J. J. Naughton. Am Mineralogist 49:806-8 My '64

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Inside a diode. il Electronics 37:30+ Jl 13 '64

Introduction to crystal chemistry; 2d ed. R. C. Evans. Review, by K. Lonsdale. Chem & Ind p825-6 My 16 '64

Ixiolite and other polymorphic types of $FeNbO_4$. R. S. Roth and J. L. Waring. bibliog Am Mineralogist 49:242-6 Mr '64

Magnetic symmetry and forbidden effects. R. R. Birss. bibliog diags Am J Phys 32:142-52 F '64

Measurement of pyrrhotite composition in the presence of both hexagonal and monoclinic phases. D. I. Groves and R. J. Ford. Am Mineralogist 48:911-13 Jl '63; Discussion. 49:1491-6 S '64

Measurement of the misorientation of a crystal. W. A. Wooster. diags J Sci Instr 41:229-30 Ap '64

Method for growing rare-earth single crystals. H. E. Nigh. bibliog il J Ap Phys 34:3323-4 N '63

Microscopical identification of the cerium group rare earth elements. F. D. Leipziger and others. bibliog il Anal Chem 36:314-15 F '64

Microstructure of periclase. W. S. Treffner. bibliog il Am Cer Soc J 47:401-9 Ag '64

Molecular and crystal structure of the di-*p*-bromobenzoate of the methyl ester of gibberellic acid. J. A. Hartsuck and W. N. Lipscomb. bibliog diags Am Chem Soc J 85:3414-19 N 5 '63

Morphological analysis of hodgkinsonite. L. A. Hardie and others. bibliog diag Am Mineralogist 49:415-20 Mr '64

New method of analyzing crystal defects. diag Bell Lab Rec 42:252 Jl-Ag '64

New method of determining the orientation of crystals using a Weissenberg goniometer. W. A. Wooster. diags J Sci Instr 41:130-2 Mr '64

New technique detects crystal structure imperfections. Franklin Inst J 278:72-3 Jl '64

New technique for measurement of electron diffraction patterns of polycrystalline materials. J. H. Richardson and R. F. Schneidmiller. diag R Sci Instr 35:983-4 Ag '64

Nondestructive method for revealing stacking faults in epitaxial silicon. R. H. Dudley. il J Ap Phys 35:1360-1 Ap '64

Optical-crystallographic scatter in plagioclase. T. A. Vogel. bibliog il diags Am Mineralogist 49:614-33 My '64

Ordering of Fe and Cr in chrysoberyl. R. Newnham and others. bibliog Am Mineralogist 49:427-30 Mr '64

Orientation determinations of crystals using ejection patterns resulting from ion bombardment. R. L. Cunningham and J. Ng-Yelim. bibliog il diags J Ap Phys 35:2185-8 Jl '64

Phases of silica. R. B. Sosman. Am Cer Soc Bul 43:213 Mr '64

Polar properties of ZnS crystals and the anomalous photovoltaic effect. O. Brafman and others. bibliog il diag J Ap Phys 35:1855-60 Je '64

Polymorphism of the kaolin minerals. S. W. Bailey. bibliog diags Am Mineralogist 48:1196-209 N '63

Precipitation of impurities in large single crystals of CdS. A. Dreeben. bibliog il Electrochem Soc J 111:174-9 F '64

Preparation and crystallographic properties of $A^{2+}B_2^{3+}O_4$ type calcium and strontium scandates. J. R. Carter and R. S. Feigelson. bibliog Am Cer Soc J 47:141-4 Mr '64

Pressure-induced transformations to crystal structures of lower packing density. F. K. Weddeling. J Ap Phys 35:1201-2 Ap '64

Programmer for a two-dimensional pulse-height analyzer. T. J. Kennett. diags R Sci Instr 35:1230-1 S '64

Proposal for microwave modulation of light employing the shift of optical absorption edge with applied electric field. R. C. Eden and P. D. Coleman. bibliog IEEE Proc 51:1776-7 D '63

Quartz-cristobalite transformation. F. J. Kuellmer and T. I. Poe. il Am Cer Soc J 47:311-12 Je '64

Range in solid solution and structure of naturally occurring troilite and pyrrhotite. R. H. Carpenter and G. A. Desborough. bibliog diags Am Mineralogist 49:1350-65 S '64

Relation between effects of porosity on strength and on Young's modulus of elasticity of polycrystalline materials. D. P. H. Hasselman. bibliog diag Am Cer Soc J 46:564-5 N '63

Relationship of polypropylene fiber orientation as determined by optical birefringence and sonic velocity measurements. S. E. Ross. bibliog Textile Res J 34:565-71 Jl '64

Selected glass substrates and the magnetic parameters of thin films. J. S. Lemke. bibliog il IEEE Trans Com & Electronics 83:245-7 My '64

Simple determination of the angular deviation between a prepared crystal surface and the crystal plane. F. F. Lange. diag R Sci Instr 35:1125-6 S '64

Stacking fault nucleation in epitaxial silicon on variously oriented silicon substrates. S. Mendelson. bibliog il diags J Ap Phys 35:1570-81 My '64

Statistical tables for testing random orientations of cubic crystals. J. W. Weymouth and J. H. Epstein. bibliog J Ap Phys 33:2523-6; 35:3008-12 Ag '62, O '64

Statistical test for texture. P. R. Morris. bibliog J Ap Phys 35:2553-4 Ag '64

Strength-porosity relation involving different pore geometry and orientation. S. D. Brown and others. bibliog diags Am Cer Soc J 47:320-2 Jl '64

Structure of oxide films formed on individual crystal grains of stainless steels. G. Shimaoka. bibliog il diags Electrochem Soc J 110:1177-82 D '63

Studies of the InSb crystal-melt interface. N. Albon. bibliog il Electrochem Soc J 111:61-4 Ja '64

Study of two crystalline forms of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and R. J. Robinson. Anal Chem 36:2195-6 O '64

Surface structures and epitaxial growths on AgBr microcrystals. C. R. Berry and D. C. Skillman. bibliog il diag J Ap Phys 35:2165-9 Jl '64

Technique for preparing thin foils from small bulk specimens of nonmetallic solids. D. J. Sauve and R. J. Stokes. il diag R Sci Instr 35:1363-4 O '64

Theory of orientation correlations in crystalline polymeric solids. R. S. Stein and S. N. Stidham. bibliog diags J Ap Phys 35:42-6 Ja '64

Thin silicon film growth on polycrystalline alumina ceramic. V. Y. Doo. il Electrochem Soc J 111:1196-8 O '64

Transmission electron microscopy of glass-ceramics. P. E. Doherty and R. R. Leombruno. bibliog il diags Am Cer Soc J 47:368-70 Ag '64

Use of the angle $A_1\Lambda_c$ in optical determination of the composition of augite. N. R. Ruegg. bibliog diags Am Mineralogist 49:599-606 My '64

Use of the Nakamura plate in universal stage orientations. T. A. Vogel. Am Mineralogist 49:406-8 Mr '64

Zeolite studies; Na-P zeolites and the ion-exchanged derivatives of tetragonal Na-P. A. M. Taylor and R. Roy. Am Mineralogist 49:656-82 bibliog(p681-2) My '64

Zinc tungstate crystal growth, dislocations, and crystallography. S. O'Hara. bibliog il J Ap Phys 35:1312-16 Ap '64

See also

Crystallization
Order-disorder transformation
Pseudomorphs
Solutions, Solid

CRYSTALLOGRAPHY—*Continued*

Neutron diffraction studies

Magnetic structures in $FeCr_2S_4$ and $FeCr_2O_4$. G. Shirane and others. bibliog J Ap Phys 35:954-5 pt 2 Mr '64
Modified Polaroid film holder for X-ray and neutron diffraction. H. G. Smith and D. L. Holcomb. diag R Sci Instr 34:1441 D '63
Neutron diffraction effects with moving lattices. C. G. Shull and N. S. Gingrich. diags J Ap Phys 35:678-82 Mr '64
Neutron diffraction investigation of a gadolinium single crystal. G. Will and others. bibliog J Ap Phys 35:1045-6 pt 2 Mr '64
Neutron diffraction investigation of the magnetic structure of $TbMn_2$. L. M. Corliss and J. M. Hastings. diag J Ap Phys 35:1051-3 pt 2 Mr '64
Neutron diffraction study of α-lead azide. G. L. Glen. diag Am Chem Soc J 85:3892-4 D 5 '63
Neutron diffraction study of magnetic stacking faults in antiferromagnetic K_2NiF_4. R. Plumier. diags J Ap Phys 35:950-1 pt 2 Mr '64

Terminology

Vocabulary of surface crystallography. E. A. Wood. bibliog diags J Ap Phys 35:1306-12 Ap '64

X ray studies

Apparatus for X-ray measurements at very high pressure. E. A. Perez-Albuerne and others. bibliog diags R Sci Instr 35:29-33 Ja '64
Application of an X-ray technique to the examination of electrodeposits. R. Brownsword and J. P. G. Farr. il diag Electrochem Soc J 111:378-9 Mr '64
Circular X-ray diffraction camera. D. C. Barnes and A. Franks. il diag Engineering 198:456-7 O 9 '64
Crystal structure and polarity of beryllium oxide. D. K. Smith and others. bibliog il diags Electrochem Soc J 111:78-87 Ja '64
Defect structures on polished quartz surfaces as seen by X-ray diffraction microscopy. J. B. Newkirk and others. il J Ap Phys 35:1362-3 Ap '64
Determination of the heavy atom content in chlorite by means of the X-ray diffractometer. W. Petruk. bibliog diag Am Mineralogist 49:61-71 Ja '64
Direct observation of double Bragg reflections in X-ray diffraction patterns of pyrolytic graphites. O. J. Guentert. bibliog diags J Ap Phys 35:1841-7 Je '64
Distinction between kaolinite and chlorite in recent sediments by X-ray diffraction. P. E. Biscaye. Am Mineralogist 49:1281-9 bibliog(p 1288-9) S '64
Effect of absorption and incoherent scattering on X-ray line profiles. R. H. Bragg and C. M. Packer. diags R Sci Instr 34:1202-7 N '63
Evaluation of small-angle X-ray scattering of polymers. C. Reinhold and others. bibliog J Ap Phys 35:71-4 Ja '64
Exact method for the calculation of X-ray transmission factors in crystals of rectangular cross section. L. Muldawer. diag R Sci Instr 34:1453-4 D '63
Experimental furnace for X-ray diffraction study. il Engineering 196:830 D 27 '63
Experimental high-temperature X-ray diffraction furnace. il Engineer 216:1032 D 20 '63
Geometry of manganese pentacarbonyl hydride, an X-ray diffraction study. S. J. LaPlaca and others. bibliog Am Chem Soc J 86:2288-9 Je 5 '64
Heating-oscillating X-ray diffraction studies of some organo-montmorillonites. J. L. McAtee, jr. and J. M. Hawthorne. bibliog Am Mineralogist 49:247-57 Mr '64
High pressure-high temperature, X-ray diffraction apparatus. J. D. Barnett and H. T. Hall. bibliog il diags R Sci Instr 35:175-82 F '64
High-temperature transitions in rare-earth niobates and tantalates. V. S. Stubičan. bibliog diags Am Cer Soc J 47:55-8 F '64
Large source of error in absolute X-ray integrated intensity determinations. B. W. Batterman. diag R Sci Instr 35:1374-5 O '64
Laue patterns and zone structure of Bi_2Te_3. H. H. Soonpaa. bibliog il diags J Ap Phys 34:3600-2 D '63
Methods of determining centroid X-ray wavelengths; Cu$K\alpha$ and Fe$K\alpha$. M. Mack and others. bibliog J Ap Phys 35:1118-27 Ap '64
Modified graphical method of absorption correction for the displacement of lines in a powder photograph. K. Viswanathan. bibliog Am Mineralogist 49:1474-80 S '64
Monoclinic-cubic transformation in thorium dicarbide. N. A. Hill and O. B. Cavin. il Am Cer Soc J 47:360-1 Jl '64
New data on barysilite. F. P. Glasser. Am Mineralogist 49:1485-8 S '64
Physical properties of synthetic biotites on the join phlogopite-annite. D. R. Wones. bibliog Am Mineralogist 48:1300-21 N '63
Precision measurement of the cleavage plane grating spacing of potassium acid phthalate. A. J. Bearden and F. N. Huffman. bibliog diag R Sci Instr 34:1233-4 N '63
Preparation of single crystals of V_3Si. E. S. Greiner and H. Mason, jr. il J Ap Phys 35:3058-9 O '64
Quantitative determination of preferred orientation. R. H. Bragg and C. M. Packer. bibliog diags J Ap Phys 35:1322-8 Ap '64
Rare-earth niobates and tantalates of defect fluorite- and weberite-type structures. H. P. Rooksby and E. A. D. White. Am Cer Soc J 47:94-6 F '64
Reaction at the iron alkaline electrode. A. J. Salkind and others. bibliog Electrochem Soc J 111:493-5 My '64
Reduction of orientation effects in the quantitative *X*-ray diffraction analysis of kaolin minerals. E. Niskanen. bibliog diag Am Mineralogist 49:705-14 My '64
Reexamination of the polymorphism of Ca_3SiO_5. H. Miyabe and D. M. Roy. bibliog Am Cer Soc J 47:318-19 Jl '64
Selected area X-ray diffraction studies of surface damage in sliding on single-crystal copper. D. D. Roshon, jr. bibliog il diag J Ap Phys 35:1262-9 Ap '64
Selected properties of neutron irradiated diamond. R. M. Denning. il diags Am Mineralogist 49:72-105 bibliog(p 103-5) Ja '64
Simple specimen holder for low temperature X-ray diffraction studies. B. Roessler and G. F. Bolling. diag R Sci Instr 35:230-1 F '64
Structure of nickel oxide containing alumina. E. Gillam and J. P. Holden. bibliog il Am Cer Soc J 46:601-4 D '63
Surface contamination of La_2O_3 and Nd_2O_3 by B_2O_3; a source of error in X-ray diffractometry. S. Stecura and W. J. Campbell. Am Cer Soc J 47:468 S '64
Thermal decomposition of europium hydroxide. R. C. Rau and W. J. Glover, jr. bibliog il Am Cer Soc J 47:382-7 Ag '64
Thin-walled Pyrex capillaries for single-crystal X-ray diffraction of pyrophoric compounds. J. Tanaka and E. L. Amma. R Sci Instr 35:634 My '64
Three-dimensional X-ray topographic studies of internal dislocation sources in silicon. A. Authier and A. R. Lang. bibliog il diags J Ap Phys 35:1956-9 Je '64
X-ray crystallography of omphacite. J. Warner. Am Mineralogist 49:1461-7 S '64
X-ray diffraction analyses and etch patterns of faults in epitaxial silicon. M. Lauriente and R. W. Armstrong. il J Ap Phys 35:3061-2 O '64
X-ray diffraction from small crystallites. V. H. Tiensuu and others. bibliog J Ap Phys 35:1718-20 Je '64
X-ray diffraction on whiskers grown from ferrous chloride in an argon atmosphere. W. Rambauske and R. R. Gruenzel. il J Ap Phys 35:408 F '64
X-ray identification of ordered and disordered ortho-enstatite. S. S. Pollack and W. D. Ruble. il Am Mineralogist 49:983-92 Jl '64
X-ray investigation of polymorphism in ZrC. D. K. Smith and C. F. Cline. Am Cer Soc J 46:566 N '63
X-ray investigation of strain in cold-worked silver iodide. G. Burley. bibliog J Res Nat Bur Stand 68A:355-8 Jl '64
X-ray investigation of the perfection of silicon. J. R. Carruthers and others. bibliog J Ap Phys 34:3389-93 N '63
X-ray investigation of zircon crystals containing OH groups. I. Krstanović. bibliog diag Am Mineralogist 49:1146-8 Jl '64
X-ray line broadening in calcium fluoride. D. Lewis and H. Pearson. J Ap Phys 35:1939-41 Je '64
X-ray measurements of faulting in α Cu-Ge alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 35:2629-33 S '64
X-ray powder data for aminoffite. J. A. Mandarino. Am Mineralogist 49:212-14 Ja '64
X-ray powder data for teineite and chalcomenite. J. A. Mandarino. Am Mineralogist 49:1481-5 S '64

CRYSTALLOGRAPHY—X ray studies—*Cont.*

X-ray study of shattuckite. D. W. Newberg. Am Mineralogist 49:1234-9 S '64

X-ray study of sursassite from New Brunswick. bibliog Am Mineralogist 49:168+ Ja '64

X-rays; an eye on atoms. il Product Eng 35:52 Ag 17 '64

CRYSTALS

Accurate determination of crystal orientation from field ion micrographs. D. G. Brandon. il diags J Sci Instr 41:373-5 Je '64

Brittle engineering materials. D. R. Wilder. bibliog diags Chem Eng 70:209-16 N 11 '63

CaI_2 and CaI_2(Eu) scintillation crystals. R. Hofstadter and others. bibliog R Sci Instr 35:246-7 F '64

Coexistence of magnetic and electric ordering in crystals. G. A. Smolenskii and V. A. Bokov. bibliog il J Ap Phys 35:915-18 pt 2 Mr '64

Color center zonation in quartz. C. J. Ritter and W. H. Dennen. bibliog Geol Soc Bul 75:915-16 S '64

Comparison of methods for determining electron trap distributions. R. H. Bube. J Ap Phys 35:3067-9 O '64

Comparison of protein structure in the crystal and in solution using tritium-hydrogen exchange. M. Praissman and J. A. Rupley. bibliog Am Chem Soc J 86:3584-5 S 5 '64

Conduction in single crystals of ammonium dihydrogen phosphate. E. J. Murphy. bibliog J Ap Phys 35:2609-14 S '64

Conjoined crystals. N. H. Kuhrt and others. Am Oil Chem Soc J 40:725-33 D '63

Control of laser radiation with birefringent crystals; the microwave circuit viewpoint. M. R. Wohlers and K. G. Leib. diags J Ap Phys 35:2311-12 Ag '64

Corrosion of iron in an H_2S-CO_2-H_2O system; influence of (single iron) crystal orientation on hydrogen penetration rate. W. F. Brickell and others. il diags Corrosion 20:235-6 Jl '64

Creep of polycrystalline magnesia. T. Vasilos and others. bibliog il Am Cer Soc J 47:203-4 Ap '64

Crystal and molecular structure of bis(pentacarbonylmanganese)diphenyltin. B. T. Kilbourn and H. M. Powell. bibliog Chem & Ind p 1578 S 12 '64

Crystal and molecular structure of metal ion-aromatic complexes; the cuprous ion-benzene complex, $C_6H_6{\cdot}CuAlCl_4$. R. W. Turner and E. L. Amma. bibliog Am Chem Soc J 85:4046-7 D 20 '63

Crystal field for Yb^{3+} in garnets; abstract. M. T. Hutchings and W. P. Wolf. bibliog J Ap Phys 35:1060 pt 2 Mr '64

Crystal habit and impact sensitivity of cyclotrimethylene trinitramine. H. K. Acharya and M. K. Aditya. il Chem & Ind p934-5 My 30 '64

Crystal interfaces. N. H. Fletcher. bibliog J Ap Phys 35:234-40 Ja '64

Crystal perfection of ammonium dihydrogen phosphate. R. F. Belt. il diag J Ap Phys 35:3063-4 O '64

Crystal structure of bis-(*m*-chlorobenzoyl)-methane. G. R. Engebretson and R. E. Rundle. bibliog diags Am Chem Soc J 86:574-81 F 20 '64

Crystallography and crystal perfection. G. N. Ramachandran, ed. and Art and science of growing crystals. J. J. Gilman, ed. Review. by K. Lonsdale. Chem & Ind p 93-5 Ja 18 '64

Crystals route laser beam. il Electronics 37:67 F 7 '64

Demodulation of phase-modulated light using birefringent crystals. S. E. Harris. bibliog diags IEEE Proc 52:823-31 Jl '64

Determination of europium(II) and total europium in europium-activated lithium iodide scintillation crystals. D. A. Constanzo. bibliog Anal Chem 36:2042-4 S '64

Diffusion and solubility of zinc in gallium phosphide single crystals. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:374-8 F '64

Diffusion in crystalline solids; symposium abstracts. Am Cer Soc Bul 43:337+ Ap '64

Disordering of defects in single crystals of zinc sulfide. L. T. Chadderton and others. bibliog il diags J Ap Phys 35:1582-6 My '64

Doping of alkaline earth halide single crystals. P. F. Weller and J. E. Scardefield. bibliog Electrochem Soc J 111:1009-11 Ag '64

Effect of collision focusing on monocrystalline sputtering yield theory. H. P. Smith, jr. bibliog diag J Ap Phys 35:2522-4 Ag '64

Effect of crystallite size and orientation on the magnetization ripple in permalloy films. A. Baltz and W. D. Doyle. bibliog il J Ap Phys 35:1814-18 Je '64

Effect of surface polishing on the linewidth and high-power properties of single-crystal spheres of ZnY. S. Dixon, jr. bibliog J Ap Phys 34:3441-2 D '63

Effective thickness of two birefringent crystals for the study of natural birefringence. M. Ziauddin and T. S. Narasimhamurty. bibliog il diags R Sci Instr 35:303-5 Mr '64

Electrical conductivity and growth of single-crystal indium sesquioxide. J. P. Remeika and E. G. Spencer. J Ap Phys 35:2803 O '64

Electrical conductivity of single-crystal Cr_2O_3. J. A. Crawford and R. W. Vest. bibliog J Ap Phys 35:2413-18 Ag '64

Electrical effects due to the *F* center in the potassium halides. J. N. Maycock. bibliog J Ap Phys 35:1512-15 My '64

Electron diffraction diffuse streaks from single-crystal tin films. R. W. Vook and A. Baltz. bibliog il diag J Ap Phys 35:1952-5 Je '64

Electron spin resonance study of X-irradiated fumaric acid-urea crystals. O. H. Griffith and A. L. Kwiram. bibliog diags Am Chem Soc J 86:3937-41 O 5 '64

Electronic conduction in single crystals of uranium dioxide. P. Nagels and others. bibliog il J Ap Phys 35:1175-80 Ap '64

Enantiomorphism of organic peroxy compounds in the crystalline state. G. A. Jeffrey and others. Am Chem Soc J 86:949-50 Mr 5 '64

Energy dependence of extinction distance and transmissive power for electron waves in crystals. H. Hashimoto. bibliog il diags J Ap Phys 35:277-90 F '64; Correction. 35:2788 S '64

Errors in the measurement of 2V with the universal stage. M. Munro. bibliog diags Am Mineralogist 48:308-23 Mr '63; Discussion. A. C. Tobi. 49:812-13; Reply. 813-15 My '64

Etch pits in $BaTiO_3$ single crystals. W. S. Rothwell. il Am Cer Soc J 47:409-11 Ag '64

Evaporated metallic contacts to conducting cadmium sulfide single crystals. A. M. Goodman. bibliog diags J Ap Phys 35:573-80 Mr '64

Excitons in molecular physics. A. Suna and J. J. Hopfield. Phys Today 17:51+ Mr '64

Fabrication and plastic behavior of single-crystal MgO-NiO and MgO-MnO solid-solution alloys. T. S. Liu and others. bibliog il Am Cer Soc J 47:276-9 Je '64

Fission-fragment tracks and directional effects in the surface of LiF crystals. T. G. Knorr. bibliog il diag J Ap Phys 35:2753-60 S '64

Floating-zone $BaTiO_3$; preparation and properties. F. Brown and W. H. Todt. bibliog il diags J Ap Phys 35:1594-8 My '64

Geometric acoustic attenuation at gigacycle frequencies in single crystals of quartz. E. Gates. bibliog il diags IEEE Proc 52:1129-37 O '64

Glide systems in niobium single crystals in the range 1400-2300°C. B. Harris. bibliog il diags Inst Metals J 92:89-92 '63-64

Grain-boundary diffusion in MgO. B. J. Wuensch and T. Vasilos. bibliog diags Am Cer Soc J 47:63-8 F '64

Grain-boundary migration in LiF bicrystals. M. P. Davis and N. M. Tallan. bibliog il Am Cer Soc J 47:175-8 Ap '64

Group theoretical consideration for the intersection of crystal-ion Zeeman terms. S. A. Marshall and others. bibliog Am J Phys 31:847-53 N '63

Growth spirals on glass. R. M. Tichane and L. B. Wilson. il J Ap Phys 35:2537-40 Ag '64

Hollow center CdS crystals. A. Dreeben. il J Ap Phys 35:2549 Ag '64

Induced magnetic anisotropy and ordering in Ni-Fe single crystals. M. Takahashi and others. bibliog J Ap Phys 35:869-70 pt 2 Mr '64

Induced magnetic anisotropy in ferrite single crystals. E. M. Gyorgy and F. J. Schnettler. bibliog J Ap Phys 35:1648-9 My '64

Interaction of light with light. J. A. Giordmaine. il diags Sci Am 210:38-49 Ap '64

Intrinsic ferromagnetic resonance linewidth in metal single crystals. Z. Frait and B. Heinrich. bibliog J Ap Phys 35:904-5 pt 2 Mr '64

Investigation of the morphology associated with the dissolution process of polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:59-63 Ja '64

CRYSTALS—*Continued*

Ion exchange on single-crystal silver and zinc. C. V. King and others. bibliog Electrochem Soc J 110:1261-4 D '63

Jig for the orientation of small crystals. S. Rofe. diag J Sci Instr 41:573 S '64

Laser experiments involving in-cavity modulation with electro-optic crystals. A. D. Rugari and P. E. Nordborg. diag IEEE Proc 52:852 Jl '64

Long spacings of polymorphic crystalline forms of long-chain compounds, with special reference to triglycerides. F. D. Gunstone. bibliog Chem & Ind p84-9 Ja 18 '64

Low-index flats on spherical crystals with untouched surfaces. E. Menzel. il J Ap Phys 35:721-2 Mr '64

Magnetic properties of an iron-nickel single crystal ordered by neutron bombardment. L. Néel and others. J Ap Phys 35:873-6 pt 2 Mr '64

Magnetization reversal of almost perfect whiskers. F. E. Luborsky and C. R. Morelock. bibliog il J Ap Phys 35:2055-66 Jl '64

Metallic scattering centers in $CaWO_4$ laser crystals. J. R. Shappirio and others. il J Ap Phys 34:3643-4 D '63

New method of GaP growth. J. D. Broder and G. A. Wolff. il diags Electrochem Soc J 110:1150-3 N '63

Noise in single-crystal tellurium from thermal or optical excitation. V. A. Vis. bibliog J Ap Phys 35:365-8 F '64

Occurrence of new color center absorptions in KCl. J. G. Ring and L. I. Grossweiner. J Ap Phys 35:2257-8 Jl '64

Optical and electrical properties of single-crystal GaP vapor-grown on GaAs substrate. H. Flicker and others. bibliog diag J Ap Phys 35:2959-62 O '64

Optical network synthesis using birefringent crystals. S. E. Harris and E. O. Ammann. diags IEEE Proc 52:411-12 Ap '64

Oxidation of iron single crystals around 200°C. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:501-8 My '64

Oxide films formed on copper single crystal surfaces in water. J. Kruger and J. P. Calvert. bibliog diags Electrochem Soc J 111:1038-41 S '64

Oxygen ion diffusion in single-crystal and polycrystalline yttrium iron garnet. A. E. Paladino and others. bibliog il diag Am Cer Soc J 47:280-2 Je '64

Photochemical reactions in potassium chloride crystals grown from reagent grade KCl. U. M. Grassano and P. W. M. Jacobs. bibliog J Ap Phys 35:2391-7 Ag '64

Photoconductive mixing in CdSe single crystals. O. Svelto and others bibliog diags J Ap Phys 34:3182-6 N '63

Photoconductivity in single-crystal tellurium. V. A. Vis. bibliog diag J Ap Phys 35:360-4 F '64

Photolytic and reduction coloring of $CaWO_4$: Nd. D. C. Cronemeyer and M. W. Beaubien. bibliog diag J Ap Phys 35:1779-85 Je '64

Polymerization in the crystalline state; electron spin resonance study of the propagating species in a polymerizing single crystal of barium methacrylate dihydrate. J. H. O'Donnell and others. bibliog Am Chem Soc J 86:2322-5 Je 20 '64

Preparation of single crystals of V_3Si. E. S. Greiner and H. Mason, jr. il J Ap Phys 35:3058-9 O '64

Pressure sintered alumina bicrystals. M. P. Davis. bibliog il Am Cer Soc J 47:463-4 S '64

Random nucleation of new domains in $BaTiO_3$ crystals at 20 kV/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il J Ap Phys 35:2625-8 S '64

Relation of single-crystal elastic constants to polycrystalline isotropic elastic moduli of MgO. D. H. Chung and others. bibliog diag Am Cer Soc J 46:452-7; 47:448-55 S '63, S '64; Discussion. R. L. Colombo. 47:255 My '64

Relationship of optical axial angle with the three principal refractive indices. J. McAndrew. bibliog Am Mineralogist 48:1277-85 N '63

Relaxation modes of trapped crystal point defects; the three-neighbor shells model in NaCl. A. D. Franklin and others. bibliog J Res Nat Bur Stand 68A:425-38 S '64

Rotational hysteresis loss in single-crystal silicon-iron. C. R. Boon and J. E. Thompson. bibliog il diags Inst E E Proc 111:605-9 Mr '64

Shaping and polishing of cadmium single crystals. P. F. Messer and S. Weintroub. J Sci Instr 41:648 O '64

Silver halide microcrystals are basis for photochromic glass. S. D. Stookey. Chem & Eng N 42:43 F 3 '64

Simple furnace for growing metal crystals. G. T. Clayton and C. Hendrickson. il diag Am J Phys 32:679-80 S '64

Single-crystal boron films on silicon. A. F. Armington and others. il J Ap Phys 35:730-1 Mr '64

Some aspects of the splitting of ionic energy levels in crystals. H. E. Band. bibliog Am J Phys 32:529-42 Jl '64

Spiral copper whiskers. P. L. Edwards and A. Svager. bibliog il J Ap Phys 35:421-3 F '64

Sputtering yields of single crystals bombarded by one- to ten-kev Ar^+ ions. G. D. Magnuson and C. E. Carlston. bibliog diags J Ap Phys 34:3267-73 N '63

Structure of crystalline tetraphenylporphine; the stereochemical nature of the porphine skeleton. M. J. Hamor and others. bibliog Am Chem Soc J 86:1938-42 My 20 '64

Structure of eutectics. B. E. Sundquist and others. bibliog il Inst Metals J 91:204-8 '62-63; Abstract. Metal Prog 85:178-9 F '64

Synthesis and single-crystal growth of rare-earth orthophosphates. R. S. Feigelson. bibliog Am Cer Soc J 47:257-8 My '64

Synthesis of thorianite crystals from bismuth oxide-lead fluoride melts. A. B. Chase and J. A. Osmer. il Am Mineralogist 49:1469-71 S '64

Thermal probe for segregation detection. J. H. Westbrook and others. bibliog diags Electrochem Soc J 111:888-91 Jl '64

Triclinic crystal form of α,β,γ,δ-tetraphenylporphine. S. Silvers and A. Tulinsky. Am Chem Soc J 86:927-8 Mr 5 '64

Two photomechanical effects in alkali halide crystals. J. S. Nadeau. bibliog diags J Ap Phys 35:669-77 Mr '64

Uptake of sulfur from plating brighteners by copper and nickel. J. J. Hoekstra and D. Trivich. bibliog il Electrochem Soc J 111:162-8 F '64

Use of Wollaston prisms for a high-capacity digital light deflector. W. J. Tabor. diag Bell System Tech J 43:1153-4 My '64

Vapor deposition of sodium chloride whiskers. E. G. Bylander. il J Ap Phys 35:1988 Je '64

Whiskers as reinforcement materials. E. Keller. il Ind & Eng Chem 56:9-10 Ap '64

Whiskers no longer a freak. Engineering 197:206 Ja 31 '64

See also

Ferroelectric effect
Ice
Oscillators, Crystal
Quartz

Cutting

Goniometer and X-ray diffractometer for orientation, cutting and controlled positioning of crystals. G. V. Patser and H. Chessin. il J Sci Instr 41:52-4 Ja '64

Preparation of $CrBr_3$ samples. J. F. Dillon, jr. and M. Teague. il diag R Sci Instr 35:747-8 Je '64

Stringless acid crystal cutter. D. Shanefield and E. W. Currier. diag R Sci Instr 35:1079-80 Ag '64

Wires cut crystals accurately. E. H. Lederer. il diag Electronics 36:46 N 1 '63

Dislocations

Anharmonicity due to glide motion of dislocations. T. Suzuki and others. bibliog J Ap Phys 35:2761-6 S '64

Annealing spectrum of cold-worked silver-cadmium alloys. R. Kamel and E. A. Attia. bibliog Inst Metals J 92:270-4 '63-64

Calcium tungstate; observation of dislocations. H. J. Levinstein and others. il J Ap Phys 34:3603-8 D '63

Creep-rupture behavior of MgO bicrystals. G. T. Murray and others. Am Cer Soc J 47:531 O '64

Crystal defects in two ceramic oxides. il Engineering 197:238 F 7 '64

Decay of elastic waves in solids with dislocations. P. Harris and R. F. Greene. bibliog J Ap Phys 35:2170-3 Jl '64

Decoration of dislocations in rutile. O. W. Johnson. il J Ap Phys 35:3049-50 O '64

Deformation of polycrystalline zinc by hot torsion. G. P. Lewis and W. J. M. Tegart. bibliog il Inst Metals J 92:249-51 '63-64

Degradation of planar junctions during reoxidation. F. Barson and others. bibliog il Electrochem Soc J 111:1263-6 N '64

CRYSTALS—Dislocations—*Continued*

Diffusion-induced dislocations in silicon. J. Washburn and others. bibliog il diags J Ap Phys 35:1909-14 Je '64

Direct observation of lithium precipitation at dislocations in GaAs. T. B. Light and K. B. Wolfstirn. il J Ap Phys 35:1649-51 My '64

Dislocation arrays in polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:1351 Ap '64

Dislocation channeling in neutron-irradiated molybdenum. B. Mastel and others. il J Ap Phys 34:3637-8 D '63

Dislocation contribution to ultrasonic harmonic generation. A. D. Brailsford. J Ap Phys 35:2256-7 Jl '64

Dislocation damping due to kink motion. T. Suzuki and C. Elbaum. bibliog diag J Ap Phys 35:1539-44 My '64

Dislocation damping in dilute Cu-Ge alloys. N. F. Fiore and C. L. Bauer. bibliog J Ap Phys 35:2242-7 Jl '64

Dislocation multipoles and their role in strain-hardening. H. S. Chen and others. bibliog diags J Ap Phys 35:2502-14 Ag '64

Dislocation structure and growth mechanism of cadmium sulfide crystals. J. I. Chikawa and T. Nakayama. bibliog il diags J Ap Phys 35:2493-501 Ag '64

Dislocation structures in single-crystal Al_2O_3. D. L. Stephens and W. J. Alford. bibliog il diag Am Cer Soc J 47:81-6 F '64

Dislocations in polymer crystals. H. D. Keith and E. Passaglia. bibliog diags J Res Nat Bur Stand 68A:513-18 S '64

Dislocations in webs of germanium and silicon. S. O'Hara. bibliog il diag J Ap Phys 35:409-13 F '64

Dislocations; their origin and multiplication. G. Thomas. bibliog il diag J Metals 16:365-9 Ap '64

Drag on dislocations due to thermal losses of the phonon-phonon interaction type. W. P. Mason. bibliog J Ap Phys 35:2779-81 S '64

Ductile materials. R. I. Jaffee. bibliog il diags Chem Eng 71:91-8 Ja 6 '64

Effect of grain boundaries on plastic deformation of sodium chloride. S. A. Long and T. D. McGee. bibliog il Am Cer Soc J 46:583-7 D '63

Effect of internal oxidation on the plastic deformation of silver-aluminum single crystals. M. J. Marcinkowski and D. F. Wriedt. bibliog il diags Electrochem Soc J 111:92-100 Ja '64

Effect of neutron-induced defects on the current-carrying behavior of niobium stannide. G. W. Cullen and others. bibliog RCA R 25:479-90 S '64

Entropy factors for thermally activated unpinning of dislocations. A. V. Granato and others. bibliog diags J Ap Phys 35:2732-45 S '64

Epitaxial growth of gallium arsenide on germanium substrates; relationship between fault formation in gallium arsenide films and the surface of their germanium substrate. T. Gabor. bibliog il diags Electrochem Soc J 111:817-27 Jl '64

Flow stresses on the [100] and [110] planes in LiF, and the plasticity of polycrystals. D. W. Budworth and J. A. Pask. bibliog Am Cer Soc J 46:560-1 N '63

Formation of diamond-shaped prismatic loops in quencher fcc metals. A. Eikum and G. Thomas. bibliog il diags J Ap Phys 34:3363-7 N '63

Formation of electrochemical etch pits on the (111) face of copper. U. Bertocci and others. il diag Electrochem Soc J 110:1190-4 D '63

Growth of copper crystals of low dislocation density. F. W. Young, jr. and J. R. Savage. bibliog il diags J Ap Phys 35:1917-24 Je '64

Growth spirals on phlogopite crystals. I. Sunagawa. bibliog il diag Am Mineralogist 49:1427-34 S '64

Hardening mechanisms and the theory of deformation. H. Wiedersich. bibliog il diags J Metals 16:425-30 My '64

High-temperature creep and fracture of polycrystalline gold. P. W. Davies and others. bibliog Inst Metals J 92:409-12 '63-64

Imperfections associated with dielectric breakdown in LiF. J. W. Davisson and others. bibliog il diag J Ap Phys 35:3017-23 O '64

Ionic conductivity in LiF grain boundaries. R. L. Moment and R. B. Gordon. bibliog diag J Ap Phys 35:2489-92 Ag '64

Mechanical behavior of magnesium oxide at high temperatures. R. B. Day and R. J. Stokes. bibliog il diags Am Cer Soc J 47:493-503 O '64

Mechanical behavior of single-crystal and polycrystalline cesium bromide. L. D. Johnson and J. A. Pask. bibliog il diags Am Cer Soc J 47:437-44 S '64

Microstraining in polycrystalline niobium. T. J. Koppenaal and P. R. V. Evans. bibliog il Inst Metals J 92:238-41 '63-64

New method of analyzing crystal defects. diag Bell Lab Rec 42:252 Jl-Ag '64

Orientation of stacking faults and dislocation etch pits in β-SiC. W. K. Liebmann. bibliog il Electrochem Soc J 111:885-6 Jl '64

Origin of anomalous etch pits in minerals. R. L. Fleischer and others. bibliog il Am Mineralogist 49:794-800 My '64

Planar stress field of a dislocation in an anisotropic plate. Y. T. Chou. bibliog J Ap Phys 34:3608-14 D '63

Relation between dislocation density and catalytic activity and effects of physical treatment. J. W. Hall and H. F. Rase. bibliog diags Ind & Eng Chem Fundamentals 3:158-67 My '64

Simultaneous observation of diffusion-induced dislocation slip patterns in Si with electron beam scanning and optical means. W. Czaja and G. H. Wheatley. bibliog il J Ap Phys 35:2782-3 S '64

Slip process peculiar to fatigue. M. E. Packer and W. A. Wood. il Inst Metals J 92:299 '63-64

Stress-corrosion cracking of short-range-ordered copper-gold single crystals. J. M. Hardwick and R. A. Dodd. bibliog Inst Metals J 92:339-40 '63-64

Structural defects in GaP crystals and their electrical and optical effects. M. Gershenzon and R. M. Mikulyak. bibliog il J Ap Phys 35:2132-41 Jl '64

Structure-property relations for pyrolytic graphite. L. F. Coffin, jr. il diags Am Cer Soc J 47:473-8 O '64

Surface effect in creep due to grain-boundary sliding. P. W. Davies and others. Inst Metals J 93:25-6 '64-65

Surface-sensitive mechanical properties. A. R. C. Westwood. bibliog il diags Ind & Eng Chem 56:14-25 S '64

Temperature dependence of light scattering in some alkali halides. C. A. Plint and M. L. Breig. bibliog J Ap Phys 35:2745-9 S '64

Theory of the thermal breakaway of a pinned dislocation line with application to damping phenomena. L. J. Teutonico and others. bibliog J Ap Phys 35:220-34 Ja '64

Thermally activated deformation of metals. H. Conrad. bibliog il diags J Metals 16:582-8 Jl '64

Three-dimensional X-ray topographic studies of internal dislocation sources in silicon. A. Authier and A. R. Lang. bibliog il diags J Ap Phys 35:1956-9 Je '64

Threshold displacement energies and subthreshold displacements in copper and gold near 10°K. W. Beuer and A. Sosin. bibliog diag J Ap Phys 35:703-9 Mr '64

Work hardening and dislocation arrangement of fcc single crystals; electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

Work hardening and dislocation arrangement of fcc single crystals; plastic deformation and slip line studies of nickel single crystals. S. Mader and others. bibliog il J Ap Phys 34:3368-75 N '63

X-ray-induced dislocation generation in sodium chloride. R. L. Wolfe and C. L. Bauer. bibliog il J Ap Phys 35:658-63 Mr '64

Zinc tungstate crystal growth, dislocations, and crystallography. S. O'Hara. bibliog il J Ap Phys 35:1312-16 Ap '64

Inclusions

See Inclusions (mineralogy and petrology)

Lattices

Crystal lattice energies and the electrostatic self energies of gaseous ions. R. H. Stokes. bibliog diags Am Chem Soc J 86:982-6 Mr 20 '64

Detection of lattice deformation and recovery in epsilon phase silver-tin alloys. R. M. Waterstrat and G. E. Hicho. bibliog il J Res Nat Bur Stand 68A:317-23 My '64

Dimensions and energies of alkali metal crystals in relation to those of their gaseous ions. R. H. Stokes. bibliog Am Chem Soc J 86:2333-6 Je 20 '64

CRYSTALS—Lattices—*Continued*

Effect of lattice defects on the magnetization curve of ferromagnets. A. Seeger and others. bibliog il diags J Ap Phys 35:740-8 pt 2 Mr '64

Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64

Graphite defects observed by electron microscope. G. Bonfiglioli and A. Mojoni. bibliog il J Ap Phys 35:683-5 Mr '64

Growth of lattice defects in silicon during oxidation. H. J. Queisser and P. G. G. van Loon. il J Ap Phys 35:3066-7 O '64

Importance of intrasublattice magnetic interactions and of substitutional ion type in the behavior of substituted yttrium iron garnets. S. Geller and others. diags Bell System Tech J 43:565-623 bibliog(p622-3) Mr '64

Interactions of gas molecules with an ideal crystal surface. R. A. Oman and others. bibliog il diags AIAA J 2:1722-30 O '64

Laboratory linear analog for lattice dynamics. R. B. Runk and others. bibliog diags Am J Phys 31:915-21 D '63

Lattice parameters and expansion coefficients of FeS_2 (natural and synthetic), and of CoS_2. M. E. Straumanis and others. bibliog Am Mineralogist 49:206-12 Ja '64

Lattice parameters and lattice energies of high-pressure polymorphs of some alkali halides. C. E. Weir and G. J. Piermarini. bibliog J Res Nat Bur Stand 68A:105-11 Ja '64

Lattice parameters of nepheline hydrate. A. D. Edgar. bibliog Am Mineralogist 49: 1139-41 Jl '64

Lattice spacings and densities of some tin solid solutions. N. Ridley. Inst Metals J 92:123-4 '63-64

Lattice thermal conductivity of an isotopically disordered crystal. A. A. Maradudin. bibliog Am Chem Soc J 86:3405-13 S 5 '64

Metallic lattices considered as electron concentration phases; abstract. N. Engel. Metal Prog 86:256+ O '64

Microwave acoustics. S. W. Tehon and S. Wanuga. il diags IEEE Proc 52:1113-27 bibliog(p 1125-7) O '64

Neutron diffraction effects with moving lattices. C. G. Shull and N. S. Gingrich. diags J Ap Phys 35:678-82 Mr '64

One atom in 7700 changes alloy structure; abstract. G. R. B. Elliott and R. B. Roof. Chem & Eng N 42:54+ Ap 20 '64

Paramagnetic susceptibility, electrical resistivity, and lattice parameters of nickel-rich nickel-tantalum alloys. H. Chessin and others. bibliog J Ap Phys 35:2419-23 Ag '64

Point defects: an evaluation. H. B. Huntington. bibliog diags Am J Phys 32:775-86 O '64

Precision measurement of the cleavage plane grating spacing of potassium acid phthalate. A. J. Bearden and F. N. Huffman. bibliog diag R Sci Instr 34:1233-4 N '63

Relation of atomic constitution to lattice parameters in some hornblendes from the Black Hills, South Dakota. B. Raychaudhuri. bibliog Am Mineralogist 49:198-206 Ja '64

Solid solubility and lattice parameter of NiO-MnO. C. A. Barrett and E. B. Evans. Am Cer Soc J 47:533 O '64

Sublattice magnetization and lattice distortions in MnO and NiO. D. S. Rodbell and J. Owen. bibliog diag J Ap Phys 35:1002-3 pt 2 Mr '64

Threshold displacement energies and subthreshold displacements in copper and gold near 10°K. W. Bauer and A. Sosin. bibliog diag J Ap Phys 35:703-9 Mr '64

Use of the interaction of thermal and ultrasonic waves to study radiation-induced defects in quartz. T. M. Fitzgerald and others. bibliog J Ap Phys 35:1639-40 My '64

CRYSTALS, Liquid. See Liquid crystals

CRYSTALS, Piezoelectric

Collective elastic waves in piezoelectric semiconductors. R. W. Damon and others. bibliog il diags IEEE Proc 52:912-21 Ag '64

Coupled modes of acoustic waves and drifting carriers in piezoelectric crystals. K. Blötekjær and C. F. Quate. bibliog diags IEEE Proc 52:360-77 Ap '64

Intermodulation analysis of crystal mixer. L. M. Orloff. diag IEEE Proc 52:173-9 F '64; Discussion. bibliog 52:984-5 Ag '64

Narrow-band crystal filter design. J. Lang. diags Electro-Tech 73:116-18 Je '64

Phonon radiation by uniformly moving charged particles in piezoelectric solids. R. Tsu. diag J Ap Phys 35:125-30 Ja '64

Piezoelectric accelerometer. J. Willis and B. D. Jimerson. diag IEEE Proc 52:871-2 Jl '64

Piezoelectric sorption detector. W. H. King, jr. bibliog diags Anal Chem 36:1735-9 Ag '64

Piezoelectric transducer yields ultrahigh waves. Steel 155:151+ S 14 '64

Recent developments in silicon radar crystals. H. V. Shurmer. diags Inst E E Proc 111:257-63 F '64

See also

Barium titanate

Oscillators, Crystal

Piezoelectricity

CUBA

See also

Architecture—Cuba

Petroleum—Cuba

CUBANE. See Hydrocarbons

CUCUMBERS

Cucumber juice, its biological and phytotherapeutical evaluation in cosmetology. V. Vitéz. bibliog Am Perfumer 79:81-2 Je '64

See also

Pickles

CULTIVATORS

New Honda comes in with cultivators. il Engineering 198:390-1 S 25 '64

CULTURE

See also

Civilization

CULTURE media. See Bacteriology—Cultures and culture media

CULVERTS

Big aluminum culverts placed without heavy equipment. il Roads & Sts 107:154 My '64

Tapered inlets for pipe culverts. J. L. French. bibliog diags Am Soc C E Proc 90 [HY 2 no 3845]:255-99 Mr '64

Transitions for canals and culverts. W. P. Simmons. il diags Am Soc C E Proc 90 [HY 3 no 3918]:115-53 My '64

CULVERTS, Concrete

Big concrete pipes jacked under rail line. il Roads & Sts 107:94+ Mr '64

Precast T's and slabs make culverts quickly. J. F. Lenard. il diags Civil Eng 34:64-5 O '64

Precast units make a culvert. il diag Eng N 172:42 My 28 '64

CUMENE

Factors governing orientation in metalation reactions: the metalation of isopropylbenzene with *n*-amylsodium and *n*-amylpotassium. R. A. Benkeser and others. bibliog Am Chem Soc J 85:3984-9 D 20 '63

Free-radical addition to azobenzene in cumene solution; electron paramagnetic resonance spectra of some long-lived radical intermediates. J. K. S. Wan and others. bibliog Am Chem Soc J 86:2069-70 My 20 '64

Two fungicidally active 5-chloro-4-aryl-1,2-dithiol-3-ones derived from cumene and *p*-cymene. W. R. Diveley and others. bibliog J Agri & Food Chem 12:251-3 My '64

CUMMINGTONITE. See Amphiboles

CUNNINGHAM, George Magee

Memorial. R. N. Nelson. por Am Assn Pet Geologists Bul 48:125-6 Ja '64

CUPFERRON. See Nitrosophenylhydroxylamine

CUPOLA furnaces

Hot-blast cupola makes iron fast. il Iron Age 192:47 N 21 '63

Replacing cupola; question and answer. Foundry 92:66-7 F '64

Twenty years of progress in cupola melting. S. C. Clow. il Foundry 91:44-9 N '63

Charging

Mechanized system cuts cupola charging costs. W. D. Huskonen. il Foundry 92:54-7 O '64

CUPRAMMONIUM hydroxide. See Copper ammonium hydroxide

CUPS, Plastic

Look what's happening to plastics beverage-ware. il Plastics World 22:22-5, cover Ag '64

CURARE

Calabash curare alkaloids; specific deuterium labeling and nuclear magnetic resonance studies. M. Grdinic and others. bibliog diags Am Chem Soc J 86:3357-63 Ag 20 '64

CURBS

Curbing placed at five feet per minute. il Pub Works 95:106-7 Jl '64

CURBS, Bituminous concrete

New technique in the design and construction of asphaltic concrete curbs. S. G. Brown. diag Pub Works 95:101 Ja '64

CURCUMIN

Modifications in the curcumin procedure for the determination of boron in soil extracts. A. S. Baker. bibliog J Agri & Food Chem 12:367-70 Jl '64

CURIE point

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

Magnetization of gadolinium near its Curie temperature. F. J. Darnell and W. H. Cloud. bibliog J Ap Phys 35:935-6 pt 2 Mr '64

Ultrasonic relaxation near the Curie temperature of ferroelectric triglycine sulfate. E. J. O'Brien and T. A. Litovitz. bibliog il diag J Ap Phys 35:180-6 Ja '64

CURIUM

Separation of americium from curium with calcium fluoride. H. P. Holcomb. bibliog diag Anal Chem 36:2329-32 N '64

Isotopes

New production of non-weapon material. Franklin Inst J 276:541-2 D '63

CURLING of paper. See Paper—Curling

CURRICULUM. See Colleges and universities—Curriculum; Engineering colleges—Curriculum

CURVATURE

Influence of channel curvature on flow, pressure distribution, and power requirements of screw pumps and melt extruders. M. L. Booy. bibliog diags A S M E Trans ser B 86:22-30 F '64

Load-moment-curvature characteristics of reinforced concrete cross sections. E. O. Pfrang and others. diags Am Concrete Inst J 61:763-78 Jl '64

Rate of loading effect on moment-curvature relation in prestressed concrete beams. I. O. Oladapo. il diags Am Concrete Inst J 61:871-87 Jl '64

CURVE fitting

Accelerated convergence, divergence, iteration, extrapolation, and curve fitting. J. R. MacDonald. bibliog J Ap Phys 35:3034-41 O '64

Fitting $y=\beta x$ when the variance depends on x. J. Van Dyke. J Res Nat Bur Stand 68B:67-72 Ap '64

Optimal functional approximating using dynamic programming. A. G. Lubowe. AIAA J 2:376-7 F '64

CURVE plotting

Automatic plotting of spin-wave instability threshold data. T. G. Purnhagen. diags R Sci Instr 35:558-61 My '64

Curve plotting. V. Rettinger. diags Audio 48: 24+ S '64

New approach to the plotting of phase-plane trajectories. B. L. Deekshatulu and I. Suryanarayana Murthy. bibliog diags Inst E E Proc 111:1771-4 O '64

Vertical curve plotting. J. W. O. Baker. il diags Am Soc C E Proc 89 [HW 1 no 3476]: 1-11 Ap '63; Discussion. 90 [HW 1 no 3780]: 113-15 Ja '64; Reply. 90 [HW 2 no 3997]: 13-14 Ag '64

Vertical curve plotting with circular templates. V. L. Lao. Am Soc C E Proc 90 [HW 2 no 3998]:1-7 Ag '64

See also

Learning curves

CURVED surfaces. See Surfaces

CURVES

Automatic computation of the area under indicator dilution curves. C. F. Hepner and others. bibliog diags IEEE Trans Com & Electronics 83:541-4 S '64; Correction. 83: 705 N '64

See also

Catenary
Curvature
Parabola

CURVES, Learning. See Learning curves

CURVES in engineering

Arc lengths and curvature of parabolic segments. M. H. Thibodeaux. diags Am Soc C E Proc 90 [PL 1 no 3755]:1-6 Ja '64

Computation of offsets from curves. J. J. Durkin. diags Civil Eng 34:67 S '64

Preliminary analysis of continuous curved girder frames. D. C. Carman and J. J. Tuma. bibliog Am Soc C E Proc 90 [ST 4 no 4012]:191-204 Ag '64

CUSHIONING (packaging). See Packing for shipment

CUSTODIANS. See Janitors

CUSTOMER relations

Let your customers look over your shoulder; reporting system for Atols Tool & Mold. il Mill & Factory 73:54-5 D '63

Pursuit of perfection B. Cooke. Ind Quality Control 21:16-20 Jl '64

See also

Electric utilities—Customer relations
Gas companies—Customer relations
Service (in industry)
Water companies—Customer relations

CUT glass

Magnificent cut glass. A. C. Revi. il diags Glass Ind 45:478-82+ S '64

CUTTING

See also

Paper cutting
Plastics—Cutting

CUTTING, Electric. See Electric cutting

CUTTING fluids. See Lubrication and lubricants (cutting and grinding)

CUTTING machines

Gear cuts slits in stock. C. Emerson. il Am Mach 108:47-8 Ag 31 '64

See also

Paper cutting machines
Rubber cutting
Shears (machines)

Numerical control

Adaptive controller for a metal cutting process. R. M. Centner and J. M. Idelsohn. bibliog flow diags diags IEEE Trans Applications & Ind 83:154-61 My '64

Automatic control of billet mill saw measuring stops. G. Cooper. il diags Radio & Electronic Eng 26:279-84 O '63

Automation comes to turbine blade machining. B. C. Brosheer. il diags Am Mach/Metalworking Manuf 107:97-102 D 9 '63

Controlled energy machining; new thinking at the tool tip. R. F. Rieger and R. M. Campbell. il diags Steel 155:54-9 Ag 17 '64

Die machined by numerical control. A. L. Pickrell. il Tool & Manuf Eng 52:85 Je '64

New n/c concept cuts parts down to size. R. H. Eshelman. il Iron Age 193:59 F 13 '64

Sensors will optimize metal cutting, experimenters hope. D. Aronson. il Control Eng 11:19-20+ Ag '64

Versatile cut-to-length line uses digital positioning controls. D. E. Bush and R. T. Mercer. il diags Automation 11:76-9 My '64

CUTTING of concrete. See Concrete—Cutting

CUTTING of metals. See Metal cutting

CUTTING off machines

Carborundum grinds out new abrasive methods. R. H. Eshelman. il Iron Age 194:47 O 15 '64

DoALL low-cost cutoff saw. il Mach 70:157 My '64

DoALL power saw for cast cutoff of long stock. il Mach 71:210+ O '64

Faster cutoff of alloy and stainless-steel billets. il Mach 70:152 My '64

Faster cutoff of tool steels with dry abrasive wheels. C. H. Wick. il Mach 70:99-101 N '63

Innovations in blank preparation save waste in time and steel. V. C. Rice. il Mach 70: 132-3 D '63

Safe cutoff for waveguide tube improves shearing quality; Western Electric's North Carolina works. F. J. Fuchs, jr. and H. R. Tillman. il diags Mach 70:112-15 F '64

Using the right cutoff wheel? D. J. Greenfield. diags Am Mach 108:77-8 Ap 27 '64

See also

Saws, Metal working

CUTTING oils. See Lubrication and lubricants (cutting and grinding)

CUTTING tools

Fundamentals of HSS cutting tools. il diags Am Mach 108:149-56 Ap 13 '64 (reprints 50c)

High-strength tool geometry, result of research in tool geometry. P. Albrecht. il diags A S M E Trans ser B 86:70-4 F '64

1964 production preview; cutting. Am Mach 108:131 Ja 20 '64

Saving tools with antijump circuits. D. D. Wright. diags Hydraulics & Pneumatics 17:124+ My '64

Torque-controlled drive evaluated for turning operations. il Mach 70:113-15 Jl '64

See also

Grooving
Metal cutting
Milling cutters

Failure

How to prevent tool cracking. il Iron Age 193:141-2 My 21 '64

Modified high speed steels increase tool life. G. Steven and S. Smialek. il Tool & Manuf Eng 51:75-8 N '63

CUTTING tools—*Continued*

Sharpening

How to sharpen end mills with eccentric relief; reference book sheet. A. Baker. diags Am Mach 108:63+ Ag 31 '64

Testing

Criticism of radioactive tool-life testing. N. H. Cook and A. B. Lang. bibliog il diags A S M E Trans ser B 85:381-5; Discussion. 385-7 N '63

Cutting-tool temperature-predicting equation by response-surface methodology. S. M. Wu and R. N. Meyer. bibliog diags A S M E Trans ser B 86:150-6 My '64

Theory of plasticity applied to machining with cut-away tools. E. Usui and others. bibliog il diags A S M E Trans ser B 86:95-104 My '64

Tool life in Ni-Cr alloys. C. B. Haeberle. Am Mach 108:66-8 Jl 20 '64

Tool-life testing by response surface methodology. S. M. Wu. bibliog diags A S M E Trans ser B 86:105-16 My '64

CUTTING tools, Carbide

Carbide bullet makes rifling. il diags Am Mach/Metalworking Manuf 107:71-2 N 25 '63

Cutting steel and iron with cemented carbide tools. E. M. Trent. bibliog il diags Iron & Steel Inst J 201:847-55, 923-32, 1001-15 O-D '63

Disposable carbide tooling boosts productivity and lowers costs. F. Monaco and B. E. Storrs. il Mach 70:130-2 Ap '64

Disposable insert cutters. il Mach 71:169-70 O '64

Electrode coats tools with hard carbide. il Iron Age 193:56 Ja 23 '64

How to machine nodular iron. il Am Mach 108:59-61 Mr 30 '64

Longer-life carbides improve tool performance. J. M. Galimberti. il diag Tool & Manuf Eng 52:98-101 Ap '64

Special tungsten carbide tools flush machine aluminum rivets. il Light Metal Age 22:20-1 Ap '64

Tantalum carbide helps cut high strength steels. Engineering 197:780 Je 5 '64

Tiny welds of carbide make wear resistant coat. il Steel 154:31 F 3 '64

See also
Carbides
Metal cutting
Tungsten carbide

Manufacture

Man-made diamond reduces cost of grinding carbide form tools. L. A. Reif. il Mach 71:112-13 S '64

Testing

Machinability of nodular cast irons; tool life of carbide and ceramic cutting tools. K. Hitomi and G. L. Thuering. il A S M E Trans ser B 86:141-9 My '64

CUTTING tools, Ceramic

Ceramics for cutting metals. A. G. King. bibliog il Am Cer Soc Bul 43:395-401 My '64

Ceramics make hogging cuts. J. Binns. il Am Mach 108:141-4 Ap 13 '64

How to machine nodular iron. il Am Mach 108:59-61 Mr 30 '64

Testing

Machinability of nodular cast irons; tool life of carbide and ceramic cutting tools. K. Hitomi and G. L. Thuering. il A S M E Trans ser B 86:141-9 My '64

CYANAMIDE

Aqueous solution containing free cyanamide offered. Chem & Eng N 42:60 My 11 '64

CYANIDE poisoning

Cyanide poisoning. F. G. Hirsch. bibliog Archives Environmental Health 8:622-4 Ap '64

CYANIDES

Build-up and control of carbonates in cyanide copper plating solution. J. R. Crain. bibliog diags Plating 51:31-8 Ja '64

Chemistry of aliphatic disulfides; cyanide cleavage in the presence of thiocyanates. R. G. Hiskey and D. N. Harpp. bibliog Am Chem Soc J 86:2014-18 My 20 '64

Chemistry of aliphatic disulfides; effect of α-alkylation on the cyanide cleavage of unsymmetrical disulfides. R. G. Hiskey and others. bibliog Am Chem Soc J 86:2010-14 My 20 '64

Condensation-polymerization of pentamethyldisilanyl cyanide and related compounds. J. V. Urenovitch and A. G. MacDiarmid. bibliog Am Chem Soc J 85:3372-5 N 5 '63

Displacement reactions; the reaction of cyanide ion with tetramethylthiuram disulfide. R. E. Davis and A. Cohen. bibliog Am Chem Soc J 86:440-3 F 5 '64

Evaporation system recovers plating solutions from contaminated rinse water. H. E. P. Barta. il diag Automation 11:54-6 My '64

Gold mills improve cyanidation process. diag Can Chem Process 48:67-8+ Ap '64

pH effects on the kinetics of the cystine-cyanide reaction. O. Gawron and others. bibliog Am Chem Soc J 86:2283-6 Je 5 '64

Mass spectrometry in structural and stereochemical problems; the mass spectrometric fragmentation behavior of isohexyl cyanide and its deuterium analogs. R. Beugelmans and others. bibliog Am Chem Soc J 86:1386-9 Ap 5 '64

Polarographic behavior of silver in cyanide solutions. R. F. Large and E. P. Przybylowicz. bibliog Anal Chem 36:1648-52 Jl '64

Practical cyanide zinc plating. E. L. Gabel. Plating 50:1089-93 D '63

Preparation of oxamide from cyanide by glow-discharge electrolysis. E. H. Brown and others. Electrochem Soc J 111:123 Ja '64

Semi-automatic monitor of cyanide solution strength for gold ore dissolution. G. G. Eichholz and C. A. Josling. il diags Can Min & Met Bul 57:287-91 Mr '64

Structure of 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranosyl cyanide and some derivatives therefrom; synthesis of 1-deoxy-D-galactoheptulose. B. Coxon and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:922-6 Mr 5 '64

See also
Alkali metal cyanides
Potassium cyanide
Sodium cyanide

Analysis

Submicromicrogram determination of cyanide by a polarographic method. G. W. Miller and others. Anal Chem 36:980-3 My '64

Spectra

Confirmation of the anomeric configuration of 2,3,4,6-tetra-*O*-acetyl-β D-galactopyranosyl cyanide by proton magnetic resonance. B. Coxon and H. G. Fletcher, jr. bibliog Chem & Ind p662-3 Ap 18 '64

CYANOBUTADIENE

Hexacyanobutadiene. O. W. Webster. bibliog Am Chem Soc J 86:2898-902 Jl 20 '64

CYANOCOBALTATES

Homogeneous catalytic hydrogenation of sorbic acid with pentacyanocobaltate II. A. F. Mabrouk and others. bibliog Am Oil Chem Soc J 41:153-8 F '64

Pentacyanobenzylcobaltate(III); a new series of stable organocobalt compounds. J. Halpern and J. P. Maher. bibliog Am Chem Soc J 86:2311 Je 5 '64

CYANO compounds

C^{13} hyperfine splittings in the 7,7,8,8-tetracyanoquinodimethane anion radical. M. T. Jones and W. R. Hertler. Am Chem Soc J 86:1881-2 My 5 '64

See also
Vitamins—Vitamin B_{12}

CYANOETHYLATION

Dielectric properties of cyanoethylated polyvinyl alcohol. L. C. Flowers and D. Berg. bibliog Electrochem Soc J 111:1239-43 N '64

Effect of hydrogen bonds on the relative retention during gas-liquid chromatography with β-cyanoethyl polyvalent alcohols. J. Ratusky and L. Baštář. bibliog Chem & Ind p579-80 Ap 4 '64

CYANOGEN bromide

Reaction of cyanogen bromide with mono-and diamino acids. J. Schreiber and B. Witkop. bibliog Am Chem Soc J 86:2441-5 Je 20 '64

CYANOGEN compounds

Cyanogen azide. F. D. Marsh and M. E. Hermes. Am Chem Soc J 86:4506-7 O 20 '64

CYANOGEN fluoride

Cyanogen fluoride; synthesis and properties. F. S. Fawcett and R. D. Lipscomb. bibliog diag Am Chem Soc J 86:2576-9 Jl 5 '64

CYANOSIS

Chemical cyanosis-anemia syndrome. R. L. Wuertz and others. Archives Environmental Health 9:478-91 bibliog(p490-1) O '64

CYBERNETICS

Artificial neurons; for machines that learn. H. Moraff. diags Electronic Ind 22:52-6 D '63

Biocybernetics; mathematical analysis of organ systems. G. B. Thomas. Archives Environmental Health 9:298-302 S '64

CYBERNETICS—*Continued*

Brains, machines, and mathematics. M. A. Arbib. Review, by J. Bronowski. Sci Am 210:130+ Je '64

Living neuro-electronic systems. P. M. Kelly. bibliog diags Space/Aeronautics 42:52-9 S '64

Machines that mimic men. il diags Steel 153: 92-6 N 25 '63

Machines that think like people. G. V. Novotny. il diags Electronics 37:90+ Jl 13 '64

Myoelectric surface potentials for machine control. R. R. Michael and F. R. Crawford. diags Elec Eng 82:689-91 N '63

Nature of living control systems. J. H. Milsum. bibliog diags Eng J 47:34-8 My '64

CYCLES

See also

Periodicity

CYCLIC compounds

Acid-catalyzed cyclization of acyclic dienes. H. E. Ulery and J. H. Richards. bibliog Am Chem Soc J 86:3113-17 Ag 5 '64

Azo compounds; five-membered cyclic azo compounds; their stereospecific decomposition. C. G. Overberger and J. Anselme. bibliog Am Chem Soc J 86:658-61 F 20 '64

3,2,1-Bicyclic reaction path. M. S. Newman and C. Courduvelis. Am Chem Soc J 86: 2942-3 Jl 20 '64

Bridged polycyclic compounds; the solvolysis of some 4-chlorodibenzobicyclo[3.2.1]octadienes. S. J. Cristol and D. D. Tanner. bibliog Am Chem Soc J 86:3122-6 Ag 5 '64

Carbon-carbon bond fission in cyclopropanes; the acid-promoted opening of the three-membered ring in bicyclo[4.1.0]heptane, bicyclo[3.1.0]hexane, and bicyclo[2.1.0]pentane. R. T. LaLonde and L. S. Forney. bibliog Am Chem Soc J 85:3767-71 D 5 '63

Carbonium ions; the opening of bicyclic alcohols to cyclohexenyl cations and the further conversion to cyclopentenyl cations. N. C. Deno and J. J. Houser. bibliog Am Chem Soc J 86:1741-3 My 5 '64

Cationic cyclizations involving olefinic bonds. W. S. Johnson and others. bibliog Am Chem Soc J 86:1959-78 My 20 '64

Cationic cyclizations involving olefinic bonds; solvolysis of *cis*-5,9-decadienyl *p*-nitrobenzenesulfonate. W. S. Johnson and J. K. Crandall. Am Chem Soc J 86:2085-6 My 20 '64

Chemistry of cleavamine; a novel transannular cyclization relating to biosynthesis of aspidosperma alkaloids. J. P. Kutney and E. Piers. bibliog Am Chem Soc J 86:953-5 Mr 5 '64

Continuous production of cyclic fatty acids. R. E. Beal and others. diag Am Oil Chem Soc J 41:683-5 O '64

Cumulative effects in small ring cleavage reactions; a novel cyclobutane rearrangement. D. J. Trecker and J. P. Henry. bibliog Am Chem Soc J 86:902-5 Mr 5 '64

Cyclic fatty acids from linolenic acid. R. A. Eisenhauer and others. flow sheet Am Oil Chem Soc J 41:60-3 Ja '64

Cyclic polyhydroxy ketones; *xylo*-trihydroxycyclohexenediolic acid and keto-inositols. A. J. Fatiadi and H. S. Isbell. bibliog J Res Nat Bur Stand 68A:287-99 My '64

Cyclic saturated oxyphosphoranes and their hydrolysis to cyclic phosphate esters; the diastereomeric 2:1 biacetyl-trimethyl phosphite adducts. F. Ramirez and others. bibliog Am Chem Soc J 85:3465-72 N 5 '63

Cyclisations following radical addition to ethyl diallylacetate. J. I. G. Cadogan and others. Chem & Ind p753 My 2 '64

Cyclization of diene polymers. I. A. Tutorskii and others. bibliog Rubber Chem & Tech 36:1019-23 O '63

Cyclization of geranic acids; preparation of a cyclobutanone. J. J. Beereboom. Am Chem Soc J 85:3525-6 N 5 '63

Cyclization of natural rubber. D. F. Lee and others. bibliog Rubber Chem & Tech 36: 1005-18 O '63

Cycloaddition. P. D. Bartlett and others. bibliog Am Chem Soc J 86:616-31 F 20 '64

Cycloaddition reactions of sulfenes. I. J. Borowitz. bibliog Am Chem Soc J 86:1146-9 Mr 20 '64

Cycloaliphatic epoxides; their synthesis and properties. H. Batzer. bibliog il diag Chem & Ind p 179-89 F 1 '64

Elaboration of the A/B ring system of sarmentosigenin E. M. E. Wolff and J. A. Muñoz. bibliog Chem & Ind p 1312-13 Jl 18 '64

Formation and photochemical rearrangement of β′-ketosulfoxonium ylides. E. J. Corey and M. Chaykovsky. bibliog Am Chem Soc J 86:1640-1 Ap 20 '64

Influence of hydrogen crowding on the rates of reactions; the addition of *cis* reagents to the dimethanonaphthalene ring system. J. K. Stille and D. R. Witherell. bibliog Am Chem Soc J 86:2188-92 Je 5 '64

Inhibition of carcinogenesis; the effect of polycyclic hydrocarbons and related compounds. H. L. Falk and others. bibliog Archives Environmental Health 9:169-79 Ag '64

Mechanism for the N,N′-dicyclohexylcarbodiimide-caused dehydration of asparagine and maleamic acid derivatives. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86: 4162-6 O 5 '64

Mechanism of amine-catalysed aldol cyclisation. T. A. Spencer and K. K. Schmiegel. bibliog Chem & Ind p 1765-6 N 2 '63

Mechanism of cyclisation of *o*-cyanobenzamide. J. Zabicky. Chem & Ind p236-7 F 8 '64

New cyclic oligomers; metal alkoxide oxides, metal acylate oxides. J. Rinse. bibliog il diags Ind & Eng Chem 56:42-50 My '64

New synthetic approach to medium-size carbocyclic systems. E. J. Corey and E. Hamanaka. bibliog Am Chem Soc J 86:1641-2 Ap 20 '64

Novel cyclisation of alkenylarenes catalysed by potassium. E. Lewicki and others. bibliog Chem & Ind p 154-5 Ja 25 '64

Novel photoisomerization reaction of cyclic ketones. S. Cremer and R. Srinivasan. Am Chem Soc J 86:4197-8 O 5 '64

Novel reaction of the oxiirane and thiirane ring. J. F. McGhie and others. Chem & Ind p460-1 Mr 14 '64

Novel ring expansion and carbon insertion reactions of isatogens. W. E. Noland and R. F. Modler. bibliog Am Chem Soc J 86:2086-7 My 20 '64

Novel six-membered aluminum-nitrogen heterocycles *via* metalative cyclization. J. J. Eisch and M. E. Healy. bibliog Am Chem Soc J 86:4221-2 O 5 '64

Nuclear magnetic resonance-spectra of three-membered ring compounds; substituent effects on monosubstituted 1,1-dichlorocyclopropanes and epoxides. K. L. Williamson and others. bibliog Am Chem Soc J 86:762-5 Mr 5 '64

Optical rotatory dispersion studies; effect of ring size in some bicyclic ketones. C. Djerassi and J. E. Gurst. bibliog Am Chem Soc J 86:1755-61 My 5 '64

1-Phenyl-4-cinnolones. V. V. Bhat and J. L. Bose. bibliog Chem & Ind p 1930 D 7 '63

Photosensitized cyclization of myrcene; the problem of addition of dienes to alkenes. R. S. H. Liu and G. S. Hammond. Am Chem Soc J 86:1892-3 My 5 '64

Polycyclic hydrocarbons as carcinogens for man. H. L. Falk and others. Archives Environmental Health 8:721-30 bibliog (p728-30) My '64

Possibility of a cyclic mechanism for acid-catalyzed ester hydrolysis. C. A. Lane. bibliog Am Chem Soc J 86:2521-3 Je 20 '64

Preparation and acetylation of 2-aminobenzothiazole 3-oxide. T. A. Liss. Chem & Ind p368-9 F 29 '64

Preparation of a pentasilacyclooctane. H. Gilman and S Inoue. Chem & Ind p74-5 Ja 11 '64

Quadricyclic carbonium ion; solvolysis of 7-quadricyclo[2.2.1.$0^{2,6}$.$0^{3,5}$]heptane derivatives. P. R. Story and S. R. Fahrenholtz. bibliog diags Am Chem Soc J 86:527-8 F 5 '64

Reaction mechanisms proposed for nitrogen compounds. Chem & Eng N 42:40-1 Ag 3 '65

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1:1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

Reaction scheme adds nitrogen to olefins; amozonolysis will make heterocyclic nitrogen compounds. E. K. Fields and M. I. Fremery. Chem & Eng N 41:30-2 D 23 '63

Ring expansion route to bicyclic carbonium ions. J. A. Berson and others. bibliog diags Am Chem Soc J 86:595-616 F 20 '64

Small ring bicyclic azo compounds and bicyclic hydrocarbons; isomerization of bicyclo[2.1.0]pentane and bicyclo[2.2.0]hexane. C. Steel and others. bibliog Am Chem Soc J 86:679-84 F 20 '64

CYCLIC compounds—*Continued*

Small-ring compounds; synthesis and reactions of 3-phenyl-2-cyclobutenone and some related compounds. S. L. Manatt and others. bibliog Am Chem Soc J 86:2645-53 Jl 5 '64

Small-ring compounds; the formolysis of allylcarbinyl tosylate. K. L. Servis and J. D. Roberts. bibliog Am Chem Soc J 86:3773-7 S 20 '64

Small-ring compounds; the structure and properties of a dimer of triphenylfluorocyclobutadiene. K. Nagarajan and others. bibliog Am Chem Soc J 86:449-53 F 5 '64

Stereochemistry of some cyclic compounds containing phosphorus. H. Goldwhite. bibliog Chem & Ind p494-5 Mr 21 '64

Synthesis of a vincadifformine-type skeleton via a novel transannular cyclization reaction. J. P. Kutney and others. bibliog Am Chem Soc J 86:2286-7 Je 5 '64

Synthesis of cyclic silicon systems. R. A. Benkeser and others. bibliog Am Chem Soc J 86:2446-51 Je 20 '64

Synthesis of deoxyribonucleoside-3′,5′ cyclic phosphates by base-catalysed transesterification. M. Smith. bibliog Am Chem Soc J 86:3586 S 5 '64

Synthesis of iboga alkaloids via a novel transannular cyclization reaction. J. P. Kutney and others. bibliog Am Chem Soc J 86:2287-8 Je 5 '64

Tetracyclosqualene and its bearing on the structure of cyclized rubber. M. A. Golub and J. Heller. bibliog Rubber Chem & Tech 37:486-90 Ap '64

Thermal cyclization of hexafluorobutadiene to hexafluorocyclobutene. E. W. Schlag and W. B. Peatman. bibliog diags Am Chem Soc J 86:1676-9 My 5 '64

Thermal decomposition rates of saturated cyclic hydrocarbons. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:248-54 Jl '64

Thionosulfites; a new class of cyclic esters containing branch-bonded sulfur. Q. E. Thompson and others. bibliog Am Chem Soc J 86:3891-2 S 20 '64

Total synthesis of polycyclic triterpenes; the total synthesis of (+)-α-onocerin. G. Stork and others. bibliog Am Chem Soc J 85:3419-25 N 5 '63

Transformations of eburicoic acid; side-chain degradation to 14-methylpregnane derivatives. D. Rosenthal and others. bibliog Am Chem Soc J 85:3971-9 D 20 '63

See also

Cyclohexane

Cyclopropane

CYCLOALKANES. See Cycloparaffins

CYCLOALKENES. See Cycloolefins

CYCLOBUTADIBENZENE

Novel ring-opening reaction of biphenylene. E. R. Atkinson and others. bibliog Chem & Ind p934 My 30 '64

Reaction of carbethoxycarbene with biphenylene. A. S. Kende and P. T. MacGregor. bibliog Am Chem Soc J 86:2088-9 My 20 '64

CYCLOBUTADIENE

Formation of the stable 1,3-dihydroxy-2,4-diphenylcyclobutadiene dication by ionization of an α-bromoketone. D. G. Farnum and B. Webster. bibliog Am Chem Soc J 85:3502-4 N 5 '63

Internal photoaddition reactions of 2-pyrone and N-methyl-2-pyridone; a new synthetic approach to cyclobutadiene. E. J. Corey and J. Streith. bibliog Am Chem Soc J 86:950-1 Mr 5 '64

Small-ring compounds; the structure and properties of a dimer of triphenylfluorocyclobutadiene. K. Nagarajan and others. bibliog Am Chem Soc J 86:449-53 F 5 '64

Stable naphtho derivative of cyclobutadiene. M. P. Cava and others. bibliog Am Chem Soc J 85:4032-3 D 20 '63

Tetramethylcyclobutadiene. P. S. Skell and R. J. Petersen. bibliog Am Chem Soc J 86:2530-1 Je 20 '64

CYCLOBUTANE

Conformational studies of cyclobutane systems. J. B. Lambert and J. D. Roberts. bibliog Am Chem Soc J 85:3710-11 N 20 '63

Cumulative effects in small ring cleavage reactions; a novel cyclobutane rearrangement. D. J. Trecker and J. P. Henry. bibliog Am Chem Soc J 86:902-5 Mr 5 '64

Cyclobutane compounds; formation of a four-membered ring during the electrophilic addition of hydrogen bromide to allene. K. Griesbaum. bibliog Am Chem Soc J 86:2301-3 Je 5 '64

Cyclobutane formation from mercury-photosensitized reactions of ethylene. J. P. Chesick. bibliog Am Chem Soc J 85:3718-19 N 20 '63

Dimers of 1,3-diphenylcyclobutadiene from the Hofmann elimination of 1,3-diphenyl-2,4-bis-(dimethylamino)-cyclobutane dimethiodide. E. H. White and H. C. Dunathan. bibliog Am Chem Soc J 86:453-8 F 5 '64

Mass spectrometric investigation of the thermal decomposition of cyclobutane at low pressures. R. W. Vreeland and D. F. Swinehart bibliog Am Chem Soc J 85:3349-53 N 5 '63

One-step synthesis gives cyclobutanes. K. Griesbaum. il Chem & Eng N 42:59 S 14 '64

Small-ring organosilicon compounds; a comparison of the reactivities of 1,1,2-triphenyl-1-silacyclobutane and 1,1,2-triphenyl-1-silacyclopentane. H. Gilman and W. H. Atwell. bibliog Am Chem Soc J 86:2687-93 Jl 5 '64

Thermal decomposition of cyclobutane at low pressures. J. N. Butler and R. B. Ogawa. bibliog Am Chem Soc J 85:3346-9 N 5 '63

CYCLOBUTANEDIONE

Isolation of tetramethylcyclopropanone ethyl hemiketal from photolysis of tetramethylcyclobutanedione. H. G. Richey, jr. and others. Am Chem Soc J 86:3906-7 S 20 '64

Photochemistry of tetrasubstituted 1,3-cyclobutanediones; effect of oxygen. P. A. Leermakers and others. Am Chem Soc J 86:4213-15 O 5 '64

Photolysis of tetramethyl-1,3-cyclobutanedione. N. J. Turro and others. bibliog Am Chem Soc J 86:955-6 Mr 5 '64

CYCLOBUTANONE

Cyclization of geranic acids; preparation of a cyclobutanone. J. J. Beereboom. Am Chem Soc J 85:3525-6 N 5 '63

Oxygen-dependent ring opening of cyclobutanone catalysed by a model for a coenzyme. D. C. Dittmer and others. bibliog Chem & Ind p 152-3 Ja 25 '64

CYCLOBUTENE

1-Dimethylarsino-2-chlorotetrafluorocyclobutene and related compounds. W. R. Cullen and others. bibliog Chem & Ind p502-3 Mr 21 '64

Synthesis and properties of cyclobutenyl cations. T. J. Katz and E. H. Gold. bibliog Am Chem Soc J 86:1600-6 Ap 20 '64

Thermal cyclization of hexafluorobutadiene to hexafluorocyclobutene. E. W. Schlag and W. B. Peatman. bibliog diags Am Chem Soc J 86:1676-9 My 5 '64

CYCLOBUTENONE

Small-ring compounds; synthesis and reactions of 3-phenyl-2-cyclobutenone and some related compounds. S. L. Manatt and others. bibliog Am Chem Soc J 86:2645-53 Jl 5 '64

CYCLOBUXINE. See Alkaloids

CYCLODECAPENTAENE

9,10-Dihydronaphthalene and cyclodecapentaene. J. J. Bloomfield and W. T. Quinlin. bibliog Am Chem Soc J 86:2738 Jl 5 '64

Ten pi electron system is aromatic. E. Vogel. Chem & Eng N 42:40-1 O 5 '64

CYCLOHEPTADIENONE

Photoisomerization of 1-aza-3,5,7-trimethylcyclohepta-4,6-dien-2-one. O. L. Chapman and E. D. Hoganson. bibliog Am Chem Soc J 86:498-500 F 5 '64

CYCLOHEPTANE

2,3-Dimethyl-7,7-dimethoxyquadricyclo[2.2.1.$0^{2,6}.0^{3,5}$]heptane. P. G. Gassman and others. bibliog Am Chem Soc J 86:4211-12 O 5 '64

Small-ring, spiroalkyl cations; solvolysis studies on 4- and 5-chlorospirohexane; the vapor phase chlorination of spirohexane and spiro[2.4]heptane. D. E. Applequist and J. A. Landgrebe. bibliog Am Chem Soc J 86:1543-9 Ap 20 '64

CYCLOHEPTANONE

7-Quadricyclo[2.2.1.$O^{2,6}O^{3,5}$]heptanone (quadricyclanone). P. R. Story and S. R. Fahrenholtz. Am Chem Soc J 86:1270-1 Mr 20 '64

CYCLOHEPTATRIENE

Evidence for the cycloheptatrienide anion. A. W. Johnson. Chem & Ind p504-5 Mr 21 '64

Molecular structure of 1,3,5-cycloheptatriene in the vapor phase as determined by the sector electron diffraction method. M. Traetteberg. bibliog Am Chem Soc J 86:4265-70 O 20 '64

Organic ions in the gas phase; cycloheptatriene-7-*d*: decomposition of $C_7H_8^+$ and $C_7H_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63

CYCLOHEPTATRIENE—*Continued*

Phenyltropylium fluoroborate. J. W. Wilt and D. Piszkiewicz. bibliog Chem & Ind p 1761-2 N 2 '63

Ring inversion in cycloheptatriene. F. A. L. Anet. bibliog Am Chem Soc J 86:458-60 F 5 '64

Solvent-sensitive rearrangement of 7-substituted norbornadienes to cycloheptatriene using complex hydrides. B. Franzus and E. I. Snyder. bibliog Am Chem Soc J 85:3902-3 D 5 '63

Structure and interconversion of cycloheptatriene. F. R. Jensen and L. A. Smith. bibliog Am Chem Soc J 86:956-7 Mr 5 '64

Tropylium-iron tricarbonyl cation. J. E. Mahler and others. bibliog Am Chem Soc J 86:3589-90 S 5 '64

CYCLOHEXADIENE

Synthesis and decomposition of 3-diazo-6-dicyanomethylene-1,4-cyclohexadiene; arylmalononitriles. H. D. Hartzler. bibliog Am Chem Soc J 86:2174-7 Je 5 '64

CYCLOHEXADIENONE

Conversion of hexasubstituted benzenes to cyclohexadienones. A. J. Waring and H. Hart. bibliog Am Chem Soc J 86:1454-6 Ap 5 '64

Cross-conjugated cyclohexadienones show versatile photochemical behavior. P. J. Kropp and W. F. Erman. il Chem & Eng N 42:50-1 Ap 20 '64

Mechanistic organic photochemistry; identification of the n-π^* triplet excited state in the rearrangement of 4,4-diphenylcyclohexadienone. H. E. Zimmerman and J. S. Swenton. Am Chem Soc J 86:1436-7 Ap 5 '64

Photochemical rearrangements of cross-conjugated cyclohexadienones; an example of steric control. P. J. Kropp. bibliog Am Chem Soc J 85:3779-82 D 5 '63

Photolysis of spiro[2.5]octa-1,4-dien-3-one in ethyl ether; a note on the mechanism of photolysis of 2,5-cyclohexadienones. D. I. Schuster and C. J. Polowczyk. bibliog Am Chem Soc J 86:4502-3 O 20 '64

CYCLOHEXANE

Cis- and trans-1,2-diphenylcyclohexane. C. G. Overberger and J. P. Anselme. bibliog Chem & Ind p280-1 F 15 '64

Cyclohexane oxidation plant is started. Oil & Gas J 61:100-1 O 21 '63

Cyclohexane oxidation route replaces coal-tar intermediates. diag Ind Chem 40:152 Mr '64

Effect of substituted aromatic compounds on the radiolysis of cyclohexane. W. V. Sherman. bibliog Chem & Ind p 1266-7 Jl 11 '64

Effect of the perfluoroalkyl group on the nuclear magnetic resonance spectra, conformational equilibria, and *cis-trans* equilibria of 1-iodo-2-(perfluoroalkyl)-cyclohexanes. N. O. Brace. bibliog Am Chem Soc J 86:665-73 F 20 '64

Kinetics of ionic processes in the radiolysis of liquid cyclohexane. F. Williams. bibliog Am Chem Soc J 86:3954-7 O 5 '64

Kinetics of the reaction of cyclohexyl aryl ketones with nitrous acid in sulfuric acid. Y. Ogata and others. Am Chem Soc J 85:3649-50 N 20 '63

Mechanism of hydrogen formation in the radiolysis of cyclohexane and other hydrocarbons. S. Z. Toma and W. H. Hamill. bibliog Am Chem Soc J 86:1478-83 Ap 20 '64

Organic peroxides; the behavior of cyclohexaneformyl peroxide in the presence of excess stable radicals; the simultaneous determination of kinetics and free radical efficiencies in the thermal decompositions of free radical initiators. R. C. Lamb and J. G. Pacifici. bibliog Am Chem Soc J 86:914-18 Mr 5 '64

Quaternary liquid system benzene-furfural-iso-octane-cyclohexane. C. J. Henty and others. bibliog diag J Ap Chem 14:148-55 Ap '64

Reactions of 1-iodo-2-(perfluoroalkyl)cyclohexane conformers; products of elimination and reduction; rates and mechanisms. N. O. Brace. bibliog Am Chem Soc J 86:2428-34 Je 20 '64

Small-ring, spiroalkyl cations; solvolysis studies on 4- and 5-chlorospirohexane; the vapor phase chlorination of spirohexane and spiro[2.4]heptane. D. E. Applequist and J. A. Landgrebe. bibliog Am Chem Soc J 86:1543-9 Ap 20 '64

Stereochemical evidence for bridged radicals; photobromination of *cis*- and *trans*-4-bromo-*t*-butylcyclohexane. P. S. Skell and P. D. Readio. bibliog diags Am Chem Soc J 86:3334-7 Ag 20 '64

Stereochemistry of the 1,2-diaminocyclohexane-N.N′-tetraacetatoaquoferrate(III) ion, $Fe(OH_2)Z^-$. G. H. Cohen and J. L. Hoard. diag Am Chem Soc J 86:2749-50 Jl 5 '64

Sulfochlorination of cyclohexane induced by gamma radiation. A. Schneider and J. C. Chu. bibliog il diags Ind & Eng Chem Proc Design 3:164-9 Ap '64

Tricyclo[2.2.0.0^{2,6}]hexane. D. M. Lemal and K. S. Shim. bibliog diags Am Chem Soc J 86:1550-3 Ap 20 '64

Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diag Can J Chem Eng 42:82-4 Ap '64

Vapor-liquid equilibrium; the system ethanol-cyclohexane from 5 to 65°. G. Scatchard and F. G. Satkiewicz. bibliog Am Chem Soc J 86:130-3 Ja 20 '64

Manufacture

Cyclohexane; Institut français du petrole. diag Hydrocarbon Process & Pet Refiner 42:159 N '63

High purity cyclohexane. D. F. Dufau and others. flow sheet il Chem Eng Prog 60:43-7 S '64

Hydrar; Universal oil products co. diag Hydrocarbon Process & Pet Refiner 42:181 N '63

Selected process flow sheets for petrochemicals. Oil & Gas J 62:110 S 7 '64

CYCLOHEXANEDIOL

Conformational studies; intramolecular hydrogen bonding in nonchair conformations of *cis,cis,cis*-2,5-dialkyl-1,4.cyclohexanediols. R. D. Stolow and others. bibliog Am Chem Soc J 86:2165-70 Je 5 '64

Conformational studies; predominance of intramolecularly hydrogen bonded nonchair conformations of *cis,cis,cis*-2,5-di-*t*-alkyl-1,4-cyclohexanediols. R. D. Stolow and M. M. Bonaventura. bibliog diags Am Chem Soc J 85:3636-41 N 20 '63

CYCLOHEXANEDIONE

Reactions of 1,3-cyclohexanediones with hydrazine; a novel pyridazinopyridazine synthesis as a result of oxidation promoted by steric strain. J. K. Stille and R. Ertz. bibliog Am Chem Soc J 86:661-4 F 20 '64

CYCLOHEXANOL

Problem of radioactive radiation of sulfur-35 influencing the catalytic dehydration of cyclohexanol. A. A. Balandin and others. bibliog Am Chem Soc J 86:299-300 Ja 20 '64

CYCLOHEXANONE

Conformational analysis; the conformations of cyclohexanone rings. N. L. Allinger and others. bibliog Am Chem Soc J 86:4061-7 O 5 '64

Conformations; conformational analysis of 2-bromocyclohexanone by nuclear magnetic resonance spectroscopy. E. W. Garbisch, jr. bibliog Am Chem Soc J 86:1780-2 My 5 '64

Cyclohexanone self-condensation reactions. G. R. Pettit and E. G. Thomas. bibliog Chem & Ind p 1758-9 N 2 '63

CYCLOHEXENE

Competition between ionic and free-radical reactions during chlorination of cyclohexene spontaneous generation of radicals. M. L. Poutsma. bibliog Am Chem Soc J 85:3511-12 N 5 '63

CYCLOHEXENOL

Cationic cyclizations involving olefinic bonds; the butenylcyclohexenol system. W. S. Johnson and others. bibliog Am Chem Soc J 86:1972-8 My 20 '64

CYCLOHEXENONE

Mechanistic and exploratory organic photochemistry; phenyl migration in the irradiation of 4,4-diphenylcyclohexenone. H. E. Zimmerman and J. W. Wilson. bibliog Am Chem Soc J 86:4036-42 O 5 '64

New synthesis of cyclohexenones; the double Michael addition of vinyl ethynyl ketones to active methylene compounds; application to the total synthesis of *dl*-griseofulvin. G. Stork and M. Tomasz. bibliog Am Chem Soc J 86:471-8 F 5 '64

CYCLOHEXYLAMINE

Abbott offers three new cyclohexylamine derivatives. Chem & Eng N 42:79-80 Ap 20 '64

Acidity of hydrocarbons; exchange rates of ring-substituted toluene-α-*t*'s with lithium cyclohexylamide in cyclohexylamine. A. Streitwieser, jr. and H. F. Koch. bibliog Am Chem Soc J 86:404-9 F 5 '64

Extraction of thorium from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:41-6 Ja '64

CYCLOHEXYLAMINE—*Continued*

Extraction of uranium(VI) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Fungitoxic properties of volatile corrosion inhibitors. D. M. Evans and I. Levisohn. il Chem & Ind p 1386-7 Ag 1 '64

CYCLONES. See Separators

CYCLONONATRIENE

Isomerization of cyclononatrienes. J. W. H. Watthey and S. Winstein. Am Chem Soc J 85:3715-16 N 20 '63

Question of homoconjugation in *cis,cis,cis*-1,4,7-cyclononatriene. W. R. Roth and others. Am Chem Soc J 86:3178-9 Ag 5 '64

Question of homoconjugation in 1,4,7-cyclononatriene. S. Winstein and F. P. Lossing. bibliog Am Chem Soc J 86:4485-6 O 20 '64

CYCLOOCTADIENE

Bridged polycyclic compounds; the solvolysis of some 4-chlorodibenzobicyclo[3.2.1]octadienes. S. J. Cristol and D. D. Tanner. bibliog Am Chem Soc J 86:3122-6 Ag 5 '64

1,5-Cyclooctadiene by the catalytic dimerization of butadiene. G. Bosmajian and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:117-19 Je '64

2-*Exo,cis*-bicyclo[3.3.0]octane derivatives via free-radical additions to *cis,cis*-1,5-cyclooctadiene. L. Friedman. Am Chem Soc J 86:1885-6 My 5 '64

Free-radical cycloadditions to *cis,cis*-1,5-cyclooctadiene. R. Dowbenko. bibliog Am Chem Soc J 86:946-7 Mr 5 '64

Isomerization of 1,3-cyclooctadiene to 1,5-cyclooctadiene via the rhodium(I)π-complex. R. E. Rinehart and J. S. Lasky. bibliog Am Chem Soc J 86:2516-18 Je 20 '64

Photochemical transformations of 1,5-cyclooctadiene. R. Srinivasan. bibliog diags Am Chem Soc J 86:3318-21 Ag 20 '64

Thermal decomposition processes in the system tricyclo [3.3.0.$0^{2,6}$]octane-1,5-cyclooctadiene. R. Srinivasan and A. A. Levi. bibliog Am Chem Soc J 86:3756-9 S 20 '64

CYCLOOCTATETRAENE

Dimerization of cyclooctatetraene; structure of the three double bond dimer. H. W. Moore. bibliog diags Am Chem Soc J 86:3398-9 Ag 20 '64

Ring inversion and bond shift in cyclooctatetraene derivatives. F. A. L. Anet and others. bibliog Am Chem Soc J 86:3576-7 S 5 '64

Thermal and photochemical rearrangement of substituted dibenzo[*a,e*]cyclooctatetraenes. M. Stiles and U. Burckhardt. Am Chem Soc J 86:3396-7 Ag 20 '64

CYCLOOCTATRIENE

Photoisomerization of 1,3,5-cyclooctatriene. O. L. Chapman and others. bibliog Am Chem Soc J 86:2660-3 Jl 5 '64

CYCLOOCTENE

Absolute configuration of *trans*-cyclooctene. A. C. Cope and A. S. Mehta. bibliog Am Chem Soc J 86:1268-9 Mr 20 '64

Proximity effects; solvolyses of deuterium-labeled cyclooctyl brosylate. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3747-52 D 5 '63

Proximity effects; stereospecific synthesis and acetolysis of *cis*- and *trans*-5-methylcyclooctyl tosylates. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3743-7 D 5 '63

CYCLOOCTENONE

trans-2-cyclooctenone. P. E. Eaton and K. Lin. Am Chem Soc J 86:2087-8 My 20 '64

CYCLOOLEFINS

Photolysis of cyclic dienes; an example of a dual path light-induced valence tautomerism. G. J. Fonken and K. Mehrotra. Chem & Ind p 1025 Je 13 '64

Picric acid and tetracyanoethylene complexes of some benzocycloalkenes. J. B. F. Lloyd and P. A. Ongley. Chem & Ind p 1267-8 Jl 11 '64

Stereochemistry and the mechanism of catalytic hydrogenation of cycloalkenes; isomers of dimethylcyclopentene. S. Siegel and B. Dmuchovsky. bibliog Am Chem Soc J 86:2192-8 Je 5 '64

CYCLOPARAFFINS

C^{13} and H^{1} nuclear magnetic resonance spectra of cycloalkanes. J. J. Burke and P. C. Lauterbur. bibliog Am Chem Soc J 86:1870-1 My 5 '64

Carbonium ions; the disproportionation of cycloalkyl cations to cycloalkenyl cations and cycloalkanes. N. C. Deno and C. U. Pittman, jr. bibliog Am Chem Soc J 86:1744-5 My 5 '64

2-Phenyl-2,1-borazarene and derivatives of 1,2-azaboracycloalkanes. D. G. White. bibliog Am Chem Soc J 85:3634-6 N 20 '63

CYCLOPENTADIENE

Electron spin resonance of triplet cyclopentadienylidene and indenylidene. E. Wasserman and others. bibliog Am Chem Soc J 86:2304-5 Je 5 '64

New cyclopentadienyl complexes of rhodium. R. J. Angelici and E. O. Fischer. bibliog Am Chem Soc J 85:3733-5 D 5 '63

Three-center nonclassical cation in the pentahomocyclopentadienyl system. S. Winstein and others. Am Chem Soc J 86:1867-9 My 5 '64

CYCLOPENTANE

Comparison of the rates of solvolysis of representative norbornyl and cyclopentyl derivatives; a critical examination of rates as a basis for the postulated nonclassical structure of norbornyl cations. H. C. Brown and others. bibliog Am Chem Soc J 86:1247-8 Mr 20 '64

Cyclopentane conformations; solvolysis of 3-substituted tosylates. I. Lillien and K. Khaleeluddin. bibliog Chem & Ind p 1028-9 Je 13 '64

Partition chromatographic separation and determination of *cis*- and *trans*-1,3-cyclopentanedicarboxylic acids. E. C. Bossert and others. bibliog diag Anal Chem 36:1213-17 Je '64

Small-ring organosilicon compounds; a comparison of the reactivities of 1,1,2-triphenyl-1-silacyclobutane and 1,1,2-triphenyl-1-silacyclopentane. H. Gilman and W. H. Atwell. bibliog Am Chem Soc J 86:2687-93 Jl 5 '64

Strained systems; the tricyclo[1.1.1.$0^{4,5}$]pentane system. S. Masamune. Am Chem Soc J 86:735-6 F 20 '64

CYCLOPENTENE

Cyclopentene yields polypentenamer. G. Dall'Asta and others. Chem & Eng N 42:42-4 Ap 6 '64

Secondary α-deuterium isotope effects in acetolyses of *endo*- and *exo*-norbornyl and 2-(Δ^3-cyclopentenyl)ethyl arenesulfonates. C. C. Lee and E. W. C. Wong. bibliog Am Chem Soc J 86:2752-3 Jl 5 '64

CYCLOPENTENONE

Cubane made from 2-cyclopentenone in five-step synthesis. il diags Chem & Eng N 42:38-9 Mr 23 '64

Cubane system. P. E. Eaton and T. W. Cole, jr. bibliog Am Chem Soc J 86:962-4 Mr 5 '64

Triphenylphosphine derivatives of π-cyclopentenonylcobalt tricarbonyls and their dehydrogenation to π-cyclopentadienonecobalt dicarbonyl triphenylphosphine cations. R. F. Heck. bibliog Am Chem Soc J 85:3387-90 N 5 '63

CYCLOPROPANE

Carbon-carbon bond fission in cyclopropanes. R. T. LaLonde and others. bibliog Am Chem Soc J 85:3767-75; 86:4068-73. D 5 '63, O 5 '64

Cleavage of cyclopropanes by lead tetraacetate. R. J. Ouellette and D. L. Shaw. Am Chem Soc J 86:1651-2 Ap 20 '64

Cleavage of cyclopropanes by thallium triacetate. R. J. Ouellette and others. Am Chem Soc J 86:2744-5 Jl 5 '64

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the deamination of 3,3,3-d_3-1-aminopropane. A. A. Aboderin and R. L. Baird. bibliog Am Chem Soc J 86:2300-1 Je 5 '64

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the solvolysis of cyclopropane in deuteriosulfuric acid. R. L. Baird and A. A. Abodrin. bibliog diags Am Chem Soc J 86:252-5 Ja 20 '64

Conjugation effects in phenylcyclopropanes. A. L. Goodman and R. H. Eastman. bibliog diags Am Chem Soc J 86:908-11 Mr 5 '64

Cyclopropane. H. M. Walborsky and others. bibliog diags Am Chem Soc J 86:3283-96 Ag 20 '64

Cyclopropane synthesis from methylene iodide, zinc-copper couple, and olefins. E. P. Blanchard and others. bibliog Am Chem Soc J 86:1337-56 Ap 5 '64

Generation of 2,2-diphenyldiazocyclopropane and 2,2-diphenylcyclopropylidene from the thermal decomposition of N-nitroso-N-(2,2-diphenylcyclopropyl)-urea. W. M. Jones and others. bibliog Am Chem Soc J 86:912-14 Mr 5 '64

CYCLOPROPANE—*Continued*

Inverse secondary intermolecular isotope effects in the low pressure thermal isomerization of cyclopropane. B. S. Rabinovitch and others. bibliog Am Chem Soc J 86:2994-6 Ag '64

1-Methyl-3,4-methylene-3,4-dihydroquinolin-2-one(s); derivatives of a new ring system, the 1-*H*-cycloprop(*c*)quinolines. B. Loev and others. Chem & Ind p 1710 O 10 '64

Microcatalytic tracer studies of the isomerization of cyclopropane over silica-alumina catalysts. W. K. Hall and others. Am Chem Soc J 85:3711-12 N 20 '63

Nuclear magnetic resonance-spectra of three-membered ring compounds; substituent effects on monosubstituted 1,1-dichlorocyclopropanes and epoxides. K. L. Williamson and others. bibliog Am Chem Soc J 86:762-5 Mr 5 '64

Preparation and etherification reaction of fatty dichlorocyclopropanes. H. E. Kenney and others. bibliog Am Oil Chem Soc J 41:82-5 Ja '64

Rate of isomerization of cyclopropane in a flow reactor. B. R. Davis and D. S. Scott. bibliog diag Ind & Eng Chem Fundamentals 3:20-3 F '64

Reaction of difluoramine with some allyl-and cyclopropylcarbinylamines. C. L. Bumgardner and J. P. Freeman. Am Chem Soc J 86:2233-5 Je 5 '64

Silacyclopropanes. P. S. Skell and E. J. Goldstein. Am Chem Soc J 86:1442 Ap 5 '64

Synthesis of methylenecyclopropanes via an α-elimination reaction. H. D. Hartzler. Am Chem Soc J 86:526-7 F 5 '64

CYCLOPROPANOL

Chemistry of cyclopropanols; the hydrolysis of cyclopropyl acetate and the synthesis of cyclopropanol. C. H. DePuy and L. R. Mahoney. bibliog Am Chem Soc J 86:2653-7 Jl 5 '64

CYCLOPROPENE

Addition of mercaptans to methyl sterculate and sterculene; an hypothesis concerning the nature of the biological activity exhibited by cyclopropene derivatives. H. W. Kircher. bibliog Am Oil Chem Soc J 41:4-8 Ja '64

α-elimination in 2-phenyltetrachloropropene; synthesis of phenylhydroxycyclopropenone. D. G. Farnum and P. E. Thurston. Am Chem Soc J 86:4206-7 O 5 '64

Catalytic elimination of cyclopropene-containing acids. A. J. Deutschman, jr. and others. bibliog Am Oil Chem Soc J 41:175-6 Mr '64

1-Dicyanomethylene-2,3-diphenylcyclopropene ("1,1-dicyano-3,4-diphenyltriafulvene"). E. D. Bergmann and I. Agranat. bibliog Am Chem Soc J 86:3587 S 5 '64

Methods for the determination of cyclopropenoid fatty acids. F. C. Magne and others. bibliog Am Oil Chem Soc J 40:716-20; 41:309-11 D '63, Ap '64

Rearrangements of 1-(1,2,3-triphenylcyclopropenyl)-3-diazopropan-2-one. A. Small. bibliog Am Chem Soc J 86:2091-2 My 20 '64

Trichlorocyclopropenium ion. S. W. Tobey and R. West. Am Chem Soc J 86:1459 Ap 5 '64

CYCLOPROPENONE

Cyclopropenone metal carbonyl complex. C. W. Bird and E. M. Hollins. Chem & Ind p 1362 Jl 25 '64

Diarylcyclopropenones via the trichlorocyclopropenium ion. S. W. Tobey and R. West. Am Chem Soc J 86:4215-6 O 5 '64

Reaction of diazomethane with cyclopropenones. P. T. Izzo and A. S. Kende. bibliog Chem & Ind p839-40 My 16 '64

CYCLOPROPYL compounds

Cyclopropylcarbinyllithium is isolated. P. T. Lansbury and others. Chem & Eng N 42:46-7 Ap 27 '64

Solvolysis of tricyclopropylcarbinyl benzoate. H. Hart and P. A. Law. bibliog Am Chem Soc J 86:1957-9 My 20 '64

CYCLOTRIMETHYLENE trinitramine

Crystal habit and impact sensitivity of cyclotrimethylene trinitramine. H. K. Acharya and M. K. Aditya. il Chem & Ind p934-5 My 30 '64

CYCLOTRON

Brighter future for synchrocyclotrons? R. T. Siegel. Phys Today 17:41-2 Ag '64

Experiments with an electron cyclotron resonance plasma accelerator. D. B. Miller and E. F. Gibbons. bibliog diags AIAA J 2:35-41 Ja '64

MIT cyclotron improved. il Phys Today 17:68 Ja '64

Reduced energy spread of synchrocyclotron beams. F. Gotow and others. R Sci Instr 35:755-6 Je '64

Synchrocyclotron 200-meter flight path neutron velocity spectrometer. J. Rainwater and others. bibliog diags R Sci Instr 35:263-75 Mr '64

Power supply

Modes of oscillation of a grounded grid cyclotron oscillator. D. N. Basu Mallik and B. R. Nag. bibliog il diags Radio & Electronic Eng 27:27-36 Ja '64

CYLINDERS

Ablation of a cylindrical cavity in an infinite medium. S. V. Nardo. bibliog diag AIAA J 2:936-7 My '64

Analysis of a symmetrically loaded sandwich cylinder. E. H. Baker. diags AIAA J 2:108-9 Ja '64

Basic experiment into soil-structure interaction. R. V. Whitman and U. Luscher. bibliog il diags Am Soc C E Proc 88 [SM 6 no 3366]:135-67 D '62; Discussion. 89 [SM 4 no 3578]:223-7 Jl; [SM 5 no 3654]:95-100 S '63; Reply. 90 [SM 2 no 3850]:163-4 Mr '64

Boundary flow along a circular cylinder. R. O. Reid and B. W. Wilson. bibliog diags Am Soc C E Proc 89 [HY 3 no 3512]:21-40 My '63; Discussion. 89 [HY 6 no 3708]:277 N '63; Reply. 90 [HY 3 no 3911]:321-6 My '64

Buckling of a very thin cylindrical shell due to an impulsive pressure. H. E. Lindberg. bibliog il diag A S M E Trans ser E 31:267-72 Je '64

Buckling of cylindrical shells under dynamic loads. J. D. Wood and L. R. Koval. bibliog il diags AIAA J 1:2576-82 N '63

Buckling of longitudinally stiffened cylinders. J. C. Shang and others. bibliog il diags Am Soc C E Proc 90 [ST 5 no 4115]:161-95 O '64

Calculation of axially symmetric electrostatic fields for two coaxial equidiameter cylinders. M. Morikawa. bibliog J Ap Phys 34:3179-81 N '63

Classical buckling load of circular cylindrical shells under axial compression. R. C. Tennyson. il diags AIAA J 1:475-6; 2:1351-3 F '63, Jl '64; Discussion. R. W. Leonard. 1:2194-5; Reply. 2195-6 S '63

Correlation of the critical pressure of conical shells with that of equivalent cylindrical shells. J. Singer. AIAA J 1:2675-6 N '63

Critical heat flux for nearly saturated water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il diags A S M E Trans ser C 86:59-67 F '64

Critical heat flux for subcooled water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il A S M E Trans ser C 86:68-74 F '64

Deformation of a ring-stiffened cylindrical shell. C. T. F. Ross. Engineer 217:568 Mr 27 '64

Deformations and stresses in axially loaded and heated cylindrical shells. K. Fung and others. AIAA J 1:2654-5 N '63

Design of hydrostatic bearings; cylindrical-pad performance. H. C. Rippel. diags Machine Design 35:189-94 N 7 '63

Diffraction of a cylindrical surface wave by a discontinuity in surface reactance. R. W. Breithaupt. bibliog diags IEEE Proc 51:1455-63 N '63

Dominant unstable wavelength and minimum heat flux during film boiling on a horizontal cylinder. J. H. Lienhard and P. T. Y. Wong. bibliog il diags A S M E Trans ser C 86:220-5; Discussion. 225-6 My '64

Droplet formation from a liquid film over a rotating cylinder. S. I. Cheng and J. Cordero. il AIAA J 1:2597-601 N '63

Eddy-current losses in saturated cylinders. B. Béland and J. Robert. bibliog il diags IEEE Trans Com & Electronics p 191-8 Mr '64

Effect of end conditions on the burst strength of finite cylinders. C. J. Costantino and others. bibliog diags A S M E Trans ser E 31:97-104 Mr '64

Effect of transient creep on the collapse time of cylinders and cones under external pressure. E. Z. Stowell and E. M. Briggs. AIAA J 1:2663-4 N '63

Effects of boundary conditions on the stability of cylinders subject to lateral and axial pressures. L. H. Sobel. bibliog diags AIAA J 2:1437-40 Ag '64

Elastic instability of relatively thick circular cylindrical shells subjected to hydrostatic pressure. T. M. Barry and L. D. Ballow. bibliog il diags Naval Eng J 76:621-31 Ag '64

CYLINDERS—*Continued*

Elastic loading of high pressure cylinders. R. Epain and B. Vodar. bibliog diags Am Soc C E Proc 90 [EM 5 no 4108]:363-74 O '64

Elasto-plastic medium containing a cylindrical cavity under uniform internal pressure. R. D. Bhargava and C. B. Sharma. Franklin Inst J 277:422-7 My '64

Field inside a cylindrical shell with a central cylinder surrounded by concentric rings. K. N. Leibovic and R. C. Bollinger. diags Inst E E Proc 111:428-32 Mr '64

Film flow along a vertical cylinder. N. A. Hassan and J. B. Franzini. diags Am Soc C E Proc 90 [EM 4 no 3995]:23-35 Ag '64

Finite plane deformation of a thick-walled cylinder. M. P. Bieniek and M. Shinozuka. bibliog diag AIAA J 2:568-9 Mr '64

Flow-separation spike for hypersonic control of a hemisphere-cylinder. W. E. Thurman. diag AIAA J 2:159-61 Ja '64

Free vibration of thin cylindrical shells. V. I. Weingarten. bibliog il AIAA J 2:717-22 Ap '64

Heat transfer coefficients for a hot gas oscillating at high amplitudes in a cylindrical chamber. M. D. Horton and others. bibliog diag A I Ch E J 10:580-3 Jl '64

Hot stretching shapes cylinders. A. W. Young. il Iron Age 194:64-5 Jl 2 '64

Hydromagnetic flow between two rotating cylinders. P. K. Muhuri. bibliog AIAA J 2:1328-9 Jl '64

Inextensional deformation of a curved panel. K. I. McKenzie. diags A S M E Trans ser E 30:585-8 D '63

Initial buckling of slightly curved panels under combined longitudinal and circumferential direct stresses. K. H. Sayers. bibliog diag Roy Aeronautical Soc J 68:271-4 Ap '64

Investigation of standard concrete cylinders. G. R. Williamson. Am Concrete Inst J 61: 151-4 F '64; Discussion. 61:1197-9 S '64

Linear bending theory of laminated cylindrical shells under axisymmetric load. B. Paul. diags A S M E Trans ser E 30:98-102 Mr '63; Discussion. 31:155-7 Mr '64

Magnetic shielding by a superconducting cylinder. L. L. Vant-Hull and J. E. Mercereau. bibliog diags R Sci Instr 34:1238-42 N '63

Nonlinear pressure coupling in cylindrical shell analysis. P. E. Wilson and E. E. Spier. bibliog diag AIAA J 2:370-2 F '64

Nonlinear response of cylindrical shells subjected to dynamic axial loads. R. S. Roth and J. M. Klosner. bibliog diag AIAA J 2: 1788-94 O '64

Nonlinear vibration of thin cylindrical shells. D. A. Evensen. bibliog diag AIAA J 1:2857-8 D '63

Outer and inner bounds on Tresca limit loads of cylindrical shells. S. L. Lee and B. J. Thorn. bibliog diags Franklin Inst J 277:517-33 Je '64

Parametric expansions for oval reinforcing rings. W. P. Vafakos and N. Nissel. diags Am Soc C E Proc 90 [EM 5 no 4062]:1-26 O '64

Postbuckling behavior of orthotropic cylinders under axial compression. B. O. Almroth. AIAA J 2:1795-9 O '64

Radiant transfer through a gray gas between concentric cylinders using Monte Carlo. M. Perlmutter and J. R. Howell. bibliog flow chart diags A S M E Trans ser C 86: 169-79 My '64

Radiation field produced by an infinite slot in an infinite cylinder surrounded by a homogeneous plasma sheath. D. L. Sengupta. bibliog diags Inst E E Proc 111:950-8 My '64

Residual analysis for circular cylindrical shells under segmental line-load. J. Sheng and J. Kempner. bibliog diags AIAA J 1: 2558-64 N '63; Correction. 2:784 Ap '64

Response of cylindrical shells to moving loads. J. P. Jones and P. G. Bhuta. bibliog diag A S M E Trans ser E 31:105-11 Mr '64

Response of elastic cylinders to plane shear waves. L. J. Mente and F. W. French. diags Am Soc C E Proc 90 [EM 5 no 4083]:103-18 O '64

Rotating cylinder flaps for v/c.t.o.l. aircraft A. A. Calderón. il diags Aircraft Eng 36: 304-9 O '64

Rotating electrically conducting fluids in a long cylinder. K. O. Kessey. bibliog diags AIAA J 2:864-71 My '64

Sandwich cylinder instability under nonuniform axial stress. R. A. Gellatly and R. H. Gallagher. bibliog diag AIAA J 2:398-400 F '64

Stability of a viscous flow between two rotating coaxial cylinders. Y. S. Yu. bibliog Franklin Inst J 277:140-9 F '64

Strength of concrete test cylinders cast in waxed paper molds. A. R. Cusens. il Am Concrete Inst J 61:287-92 Mr '64; Discussion. 61:1219-21; Reply. 1222-3 S '64

Strength of thick-walled cylindrical pressure vessels. J. Marin and T. L. Weng. bibliog il diags A S M E Trans ser B 85:405-16 N '63

Stresses in an elastic-plastic cylinder due to a dilatational phase transformation. H. G. Landau and J. H. Weiner. diag A S M E Trans ser E 31:148-50 Mr '64

Stresses in an incompressible viscoelastic-plastic thick-walled cylinder. M. Shinozuka. bibliog AIAA J 2:1800-4 O '64

Stresses in sandwich cylinders; data sheet. R. A. Gellatly and R. H. Gallagher. diags Machine Design 36:197-201 Mr 26 '64

Studies of the developing flow between concentric cylinders with the inner cylinder rotating. K. N. Astill. bibliog il diags A S M E Trans ser C 86:383-90; Discussion. K. M. Becker. 391; Reply. 391-2 Ag '64

Study of wakes behind a circular cylinder at $M = 5.7$. J. F. McCarthy, jr. and T. Kubota. bibliog il diags AIAA J 2:629-36 Ap '64

Temperature recovery factors for flow longitudinal to a circular cylinder. E. M. Sparrow and D. P. Fleming. bibliog AIAA J 2:386-7 F '64

Tests of cylindrical shells in the plastic range. G. Augusti and S. d'Agostino. bibliog il diags Am Soc C E Proc 90 [EM 1 no 3802]: 69-81 F '64; Discussion. 90 [EM 3 no 3936]: 295-301 Je; [EM 5 no 4093]:433-42 O '64

Thermal stresses in a viscoelastic cylinder with temperature dependent properties. K. C. Valanis and G. Lianis. AIAA J 2:1642-4 S '64

Thick-walled cylinders subjected to axisymmetric tangential loads. C. W. Lee. diags A S M E Trans ser E 31:146-8 Mr '64

Thin plates and shallow cylindrical shells subjected to hot spots. A. Jahanshahi. diags A S M E Trans ser E 31:79-82 Mr '64

Torsion of a circular cylinder. H. D. Conway and J. R. Moynihan. diags A S M E Trans ser E 31:346-8 Je '64

Transient temperature variation in a thermally orthotropic cylindrical shell. K. J. Touryan. diag AIAA J 2:124-6 Ja '64

Utilizing gravity in handling cylindrical products. F. J. Fleischauer. il diags Automation 11:67-71 Mr '64

Variation in buckle shape in cylindrical shells under external pressure and axial load. W. H. Horton and S. C. Durham. bibliog AIAA J 2:943-4 My '64

Manufacture

Salt baths minimize distortion in hardening thin-wall cylinders. il Am Mach 108:66-7 Mr 30 '64

CYLINDERS (engines, etc.)

Air cylinder converted to vacuum pump. W. N. Stanton and G. S. Dillin. il diags Hydraulics & Pneumatics 17:120-1 O '64

Air cylinder with limit switches. il Engineering 197:687 My 15 '64

Controlling rate of pump output controls cylinder acceleration. F. G. Cizek. il diag Hydraulics & Pneumatics 17:86-7 Ap '64

Cross aluminium cylinder. R. C. Cross. il diags Automobile Eng 54:135-9, 190-1 Ap-My '64

Cushioned air cylinders. diags Engineer 217: 529 Mr 20 '64

Cylinders: fluid power component selection charts. Hydraulics & Pneumatics 17:80-3 Ja '64

Diesel cylinder head gaskets current status and future needs. L. E. Crouch and others. S A E J 72:84 Ag '64

Fiberglass cylinder needs no lubrication. il Hydraulics & Pneumatics 17:46 S '64

Heat transfer in the cylinders of reciprocating internal combustion engines. W. J. D. Annand. bibliog Inst Mech Eng Proc 177 no 36:973-90; Discussion. 991-5; Reply. 995-6 '63

Hydraulic linear actuators. T. P. Watson. il diags Machine Design 35:46-52 D 12 '63

Hydraulics cushion air cylinder. il Product Eng 35:108-9 O 12 '64

Pneumatic cylinders where muscle is needed. il Mod Materials Handling 19:39-41 Jl '64

Pneumatic linear actuators. T. P. Watson. diags Machine Design 35:126-9 D 12 '63

Pumps synchronize single acting cylinders up and down. A. T. Browne. il diags Hydraulics & Pneumatics 17:92-3 My '64

CYLINDERS (engines, etc.)—*Continued*

Lining

CEM; new process developed for water-proofing cylinder bores; abstract. A. K. Wood. S A E J 72:92 F '64

Manufacture

Auto-assembly of valve guides and seats in aluminum cylinder heads. D. Scott. il Automotive Ind 129:44-7 N 1 '63

East German transfer line for aircooled cylinders. D. Scott. il Automotive Ind 130: 82-3 F 15 '64

Redesigned air cylinder saves Ford million in just one plant. L. J. Burza. il Steel 153:30-1 D 30 '63

Something new; tunnel honing. C. Emerson. il diag Am Mach 108:62-3 My 25 '64

Wear

Development of marine Diesel cylinder lubricants. H. Pouderoyen and others. diags Naval Eng J 75:977-83 D '63

Laboratory engine testing of marine Diesel cylinder lubricants. A. J. S. Baker and R. T. Davies. il diags Inst Pet J 50:83-91; Discussion. 92-5 Ap '64

CYLINDRICAL function. See Bessel functions

CYMENE

Two fungicidally active 5-chloro-4-aryl-1, 2-dithiol-3-ones derived from cumene and *p*-cymene. W. R. Diveley and others. bibliog J Agri & Food Chem 12:251-3 My '64

CYPRUS

See also

Geology—Cyprus

CYSTEIC acid

Analysis

Quantitative chromatographic determination of cysteic acid in amino acid mixtures on ion exchange papers. J. Hartel and A. J. G. Pleumeekers. bibliog il Anal Chem 36: 1021-2 My '64

CYSTEINE

Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion into dehydroalanine. A. Patchornik and others. bibliog Am Chem Soc J 86:1206-17 Mr 20 '64

Scavenging action in γ-irradiated aqueous cysteine solutions. A. El Samahy and others. bibliog Am Chem Soc J 86:3177-8 Ag 5 '64

Synthesis of *cis-S*-(prop-1-enyl)-L-cysteine. J. F. Carson and F. F. Wong. bibliog Chem & Ind p 1764-5 N 2 '63

Synthesis of cysteine peptides. M. Sokolovsky and others. bibliog Am Chem Soc J 86: 1202-6 Mr 20 '64

CYSTINE

Effect of soybean trypsin inhibitor on methionine and cystine utilization. E. Kwong and R. H. Barnes. bibliog J Nutrition 81: 392-8 D '63

pH effects on the kinetics of the cystine-cyanide reaction. O. Gawron and others. bibliog Am Chem Soc J 86:2283-6 Je 5 '64

Kinetics of the oxidation of bis-(2,3-dimercapto-1-propanolato)-iron(II) by cystine in alkaline solutions. D. L. Leussing and J. P. Mislan. bibliog Am Chem Soc J 86:349-53 F 5 '64

Mechanical properties of permanently set and cystine reduced wool fibers at various relative humidities and the structure of wool. M. Feughelman. bibliog diags Textile Res J 33:1013-22 D '63

Response of the liver to prolonged protein depletion; protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

Synthesis of 1-hemi-D-cystine-oxytocin. D. B. Hope and others. bibliog Am Chem Soc J 85:3686-8 N 20 '63

Analysis

Automatic method for measuring slopes of rate curves applied to quantitative determination of cystine. H. L. Pardue. diag Anal Chem 36:633-6 Mr '64

CYTIDINE

Possible intermediates in the biosynthesis of deoxyribonucleotides; the synthesis of cytidine 2′-phosphate 5′-diphosphate. J. P. H. Verheyden and J. G. Moffatt. bibliog Am Chem Soc J 86:1236-41 Mr 20 '64

Relaxation spectra of ribonuclease; the interaction of ribonuclease with cytidine 3′-phosphate. R. E. Cathou and G. G. Hammes. bibliog il Am Chem Soc J 86:3240-5 Ag 20 '64

CYTOCHROMES

Protein offers clue to evolution. E. Margoliash and E. L. Smith. il Chem & Eng N 42:52-4 Ag 17 '64

CYTOSINE

Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of certain 5- and 6-halogenouracils and -cystosines. I. Wempen and J. J. Fox. bibliog Am Chem Soc J 86: 2474-7 Je 20 '64

Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of 3-methylcytosine. T. Ueda and J. J. Fox. bibliog Am Chem Soc J 85:4024-8 D 20 '63

CZECHOSLOVAKIA

See also subdivision Czechoslovakia under special subjects, e.g.

Automobile industry and trade
Engineering
Iron industry and trade
Machine tool industry
Steel industry and trade

Industries and resources

Czechoslovak journey. il Engineer 217:412-14, 454-5, 495-6 F 28-Mr 13 '64

World of design; Czechoslovakia today. E. J. Tangerman. il Product Eng 35:67-74 Mr 30 '64

D

DDT

DDT aerosols containing WARF anti-resistant. J. H. Fales and O. F. Bodenstein. Soap & Chem Spec 40:96-7 Ap '64

DDT persistence and its effect on aquatic insects and fish after an aerial application. E. B. Welch and J. C. Spindler. bibliog map WPCF J 36:1285-92 O '64

Enzymatic in vitro degradation of DDT by susceptible and DDT-resistant body lice. A. S. Perry and others. bibliog J Agri & Food Chem 11:457-62 N '63

Petroleum fractions as DDT solvents. A. M. Thomas, jr. bibliog J Agri & Food Chem 12:442-7 S '64

Separation and purification of DDT-degrading enzymes from the human body louse. S. Miller and A. S. Perry. bibliog J Agri & Food Chem 12:167-9 Mr '64

DNA. See Desoxyribonucleic acid

DACRON

Tips for weaving Dacron Rotoset yarns. Textile Ind 128:99-100 F '64

See also

Dyes and dyeing—Dacron

DAIRIES

Cattle leaving streets of Calcutta. il Food Tech 17:1542 D '63

See also

Milk

Equipment

Annual dairy engineering conference. 12th, East Lansing, Mich. Food Eng 36:96 Jl '64

Automated dairy-plant systems. il Food Eng 36:96-7 Ap '64

Embassy dairy solves costly problems with simple couplings. il Food Eng 36:70 F '64

Operational tests on a clarifixator. R. D. Peterson and W. K. Jordan. Food Tech 18:1457-9 S '64

Safeway Stores streamlines dairy processing. J. A. Miller il diag Food Eng 35:94-6 N '63

Lighting

Lighting for milk processing; lighting data sheet. C. W. McQuiston and G. T. Anderson, jr. il Illum Eng 59:247-8 Ap '64

DAIRY products

Testing

Rapid cleanup of dairy products for analysis of chlorinated insecticide residue by electron capture gas chromatography. B. E. Langlois and others. bibliog J Agri & Food Chem 12:243-5 My '64

DAIRYING
Dairy industry and higher education. V. H. Nielsen. Food Tech 17:1526-8 D '63
Problems and potentials facing the dairy industry. C. W. Kaufman. Food Eng 36:89-90 Ag '64

DALE, Nelson Clark
Memorial. W. H. Parsons. bibliog por Geol Soc Bul 75:sup 123-6 Jl '64

DALLAS
See also
Airports—Dallas

Architecture

Building types study; apartments; Turtle Creek village, Dallas. G. A. Christie. il plans Arch Rec 135:148-9 Ja '64
Dallas downtown project approaches reality. il plans Prog Arch 45:70-1 Jl '64
Staggered for privacy and view; row house. il plan Arch Rec 136:116-17 Ag '64
Ten-acre superblock planned. il Arch Rec 136:14 Jl '64

Water supply

Dallas water supply planned for year 2000. H. J. Graeser. il map Pub Works 95:90-3 Je '64
Preventive maintenance program. R. E. Morris, jr. Am Water Works Assn J 56:579-84 My '64

DAMAGES
Engineering law; torts and contracts. E. Mitchell. Engineer 218:214 Ag 7 '64
Rulings divided on blast damages. A. W. Gray. Roads & Sts 107:91-3 Jl '64
Tenneco Chemical sues Kellogg and SBA for gross errors in acetylene plant. Chem & Eng N 42:24 Ap 20 '64
See also
Employers liability

DAMPERS
Adapting damper to system. H. W. Alyea and N. J. Janisse. Air Cond Heat & Ven 61:82-4 Mr '64
Damper is a control device. A. J. Hess. Heating-Piping 36:112 Ap '64
Damper with a linear characteristic. M. H. Barker. il Engineer 217:1131-2 Je 26 '64
Exact damper setting gains lab boiler efficiency in the field. J. M. Hartman. Heating-Piping 36:96 F '64
Matching damper to system by damper characteristic. H. W. Alyea and N. J. Janisse. diags Air Cond Heat & Ven 60:31-3 D '63
Right size damper. H. W. Alyea and N. J. Janisse. Air Cond Heat & Ven 61:43-6 F '64

DAMPNESS in buildngs
Environmental control in hospital facilities. W. Viessman. bibliog Heating-Piping 36:129-32 Ja '64; Discussion. 36:128-30; Reply. 130-3 O '64

DAMS
American developments in dam building. I. B. Mackintosh. il Engineering 196:484-5 O 18 '63
Aswan dam; stage two begins. il map plans diag Engineering 197:732-3 My 29 '64
Big wheel replaces draglines at Oroville. il Eng N 172:26-7 My 14 '64
Blue Mesa project is a dam site full of holes. il diag Eng N 172:36-8+ Mr 12 '64
Briones dam near completion. il Water & Sewage Works 111:149 Mr '64
Concrete cutoff wall drilled down 250 ft. I. V. Galbiati. il diags Civil Eng 33:59-61 N '63
Conjunctive operation of dams and aquifers. N. Buras. bibliog diags Am Soc C E Proc 89 [HY 6 no 3697]:111-31 N '63; Correction. 90 [HY 4 no 3980]:327 Jl '64
Construction begins on Columbia River treaty dams. il map Eng N 173:20-1 N 5 '64
Contractor processes half the fill for ten-million-cu-yd dam. il Eng N 172:28-30 Mr 26 '64
Contractors regain interest in dams. Eng N 173:21 O 22 '64
Corps reveals plans for Rampart dam. map Eng N 173:21 O 22 '64
Dams substitute for bridges. R. A. Zink. il diags Pub Works 94:72-3 N '63
Earth-moving at Oroville dam. il Engineer 218:419 S 11 '64
Earthquake resistance of sloping core dams. H. B. Seed and R. W. Clough. bibliog diags Am Soc C E Proc 89 [SM 1 no 3434]:209-42 F '63; Discussion. 89 [SM 5 no 3654]:123-5 S '63; Reply. 90 [SM 2 no 3850]:169-70 Mr '64
Engineers adopt slide-built dam. Eng N 171:24 D 12 '63
FPC plans hydro-dam inspection. Eng N 173:13 O 29 '64
First-stage work of Aswan High dam completed. Civil Eng 34:98 Je '64
Freshening of Deer Point Lake, Bay County, Fla. L. G. Toler and others. map Am Water Works Assn J 56:984-90 Ag '64
Ghana's Akosombo dam has Volta River in harness. il map Eng N 173:26-8 Jl 30 '64
Hydro power projects get priority; Keban dam and powerhouse planned for the Firat (Euphrates) River. il map Eng N 173:43-4 Jl 9 '64
Hydrology of spillway design floods; large structures, limited data. V. A. Koelzer and M. Bitoun. maps Am Soc C E Proc 90 [HY 3 no 3913]:261-93 My '64
Hydrology of spillway design; large structures, adequate data. F. F. Snyder. bibliog map Am Soc C E Proc 90 [HY 3 no 3915]:239-59 My '64; Discussion. M. A. Benson 90 [HY 5 no 4050]:297-300 S '64
Hydrology of spillway design; small structures, limited data. H. O. Ogrosky. il maps Am Soc C E Proc 90 [HY 3 no 3914]:295-310 My '64
It's push-button earthmoving at Oroville. il plan diag Eng N 173:74-5+ O 8 '64
Josini dam will water Zululand. il map Eng N 173:36+ N 5 '64
Lucky Seattle; another treatment-free supply; Tolt River project. E. W. Ott. il map Water Works & Wastes Eng 1:36-40, cover Ap '64
Man-made earthquakes test a dam. H. B. Hemborg and W. O. Keightley. il Eng N 172:48-9 Ap 16 '64
Mangla dam, biggest contract ever. il maps diags Engineering 197:198-9 Ja 31 '64
Mechanics of inclined filters in earth dams. V. J. Patel and others. bibliog diags Am Soc C E Proc 90 [SM 2 no 3840]:87-110 Mr '64
Oahe dam; geology, embankment, and cut slopes. D. K. Knight. bibliog il plans diags Am Soc C E Proc 89 [SM 2 no 3466]:99-125 Mr '63; Discussion. 89 [SM 6 no 3701]:123-4 N '63; Reply. 90 [SM 3 no 3907]:165-7 My '64
Oahe dam gets living color. Eng N 171:176+ D 19 '63
Occupation time problems in the theory of queues. L. Takács. bibliog Op Res 12:753-67 S '64
Peace River diversion dries the way for huge earthmoving job. il Eng N 171:38-9 N 28 '63
Power tower is actually a thin arch dam. il diag Eng N 171:92-3 N 14 '63
Rebound in redesign of Oahe Dam hydraulic structures. L. B. Underwood and others. bibliog il maps plans diags Am Soc C E Proc 90 [SM 2 no 3820]:65-86 Mr '64
Regulation of the Caspian Sea. O. W. Kabelac. bibliog map diags Am Soc C E Proc 90 [WW 1 no 3794]:103-13 F '64
Russians blast through landslide dam. map Eng N 172:24 My 7 '64
Soil-cement as slope protection for earth dams. W. G. Holtz and F. C. Walker. bibliog il map diags Am Soc C E Proc 88 [SM 6 no 3361]:107-34 D '62; Discussion. 89 [SM 3 no 3528]:189-92 My; SM 4 no 3578]:219-22 Jl '63; Reply. 90 [SM 2 no 3850]:159-62 Mr '64
Soil conservation program replaces county bridges. C. P. Mayhugh. il Pub Works 95:100-1 N '64
Some overseas schemes. il Engineer 217:supp 12-16 Ap 24 '64
TVA will start Nickajack dam. Eng N 172:18 Ja 9 '64
Texas, Louisiana start Toledo Bend dam. map Eng N 172:19 Ap 30 '64
Thailand dam goes on line. il Elec World 161:60 Je 29 '64
Thirsty Hong Kong gets some relief. il map Eng N 171:50 D 12 '63
3,500-cu-yd-an-hour digging wheel makes debut at San Luis dam. il Eng N 172:28-30 My 7 '64
Tippetts-Abbett-McCarthy-Stratton turns over Shihmen dam. il Eng N 173:19 Jl 23 '64
Wet fill and dry fill plague construction at Cheney dam. il Eng N 172:30-1 Ja 16 '64
World's biggest earthmoving job makes history in Pakistan; Mangla dam project. P. B. Harder. il Roads & Sts 107:64-9+ Ag '64
See also
Hydroelectric plants
International congress on large dams
Irrigation
Reservoirs
Spillways

DAMS—*Continued*

Costs

California dam uses old dam as toe; unit prices. Eng N 173:127 O 8 '64

Close bidding on Oregon dam job; unit prices. diag Eng N 172:122+ Mr 19 '64

Competition is stiff on San Luis pumping plant and dam; unit prices. Eng N 172:128-30 Mr 19 '64

Dam awarded at ten per cent over estimate; unit prices. il Eng N 173:136-8 S 17 '64

Qu'Appelle dam contract; unit prices. Eng N 171:63 D 5 '63

Soil cement alternate bid wins dam job; unit prices. Eng N 172:138+ Je 18 '64

South Saskatchewan River dam; unit prices. Eng N 172:48 Ap 23 '64

Winning dam bid tops estimate by 18 per cent; unit prices. Eng N 173:134 Jl 2 '64

Design

Arch dams; current research in Britain. il diags Engineering 197:649-52 My 8 '64

Aswan's first stage completed. il maps diag Eng N 172:55-8 My 21 '64

Derwent dam. il plan diag Engineer 217:supp 17-20 Ap 24 '64

Design of Karadj Arch dam. J. A. Veltrop and R. P. Wengler. bibliog il plan diags Am Soc C E Proc 90 [PO 1 no 3827]:1-32 Mr '64

Designers and contractors outwit bad materials at Briones dam. il diag Eng N 172:70-2+ F 13 '64

Earthquake resistant design of earth dams; abstract. J. Krishna. Pub Works 95:142+ My '64

International symposium on theory of arch dams. Southampton, April 20-23. Engineer 217:818 My 8 '64; Engineering 197:684 My 15 '64

Landscaping to conserve the countryside. il Engineering 197:613-16 My 1 '64

New dam will lean on old one. diag Eng N 173:28 Jl 9 '64

Tyrolean rockfill is highest and steepest in Europe; Gepatsch dam, Austria. il map diag Eng N 172:34-6 Ap 23 '64

Failure

Aftermath of an emergency; Los Angeles' Baldwin Hills reservoir failure. B. R. Paris; N. B. Hume. il Pub Works 95:103-7 My '64

Baldwin Hills dam failure. W. E. Jessup. il plan Civil Eng 34:62-4 F '64

Earth shift may have wrecked Los Angeles dam. Eng N 172:15 Ja 9 '64

Earth shifts wrecked reservoir. Eng N 172:22-3 F 27 '64

Engineer on trial for dam collapse. il Eng N 173:14-15 O 29 '64

Flexibility of clay and cracking of earth dams. G. A. Leonards and J. Narain. il diags Am Soc C E Proc 89 [SM 2 no 3460]:47-98 bibliog(p96-7) Mr '63; Discussion. 89 [SM 6 no 3701]:109-22 N '63; Reply. 90 [SM 4 no 3979]:135-7 Jl '64

Floods down dam, prize bridge. il Eng N 172:63 Je 18 '64

Lessons learnt from dam disasters. il diag Engineering 197:681-3 My 15 '64

Malpasset trial decision awaited. Eng N 173:19 N 5 '64

Multiple probes start on dam failure; Los Angeles' Baldwin Hills dam. il Eng N 172:15 Ja 2 '64

Red tape tragedy; Vaiont dam disaster report blames bungling officials. Eng N 172:14 Ja 30 '64

Reservoir failure under study. il Water Works & Wastes Eng 1:82 Ja '64

Subsidence blamed in earth dam failure. il Eng N 171:50 D 19 '63

Vaiont reservoir disaster; geologic causes of tremendous landslide and flood wave. G. A. Kiersch. bibliog il map diags Civil Eng 34:32-9 Mr '64

Fish problem

Fish facilities require tremendous pumps. R. H. Deurer. il diags Pub Works 95:91-3 F '64

New lifting device used at Priest Rapids dam. W. R. Martin. il diags Civil Eng 34:69-71 Je '64

Round Butte dam fish-handling costs 2.5 per cent of total-project outlay. G. J. Eicher. il diags Elec World 161:36-9 F 10 '64

Foundations

Analyse et solution du problème d'étanchéité au batardeau amont de l'aménagement de Manicouagan 5. C. A. Dagenais and G. Turenne. maps plan diags Eng J 47:19-24; Discussion. 52 Ja '64

Foundation modulus tests for Karadj arch dam. W. A. Waldorf and others. bibliog il diags Am Soc C E Proc 89 [SM 4 no 3576]:91-126 Jl '63; Discussion. 90 [SM 1 no 3781]:157-61 Ja; [SM 2 no 3850]:187-204 Mr '64

Overcoming the weaknesses of dams. il diags Engineering 197:776-7 Je 5 '64

Pressure cell observations-Garrison dam project. H. A. Sikso and C. V. Johnson. il plans diags Am Soc C E Proc 90 [SM 5 no 4023]:157-79 S '64

Some foundation considerations at the Grand Rapids hydro-electric project. J. R. Rettie and F. W. Patterson. il maps diags Eng J 46:32-8 D '63; Discussion. 47:98-9+ O '64

Thin cutoff goes deep to seal dam foundation. il diag Eng N 173:30-3 Ag 27 '64

Underwater inspection of test fill in Gatun Lake. A. P. Mann. il map Civil Eng 34:31-3 My '64

Unwatering Akosombo cofferdams. D. J. Bleifuss. il diags Am Soc C E Proc 90 [SM 2 no 3842]:111-25 Mr '64

DAMS, Concrete

Aldeadavila dam ready for dedication. il Eng N 173:31 S 3 '64

Before and after at Vaiont dam; illustrations with text. Eng N 171:27 D 5 '63

Clywedog dam. diags Engineer 217:supp 10-11 Ap 24 '64

Combined arch and gravity dam. il Engineering 198:86 Jl 17 '64

Completion announced of first stage of Pike Island dam. il Marine Eng/Log 69:66 F '64

Cracking in Norfork dam. F. W. Sims and others. bibliog il diags Am Concrete Inst J 61:265-85 Mr '64; Discussion. D. McHenry and N. W. Hanson. 61:1213-18 S '64

First power due at Bhumiphol. il Eng N 172:29 Ap 9 '64

Hydro in the Highlands lifts Scotland's economy. W. G. Bowman. il maps diags Eng N 173:62-6+ Jl 2 '64

Internal instruments will record dam behaviour. il Engineering 196:712 D 6 '63

Kyushu; one dam up, four to go. il Eng N 171:132 D 19 '63

Manicouagan Dam project requires millions of tons of materials. il map Pit & Quarry 57:96-101+ S '64

Measuring structural behavior of Glen Canyon dam. J. T. Richardson. bibliog il map plan diags Am Soc C E Proc 90 [SU 2 no 3987]:133-52 Jl '64

Morrow Point dam is a Bureau of reclamation first. il map Eng N 173:95-6 Ag 6 '64

Outstanding civil engineering achievement of the year; Glen Canyon dam project. il Am Concrete Inst J 61:supp23 Ap '64

Owners question dam's concrete; Priest Rapids dam. Eng N 173:14-15 O 29 '64

Preliminary design of concrete dams by computers. R. Weaver. flow diag diags Civil Eng 34:43-7 F '64

Progress reported on Maxwell dam in Monongahela River. il Marine Eng/Log 69:54 Ja '64

Rappbode reservoir. il Engineer 216:1041 D 20 '63

Roseires dam half complete. il Engineering 196:549 N 1 '63

Symposium on mass concrete. Am Concrete Inst J 60:1755-64 D '63

Two-nation Danube project will open the Iron Gate. map Eng N 173:65 S 17 '64

Yellowtail hits million-cu-yd mark. il Eng N 173:21 Ag 27 '64

Maintenance and repair

Floating caisson gives dry environment for dam maintenance. il Elec World 161:69 Ja 13 '64

DANCY, T. E.

1963 Kelly award winner. por Iron & Steel Eng 41:154 O '64

DANDRUFF

Antiseborrheic effect of a shampoo. A. Bjornberg and L. Hellgren. Drug & Cosmetic Ind 95:347-8 S '64

Court decisions: RX sold without prescription. H. N. Morse. Drug & Cosmetic Ind 94:220 F '64

DANUBE RIVER

Two-nation Danube project will open the Iron Gate. map Eng N 173:65 S 17 '64

DARKROOMS. See Photography—Studios and darkrooms

DATA processing, Electronic. See Electronic data processing

DATA processing service centers

Atlantic sets up automated data flow. map Oil & Gas J 61:50-1 O 28 '63

Central computer stations move a step closer. il Steel 155:29+ O 26 '64

Computer centre in Newcastle upon Tyne. il Engineer 216:852-3 N 22 '63

Cooperative computer center. C. P. C. Tung and D. Carsen. il plan Civil Eng 34:56-9 S '64

Daily life at a data center. il Control Eng 11:20-1 Ap '64

Data communications systems. il Mech Eng 85:51 D '63

G.P.O. computer handles 6,000,000 telephone accounts. il Ind Electronics 2:444 S '64

Jersey centralizes services for its New York affiliates. G. T. Kinney. Oil & Gas J 62:110-11 O 5 '64

Machines talk to machines for library information. il Mech Eng 86:81 S '64

Tele-processing to save $1-million. J. L. Braswell and others. il map Elec World 162:70-1+ Jl 13 '64

University of London computing service. il Electronic Eng 36:463 Jl '64

Air conditioning

Air conditioning for computer areas. H. Yeh. il diags Air Cond Heat & Ven 61:70-4 My '64

Fires and fire protection

Computer tapes safeguarded from fire. il Safety Maint 126:30-2 D '63

DATA storage and retrieval systems. See Information storage and retrieval systems

DATA transmission systems

Atlantic sets up automated data flow. map Oil & Gas J 61:50-1 O 28 '63

Checking in data processing. C. F. Page. il Instruments & Control Systems 37:129-31 Ag '64

Data logger's growing role in power industry telemetry. W. C. Shook. il diag Power Eng 68:T10-11 Mr '64

Data transmission system for marshalling yards. Electronic Eng 36:549 Ag '64

Design for a data exchange system. R. A. Leonard. il diags Electronic Ind 23:86-8+ My '64

Digital data acquisition system. D. E. Block. il diags Instruments & Control Systems 37:97-102 Ag '64

Error-detection equipment for Telex. il Ind Electronics 2:349 Jl '64

For telemetry, advantages of storing data before detection. J. D. Williamson. Electronic Ind 23:61-3 Ag '64

High-speed data transmission. F. V. Long. diags Gas 39:113+ N; 115+ D '63

How to price communications circuits. J. F. Holmes. Control Eng 11:84-7 Ag '64

Oil tanker performance data. Engineer 217:238 Ja 31 '64

Remote control, next step beyond lease automation: coding, the language of data transmission. E. E. Hogwood, jr. bibliog diags Oil & Gas J 62:81-4 Mr 30 '64

Revised Bell System text transmission systems for communications currently being distributed. Bell Lab Rec 42:68-9 F '64

Self-optimizing digital data transmission set. A. Brothman and others. diags IEEE Trans Com & Electronics p7-12 Ja '64

Tele-processing to save $1-million. J. L. Braswell and others. il map Elec World 162:70-1+ Jl 13 '64

21 ways to pick data off moving objects. R. J. Barber. diags Control Eng 10:82-6 O '63; 11:61-4 Ja '64

See also

Telephone—Data transmission systems

DAY nurseries

Children in day care; a health-focused look at current practices in a community. N. M. Morris and others. bibliog Am J Pub Health 54:44-52 Ja '64

DAYLIGHT

Search for architectural principles; University Reformed church, Ann Arbor, Mich. il diags Prog Arch 45:186-91 S '64

See also

Skylights

DAYLIGHT, Artificial

Artificial daylight. H. Greber. Illum Eng 58:664 N '63

DEAERATION of water. See Water—Deactivation and deaeration

DEAFNESS

See also

Ear—Injuries

Hearing

Noise

DEALER relations

See also

Gas companies—Dealer relations

DEALKYLATION. See Alkyl group

DEAMINATION

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the deamination of 3,3,3-d_3-1-aminopropane. A. A. Aboderin and R. L. Baird. bibliog Am Chem Soc J 86:2300-1 Je 5 '64

Direct method for reductive deamination of aliphatic amines. A. Nickon and A. S. Hill. bibliog Am Chem Soc J 86:1152-8 Mr 20 '64

Nitrous acid deamination of the norbornylamines; carbon and nitrogen rearrangements of norbornyl cations. J. A. Berson and A. Remanick. bibliog Am Chem Soc J 86:1749-55 My 5 '64

Specifically solvated ion-pair intermediates in nitrous acid deamination of an axial amine. T. Cohen and E. Jankowski. bibliog Am Chem Soc J 86:4217-18 O 5 '64

DEATH VALLEY, California

Borate land withdrawal draws fire. map plan Chem & Eng N 42:24-7 My 18 '64

DEBURRING. See Metal finishing

DEBYE, Peter J. W.

Personal appreciation. H. S. Sack. por Am Chem Soc J 86:sup9A-10A S 5 '64

DECALCOMANIA

Applying decals to truck bodies. il Ind Finishing 40:64-5 Mr '64

DECALIN

Carbon-carbon bond fission in cyclopropanes; the acid-promoted opening of the three-membered ring in 2,3-methano-*trans*-decalin. R. T. LaLonde and M. A. Tobias. bibliog Am Chem Soc J 85:3771-5 D 5 '63

1,6-Oxido[10]annulene and 1-benzoxepin. F. Sondheimer and A. Shani. Am Chem Soc J 86:3168-9 Ag 5 '64

Synthetic transformation of natural products; 1-methylene-2,10-methano-5,5, 9-trimethyldecahydronaphthalene. G. Brieger. bibliog Am Chem Soc J 85:3783-4 D 5 '63

DECALONE. See Naphthalenone

DECARBONYLATION. See Carbonyl group

DECARBOXYLATION. See Carboxyl group

DECARBURIZATION of steel. See Steel—Decarburization

DECCA navigation system

Computer-controlled navigational demonstration aircraft. il Engineer 217:960 My 29 '64

DECISION, Theory of

Strategy and conscience. A. Rapoport. Review, by M. G. Raskin. Sci Am 211:109-10+ Ag '64

DECISION making in management. See Business management

DECOLORIZATION

See also

Dyes and dyeing—Stripping

DECOMPOSITION

Anchimerically accelerated bond homolysis; decomposition of an oxygen-18 labeled *t*-butyl perester. J. C. Martin and T. W. Koenig. Am Chem Soc J 86:1771-5 My 5 '64

Cage effects in thermal and photochemical decomposition of an azo compound. G. S. Hammond and J. R. Fox. bibliog Am Chem Soc J 86:1918-21 My 20 '64

Cage effects in thermal decomposition reactions in solution. H. P. Waits and G. S. Hammond. bibliog Am Chem Soc J 86:1911-18 My 20 '64

Catalysis of the decomposition of *N*-nitrosotriacetonamine by a polymeric quaternary hydroxide. M. S. M. Alger and others. bibliog Chem & Ind p2008-9 D 28 '63

Decomposition of acetyl peroxide in solution; kinetics and use of radical traps. H. J. Shine and others. bibliog Am Chem Soc J 85:3613-21 N 20 '63

Decomposition of tris(1,10-phenanthroline iron(III) salts in concentrated sulphuric acid. A. F. Richards and others. Chem & Ind p 1726 O 26 '63

Decomposition reactions of N-nitrosoacetanilide. D. B. Denney and others. Am Chem Soc J 86:3180-1 Ag 5 '64

Effects of nonpolar solvents on an ionic reaction; the ionic decomposition of *tert*-butylperoxy formate. R. E. Pincock. bibliog Am Chem Soc J 86:1820-6 My 5 '64

Excited states in the photolysis of carbonyl compounds; the photosensitized decomposition by benzophenone. P. Borrell. Am Chem Soc J 86:3156-7 Ag 5 '64

DECOMPOSITION—*Continued*

γ-ray decomposition of pure liquid sulfur dioxide. W. G. Rothschild. bibliog Am Chem Soc J 86:1307-9 Ap 5 '64

Generation of 2,2-diphenyldiazocyclopropane and 2,2-diphenylcyclopropylidene from the thermal decomposition of N-nitroso-N-(2,2-diphenylcyclopropyl-urea. W. M. Jones and others. bibliog Am Chem Soc J 86:912-14 Mr 5 '64

High-temperature decomposition of austenite in alloy steels. J. McCann and K. A. Ridal. bibliog il Iron & Steel Inst J 202:441-7 My '64

Induced decompositions of di-*t*-butyl peroxide in primary and secondary alcohols. E. S. Huyser and C. J. Bredeweg. bibliog Am Chem Soc J 86:2401-5 Je 20 '64

Induced decompositions of di-*t*-butyl peroxide in primary and secondary amines. E. S. Huyser and others. bibliog Am Chem Soc J 86:4148-51 O 5 '64

Isolation of primary decomposition products of azides; 1,4-diphenyl-5-azido-1,2,3-triazole. P. A. S. Smith and others. bibliog Am Chem Soc J 86:2025-33 My 20 '64

Kinetics of the decomposition of BH_3CO and the bond dissociation energy of B_2H_6. M. E. Garabedian and S. W. Benson. bibliog Am Chem Soc J 86:176-82 Ja 20 '64

Kinetics of the thermal decomposition of methyl cyclobutanecarboxylate. M. Zupan and W. D. Walters. bibliog Am Chem Soc J 86:173-6 Ja 20 '64

Mass spectrometric identification of decomposition products of polytetrafluoroethylene and polyfluoroethylenepropylene. R. E. Kupel and others. bibliog diag Anal Chem 36:386-9 F '64

Mass spectrometric investigation of the thermal decomposition of cyclobutane at low pressures. R. W. Vreeland and D. F. Swinehart. bibliog Am Chem Soc J 85:3349-53 N 5 '63

Mechanism of decomposition of sodium peroxybenzoate in alkaline solution. K. Akiba and O. Simamura. Chem & Ind p705-6 Ap 25 '64

Mechanisms of decomposition of diacyl peroxides. F. D. Greene and others. bibliog Am Chem Soc J 86:2080-1 My 20 '64

Mechanisms of photochemical reactions in solution; photosensitized decomposition of azo compounds. J. R. Fox and G. S. Hammond. bibliog Am Chem Soc J 86:4031-5 O 5 '64

Mechanisms of substitution reactions at phosphorus; the Wittig reaction and the decomposition of quaternary phosphonium hydroxides. W. E. McEwen and others. bibliog Am Chem Soc J 86:2378-84 Je 20 '64

Mercury-photosensitized decomposition and collision broadening of resonance line. K. Yang. bibliog Am Chem Soc J 86:3941-8 O 5 '64

Mercury-photosensitized decomposition of propane at temperatures above 300°. R. A. Back and S. Takamuku. bibliog diag Am Chem Soc J 86:2558-62 Jl 5 '64

Mercury 6($^3P_1$) photosensitized decomposition of propane and 2,2-dideuteriopropane. J. P. Chesick. bibliog Am Chem Soc J 86:3597-601 S 20 '64

Nuclear magnetic resonance in the examination of the thermal decomposition of *O,O*-dimethyl *O*-[4-(methylthio)-3-tolyl] phosphorothioate. T. R. Fukuto and others. bibliog J Agri & Food Chem 12:169-71 Mr '64

Organic ions in the gas phase; cycloheptatriene-7-*d*; decomposition of $C_7H_8^+$ and $C_7H_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63

Organic peroxides: the behavior of cyclohexaneformyl peroxide in the presence of excess stable radicals: the simultaneous determination of kinetics and free radical efficiencies in the thermal decompositions of free radical initiators. R. C. Lamb and J. G. Pacifici. bibliog Am Chem Soc J 86:914-18 Mr 5 '64

Organic peroxides; the mechanism of the thermal decomposition of 6-heptenoyl peroxide in toluene; the rearrangements of the 5-hexenyl radical. R. C. Lamb and others. bibliog Am Chem Soc J 85:3483-6 N 5 '63

Phase relations in the system PbO-CO_2 and the decomposition of cerussite. D. A. Grisafe and W. B. White. bibliog Am Mineralogist 49:1184-98 S '64

Photolytic decomposition of aryldiazonium salts; the *p*-dimethylaminophenoxy radical. P. J. Zandstra and E. M. Evleth. bibliog Am Chem Soc J 86:2664-6 Jl 5 '64

Photolytic decomposition of some sulfones by an internally sensitized path. M. P. Cava and others. bibliog Am Chem Soc J 86:3173-4 Ag 5 '64

Radiolysis in the adsorbed state. J. G. Rabe and others. bibliog Am Chem Soc J 86:3887-8 S 20 '64

Stability of the succinimidyl radical; decomposition of *t*-butyl N-succinimidepercarboxylate. E. Hedaya and others. bibliog Am Chem Soc J 86:2727-8 Jl 5 '64

Study of the decomposition of 3,3,3-triphenylpropanoyl peroxide. D. B. Denney and others. bibliog Am Chem Soc J 86:1116-19 Mr 20 '64

Synthesis and decomposition of 3-diazo-6-dicyanomethylene-1,4-cyclohexadiene; arylmalononitriles. H. D. Hartzler. bibliog Am Chem Soc J 86:2174-7 Je 5 '64

Synthesis and decomposition of *o*-iodosophenylacetic acid. J. E. Leffler and others. bibliog Am Chem Soc J 85:3443-8 N 5 '63

Thermal decomposition of cerous oxalate and variation of surface area of the products. V. V. Subba Rao and others. bibliog Am Cer Soc J 47:356-60 Jl '64

Thermal decomposition of cyclobutane at low pressures. J. N. Butler and R. B. Ogawa. bibliog Am Chem Soc J 85:3346-9 N 5 '63

Thermal decomposition of dimethyllaurylamine oxide. G. P. Shulman and W. E. Link. bibliog Am Oil Chem Soc J 41:329-31 Ap '64

Thermal decomposition of europium hydroxide. R. C. Rau and W. J. Glover, jr. bibliog il Am Cer Soc J 47:382-7 Ag '64

Thermal decomposition of some substituted barium titanyl oxalates and its effect on the semiconducting properties of the doped materials. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 46:567-73 D '63

Thermal decomposition of *t*-butyl 2,5-dioxo-1-pyrrolidineperformate. T. Koenig and W. Brewer. bibliog Am Chem Soc J 86:2728-30 Jl 5 '64

Thermal decomposition of *t*-butyl 3,3,3-triarylperpropionates; evidence for the intramolecular rearrangement and cyclization of aliphatic acyloxy radicals. W. H. Starnes, jr. bibliog Am Chem Soc J 85:3708-9 N 20 '63

Thermal decomposition of uranyl nitrate hexahydrate. S. Hartland and R. J. Nesbitt. bibliog il J Ap Chem 14:406-12 S '64

Thermal decomposition processes in the system tricyclo [3.3.0.0^{2,6}]octane-1,5-cyclooctadiene. R. Srinivasan and A. A. Levi. bibliog Am Chem Soc J 86:3756-9 S 20 '64

Thermal decomposition rates of saturated cylic hydrocarbons. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:248-54 Jl '64

Thermal transformation of alumina trihydrate, hydrargillite. T. Sato. bibliog J Ap Chem 14:303-8 Jl '64

Thermodynamics of the thermal decomposition of acetic acid in the vapor phase. W. C. Child, jr. and A. J. Hay. bibliog Am Chem Soc J 86:182-7 Ja 20 '64

DECONTAMINATION. See Radioactivity—Protection

DECORATION and ornament

Fused stained glass. il Glass Ind 45:552 O '64

Plastics decorate streets of Merrie England at Christmas. il Plastics World 21:39 D '63

See also

Castings, Ornamental
Enamel and enameling
Plastics, Decorative
Stencil work
Textile printing

DECORATION and ornament, Architectural

Architect's choice; gold decorated porcelain enamel. F. Gibson. il Cer Ind 83:41-3 Ag '64

See also

Sculpture

DEEP sea mining. See Mining methods—Subaqueous operations

DEFICIENCY diseases

Anti-rachitic effects of soybean preparations for turkey poults. C. W. Carlson and others. bibliog J Nutrition 82:366-70 Mr '64

Clinical teaching of nutrition. W. H. Sebrell, jr. diag Am J Clinical Nutrition 15:111-14 Ag '64

Effect of vitamin B_{12} therapy in a patient with folic acid deficiency. J. B. Alperin. bibliog il Am J Clinical Nutrition 15:117-23 S '64

Question of copper deficiency in man. G. E. Cartwright and M. M. Wintrobe. Am J Clinical Nutrition 15:94-110 bibliog(p 108-10) Ag '64

DEFICIENCY diseases—*Continued*
Rachitogenic activity of soybean fractions. C. W. Carlson and others. bibliog J Nutrition 82:507-11 Ap '64
See also
Kwashiorkor

DEFICIENT diet. See Diet, Deficient

DEFLECTION. See Bending

DEFOAMERS. See Foaming

DEFORMATION (mechanics)
Accelerated spheroidization of eutectoid steels by concurrent deformation. J. L. Robbins and others. bibliog il Iron & Steel Inst J 202:804-7 O '64
Analysis of an inelastic column. J. V. Huddleston. diags Am Soc C E Proc 90 [EM 4 no 3992]:1-21 Ag '64
Analysis of plastic deformation in rolling contact. J. E. Merwin and K. L. Johnson. bibliog diags Inst Mech Eng Proc 177 no 25:676-85; Discussion. il 686-90 '63
Application of some principles to plastic deformation. O. Kienzle. diags Machine Design 35:200+ N 7 '63
Applications of some principles to plastic deformation; abstract. O. Kienzle. Metal Prog 85:172+ Je '64
Catastrophic thermoplastic shear. R. F. Recht. bibliog il diags A S M E Trans ser E 31:189-93 Je '64
Comparisons of materials; elongation; tables Materials in Design Eng 60:30-1 Mid-O '64
Computer analysis of asymmetrical deformation of orthotropic shells of revolution. G. A. Cohen. bibliog diag AIAA J 2:932-4 My '64; Correction. 2:2231 D '64
Creep deformations in membrane shells. F. A. Cozzarelli and S. A. Patel. bibliog diags Franklin Inst J 278:45-60 Jl '64
Crushing of a tube between rigid plates. J. A. DeRuntz, jr. and P. G. Hodge, jr. bibliog il diags A S M E Trans ser E 30:391-5 S '63; Discussion. 31:357-8 Je '64
Crystalline polymers; solid-state deformation. T. F. Jordan. bibliog diags Mech Eng 86:40-3 S '64
Deformation and wave structure produced by high-velocity impact. R. F. Rolsten and others. bibliog il J Ap Phys 35:1655-6 My '64
Deformation of a ring-stiffened cylindrical shell. C. T. F. Ross. Engineer 217:568 Mr 27 '64
Deformation of nonuniform sections and natural frequencies of shafts. S. Kravitz. diags Product Eng 35:141-4 F 3 '64
Deformation of steel; reference book sheets. diag Am Mach 108:109+ S 14; 169+ O 26 '64
Distortion of circular rings; data sheet. H. D. Tabakman and H. P. Valentijn. diags Machine Design 36:201-7 O 22 '64
Effect of deformation on the crystallization of supercooled cured and uncured rubbers. M. F. Bukhina. bibliog Rubber Chem & Tech 37:404-7 Ap '64
Effect of plastic deformation on the corrosion of iron and steel. N. D. Greene and G. A. Saltzman. bibliog il Corrosion 20:293-8 S '64
Effect of strain rate and temperature on the resistance to deformation of aluminium, two aluminium alloys, and lead. J. A. Bailey and A. R. E. Singer. Inst Metals J 92:404-8 '63-64
Effect of temperature on the deformation of KCl-KBr alloys. N. S. Stoloff and others. bibliog il J Ap Phys 34:3315-22 N '63
Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450°C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64
Elastic-plastic deformation of a single grooved flat plate under longitudinal shear. M. F. Koskinen. bibliog il diags A S M E Trans ser D 85:585-91; Discussion. 591-3; Reply. 593-4 D '63
Electrical resistivity of metals due to plastic deformation. P. Feltham. bibliog diags Metallurgia 70:55-8 Ag '64
Electrostrictively generated and modulated fracture in barium titanate ceramics. G. Goodman. il J Ap Phys 35:2725-6 S '64
Experimental and theoretical investigation of the plastic deformation of cantilever beams subjected to impulsive loading. S. R. Bodner and P. S. Symonds. bibliog il diags A S M E Trans ser E 29:719-28 D '62; Discussion. 30:637-8 D '63
Fatigue deformation of magnesium oxide. K. N. Subramanian and J. Washburn. bibliog il diags J Ap Phys 34:3394-7 N '63
Finite plane deformation of a thick-walled cylinder. M. P. Bieniek and M. Shinozuka. bibliog diag AIAA J 2:568-9 Mr '64
Finite twisting and expansion of a hole in a rigid/plastic plate. R. P. Nordgren and P. M. Naghdi. bibliog diags A S M E Trans ser E 30:605-12 D '63
Flexure of perpendicular mutually supported cantilevers. P. J. Spyropoulos. diags Am Concrete Inst J 61:231-8 F '64; Discussion. 61:1211-12 S '64
How to improve dimensional stability in precision metal parts. D. O'Boyle. il diags Machine Design 36:113-17 Ja 30 '64
Inextensional deformation of a curved panel. K. I. McKenzie. diags A S M E Trans ser E 30:585-8 D '63
Interpretation of slip-line field patterns in plane plastic flow. M. J. Hillier. diags A S M E Trans ser E 30:625-7 D '63
Linear strain hardening of cylindrical shells. B. J. Thorn and S. L. Lee. bibliog diags Am Soc C E Proc 90 [EM 4 no 4007]:97-122 Ag '64
Longitudinal impact on viscoplastic rods; linear stress-strain rate law. T. C. T. Ting and P. S. Symonds. bibliog diags A S M E Trans ser E 31:199-207 Je '64
Measuring deformation of refractories under load. J. R. Kreglo, jr. il Am Cer Soc Bul 43:122-4 F '64
Measuring structural behavior of Glen Canyon dam. J. T. Richardson. bibliog il map plan diags Am Soc C E Proc 90 [SU 2 no 3987]: 133-52 Jl '64
Method for the determination of the coefficient of friction of metals under conditions of bulk plastic deformation. A. T. Male and M. G. Cockcroft. bibliog il diag Inst Metals J 93:38-46 '64-65
Nonlinear response of a beam to shock pulse. A. B. Schultz. bibliog diags Franklin Inst J 276:385-93 N '63
Nonsymmetric bending deformation of spherical shells. D. E. Johnson. bibliog A S M E Trans ser E 31:344-5 Je '64
Observations of deformation bands in amorphous polymers. W. Whitney. il diags J Ap Phys 34:3633-4 D '63
Plastic deformation of a cantilever beam with strain-rate sensitivity under impulsive loading. T. C. T. Ting. bibliog diags A S M E Trans ser E 31:38-42 Mr '64
Plastic flow in rollers loaded above the yield point. G. M. Hamilton. diags Inst Mech Eng Proc 177 no 25:667-75. pl 1-4; Discussion. il 686-90 '63
Polymer deformation; twinning and phase transformation of polyethylene single crystals as a function of stretching direction. H. Kiho and others. bibliog il diags J Ap Phys 35:1599-605 My '64
Preliminary analysis of continuous curved girder frames. D. C. Carman and J. J. Tuma. bibliog Am Soc C E Proc 90 [ST 4 no 4012]:191-204 Ag '64
Relationship between morphology and deformation mechanisms of polyolefins. K. Sasaguri and others. bibliog diags J Ap Phys 35:47-54 Ja '64
Shear forming: how it affects properties. diag Am Mach 108:57-9 Jl 6 '64
Some properties and applications of singularity functions based on the theory of distributions. W. D. Pilkey. diags Franklin Inst J 277:464-97 bibliog(p495-7) My '64
Stacking fault probabilities of some alloys of copper and silver with zinc and cadmium. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3398-402 N '63
Stacking fault probabilities of some inter-noble metal alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3402-4 N '63
Substructure formation in aluminium, copper, and nickel during deformation at high temperatures and high strain rates. H. Ormerod and W. J. M. Tegart. il Inst Metals J 92:297-9 '63-64
Tests of cylindrical shells in the plastic range. G. Augusti and S. d'Agostino. bibliog il diags Am Soc C E Proc 90 [EM 1 no 3802]:69-81 F '64; Discussion. 90 [EM 3 no 3936]:295-301 Je; [EM 5 no 4093]:433-42 O '64
Thermally activated deformation of metals. H. Conrad. bibliog il diags J Metals 16: 582-8 Jl '64
Thermomechanical treatment of steel. E. B. Kula and S. V. Radcliffe. bibliog diags J Metals 15:755-62 O '63
Thin plates and shallow cylindrical shells subjected to hot spots. A. Jahanshahi. diags A S M E Trans ser E 31:79-82 Mr '64

DEFORMATION (mechanics)—*Continued*

Work hardening and dislocation arrangement of fcc single crystals; electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

Work hardening and dislocation arrangement of fcc single crystals; plastic deformation and slip line studies of nickel single crystals. S. Mader and others. bibliog il J Ap Phys 34:3368-75 N '63

See also

Bending
Creep of materials
Creep of metals
Creep of plastics
Crystals—Dislocations
Extensometers
Plasticity
Rocks—Deformation
Torsion

DEFORMATION of rocks. See Rocks—Deformation

DEFORMITIES

Comparative effects of certain antioxidants on gestational performance and teratogeny in vitamin E-deficient rats. D. W. King. J Nutrition 83:123-32 bibliog(p 131-2) Je '64

Reported congenital malformations in New York City, 1958-1959. C. L. Erhardt and F. G. Nelson. bibliog Am J Pub Health 54:1489-506 S '64

Salicylate intoxication and congenital anomalies. A. S. Goldman and W. C. Yakovac. bibliog il Archives Environmental Health 8:648-56 My '64

DEGASSED steel. See Steel—Gas content

DEGRADATION

A, B, and H blood-group substances yield highly active fragments. Chem & Eng N 42:38-9 Ja 13 '64

Aerobic biodegradability of linear alkylbenzene sulfonate. W. A. Sweeney. Soap & Chem Spec 40:45-7+ Mr '64

Biodegradation of nonionics. F. A. Blankenship and V. M. Piccolini. bibliog Soap & Chem Spec 39:75-8+ D '63

Biodegradation of some tallow-based surface active agents in river water. J. K. Weil and A. J. Stirton. bibliog Am Oil Chem Soc J 41:355-8 My '64

Chemistry of surfactant biodegradation. R. D. Swisher. bibliog Am Oil Chem Soc J 40:648-56 N '63

Data on TFE degradation. il Plastics Tech 9:57 D '63

Degradation in zinc-doped GaAs tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog J Ap Phys 35:2481-3 Ag '64

Degradation of aromatic compounds by phenol-adapted bacteria. C. W. Chambers and others. bibliog WPCF J 35:1517-28 D '63

Degradation of 4-(2,4-dichlorophenoxy)-butyric acid [4-(2,4-DB)] in plants. D. L. Linscott. bibliog J Agri & Food Chem 12:7-10 Ja '64

Degradation of human hair by papain. A. W. Holmes. bibliog il Textile Res J 34:706-12, 777-82 Ag-S '64

Degradation of monocarbonyls from autoxidizing lipids. D. A. Lillard and E. A. Day. bibliog Am Oil Chem Soc J 41:549-52 Ag '64

Degradation of planar junctions during reoxidation. F. Barson and others. bibliog il Electrochem Soc J 111:1263-6 N '64

Degradation of synthetic polypeptides. W. G. Miller. bibliog Am Chem Soc J 86:3913-22 O 5 '64

Enzymatic degradation of parathion in organophosphate-susceptible and -resistant houseflies. F. Matsumura and C. J. Hogendijk. bibliog J Agri & Food Chem 12:447-53 S '64

Enzymatic in vitro degradation of DDT by susceptible and DDT-resistant body lice. A. S. Perry and others. bibliog J Agri & Food Chem 11:457-62 N '63

Foreign requirements and developments in biodegradability. C. A. Houston. bibliog Am Oil Chem Soc J 40:659-61 N '63

How to make biodegradable detergents L .F. Hatch. bibliog diags Hydrocarbon Process & Pet Refiner 43:91-6 Mr '64

LAS syndets pass degradability field test. Soap & Chem Spec 40:183 Mr '64

Metabolism of triazine herbicides by plants. M. L. Montgomery and V. H. Freed. bibliog J Agri & Food Chem 12:11-14 Ja '64

Microbiologic degradation of rubber. K. W. H. Leeflang. bibliog il map diag Am Water Works Assn J 55:1523-35 D '63

New accelerated test for rapid measurement of detergent biodegradability. D. O. Hitzman. Am Oil Chem Soc J 41:593-5 S '64

OECD sponsors research into biological deterioration. Engineering 197:32 Ja 3 '64

Rapid, accurate test for surfactant aerobic biodegradability. W. A. Sweeney and J. K. Foote. il diag WPCF J 36:14-37 bibliog(p27-8) Ja '64

Reaction of carotene with nitrite solutions. D. L. Pugh and G. B. Garner. bibliog J Agri & Food Chem 11:528-9 N '63

Reactions of lignin during sulfate cooking. J. Gierer and others. bibliog Tappi 47:233-9 Ap '64

Role of external variables in degradation of straight chain ABS. R. Fuhrmann and others. bibliog Soap & Chem Spec 40:51-3+ F '64

Sanitary engineer's approach to biodegradation of nonionics. C. A. Vath. bibliog Soap & Chem Spec 40:56-8+ F; 55-8+ Mr '64

Soap plant observer; biodegradability tests. W. J. Beach. il diag Soap & Chem Spec 39:255-6+ D '63

Sonic degradation of polyisobutylene in solution. R. S. Porter and others. bibliog J Ap Phys 35:15-18 Ja '64

Studies on the limitations of the Schmidt degradation method by use of carbon-14 labeled compounds. J. L. Rabinowitz and B. Pritzker. bibliog Anal Chem 36:403-4 F '64

Thermal degradation of fractionated high and low molecular weight polyisobutylene. D. McIntyre and others. bibliog diags J Res Nat Bur Stand 68A:153-7 Mr '64

Thermal degradation of melamine-formaldehyde resins. W. R. Moore and E. Donnelly. bibliog J Ap Chem 13:537-43 D '63

Thiostrepton; degradation products and structural features. M. Bodanszky and others. bibliog Am Chem Soc J 86:2478-90 Je 20 '64

Tolerance of several grass species to 2-chloro-*s*-triazine herbicides in relation to degradation and content of benzoxazinone derivatives. R. H. Hamilton. bibliog J Agri & Food Chem 12:14-17 Ja '64

Transformations of eburicoic acid; side-chain degradation to 14-methylpregnane derivatives. D. Rosenthal and others. bibliog Am Chem Soc J 85:3971-9 D 20 '63

Transient intermediates in the biodegradation of straight chain ABS. R. D. Swisher. bibliog WPCF J 35:1557-64 D '63

Two tests for the assessment of microbiological activity on plastics. R. Burgess and A. E. Darby. bibliog il Brit Plastics 37:32-7 Ja '64

What biodegradable detergents are. R. C. Myerly. Textile World 114:101 Je '64

DEGREASING

Car bodies up-ended in degreasing plant. il Engineering 197:745 My 29 '64

Save and use waste vapor from vapor degreasers. Ind Finishing 40:104-5 O '64

Two-stage trichlor finishing. J. Schmadebeck and O. Lindemann. il Metal Finishing 61:68-70 D '63

Vapor degreaser speeds mill maintenance. il Steel 154:62 Je 22 '64

DEGREE days. See Heating—Tables, calculations, etc.

DEHUMIDIFICATION

Coils that cool and dehumidify. M. Ramsey. Air Cond Heat & Ven 61:49-51 F '64

DEHUMIDIFIERS

Chemical dehumidification system solves processing problems involving humidity. W. R. Jeep. il Paper Ind 46:118-19 My '64

DEHYDRATION

Dehydration series in the system $CaSiO_3$-SiO_2-H_2O. R. I. Harker. bibliog il Am Cer Soc J 47:521-9 O '64

Oxygen-18 study of the dehydration of asparagine amide with N,N′-dicyclohexylcarbodiimide and *p*-toluenesulfonyl chloride. D. V. Kashelikar and C. Ressler. bibliog Am Chem Soc J 86:2467-73 Je 20 '64

Problem of radioactive radiation of sulfur-35 influencing the catalytic dehydration of cyclohexanol. A. A. Balandin and others. bibliog Am Chem Soc J 86:299-300 Ja 20 '64

Thionyl chloride and dimethylformamide; their application as a dehydrating agent. J. C. Thurman. bibliog Chem & Ind p752 My 2 '64

DEHYDRATION—*Continued*

Time, temperature, and stress relationships in wet-gel acrylic fibers. W. C. Schneider and G. K. Klausner. Textile Res J 34:819-25 O '64

See also

Drying agents

Fruit, Dried

Gas, Natural—Dehydration

Vegetables, Dried

DEHYDROGENASES

Antithyrotoxic assay based upon the response of rat liver α-glycerophosphate dehydrogenase. D. A. Richert and others. J Nutrition 83:332-42 Ag '64

Measurement of dehydrogenase activated sludges; abstract. G. Lenhard and others. WPCF J 36:294 Mr '64

Response of the liver to prolonged protein depletion: protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

DEHYDROGENATION

Butane dehydrogenation; Houdry process and chemical co. flow diag Hydrocarbon Process & Pet Refiner 43:227 S '64

Catalytic dehydrogenation of methyl isobutyrate to methyl methacrylate over alumina catalysts. E. L. McDaniel and H. S. Young. bibliog diag Ind & Eng Chem Product Res & Develop 2:287-92 D '63

Dehydrogenation; Houdry process & chemical co. diag Hydrocarbon Process & Pet Refiner 42:160 N '63

Dehydrogenation of n-butylenes over calcium nickel phosphate; determination of relative adsorption coefficients. J. Firko and D. S. Alexander. bibliog Can J Chem Eng 42:183-6 Ag '64

Effect of dehydrogenation in the structure of two coals. P. H. Dicker and others. bibliog J Ap Chem 13:444-54 O '63

Effect of dehydrogenation on the pyrolysis of two coals. P. H. Dicker and others. bibliog J Ap Chem 13:455-63 O '63

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Process optimization by hybrid computer. J. M. Andrews and others. bibliog flow charts il diags Chem Eng Prog 60:57-64 Mr '64

Sulfonation and dehydrogenation as an aid to gas chromatography in evaluating 90° to 150° C. petroleum fractions. W. J. Hines and D. E. Smith. bibliog diag Anal Chem 36:2250-4 N '64

Synthesis of pyrazines; vapor-phase dehydrogenation of piperazines. M. Cenker and others. bibliog Ind & Eng Chem Product Res & Develop 3:11-14 Mr '64

Thermodynamics of the dehydrogenation of propane by iodine vapor. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2770-3 Jl 20 '64

Triphenylphosphine derivatives of π-cyclopentenonylcobalt tricarbonyls and their dehydrogenation to π-cyclopentadienonecobalt dicarbonyl triphenylphosphine cations. R. F. Heck. bibliog Am Chem Soc J 85:3387-90 N 5 '63

DEINKING of paper. See Waste paper

DELAWARE RIVER

Estuarine water quality management and forecasting. R. V. Thomann and M. J. Sobel. Am Soc C E Proc 90 [SA 5 no 4116]: 9-36 O '64

DELAY devices

Automatic radar data extraction by storage tube and delay line techniques. J. C. Plowman. il diags Radio & Electronic Eng 26: 317-26; Discussion. 327-8 O '63

Behavior of thin-film coupled ultrasonic delay lines. J. E. Lovell and A. Yelon. bibliog il diags IEEE Trans Com & Electronics 83: 524-8 S '64

Cold-cathode valve binary delay line. D. Q. Mayne. diags Electronic Eng 36:557 Ag '64

Delay line has infinite resolution. E. S. Wendolkowski. il Electronics 37:52+ Ja 24 '64

Delay-line speed-up devices for analysis of random vibration data. A. G. Ratz. IEEE Proc 52:219-20 F '64; Discussion. 52:1263 O '64

Effects of time delay and echoes on telephone conversations. J. W. Emling and D. Mitchell. diags Bell System Tech J 42:2869-91 N '63

Electromagnetic delay line progress. S. S. Packer. il Electronic Ind 23:64-6 Jl '64

Electronic timer provides long delay. H. W. Hines and L. C. Radzik. diags Electronics 37:63 Je 1 '64

Experiments on an X-band garnet delay line. J. H. Collins and others. il diags Electronic Eng 36:627-9 S '64

Integrate-and-dump operator for serial correlators. R. M. Seeley. diags Electronic Eng 36:601-4 S '64

Linear delay circuits using constant-current diode. S. S. Hakim. diags Ind Electronics 1:780-1 D '63

Long superconductive delay lines. R. J. Allen. il IEEE Proc 52:615-16 My '64

Measuring phase stability of ultrasonic delay lines; engineer's notebook. M. Davidson. diag Electronic Ind 23:75 F '64

Miniature wide-bandwidth delay line. C. Heaton-Armstrong. il diags Inst E E Proc 110:1950-4 N '63

Motor vs pneumatic time-delay. G. K. Houpt. il diag Instruments & Control Systems 37: 107 O '64

Nature of and system inferences of delay distortion due to mode conversion in multimode transmission systems. S. E. Miller. bibliog diags Bell System Tech J 42:2741-60 N '63

Number of sections for a delay line. A. Lewkowicz. Electronic Eng 36:185 Mr '64

Semiconductor time-delay circuits. J. J. Pinto. diags Electronic Eng 36:166-9 Mr '64

Subjective evaluation of delay and echo suppressors in telephone communications. R. R. Riesz and E. T. Klemmer. diags Bell System Tech J 42:2919-41 N '63

Synthesis of linear time-varying systems by Fourier approximation in the frequency domain. R. F. Brown. bibliog diags Inst E E Proc 111:1151-8 Je '64

Synthesis of matched filters for signal recognition using magnetostrictive delay lines. F. C. Monds and A. M. Rosie. bibliog il diags Inst E E Proc 111:1630-6 O '64

Time delay relief valve. P. Barkan and U. R. Tognella. diag Hydraulics & Pneumatics 17:118-19 O '64

Time-delay system for sound-picture syncing. H. Dussault. il diags SMPTE J 72:843-8 N '63

Time delay valves sequence pneumatic actuators. J. A. Neff. il diags Automation 11:69-70 Ag '64

Transistor delay and pulse generator. W. J. Bannister. diags Electronic Eng 35:746-7 N '63

Transistor time-delay circuit. diags Electro-Tech 74:114 S '64

Transistorized time delay circuit. M. E. Krom. il diags Bell Lab Rec 42:58-60 F '64

Ultrasonic approach to data storage. J. W. Gratian and R. W. Freytag. il diags Electronics 37:67-72 My 4 '64

Ultrasonic delay lines used to store digital data. A. H. Meitzler. diags Bell Lab Rec 42:315-19 O '64

DELHI-TAYLOR oil corporation

Delhi sells its production. Oil & Gas J 61:57 O 21 '63

DELTAS

See also

Mississippi River—Delta

DEMAND meters

Field test magnetic-tape demand meter. il Elec World 162:61 S 7 '64

Four-track recorder monitors substation loads. C. Morrison. il Elec World 162:111 O 19 '64

High-count demand meter system prints output. A. H. Ensor and R. H. Jenks. il map Elec World 162:28-9 O 12 '64

Integrator gives hourly net system load. J. W. Young and L. Meyer. il diag Elec World 162:78-9 Ag 10 '64

Magnetic-tape recording meters improve load survey accuracy. F. G. Hammer and J. W. Crawford. Elec World 160:98-100 N 4 '63

Maximum demand limit indicator. il Engineer 217:836 My 8 '64

Maximum demand power indicator. G. Cooper. il diags Ind Electronics 2:267-72 Je '64

Testing

Develop three demand meter test sets. B. J. Cate. il Elec World 161:114+ F 10 '64

DEMINERALIZATION

Electrodialytic demineralization using permselective membranes. W. G. B. Mandersloot. bibliog flow diag diags Electrochem Soc J 111:838-44 Jl '64

See also

Water purification—Demineralization

DEMOCRACY and communism. See Communism and democracy

DEMOLITION of buildings. See Wrecking

DENDROBINE. See Alkaloids

DENISON, Albert Rodger

Memorial: with bibliography of his publications. J. L. Ferguson. por Am Assn Pet Geologists Bul 48:239-43 F '64

DENITRATION

Production of uranium dioxide by flame denitration. W. H. Hedley and others. bibliog flow diag diags Ind & Eng Chem Proc Design 3:11-14 Ja '64

Sugar ousts acid from solutions. Chem Eng 71:58+ F 17 '64

Sugar replaces formaldehyde in denitration. il Chem & Eng N 42:50-1 Ja 27 '64

DENMARK

See also

Rock products industry—Denmark

Shipbuilding—Denmark

DENSE media system. See Sink and float process

DENSITOMETERS

Densitometer for quantitation of stained protein fractions separated electrophoretically on acrylamide gel slab. T. G. Ferris and others. diag Anal Chem 26:955-7 Ap '64

Integrating video microdensitometer. G. Will and others. il diags R Sci Instr 34:1328-32 D '63

Spectrum reader rapidly gives analysis. diags Can Chem Process 47:67-8 N '63

Void fraction measurements in a cavitating Venturi. W. Smith and others. bibliog il diags A S M E Trans ser D 86:265-74 Je '64

DENSITY. See Specific gravity

DENTAL apparatus and instruments

Dental research committee reports. Engineering 197:559 Ap 17 '64

DENTAL clinics

Study of reports of services for a dental treatment center for handicapped children. E. Wollin and others. Am J Pub Health 53:1685-93 O '63

DENTAL hygiene

Dental needs of nursing home patients. E. C. Maloof and others. Am J Pub Health 54:991-6 Je '64

DENTAL materials

Dental research committee reports. Engineering 197:559 Ap 17 '64

Soft denture liner and lab mold release are silicone elastomers. Plastics World 21:13 N '63

X-ray spectrometric analysis of noble metal dental alloys. B. W. Mulligan and others. bibliog il J Res Nat Bur Stand 68A:5-8 Ja '64

DENTIFRICES

Abrasive and cleansing capacity of polishing substances in toothpaste. O. Pfrengle. bibliog il Am Perfumer 79:43-50 My '64

Another fluoride toothpaste gains ADA recognition. Chem & Eng N 42:25 Ag 10 '64

DENTISTRY

International standards work on dentistry. Mag of Stand 35:80 Mr '64

Study and teaching

New techniques in closed-circuit television for dental teaching. S. A. DiSanto. il SMPTE J 73:770-2 S '64

DENTISTS offices

Equipment

Engineering comfort into dentistry. S. S. Golden. il diags Mech Eng 86:38-42 Ag '64

Lighting

Lighting a dental operating room; data sheet. R. F. Flood and G. T. Anderson, jr. il Illum Eng 59:403-4 sec 2 My '64

DENVER

Water supply

Automation at Denver. J. E. Layne. il maps plan diags Water Works & Wastes Eng 1:30-4+, cover Ja '64; Abstract. Pub Works 95:162 Mr '64

Denver's 120-mgd, unmanned, climate-controlled pump station. R. B. McRae. il Water Works & Wastes Eng 1:42-5 Mr '64

DEODORANTS

Antiperspirants and deodorants. il Manuf Chem 35:50-3+ Ja; 55-7 F; 64-7+ Mr '64; Excerpts. Drug & Cosmetic Ind 94:429-30 Mr '64

Compressed powder antiperspirants. il Manuf Chem 35:50 Je '64

DEODORIZATION

Soybean unsaponifiables: chromatographic investigation of shell drain condensate from a commercial deodorizer. R. L. Hoffman and others. Am Oil Chem Soc J 41:116-19 F '64

Soybean unsaponifiables; hydrocarbons from deodorizer condensates. C. D. Evans and others. bibliog flow sheet Am Oil Chem Soc J 41:406-11 Je '64

DEOXYRIBONUCLEOTIDES. See Nucleotides

DEOXYRIBOOLIGONUCLEOTIDES. See Nucleotides

DEOXY sugars. See Sugars

DEPARTMENT stores

Cars park inside circular store. il Eng N 172:24 F 20 '64

Downtown store with indoor parking. il plans Arch Rec 135:170-2 Je '64

Skidmore, Owings & Merrill designs first-of-a-kind Macy's. il plans Prog Arch 45:75 Ap '64

Electric equipment

Pad-mounted supply cuts costs; Mays department store in Massapequa. G. D. Smith and W. E. Morehart. il diag Elec World 161:40+ F 10 '64

Equipment

Non-metallic cable distribution at 480/277 in discount department store. A. N. Reichel. il diags Elec Constr & Maint 63:80-4 Ja '64

Lighting

Emergency lights prevent panic and pilfering. il Safety Maint 127:23 My '64

Lighting a department store. C. G. Dunn and G. T. Anderson, jr. il Illum Eng 59:451-2 Je '64

DEPLETION

Depletion becomes issue in San Francisco trial. Oil & Gas J 62:77-9 Mr 2 '64

DEPRECIATION

Depreciation reform; how it affects investment decisions. E. G. Mayers. Chem Eng 71:197-8+ Ap 13 '64

Planned replacement of water utility plant and equipment; panel discussion. Am Water Works Assn J 56:132-42 F '64

See also

Obsolescence

DEPTH of field. See Photography—Focusing

DERRICKS, Oil well

Air rigs popular with Ohio's Cambrian oil hunters. L. C. Rogers. il map Oil & Gas J 61:82-4 D 9 '63

'Copter rigs solve jungle drilling. L. C. Rogers. il Oil & Gas J 62:161+ My 11 '64

Data taking shape for API rig ratings. Oil & Gas J 62:72-3 Jl 6 '64

Drilling industry's first split rig proves its durability. R. J. Enright. il plan Oil & Gas J 62:148-50 My 18 '64

Dutch to build U.S. rig. diag Oil & Gas J 62:102 O 5 '64

Equipment sales ride rising offshore tide. il Oil & Gas J 62:92-4 S 14 '64

Flexibility is the key to new electric rig's efficiency. il Pet Management 35:70-1 N '63

Hydraulic drilling rig. Engineer 216:820 N 15 '63

New heavy-duty rig goes to work. R. J. Enright. il Oil & Gas J 62:104-5 O 19 '64

New offshore tool; mobile workover rig. L. C. Rogers. il diags Oil & Gas J 62:90-1 S 14 '64

New rig drills swampy areas. il Oil & Gas J 61:106-7 N 11 '63

Penrod unveils new electromechanical rig. L. C. Rogers. il Oil & Gas J 62:144-6 Ap 27 '64

Portable rig takes only two-man crew. il Oil & Gas J 62:47 Jl 20 '64

Rig locator including U.S. and Canadian well servicing units plus enlarged international section. Pet Management 36:R3-8+ Mr '64

This rig just falls into place. L. C. Rogers. il diags Oil & Gas J 62:78-80 Mr 23 '64

Trailer rig boasts 2,400 hp. il Oil & Gas J 62:73 Jl 6 '64

Maintenance and repair

Specially tailored rig readies for Libyan well servicing. W. B. Bleakley. il diags Oil & Gas J 62:100-5 F 17 '64

Moving

Big helicopters solve big problem; moving rigs in western Siberia. il Oil & Gas J 62:112-13 Je 8 '64

DERRICKS, Oil well—Moving—*Continued*

Choppers lift drilling rigs into Colombian jungle. il map Oil & Gas J 62:82 Ap 20 '64

Mammoth trailer-mounted rig working in Libya. il Pet Management 36:161-2 Jl 15 '64

New rolling gear speeds desert-rig moves. L. Rogers. il Oil & Gas J 62:106-7 F 17 '64

Rig follows a rough route to Alaska. map Oil & Gas J 61:32 D 23 '63

DESALTING of sea water. See Sea water—Desalting

DESCALING. See Metal cleaning

DESERPIDEINE. See Alkaloids

DESERTS

See also

Death Valley, California

DESICCANTS. See Drying agents

DESIGN

Aesthetics of design. R. S. Latham. Product Eng 34:114-16 N 11 '63

Alcoa's 1964 student design merit awards. il Product Eng 35:84-5 Je 22 '64

Aluminum design awards. il Mech Eng 86:60-1 F '64

Appreciation of design. D. H. Chaddock. Engineering 197:182 Ja 31 '64

Art and science of engineering design. F. W. Gee. Inst E E Proc 111:582-3 Mr '64

Computer as a design tool; MIT approach. bibliog diags Electro-Tech 72:112-15+ N '63

Computer in design engineering. C. P. Smith. bibliog Mech Eng 86:29-35 Ap '64

Computer produces engineering designs. Franklin Inst J 277:290 Mr '64

Computers in engineering design. T. H. Korelitz. diags Res/Develop 15:15-17 Ag '64

Considering the critical parts in a design. Engineering 197:541 Ap 17 '64

Design, a vital component. E. F. Osborn. Am Cer Soc Bul 43:505 Jl '64

Design and productivity. H. G. Conway. bibliog il diags Inst Mech Eng Proc 177:1181-200 '63

Design and the engineer. Q. Hogg. Chem & Ind p508 Mr 21 '64

Design automation for numeric machine tools. G. M. Cooley. Automation 10:144+ N '63

Design centre awards for 1964. il Engineering 197:628 My 8 '64

Design conference that was different. P. J. Wallace. Engineer 217:725-7 Ap 24 '64

Design engineering 1964. bibliog il Mech Eng 86:17-107 Ap '64

Design engineers and the law; abstract. E. L. Rushmer. Steel 154:79 Je 29 '64

Design of building products. il plan diags Prog Arch 45:142-204 Je '64

Design students create promising new aluminum products. il Mod Metals 20:41-2+ S '64

Designers and management. H. N. G. Allen. Engineer 217:437 Mr 13 '64

Designing for safety: design engineer's viewpoint. A. Gilbert. Chem Eng 71:147-50 Jl 20 '64

Designing with ceramics today. W. E. Brownell. bibliog Mech Eng 86:26-9 Ja '64

Do you plod through your designs, or leapfrog? C. J. Freund. diags Product Eng 35:82-3 Ag 17 '64

Engineering design properties of plastics. diags Brit Plastics 37:118-21, 176-9, 240-2, 369-71, 428-30, 488-90 Mr-My, Jl-S '64

Engineering materials and design exhibition and conference, 3d, London, Nov. 11-16. Chem & Ind p 1950-1 D 14 '63

Fanciful fabric forms for Triennale. il Prog Arch 45:220-3 S '64

Fatigue of metals; engineering and design aspects. R. E. Peterson. il diags Materials Res & Stand 3:122-39 bibliog(p 138-9) F '63; Discussion. 4:80 F '64

Get the cobwebs out of your welding design. L. Berner. diags Mach 70:110-15 Mr '64

Guide to engineering thermoplastics. J. E. Hauck. bibliog il diags Materials in Design Eng 58:105-20 N '63 (reprints 35c)

HHFA announces design awards. il Eng N 173:24 O 22 '64

How to check consistency in values for physical properties. S. F. Borg. il Machine Design 36:113-14 Jl 30 '64

Human factors in design of reliable systems. A. D. Swain. diags Machine Design 36:292+ Ap 23 '64

Implementing the Feilden report on engineering design. Engineer 217:429 Mr 6 '64

Industrial design at Wescon; awards in 6th annual industrial design competition. il Machine Design 36:22-3 S 10 '64

Institution of mechanical engineers conference on education for design, Oct. 16-17. Engineer 216:722 N 1 '63

Institution of mechanical engineers discusses the Feilden committee's report on mechanical engineering design. Engineering 196:514-15 O 25 '63

IBM has ADE plan for busy engineers. il Iron Age 193:41 Ja 16 '64

Just a detail. bibliog il diags Engineer 217:435-7, 477-9, 524-5, 576-7, 615-16, 658-9, 700-1, 746-8, 786-7, 827-8, 866-8, 903-5, 957-8, 998-9, 1036-7, 1071-4, 1141-3; 218:6-9, 62-4, 104-6, 135-7, 182-4, 217-19, 246-8, 275-7, 328-9, 372-3, 407-10, 451-2, 511-13, 546-7, 584-6 Mr 6-O 9 '64

Low-cycle fatigue. Mech Eng 85:40-3 My '63; Same. Naval Eng J 75:967-70 D '63

Management and the design engineer. General electric co. E. Freiburghouse. Mech Eng 86:26-8 Ap '64

Match material, process to assure performance. il Steel 154:100+ Ap 20 '64

Materials research can optimize design. M. A. Steinberg. diag Steel 155:45-7 Ag 31 '64

Minimum cost design technique workshop. Product Eng 35:67 Mr 16 '64

More on aesthetics. J. N. Siddall. Product Eng 34:115-16 N 11 '63

New approaches to computer-aided design. D. K. Merris. il diags Product Eng 35:84-7 F 3 '64

New design horizons for plastics. il diag Mod Plastics 41:84-7+ Ap '64

New designs, handsome and humble, win awards. il Machine Design 35:22-3 N 21 '63

Object: creativity. B. King. Mech Eng 85:38-41 N '63

Panoramic design technique cuts engineering costs. il Eng & Min J 165:168 Je '64

Practicality and appearance win industrial design awards. il Machine Design 36:22-3 Ap 9 '64

Product Engineering fifth annual master design awards. il diags Product Eng 35:103-18 Ap 27 '64

Research and development. H. Clausen. Engineer 217:616-17 Ap 3 '64

Resurgence of interest in engineering design. C. J. Freund. Product Eng 34:78-9 D 9 '63

Safety in design. B. V. Zolli. Naval Eng J 76:466-7 Je '64

Seven stages of engineering design. G. N. Sandor. bibliog Mech Eng 86:21-5 Ap '64

Two cultures in engineering design; art and science. R. H. Evans and W. Houghton-Evans. il Engineering 197:373 Mr 13 '64

Wear consideration in design. C. Lipson. bibliog diags Machine Design 35:156-64 O 24; 177-85 N 7; 182-91 N 21; 142-7 D 5; 140-4 D 19 '63; 36:121-4 Ja 2; 167-73 Ja 16 '64

When design help is needed hire an outside agency. Product Eng 35:52-3 F 3 '64

Winners among the also-rans; the memory of excellence in design competition lingers on. il Plastics World 22:44-7 Je '64

World of design. il diags Product Eng 35:57-88 Ja 20; 73-88 F 17; 67-74 Mr 30; 57-65 Je 8; 57-66 Jl 6; 63-71 Ag 17; 88-95 S 14; 88-95 O 12 '64

You and your computer. D. Holstein. flow chart il diags Product Eng 35:86-94 Jl 20 '64 (to be cont)

See also

Human engineering
Modular coordination (architecture)
Structures, Theory of
Textile design
Voltmeters

also subdivision Design under special subjects, e.g.

Airplanes
Airplanes, Supersonic
Airports
Amplifiers
Atomic power plants
Automobile engines
Automobiles
Bearings
Chemical plants
Concrete construction
Cranes, derricks, etc.
Diesel engines
Electric circuit breakers
Electric generators, Direct current
Electric plants (central stations)
Electric transformers
Electronic circuits
Factories
Heat exchangers
Heliports
Hydroelectric plants

DESIGN—See also—*Continued*
Internal combustion engines
Machine tools
Machinery
Pistons
Power plants
Pressure vessels
Radio transmitters
Sewage disposal plants
Steam plants
Structural engineering
Tractors, Farm
Water tanks

Protection

Design of building products; proprietary protection. il diags Prog Arch 45:193-7 Je '64

Study and teaching

Engineering design after Feilden. diags Engineering 197:594-5 My 1 '64

Engineering design verges upon engineering art. C. J. Freund. bibliog Mech Eng 86:18-20 Ap '64

Institution of mechanical engineers conference on the practice of and education for engineering design; proceedings. Inst Mech Eng Proc 178 pt 3B:6-64 '63-64

Mechanical design in a college of advanced technology. A. Baker. Engineer 217:605 Ap 3 '64

Teaching of design in universities. R. E. D. Bishop. bibliog Inst Mech Eng Proc 177 no 27:719-25; Discussion. il diags 726-69; Reply. 770-4 '63

DESIGN engineering conference

ASME Design engineering conference and show, Chicago, May 11-14; exhibitors, products. il diags Product Eng 35:151-98 Ap 27; 69-84 My 25 '64; Hydraulics & Pneumatics 17:77-83 My '64

ASME Design engineering conference and show, Chicago, May 11-14; with list of papers available. Mech Eng 86:95-8, 104 Jl '64

ASME Design engineering show and conference. Chicago, May 11-14; program and list of exhibitors. Materials in Design Eng 59:141+ Ap '64

ASME Design engineering show and conference, Chicago, May 11-14; program, new products and list of exhibitors. Iron Age 193:145+ Ap 30 '64; plan Machine Design 36:253-84 Ap 23 '64; Mech Eng 86:36-48+ Ap '64

Design engineering show and conference; product preview. Automotive Ind 130:62-3+ My 1 '64

DESIGN of experiments. See Experimental design

DESIGNERS

Design of building products; architectural products by industrial designers. il diags Prog Arch 45:145-64 Je '64

Refugees from an art colony. Product Eng 34:49-50 N 25 '63

DESILYLATION. See Silyl group

DESIZING (textiles)

Bacterial alpha amylase; abstract. L. Kogan. Am Dyestuff Rep 53:288 Ap 13 '64

DESMODIUM

Alkaloids of desmodium pulchellum Benth. ex Baker. S. Ghosal and B. Mukherjee. Chem & Ind p 1800 O 24 '64

DESORPTION

Adsorption, desorption, resorption. W. V. Loebenstein. J Res Nat Bur Stand 67A:615-24 N '63

Desorption of fluorine from molybdenum. C. H. Skeen. bibliog J Ap Phys 35:463-4 F '64

Rates of adsorption and desorption of polystyrene on chrome surface. R. R. Stromberg and others. bibliog J Res Nat Bur Stand 68A:391-9 Jl '64

Reduction of warm-up rate within a Dewar system by helium desorption. P. D. Gianino. R Sci Instr 35:910 Jl '64

Review of adsorption and desorption of organic pesticides by soil colloids, with implications concerning pesticide bioactivity. G. W. Bailey and J. L. White. J Agri & Food Chem 12:324-32 bibliog(p331-2) Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64

DESOXYRIBONUCLEIC acid

Chromosome puffs. W. Beermann and U. Clever. il diags Sci Am 210:50-8 Ap '64

DNA and the chemistry of inheritance. B. Commoner. bibliog diags Am Scientist 52:365-88 S '64

Interaction of magnesium with deoxyribonucleic acid. J. W. Lyons and L. Kotin. bibliog Am Chem Soc J 86:3634-40 S 20 '64

Mitochondrion. D. E. Green. il diags Sci Am 210:63-6+ Ja '64; Discussion. 210:10+ Ap '64

Monochromatic ultraviolet restores DNA activity. R. B. Setlow. il Chem & Eng N 42:41 S 7 '64

Structure and action of D.N.A.; abstract and discussion. K. Burton. Chem & Ind p335 F 22 '64

Two syntheses used to make DNA chains. T. M. Jacob. Chem & Eng N 42:42 Ap 27 '64

Ultraviolet spectra of native and denatured deoxyribonucleic acid. M. Falk. bibliog Am Chem Soc J 86:1226-8 Mr 20 '64

Vitamin B_{12} and DNA biogenesis. R. F. Henderson and J. S. Dinning. bibliog J Nutrition 81:372-8 D '63

DESOXYRIBONUCLEOSIDES

Chemical synthesis of a homolog of deoxyribonucleoside-5′ triphosphates. A. M. Duffield and A. L. Nussbaum. bibliog Am Chem Soc J 86:111-13 Ja 5 '64

Deoxyribonucleoside-3′,5′ cyclic phosphates: synthesis and acid-catalyzed and enzymic hydrolysis. G. I. Drummond and others. bibliog Am Chem Soc J 86:1626-30 Ap 20 '64

Studies on polynucleotides; the stepwise synthesis of specific deoxyribopolynucleotides; protected derivatives of deoxyribonucleosides and new syntheses of desoxyribonucleoside-3′ phosphates. H. Schaller and others. bibliog Am Chem Soc J 85:3821-7 D 5 '63

Synthesis of deoxyribonucleoside-3′,5′ cyclic phosphates by base-catalysed transesterification. M. Smith. bibliog Am Chem Soc J 86:3586 S 5 '64

DESOXYRIBOSE

Direct condensation of 2-deoxy-D-ribose with purines; structure of the products. J. A. Carbon. Am Chem Soc J 86:720-5 F 20 '64

DESOXYRIBOTRINUCLEOTIDES. See Nucleotides

DESSERTS, Frozen

Effect of corn syrup solids on the quality and properties of ice milk. S. Simpfendorfer and W. H. Martin. bibliog Food Tech 18:357-9 Mr '64

Volume-weight relation in frozen dessert mixes. C. Vanderzant and others. bibliog Food Tech 17:1454-7 N '63

DETECTORS

Chemisorption detector for oxygen. D. J. Collins and S. A. Hoenig. diags R Sci Instr 35:15-16 Ja '64

Don't play with fire. J. Schachner. il diags Mill & Factory 75:74-7 Ag '64

False warning riddance sought in air fire detection. il diags S A E J 72:72-5 Je '64

See also
Leak detectors

DETECTORS, Infrared. See Infrared rays—Apparatus

DETECTORS, Metal. See Metals—Detection

DETECTORS, Submarine. See Submarine detectors

DETECTORS, Ultraviolet. See Ultraviolet rays—Apparatus

DETERGENTS. See Cleaning compositions

DETONATION

Crystalline *o*-azidobenzoyl peroxide detonates violently. J. E. Leffler. Chem & Eng N 41:45 D 2 '63

Detonation initiated by high-pressure gas loading of a solid explosive. D. Price and F. J. Petrone. bibliog J Ap Phys 35:710-14 Mr '64

Detonation initiation. R. A. Strehlow. il AIAA J 2:783-4 Ap '64

Detonation of hydrogen-oxygen at low temperature and high pressure. K. W. Ragland and others. bibliog AIAA J 2:142-4 Ja '64

Experimental detonation velocities and induction distances in hydrogen-air mixtures. L. E. Bollinger. bibliog AIAA J 2:131-3 Ja '64

Shock-induced combustion with oblique shocks; comparison of experiment and kinetic calculations. P. M. Rubins and R. P. Rhodes, jr. bibliog il diags AIAA J 1:2778-84 D '63

Some observations on explosive metallurgy. H. P. Tardif. bibliog il diags Can Min & Met Bul 57:253-62 Mr '64

Techniques of on-site inspection. W. H. Westphal and S. Rubin. bibliog diags Geophysics 29:250-8 Ap '64

DETONATORS

Inexpensive, readily available, fast acting detonator. J. Wadsworth and F. E. Stokes. il diags R Sci Instr 35:238-9 F '64

DETONATORS, Electric

Sensitivity determination of electroexplosive devices for reliable circuit designs. R. G. Amicone. bibliog il diag IEEE Trans Applications & Ind 83:143-7 My '64

DETROIT

See also
Building—Detroit
Electricity supply—Detroit

Architecture

Detroit's road of good intentions. il Arch Forum 120:18-19 Ap '64

Streets

Control traffic; don't let traffic control you. A. F. Malo. il Pub Works 95:96-7 Jl '64

DEUTERIUM

Activation energy of deuterium-hydrogen exchange in amides. I. M. Klotz and B. H. Frank. Am Chem Soc J 86:3889 S 20 '64

Base-catalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Conformational dependence of secondary deuterium isotope effects in solvolytic reactions. V. J. Shiner, jr. and J. G. Jewell Am Chem Soc J 86:945-6 Mr 5 '64

Deuterium-hydrogen exchange during the catalytic deuteration of methyl oleate. W. K. Rohwedder and others. bibliog Am Oil Chem Soc J 41:33-6 Ja '64

Deuterium tracer studies on the course of addition to norbornene. H. Kwart and J. L. Nyce. bibliog Am Chem Soc J 86:2601-6 Jl 5 '64

Deuterium tracer studies on the elimination reactions of norbornyl tosylate and bromide. H. Kwart and others. bibliog Am Chem Soc J 86:2606-11 Jl 5 '64

First Townsend ionization coefficient measurements in deuterium. G. D. Rork and L. M. Chanin. bibliog J Ap Phys 35:2801-2 O '64

First Townsend ionization coefficients in hydrogen and deuterium. S. F. Barna, jr. and others. bibliog J Ap Phys 35:2781-2 S '64

Fluorocarbanions; rates of base-catalyzed hydrogen-deuterium exchange, isotope effects, and acidity of monohydrofluorocarbons. S. Andreades. bibliog Am Chem Soc J 86:2003-10 My 20 '64

High voltage deuterium filled grid controlled rectifiers. B. O. Baker and R. J. Wheldon. bibliog diags Electronic Eng 36:24-9 Ja '64

New catalysts for the exchange of deuterium between hydrogen gas and liquid ammonia. A. R. Kenyon and D. Pepper. bibliog diag J Ap Chem 14:399-405 S '64

Normal and inverse secondary α-deuterium isotope effects with trimethylsulphonium ions. C. Y. Wu and R. E. Robertson. Chem & Ind p 1803-4 O 24 '64

Nuclear hydrogen-deuterium exchange in resorcinols and related compounds in weakly alkaline solution. E. S. Hand and R. M. Horowitz. bibliog Am Chem Soc J 86:2084-5 My 20 '64

Proximity effects; solvolyses of deuterium-labeled cyclooctyl brosylate. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3747-52 D 5 '63

Secondary α-deuterium isotope effects in acetolyses of *endo*- and *exo*-norbornyl and 2-(Δ^3-cyclopentenyl)ethyl arenesulfonates. C. C. Lee and E. W. C. Wong. bibliog Am Chem Soc J 86:2752-3 Jl 5 '64

Secondary deuterium isotope effect on the Diels-Alder reaction. D. E. Van Sickle and J. O. Rodin. bibliog Am Chem Soc J 86:3091-4 Ag 5 '64

Separation of H_2 and D_2 by moving-bed adsorption; corroboration of adsorber design equations. D. Basmadjian. bibliog diag Can J Chem Eng 41:269-72 D '63

Solvent deuterium isotope effects on acid-base equilibria. P. Salomaa and others. bibliog Am Chem Soc J 86:1-7 Ja 6 '64

Steric origin of some secondary isotope effects of deuterium. V. F. Raaen and others. bibliog Am Chem Soc J 85:3497-9 N 5 '63

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow discharge mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:844-53 Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64

Transition state in methyl radical formation; the α-deuterium effect. A. A. Zavitsas and S. Seltzer. bibliog Am Chem Soc J 86:1265-7 Mr 20 '64

Transition state in methyl radical formation; the secondary α-deuterium isotope effect. A. A. Zavitsas and S. Seltzer. bibliog Am Chem Soc J 86:3836-40 S 20 '64

Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63

Xenon-radiosensitized deuterium-methane exchange; recombination rate constant for deuterium atoms and methyl radicals. A. Maschke and F. W. Lampe. bibliog Am Chem Soc J 86:569-74 F 20 '64

Analysis

Analysis for deuterium in organic compounds by combustion; infrared spectrometry. J. L. Lambert and others. bibliog diags Anal Chem 36:2148-51 O '64

Determination of the deuterium content of a sample of deuterium oxide by three methods. M. Goldblatt and W. M. Jones. bibliog diag Anal Chem 36:431-2 F '64

DEUTERIUM compounds

Effects of deuterium substitution on the rates of organic reactions; the solvolyses of 4-chloro-4-methyl-2-pentyne and its deuterated analogs. V. J. Shiner, jr. and G. S. Kriz, jr. bibliog Am Chem Soc J 86:2643-5 Jl 5 '64

Efficiency of isotopic substitution by exchange. W. O. George. Chem & Ind p481-2 Mr 21 '64

Electrophilic addition to olefins; the stereochemistry of addition of deuterium bromide to 1-phenylpropene. M. J. S. Dewar and R. C. Fahey. bibliog Am Chem Soc J 85:3645-8 N 20 '63

Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64

Mass spectrometry in structural and stereochemical problems; mass spectrometric fragmentation of isohexyl bromide and five deuterated derivatives. D. H. Williams and others. bibliog Am Chem Soc J 86:877-9 Mr 5 '64

Mercury $6(^3P_1)$ photosensitized decomposition of propane and 2,2-dideuteriopropane. J. P. Chesick. bibliog Am Chem Soc J 86:3597-601 S 20 '64

Raman spectra of carbon-deuterated glycine in various ionic forms. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:3439-44 S 5 '64

DEUTERIUM oxide. See Water—Heavy water

DEUTERONS

Fast neutron dose measurements for a D-D neutron source in water. W. B. Beverly and V. Spiegel, jr. bibliog diag J Res Nat Bur Stand 68A:1-4 Ja '64

DEW points

Automatic dewpoint hygrometer. F. M. Gralenski. il diag Instruments & Control Systems 37:124-5 My '64

Dew and bubble isotherm calculational method for binary system phase and volumetric behavior. N. C. Rodewald and others. bibliog diags Ind & Eng Chem Fundamentals 3:8-14 F '64

Dew-point controller. il Engineer 216:956 D 6 '63

Dew point meter based on thermoelectric cooling. O. G. Griffin and C. M. Stringfield. diag J Sci Instr 41:241 Ap '64

Indoor weather predictions. W. T. Tucker, 3d. ASHRAE J 5:27-9 D '63

New dew-point data for triethylene glycol solutions. J. C. Dingman and C. L. LeBas. diag Oil & Gas J 62:75-7 F 3 '64

Pneumatic dewpoint meter. W. S. Pappas. il diags Anal Chem 36:1885-8 Ag '64

DEZINCIFICATION. See Brass

DIABETES

Administration of a diabetes-screening program for federal employees. J. B. Hozier and A. B. Ederma. Ind Med 33:22-4 Ja '64

Dymelor antidiabetic. Drug & Cosmetic Ind 94:768 My '64

DIABETES—*Continued*

Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15:85-9 Ag '64

Many dimensions of diet counseling for diabetes. M. Kaufman. Am J Clinical Nutrition 15:45-9 Jl '64

Method for the detection of the hidden diabetic in industry. H. T. Engleliardt. bibliog Ind Med 33:742-3 O '64

Significance of a low blood sugar in a screening program for the detection of diabetes mellitus. C. P. Kimball. bibliog Ind Med 33:652-5 S '64

Tolbutamide-induced hypoglycemia. J. D. Brown and D. B. Stone. bibliog Am J Clinical Nutrition 15:144-8 S '64

DIAGNOSIS

Administration of a diabetes-screening program for federal employees. J. B. Hozier and A. B. Ederma. Ind Med 33:22-4 Ja '64

Automated multiphasic screening and diagnosis. M. F. Collen and others. bibliog il Am J Pub Health 54:741-50 My '64

Ecology and diagnostic problems of fungal zoonoses. L. K. Georg. Ind Med 33:308-10 My '64

DIAGNOSIS, Radioscopic

Medical radiography with radioisotope. il Safety Maint 128:47-8 Ag '64

Radiation dose from diagnostic medical X-ray procedures to the population of New York City. M. B. Heller and others. bibliog diag Am J Pub Health 54:1551-9 S '64

Radiation in the diagnosis and treatment of disease. N. Simon. bibliog Am J Pub Health 54:57-62 pt 2 Ja '64

Stereocineradiography. bibliog diags SMPTE J 73:622-4 Ag '64

Television X-ray-intensifier sensitivity. E. Garthwaite and others. bibliog il diags Inst E E Proc 110:1975-8 N '63

DIAGRAMS, Electric wiring. See Electric wiring—Diagrams

DIALLYL phthalate. See Phthalates

DIALS, Instrument

Digital readout of analog instruments. J. B. O'Maley. il Automation 11:55-6 Ja '64

Optically projected meter readings promise to shrink instrument consoles. il Machine Design 36:12 S 10 '64

DIALURIC acid

Polarographic study of the system alloxan-alloxantin-dialuric acid. W. A. Struck and P. J. Elving. bibliog Am Chem Soc J 86:1229-35 Mr 20 '64

DIALYSIS

Analysis of mixtures of sugars and mixtures of amino acids by dialysis based on differential kinetics. S. Siggia and others. bibliog Anal Chem 36:638-9 Mr '64

Electrodialysis treatment of secondary effluents evaluated. H. Gregor and others. Chem & Eng N 42:155-6 S 7 '64

Electrodialytic demineralization using permselective membranes. W. G. B. Mandersloot. bibliog flow diag diags Electrochem Soc J 111:838-44 Jl '64

New dialysis membrane. Y. Oda and others. bibliog Ind & Eng Chem Product Res & Develop 3:244-9 S '64

Polarization characteristics of electrodialytic demineralization. S. A. Weiner and others. bibliog diag Ind & Eng Chem Proc Design 3:126-9 Ap '64

Water transport through ion exchange membranes by hydraulic pressure. P. H. Seaman. bibliog diags J Ap Chem 14:229-35 Je '64

DIAMINES. See Amines

DIAMOND bits. See Bits

DIAMOND mines and mining

South Africa

This is it! was not it: De Beer's diamond deposit reopened. il Comp Air Mag 69:18 Mr '64

DIAMONDS

Crystallographic implications of epr in neutron-irradiated diamond. R. M. Denning and E. H. Poindexter. bibliog Am Mineralogist 49:277-85 Mr '64

Diamonds; from the sea, the gem. A. Dickie. il Comp Air Mag 69:14-18 F '64

High-precision density determination of natural diamonds. R. Mykolajewycz and others. bibliog diags J Ap Phys 35:1773-8 Je '64

Selected properties of neutron irradiated diamond. R. M. Denning. il diags Am Mineralogist 49:72-105 bibliog(p 103-5) Ja '64

DIAMONDS, Artificial

Development and production of synthetic diamonds in Sweden. E. Lundblad. il diags Wire & Wire Prod 39:1188-91 Ag '64

Man-made diamond reduces cost of grinding carbide form tools. L. A. Reif. il Mach 71:112-13 S '64

DIAMONDS, Industrial

Diamond grinding alumina parts. il Am Cer Soc Bul 43:223 Mr '64

Diamond tooling from UK to be shown in Russia. il Engineering 198:210 Ag 14 '64

Diamond tooling solves manufacturing problem. il Tool & Manuf Eng 53:89-90 Ag '64

Diamonds; processor's best friend. il Plastics Tech 10:12 My '64

Form grinding of carbides: electrical discharge machining versus diamond wheel. A. E. Chambers. il Tool & Manuf Eng 52:93-5 Ap '64

Multipoint dressers speed form grinding. il diags Engineering 196:630-1 N 15 '63

New idea in diamond wheels. il Am Mach 108:56-7 Ag 31 '64

Polishing of steel molds for the rubber and plastics industries. R. J. Swan. il diag Rubber Age 94:451-3 D '63

Use of diamond grinding wheels; reference book sheets. L. I. Smith. Am Mach/Metalworking Manuf 107:147, 149 N 11 '63

When diamonds grind carbides: how to measure efficiency, economy. E. Ratterman. Tool & Manuf Eng 52:81-4 Je '64

DIANION. See Anions

DIAPHRAGMS

Coated fabrics survey shows need for tests. Rubber Age 94:796-7 F '64

Compressor control seals with rolling diaphragms. J. F. Taplin and G. W. Fobian. diag Hydraulics & Pneumatics 16:106-7 N '63

Design and application of metallic flexures for equipment with specific life requirements. N. B. Rothfuss and others. il diags Machine Design 36:218+ S 10 '64

Diaphragm seals. J. F. Taplin and D. Comstock. diags Machine Design 36:67-71 Je 11 '64

Evaluating the effective resistances of diaphragms or electrolytic separators. R. E. Meredith and C. W. Tobias. bibliog il diag Electrochem Soc J 110:1257-60 D '63

Tests of elastomer-coated fabrics. C. B. Schuder. Rubber Age 95:87 Ap '64

Update your thinking on diaphragm valves. R. H. Calef. diags Chem Eng 71:125-8 O 26 '64

DIARRHEA

Epidemiologic study of diarrhea in an alien student population in Cairo, Egypt. J. E. Banta and others. bibliog Am J Pub Health 54:940-6 Je '64

DIATHERMY apparatus

This is diathermy. T. Jaski. il diag Radio-Electronics 35:38-9 Ja '64

DIATOMACEOUS earth

Eagle-Picher ships diatomite with care. il Rock Prod 67:73 S '64

Effect on filtration of polyelectrolyte coatings of diatomite filter media. C. S. Oulman and others. Am Water Works Assn J 56:1233-8 S '64

Evaluation of diatomite filters for water plants. R. P. Schmitt. il diag Am Water Works Assn J 56:1047-53; Discussion. J. R. Scrivener. 1053-4 Ag '64

Hydraulic and particle size characteristics of some diatomite filter aids. J. H. Dillingham and E. R. Baumann. bibliog il Am Water Works Assn J 56:793-808 Je '64

Modified form of diatomite filtration equation. E. R. Baumann and C. S. Oulman. Am Water Works Assn J 56:330-2 Mr '64

Simple, effective water treatment with two-valve diatomite filter. il diag Pub Works 95:108-9 Ag '64

Simplifies filter-aid handling: Corn products co. develops bulk handling system for diatomite filter aid. C. A. Cocks. il diag Food Eng 35:79-80 D '63

Streaming potentials in diatomite filtration of water. C. S. Oulman and E. R. Baumann. bibliog flow sheet diags Am Water Works Assn J 56:915-30 Jl '64

Theoretical aspects of diatomite filtration. E. R. Baumann and others. bibliog il Water & Sewage Works 111:229-33, 290-4, 331-6 My-Jl '64

DIAZIRINE. See Diazomethane

DIAZO compounds

Study of hindered divalent carbon species and diazo compounds. H. E. Zimmerman and D. H. Paskovich. bibliog Am Chem Soc J 86:2149-60 Je 5 '64

DIAZO compounds—*Continued*

Synthesis and decomposition of 3-diazo-6-dicyanomethylene-1,4-cyclohexadiene; arylmalononitriles. H. D. Hartzler. bibliog Am Chem Soc J 86:2174-7 Je 5 '64

Tautomerism in diazoaminobenzenes. T. Mitsuhashi and O. Simamura. Chem & Ind p578-9 Ap 4 '64

DIAZOMETHANE

Carbenoid formation of arylcyclopropanes from olefins, benzal bromides, and organolithium compounds and from photolysis of aryldiazomethanes. G. L. Closs and R. A. Moss. bibliog diags Am Chem Soc J 86:4042-53 O 5 '64

Diazomethane as an agent for sulphonium ylide formation. V. Horák and L. Kohout. Chem & Ind p978 Je 6 '64

Free-radical reactions of diazomethane with reactive bromopolychloroalkanes. W. H. Urry and N. Bilow. bibliog Am Chem Soc J 86:1815-19 My 5 '64

Photoisomerization of diazirine. M. J. Amrich and J. A. Bell. Am Chem Soc J 86:292-3 Ja 20 '64

Reaction of diazomethane with cyclopropenones. P. T. Izzo and A. S. Kende. bibliog Chem & Ind p839-40 My 16 '64

DIAZO process. See Copying processes

DIAZONIUM compounds

Diazonium and carbonyl derivatives of polyhedral boranes. W. H. Knoth and others. diag Am Chem Soc J 86:115-16 Ja 5 '64

Intermediates in the hydrolysis of *p*-toluenediazonium ion. E. S. Lewis and J. M. Insole. diags Am Chem Soc J 86:34-8 Ja 5 '64

New type of cationic intermediate from an intramolecular hydrogen transfer reaction. T. Cohen and J. Lipowitz. bibliog Am Chem Soc J 86:2514-15 Je 20 '64

Photolytic decomposition of aryldiazonium salts; the *p*-dimethylaminophenoxy radical. P. J. Zandstra and E. M. Evleth. bibliog Am Chem Soc J 86:2664-6 Jl 5 '64

Reaction mechanisms proposed for nitrogen compounds. Chem & Eng N 42:40-1 Ag 3 '64

Reactions of diazonium salts with nucleophiles; a tracer demonstration of the reversible step in diazonium ion hydrolysis. E. S. Lewis and J. M. Insole. bibliog Am Chem Soc J 86:32-4 Ja 5 '64

DIAZOTIZATION

Diazotization method for nitrate and nitrite. M. J. Fishman and others. bibliog Am Water Works Assn J 56:633-8 My '64

DIBORANE. See Boron hydrides

DIBROMOBENZENE

Zeeman effect of nuclear quadrupole resonance in single crystals of sodium bromate and *p*-dibromobenzene. P. Bucci and others. bibliog Am Chem Soc J 86:2513-14 Je 20 '64

DIBROMOETHANE

Absorption of 1,2-dibromoethane by oranges and by materials used in their fumigation. I. M. Coggiola and F. E. Huelin. diags J Agri & Food Chem 12:192-6 Mr '64

DIBROMOTETRACHLOROETHANE

Allylic brominations with 1,2-dibromotetrachloroethane. E. S. Huyser and D. H. DeMott. Chem & Ind p 1954 D 14 '63

DIBUTYL peroxide

Dimer acid structures; the dehydro-dimer from methyl oleate and di-t-butyl peroxide. R. F. Paschke and others. bibliog Am Oil Chem Soc J 41:56-60 Ja '64

Induced decompositions of di-*t*-butyl peroxide in primary and secondary alcohols. E. S. Huyser and C. J. Bredeweg. bibliog Am Chem Soc J 86:2401-5 Je 20 '64

Induced decompositions of di-*t*-butyl peroxide in primary and secondary amines. E. S. Huyser and others. bibliog Am Chem Soc J 86:4148-51 O 5 '64

DICARBOXYLIC acids. See Carboxylic acids

DICHLOROANILINE

Ionization constants of the six dichloroanilines and the six dichlorophenols in aqueous solution at 25°C. R. A. Robinson. bibliog J Res Nat Bur Stand 68A:159-64 Mr '64

DICHLOROBENZENE

Ortho-dichlorobenzene capacity to be increased. Chem & Eng N 42:26 F 17 '64

DICHLOROCARBENE

Reaction of dichlorocarbene with enol acetates-novel 2,2-dichloro-1-steroidalcyclopropyl acetates. C. E. Cook and M. E. Wall. bibliog Chem & Ind p 1927-8 D 7 '63

DICHLORODIFLUOROETHYLENE

Cycloaddition; evidence of a biradical intermediate in the thermal addition of 1,1'-dichloro-2,2-difluoroethylene to the geometrical isomers of 2,4-hexadiene. L. K. Montgomery and others. bibliog Am Chem Soc J 86:622-8 F 20 '64

Cycloaddition; kinetics and reactivity in the addition of 1,1-dichloro-2,2-difluoroethylene to dienes; the biradical mechanism. P. D. Bartlett and L. K. Montgomery. bibliog Am Chem Soc J 86:628-31 F 20 '64

Cycloaddition; the 1,2-addition of 1,1-dichloro-2,2-difluoroethylene to some dienes. P. D. Bartlett and others. bibliog Am Chem Soc J 86:616-22 F 20 '64

DICHLORODIFLUOROMETHANE

Heat transfer to boiling refrigerants 12 and 22; tr. by O. J. Nussbaum. G. V. Ratiani and D. V. Agaliani. bibliog diag ASHRAE J 5:53-5 D '63

DICHLOROETHYLENE

Polyvinylidene chloride coating of papers; Diofan. F. J. Poschmann. diag Paper Ind 46:396-9 Ag '64

DICHLOROFLUOROETHYLENE

Vibrational assignment for *cis*- and *trans*-1,2-dichloro-1-fluoroethylenes: FClC=CClH and FClC=CClD. N. C. Craig and others. bibliog diags Am Chem Soc J 86:3232-9 Ag 20 '64

DICHLOROMETHANE

Use of trifluorotrichloroethane-methylene chloride in absorption elution chromatography. J. A. Attaway. Anal Chem 36:2224 O '64

DICHLOROPHENOL

Ionization constants of the six dichloroanilines and the six dichlorophenols in aqueous solution at 25°C. R. A. Robinson. bibliog J Res Nat Bur Stand 68A:159-64 Mr '64

DICHLOROPHENOXYACETIC acid

Conversion of 4-(2,4-DB) to 2,4-dichlorophenoxycrotonic acid (2,4-DC) and production of 2,4-D from 2,4-DC in soil. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:322-3 Jl '64

Analysis

Determination of butoxyethanol ester of 2,4-dichlorophenoxyacetic acid in shellfish and fish. J. E. Coakley and others. bibliog J Agri & Food Chem 12:262-5 My '64

Metabolites of 2,4-dichlorophenoxyacetic acid (2,4-D) in bean plants. D. G. Crosby. bibliog J Agri & Food Chem 12:3-6 Ja '64

Physiological effect

Fate of 2,4-dichlorophenoxyacetic acid in sheep. D. E. Clark and others. bibliog J Agri & Food Chem 12:43-5 Ja '64

DICHLOROTOLUENE

Stereochemistry of the reaction of benzal chloride with olefins. J. E. Hodgkins and others. bibliog Am Chem Soc J 86:4080-5 O 5 '64

DICHROISM

Circular dichroism and rotatory dispersion curves for helices. I. Tinoco, jr. Am Chem Soc J 86:297-8 Ja 20 '64

Conformer populations and thermodynamic data from temperature dependent circular dichroism measurements. A. Moscowitz and others. Am Chem Soc J 85:3515-16 N 5 '63

Optical rotatory dispersion studies; the use of low-temperature circular dichroism measurements for fingerprinting of steroidal ketones. K. M. Wellman and others. bibliog Am Chem Soc J 86:492-8 F 5 '64

DICHROMATES

Reaction of lignosulfonate with dichromate. A. N. James and P. A. Tice. bibliog Tappi 47:43-7 Ja '64

DICTATING machines

Little dictator. W. D. Rexroad. il diags Radio-Electronics 35:30-2 Ag '64

DICTIONARIES

Locating engineering literature; EJC's Thesaurus of engineering terms. R. A. Jacobson. Machine Design 36:152-8 Je 18 '64

Russian-English dictionary. M. Lambert, comp. Review, by A. L. Baudains. Chem & Ind p645-6 Ap 18 '64

DIE casting

Adhesive bonding cuts rejections. il Foundry 92:130 S '64

Automated diecasting; special report. il diags Foundry 92:120-62 N '64

Autos using more zinc die castings. J. L. Kimberly. Iron Age 194:29 Ag 20 '64

Better products at lower costs with conversions to diecastings. il Foundry 92:114-15 Mr '64

Booming technology, boon to diecasting user. il Steel 155:55-70 Jl 13 '64 (reprints 50c)

Chrysler details diecasting layout. il Steel 155:71-2 Ag 24 '64

Computers can expand diecasting technology. Steel 155:154-5 O 12 '64

Conveyor goes under to bring efficiency up. diag Mod Materials Handling 19:49 Ap '64

DIE casting—*Continued*

Designers eye diecast zinc for more gearing. il Steel 155:52+ S 21 '64

Die cast zinc can be stud welded. il Welding Eng 49:82 N '64

Diecasting and permanent molding; AFS congress; abstracts of papers. Foundry 92:107-9 Ag '64

Die casting; award-winning designs. il Product Eng 35:45-6 S 28 '64

Die casting end shields for motors. il diag Mod Metals 19:40+ Ja '64

Diecasting is a two-phase system. H. K. Barton. diags Foundry 92:101-3 Ag '64

Diecasting; its progress, its potential, and its problems. J. C. Miske. Foundry 92:104-6 Ag '64

Die castings. il diags Materials in Design Eng 59:101-12 Mr '64 (reprints 35c)

Diecastings have great potential for defense applications. G. F. Hodgson. il Foundry 92:135-8 S '64

Diecastings ride automotive boom. il Iron Age 194:27 O 1 '64

Eliminate cost of metal removal; design for instant parts. J. Proctor. il Product Eng 35:75-90 My 11 '64 (reprints 50c)

Factors to watch in diecasting copper alloys. J. Bader. il Foundry 91:54-7 D '63

For prototype evaluation, try simulated die castings. J. Proctor. il Product Eng 35:104-7 S 14 '64

German automakers offer magnesium diecasting tips. Steel 154:52 Ja 13 '64

Getting residual air out of vacuum diecasting dies. H. K. Barton. diags Foundry 92:100-1+ Ja '64

Gun reaming precision aluminum die castings. H. Gregg. il Mach 70:126-7 N '63

How Hoover co. controls diecasting quality. R. M. Archer and L. W. Miller. il Foundry 92:180-6 Ap '64

How to weld aluminum diecastings. il Iron Age 194:66-7 O 15 '64

Influence of die evacuation on aluminum diecasting properties. R. M. Kalish. diags Foundry 92:98-102 Jl '64

Magnesium gains momentum in die casting. J. G. Mezoff. il Mod Metals 20:26+ Ap '64

National diecasting exposition, 3d, Detroit, Nov. 17-20; exhibitors' showcase. il Foundry 92:115-18 N '64

New die coat gives better die castings; Glas-Mol. J. Fox. il Light Metal Age 22:14-15 Ap '64

Potential for large aluminum die castings. H. L. Byrne. il Metal Prog 86:197-8+ O '64

Precision forgings or die castings? J. Szinyei. il Materials in Design Eng 60:81-3 Jl '64

Production tips improve secondary operations on diecastings. E. J. Bartholomew. il diags Foundry 92:124-8 Je '64

Review of a record year diecasting in 1963. D. Laine. Foundry 92:127-9 My '64

Review of the theories of the pressure diecasting process. I. D. Nussey and V. Kondic bibliog diags Metallurgia 70:101-9 S '64 (to be cont)

Tornado disaster results in improved diecasting production. J. C. Miske. il plans Foundry 92:102-6 F '64

Welding aluminum diecastings. il Foundry 92:127-8 O '64

World's largest impregnator safeguards diecast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

Zinc die casting uses increase in '64 autos. Automotive Ind 130:52-3 Ja 1 '64

See also

American die casting institute

DIE casting engineers, Society of. See Society of die casting engineers

DIE casting institute, American. See American die casting institute

DIE casting machines

Diecasters look at automation of the diecasting process. Foundry 92:120-2 N '64

Die casting and precision metal moulding exhibition, London, Jan. 20-23; illustrations with text. Engineering 197:74 Ja 17 '64

Diecasting machines. il Engineer 218:224 Ag 7 '64

Going forward to automation of diecasting. H. K. Barton. diags Foundry 92:124-6+ N '64

HPM die-casting machines. il Mach 70:146 D '63

New Schultz die-casting machine. il Metallurgia 70:111-12 S '64

Volkswagen program aims at automatic diecasting operations. il Foundry 92:112-13 Mr '64

What automated diecasting involves in the machine, the die, die lubrication. J. J. Kux and others. il Foundry 92:130-2+ N '64

Control

Automation comes to diecasting. L. Radke and L. H. Smith. il Tool & Manuf Eng 53:53-5 S '64

DIE sinking

Tracer diesinking gets a lift. il Am Mach 108:79-80 Ap 27 '64

Which method for diesinking? P. A. Ropp and others. il diags Am Mach 108:67-70 Je 8 '64

DIELDRIN

Effect of the level of dietary protein on the toxicity of dieldrin for the laboratory rat. M. Lee and others. bibliog il J Nutrition 84:136-44 O '64

DIELECTRIC constants

Capacitance is basis for on-stream analyzer. il diags Can Chem Process 48:68-70 Ja '64

Comparisons of materials; dielectric strength of nonmetallics and dielectric constant of nonmetallics; tables. Materials in Design Eng 60:19 Mid-O '64

Dielectric constant and conductance changes in wool fibers produced by step changes in the relative humidity. J. E. Algie. bibliog diags Textile Res J 34:477-86 Je '64

Dielectric constant of lead titanate zirconate ceramics at high frequency. R. Gerson and others. bibliog diags J Ap Phys 34:3242-5 N '63

Dielectric, dynamic mechanical and nuclear resonance properties of polyethylene oxide as a function of molecular weight. T. M. Connor and others. bibliog J Ap Chem 14:74-81 F '64

Effective dielectric constant of the atmosphere during snowstorms and its influence upon corona losses. A. S. Timascheff. bibliog diags IEEE Trans Power Apparatus & Systems 83:492-5 My '64

Lorentz-Lorenz function of the solidified rare gases. R. M. Mazo. bibliog Am Chem Soc J 86:3470-4 S 5 '64

Measurement of permittivity and conductivity at temperatures up to 500°C. R. H A. Miles. diags Electronic Eng 36:682-7 O '64

Method of measuring the dielectric constant at microwave frequencies by means of the perturbation method. I. Falkvik. IEEE Proc 52:203 F '64

Microwave measurement of conductivity and dielectric constant of semiconductors. B. R. Nag and others. diags IEEE Proc 51:962 Je '63; Discussion. 52:100, 1061-2 Ja, S '64

Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64

Physical properties of fatty acid methyl esters; dielectric constant. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:675-8 O '64

Radar determination of lunar surface dielectric properties. H. S. Hayre. bibliog AIAA J 1:2655-6 N '63

Simple instrument for the direct determination of dielectric constants of liquids over a wide range of values. P. P. Maloney and R. N. Smith. bibliog il diags Anal Chem 35:2161-4 D '63

Solvent effects in organic chemistry: sulfolane, a weakly basic aprotic solvent of high dielectric constant. E. M. Arnett and C. F. Douty. bibliog Am Chem Soc J 86:409-12 F 5 '64

See also

Curie point

DIELECTRIC heating. See Electric heating, Industrial—High frequency heating

DIELECTRIC losses

Dielectric loss due to impurity cation migration in α quartz. E. H. Snow and P. Gibbs. bibliog diag J Ap Phys 35:2368-74 Ag '64

Dielectric loss spectra of corrosion films on zirconium. P. J. Harrop and J. N. Wanklyn. bibliog Electrochem Soc J 111:1133-6 O '64

Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64

Parameters affecting the increase in dielectric loss, caused by carbon black paper screens, for oil paper dielectrics. R. B. Blodgett and F. H. Gooding. bibliog IEEE Trans Power Apparatus & Systems p 121-8; Discussion. 128-9; Reply. 129-30 F '64

Precise method for measuring dielectric loss. F. Jones. diags Electronic Eng 35:733-6 N '63

See also

Hysteresis

DIELECTRIC polarization. See Polarization, Dielectric

DIELECTRICS

Alumina and other dielectric ceramics; symposium abstracts. Am Cer Soc Bul 43:353+ Ap '64
Automatic measurement of the electric strength of liquid dielectrics. J. E. Brignell. diags J Sci Instr 40:576-8 D '63
Breakdown and hysteresis in forward biased p-n GaAs luminescent junctions. R. C. C. Leite and A. Yariv. IEEE Proc 52:191-2 F '64
Breakdown strengths of a perfluorocarbon vapor (FC-75) and mixtures of the vapor with SF_6. A. H. Sharbaugh and P. K. Watson. bibliog il diags IEEE Trans Power Apparatus & Systems p 131-6 F '64
Breakdown voltages of some electronegative gases at low pressures. S. Schreier. bibliog diag IEEE Trans Power Apparatus & Systems 83:468-71 My '64
Capacitance of thin dielectric structures. H. Y. Ku and F. G. Ullman. diags J Ap Phys 35:265-7 F '64
Chemical purity by dielectric cryometry. G. S. Ross and L. J. Frolen. bibliog diag J Res Nat Bur Stand 67A:607-14 N '63
Comparisons of materials; dielectric strength of nonmetallics and dielectric constant of nonmetallics; tables. Materials in Design Eng 60:19 Mid-O '64
Cutoff frequencies of the dielectrically loaded comb structure as used in traveling-wave masers. S. E. Harris and others. bibliog diags Bell System Tech J 43:437-84 pt 2 Ja '64
Dielectric and insulating materials. bibliog Engineer 217:753-4 Ap 24 '64
Dielectric behavior of the film formed on mica cleaved in moist air. S. Ruthberg and L. Frenkel. bibliog diags J Res Nat Bur Stand 68A:173-83 Mr '64
Dielectric breakdown of single-crystal strontium titanate. H. H. Barrett. bibliog il diags J Ap Phys 35:1420-5 My '64
Dielectric; composite material features increased thermal conductivity. Plastics World 22:48 F '64
Dielectric measurements on glass at very high pressure. D. Chakravorty and L. E. Cross. bibliog diag Am Cer Soc J 47:370-4 Ag '64
Dielectric parametric amplifier. T. R. Billeter and others. bibliog diag J Ap Phys 35:2159-60 Jl '64
Dielectric phenomena related to the use of carbon black paper screening in high-voltage fully impregnated paper cables. P. Gazzana-Priaroggia and others. bibliog diags IEEE Trans Power Apparatus & Systems p 137-51; Discussion. 151-2 F '64
Dielectric properties of cyanoethylated polyvinyl alcohol. L. C. Flowers and D. Berg. bibliog Electrochem Soc J 111:1239-43 N '64
Dielectric properties of moist wood. A. Venkateswaran and S. Y. Tiwari. bibliog Tappi 47:25-8 Ja '64
Dielectric susceptibility tensor for an atomic vapor. R. L. Fork. J Ap Phys 35:134-6 Ja '64
Dielectrics in 1963; phenomena/materials/devices. A. E. Javitz. diags Electro-Tech 73:97-105+ F '64
Differential dielectric apparatus for determining water added to solvents. W. C. Wolfe. bibliog diag Anal Chem 35:1884-7 N '63
Dispersion and impedance of dielectric-supported ring-and-bar slow-wave circuits. E. A. Ash and others. bibliog diags Inst E E Proc 111:629-41 Ap '64
Electric stresses at conducting surfaces located in the field between plane parallel electrodes. B. Salvage. Inst E E Proc 111:1173-6 Je '64
Electric stresses in gaseous cavities in solid dielectrics. B. Salvage. bibliog diags Inst E E Proc 111:1162-72 Je '64
Electric stresses in gaseous cavities in solid dielectrics; experiments with an electrolytic tank. M. M. Sakr and B. Salvage. diag Inst E E Proc 111:1176-9 Je '64
Experimental observation of travelling backward waves in dielectric-loaded circular waveguide. P. J. B. Clarricoats and K. R. Slinn. diag Inst E E Proc 111:1090-2 Je '64
Field emission from vacuum-deposited metallic film and its role in electric breakdown in vacuum. R. N. Sudan and F. Gonzalez-Perez. bibliog diag J Ap Phys 35:2269-70 Jl '64
Heat-treatment of anodic oxide films on tantalum. D. M. Smyth and others. bibliog diags Electrochem Soc J 110:1264-76 D '63; Discussion. G. J. Korinek. 111:762-3; Reply. 763-4 Je '64
Heat-treatment of anodic oxide films on tantalum; effects on dielectric properties. D. M. Smyth and others. bibliog diag Electrochem Soc J 110:1264-71 D '63
Imperfections associated with dielectric breakdown in LiF. J. W Davisson and others. bibliog il diag J Ap Phys 35:3017-23 O '64
Interaction of electrophoretic and dielectrophoretic forces. W. F. Pickard. bibliog Electrochem Soc J 111:1234-8 N '64
Low frequency dielectric dissipation in Mylar at liquid helium temperature. M. Gottlieb and M. Garbuny. il R Sci Instr 35:641-2 My '64
Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64
Microwave heating of a Luneberg lens. S. P. Morgan. diag Bell System Tech J 43:659-77 Mr '64
Multilayer dielectric- and magnetic-film memory cell designed for optical read out. D. O. Smith. bibliog diag J Ap Phys 35:772-3 pt 2 Mr '64
Optically induced forces in a dielectric; comparison of theory and experiment. A. Bramley and J. E. Rosenthal. IEEE Proc 52:1064-5 S '64
Optically-induced ultrasonic waves in transparent dielectrics. A. J. DeMaria. bibliog il IEEE Proc 52:96-7 Ja '64
Photon emission from irradiated dielectric slabs. J. C. Ashley and R. H. Ritchie. diags J Ap Phys 35:2313-21 Ag '64
Properties of dielectric-rod junctions in circular waveguide. P. J. B. Clarricoats and J. M. W. McBride. bibliog diags Inst E E Proc 111:43-50 Ja '64
Purity determination by dielectric cryometry. Franklin Inst J 277:374-5 Ap '64
Research on the impulse breakdown mechanism of the dielectric as used in oil-filled cables. K. Kojima and S. Tanaka. bibliog diags IEEE Trans Power Apparatus & Systems 83:460-7 My '64; Discussion. 83:644-5 Je '64
Scattering losses in a large Luneberg lens due to random dielectric inhomogeneities. S. P. Morgan. bibliog diag Bell System Tech J 43:679-96 Mr '64
Simplified theory of diffraction at an interface separating two dielectrics. J. Kane and S. N. Karp. bibliog diags J Res Nat Bur Stand 68D:303-10 Mr '64
Spontaneous polarization noise in polar dielectrics. L. Davis. bibliog J Ap Phys 35:2004-10 Jl '64
Surface and volume phenomena in dielectric breakdown of polyethylene. E. J. McMahon and J. R. Perkins. bibliog il diags IEEE Trans Power Apparatus & Systems p 1128-35; Discussion. 1135-6 D '63
Surface-wave resonance phenomena on dielectric tubes. A. L. Cullen and others. bibliog diags Inst E E Proc 111:215-21 F '64
Temperature autostabilizing nonlinear dielectric element (TANDEL); construction of TGS; element and its properties. A. Glanc and others. bibliog il diag J Ap Phys 35:1870-5 Je '64
Temperature autostabilizing nonlinear dielectric element (TANDEL); explanation of its functon. V. Dvořák and others. J Ap Phys 35:1875-8 Je '64
Thermal conductivity of some amorphous dielectric solids below 1°K. A. C. Anderson and others. bibliog diags R Sci Instr 34:1386-90 D '63
Use of dielectric etalon as a reflector for *Q*-switched laser operation. H. Pawel and others. IEEE Proc 52:1048-9 S '64
Vacuum insulation of high voltages utilizing dielectric coated electrodes. L. Jedynak. bibliog J Ap Phys 35:1727-33 Je '64
Wide voltage range high energy solid dielectric switch. H. J. Huber. diags R Sci Instr 35:1067-9 Ag '64
See also
Electrets
Insulating materials
Insulation (electric)
Mica

DIELS-ALDER reaction

Dimethyl acetylenedicarboxylate, indene adduct; a novel Diels-Alder reaction. K. W. Muir and others. bibliog Chem & Ind p 1581-2 S 12 '64
Regulation of structural isomerism in simple Diels-Alder adducts. E. F. Lutz and G. M. Bailey. bibliog Am Chem Soc J 86:3899-901 S 20 '64

DIELS-ALDER reaction—*Continued*
Secondary deuterium isotope effect on the Diels-Alder reaction. D. E. Van Sickle and J. O. Rodin. bibliog Am Chem Soc J 86: 3091-4 Ag 5 '64

DIENES. See Olefins

DIES
Carbide bullet makes rifling. il diags Am Mach/Metalworking Manuf 107:71-2 N 25 '63
Changing big dies in an hour. il Am Mach 108:60-1 Ja 6 '64
Cheaper dies for medium runs. R. Le Grand. il diags Am Mach 108:51-5 Ja 6 '64
Compound die solves bending problem. F. Strasser. diags Am Mach/Metalworking Manuf 107:155 N 11 '63
Die cuts miniature bolt heads. J. S. Brown. diags Am Mach 108:86 Ja 6 '64
Die cutting cuts cost of open-web beams. L. Kates. il diags Civil Eng 34:40-2 Jl '64
Die forms spring clip in one stroke. P. Cady. diag Am Mach 108:87 Jl 6 '64
Die life still problem in high energy forming. Steel 155:137+ O 19 '64
Double tube-end expanding die. F. Strasser. diag Mach 70:135 D '63
From clay to tape to die: a revolution comes to diemaking. il diags Steel 155:50-5 Jl 20 '64
Getting residual air out of vacuum die-casting dies. H. K. Barton. diags Foundry 92:100-1+ Ja '63
Going forward to automation of diecasting. H. K. Barton. diags Foundry 92:124-6+ N '64
How the tool designer can cut die-maintenance costs. F. Strasser. diags Mach 70:105-11 F '64
How to estimate time requirements for cavity dies. R. Anter. diags Tool & Manuf Eng 51:79-82 N '63
How to lay out split dies. P. Dryere. diags Am Mach 108:52-5 Ag 3 '64
Instant blanking methods shortcut conventional costs. il diags Steel 153:105-6 D 9 '63
Low-cost blanking dies produce high-quality parts. A. F. van Heuven and J. Munten dam. il diags Tool & Manuf Eng 52:69-73 F '64
Low-cost method of quickly changing press dies. il Mach 70:102-3 D '63
Low energy rate forming cuts die costs. R. L. Ballard. il diag Hydraulics & Pneumatics 17:96-7 Jl '64
Machine die-quenches big gears. R. H. Eshelman. il diags Iron Age 194:76-7 Ag 13 '64
Making presses really automatic. B. Wells. il diags Am Mach/Metalworking Manuf 107:119-22 O 14 '63
Multiple station die forms pure silver parts. il Steel 154:50+ Mr 9 '64
New concept of wire making: with roller dies. A. L. Randazzo. il diags Wire & Wire Prod 39:527-8+ Ap '64
Penetration differentials: reference sheet. Tool & Manuf Eng 53:72 Jl '64
Piercing die for thin stock. F. C. Fehely. il diags Am Mach 108:78-9 Je 8 '64
Piercing die has automatic index. C. McLaughlin. diag Am Mach/Metalworking Manuf 107:78 D 23 '63
Plastic checks die profiles. M. K. Young. il Iron Age 193:80-1 F 27 '64
Press line switches dies quickly. il Iron Age 193:83 My 7 '64
Progressive dies make miniaturized parts. J. H. van der Burgt. diags Tool & Manuf Eng 53:53-5 O '64
Quality up, cost down with interchangeable-station progressive dies. A. F. Perry. il Mach 70:140-1 D '63
Quick-change die does many jobs. B. Wolf. diags Am Mach 108:119 S 14 '64
Quick-change dies for drawing. il Iron Age 193:75 Mr 5 '64
Rolling-bolster presses speed die changing. il Mach 70:101 D '63
Standardizing the design of draw dies. diags Mach 70:117-22 My '64
Standardizing the design of forming dies. diags Mach 70:90-4 Ja '64
Standardizing the design of progressive and transfer dies. diags Mach 70:86-91 Ag '64
Standardizing the design of punching dies. diags Mach 70:90-3 N '63
Steel rule dies save on stock. il Am Mach 108:62-3 F 3 '64
Thread-roll dies: reference book sheet. R. Carpenter. diags Am Mach 108:123+ Mr 16 '64
Tried steel rule dies for piercing? il diag Am Mach 108:90 S 14 '64
20-ton press with inclinable die set. il Metallurgia 69:131-2 Mr '64
What automated diecasting involves in the machine, the die, die lubrication J. J. Kux and others. il Foundry 92:130-2+ N '64
When a progressive die won't do. R. M. Henry and B. Schneider. diags Am Mach/Metalworking Manuf 107:86-7 D 9 '63
See also
Forging machinery
Punching machinery

Manufacture

Die machined by numerical control. A. L. Pickrell. il Tool & Manuf Eng 52:85 Je '64
Die stamps and stacks in sequence. C. L. Kobrin. il diags Iron Age 193:122-3 F 20 '64
Diemaking with an oval chuck. M. J. Goldstein. il diags Am Mach/Metalworking Manuf 108:94-5 Je 22 '64
Electric-discharge machining outdoes a cat's whisker. J. H. Cadieux and J. Frei. il Iron Age 194:56-7 Ag 20 '64
Resistance welding of composite sections. E. J. Del Vecchio. il diags Welding J 43: 505-9 Je '64
Skate tool machines massive forming die. T. W. Black. il Tool & Manuf Eng 52:113-15 Ap '64
Tracer mill-EDM teamwork puts diemaking in economy groove. il Steel 154:46-7 Ja 20 '64

DIES, Extrusion
Extrusion die design to reduce melt fracture. A. G. Ferrari. diags Wire & Wire Prod 39:1036-8+ Jl '64
Tungsten carbide coating of extrusion dies. Light Metal Age 21:12+ D '63

DIES, Forging
Cast forging dies defy wear. il Iron Age 194: 64-5 O 22 '64

DIES, Plastic
Elastic die blocks. il Automobile Eng 53:497 N '63
Epoxy plastic dies reduce costs, save time. il Mod Metals 19:70-1 Ja '64
Low-cost forming with urethane die components. H. S. Achler. diags Tool & Manuf Eng 52:73-6 Je '64
Spray layup of plastic tooling. D. G. Prideaux. il Tool & Manuf Eng 52:87-9 Ap '64
Titanium formed cold with epoxy tooling. il Steel 154:85 My 25 '64

DIES, Rubber
Deformable dies. il diags Automobile Eng 54:451 O '64
Formability of sheet metals for product design; rubber forming. W. W. Wood. diags Materials in Design Eng 59:90-3 Je '64
Urethane tooling. H. S. Achler. il diags Mach 70:135-47 Je '64

DIESEL-electric locomotives. See Locomotives, Diesel-electric

DIESEL electric sets
Diesel-driven 2¼ mw alternator set. il diags Engineer 218:501-3 S 25 '64
Light and power for Oakland jetport. il diag Elec Constr & Maint 63:90-3 F '64
Lightweight Diesels provide precise power for Kwajalein. H. K. Cargile. il Power Eng 68: 45-6 My '64
Rolls-Royce initiates unique production-service plan for Diesel generators. Marine Eng/Log 69:76+ Ja '64
Stand by electricity supply for railway signalling. il Engineering 196:815 D 27 '63
Turbo-charged generating sets. il Engineer 218:192 Jl 31 '64

DIESEL engine plants. See Power plants—Diesel engine plants

DIESEL engine stations. See Electric plants (central stations)—Diesel engine stations

DIESEL engines
Diesel-driven pump set. il Engineer 216:858 N 22 '63
Diesel pump stations bail out flooded farmland in Florida. C. J. Bottomley. il Power Eng 67:65-6 N '63
Dyna-Star design shrinks piston-engine size. W. G. Lundquist. il diags S A E J 72: 66-71 Mr '64
General-purpose Diesel engines; characteristics, selection, installation. J. C. Holby. il diags Machine Design 35:134-41 D 5 '63
Horsepower to move, shoot, and communicate. A. T. Baynes. il Automotive Ind 129:77 D 1 '63
Idealized limited-pressure compression-ignition cycle. P. Van Der Werf. bibliog diag A S M E Trans ser A 86:201-8 Ap '64
Industrial engine developments. C. A. Weinert. il diags Automotive Ind 129:78-81+ N 15 '63

DIESEL engines—*Continued*

N engines star on farm. il Diesel Equip Supt 42:54 S '64

Small air-cooled Diesels. il Diesel Equip Supt 42:30-1 Ja '64

Small high-speed Diesel has many applications. il Diesel Equip Supt 42:32-3 Mr '64

3,200 bhp Diesel by W. H. Allen. il Engineering 198:359 S 18 '64

See also

Diesel-electric sets

Electric plants (central stations)—Diesel engine auxiliaries

Electric plants (central stations)—Diesel engine stations

Power plants—Diesel engine plants

Air supply

Air filter eliminates locomotive breathing problems. il Iron & Steel Eng 41:156 Mr '64

Cleaning

How to clean engine parts thoroughly without acid. D. C. Allen. il Power Eng 68:56 Ag '64

Magnus' one man, in line cleaning operation. il Diesel Equip Supt 42:44-5 S '64

Cold weather operation

Diesel fuel freezing. il diag Automobile Eng 54:18-19 Ja '64

Fuel waxing in cold weather. il diag Diesel Equip Supt 42:36-7 Jl '64

Maintaining operating temperature. il Diesel Equip Supt 42:32-3 Jl '64

Moisture eliminators can reduce icing in fuel, air lines. il diags Diesel Equip Supt 42:34-5 Jl '64

No fuel flow? B. P. Emerson. Diesel Equip Supt 41:30-1 D '63 (to be cont)

Overcoming the problem of Diesel fuel freezing. diag Engineer 216:705 O 25 '63

Preventing fuel freezing in Diesels. il diag Engineering 196:516 O 25 '63

Winter starting aids. il diags Diesel Equip Supt 42:28-31 Jl '64

Control

Exhaust brake valve. il Engineer 216:863 N 22 '63

Manufacturers, please note six points; Diesel engine safety controls and auxiliaries. P. I. Crowther. Power 108:164 F '64

Cooling

Don't neglect your stationary Diesel coolant systems. H. J. Gall. il diag Power Eng 68:51-3 Je '64

How cooling systems improve Diesel performance, up thermal efficiency. W. M. Kauffmann. il diags Power 108:71-4 S '64

Intercooling benefits vary in open and precombustion chamber Diesels. D. R. Vance and R. Mayernick. S A E J 71:50-1 D '63

Design

Contribution of a research laboratory to prime mover development. H. G. Edmunds. il diags Inst Mech Eng Proc 177 no 38:1033-45, pl 1-4; Discussion. 1085-94 '63

Design approach to aircooled Diesels of lighter weight and greater compactness; abstract. H. L. Wittek and others. S A E J 72:92 Ja '64

Dual-fuel two-stroke Diesel engine. il Engineer 218:75 Jl 10 '64

Evolution of the N engine models of Detroit Diesel series 71. diags Diesel Equip Supt 42:26-9 My '64

New piston design makes practical vc-ratio engine. W. A. Wallace and F. B. Lux. il diags S A E J 72:82-6 Ja '64

Pielstick versus the slow speed Diesel. il Engineering 197:622-3 My 1 '64

Small Diesel by Ruston. il Engineering 198:516 O 23 '64

Exhaust

Environmental and clinical investigation of workmen exposed to Diesel exhaust in railroad engine houses. M. C. Battigelli and others. bibliog Ind Med 33:121-4 Mr '64

Pyrometer has added versatility. il Diesel Equip Supt 42:35 Je '64

Safety evaluation of underground Diesel equipment. R. F. Love and J. H. Furse. il Min Cong J 50:58-61 Ap '64

Theoretical analysis of the exhaust system of an oil engine. E. H. Wright and K. F. Gill. diags Engineer 218:311-19 Ag 28 '64

Trucker finds small turbo reduces excessive exhaust smoke. il Diesel Equip Supt 42:39 Je '64

Uniform Diesel exhaust temperatures may cover up a bad situation. E. G. Huber. diag Power Eng 68:51-3 Ap '64

Failure

Optimizing product reliability. D. B. Kececioglu and R. C. Hughes. il plan diags Automotive Ind 130:66-9 Je 15 '64

Reliability program can make a good Diesel even better. W. J. Lux. diags S A E J 72:90-2 N '64

Fuel

Additive-improved fuels meet modern engine needs. il Diesel Equip Supt 41:37-9 N '63

Preventing fuel freezing in Diesels. il diag Engineering 196:516 O 25 '63

Fuel feeding

Diesel fuel injector. diag Product Eng 35:66-7 O 12 '64

Injection rate diagrams. A. I. I. Abdelfattah. diags Automobile Eng 54:101-5 Mr '64

Inside an injection rebuild shop; trip through Korody Marine's KEW div. il Diesel Equip Supt 42:64-5 Ap '64

Internal-pintle nozzle. H. E. Woodward. diags Automobile Eng 54:316-17 Jl '64

No fuel flow? B. P. Emerson. Diesel Equip Supt 41:30-1 D '63 (to be cont)

Reclamation; road to lower costs. il Diesel Equip Supt 42:44-6 Je '64

Roosamaster's new pencil nozzle; Fuel injection division, Standard screw co. il diag Diesel Equip Supt 42:39-41 S '64

Uniform Diesel exhaust temperatures may cover up a bad situation. E. G. Huber. diag Power Eng 68:51-3 Ap '64

V-6 Diesel shapes fuel-air mixtures for best efficiency. il Machine Design 36:12 Ja 2 '64

Lubrication

New Diesel engine oils. Engineering 198:416 O 2 '64

Maintenance and repair

Injector nozzle inspection aid. il Engineer 217:409 F 28 '64

Reclamation; road to lower costs. il Diesel Equip Supt 42:44-6 Je '64

Ring failures; causes at a glance; illustrations with text. Diesel Equip Supt 42:66-7 Ap '64

Special tools aid engine rebuild. il Diesel Equip Supt 42:38 Je '64

What's wrong with my Diesel? E. G. Huber. diag Power Eng 68:42-3 Jl '64

Manufacture

Enterprise Scotland; Diesels American; Cummins engine company plant, Shotts, Lanarkshire. il Engineering 198:280-1 Ag 28 '64

Versatile production lines for GMC engines. J. Geschelin. il Automotive Ind 131:57-60 Jl 15 '64

Rating

Brief review of engine rating terms. diags Diesel Equip Supt 42:42-4 Ap '64

Engine rating; why and how. diags Diesel Equip Supt 42:58-63 Ap '64

Specifications

1964 Diesel engine specifications. Diesel Equip Supt 42:45-56 Ap '64

Starting

New air starter line; Thor power tool co. il diags Diesel Equip Supt 42:34-5 F '64

Winter starting aids. il diags Diesel Equip Supt 42:28-31 Jl '64

Superchargers

Charts help map performance of turbocharged CI engines. E. T. Vincent. S A E J 71:66-9 D '63

Compression-ignition test engine achieves 450 psi and 2 hp/cu in. with high supercharging. I. O. Kamm and M. R. Dragon. il S A E J 72:83-4 F '64

Differentially supercharged Diesel engine. il Engineer 217:703 Ap 17 '64

Differentially supercharged Diesel engine. J. G. Dawson and others. diags Engineer 217:748-50 Ap 24 '64

Enter differential Diesel; exit gearbox. il diag Engineering 197:542-3 Ap 17 '64

Perkins differentially supercharged engine. il diag Automobile Eng 54:166-9 My '64

Perkins' new Diesel; supercharger doubles torque of engine. D. Scott. il diags Automotive Ind 130:19-20 My 1 '64

Perkins' new power system. il diags Diesel Equip Supt 42:28-31 Je '64

Pielstick versus the slow speed Diesel. il Engineering 197:622-3 My 1 '64

Prototype turbo-charged opposed-piston Diesel engine of 760mm bore. il Engineer 218:132-4 Jl 24 '64

DIESEL engines—Superchargers—*Continued*

Trucker finds small turbo reduces excessive exhaust smoke. il Diesel Equip Supt 42:39 Je '64
Turbocharged and aftercooled Diesels are on the move. K. W. Stinson. il diags Power 108:72-5 Ap '64
Turbo-charged four-cycle Diesel engines. il Engineer 217:661 Ap 10 '64
Variable compression ratio. S. G. Timoney. bibliog il diags Automobile Eng 54:182-4 My '64

DIESEL engines, Automotive

Army looking for big abilities in small battlefield vehicles. F. B. Lux. S A E J 72:82-4 S '64
Ballantine picks Diesels for p&d. il Diesel Equip Supt 42:10 My '64
Boom in small Diesel tractors. il Diesel Equip Supt 42:21-6 Ja '64
Caterpillar tractor co. enters p&d engine field. il Diesel Equip Supt 41:43 N '63
Diaper fleet goes Diesel. il Diesel Equip Supt 42:26-7 Mr '64
Diesels for stop n' go users report. il Diesel Equip Supt 42:36-41 O '64
Differential Diesel engine for trucks. il diag Mech Eng 86:60-1 Jl '64
Differentially supercharged Diesel engine. il Engineer 217:703 Ap 17 '64
Differentially supercharged Diesel engine. J. G. Dawson and others. diags Engineer 217:748-50 Ap 24 '64
Direct injection combine and tractor engine. il Engineering 196:816 D 27 '63
Enter differential Diesel; exit gearbox. il diag Engineering 197:542-3 Ap 17 '64
Experience with Diesel haulage units underground. F. C. Appleyard. il Min Cong J 49:52-4 D '63
Future of lightweight high-speed Diesel engines in the automotive and agricultural fields. J. G. Dawson and N. M. F. Vulliamy. diags Inst Mech Eng Proc 177 no 38:1046-54; Discussion. 1085-94 '63
GMC's new D351 engine. il Diesel Equip Supt 42:42-3 S '64
General Motors' latest four-cycle, six-cylinder Toro-Flow Diesels. il Product Eng 35:60-1 F 17 '64
Genesee brewing co. adds Diesels, retrains mechanics. il Diesel Equip Supt 42:65 O '64
High capacity Diesel-powered equipment. il Diesel Equip Supt 42:40+ F '64
How to pick a clutch. F. K. Post. il diags Diesel Equip Supt 41:23-5+ D '63
Improved school bus efficiency. il Diesel Equip Supt 41:20-1 D '63
Injection rate diagrams. A. I. I. Abdelfattah. diags Automobile Eng 54:101-5 Mr '64
Internal-pintle nozzle. H. E. Woodward. diags Automobile Eng 54:316-17 Jl '64
Lycoming-S&H multifuel engine developed for army is light and simple. bibliog il diags S A E J 72:36-49 Jl '64
Mack designs V-8 Diesel for modern turnpike service. W. J. Pelizzoni and others. il diags S A E J 72:72-8 My '64
New Dodge Diesels for '64; illustrations with text. Diesel Equip Supt 41:46 N '63
New GMC V6 Diesels feature four-stroke design. J. Geschelin. il Automotive Ind 130:63-5 F 15 '64
Perkins differentially supercharged engine. il diag Automobile Eng 54:166-9 My '64
Perkins' new Diesel; supercharger doubles torque of engine. D. Scott. il diags Automotive Ind 130:19-20 My 1 '64
Toro-Flow 478; GMC's V-6 Diesel. il diag Diesel Equip Supt 42:27-9+ Ja '64
Trucker finds small turbo reduces excessive exhaust smoke. il Diesel Equip Supt 42:39 Je '64
W.G.B. oil clarifier inc. enters filtration business. Diesel Equip Supt 42:36-7 Je '64
See also
Locomotives, Diesel
Locomotives, Diesel-electric
Motor cars (railroad)—Diesel-electric

Cooling

GMC's Posi-Temp cooling system. diag Diesel Equip Supt 42:30-1 Ag '64

Fuel

Bifuel operation improves Diesel acceleration. B. S. Murthy. S A E J 72:60-2 F '64
Diesel fuel freezing. il diag Automobile Eng 54:18-19 Ja '64
Fuel waxing in cold weather. il diag Diesel Equip Supt 42:36-7 Jl '64
New flurries over fuels and tires. Diesel Equip Supt 42:32-3 Ag '64
Pure Oil's PM program at Pure's truck stops. il Diesel Equip Supt 42:39-41 Jl '64
What should be done about fuels and lubricants for construction equipment? G. K. Brower. S A E J 72:48-50 F '64

Maintenance and repair

This month's equipment superintendent: Bill Crose, Azusa rock & sand co. il Diesel Equip Supt 42:24-7 Je '64
This month's equipment superintendent, Bill White. il Diesel Equip Supt 42:38-41 Ap '64
This month's equipment superintendent, Bob Sargent, Indianhead truck line, inc. il Diesel Equip Supt 42:26-9 S '64
This month's equipment superintendent, C. H. Rose, East Texas motor freight lines, inc. il Diesel Equip Supt 42:24-7 Jl '64
This month's equipment superintendent: Ed Peterson. il Diesel Equip Supt 42:22-5 Mr '64
This month's equipment superintendent; J. C. Paterson. il Diesel Equip Supt 42:24-7 F '64
This month's equipment superintendent, Jack Riesing, Pacific Intermountain Express. il Diesel Equip Supt 42:26-9 O '64
This month's equipment superintendent, R. R. DeFoor. il Diesel Equip Supt 42:18-20 Ja '64

Manufacture

Perkins' increasing Diesel production. il Automotive Ind 130:70-2 F 15 '64
Point automation aids productivity at Swedish Diesel plant. D. Scott. il Automotive Ind 130:42-6 F 1 '64

Noise

Motor vehicle noise and vibration; symposium abstracts. Engineer 218:91-2 Jl 17 '64

Specifications

Diesel engine specifications, 1964; tables. Automotive Ind 130:196-205 Mr 15 '64

Testing

Development of the Lycoming S&H multifuel engines. P. H. Schweitzer and others. diags Automotive Ind 130:43-7 Ap 1 '64
Variable compression ratio. S. G. Timoney. bibliog il diags Automobile Eng 54:182-4 My '64

DIESEL engines, Marine

Analysis of direct-drive marine Diesel propulsion. E. G. Frankel. bibliog diag Naval Eng J 76:207-17 Ap '64
Development of marine Diesel cylinder lubricants. H. Pouderoyen and others. diags Naval Eng J 75:977-83 D '63
Developments in the British large marine Diesel engine during the past decade. P. Jackson. il diags Inst Mech Eng Proc 177 no 33:897-919; Discussion. 919-28; Reply. 928-34 '63
Diesel engines at high mean effective pressures and their use in ships. R. V. Hughes. plan diags Inst Mech Eng Proc 177 no 38:1055-67; Discussion. 1085-94 '63
Engines for small craft. il Engineer 217:177 Ja 24 '64
Improved submarine Diesel engine run-in procedure. A. M. Woolley. Naval Eng J 76:439-42 Je '64
Laboratory engine testing of marine Diesel cylinder lubricants. A. J. S. Baker and R. T. Davies. il diags Inst Pet J 50:83-91; Discussion. 92-5 Ap '64
Large-bore Diesel is readily adaptable to automation. il plans Marine Eng/Log 69:54-7+ Ap '64
Large-bore Stork Diesel engine. il Engineer 217:250 Ja 31 '64
Marine engines for 1964: inboard engines. C. A. Weinert. il diag Automotive Ind 130:73-8+ F 15 '64
Mark 25th anniversary for Götaverken. il Marine Eng/Log 69:40F+ Je 15 '64
One ferry, eight Diesels. plan Marine Eng/Log 69:66 O '64
Prime contractor details cutter's combined Diesel and gas turbine propulsion plant. il Marine Eng/Log 69:78 Jl '64
Prototype turbo-charged opposed-piston Diesel engine of 760mm bore. il Engineer 218:132-4 Jl 24 '64
Rolls-Royce initiates unique production-service plan for Diesel generators. Marine Eng/Log 69:76+ Ja '64
Slow speed versus high speed Diesel engines for ship propulsions. W. A. Kilchenmann. il diags Naval Eng J 76:425-37 Je '64
Twenty-five years of Diesel engine building at Götaverken. il Engineer 217:539 Mr 20 '64

DIESEL engines, Marine—*Continued*
Twin-screw passenger-cargo liner Centaur. il plan Engineer 217:163-6 Ja 24 '64
Two marine Diesel engines. il Engineer 217: 1053-4 Je 12 '64
Vee form Diesel engines for small craft. il Engineer 217:799 My 1 '64
Wrappers are off Doxford's J engine; has less bulk, weight. il Marine Eng/Log 69: 28B+ S '64
See also
Motor ships

Control

Automation of marine Diesel engine. il Engineer 217:915 My 22 '64
Controlling 18,000 bhp from the bridge. il Marine Eng/Log 70:46-7 My '64
German control has back-up systems. il Marine Eng/Log 70:18F-18H My '64
Remote control of marine Diesel engines. il Engineering 196:559 N 1 '63

Gearing

Small hydraulic marine gear-box. Engineer 217:237 Ja 31 '64
Small marine gear-box. il Engineer 217:1045 Je 12 '64

DIESEL locomotives. See Locomotives, Diesel

DIET
Amino acid balance and imbalance; effect of amino acid imbalance on self-selection of diet by the rat. J. C. Sanahuja and A. E. Harper. bibliog J Nutrition 81:363-71 D '63
Amino acid balance in the adult; high nitrogen-low tryptophan diets. H. Fisher and others. bibliog J Nutrition 81:230-4 N '63
Dietary fat and the structure and properties of rat erythrocytes. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 81:75-80; 82:323-32 S '63, Mr '64
Dietary production of parathyroid cysts. H Selye and others. il J Nutrition 84:97-9 O '64
Dietary protein level and the turnover rate of tissue proteins in rats. K. Muramatsu and others. bibliog J Nutrition 81:427-33 D '63
Dietary sources of iodine. R. L. Vought and W. T. London. bibliog Am J Clinical Nutrition 14:186-92 Ap '64
Distribution of folic acid active compounds in individual foods. R. Santini and others. bibliog Am J Clinical Nutrition 14:205-10 Ap '64
Effect of controlled breakfast on serum cholesterol and triglycerides. F. J. Schilling and others. bibliog Am J Clinical Nutrition 15:1-5 Jl '64
Effect of diet and digestive processes on proteolytic enzymes. J. T. Snook and J. H. Meyer. bibliog J Nutrition 83:94-102 Je '64
Effect of dietary carbohydrate on glucokinase and mannokinase activities of various rat tissues. S. Abraham and others. bibliog J Nutrition 83:273-88 Jl '64
Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64
Effect of dietary restriction of pregnant rats on body weight gain of the offspring. B. F. Chow and C. J. Lee. bibliog J Nutrition 82:10-18 Ja '64
Effect of egg white diets on calcium metabolism in the rat. G. W. Engstrom and H. F. DeLuca. bibliog J Nutrition 81:218-22 N '63
Effect of propionate on the dietary vitamin B_{12}, biotin and folic acid requirement of the rat. D. E. Hogue and J. M. Elliot. bibliog J Nutrition 83:171-5 Je '64
Effect of the copper status of the rat on the copper-molybdenum-sulfate interaction. L. F. Gray and L. J. Daniel. bibliog J Nutrition 84:31-7 S '64
Effect of the quality of dietary protein on nitrogen compounds in the urine of rats. S. Kiriyama and K. Ashida. bibliog J Nutrition 82:127-34 Ja '64
Effects of dietary creatine and related compounds on tissue glycogen deposition in rats. W. R. Todd and others. bibliog J Nutrition 82:301-5 Mr '64
Effects of dietary supplements on young rats fed high levels of zinc. A. C. Magee and S. Spahr. bibliog J Nutrition 82:209-16 F '64
Effects of food restriction and realimentation on serum proteins; complement levels and electrophoretic patterns. H. E. Weimer and others. bibliog J Nutrition 81:405-10 D '63
Effects of gormandizing and semicontinuous eating of equicaloric amounts of formula-type high fat diets on plasma cholesterol and triglyceride levels in human volunteer subjects. S. N. Jagannathan and others. bibliog Am J Clinical Nutrition 15:90-3 Ag '64
Epidemological investigations in relation to diet in groups who show little atherosclerosis and are almost free of coronary ischemic heart disease. F. W. Lowenstein. Am J Clinical Nutrition 15:175-86 bibliog(p 184-6) S '64
Estimation of net phosphorus utilization by the slope method. S. Hurwitz. bibliog J Nutrition 84:83-92 S '64
Evaluation of protein in Middle Eastern diets. J. W. Cowan and others. bibliog J Nutrition 81:235-40 N '63
Factors influencing the induction of fatty liver by orotic acid. H. Sidransky and others. bibliog J Nutrition 81:348-56 D '63
Fatty acid composition of plasma and liver lipid components as influenced by diet in the growing chick. G. A. Leveille and others. bibliog J Nutrition 81:357-62 D '63
Fatty acids of serum and adipose tissue in six groups eating natural diets containing 7 to 40 per cent fat. R. F. Scott and others. bibliog Am J Clinical Nutrition 14:280-90 My '64
Fatty livers produced in albino rats by excess niacin in high fat diets. L. L. Rikans and others. bibliog J Nutrition 82:83-7 Ja '64
Growth of rats from normal dams restricted in diet in previous pregnancies. B. F. Chow. J Nutrition 83:289-92 Ag '64
Influence of artificial diet on weight gain and body composition of the neonatal rat. H. A. Dymsza and others. bibliog J Nutrition 84:100-6 O '64
Influence of diet on blood serum lipids in pregnant women and newborn infants. A. E. Hansen and others. bibliog Am J Clinical Nutrition 15:11-19 Jl '64
Influence of low, intermediate and high levels of dietary protein on heat production of rats. E. W. Hartsook and T. V. Hershberger. J Nutrition 81:209-17 bibliog(p216-17) N '63
Iodine intake and excretion in healthy non-hospitalized subjects. R. L. Vought and others. bibliog Am J Clinical Nutrition 15: 124-32 S '64
Overnutrition. F. J. Stare. bibliog Am J Pub Health 53:1795-802 N '63
Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64
Possible mechanisms for dietary molybdenum toxicity in the rat. H. L. Johnson and R. F. Miller. bibliog J Nutrition 81:271-8 N '63
Protein and lysine as factors in the cariogenicity of a cereal diet. M. L. Dodds. bibliog J Nutrition 82:217-23 F '64
Protein reserves; evidence for their utilization under nutritional and disease stress conditions. H. Fisher and others. bibliog J Nutrition 83:165-70 Je '64
Quantitative consideration of the effect of polyunsaturated fatty acid content of the diet upon the requirements for vitamin E. P. L. Harris and N. D. Embree. Am J Clinical Nutrition 13:385-92 bibliog(p391-2) D '63
Relative potency of diets containing amino acids and proteins for promoting growth of rats. W. D. Salmon. J Nutrition 82:76-82 Ja '64
Reproductive performance of rats receiving various levels of dietary protein and fat. L. R. Richardson and others. bibliog J Nutrition 82:257-62 F '64
Role of polyunsaturated fatty acids in nutrition. F. A. Kummerow. bibliog Food Tech 18:839-43 Je '64
Selenium-75 metabolism in the gestating ewe and fetal lamb; effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64
Serum lipid levels, fat, nitrogen, and mineral metabolism of young men associated with kind of dietary carbohydrate. M. I. Irwin and others. bibliog J Nutrition 82:338-42 Mr '64
Technological basis of nutritional regimentation. M. A. Joslyn. bibliog Food Tech 17: 1536-7+ D '63
Treating obesity. Drug & Cosmetic Ind 93: 727 N '63
See also
Nutrition

DIET, Deficient

Action of vitamin A on liver homogenate oxidation of tricarboxylic acid cycle intermediates. H. F. DeLuca and others. bibliog J Nutrition 81:383-6 D '63

Activity of amino acid-activating enzymes in tissues from protein-depleted rats. S. Gaetani and others. bibliog J Nutrition 84:173-8 O '64

Adenosine triphosphatase and ATP-P$_1$ exchange in mitochondria of essential fatty acid-deficient rats. R. M. Johnson. bibliog J Nutrition 81:411-14 D '63

Biological ennoblement: improvement of the nutritive value of foods and dietary regimens by biological agencies. B. S. Platt. bibliog il Food Tech 18:662-7+ My '64

Blood cell transaminase activity in human vitamin B$_6$ deficiency. N. Raica, jr. and H. E. Sauberlich. bibliog Am J Clinical Nutrition 15:67-72 Ag '64

Carbohydrate and fat metabolism and response to insulin in vitamin B$_6$-deficient rats. A. M. Huber and others. bibliog J Nutrition 82:371-8 Mr '64

Cardiovascular lesions in experimental copper deficiency in chickens. W. W. Carlton and W. Henderson. bibliog il J Nutrition 81:200-8 N '63

Chemical pathology of acute amino acid deficiencies. H. Sidransky and others. bibliog J Nutrition 78:269-77; 82:269-76 N '62, F '64

Comparative effects of certain antioxidants on gestational performance and teratogeny in vitamin E-deficient rats. D. W. King. J Nutrition 83:123-32 bibliog(p 131-2) Je '64

Effect of degree of fatty acid unsaturation in tocopherol deficiency-induced creatinuria. L. A. Witting and M. K. Horwitt. bibliog J Nutrition 82:19-33 Ja '64

Effect of dietary α-tocopherol on protein metabolism in vitamin A-deficient rats. O. A. Roels and others. bibliog J Nutrition 84:161-6 O '64

Effect of dietary fluoride upon the magnesium calcinosis syndrome. Y. Chiemchaisri and P. H. Phillips. bibliog J Nutrition 81:307-11 D '63

Effect of protein deficiency during gestation and lactation on body weight and composition of offspring. P. S. Venkatachalam and K. S. Ramanathan. J Nutrition 84:38-42 S '64

Effect of pyridoxine deficiency upon valine incorporation into tissue proteins of the rat. A. C. Trakatellis and A. E. Axelrod. bibliog J Nutrition 82:483-8 Ap '64

Effect of thyroxine, thiouracil and ambient temperature on the utilization of vitamin A by vitamin A-deficient rats. T. A. Anderson and others. bibliog J Nutrition 82:457-62 Ap '64

Effects of dietary cholesterol on skin lesions of rats with subacute magnesium deficiencies. E. J. Olson and H. E. Parker. bibliog J Nutrition 83:73-8 My '64

Experimental human magnesium depletion. M. E. Shils. Am J Clinical Nutrition 15:133-43 bibliog(p 142-3) S '64

Free amino acids in plasma and tissues of rats fed a vitamin B$_6$-deficient diet. M. E. Swendseid and others. bibliog J Nutrition 82:206-8 F '64

Glycerol metabolism in choline-deficient rats. W. J. Longmore and A. B. Hastings. bibliog J Nutrition 83:103-6 Je '64

Gross and microscopic pathology of tocopherol-deficient mink. H. D. Stowe and C. K. Whitehair. bibliog J Nutrition 81:287-300 D '63

Influence of dietary phytol, isophytol, and squalene on the tocopherol content of liver tissue. W. J. Pudelkiewicz and others. J Nutrition 83:111-14 Je '64

Iron deficiency studies in chicks. P. N. Davis and others. J Nutrition 84:93-4 S '64

Liver lipid accumulation in isoleucine-deficient rats. R. L. Lyman and others. bibliog J Nutrition 82:432-8 Ap '64

Metabolism of 4,7,10,13,16-docosapentaenoic acid in the essential fatty acid deficient rat. B. Verdino and others. bibliog J Nutrition 83:234-8 Jl '64

Mineral utilization in the rat; effects of calcium, phosphorus, lactose and source of protein in zinc-deficient and in zinc-adequate diets. R. M. Forbes. bibliog J Nutrition 83:225-33 Jl '64

Mineral utilization in the rat; restoration of normal tissue levels of magnesium and calcium following magnesium deficiency. R. M. Forbes. bibliog J Nutrition 83:44-8 My '64

Nonspecific role of arginine in the promotion of muscular dystrophy in the chick. K. J. Jenkins and others. bibliog J Nutrition 82:415-21 Ap '64

Pantothenic acid deficiency in cats. S. N. Gershoff and L. S. Gottlieb. bibliog J Nutrition 82:135-8 Ja '64

Periodic B-vitamin supplementation of growing rats fed a vitamin-free diet. W. J. H. Stielau and J. H. Meyer. bibliog J Nutrition 81:330-4 D '63

Protein-rich foods for overcoming nutritional deficiencies; the industrial viewpoint. H. W. Bruins. il diags Food Tech 18:995-7 Jl '64

Response of the liver to prolonged protein depletion; protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

Some biochemical lesions associated with liver fat accumulation in threonine-deficient rats. D. Arata and others. bibliog J Nutrition 82:150-6 Ja '64

Studies in infantile malnutrition. G. G. Graham and others. bibliog J Nutrition 79:479-87; 81:249-54 Ap, N '63

Studies of rat liver and kidney enzymes; response to dietary protein deficiency and repletion during chronic administration of ammonium acetate and L-glutamine. J. H. Hutchinson and D. H. Labby. bibliog Am J Clinical Nutrition 14:302-9 My '64

Studies on chloride deficiency in chicks. R. M. Leach, jr. and M. C. Nesheim. bibliog J Nutrition 81:193-9 N '63

Vitamin A in serum and liver of weanling pigs fed a protein-deficient diet and fixed intakes per unit of live weight of carotene in oil. H. D. Eaton and others. bibliog J Nutrition 82:343-52 Mr '64

Vitamin B$_6$ deficiency and the initial acquisition of behavior. H. N. Sloane, jr. and B. F. Chow. bibliog J Nutrition 83:379-84 Ag '64

World-wide importance of protein malnutrition and progress toward its prevention. N. S. Scrimshaw. bibliog Am J Pub Health 53:1781-8 N '63

Zinc deficiency syndrome in the young lamb. E. A. Ott and others. bibliog il J Nutrition 82:41-50 Ja '64

DIET in disease

Clinical management of peptic ulcer; nutritional aspects; symposium. bibliog il diags Am J Clinical Nutrition 15:193-245 O '64

Current practices, research and education in diet therapy. M. Seymour. bibliog Am J Clinical Nutrition 14:233-6 Ap '64

Dietary cartoons in creating patient good will. R. S. Hoyt and E. P. Dickinson. Am J Clinical Nutrition 14:123-4 F '64

Many dimensions of diet counseling for diabetes. M. Kaufman. Am J Clinical Nutrition 15:45-9 Jl '64

Nutrition in medicine; editorial. W. A. Krehl. Am J Clinical Nutrition 15:191-2 O '64

Symposium on clinical nutrition, Chicago, April 16; abstracts of papers. Am J Clinical Nutrition 15:246-50 O '64

DIETARY surveys. See **Nutrition surveys**

DIETHYL ether. See Ethyl ether

DIETHYL stilbestrol

Effects of feeding and implanting diethylstilbestrol on characteristics of the meat from lamb carcasses. J. L. Hall and others. bibliog Food Tech 18:886-8 Je '64

DIETHYLAMINE

Spectrophotometric determination of ethyl-, diethyl-, and triethylamine in aqueous solution. G. Dahlgren. bibliog Anal Chem 36:596-9 Mr '64

DIETHYLENE glycol. See **Glycols**

DIFFERENCE equations

Analysis of laterally loaded gridworks. T. Wah. Am Soc C E Proc 90 [EM 2 no 3865]:83-106 Ap '64

Analysis of rigid frames by difference equations. H. S. Tsang. diags Am Soc C E Proc 89 [ST 2 no 3499]:127-59 Ap '63; Discussion. D. L. Dean and C. P. Ugarte. 89 [ST 5 no 3688]:351-61 O '63; Reply. 90 [ST 1 no 3812]:225-8 F '64

Error analysis and compensation with a differential digital analyzer. C. Page. Instruments & Control Systems 37:141-4 Jl '64

Finite difference analogue of an elliptic boundary problem which is neither diagonally dominant nor of non-negative type. J. H. Bramble and B. E. Hubbard. bibliog J Math & Phys 43:117-32 Je '64

Finite-difference calculation of hypersonic wakes. S. L. Zeiberg and G. D. Bleich. bibliog diag AIAA J 2:1396-402 Ag '64

DIFFERENCE equations—*Continued*

Free lateral oscillations of a supported grillage. T. Wah. diags Franklin Inst J 277:349-60 Ap '64

Lamella beams and grids. D. L. Dean. bibliog diags Am Soc C E Proc 90 [EM 2 no 3869]: 107-29 Ap '64

Overly-stable difference approximations. E. E. Zajac. bibliog J Math & Phys 43:51-4 Mr '64

Probability density function for phase-difference estimates obtained from the envelopes of the sum and difference of two sine waves. W. B. Kendall. diag IEEE Proc 52:1072 S '64

Variable-mesh difference equation for the stream function in axially symmetric flow. J. C. Lysen. AIAA J 2:163-4 Ja '64; Correction. 2:1359 Jl '64

DIFFERENTIAL equations

Algebra of systems of second-order reactions. R. Aris. bibliog Ind & Eng Chem Fundamentals 3:28-37 F '64

Analysis of a second order linear ordinary differential equation with five regular singular points. H. L. Crowson. bibliog J Math & Phys 43:38-44 Mr '64

Application of quasilinearization to boundary-layer equations. J. R. Radbill. bibliog AIAA J 2:1860-2 O '64

Approximate solution for laminar boundary layer flow. R. L. Kosson. bibliog AIAA J 1:1088-96 My '63; Discussion. 2:587-8 Mr '64

Approximations for some radical Mathieu functions. J. E. Burke. bibliog J Math & Phys 43:234-40 S '64

Asymptotic expansions for circular cylindrical shells. E. Reissner. A S M E Trans ser E 31:245-52 Je '64

Buckling of steel columns under arbitrary end loads. S. L. Lee and G. F. Hauck. bibliog diags Am Soc C E Proc 90 [ST 2 no 3872]:179-200 Ap '64

Correspondence between second-order linear differential equations and RLC series circuits. S. G. S. Shiva. diags IEEE Proc 51: 1797 D '63; Discussion. 52:866 Jl '64

Dynamic analysis of activation overpotential. L. Karasyk and others. bibliog Electrochem Soc J 111:237-41 F '64

Elementary remarks on problems of mixed type. R. M. Redheffer. bibliog J Math & Phys 43:1-14 Mr '64

Error analysis and compensation with a differential digital analyzer. C. Page. Instruments & Control Systems 37:141-4 Jl '64

Exponential solutions of a boundary value problem of the Helmholtz equation related to change in phase. H. Bueckner and G. Horvay. diags J Math & Phys 43:227-33 S '64

Free resonant oscillations of a conservative two-degree-of-freedom system. R. A. Struble and G. K. Warmbrod. bibliog diags Franklin Inst J 278:195-209 S '64

Generalized multistep predictor-corrector methods. W. B. Gragg and H. J. Stetter. bibliog Assn for Computing Mach J 11:188-209 Ap '64

Influence functions for beams on elastic foundations. A. Dodge. diags Am Soc C E Proc 90 [ST 4 no 4002]:63-101 Ag '64

Laplace transform solution of linear differential equations with variable coefficients. R. E. Vowels. bibliog diags IEEE Trans Com & Electronics p573-9 N '63

Linear time-varying circuits; matrix manipulations, power relations, and some bounds on stability. S. Darlington. bibliog diags Bell System Tech J 42:2575-608 N '63

Mathematical determination of concentration profiles in two-phase continuous countercurrent extractors. N. P. Wilburn. bibliog diag Ind & Eng Chem Fundamentals 3:189-95 Ag '64

Mathematics workshop; differential equations. J. M. Marchello. Pet Management 35:193-4 Ag; 215-16 O; 201-2 N; 209-10 D '63

Model for relating coupled power equations to coupled amplitude equations. D. T. Young. Bell System Tech J 42:2761-4 N '63

Multicomponent diffusion in semi-infinite systems. E. L. Cussler, jr. and E. N. Lightfoot. bibliog A I Ch E J 9:783-5 N '63

New approach to the stability and control of nonlinear processes. J. F. Leathrum and others. bibliog diags A I Ch E J 10:16-25 Ja '64

Nonlinear differential equations can be analyzed directly for stability. il Chem & Eng N 42:40-1 Mr 30 '64

Nonlinear fin heat transfer. M. H. Cobble. bibliog diag Franklin Inst J 277:206-16 Mr '64

Nonlinear pressure vessel stress analysis using the optimum programming approach. C. Hwang. diag AIAA J 1:2838-40 D '63

Numerical analysis. S. Kravitz. diag Product Eng 35:107-9 Jl 6 '64

Process of isolation for the evaluation of the constant of integration of linear differential equations. J. Morris. bibliog Inst E E Proc 111:1777-80 O '64

Singular solutions at boundary intersections in two dimensional quasi-linear homogeneous partial differential equations. C. W. Gear. bibliog J Math & Phys 43:100-10 Je '64

Solution of the equation of the thermal diffusion column. T. C. Ruppel and J. Coull. bibliog Ind & Eng Chem Fundamentals 3:368-73 N '64

Solutions of a class of linear partial differential equations with variable coefficients. W. F. Ames and H. de la Cuesta S. bibliog J Math & Phys 42:301-6 D '63

State-variable techniques for control systems. M. G. Rekoff, jr. diags Electro-Tech 73: 36-47 My '64

Tables for the step-by-step integration of ordinary differential equations of the first order. W. F. Pickard. Assn for Computing Mach J 11:229-33 Ap '64

Theory of direct transitions in semiconductors. R. H. Pantell and others. bibliog Bell System Tech J 43:805-16 Mr '64

Useful solution for short cylindrical shells and other applications. S. E. Moore. bibliog diags Franklin Inst J 276:490-506 D '63

Variation of parameters and the method of Kryloff and Bogoliuboff. B. Rasof. Franklin Inst J 277:266-81 Mr '64

When is a linear control system optimal? R. E. Kalman. bibliog A S M E Trans ser D 86:51-60 Mr '64

See also

Equation of motion

Integral equations

DIFFERENTIAL geometry. See Geometry, Differential

DIFFERENTIAL thermal analysis. See Thermal analysis

DIFFERENTIATION (biology)

Embryological origin of muscle. I. R. Konigsberg. il diags Sci Am 211:61-6 Ag '64

DIFFERENTIATION (mathematics)

Low-noise differentiator features fast transient response. P. Tarnoff. diags Control Eng 10:125 N '63

Numerical analysis. S. Kravitz. Product Eng 35:139-42 My 25 '64

DIFFRACTION

Effect of diffraction on the output beam of a ruby laser. M. Birnbaum and others. bibliog il IEEE Proc 52:746-7 Je '64

Spreading of laser beams due to diffraction. T. Waite and others. il IEEE Proc 52:624 My '64

Student experiment in Fresnel diffraction. P. A. Young. diags Am J Phys 32:367-9 My '64

See also

Electromagnetic waves—Diffraction

DIFFRACTION gratings

Attenuation of laser light and efficiency of optical diffraction gratings. G. W. Stroke. bibliog IEEE Proc 52:862-3 Jl '64

Attenuation of laser light by a diffraction grating. R. Gerharz. diags IEEE Proc 52:438 Ap '64

Position measuring systems compared. il Engineering 198:408 S 25 '64

Use of gratings producing moiré patterns for measuring refractive index gradients. C. J. van Oss. bibliog il diag J Sci Instr 41:227-8 Ap '64

DIFFRACTION of electrons. See Electrons—Diffraction

DIFFRACTION of X rays. See X rays—Diffraction

DIFFRACTOMETERS

Adaptation of a linear diffractometer to measure three X-ray reflections quasi-simultaneously. U. W. Arndt and others. bibliog il diag J Sci Instr 41:421-5 Jl '64

Adaptation of an X-ray diffractometer for thin film studies by total reflection of X rays. R. L. Mozzi and O. J. Guentert. bibliog diags R Sci Instr 35:75-9 Ja '64

Alignment of X-ray diffractometers. B. W. Delf. J Sci Instr 40:600-1 D '63

Computer processing of automatic diffractometer data. A. C. T. North. J Sci Instr 41:42-5 Ja '64

DIFFRACTOMETERS—*Continued*

Design and performance of a high-temperature X-ray diffractometer furnace. R. K. Scott and E. Ruh. bibliog il diag Am Cer Soc J 46:513-15 N '63

Design of single crystal diffractometers to measure a number of reflections simultaneously. D. C. Phillips. bibliog diags J Sci Instr 41:123-9 Mr '64

Diffractometer attachment for fast X-ray topography. L. S. Birks and B. K. Grant. il diag R Sci Instr 35:1075-6 Ag '64

Goniometer and X-ray diffractometer for orientation, cutting and controlled positioning of crystals. G. V. Patser and H. Chessin. il J Sci Instr 41:52-4 Ja '64

High-temperature X-ray diffractometer study of the zinc-aluminium system in the region 40-75 wt.- per cent zinc. G. R. Goldak and J. G. Parr. bibliog Inst Metals J 92:230-3 '63-64

Parafocusing diffractometry. R. E. Ogilvie. bibliog diags R Sci Instr 34:1344-7 D '63

X-ray determination of residual stresses in electrodeposited coatings. G. W. Bush and H. J. Read. bibliog diags Electrochem Soc J 111:289-96 Mr '64

Numerical control

Inhuman team sidelines lab analysts. il diags Machine Design 35:150-1 N 7 '63

DIFFUSERS

Steady fluid flow in a radial vaneless diffuser. W. Jansen. bibliog diags A S M E Trans ser D 86:607-17; Discussion. 617-19 S '64

DIFFUSERS, Air. See Air diffusers

DIFFUSION

Additivity of individual phase resistances in mass transfer operations. C. J. King. bibliog A I Ch E J 10:671-7 S '64

Adsorption rate studies; significance of pore diffusion. S. Masamune and J. M. Smith. bibliog diag A I Ch E J 10:246-52 Mr '64

Ambipolar diffusion in semiconductors. F. E. Geiger, jr. and F. G. Cunningham. bibliog Am J Phys 32:336-42 My '64

Analogue computation of diffusion controlled recombination equations. H. J. Wintle. bibliog diag J Sci Instr 41:178-9 Mr '64

Analytical study of heat and mass transfer in multiparticle systems at low Reynolds numbers. R. Pfeffer and J. Happel. bibliog A I Ch E J 10:605-11 S '64

Apparatus for the determination of diffusion coefficients in fused salts ($NaNO_3$) at high pressure. S. B. Tricklebank and others. bibliog diags R Sci Instr 35:807-10 Jl '64

Applicability of Fick's law to diffusion and sorption data. C. K. Whitney and R. L. Hamilton. Textile Res J 34:739-40 Ag '64

Application of the source theory to the solution of problems involving phase change; transient interface heat and mass transfer in multicomponent liquid-vapor system. W. J. Yang and J. A. Clark. bibliog diag A S M E Trans ser C 86:443-8 Ag '64

Axial diffusion and pressure drop of liquids in porous media. E. P. Stahel and C. J. Geankoplis. bibliog flow diag diag A I Ch E J 10:174-9 Mr '64

Band diffusion with variable parameters along flow. W. H. Li. bibliog diags Am Soc C E Proc 90 [EM 5 no 4106]:343-61 O '64

Binary diffusion coefficients in nonpolar gases. J. N. Holsen and M. R. Strunk. bibliog Ind & Eng Chem Fundamentals 3:143-6 My '64

Bonding process joins honeycomb. il diags Iron Age 192:154-5 D 5 '63

Calculation of thermal diffusion factors for the methane-n-butane system in the critical and liquid regions. W. M. Rutherford. bibliog A I Ch E J 9:841-3 N '63

Catalytic effectiveness in multicomponent and variable diffusivity systems. J. B. Butt. bibliog A I Ch E J 9:707-8+ S '63; Correction. 10:430 My '64

Catalytic selectivity in complex systems. J. B. Butt. bibliog Can J Chem Eng 42:211-15 O '64

Coefficient to characterize gaseous diffusion through monolayers at the air/water interface. J. G. Hawke and A. G. Parts. bibliog diag J Colloid Sci 19:448-56 Je '64

Contribution of interfacial resistance to band broadening in chromatography. G. J. Krige and V. Pretorius. bibliog Anal Chem 35:2009-15 D '63

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog(p608-10) Ap '64

Correlating diffusion coefficients in binary gas systems. D. F. Othmer and H. T. Chen. bibliog Ind & Eng Chem Proc Design 1:249-54 O '62; Discussion. D. S. Scott. Ind & Eng Chem Fundamentals 3:278; Reply. 279-80 Ag '64

Correlation of electrical measurements with chemical analysis in zinc- and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64

Diffused junction diodes of PbSe and PbTe. J. F. Butler. bibliog diag Electrochem Soc J 111:1150-4 O '64

Diffused junctions in GaAs injection lasers. J. C. Marinace. il diag Electrochem Soc J 110:1153-9 N '63

Diffused junctions interconnect circuits. S. B. Gray. il diags Electronics 37:70+ F 14 '64

Diffusion across dissimilar metal joints. J. F. Eckel. bibliog il diags Welding J 43:sup 170-8 Ap '64

Diffusion and glass transition in simple liquids. J. Naghizadeh. bibliog J Ap Phys 35:1162-5 Ap '64

Diffusion and reaction in porous catalysts. N. Wakao and J. M. Smith. bibliog diag Ind & Eng Chem Fundamentals 3:123-7 My '64

Diffusion and reaction in porous glass. M. R. Rao and J. M. Smith. bibliog flow diags A I Ch E J 10:293-7 My '64

Diffusion and reaction rates in the orthohydrogen conversion. M. R. Rao and others. bibliog flow diag Ind & Eng Chem Fundamentals 3:127-31 My '64

Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64

Diffusion and solubility of zinc in gallium phosphide single crystals. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:374-8 F '64

Diffusion approximation for thermal radiation in gases with jump boundary condition. R. G. Deissler. bibliog diag A S M E Trans ser C 86:240-6 My '64

Diffusion bonding advances reviewed. Steel 155:58+ O 26 '64

Diffusion coefficient for disperse dyes in doubly oriented nylon 66 is greatest in direction perpendicular to polymer chains. W. C. Carter and W. D. Jeschke. diag Chem & Eng N 42:44-6 My 4 '64

Diffusion coefficient for the nylon 6 and water system. T. Asada and S. Onogi. bibliog J Colloid Sci 18:784-92 O '63

Diffusion-damped domain-wall motion. J. F. Janak. bibliog J Ap Phys 34:3356-62 N '63

Diffusion in a polymer with lamellar morphology, polyethylene. R. K. Eby. bibliog il J Ap Phys 35:2720-4 S '64

Diffusion in crystalline solids: symposium abstracts. Am Cer Soc Bul 43:337+ Ap '64

Diffusion in the β phase of the copper-aluminium system. M. K. Asundi and D. R. F. West. il Inst Metals J 92:428-30 '63-64

Diffusion-induced dislocations in silicon. J. Washburn and others. bibliog il diags J Ap Phys 35:1909-14 Je '64

Diffusion mechanism for tungsten sintering kinetics. T. Vasilos and J. T. Smith. bibliog J Ap Phys 35:215-17 Ja '64

Diffusion mechanism of Zn in GaAs and GaP based on isoconcentration diffusion experiments. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:1960-5 Je '64

Diffusion method for the determination of silicon in inorganic materials. R. Householder and R. G. Russell. bibliog Anal Chem 36:2279-82 N '64

Diffusion 1963. F. R. Winslow. J Metals 16:589-94 bibliog(p593-4) Jl '64

Diffusion of a polyelectrolyte in aqueous solution in the absence of added salt. M. Nagasawa and H. Fujita. bibliog il Am Chem Soc J 86:3005-12 Ag 5 '64

Diffusion of chromium in nickel. S. P. Murarka and others. bibliog J Ap Phys 35:1339-41 Ap '64

Diffusion of impurities during epitaxy. W. Rice. bibliog diags IEEE Proc 52:284-99 Mr '64

Diffusion of oxygen in hafnium. J. P. Pemsler. bibliog Electrochem Soc J 111:1185-6 O '64

Diffusion of sulfur, selenium, and tellurium in gallium arsenide. T. H. Yeh. bibliog il Electrochem Soc J 111:253-5 F '64

Diffusion of xenon in ceramic oxides. D. L. Morrison and others. bibliog J Ap Phys 35:1616-22 My '64

DIFFUSION—*Continued*

Diffusion of Zn into GaAs under the presence of excess arsenic vapor. H. Rupprecht and C. Z. LeMay. bibliog il J Ap Phys 35:1970-3 Je '64

Diffusion phenomena in coastal areas; abstract. M. Fukuda and others. WPCF J 36: 322-3 Mr '64

Diffusion sintering. D. L. Johnson and I. B. Cutler. bibliog diag Am Cer Soc J 46:541-50 N '63

Diffusion studies of bovine plasma albumin at 250° with the help of Jamin interference optics. A. Chatterjee. bibliog Am Chem Soc J 86:3640-2 S 20 '64

Diffusion-thermo effects in stagnation-point flow of air with injection of gases of various molecular weights into the boundary layer. E. M. Sparrow and others. bibliog AIAA J 2:652-9 Ap '64

Diffusion through the liquid-liquid interface. W. J. Ward and J. A. Quinn. bibliog flow diag diags A I Ch E J 10:155-9 Mr '64

Diffusion today. F. R. Winslow and K. H. Osthagen. J Metals 15:855-60 bibliog(p859-60) N '63

Diffusivities of slightly soluble gases water. J. E. Vivian and C. J. King. bibliog A I Ch E J 10:220-1 Mr '64

Diffusivity of ammonium dihydrogen phosphate in aqueous solutions. J. W. Mullin and T. P. Cook. bibliog il diags J Ap Chem 13:423-9 O '63

Direct analogy between mass and heat transfer to beds of spheres. A. Sen Gupta and G. Thodos. bibliog diag A I Ch E J 9:751-4 N '63

Droplet behaviour and mass transfer rates in liquid-liquid extraction operations. J. D. Thornton. bibliog il diags Ind Chem 39: 632-6; 40:13-16 D '63-Ja '64

Dynamical theory of atom jumps in crystals. E. Pearlstein. bibliog diags Am J Phys 31: 842-7 N '63

Effect of acoustic turbulence on mass transfer at a column wall. D. I. R. Low and J. W. Hodgins. bibliog diag Can J Chem Eng 41:241-5 D '63

Effect of diffusion thermo and thermal diffusion for helium injection into plane and axisymmetric stagnation flow of air. E. M. Sparrow and others. bibliog A S M E Trans ser C 86:311-19 Ag '64

Effect of mass injection on the drag of a slender cone in hypersonic flow. H. H. King and L. Talbot. bibliog diags AIAA J 2:836-44 My '64

Effects of species diffusion and heat conduction on nonequilibrium flows behind strong shocks. W. E. Gibson and J. D. Buckmaster. bibliog AIAA J 2:1681-8 O '64

Evaluation of concentration distributions by test diffusion and junction delineation. K. M. Busen and others. il diags Electrochem Soc J 111:256-9 F '64

Evaluation of the Archard electron diffusion model. D. B. Brown and R. E. Ogilvie. bibliog J Ap Phys 35:2793-5 O '64

Experimental study of the rate of metal mixing in an open-hearth furnace. J. Szekely. bibliog diags Iron & Steel Inst J 202:505-8 Je '64

Explanation for the effect of ferromagnetism upon atomic diffusion. R. J. Borg. bibliog J Ap Phys 35:567-9 Mr '64

Film diffusion-controlled kinetics in binary ion exchange. T. G. Smith and J. S. Dranoff. bibliog diag Ind & Eng Chem Fundamentals 3:195-200 Ag '64

Flicker noise in oxide cathodes arising from diffusion and drift of ionized donors. K. M. van Vliet and R. R. Johnson. bibliog J Ap Phys 35:2039-51 Jl '64

Flow method for measuring transport properties at flame temperatures. G. Ember and others. bibliog diags A I Ch E J 10:68-73 Ja '64

Fluctuations in the local rate of turbulent mass transfer to a pipe wall. P. Van Shaw and T. J. Hanratty. bibliog diags A I Ch E J 10:475-82 Jl '64

Gas phase controlled mass transfer in two phase annular horizontal flow. J. D. Anderson and others. bibliog diags A I Ch E J 10:640-5 S '64

General exact solutions for the diffusion equations of momentum, heat, and mass in spiral viscous flows. W. J. Yang. bibliog J Ap Phys 35:1749-51 Je '64

Grain-boundary diffusion in MgO. B. J. Wuensch and T. Vasilos. bibliog diags Am Cer Soc J 47:63-8 F '64

Grain-boundary diffusion in oxides. I. Zaplatynsky. bibliog il J Ap Phys 35:1358 Ap '64

Heat and mass transfer in a turbulent bed contactor. W. J. M. Douglas. bibliog diag Chem Eng Prog 60:66-71 Jl '64

Heat and mass transport in multiparticle systems. R. Pfeffer. bibliog Ind & Eng Chem Fundamentals 3:380-3 N '64

High temperature vacuum furnace for diffusion studies. T. C. Piper and J. Dyben. il diags R Sci Instr 34:1243-5 N '63

How diffused chromium boosts permeability. Iron Age 193:71 My 28 '64

Interaction between some acid wool dyes and nonylphenol-ethylene oxide derivatives; diffusion coefficients of dyes in aqueous solutions containing surfactants. B. R. Craven and A. Datyner. Soc Dyers & Col J 79: 515-19 N '63

Ionic penetration theory for mass transfer with chemical reaction. P. L. T. Brian and others. bibliog A I Ch E J 10:727-33 S '64

Liquid film controlled mass transfer in agitated vessels. D. N. Miller. bibliog Ind & Eng Chem 56:18-27 O '64

Low temperature diffusion bonding of aluminum alloys. I. M. Barta. il diag Welding J 43:sup241-7 Je '64

Low temperature welding. G. Fitzgerald-Lee. Automobile Eng 54:74-5 F '64

Mass transfer and contactor efficiency in a stirred liquid-liquid reactor. A. J. Engel and O. A. Hougen. bibliog diag A I Ch E J 9:724-9 N '63

Mass transfer coefficients across ion-exchange membranes. A. S. Tombalakian and others. bibliog Can J Chem Eng 42:61-4 Ap '64

Mass transfer from a flat surface to an impinging turbulent jet. V. V. Rao and O. Trass. bibliog diags Can J Chem Eng 42: 95-9 Je '64

Mass transfer from solid spheres. R. B. Keey and J. B. Glen. bibliog il Can J Chem Eng 42:227-32 O '64

Mass transfer in a packed, pulsed column. J. H. Krasuk and J. M. Smith. bibliog diag A I Ch E J 10:759-63 S '64

Mass transfer in the cross-circulation drying of a foam. M. Komanowsky and others. bibliog diags Ind & Eng Chem Proc Design 3:193-7 Jl '64

Mass transfer to particles. P. Harriott. bibliog diags A I Ch E J 8:93-102 Mr '62; Discussion. 10:415+ My '64

Mathematical treatment of competitive surface and volume diffusion processes. H. Amar and J. B. Drew. diags J Ap Phys 35:533-5 Mr '64

Matrix calculation of multicomponent mass transfer in isothermal systems. W. E. Stewart and R. Prober. bibliog Ind & Eng Chem Fundamentals 3:224-35 Ag '64

Measurement and interpretation of the C terms of gas chromatography. J. C. Giddings and P. D. Schettler. bibliog diag Anal Chem 36:1483-9 Jl '64

Measurement of mass transfer coefficients in liquid-liquid mixing. J. H. Rushton and others. bibliog A I Ch E J 10:298-302 My '64

Measurement of molecular weight of lignosulfonic acids and related materials by diffusion. J. Benko. Tappi 47:508-14 Ag '64

Measurement of the diffusion coefficients of sucrose in very dilute aqueous solutions using Jamin interference optics at 25°. A. Chatterjee. bibliog Am Chem Soc J 86: 793-5 Mr 5 '64

Mechanism of gold diffusion into silicon. W. R. Wilcox and T. J. LaChapelle. bibliog J Ap Phys 35:240-6 Ja '64

Mechanism of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:1078-86 S '64

Modern diffusion bonding meets space-age needs. A. G. Metcalfe. il diags S A E J 72:53-7 Ap '64

Multicomponent diffusion in capillaries. P. L. Silveston. bibliog A I Ch E J 10:132-3 Ja '64

Multicomponent diffusion in semi-infinite systems. E. L. Cussler, jr. and E. N. Lightfoot. bibliog A I Ch E J 9:783-5 N '63

New gas chromatographic method for measuring gaseous diffusion coefficients and obstructive factors. J. H. Knox and L. McLaren. bibliog diags Anal Chem 36:1477-82 Jl '64

Oxygen ion diffusion in single-crystal and polycrystalline yttrium iron garnet. A. E. Paladino and others. bibliog il diag Am Cer Soc J 47:280-2 Je '64

Polarization characteristics of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:605-9 My '64

DIFFUSION—*Continued*

Pore diffusion is important adsorption step. J. M. Smith. Chem & Eng N 41:59-60 D 9 '63

Precision lapping device for the determination of diffusion coefficients in ceramic materials. H. J. de Bruin and R. L. Clark. il R Sci Instr 35:227-8 F '64

Prediction of efficiencies and mass transfer on a stage with multicomponent systems. H. L. Toor. A I Ch E J 10:545-8 Jl '64

Pure diffusional mass transfer in zone melting. W. R. Wilcox and C. R. Wilke. bibliog diags A I Ch E J 10:160-5 Mr '64

Random walk study of convective diffusion. G. Bugliarello and E. D. Jackson. bibliog diags Am Soc C E Proc 90 [EM 4 no 4003]: 49-77 Ag '64

Ratio of interstitial to substitutional zinc in GaAs and its relation to zinc diffusion. K. Weiser. bibliog J Ap Phys 34:3387-9 N '63

Ratio of the first to the second diffusion current of oxygen at the dropping mercury electrode; diffusion coefficient of oxygen. I. M. Kolthoff and K. Izutsu. bibliog Am Chem Soc J 86:1275-9 Ap 5 '64

Resistance to mass transfer inside droplets. A. H. P. Skelland and R. M. Wellek. bibliog diag A I Ch E J 10:491-6 Jl '64

Role of sites in dyeing. S. Rosenbaum. bibliog diag Textile Res J 34:291-302 Ap '64

Role of surface diffusion as a mixing mechanism in a barrel-mixer. B. H. Kaye and D. B. Sparrow. bibliog il diags Ind Chem 40:200-5, 246-50 Ap-My '64

Rotational diffusion of some polydisperse clay mineral sols. W. T. Granquist and C. A. Hollingsworth. bibliog J Colloid Sci 18:538-54 Ag '63

Saturation values, rates of dyeing, rates of diffusion, and migration of disperse dyes on heat-set polyester fibres. E. Merian and others. bibliog pl diags Soc Dyers & Col J 79:505-15 N '63

Self-diffusion in antimony. H. B. Huntington and others. bibliog diag J Ap Phys 35:3027-32 O '64

Self-diffusion in Pb at 300°C by an absorption tracer technique. W. N. Lawless. bibliog J Ap Phys 35:3024-6 O '64

Service-induced diffusion and nodule formation in rubber stocks. R. W. Smith and A. L. Black. bibliog il Rubber Chem & Tech 37:338-47 Ap '64

Silicon phosphide precipitates in diffused silicon. P. F. Schmidt and R. Stickler. bibliog il Electrochem Soc J 111:1188-9 O '64

Simultaneous observation of diffusion-induced dislocation slip patterns in Si with electron beam scanning and optical means. W. Czaja and G. H. Wheatley. bibliog il J Ap Phys 35:2782-3 S '64

Solid state bonding. M. J. Albom. bibliog il Welding J 43:491-4+ Je '64

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43: sup232-40 My '64

Solution of the equation of the thermal diffusion column. T. C. Ruppel and J. Coull. bibliog Ind & Eng Chem Fundamentals 3: 368-73 N '64

Solution of the linearized equations of multicomponent mass transfer. H. L. Toor. bibliog A I Ch E J 10:448-55, 460-5 Jl '64

Some effects of interfacial diffusion on the gravity coalescence of liquid drops. G. D. M. MacKay and S. G. Mason. bibliog diags J Colloid Sci 18:674-83 S '63

Some infinite sums involving zeros of $J_0(x)$. L. F. Epstein. bibliog J Res Nat Bur Stand 68B:17-26 Ja '64

Studies of the liquid phase mass-transfer term in gas chromatography. J. K. Barr and D. T. Sawyer. bibliog Anal Chem 36: 1753-9 Ag '64

Submicron sectioning technique for analyzing diffusion specimens of tantalum and niobium. R. E. Pawel and T. S. Lundy. bibliog J Ap Phys 35:435-8 F '64

Surface activity and preferential ablation. B. Steverding. bibliog AIAA J 2:549-51 Mr '64

Surface diffusion of carbon dioxide on alumina. J. B. Rivarola and J. M. Smith. bibliog flow diag diag Ind & Eng Chem Fundamentals 3:308-13 N '64

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

Test of a diffusion measuring apparatus. M. C. Bourne and C. O. Chichester. J Sci Instr 41:577-8 S '64

Theoretical and experimental investigation of the effects of horizontal barriers in thermal diffusion columns. J. R. Fleming and J. E. Powers. bibliog diags A I Ch E J 9:730-40 N '63

Theory of diffusion limited charge-transfer processes in electroanalytical techniques. R. P. Buck. bibliog Anal Chem 36:947-9 Ap '64

Theory of one-carrier, space-charge-limited currents including diffusion and trapping. M. A. Lampert and F. Edelman. bibliog diags J Ap Phys 35:2971-82 O '64

Thermal diffusion of salt solutions in single-stage cells and in continuous horizontal columns; the system copper sulfate-cobalt sulfate-water. G. T. Fisher and others. bibliog diags A I Ch E J 9:786-93 N '63

Thermal diffusion recovers helium-3 isotope. il diag Chem Eng 70:64+ N 25 '63

Transient mass transfer in a fixed bed. S. Masamune and J. M. Smith. bibliog Ind & Eng Chem Fundamentals 3:179-81 My '64

Transitional behavior for the simultaneous mass and heat transfer of gases flowing through packed and distended beds of spheres. A. Sen Gupta and G. Thodos. bibliog Ind & Eng Chem Fundamentals 3:218-20 Ag '64

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode. G. W. Castellan and others. bibliog diags Electrochem Soc J 111:1273-83 N '64

Transpiration cooling of a turbulent boundary layer in an axisymmetric nozzle. J. Librizzi and R. J. Cresci. bibliog diag AIAA J 2:617-24 Ap '64

Ultrapure hydrogen in metal processing. G. L. Matlack. flow diag il Metal Prog 85: 114-17 Mr '64

Unsteady diffusion with first-order reaction. E. N. Lightfoot. A I Ch E J 10:278+ Mr '64

Unsteady-state diffusion through a spherical shell of copra. S. M. M. Haque and P. T. Eubank. bibliog diags Food Tech 18:390-2 Mr '64

Unusual joining techniques; seminar abstracts. il Metal Prog 84:152+ N '63

Use of electrochemiluminescence in the measurement of mass transfer rates. G. S. Springer. bibliog diags R Sci Instr 35:1277-80 O '64

Use of interdiffusion to determine crystalline solubility in alkali halide systems. J. M. Short and R. Roy. diags Am Cer Soc J 47:149-51 Mr '64

Use of low-temperature deposited silicon dioxide films as diffusion masks in GaAs. S. W. Ing, jr. and W. Davern. il Electrochem Soc J 111:120-2 Ja '64

Visualisation of mass transfer rate around a sphere. K. Lee and others. il Roy Aeronautical Soc J 68:137-9 F '64

Electric analogies

Complex problems solved with models. M. A. Albright. diags Hydrocarbon Process & Pet Refiner 43:135-8 Jl '64

DIFLUORAMINE

Electrochemistry of inorganic difluoramino compounds; the mechanism of the electrochemical oxidation of difluoramine and the use of this reaction in the synthesis of alkyl difluoramines. G. A. Ward and C. M. Wright. bibliog Am Chem Soc J 86:4333-9 O 20 '64

Reaction of difluoramine with some allyl- and cyclopropylcarbinylamines. C. L. Bumgardner and J. P. Freeman. Am Chem Soc J 86:2233-5 Je 5 '64

Synthesis and reactions of difluoramine. E. A. Lawton and J. Q. Weber. bibliog Am Chem Soc J 85:3595-7 N 20 '63

DIFLUOROETHYLENE

Polyvinylidene fluoride. F. S. Ingraham and D. F. Wooley, jr. Ind & Eng Chem 56:53-5 S '64

DIGESTERS (paper making)

Current status of alkaline digester corrosion as reported by regional digester group. H. M. Canavan and Z. S. Blanchard. Tappi 47:sup 124A-7A Ag '64

Kamyr continuous digester at Canadian forest products ltd., Port Mellon, B.C. L. C. Hempsall. Tappi 46:sup 160A-3A D '63

Use of automated hinged closures for capping stationary batch digesters. A. C. Wicker. il diags Paper Ind 46:609-11 O '64

Lining

Survey of stainless steel overlay experience. W. B. Parker. Tappi 47:sup 121A-3A Ag '64

DIGESTERS (paper making)—*Continued*

Maintenance and repair

Installation and cleaning of stainless digester heater tubes. W. F. Helber and others. il diags Tappi 47:sup 160A-4A Jl '64

Numerical control

Closed-loop control computer system operates paper-mill digester. il Westinghouse Eng 24:30 Ja '64

Computer-controlled pulping details given. il Chem & Eng N 41:46-7 N 11 '63

Computer controls continuous digester in manufacture of paper pulp. W. E. Smith and E. C. Fox. il diag Automation 11:82-6 F '64

If feedback is not enough; feedforward control pulp digester at Demopolis plant of the Gulf states paper corp. flow diag il Engineering 196:726-7 D 6 '63

Pulp makers can now tailor control approach. il Chem & Eng N 42:38-9 Ag 24 '64

DIGESTION

Birefringence of plant fibrous cellulose and microcrystalline cellulose in human stools freezer-stored immediately after evacuation. T. W. Tusing and others. bibliog il J Agri & Food Chem 12:284-7 My '64

Effect of diet and digestive processes on proteolytic enzymes. J. T. Snook and J. H. Meyer. bibliog J Nutrition 83:94-102 Je '64

Effect of magnesium and sulfur upon cellulose digestion of purified rations by cattle and sheep. J. E. Martin and others. bibliog J Nutrition 83:60-4 My '64

Effect of soybean trypsin inhibitor on methionine and cystine utilization. E. Kwong and R. H. Barnes. bibliog J Nutrition 81:392-8 D '63

Exclusion of the exocrine pancreatic secretion; effect on digestibility of soybean and milk protein by baby pigs at various ages. J. C. Pekas and others. bibliog J Nutrition 82:277-86 F '64

Response of digestive enzymes to dietary protein. J. T. Snook and J. H. Meyer. bibliog J Nutrition 82:409-14 Ap '64

Studies on the digestion of soybeans. H. J. H. de Muelenaere. bibliog J Nutrition 82:197-205 F '64

DIGITAL computers. See Calculating machines —Digital computers

DIGITAL integrators. See Integrators

DIHYDRONAPHTHALENE

9,10-Dihydronaphthalene and cyclodecapentaene. J. J. Bloomfield and W. T. Quinlin. bibliog Am Chem Soc J 86:2738 Jl 5 '64

DIHYDROPYRIDAZINEDIONE

Photolysis of maleic hydrazide. A. Stoessl. bibliog Chem & Ind p580-1 Ap 4 '64

DIHYDROSTREPTOSE

L-dihydrostreptose; isolation by hydrolysis of methyl *N*-acetyldihydrostreptobiosaminide. I. J. McGilveray and J. B. Stenlake. bibliog Chem & Ind p238 F 8 '64

DIHYDROXYDIPHENYL

Polycarbonates from three-dimensional polycyclic bisphenols. W. J. Jackson, jr. and J. R. Caldwell. bibliog Ind & Eng Chem Product Res & Develop 2:246-56 D '63

DIHYDROXYDIPHENYL dimethylmethane

Quantitative analysis of bisphenol A by gas liquid chromatography. H. H. Gill. Anal Chem 36:1201-3 Je '64

Manufacture

Bisphenol A; Progil. diag Hydrocarbon Process & Pet Refiner 42:153 N '63

DIHYDROXYSTEARIC acid

Nutritional effects of dihydroxystearic acid in rats. H. Kaunitz and R. E. Johnson. bibliog Am Oil Chem Soc J 41:50-2 Ja '64

DIIMIDE. See Imides

DIIODOMETHANE

Cyclopropane synthesis from methylene iodide, zinc-copper couple, and olefins. E. P. Blanchard and others. bibliog Am Chem Soc J 86:1337-56 Ap 5 '64

DIISOCYANATES. See Toluene diisocyanate

DIKES (geology)

Layered mylonite from Beartooth Mountains, Montana. M. Prinz and A. Poldervaart. bibliog map Geol Soc Bul 75:741-4, pl 1 Ag '64

Magnetic investigations of a ring dike, Buell Park, Ariz. R. L. Dubois and W. W. Carey. bibliog maps diags Geophysics 29:553-64 Ag '64

Rock magnetism and dike classification. D. W. Strangway. bibliog maps J Geol 72:648-63 S '64

DIKETONES. See Ketones

DILATOMETERS

Fabry-Perot dilatometer. V. E. Bottom. bibliog il diag R Sci Instr 35:374-6 Mr '64

Water transport through ion exchange membranes by hydraulic pressure. P. H. Seaman. bibliog diags J Ap Chem 14:229-35 Je '64

DILUTION

Activity coefficients at infinite dilution; 2-propanol-water system. E. W. Slocum and B. F. Dodge. bibliog diag A I Ch E J 10:364-8 My '64

DIMENSIONAL analysis

Axiomatic approach to dimensions in physics. M. Parkinson. Am J Phys 32:200-5 Mr '64

Extension of Engel's views on dimensional analysis. A. A. Putnam. Engineer 217:215-17 Ja 31 '64

Flow models and scaling laws for flow through porous media. R. A. Greenkorn. bibliog il Ind & Eng Chem 56:32-7 Mr '64

DIMETHANONAPHTHALENE

Influence of hydrogen crowding on the rates of reactions; the addition of *cis* reagents to the dimethanonaphthalene ring system. J. K. Stille and D. R. Witherell. bibliog Am Chem Soc J 86:2188-92 Je 5 '64

DIMETHOXYPROPANE

Dimethoxypropane induced transesterification of fats and oils in preparation of methyl esters for gas chromatographic analysis. M. E. Mason and G. R. Waller. bibliog Anal Chem 36:583-6 Mr '64

DIMETHOXYPROPENYLBENZENE

Voltammetry and controlled potential oxidation of 3,4-dimethoxypropenylbenzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

DIMETHYLAMINE

K_D/K_H for base ionization of mono- and dimethylamine. W. Van der Linde and R. E. Robertson. Am Chem Soc J 86:4505-6 O 20 '64

DIMETHYLAMINO compounds

Cation radical of tetrakis(dimethylamino) ethylene. K. Kuwata and D. H. Geske. bibliog Am Chem Soc J 86:2101-5 Je 5 '64

Spectrophotometric determination of 2-phenylindole with *p*-dimethylaminobenzaldehyde. M. V. Gillio-Tos and others. bibliog Anal Chem 36:425-6 F '64

Spectrophotometric determination of urea, thiourea, and certain of their substitution products with *p*-dimethylaminobenzaldehyde and diacetylmonoxime. R. C. Hoseney and K. F. Finney. bibliog Anal Chem 36:2145-8 O '64

Tautomeric equilibria; substituent effects in dimethylaminoazobenzenes. M. Isaks and H. H. Jaffé. bibliog Am Chem Soc J 86:2209-13 Je 5 '64

DIMETHYLAMINO group

Cumulative influence of dimethylamino groups on the π-system properties of aromatic hydrocarbons. A. Zweig and others. bibliog Am Chem Soc J 86:4130-6 O 5 '64

DIMETHYL butane

Light naphtha isomerization; Standard oil co. (Indiana). flow diag Hydrocarbon Process & Pet Refiner 43:177 S '64

DIMETHYL compounds

Benzoic acid, dimethyl terephthalate and terephthalic acid; Mid-Century corp. diags Hydrocarbon Process & Pet Refiner 42:152 N '63

Conformational kinetic isotope effects in the racemization of 9,10-dihydro-4,5-dimethylphenanthrene. K. Mislow and others. bibliog Am Chem Soc J 86:1733-41 My 5 '64

Dimethyl acetylenedicarboxylate, indene adduct; a novel Diels-Alder reaction. K. W. Muir and others. bibliog Chem & Ind p 1581-2 S 12 '64

2,3-Dimethyl-7,7-dimethoxyquadricyclo$[2.2.1.0^{2,6}.0^{3,5}]$heptane. P. G. Gassman and others. bibliog Am Chem Soc J 86:4211-12 O 5 '64

Dimethylsilene; CH_3SiCH_3. P. S. Skell and E. J. Goldstein. Am Chem Soc J 86:1442-3 Ap 5 '64

Evidence for existence of dimethylsilene found by U.S. and U.S.S.R. chemists. Chem & Eng N 42:40-1 Ap 6 '64

Formation and capture of a reactive intermediate related to dimethylpseudoindene. J. A. Berson and M. Pomerantz. bibliog Am Chem Soc J 86:3896-7 S 20 '64

Light scattering measurements near the lower critical solution temperature of the 2,6-dimethylpyridine-water system. R. Pancirov and H. Brumberger. bibliog Am Chem Soc J 86:3562-3 S 5 '64

DIMETHYL compounds—*Continued*

Optically active 8,8′-dimethyl-1,1′-binaphthyl; the energy barrier for racemisation. Y. Badar and M. M. Harris. Chem & Ind p 1426 Ag 8 '64

Organo-iron complexes; π-pentadienyl- and π-1,5-dimethylpentadienyliron tricarbonyl cations. J. E. Mahler and R. Pettit. bibliog Am Chem Soc J 85:3955-9 D 20 '63

Stability of di- and trimethyl-1, 5-benzodiazepines and their salts. J. O. Halford and R. M. Fitch. bibliog Am Chem Soc J 85:3354-8 N 5 '63

Thermal decomposition of dimethyllaurylamine oxide. G. P. Shulman and W. E. Link. bibliog Am Oil Chem Soc J 41:329-31 Ap '64

DIMETHYL formamide

Condensation of B-aminoborazines with dimethylformamide and amine hydrochlorides. R. H. Toeniskoetter and K. A. Killip. bibliog Am Chem Soc J 86:690-4 F 20 '64

Effect of lithium ion on the mechanism of the polarographic reduction of benzil in dimethylformamide. R. H. Philp, jr. and others. Electrochem Soc J 111:1189-90 O '64

Electrochemical oxidation of formic acid in the presence of dimethylformamide. S. D. Ross and others. Am Chem Soc J 86:2745-7 Jl 5 '64

Polarographic studies in acetonitrile and dimethylformamide. S. Wawzonek and others. bibliog Electrochem Soc J 111:74-8 Ja '64

Polarographic studies in acetonitrile and dimethylformamide; behavior of α,β-unsaturated carbonyl compounds. S. Wawzonek and A. Gundersen. bibliog Electrochem Soc J 111:324-8 Mr '64

Second solvent improves extraction. D. G. Hutton. bibliog diag Hydrocarbon Process & Pet Refiner 43:138-40 Ag '64

Thionyl chloride and dimethylformamide; their application as a dehydrating agent. J. C. Thurman. bibliog Chem & Ind p752 My 2 '64

Ultraviolet spectrophotometric determination of an indicator as a measure of basic impurities in dimethylformamide. H. E. Zuagg and A. D. Schaefer. Anal Chem 36:2121-3 O '64

DIMETHYL hydrazine

Analysis

Spectrophotometric determination of unsymmetrical dimethylhydrazine employing chromotropic acid. N. V. Sutton. bibliog Anal Chem 36:2120-1 O '64

DIMETHYL sulfoxides. See Methyl sulfoxide

DINAPHTHYL

Optically active 8,8′-dimethyl-1,1′-binaphthyl; the energy barrier for racemisation. Y. Badar and M. M. Harris. Chem & Ind p 1426 Ag 8 '64

DINING rooms

Lighting

Wiring solution for a long club room. il Illum Eng 59:544 Ag '64

DINITROCHLOROBENZENE. See Chlorodinitrobenzene

DINITROPHENYL

Methanolysis of 2,4-dinitrophenyl acetate. W. R. Ali and others. Chem & Ind p809 My 9 '64

DINITROPHENYLHYDRAZINE

Decomposition of methyl oleate hydroperoxide on the celite/dinitrophenylhydrazine-hydrochloric acid column. M. M. Horikx. bibliog J Ap Chem 14:50-2 Ja '64

DINITROPHENYLHYDRAZONE

Direct quantitative isolation of monocarbonyl compounds from fats and oils. D. P. Schwartz and others. bibliog Anal Chem 35:2191-4 D '63

Gas chromatographic separation of 2,4-dinitrophenylhydrazone derivatives of carbonyl compounds. R. J. Soukup and others. bibliog Anal Chem 36:2255-6 N '64

Higher recoveries of carbonyl compounds in flash exchange gas chromatography of 2,4-dinitrophenylhydrazones. J. W. Ralls. Anal Chem 36:946 Ap '64

Paper chromatography of the 2,4-dinitrophenylhydrazones of alk-1-en-3-ones. D. A. Forss and W. Stark. bibliog Anal Chem 36:941-2 Ap '64

DINOSAURIA

Dinosaurs go to the Fair. il Pet Management 36:116 Jl '64

Riddles of the terrible lizards. G. L. Jepsen. il diag Am Scientist 52:227-46 Je '64

DIODES. See Crystal diodes; Vacuum tubes

DIOPSIDE. See Pyroxenes

DIORITE

Uranium-lead isotopic variations in zircons; a case study. L. T. Silver and S. Deutsch. bibliog maps diags J Geol 71:721-58, pl 1-2 N '63

DIOSGENIN

Crystal structure of diosgenin iodoacetate. E. A. O'Donnell and M. F. C. Ladd. diag Chem & Ind p 1984-5 D 21 '63

DIOXANE

Anion exchange behavior of alkali and alkaline earth elements in dioxane-mineral acid media. R. R. Ruch and others. bibliog Anal Chem 36:2311-15 N '64

Investigation of the dissociation phenomena of quinoline-8-selenol in water and aqueous dioxane. E. Sekido and others. bibliog Anal Chem 36:1768-71 Ag '64

Kinetics of hydrolysis of N,N′-diarylformamidines in alkaline dioxane solutions. R. H. DeWolfe. bibliog Am Chem Soc J 86:864-8 Mr 5 '64

DIOXYGEN difluoride. See Oxygen fluorides

DIP and strike, Determination of

Apparent dip calculator. R. B. Travis. diag Am Assn Pet Geologists Bul 48:503-4 Ap '64

Simplified stereographic projection solution of the two drillhole problem. G. Addie. diags Econ Geol 57:1122-6 N '62; Discussion. 58:618-21, 811-15; 59:149-50 Je-Ag '63, Ja '64

DIPEPTIDE. See Peptides

DIPHENYL

Formation of biphenyls from derivatives of benzene-1,4-diazooxide; electrophilic substitution. M. J. S. Dewar and K. Narayanaswami. bibliog Am Chem Soc J 86:2422-7 Je 20 '64

Photoracemization of biphenyls. K. Mislow and A. J. Gordon. Am Chem Soc J 85:3521 N 5 '63

Proton magnetic resonance spectra and rotational barriers of 4,4′-disubstituted biphenyls. R. J. Kurland and W. B. Wise. bibliog Am Chem Soc J 86:1877-9 My 5 '64

Relative reactivities of positions on biphenyl in the generation of reactive species by electron irradiation and in subsequent ring substitution. W. M. Hutchinson and others. bibliog Am Chem Soc J 85:3358-62 N 5 '63

Stereochemistry of doubly bridged biphenyls; synthesis, spectral properties, and optical stability. K. Mislow and others. bibliog Am Chem Soc J 86:1710-33 My 5 '64

DIPHENYLAMINE

Rapid determination of diphenylamine in apples by direct bromination and gas chromatography. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:468-70 N '63

Reaction pathways in the photochemical conversion of diphenylamines to carbazoles. H. Linschitz and K. H. Grellman. Am Chem Soc J 86:303-4 Ja 20 '64

Relationship between chemical structure and fastness to light and gas fumes of nitrodiphenylamine dyes. R. S. Asquith and B. Campbell. bibliog Soc Dyers & Col J 79:678-85; Discussion. 685-6 D '63

DIPHENYL compounds

Chemistry of ylids; diphenylsulfonium alkylides, a stereoselective synthesis of epoxides. A. W. Johnson and others. bibliog Am Chem Soc J 86:918-22 Mr 5 '64

Cis and *trans*-1,2-diphenylcyclohexane. C. G. Overberger and J. P. Anselme. bibliog Chem & Ind p280-1 F 15 '64

Demand spurs diphenyl isophthalate growth. Chem & Eng N 42:53-4 Ap 6 '64

1-Dicyanomethylene-2,3-diphenylcyclopropene ("1,1-dicyano-3,4-diphenyltriafulvene"). E. D. Bergmann and I. Agranat. bibliog Am Chem Soc J 86:3587 S 5 '64

Electrochemistry of diphenylpicrylhydrazyl. E. Solon and A. J. Bard. bibliog Am Chem Soc J 86:1926-8 My 20 '64

Generation of 2,2-diphenyldiazocyclopropane and 2,2-diphenylcyclopropylidene from the thermal decomposition of N-nitroso-N-(2,2-diphenylcyclopropyl)-urea. W. M. Jones and others. bibliog Am Chem Soc J 86:912-14 Mr 5 '64

Mechanistic and exploratory organic photochemistry; phenyl migration in the irradiation of 4,4-diphenylcyclohexenone. H. E. Zimmerman and J. W. Wilson. bibliog Am Chem Soc J 86:4036-42 O 5 '64

Mechanistic organic photochemistry; identification of the n-π^* triplet excited state in the rearrangement of 4,4-diphenylcyclohexadienone. H. E. Zimmerman and J. S. Swenton. Am Chem Soc J 86:1436-7 Ap 5 '64

DIPHENYL compounds—*Continued*

Photochemical and thermal valence tautomerization of 2,3-diphenylindenone oxide. E. F. Ullman and J. E. Milks. bibliog Am Chem Soc J 86:3814-19 S 20 '64

Photochemistry of 4,5-diphenyl-2-pyrone; a mechanistic study. A. Padwa and R. Hartman. Am Chem Soc J 86:4212-13 O 5 '64

Stable carbonium ions; nuclear magnetic resonance investigation of the diphenylcarbonium, diphenylmethylcarbonium, and phenyldimethylcarbonium ions. G. A. Olah. bibliog Am Chem Soc J 86:932-4 Mr 5 '64

Steric isotope effects; the isotope effect on the racemization of 2,2′-dibromo-4,4′-dicarboxybiphenyl. L. Melander and R. E. Carter. Am Chem Soc J 86:295-6 Ja 20 '64

DIPHENYLDIAZOMETHANE

ρ-ρ relation and the reaction of *trans*-cinnamic acids with diphenyldiazomethane the basis of the Hammett equation. J. D. S. Ritter and S. I. Miller. bibliog Am Chem Soc J 86:1507-12 Ap 20 '64

Transmission of electronic effects; the ρ-ρ relation in the reaction of phenylpropionic acids with diphenyldiazomethane. R. A. More and others. bibliog Am Chem Soc J 86:4016-18 O 5 '64

DIPHENYL methane

Electron transfer reactions involving *N*-benzohydrylidene aniline. A. G. Evans and B. D. Phillips. Chem & Ind p 1718 O 10 '64

DIPOLE moment

Calculation of the higher order dipole-dipole effect in paramagnetic crystals. P. H. E. Meijer. J Res Nat Bur Stand 68A:113-19 Ja '64

Conformational equilibria in trimethylene sulphite and related compounds. D. G. Hellier and others. bibliog Chem & Ind p 1956-7 D 14 '63

Correlation of emission processes for adsorbed alkali films on metal surfaces. N. S. Rasor and C. Warner. bibliog diag J Ap Phys 35:2589-600 S '64

Dipole moments, configuration, and conformation of tricyclo[5.1.0.$0^{3,5}$]octane derivatives and related compounds. W. D. Kumler and others. Am Chem Soc J 86:3126-30 Ag 5 '64

Far-infrared studies of intermolecular forces; dipole-dipole complexes. R. J. Jakobsen and J. W. Brasch. bibliog Am Chem Soc J 86:3571-2 S 5 '64

Identity of solutions for a horizontal electric dipole in a conducting half-space. W. B. Sisco and B. W. Porter. IEEE Proc 52:190-1 F '64; Discussion. 52:1254-5 O '64

Loss in fracture strength of borosilicate glass in vapors of differing dipole moments. J. H. Lunsford. bibliog Am Cer Soc J 47:309 Je '64

Mass and microwave spectra, structures, and dipole moments of the isomers of sulfur monofluoride. R. L. Kuczkowski. bibliog diags Am Chem Soc J 86:3617-21 S 20 '64

Microwave spectrum, dipole moment and polarizability of acetylene-d_1. J. S. Muenter and V. W. Laurie. bibliog Am Chem Soc J 86:3901-2 S 20 '64

Microwave spectrum, structure, dipole moment, and quadrupole coupling constants of 1,2,5-thiadiazole. V. Dobyns and L. Pierce. bibliog Am Chem Soc J 85:3553-6 N 20 '63

Polarization of charge-transfer bands. M. Chowdhury and L. Goodman. bibliog Am Chem Soc J 86:2777-81 Jl 20 '64

DIPROPYLENE glycol. See Glycols

DIRECT current electric generators. See Electric generators, Direct current

DIRECT current electric motors. See Electric motors, Direct current

DIRECT mail advertising. See Advertising, Mail

DIRECTION finding apparatus

Land navigation equipment. il Automobile Eng 54:64-5 F '64

New radio direction finder is loopless. il Electronics 36:38 N 29 '63

See also

Hydrophone

Radio beacons

DIRECTORIES

See also

Automotive industries—Directories

Engineering societies—Directories

Trade directories

DISABILITY

Epidemiology of disabling work injuries in Israel. K. J. Mann and others. bibliog Archives Environmental Health 9:505-13 O '64

Sponsored and the socially isolated; two disabled populations. E. A. Krause. bibliog Am J Pub Health 54:1711-25 O '64

Measurement

Evaluation of disability; panel discussion. Archives Environmental Health 8:889-97 Je '64

Measure of disability. C. M. Wylie and B. K. White. bibliog Archives Environmental Health 8:834-9 Je '64

DISABLED

See also

Handicapped

Rehabilitation

Administration of state compensation programs. A. W. Motley. Archives Environmental Health 9:107-10 Jl '64

Continuity of care plan for long-term patients. E. M. Anderson. Am J Pub Health 54:308-12 F '64

Employment of the handicapped; placement. T. Gucker, 3d. Archives Environmental Health 9:104-6 Jl '64

Evaluation of employability after psychiatric illness; panel discussion. Ind Med 33:405-13 Je '64

Health, welfare, and rehabilitation; an official agency approach from a local viewpoint. H. D. Chope. bibliog Am J Pub Health 54:98-102 Ja '64

Institute of occupational health, Helsinki, Finland. L. Noro. il Ind Med 33:400-4 Je '64

Rehabilitation of the injured worker; editorial. J. E. Linster. Archives Environmental Health 8:632-3 My '64

Sponsored and the socially isolated; two disabled populations. E. A. Krause. bibliog Am J Pub Health 54:1711-25 O '64

Stanford job rehabilitation study. Safety Maint 127:44 Ja '64

Study in the evaluation of disability and rehabilitation potential. S. Z. Nagi. bibliog Am J Pub Health 54:1568-79 S '64

Teamwork in rehabilitation; from fancy to fact. H. E. Hilleboe. Am J Pub Health 54:751-7 My '64

See also

Rehabilitation centers

DISACCHARIDES

Synthesis of *O*-α-D-glucopyranosyl-(14)-2-amino-2-deoxy-α-D-glucopyranose hydrochloride. M. L. Wolfrom and others. bibliog Chem & Ind p545 Mr 28 '64

DISARMAMENT

Is arms race key to disarmament? B. France. Electronics 37:10-11 F 14 '64

Model for the control of arms. T. L. Saaty. bibliog diag Op Res 12:586-609 Jl '64

DISASTERS

Aftermath of an emergency; Los Angeles' Baldwin Hills reservoir failure. B. R. Paris; N. B. Hume. il Pub Works 95:103-7 My '64

Mass casualties. H. J. Bennett. plan diag Ind Med 33:728-31 O '64

Psychological aspects of disaster. L. C. McGonagle. bibliog Am J Pub Health 54:638-43 Ap '64

DISCHARGE of electricity. See Electric discharges

DISCIPLINE

Dealing out discipline. J. W. Whittlesey. Chem Eng 71:160+ My 25 '64

DISCOLORATION

Nature of burned anodic coatings. A. E. Hultquist. bibliog Electrochem Soc J 111:1302-3 N '64

Sodium salicylate discoloration. Drug & Cosmetic Ind 94:916 Je '64

See also

Yellowing

DISCOUNT, Trade

Discount offered to urethane foam makers. Chem & Eng N 42:24 Ja 13 '64

DISCRIMINATION in employment

Chemical process industries manpower and the 1964 Civil rights law. H. Popper. Chem Eng 71:240+ N 9 '64

Government needles construction on bias. Eng N 172:25-6 Je 11 '64

DISEASES

Scope and methods of epidemiology. M. Terris. bibliog Am J Pub Health 52:1371-6 S '62; Discussion. 53:288-90, 1696-701 F, O '63

Scope and methods of epidemiology; editorial. A. M. M. Payne. bibliog Am J Pub Health 52:1502-4 S '62; Discussion. 53:1696-701 O '63

See also

Anemia

Arthritis

Asthma

Bones—Diseases

Diabetes

Diarrhea

Heart—Diseases

DISEASES—See also—*Continued*

Infectious diseases

Lungs—Dust diseases

Malaria

Medical geography

Mental diseases

Mortality

Rheumatic fever

Thrombosis

Tuberculosis

Causes and theories of causation

Advances in the pathogenesis of some occupational diseases. E. C. Vigliani. Ind Med 33:132-3 Mr '64

Ecological factors in nutritional disease. N. S. Scrimshaw. bibliog Am J Clinical Nutrition 14:112-22 F '64

Elusive etiologic agents of viral hepatitis. R. W. McCollum. bibliog Am J Pub Health 53:1630-4 O '63

Environmental factors involved in studying the relationship between soil elements and diseases. R. W. Armstrong. bibliog diag Am J Pub Health 54:1536-44 S '64

Epidemiology of systemic lupus erythematosus; time trend and racial differences. M. Siegel and others. bibliog Am J Pub Health 54:33-43 Ja '64

Social science theory as a source of hypotheses in epidemiological research. J. Cassel. bibliog Am J Pub Health 54:1482-8 S '64

What is the role of air pollution as a cause of disease? T. M. Gocke. bibliog Am J Pub Health 54:71-8 pt 2 Ja '64

Statistics

Clinical aspects of the college student's health. S. E. Leard. Archives Environmental Health 8:846-9 Je '64

Further statistics on silicosis among miners in Ontario. A. H. Sellers and W. C. Wheeler. bibliog Ind Med 33:89-97 F '64

Measuring community health levels. B. S. Sanders. bibliog Am J Pub Health 54:1063-70 Jl '64

Nashville air pollution study; morbidity in relation to air pollution. L. D. Zeidberg and others. map Am J Pub Health 54:85-97 bibliog(p96-7) Ja '64

DISEASES, Chronic

Chronic disease programs; more sanity and more service; editorial. I. J. Brightman. Am J Pub Health 54:845-7 My '64

Chronic disease research in industry. A. Ciocco. bibliog Archives Environmental Health 8:422-6 Mr '64

Continuity of care plan for long-term patients. E. M. Anderson. Am J Pub Health 54:308-12 F '64

Epidemiologic approach to chronic diseases. M. Terris. bibliog Archives Environmental Health 9:209-15 Ag '64

Experience with a state chronic illness law. R. P. Kandle. Am J Pub Health 54:103-7 Ja '64

Health, welfare, and rehabilitation: an official agency approach from a local viewpoint. H. D. Chope. bibliog Am J Pub Health 54:98-102 Ja '64

Social adaptation in chronic illness; a study of hemophilia. A. H. Katz. Am J Pub Health 53:1666-75 O '63

DISEASES, Industrial

Advances in the pathogenesis of some occupational diseases. E. C. Vigliani. Ind Med 33:132-3 Mr '64

Carcinoma and anthracosilicosis. T. F. Nealon, jr. bibliog Archives Environmental Health 8:882-5 Je '64

Challenge of our environment. R. E. Eckardt. bibliog Archives Environmental Health 9:127-32 Jl '64

Future of health in industry. A. Meiklejohn. bibliog il Ind Med 33:635-47 S '64

How industry approaches the problem of insuring that its processes and products are safe. J. A. Zapp, jr. Ind Med 33:625-9 S '64

Industrial pulmonary disease in India. P. K. Ghosh. bibliog il map Ind Med 33:732-7 O '64

Institute on occupational diseases acquired from animals; texts of papers. Ind Med 33:284-326 My '64

Occupation and cancer. L. Wade. bibliog il Archives Environmental Health 9:364-74 S '64

Occupational disease of farm workers. I. West. bibliog Archives Environmental Health 9:92-8 Jl '64

Respiratory irritation from toluene diisocyanate. F. C. Maxon, jr. Archives Environmental Health 8:755-8 My '64

Skin-blistering agents identified; pink-rot celery blisters pickers' hands. Food Tech 17:1423 N '63

Socioeconomic aspects of the pneumoconioses. V. M. Trasko. bibliog Archives Environmental Health 9:521-8 O '64

What are the environmental problems today? T. E. Ely. Ind Med 33:629-31 S '64

See also

Beryllium poisoning

Coal miners—Diseases and hygiene

Heart—Diseases

Hygiene, Industrial

Lead poisoning

Miners—Diseases and hygiene

Silicosis

DISHWASHING

Effectiveness of detergent solutions. L. K. Bradacs and W. Schetelig. Am Oil Chem Soc J 41:161-7 Mr '64

DISINFECTION and disinfectants

Antibacterial agent introduced by Olin; Omadine. Chem & Eng N 41:58 N 25 '63

Antibacterial and self-sanitizing cellulose products. il Tappi 47:sup 129A-30A Ja '64

Disinfectant fogging techniques. R. J. McGray and others. il Soap & Chem Spec 40:75-8+ Mr '64

Disinfectants (cont). A. H. Walters. bibliog Manuf Chem 34:539+ N '63; 35:78-80 Ja; 56-8 Je; 78-9 S '64

Effectiveness of potassium permanganate for disinfection. J. L. Cleasby and others. bibliog il Am Water Works Assn J 56:466-74 Ap '64

Engineering aspects of waterflood bacteriology. R. W. Amstutz and L. C. Reynolds. J Pet Tech 15:1073-6 O '63

Formulating with dichloroisocyanurates. J. S. Thompson. il Soap & Chem Spec 40:45-8+ Je '64

Multi-purpose concentrate ups sanitizing efficiency; Consan. Food Eng 35:118 N '63

Pine oil effective laundry disinfectant. Soap & Chem Spec 40:191 Ja '64

Skin sterilization. Drug & Cosmetic Ind 93:736 N '63

Two new stable polybrominated salicylanilides for antibacterial use in soap and detergent products. N. M. Molnar and S. Baron. bibliog Am Oil Chem Soc J 41:478-80 Jl '64

See also

Fumigants

Fungicides

Hexachlorophene

Soap, Antiseptic

Testing

Determination of quaternary ammonium compounds and similar biocides in alkaline solution. A. M. Upperton. Chem & Ind p 192 F 1 '64

Disinfection with beta-propiolactone. R. L. Alg and others. bibliog Soap & Chem Spec 40:97-100 S '64

Evaluation of hospital germicides. E. H. Spaulding. bibliog Soap & Chem Spec 40:71-4 Jl '64

Modified approach to laboratory evaluation of disinfectants. L. J. Vinson and O. M. Dickinson. bibliog il Soap & Chem Spec 40:76-80 F '64

New approach to quaternary ammonium compounds. W. J. Shibe, jr. and D. H. Hanson. bibliog Soap & Chem Spec 40:83-5+ Jl '64

DISK brakes. See Brakes, Disk

DISKS

Calculation of high-frequency inductance and current-distribution effects in annular discs. H. K. Au and E. M. Deeley. diags Inst E E Proc 111:1347-52 Jl '64

Concentrated force in an elastically embedded disk. J. Dundurs. diags A S M E Trans ser E 30:568-70 D '63

Elastic modulus of polymers from resonant flexure of clamped disks. J. Roberts. bibliog diag J Sci Instr 41:357-60 Je '64

Gray reading of binary coded disks. P. M. Will. diag J Sci Instr 41:177-8 Mr '64

Impervious graphite rupture discs. G. Sarvadi. il diags Instruments & Control Systems 37:135-7 S '64

Mechanical variable speed drive: input and output disks. il diags Plant Eng 17:103-6 N '63

Particle behavior in shear and electric fields; rigid spheroids and discs. C. E. Chaffey and S. G. Mason. bibliog diags J Colloid Sci 19:525-48 Ag '64

Power-series buildup factor formulation: application to rectangular and off-axis disk source problems. J. H. Hubbell. bibliog diags J Res Nat Bur Stand 67C:291-306 O '63

DISKS—*Continued*

Rupture discs. F. D. Marton. il Instruments & Control Systems 37:128-30 S '64

Selection and sizing of rupture units. R. L. Solter and others. bibliog il diag Instruments & Control Systems 37:131-4 S '64

Size and speed effects from lubricant breakdown in plastic compression. G. W. Pearsall and W. A. Backofen. bibliog il A S M E Trans ser B 85:329-34 N '63

DISKS, Rotating

Costs for rotating disk contactors. J. Clerk. diag Chem Eng 71:232 O 12 '64

Heat transfer from a rotating disk with a stepwise discontinuous surface temperature. N. M. Schnurr. A S M E Trans ser C 86:467-8 Ag '64

Nonlinear transverse vibrations of a spinning disk. J. L. Nowinski. bibliog diags A S M E Trans ser E 31:72-8 Mr '64

Power-function creep analysis for rotating solid disks having variable thickness and temperature. B. M. Ma. bibliog diags Franklin Inst J 277:593-612 Je '64

DISLOCATIONS in crystals. See Crystals—Dislocations

DISNEY, Walt, Productions

Imagineering: Audio-Animatronics at the World's fair. il diags Comp Air Mag 69:7-9 Je; 16-18 Jl; 10-11 Ag; 20-2 S '64

DISPENSING apparatus

Automatic liquid dispensing apparatus. J. L. Spratt and J. W. Emde. diags Anal Chem 36:2223-4 O '64

Brewer system for storing drugs in a hospital. C. D. Fruin. il Ind Electronics 2:467-9 O '64

New electrically operated aerosol dispenser. il Soap & Chem Spec 40:145 Ag '64

New package: plastics dispenser ends packaging problems. il Plastics World 22:49 F '64

Polyurethane foam dispenser. il Engineer 218:288 Ag 21 '64

Soap plant observer; weighing and dispensing devices. W. J. Beach. il diag Soap & Chem Spec 40:163-4 Ag '64

See also

Vending machines

DISPERSING agents

New deflocculant and sequestrant: Dequest. R. R. Irani and C. F. Callis. Manuf Chem 35:43-5 Jl '64

See also

Emulsifiers

DISPERSION

Cationic dispersions of dialdehyde starch. P. J. Borchert and J. Mirza. bibliog Tappi 47:525-8, 583-6 S '64

Circular dichroism and rotatory dispersion curves for helices. I. Tinoco, jr. Am Chem Soc J 86:297-8 Ja 20 '64

Dispersion and adsorption in porous media flow. R. B. Banks. bibliog diags Am Soc C E Proc 90 [HY 5 no 4022]:13-31 S '64

Dispersion strengthening of chromium; abstract. N. E. Ryan and C. S. Landau. Metal Prog 85:164+ My '64

Equilibrium value for the charge-to-mass ratio of droplets produced by electrostatic dispersion. S. A. Ryce. J Colloid Sci 19:490-2 Je '64

New deflocculant and sequestrant: Dequest. R. R. Irani and C. F. Callis. Manuf Chem 35:43-5 Jl '64

New phosphorus based sequestrant, deflocculant. R. R. Irani and C. F. Callis. Soap & Chem Spec 40:64-6+ Ap '64

Numerical solution to a dispersion equation. N. Yotsukura and M. B. Fiering. bibliog Am Soc C E Proc 90 [HY 5 no 4046]:83-104 S '64

Optical dispersion of zinc selenide. W. R. Rambauske. bibliog J Ap Phys 35:2958-9 O '64

Particle interactions in aqueous kaolinite dispersions. A. S. Michaels and J. C. Bolger. bibliog Ind & Eng Chem Fundamentals 3:14-20 F '64

Physical properties of fatty acid methyl esters. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:514-15 Jl '64

Polymer dispersions used in the building and allied industries. I. Llewellyn and L. Tasker. il Brit Plastics 37:563-6 O '64

Water dispersion in receiving waters. L. L. Falk. bibliog il diags WPCF J 35:1464-73 N '63

See also

Colloids

Particles

DISPLAY of merchandise

Plastic packaging of drugs and cosmetics; plastic display package. A. Hirsch. diags Drug & Cosmetic Ind 95:54-5+ Jl '64

DISPROPORTIONATION

Alkylbenzenes; diphenylalkanes as intermediates in fragmentation, rearrangement, and disproportionation reactions of alkylbenzenes. R. M. Roberts and others. bibliog Am Chem Soc J 86:2846-50 Jl 20 '64

Cage combination and disproportionation of $CH_3 + C_2H_5 \rightarrow$ products; the effect of solvents and temperature. P. S. Dixon and others. Am Chem Soc J 85:3344-6 N 5 '63

Carbonium ions; the disproportionation of cycloalkyl cations to cycloalkenyl cations and cycloalkanes. N. C. Deno and C. U. Pittman, jr. bibliog Am Chem Soc J 86:1744-5 My 5 '64

Disproportionation of monosodium tetraphenylethylene. J. F. Garst and others. bibliog Am Chem Soc J 86:2257-61 Je 5 '64

Electron transfer equilibria; disproportionation of monoalkali adducts of stilbene. E. R. Zabolotny and J. F. Garst. bibliog Am Chem Soc J 86:1645-6 Ap 20 '64

Olefin disproportionation; a new catalytic process. R. L. Banks and G. C. Bailey. diag Ind & Eng Chem Product Res & Develop 3:170-3 S '64

Olefins disproportionated by new catalytic process; abstract. R. L. Banks and G. C. Bailey. Chem & Eng N 42:70-1 Ap 20 '64

Thermodynamic analyses of open tube germanium disproportionation reactions. A. Reisman and S. A. Alyanakyan. bibliog Electrochem Soc J 111:1154-64 O '64

DISSOCIATION

Analytical representation of the thermodynamic functions of dissociating air. V. V. Mikhailov. AIAA J 1:2689-92 N '63

Bond dissociation energies and ion energetics in organosilicon compounds by electron impact. G. G. Hess and others. bibliog Am Chem Soc J 86:3174-5 Ag 5 '64

Determination of dissociation constants of ion pairs from kinetic data of bimolecular nucleophilic substitutions; the importance of solvation and ion pairing on the nucleophilic reactivity of the halide anions. W. M. Weaver and J. D. Hutchison. bibliog Am Chem Soc J 86:261-5 Ja 20 '64

Dissociated ions and ion pairs in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and others. Am Chem Soc J 86:2072-3 My 20 '64

Dissociation of vibrationally excited H_2^+ ions by an electric field. A. W. Ehler. bibliog diags J Ap Phys 35:2858-61 O '64

Dissociation pressures of iron-nickel oxides. G. A. Roeder and W. W. Smeltzer. bibliog il diag Electrochem Soc J 111:1074-8 S '64

Dissociative relaxation in viscous hypersonic shock layers. C. Park. bibliog diag AIAA J 2:1202-7 Jl '64

Ester, ether, and carbonyl functions as *ortho* participants in the dissociation of iodobenzene dichloride. L. J. Andrews and others. bibliog Am Chem Soc J 86:687-90 F 20 '64

Formation constants of nickel(II) and zinc(II) complexes of dithizone and related compounds. K. S. Math and others. bibliog Anal Chem 36:1762-7 Ag '64

Investigation of the dissociation phenomena of quinoline-8-selenol in water and aqueous dioxane. E. Sekido and others. bibliog Anal Chem 36:1768-71 Ag '64

Kinetics of the decomposition of BH_3CO and the bond dissociation energy of B_2H_6. M. E. Garabedian and S. W. Benson. bibliog Am Chem Soc J 86:176-82 Ja 20 '64

Low-density plasma for molecular ion dissociation. W. L. Stirling and others. bibliog diags J Ap Phys 34:3466-9 D '63

Medium effects on the dissociation of weak acids in methanol-water solvents. E. E. Sager and others. bibliog J Res Nat Bur Stand 68A:305-12 My '64

Nonequilibrium hypersonic flat-plate boundary-layer flow with a strong induced pressure field. G. R. Inger. bibliog AIAA J 2:452-60 Mr '64

Nonequilibrium, nonsimilar solutions of the laminar boundary-layer equations. A. J. Pallone and others. bibliog AIAA J 2:1706-13 O '64

Observation and identification of ion dissociation processes occurring in the drift tube of a time-of-flight mass spectrometer. W. W. Hunt, jr. and others. diags R Sci Instr 35:82-7 Ja '64

Oxide structures produced on iron-chromium alloys by a dissociative mechanism. C. T. Fujii and R. A. Meussner. bibliog il Electrochem Soc J 110:1195-204 D '63

Proposed lossless dissociating plasma for use with a DCX-type device. A. W. Ehler. bibliog J Ap Phys 35:2309-11 Ag '64

DISSOCIATION—*Continued*

Solvation of polar groups; conformational and chemical effects of the solvation of polar groups. C. D. Ritchie and A. L. Pratt. bibliog Am Chem Soc J 86:1571-6 Ap 20 '64

Study of the nitrate ion dissociation in fused nitrates. R. N. Kust and F. R. Duke. Am Chem Soc J 85:3338-40 N 5 '63

Tetraaminoethylenes; the question of dissociation. D. M. Lemal and others. bibliog Am Chem Soc J 86:2518-19 Je 20 '64

Time-of-flight mass spectrometer adapted for studying charge transfer, ion dissociation, and photoionization. W. W. Hunt, jr. and others. bibliog diags R Sci Instr 35:88-95 Ja '64

DISSOLUTION. See Solution (chemistry)

DISTANCES

Measurement

Airborne distance measurement. il Engineer 218:70 Jl 10 '64

Electronic distance measuring devices. C. M. Smith. Pub Works 95:114-15+ F '64

Errors in radar distance measurement. diag Engineering 196:766 D 13 '63

Mekometer for measuring distances of about 50 metres. R. H. Bradsell. diag Engineer 216:1019 D 20 '63

NPL mekometer for measuring distance. Engineering 197:31 Ja 3 '64

Precise measurements of distance and of the velocity of light using lasers. P. L. Bender. bibliog J Res Nat Bur Stand 68D:540-1 My '64

See also

Radar—Surveying use
Range finders

DISTILLATION

Applied distillation; the unusual problems; symposium, Pittsburgh; texts of papers. il diags Chem Eng Prog 60:49-73 O '64

Automatic capillary gas chromatography and sampling of distillation products. D. W. Grant. flow diag diag Anal Chem 36:1519-22 Jl '64

Azeotropes in gas chromatography and in extractive distillation. P. F. Tiley. Chem & Ind p 1320 Jl 18 '64

Controlled-cycling extraction. T. T. Szabo and others. bibliog il diags Chem Eng Prog 60:66-70 Ja '64

Determination of acetic acid in blood and other tissues by vacuum distillation and gas liquid chromatography. D. Lester. bibliog diag Anal Chem 36:1810-12 Ag '64

Developments in distillation technology; annual review. J. R. Fair. bibliog Ind & Eng Chem 56:61-4 O '64

Economics of waste-water distillation studied. Chem & Eng N 42:57 My 18 '64

Improved process to convert saline water. diags Chem & Eng N 42:50-1 Je 22 '64

Insecticide residues in peppermint and their distillation with peppermint oil. H. Starr and others. bibliog J Agri & Food Chem 11:482-6 N '63

Latent heats of vaporization from distillation rate data. J. G. Hanna and S. Siggia. Anal Chem 35:2208-9 D '63

Molecular distillation of thermally supersensitive liquids. W. A. Frank and H. D. Kutsche. il diag Anal Chem 36:2167-70 O '64

Process gas chromatographic distillation analyzer. J. A. Petrocelli and others. diags Anal Chem 36:1008-11 My '64

Production of fresh water from sea water without metallic transfer surfaces; thermodynamic analysis of a flash distillation method. E. L. Knuth. bibliog diags Ind & Eng Chem Proc Design 3:55-60 Ja '64

Programming batch distillation. H. G. Haring and others. bibliog Chem Eng 71:159-62 Mr 16 '64

Review of fundamental developments in analysis; distillation analysis. R. T. Leslie and E. C. Kuehner. Anal Chem 36 [no 5]:56R-70R bibliog(p65R-70R) Ap '64

Separation of stereoisomers by column fractional precipitation. W. W. Schulz and W. C. Purdy. bibliog Anal Chem 35:2044-8 D '63

Simulated distillation by gas chromatography. L. E. Green and others. bibliog il diag Anal Chem 36:1512-16 Jl '64

Some aspects of gas separation. W. H. Granville. bibliog diags Ind & Eng Chem 56:32-7 My '64

Soybean unsaponifiables; hydrocarbons from deodorizer condensates. C. D. Evans and others. bibliog flow sheet Am Oil Chem Soc J 41:406-11 Je '64

Ultrapurification by distillation. W. R. Wilcox. bibliog diag Ind & Eng Chem Fundamentals 3:81-3 F '64

Vapor-liquid equilibria at high temperatures; the selenium-tellurium system. J. C. Yannopoulos and N. J. Themelis. bibliog diag Can J Chem Eng 42:219-21 O '64

See also

Essential oils
Oil shales—Distillation
Petroleum distillation
Petroleum refining
Water, Distilled

Tables, calculations, etc.

Efficiency of fractionating columns. G. E. English and M. Van Winkle. bibliog Chem Eng 70:241-4+ N 11 '63

Equations for the average solvent composition and the interstitial column volume in column fractional precipitation methods. W. W. Schulz and W. C. Purdy. diag Anal Chem 35:2222-3 D '63

Grid-type plates; mass transfer characteristics. E. W. Grohse and J. Stark. bibliog Chem Eng Prog 59:72-8 N '63

Residence time distribution in multi-stage systems with recycle. A. Haddad and others. bibliog diags Can J Chem Eng 42:216-18 O '64

DISTILLATION, Solar

Solar energy in distillation of sea water. E. Keller. Ind & Eng Chem 56:10+ F '64

Sophisticated heat transfer upgrades solar water-desalting. Chem Eng 71:79-80 Je 22 '64

DISTILLATION apparatus

Analysis of tower flooding. A. I. Snow and W. S. Dickinson. diags Chem Eng Prog 60:64-6 O '64

Case histories of the distillation practitioner. A. E. Andersen and J. C. Jubin. diags Chem Eng Prog 60:60-3 O '64

Distillation of lubricating oils using a single-stage centrifugal molecular still. W. L. Thomas. bibliog Anal Chem 36:1047-54; Discussion. 1151-2 My '64

Experimental transient response of a pilot-plant distillation column; response of a ten-tray column. W. L. Luyben and others. bibliog A I Ch E J 10:357-64 My '64

Flooding in a two-section fractionator. W. S. Dickinson. diag Chem Eng Prog 60:73 O '64

Fraction collector for distillation columns operating at reduced pressure. M. van Swaay. bibliog il diags R Sci Instr 35:164-7 F '64

Grid-type plates; mass transfer characteristics. E. W. Grohse and J. Stark. bibliog Chem Eng Prog 59:72-8 N '63

High capacity distillation trays. E. Manning, jr. il diags Ind & Eng Chem 56:14-19 Ap '64

Linde column is latest entry in distillation. il Chem & Eng N 41:46-8 N 25 '63

Mixing on valve trays and in downcomers of a distillation column. N. E. Welch and others. bibliog diags A I Ch E J 10:373-9 My '64

Molecular steels. P. R. Watt. Review, by G. Burrows. Chem & Ind p 1998-2000 D 28 '63

New tower increases vacuum gas-oil yield. il diag Oil & Gas J 62:95-6 F 10 '64

Performance of perforated trays in dirty service. R. S. Eagle and E. J. Lemieux. bibliog il diag Chem Eng Prog 60:74-80 O '64

Pressure monitoring of packed towers. C. W. Yost and others. diag Chem Eng 70:130 N 25 '63

Radiant heat still for pure water. K. Hickman. il diag Anal Chem 36:1404-5 Je '64

Scale-up problems in a solvent-water fractionator. H. W. Martin. bibliog diags Chem Eng Prog 60:50-4 O '64

Space capsule waste treatment and potable water recovery. W. T. Ingram and others. diags WPCF J 36:38-50 bibliog(p49-50) Ja '64

Statistical correlation of the efficiency of perforated trays. R. N. Finch and M. Van Winkle. bibliog diag Ind & Eng Chem Proc Design 3:106-16 Ap '64

Control

Chromatographic control of fractionator column by three-level cascade system; composition/column temperature/steam flow. F. D. Marton. diag Instruments & Control Systems 37:123 Mr '64

Computer control of distillation reflux. diags Instruments & Control Systems 37:144 Ap '64

Controlling packed-column stills. J. S. Eckert and L. F. Walter. bibliog il diags Chem Eng 71:79-86 Mr 30 '64

DISTILLATION apparatus—Control—*Cont.*

Feed enthalpy computer control of a distillation column. diags Instruments & Control Systems 37:147 Mr '64
Feedforward analog computer control of a superfractionator. E. C. MacMullan and F. G. Shinskey. il diags Control Eng 11:69-74 Mr '64
Feedforward control of distillation columns. W. L. Luyben and J. A. Gerster. bibliog Ind & Eng Chem Proc Design 3:374-81 O '64
Multistream distillation monitors. W. H. Topham. diags Control Eng 11:65-7 Ap '64

Testing

Closed-circuit tv spies on distillation-column performance. il Oil & Gas J 62:128 Mr 2 '64
How flooding can affect tower operation. D. C. Hausch. il diags Chem Eng Prog 60:55-9 O '64

DISTILLED water. See Water, Distilled

DISTILLERIES

Equipment

Distillery plant and bonded warehouse at Harlow. il Engineer 217:1032-4 Je 12 '64

DISTRIBUTION (economics)

Better product-distribution methods can reap important savings. Oil & Gas J 62:134-6 Mr 2 '64
Effective distribution of chemicals. il map Chem Eng Prog 60:13-21 F; 23-34 Mr '64
Optimal order to serve in certain servicing problems. O. Frank. diags Op Res 12:433-40 My '64
U.S. drug industry distribution trends. H. S. Wilkinson. Drug & Cosmetic Ind 94:33+ Ja '64
See also
Jobbers

DISTRIBUTION, Electric. See Electric distribution

DISTRIBUTION function

Asymptotic joint normality of quantiles from a multivariate distribution. L. Weiss. J Res Nat Bur Stand 68B:65-6 Ap '64
Correction to the Poisson-Boltzmann equation for unsymmetrical electrolytes. L. Onsager. bibliog Am Chem Soc J 86:3421-3 S 5 '64
Distribution of specular points on a rough spherical surface. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1039-47 S '64
Generalized M/G/1 queuing process in which the first customer of each busy period receives exceptional service. P. D. Welch. bibliog Op Res 12:736-52 S '64
Intensity distribution $\frac{2R}{\sqrt{\alpha\beta}}\exp\left[-\frac{R^2}{2}\left(\frac{1}{\alpha}+\frac{1}{\beta}\right)\right] I_0\left(\frac{R^2}{2}\left[\frac{1}{\beta}-\frac{1}{\alpha}\right]\right)$ and its application to signal statistics. M. Nakagami. J Res Nat Bur Stand 68D:995-1103 S '64
Modified gaussian distributions for slightly nonlinear variables. M. S. Longuet-Higgins. bibliog J Res Nat Bur Stand 68D:1049-62 S '64
Optical network and filter synthesis using the theory of distributions. G. W. Stroke. bibliog IEEE Proc 52:855 Jl '64
Orientation distribution function of statistical segments in deformed polymer networks. R. J. Roe and W. R. Krigbaum. bibliog J Ap Phys 35:2215-19 Jl '64
Practical applications of the Weibull distribution. J. N. Berrettoni. Ind Quality Control 21:71-9 Ag '64
Probability problem arising in reliability and traffic studies. D. P. Gaver, jr. Op Res 12:534-42 Jl '64
Rayleigh distribution and its generalizations. P. Beckmann. bibliog J Res Nat Bur Stand 68D:927-32 S '64
Residence time distribution in multi-stage systems with recycle. A. Haddad and others. bibliog diags Can J Chem Eng 42:216-18 O '64
Sand transport studies with radioactive tracers. D. W. Hubbell and W. W. Sayre. bibliog il diag Am Soc C E Proc 90 [HY 3 no 3900]:39-68 My '64
Size distribution function. T. G. Callcott. bibliog J Ap Phys 35:250-1 Ja '64
Some properties and applications of singularity functions based on the theory of distributions. W. D. Pilkey. diags Franklin Inst J 277:464-97 bibliog(p495-7) My '64
Statistical inference for Rayleigh distributions. M. M. Siddiqui. bibliog J Res Nat Bur Stand 68D:1005-10 S '64
Transport properties of a simple gas. E. A. Desloge. Am J Phys 32:733-42 O '64

DISTRIBUTION of gas. See Gas distribution

DISTRIBUTION of water. See Water distribution

DISULFIDES

Chemistry of aliphatic disulfides. R. G. Hiskey and others. bibliog Am Chem Soc J 86:2010-18 My 20 '64
Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64
Influence of disulfide cross-linkages on the reaction between ninhydrin and wool. P. Mellet. bibliog Textile Res J 34:644-5 Jl '64
Inhibition of light-induced reactions by mercaptans and disulfides; benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64
Mechanical properties of permanently set and cystine reduced wool fibers at various relative humidities and the structure of wool. M. Feughelman. bibliog diags Textile Res J 33:1013-22 D '63
Mechanisms of reactions of sulfinic acids; the mechanism of the disulfide-sulfinic acid reaction. J. L. Kice and E. H. Morkved. bibliog Am Chem Soc J 86:2270-8 Je 5 '64
Radicals may cause displacement reactions by Walden inversion mechanism. W. A. Pryor and H. Guard. il Chem & Eng N 42:38-9 Mr 30 '64
Reduction of aromatic disulfides with triphenylphosphine. R. E. Humphrey and J. M. Hawkins. bibliog Anal Chem 36:1812-14 Ag '64
Role of thiol groups in the setting of wool. J. B. Caldwell and others. bibliog Textile Res J 34:627-34 Jl '64
Supercontraction in 9 *M* LiCl at 94°C of chemically modified wool fibers. H. D. Weigmann and L. Rebenfeld. bibliog il Textile Res J 33:985-92 D '63
Torsional properties of single wool fibers; disulfide reduced and permanently set wool fibers. M. Feughelman and T. Mitchell. diag Textile Res J 34:593-7 Jl '64
Walden inversion by radicals; the reaction of phenyl radicals with disulfides. W. A. Pryor and H. Guard. bibliog Am Chem Soc J 86:1150-2 Mr 20 '64

DITCHES

Four-mile-long ditch prepares Newark airport for expansion. il Eng N 172:26-8 Je 25 '64
Too much food in the effluent. F. J. Miller. il Water Works & Wastes Eng 1:40-1 Je '64

DITERPENES

Hibaene model. E. Wenkert and others. bibliog Am Chem Soc J 86:2218-24 Je 5 '64
Isomerisation of iso-type diterpene alkaloid salts to normal-type salts. S. W. Pelletier and K. Kawazu. bibliog Chem & Ind p 1879-80 N 23 '63
Partial synthesis of (—)-kaur-16-en-19-oic acid from 7-hydroxykaurenolide. R. H. B. Galt and J. R. Hanson. Chem & Ind p837 My 16 '64
Total syntheses of diterpenes and diterpene alkaloids; a tetracyclic common intermediate. S. Masamune. Am Chem Soc J 86:288-9 Ja 20 '64
Total syntheses of diterpenes and diterpene alkaloids; atisine. S. Masamune. Am Chem Soc J 86:291-2 Ja 20 '64
Total syntheses of diterpenes and diterpene alkaloids; garryine. S. Masamune. Am Chem Soc J 86:290-1 Ja 20 '64
Total syntheses of diterpenes and diterpene alkaloids; kaurene. S. Masamune. Am Chem Soc J 86:289-90 Ja 20 '64

DITHIOACETAL. See Mercaptals

DITHIOCARBAMATES

Chemistry of thiazoles and dithiocarbamates as antioxidants. L. A. Brooks. bibliog Rubber Chem & Tech 36:887-910 O '63
Metabolism of α-chloro-*N,N*-diallyl-acetamide(CDAA) and 2-chloroallyl-*N,N*-diethyldithiocarbamate(CDEC) by plants. E. G. Jaworski. J Agri & Food Chem 12:33-7 Ja '64
Metabolism of S-propyl-1-C^{14} n-butylethylthiocarbamate (Tillam-C^{14}) in rats. S. C. Fang and others. J Agri & Food Chem 12:37-40 Ja '64
Solvent extraction of platinum and palladium with derivatives of dithiocarbamic acid. J. T. Pyle and W. D. Jacobs. bibliog Anal Chem 36:1796-9 Ag '64
Spectrophotometric determination of dithiocarbamate residues on food crops. T. E. Cullen. bibliog diag Anal Chem 36:221-4 Ja '64

DITHIOLIUM compounds
Synthesis of thiothiophthens and related compounds from dithiolium salts. D. Leaver and D. M. McKinnon. bibliog Chem & Ind p461-2 Mr 14 '64

DITHIOLS
1,2-Dicyanoethylene-1,2-dithiolate chelates. J. F. Weiher and others. bibliog diag Am Chem Soc J 86:4329-33 O 20 '64
Rapid determination of molybdenum in geochemical samples using dithiol. N. J. Marshall. bibliog Econ Geol 59:142-8 Ja '64
Simultaneous spectrophotometric determination of palladium and platinum with 2,3-quinoxalinedithiol. H. F. Janota and G. H. Ayres. Anal Chem 36:138-40 Ja '64
Spectrophotometric determination of platinum with 2,3-quinoxalinedithiol. G. H. Ayres and R. W. McCrory. bibliog Anal Chem 36:133-8 Ja '64

DITHIONITES
Improvement of iron bleaching in clays through potentiometric control of sodium dithionite addition. R. F. Conley and others. bibliog Ind & Eng Chem Proc Design 3:183-8 Ap '64

DITHIOOXAMIDE
Spectrophotometric estimation of copper(I) using rubeanic acid. A. Paul. bibliog Anal Chem 35:2119-21 D '63

DITHIZONE
Di-β-naphthylthiocarbazone (dinaphthizone) compared with dithizone as an analytical reagent for the determination of trace metals in natural waters. O. W. Lombardi. bibliog Anal Chem 36:415-18 F '64
Dithizone field tests. H. E. Hawkes. Econ Geol 58:579-86 Je '63; Discussion. 59:721-2, 1178-9 Je, S '64
Formation constants of nickel(II) and zinc (II) complexes of dithizone and related compounds. K. S. Math and others. bibliog Anal Chem 36:1762-7 Ag '64
Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

DIURETICS
Ethacrynic acid diuretic. Drug & Cosmetic Ind 94:114 Ja '64
New diuretic. Drug & Cosmetic Ind 93:727+ N '63
New diuretic; MDi 193. Drug & Cosmetic Ind 95:271-2 Ag '64

DIVERSIFICATION in industry
Barnes engineering co. diversifies into instruments. il Control Eng 11:31-2+ F '64
Building an electronic capability by acquisitions. E. T. Ebersol and S. Feldman. il Electronic Ind 23:118-22+ Mr '64
Building by buying; diversification by acquisition was the way Singer co. entered the instruments industry; interview with K. M. Miller. I S A J 11:22+ O '64
Carbide buys mattress manufacturer; purchase of Englander co. moves Carbide deeper into consumer products. Chem & Eng N 42:27 Mr 16 '64
Defense cutbacks and the aerospace industry. M. L. Weidenbaum. bibliog Astronautics & Aeronautics 2:60-4 Je '64
Defense industry cuts trigger more diversity talk; IEEE convention on military electronics. Control Eng 11:26-7 O '64
Diversification; yes? no? Arkansas Louisiana gas corp. il Am Gas Assn Mo 46:6-8+ O '64
Koppers prepares for the good years. il Chem & Eng N 42:33-7 S 28 '64
U.S. Steel to increase chemicals capacity. il Chem & Eng N 42:25-6 O 5 '64

DIVING, Submarine
Deepwater problems solved by divers. M. D. Black. il Oil & Gas J 62:176-7 O 26 '64
Diving vessel Carl Straat. il diag Engineer 216:1005-6 D 13 '63
Graveyard of ships; John Pennekamp coral reef state park, Florida. B. Kofoed. il Comp Air Mag 68:22-4 N '63
Loudspeaker for silent world. il Electronics 37:45-6 Ja 24 '64
Man's race for the ocean bottom: masks and mouthpieces. S. Barnes. il diags Machine Design 36:136-41 Mr 12 '64
New developments in high pressure living. G. F. Bond. Archives Environmental Health 9:310-14 S '64
Scubadivers man a mockup to study zero-g. il Machine Design 36:14 S 10 '64
Siebe, Gorman standard diving equipment. il Engineering 196:690-1 N 29 '63
Underwater acoustic telephone for free-swimming divers. B. K. Gazey and J. C. Morris. bibliog il diags Electronic Eng 36:364-8 Je '64
U.S. naval school of deep sea diving. E. Boyd. il Comp Air Mag 69:26-7 Ap '64
See also
Bathyscaph

DIVING bells
Diving vessel Carl Straat. il diag Engineer 216:1005-6 D 13 '63
Shell puts diving saucer through its paces. il Oil & Gas J 62:63 Mr 23 '64

DIVISION
Matrix division. G. Kostro. Am Soc C E Proc 89 [EM 3 no 3538]:9-20 Je '63; Discussion. 89 [EM 5 no 3687]:107-8 O; [EM 6 no 3774]:267-9 D '63; Reply. 90 [EM 2 no 3882]:235-9 Ap '64
Multiplication and division using silicon diodes. H. L. Kahn. diags R Sci Instr 33:235-8 F '62; Discussion. L. Eisenberg. 34:592-3 My '63; Reply. 35:135 Ja '64

DIVISION of occupational health. See United States—Public health service—Division of occupational health

DIXON, Illinois

Sewerage

Progressive city looks ahead. E. Hurwitz and L. C. Pfulb. il map plan Water & Sewage Works 111:386-90 S '64

Water supply

Progressive city looks ahead. E. Hurwitz and L. C. Pfulb. il map plan Water & Sewage Works 111:386-90 S '64

DOAN, Leland I.
Chemical industry medal for 1964. por Chem & Eng N 42:35-6 S 21 '64

DOCKS
£5 million dock scheme speeds turn-round. il Engineering 196:822 D 27 '63
Graving dock becomes launch way. il diags Eng N 173:161 S 17 '64
Precision berthing by television. Engineer 217:244 Ja 31 '64
See also
Coal docks
Dry docks
Marinas
Piers
Terminals

DOCUMENTATION
See also
Indexing

DODECANE
Electrochemical chlorination of n-dodecane. F. N. Ruehlen and others. diag Electrochem Soc J 111:1107-9 O '64

DODECYL sulfate
Interaction of dodecyl sulfate anions of low concentration with alkaline bovine serum albumin. R. Lovrien. bibliog Am Chem Soc J 85:3677-82 N 20 '63

DOGS
Amino acids in dog blood and gut contents after feeding zein. E. S. Nasset and others. bibliog J Nutrition 81:343-7 D '63
In vivo intestinal transport of calcium and water from solutions recycled through healed gut loops in dogs. C. F. Cramer. bibliog J Nutrition 84:118-24 O '64
Long-term tolerance study of two fat emulsions for intravenous nutrition in dogs. B. Edgren and others. bibliog il Am J Clinical Nutrition 14:28-36 Ja '64
Selection of liver profile tests for use in dogs. M. T. Johnson and others. bibliog Archives Environmental Health 8:675-80 My '64

DOLLS, Plastic
Air and dollmaking at Model Plastics. R. L. Moxey. il Comp Air Mag 69:20-3 Je '64

DOLOMITE
Davon, inc. operates two adjacent quarries and plants. W. E. Trauffer. il Pit & Quarry 57:84-8+ Ag '64
Pre-Trenton sedimentation and dolomitization, Cincinnati Arch province; theoretical considerations. W. L. Calvert. bibliog maps Am Assn Pet Geologists Bul 48:166-90 F '64
Reactivity of lime and related oxides; production and hydration of dolomitic lime. D. R. Glasson. bibliog J Ap Chem 14:121-8 Mr '64
Relation of temperature distribution to ground-water movement in carbonate rocks of central Israel. R. Schneider. bibliog map diag Geol Soc Bul 75:209-15 Mr '64

DOLPHINS
Optical device to contact dolphins. il diag Electronics 36:46+ N 22 '63
Pattern recognizer probes dolphin speech. F. Shunaman. il diags Radio-Electronics 35:40-2, cover Ap '64

DOMES
St Sophia's structure: a new assessment of the half-domes. R. L. Van Nice. il plan diags Arch Forum 121:45-9 Ag-S '64
Steel-framed dome roofs arena. il Eng N 173:22 S 24 '64
Timber dome spanned 240 ft until guying cables parted. il Eng N 173:14 O 29 '64
Transparent dome. il Plastics World 22:52-3 My '64
World's largest domed stadium takes shape in Texas. il Civil Eng 34:74 Ja '64

DOMES (geology). See Geology, Structural

DOMES, Aluminum
Aluminum dome supports 94-ton load. il Eng N 172:84 Ap 2 '64
Huge aluminum dome forms unobstructed storage area; bauxite storage shed at Rocky Point, Jamaica. il Mod Metals 20:72 Ap '64
Stadium domed roof completed. il Eng N 173:64 Ag 6 '64

DOMES, Concrete
Construction of a buttressed dome segment; Culver City high school auditorium. A. R. Nasser. il diags Am Concrete Inst J 61:509-20 My '64
Home is a dome, for prairie tv. il Eng N 172:71 Mr 19 '64
Prestressed units form inverted dome. il diags Arch Rec 136:198-201 O '64
Record-span dome roofs air-conditioned stadium. il diag Eng N 172:26-8+ F 27 '64
Thin shell petal design for dome roof. il Engineering 198:245 Ag 21 '64

DOMES, Plastic
Construction of two large plastic bubbles. il diags Arch Rec 136:257-8 S '64
Methacrylate dome brings daylight illumination to lecture hall. il diags Mod Plastics 42:132 S '64
Plastics dome: air supported nylon structure houses delicate electrical equipment. il Plastics World 22:14 F '64
Spiral generation: foam board construction saves time and costs. il Plastics World 22:28-9 O '64
Two air-supported structures for athletics. il diag Arch Rec 135:209-10 Mr '64

DOMES, Steel
Welded steel frames world's largest clear-span domed stadium. T. B. Jefferson. il diags Welding Eng 49:55-7 Je '64

DOMESTIC animals

Diseases and pests

Formulation of pet products. J. Greenberg. Soap & Chem Spec 39:126-7+ D '63

DOMESTIC appliances
See also
Electric apparatus and appliances, Domestic
Gas appliances, Domestic
Laundry equipment, Domestic
Washing machines

DOMESTIC architecture. See Architecture, Domestic

DONNAN equilibrium
Application of the Donnan equilibrium to the distribution of dye and inorganic ions between wool and solutions. J. Delmenico and R. H. Peters. bibliog Textile Res J 34:207-19 Mr '64

DOOR fittings
See also
Locks and keys

DOORS
See also
Automobiles—Doors

Painting and finishing

Polyester finish; veneered doors. J. E. Crowe. il Ind Finishing 40:62-4+ Je '64

DOORS, Mechanically operated
Automatic door stacking gives clear entrance. il Engineering 196:782 D 20 '63

DOORS, Steel

Manufacture

Welding time cut 50 per cent on T-1 steel with new flux-cored filler metal. il Welding J 42:894-5 N '63

DOPPLER effect
Detection of the transverse Doppler effect with laser light. R. Gerharz. IEEE Proc 52:218 F '64
Determination of the preliminary orbits of artificial lunar and planetary satellites. P. E. Koskela. bibliog diags AIAA J 2:917-24 My '64
Doppler in aircraft. G. Thomas. il diags Ind Electronics 2:55-7, 117-19 F-Mr '64
Doppler installation in the Trident. il Engineer 217:620 Ap 3 '64
New optical Doppler radar system. Franklin Inst J 277:624-5 Je '64
Physical nature of the Doppler-frequency spectrum from a rotating planet and its effect on detection. F. O. Willoughby. bibliog diags IEEE Proc 52:30-1 Ja '64
Spectral measurement techniques in planetary radar. G. Pettengill. bibliog diags J Res Nat Bur Stand 68D:1025-9 S '64
Unique Doppler current and direction meter. Franklin Inst J 277:375 Ap '64

DORMANCY (plants)
Concept of seed dormancy. R. D. Amen. Am Scientist 51:408-24 bibliog(423-4) D '63

DORMITORIES
College dormitory goes all electric. Elec World 160:126 D 16 '63
Dormitory rooms. il plans diags Prog Arch 45:169-73 Mr '64
Midwest preparatory school in a monastic mood. il plans Arch Forum 119:108-13 D '63
New work, a new style: fortress for Seattle. il plans Arch Forum 121:140-1 Ag-S '64
Nine-story university dormitory served by two on-site chillers. H. B. Swygert. il Air Cond Heat & Ven 60:100-1 N '63
Precast frame has column-free interior. il diag Eng N 172:77-8 My 21 '64
P/A eleventh annual design awards; residence hall for the School of science and engineering, Univ. of Calif. il plans diags Prog Arch 45:136-7 Ja '64
P/A eleventh annual design awards; senior residences for the Dana Hall schools, Wellesley, Mass. il plan diag Prog Arch 45:132-3 Ja '64

DOUBLE refraction. See Refraction, Double

DOUBLE sideband system. See Radio transmission—Double sideband system

DOUGH mixers
Efficient circulation system improves tank cleaning at Koester bakery. flow diag il diag Food Eng 36:56-7 F '64

DOUGHERTY, Elmer L.
E. L. Dougherty selected as 1964 Cedric K. Ferguson medalist. por J Pet Tech 16:1021 S '64

DOWELS
New approach to dowel sizing for tower foundations. A. A. Brown. diags Hydrocarbon Process & Pet Refiner 43:153-6 Ap '64

DOYLE, F. P.
Worshipful society of apothecaries' award. por Chem & Ind p425 Mr 7 '64

DOYLE, Robert
Memorial. S. P. Ellison, jr. por Am Assn Pet Geologists Bul 48:731-2 My '64

DRAFT
See also
Chimneys
Dampers
Mechanical draft

DRAFTING room practice
Drafting technique cuts map production time one-third. il Pub Works 94:154 N '63
Drawing gear tooth profiles graphically. il diags Engineering 197:219 F 7 '64
How to organize your design drafting function. D. W. Karger and R. G. Murdick. Product Eng 35:80-3 Ja 6 '64
Modified numerals for engineering drafting; Aperture card systems. W. C. Cadwell. il Automotive Ind 131:86 O 15 '64
Panoramic design technique cuts engineering costs. il Eng & Min J 165:168 Je '64
Photo-drafting catches on big. F. B. Campbell. il Pet Management 36:88-90 Ja '64
Techniques used by the geology department, Geco mines limited. R. C. E. Bray. plans diags Can Min & Met Bul 57:269-78 Mr '64
True-position dimensioning. H. A. Pohs. diags Machine Design 36:124-8 Jl 2 '64
See also
Machinery—Design
Symbols
Templets

Standards

Drawings and the art of communication. il diags Engineering 197:244-5 F 14 '64; Discussion. 197:374-5 Mr 13 '64
Geometric and positional tolerance symbol system. H. A. Pohs. diags Machine Design 36:102-8 Ja 30 '64

DRAFTING rooms

Equipment

Automated drafting developed by Badger. diag Chem Eng Prog 60:32 My '64
Automatic drafting and plotting units produce drawings from digital information. il Iron & Steel Eng 41:166 Ap '64

DRAFTING rooms—Equipment—*Continued*

Automatic drafting machines and new drafting boards. il diag Product Eng 35:38-9 Jl 6 '64

Automatic drafting on low-cost unit. il Iron Age 193:148 Mr 12 '64

Complex diagrams produced with keyboard machines. il diag Westinghouse Eng 24:78 My '64

Computers speak with pictures. diags Product Eng 35:66-77 S 14 '64

Fords revolutionize their plan copying. il Engineering 197:154 Ja 24 '64

IBM ties computer to drawings. il Eng N 173:22 N 5 '64

Modern look in graphic data processing. il Automation 11:22-3 Jl '64

New approaches to computer-aided design. D. K. Merris. il diags Product Eng 35:84-7 F 3 '64

New drafting machine produces high quality graphic display. Franklin Inst J 277:509 My '64

Step closer; car drawings by computer. il Steel 155:139-40 N 2 '64

DRAGLINES. See Excavating machinery

DRAIN tile

Design of tile drainage for arid regions. H. Y. Hammad. bibliog diag Am Soc C E Proc 90 [IR 3 no 4036]:1-15 S '64

Design of tile drainage for falling water tables. J. van Schilfgaarde. bibliog diag Am Soc C E Proc 89 [IR 2 no 3543]:1-11 Je '63; Discussion. 89 [IR 4 no 3746]:53-64 D '63; 90 [IR 1 no 3848]:119-25 Mr '64; Reply. 90 [IR 3 no 4028]:71-3 S '64

Experiment on flow through smooth tile joints. A. F. Pillsbury and others. Civil Eng 34:67 O '64

DRAINAGE

Corrugated PVC pipe for land drainage. il Engineering 196:563 N 1 '63

Design of tile drainage for arid regions. H. Y. Hammad. bibliog diag Am Soc C E Proc 90 [IR 3 no 4036]:1-15 S '64

Design of tile drainage for falling water tables. J. van Schilfgaarde. bibliog diag Am Soc C E Proc 89 [IR 2 no 3543]:1-11 Je '63; Discussion. 89 [IR 4 no 3746]:53-64 D '63; 90 [IR 1 no 3848]:119-25 Mr '64; Reply. 90 [IR 3 no 4028]:71-3 S '64

Determination of run-off coefficients. F. W. MacDonald and A. Mehn, jr. map Pub Works 94:74-6 N '63

Drainage and best use of urban land. L. H. Antoine, jr. il Pub Works 95:88-90 F '64

Efficiency of pumping from small circular sumps. A. M. Shahroody and J. R. Davis. bibliog diag Am Soc C E Proc 90 [IR 1 no 3817]:1-8 Mr '64

Experiment on flow through smooth tile joints. A. F. Pillsbury and others. Civil Eng 34:67 O '64

Metropolitan drainage planning in Los Angeles County. M. E. Salsbury. maps Am Soc C E Proc 89 [SA 6 no 3739]:37-46 D '63; Discussion. D. Van Sickle. 90 [SA 4 no 4006]:101-2 Ag '64

Mexico City drains storm water to where farmers can use it. il Eng N 173:28-9 O 22 '64

Separation of evapotranspiration and deep percolation. L. S. Willardson and W. L. Pope. bibliog Am Soc C E Proc 89 [IR 3 no 3638]:77-88 S '63; Discussion. 90 [IR 1 no 3848]:139-41 Mr; [IR 2 no 3941]:55-7 Je '64

Spacing of drains by an approximate method. G. Dagan. bibliog diags Am Soc C E Proc 90 [IR 1 no 3824]:41-66 Mr '64

Waste water units for individual buildings and houses. A. P. Bernhart. bibliog il diags Eng J 47:19-25 Jl '64; Discussion. 47:94+ O '64

See also

Airports—Drainage
Ditches
Dredging
Irrigation
Mine drainage
Sewerage

DRAINAGE (physical geography)

Altitude, lithology, and the fall zone in Connecticut. R. F. Flint. bibliog maps diag J Geol 71:683-97 N '63

Effect of stream-ordering technique on Horton's laws of drainage composition. K. L. Bowden and J. R. Wallis. bibliog diags Geol Soc Bul 75:767-73 Ag '64

DRAINAGE, House

Building drainage details; drawings with text. B. L. Sturdevant and W. C. Battey. Air Cond Heat & Ven 60:95-9 N '63

How long will copper drainage tube last? J. E. McGinness, jr. Air Cond Heat & Ven 61:85-6 Ap '64

See also

Sinks

DRAPERY

Outlook bright for home furnishing fabrics. il Mod Textiles Mag 45:15-20 F '64

DRAWING frames

New device permits controlled heating of draw roll. G. A. Pettit. il Mod Textiles Mag 45:25-6 Ag '64

Pin-wheel pattern for drawing; flexible, efficient, easy to run. D. R. Linville. il diag Textile World 114:52-5 Ag '64

DRAWING of metals. See Metal drawing

DRAWINGS

Construction's artist goes to the Fair. il Eng N 173:74-5 Jl 2 '64

See also

Engineering drawings

DREDGES

Alexander Stephen's dredgers. il Marine Eng/Log 69:16C Mr '64

California firm uses dredge-barge setup to dredge and deliver sand. il Pit & Quarry 57:44 S '64

Crawlerless crane turns dredge. il Eng N 171:109 N 14 '63

Dredge rids river of silt from irrigation water. il Eng N 172:38-9 My 14 '64

Dual dredging-screening system used in Louisiana sand and gravel operation. W. E. Trauffer. il Pit & Quarry 56:126-30 F '64

Hopper-type dump barges converted to dredges at Bethlehem Steel's yard. il Marine Eng/Log 69:44A-44B S '64

How silencers made dredge's invisible smokestacks possible. Marine Eng/Log 69:112+ S '64

How to dredge with a barge. il Eng N 173:41 S 3 '64

Hydraulic winches on dredger. il Engineer 217:908 My 22 '64

Portable dredge solves problem of silting in remote reservoir. il diag Power Eng 68:46-7 F '64

River of iron ore. T. M. Rohan. il Iron Age 192:117 D 5 '63

DREDGING

Direct pump-out cuts costs; dredging the Delaware River shipping channel. il Eng N 171:46 N 28 '63

See also

Dredges

Costs

Fast current hampers dredging; unit prices. Eng N 173:59 O 22 '64

DRIED eggs. See Eggs, Dried

DRIED food. See Food, Dried

DRIED fruit products. See Fruit products, Dried

DRIED milk. See Milk, Dried

DRIFT

Rapid curved-path method for weathering and drift corrections. L. Duska. bibliog il diags Geophysics 28:925-47 D '63

Void ratios and bulk densities as means of identifying pleistocene tills. D. J. Easterbrook. bibliog map Geol Soc Bul 75:745-50, pl 1-2 Ag '64

DRILLING and boring (earth and rocks)

Adapt drill to dig post holes. il Elec World 161:123 Ap 20 '64

Air motor drives earth auger. il Eng N 172:112 My 21 '64

Better drill logging by gamma rays and resistivity; Peabody coal co. B. J. Archer, jr. and M. Warrick. Coal Age 69:79-81 S '64

Blast hole production with the air-fuel jet burner. D. R. Boynton. il diags Can Min & Met Bul 57:927-31 S '64

Bored 'n poured piles, Texas style. il Roads & Sts 107:60-1+ Mr '64

Concrete cutoff wall drilled down 250 ft. I. V. Galbiati. il diags Civil Eng 33:59-61 N '63

Deepest 72-in diameter rotary drilled shaft sunk for AEC by Loffland bros. il Min Eng 16:68-70 S '64

Deepwater-positioning problems solved for Mohole rig. L. C. Rogers. il diag Oil & Gas J 62:196-7+ S 21 '64

Diver operates crawler drill in water deep as 90 ft. il Eng N 172:18-19 Ja 30 '64

Drilling large diameter holes for shafts. E. C. Bromley and J. W. Bawcom. bibliog il Min Cong J 50:27-32 Ag '64

For Mohole project; drilling engineers turn up new ideas. Oil & Gas J 61:24-5 D 23 '63

DRILLING and boring (earth and rocks)—*Continued*

Grout holes sunk through debris by overburden drilling method. il Roads & Sts 107:43 My '64
Hard rock mole teams up with raise borer to help develop Homer-Wauseca iron mine. R. E. Cannon. il diags Eng & Min J 165:86-9 Mr '64
High-pressure drilling; Campbell limestone co. R. C. Alfred. il Pit & Quarry 56:122-4+ Ap '64
Horizontal drilling and shooting with large diameter holes; Stonefort coal mining co. C. E. Bratten. il Min Cong J 50:70-3 Je '64
How to boost open-pit productivity; materials preparation, the key to productivity. B. R. Henderson. il plans Eng & Min J 164:74-81 N '63
ICBM silos excavated like postholes. il Eng N 171:99 N 14 '63
Large diameter drill holes in overburden blasting. W. G. Piper. il Min Cong J 49:33-5 N '63
Mohole dig demands floating control system in deep water. diag Elec Eng 82:739 D '63
Mohole project. il Anal Chem 36:sup31A-40A Ja '64
NSF opposes an intermediate drill ship for Mohole. Oil & Gas J 61:97 N 11 '63
New approach to Mohole envisions series of holes. Oil & Gas J 62:112-13 Ja 27 '64
New drilling procedure born in extensive research; jet piercing, chambering, percussion drilling combined. il Pit & Quarry 56:129-31 N '63
New tools for Mohole due rigid tests. diags Oil & Gas J 62:86-7 S 21 '64
Place of inclined drilling in open-pit mining. N. O'Brien. bibliog il Pit & Quarry 56:88-94 F '64
Slender tower handles undersea drilling. il diag Eng N 172:92 Ap 2 '64
Sonic piledriver takes test as fast, soft-ground tunneler. il Eng N 172:16-17 Ja 9 '64
Tunnel borer and shaft drill teamed at American gilsonite co.'s hydraulic mining operation. il diag Eng & Min J 165:68-70 Jl '64
Use of shaped charges in mining. C. F. Austin. il diag Min Cong J 50:56-61 Jl '64
Vertical drilling and new bulk AN/fuel oil blasting system; Enos coal mining div. of Interlake iron corp. J. R. Kerr. il Min Cong J 50:56-9 S '64
Wedging diamond drill holes by an improved method. J. Vanebo and O. Logan. diags Eng & Min J 165:104-5 My '64
What's involved in the new steam play. C. J. Lawrence. il maps Oil & Gas J 62:60-3 F 10 '64
See also
Core sampling
Gas, Natural—Well drilling
Mining methods
Petroleum—Well drilling
Rock drills
Tunnels and tunneling
Wells

Tables, calculations, etc.

Pendulation of pipes and cables in water; Mohole deep-sea drilling project. F. J. Lampietti. diags A S M E Trans ser B 86:299-304 Ag '64

DRILLING and boring (metal working, etc.)

Are you drilling holes you could be piercing? T. F. Brolund. diags Am Mach 108:134-5 Ap 13 '64
Basic tips on gun drilling. B. A. Holmstrom. il diags Am Mach 108:78-81 Ag 17 '64
Drilling malleable iron; reference book sheet. H. J. Heine. Am Mach 108:151+ Ja 20 '64
Drilling malleable iron; reference sheet. Tool & Manuf Eng 52:93-4 Je '64
Drilling small ultra-precise holes. il diags Am Mach/Metalworking Manuf 107:85-7 N 25 '63
Fast drilling of malleable iron. Iron Age 193:72-3 Mr 5 '64
Fundamentals of boring. R. T. Berg. diags Am Mach 108:91-106 S 14 '64 (reprints 50c)
How we'll make holes in materials tomorrow. il Steel 154:46-57 My 18 '64
Interest booms for gun machining. R. H. Eshelman. il Iron Age 192:57 N 21 '63
Laser beams drill holes. Franklin Inst J 277:96-7 Ja '64
Laser; new competitor for drilling tiny holes? D. L. Williams. il S A E J 72:60-4 My '64
Metal removed in drilling; with nomographs; reference book sheet. T. G. Hicks. Am Mach 108:83 Ja 6 '64
Sizing small holes to millionths. J. E. Lovret. il diags Am Mach/Metalworking Manuf 107:110-11 O 14 '63
Study provides data on drilling malleable iron. Foundry 92:291+ Ap '64
See also
Broaching
Grooving

DRILLING and boring machinery

Bore-drilling machine solves connecting-rod and cap drilling problem. il Mach 70:138 Ja '64
Boring machine mills undulating grooves. il Tool & Manuf Eng 53:62 S '64
Broaching and drilling machine. il Engineer 217:668 Ap 10 '64
Cam compensator for jig borer lead-screws. F. Zagar. il Mach 70:128 N '63
Deckel universal milling and boring machine. il Mach 70:135 Ag '64
Drill 0.35-mm holes automatically. R. Le Grand. il Am Mach 108:58-9 Ag 31 '64
Drillpress serves to trim drawn shells. C. McLaughlin. diag Am Mach 108:80 F 3 '64
Elevating-arm radial drilling, boring, and tapping machine. il Mach 71:172 O '64
Fine boring machine. il Engineer 216:920 N 29 '63
Fundamentals of HSS cutting tools; twist drills. il Am Mach 108:152-3 Ap 13 '64
Giant-size Turret-Dex drilling machine. il Mach 70:206 Je '64
Giddings & Lewis horizontal precision jig borers have a milling capacity of up to 20 hp. il Am Mach 108:139 Mr 16 '64
Gun drilling goes six-feet deep. G. Dabringhaus. il Iron Age 194:122-3 O 8 '64
Gun-drilling machine and coolant system. il Mach 17:170-1 O '64
High-pressure MEGAflo coolant system for gun drilling. il Mach 70:163 Je '64
Innovations in machining break gun-boring records. L. W. Collins, jr. il diags Mach 70:100-3 Ag '64
Machine profitable on short run work. il Steel 154:93-4 Mr 23 '64
Moving columns maintain fixed drilling angle. il diag Tool & Manuf Eng 53:56 O '64
Precision boring and honing of differential carriers. il Mach 70:110 D '63
Shipyard universal boring mill. il Engineering 197:745 My 29 '64
Single machine eliminates 140 tooling arrangements. il Steel 154:53 Ja 20 '64
Six-inch diameter spindle floor type boring machine. il Engineering 196:535 O 25 '63
Snyder special double-end trunnion machine for processing steering knuckles. il Mach 70:160 Je '64
Something new; tunnel honing. C. Emerson. il diag Am Mach 108:62-3 My 25 '64
Special drilling and tapping machine. il Mach 70:182 Jl '64
Stiff spindle speeds cutting. R. H. Eshelman. il diag Iron Age 193:78-9 Je 25 '64
Stub-boring machine with milling capabilities. il Mach 70:169-70 Ag '64
Tool clamping for a horizontal boring machine spindle. C. A. Sparkes. il diags Engineer 218:182-4 Jl 31 '64
Turret-Dex floor type traveling-column drilling machine. il Mach 70:149 F '64
US joins a revolution in drill making. il Am Mach 108:60 Ag 3 '64
Universal steadying attachment and boring-bar. il Mach 70:172-3 Ag '64
Vee blocks give drilling unavoidable precision. A. W. Young. il Iron Age 192:77-9 D 19 '63
Versatile two-way drilling machine. il Mach 70:180 Mr '64
What's new in boring and drilling? Am Mach/Metalworking Manuf 107:116-21 N 11 '63
Wickman introduces Hurth line of machine tools. il Mach 70:164-5 Je '64
Your 0·000,025 in drill is here. il Engineering 198:282 Ag 28 '64
Zero-clearance bars for precision machining of cam and crank bores. il Mach 70:107-8 D '63
See also
Boring bars
Broaching machines
Reamers

Control

Automatic cycling hydraulic turret drilling and tapping machine. il Mach 70:204 Je '64
Drill 0.35-mm holes automatically. R. Le Grand. il Am Mach 108:58-9 Ag 31 '64
Flow control features drill-press feed unit. il Mach 71:159 S '64
Gun drill is four times faster. J. M. Kemp. il Am Mach 108:53-4 F 3 '64

DRILLING and boring machinery—*Continued*

Manufacture

Drill making gets a new twist. il Iron Age 194:119 Ag 27 '64

Drills make drills that make drills. il Am Mach/Metalworking Manuf 107:73 N 25 '63

Firm adds roll forging to drillmaking methods; Vermont tap & die co. il Steel 155:35 Ag 17 '64

German methods make American drills. il Mach 71:146-7 S '64

Morse twist drill & machine co. celebrates 100 years of cutting tools. il Mach 71:157 S '64

Numerical control

Edlund numerically controlled drilling machine with larger table travel and work area. il Mach 70:190 Je '64

Eight-axis nc boring mill machines huge turbine frame. il Mach 71:154-6 S '64

Gamble on n/c pays off. il Am Mach 108:65 Ja 6 '64

G&L jig borer combines precision with heavy production capacity. il Mach 70:160-1 Je '64

Jig borer with digital read-out. il Engineering 197:200 Ja 31 '64

Leland-Gifford three-axis n/c drilling machine. il Mach 70:162-3 Ag '64

Lennox three-axis numerically controlled machine. il Mach 70:133 Ja '64

Mechanical blocks for programmed machining. M. A. Keasal, jr. il Control Eng 10:127 N '63

Mechanically controlled programmable drill. il Product Eng 35:68-9 F 17 '64

Miniature deep-hole drill controlled by computer. il Tool & Manuf Eng 52:119-20 Ap '64

Numerically controlled milling/drilling machine. il Automation 10:93 N '63

Numerically controlled multiple-spindle straight-line drilling machine. il Mach 71:209-10 O '64

Programme controlled turret drill. il Engineer 218:224 Ag 7 '64

Tape control cuts boring costs. il Iron Age 194:66 Jl 9 '64

Tape control speeds drilling of printed-circuit cards. il Mach 71:134 S '64

Tape-controlled drilling machine. il Engineer 217:625 Ap 3 '64

Tape-controlled sliding-head drilling machine boosts productivity and improves accuracy. il Mach 71:148-9 S '64

Tape-controlled tool-changer drilling machine. il Mach 70:157 My '64

Tape-controlled turret drilling machine. il Engineer 217:432 Mr 6 '64

Turret-Dex drilling machine with three-axis numerical control. il Mach 70:203 Ap '64

DRILLING ships. See Ships, Oil well drilling

DRILLS, Oil well

Big grinder pays off on small shafts. il Iron Age 192:156 D 5 '63

Buckling of drill pipe in an inclined hole. D. B. Bogy and P. R. Paslay. bibliog diags A S M E Trans ser B 86:214-18; Discussion. 219-20 My '64

Drilco develops tool to steer bits. diags Oil & Gas J 62:49 S 28 '64

Electrodrill passes important tests. G. Kuhne. il Pet Management 36:106+ F '64

Full-scale experiments on jets in impermeable rock drilling. R. Feenstra and J. J. M. Van Leeuwen. bibliog il J Pet Tech 16:Trans 329-36 Mr '64

Hardfacing unit salvages oil drilling Kellys. il Welding Eng 49:54+ Mr '64

Hinton drilling stamps its ok on aluminum drill pipe. C. Reed. il Oil & Gas J 61:68-9 D 23 '63

New drill collars fight wall sticking. il diags Oil & Gas J 62:85 Ja 13 '64

New method extends life of drill collars. E. McGhee. il Oil & Gas J 61:190-1 N 11 '63

New turbocorer developed for use in Mohole. D. Sims. Oil & Gas J 62:81 Mr 2 '64

Outer-tube stabilization improves efficiency of diamond coring. L. W. Short and B. M. Bumgardner. diags Oil & Gas J 62:120-1 O 26 '64

Present and future trends in rotary drilling technology. L. L. Payne. bibliog il diags Inst Pet J 50:173-8; Discussion. 178-9 Ag '64

Studies of drillability and drilling bits in the U.S.S.R. J. Delacour. J Pet Tech 15:1080-6 O '63

Tin plating wins a fresh outlet in oil. il Chem Eng 70:96+ D 9 '63

Turbodrill cuts hole costs for Union. T. A. Armstrong. il map Oil & Gas J 62:50-1 Jl 20 '64

DRINKING vessels

Look what's happening to plastics beverageware. il Plastics World 22:22-5, cover Ag '64

See also

Cups, Plastic

DRIVE (power transmission). See Power transmission

DRIVE-in and curb services

Indiana bank is automobile oriented. il plan Arch Rec 135:118-19 Ja '64

DRIVERS. See Automobile drivers

DRIVERS, Motor truck. See Motor truck drivers

DRIVEWAYS

Driveway approaches. A. W. Huelsman. diags Civil Eng 34:57-9 My '64

DROP hammers. See Hammers, Drop

DROPPING mercury electrode. See Polarography

DROPS

Acoustical liquid drop holder. A. R. Hanson and others. bibliog il R Sci Instr 35:1031-4 Ag '64

Angels, insects, and weather. A. H. LaGrone and others. bibliog il J Res Nat Bur Stand 68D:895-901 Ag '64

Behavior of evaporating electrically charged droplets. A. Doyle and others. diag J Colloid Sci 19:136-43 F '64

Calculated temperature histories of vaporizing droplets to the critical point. P. R. Wieber. bibliog AIAA J 1:2764-70 D '63

Computation of surface tension and of contact angle by the sessile-drop method. D. N. Staicopolus. bibliog J Colloid Sci 17:439-47; 18:793-4 Je '61, O '63

Device for producing droplet samples of suspensions for electron microscopy and especially for quantitative particle assay. W. J. Harris. diag J Sci Instr 41:636-7 O '64

Direct-contact heat transfer between a single drop and an immiscible liquid medium. S. Sideman and H. Shabtai. il diag Can J Chem Eng 42:107-17 bibliog(p 115-17) Je '64

Drop size from a liquid jet in a longitudinal electric field. R. L. Peskin and R. J. Raco. bibliog diag AIAA J 2:781-2 Ap '64

Drop size sensor. L. Bennett and J. Stalder. diags R Sci Instr 35:17-21 Ja '64

Droplet behaviour and mass transfer rates in liquid-liquid extraction operations. J. D. Thornton. bibliog il diags Ind Chem 39:632-6; 40:13-16 D '63-Ja '64

Droplet formation from a liquid film over a rotating cylinder. S. I. Cheng and J. Cordero. il AIAA J 1:2597-601 N '63

Effect of abrupt concentration changes on the motion of free drops. R. S. Valentine and W. J. Heideger. il Can J Chem Eng 42:43-4 F '64

Equilibrium value for the charge-to-mass ratio of droplets produced by electrostatic dispersion. S. A. Ryce. J Colloid Sci 19:490-2 Je '64

Experimental investigation on the freezing of droplets of water and of aqueous solutions, with particular reference to the influence of the solute. Y. Uzu and others. bibliog diags J Colloid Sci 18:697-704 O '63

Floating drops and liquid boules. K. C. D. Hickman. bibliog il diags Ind & Eng Chem 56:18-31 Je '64

Photomicrography of electrically sprayed heavy particles. C. D. Hendricks, jr. and others. bibliog il diags AIAA J 2:733-7 Ap '64

Production of uniform size drops at controllable frequency and spacing from a vibrating capillary. B. J. Mason and J. L. Brownscombe. il J Sci Instr 41:258 My '64

Resistance to mass transfer inside droplets. A. H. P. Skelland and R. M. Wellek. bibliog diag A I Ch E J 10:491-6 Jl '64

Some effects of interfacial diffusion on the gravity coalescence of liquid drops. G. D. M. MacKay and S. G. Mason. bibliog diags J Colloid Sci 18:674-83 S '63

Source of uniform-sized liquid droplets. J. M. Schneider and C. D. Hendricks. il diags R Sci Instr 35:1349-50 O '64

Technique for studying the combustion of small single drops of liquid fuel. M. T. Monaghan. bibliog il diags J Sci Instr 41:206-9 Ap '64

DROUGHTS

Comparison of probability distributions in the analysis of drought flows. D. J. O'Connor. bibliog map Water & Sewage Works 111:180-5 Ap '64

Quenching the big thirst. J. H. Murdock. il Pub Works 95:118-21 F '64

DRUG factories

Equipment

Contract maintenance aids production reliability at large pharmaceutical manufacturing plant. R. J. Lawrie. il Elec Constr & Maint 62:100-3 N '63

Equipment leasing in the drug and cosmetic industry. il Drug & Cosmetic Ind 94:672-4 My '64

Pharmaceutical engineering. H. W. Fowler. Manuf Chem 35:63-4+ Ap '64

Reinforced-plastic equipment in pharmaceutical manufacturing. W. A. Kessel. il Drug & Cosmetic Ind 95:43-4+ Jl '64

Winthrop-expansion in Newcastle. il Manuf Chem 34:568+ D '63

Management

Cost reduction in pharmaceutical operations. W. E. Keppler. Am Perfumer 79:31-3 Jl '64

Management forum. F. Chilson. Published in monthly numbers of Drug and cosmetic industry

Quality control

How chemical dehumidification serves a pharmaceutical plant. T. M. Shea. il Heating-Piping 36:166-8 Ja '64

Quality control; its present position. L. C. Miller. Drug & Cosmetic Ind 94:668+ My '64

Some uses of statistical control charts in the pharmaceutical industry. H. L. Breunig. bibliog Ind Quality Control 21:79-86 Ag '64

What FDA expects good manufacturing practices to be. R. E. Duggan. Drug & Cosmetic Ind 93:623+ N '63

DRUG habit

Congenital neonatal narcotics addiction; a natural history. T. Rosenthal and others. bibliog Am J Pub Health 54:1252-62 Ag '64

Drug addiction. A. D. MacDonald. Chem & Ind p2005-6 D 28 '63

Experimental narcotic addiction. J. R. Weeks. il diags Sci Am 210:46-52 Mr '64

Model continuum for a community-based program for the prevention and treatment of narcotic addiction. A. M. Freedman and others. Am J Pub Health 54:791-802 My '64

DRUG packages

Filling pharmaceutical aerosols. il Manuf Chem 35:83-4 My '64

Plastic packaging of drugs and cosmetics. A. Hirsch. diags Drug & Cosmetic Ind 94:686-7+, 848-9+; 95:54-5+ My-Jl '64

Report finds drug and cosmetic packaging missing mark. Drug & Cosmetic Ind 94:369 Mr '64

Serving physicians and surgeons. il Plastics World 22:38-9 Ap '64

DRUG research. See Pharmaceutical research

DRUG stores

Lighting

Lighting creates sales-building atmosphere in pharmacy. il Elec Constr & Maint 63:105 F '64

Lighting increases sales at Hope's drug store, Coatesville, Pa. il Elec Constr & Maint 63:109 Je '64

Lighting prescription for a drug store; Northside pharmacy in Ithaca, N.Y. il Illum Eng 58:sup24A N '63

DRUG trade

Business trends in the U.S. drug industry. D. M. Kiefer. il Chem & Eng N 42:68-83 Ag 10; 114-31+ Ag 17 '64

Dimensions of the ethical drug market. R. Hensel. Drug & Cosmetic Ind 93:796-8+ D '63

Drug industry, the next decade. R. A. Hardt. Drug & Cosmetic Ind 93:795+ D '63

Drugs and cosmetics; a growing partnership. Drug & Cosmetic Ind 94:819-20+ Je '64

Ethical drug market research. R. L. Hull. Drug & Cosmetic Ind 93:615-17+ N '63

How to export your product and increase your profit. H. L. Goldstein. Drug & Cosmetic Ind 95:176+ Ag '64

New products parade 1963. P. de Haen. Drug & Cosmetic Ind 94:337-40+ Mr '64

Peace corpsman asks industry for help. D. Goldsmith. Drug & Cosmetic Ind 93:791 D '63

U.S. drug industry distribution trends. H. S. Wilkinson. Drug & Cosmetic Ind 94:33+ Ja '64

Will imported drugs undermine the quality of pharmaceutical research? il Drug & Cosmetic Ind 94:825+ Je '64

Worldwide ethical drug markets. R. C. Fenton. il Drug & Cosmetic Ind 93:624-6+ N '63
See also
Drug stores

Advertising

Challenges to drug advertising. J. A. Baruch. Drug & Cosmetic Ind 94:202+ F '64

How to revitalize old products. M. Rubin. Drug & Cosmetic Ind 94:174-5+ F '64

Story of Contac. P. Godfrey. Drug & Cosmetic Ind 95:41-2+ Jl '64

Laws and regulations

Colombia drug probe still hangs fire. Chem & Eng N 42:47-8 Ap 13 '64

Drug firms win suit on generic labeling. Chem & Eng N 42:24 My 11 '64

Drug makers dispute FDA rules. Chem & Eng N 42:33-4 Ag 3 '64

Drug regulations; the last quarter century. C. F. Hagan. Drug & Cosmetic Ind 93:792-3+ D '63

New drug act. Drug & Cosmetic Ind 94:347-8+ Mr '64

Richardson-Merrell find $80,000; research scientists put on probation. Chem & Eng N 42:26-7 Je 15 '64

Wallace & Tiernan indicted in drug case. Chem & Eng N 42:17-18 Ag 31 '64
See also
United States—Food and drug administration

Statistics

Drug and cosmetic operations 1963. J. Kalish. Drug & Cosmetic Ind 94:657-9 My '64

Facts and figures for the chemical process industries; medicinal chemicals. A. Poulos. Chem & Eng N 42:90-6+ S 7 '64

Pharmaceutical industry 1962. Drug & Cosmetic Ind 94:493-6 Ap '64

Brazil

Drug dilemma in Brazil. H. L. Hoffenberg. il Drug & Cosmetic Ind 94:171-3+ F '64

Canada

Canada attracts drug research labs. il Chem & Eng N 42:24-5 Mr 30 '64

Marketing pharmaceuticals in Canada. H. Barnet. Drug & Cosmetic Ind 94:504+ Ap '64

1963 review/64 preview; pharmaceuticals. Can Chem Process 48:48+ Ja '64

Great Britain

Current expenditure £8 million; 6th annual survey of the British pharmaceutical industry. il Manuf Chem 35:59-62 My '64

Winthrop-expansion in Newcastle. il Manuf Chem 34:568+ D '63

Greece

Market in Greece for drugs and cosmetics. J. Cross. Manuf Chem 35:56+ Ja '64

Hungary

Drugs from Hungary. il Manuf Chem 35:64 Jl '64

Netherlands

Growing fast; Holland's drug industry. il Manuf Chem 34:516-17 N '63

DRUGS

Advancing therapy. Published in monthly numbers of Drug and cosmetic industry

Advent of antiviral drugs; abstract. E. Herrmann, jr. Ind Med 33:707 O '64

Aerosol review, 1964; medical products. Manuf Chem 35:132-4 Mr '64

Approved new drugs. Drug & Cosmetic Ind 93:302-3, 805 S, D '63

Dimethyl sulfoxide, medicinal and pharmaceutical aspects. L. H. Block. bibliog Drug & Cosmetic Ind 95:342+ S '64

Drugs in lipid metabolism; symposium. bibliog Am Oil Chem Soc J 41:697-716 O '64

Effect of a skeletal muscle relaxant on muscle extensibility. E. F. Hoerner and others. bibliog Ind Med 32:516-20 D '63

Hydrocolloids in cosmetic and pharmaceutical dispersions. B. N. Patel. Drug & Cosmetic Ind 95:337-41+, 509-12 S-O '64 (to be cont)

Iron in medicine. il Manuf Chem 35:44-6 Ap '64

Medicine's debt to the sulphonamide group. F. L. Rose. bibliog Chem & Ind p858-65 My 23 '64

Pharmaceutical aspects of dextromethorphan hydrobromide, N.F. XI; safe non-narcotic, effective antitussive. L. Magid. bibliog Drug & Cosmetic Ind 93:620-2+ N '63

DRUGS—*Continued*

Squibb opens radiopharmaceutical plant. il Chem & Eng N 42:27 Je 15 '64

See also

Analgesics
Antacids
Aspirin
Chemotherapy
Drug trade
Isonicotinic acid
Marihuana
Medicines, Proprietary
Narcotics
Pharmaceutical laboratories
Pharmaceutical research
Pharmacopoeias
Pharmacy
Quinine
Triparanol

Administration and dosage

About sustained release. V. M. Hermellin. Drug & Cosmetic Ind 94:36-7+ Ja '64

Brewer system for storing drugs in a hospital. C. D. Fruin. il Ind Electronics 2:467-9 O '64

Court decisions; RX sold without prescription. H. N. Morse. Drug & Cosmetic Ind 94:220 F '64

How reliably can industrial dispensaries rate the same drug given in disguised forms. A. J. Snyder. Ind Med 33:661-2 S '64

MAO reactions. Drug & Cosmetic Ind 94:601-2 Ap '64

Analysis

Determination of diazepam (valium) in blood by gas liquid chromatography. J. A. F. de Silva and others. bibliog flow diag Anal Chem 36:2099-105 O '64

Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64

Determination of 3-(p-chlorophenoxy)-1,2-propanediol 2-carbamate in 3-(p-chlorophenoxy)-1,2-propanediol 1-carbamate by nuclear magnetic resonance. G. Slomp and others. Anal Chem 36:375-80 F '64

Polarography of aminoethanethiosulfuric acid and 2-aminoethaneselenosulfuric acid. W. Stricks and R. G. Mueller. bibliog Anal Chem 36:40-4 Ja '64

Laws and regulations

See Drug trade—Laws and regulations

Patents

Drug patent proposals threaten industrial patents. Chem & Eng N 41:29 N 18 '63

Government patent infringement. Drug & Cosmetic Ind 95:165+ Ag '64

Legal action on tetracycline piles up. Chem & Eng N 42:21-2 Jl 20 '64

Patents and trademarks. T. Cifelli, jr. Published in monthly numbers of Drug and cosmetic industry

Testing

FDA begins effectiveness review of drugs. J. F. Sadusk, jr. Chem & Eng N 42:30 O 19 '64

Future proprietary drugs. M. L. Tainter. Drug & Cosmetic Ind 95:334-6+ S '64

How reliably can industrial dispensaries rate the same drug given in disguised forms. A. J. Snyder. Ind Med 33:661-2 S '64

Presentation of the medical aspects of guanidine salts. A. Shansky. bibliog Am Perfumer 78:29-30 D '63

Quality control; its present position. L. C. Miller. Drug & Cosmetic Ind 94:668+ My '64

Report on drug safety. il Drug & Cosmetic Ind 95:498-9+ O '64

Tests for sterility of pharmaceutical products. A. D. Russell and R. J. Gilbert. bibliog diags Manuf Chem 35:42-6+ F '64

DRUGS, Veterinary. See Veterinary medicine

DRUMMOND, Jack Cecil

Sketch. A. M. Copping. por J Nutrition 82:2-9 Ja '64

DRY cells. See Electric batteries

DRY cleaning. See Cleaning

DRY docks

Dock crane installation. il Engineer 218:595 O 9 '64

Graving dock converted into launchingway. il diags Marine Eng/Log 69:46A-46B O '64

DRY ice

Dry ice speeds milling cuts. il Iron Age 192:84 N 28 '63

Two advanced chiller-freezers guard product quality. il Food Eng 36:107 Ap '64

DRYING

Continuous drying. G. C. Bowmer. bibliog il diags Chem & Ind p 1638-48 S 26 '64

Drying air with activated alumina under adiabatic conditions. R. J. Getty and W. P. Armstrong. bibliog diag Ind & Eng Chem Proc Design 3:60-5 Ja '64

Drying and dryers; annual review. P. Y. McCormick. bibliog Ind & Eng Chem 56:57-60 O '64

Electrolysis in anhydrous hydrogen fluoride; drying of hydrogen fluoride by electrolysis. H. H. Rogers and others. bibliog diags Electrochem Soc J 111:701-4 Je '64

Heavy paste dispersion drying system. S. J. Baran. diags Ind & Eng Chem 56:34-6 O '64

Humidity drying of plastic clay. B. W. Lancaster and E. R. McCartney. bibliog il diags Am Cer Soc J 47:291-6 Je '64

See also

Concrete—Drying
Dehumidification
Drying apparatus
Gas, Natural—Dehydration
Paint—Drying
Paper drying
Sewage sludge—Drying
Textile drying
Wood pulp—Drying

DRYING (crops)

See also

Grain—Drying
Hay drying

DRYING (fruits and vegetables)

Dehydration process developed in India. Food Tech 18:1193 Ag '64

Unsteady-state diffusion through a spherical shell of copra. S. M. M. Haque and P. T. Eubank. bibliog diags Food Tech 18:390-2 Mr '64

DRYING agents

Desiccant dryer routs many plant problems. il Steel 155:92+ Jl 27 '64

Desiccant is changed during regeneration. Oil & Gas J 62:137-8 O 19 '64

Drying with fixed-bed desiccants. J. B. Fleming and others. bibliog il Chem Eng 71:69-76 Ag 31 '64

Economic balance shows when to change out desiccant. Oil & Gas J 62:116 O 19 '64

See also

Silica gel

DRYING apparatus

Design for button welding saves 70 per cent in man-hours. il Welding J 43:609 Jl '64

Double dryer ups asphalt plant. Eng N 172:145 Ja 23 '64

Drying and dryers; annual review. P. Y. McCormick. bibliog Ind & Eng Chem 56:57-60 O '64

Dynamics of a radiant dryer with countercurrent air flow. M. E. Findley and M. W. Maloney. diags Ind & Eng Chem Proc Design 3:89-96 Ap '64

Finned tube dryer speeds tumbling freeze-drying. V. F. Kaufman and others. il Food Eng 36:58-61 Jl '64

Flash-drying system for lime mud. P. J. Hannan. Tappi 47:sup 162A-3A F '64

Freeze drying faces the future. R. V. Hughson. bibliog il diag Chem Eng 71:155-60 Jl 20 '64

Freeze-drying vacuum equipment. J. R. Barrett and others. diag Food Tech 18:38-41 Ja '64

Mass transfer in the cross-circulation drying of a foam. M. Komanowsky and others. bibliog diags Ind & Eng Chem Proc Design 3:193-7 Jl '64

Mechanical and chemical action dries compressed air. W. E. Hill. diag Iron & Steel Eng 41:175 Jl '64

Modern soap dryer. flow diag diag Soap & Chem Spec 40:145+ Jl '64

Modified moving bed grain dryer. Y. K. Ahn and others. diags Ind & Eng Chem Proc Design 3:96-100 Ap '64

Optimum design of a moving bed grain drier by dynamic programming. Y. K. Ahn and others. bibliog diags Can J Chem Eng 42:117-20 Je '64

Self-contained unit speeds vacuum-drying research. il Food Eng 36:100 F '64

Spray drying of antibiotics. il Manuf Chem 35:47 My '64

Spray drying today. il Plastics World 22:12-13 Jl '64

U.S. freeze-dryer in Sweden; FMC's horizontal cylinder. il Food Eng 35:54-6 N '63

See also

Centrifuges
Clothes dryers
Electric heating, Industrial
Hair dryers
Ovens
Paper drying

DRYING apparatus—*Continued*

Testing

Determining pressure drop and refrigerant flow capacities of liquid line driers. E. Jones. diags ASHRAE J 6:70-4+ F '64

Lab evaluates dryer performance. il Eng N 172:180 Je 18 '64

Textiles

Dryer efficiency boosted at Clearwater. il Textile Ind 128:101-2 Jl '64

Economical way to boost drying speed on existing equipment. G. W. Garland. Textile Ind 128:124 Ja '64

See also

Textile drying

DRYING oils

See also

Tall oil

DUBLIN

Architecture

Dublin hotel is tightly planned. il plan Arch Rec 136:176 O '64

New work, a new style; sinewy drum for Dublin. il plans Arch Forum 121:144-7 Ag-S '64

DUCKS

Ducks on the wastewater pond. J. N. Dornbush and J. R. Anderson. bibliog il Water & Sewage Works 111:271-6 Je '64

DUCTILE iron. See Cast iron

DUCTILITY

Bend test for measuring the strain limit of surfaces. A. F. Mohrnheim. bibliog diags Plating 50:1094-9 D '63

Beryllium as a structural material. S. Gelles and others. bibliog il diags J Metals 15:843-8 N '63

Brittle metals turn ductile in hydrodynamic forming. il diags Iron Age 193:68-70 My 28 '64

Composition controlled, high-strength, ductile, tough, steel weld metals. J. Heuschkel. bibliog il diags Welding J 43:sup361-84 Ag '64

Ductile materials. R. I. Jaffee. bibliog il diags Chem Eng 71:91-8 Ja 6 '64

Effect of low-temperature precompression on the ductility of iron. A. W. Sleeswyk and others. bibliog il Iron & Steel Inst J 202:330-4 Ap '64

Effect of nitride-formers upon the ductile-brittle transition in chromium. F. Henderson and others. bibliog il Inst Metals J 92:111-17 '63-64

Forging against back pressure. R. M. Cogan and G. L. Campbell. il diags Am Mach/Metalworking Manuf 107:105-7 O 14 '63

How ductile is molybdenum tubing? L. C. Shaheen. il Metal Prog 85:112-14 My '64

Hydrogen absorption and ductility of mild steel after pickling or cathodic treatment. K. Sachs and M. Odgers. bibliog Metallurgia 69:105-13 Mr '64

Japanese experiments with ductile cast iron pay off. il Steel 154:49 Ja 20 '64

Making chrome plate more ductile: UBAC (Udylite bright acid copper). il Am Mach 108:94 S 28 '64

Structure related to hot ductility of three-austenitic steels. J. Barford and J. Myers. bibliog il Iron & Steel Inst J 201:1025-31 D '63

Tungsten alloy has good ductility. il Materials in Design Eng 60:121 N '64

Welding characteristics of commercial columbium alloys. J. M. Gerker and J. M. Faulkner. bibliog il Welding J 42:sup 84-96 F '63; Abstract. Metal Prog 85:161A+ My '64

DUCTS. See Air pipes; Electric conduits; Water pipes

DUMPING appliances

Aluminum dump trucks bring operating economies. il Mod Metals 20:82 S '64

Dump trailer weighs less, carries more. il Welding Eng 48:48-9 D '63

KW-Dart's Diesel powered dump trucks. il Eng N 172:55 My 14 '64

23-ton dumptruck. il Engineer 218:142 Jl 24 '64

See also

Car dumpers

DUNES, Sand. See Sand dunes

DUNNAGE

Pneumatic dunnage. C. E. Davis. il Comp Air Mag 68:26-8 N '63

DUNSTAN, Albert Ernest

Obituary. por Inst Pet J 50:81-2 Mr '64

Obituary. H. M. Langton. por Chem & Ind p883-4 My 23 '64

DUODENUM

Ulcers

Blood pepsin as marker of susceptibility to duodenal ulcer disease. J. C. Niederman and others. bibliog Archives Environmental Health 8:540-6 Ap '64

DUO-SOL process. See Lubricating oils—Manufacture

DUPLICATING machines

Copy machine designed around plastics. il Materials in Design Eng 58:89 D '63

Eight plastics combine to crack a metal market. il Mod Plastics 41:100-2+ Ap '64

Gestetner stencil duplicator. il diag Engineering 197:824-5 Je 19 '64

Product Engineering fifth annual master design awards; office copying machine. il diag Product Eng 35:111 Ap 27 '64

DU PONT, Irenee

Obituary. por Chem & Eng N 41:18 D 30 '63

DU PONT de Nemours, E. I., and company

Du Pont research program source of major earnings. Food Tech 18:1040+ Jl '64

DURABLE goods

Items for the affluent; consumer durables. il Steel 153:100-4 D 9 '63

DURALUMIN

Experiments which disproved the theory of intercrystalline corrosion of the light alloy duralumin. H. O. Short. diags Roy Aeronautical Soc J 68:203-4 Mr '64

DÜSSELDORF, Germany

See also

Building—Düsseldorf, Germany

DUST

Dust wall helps shield spacecraft from meteoroids. Franklin Inst J 276:575 D '63

Fighting dust at Mangla project, West Pakistan. il Diesel Equip Supt 42:22-3 Ag '64

Studies of hydrocarbons on mineral dusts. J. S. Harington and M. Smith. bibliog Archives Environmental Health 8:453-8 Mr '64

Tell-tale dust. P. B. Sears. Am Scientist 52:1-15 Mr '64

See also

Dust removal
Flue dust
Mine dust
Particles
Silicosis

DUST collectors

Atlantic collects dust to reclaim catalyst. il Pet Management 35:197-8 N '63

Cement plants of the 60's; dust collection. J. H. Bergstrom. il Rock Prod 67:81 My '64

Design and operation of a fume and dust collection system for two 100-ton electric furnaces. W. W. Bintzer. il diags Iron & Steel Eng 41:115-23 F '64

Efficient dust collection. diags Coal Age 69:118 Mr '64

Kiln dust: properties and handling. J. M. Wolfe. flow sheets Pit & Quarry 56:136-7+ Mr '64

Small-diameter cyclones. R. S. Brookman and others. il diags Chem Eng Prog 59:66-9 N '63

Unit collectors solve dust problem. il Safety Maint 128:43+ S '64

Wet dust collector. diag Engineer 217:109 Ja 10 '64

See also

Dust sampling
Electric precipitators

Design

Dust scrubber design: critique on the state of the art. K. T. Semrau. il Air Cond Heat & Ven 60:34-5 D '63

DUST control. See Dust removal

DUST diseases. See Lungs—Dust diseases

DUST explosions

Handling flammable dusts. C. I. Fishkin and R. L. Smith. il Chem Eng Prog 60:45-8 Ap '64

Plastic dust explosions. Safety Maint 128:42 Ag '64

Why's of dust explosions. A. D. Fraser. il Safety Maint 127:36-8 Je '64

DUST prevention

Street and alley maintenance. Pub Works 94:170+ D '63

DUST removal

Auto count troubles solved with intake nozzle. diags Textile Ind 128:134 F '64

Dust control design by the air induction technique. D. M. Anderson. bibliog Ind Med 33:68-72 F '64

Eliminating generator dust pollution. il Engineering 197:159 Ja 24 '64

Handling flammable dusts. C. I. Fishkin and R. L. Smith. il Chem Eng Prog 60:45-8 Ap '64

DUST removal—*Continued*
Just one speck of dust. T. Murray. Am Mach/Metalworking Manuf 108:87 Je 22 '64
Kiln dust; properties and handling. J. M. Wolfe. flow sheets Pit & Quarry 56:136-7+ Mr '64
Measurement and control of air contaminants in Ontario uranium mines. G. R. Yourt. bibliog Ind Med 33:222-9 Ap '64
Pollution control in a phosphoric acid plant. H. O. Grant. il diag Chem Eng Prog 60:53-5 Ja '64
Self-cleaning filter gives plant air new life. il diag Plant Eng 17:126 D '63
Some new approaches to the filtration of dusts. E. Butterworth. bibliog Manuf Chem 35:66+ Ja; 65-6+ F '64
Twenty-six years' experience with dust control in the Vermont granite industry. H. B. Ashe and D. E. Bergstrom. bibliog il Ind Med 33:73-8 F '64
See also
Air cleaners
Air filters
Exhaust systems

DUST sampling
Clean collector will gather dust with open arms. il diags Machine Design 36:14 Jl 2 '64
Dust research in West Germany. T. S. Cochrane. il diags Can Min & Met Bul 57:719-28 bibliog(p727-8) Jl '64
Evaluation of analyses of dust samples in the prophylaxis of silicosis. A. Winkel. Ind Med 33:134-5 Mr '64

DUTCH elm disease. See Elm—Diseases and pests

DYCRIL. See Printing plates, Plastic

DYE analysis
Determination of lipstick dyes by thin layer chromatography. T. P. Cotsis and J. C. Garey. bibliog il Drug & Cosmetic Ind 95:172-5+ Ag '64
Identification of dyes on secondary cellulose acetate. D. Haigh. bibliog Soc Dyers & Col J 80:479-86 S '64
Identification of metals in dyed and printed protein and cellulose textiles. B. C. Burdett. bibliog Soc Dyers & Col J 80:370-4 Jl '64
New method for the analysis of ancient dyed textiles. D. H. Abrahams and S. M. Edelstein. bibliog il Am Dyestuff Rep 53:2-8 Ja 6 '64
Systematic identification of artificial food colors permitted in the United States. R. L. Stanley and P. L. Kirk. bibliog J Agri & Food Chem 11:492-5 N '63

DYE industry
Arkansas Chemical's sixty years of service. Mod Textiles Mag 45:27-8 F '64
Foreign visitors get first-hand report on how a U.S. dye firm is run. il Am Dyestuff Rep 53:404+ My 25 '64
Report on the trade hearings. il Am Dyestuff Rep 53:125-30+ F 17 '64

Great Britain

Historical approach to the dyestuffs industry. N. G. McCulloch. Soc Dyers & Col J 80:33-4 Ja '64; Discussion. 80:252-5 My '64

DYE laboratories
Belle chemical co. sees every new fiber as a new challenge. il Mod Textiles Mag 45:29+ Mr '64

DYE manufacture
Belle chemical co. sees every new fiber as a new challenge. il Mod Textiles Mag 45:29+ Mr '64

DYE patents
Abstracts from British and foreign journals and patents. Published in monthly numbers of Journal of the Society of dyers and colourists

DYE research
Education and research in dyes and dyeing technology in Russia. F. Jones. Soc Dyers & Col J 80:326-9 Je '64

DYE testing
Colour fastness to dry-cleaning. W. K. Rhodes. bibliog 2pls Soc Dyers & Col J 80:20-33 Ja '64
Detection of resin-bonded pigments and mass-pigmented fibres. B. C. Burdett. bibliog Soc Dyers & Col J 80:83-7 F '64
Problem of humidity measurement in fading lamps. K. McLaren. Soc Dyers & Col J 79:618-22; Discussion. 630-1 D '63
See also
Dyes, Fastness of

DYEHOUSES

Equipment

Expanding to catch new markets; Indian Head mills. il Textile World 114:91-2 O '64
Move or modernize? modernize, this finishing company says; Ankokas dyeing & processing co. il Textile World 114:102-4 Ap '64
Tops in top-dyeing plants; Dubois dyeing co. il Textile World 114:95-6 O '64
West Coast dyehouse gets optimum efficiency in a limited space. il Am Dyestuff Rep 53:722-3 Ag 17 '64
Yarn dyeing done the modern way at American & Efird's Mt Holly plant. il Am Dyestuff Rep 53:905 O 12 '64
See also
Dyeing machines

DYEING machines
Automatic dye units free lab personnel for production work. il Am Dyestuff Rep 53:352 Ap 27 '64
British firm is offering automatic pressure dyeing system; Longclose engineering co. il Am Dyestuff Rep 53:658-9 Jl 20 '64
Directory of European wet-processing machinery manufacturers. il Am Dyestuff Rep 53:558+ Je 22 '64
Effect of wool quality and packing on flow and level dyeing in hank-dyeing machines. A. N. Derbyshire and D. R. Lemin. bibliog Soc Dyers & Col J 80:363-9 Jl '64
Simplified timer rides herd on package dyeing machines. il diags Textile Ind 128:147+ Je '64
Streamlined polyester-cotton dyeing. il Am Dyestuff Rep 53:349-51 Ap 27 '64
Troubleshooting quality in tricot dyeing-finishing. I. Teplitz. il Textile Ind 128:127+ Ap '64

Control

Remote control instrumentation for dyeing machines. W. H. Ridley. il diag Am Dyestuff Rep 53:294-7 Ap 13 '64

Numerical control

Controlled dyeing. Electronics 37:26 O 19 '64
Look, Mr. Dyer; no hands! plan for automated batch control. C. L. Kenyon. plans diags Textile Ind 128:92+ S '64

DYERS and colourists, Society of. See Society of dyers and colourists

DYES, Effect of light on
Light fading and colour assessment; proceedings of symposium. bibliog flow diags il diags Soc Dyers & Col J 79:573-752 D '63
See also
Dyes, Fastness of

DYES, Fastness of
Colour fastness to dry-cleaning. W. K. Rhodes. bibliog 2pls Soc Dyers & Col J 80:20-33 Ja '64
Comparison of the light fastness of polymeric and monomeric fluorescent dyes. E. Osawa. Soc Dyers & Col J 80:205-6 Ap '64
Determination of light fastness of coloured materials faster than standard 8. Soc Dyers & Col J 80:147-8 Mr '64
Effect of atmospheric contaminants on light fastness. V. S. Salvin. bibliog Soc Dyers & Col J 79:687-95 D '63; Same abr. Am Dyestuff Rep 53:12-20 Ja 6 '64; Discussion. Soc Dyers & Col J 79:695-6 D '63
Fading of pastel colours on wool by light and sulphur dioxide. S. M. Jaeckel and C. D. Ward. bibliog Soc Dyers & Col J 80:72-82 F '64
Fading of the British dyed-wool light-fastness standards in the U.K.; some energy measurements. O. Rawland. bibliog Soc Dyers & Col J 79:697-70; Discussion. 714-22 D '63
Fastness problems of white and dyed polyamide fiber/wool unions; abstract. H. Stern. Am Dyestuff Rep 52:904 N 11 '63
Light fastness and colour changes of fluorescent brightening agents on Orlon. S. M. Jaeckel and C. D. Ward. bibliog diag Soc Dyers & Col J 80:18-20 Ja '64
Light fastness of yellow wools. A. N. Derbyshire and D. R. Lemin. bibliog Soc Dyers & Col J 80:243-8 My '64
Review of the fading effects of modern light sources on modern fabrics. W. B DeLaney and A. Makulec. il Illum Eng 58:676-84 N '63; Discussion. 58:684; 59:206-7 N '63, Mr '64
Spacing of the higher ISO light-fastness standards. K. McLaren. bibliog Soc Dyers & Col J 80:250-2 My '64
Specialized external coatings for fluorescent lamps. H. A. Anderson and A. P. Wasdyke, jr. il Illum Eng 58:723-7; Discussion. 727-8 D '63
Studies in high light-fastness of dyes; the fading of anionic dyes in anodic alumina films. C. H. Giles and K. V. Datye. bibliog J Ap Chem 13:473-83 N '63
Variations in assessment of light fastness and in rates of fading and spacing of the blue standards. S. M. Jaeckel and others. bibliog Soc Dyers & Col J 79:702-14; Discussion. 714-22 D '63

DYES and dyeing

Abstracts. Published in bi-weekly numbers of American dyestuff reporter

Alphabetical list of new products developed since Nov. 1962. Am Dyestuff Rep 52:989-98 D 9 '63

Anodic oxidation of triphenylmethane dyes. Z. Galus and R. N. Adams. bibliog diags Am Chem Soc J 86:1666-71 My 5 '64

Canadian textile seminar, Kingston, Ontario, Aug. 24-26; abstracts of papers. Am Dyestuff Rep 53:875-6 S 28 '64

Colour differences in azo pigments. J. D. Hildreth and D. Patterson. bibliog il diags Soc Dyers & Col J 79:519-23; 80:474-9 N '63, S '64

Color measurement and the colorant mixture computer in the textile industry. D. Graham. il diags Am Dyestuff Rep 53:673-8 Ag 3 '64

Color measurement and the colorant mixture computer in the textile industry; abstract. D. Graham. Textile Ind 127:114 D '63

Colorede; color measurement for continuous textile dyeing. E. L. Lewis. il diags Am Dyestuff Rep 53:635-40 Jl 20 '64; Excerpts. Textile Ind 127:114+ D '63

Coloring, bleaching, and finishing developments. Published in monthly numbers of Textile industries

Computed colour catalogue of fibre blends and its use in match prediction. A. Miller and others. bibliog flow diag Soc Dyers & Col J 79:604-12 D '63

Creation of comprehensive colour ranges by computer. J. R. Bell and others. flow chart diags Soc Dyers & Col J 79:613-17 D '63

Dyeing and finishing narrow fabrics; abstract. H. W. Partridge. Am Dyestuff Rep 53:311 Ap 13 '64

European wet-processing; special report. il Am Dyestuff Rep 53:479-538+ Je 22 '64

Fiber-reactive dyes applied by batchwise exhaustion with the assistance of a catalyst. M. Peter. Am Dyestuff Rep 52:901-4 N 11 '63

Further applications of chromatography in dyeing and finishing. J. C. Brown. bibliog 2pls Soc Dyers & Col J 80:185-95 Ap '64

How to finish glamor goods. il Textile World 114:119-20+ Ap '64

Inthion condensation dyes; a new class of dyestuffs. H. Luttringhaus. Am Dyestuff Rep 53:728-30 Ag 31 '64

Liquid dyes improve laser Q-spoiling action. Chem & Eng N 42:48 Je 1 '64

New dyes may challenge vats and reactives in popularity. A. J. Hall. Textile World 114:116-17 Ap '64

News about textile chemicals. Published in monthly numbers of Textile world

Organic dye replaces Kerr cell as laser control device. Chem & Eng N 42:60 My 11 '64

Photoresponsive systems; photochromic macromolecules. R. Lovrien and J. C. B. Waddington. bibliog Am Chem Soc J 86:2315-22 Je 20 '64

Printing of azoics. C. Streck. bibliog Am Dyestuff Rep 53:865-8+ S 28 '64

Series of water-soluble sulfur dyestuffs to be produced in US. il Am Dyestuff Rep 53:393-4 My 11 '64

Textile World reactive dyechart, 1964. A. J. Hall, comp. Textile World 114:824+ Ag '64 (reprints 75c)

Thickeners for continuous pad dyeing. S. Tessler. il diags Textile Ind 128:185+ O '64

See also

American association of textile chemists and colorists
Color in the textile industry
Color matching
Dye industry
Dye testing
Dyeing machines
Methylene blue
Naphthols
Rhodamine B
Stains and staining (microscopy)
Textile printing

Acrylic fibers

Compatibility of acrylic dyes; abstract. il Textile Ind 128:125 Ja '64

Dyeing of Acrilan 1656, Acrilan 16, and blends with wool; abstract. A. Shenton. Am Dyestuff Rep 53:274 Mr 30 '64

Aluminum

See Aluminum—Coloring

Analysis

See Dye analysis

Bibliography

Abstracts from British and foreign journals and patents. Published in monthly numbers of Journal of the Society of dyers and colourists

New books and publications. Published in monthly numbers of Journal of the Society of dyers and colourists

Carpets

Dyeing carpets the quality way; Rossville carpet dyeing co. il Textile World 114:114-16 N '64

Review of dyeing in the carpet industry. R. C. Allison. Am Dyestuff Rep 53:458-63 Je 8 '64

Use of instrumental match prediction for recipes for wool-nylon carpet yarn. R. Walton. Soc Dyers & Col J 80:429-30 Ag '64

Cellulose

Dyeing of cellulose with direct dyes. S. R. Sivarajan and others. bibliog Textile Res J 34:807-10 S '64

Mechanisms of reaction of reactive dyes with cellulosic and other fibres. O. A. Stamm. bibliog diag Soc Dyers & Col J 80:416-22 Ag '64

Cellulose acetate fibers

Disperse dyes on secondary cellulose acetate. Soc Dyers & Col J 80:237-42 My '64

Identification of dyes on secondary cellulose acetate. D. Haigh. bibliog Soc Dyers & Col J 80:479-86 S '64

Vapor-phase dyeing of cellulose acetate. F. Jones and R. Seddon. bibliog il diag Textile Res J 34:373-80 My '64

Chemistry

Adsorption of disperse dyes in admixture. A. Johnson and others. bibliog diag Soc Dyers & Col J 80:129-34 Mr '64

Aggregation in aqueous solutions; Solochrome black WDFA. E. Coates and others. bibliog Soc Dyers & Col J 79:465-71 O '63

Behavior of reactive dyes in padding processes. M. Capponi. bibliog il Am Dyestuff Rep 53:913-18 O 26 '64

Diffusion coefficient for disperse dyes in doubly oriented nylon 66 is greatest in direction perpendicular to polymer chains. W. C. Carter and W. D. Jeschke. diag Chem & Eng N 42:44-6 My 4 '64

Mechanisms of reaction of reactive dyes with cellulosic and other fibres. O. A. Stamm. bibliog diag Soc Dyers & Col J 80:416-22 Ag '64

Reaction mechanism and fixation of monochloro-*s*-triazine dyes on cellulose using tertiary amine catalysts. T. L. Dawson. pl Soc Dyers & Col J 80:134-43 Mr '64

Relationship between chemical structure and fastness to light and gas fumes of nitrodiphenylamine dyes. R. S. Asquith and B. Campbell. bibliog Soc Dyers & Col J 79:678-85; Discussion. 685-6 D '63

Solvent method of preparing pure dye acids. M. P. Coward and H. E. Nursten. bibliog Am Dyestuff Rep 53:325-7 Ap 27 '64

Some interactions of anionic dyes used in medical and biological research and teaching. E. Gurr. bibliog Soc Dyers & Col J 79:461-4 O '63

Cotton

Adaptation of Simons' staining technique to the quantitative assessment of wear in cotton fabric. L. Loeb and others. bibliog il Textile Res J 34:611-16 Jl '64

Continuous thermofix dyeing of blended polyester/cotton fabrics. J. C. King. bibliog Am Dyestuff Rep 53:132-4 F 17 '64

Reactive dyes and their identification on cellulosic fibres. F. Jordinson and R. Lockwood. bibliog Soc Dyers & Col J 80:202-4 Ap '64

Reactive dyes; the technical basis for choosing between dyes of high and dyes of low reactivity. J. A. Fowler and W. J. Marshall. bibliog il pl Soc Dyers & Col J 80:358-63 Jl '64

Dacron

Dyeing of 100 per cent polyester fabrics by the thermofixation process; abstract. J. P. Merminod. Am Dyestuff Rep 53:444-5 Je 8 '64

Effect of various organic compounds on polyethylene terephthalate fiber; absorption of o-phenylphenol on polyethylene terephthalate fiber. C. R. Jin and D. M. Cates. diag Am Dyestuff Rep 53:64-8 Ja 20 '64

DYES and dying—Dacron—*Continued*

Importance of custom-tailored dyestuffs and auxiliaries for the thermosol dyeing of polyester and polyester/cotton blends. E. R. Schober and S. Buchholz. Am Dyestuff Rep 53:418-20 My 25 '64

Madison story; dyeing stretch nylon, Dacron, over 20,000 pounds per week. il Textile World 114:123-4+ S '64

New line of dyes for polyesters offered by National Aniline. diag Am Dyestuff Rep 53:906 O 12 '64

New method of dyeing polyesters; abstract. R. W. Moncrieff. Am Dyestuff Rep 53:111 F 3 '64

Saturation values, rates of dyeing, rates of diffusion, and migration of disperse dyes on heat-set polyester fibres. E. Merian and others. bibliog pl diags Soc Dyers & Col J 79:505-15 N '63

Dacron-cotton

Continuous dyeing of the polyester/cotton fabrics. H. W. M. Roolaart. il diags Textile Ind 127:58-62+ N '63

Continuous thermofix dyeing of blended polyester/cotton fabrics; abstract. J. C. King. Textile Ind 127:118 D '63

Dyeing of polyester-cotton blends with disperse and vat colors. W. C. Wilcoxson. Am Dyestuff Rep 53:298-9 Ap 13 '64

Dyeing of polyester-cotton blends with disperse-fiber reactive combinations. G. R. Stetson. diag Am Dyestuff Rep 53:229-32 Mr 16 '64

Dyeing polyester/cotton blends with Terasil and Cibacron dyes by the pad-thermofix method. P. Ulrich and H. Stern. il diag Am Dyestuff Rep 53:697-9 Ag 17 '64

Formulating for the Thermosol process. il diag Textile Ind 127:69, 143 N '63

Importance of custom-tailored dyestuffs and auxiliaries for the thermosol dyeing of polyester and polyester/cotton blends. E. R. Schober and S. Buchholz. Am Dyestuff Rep 53:418-20 My 25 '64

Streamlined polyester-cotton dyeing. il Am Dyestuff Rep 53:349-51 Ap 27 '64

Theoretical and practical aspects of the Du Pont Thermosol process. P. L. Meunier and others. bibliog il diags Am Dyestuff Rep 52:1014-21 D 9 '63

Dacron-rayon

Theoretical and practical aspects of the Du Pont Thermosol process. P. L. Meunier and others. bibliog il diags Am Dyestuff Rep 52:1014-21 D 9 '63

Fluorescence

Application of fluorescent tracing techniques to hydrologic studies. R. R. Wright and M. R. Collings. diags Am Water Works Assn J 56:748-54 Je '64

Chemiluminescent indicator titration of cadmium with potassium ferricyanide. F. Kenny and others. bibliog Anal Chem 36:529-32 Mr '64

Comparison of the light fastness of polymeric and monomeric fluorescent dyes. E. Ōsawa. Soc Dyers & Col J 80:205-6 Ap '64

Fluorescent agents for detergents. H. W. Zussman. bibliog Am Oil Chem Soc J 40:695-8 N '63

Fluorescents come of age; abstract. S. G. Maycumber. Am Dyestuff Rep 53:631 Jl 20 '64

Light fastness and colour changes of fluorescent brightening agents on Orlon. S. M. Jaeckel and C. D. Ward. bibliog diag Soc Dyers & Col J 80:18-20 Ja '64

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

History

Disperse dyes; some historical relationships. D. H. Wilcox, jr. bibliog Am Dyestuff Rep 53:86-96 F 3 '64

New method for the analysis of ancient dyed textiles. D. H. Abrahams and S. M. Edelstein. bibliog il Am Dyestuff Rep 53:2-8 Ja 6 '64

Thousand years of cochineal; a lost but traditional Mexican industry on its way back. N. P. Wright. il diags Am Dyestuff Rep 52:635-9 Ag 19 '63; Abstract. Am Perfumer 70:39 Ja '64

Hosiery

Dyeing and finishing of ladies' full-length seamless hosiery made of Du Pont Cantrece nylon. G. M. Richardson and others. il Am Dyestuff Rep 53:703-8 Ag 17 '64

Processing and dyeing of stretch nylon hosiery. H. C. Gift. Am Dyestuff Rep 53:641-3 Jl 20 '64

Knit goods

Dyeing of knitted fabric; abstract. R. N. Barber and others. Am Dyestuff Rep 53:700 Ag 17 '64

Recent developments in dyeing and finishing knitted fabrics. D. Frishman. bibliog Am Dyestuff Rep 53:214-17 Mr 16 '64

Troubleshooting quality in tricot dyeing-finishing. I. Teplitz. il Textile Ind 128:105-6+ Mr; 127+ Ap '64

Leather

Thermodynamics of leather dyeing. M. P. Coward and H. E. Nursten. bibliog diag Soc Dyers & Col J 80:405-15 Ag '64

Natural dyes

See also
Cochineal

Nylon

Diffusion coefficient for disperse dyes in doubly oriented nylon 66 is greatest in direction perpendicular to polymer chains. W. C. Carter and W. D. Jeschke. diag Chem & Eng N 42:44-6 My 4 '64

Dyeing and finishing stretchable fabrics of stretch textured Du Pont nylon yarns. L. W. Muscelli. il Am Dyestuff Rep 53:869-73 S 28 '64

Dyeing nylon in level lightfast shades. C. A. Cascardo and F. L. Sievenpiper. Am Dyestuff Rep 53:340-2 Ap 27 '64

Dyeing of nylon; past, present and future. V. S. Salvin. bibliog Mod Textiles Mag 45:70+ Ja '64

Influence of dyes on the thermal stability of polyamide fibers. W. Fester. Textile Res J 34:362-6 Ap '64

Madison story; dyeing stretch nylon, Dacron, over 20,000 pounds per week. il Textile World 114:123-4+ S '64

Processing and dyeing of stretch nylon hosiery. H. C. Gift. Am Dyestuff Rep 53:641-3 Jl 20 '64

Studies in the mechanism of dyeing of polyamide fibers with acid dyes. N. J. Bhatt and E. H. Daruwalla. bibliog Textile Res J 34:435-44 My '64

Two new nylons. L. O'Guin. Am Dyestuff Rep 53:900-3 O 12 '64

Orlon

Light fastness and colour changes of fluorescent brightening agents on Orlon. S. M. Jaeckel and C. D. Ward. bibliog diag Soc Dyers & Col J 80:18-20 Ja '64

Package dyeing

Patent granted for DuPont sponge-core dyeing process. il Am Dyestuff Rep 52:934 N 11 '63

Simplified timer rides herd on package dyeing machines. il diags Textile Ind 128:147+ Je '64

Yarn dyeing done the modern way at American & Efird's Mt Holly plant. il Am Dyestuff Rep 53:905 O 12 '64

Stripping

Stripping dyestuffs from textiles. R. S. Mayston. Am Dyestuff Rep 53:142-7 F 17 '64

Study and teaching

Education and research in dyes and dyeing technology in Russia. F. Jones. Soc Dyers & Col J 80:326-9 Je '64

Synthetic fibers

Comparative study of natural and Xenotest exposure conditions for measuring fading and degradation. L. F. C. Friele. bibliog Soc Dyers & Col J 79:623-31; Discussion. 630-1 D '63

Continuous thermofix dyeing of blended polyester/cotton fabrics. J. C. King. bibliog Am Dyestuff Rep 53:132-4 F 17 '64

Detection of resin-bonded pigments and mass-pigmented fibres. B. C. Burdett. bibliog Soc Dyers & Col J 80:83-7 F '64

Dyeable polypropylene. R. G. Curtis and others. bibliog Am Dyestuff Rep 53:380-6 My 11 '64

Dyeing and finishing core-spun Lycra fabrics. D. M. Frame. il Mod Textiles Mag 45:92+ O '64

Dyeing and finishing of fabrics containing Lycra spandex yarns. R. E. Wagner. Am Dyestuff Rep 53:376-9 My 11 '64

Dyeing and finishing of Lycra spandex fiber; abstract. C. L. Huskilson. Am Dyestuff Rep 53:629-30 Jl 20 '64

DYES and dyeing—Synthetic fibers—*Continued*

Dyeing and wet processing of man-made-fibre tows. D. Blackburn and J. S. Ward. bibliog 2pls Soc Dyers & Col J 80:9-17 Ja '64

Dyeing of polyacrylonitrile fibers. S. Rosenbaum. bibliog il diag Textile Res J 33: 899-910; 34:52-60 N '63, Ja '64

Dyeing woven stretch; a case history. il Textile Ind 128:65-6+ S '64

Dyes for polyester blends. D. Carmichael. Mod Textiles Mag 44:28+ D '63

New ways to produce dyeable olefin. Textile World 113:74 D '63

Piece-dyeable polyolefin fiber goes commercial. Chem Eng 71:54+ Ag 3 '64

Properties of spandex threads influencing fabric design and dyeing and finishing operations. R. A. Gregg and others. Am Dyestuff Rep 53:334-9 Ap 27 '64

Reactive dyeing man-mades and blends. S. Mooradian. il Textile Ind 128:90-1+ Ag '64

Role of sites in dyeing. S. Rosenbaum. bibliog diag Textile Res J 34:159-67, 291-302, F, Ap '64

Synthetic fiber dyeing in France today. C. Zuber. Am Dyestuff Rep 53:491-3+ Je 22 '64

Theory and practice of dyeing polypropylene fiber. P. L. Stright. Am Dyestuff Rep 53: 300-3 Ap 13 '64

Thermofixation of dyes on synthetic-polymer fibres and their blends. J. Keaton and D. T. Preston. bibliog pl Soc Dyers & Col J 80: 312-22 Je '64

Vat dyes

Dyeing of polyester-cotton blends with disperse and vat colors. W. C. Wilcoxson. Am Dyestuff Rep 53:298-9 Ap 13 '64

How new reducing agents speed vat dyeing and printing. A. J. Hall. Textile World 114: 113-14 Mr '64

Wool

Application of the Donnan equilibrium to the distribution of dye and inorganic ions between wool and solutions. J. Delmenico and R. H. Peters. bibliog Textile Res J 34:207-19 Mr '64

Dyeing of shrink-resistant wool. E. A. Cookson and others. bibliog Soc Dyers & Col J 80:196-202 Ap '64

Effect of wool quality and packing on flow and level dyeing in hank-dyeing machines. A. N. Derbyshire and D. R. Lemin. bibliog Soc Dyers & Col J 80:363-9 Jl '64

Fading of pastel colours on wool by light and sulphur dioxide. S. M. Jaeckel and C. D. Ward. bibliog Soc Dyers & Col J 80:72-82 F '64

Fading of the British dyed-wool light-fastness standards in the U.K.; some energy measurements. O. Rawland. bibliog Soc Dyers & Col J 79:697-701; Discussion. 714-22 D '63

Interaction between some acid wool dyes and nonylphenol-ethylene oxide derivatives; diffusion coefficients of dyes in aqueous solutions containing surfactants. B. R. Craven and A. Datyner. bibliog Soc Dyers & Col J 79:515-19 N '63

Leveling agents for wool; abstract. H. Abel. Am Dyestuff Rep 52:949 N 25 '63

Light fastness of yellow wools. A. N. Derbyshire and D. R. Lemin. bibliog Soc Dyers & Col J 80:243-8 My '64

Methods for conserving the properties of wool during dyeing. W. C. F. Swindell. bibliog Soc Dyers & Col J 79:457-60 O '63

Non-stop wool dyeing. il diags Textile Ind 127:70-1+ N '63

Orthocortical staining of wool with chromic, cobaltous, cupric, ferric, or manganous ions in acidic nitrite solution. M. J. Corbett and T. M. Yu. Textile Res J 34:655 Jl '64

Prevention and rectification of faults in dyed and finished wool pieces. I. S. Slack. Soc Dyers & Col J 80:144-6 Mr '64

Spacing of the higher ISO light-fastness standards. K. McLaren. bibliog Soc Dyers & Col J 80:250-2 My '64

Vapor adsorption tests with dyed wool. C. H. Giles and others. bibliog Textile Res J 34: 839-43 O '64

Wool dyeing below the boil; key to quality. D. P. Collins. Am Dyestuff Rep 53:218-21 Mr 16 '64

See also

Dyes and dyeing—Carpets

DYES as indicators

Application of fluorescent tracing techniques to hydrologic studies. R. R. Wright and M. R. Collings. diags Am Water Works Assn J 56:748-54 Je '64

Dye penetrant techniques for flaw detection. G. A. Grizzell. diags Aircraft Eng 36:207+ Jl '64

Fecal dye markers in metabolic balance studies. L. Lutwak and B. T. Burton. bibliog Am J Clinical Nutrition 14:109-11 F '64

Fluorescent techniques expedite flow tracing. diag Pub Works 95:96 N '64

Time of travel of soluble contaminants in streams. T. J. Buchanan. il map Am Soc C E Proc 90 [SA 3 no 3932]:1-12 Je '64

DYNAMIC braking. See Braking, Dynamic

DYNAMIC programming

Application of dynamic programming to optimizing the orbital control process of a 24-hour communication satellite. J. A. Burkhart and F. T. Smith. bibliog diags AIAA J 1:2551-7 N '63

Application of dynamic programming to the synthesis of high-order multivariable control systems. A. R. M. Noton. bibliog diags Inst E E Proc 111:1353-8 Jl '64

Applications of the functional equation to complex-system reliability problems. B. C. Roberts and E. G. Frankel. bibliog diag Naval Eng J 76:289-95 Ap '64

Apportionment of the U.S. House of representatives; a minimum range, integer solution allocation problem. O. R. Burt and C. C. Harris, jr. bibliog Op Res 11:648-52 Jl '63; Discussion. E. J. Gilbert and J. A. Schatz. 12:768-73 S '64

Assignment of tolerances by dynamic programing. W. A. Moy. diag Machine Design 36:215-18 My 21 '64

Comparison of approaches to the optimization of industrial processes. A. E. Beecher. Tappi 47:sup 188A-91A Ap '64

Composition principles for synthesis of optimal multistage processes. L. G. Mitten. diag Op Res 12:610-19 Jl '64

Conjunctive operation of dams and aquifers. N. Buras. bibliog diags Am Soc C E Proc 89 [HY 6 no 3697]:111-31 N '63; Correction. 90 [HY 4 no 3980]:327 Jl '64

Dynamic optimisation of a boiler. H. Nicholson. bibliog flow diag diags Inst E E Proc 111:1479-99 Ag '64

Dynamic programming and Lagrangian multipliers. S. M. Roberts. Ind & Eng Chem Fundamentals 2:224-8 Ag '63; Discussion. 2:323-5; 3:183-4 N '63, My '64

Markov-renewal programming. W. S. Jewell. flow charts Op Res 11:938-71 bibliog (p970-1) N '63

Optimal functional approximation using dynamic programming. A. G. Lubowe. AIAA J 2:376-7 F '64

Optimization of multistage separation processes by dynamic programming. L. G. Mitten and G. L. Nemhauser. diags Can J Chem Eng 41:187-94 O '63; Correction. 42: 142 Je '64

Optimum design of a moving bed grain drier by dynamic programming. Y. K. Ahn and others. bibliog diags Can J Chem Eng 42: 117-20 Je '64

Optimum design of a multiple-purpose reservoir. W. A. Hall. Am Soc C E Proc 90 [HY 4 no 3972]:141-9 Jl '64

Optimum test procedure under stress. H. Greenberg. bibliog Op Res 12:689-92 S '64

Search problem. S. H. Cameron and S. G. Narayanamurthy. diags Op Res 12:623-9 Jl '64

Terminal and averaging control of pyrolysis in a tubular reactor. S. M. Roberts. bibliog Ind & Eng Chem Proc Design 3:14-18 Ja '64

Time optimal control of nonlinear systems with constraints. H. E. Grethlein and L. Lapidus. bibliog A I Ch E J 9:230-9 Mr '63; Discussion. J. E. Cotter. 10:585+ Jl '64

DYNAMICS

Dynamic analysis of elastic-plastic frames. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 90 [ST 2 no 3881]: 315-43 Ap '64

Dynamics analysis of inelastic multi-degree systems. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 89 [EM 6 no 3730]:193-215 D '63

Dynamics of flow forced distributed parameter heat exchangers. F. J. Stermole and M. A. Larson. bibliog flow diag A I Ch E J 10:688-94 S '64

Effect of electrification on the dynamics of a particulate system. S. L. Soo. bibliog Ind & Eng Chem Fundamentals 3:75-80 F '64

Mechanical network analysis. H. Jewusiak and W. J. Bigley. diags Machine Design 36:180-3 O 22 '64

Remarks on variational principles in elastodynamics. Y. Chen. bibliog Franklin Inst J 278:1-7 Jl '64

Satellite dynamics for small eccentricity including drag and thrust. K. Forster. bibliog AIAA J 1:2621-3 N '63

DYNAMICS—*Continued*

Simplification of hydraulic line dynamics by use of infinite products. R. Oldenburger and R. E. Goodson. bibliog diags A S M E Trans ser D 86:1-8; Discussion. 9-10 Mr '64

See also

Aerodynamics
Electrodynamics
Hydrodynamics
Lagrange equations
Moments of inertia
Shock waves
Stability of systems
Thermodynamics

DYNAMITE

See also

Blasting

DYNAMOMETERS

Accurate measurement of thrust with the new model 102 thrust balance. il diag Product Eng 34:80-1 D 9 '63

Continuous measurement of engine power; design and development of transmission dynamometer, capable of multiplying engine torque and speed. A. W. Pocock. il diags Engineering 196:718-19 D 6 '63

Controlled weather for dynamometer engine tests. il diag Automotive Ind 131:62-3 Ag 1 '64

Dynamic brake tester-dynamometer combination provides means of checking total performance. il Diesel Equip Supt 42:42-3 Je '64

Dynamometer test system insures high quality of International Harvester heavy duty tractor transmissons. C. J. Kelly. il Automotive Ind 129:54 N 1 '63

Dynamometers. il diag Product Eng 34:80 N 11 '63

Horsepower measurement via force. D. B. Kendall. il diag Instruments & Control Systems 37:102-4 F '64

How Madison Bus uses dynamometer for fleet maintenance inspection; abstract. F. J. Wessel. il S A E J 72:93-4 Ja '64

Portable light-beam electrodynamometer. L. W. Pignolet. il diags Instruments & Control Systems 37:115-17 My '64

Table-top lab. il diag Product Eng 35:75 Je 22 '64

See also

Torque meters

DYSPROSIUM

Changes in magnetization of single-crystal dysprosium, erbium, and holmium in high magnetic fields. R. B. Flippen. bibliog J Ap Phys 35:1047-8 pt 2 Mr '64

Magnetostriction of single-crystal dysprosium, gadolinium iron garnet, and dysprosium iron garnet. A. E. Clark and others. J Ap Phys 35:1028-9 pt 2 Mr '64

Analysis

Polarographic behavior of dysprosium(III) in aqueous solutions. R. F. Large and A. Timnick. bibliog Anal Chem 36:1258-64 Je '64

DYSPROSIUM alloys

Spiral structure and moments in Gd-Dy alloys. R. M. Bozorth and J. C. Suits. bibliog J Ap Phys 35:1039-40 pt 2 Mr '64

DYSTROPHY, Muscular

Biochemical changes in progressive muscular dystrophy. N. K. Sarkar and U. Srivastava. bibliog J Nutrition 83:193-201 Jl '64

Effect of linoleic acid on nutritional muscular dystrophy in the chick. C. C. Calvert and others. bibliog J Nutrition 83:307-13 Ag '64

Effect of selenium, sulfur and sulfur amino acids on nutritional muscular dystrophy in the lamb. H. F. Hintz and D. E. Hogue. bibliog J Nutrition 82:495-8 Ap '64

Muscular dystrophy; a problem in polyunsaturated fatty acid metabolism? A. J. Siedler and others. Am J Clinical Nutrition 15:187-8 S '64

Nonspecific role arginine in the promotion of muscular dystrophy in the chick. K. J. Jenkins and others. bibliog J Nutrition 82: 415-21 Ap '64

E

EASA. See Electrical apparatus service association

EDTA. See Ethylenediamine tetraacetic acid

EHA. See Electric heating association

EHV (extra high voltage). See High voltages

E.M.F. See Potential, Electric

EABORN, Colin

Frederic Stanley Kipping award in organosilicon chemistry. por Chem & Eng N 42:130 Ap 13 '64

EAR

See also

Hearing

Injuries

Industrial noise symposium stresses need for hearing conservation programs. Am Mach 108:225-6+ S 14 '64

Protection

Does noise in your plant endanger hearing? J. J. Martiner. il Plant Eng 18:122-4 Mr '64

Some questions about noise. il Safety Maint 127:42-4 Ja '64

Surgery

Microsurgery on color tv; fiber-optics bundle allows a color camera to peer through microscope. L. D. Shergalis. il Electronics 37:106-7+ Jl 27 '64

EARPHONES

David Clark stereo headphones, model 100. il Audio 48:40 F '64

Functionalized listening facility for the multilingual auditorium. D. D. Jones. diags Audio Eng Soc J 12:245-7 Jl '64

EARTH

Dynamical model for Kordylewski cloud satellites. F. V. Pohle. bibliog diags AIAA J 2:1818-20 O '64

How Expo '67 could present the earth sciences; earth science exhibits proposed for the 1967 World's fair in Montreal. A. N. Deland. Can Min & Met Bul 57:1073-6 O '64

Influence of the earth's orbital motion on radar measurements of range and velocity in space. V. M. Vakhnin. diags AIAA J 1:2700-3 N '63

Umbra and penumbra eclipse factors for satellite orbits. S. Z. Fixler. bibliog diags AIAA J 2:1455-7 Ag '64

Where are we? 1964 Jackling lecture. A. A. Brant. bibliog Min Eng 16:51-7 Ap '64

See also

Geochemistry
Geodesy
Geology
Geophysics
Gravity
Magnetism, Terrestrial
Ocean

Crust

See Earth—Surface

Figure

Gyro torquing signals at an arbitrary azimuth on an ellipsoidal earth. M. Kayton. diags AIAA J 1:2866-7 D '63

Internal structure

Mohole project. il Anal Chem 36:sup31A-40A Ja '64

Rotation

See also

Foucault pendulum

Surface

Converted waves in refraction surveys over markers with variable depth. D. H. Hall. bibliog diags Geophysics 29:733-44 O '64

Seismic propagation paths, regional traveltimes, and crustal structure in the western United States. D. J. Stuart and others. bibliog maps diag Geophysics 29:178-87 Ap '64

Some numerical results based on the theory of radio wave propagation over inhomogeneous earth. K. Furutsu and others. bibliog diags J Res Nat Bur Stand 68D:827-46 Jl '64

See also

Mountains

Temperature

See Earth temperature

EARTH crust. See Earth—Surface

EARTH movements

Earth shift may have wrecked Los Angeles dam. Eng N 172:15 Ja 9 '64

Engineers study rise and fall of four-mg sewage tank. Eng N 173:22 Jl 23 '64

Measurement of continental drift and earth movement with lasers. W. Honig. diag IEEE Proc 52:430 Ap '64

See also

Landslides
Subsidences (earth movements)

EARTH satellite vehicle. See Satellites, Artificial

EARTH temperature
Application of thermoluminescence to geothermometry. R. A. MacDiarmid. bibliog Econ Geol 58:1218-28 D '63
Geothermal research in Canada. A. M. Jessop. map Can Min & Met Bul 57:152-5 F '64
Geothermometric measurements of sulfide minerals, Mosabhoni copper mine, Singbhum district, Bihar. K. K. Rao. Econ Geol 59: 136-41 Ja '64
Lead-compensated thermistor probe. A. M. Jessop. diag J Sci Instr 41:503-4 Ag '64
Recording temperatures in deep boreholes. G. S. Marshall and R. H. Henderson. il Engineering 196:540 O 25 '63

EARTH tides
Measurement of earth tides and continental drift with laser interferometer. V. Vali and W. Vali. diag IEEE Proc 52:857-8 Jl '64

EARTHING. See Electric distribution—Grounding

EARTHQUAKES
Generation of artificial earthquakes. G. W. Housner and P. C. Jennings. bibliog diag Am Soc C E Proc 90 [EM 1 no 3806]:113-50 F '64; Discussion. 90 [EM 4 no 4000]:189-91 Ag; [EM 5 no 4093]:443-6 O '64
Grand Banks slump. B. C. Heezen and C. L. Drake. bibliog maps Am Assn Pet Geologists Bul 48:221-5 F '64
Sensitive well takes earthquake's pulse. E. E. Rexin. il diags Plant Eng 18:122-3 O '64
Wide-band extraction of mantle *P* waves from ambient noise. M. Backus and others. diags Geophysics 29:672-92 O '64

See also
Microseisms
Seismological stations

Alaska

Alaska earthquake. E. F. Rice. il maps Civil Eng 34:52-6 My '64; Discussion. 34:79-80 Ag '64
Anchorage: earthquake-stricken community; Pacific Northwest utility personnel join in restoring service to normal. il Am Gas Assn Mo 46:20-1 My '64
Anchorage story. il diag Gas Age 131:23-30+ Ag '64
Electrical damage and restoration in Alaska. H. P. Scott. il map diags Elec Constr & Maint 63:75-82 Je '64
Oil industry rides out Alaskan quake. Oil & Gas J 62:82-3 Ap 6 '64
Pre-stressed concrete stands up to Alaskan earthquake. il Safety Maint 128:73-4 N '64
Quake-hit Alaska systems recovering. il Elec World 161:49-50 Ap 6 '64
Quake took time to move land. Eng N 173:56 O 8 '64
Quake wrecks Alaskan cities. il Eng N 172: 45-7 Ap 2 '64
Verdict of Anchorage; good structural design survived. J. H. McMinn. il Eng N 172: 22-5 Ap 9 '64
When the earthquake struck. W. J. Stump. il maps Gas 40:70-5 Ag '64

Japan

Foundations fail in Japan earthquake. il Eng N 172:20 Je 25 '64

Yugoslavia

Quake lake gains respectability. diag Eng N 173:84-5 O 8 '64
Skopje earthquake damage. W. E. Kunze and others. il map plans Civil Eng 33:56-9 D '63

EARTHQUAKES and building
Alaska earthquake. E. F. Rice. il maps Civil Eng 34:52-6 My '64; Discussion. 34:79-80 Ag '64
Alaska quake damages all building types. il Arch Forum 120:5 My '64
Bodega Head nuclear power project cancelled. il Chem & Eng N 42:35-6 N 9 '64
Building is risky in Anchorage. il Eng N 173: 30 Jl 9 '64
Columns of sand may stabilize Alaskan sites. Eng N 173:20 Jl 23 '64
Earthquake resistance of sloping core dams. H. B. Seed and R. W. Clough. bibliog diags Am Soc C E Proc 89 [SM 1 no 3434]: 209-42 F '63; Discussion. 89 [SM 5 no 3654]: 123-5 S '63; Reply. 90 [SM 2 no 3850]: 169-70 Mr '64
Earthquake resistant design of earth dams: abstract. J. Krishna. Pub Works 95:142+ My '64
Earthquake response of systems with bilinear hysteresis. S. S. Thomaides. bibliog diags Am Soc C E Proc 90 [ST 4 no 4009]:123-43 Ag '64
Effect of site conditions on earthquake intensity. J. H. Wiggins, jr. bibliog diags Am Soc C E Proc 90 [ST 2 no 3880]:279-313 Ap '64; Discussion. 90 [ST 5 no 4066]:241-2 O '64
Electrical damage and restoration in Alaska. H. P. Scott. il map diags Elec Constr & Maint 63:75-82 Je '64
Foundations fail in Japan earthquake. il Eng N 172:20 Je 25 '64
Generation of artificial earthquakes. G. W. Housner and P. C. Jennings. bibliog diag Am Soc C E Proc 90 [EM 1 no 3806]:113-50 F '64; Discussion. 90 [EM 4 no 4000]:189-91 Ag; [EM 5 no 4093]:443-6 O '64
Man-made earthquakes test a dam. H. B. Hemborg and W. O. Keightley. il diags Eng N 172:48-9 Ap 16 '64
Membrane stresses of parabolic conoid shells. R. Aschenbrenner. diags Am Concrete Inst J 60:1425-27 O '63; Discussion. M. Soare. 61:2033-4 pt 2 Je '64
Pre-stressed concrete stands up to Alaskan earthquake. il Safety Maint 128:73-4 N '64
Probabilistic design to resist earthquakes. E. Rosenblueth. Am Soc C E Proc 90 [EM 5 no 4090]:189-220 bibliog(p215-18) O '64
Resonance testing of full-scale structures. D. E. Hudson. il diags Am Soc C E Proc 90 [EM 3 no 3923]:1-19 Je '64; Discussion. R. E. Kaplan and L. P. Petak. 90 [EM 5 no 4093]:453-7 O '64
Skopje earthquake damage. W. E. Kunze and others. il map plans Civil Eng 33:56-9 D '63
Verdict of Anchorage; good structural design survived. J. H. McMinn. il Eng N 172: 22-5 Ap 9 '64

EARTHS, Rare. See Rare earths

EARTHWORK
American developments in dam building. I. B. Mackintosh. il Engineering 196:484-5 O 18 '63
Annual earthmoving industry conference, 15th; abstracts of papers. S A E J 72:112-14 S '64
Big wheel replaces draglines at Oroville. il Eng N 172:26-7 My 14 '64
Blue Mesa project is a dam site full of holes. il diag Eng N 172:36-8+ Mr 12 '64
Contractor processes half the fill for ten-million-cu-yd dam. il Eng N 172:28-30 Mr 26 '64
Designers and contractors outwit bad materials at Briones dam. il diag Eng N 172: 70-2+ F 13 '64
Earth-moving at Oroville dam. il Engineer 218:419 S 11 '64
Enlarged tomorrows challenge earthmoving engineers. H. S. Eberhard. S A E J 72:61 Jl '64
Faster dirt with tandem scrapers and other ideas. H. K. Glidden. il Roads & Sts 107: 56-8 Mr '64
For long haul jobs; when scraper-to-wagon transfer? H. K. Church. il diag Roads & Sts 107:29-31+ Jl '64
It's push-button earthmoving at Oroville. il plan diag Eng N 173:74-5+ O 8 '64
Moon rocket haulway; world's heaviest roadbed. il plan diag Roads & Sts 107:56-8+ Je '64
Predicting outslopes of spoil banks. R. F. May. diag Min Cong J 50:104-5 Ap '64
Step-by-step; bum's rush for a 40-ton rock. il Roads & Sts 107:98-9 Mr '64
3,500-cu-yd-an-hour digging wheel makes debut at San Luis dam. il Eng N 172:28-30 My 7 '64
World's biggest earthmoving job makes history in Pakistan; Mangla dam project. P. B. Harder. il Roads & Sts 107:64-9+ Ag '64

See also
Dams
Ditches
Dredging
Drilling and boring (earth and rocks)
Embankments
Excavation
Foundation soils
Grading (earthwork)
Railroads—Earthwork
Retaining walls
Roads—Grading
Roads—Subgrades
Rollers (earthwork)
Soil mechanics
Soils—Testing
Tamping machines
Trenches
Tunnels and tunneling

Tables, calculations, etc.

Nomograms speed earthwork computations. D. E. Low. Civil Eng 34:60 My '64

EAST
See also
Geology—Eastern states
Water supply—Eastern states

EAST INDIANS
Serum vitamin B_{12} and folic acid activity in lactovegetarian and nonvegetarian healthy adult Indians. B. M. Mehta and others. Am J Clinical Nutrition 15:77-84 bibliog(p83-4) Ag '64

EATING
Effects of gormandizing and semicontinuous eating of equicaloric amounts of formula-type high fat diets on plasma cholesterol and triglyceride levels in human volunteer subjects. S. N. Jagannathan and others. bibliog Am J Clinical Nutrition 15:90-3 Ag '64

EBONITE
Properties of materials; hard rubber; molded, extruded; tables. Materials in Design Eng 60:246 Mid-O '64
Studies of the hard rubber reaction; heat of reaction. M. L. Bhaumik and others. bibliog diags Rubber Chem & Tech 36:1059-70 O '63

EBURICOIC acid
Transformations of eburicoic acid; side-chain degradation to 14-methylpregnane derivatives. D. Rosenthal and others. bibliog Am Chem Soc J 85:3971-9 D 20 '63

ECHO
Echo suppressor design in telephone communications. P. T. Brady and G. K. Helder. diags Bell System Tech J 42:2893-917 N '63
Effects of time delay and echoes on telephone conversations. J. W. Emling and D. Mitchell. diags Bell System Tech J 42:2869-91 N '63
Subjective evaluation of delay and echo suppressors in telephone communications. R. R. Riesz and E. T. Klemmer. diags Bell System Tech J 42:2919-41 N '63

ECHOES, Radar. See Radar echoes

ECHOES, Radio. See Radio echoes

ECOLOGY
Ecological basis for the biological assessment of river pollution. H. A. Hawkes. bibliog diags Chem & Ind p437-42 Mr 14 '64
Ecological factors in nutritional disease. N. S. Scrimshaw. bibliog Am J Clinical Nutrition 14:112-22 F '64
Ecology and diagnostic problems of fungal zoonoses. L. K. Georg. Ind Med 33:308-10 My '64
Ecology of childhood disease in the Karamojong of Uganda. D. B. Jelliffe and others. bibliog il map Archives Environmental Health 9:25-36 Jl '64
Environmental factors involved in studying the relationship between soil elements and disease. R. W. Armstrong. bibliog diag Am J Pub Health 54:1536-44 S '64
Environmental health and human ecology. D. H. K. Lee. Am J Pub Health 54:7-10 pt 2 Ja '64
Pesticides, in our ecosystem. F. E. Egler. diags Am Scientist 52:110-36 bibliog(p 134-6) Mr '64
Studies in ecology of coronary heart disease. L. E. Hinkle, jr. and others. il Archives Environmental Health 9:14-20 Jl '64
See also
Environment
Paleoecology

ECONOMIC assistance
Commonwealth aid; do we get value? Engineering 197:275+ F 21 '64
Handbooks to aid underdeveloped areas. A. M. Hatt-Arnold. Engineering 197:67 Ja 17 '64

ECONOMIC assistance, American
Cuts in foreign aid spare construction. Eng N 172:17 Mr 26 '64
Engineer looks at foreign aid. I. B. Joralemon. Min Eng 16:25+ Ap '64
Seabees play a Peace corps role. il map Eng N 172:68-9 Je 18 '64
Senate backs federal engineering curb. Eng N 171:24 N 21 '63
Senate slashes more foreign-aid funds. Eng N 171:54 N 14 '63
Transport loans aid five nations. Eng N 173:37 Ag 13 '64
Tunisia wants U.S. methods, not money. Eng N 172:21 Mr 12 '64

ECONOMIC conditions
Economic and social forces are related. Automation 11:79 Ap '64
Technical resources neglected by industry? J. H. Hollomon. Mech Eng 86:30-2 Ja '64
See also
United States—Economic conditions

ECONOMIC development
Technical awareness and economic growth. Engineering 197:466 Ap 3 '64

ECONOMIC geology. See Geology. Economic

ECONOMIC planning
Developing Scotland and the North East. Engineering 197:75 Ja 17 '64
Economic planning in the chemical industry. G. Abrahamson. il Ind Chem 39:651-6 D '63
1964 prospects for all engineering; economic outlook. Engineering 197:96 Ja 17 '64
Planning sharpens competition in Europe. Chem & Eng N 42:28 O 19 '64
Supra economics in steel investment. C. H. Williams. Iron & Steel Eng 41:86-90 Mr '64

ECONOMIC policy
See also
Economic planning

ECONOMICS
Animal farm; a mathematical model for the discussion of social standards for control of the environment. H. A. Thomas, jr. Am Water Works Assn J 56:1087-91 S '64
Bargaining behavior; a comparison between mature industrial personnel and college students. S. Siegel and D. L. Harnett. Op Res 12:334-43 Mr '64
Economic evaluation of r&d projects. A. J. Weinberger. bibliog Chem Eng 70:123-6 O 28; 113-18 N 25; 81-6 D 23 '63; 71:141-44 Ja 20; 91-4 Mr 30; 165-6+ Ap 27 '64
Engineer and the economic system. K. J. Charles bibliog diags Eng J 47:35-40 Ap '64
Financial mathematics for economic studies. P. H. Jeynes and C. J. Baldwin. Westinghouse Eng 24:41-7 Mr '64
Gearing military R&D to economic growth. R. A. Solo. Electro-Tech 73:93-8 Je '64
See also
Competition
Consumption (economics)
Distribution (economics)
Engineering economics

Study and teaching

API brightens up the dismal science. Oil & Gas J 62:104-5 Je 8 '64

ECONOMICS, Mathematical
Mathematics in the social sciences. R. Stone. diags Sci Am 211:168-72+ S '64

ECUADOR
See also
Geology—Ecuador
Mines and mineral resources—Ecuador
Roads—Ecuador

EDDY current brakes. See Brakes, Magnetic

EDDY current couplings. See Couplings, Magnetic

EDDY currents
Development of eddy-current testing techniques for tube inspection. D. Terry. bibliog il diags Radio & Electronic Eng 26:373-82 N '63
Eddy-current losses in finite sections of solid iron under saturation. V. Subba Rao. bibliog diags Inst E E Proc 111:343-8 F '64
Eddy-current losses in saturated cylinders. B. Béland and J. Robert. bibliog il diags IEEE Trans Com & Electronics p 191-8 Mr '64
Eddy-current losses in thin magnetic sheet. B. E. Mulhall. bibliog diag Inst E E Proc 111:183-92 Ja '64
Eddy current tester finds tubing flaws. diag Tool & Manuf Eng 52:99 Ja '64
Eddy current unit cuts test time on precious metal products. il Wire & Wire Prod 39:1322+ S '64
Eddy currents and their effect on commutation. A. I. Dvoracek. diags IEEE Trans Power Apparatus & Systems 83:977-88 O '64
Grain size effects in silicon steels upon the ac core loss components. R. E. Lenhart. J Ap Phys 35:861-2 pt 2 Mr '64
Magnetic saturation and eddy current effect in d-c machine voltage build-up. H. B. Hamilton. diags IEEE Trans Power Apparatus & Systems 83:606-10; Discussion. 650-1 Je '64
New inspection technique uses eddy currents. il diag Product Eng 34:35 D 23 '63
Non-destructive testing with magnetic and eddy current measurements. il Engineer 217:292 F 7 '64
Radiation field of a magnetic dipole antenna in a conical sheath. D. C. Pridmore-Brown. diags J Math & Phys 43:199-217 S '64
Scope reconstructs flaws in tubes. il Iron Age 192:101 D 12 '63
Tailored tests upgrade copper. P. Garatoni. il Iron Age 193:92-3 Ap 23 '64

EDDY currents—*Continued*
Three-conductor elementary Clogston coaxial transmission line; calculation, fabrication and experiment. J. M. Manley. bibliog il diags Bell System Tech J 42:2551-74 N '63
Tube testing; eddy current method. il diag Light Metal Age 22:14 Je '64

EDISON electric institute
Annual convention, 32d, Atlantic City; with abstracts of papers. Elec World 161:103-10 Je 15 '64
Annual meeting of the Purchasing stores committee, Hartford, May 11-13. Elec World 161:48+ Je 1 '64
Industrial relations round table conference, Chicago. Elec World 162:100+ O 19 '64

EDITING
Editing a scientific journal; abstract. J. B. Attrill. Chem & Ind p 201; Discussion. 201-2 F 1 '64
Technical reading, writing and editing (cont). M. H. Aronson and R. C. Nelson. Instruments & Control Systems 36:91-2 N; 73-5 D '63

EDMONTON, Alberta
See also
Airports—Edmonton, Alberta

EDUCATION
Growing picture of education. L. H. Evans and G. E. Arnstein. bibliog Automation 11:56-9+ Ap '64
See also
Education, Elementary
Engineering education
Liberal education
Medical education
Moving pictures in education
Scholarships and fellowships
Technical education
Television in education
Vocational education

Great Britain

Education: Robbins report on higher education; discussion. Roy Aeronautical Soc J 68:330-42 My '64
How sixth form English is slipping. A. J. Kirkman. Engineering 197:371 Mr 13 '64
Management education crystallises out; Lord Franks' report. Engineering 196:708 D 6 '63

United States

Texas may change its education system. Chem & Eng N 42:43 Ag 3 '64

EDUCATION, Cooperative. See Engineering education—Cooperative plan

EDUCATION, Elementary
Teaching physics in the elementary grades; science curriculum improvement study. R. Karplus. il Phys Today 17:34-8 O '64

EDUCATION, Higher
Education: Robbins report on higher education; discussion. Roy Aeronautical Soc J 68:330-42 My '64
Texas may change its education system. Chem & Eng N 42:43 Ag 3 '64

EDUCATION, Technical. See Technical education

EDUCATION and industry
When gas goes to school. il Am Gas Assn Mo 46:8-12 Je '64
See also
Engineering colleges—Relations with industry

EDUCATION and state
Administration backs education aid. Chem & Eng N 42:36 Mr 2 '64

EDUCATION of workers
See also
Vocational education

EFFICIENCY, Industrial
Automation and corporate efficiency. R. R. Eppert. Automation 11:134-9 Ap '64
Beware of creeping paralysis. W. G. Shepherd. Textile World 114:85-6 My '64
Boost productivity. il Mill & Factory 74:61-72 Je '64
Critical Paths and true productivity. S. L. Kochanski. diags Engineering 198:2-3 Jl 3 '64
Easy way to control production lot routing. N. L. Enrick. diag Textile World 114:59-61 Ja '64
Efficiency of cold-reduction mills in the rolling of steel strip. R. J. Bentz and W. L. Roberts. bibliog il Iron & Steel Eng 41:101-6 Mr '64
Engineer utilization. Machine Design 35:100-2 D 19 '63; 36:83-6 Ja 2; 138-40 Ja 16; 86-8 Ja 30; 146-8 F 13 '64
Making company comparisons pay. Engineering 198:385 S 25 '64
Manufacturing efficiency; a national resource. D. L. Goldy. Automation 11:143-4 S '64
Optimizing commitment timing in procuring manufacturing equipment. A. M. Hanfmann and D. Cleinow. Automation 10:54-9 N '63
Work study and related techniques. J. E. Payne. bibliog il Naval Eng J 76:471-81 Je '64
See also
Air conditioning, Industrial
Control charts
Employment management
Factories—Lighting
Factory management
Fatigue
Foundry management
Industrial engineering
Industrial management
Industrial relations
Labor productivity
Machine shop management
Machinery, Replacement of
Mechanical handling
Mine management
Music in industry
Office management
Planning
Routing systems
Standardization
Time study

EFFICIENCY, Personal
Challenge of personal professional development. C. M. Sinnett. Res/Develop 15:37 N '64

EGG white. See Albumin

EGGS
Dry cleaning for eggs. il Engineering 196:720 D 6 '63

Preservation

Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K. Ijichi and others. bibliog Food Tech 18:1628-32 O '64

Storage

Influence of rapid cooling and storage conditions on shell egg quality. F. R. Tarver, jr. and R. E. Choate. bibliog Food Tech 18:1604-6 O '64

Yolks

Improvement in flow properties of egg yolk solids. R. H. Forsythe and others. bibliog il Food Tech 18:747-51 My '64

EGGS, Dried
Improvement in flow properties of egg yolk solids. R. H. Forsythe and others. bibliog il Food Tech 18:747-51 My '64
Ultraviolet absorbancy of volatiles as a measure of oxidative flavor deterioration in egg powders. O. S. Privett and others. bibliog diags Food Tech 18:1485-8 S '64

EGGS, Frozen
Liquid eggs frozen in bag. il Food Eng 36:82-4 Ag '64

EGYPT
See also subdivision Egypt under special subjects, e.g.
Geology
Hydroelectric plants
Petroleum
Petroleum industry and trade
Textile industry

Antiquities

Finally it's moving day for Egypt's Abu Simble temples. il Eng N 172:64-5 Je 18 '64
Salvaging Abu Simbel. il Engineer 218:195 Jl 31 '64

EGYPTIAN glassware. See Glassware, Egyptian

EICOSATRIENOIC acid
5,11,14-Eicosatrienoic acid in podocarpus nagi seed oil. T. Takagi bibliog Am Oil Chem Soc J 41:516-19 Jl '64

EJECTORS
For want of a weld rod; designing and fabricating a large air ejector. D. G. Poppe. Heating-Piping 36:128 Je '64
How to specify, evaluate and operate steam-jet air ejectors. R. B. Power. bibliog diag Hydrocarbon Process & Pet Refiner 43:121-6 F; 138-42 Mr; 149-52 Ap '64
Power for a salt jetslinger. il diag Elec Constr & Maint 63:98-101 Je '64
Preliminary estimates for steam-jet air ejectors. Chem Eng 71:120+ F 3 '64
Use sewage ejectors where required. A. Koral. diags Air Cond Heat & Ven 61:75-6+ Mr '64
See also
Steam jets

ELAIDINIZATION
Elaidinization of methyl oleate with mercaptans. H. W. Kircher. bibliog Am Oil Chem Soc J 41:351-4 My '64

ELASTIC fabrics
- ABC's of textured cotton yarns. G. F. Ruppenicker, jr. and others. il diag Textile Ind 128:54-9 Jl '64
- Are you ready for stretch? il Mod Textiles Mag 45:25+ Jl '64
- Carolina Throwing has multiplied its sales in ten years a fabulous 15 times. il Textile Ind 128:139-40+ S '64
- Core-spun elastic yarns. il diags Textile Ind 128:57-60 Mr '64
- Development of stretch fabrics by use of the F R L compactor. K. R. Fox and L. N. Backer. bibliog il diag Am Dyestuff Rep 53:412-17 My 25 '64
- Dyeing and finishing fabrics containing Lycra; abstract. Am Dyestuff Rep 53:8-9 Ja 6 '64
- Dyeing and finishing of fabrics containing Lycra spandex yarns. R. E. Wagner. Am Dyestuff Rep 53:376-9 My 11 '64
- Dyeing and finishing of Lycra spandex fiber; abstract. C. L. Huskilson. Am Dyestuff Rep 53:629-30 Jl 20 '64
- Dyeing and finishing stretchable fabrics of stretch textured Du Pont nylon yarns. L. W. Muscelli. il Am Dyestuff Rep 53:869-73 S 28 '64
- Dyeing woven stretch; a case history. il Textile Ind 128:65-6+ S '64
- Finishing powernet fabrics at Cooper textile mills. il Textile World 113:91-2 N '63
- How to spin stretch yarns. J. L. Clements. il diags Textile Ind 128:85-9 Ag '64
- Madison story; making stretch yarns successfully. il Textile World 114:44-7 S '64
- Modulus tests made on hosiery tops containing spandex. J. V. Boone. Am Dyestuff Rep 53:713-14 Ag 17 '64
- Now you can predict fabric behavior in elastic garments. Textile Ind 128:66 Jl '64
- Outlook for cotton stretch fabrics. Mod Textiles Mag 45:34+ F '64
- Package unit solves drying problems of spandex producer. il Am Dyestuff Rep 53:276-7 Mr 30 '64
- Processing and dyeing of stretch nylon hosiery. H. C. Gift Am Dyestuff Rep 53:641-3 Jl 20 '64
- Processing of nylon knit goods and stretch fabrics. W. Stump. Am Dyestuff Rep 53:100-4 F 3 '64
- Production and testing of all-wool woven stretch fabrics; abstract. H. Bilbie. Am Dyestuff Rep 53:329-30 Ap 27 '64
- Properties of one-way and two-way stretch cotton fabrics. W. G. Sloan and others. bibliog Am Dyestuff Rep 53:885-8 O 12 '64
- Properties of spandex threads influencing fabric design and dyeing and finishing operations. R. A. Gregg and others. Am Dyestuff Rep 53:334-9 Ap 27 '64
- Relating technical developments in stretch to market requirements. G. K. Gilbert. Am Dyestuff Rep 53:98-9 F 3 '64
- Report on DuPont's Lycra spandex fiber. il Mod Textiles Mag 45:24-30+ O '64
- Spantrique; tricot with the all-way stretch. il Textile Ind 128:127-31+ My '64
- Stretch yarn lawsuits settled. Mod Textiles Mag 45:46 Je '64
- Test procedures offered for elastic garments. Mod Textiles Mag 45:76 Je '64

ELASTIC shells. See Shells, Elastic

ELASTICITY
- Analysis of triangular bracket-type plates. C. G. Salmon. bibliog diags Am Soc C E Proc 88 [EM 6 no 3363]:41-87 D '62; Discussion. B. J. Hartz. 89 [EM 5 no 3687]: 97-8 O '63; Reply. 90 [EM 2 no 3882]:229-30 Ap '64
- Anisoelasticity in gas lubricated support systems. G. B. Speen and R. C. Turnblade. diags Lub Eng 19:449-55; Discussion. 455-6 N '63
- Apparatus for the measurement of Young's modulus and internal friction of metals. S. S. Lanting and H. A. Waterman. il diags J Sci Instr 41:605-8 O '64
- Application of finite elastic theory to the behavior of rubberlike materials. P. J. Blatz. bibliog il diags Rubber Chem & Tech 36:1459-96 D '63
- Application of thermodynamics to thermomechanical, fracture, and birefringent phenomena in viscoelastic media. R. A. Schapery. bibliog J Ap Phys 35:1451-65 My '64
- Boundary value problems in two-dimensional elasticity by conducting paper analogue. D. S. Ross and I. H. Qureshi. diags J Sci Instr 40:513-17 N '63
- Buckling criterion for linear viscoelastic columns. S. L. De Leeuw. bibliog diags AIAA J 1:2665-6 N '63
- Calibration of sinusoidal shear generator used to study viscoelasticity. D. O. Miles and G. C. Knollman. J Ap Phys 35:2549-50 Ag '64
- Changes in relation between refractive index and Young's modulus as the result of successive heat treatments. E. H. Hamilton. bibliog Am Cer Soc J 47:167-70 Ap '64
- Characteristic viscoelastic parameters for amorphous polymers. A. V. Tobolsky and M. Takahashi. Rubber Chem & Tech 37: 285-90 Ja '64
- Clamped plate analogy for thermoelasticity. A. L. Ross. bibliog diag A S M E Trans ser D 85:579-84 D '63
- Coefficient of thermal expansion and Young's modulus for a one-dimensional model of a solid. J. Mazur and R. J. Rubin. bibliog Am J Phys 31:835-6 N '63
- Comparisons of materials; modulus of elasticity in tension; tables. Materials in Design Eng 60:24 Mid-O '64
- Concentrated force in an elastically embedded disk. J. Dundurs. diags A S M E Trans ser E 30:568-70 D '63
- Contact of nonspherical elastic bodies transmitting tangential forces. P. J. Vermeulen and K. L. Johnson. bibliog A S M E Trans ser E 31:338-40 Je '64
- Contact stress problem for an elastic sphere indenting an elastic layer. L. M. Keer. bibliog A S M E Trans ser E 31:143-5 Mr '64
- Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64
- Decay of elastic precursor waves. P. Harris. J Ap Phys 34:3405 N '63
- Decay of elastic waves in solids with dislocations. P. Harris and R. F. Greene. bibliog J Ap Phys 35:2170-3 Jl '64
- Determination of elastic critical loads. L. K. Stevens and L. C. Schmidt. bibliog diags Am Soc C E Proc 89 [ST 6 no 3723]:137-58 D '63; Correction. 90 [ST 4 no 4001]:309-10 Ag '64
- Develop tougher beryllium with higher elastic limit. il Mod Metals 19:52 N '63
- Discrete dynamic models for elasto-inelastic beams. R. K. Wen and T. Toridis. bibliog diags Am Soc C E Proc 90 [EM 5 no 4081]: 71-102 O '64
- Double-cantilever cleavage mode of crack propagation. P. P. Gillis and J. J. Gilman. bibliog diags J Ap Phys 35:647-58 Mr '64
- Dynamic analysis of elastic-plastic frames. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 90 [ST 2 no 3881]: 315-43 Ap '64
- Dynamic mechanical properties of paper. W. P. Riemen and S. F. Kurath. bibliog il Tappi 47:629-33 O '64
- Dynamic response of a solid, viscoelastic sphere to translational and rotational excitation. R. M. Christensen and W. G. Gottenberg. bibliog diag A S M E Trans ser E 31:273-8 Je '64
- Dynamical compliance of rectangular foundations on an elastic half-space. W. T. Thomson and T. Kobori. bibliog diags A S M E Trans ser E 30:579-84 D '63
- Effect of anvil material on the generation of high pressures. J. H. King. bibliog diags J Sci Instr 41:102-4 F '64
- Effect of cyclic loading on the temperature in viscoelastic media with variable properties. R. A. Schapery. bibliog diags AIAA J 2:827-35 My '64
- Effect of diameter upon elastic properties in thin fibers. H. Schuerch. bibliog diag AIAA J 2:569-71 Mr '64
- Effect of open and closed pores on Young's modulus of polycrystalline ceramics. R. S. Piatasik and D. P. H. Hasselman. bibliog Am Cer Soc J 47:50-1 Ja '64
- Effect of pressure on Young's modulus and the glass transition in rubbers. M. S. Paterson. bibliog J Ap Phys 35:176-9 Ja '64
- Effect of small fraction of spherical porosity on elastic moduli of glass. D. P. H. Hasselman and R. M. Fulrath. bibliog il Am Cer Soc J 47:52-3 Ja '64
- Effect of stress applied during drying on some of the properties of individual pulp fibers. C. A. Jentzen. bibliog il Tappi 47: 412-18 Jl '64
- Elastic and inelastic buckling of portal frames. K. H. Chu and A. Pabarcius. bibliog diags Am Soc C E Proc 90 [EM 5 no 4094]:221-49 O '64
- Elastic and inelastic lateral instability of I-beams. C. Massey. bibliog Engineer 216:672-4 O 25 '63
- Elastic behaviour in cold strip rolling at the onset of plasticity. F. J. Loss and others. bibliog diags Inst Metals J 92:104-10 '63-64

ELASTICITY—*Continued*
Elastic constants of a (73.8 per cent Ni-26.2 per cent Fe) ferromagnetic alloy. N. G. Einspruch and L. T. Claiborne. bibliog J Ap Phys 35:175 Ja '64
Elastic constants of aluminum. J. Vallin and others. bibliog J Ap Phys 35:1825-6 Je '64
Elastic constants of CsBr and CsI from 4.2°K to room temperature. J. Vallin and others. bibliog J Ap Phys 35:1222-3 Ap '64
Elastic energy at fracture and surface energy as design criteria for thermal shock. D. P. H. Hasselman. bibliog Am Cer Soc J 46:535-40 N '63
Elastic instability of relatively thick circular cylindrical shells subjected to hydrostatic pressure. T. M. Barry and L. D. Ballow. bibliog il diags Naval Eng J 76:621-31 Ag '64
Elastic loading of high pressure cylinders. R. Epain and B. Vodar. bibliog diags Am Soc C E Proc 90 [EM 5 no 4108]:363-71 O '64
Elastic moduli of fiber-reinforced materials. Z. Hashin and B. W. Rosen. bibliog diags A S M E Trans ser E 31:223-32 Je '64
Elastic moduli of silicon vs hydrostatic pressure at 25.0°C and —195.8°C. H. J. McSkimin and P. Andreatch, jr. J Ap Phys 35:2161-5 Jl '64
Elastic modulus of polymers from resonant flexure of clamped disks. J. Roberts. bibliog diag J Sci Instr 41:357-60 Je '64
Elastic-plastic analysis of centrally clamped annular plates under uniform loads. F. W. French. bibliog diags Franklin Inst J 277:575-92 Je '64
Elastic-plastic behaviour of pre-stressed materials. J. Pietrzykowski. bibliog diags Engineer 217:385-8 F 28 '64
Elastic-plastic deformation of a single grooved flat plate under longitudinal shear. M. F. Koskinen. bibliog il diags A S M E Trans ser D 85:585-91; Discussion. 591-3; Reply. 593-4 D '63
Elastic stability of castellated plates. M. Sevik. diags AIAA J 2:174-5 Ja '64
Elastic stress analysis of jointed half-planes. K. T. Sundara Raja Iyengar and R. S. Alwar. Franklin Inst J 278:267-79 O '64
Elasticity of carbon black networks. A. R. Payne. bibliog diag J Colloid Sci 19:744-54 O '64
Elasticity of rubber-bitumen binders for use in roads. J. de Merlier and others. bibliog il diags Rubber Chem & Tech 37:457-76 Ap '64
Elastostatic problem of a perforated square plate. A. L. Schlack and R. W. Little. bibliog diags Am Soc C E Proc 90 [EM 5 no 4089]:171-87 O '64
Exact solution of a problem of rectangular elastic plates of variable thickness. L. Contri. bibliog J Math & Phys 43:72-4 Mr '64
Explanation for the effect of ferromagnetism upon atomic diffusion. R. J. Borg. bibliog J Ap Phys 35:567-9 Mr '64
Extensometer for hot specimen. A. J. Bush. il I S A J 11:49-50 Ag '64
Final shape of a dynamically loaded elastic-plastic redundant structure. H. C. Schjelderup and R. E. Ball. diag AIAA J 2:958 My '64
Finite beam-columns on elastic foundation. K. T. Sundara Raja Iyengar and S. Anantharamu. diags Am Soc C E Proc 89 [EM 6 no 3720]:139-60 D '63; Discussion. 90 [EM 2 no 3882]:257-9 Ap; [EM 3 no 3936]:289-90 Je '64; Reply. 90 [EM 6 no 4160]:249-52 D '64
Flat plate structures J. F. Brotchie and J. J. Russell. diags Am Concrete Inst J 61:959-96 bibliog(p990-1) Ag '64; Supplement. pt 2:1-17 '65
Flow of viscoelastic Maxwell fluid. K. C. Bagchi. AIAA J 2:759-61 Ap '64
Form for the relation between stress and finite elastic and plastic strains under impulsive loading. M. E. Backman. J Ap Phys 35:2524-33 Ag '64
Fourth-order elastic coefficients. P. B. Ghate. bibliog J Ap Phys 35:337-9 F '64
Fracture of wool fibers; viscoelastic nature of the fracture properties. P. Mason. bibliog Textile Res J 34:747-54 S '64
Frequency analysis of beams by flexibility method. J. W. Gillespie and B. D. Liaw. bibliog diags Am Soc C E Proc 90 [EM 1 no 3798]:23-46 F '64; Discussion. 90 [EM 4 no 4000]:181-4 Ag; [EM 5 no 4093]:423-8 O '64
Generation of elastic waves by transient surface heating. R. M. White. bibliog il diags J Ap Phys 34:3559-67 D '63
Inequalities for solutions of mixed boundary value problems for elastic plates. J. H. Bramble and L. E. Payne. bibliog J Res Nat Bur Stand 68B:75-92 Ap '64
Influence functions for beams on elastic foundations. A. Dodge. diags Am Soc C E Proc 90 [ST 4 no 4002]:63-101 Ag '64
Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64
Influence of thermal and mechanical history on Young's modulus and damping anomalies near 40°C in chromium. M. J. Klein and others. bibliog J Ap Phys 35:1994-5 Je '64
Introduction to the molecular viscoelastic theory of polymers and its applications. W. L. Peticolas. bibliog diags Rubber Chem & Tech 36:1422-58 D '63
Kind of hysteretic damping. E. Rosenblueth and I. Herrera. bibliog diags Am Soc C E Proc 90 [EM 4 no 3999]:37-48 Ag '64
Low-temperature elastic constants of indium arsenide. D. Gerlich. J Ap Phys 35:3062 O '64
Low-temperature elastic moduli of aluminum. G. N. Kamm and G. A. Alers. bibliog J Ap Phys 35:327-30 F '64
Magnetoelastic damping in zone-melted iron. R. E. Maringer. diag J Ap Phys 35:2375-81 Ag '64
Measurement of damping capacity and Young's modulus of elasticity. il diag Metallurgia 69:247-9 My '64
Measurement of dynamic Young's modulus of staple fibers. V. S. Joshi. diag Textile Res J 34:732 Ag '64
Measuring materials' elastic properties. il diag Engineering 196:765 D 13 '63
Mechanics of elastic performance of textile materials; filament bending recovery. W. D. Freeston, jr. and M. M. Platt. il diags Textile Res J 34:308-19 Ap '64; Discussion. B. Olofsson. 34:902-3; Reply. 903-4 O '64
Meter read-out for vibroscopes. D. D. Snyder and J. K. Marsh. diag R Sci Instr 35:232 F '64
Method of analysis of transient thermal stresses in thermorheologically simple viscoelastic solids. K. C. Valanis and G. Lianis. bibliog A S M E Trans ser E 31:47-53 Mr '64
New impedance method for determining viscoelastic constants. E. L. Spitznagel, jr. and others. il diags R Sci Instr 35:582-6 My '64
New method for determining Poisson's ratio. S. C. Crow. bibliog il diags Materials Res & Stand 3:996-1002 D '63
New methods to determine elastic constants. A. J. Durelli and L. Ferrer. diags Materials Res & Stand 3:988-91 D '63
New polymers combine covalent, ionic bonds. il Chem & Eng N 42:25 S 7 '64
Nomograph quickly finds shear modulus. R. L. Peters. Product Eng 34:140 D 9 '63
Novel method of measuring elastic and anelastic properties of solids. D. B. Fraser and R. C. LeCraw. il diags R Sci Instr 35:1113-15 S '64
Optical observation of elastic resonances in $NH_4H_2PO_4$. D. J. A. Gainon and others. bibliog il diag J Ap Phys 35:1166-8 Ap '64
Oscillatory behavior of normal stresses in viscoelastic fluids. M. C. Williams and R. B. Bird. bibliog diags Ind & Eng Chem Fundamentals 3:42-9 F '64
Photothermoelastic investigation of thermal stress in flat plates. H. Becker and A. Colao. bibliog A S M E Trans ser D 85:566-8 D '63
Pressurized star crack. R. A. Westmann. J Math & Phys 43:191-8 S '64
Principles and potentials of dynamic elastic testing. G. C. Karas. bibliog il diags Brit Plastics 37:59-62 F '64
Propagation characteristics of capillary ripples; theory of velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen and J. A. Mann, jr. bibliog J Ap Phys 35:152-8 Ja '64
Reduction of the simple hygrosteric fluid to the Stokesian fluid. A. W. Marris. bibliog A S M E Trans ser E 31:170-4 Je '64
Reformulation of the elastic field equation, in terms of displacements, valid for all admissible values of Poisson's ratio. L. R. Herrmann and R. M. Toms. diag A S M E Trans ser E 31:140-1 Mr '64
Relation between effects of porosity on strength and on Young's modulus of elasticity of polycrystalline materials. D. P. H. Hasselman. bibliog diag Am Cer Soc J 46:564-5 N '63

ELASTICITY—*Continued*

Relation between the friction and viscoelastic properties of rubber. K. A. Grosch. bibliog diags Rubber Chem & Tech 37:386-403 Ap '64

Relation of single-crystal elastic constants to polycrystalline isotropic elastic moduli of MgO. D. H. Chung and others. bibliog diag Am Cer Soc J 46:452-7; 47:448-55 S '63, S '64; Discussion. R. L. Colombo. 47:255 My '64

Relative contributions of viscoelasticity and aging to the relaxation of cured rubber. P. Thirion and R. Chasset. bibliog il Rubber Chem & Tech 37:617-26 Jl '64

Remarks on variational principles in elastodynamics. Y. Chen. bibliog Franklin Inst J 278:1-7 Jl '64

Representation of the mechanical damping possessed by rubberlike materials and structures. J. C. Snowdon. bibliog diags Rubber Chem & Tech 37:370-85 Ap '64

Response of a prestressed elastic plate strip to a moving pressure load H. Reismann. bibliog diags Franklin Inst J 278:8-19 Jl '64

Response of elastic cylinders to plane shear waves. L. J. Mente and F. W. French. diags Am Soc C E Proc 90 [EM 5 no 4083]: 103-18 O '64

Shrink fit problem. W. R. Spillers. bibliog J Math & Phys 43:65-71 Mr '64

Stability of elasto-plastic wide-flange columns. G. F. Hauck and S. L. Lee bibliog diags Am Soc C E Proc 89 [ST 6 no 3738]: 297-324 D '63; Discussion. M. G. Lay and T. V. Galambos. 90 [ST 2 no 3886]:419-20 Ap '64; Reply. 90 [ST 5 no 4066]:205 O '64

Stability of equilateral triangular plates. W. A. Bradley. bibliog diags Am Soc C E Proc 89 [EM 1 no 3426]:37-56 F '63; Discussion. 89 [EM 4 no 3616]:81-7 Ag '63; Reply. 90 [EM 2 no 3882]:231-2 Ap '64

Stress behavior in the neighborhood of sharp corners. F. C. Karal, jr. and S. N. Karp. diags Geophysics 29:360-9 Je '64

Stress functions for the axisymmetric, orthotropic, elasticity equations. L. R. Herrmann. AIAA J 2:1822-4 O '64

Stresses in a layered half-plane. K. T. Sundara Raja Iyengar and R. S. Alwar. diags Am Soc C E Proc 90 [EM 4 no 4004]:79-96 Ag '64

Structural analysis of viscoelastic materials. M. L. Williams. il diags AIAA J 2:785-808 bibliog(p806-8) My '64

Theory and analysis of peel adhesion; rate-temperature dependence of viscoelastic interlayers. D. H. Kaelble bibliog J Colloid Sci 19:413-24 Je '64

Theory of buckling of a porous slab and its thermoelastic analogy. M. A. Biot. diags A S M E Trans ser E 31:194-8 Je '64

Thermodynamics of elasticity of natural rubber. G. Allen and others. bibliog diag Rubber Chem & Tech 37:606-16 Jl '64

Thermodynamics of perfect elastic fluids. B Bernstein and others. bibliog J Res Nat Bur Stand 68B:103-13 Jl '64

Thermoelastic dissipation in vibrating plates. J. Tasi. bibliog A S M E Trans ser E 30: 562-7 D '63

Thermoelasticity of heterogeneous aeolotropic plates. Y. Stavsky. bibliog Am Soc C E Proc 89 [EM 2 no 3486]:89-105 Ap '63; Excerpts. AIAA J 1:960-2 Ap '63; Discussion. R. Schmidt. Am Soc C E Proc 89 [EM 4 no 3616]:97 Ag '63; Reply. 90 [EM 1 no 3811]: 161-2 F '64

Third-order elastic moduli of anisotropic solids. N. G. Einspruch and R. J. Manning. J Ap Phys 35:560-7 Mr '64

Three-dimensional elasticity solution for continuous beams. L. R. Herrmann. bibliog diags Franklin Inst J 278:75-83 Ag '64

Three methods for measuring elastic recovery of knit fabrics. H. M. Fletcher and S. H. Roberts. il diags Textile Res J 34:649-52 Jl '64

Undergraduate experiment on elasticity of rubber bands. E. P. Papadakis. Am J Phys 31:938-9 D '63

Uniaxial anisotropy due to magnetoelastic energy in constrained polycrystalline films. F. G. West. bibliog J Ap Phys 35:1827-40 Je '64

Uniaxial wave propagation in realistic viscoelastic materials. R. J. Arenz. bibliog A S M E Trans ser E 31:17-21 Mr '64

Vibration method for the elastic constants of small plates. C. D. Bopp. diags R Sci Instr 35:703-7 Je '64

Viscoelastic boundary damping of beams and plates. T. J. Mentel. bibliog il diags A S M E Trans ser E 31:61-71 Mr '64

Wave propagation in rotating elastic media. R. L. Huston. AIAA J 2:575-6 Mr '64

Young's modulus apparatus with hydraulic amplification. D. Nahshol. il diags Am J Phys 32:567-9 Jl '64

See also

Aeroelasticity
Bending
Bending moment
Compressibility
Creep of materials
Deformation (mechanics)
Fatigue in metals
Friction, Internal
Hysteresis (mechanics)
Photoelasticity
Plasticity
Rheology
Strains and stresses
Torsion

ELASTIN

Importance of dietary copper in the formation of aortic elastin. B. Starcher and others. bibliog J Nutrition 82:318-22 Mr '64

ELASTOMERS. See Rubber, Artificial

ELBOWS, Pipe. See Pipe elbows

ELECTRETS

Condenser microphones with electret foil. G. M. Sessler and J. E. West. diag Audio Eng Soc J 12:129-31 Ap '64

ELECTRIC accidents. See Electricity, Injuries from

ELECTRIC alarms

Magnet control initiates zero-speed alarm, North Western pulp & power ltd. J. Steingrube. diags Elec Constr & Maint 63:120-1+ S '64

Remote vhf radio alarm system is solar powered. il diag Power Eng 68:47 O '64

Theft, fire or flood warning equipment. Ind Electronics 2:493 O '64

See also

Fire alarms

ELECTRIC analogies. See subdivision Electric analogies under special subjects, e.g. Diffusion; Heat transmission; Hydraulics; Mechanics; Petroleum engineering

ELECTRIC apparatus and appliances

Components, materials, equipment. Published in monthly numbers of Electro-technology

Design trends. Published in monthly numbers of Electro-technology

Polyethylene housing; rotational molding meets appliance needs. il Plastics World 22:39 Jl '64

See also

Clocks, Electric
Commutators
Electric alarms
Electric capacitors
Electric circuit breakers
Electric coils
Electric controllers
Electric converters
Electric current limiters
Electric equipment
Electric fuses
Electric generators
Electric industries
Electric instruments
Electric inverters
Electric lamps
Electric machinery
Electric meters
Electric motors
Electric protective apparatus
Electric rectifiers
Electric switchgear
Electric transformers
Electricity in mining
Electricity on the farm
Electromagnets
Electronic apparatus and instruments
Photoelectric cells
Potentiometers
Relays
Selsyn apparatus
Spark plugs
Storage batteries
Switchboards
Transducers
Voltage regulators

Directories

See Electric apparatus industry—Directories

Exhibitions

ASEE exhibition. il Engineering 197:539 Ap 17 '64

Electrical engineers exhibition, 12th, London, March 18-25. il Engineer 217:469-72, 505-7, 569-72 Mr 13-27 '64; Engineering 197:378-9, 463, 672 Mr 13, 27, My 15 '64; Ind Electronics 2:140-2 Mr '64

Farm exhibitions promote total-electric concept. il Elec World 162:91-2 Ag 24 '64

ELECTRIC apparatus and appliances—Exhibitions—*Continued*

Industry has star role at World's fair. il Elec World 161:87-8 Ap 20 '64

1964 Technical fortnight of Paris. D. T. Braymer. il Elec World 161:89+ Je 15 '64

Merchandising

See also

Electric utilities—Appliance selling

Standards

Comparing apples and pears; electrical apparatus could not be compared without standardization of ratings. diags Mag of Stand 35:48-50 F '64

See also

Electric standards

Testing

Interpretation of truncated sequential life tests. H. Ginsburg and D. H. Shaffer bibliog Ind Quality Control 21:186-91 O '64

ELECTRIC apparatus and appliances, Domestic

Appliance makers step up use of plastics. il Chem & Eng N 42:24-5 Ag 31 '64

Design triumph; frameless appliance housing. il diag Mod Plastics 41:88-9+ Ap '64

Home appliances provide growing market for thermosetting acrylic enamels. il Chem & Eng N 42:42 Ap 13 '64

Lightweight materials needed for portable appliances. Materials in Design Eng 59:81-2 Mr '64

1964 prospects of all engineerings; home equipment. il Engineering 197:143-4 Ja 17 '64

Small appliance parts painted automatically. F. J. Kosma. il Ind Finishing 40:30-2+ Mr '64

See also

Electric irons
Electricity in air conditioning
Electricity in the home
Food mixers
Refrigerators
Washing machines

Merchandising

See also

Electric utilities—Appliance selling

Testing

Instrumentation for test house. il Engineering 197:164 Ja 24 '64

ELECTRIC apparatus industry

Equipment backlogs near top level. Elec World 161:58 My 4 '64

See also

Electric utilities—Appliance selling
General electric company
National electrical manufacturers association

Directories

Electric motors reference issue; product directory. Machine Design 36:149-248 Mr 19 '64

Electrical products guide. Elec Constr & Maint 63:251-324 S '64

1964 Power Engineering telemetry buyers' guide. Power Eng 68:T34-5 Mr '64

Statistics

Electrical World annual statistical report, 60th; electrical manufacturing. Elec World 161:88-9 F 24 '64

Great Britain

British electrical manufacturing industry in 1963. Engineer 217:526 Mr 20 '64

New developments in electrical power plants; illustrations with text. Engineer 217:86-7 Ja 10 '64

1964 prospects of all engineerings; power plant. il Engineering 197:124-7 Ja 17 '64

Japan

How Mitsubishi Electric fills meter demand. R. E. Green. il Mach 70:100-5 Mr '64

ELECTRIC arc

Applying electric arcs to wind tunnels. P. G. Simpkins. il diags Engineering 196:638-40 N 15 '63

Calorimeter study of a magnetically stabilized arc-heater. R. B. Stewart. diags AIAA J 2:384-6 F '64

Carbon arcs for 16mm film projection. C. E. Heppberger and E. A. Bowen. bibliog SMPTE J 73:862-4 O '64

Coal conversion in an electric arc. P. R. Ammann and others. bibliog il diags Chem Eng Prog 60:52-7 Je '64

Determination of propellant properties by the arc image furnace technique. R. O. Fleming, jr. and R. W. Fleming. diag AIAA J 2:117-18 Ja '64

Easily fabricated Toronto arc. R. H. Kummler and M. McCarty, jr. diags R Sci Instr 35:413 Mr '64

Effect of carbon-arc intensity on asphalt oxidation. J. R. Wright and others. bibliog J Ap Chem 14:30-5 Ja '64

Fluid transpiration through anodic boundary of an electric arc. C. Sheer and others. bibliog il diags AIAA J 2:483-9 Mr '64

High intensity carbon-arc-image furnace and its application to single crystal growth of refractory oxides. G. J. Goldsmith and others. bibliog il diag Electrochem Soc J 111:260-2 F '64

Reactions of carbon vapor with hydrogen and with methane in a high intensity arc. R. F. Baddour and J. L. Blanchet. bibliog Ind & Eng Chem Proc Design 2:258-66 Jl '64

Removing the shock hazard from spark-triggered arc electrodes. D. A. Sinclair. bibliog diags J Sci Instr 41:618-21 O '64

Some characteristics of arc vaporized submicron particulates. J. D. Holmgren and others. il Electrochem Soc J 111:362-9 Mr '64

Study of the dynamic response of arcs; time constants of low-current arcs under small air flow. K. H. Yoon and T. E. Browne, jr. bibliog il diags IEEE Trans Power Apparatus & Systems p 1002-11; Discussion. 1011-13; Reply. 1013-14 D '63

Study of the gas-stabilized arc as an emission source for the measurement of oscillator strengths; determination of some relative *gf*-values for Fe I. M. Margoshes and B. F. Scribner. bibliog diag J Res Nat Bur Stand 67A:561-8 N '63

Summary of experiments on a transpiration-cooled electric-arc heat-transfer system. R. B. Kinney and others. il diag A S M E Trans ser C 86:131-2 F '64

Theory of interruption and thermal-arc reignition. H. Edels and F. H. Fenlon. diags Inst E E Proc 110:2082-92 N '63

Vacuum switch. M. P. Reece. bibliog il diags Inst E E Proc 110:793-811 Ap '63; Discussion. 110:2101-4 N '63

Vortex flow in arc heaters. K. E. Tempelmeyer and L. E. Rittenhouse. bibliog diags AIAA J 2:766-7 Ap '64

See also

Electric welding, Arc

ELECTRIC arc welding. See Electric welding, Arc

ELECTRIC associations

Midwest association of railroad and utilities commissioners meeting, Chicago; abstracts of papers. Elec World 162:57 Ag 10 '64

UNIPEDE tri-annual congress, Stockholm, July 23-30; abstracts of papers. Elec World 162:56-7 Ag 10 '64; Engineering 198:63-4 Jl 10 '64

See also

Edison electric institute
Northwest electric light and power association
Pennsylvania electric association

ELECTRIC automobiles. See Automobiles, Electric

ELECTRIC batteries

Bioelectric power sources. S. Barnes. il diags Machine Design 35:120-4 D 5 '63

Dissociation pressures of iron-nickel oxides. G. A. Roeder and W. W. Smeltzer. bibliog il diag Electrochem Soc J 111:1074-8 S '64

Dry-tape battery prototype shows promise. il diag Chem & Eng N 42:42+ F 24 '64

Galvanic cell measurement of the thermodynamic interaction between cadmium and tin in liquid bismuth. W. M. Boorstein and R. D. Pehlke. bibliog diag Electrochem Soc J 111:1269-72 N '64

High-rate, high-energy thermal battery system. S. M. Selis and others. diags Electrochem Soc J 111:6-13 Ja '64

Impedance of Leclanché cells and batteries. R. J. Brodd and H. J. DeWane. bibliog Electrochem Soc J 110:1091-7 N '63

Investigation of manganese dioxides. A. Tvarusko and R. F. Amlie. bibliog Electrochem Soc J 111:125-31, 496-501 F, My '64

One million volts from radioisotopes. Engineering 198:251 Ag 21 '64

Recent advances in dry batteries. S. R. Converse. il Electronic Ind 23:145-6+ Je '64

Research powers battery sales. P. J. Cathey. il Iron Age 193:62 Ap 23 '64

Thermally activated power cells. B. W. King and others. il Am Cer Soc Bul 43:117-21 F '64

ELECTRIC batteries—*Continued*

Thermogalvanic cells with silver Iodide as a solid electrolyte. J. L. Weininger. bibliog il diags Electrochem Soc J 111:769-74 Jl '64

See also

Electrolytic cells
Solar batteries
Standard cells
Storage batteries

Fuel cells

Automotive fuel cells not just a dream. Steel 154:71 Ja 27 '64

Coal burning fuel cell systems. D. H. Archer and others. bibliog il diags Chem Eng Prog 60:64-8 Je '64

Electron flow in the biological fuel cell. A. E. Herner and others. diag Res/Develop 15:27-9 Je '64

Four W's of fuel cells; who, what, where, when. E. M. Cohn. il diag Min Eng 16:75-80 S '64

Fuel cell burns liquid hydrocarbons with air. diag Machine Design 35:12 N 21 '63

Fuel cell developments. il diag Engineer 218:295-6 Ag 21 '64

Fuel-cell developments keep coming apace. F. C. Price. il diag Chem Eng 71:32+ Ja 6 '64

Fuel cell nearer payoff. Oil & Gas J 62:39 S 28 '64

Fuel-cell pressure controller. il Electro-Tech 72:110 D '63

Fuel cell research grooms new membranes. Chem Eng 71:102 O 12 '64

Fuel-cell terminology is given some meanings. Chem Eng 71:104 N 9 '64

Fuel cells. P. Roman. il diags Space/Aeronautics 42:70-5 Ag '64

Fuel cells; a state-of-the-art-report. R. J. Jasinski and T. G. Kirkland. bibliog il diags Mech Eng 86:51-7 Mr; 121-6 Ap '64

Fuel cells and the passenger car. B. V. Poulston and J. G. Kirtley. Engineer 217:464-7 Mr 13 '64; Abstract. Engineering 197:380-1 Mr 13 '64

Fuel cells for use in space have solid electrolyte. il Westinghouse Eng 24:31 Ja '64

Fuel cells that will operate on gasoline, Diesel fuel, or any other hydrocarbon. diag Product Eng 34:81-2 N 11 '63

High performance propane fuel cell operating in the temperature range of 150°-200°C. W. T. Grubb and C. J. Michalske. bibliog diag Electrochem Soc J 111:1015-19 S '64

Ion exchange membrane properties; their effect on the development of the dual membrane fuel cells. R. M. Lurie and others. bibliog diags Electrochem Soc J 110:1173-6 D '63

Laboratory demonstration fuel cell. J. G. Bannochie. bibliog diags J Sci Instr 41:644-5 O '64

Methanol fuel cell with an invariant alkaline electrolyte. E. J. Cairns and D. C. Bartosik. bibliog il diag Electrochem Soc J 111:1205-10 N '64

New fuel cell for aerospace. il Chem Eng 70:125-6 N 11 '63

New fuel cell powered by liquid hydrocarbons makes 100 w in initial tests. il Oil & Gas J 62:46-7 N 2 '64

New methods of obtaining fuel cell electrodes; aluminum-nickel mixed powder hydrogen electrode. A. R. Despić and others. bibliog il Electrochem Soc J 111:1109-12 O '64

Polarization studies of molten carbonate fuel cell electrodes. I. Trachtenberg. il diag Electrochem Soc J 111:110-13 Ja '64

Reactions of propane at the surface of a working fuel cell anode. W. T. Grubb. bibliog Electrochem Soc J 111:1086-8 S '64

Simple gas electrode structure for the evaluation of catalysts (electrocatalysts) in working fuel cells. W. T. Grubb and C. J. Michalske. bibliog il Electrochem Soc J 111:477-8 Ap '64

Small three-element fuel-cell space battery produces more than two watts. il Elec Eng 82:740 D '63

Starved fuel cell measures oxygen used by the lungs. il Machine Design 36:12 Mr 12 '64

System gives useful current densities. G. Sandstede. Chem & Eng N 42:42-3 My 18 '64

Thermally regenerative liquid-metal cell. B. Agruss. bibliog diags Electrochem Soc J 110:1097-103 N '63

Water recovery from fuel cells and lunar minerals. F. J. Hendel. bibliog diags Ind & Eng Chem 56:29-31 Mr '64

What you should know about fuel cells. N. P. Chopey. diags Chem Eng 71:125-30 My 25 '64

ELECTRIC breakdown. See Dielectrics: Electric discharges

ELECTRIC cable reels

Electric cable reels on transfer cars. il diag Iron & Steel Eng 41:153-4 Mr '64

ELECTRIC cables

ACAR cable challenges ACSR. diags Elec World 161:85 Ja 27 '64

Aluminum in Manicouagan; 4800 miles of aluminum transmission cable and 340 miles of aluminum pipe. il Light Metal Age 22:7-8 Je '64

Flat electrical conductor cable systems. il Mach 70:147 D '63

400kv oil-filled cable. il Engineer 217:627 Ap 3 '64

Improved aircraft-ignition cables. il Engineer 217:836 My 8 '64

Insulated conductor sessions feature cable; winter meeting of IEEE. Elec World 161:78+ F 24 '64

Solid, paper insulated pipe-type cable for hv dc. J. H. M. Sykes. Elec World 161:114+ Je 15 '64

Technical progress in communications wires and cables 12th annual symposium, Asbury Park, N.J. Dec. 4-6; abstracts of papers. Rubber Age 94:639-41 Ja '64

URD achieves cost break-through; pre-assembled cable duct. J. W. Lauder and R. C. Blankenburg il Elec World 162:23-5 N 9 '64

See also

Electric conduits
Electric distribution
Electric lines
Electric transmission
Insulation (electric)
Telephone cables

Cooling

Up ampacity, save space with water-cooled hollow copper conductors. C. E. Glatz. il Elec World 161:78-9 My 4 '64

Design

Designing 19-wire stranded conductors. R. Iyengar. diags Product Eng 35:125-6 Je 8 '64

New aluminum cable developed for Canadian power project. diags Mod Metals 20:73 Jl '64

Installation

Aluminum cable-ladder cuts costs, saves space. C. H. Williams. il Elec World 161:135 Ap 6 '64

Cable installation methods in pulp and paper industry. T. O. Sweatt and J. Tesoriero. IEEE Trans Applications & Ind 83:178-82 My '64

Experience cuts pipe-type cable installation costs. D. M. Falvey. il Elec World 160:42-3 D 30 '63

How to fasten heating cable to concrete ceilings. il diag Elec Constr & Maint 63:114-15 S '64

MI cable in conduit; replaceable heating system embedded in concrete of railroad overpass. il diags Elec Constr & Maint 62:60-3 D '63

Microwave relaying extended with high-frequency cable. V. A. Nosko and E. W. Downer. bibliog il diags IEEE Trans Power Apparatus & Systems 83:1058-63 O '64

Non-metallic cable distribution at 480/277 in discount department store. A. N. Reichel. il diags Elec Constr & Maint 63:80-4 Ja '64

Rules and recommendations on installing service cable. G E. Deloach. diags Elec Constr & Maint 63:87-9 Jl '64

Simplified fastener sharply reduces cost of cable installation. il Marine Eng/Log 69:84+ Mr '64

345-kv cable pulled into underground pipe system. il Elec World 160:82-3 N 4 '63

345-kv manhole splicing nears finish in Astoria tunnel under the East River. C. T. Hatcher. il diags Elec World 161:120-3+ Mr 23 '64

Truck/trailer combo speeds underground cable handling. il Elec World 160:100 O 21 '63

Two 4,300-ft submarine cables sunk five ft deep in channel bottom. F. J. Bender. il map diag Elec World 162:20-1, cover S 14 '64

Why use cable trays in large transmission substations? J. R. Massey. il diags Power Eng 67:63-4 N '63

Joints

Eight-ft pipe-type cable splice accommodates new highway. J. C. Parker. il Elec World 161:92-3 F 10 '64

Electric splicing method ends need for handwiping cable joints. il diags Power Eng 68:53-4 S '64

ELECTRIC cables—Joints—*Continued*

Electrostatic-stress tests aid cable splicers D. Benesch. il diag Elec World 162:94-5 Ag 10 '64
Epoxy tape used in cable terminals. P. L. Betz and O. W. Lusby. il Elec World 162: 23+ S 28 '64
Molded rubber accessories provide new flexibility in 15-kv shielded cable systems. R. C. Ruete. il Elec World 161:126-7 Mr 23 '64
New method of splicing and terminating mineral insulated cable for heating applications. A. J. Rabinowitz. bibliog diags IEEE Trans Power Apparatus & Systems 83:765-72; Discussion. 772-3 Ag '64
Testing of mechanical joints in aluminium conductors for insulated cables. L. Roullier. bibliog il diags Inst E E Proc 110: 758-72 Ap '63; Discussion. 110:2009-16 N '63
345-kv manhole splicing nears finish in Astoria tunnel under the East River. C. T. Hatcher. il diags Elec World 161:120-3+ Mr 23 '64
Uniform stress design in high-voltage cable joints. J. R. Tuzinski. bibliog diags IEEE Trans Power Apparatus & Systems p 152-65 F '64
Universal method for splicing and terminating polymeric-insulated cables. M. Kurtz and B. Kellam. il diags IEEE Trans Power Apparatus & Systems 83:804-10 Ag '64

Maintenance and repair

Cable fixing in a 1,000 yard pit shaft. il Engineering 198:53 Jl 10 '64
Lead sheath quickly repaired. C. W. Smith, jr. il diag Elec World 160:117 O 21 '63
Save on oil-pipe-type cable reconductoring. R. C. Glazier and G. Carter. il Elec World 161:76+ Je 1 '64

Manufacture

Complete ehv pipe-type cable plant. il Power Eng 68:56 O '64
Okonite dedicates ehv cable facility to Dr Wiseman. il Elec World 161:36 Ap 27 '64
345,000-volt cable, how it's made. M. Barrangon. il diags Mech Eng 86:57-9 Jl '64

Protection

Design and application of automatic pumping plant oil supply for self-contained oil-filled cable systems. J. Jerome and others. bibliog il diags IEEE Trans Power Apparatus & Systems p 182-91; Discussion. 191-4; Reply. 194-6 F '64
Dielectric phenomena related to the use of carbon black paper screening in high-voltage fully impregnated paper cables. P. Gazzana-Priaroggia and others. bibliog diags IEEE Trans Power Apparatus & Systems p 137-51; Discussion. 151-2 F '64
Ethylene-propylene rubber for wire and cable insulation. W. C. Smith and others. bibliog il Rubber World 149:54-65 Mr '64
Gases for tracers and ionization control in gas-filled cables. T. A. Balaska and others. bibliog il IEEE Trans Power Apparatus & Systems 83:774-80; Discussion. 780-3 Ag '64
High speed band marking of insulated conductors. G. Lehnert and J. V. McBride. bibliog il diags Wire & Wire Prod 39:533-7+ Ap '64
Insulations and jackets for cross-linked polyethylene cables. R. B. Blodgett and R. G. Fisher. bibliog il IEEE Trans Power Apparatus & Systems p971-80 D '63
New corona- and heat-resistant cable insulation based on ethylene propylene rubber. R. B. Blodgett and R. G. Fisher. bibliog IEEE Trans Power Apparatus & Systems p980-8; Discussion. il 988-90 D '63
New high-density polyethylene insulation now peels-off. il Elec World 160:73-4 O 21 '63
New polyethylenes for wire and cable. A. J. Houston and others. bibliog diag Rubber World 149:40-5 Mr '64
Parameters affecting the increase in dielectric loss, caused by carbon black paper screens, for oil paper dielectrics. R. B. Blodgett and F. H. Gooding. bibliog IEEE Trans Power Apparatus & Systems p 121-8; Discussion. 128-9; Reply. 129-30 F '64
Polyethylene-insulated cables. N. D. Kenney and R. C. Graham. I S A J 11:60-2 Ja '64
Reassessment of polyethylene power cable. W. J. Plate and others. bibliog IEEE Trans Power Apparatus & Systems p990-8; Discussion. 998-1001; Reply. 1001-2 D '63
Research on the impulse breakdown mechanism of the dielectric as used in oil-filled cables. K. Kojima and S. Tanaka. bibliog diags IEEE Trans Power Apparatus & Systems 83:460-7 My '64; Discussion. 83: 644-5 Je '64
Universal method for splicing and terminating polymeric-insulated cables. M. Kurtz and B. Kellam. il diags IEEE Trans Power Apparatus & Systems 83:804-10 Ag '64
Wire and cable insulation problems of space vehicles. L. D. Walker. Wire & Wire Prod 39:401+ Mr '64

Sheathing

Aluminum sheathing with reference to high voltage cables. R. M. Russek and K. Kuwahara. bibliog il diags Wire & Wire Prod 39:1562-7+ O '64
Butyl/hypalon replaces lead-sheath cables. il Engineering 198:515 O 23 '64
Determining permeability constants of wire insulation and cable jacket. A. G. Ferrari. bibliog il diags Mod Plastics 41:153-4+ Je '64
Effect of die land length on the surface appearance of low melt index polyethylene extrudates. J. S. King and A. J. Durno. il diags Wire & Wire Prod 39:553-5+ Ap '64
Jacketed MI cable resists HCl fumes. il Elec Constr & Maint 63:110-11 Je '64
Lead sheath quickly repaired. C. W. Smith, jr. il diag Elec World 160:117 O 21 '63
Oil refineries using more thermoplastic cable; polyvinylchloride. Power Eng 68:36 Ap '64

Tables, calculations, etc.

Phase sequence impedance of pipe-type cables. J. H. Neher. diags IEEE Trans Power Apparatus & Systems 83:795-801; Discussion. 801-4 Ag '64
Transient temperature rise of buried cable systems. J. H. Neher. bibliog diags IEEE Trans Power Apparatus & Systems p 102-11; Discussion. 111-14 F '64

Temperature

Transient temperature rise of buried cable systems. J. H. Neher. bibliog diags IEEE Trans Power Apparatus & Systems p 102-11; Discussion. 111-14 F '64

Terminals

Connecting solid-conductor aluminum cables in terminal boxes. A. N. Burki and A. M. Sabine. il diags Engineer 216:942-3 D 6 '63
Design and performance of high- and low-voltage terminal boxes. K. K. Schwarz. bibliog il diags Inst E E Proc 109 pt A: 151-65 Ap '62; Discussion. 109 pt A:165-72, 470-2; 111:143-5 Ap, O '62, Ja '64
High-voltage termination kits for mine use. il Coal Age 69:238 O '64
Preformed terminal offers stress control. E. H. Yonkers. il diags Elec World 161:64 Ja 27 '64
Universal method for splicing and terminating polymeric-insulated cables. M. Kurtz and B. Kellam. il diags IEEE Trans Power Apparatus & Systems 83:804-10 Ag '64

Testing

Cable tracer ends guesswork in conductor identification. diags Plant Eng 17:131-3 N '63
Complete ehv pipe-type cable plant. il Power Eng 68:56 O '64
Electrostatic-stress tests aid cable splicers. D. Benesch il diag Elec World 162:94-5 Ag 10 '64
15-kv spacer cable on test in Gulf Coast salty air. J. C. Thompson. il Elec World 160:24-5 N 25 '63
How to apply and use cable fault locators. T. M. Urban and J. E. Johnson. Coal Age 68:100-2+ N '63
Lists Cornell ehv test achievements. L. I Komives. Elec World 162:67 N 2 '64
Tensile tests on ACSR/ACAR conductors after rifle damage. il Elec World 162:86+ O 5 '64
Test line studies spacer cable accessories. il Elec World 161:38 Mr 30 '64

ELECTRIC cables, Submarine

British oil-filled submarine cable. il Engineer 218:335 Ag 28 '64
Conduits hydro-jet embedded for 750-ft river crossing. il diag Elec World 160:58+ D 16 '63
Dc link to use sea-ground return. il map Elec World 162:69+ Jl 13 '64
Oil-filled cables go under water. il diags Engineering 198:193 Ag 14 '64
Operation and maintenance of British Columbia hydro and power authority mainland-Vancouver Island 132-kv submarine cable interconnection. G. Barclay and A. L. Verhiel. il diags IEEE Trans Power Apparatus & Systems p876-84 D '63

ELECTRIC cables, Submarine—*Continued*

Progress in direct current transmission. il Engineer 217:1157-8 Je 26 '64

Submarine cable links Puerto Rican islands. J. Negroni and K. P. Roberts. il map Elec World 162:26-7 O 26 '64

Two 4,300-ft submarine cables sunk five ft deep in channel bottom. E. J. Bender. il map diag Elec World 162:20-1, cover S 14 '64

See also

Cable laying and supply ships

ELECTRIC capacitance

Capacitance and microstructure of etched aluminum foils. R. Bakish and R. Kornhaas. il diags Materials Res & Stand 3: 640-3 Ag '63; Discussion. 4:301-2 Je '64

Capacitance is basis for on-stream analyzer. il diags Can Chem Process 48:68-70 Ja '64

Capacitance of thin dielectric structures. H. Y. Ku and F. G. Ullman. diags J Ap Phys 35:265-7 F '64

Determination of conductivity type from MOS-capacitance measurements. F. P. Heiman and others. IEEE Proc 52:863-4 Jl '64

Direct-reading capacitance meter. D. F. Bailey. diags Wireless World 70:204-7 Ap '64; Discussion. 70:401-2 Ag '64

Effect of temperature on the stability of mica standards of capacitance. G. H. Rayner and L. H. Ford. bibliog J Sci Instr 41:149-52 Mr '64

Heat-treatment of anodic oxide films on tantalum; temperature dependence of capacitance. D. M. Smyth and T. B. Tripp. diag Electrochem Soc J 110:1271-6 D '63

Line capacity effect on a-c control circuits. H. A. Wright and T. F. Bellinger. diags Tappi 47:sup 157A+ O '64

Nuclear and capacitance techniques for level measurement. L. S. Siegel. il diags Instruments & Control Systems 37:129-31 Jl '64

Parametric amplifiers and converters with pumped inductance and capacitance. D. G. Tucker and K. L. Hughes. bibliog diags Radio & Electronic Eng 27:435-9; Discussion. 439-41 Je '64

Parametric up-conversion by the use of nonlinear resistance and capacitance. D. P. Howson and A. Szerlip. bibliog diags Radio & Electronic Eng 27:425-34; Discussion. 439-41 Je '64

Power-frequency relations in nonlinear two-poles. J. Kudrewicz. bibliog IEEE Proc 51: 1599-605 N '63

Simple capacitance measuring circuit with digital presentation. S. L. Hurst. il diags Electronic Eng 36:596-9 S '64

Simple physical model for the space-charge capacitance of metal-oxide-semiconductor structures. A. S. Grove and others. diags J Ap Phys 35:2458-60 Ag '64

Study of the thermal oxidation of tantalum and niobium by means of electron-diffraction and capacity measurements. J. Harvey and P. H. G. Draper. bibliog il Inst Metals J 92:136-40 '63-64

Transformer-ratio-arm bridge for high-voltage capacitance measurements. N. L. Kusters and O. Petersons. bibliog il diags IEEE Trans Com & Electronics p606-11 N '63

Tunnel diode junction capacitance in the vicinity of built-in voltage. R. P. Nanavati and C. A. Morato de Andrade. diags IEEE Proc 51:1679 N '63

ELECTRIC capacitors

Capacitor motor with Alnico bars in the rotor. P. L. Alger and others. diags IEEE Trans Power Apparatus & Systems 83:989-97 O '64

Capacitors assure system voltage level. W. U. Baum and W. A. Frederick. diags Elec World 160:52-5+ O 21 '63

Capacitors: encased in silicone. il Plastics World 21:97 N '63

Charge storage effects in tantalum oxide films. R. Dreiner. bibliog diag Electrochem Soc J 111:27-34 Ja '64

Design of a low inductance capacitor and switch assembly. R. S. Dike and E. L. Kemp. diags R Sci Instr 35:516-17 Ap '64

Distributed network analysis of porous electrode capacitors. J. Vergnolle. diags Electrochem Soc J 111:799-804 Jl '64

Experimental 350-kv 1-picofarad air capacitor. A. E. Peterson. il diag IEEE Trans Com & Electronics p 129-31 Mr '64

Invertor suitable for operation over a range of frequency. E. E. Ward. diags Inst E E Proc 111:1423-34 Ag '64

Long-time d-c conductivity of oil-impregnated paper capacitors under high field stresses. G. Lengyel and S. S. Mitra. bibliog diags IEEE Trans Power Apparatus & Systems p951-7; Discussion. 957-8 D '63

Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64

Meteoroid detection satellite uses capacitor detector panels. Electro-Tech 73:11 My '64

Package unit simplifies series-capacitor application. H. B. Wolf. il diag Elec World 160: 96-7 N 18 '63

Portable capacitor bank supplies bus-control vars. il Elec World 161:62-3 Ja 27 '64

Relation between the basis functions of periodically varying nondissipative circuits. S. Darlington. Bell System Tech J 42:2970-1 N '63

Remote-control capacitor switching advanced. diag Elec World 162:36 Ag 31 '64

Ripple current in electrolytic capacitors. J. R. Meek. Electro-Tech 73:104+ Ja '64

Sangamo holds 6th annual capacitor seminar. Elec World 160:116 D 16 '63

Series capacitor ends voltage dips. R. C. Miller. il diag Elec World 161:59+ Ja 13 '64

Small metallised-polycarbonate capacitors. il Engineer 216:658 O 18 '63

Switch substation capacitor banks. G. S. Cannon. diags Elec World 162:29 Jl 20 '64

Theory and application of the capacitor-excited induction generator. B. C. Doxey. diags Engineer 216:893-7 N 29 '63

Transformers with interleaved windings. A. M. Lockie. diags IEEE Trans Power Apparatus & Systems 83:914-18 S '64

Voltage coefficients of precision capacitors. bibliog il diags IEEE Trans Com & Electronics p612-21 N '63

See also

Radio capacitors

Installation

Constructing electrical systems; capacitors and regulators. il diags Elec Constr & Maint 63:185-6+ My '64

ELECTRIC charges

Behavior of evaporating electrically charged droplets. A. Doyle and others. diag J Colloid Sci 19:136-43 F '64

Charge analyzer for aerosols and sprays. T. G. Owe Berg and others. il diags R Sci Instr 35:719-23 Je '64

Charge carrier inertia in semiconductors. K. S. Champlin and others. bibliog diags IEEE Proc 52:677-85 Je '64

Contact charging of micron-sized particles in intense electric fields. A. Y. H. Cho. diags J Ap Phys 35:2561-4 S '64

Effect of electrification on the dynamics of a particulate system. S. L. Soo. bibliog Ind & Eng Chem Fundamentals 3:75-80 F '64

Effect of temperature on the charge on kaolinite particles in water. D. D. Button and W. G. Lawrence. bibliog il diags Am Cer Soc J 47:503-9 O '64

Effects of relative humidity and electric charge on the coalescence of curved water surfaces. N. R. Lindblad. bibliog diags J Colloid Sci 19:729-43 O '64

Experimental investigation of electric drag on satellites. E. D. Knechtel and W. C. Pitts. diags AIAA J 2:1148-51 Je '64

Factors influencing electrically sprayed liquids. J. J. Hogan and others. AIAA J 2:1460-1 Ag '64

Images of line charges and currents. N. Mullineux and J. R. Reed. diags Inst E E Proc 111:1343-6 Jl '64

Photomicrography of electrically sprayed heavy particles. C. D. Hendricks, jr. and others. bibliog il diags AIAA J 2:733-7 Ap '64

Possible influence of electric charge effects on the initial growth processes occurring during the vapor deposition of metal films onto substrates inside the electron microscope. D. B. Dove. bibliog J Ap Phys 35: 2785-6 S '64

Production of metastable Hg atoms by charge exchange. R. W. Rostron. bibliog diags J Ap Phys 35:2291-9 Ag '64

Storage system in measuring problems. M. De Rossi. diag R Sci Instr 35:764-5 Je '64

See also

Electrets

Space charge

ELECTRIC circuit breakers

Application limitations of single-pole interrupters in polyphase industrial and commercial building power systems. R. H. Kaufmann. bibliog diags IEEE Trans Applications & Ind p363-8 N '63

Circuit breakers versus fused interrupters. S. E. McDowell. il diags Rock Prod 66:88+ D '63

Earth leakage circuit breaker. il Engineering 197:256 F 14 '64

Effect of autoreclosing circuit breakers on transient stability in e.h.v. transmission systems. W. D. Humpage and B. Stott. bibliog flow diag diags Inst E E Proc 111:1287-98 Jl '64

Effect of gas flow on post-arc gap recovery. A. B. Shaw and D. Whittaker. bibliog diags Inst E E Proc 111:193-202 Ja '64

Ehv places new demands on power circuit breaker insulation levels. R. E. Bednarek and others. Elec World 161:70-2 Je 29 '64

Ferranti excess demand warning system for large electric steel plant. Metallurgia 68:177 O '63

Oil switch with simple safety device. il Engineer 218:460 S 18 '64

Power pooling places new demands on power circuit breakers. R. E. Bednarek and others. Elec World 161:24-6, cover My 11 '64

Protection of rectifiers with circuit breakers. L. W. Reinken. il diags Electro-Tech 73:89-95 F '64

Reclosing scheme has foolproof record. H. C. Ruppert. diags Elec World 161:102 Ap 20 '64

Specifying molded-case circuit breakers. J. Washburn. diags Elec Constr & Maint 62:108-10 N '63

Stored energy or solenoid; which circuit breaker closing mechanism should you use? S. E. Zocholl. il diags Plant Eng 18:130-3 Ap '64

Wanted; circuit breakers. Electronics 37:28+ Jl 13 '64

See also
Electric fuses

Design

High-speed d.c. circuit-breaker design. A. T. Freeman. il diags Engineer 217:740-4 Ap 24 '64

Why today's switchgear is safer. S. H. Telander. il diag Safety Maint 127:20-4+ Ja '64

Failure

Flammable gas explosion in large oil circuit breaker. J. R. Johnston. il diags IEEE Trans Power Apparatus & Systems p 1094-7; Discussion. 1097-8 D '63

Tester improves breaker quality. W. D. Cupps. il Automation 11:56-7 Ja '64

Installation

Constructing electrical systems; circuit breakers. il diags Elec Constr & Maint 63:112-16 My '64

Maintenance and repair

Modern shop keeps reclosers in top condition. J. R. Dolinger. il Elec World 161:119-20 F 10 '64

Oilless

Compact air-break contactors. diags Engineering 196:752 D 13 '63

Cut testing time of multi-contact breakers. J. E. Blaska. il Elec World 162:108-10+ O 5 '64

Install air-break switch in energized 23-kv line. S. C. Harrelson. il Elec World 160:66 D '63

Mass flow in nozzle of a gas-blast circuit-breaker. A. A. Hudson. diags Engineer 217:933-9 My 29 '64

17-kv air-magnetic breaker for Southern California Edison. il Elec World 161:108 F 24 '64

SF_6 breakers designed for rating flexibility. il Westinghouse Eng 24:152-3 S '64

Theory of interruption and thermal-arc reignition. H. Edels and F. H. Fenlon. diags Inst E E Proc 110:2082-92 N '63

Vacuum switch. M. P. Reece. bibliog il diags Inst E E Proc 110:793-811 Ap '63; Discussion. 110:2101-4 N '63

Vacuum switching. diag Engineer 217:266-8 F 7 '64

VEPCO project to use 500-kv SF6 power circuit breakers. Elec World 162:38 Jl 6 '64

Rating

Low-voltage power circuit breakers. V. L. Cox. Mag of Stand 35:142 My '64

New ratings for high-voltage circuit breakers. V. L. Cox. il Mag of Stand 35:163-5 Je '64

69-kv SF_6 common-tank breaker rated 5,000 mva. R. E. Kane and R. G. Colclaser, jr. il diag IEEE Trans Power Apparatus & Systems p 1076-81; Discussion. 1081-2 D '63

Standards

Propose new circuit breaker standards. Elec World 161:24 Mr 16 '64

Testing

Cut testing time of multi-contact breakers. J. E. Blaska. il Elec World 162:108-10+ O 5 '64

Huge surge generator in new test facility. il Elec World 162:36 O 26 '64

Indirect tests verify ratings of 500-kv circuit breakers. R. G. Colclaser, jr. diag Elec World 162:108-9+ O 19 '64

Programmed device cuts test time for oil circuit breakers. il Elec World 162:38 O 12 '64

Tripping

High-speed d.c. circuit-breaker design. A. T. Freeman. il diags Engineer 217:740-4 Ap 24 '64

Now you can have solid-state trips for low-voltage circuit breakers. E. G. Kaczkowski. il diags Power 108:64-8 Jl '64

ELECTRIC circuits

Application of ternary algebra to the study of static hazards. M. Yoeli and S. Rinon. bibliog diags Assn for Computing Mach J 11:84-97 Ja '64

Complex diagrams produced with keyboard machines. il diag Westinghouse Eng 24:78 My '64

Complex variable frequency electric circuit theory. S. Hahn. IEEE Proc 52:736-7 Je '64

Digital balancing speeds bridge measurements. S. W. Hopkins. il diag Control Eng 10:91 D '63

Electrical analog of multiresistivity systems using single resistivity media and amplifier circuits. W. E. Haupin. diags R Sci Instr 35:1050-1 Ag '64

Electrical schematic diagrams. A. E. Welz. diags Machine Design 36:186-93 Je 18 '64

Energy bands; described in circuit language. T. Roddam. diags Wireless World 70:360-3 Jl '64

English develop ventilation analogue system featuring mine plan diagram. R. Kirk. il Min Eng 16:64-6 Ap '64

Four-terminal-pair networks as precision admittance and impedance standards. R. D. Cutkosky. diags IEEE Trans Com & Electronics p 19-22 Ja '64

Invertor suitable for operation over a range of frequency. E. E. Ward. diags Inst E E Proc 111:1423-34 Ag '64

Linear time-varying circuits; matrix manipulations, power relations, and some bounds on stability. S. Darlington. bibliog diags Bell System Tech J 42:2575-608 N '63

Paramount matrices and realization of resistive three-port networks. I. Cederbaum. bibliog diags Inst E E Proc 110:1960-4 N '63

Pinball analog for electrical circuits H. Weinstock. diag Am J Phys 31:887-8 N '63

Relation between the basis of functions of periodically varying nondissipative circuits. S. Darlington. Bell System Tech J 42:2970-1 N '63

Relationship between the cut-tree and the fundamental cut-set of multi-terminal flow networks S. E. Elmaghraby. diags Franklin Inst J 278:262-6 O '64

Shape of one-port driving functions. D. P. Brown and M. B. Reed. bibliog Franklin Inst J 277:566-74 Je '64

Star point of unbalanced polyphase loads. E. Wilkinson. bibliog diags Inst E E Proc 111:376-7 F '64

Systems of one-port linear components containing through-across type drivers. W. A. Blackwell and L. L. Grigsby. Franklin Inst J 278:237-47 O '64

Terminal impedances and transfer functions of ladder networks. S. C. Dutta Roy. bibliog diags Inst E E Proc 111:1653-8 O '64

Topological analysis of non-recurrent ladder networks. F. Walker. diag IEEE Proc 52:860-1 Jl '64

Transformations in the analysis of non-uniform transmission lines. R. F. Schwartz. bibliog Franklin Inst J 278:163-72 S '64

ELECTRIC circuits—*Continued*

Transistorized millivolt discriminator. M. Birnbaum and V. Comanescu. diags Electronic Eng 36:110-13 F '64

See also

Electric contacts
Electric distribution
Electric rectifiers
Electric transmission
Electronic circuits
Impedance
Radio circuits
Short circuits
Television circuits

Design

Active compensating networks. K. A. Ivey. diag Control Eng 10:111-12 N '63

Evaluating bridged-T networks for ac systems; data file. G. Cocquyt. diags Control Eng 10:77-9 D '63

How to use silicon controlled rectifiers in series or parallel. A. R. Mulica. il diags Control Eng 11:95-9 My '64

Line, trunk, junctor, and service circuits for No. one electronic switching system. R. Biddulph and others. flow chart il diags Bell System Tech J 43:2321-53 pt 2 S '64

Linearization of the output of bridge networks. I. G. Scott. diag J Sci Instr 41:458-61 Jl '64

Magnetic core four-quadrant multiplier circuit and watt transducer. B. W. Lee and W. S. Pritchett. il diags IEEE Trans Power Apparatus & Systems 83:692-5 Jl '64

Megajoule CLR circuit. il diags Wireless World 70:382-3 Ag '64

Morgan becomes electric; dilemma in one act. E. L. Rudisill. il diags Product Eng 34:104-11 D 9 '63

Network synthesis using negative-impedance convertors. D. J. Storey and W. J. Cullyer. bibliog diags Inst E E Proc 111:891-906 My '64

Sensitivity determination of electroexplosive devices for reliable circuit designs. R. G. Amicone. bibliog il diag IEEE Trans Applications & Ind 83:143-7 My '64

Spectral matrix for analysis of time-varying networks. C. Kurth. bibliog diags Elec Com 39 no 2:277-92 '64

System reliability; redundant networks. G. D. Weinstock. bibliog diags Electro-Tech 74:26-9+ Ag '64

Plastics embedment

To protect and support components encapsulation methods. W. B. Wallace. bibliog il Product Eng 34:88-97 N 11 '63

See also

Electronic circuits—Plastics embedment

Printed circuits

Comparison of copper etchants. E. C. Jubb, jr. diags Plating 51:311-16 Ap '64

Flexible printed wiring. il Bell Lab Rec 42:75 F '64

Solderability of printed circuits. J. P. Fabish. bibliog il diags Welding J 43:sup400-7 S '64

See also

Electronic circuits—Printed circuits

ELECTRIC circuits, Equivalent

Charge-control equivalent circuit for predicting transient radiation effects in transistors. C. R. Rosenberg and others. diags IEEE Trans Com & Electronics 83:494-501 S '64

Development of equivalent pi and T matrix circuits for long untransposed transmission lines. W. I. Bowman and J. M. McNamee. bibliog diags IEEE Trans Power Apparatus & Systems 83:625-32; Discussion. 653-6; Reply. 656-7 Je '64

Equivalent circuit of solid iron core for impact excitation problems. V. Subba Rao. bibliog diags Inst E E Proc 111:349-57 F '64

Equivalent circuits with transformer elements for eddy current rotor induction motors derived from field equations. W. H. Koch. bibliog diags IEEE Trans Power Apparatus & Systems 83:657-83 Je '64

Internal thermal feedback in four-poles especially in transistors. O. Mueller. bibliog diags IEEE Proc 52:924-30 Ag '64

Power circuit representation for digital studies. R. B. Shipley and others. IEEE Trans Power Apparatus & Systems 83:376-80; Discussion. 447-9 Ap '64

Stability criterion for tunnel diodes. I. T. Frisch. diags IEEE Proc 52:922-3 Ag '64

ELECTRIC clocks See Clocks, Electric

ELECTRIC codes

Electrical codes vs. process hazards. D. R. Abbey. Chem Eng 71:133-4 Ag 17 '64

See also

National electrical code

ELECTRIC coils

See also

Induction coils
Solenoids

Manufacture

Tape control boosts coil winding efficiency. il Elec Constr & Maint 63:100-1 Ag '64

ELECTRIC communication

See also

Telecommunication

ELECTRIC commutators. See Commutators

ELECTRIC conductivity

Ag ion migration in α quartz. E. L. Milne and P. Gibbs. bibliog J Ap Phys 35:2364-7 Ag '64

Analytical formulation of incremental electrical conductivity in semiconductors arising from an accumulation space-charge layer. V. J. Lee and D. R. Mason. bibliog diag J Ap Phys 35:1557-62 My '64

Calculations of the conductivity of a medium containing cylindrical inclusions. H. B. Keller and D. Sachs. diag J Ap Phys 35:537-8 Mr '64

Coaxial chamber for measurement of frequency-dependent conductivity in powdered semiconductors. D. P. Snowden and H. Saltsburg. diag R Sci Instr 34:1263-4 N '63

Compression of magnetic field between two semi-infinite slabs of constant conductivity. A. Paton and W. Millar. J Ap Phys 35:1141-6 Ap '64

Conduction in single crystals of ammonium dihydrogen phosphate. E. J. Murphy. bibliog J Ap Phys 35:2609-14 S '64

Conduction in very thin films at high electric fields. N. M. Bashara and L. A. Weitzenkamp. J Ap Phys 35:1983-4 Je '64

Conduction properties of $Cd_2Nb_2O_7$ and $Pb_{1.5}Nb_2O_{6.5}$. R. Mazelsky and W. E. Kramer. diag Electrochem Soc J 111:528-33 My '64

Conduction through thin tantalum oxide films. C. L. Standley and L. I. Maissel. bibliog J Ap Phys 35:1530-4 My '64

Conductivity and thermoelectric potential measurements on perylene; metal halide complexes. M. S. Frant and R. Eiss. bibliog diags Electrochem Soc J 110:769-72 Jl '63; Discussion. 111:755-6 Je '64

Conductivity probe measurements in flames. R. A. Olson and E. C. Lary. bibliog il diag AIAA J 1:2513-16 N '63

Conductivity spectra of rocks from the Craigmont ore environment. D. C. Fraser and others. bibliog map diag Geophysics 29:832-47 O '64

Dielectric constant and conductance changes in wool fibers produced by step changes in the relative humidity. J. E. Algie. bibliog diags Textile Res J 34:477-86 Je '64

Direct current measurement of fused salt conductivity. L. A. King and others. bibliog diags Electrochem Soc J 111:712-19 Je '64

Effect of wall electrical conductance on magnetohydrodynamic heat transfer in a channel. J. T. Yen. bibliog A S M E Trans ser C 85:471-7 N '63

Electric conductivity of fused $LiNO_3$-$NaNO_3$-KNO_3 eutectic. L. A. King and others. Electrochem Soc J 111:720-1 Je '64

Electrical conductance of carbon black. A. Voet. bibliog Rubber Age 95:746-53 Ag '64

Electrical conduction and breakdown in argon and helium at temperatures from 1500°K to 2500°K. D. W. George. bibliog il diags Inst E E Proc 110:2063-72 N '63

Electrical conductivity and growth of single-crystal indium sesquioxide. J. P. Remeika and E. G. Spencer. J Ap Phys 35:2803 O '64

Electrical conductivity, and the thermodynamic and structural properties of molten AgCl-Ag_2S mixtures. M. C. Bell and S. N. Flengas. bibliog diags Electrochem Soc J 111:569-81 My '64

Electrical conductivity cell for organic semiconductors. P. M. LaFlamme. bibliog diags R Sci Instr 35:1193-6 S '64

Electrical conductivity in the spinel system $Co_{1-x}Li_xV_2O_4$. D. B. Rogers and others. bibliog J Ap Phys 35:1069-70 pt 2 Mr '64

ELECTRIC conductivity—*Continued*

Electrical conductivity in the system ZrO_2-$CaZrO_3$. T. Y. Tien. bibliog il Am Cer Soc J 47:430-3 S '64

Electrical conductivity of niobium-doped barium titanate. F. Brown and C. E. Taylor. J Ap Phys 35:2554-6 Ag '64

Electrical conductivity of potassium-seeded argon plasmas near thermal equilibrium. L. P. Harris. J Ap Phys 35:1993-4 Je '64

Electrical conductivity of single-crystal Cr_2O_3. J. A. Crawford and R. W. Vest. bibliog J Ap Phys 35:2413-18 Ag '64

Electrical conductivity of the Great Lakes. L. H. Doherty. bibliog map J Res Nat Bur Stand 67D:765-71 N '63

Electrical conductivity of the melts in the system Na_3AlF_6-Al_2O_3-NaCl. K. Matiasovsky and others. bibliog Electrochem Soc J 111:973-6 Ag '64

Electrical effects due to the *F* center in the potassium halides. J. N. Maycock. bibliog J Ap Phys 35:1512-15 My '64

Electron conductor. il Plastics World 22:53 O '64

Electronic conduction in single crystals of uranium dioxide. P. Nagels and others. bibliog il J Ap Phys 35:1175-80 Ap '64

Experiment offering varied experience; conductivity changes of a germanium crystal under tension and illumination. M. Allen and E. J. Saxl. bibliog diags Am J Phys 31:837-41 N '63

Experiments concerning nonequilibrium conductivity in a seeded plasma. E. E. Zukoski and others. bibliog diags AIAA J 2:1410-17 Ag '64

Glass transition and ionic conductivity in cellulose acetate. R. E. Barker, jr. and C. R. Thomas. bibliog J Ap Phys 35:87-94 Ja '64

Grain boundary conductivity of $Zr_{0.84}Ca_{0.16}O_{1.84}$ ceramics. T. Y. Tien. bibliog il J Ap Phys 35:122-4 Ja '64

High-temperature electrical conductivity in the systems CaO-ZrO_2 and CaO-HfO_2. H. A. Johansen and J. G. Cleary. bibliog Electrochem Soc J 111:100-3 Ja '64

Impurity conduction and negative resistance in thin oxide films. T. W. Hickmott. bibliog J Ap Phys 35:2118-22 Jl '64

Impurity states in semiconducting masers. H. J. Zeiger. bibliog J Ap Phys 35:1657-67 Je '64

Instrument to measure velocity electrical conductivity of arc plasmajets. A. E. Fuhs. bibliog il diags AIAA J 2:667-73 Ap '64

Instrumentation for measuring the dc conductivity of very high resistivity materials. D. S. Dorcas and R. N. Scott. diags R Sci Instr 35:1175-6 S '64

Interaction of electrophoretic and dielectrophoretic forces. W. F. Pickard. bibliog Electrochem Soc J 111:1234-8 N '64

Ionic conduction and liquid flow in wet wool. D. Stigter. bibliog diags J Colloid Sci 19:252-67 Mr '64

Long-time d-c conductivity of oil-impregnated paper capacitors under high field stresses. G. Lengyel and S. S. Mitra. bibliog diags IEEE Trans Power Apparatus & Systems p951-7; Discussion. 957-8 D '63

Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64

Measurement of permittivity and conductivity at temperatures up to 500° C. R. H. A. Miles. diags Electronic Eng 36:682-7 O '64

Meter amplifier for conductivity measurements in low-conductivity liquids. I. Wilmanns. diag J Sci Instr 41:400 Je '64

Microwave measurement of conductivity and dielectric constant of semiconductors. B. R. Nag and others. diags IEEE Proc 51:962 Je '63; Discussion. 52:100, 1061-2 Ja, S '64

More about zinc rich coatings; question and answers. Ind Finishing 40:86-7 O '64

Nickel strip has better electrical conductivity. Materials in Design Eng 59:97 Ja '64

Nonequilibrium ionization due to electron heating. J. L. Kerrebrock and M. A. Hoffman. bibliog diags AIAA J 2:1072-87 Je '64

Photocontrolled surface conductance in anodized InSb. R. K. Mueller and R. L. Jacobson. bibliog diags J Ap Phys 35:1524-9 My '64

Portable instrument for measuring the electrical conductivity of aviation fuels. M. D. Foster and K. J. Marsh. diags J Sci Instr 41:379-81 Je '64

Response of a poor conductor to alternating electric fields. B. M. Jaffe and H. P. Kallmann. Am Chem Soc J 86:3428-33 S 5 '64

Sensitive method for the measurement of nonlinearity of electrical conduction. C. E. Skov and E. Pearlstein. diags R Sci Instr 35:962-4 Ag '64

Specific interactions of optically active ions as studied by conductance. L. J. Parkhurst and R. W. Kunze. Am Chem Soc J 86:300-1 Ja 20 '64

Technique for measuring the electrical conductivity of wakes of projectiles at hypersonic speeds. H. E. Koritz and J. C. Keck. bibliog il diags R Sci Instr 35:201-8 F '64

Technique for the experimental determination of the electrical conductivity of plasmas. D. D. Hollister. bibliog diags AIAA J 2:1568-71 S '64

Thin-film thickness from theoretical expressions for conductivity and isothermal Hall effect. W. F. Leonard and R. L. Ramey. bibliog diag J Ap Phys 35:2963-5 O '64

See also

Dielectrics
Electric conductors
Electric resistance
Electrolytes—Conductivity
Hall effect
Photoconductivity
Superconductivity

ELECTRIC conductors

Alternating-current properties of a copper conductor clad in a magnetic sheath. N. F. Astbury. diag Inst E E Proc 110:2055-62 N '63

Calculation of high-frequency inductance and current-distribution effects in annular discs. H. K. Au and E. M. Deeley. diags Inst E E Proc 111:1347-52 Jl '64

Computer model picks ehv conductors. J. J. Laforest and C. B. Lindh. il Elec World 160:91-3 D 2 '63

Consolidating metal powders magnetically. D. J. Sandstrom. il diag Metal Prog 86:91-4 S '64

Constructing electrical systems; conductors. il diags Elec Constr & Maint 63:78-85 My '64

Designing 19-wire stranded conductors. R. Iyengar. diags Product Eng 35:125-6 Je 8 '64

Development of butt brazing techniques for joining copper conductors. A. Madura. il diags Welding J 43:sup320-8 Jl '64

Economics justifies heavier distribution feeders. W. J. Stephens. Elec World 162:24-5 O 12 '64

High speed band marking of insulated conductors. G. Lehnert and J. V. McBride. bibliog il diags Wire & Wire Prod 39:533-7+ Ap '64

Impedance between perfect conductors in a finitely conducting medium with application to composite media. R. N. Buchal and J. B. Keller. J Ap Phys 34:3414 N '63

Insulated conductor sessions feature cable; winter meeting of IEEE. Elec World 161:78+ F 24 '64

Insulating conductor. Enginering 197:693 My 22 '64

Kaiser develops new all-aluminum conductor. A. N. Shealy. Elec World 161:52-3+ F 10 '64

Load capability of bare ACSR and all-aluminum conductors based on long-time outdoor temperature rise tests. J. C. Gorub and E. F. Wolf. il IEEE Trans Power Apparatus & Systems p852-7 D '63

Microconductor arrays in glass. A. R. Hildebrand. diags Electro-Tech 73:118+ Je '64

Non-icing conductor. A. S. Timacheff. bibliog diags Eng J 46:32-6 N '63

Solid aluminum conductor, to 500 MCM, shown. il Elec World 161:36 F 17 '64

Strip conductors for magnetic field generation. T. H. Beeforth. diags Ind Electronics 1:744-6 N '63

Testing of mechanical joints in aluminium conductors for insulated cables. L. Roullier. bibliog il diags Inst E E Proc 110:758-72 Ap '63; Discussion. 110:2009-16 N '63

Up ampacity, save space with water-cooled hollow copper conductors. C. E. Glatz. il Elec World 161:78-9 My 4 '64

ELECTRIC conductors—*Continued*

Which electrical conductor for 2500+F? M. Gimpl and N. Fuschillo. Materials in Design Eng 59:84-5 F '64

See also

Aluminum—Electrotechnical uses
Busbars
Electric cables
Electric distribution
Electric transmission
Insulation (electric)
Semiconductors
Solenoids
Wave guides

Bibliography

Bibliography on bundled conductors. D. H. Sandell and others. IEEE Trans Power Apparatus & Systems p 1115-28 D '63

Failure

Thermal-imaging device locates conductor hot spots visually. S. N. Bobo. il diag Power Eng 68:42-3 O '64

Testing

Conductors tested for Keystone project. il Elec World 162:78 Jl 27 '64
Dynamic method for measuring total emissivities and specific heats of electrical conductors. R. A. Pasternak and others. J Ap Phys 34:3416-17 N '63
New standard for impulse testing procedures for insulated conductors; IEEE committee report. bibliog IEEE Trans Power Apparatus & Systems 83:1053-7 O '64
Short-time annealing characteristics of electrical conductors. L. F. Roehmann and E. Hazan. bibliog il IEEE Trans Power Apparatus & Systems p 1061-7; Discussion. 1067-8 D '63

ELECTRIC conduits

Conduits hydro-jet embedded for 750-ft river crossing. il diag Elec World 160:58+ D 16 '63
Constructing electrical systems; raceways. il diags Elec Constr & Maint 63:86-93 My '64
Expansion joint for pipe-type cable lines. N. B. Timpe. il diags IEEE Trans Power Apparatus & Systems 83:671-4 Jl '64
Guide for selecting coatings for pipes of pipe-type cable systems. bibliog diag IEEE Trans Power Apparatus & Systems 83:783-94 Ag '64
Phase sequence impedance of pipe-type cables. J. H. Neher. diags IEEE Trans Power Apparatus & Systems 83:795-801; Discussion. 801-4 Ag '64
Spalled concrete traced to conduit. il Eng N 172:28-9 Mr 12 '64
Steel ducting for underfloor electrics. il Engineering 198:245 Ag 21 '64
Underfloor system ups feeder capacity. il Elec Constr & Maint 63:115-16 Mr '64

See also

Aluminum—Electrotechnical uses
Electric distribution
Electric wiring

Standards

Larger emt sizes and medium-wall rigid metal conduit. diags Elec Constr & Maint 63:102-3 Mr '64

ELECTRIC connectors

Cam lock clamps the boards to connect printed circuits. il diags Machine Design 36:10 Ap 9 '64
Ceramic-metal sealing techniques for a bakeable, multiple electrical lead-through in metal ultra high vacuum systems. G. Comsa and C. Simionescu. diags J Sci Instr 41:352-3 My '64
Choosing electrical connections. D. Fulton. bibliog Machine Design 36:102-7 Jl 30 '64
Coax connector is sexless. il Electronics 37:50-1 Ja 10 '64
Comparison of permanent electrical connections. G. W. Mills. diags Bell System Tech J 43:1067-102 My '64
Connector controversy. R. Lovell. il Electronics 37:120+ Je 15 '64
Dependence of the reliability of electrical connections and joints on the microtopography of the mating surfaces. J. B. P. Williamson. il diag Machine Design 36:172+ My 7 '64
Electrical-connector failures. J. L. Seminara and M. Weinstein. bibliog il diags Machine Design 36:158-65 Ag 27 '64
Electrical lead seals for cryogenic applications. W. R. Roach and others. bibliog il diags R Sci Instr 35:634-6 My '64
Electrical terminations; design guide. bibliog il diags Machine Design 36:183-214 My 21 '64
Guide to today's circuit interconnections; with tables. il diags Electronic Ind 23:48-9+ My '64
Hermetically sealed connector and its capabilities. A. Stasch. il Electronic Ind 23:72-7 My '64
Impact tool makers efficient line-tap in minutes. V. P Armour and J. E. McLaughlin. il Elec World 161:92-3 Je 1 '64
New nonmagnetic connectors. Franklin Inst J 278:73 Jl '64
No. one electronic switching system circuit packs and connectors. J. G. Chevalier and R. K. Eisenhart. il Bell System Tech J 43:2441-56 pt 2 S '64
Simple technique for introducing electrical leads into a high pressure vessel. L. A. Davis and others. diags R Sci Instr 35:368-70 Mr '64
Simplify change from bolted to compression connections. J. A. Taylor. il Elec World 162:74+ Ag 10 '64
Solderless connector for electronic breadboards. H. Sear. diag J Sci Instr 41:399-400 Je '64
Toward better quality of electrical connectors. il Product Eng 35:72 Ag 3 '64
Wiring systems tailored to needs; flat conductor cable systems. il Automation 10:13 N '63

Manufacture

Machine produces wire leads. il Automation 11:95 O '64
Resilient rollers form leads. F. L. Simpson. il Electronics 37:52-3 Ja 10 '64

ELECTRIC contactors

Air-break contactors. Engineer 217:805 My 1 '64
Six-pole block-type contactor. il Engineer 218:189 Jl 31 '64

ELECTRIC contacts

Comparing permanent electrical connections. G. W. Mills. il Bell Lab Rec 41:366-9 O '63
Deflashing tool; abrasive blast quickly cleans molded parts. il Plastics World 21:105 N '63
Effect of motion on Pb-Pb superconducting contacts. J. H. Simons and G. W. Farnell. IEEE Proc 52:216 F '64
Effects of rectifying contacts on the characteristics of the thin-film transistor. W. A. Gutierrez and H. L. Wilson. il diag IEEE Proc 52:607 My '64
Electrodeposited palladium as a low-energy circuit contact coating. G. D. Fatzer. il Plating 50:1000-5 N '63
Evaporated metallic contacts to conducting cadmium sulfide single crystals. A. M. Goodman. bibliog diags J Ap Phys 35:573-80 Mr '64
Improved method of electrical contact to ceramics for high temperature use. J. F. Bacon and R. D. Veltri. il diags R Sci Instr 34:1264-5 N '63
Measuring relay contact-bounce. T. Erickson. diags Electronic Ind 23:206-7+ Je '64
New miniaturized dry reed glass sealed contacts. I. S. Rafuse. il Bell Lab Rec 42:99-100 Mr '64
Relay tests focus on contact performance. F. J. Oliver. diags Electro-Tech 74:91-2+ Jl '64
Simple technique for making an electric contact on silicon. J. M. Flores. il diag R Sci Instr 35:112-13 Ja '64
Spring performance of electrical contact alloys. C. S. Barker. il Product Eng 35:62-6 My 11 '64

Failure

Electrical terminations; understanding failure. S. D. Sinkler. bibliog il Machine Design 36:185-9 My 21 '64

ELECTRIC contractors

Constructing electrical systems; special report. il diags Elec Constr & Maint 63:75-138+ My '64
Contract maintenance aids production reliability. R. J. Lawrie. il Elec Constr & Maint 62:100-3 N '63
Contractor salesmanship boosts profits; installation at poultry plant of Long Island packers inc. il diag Elec Constr & Maint 63:96-7 Je '64
Critical-path method (CPM) in electrical construction; relation of subcontractor to plan. J. J. O'Brien. plan Elec Constr & Maint 63:70-3 Ja '64
Florida association of electrical contractors and Florida electrical council joint annual convention. Orlando. Fla. Oct. 24-26. Elec Constr & Maint 62:125-6 D '63

ELECTRIC contractors—*Continued*

New Jersey licenses electrical contractors. Elec Constr & Maint 63:141-2 Ja '64

Radio-telephone aids contractor. il Elec Constr & Maint 63:109 Je '64

See also

New York state association of electrical contractors and dealers

Estimates

Modern estimating room ups accuracy at Molnar electrical contractors, inc. il Elec Constr & Maint 63:94+ Ja '64

ELECTRIC control

Analysis of dynamic performance of induction motors in control systems. J. C. West and others. bibliog diags Inst E E Proc 111:1468-78 Ag '64; Discussion. 111:1949-50 N '64

Automating the coal pipeline. W. J. Halvorsen. il Coal Age 69:107-8 Jl '64

Braking cranes by remote control. G. M. Coffey. il diag Plant Eng 18:111-13 Jl '64

Electrical control of fluid power systems. K. B. Rexford. bibliog diags Hydraulics & Pneumatics 17:69-72 Mr '64

Electrical design; motors and controls. D. Silverman. il diag Chem Eng 71:133-40 Je 22 '64

Feedforward control applied. F. G. Shinskey. diags I S A J 10:61-5 N '63

Feedforward control of distillation columns. W. L. Luyben and J. A. Gerster. bibliog Ind & Eng Chem Proc Design 3:374-81 O '64

For electric control reliability keep voltage within design tolerances. R. Russo. diags Power 108:90-2 O '64

One foundry's experience with static controls. N. B. Luther. il diags Foundry 92:94-6+ My '64

Programmers. R. C. Nelson. il diag Instruments & Control Systems 37:93-100 O '64

Solid-state control devices in heavy industry. Product Eng 34:58-9 N 25 '63

What is static control? O. N. Ibsen. il diags Foundry 92:48-51 Mr '64

See also

Carrier current control
Cryotron
Electric distribution—Supervisory control
Electric plants (central stations)—Control equipment
Electric switchgear
Electrohydraulic control
Electronic control
Hydroelectric plants
Radio control
Selsyn apparatus
Semiconductors
Servomechanisms
Switchboards
Thyratron
Transistors
Valves—Electric control
Voltage regulation

also subdivision Control and Control uses under special subjects, e.g.

Airplanes
Airplanes, Military
Electric heating
Electric motors
Electric motors, Alternating current
Electric motors, Direct current
Electric motors, Induction
Gas turbines
Machine tools
Pumping machinery, Electric
Radio transmitters

ELECTRIC controllers

Boiler control; simple controller for a complex job. C. H. Smoot and F. J. Karlov. il diags Electronics 37:88-93 Je 15 '64

Constructing electrical systems; motors and controllers. diags Elec Constr & Maint 63:165-6+ My '64

Controller for induction couplings. il Engineer 218:518 S 25 '64

Dew-point controller. il Engineer 216:956 D 6 '63

Estimating controller actions. C. Laspe. Instruments & Control Systems 36:109-14 O '63

See also

Electric heating—Control
Electric motors—Control
Electric motors, Induction—Control
Voltage regulators

ELECTRIC converters

Chart showing the relations between electrical quantities on the a-c and d-c sides of a converter. E. W. Kimbark. diags IEEE Trans Power Apparatus & Systems p 1050-4 D '63

Commutation phenomena in a static power converter. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:125-34 Ja '64

Commutation reactance of the transformer in a static power converter. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:135-42 Ja '64

Converter translates charge to frequency. il diag Electronics 37:107 Ag 24 '64

D-c voltage converter needs no transformer. A. J. Durocher. diags Electronics 37:64-5 N 2 '64

Directly coupled negative-impedance convertor. A. J. Drew and J. Gorski-Popiel. diags Inst E E Proc 111:1282-3 Jl '64

Effects of error in the element values and the converter transfer characteristic on the responses of active rc filters. A. G. J. Holt and F. W. Stephenson. bibliog diags Radio & Electronic Eng 26:449-57 D '63

High efficiency converter. il Prog Arch 44:95 N '63

High-power d-c/d-c static converter. D. L. Duff and A. Ludbrook. diags Elec Eng 82:661-5 N '63

Network synthesis using negative-impedance convertors. D. J. Storey and W. J. Cullyer. bibliog diags Inst E E Proc 111:891-906 My '64

Parametric up-converters with nonlinear resistance and capacitance D. P. Howson. IEEE Proc 52:973 Ag '64

Silicon-controlled rectifier d-c to d-c power converters. W. McMurray. diags IEEE Trans Com & Electronics p 198-203 Mr '64

Two-transformer d.c. to a.c. power convertors. K. Pelc and P. A. Tove. bibliog diags Electronic Eng 35:742-5 N '63

See also

Electric inverters
Frequency changers

ELECTRIC current collecting pantograph. See Pantograph, Current collecting

ELECTRIC current comparators. See Comparators

ELECTRIC current limiters

Current-limiting fuses reduce fault currents. N. Peach. Power 108:158-9 Mr '64

Faster acting limiters for secondary network systems. L. J. Weed and I. F. Matthysse. bibliog diags IEEE Trans Power Apparatus & Systems 83:674-9; Discussion. 747-8 Jl '64

Let-through energy is important with c-l fuses. diags Power 108:154-5 My '64

ELECTRIC current transformers. See Electric transformers

ELECTRIC currents

Analysis of pre-breakdown current pulses in gas discharge gaps. D. T. A. Blair and others. bibliog diags Inst E E Proc 110:2073-81 N '63

Anisotropic stress effect on the excess current in tunnel diodes. W. Bernard and others. bibliog J Ap Phys 35:1860-2 Je '64

Anomalous residual currents in the ultra-high vacuum use of Bayard-Alpert ionization gauges. T. E. Hartman. bibliog diags R Sci Instr 34:1190-5 N '63

Calculation of the current and field distribution and the magnetization curves for high-field, superconducting materials in the form of sheet. H. Riemersma. bibliog diags J Ap Phys 35:1802-6 Je '64

Charge-storing technique for measuring small conduction currents under microsecond pulse conditions. P. K. Watson and A. H. Sharbaugh. diags R Sci Instr 35:1310-13 O '64

Charging the silver oxide electrode with periodically varying current. C. P. Wales. Electrochem Soc J 111:131-5 F '64

Critical and passive current densities for copper-nickel-zinc alloys in sulfuric acid. N. D. Stolica and H. H. Uhlig. Electrochem Soc J 110:1215-18 D '63

Current flow between electrodes of unequal area immersed in a low-gas-pressure plasma. M. J. Kofoid. bibliog il diags IEEE Trans Com & Electronics 83:294-302 My '64

Current rating for bundled wire. A. M. Samborsky. bibliog Machine Design 36:188-96 O 22 '64

Effect of waveform on measurement of voltage and current. W. H. Christiansen. Instruments & Control Systems 37:115-17 Mr '64

ELECTRIC currents—*Continued*

Effects of neutron radiation on secondary breakdown. E. B. Hakim and B. Reich. bibliog IEEE Proc 52:735 Je '64

Fields excited by periodic beam currents in a cavity-loaded tube. F. J. Kriegler and others. diag J Ap Phys 35:1721-6 Je '64

High voltage d-c transmission, an engineering challenge. J. H. Harlow. il diags Power Eng 68:37-9 Ap '64

Images of line charges and currents. N. Mullineux and J. R. Reed. diags Inst E E Proc 111:1343-6 Jl '64

Investigation of gas discharges with a rotational component. J. F. Jaeger. bibliog il diags Inst E E Proc 111:1049-58 My '64

Limiting-current densities in the presence of a magnetic field. E. A. Ash. bibliog diags J Ap Phys 35:298-301 F '64

Magnetostatic field of electric currents. G. B. Walker. bibliog Inst E E Proc 111:1068-74 My '64

Maxwell, displacement current, and symmetry. A. M. Bork. bibliog Am J Phys 31:854-9 N '63

Measurement of large direct currents. P. Covert. diags Electro-Tech 74:106+ O '64

Measuring current in high-energy arc jets. R. T. Hood. il diags Instruments & Control Systems 37:99-100 Ja '64

Oscillatory tunnneling current through thin-film insulating barriers in a magnetic field. N. Goldberg and S. R. Pollack. bibliog J Ap Phys 34:3556-8 D '63

Rating of silicon-controlled rectifiers when switching into high currents. N. Mapham. bibliog diags IEEE Trans Com & Electronics 83:515-19 S '64

Second-order electric field due to a conduction current. D. A. Baker. bibliog diag Am J Phys 32:153-7 F '64

Theory of current collection of moving cylindrical probes. M. Kanal. bibliog diags J Ap Phys 35:1697-703 Je '64

Theory of one-carrier, space-charge-limited currents including diffusion and trapping. M. L. Lampert and F. Edelman. bibliog diags J Ap Phys 35:2971-82 O '64

Thermal velocity limit to current density in a beam. A. J. Lichtenberg. bibliog diags J Ap Phys 35:315-19 F '64

Time dependence of a.c. polarographic currents. H. L. Hung and D. E. Smith. bibliog Anal Chem 36:922-5 Ap '64; Discussion. 36:2218-20 O '64

Wear of graphite sliding on a steel surface and the influence of an electric current on the rate of wear. J. E. Thompson and M. J. B. Turner. bibliog diags Inst E E Proc 109 pt A:235-42 Je '62; Discussion. 111:149-50 Ja '64

What makes an electric current flow. W. G. V. Rosser. Am J Phys 31:884-5 N '63

See also

Eddy currents
Electric circuits
Electric conductivity
Electric conductors
Electric distribution
Electric measurements
Electric meters
Electric switchgear
Electric transformers
Electric transient phenomena
Electrodynamics
Hall effect
Potential, Electric
Reciprocity theorem
Short circuits

ELECTRIC currents, Alternating

Alternating-current properties of a copper conductor clad in a magnetic sheath. N. F. Astbury. diag Inst E E Proc 110:2055-62 N '63

Critical alternating currents in superconductors. F. J. Young and H. L. Schenk. J Ap Phys 35:980-1 pt 2 Mr '64

Electrochemical primary cell producing alternating current. M. Clarke. bibliog Chem & Ind p 1655-7 S 26 '64

Studies on alternating current electrolysis, double layer resistance and electrode area as factors in electrode kinetics. D. D. Bump and A. E. Remick. bibliog diags Electrochem Soc J 111:981-8 Ag '64

See also

Electric generators, Alternating current
Electric motors, Alternating current

ELECTRIC cutouts

See also

Electric fuses

ELECTRIC cutting

Advances in electrical discharge machining. C. H. Wick. il diags Mach 70:119-31 F '64

Chemical milling, electrochemical machining, and electric discharge machining. C. L. Faust. il Machine Design 36:163+ Ag 13 '64

Easco electrical-discharge machines and conversion units. Mach 70:157-8 My '64

Electric discharge machining. H. Schulz. Light Metal Age 22:7 Ag '64

EDM electrode cuts tiny foil disks. S. V. Smith. diag Am Mach/Metalworking Manuf 107:87 N 25 '63

Electric discharge machining of beryllium. il Light Metal Age 22:15 F '64

Electric-discharge machining outdoes a cat's whisker. J. H. Cadieux and J. Frei. il Iron Age 194:56-7 Ag 20 '64

Electric discharge machining tailors tooling precisely. M. I. Ross. il diag Iron Age 193:72-3 Je 4 '64

Electrical discharge machining; a cost saver; watch its smoke. il Steel 154:53-8 Je 15 '64

Electrical-discharge machining, the state of the art. Am Mach 108:115-16 Ja 20 '64

Electrical discharge machining trims stamping costs, holds 0.0015 in. tolerance. il Steel 154:105 Ap 20 '64

Electron beam cutting. F. H. Samuelson. Light Metal Age 22:8 Ag '64

Exotic materials need exotic metal-removal. R. L. Rod and others. il diags S A E J 72:46-53 Mr '64

Form grinding of carbides; electrical discharge machining versus diamond wheel. A. E. Chambers. il Tool & Manuf Eng 52:93-5 Ap '64

Hot machining by electric current; abstract. M. Okoshi and K. Uyehara. Metal Prog 85:196+ Je '64

Multiple edm operation permits product improvement. L. W. Collins, jr. il diag Mach 71:127-9 O '64

Optical line following; new aid to EDM. il diags Tool & Manuf Eng 52:81-4 F '64

Power unit packs big punch for edm and ecm. R. H. Eshelman. il Iron Age 194:125 O 29 '64

Precision electron welder uses low beam voltage. K. Aaland and R. Hill. il diags Electronics 37:32-5 Mr 6 '64

Production of fine holes by a spark erosion technique. B. J. Stanier and C. H. B. Mee. J Sci Instr 41:51 Ja '64

Quality mold making. il Plastics World 22:72-3 O '64

Spark erosion machine. il Engineer 218:223 Ag 7 '64

Tracer mill-EDM teamwork puts diemaking in economy groove. il Steel 154:46-7 Ja 20 '64

Traveling-wire electrode machines precision slits. J. Kotora, jr. and D. Strack. il Tool & Manuf Eng 53:51-2 O '64

When tools made by electrical discharge machining fail. L. R. Wendell and L. R. Walton. il Am Mach 108:101-2 F 17 '64

Which method for diesinking? P. A. Ropp and others. il diags Am Mach 108:67-70 Je 8 '64

See also

Plasma jet

ELECTRIC detonators. See Detonators, Electric

ELECTRIC discharges

Analysis of pre-breakdown current pulses in gas discharge gaps. D. T. A. Blair and others. bibliog diags Inst E E Proc 110:2073-81 N '63

Beam-plasma discharge; buildup of oscillations. W. D. Getty and L. D. Smullin. bibliog il diags J Ap Phys 34:3421-9 D '63

Brazing in hydrogen by a glow discharge method. B. Brandt. J Sci Instr 40:542 N '63

Breakdown by treeing in epoxy resins. M. Olyphant, jr. bibliog il IEEE Trans Power Apparatus & Systems p 1106-12 D '63

Cathode particle vapors in a glow discharge in pulsed diodes. F. T. Worrell and H. A. Pike. J Ap Phys 34:3491-2 D '63

Clean up of inert gases in a Penning discharge studied by a tracer technique. K. Kawasaki and others. bibliog il diags J Ap Phys 35:479-82 Mr '64

Degradation of insulation materials by electrical discharges. R. J. Meats and A. W. Stannett. bibliog diag IEEE Trans Power Apparatus & Systems p49-54 Ja '64

Design and construction of a new coaxial electrical discharge pin. R. J. Wasley and others. diags R Sci Instr 35:466-8 Ap '64

Electrical conduction and breakdown in argon and helium at temperatures from 1500°K to 2500°K. D. W. George. bibliog il diags Inst E E Proc 110:2063-72 N '63

ELECTRIC discharges—*Continued*

Electrified gas coats metals. J. E. Sandford. il diag Iron Age 194:75-7 Jl 16 '64

Experimental study of the use of a Langmuir probe to measure electron temperatures and densities in afterglows. G. R. Court and J. Sayers. bibliog J Sci Instr 41:462-4 Jl '64

Experiments on the origin of moving striations. A. W. Cooper. bibliog il diags J Ap Phys 35:2877-84 O '64

Field strengths for prebreakdown magnetic induction discharge. R. C. Jones and F. E. Nagel. IEEE Proc 52:625 My '64

Glow discharges in diodes containing oxide-coated cathodes. M. D. Jones and C. H. B. Mee. Inst E E Proc 111:1421-2 Ag '64

Growth of discharges on polluted insulation. L. L. Alston and S. Zoledziowski. bibliog diag Inst E E Proc 110:1260-6 Jl '63; Discussion. 111:1589-92 S '64

Improved pulsed Townsend discharge experiment. D. Edelson and K. B. McAfee, jr. bibliog diags R Sci Instr 35:187-94 F '64

Impulse streamer branching from Lichtenberg figure studies. E. Nasser and L. B. Loeb. bibliog il diag J Ap Phys 34:3340-8 N '63

Investigation of gas discharges with a rotational component. J. F. Jaeger. bibliog il diags Inst E E Proc 111:1049-58 My '64

Ion distributions in a pulsed Townsend discharge. D. Edelson and others. bibliog J Ap Phys 35:1682-90 Je '64

Ion wave resonance and plasma instability in a cesium discharge. J. A. Decker, jr. bibliog il diag J Ap Phys 35:497-501 Mr '64

Laser action in Xe in two distinct current regions of ac and dc discharges. G. E. Courville and others. il J Ap Phys 35:2547-8 Ag '64

Mechanism of afterglow in neon flashtubes. P. D. Johnson and others. bibliog J Ap Phys 35:1128-30 Ap '64

Microwave absorption and density variation in moving striations. S. F. Paik and others. bibliog il diags J Ap Phys 35:2573-7 S '64

Microwave determination of average electron energy and density in He-Ne discharges. E. F. Labuda and E. I. Gordon. J Ap Phys 35:1647-8 My '64

One-sided multipactor discharge modes. E. F. Vance. bibliog diags J Ap Phys 34:3237-42 N '63

Onset of breakdown at voltages below ionization potential in high-pressure thermionic diodes. R. Forman. bibliog diags J Ap Phys 35:261-4 F '64

Optical frequency electrical discharges in gases. R. W. Minck. il J Ap Phys 35:252-4 Ja '64

Optical maser action in the negative glow region of a cold cathode glow discharge. J. Smith. J Ap Phys 35:723-4 Mr '64

Paschen curve in nitrogen. H. C. Miller. bibliog diag J Ap Phys 34:3418 N '63

Penetration of krypton ions into molybdenum in a glow discharge. C. Y. Bartholomew and A. R. LaPadula. J Ap Phys 35:2570-2 S '64

Photoionization as the secondary mechanism in a Townsend breakdown. G. W. Penney and others. IEEE Trans Com & Electronics p203-8 Mr '64

Polarization phenomena in electrical tests on hexane. A. A. Zaky and H. House. bibliog J Ap Phys 34:3194-9 N '63

Sceptre IV, a megajoule discharge system. R. F. Hemmings and others. bibliog il diags Inst E E Proc 111:589-99 Mr '64

Standing-wave discharge in air. P. A. Silberg. bibliog il J Ap Phys 35:2264-5 Jl '64

Studies of the properties of the hollow cathode glow discharge in helium and neon. D. J. Sturges and H. J. Oskam. bibliog diag J Ap Phys 35:2887-94 O '64

Study of energy requirements for electric discharge metal forming. R. L. Kegg. bibliog diags A S M E Trans ser B 86:127-32; Discussion. 132-3 My '64

Survey of cold cathode discharge tubes. D. M. Neale. bibliog il Radio & Electronic Eng 27:87-97 F '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow discharge mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:844-53 Jl '64

Two-state operation of a hollow cathode discharge within a microwave cavity. E. C. Muly and R. Frerichs. IEEE Proc 52:202 F '64

Use of time resolution in identifying laser transitions in a mercury-rare gas discharge. W. M. Doyle. J Ap Phys 35:1348-9 Ap '64

Visible radiation from metal anodes preceding electrical breakdown. C. J. Bennette and others. bibliog J Ap Phys 35:3054-5 O '64

See also

Corona (electricity)
Electric arc
Electric spark
Exploding wire phenomena
Ionization, Gaseous
Lightning
Vacuum tubes

ELECTRIC distribution

Advance planning helps avoid costly mistakes in electrical expansion; Cross bros. H. Cohen. il diags Power 108:60-1 Ja '64

Advantages of all-electric designs get utility backup support. J. J. O'Connor. il diags Power 108:84-6 O '64

All-electric garden apartments. il plan diag Elec Constr & Maint 62:64-7 D '63

Breakthrough seen imminent in underground residential distribution. Elec World 161:96-8+ My 18 '64

Constructing electrical systems; special report. il diags Elec Constr & Maint 63:75-138+ My '64

Development of the Swedish 400-kv network. G. Jancke. il map IEEE Trans Power Apparatus & Systems 83:197-205 Mr '64; Discussion. 83:422-5; Reply. 425-6 Ap '64

Distribution planning and all-electric load building. A. D. Bertolett and W. J. Cloues. bibliog diags IEEE Trans Power Apparatus & Systems p801-9; Discussion. 809-16; Reply. 816-18 D '63

Distribution systems ripe for r&d. Elec World 161:87 My 18 '64

Dual voltages make Muscovites see red. il Elec World 161:19-20 Je 8 '64

Electrical design; distribution. D. Silverman. bibliog il diags Chem Eng 71:131-6 My 25 '64

Electrical transmission and distribution in the south of Scotland. A. Erskine and others. maps diags IEEE Trans Power Apparatus & Systems 83:1016-27; Discussion. 1027-8; Reply. 1028-9 O '64

Energy systems at the World's fair. il map diags Power 108:201-6 Ap '64 (reprints 25c)

480/960-v distribution proposed. Elec World 161:22 Mr 2 '64

Gaming techniques guide system design. Elec World 161:138+ F 24 '64

Get more from your electrical system. R. L. Hatschek. il Mill & Factory 74:74-7 Mr '64

Light and power for Oakland jetport. il diag Elec Constr & Maint 63:90-3 F '64

Multiple voltages serve power, light and process heating. il diag Elec Constr & Maint 63: 83-5 F '64

New equipment cuts in-plant systems costs. B. G. Bailey. Elec World 160:32-5 D 16 '63

1964 energy systems design survey; all-electric buildings. Power 108:sup29-33 O '64

1964 energy systems design survey; electric distribution trends and typical systems. Power 108:sup36-43 O '64

Package unit simplifies series-capacitor application. H. B. Wolf. il diag Elec World 160:96-7 N 18 '63

Power distribution in Univac computer engineering center. J. Molnar. il diags Elec Constr & Maint 63:86-90 Ag '64

Radial system reliable for refinery. P. I. Jernigan. diags Elec World 161:95-7+ Ap 20 '64

Reactive sources, a method of evaluating their effectiveness. W. A. Klein and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:714-18; Discussion. 760-1 Jl '64

Series capacitor ends voltage dips. R. C. Miller. il diag Elec World 161:59+ Ja 13 '64

Source planning backs distribution. D. V. Menscer. plan diags Elec World 161:22+ Je 22 '64

Test bench power distributed by custom-built system; Furnas electric co. S. O. Gregory. il Plant Eng 18:128-30+ S '64

Toledo high schools modernize with versatile power distribution. il diags Elec Constr & Maint 62:97-9 N 63

Transmission and distribution expenditures; tables. Elec World 161:74-7 Ja 27 '64

Transmission and distribution; special section. il diags Power Eng 68:34-42 Ap '64

Two devices add to feeder continuity. C. Gilker. il diag Elec World 161:103 F 24 '64

ELECTRIC distribution—*Continued*

Underground turnkey package offered. R. F. Gilton and J. M. Massara. il diag Elec World 161:54-5 Ja 13 '64
Unique distribution powers New York world's fair. J. H. Watt. il diag Elec Constr & Maint 62:51-3+ D '63
We designed an electric system for precise voltage, continuity. K. Chen. diag Power 108:61-4 F '64

See also

Busbars
Electric cables
Electric capacitors
Electric circuit breakers
Electric conductors
Electric conduits
Electric currents
Electric fuses
Electric lines
Electric plants—Interconnection
Electric rectifiers
Electric substations
Electric switchgear
Electric transformers
Electric transmission
Electric wiring
Manholes
Synchronizing
Voltage
Voltage regulation

Change over

Modify 69-kv line for 161-kv service. il Elec World 160:86 N 18 63

Costs

Chicago-Twin-Cities 345-kv line economies. map Elec World 160:28-9+ D 16 '63
Cite underground distribution cost savers. Elec World 160:16+ D 23 '63
Economics justifies heavier distribution feeders. W. J. Stephens. Elec World 162:24-5 O 17 '64
Electricity costs and prices; abstracts of two papers. P. A. Lingard and G. England; H. Clay. Engineer 218:13-14 Jl 3 '64
Large silicon rectifiers serve d-c industrial load economically. J. Agosta. il diags Power Eng 68:44-5 F '64
PG&E offers cost estimates for underground. Elec World 162:19 O 26 '64
Power line across the Continental Divide in Colo; unit prices. Eng N 172:53 Mr 5 '64
Primary distribution offers builder most for the least. C. A. Jacobson. il Elec World 160:36-8 D 16 '63
URD achieves cost break-through; pre-assembled cable duct. J. W. Lauder and R. C. Blankenburg. il Elec World 162:23-5 N 9 '64

Grounding

About silicon diodes and dc frame grounds. il Coal Age 69:98-100 Ag '64
Evaluation of resistivity tests for design of station grounds in nonuniform soil. J. Endrenyi. bibliog diags IEEE Trans Power Apparatus & Systems p966-70 D '63
Grounding jumper isolates pilot system trouble. S. L. Fontenot. il Elec World 161:63 Ja 27 '64
Grounding of metal-clad buildings. il Safety Maint 127:37+ My '64
Investigation and testing of footing-type grounding electrodes for electrical installations. H. G. Ufer. diags IEEE Trans Power Apparatus & Systems 83:1042-8 O '64
New free-loader gets power from 230-kv line. diags Elec World 160:80-1+ N 18 '63
Resistive earthing of electrical distribution systems in ships and similar installations. D. Jones. diags Inst E E Proc 111:1729-35 O '64
Steel erection and grounding in constructing an outdoor substation. J. F. McPartland. il plan diags Elec Constr & Maint 63:110-13+ S '64
Tired of chasing grounds? install a grounding transformer. H. Pritzlaff and E. Neydli. diags Plant Eng 17:96-7 D '63

See also

Radio apparatus—Electric grounding

Grounds and faults

Arcing-fault relays for low-voltage systems. L. E. Fisher. bibliog il diags IEEE Trans Applications & Ind p317-20; Discussion. 320-1 N '63
Earth loop testing. F. R. Harrison. Inst E E Proc 111:1147-8 Je '64
Fault-current limitation for large transformers using reactors in the tertiary winding. M. J. Lantz and M. T. Yee. diags IEEE Trans Power Apparatus & Systems 83:637-40; Discussion. 658 Je '64
Fundamental frequency voltages due to single-phase earth faults on h.v. lines with resistance earthing. J. S. Vosper. bibliog diags Inst E E Proc 110:1990-2000 N '63
Ground fault detection ensures plant power protection. D. T. Blizzard. diags Plant Eng 18:120-2 Ag '64
High-sensitivity selective ground fault protection. R. A. Stevenson and others. bibliog il diags Can Min & Met Bul 57:636-40 Je '64
Multi-generator transient-stability performance under fault conditions. E. C. Scott and others. bibliog diags Inst E E Proc 110:1051-64 Je '63; Discussion. 110:1799-804; 111:587-8 O '63, Mr '64
Protect low-voltage systems from arcing-fault damage. N. Peach. il diags Power 108:61-5 Ap '64
Ready-made stress cone signals faults. A. M. Lockie and R. W. Suelmann. diags Elec World 162:118-19 S 21 '64
Solving ground faults in non-lead cables. diags Plant Eng 18:134-5 O '64
Suppression of ground-fault arcs on single-pole-switched ehv lines by shunt reactors. E. W. Kimbark. diags IEEE Trans Power Apparatus & Systems 83:285-90 Mr '64

Network analyzers

Computer study guides grid growth. R. H. Arnold. diag Elec World 162:45+ Ag 24 '64
How the grid is designed to take it. diag Engineering 198:187-8 Ag 7 '64
Network analyzer for system simulation. J. M. Spurlock and J. I. Gonzales. bibliog diags Electro-Tech 73:126-7 Mr '64
Phase unbalance in low-voltage distribution systems. M. Davies and R. G. Peterson. bibliog diags Inst E E Proc 109 pt A:535-41; 111:145-6 D '62, Ja '64
Predict and control switching-surge levels on ehv systems. D. D. Wilson and D. E. Hedman. il Elec World 160:36-7+ D 30 '63

Stability

Capacitors assure system voltage level. W. U. Baum and W. A. Frederick. diags Elec World 160:52-5+ O 21 '63
Computer studies of transient stability of power systems. Engineer 217:239 Ja 31 '64
Frequency of occurrence and the magnitude of short duration transients in low-voltage supply mains. J. H. Bull and W. Nethercot. bibliog diags Radio & Electronic Eng 28:185-90 S '64
Impulse response stability criteria. R. W. Newcomb. bibliog IEEE Proc 52:97-8 Ja '64
Recording transient load angle of synchronous machines. J. H. Bundell and A. J. Ellison. J Sci Instr 41:511-13 Ag '64
Transient stability of an isolated radial power network with varied load division. B. J. Gevay and W. H. Schippel. bibliog diags IEEE Trans Power Apparatus & Systems 83:964-9; Discussion. 969-70 S '64

Supervisory control

Emergency supervisory channel saves. W. M. Pope and H. A. Lewis. diag Elec World 162:19 S 28 '64
Mozart substation; the first supervisory controlled 12-4-kv substation at Hydro-Quebec with automatic data logger. R. E. Kozlowski. il diags IEEE Trans Power Apparatus & Systems 83:327-36 Ap '64
On-line control computers are increasing. H. L. Smith. diag Elec World 162:56-7+ S 7 '64
Simplified central control of sub-stations. Engineering 198:457 O 9 '64

Tables, calculations, etc.

Analysis of networks with complex autotransformers. H. H. Happ. diags IEEE Trans Power Apparatus & Systems p75-81, 958-65; 83:707-14 Ap, D '63, Jl '64
Automated distribution system planning. R. F. Lawrence and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:311-16; Discussion. 442-3 Ap '64
Direct calculation of transmission loss formula. H. H. Happ and others. IEEE Trans Power Apparatus & Systems 83:702-7; Discussion. 757-60 Jl '64
Electrical estimating for the plant engineer. N. J. DeYoung. il Plant Eng 18:108-10 F; 142-4 Mr; 148-50 Ap; 150-2 My; 145-7 Je; 152+ Jl; 140-2 Ag; 150-2 S; 152+ O '64
Linear approach to the problem of planning new feed points into a distribution system. C. Morrison. bibliog diags IEEE Trans Power Apparatus & Systems p819-30; Discussion. 830-1; Reply. 831-2 D '63

ELECTRIC distribution—Tables, calculations, etc.—*Continued*

Long-term finds new relation of voltage change to kwhr. J. A. Hughes. il diags Elec World 161:59-61+ My 4 '64
Magnetic-tape recording meters improve load survey accuracy. F. G. Hammer and J. W. Crawford. Elec World 160:98-100 N 4 '63
Optimized distribution and subtransmission system planning by digital computer. V. Converti and others. diags IEEE Trans Power Apparatus & Systems 83:341-7 Ap '64 (to be cont)
Power system reliability. D. P. Gaver and others. diag IEEE Trans Power Apparatus & Systems 83:727-37 Jl '64; Discussion. 83: 865-7; Reply. 867-8 Ag '64
Probability method for determining the reliability of electric power systems. C. F. DeSieno and L. L. Stine. bibliog diags IEEE Trans Power Apparatus & Systems p 174-9; Discussion. 179-81 F '64
Review of some basic characteristics of probability methods as related to power system problems. C. W. Watchorn. IEEE Trans Power Apparatus & Systems 83:737-43 Jl '64; Discussion. 83:868-72; Reply. 872-3 Ag '64
Secondary system distribution planning for load growth. R. M. Webler and others. bibliog flow diag diags IEEE Trans Power Apparatus & Systems p908-23; Discussion. 923-7 D '63
Speed primary voltage drop studies with new calculator. E. P. McLean. il Elec World 161:26 F 17 '64
Techniques for exploiting the sparsity of the network admittance matrix. N. Sato and W. F. Tinney. bibliog diag IEEE Trans Power Apparatus & Systems p944-9; Discussion. 949-50 D '63
Transformers/secondaries readily determined. C. H. Bennett. Elec World 160:120-2 D 2 '63

Underground lines

See Electric lines—Underground lines

ELECTRIC double layer

Electrical double layer and corrosion. R. Parsons. Chem & Ind p2006 D 28 '63
How to select photoelastic coatings. il Materials in Design Eng 60:99-102 S '64
Oxygen adsorption and double layer capacities; gold in perchloric acid. G. M. Schmid and R. N. O'Brien. bibliog diags Electrochem Soc J 111:832-7 Jl '64
Studies on alternating current electrolysis; double layer resistance and electrode area as factors in electrode kinetics. D. D. Bump and A. E. Remick. bibliog diags Electrochem Soc J 111:981-8 Ag '64

ELECTRIC driving

A.c./d.c. adjustable speed drive for plastic film extrusion. J. R. Stephens and others. il diag Tappi 46:sup 195A-8A D '63
Bigger scr drives. B. Berman. il diags Product Eng 35:59-61 My 11 '64
Considerations concerning a modified Kramer system. R. J. Bland and others. bibliog Inst E E Proc 110:2228-32 D '63
Electric drive system for a steerable aerial at a satellite-communication earth station. H. A. Prime and others. il diags Inst E E Proc 111:556-64 Mr '64
Electric motors; adjustable-speed drives. C. W. MacMeans and W. W. Moore. il diags Machine Design 36:134-43 Mr 19 '64
Electric motors; driven-machine mechanics. V. S. Buxton. Machine Design 36:24-8 Mr 19 '64
Electronic drive system controls speed and torque. il Food Eng 36:106 Ap '64
Flexible drives suppress heat; new power shafts ease grinding and milling chores. W. N. Redstreake. il Iron Age 193:62-3 Ap 2 '64
Look at the future; power and drives. J. Schachner and R. H. Wilcox. il diags Mill & Factory 75:100-12 N '64
Planing machine with controlled rectifier drive. il Engineer 218:292 Ag 21 '64
Putting power drives to work. il Mill & Factory 74:84-7 Mr '64
Selecting transistors for coil drivers. K. Hermann. diags Electro-Tech 72:106-7 D '63
Specifying sectional drives for continuous web processes. P. A. Anctil. il diags Automation 11:64-8 Ag; 82-8 S '64
Synchronous drives for grinding mills. M. Krebs. diags Rock Prod 66:105-6 N '63
Thyristor control of Ward Leonard drives. B. J. Hodgskiss. il diags Ind Electronics 2:105-9 Mr '64
Torque reversing drive for light dc target motor. A. V. Feltman and J. G. Cottingham. diags R Sci Instr 35:814-15 Jl '64
Use motorized shear to cut insulation. il Elec Constr & Maint 63:136 Jl '64
User experience with powerful Ward Leonard d.c. machine drives for gas circulators at Calder Hall. E. L. Desbruslais. bibliog diags Inst E E Proc 109 pt A:279-87 Ag '62; Discussion. 109 pt A:287-91; 111:579-81 Ag '62, Mr '64
Wire winding with a simple drive. J. W. St Andre. diag Wire & Wire Prod 39:240-1+ F '64

See also

Cranes, derricks, etc.—Electric equipment
Electric fans
Electric motors
Electricity in mining
Gearmotors
Hoisting machinery, Electric
Machine tools—Electric driving
Mine hoisting, Electric
Pumping machinery, Electric
Ship propulsion, Electric

Conveying machinery

Clutch cuts motor size for powered conveyor. il Mod Materials Handling 19:60 Mr '64
Drive synchronizes two separate conveyors. il diag Mod Materials Handling 19:59 F '64
Multi-drive conveyors with synchronism. diag Engineering 197:234 F 7 '64
Powerful underground belt drive. il Engineer 218:424 S 11 '64
Pre-assembled or shop-built, which drive is cheaper? S. Stein. il Plant Eng 17:110-11 D '63

Paper and pulp mills

Developments in turbine governing. M. Gottlieb. il diags Tappi 47:sup 126A-30A Je '64
Drive requirements for coaters. R. J. Farrell. bibliog diags Tappi 46:sup 124A-33A D '63
Problems in keeping critical a-c motors on the line. H. A. Wright and T. F. Bellinger. il diags Tappi 47:sup 149A-54A Je '64
Selection of refiner drive motors. C. G. Herrington. Tappi 47:sup 157A-9A Je '64

Power plant auxiliaries

See also

Steam plants—Auxilaries

Rolling mills

Drive modernization benefits; W. S. Tyler co. il Steel 155:49 O 26 '64
Drives for continuous weld tube mills at Corby. R. G. Rayden. il diag Engineer 216: 897-9 N 29 '63
Electric systems design for metal processing lines. R. K. Bennett and J. E. Peebles. bibliog il diags Iron & Steel Eng 41:69-88 Ag '64
Electrical drive systems for thin tin-plate mills. A. F. Kenyon. il diags Iron & Steel Eng 41:69-77; Discussion. 78-9 F '64
Impact torsional vibration of direct-current hot strip mill drive motors. S. R. Petersen. diags Iron & Steel Eng 41:105-10 O '64
Revision of AISE d-c mill motor standard proposed. il Iron & Steel Eng 41:161 O '64

Textile mills

See also

Textile machinery

ELECTRIC engineering

Partnership between science and electrical and electronics engineering. W. Jackson. IEEE Proc 52:115 F '64

See also

Calculating machines—Electric engineering applications
Electric contractors
Electric distribution
Electric driving
Electric heating
Electric machinery
Electric measurements
Electric motors
Electric transmission
Electric wiring
Electricity in mining
International conference on large high tension electric systems
International electrotechnical commission
Prospecting—Electric methods
Rolling mills—Electric equipment
Steel works—Electric equipment
Telephone
Watt hour meters

Bibliography

New books. Published in monthly numbers of Electro-technology

ELECTRIC engineering—*Continued*

History

History of a.c.-to-d.c. conversion. J. H. P. de Villiers. il Inst E E Proc 111:1145-7 Je '64

Safety measures

See also
National electrical code

Study and teaching

City of Liverpool college of technology regional college; Department of electrical engineering. E. G. Lamb. il Chem & Ind p998-9 Je 13 '64
Electrical machines laboratory. A. A. Moore. il plan Engineer 218:520-5 O 2 '64
Forces influencing engineering education from power. L. Dwon. bibliog IEEE Trans Power Apparatus & Systems 83:826-37 Ag '64; Same. Combustion 35:28-39 Ap '64; Discussion. IEEE Trans Power Apparatus & Systems 83:837-52; Reply. 852-5 Ag '64
Free Germans open hv school lab. il Elec World 162:99 N 2 '64
Introduction of general theory of electrical machines into university courses. A. J. Ellison. il diags Inst E E Proc 111:1359-68 Jl '64
Laboratory work in advanced radio and electronic education; its aims and methods. B. F. Gray. il Radio & Electronic Eng 26:477-80 D '63
Pitt seeks larger pool for power engineers. Elec World 162:18 N 9 '64
Teaching aid in control engineering. il Engineering 198:419 O 2 '64

Tables, calculations, etc.

Application of matrix methods to the solution of travelling-wave phenomena in polyphase systems. L. M. Wedepohl. bibliog diags Inst E E Proc 110:2200-12 D '63
Calculation of axially symmetric electrostatic fields for two coaxial equidiameter cylinders. M. Morikawa. bibliog J Ap Phys 34:3179-81 N '63
Calculation of high-frequency inductance and current-distribution effects in annular discs. H. K. Au and E. M. Deeley. diags Inst E E Proc 111:1347-52 Jl '64
Calculation of transient voltages in a transformer connected to a transmission line. V. Lovass-Nagy and C. Szendy. bibliog diag Inst E E Proc 111:1133-6 Je '64
Composite numbers. J. Zdunek. Inst E E Proc 110:2125-31 D '63
Distributed network analysis of porous electrode capacitors. J. Vergnolle. diags Electrochem Soc 111:799-804 Jl '64
Graphical method for solving transient stability problems. K. W. Ho. bibliog diags Inst E E Proc 111:335-42 F '64
Hamilton's modified principle applied to nonlinear circuit problems. M. Kristiansen and L. G. Clark. bibliog diags IEEE Trans Com & Electronics p598-601 N '63
Identity of solutions for a horizontal electric dipole in a conducting half-space. W. B. Sisco and B. W. Porter. IEEE Proc 52:190-1 F '64; Discussion. 52:1254-5 O '64
Laplace transform solution of linear differential equations with variable coeffcients. R. E. Vowels. bibliog diags IEEE Trans Com & Electronics p573-9 N '63
Magnetic field problem with axial symmetry and its solution in terms of Fourier-Bessel expansions. D. Midgley and S. W. Smethurst. diags Inst E E Proc 110:1465-72 Ag '63; Discussion. 111:1149-50 Je '64
Matching of initial behavior in time domain approximation. B. Liu. bibliog diags Franklin Inst J 277:107-18 F '64
Measurement of turboalternator transfer functions using normal operating data. K. N. Stanton. bibliog diag Inst E E Proc 110:2001-7 N '63
Method of analysing the properties of 2-phase servo-motors and a.c. tachometers. D. E. Hesmondhalgh and E. R. Laithwaite. bibliog diags Inst E E Proc 110:2039-54 N '63
Numerical method for the determination of an electric field about a complicated boundary. D. R. Cruise. bibliog J Ap Phys 34:3477-9 D '63
Over-moded rectangular waveguide for high-power transmission. J. S. Butterworth and others. bibliog diags Inst E E Proc 110:848-58 My '63; Discussion. 111:1417-20 Ag '64
Paramount matrices and realization of resistive three-port networks. I. Cederbaum. bibliog diags Inst E E Proc 110:1960-4 N '63
Potential operator in quasi-static electromagnetic theory. M. R. Harris. bibliog diags Inst E E Proc 110:2093-101 N '63; Discussion. 111:1371-2 Jl '64
Power invariance in electrical networks. G. S. Brosan. diags IEEE Trans Com & Electronics p569-71; Discussion. 571-3 N '63
Relationship between the cut-tree and the fundamental cut-set of multi-terminal flow networks. S. A. Elmaghraby. diags Franklin Inst J 278:262-6 O '64
Roots of polynomials. A. J. Sykas. bibliog Electro-Tech 73:109-16 Ap '64
Simplifying system-reliability calculations. J. G. Lawrence. diags Electro-Tech 73:109-14 Mr '64
Solution of transient-stability problems through the number-series approach. N. Dharma Rao and H. N. Ramachandra Rao. bibliog diags Inst E E Proc 111:775-88 Ap '64
Star point of unbalanced polyphase loads. E. Wilkinson. bibliog diags Inst E E Proc 111:376-7 F '64
Steady-state analysis of periodically interrupted circuits by means of symmetrical components. D. J. Hanrahan. bibliog diags IEEE Trans Com & Electronics p589-93 N '63
Useful polygonal function. R. P. Benedict. Electro-Tech 73:38-41 Ja '64
Variational integral for the propagation coefficient of a cylindrical waveguide with imperfectly conducting walls. P. N. Robson. diags Inst E E Proc 110:859-64 My '63; Discussion. 111:1417-20 Ag '64

See also
Thévenin theorem

ELECTRIC engineers

After they're hired, what happens? Elec World 160:129-31 N 4 '63
Commercial engineer in the supply industry. A. Haddock. Inst E E Proc 111:371-2 F '64
Demand for engineers is easing. Elec World 162:31-4 O 12 '64
Here's an effective way to recruit and train power engineers. L. Dwon. Power Eng 68:49-52 S; 53-5 O '64
Navy's need of electrical officers. il Engineering 198:38-9 Jl 10 '64
Other side of the engineer shortage. W. A. Douglas. il Electronic Ind 22:196-7+ N '63
What waits for the young engineer? Elec World 161:159-62 Ap 20 '64
Where are electronic engineers going? S. Feldman. Electronic Ind 23:142-3+ Ap '64
Who is the unemployable engineer? il Electronic Ind 22:200+ N '63

See also
Illuminating engineering society
Institute of electrical and electronics engineers

ELECTRIC equipment

Constructing electrical systems: special report. il diags Elec Constr & Maint 63:75-138+ My '64
Design and performance of high- and low-voltage terminal boxes. K. K. Schwarz. bibliog il diags Inst E E Proc 109 pt A:151-65 Ap '62; Discussion. 109 pt A:165-72, 470-2; 111:143-5 Ap, O '62, Ja '64
Outlook for 1964; record construction year. W. T. Stuart. Elec Constr & Maint 63:61-4+ Ja '64
Product news. Published in monthly numbers of Electrical construction and maintenance
Ready-made stress cone signals faults. A. M. Lockie and R. W. Suelmann. diags Elec World 162:118-19 S 21 '64

See also
Electric distribution
Electric driving
Electric heating elements
Electric plants (central stations)—Equipment
Electric switchgear
Electric transmission
Electricity in mining
Electricity on the farm
Switchboards
also subdivision Electric equipment under special subjects, e.g.
Airplanes
Airports
Apartment houses
Automobiles
Brass works
Cars
Chemical plants
Coal mines and mining
College buildings
Cranes, derricks, etc.
Department stores
Exhibition buildings
Factories
Food factories
Guided missile bases
Hospitals
Office buildings

ELECTRIC equipment—See also—*Continued*
Office buildings, Industrial
Paper and pulp Mills
Petroleum refineries
Pumping stations
Railroads
Rock products plants
Rolling mills
School buildings
Ships
Shopping centers
Steel works
Textile mills

Cooling

Summary of experiments on a transpiration-cooling electric-arc heat-transfer system. R. B. Kinney and others. il diag A S M E Trans ser C 86:131-2 F '64

Maintenance and repair

Apparatus service uses space-age techniques; electrical equipment service center in Salt Lake City. il Elec Constr & Maint 63:79-83 Ap '64
Contract maintenance aids production reliability. R. J. Lawrie. il Elec Constr & Maint 62:100-3 N '63
Electrical damage and restoration in Alaska. H. P. Scott. il map diags Elec Constr & Maint 63:75-82 Je '64
Electrical maintenance at Atlantic's Philadelphia refinery. R. L. Kerr. il diags Elec Constr & Maint 63:94-8+ Ag '64
Electrical maintenance at Republic Aviation. R. J. Lawrie. il diag Elec Constr & Maint 63:83-7+ Je '64
Electrical maintenance engineers association of California, 9th annual technical symposium, Los Angeles, April 21-23; with abstracts of papers. Elec Constr & Maint 63:180-4 Je '64
Managing electrical maintenance. L. LaValley. il diags Textile Ind 128:51-3 Ja; 71-2+ F; 88+ Mr; 120-2+ Ap; 117-19 My; 85-7 Jl; 96+ N '64 (to be cont)
Preventive maintenance of electrical equipment. W. Schneider. WPCF J 36:118-22 Ja '64
Service shop features handling and repair of heavy electrical equipment. il Elec Constr & Maint 63:90-2 Jl '64
You can predict electrical equipment failures. R. W. Inman. il diags Rock Prod 67:87-9 Je '64

Protection

Covers provide protection for equipment. il Elec World 161:94 F 10 '64
Environmental protection for electrical equipment; silicone grease compounds. D. A. Barsness and J. H. Wright. il Elec Constr & Maint 63:75-7 Ja '64
Protecting aircraft distribution systems. K. F. Bacon. il diags Ind Electronics 2:334-8 Jl '64
Spray gun on stick applies silicone to hot pole-top equipment. W. S. Waeckerle. il Elec World 161:76 Ap 6 '64

Safety measures

Air-purged electric systems for a large compressor building having group B division two classification. J. Molle and others. bibliog il diags IEEE Trans Applications & Ind 83:209-15 Jl '64
Designing safety into motor control centers. F. J. Prince. il Safety Maint 128:14-16 O '64
Electric circuits for hazardous spaces. J. M. Dorsey. il Marine Eng/Log 69:56-7 Ag '64
Electrical safety machinery control switches. Pit & Quarry 57:105-6 S '64
High-sensitivity selective ground fault protection. R. A. Stevenson and others. bibliog il diags Can Min & Met Bul 57:636-40 Je '64
Intrinsic safety. F. M. Ryan. bibliog il diags Control Eng 11:73-7 Je '64
Intrinsic safety. C. J. Swartwout and F. L. Maltby. bibliog il diags Instruments & Control Systems 36:93-7 O '63
Managing electrical maintenance; electrical safety. L. LeValley. il Textile Ind 128: 117-19+ My '64
Removing the shock hazard from spark-triggered arc electrodes. D. A. Sinclair. bibliog diags J Sci Instr 41:618-21 O '64
Safe electrical installations in atmospheres containing hydrogen. R. W. Scott. il diags Chem Eng 71:79-82 Mr 2 '64
Why today's switchgear is safer. S. H. Telander. il diag Safety Maint 127:20-4+ Ja '64
See also
Insulation (electric)
Interlocking devices

Standards

Electrical industry benefits from IEC participation. Mag of Stand 35:265-8 S '64
See also
Electric standards

Testing

BPA dedicates Big Eddy dc test center; acceptance tests continue. il Elec World 160: 84-5+ N 4 '63
Corona detector checks insulation quality. C. E. Mercier. il diags Elec World 162:72-3 Jl 13 '64
Digital balancing speeds bridge measurements. S. W. Hopkins. il diag Control Eng 10:91 D '63
Electrical testing with portable indicating instruments. R. J. Lawrie. il diags Elec Constr & Maint 63:116-19 S '64
Over-the-road mobile lab covers scattered projects. F. Schleif. il Elec World 162:71-2 Ag 10 '64
Test installed electric equipment to reduce costly shutdowns. N. Peach. il Power 108: 86-8 S '64
Use complimentary error function to find product per cent defective; with nomograph. R. A. Dewberry. Elec World 161:76-7 My 4 '64

ELECTRIC fans
Annual equipment specification digest; air distribution. il Air Cond Heat & Ven 61: 63-4+ Ja '64
Open-type electric motors chosen for tunnel ventilation fans. A. E. Lambert, jr. il Air Cond Heat & Ven 61:90 Je '64
Plannair air control systems. il diags Engineering 197:715-17 My 22 '64
What's the best way to control fan coil units? answers. diags Power 107:138-9 N '63

Noise

Fan and fan motor noise in domestic refrigerators. A. C. Potter. diags ASHRAE J 6: 37-41 O '64
Noise of centrifugal fans and rotating cylinders. G. H. Huebner. bibliog il diags ASHRAE J 5:87-94 N '63

ELECTRIC field
A-c flux penetration into magnetic materials with saturation. H. Poritsky and J. M. Butler. bibliog diags IEEE Trans Com & Electronics p99-110; Discussion. 110-11 Ja '64
Calculation of axially symmetric electrostatic fields for two coaxial equidiameter cylinders. M. Morikawa. bibliog J Ap Phys 34:3179-81 N '63
Conduction in very thin films at high electric fields. N. M. Bashara and L. A. Weitzenkamp. J Ap Phys 35:1983-4 Je '64
Contact charging of micron-sized particles in intense electric fields. A. Y. H. Cho. diags J Ap Phys 35:2561-4 S '64
Dissociation of vibrationally excited H_2^+ ions by an electric field. A. W. Ehler. bibliog diags J Ap Phys 35:2858-61 O '64
Drop size from a liquid jet in a longitudinal electric field. R. L. Peskin and R. J. Raco. bibliog diag AIAA J 2:781-2 Ap '64
Effect of an electrostatic field in the dynamic crossed-field photomultiplier. R. Hankin and others. diag IEEE Proc 52:412-13 Ap '64
Effects of an electric field on epitaxial vapor growth. Y. Tarui and others. il diag Electrochem Soc J 110:1167-9 N '63
Effects of constant dc fields on the hysteresis loops of ferroelectric $Bi_4Ti_3O_{12}$ crystals. S. E. Cummins. bibliog il J Ap Phys 35:3045-6 O '64
Effects of the field distribution in the collector space charge layer of junction transistor. O. Nakahara. IEEE Proc 51: 1061-2 Jl '63; Discussion. 52:86-7 Ja '64
Electric and magnetic fields. A. Glaser. bibliog diags Electro-Tech 72:83-104b N '63 (reprints $1)
Electric-field-enhanced precipitation of Li in Ge. J. Blanc and M. S. Abrahams. il J Ap Phys 34:3638-9 D '63
Electric field excitation of electrons from shallow traps in CdSe thin-film triodes. T. O. Poehler and D. Abraham. J Ap Phys 35: 2452-5 Ag '64
Electric field penetration into metals. J. R. MacDonald. bibliog J Ap Phys 35:3053-4 O '64
Electroluminescence in oxide phosphors. S. Jones. bibliog Electrochem Soc J 111:307-11 Mr '64
Electron density measurement of a plasma column by surface wave resonances. Y. Akao and Y. Ida. bibliog diags J Ap Phys 35:2565-70 S '64

ELECTRIC field—*Continued*

Field inside a cylindrical shell with a central cylinder surrounded by concentric rings. K. N. Leibovic and R. C. Bollinger. diags Inst E E Proc 111:428-32 Mr '64

Impulse streamer branching from Lichtenberg figure studies. E. Nasser and L. B. Loeb. bibliog il diag J Ap Phys 34:3340-8 N '63

Induced electric fields in coaxial geometry. P. J. Hart. diags J Ap Phys 35:508-11 Mr '64

Ion optics of fields with rotational symmetry and circular main orbit. A. J. H. Boerboom. diag J Ap Phys 35:1691-7 Je '64

Magnetoresistance of the Corbino disk at microwave frequencies. C. B. Burckhardt and others. bibliog diags IEEE Proc 52:277-83 Mr '64

Mechanisms given for radiolytic reactions in ice, methane. il Chem & Eng N 42:40-2 F 3 '64

New free-loader gets power from 230-kv line. diags Elec World 160:80-1+ N 18 '63

Nucleation and growth of ferroelectric domains in $BaTiO_3$ at fields from 2 to 450 kv/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il diag J Ap Phys 34:3255-60 N '63

Numerical method for the determination of an electric field about a complicated boundary. D. R. Cruise. bibliog J Ap Phys 34:3477-9 D '63

Particle behavior in shear and electric fields; rigid spheroids and discs. C. E. Chaffey and S. G. Mason. bibliog diags J Colloid Sci 19:525-48 Ag '64

Proposal for microwave modulation of light employing the shift of optical absorption edge with applied electric field. R. C. Eden and P. D. Coleman. bibliog IEEE Proc 51:1776-7 D '63

Relative field gradient at the edge of an electrode in a four-electrode system. P. D. Agarwal. bibliog flow chart diags IEEE Trans Com & Electronics 83:502-9 S '64

Response of a poor conductor to alternating electric fields. B. M. Jaffe and H. P. Kallmann. Am Chem Soc J 86:3428-33 S 5 '64

Second-order electric field due to a conduction current. D. A. Baker. bibliog diag Am J Phys 32:153-7 F '64

Some characteristics of solenoidal electric field. C. W. Schultz. il diag IEEE Proc 51:1677 N '63

Weinreich relation in the presence of dc electric and magnetic fields. H. N. Spector. J Ap Phys 34:3628 D '63

See also

Electromagnetic field

Stark effect

ELECTRIC filters

Application of inverse filters to induction log analysis. C. F. George, jr. and others. bibliog diags Geophysics 29:93-104 F '64

Design of wideband sampled-data filters. R. M. Golden and J. F. Kaiser. bibliog diag Bell System Tech J 43:1533-46 pt 2 Jl '64

Electromechanical filters for 50 to 500 kilohertz. A. Russen. bibliog il diags Elec Com 39 no 3:423-34 '64

Estimation of power spectral density by filters. E. J. Gauss. bibliog Assn for Computing Mach J 11:98-103 Ja '64

Introduction to filters. A. I. Zverev. bibliog diags Electro-Tech 73:61-90 Je '64 (reprints $1)

Network filters stabilize d-c supply over wide range. J. G. Peddie. diag Electronics 37:83 Je 15 '64

Precision tuning of thin film notch filter. diags Bell Lab Rec 42:101 Mr '64

Simple null filter with variable notch frequency. J. L. Douce and K. H. Edwards. diags Electronic Eng 36:478-9 Jl '64

See also

Radio filters

ELECTRIC fish screens. See Fish protection

ELECTRIC furnaces

Plasma source gives controlled temperatures. M. L. Thorpe. diag Chem & Eng N 42:85 F 3 '64

See also

Electric heaters

Control

Switch controls arc furnace kvar. R. L. Ream and H. M. Pflanz. il diags Elec World 160:25 N 11 '63

Electrodes

Adds large ferroalloy furnace. il Foundry 92:23+ Mr '64

Giant ferroalloy furnace with interchangeable hearths puts Interlake in silicon market. il Iron & Steel Eng 41:137-8+ F '64

Lining

Trends in refractories for melting furnaces. R. E. Pardee. il Foundry 92:48-51 Ja '64

ELECTRIC furnaces, Annealing

Resistance annealing of copper clad steel wire. M. C. Shapiro. il diags Wire & Wire Prod 39:70-3+ Ja '64

Vacuum annealing of copper wire at Frederick Smith and co. il diag Wire & Wire Prod 39:1331-2+ S '64

Control

Analysis and control of a continuous annealing line. E. Y. Kung. bibliog diags IEEE Trans Com & Electronics p 121-8 Ja '64

ELECTRIC furnaces, Electron beam vacuum melting

Ceramic crucibles for electron bombardment heating. J. W. Voigt and K. W. Foster. diags R Sci Instr 35:1087 Ag '64

Electron beam furnace. il diags Engineer 216:789-90 N 8 '63

Electron beam furnace. il diag Engineer 218:272 Ag 21 '64

Heating in vacuum of silicon substrates to temperatures greater than 800° C. J. Wales and A. J. Jeal. diags J Sci Instr 41:521 Ag '64

IMI are now melting refractory metals. il diag Engineering 196:678-9 N 29 '63

International conference on electron and ion beam science and technology, Toronto, May 4-7; abstracts of papers. J Metals 16:659-61 Ag '64

Modes of operation of an electron beam floating zone melting furnace; growth of single crystals of metals and alloys. H. G. Sell and W. M. Grimes. il diag R Sci Instr 35:64-8 Ja '64

New furnace for the difficult metals. il diag Engineering 198:246-7 Ag 21 '64

Preliminary investigation of melting, extruding and mechanical properties of electron beam melted tungsten: abstract. W. R. Witzke and others. Metal Prog 85:186+ Ap '64

ELECTRIC furnaces, Foundry

Flexible melting unit cuts foundry expenses. Steel 154:102 F 10 '64

Increased use made of electric furnace melting. il Foundry 91:50-3 N '63

Induction furnace uses frequency tripler. il Engineering 198:125 Jl 24 '64

New induction melting furnace; first 150 c./s. unit in Britain. il diag Metallurgia 70:7-9 Jl '64

Trends in refractories for melting furnaces. R. E. Pardee. il Foundry 92:48-51 Ja '64

See also

Electric furnaces, Iron founding

ELECTRIC furnaces, Heat treating

Batch furnace for heat resisting alloys. il Metallurgia 70:48 Jl '64

Electricity ousts oil for stress-relieving furnaces. il Engineering 197:162 Ja 24 '64

Heat treatment furnace for platinum alloys. il Engineering 197:815 Je 12 '64

New furnace shortens delivery time. il Metallurgia 68:255 D '63

Recent heat treatment furnace installations; annual survey of developments. il Metallurgia 69:263-82 Je '64

See also

Electric furnaces, Annealing

Electric furnaces, Steel making

ELECTRIC furnaces, Heating

Bar mills expand production with fast induction heaters. D. G. Hatchard. il Iron Age 194:156-7 S 24 '64

Heaters keep scale off billets. il Iron Age 192:157 D 5 '63

Scale-free ferrous metal treating and forming at elevated temperatures: induction applications. H. B. Osborn, jr. il Iron & Steel Eng 41:83-91; Discussion. 91-2 Je '64

Whiting to market ASEA induction furnaces. il Iron & Steel Eng 41:168 Mr '64

ELECTRIC furnaces, Iron founding

Increased use made of electric furnace melting. il Foundry 91:50-3 N '63

Induction furnaces are hot. T. M. Rohan. il Iron Age 193:42-3 Ja 16 '64

New ductile iron foundry installs induction melting. G. McClellan. il Foundry 92:213-14 Je '64

ELECTRIC furnaces, Laboratory

Design and performance of a high-temperature X-ray diffractometer furnace. R. K. Scott and E. Ruh. bibliog il diag Am Cer Soc J 46:513-15 N '63

Experimental furnace for X-ray diffraction study. il Engineering 196:830 D 27 '63

Experimental high-temperature X-ray diffraction furnace. il Engineer 216:1032 D 20 '63

ELECTRIC furnaces, Laboratory—*Continued*

Fast response, blackbody furnace for temperatures up to 3000°K. A. J. Metzler and J. R. Branstetter bibliog il diag R Sci Instr 34:1216-18 N '63
Fluohmic lab reactor reaches 2300° C. diag Chem & Eng N 42:68-9 N 9 '64
High intensity carbon-arc-image furnace and its application to single crystal growth of refractory oxides. G. J. Goldsmith and others. bibliog il diag Electrochem Soc J 111:260-2 F '64
High-temperature furnace for quantitative X-ray intensity measurements. C. R. Houska and E. J. Keplin. bibliog diags J Sci Instr 41:23-7 Ja '64
Interchangeable hearth arc furnace. O. L. Kruger and J. L. Armstrong. diags R Sci Instr 35:156-8 F '64
Laboratory furnace holds temperatures at 6500° F. Steel 153:23 D 23 '63
Large transparent vacuum melting apparatus. T. J. Neubert and S. Susman. diag R Sci Instr 34:1436-7 D '63
Maximizing the electric furnace in the laboratory. W. J. Walsh. il diags Res/Develop 15: 16-19 Jl; 10-14 Ag '64
Multiple slice epitaxial deposition of silicon in resistance heated furnace. B. A. Lombos and T. R. Somogyi. bibliog diags Electrochem Soc J 111:1097-9 S '64
Probes for high temperature nuclear magnetic resonance. S. Hafner and N. H. Nachtrieb. diags R Sci Instr 35:680-2 Je '64
Simple furnace for growing metal crystals. G. T. Clayton and C. Hendrickson. il diag Am J Phys 32:679-80 S '64
Simple method for improving gas-melt contact in a crucible-furnace assembly. R. J. W. Peters and others. R Sci Instr 35:761-2 Je '64
Stainless, refractory metals used in vacuum furnace. il diag Steel 154:100+ F 10 '64
Ultraclean furnace utilizing radiation heating. T. Kinsel. bibliog diags R Sci Instr 35: 1004-7 Ag '64
Use of induction heating in rock deformation apparatus. R. E. Riecker. il diag R Sci Instr 35:1234-6 S '64
Vacuum research furnace for Euratom. il Engineer 217:1002 Je 5 '64

Control

Simple temperature programmer for a furnace to give an accurately repeatable top temperature value. D. A. Hope and D. E. Newman. diag J Sci Instr 41:519 Ag '64

ELECTRIC furnaces, Metallurgical

Annual electric furnace conference, 21st, Chicago. Dec. 4-6. J Metals 16:60-1 Ja '64
Arc remelting improves vacuum degassed steel. C. R. Weymueller. Metal Prog 86: 178+ S '64
Electrothermal recovery of zinc. A. Dietrich. diags J Metals 15:830-4 N '63
Evaluation of thermic production methods for magnesium. K. C. Dean and others. flowsheet J Metals 16:564-8 Jl '64
Furnace fires ferroalloy fight. T. M. Rohan. il Iron Age 193:26-7 Ja 23 '64
Furnaces of the future; Birlec research and development department's activities. il diag Metallurgia 70:71-6 Ag '64
Largest ferroalloy furnace on stream. il J Metals 16:138-9 F '64
Olin conductors' method of EC redraw rod production. T. E. Colston and C. M. Fredrickson. il diags Wire & Wire Prod 39:67-8+ Ja '64
See also
Electric furnaces, Steel making
Electric furnaces, Vacuum melting

Control

Large electric loads handled efficiently and economically at Interlake iron corp's Beverly, Ohio, plant. N. Peach. il diag Power 108:67-9 Je '64

ELECTRIC furnaces, Steel making

Cooling extends life of steel; furnace roof. il Foundry 92:153-4 Mr '64
Efficiency of carbon removal by oxygen in arc furnaces. B. P. Barnsley and D. S. Thornton. Iron & Steel Inst J 202:735-8 S '64
Induction melting furnace for 150 c/s power supply. il Engineer 218:190 Jl 31 '64
Plasmarc furnace. G. Magnolo. il diags Can Min & Met Bul 57:57-62 Ja '64
Steelmaking in the basic arc furnace; abstracts of papers. Engineer 218:376-8 S 4 '64
Water cools steel floor beams; ferro-alloy furnace in Cleveland, Interlake iron corp. il diag Eng N 173:94 Jl 2 '64

ELECTRIC furnaces, Vacuum melting

Carpenter starts up large vacuum-induction furnace. il Iron & Steel Eng 40:147-8 D '63
Cold-retort vacuum furnace. il Engineer 216: 782-3 N 8 '63
Deoxidation techniques for vacuum-induction melting. W. F. Moore. il diag J Metals 15:918-21 D '63
Developments in metal melting and rolling; Imperial metal industries (Kynoch) ltd. il Engineer 216:840-2 N 22 '63
Electrical aspects of arc furnaces. K. S. Kuka. diags Iron & Steel Eng 40:137-48 O '63; Discussion. 40:109-10 D '63
High temperature vacuum furnace for diffusion studies. T. C. Piper and J. Dyben. il diags R Sci Instr 34:1243-5 N '63
High temperature vacuum furnace with metallic sheet resistance elements. J. F. Bacon and others. bibliog il diag R Sci Instr 34:1200-1 N '63
Hot metal, vacuum produce huge heats. G. J. McManus. Iron Age 193:37 My 28 '64
Kinetics of desulphurization of steel under vacuum. V. D. Sehgal and A. Mitchell. bibliog Iron & Steel Inst J 202:216-20 Mr '64
Largest vacuum-induction furnace on stream; Carpenter steel co. il J Metals 15: 878 D '63
Latrobe installs hot metal vacuum induction steel unit. il Iron & Steel Eng 40:167-8 D '63
Latrobe Steel unveils its vacuum steel-making system. Steel 153:31 D 2 '63
Latrobe Steel unveils new melt shop. il Iron & Steel Eng 41:188 Je '64
Latrobe Steel's vacuum induction melting furnace on-stream. il J Metals 16:472 Je '64
Melting furnace for studies of refractory metal alloys. V. R. Thompson and W. T. Reynolds. il diags J Metals 16:809-13 O '64
Mould casting vacuum furnace. il Engineer 217:1164 Je 26 '64
New vacuum resistance furnace. Franklin Inst J 276:453 N '63
Programmer runs vacuum melting. il Iron Age 193:80 Ja 16 '64
Quality in quantity by vacuum steel unit. Iron Age 192:49 N 28 '63
Recent developments in vacuum melting and pouring. D. Rapoport. il diag Foundry 91: 54-7 N '63
Short-cycle cold retort vacuum furnace. il Metallurgia 69:88 F '64
Vacuum degassing and induction melting for ultraclean alloys. diag Metal Prog 85:110 Ja '64
Vacuum process steels raise product service. il diag Steel 154:110+ Je 8 '64

ELECTRIC fuses

Circuit breakers versus fused interrupters. S. E. McDowell. il diags Rock Prod 66:88+ D '63
Constructing electrical systems; fuses. il diags Elec Constr & Maint 63:108-12 My '64
Fuse ratings guide right application. Power 108:118-19 Ja '64
Fuses; are they resistors? F. G. Stiver. Radio-Electronics 34:84 D '63
How fuses protect motor circuits. Power 108: 130-1 Jl '64
L-v fuses can give good protection. N. Peach. diags Power 107:134-5 N '63
Low-voltage fuses can be adapted to varied jobs. N. Peach. diags Power 108:166-7 S '64

ELECTRIC gages. See Gages, Electric

ELECTRIC generator sets

Annual on-site generation savings exceed $23,000 at J M Fields shopping center. il diag Power 108:74-5 Ag '64
Designing vent systems for internal-combustion engine room. J. P. Callaghan. il Power 108:80-3 S '64
Flexible emergency standby hospital power. W. E. Kennedy and M. Rukin. il diag Elec Constr & Maint 63:100-2 Ap '64
Have power in reserve. il diag Mill & Factory 74:122-6 My '64
How much emergency power do we need? question and answers. diags Power 108:178-80 Ap '64
How we planned our emergency light and power. J. Molnar. il plan diags Plant Eng 18:138-40 Je '64
Lightweight generating sets. il Engineer 217: 407 F 28 '64
Remote station self-sufficiency via gas flow turbine generator. S. J. Bellassai. il Gas Age 130:26-8+ N '63
Should we revamp our methods of building big generating stations? F. J. Voss and F. B. Saas. il Power Eng 68:57-61 O '64
Small-turbine energy package. il Am Gas Assn Mo 46:30-2 O '64

ELECTRIC generator sets—*Continued*

Stand-by power sources. W. W. Gould. il Prog Arch 45:183-4 Ap '64

Standby power vital to police communications. il Elec Constr & Maint 63:114+ Je '64

Storage battery applications in a power plant. G. G. Law. diag Power Eng 68:44-6 O '64

ELECTRIC generator sets, Portable. See Power plants, Portable

ELECTRIC generators

Boundedness of the dimensionless index of performance of a Nernst effect generator. S. W. Angrist. bibliog A S M E Trans ser E 30:291-4 Je '63; Discussion. 31:158 Mr '64

Continuous power from MPD generator. il diag Engineering 197:207-8 Ja 31 '64

Copper alloy meets rigid specs for MHD application. il Steel 154:72 Je 15 '64

Electric generator of flat plates of superconducting metal. diag Product Eng 35:54-5 Mr 30 '64

Electrogasdynamic power generation. B. Kahn and M. C. Gourdine. bibliog il diags AIAA J 2:1423-7 Ag '64

Fluid-metal MHD/steam binary cycle developed. L. Prem. diag Elec World 162:110-11 O 19 '64

Gap between MHD and nuclear closing. Elec World 161:132+ My 18 '64

International symposium on magnetohydrodynamic power generation, 2d, Paris. il diag Engineering 198:100-1 Jl 24 '64

Iron disilicide as a thermoelectric generator material. R. M. Ware and D. J. McNeill. bibliog il Inst E E Proc 111:178-82 Ja '64; Discussion. 111:1369-70 Jl '64

Magnetohydrodynamic generator operates continuously at a realistic temperature. il diag Machine Design 36:12 Ja 16 '64

MHD generator tunes up for 35-megawatt bursts. diag Machine Design 36:14 Jl 16 '64

Magnetoplasmadynamic generation of electricity. il Metallurgia 69:216-17 My '64

Magnetoplasmadynamic generation warms up. Engineering 197:559 Ap 17 '64

Magnetoplasmadynamic generator. diag Mech Eng 86:63 F '64

Magnetoplasmadynamic generator shown by the Nuclear division of Martin co. il Chem & Eng N 42:30+ Ja 6 '64

Magnetoplasmadynamics. Product Eng 35:59 F 3 '64

Martin halves temperatures in MPD power generator. flow chart Steel 154:49+ Ja 6 '64

Model for a diffusive magnetothermoelectric generator. A. W. Riddiford and J. A. Krumhansl. bibliog diags J Ap Phys 34:3572-80 D '63

Novel principle of transient high-voltage generation. R. A. Fitch and V. T. S. Howell. bibliog il diags Inst E E Proc 111:849-55 Ap '64

O-B's impulse generator nears completion. il Elec World 161:36 Ja 6 '64

Radionuclide power for space; generator performance and mission prospects. F. Schulman. bibliog il diag Nucleonics 21:54-8 S '63

Self-winding generator harnesses ocean-wave energy. il Machine Design 36:8 S 24 '64

Simple, fast risetime, high voltage step generator. M. Sayer. il J Sci Instr 41:346-7 My '64

Superconducting electric generator. Engineering 197:591 Ap 24 '64

Superconducting generator. diag Mech Eng 86:60 My '64

Superconducting generators for superconducting magnets. diag Westinghouse Eng 24:114 Jl '64

Theory of medium-frequency pulsating-field machines. V. Bunea. bibliog diags Inst E E Proc 111:1324-32 Jl '64

Today's technology puts 700 mw on single-shaft turbine-generator. R. O. Brown and J. E. Donahue. il Elec World 160:102-3 N 4 '63

Unconventional methods of electric power generation. L. G. Sanders. bibliog diags Ind Chem 40:92-6, 137-43 F-Mr '64

See also

Electric machinery

Excitation equipment

Radio generators

Thermionic converters

Thermoelectricity

Control

How to determine accuracy of your generator voltage regulator. F. Smith. diags Power 108:76-7 Ap '64

Tips on generator voltage regulation. C. M. Maly. diags Power 107:72-5 D '63

Underexcited operation of generators. J. Kekela and L. Firestone. diag Elec Eng 82:722-7 D '63

See also

Hydroelectric plants—Control

Cooling

Better cooling increases generator capabilities. R. A. Baudry and E. I. King. diags Elec World 162:70-1 N 2 '64

SNAP-50/SPUR model passes spinning-in-potassium tests. diag Machine Design 36:12 S 24 '64

Design

Design of 1000-mw steam turbine-generator unit for Ravenswood no.3. J. M. Driscoll and others. bibliog il diags A S M E Trans ser A 86:209-18 Ap '64

Gas tight joint on stator casings of large turbo-generators. V. Easton. il diags Engineer 217:477-9 Mr 13 '64

900,000-kw turbine-generator for Bull Run station of TVA. C. Schabtach. il A S M E Trans ser A 86:219-24 Ap '64

Turbo/generator uses integral lp cylinder/condenser design. diag Elec World 162:74 Jl 27 '64

Installation

Another cost-saving hoisting rig for big generators. il Power Eng 67:67 N '63

Constructing electrical systems; power sources. il diags Elec Constr & Maint 63:192+ My '64

Maintenance and repair

Maintenance of large motors and motor-generator sets. V. E. Schlossberg. il Elec Constr & Maint 63:104-7 Mr '64

Manufacture

Eight-axis nc boring mill machines huge turbine frame. il Mach 71:154-6 S '64

Giant numerically controlled machining center for producing completely machined turbine-generator frames. il Product Eng 35:48-9 Ag 17 '64

Huge n/c unit machines 160 ton frames. il Steel 155:59-60 Ag 3 '64

Large generator frames machined at one station. il Westinghouse Eng 24:150-1 S '64

Machining centre for large turbo-generator frames; Farrel corp. il Engineer 218:349-52 Ag 28 '64

New facilities for making Delcotrons. J. Geschelin. il Automotive Ind 130:66-70 Ja 15 '64

New ideas for heavy generating plant. il Engineering 197:744 My 29 '64

$2-million machine tools turbine frames. il Elec World 162:139 Ag 10 '64

Protection

Eliminating generator dust pollution. il Engineering 197:159 Ja 24 '64

Tables, calculations, etc.

End component of armature leakage reactance of turbine generators. J. A. Tegopoulos. bibliog diags IEEE Trans Power Apparatus & Systems 83:632-7 Je '64

Testing

Test-bed for large generators. il Engineer 217:427-8 Mr 6 '64

Testing the test plans of ten years ago. il Engineering 197:338 Mr 6 '64

Windings

Inductance coefficients of rotating machines expressed in terms of winding space harmonics. R. B. Robinson. diag Inst E E Proc 111:769-74 Ap '64

ELECTRIC generators, Alternating current

AEI brushless ac generators. il diag Engineering 197:482-3 Ap 3 '64

Alternator selection. J. V. Poticny. il Pub Works 94:100-1 N '63

Automatic synchronising equipment for alternators. il diag Engineer 216:919 N 29 '63

Brushless excitation system for large ac generators. D. B. Hoover. il diags Westinghouse Eng 24:141-5 S '64

Brushless generators give fast recovery time, need little maintenance. Marine Eng/Log 69:82+ S '64

Check synchroniser for alternators up to 5000kva. il diag Engineer 218:110 Jl 17 '64

Check unit synchronizes alternators. D. C. Gilchrist. diag Control Eng 11:130 O '64

Choosing an a-c power supply. P. F. Swain. diag Electro-Tech 74:106-8 S '64

Largest generator transformer: 425 mva. il Engineering 198:327 S 11 '64

Lightweight compact generators employ aerospace principles. il diags Westinghouse Eng 24:120-1 Jl '64

(N) $(N \pm 1)$ pole generator. Y. Yamamoto. diags IEEE Proc 52:310 Mr '64

ELECTRIC generators, Alternating current —*Continued*

Operational impedances of turbogenerators with solid rotors. P. Bharali and B. Adkins. bibliog diags Inst E E Proc 110:2185-99 D '63

Proper alternator application requires careful system study. Pit & Quarry 57:91+ O '64

Review of marine a.c. installations. D. Gray. il diags Inst E E Proc 111:361-70 F '64

Static alternator controls three-phase motor. R. H. Murphy. diags Electronics 37:30-3 Ja 31 '64

Theory and application of the capacitor-excited induction generator. B. C. Doxey. diags Engineer 216:893-7 N 29 '63

What size alternator for you? il Diesel Equip Supt 42:41 S '64

Control

Improved excitation system for a-c generators. F. I. Biggs. il diag Power Eng 68:54-5 Ap '64

Static exciter for alternators up to 75 kva. il Engineer 218:144 Jl 24 '64

Cooling

Experimental study of cooling flow distribution in a model alternator. R. J. Munton and E. Markland. bibliog diags IEEE Trans Power Apparatus & Systems p896-900 D '63

Design

Design aspects of a homopolar inductor-alternator. G. C. Jain. diags IEEE Trans Power Apparatus & Systems 83:1009-15 O '64

Maintenance and repair

Automotive alternators; how to keep them working. C. J. Schauers. il diags Radio-Electronics 35:51-3 F '64

Performance

Multi-generator transient-stability performance under fault conditions. E. C. Scott and others. bibliog diags Inst E E Proc 110:1051-64 Je '63; Discussion. 110:1799-804; 111:587-8 O '63; Mr '64

ELECTRIC generators, Direct current

Excitation of large turbogenerators. V. Easton. bibliog diags Inst E E Proc 111:1040-8 My '64; Discussion. 111:1754-5; Reply. 1755-6 O '64

Design

Design of small-d-c machines with a digital computer. L. E. Welch. flow diags diag IEEE Trans Power Apparatus & Systems p 1099-106 D '63

ELECTRIC generators, Electrostatic

Pressure vessel for Oxford electrostatic generator. il Engineering 197:267 F 14 '64

ELECTRIC generators, Synchronous

Concept of synchronous generator stability. J. L. Dineley and M. W. Kennedy. bibliog diag Inst E E Proc 111:95-7 Ja '64; Discussion. 111:1446-52 Ag '64

First 300 mw-turbine-generator on the grid. il Engineering 197:153 Ja 24 '64

Measurement of turboalternator transfer functions using normal operating data. K. N. Stanton. bibliog diag Inst E E Proc 110:2001-7 N '63

Recording transient load angle of synchronous machines. J. H. Bundell and A. J. Ellison. J Sci Instr 41:511-13 Ag '64

Solution of transient-stability problems through the number-series approach. N. Dharma Rao and H. N. Ramachandra Rao. bibliog diags Inst E E Proc 111:775-88 Ap '64

Voltage effects of capacitive load on the synchronous generator. J. L. Dineley and K. J. Glover. bibliog diags Inst E E Proc 111:789-95 Ap '64; Discussion. 111:1452-3 Ag '64

Control

Influence of governors on power-system transient stability. J. L. Dineley and M. W. Kennedy. bibliog diags Inst E E Proc 111:98-106 Ja '64; Discussion. 111:1446-52 Ag '64

Power-system governor simulation. J. L. Dineley and E. T. Powner. bibliog diags Inst E E Proc 111:115-24 Ja '64; Discussion. 111:1446-52 Ag '64

Cooling

60mva hydrogen-cooled synchronous compensator. V. Easton. il diag Engineer 217:603-5 Ap 3 '64

Design

Self-excited synchronous generator for isolated power supply. P. L. Alger and R. S. Barton. diags IEEE Trans Power Apparatus & Systems 83:1002-6 O '64

Tables, calculations, etc.

Root-locus study of synchronous-machine regulation. C. A. Stapleton. diags Inst E E Proc 111:761-8 Ap '64

ELECTRIC generators, Thermoelectric. See Thermoelectricity

ELECTRIC hardening. See Case hardening—Electric hardening

ELECTRIC heaters

Blowing hot and cold. il Engineering 197:720 My 22 '64

Duct heaters serve all-electric industrial offices. il Elec Constr & Maint 63:92-3 Ap '64

For colder days. il diag Engineering 197:64 Ja 10 '64

More storage heaters. il Engineering 197:304 F 21 '64

Warming the room. il Engineering 196:672 N 22 '63

ELECTRIC heaters, Laboratory

Afterheater for use with high-temperature vertical crystal pullers. J. D. Ridley and B. Cockayne. diag J Sci Instr 41:647 O '64

Heater lead problem in calorimetry. D. C. Ginnings and E. D. West. bibliog diag R Sci Instr 35:965-7 Ag '64

Liquid-nitrogen-cooled induction heat source for vacuum studies. S. Podlaseck. diag R Sci Instr 35:921 Jl '64

Resistance heater for semiconductor wafer processing. R. Talcott. il diags R Sci Instr 35:915-16 Jl '64

Self-supporting high temperature heater. E. L. Hansen. il R Sci Instr 35:242 F '64

ELECTRIC heating

Building owner gets quality at low cost with heat pump. S. Francis. il Elec World 162:91-2 N 2 '64

Constructing electrical systems; electric comfort heating. il diags Elec Constr & Maint 63:152+ My '64

Electric comfort heating exposition and conference, 3d, Chicago, Feb. 25-27; with abstracts of papers. Elec Constr & Maint 63:169-74 Ap '64

Electric comfort heating, 1964. W. J. Novak. diags Elec Constr & Maint 63:67-82 F '64

Electric heat warms kindergarten floors in Chicago schools. il diag Heating-Piping 35:102-4 D '63

Electric heating and cooling; steady progress; conference report. R. Zumwalt. Air Cond Heat & Ven 61:89 Jl '64

Electric heating forum (cont). il plan diags Elec Constr & Maint 62:60-3 D '63; 63:94-7 Ap '64

Electric heating seminar, New York, April 2. Elec Constr & Maint 63:291 My '64

Electric heating survey. J. D. Damon. il Elec World 160:87-94 N 18 '63

Fan assisted convectors for church heating. il Engineering 197:325 F 28 '64

Floor panels heat economically. J. R. Wark. il Elec World 161:61+ Ja 27 '64

Fuels forum; how to keep warm. diags Mill & Factory 75:70-4 O '64

Gas-man's nightmare; interview with L. W. Roye. Dom Eng 204:92-4+ S '64

Goal; heat old homes electrically. R. G. Macdonald. Elec World 162:64-5 Ag 24 '64

Heat pumps bid for large office buildings, industrial plants. H. E. Rex. flow diag il diags Power 108:87-9 O '64

How electric heat will beat competition. map Elec World 161:91-4 Je 29 '64

Industrial plant electrical floor heating. J. R. Wark. il Elec Constr & Maint 63:85-7 Mr '64

New method of splicing and terminating mineral insulated cable for heating applications. A. J. Rabinowitz. bibliog diags IEEE Trans Power Apparatus & Systems 83:765-72; Discussion. 772-3 Ag '64

Positive action on heat storage advocated at IEEE meeting. Elec World 161:127-8 F 24 '64

Total-electric heating-cooling used in suburban Philadelphia hi-rise apartments. W. A. Schertzer. il Air Cond Heat & Ven 61:108-9 O '64

Total heat conservation concept advanced; abstract. E. R. Ambrose. Elec World 161:82 Mr 9 '64

Trade allies show keen interest in electric heating. Elec World 161:98+ My 4 '64

See also

Electric heaters
Electric heating association
Electrohorticulture
Heating, Infrared

ELECTRIC heating—*Continued*

Control

Low-voltage control for home electric heat. il plan diag Elec Constr & Maint 62:114-16+ N '63
Multiposition discontinuous temperature control in the electric space heating process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p38-50; Discussion. 63-4; Reply. 64-9 Ja '64
Quasi-continuous temperature control in the electric space heating process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p50-63; Discussion. 63-4; Reply. 64-9 Ja '64
Survey of discontinuous temperature control methods for electric space heating and cooling processes. W. K. Roots and J. M. Nightingale. diags IEEE Trans Applications & Ind p 1-16 bibliog(p 13-16); Discussion. 63-4; Reply. 64-9 Ja '64
Two-position discontinuous temperature control in electric space heating and cooling processes; control system; controlled process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p 17-38; Discussion. 63-4; Reply. 64-9 Ja '64

Costs

Heat conservation in the electrically-heated house. E. R. Ambrose. Arch Rec 135:7+ Mid-My '64; Abstract. Air Cond Heat & Ven 61:50 Mr '64
Optimizing thermal insulation for electric heating. G. Burdick. bibliog ASHRAE J 5:57-64+ D '63
To up sales, utilities guarantee costs. Elec World 161:22 My 25 '64
What price electric heat? Elec World 161:179-82 My 18 '64

Radiant heating

At home; low temperature radiant heating system. Engineering 196:640 N 15 '63
How to fasten heating cable to concrete ceilings. il diag Elec Constr & Maint 63:114-15 S '64
Space-savers; ceiling-mounted heating panels. il Plant Eng 18:131 F '64

ELECTRIC heating, Industrial

Compounds in heated cars. Plastics World 21:19 D '63
Electrical design; electric heating. D. Silverman. diag Chem Eng 71:161-4 Jl 20 '64
Electrically traced process lines. S. O. Jones. Elec Eng 82:717-21 D '63
In-transit heater car speeds cargo unloading. il Food Eng 35:116 N '63
Induction heating of ferrous and non-ferrous billets for forging and extrusion. J. B. Ingall and R. S. Ellis. diags Inst Metals J 92:161-70 '63-64
New heat tracer system for piped utilities; Electro-Wrap. il diags Power Eng 67:74-5 N '63
Pipe heated by new electrical method at Allied Chemical plant. Oil & Gas J 61:177 N 18 '63
Vapor-vent pipe heated with electrical tracer strip. il Elec World 160:98 D 2 '63
Wyandot Dolomite turns on the heat to beat a screen blinding problem. il Rock Prod 67:90-1 Je '64

See also
Case hardening—Electric hardening
Electric heating elements
Glass furnaces—Electric heating
Infrared rays—Industrial heating
Plasma jet

High frequency heating

Dielectric, induction and ultrasonic bonding. E. G. Castagna; L. L. Scheiner. diags Plastics Tech 10:32-6 Mr; 45-50 Ap '64
Electron guns for resistance welds. il diags Am Mach 108:63-4 Ja 6 '64
Honeycomb core; dielectric curing of glue lines. il Plastics World 22:34 F '64
New techniques for metals joining in the space age; by high-frequency resistance. P. J. Rieppel. il diags J Metals 16:240-1 Mr '64
Open-probe thermocouple control of radio-frequency heating. A. W. Ruff, jr. diag R Sci Instr 35:760-1 Je '64
Plastics and induction heating. P. Capolongo. il diags Plastics World 21:48-51 N '63
R-f heating reduces soldering costs. Engineering 198:155 Jl 31 '64
Simple temperature controller for induction heating. T. L. Donnelly and others. il R Sci Instr 35:115-16 Ja '64

ELECTRIC heating association

Electric heating association charts program. Elec World 161:17 Ja 6 '64
Electric heating association; new national industry organization. Elec Constr & Maint 63:74 Ja '64
Heating group head spells out plans. J. H. K. Shannahan. Elec World 161:52 Ap 6 '64

ELECTRIC heating elements

Electric curing process facilitates assembly of aluminum honeycomb. diag Light Metal Age 21:6 O '63
Electric heating elements; design guide. J. J. Benes. il diags Machine Design 36:186-205 S 10 '64
Electrically heated tank car. il Ind & Eng Chem 55:63 D '63
Fabricating integrally heated reinforced plastics tools. L. F. Hesse. il diags Plastics World 22:36-40 S '64
Factors in heating-element design. R. Tervo. Electro-Tech 73:130+ Mr '64
Refractory metals for high-temperature heating elements. E. S. Bartlett. il diag Wire & Wire Prod 39:722-6+ My '64
Structural adhesives economize joining. il diag Materials in Design Eng 59:152+ F '64
Wire mesh heating element. R. P. Ranger. il Materials in Design Eng 59:135 Ap '64

ELECTRIC heating of pavements. See Pavements—Heating

ELECTRIC hoisting machinery. See Hoisting machinery, Electric

ELECTRIC inductance. See Inductance

ELECTRIC industries

Problems of the supply engineer in the 20th century. E. H. Cox. Inst E E Proc 111:796-8 Ap '64
Upper Midwest electrical industry annual convention, 27th, Minneapolis, Feb. 16-19. Elec Constr & Maint 63:181-2+ Mr '64

See also
Electric apparatus industry
Electric contractors
Electric engineering
Electric heating
Electric plants (central stations)
Electric utilities
National electrical manufacturers association

Materials

Designing plastics parts for electrical and electronic uses. S. Levy. diags Plastics World 22:40-5 O '64
Designing with fluorocarbons for electrical applications. J. Swiss. il Mod Plastics 42:141-4 O '64
Material considerations for strain gages. P. K. Stein. diags Instruments & Control Systems 37:132-5 O '64
Nickel and nickel alloys; electrical/electronic design parameters. J. L. Shaw and F. L. Perry. bibliog il Electro-Tech 73:101-9 My '64

See also
Electric circuits—Plastics embedment
Insulating materials

Statistics

Outlook is for more electrical growth in 1965; tenth annual statistical summary. Elec Constr & Maint 63:93-108 S '64

Canada

CEMA sees bright future for the industry. Elec World 162:164 O 19 '64

Great Britain

Electrical future. Engineering 197:306 F 28 '64
Monopolies commission; electrical equipment for motor vehicles. Engineer 217:51 Ja 3 '64
Power supplies; need for radical reform. K. L. Stretch. Engineer 216:986-8 D 13 '63

Pacific Coast

See also
Pacific coast electrical association

ELECTRIC instruments

A-c bridge method to measure core loss. F. J. Young and S. J. Dudzinsky. bibliog diags IEEE Trans Com & Electronics p630-4 N '63
A.c. double bridge with inductively coupled ratio arms for precision platinum-resistance thermometry. J. J. Hill and A. P. Miller. bibliog il diags Inst E E Proc 110:453-8 F '63; Discussion. 110:1503-4, 2308-10 Ag, D '63
Cell for the small scale electrodeposition of radioactive metals. P. M. Dryburgh. diag J Sci Instr 41:640 O '64

ELECTRIC instruments—*Continued*

Current regulator for ultraviolet light source. W. J. Scouler and E. D. Mills. diags R Sci Instr 35:489-92 Ap '64

Design and construction of a new coaxial electrical discharge pin. R. J. Wasley and others. diags R Sci Instr 35:466-8 Ap '64

Electrical swarf detectors. il Engineer 218: 253 Ag 14 '64

Electro-optic light beam deflector. V. J. Fowler and others. diag IEEE Proc 52:193-4 F '64

Expansion indicator. L. H. Cook. diag R Sci Instr 35:758-9 Je '64

5kv insulation tester. il Engineer 218:109 Jl 17 '64

High-alumina ceramics and the electrical industry. F. E. V. Spencer. Inst E E Proc 111:308 F '64

Inspector checks slope of hollow piles. Eng N 173:55 S 10 '64

Low velocity drive for Mössbauer experiments. V. Vali and T. W. Nybakken. diags R Sci Instr 35:1085-6 Ag '64

Manufacture of fine wire thermocouple probes. G. H. Gelb and others. il diags R Sci Instr 35:80-1 Ja '64

Owen bridge. K. Posel. bibliog diags Ind Electronics 1:783-7 D '63

Phantom load tests thermal meters. H. E. Siebert. il diag Elec World 162:54 Ag 24 '64

Portable set tests all relays in place. R. Zimering and others. il diag Elec World 160:126-8 O 21 '63

Sampling directional current meter. J. H. Allen and others. il diag J Sci Instr 41:329-32 My '64

Semi-automatic sequential sampling instrument. J. V. West. il Ind Quality Control 20:10-15 Mr '64

Thermal measurement of electrical quantities. D. McAuliff. il diags Instruments & Control Systems 37:102-4 Ja '64

Toe-in indication equipment. F. R. Towner. il diags Ind Electronics 2:453-6 O '64

Transformer-ratio-arm bridge for high-voltage capacitance measurements. N. L. Kusters and O. Petersons. bibliog il diags IEEE Trans Com & Electronics p606-11 N '63

Wide range current regulator. H. H. Rogers. diags R Sci Instr 34:1440-1 D '63

Wideband high voltage probe. R. Keller. il diags R Sci Instr 35:1057-60 Ag '64

See also

Ammeters
Bolometers
Dynamometers
Electric measurements
Electrometers
Electronic apparatus and instruments
Galvanometers
Magnetic instruments
Measuring instruments, Electric
Oscillators
Photoelectric cells
Potentiometers
Radio instruments
Recording instruments, Electric
Telemetering
Transistors—Measurement uses
Voltmeters
Wheatstone bridge

Testing

Direct observation of instrument ballistics. R. G. Fulks and H. C. Littlejohn. bibliog diags IEEE Trans Com & Electronics p639-42 N '63

Routine checking of electrical instruments. il Engineer 216:925 N 29 '63

ELECTRIC insulation. See Insulation (electric)

ELECTRIC inverters

Adjustable-frequency power inverter systems for industry. C. G. Helmick and K. Lipman. il diags Westinghouse Eng 23:167-71 N '63

Application of static inverters for essential loads. J. L. Fink and others. il diags IEEE Trans Power Apparatus & Systems p 1068-72 D '63

Applying adjustable frequency inverters for motor speed control. C. D. Helmick and K. Lipman. diags Automation 11:66-9 My '64

Constant-frequency power inverter. P. Vergez and V. Glover. diags Electro-Tech 73:104 Ja '64

D.c. inverter for electric shavers. J. R. Nowicki. bibliog diags Wireless World 69: 624-7 D '63

Inverter for use with very low input voltages. T. G. Wilson and E. T. Moore. bibliog diags IEEE Trans Com & Electronics 83:424-8 Jl '64

Invertor suitable for operation over a range of frequency. E. E. Ward. diags Inst E E Proc 111:1423-34 Ag '64

Magnetic-film-controlled invertor and isolator. J. G. Edwards. diag Inst E E Proc 111:1117-18 Je '64

Multiple cores used to simulate a variable volt-second saturable transformer for application in self-oscillating inverters. R. W. Sterling and others. diags IEEE Trans Com & Electronics 83:288-9 My '64

Operation and control of hv d-c transmission. P. G. Engström. diags IEEE Trans Power Apparatus & Systems p71-7 Ja '64

Safeguard ballistic missile warning relay. il Engineering 196:670 N 22 '63

Selected harmonic reduction in static d-c—a-c inverters. F. G. Turnbull. diags IEEE Trans Com & Electronics 83:374-8 Jl '64

Static inverter drives for telerecording. il Engineering 198:139 Jl 31 '64

Static inverter used in school emergency lighting system. il diag Elec Constr & Maint 63:122-4 S '64

Static inverters; how to specify, how to apply. J. F. Johnston, jr. diag Plant Eng 17:120-4 N '63

Switching speed of a tunnel-diode transistor logic inverter. H. C. Josephs. diags Electro-Tech 74:52-6 Ag '64

Tunnel-diode circuits invert direct to alternating current. F. M. Carlson. bibliog il diags Electronics 37:56-65 S 21 '64

ELECTRIC irons

Electric irons pass a milestone. il Engineering 197:679 My 15 '64

Morphy-Richards senior iron. il diag Engineering 197:802-3 Je 12 '64

ELECTRIC laboratories

Compound circuit-type, 70,000 mva, high voltage test lab completed. il Elec World 160:49-50 D 30 '63

Cryogenic solid state research at Hirst research centre. il Engineering 196:669 N 22 '63

Edison electric institute r&d program gives priority to dc study. Elec World 161:136-7 Mr 23 '64

Electric power development center planned in the Pacific Northwest. A. E. Strom. Elec World 161:138-9 Mr 23 '64

Facilities for motor testing and research. il Engineering 197:303-4 F 21 '64

High energy laboratory for electrical industry. Engineering 197:431 Mr 20 '64

High-voltage laboratory for testing insulators. il Engineer 216:745-6 N 1 '63

New laboratory will be built for electronic switching research. map Bell Lab Rec 42:166 My '64

Research and development centre of South Wales switchgear ltd. il Engineer 216:773-4 N 8 '63

South Wales Switchgear's new research centre. Engineering 196:637 N 15 '63

Test-bed for large generators. il Engineer 217:427-8 Mr 6 '64

Test station for low-voltage switchgear. il Engineer 217:663 Ap 10 '64

Testing the test plans of ten years ago. il Engineering 197:338 Mr 6 '64

Equipment

BPA dedicates Big Eddy dc test center; acceptance tests continue. il Elec World 160: 84-5+ N 4 '63

Carousel, punch card automate transformer quality control system. il diag Elec World 161:78+ Je 29 '64

Electrical machines laboratory. A. A. Moore. il plan Engineer 218:550-2 O 2 '64

Ehv surge testing facilities expanded at the Ohio Brass high voltage laboratory. il Elec World 161:36 Je 22 '64

Huge surge generator in new test facility. il Elec World 162:36 O 26 '64

Multi-outlet assembly for research labs. il Elec Constr & Maint 63:90+ Ja '64

O-B's impulse generator nears completion. il Elec World 161:36 Ja 6 '64

Test bench power distributed by custom-built system; Furnas electric co. S. O. Gregory. il Plant Eng 18:128-30+ S '64

W. E. Kerr high-voltage test center dedicated. il Elec World 161:38 My 25 '64

ELECTRIC laboratories, Traveling

Over-the-road mobile lab covers scattered projects. F. Schleif. il Elec World 162:71-2 Ag 10 '64

ELECTRIC lamps

Electroluminescence; appraisal of its short-term potential. K. H. Weber. bibliog diags Illum Eng 59:329-36 My '64

Fast nitrogen light source. L. Mancebo. il diags R Sci Instr 35:968-70 Ag '64

ELECTRIC lamps—*Continued*
Hot ideas for cold light; electroluminescent (EL) lamp. il diag Mill & Factory 75:80-1 S '64
Polycarbonate improves sewing machine lamp. il Materials in Design Eng 60:150+ N '64
Technique for examining the luminous activity of individual phosphor particles in a functioning electroluminescent lamp. J. I. Gedney. bibliog il diag Electrochem Soc J 111:1093-6 S '64
See also
Daylight, Artificial
Infrared rays—Lamps
Safety lamps, Electric
Searchlights

Flashing

Baby flash. M. S. Lieberman. il diag Radio-Electronics 35:56-7 N '64
Black Knight electronic flash installation for optical tracking. R. L. Aspden. il diag Electronic Eng 36:88-91 F '64
Direct measurement of xenon flashtube opacity. J. L. Emmett and others. diag J Ap Phys 35:2601-4 S '64
High voltage flash photolysis lamp. L. Lindqvist. bibliog il diag R Sci Instr 35:993-5 Ag '64
New mercury-hydrogen lamp developed. J. T. D'Alessio and others. il Chem & Eng N 42:35-6 Ag 10 '64
Transistor circuit for xenon flash tube operation. P. G. M. Dawe. diags Electronic Eng 36:220-1 Ap '64
Xe flash system for low temperatures. P. H. Wendland. diags R Sci Instr 35:1233-4 S '64

Manufacture

Bader lamp making machinery; electric light bulbs and tubes. il diags Engineering 196:722-3 D 6 '63
Electric lamp production line; illustrations with text. Engineer 217:993 Je 5 '64
Machines for electric lamp manufacture. H. W. B. Gardiner and others. il diags Inst Mech Eng Proc 177 no 24:639-59; Discussion. 659-63; Reply. 663-6 '63
Patents reflect advances in the American glass industry; glass for lamps and bulbs. A. S. Cookfair and J. E. Fabke. diags Glass Ind 45:521-5+ O '64
Percussive-welding machine for lamp electrodes. il Engineer 217:963 My 29 '64

Rating

CIE committee agrees on method of rating lamps for color rendering. Illum Eng 59:57-8 Ja '64
Color rendering of light sources; CIE method of specification and its application; abstract. D. Nickerson and C. W. Jerome. Illum Eng 59:594-5 S '64

ELECTRIC lamps, Arc
New metal halide arc lamp; abstract. J. F. Waymouth and others. Illum Eng 59:593-4 S '64
See also
Electric lamps, Fluorescent
Electric lamps, Mercury vapor
Electric lamps, Xenon

ELECTRIC lamps, Fluorescent
Calorimetry of fluorescent luminaires; abstract. T. L. Ballman and others. diag Illum Eng 59:622-3 S '64
Characteristics of a new 3000-cps system for industrial and commercial lighting; abstract. J. H. Campbell and others. il Illum Eng 59:616-17 S '64
Chromaticity and color rendition of light sources. L. Thorington and others. diags Illum Eng 59:607-10 S '64
Cost and comfort factors for selecting fluorescent industrial lighting; abstract. C. L. Amick and G. Gilleard. diags Illum Eng 59:614-15 S '64
Design and applications of new high-temperature fluorescent lamps; abstract. C. J. Bernier and J. C. Heffernan. Illum Eng 59:597-8 S '64
Design of slim luminous panels; abstract. D. E. Spencer and H. G. Garavanian. diags Illum Eng 59:623-4 S '64
Fluorescent lamp lumens; rated and in service. R. N. Thayer and A. K. Gaetjens. bibliog Illum Eng 58:697-701; Discussion. 701-4; Reply. 704 N '63
High efficiency converter. il Prog Arch 44:95 N '63
High-frequency operation of fluorescent lighting systems from gas-driven turbines. G. Gilleard. il diags Illum Eng 59:163-9 Mr '64
How's your lighting? il Textile Ind 128:60-3 Jl '64
International intercomparison of photometric and colorimetric measurements of fluorescent lamps. Illum Eng 59:497-8 Jl '64
Lamp maintains constant light. il Eng N 173:53 Ag 27 '64
Lighting fittings today. il Brit Plastics 37:108-13 Mr '64
More ideas for a lighting man's file; idea for a budget installation at Smarty-Party shop, Scranton, Pa. il Illum Eng 59:475-6 Jl '64
Relationship of scissors curve criteria to design and application of fluorescent luminaires; abstract. D. C. Thomas. Illum Eng 59:617-18 S '64
Short-term initial lumen depreciation in fluorescent lamps. L. E. Vrenken and others. bibliog diags Illum Eng 59:59-66 Ja '64
Specialized external coatings for fluorescent lamps. H. A. Anderson and A. P. Wasdyke, jr. il Illum Eng 58:723-7; Discussion. 727-8 D '63
What do higher frequencies promise? diags Power 107:157-61 N '63

Control

Phase-control dimming of fluorescent lamps. A. B. Elliott. diags Illum Eng 59:249-54 Ap '64

Manufacture

Bader lamp making machinery; electric light bulbs and tubes. il diags Engineering 196:722-3 D 6 '63

Noise

Conductive coatings on glass shielding. D. A. Ansley and W. O. Benjamin. Illum Eng 59:545-50 Ag '64

ELECTRIC lamps, Incandescent
Fluorides stabilize lamp filaments. J. Schroeder. il Chem & Eng N 42:77-8 S 14 '64
Mathematical and physical bases for incandescent lamp exponents; abstract. D. D. VanHorn. Illum Eng 59:592-3 S '64
New high-efficiency color for PAR lamps using multilayer interference coatings. E. M. Beesley. il diag Illum Eng 59:208-11; Discussion. 211-12 Mr '64
Quartz-iodine. il Ind Phot 12:34+ N '63
Quartz-iodine headlamps slated for European debut. V. J. Roper and L. A. Morgenstern. il diags S A E J 72:30-5 Je '64
Quartz-iodine lamp limitations lead to new designs; abstract. T. M. Lemons and E. R. Meyer. il Illum Eng 59:626 S '64
See also
Electric lamps, Tungsten

ELECTRIC lamps, Mercury vapor
Acrylic lenses. Plastics World 22:13 F '64
Basic impulse insulation levels of mercury lamp ballasts for outdoor applications. J. E. Lenz. bibliog il diags Illum Eng 59:133-8; Discussion. 138-40 F '64
Effect of mercury vapor pressure on lamp ionization. J. C. Heffernan. bibliog diag Illum Eng 58:731-4; Discussion. 734-5 D '63
Effect of metal iodide additives on high-pressure mercury lamps; abstract. D. A. Larson and others. Illum Eng 59:596-7 S '64
For best results in mercury lighting match ballast to system. R. I. Eddy. diags Plant Eng 18:134-7 Ap '64
Improved reliability in mercury lamp ballasts through precision winding. A. Franke and S. Cohen. il diags Illum Eng 59:52-5; Discussion. 55-6 Ja '64
Iodides in mercury arcs, for improved color and efficacy. E. C. Martt and others. il diags Illum Eng 59:34-8; Discussion. 39-42 Ja '64
Mercury design for paper making. il Illum Eng 59:234 Ap '64
Mercury lamps in series circuits; abstract. R. D. Ayotte and J. J. Murphy. il Illum Eng 59:581 S '64
Mv floodlights for night golf. il plan Elec Constr & Maint 63:115 Mr '64
New light for old. il diags Elec Constr & Maint 63:108-10 Mr '64
Pacolet lights up with mercury; Magnolia finishing plant. il diag Textile Ind 128:191+ O '64
Revamp or relamp? mercury system change-over proves more economical. J. F. Foulkes. il Plant Eng 18:138-9 My '64
Temperature considerations for built-in mercury ballasts; abstract. A. R. Hallay and J. E. Haymaker. Illum Eng 59:598-9 S '64; Discussion. 59:815-16 D '64
See also
Electric lamps, Fluorescent

ELECTRIC lamps, Neon

Photoconductive selector circuit uses neon glow lamps. J. Laflandra and H. Jennings. il diag Electro-Tech 73:108 Ja '64

ELECTRIC lamps, Photoflash

Flash bulbs brighter with fluorine filler. il Chem & Eng N 42:50 O 12 '64

Physical characteristics of xenon flashtubes. F. S. Barnes. il SMPTE J 73:569-73 bibliog(p571-3) Jl '64

Servicing speedlights. W. Lemons. il diags Radio-Electronics 35:50-2 Ag '64

ELECTRIC lamps, Portable

Davis M-L pneumatic electric lamps. il diags Engineering 196:564-5 N 1 '63

ELECTRIC lamps, Sodium vapor

Linear sodium lighting with intensity control applied to airport visual landing aids. M. Latin and others. bibliog il diags Illum Eng 59:239-45; Discussion. 245-6 Ap '64

ELECTRIC lamps, Tungsten

How new movie lights stack up. M. A. Matzkin. diags Mod Phot 28:94-5+ Ja '64

ELECTRIC lamps, Xenon

Direct measurement of xenon flashtube opacity. J. L. Emmett and others. diag J Ap Phys 35:2601-4 S '64

High-brightness xenon lamps with liquid-cooled electrodes. W. E. Thouret and others. bibliog il Illum Eng 59:589-91 S '64

New method of thin film analysis uses xenon flash lamp. il Bell Lab Rec 42:141 Ap '64

New method of thin film analysis uses xenon flash lamp. Franklin Inst J 277:511-12 My '64

Physical characteristics of xenon flashtubes. F. S. Barnes. il SMPTE J 73:569-73 bibliog(p571-3) Jl '64

Shock waves in xenon flashtubes and tube deterioration. K. R. Lang and F. S. Barnes. il diag J Ap Phys 35:107-10 Ja '64

Solar simulator shines 10-sun beam. il diags Machine Design 36:148-9 S 24 '64

Transistor circuit for xenon flash tube operation. P. G. M. Dawe. diags Electronic Eng 36:220-1 Ap '64

Use of xenon flashtubes as a light source in color and black-and-white scene testers. C. W. Hauge and others. bibliog il diags SMPTE J 73:866-9 O '64

Xenon compact arc lamps with liquid-cooled electrodes; abstract. O. E. Lienhard. il diag Illum Eng 59:599-600 S '64

Xe flash system for low temperatures. P. H. Wendland. diags R Sci Instr 35:1233-4 S '64

Xenon projection lamps; a résumé. D. V. Kloepfel. SMPTE J 73:479-80 Je '64

Control

Feedback loops control sun. F. N. Benning and J. A. Castle. il Control Eng 11:97 Ag '64

ELECTRIC lighting. See Lighting

ELECTRIC lighting sets

Emergency lights prevent panic and pilfering. il Safety Maint 127:23 My '64

How we planned our emergency light and power. J. Molnar. il plan diags Plant Eng 18:138-40 Je '64

Low-cost emergency lighting. E. J. Leonard. diag Plant Eng 17:112-13 D '63

Static inverter used in school emergency lighting system. il diag Elec Constr & Maint 63:122-4 S '64

Storage battery applications in a power plant. G. G. Law. diag Power Eng 68:44-6 O '64

ELECTRIC lines

Calculation of transient voltages in a transformer connected to a transmission line. V. Lovass-Nagy and C. Szendy. bibliog diag Inst E E Proc 111:1133-6 Je '64

Close-coupled hardware eliminates ehv grading rings. R. W. Harmon. il diags Elec World 161:128-9 Ap 20 '64

800kV transmission line research at Leatherhead. il Engineer 217:949-50 My 29 '64

Experimenting with high voltage ac lines. il Engineering 197:781-2 Je 5 '64

High-voltage power transmission. L. O. Barthold and H. G. Pfeiffer. il maps diags Sci Am 210:38-47 My '64

High-voltage power transmission could endanger. pipelines. maps diags Oil & Gas J 62:105+ Je 15 '64

Install air-break switch in energized 23-kv line. S. C. Harrelson. il Elec World 160:66 D 16 '63

New free-loader gets power from 230-kv line. diags Elec World 160:80-1+ N 18 '63

New overhead transmission and underground distribution mileage show gains for 1964. Elec World 161:72-3 Ja 27 '64

See also

Aluminum—Electrotechnical uses
Electric cables
Electric conduits
Electric fuses
Electric plants—Interconnection
Electric substations
Electric transmission
Electric wiring
International conference on large high tension electric systems
Telephone lines

Carrier current control

See Carrier current control

Construction

Construction aspects of the Pinard-Hanmer 500-kv transmission line. G. A. Mackie and W. A. R. Lemire. il map diag IEEE Trans Power Apparatus & Systems 83:205-14; Discussion. 297 Mr '64

See also

Electric lines—Overhead construction
Electric lines—Poles and towers

Costs

See Electric distribution—Costs

Damage from storms

High-elastic steel members strengthen tall towers. A. A. Osipovitch. il diags Elec World 161:98-100 Je 15 '64

Hurricane Dora mauls northern Florida. il Elec World 162:105-6 S 21 '64

Hurricanes rip at Key West's new 69-kv line over land and water. M. E. Rosam, 2d. il Elec World 160:20-2 N 11 '63

Tornado destroys TVA yard, towers. il Elec World 161:119 Mr 23 '64

Vandalism, storm bring down towers. il Elec World 162:19-20 Ag 31 '64

Design

Application of new concepts to 500-kv system insulation co-ordination. E. H. Gehrig and others. bibliog diags IEEE Trans Power Apparatus & Systems p41-7; Discussion. 47-8 Ja '64

Chicago-Twin-Cities 345-kv line economies. map Elec World 160:28-9+ D 16 '63

Design 69-kv substation and line in tubular steel. P. A. Millerbernd. il Elec World 162: 60-1 S 7 '64

Engineering design features of the Pinard-Hanmer 500-kv transmission line. N. J. McMurtrie and others. bibliog map diags IEEE Trans Power Apparatus & Systems p54-60; Discussion. 60-2 Ja '64

Evaluate design for SCEC 500 kv. J. D. Phillips and F. A. Denbrock. il diags Elec World 161:53-5+ Ap 6 '64

Hydro-Quebec designs first 735-kv line for 1965 cut-in. diags Elec World 161:34-5 Mr 9 '64

Impulse flashover of air-gaps and insulators in the voltage range 1-2·5mv. W. G. Standring and others. bibliog diags Inst E E Proc 110:1082-8 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64

METIFOR, a statistical method for insulation design of ehv lines. J. G. Anderson and L. O. Barthold. bibliog flow chart diags IEEE Trans Power Apparatus & Systems 83:271-80 Mr '64; Discussion. 83:437-40; Reply. 440-1 Ap '64

New design cleans up primary look. J. W. Kane. il Elec World 161:23-5 Mr 30 '64

115-mile line to Memphis designed for 500 kv. A. C. Pfitzer. il diags Elec World 162:58-9+ N 2 '64

Over-all performance, field tests determine 345-kv K-frame design. il diag Elec World 162:104-7 O 19 '64

Pole-top configuration patent granted. diag Elec World 162:67 S 7 '64

Predict and control switching-surge levels on ehv systems. D. D. Wilson and D. E. Hedman. il Elec World 160:36-7+ D 30 '63

Redesign of the two mile Kootenay Lake power span. R. Deane. diags Eng J 47:33-6 Je '64; Discussion. 47:76-8 S '64

Statistical evaluation rounds out ehv line design. J. G. Anderson and L. O. Barthold. diag Elec World 161:70-2 F 24 '64

Streamlined 230-kv transmission passes overhead in city's streets. M. K. Ramthun and others. il Elec World 161:62-3+ Je 29 '64

Use of insulated ground wires on a transmission line for communication channels. G. E. Farmer. il IEEE Trans Power Apparatus & Systems p884-91 D '63

ELECTRIC lines—*Continued*

Failure

Effect of humidity on flashover of air-gaps and insulators under alternating (50 c/s) and impulse (1/50 µs) voltages. W. G. Standring and others. diags Inst E E Proc 110:1077-81 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64
Lightning flashovers on the British grid. R. Davis. bibliog diag Inst E E Proc 110:969-74 My '63; Discussion. 110:2027-30 N '63
Tensile tests on ACSR/ACAR conductors after rifle damage. il Elec World 162:86+ O 5 '64
Vandalism, storm bring down towers. il Elec World 162:19-20 Ag 31 '64

Grounding

See Electric distribution—Grounding

Grounds and faults

See Electric distribution—Grounds and faults

Ice problem

Jump height of overhead-line conductors after the sudden release of ice loads. V. T. Morgan and D. A. Swift. bibliog il diags Inst E E Proc 111:1736-46 O '64
Non-icing conductor. A. S. Timascheff. bibliog diags Eng J 46:32-6 N '63

Inductive interference

Analysis of radio noise from high-voltage lines. O. Nigol. bibliog IEEE Trans Power Apparatus & Systems 83:524-41; Discussion. 554-7; Reply. 557-8 My '64
Insulation requirements, corona losses, and corona radio interference for high-voltage d-c lines. N. Hyltén-Cavallius and others. bibliog il IEEE Trans Power Apparatus & Systems 83:500-8 My '64; Discussion. 83:646-7; Reply. 647-8 Je '64
Investigation of corona loss and radio interference from transmission line conductors at high direct voltages. R. M. Morris and B. Rakoshdas. bibliog il diags IEEE Trans Power Apparatus & Systems p5-14; Discussion. 14-15; Reply. 15-16 Ja '64
Method of evaluating corona noise generation from measurements on short test lines. M. C. Perz. bibliog IEEE Trans Power Apparatus & Systems p833-9; Discussion. 839-43; Reply. 843-4 D '63
Pulses and radio-influence voltage of direct-voltage corona. B. Rakoshdas. bibliog diag IEEE Trans Power Apparatus & Systems 83:483-91 My '64
Radio-frequency propagation on polyphase lines. L. O. Barthold. bibliog diags IEEE Trans Power Apparatus & Systems 83:665-71; Discussion. 745-7 Jl '64
Radio noise studies on power lines with the coronaphone. J. R. Leslie and H. O'Beirne. il IEEE Trans Power Apparatus & Systems 83:495-500 My '64; Discussion. 83:646 Je '64
Summary of radio interference studies applied to ehv lines. J. Reichman and J. R. Leslie. il IEEE Trans Power Apparatus & Systems 83:223-8; Discussion. 297-9; Reply. 299-300 Mr '64
345-kv wood-pole test line; radio influence and leakage-current investigations. T. W. Schroeder and others. bibliog il diags IEEE Trans Power Apparatus & Systems 83:228-36 Mr '64; Discussion. 83:426-7 Ap '64

Location

Cards speed line profile calculation. R. P. Davenport. il diag Elec World 161:48 F 10 '64
'Copter surveys 345-kv line through wilderness. il Elec World 162:72 Jl 27 '64
Hottest right-of-way hassle in court. il Elec World 161:19-20 My 11 '64
Spotting of transmission towers by computer. L. H. Bartelink. diags Eng J 47:25-32 Jl '64
Utility execs ask Congress to change right-of way rules. Elec World 160:47 O 21 '63

Maintenance and repair

Aerial bucket training part of larger program. il Elec World 162:108-9 Ag 10 '64
Basket safety requires continuous, conscious effort. A. L. Dowden. il Elec World 161:113-15 Je 1 '64
Cubicle cuts bus welding cost. F. S. Dlouhy. il Elec World 160:65 D 16 '63
85-ft platform-lift for high problems. il Elec World 162:97-8 Ag 10 '64
Gas-insulated jumpers bypass 69-kv switch without line outage. il Elec World 162:99-100 O 5 '64
Inspection spots 700 dangerous poles; prompts ground-line treatment plan. E. L. Lancaster. Elec World 160:50-1+ O 21 '63
Install reclosers in energized 23-kv line. S. C. Harrelson. il Elec World 161:124 My 18 '64
Mobile equipment today; special report. il Elec World 162:75-94 Jl 13 '64
New switch facilitates equipment maintenance. O. M. Campbell. il diags Elec World 161:98 F 10 '64
New tool removes wood pins. W. Breckenridge. il Elec World 161:106 F 10 '64
Patrol planes warned of hazards. L. C. Schremser. il Elec World 162:110 Ag 10 '64
Remove 23-kv gang switch from hot line. S. C. Harrelson. il Elec World 161:68-9 Ja 13 '64
Repair 115-kv conductor in mid-span. il Elec World 161:88 Je 1 '64
Sand blast corroded conductors for good connections. il Elec World 162:100-1 Ag 10 '64
Utility pole repair. il Plastics World 22:14-15 Je '64
Well planned reconductoring program pays off. J. M. Van Name. il Elec World 160:102-5 O 21 '63
See also
Electric distribution—Grounds and faults

Overhead construction

Aerial baskets reduce costs, increase safety. G. H. Carlin. il Elec World 162:87-8 Jl 13 '64
Concrete poles aid spacer cable gain. R. M. Clarke. il Elec World 162:113 S 21 '64
Control-panel valves set pressure and flow for remote components. C. H. Tepas and A. Antram. il diags Hydraulics & Pneumatics 17:98+ My '64
8x19 steel rope tension-pulls 345-kv 2,156 MCM conductor. J. Honnan and A. B. Whitlock, jr. il diag Elec World 161:88+ Ap 6 '64
Ehv lineman shortage draws near. il Elec World 161:17-19 Mr 16 '64
Equipment for tension stringing overhead conductors. il Engineering 196:652 N 22 '63
Flying crane proves out in flat terrain. P. Mako. il Elec World 162:62 S 7 '64
Helicopter saves time and cost in line construction. E. L. Isaac. il Elec World 161:24-5 Mr 2 '64
Increasing the efficiency of helicopters on transmission-line construction. E. S. Zobel and R. A. Kravitz. il Civil Eng 34:72-3 Je '64
Installation of in-span transpositions. R. M. Harvey. il diags Eng J 46:41-5 O '63
Jump height of overhead-line conductors after the sudden release of ice loads. V. T. Morgan and D. A. Swift. bibliog il diags Inst E E Proc 111:1736-46 O '64
Lashed secondary cable serves large load. E. J. O'Connor. il Elec World 160:113-14 O 21 '63
Modify 69-kv line for 161-kv service. il Elec World 160:86 N 18 '63
Multiple-conductor supports designed to take mechanical line disturbances. R. W. Harmon. il Elec World 161:62-3 Je 1 '64
New technique uses balloons to string line conductors over Japan's Inland Sea. il Power Eng 67:45 D '63
One-piece tie produces 75 per cent time savings. G. H. Carlin. il Elec World 160:64 D 16 '63
Post-tensioned concrete piles support 115-kv tower line across Albemarle Sound. L. V. Woodson. il Elec World 161:80-2 Je 1 '64
Redesign of the two mile Kootenay Lake power span. R. Deane. diags Eng J 47:33-6 Je '64; Discussion. 47:76-8 S '64
Self-propelled car for ehv construction. il Elec World 161:81 Je 29 '64
Special synthetic rope permits longer line pull. G. C. Daggett. il Elec World 160:109 O 21 '63
Streamlined 230-kv transmission passes overhead in city's streets. M. K. Ramthun and others. il Elec World 161:62-3+ Je 29 '64
Stringing conductors under tension; illustrations with text. Engineer 216:851 N 22 '63
Telescoping aerial lift speeds line stringing. R. W. Ready. il Elec World 161:84-5 F 10 '64
220-kv line goes over rough terrain in southern California. il Power Eng 67:57 N '63

ELECTRIC lines—Overhead construction—*Cont.*

Unique water/land rigs build concrete-pole line. M. E. Rosam, 2d. il Elec World 161:67-8 Ap 6 '64

Wire tightener aids with many jobs. J. H. Ratcliff, jr. il Elec World 161:86 Ap 6 '64

See also

Electric lines—Poles and towers

Poles and towers

Adjustable base assembly for tapered masts. C. Marsh. il diag Elec World 162:73 Jl 13 '64

Airlift for 400kv transmission tower materials. il Engineering 197:327 F 28 '64

Aluminum semi-flexible transmission towers. il Mod Metals 20:91 Je '64

Armless construction makes attractive 12.47-kv line. J. H. Cheatwood. il diag Elec World 161:54-5 Mr 9 '64

Box members slim structures. R. L. Gregg. il diags Elec World 161:18-19 F 3 '64

Color styling improves overhead distribution. E. K. Nelson. il Elec World 162:24-5 Jl 20 '64

Evaluate design for SCEC 500 kv. J. D. Phillips and F. A. Denbrock. il diags Elec World 161:53-5+ Ap 6 '64

Ehv tower's insulation matched to surge levels. J. G. Anderson. il Elec World 161:54-5+ Ja 27 '64

Field tests on an H frame wood pole transmission structure. il Safety Maint 128:18 Ag '64

Guyed aluminum V-tower faults corrected. E. S. Zobel and C. P. Zimmerman. il diags Elec World 161:28-9 Ja 6 '64

Guyed Y towers for 500-kv Canadian line. C. Marsh. il Elec World 162:52-3 Ag 24 '64

High-elastic steel members strengthen tall towers. A. A. Osipovitch. il diags Elec World 161:98-100 Je 15 '64

High-strength steel helps reduce tower cost. diag Power Eng 68:40 Ap '64

Hurricanes rip at Key West's new 69-kv line over land and water. M. E. Rosam, 2d. il Elec World 160:20-2 N 11 '63

Inspection spots 700 dangerous poles; prompts ground-line treatment plan. E. L. Lancaster. Elec World 160:50-1+ O 21 '63

Lone guyed-V aluminum tower makes crossover. D. Wiese. il Elec World 162:62-3 Ag 10 '64

Microwave and 138-kv circuits share a tower. R. G. Meyerand. Power Eng 68:46 S '64

New aluminum X-braced 345-kv H-frame carries severe test loadings. il Elec World 160:30-1 D 16 '63

New design cleans up primary look. J. W. Kane. il Elec World 161:23-5 Mr 30 '64

Optimized aluminum structures save on maintenance; with nomographs. P. T. Coffin. Elec World 161:56-9+ Ap 6 '64

Over-all performance, field tests determine 345-kv K-frame design. il diag Elec World 162:104-7 O 19 '64

Pole-top configuration patent granted. diag Elec World 162:67 S 7 '64

Post-tensioned concrete piles support 115-kv tower line across Albemarle Sound. L. V. Woodson. il Elec World 161:80-2 Je 1 '64

Pressure grout piles support 230-kv towers in boggy soil. G. Aslaksen. il diags Power Eng 68:47-8 Ja '64

Sag transit gives quick check of span lengths. P. C. Evans. il diag Elec World 162:112 O 19 '64

Save money by retreating transmission pole lines. P. Naney. il Power Eng 68:48 F '64

Slenderize 230-kv. H-frames to fit narrow rights-of-way. il diags Elec World 161:66-9 F 24 '64

Splice poles to cut costs. J. H. Cheatwood. il Elec World 161:94+ Je 1 '64

Spotting of transmission towers by computer. L. H. Bartelink. diags Eng J 47:25-32 Jl '64

Steel-pole feeders serve underground distribution. L. R. Gardner and W. G. Purser, jr. il diag Elec World 162:24-6 Ag 3 '64

Stretch cap simplifies pole-top protection. il Elec World 160:82 D 16 '63

Studies of the surge response on a transmission line tower. M. Kawai. il diags IEEE Trans Power Apparatus & Systems p30-4 Ja '64

Test line proves wood pole H-frames are o.k. for 345 kv. T. W. Schroeder. il Power Eng 68:44-5 Jl '64

Tests verify design for TVA's 500-kv towers. G. M. Wilhoite. il map diags Am Soc C E Proc 90 [PO 3 no 4082]:81-90 O '64

345-kv wood-pole test line; radio influence and leakage-current investigations. T. W. Schroeder and others. bibliog il diags IEEE Trans Power Apparatus & Systems 83:228-36 Mr '64; Discussion. 83:426-7 Ap '64

345-kv wood/steel structure passes tests. W. G. Finney and C. Kimball. il map Elec World 161:56-8+ Je 1 '64

Unique water/land rigs build concrete-pole line. M. E. Rosman, 2d. il Elec World 161:67-8 Ap 6 '64

Uplift resistance of transmission tower footings. E. A. Turner. diags Am Soc C E Proc 88 [PO 2 no 3187]:17-33 Jl '62; Discussion. H. O. Ireland. 89 [PO 1 no 3652]:115-18 S '63; Reply. 90 [PO 1 no 3849]:67-8 Mr '64

Utility pole repair. il Plastics World 22:14-15 Je '64

Vandalism, storm bring down towers. il Elec World 162:19-20 Ag 31 '64

Protection

Application of predischarge currents of parallel electrode gaps. C. F. Wagner. bibliog diags IEEE Trans Power Apparatus & Systems 83:931-44 S '64

Build reduced-BIL 20/34.5-kv line. C. L. Rudasill. il Elec World 161:28 Mr 30 '64

Ehv tower's insulation matched to surge levels. J. G. Anderson. il Elec World 161:54-5+ Ja 27 '64

Fiberglass strut facilitates line upgrading. W. C. Currence. il diag Elec World 161:124 Mr 23 '64

Lightning-failure study program soon to begin. il diags Elec World 161:52-3 Je 1 '64

New concepts solve ehv relaying. il diags Elec World 161:52-3+ Ja 27 '64

Operation and control of hv d-c transmission. P. G. Engström. diags IEEE Trans Power Apparatus & Systems p71-7 Ja '64

Protect potheads with plastic guards. W. C. Engelman. il Elec World 162:92-3 Ag 10 '64

Protective relaying for ehv systems. J. L. Blackburn. diags Westinghouse Eng 24:72-7 My '64

Shielding of overhead lines against lightning; discussion. Inst E E Proc 110:2237-8 D '63

Spacer cable safe from lightning; abstracts of papers. Elec World 161:82 Je 29 '64

Split-cone guards protect bushing caps. G. R. Deinema. il Elec World 162:104-5 Ag 10 '64

Static relay for protecting transmission lines. il Engineer 217:910 My 22 '64

Switched resistance protection. il Engineer 218:382 S 4 '64

33-kv reliability improved by arresters. R. H. Oerthel. il diag Elec World 162:50-1 Ag 24 '64

Weather data give electrical design criteria. L. C. Weber and G. W. Alexander. Elec World 162:104-6 O 19 '64

See also

Lightning arresters

Radio interference

See Electric lines—Inductive interference

Safety measures

Sampling in the field evaluates safety program. V. R. Wietzke. il Elec World 161:106-7 Ap 6 '64

Show-how training for linemen. il Safety Maint 126:12-15+ D '63

Tables, calculations, etc.

Development of equivalent pi and T matrix circuits for long untransposed transmission lines. W. I. Bowman and J. M. McNamee. bibliog diags IEEE Trans Power Apparatus & Systems 83:625-32; Discussion. 653-6; Reply. 656-7 Je '64

Digital computer program speeds voltage-drop calculations. R. G. Myers. diag Elec World 160:44+ D 30 '63

Electrical constants and relative capabilities of bundled-conductor transmission lines. A. F. Gabrielle and others. bibliog diags IEEE Trans Power Apparatus & Systems p78-88; Discussion. p89-91; Reply. 91-2 Ja '64

Method of analysis of power line carrier problems on three-phase lines. M. C. Perz. diags IEEE Trans Power Apparatus & Systems 83:686-91; Discussion. 754-5; Reply. 755-6 Jl '64

Natural modes of power line carrier on horizontal three-phase lines. M. C. Perz. bibliog diags IEEE Trans Power Apparatus & Systems 83:679-86; Discussion. 748-53; Reply. 753-4 Jl '64

Sag transit gives quick check of span lengths. P. C. Evans. il diag Elec World 162:112 O 19 '64

ELECTRIC lines—Tables, calculations, etc. *—Continued*

Untransposed ehv line computations. H. Holley and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:291-6; Discussion. 300-4; Reply. 304 Mr '64

Testing

Experimental evaluation of power-line carrier propagation on a 500-kv line D. E. Jones and B. Bozoki. bibliog diag IEEE Trans Power Apparatus & Systems p 16-20; Discussion. 20-3 Ja '64

Field tests confirm 345-kv structural design. M. W. Anderson. il diag Elec World 162: 106-7 O 19 '64

15-kv spacer cable on test in Gulf Coast salty air. J. C. Thompson. il Elec World 160:24-5 N 25 '63

High-voltage d-c test program of the Bonneville power administration. R. S. Gens and R. F. Stevens. bibliog il maps diags IEEE Trans Power Apparatus & Systems p 1054-60; Discussion. 1060-1 D '63

Indirect tests verify ratings of 500-kv circuit breakers. R. G. Colclaser, jr. diag Elec World 162:108-9+ O 19 '64

Studies of the surge response on a transmission line tower. M. Kawai. il diags IEEE Trans Power Apparatus & Systems p30-4 Ja '64

Test line proves wood pole H-frames are o.k. for 345 kv. T. W. Schroeder. il Power Eng 68:44-5 Jl '64

Thermal-imaging device locates conductor hot spots visually. S. N. Bobo. il diag Power Eng 68:42-3 O '64

345-kv wood-pole test line; radio influence and leakage-current investigations. T. W. Schroeder and others. bibliog il diags IEEE Trans Power Apparatus & Systems 83:228-36 Mr '64; Discussion. 83:426-7 Ap '64

345-kv wood/steel structure passes tests. W. G. Finney and C. Kimball. il map Elec World 161:56-8+ Je 1 '64

Towers

See Electric lines—Poles and towers

Underground lines

Breakthrough seen imminent in underground residential distribution. Elec World 161: 96-8+ My 18 '64

Characteristics of soil affecting cable ratings. A. G. Milne and K. Mochlinski. bibliog il map diags Inst E E Proc 111:1017-39 My '64

Cite underground distribution cost savers. Elec World 160:16+ D 23 '63

Device buries tube without trenching. il Eng N 172:107 My 21 '64

Eight-ft pipe-type cable splice accommodates new highway. J. C. Parker. il Elec World 161:92-3 F 10 '64

Electric splicing method ends need for hand-wiping cable joints. il diags Power Eng 68:53-4 S '64

Experience cuts pipe-type cable installation costs. D. M. Falvey. il Elec World 160: 42-3 D 30 '63

Influence of soil-moisture migration on power rating of cables in h.v. transmission systems. A. N. Arman and others. bibliog plan diags Inst E E Proc 111:1000-16 My '64

IEEE technical conference and exposition on underground residential distribution, 1st, St Louis, April 21-23. IEEE Trans Power Apparatus & Systems 83:sup 1A-3A Je '64

Jacksonville Beach distribution going underground. Elec Constr & Maint 63:167-8+ F '64

Keystone ehv stations pinpointed. map Elec World 161:117 Mr 23 '64

Moisture barrier pre-cast manholes aid in providing 345-kv splicing environment. il Elec World 161:86+ F 10 '64

Optimize Hawaiian underground distribution. J. F. Richardson, jr. and others. flow chart diags Elec World 162:64-6+ Ag 10 '64

PG&E offers cost estimates for underground. Elec World 162:19 O 26 '64

Plastic duct handles easily, costs less. L. W. Little. il Elec World 161:124 Ap 20 '64

Reduce underground equipment BIL. H. O. Stoelting and R. T. Kaupie. diag Elec World 161:28-9 Mr 2 '64

Simplify tapping of underground secondary. C. N. Peters. il Elec World 162:96-7 Ag 10 '64

Steel-pole feeders serve underground distribution. L. R. Gardner and W. G. Purser, jr. il diag Elec World 162:24-6 Ag 3 '64

345-kv cable pulled into underground pipe system. il Elec World 160:82-3 N 4 '63

Time prompts line plan change; Cornwall station. map Elec World 161:85 My 18 '64

Truck/trailer combo speeds underground cable handling. il Elec World 160:100 O 21 '63

$25-million underground program for Portland. Elec World 160:32 D 30 '63

URD achieves cost break-through; pre-assembled cable duct. J. W. Lauder and R. C. Blankenburg. il Elec World 162:23-5 N 9 '64

Underground distribution cuts costs, solves tree problems. B. H. Brantley. il Elec World 161:28-9, cover Ja 20 '64

Underground lines get boost from federal housing agency. Elec World 160:15 N 11 '63

Underground residential distribution interests mount. Elec World 161:114 Ap 20 '64

Underground-service promotion. Elec Constr & Maint 63:219-20 S '64

Underground turnkey package offered. R. F. Gilton and J. M. Massara. il diag Elec World 161:54-5 Ja 13 '63

Work record facsimile transmitted for safety. R. M. Carpenter. il Elec World 162:102 Ag 10 '64

Vibration

Comparative vibration fatigue tests 84/19 ACSR Chukar versus 61-strand 5005. B. Hondalus. il IEEE Trans Power Apparatus & Systems 83:971-4 S '64; Discussion. 83: 1069-70 O '64

Canada

Construction aspects of the Pinard-Hanmer 500-kv transmission line. G. A. Mackie and W. A. R. Lemire. il map diag IEEE Trans Power Apparatus & Systems 83:205-14; Discussion. 297 Mr '64

Engineering design features of the Pinard-Hanmer 500-kv transmission line. N. J. McMurtrie and others. bibliog map diags IEEE Trans Power Apparatus & Systems p54-60; Discussion. 60-2 Ja '64

Experimental evaluation of power-line carrier propagation on a 500-kv line. D. E. Jones and B. Bozoki. bibliog diag IEEE Trans Power Apparatus & Systems p 16-20; Discussion. 20-3 Ja '64

Guyed Y towers for 500-kv Canadian line. C. Marsh. il Elec World 162:52-3 Ag 24 '64

Hamilton Falls power; which way out? il map Elec World 162:59-60 Jl 27 '64

Hydro-Quebec designs first 735-kv line for 1965 cut-in. diags Elec World 161:34-5 Mr 9 '64

Redesign of the two mile Kootenay Lake power span. R. Deane. diags Eng J 47:33-6 Je '64; Discussion. 47:76-8 S '64

Europe

East Europe grid to ease shortages. map Elec World 161:52-3 Ja 13 '64

Great Britain

First British 400kv transmission line. il Engineer 217:52-3 Ja 3 '64

400kv grid system for England and Wales. E. S. Booth and others. maps diags Inst E E Proc 109 pt A:493-511 D '62; Discussion. il 109 pt A:511-19; 111:810-22 D '62, Ap '64

Lightning flashovers on the British grid. R. Davis. bibliog diag Inst E E Proc 110: 969-74 My '63; Discussion. 110:2027-30 N '63

New York (state)

Time prompts line plan change; Cornwall station. map Elec World 161:85-6 My 18 '64

Pennsylvania

Keystone ehv stations pinpointed. map Elec World 161:117 Mr 23 '64

Russia

Soviets build 500-kv grid in Siberia. il map Elec World 161:17-19, cover Mr 30 '64

USSR tells CIGRE about its 500 kv; Lebedev's report. D. T. Braymer. Elec World 161:21 Je 22 '64

Southern states

Reliability and economy guide SCEC's ehv substation design. C. E. Asbury and others. il diags Elec World 161:36-9+ Mr 9 '64

SCEC expands 500-kv transmission; adds $17-million to grid's cost. F. E. Sanford and others. maps diag Elec World 161:23-4 Ja 20; 41-3 F 10 '64 (to be cont)

Tennessee

115-mile line to Memphis designed for 500 kv. A. C. Pfitzer. il diags Elec World 162:58-9+ N 2 '64

ELECTRIC lines—*Continued*

Western states

Big intertie plan faces crucial test. Elec World 162:21 Jl 6 '64
California-BPA link plan firm, or not? map Elec World 161:57-8 Je 29 '64
House denies funds for federal lines. Elec World 162:19-20 Jl 6 '64
Organization formed to guide Northwest-Southwest interties. Elec World 162:47 O 5 '64
Plans jell for Pacific Coast 500-kv ac interties. il map diags Elec World 162:26-9 Ag 31 '64
$750-million power-line project begins. map Eng N 173:30 S 10 '64
Ties link Pacific Southwest, Northwest. map Elec World 162:17 O 26 '64

ELECTRIC lines, Underground. See Electric lines—Underground lines

ELECTRIC locomotives
Electrical control of locomotives adhesion. F. Nouvion. Engineer 216:992-4 D 13 '63
Foreign railways in 1963; illustrations with text. Engineer 217:38-9 Ja 3 '64
French a.c./d.c. locomotives. il Engineer 218:76 Jl 10 '64
Multi-system electric locomotives. il Engineer 217:1103 Je 19 '64
Simulating driving electric locomotives. il Engineering 197:71 Ja 17 '64
Swiss electric locomotives. il Engineer 218:389 S 4 '64

ELECTRIC locomotives, Mine
Automatic electric locomotives slated to haul ore in Canada; abstract. P. S. Smith. il S A E J 72:98-9 Ja '64
Battery-operated mine locomotives. il Engineer 216:817 N 15 '63
Mine locomotive maintenance and modernization. R. G. Zahner. Coal Age 69:96-100 S '64

ELECTRIC losses
Accuracy of loss formula coefficients on the TVA power system. T. R. Walker and W. H. Hutchins. bibliog flow chart map diags IEEE Trans Power Apparatus & Systems p858-66 D '63
A-c bridge method to measure core loss. F. J. Young and S. J. Dudzinsky. bibliog diags IEEE Trans Com & Electronics p630-4 N '63
Alternating current power losses in superconducting Nb-Zr alloys. W. R. Wisseman and others. bibliog diag J Ap Phys 35:2649-55 S '64
Analysis of networks with complex autotransformers; invariant reduction for purposes of loss formulas. H. H. Happ. diags IEEE Trans Power Apparatus & Systems 83:707-14 Jl '64
Digital computer program speeds voltage-drop calculations. R. G. Myers. diag Elec World 160:44+ D 30 '63
Direct calculation of transmission loss formula. H. H. Happ and others. IEEE Trans Power Apparatus & Systems 83:702-7; Discussion. 757-60 Jl '64
Eddy-current losses in finite sections of solid iron under saturation. V Subba Rao. bibliog diags Inst E E Proc 111:343-8 F '64
Insertion loss concepts. R. W. Beatty. bibliog diags IEEE Proc 52:663-71; Discussion. K. A. Norton. 710 Je '64
Losses of general purpose magnetic materials. F. R. Richardson. IEEE Trans Power Apparatus & Systems p941-4 D '63
Power losses in electric conductors; nomograph; data sheet. S. Salva and L. Crull. Power 108:84 Je '64
Struggle against losses in the field of energy economics; sectional meeting of the World power conference. Engineering 198:439 O 2 '64

See also
Corona (electricity)
Electric machinery—Losses
Electric transformers—Losses

ELECTRIC machinery
Bibliography of rotating electric machinery for 1948-1961. IEEE Trans Power Apparatus & Systems 83:589-606; Discussion. 650 Je '64
Effect of rotor eccentricity on the magnetic field in the air-gap of a non-salient-pole machine. S. A. Swann. diags Inst E E Proc 110:903-15 My '63; Discussion. 110:2030-1 N '63
Electrical machines laboratory. A. A. Moore. il plan Engineer 218:550-2 O 2 '64
Electromagnetic theory of electrical machines. S. A. Nasar. diags Inst E E Proc 111:1123-31 bibliog(p 1129-30) Je '64
Flow measurement in rotating machinery. J. C. Pemberton and G. O. Ellis. il Instruments & Control Systems 37:105-6 Mr '64
Introduction of general theory of electrical machines into university courses. A. J. Ellison. il diags Inst E E Proc 111:1359-68 Jl '64

See also
Brushes (electric machinery)
Commutators
Cranes, derricks, etc.—Electric equipment
Electric driving
Electric generators
Electric locomotives
Electric motors
Electric transformers
Electric welding machines
Electricity in mining
Electricity on the farm
Mine hoisting, Electric
Pumping machinery, Electric
Rotors (electric machinery)
Voltage regulators

Design

Magnetic field problem with axial symmetry and its solution in terms of Fourier-Bessel expansions. D. Midgley and S. W. Smethurst. diags Inst E E Proc 110:1465-72 Ag '63; Discussion. 111:1149-50 Je '64

Losses

Measurement of stray losses in squirrel-cage induction motors. B. M. Bird. bibliog Inst E E Proc 111:1697-705 O '64
Survey of basic stray losses in squirrel-cage induction motors. K. K. Schwarz. bibliog diag Inst E E Proc 111:1565-74 S '64

Maintenance and repair

See also
Electric motors—Maintenance and repair

Manufacture

Phoenix myth re-enacted by Electro Dynamic plant. il Water & Sewage Works 110: sup74A+ N '63

Tables, calculations, etc.

Block diagrams of rotating machines. R. S. Peterson. bibliog diags Electro-Tech 73:30-7 Ja; 44-8+ F '64

Temperature

See also
Electric transformers—Temperature

Transportation

See also
Electric transformers—Transportation

Windings

Connecting large machines to power systems. D. D. Stephen. bibliog il diags Inst E E Proc 110:1425-33 Ag '63; Discussion. 111:1706-12 O '64
Eddy currents and their effect on commutation. A. I. Dvoracek. diags IEEE Trans Power Apparatus & Systems 83:977-88 O '64

ELECTRIC measurements
A-c bridge method to measure core loss. F. J. Young and S. J. Dudzinsky. bibliog diags IEEE Trans Com & Electronics p630-4 N '63
Ac measurement by phase-sensitive conversion. S. Herman. il diags Instruments & Control Systems 37:115-19 Ap '64
Automatic measurement of the electric strength of liquid dielectrics. J. E. Brignell. diags J Sci Instr 40:576-8 D '63
Charge-storing technique for measuring small condition currents under microsecond pulse conditions. P. K. Watson and A. H. Sharbaugh. diags R Sci Instr 35:1310-13 O '64
Coaxial chamber for measurement of frequency-dependent conductivity in powdered semiconductors. D. P. Snowden and H. Saltsburg. diag R Sci Instr 34:1263-4 N '63
Conference on precision electromagnetic measurements, Boulder, Colo. June 23-25. J Sci Instr 41:585-8 O '64
Corrections used in the adiabatic measurement of thermal conductivity using the Peltier effect. A. W. Penn. diag J Sci Instr 41:626-8 O '64
Determination of the coefficient of kinetic friction in the case of extremely small displacements. D. H. Wiid and W. F. Beezhold. bibliog diag J Ap Phys 35:1169-75 Ap '64
Development of the d-c instrument transformer for the precision measurement of highest direct currents. W. Kramer. bibliog il diags IEEE Trans Com & Electronics 83:382-90 Jl '64
Direct current metering equipment. il Ind & Eng Chem 56:73 O '64

ELECTRIC measurements—*Continued*
Effect of losses in varactor-diode impedance measurements. F. J. Hyde and R. B. Smith. bibliog diags Inst E E Proc 111:471-80 Mr '64
Effect of waveform on measurement of voltage and current. W. H. Christiansen. Instruments & Control Systems 37:115-17 Mr '64
Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64
Electrical measurements on photographic grains containing cadmium. L. E. Brady and J. F. Hamilton. bibliog il diag J Ap Phys 35:1565-9 My '64
Electrical resistivity measurements in detonating Composition B and Pentolite. R. L. Jameson and others. bibliog diags J Ap Phys 35:714-20 Mr '64
Electrical testing with portable indicating instruments. R. J. Lawrie. il diags Elec Constr & Maint 63:116-19 S '64
Electromagnetic measurement. H. W. Lance. Space/Aeronautics 42 no 4:199-202 '64-65
Energy dependence of extinction distance and transmissive power for electron waves in crystals. H. Hashimoto. bibliog il diags J Ap Phys 35:277-90 F '64; Correction. 35:2788 S '64
Galvanostalametry; electrochemical phenomena detector. Franklin Inst J 277:187-8 F '64
Graphite jet velocity by a probe method. J. A. Howe and T. V. Molloy. J Ap Phys 35:2265-6 Jl '64
High-frequency transient voltage measuring techniques. H. W. Lord. il diag IEEE Trans Com & Electronics p602-5 N '63
Impedance measurements by current-null technique. S. B. Williams. il diag Instruments & Control Systems 36:90-1 O '63
Instrumentation for measuring the dc conductivity of very high resistivity materials. D. S. Dorcas and R. N. Scott. diags R Sci Instr 35:1175-6 S '64
Langmuir probe measurements in the presence of oscillations. A. Garscadden and P. Bletzinger. il diag R Sci Instr 35:912-13 Jl '64
Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64
Measurement of large direct currents. P. Covert. diags Electro-Tech 74:106+ O '64
Measurement of short-duration impulse voltages. F. C. Creed and M. M. C. Collins. bibliog il diags IEEE Trans Com & Electronics p621-9; Discussion. 629-30 N '63
Measuring current in high-energy arc jets. R. T. Hood. il diags Instruments & Control Systems 37:99-100 Ja '64
Method for comparing two nearly equal potentials directly in parts per million. C. J. Saunders. diag R Sci Instr 34:1452-3 D '63
Multiple probe measurements in high-frequency plasma lasers. S. Aisenberg. bibliog diags J Ap Phys 35:130-4 Ja '64
New technique for the measurement of dielectric properties of plastics. J. C. Pais and V. S. Griffiths. bibliog diags Inst E E Proc 111:1775-7 O '64
Phase shift measurement. H. Steinberg. diags Instruments & Control Systems 37:131-2 Je '64
Power. M. Horowitz. diags Audio 48:25-6+ Mr '64
Q-meter measurements on resistors. G. J. Johnson. diags Inst E E Proc 110:2033-8 N '63
Ratiometric measurement principle. L. Julie. diags Electro-Tech 74:54-9 O '64
Recent developments in the electrical testing of plastics. K. A. Fletcher. bibliog il diags Brit Plastics 37:68-73 F '64
Sensitive method for the measurement of nonlinearity of electrical conduction. C. E. Skov and E. Pearlstein. diags R Sci Instr 35:962-4 Ag '64
Simple capacitance measuring circuit with digital presentation. S. L. Hurst. il diags Electronic Eng 36:596-9 S '64
Simple method for measuring ripples in the output of industrial rectifiers. V. P. Walker. diag Plating 51:554-5 Je '64
Temperature effect on Langmuir probe measurement. C. J. Chen. bibliog diag J Ap Phys 35:1130-3 Ap '64
Thermal measurement of electrical quantities. D. McAuliff. il diags Instruments & Control Systems 37:102-4 Ja '64
Thickness corrections to resistivity measurement by Q-meter. A. C. Brown. diags J Sci Instr 41:335-6 My '64
Transformer-ratio-arm bridge for high-voltage capacitance measurements. N. L. Kusters and O. Petersons. bibliog il diags IEEE Trans Com & Electronics p606-11 N '63
Transistorized millivolt discriminator. M. Birnbaum and V. Comanescu. diags Electronic Eng 36:110-13 F '64
Use of the transistor as a switch in precise analogue-digital-convertor circuits. A. J. Uphill. bibliog diags Inst E E Proc 111:1385-92 Ag '64
Variables unreachable? use short-range radio telemetry. C. H. Hoeppner. il diags Power Eng 68:T12-14 Mr '64
Versatile power supply for low level voltage-current characteristic measurements. R. Varteresian. diags R Sci Instr 34:1265-6 N '63
Voltage decay measurement of photoexcitation and trapping of carriers in selenium. P. J. Regensburger. diag J Ap Phys 35:1863-5 Je '64
Zeta potential measurement, applications in the paper industry. R. Schmut. il diag Ind & Eng Chem 56:28-33 O '64
See also
Dielectric losses
Dielectrics
Dynamometers
Electric conductivity
Electric currents
Electric instruments
Electric meters
Electric resistance
Electric units
Electrometers
Inductance
Oscillographs
Oscillographs, Cathode ray
Phase meters
Potential, Electric
Potentiometers
Radio measurements
Recording instruments, Electric
Wheatstone bridge

ELECTRIC meters
Evaluate 200-amp meter sockets. D. F. Carlisle. diags Elec World 160:97-8 D 2 '63
Meter and service trends; special report. il Elec World 161:103-18 Ap 20 '64
Pre-wired units meter farm load and check appliance use. A. Millard. il Elec World 161:126 My 18 '64
Variable impedance power meter, and adjustable reflection coefficient standard. G. F. Engen. bibliog diags J Res Nat Bur Stand 68C:7-24 Ja '64
See also
Ammeters
Demand meters
Electric measurements
Fluxmeters
Frequency meters
Ohmmeters
Voltmeters
Watt hour meters
Wattmeters
Wavemeters

Maintenance and repair

Economic study guides meter retirements. D. K. Woodard. Elec World 161:116-18 Ap 20 '64

Testing

Sample testing cuts cyclic routine. Elec World 161:105 Ap 20 '64
Selective testing guards meter accuracy. S. B. Vaughn. Elec World 160:84-5+ N 18 '63
Van carries one-man meter test shop. E. Nolet. il Elec World 162:78-9 Ag 10 '64

ELECTRIC moment
See also
Dipole moment

ELECTRIC motors
Application characteristics of torque motors. S. Noodleman. diags Automation 10:69-72 N '63
Electric motors reference issue; design data; product directory. il diags Machine Design 36:1-259 Mr 19 '64
Electrical design; motors and controls. D. Silverman. il diag Chem Eng 71:133-40 Je 22 '64
Hysteresis motor flutter. N. A. Miller. diags Electro-Tech 74:123-7 Jl '64
New linear oscillating motor. J. C. West and B. V. Jayawant. bibliog il diags Inst E E Proc 109 pt A:292-300 Ag '62; Discussion. 110:975-6, 2008 My, N '63

ELECTRIC motors—*Continued*

Rotational hysteresis in tungsten steel and in hysteresis motors. J. M. Lommel. bibliog J Ap Phys 35:970-1 pt 2 Mr '64

Three-phase superconducting motor. J. D. Jones and P. W. Matthews. diags R Sci Instr 35:630-3 My '64

See also

Commutators
Electric driving
Electric machinery
Electric transformers
Excitation equipment
Gearmotors
Pumping machinery, Electric

Bearings

Electric motor runs on hydrodynamic air bearings. diags Product Eng 35:44-5 Je 8 '64

How to replace bearings. H. L. Kolb. il Am Mach 108:64-6 F 3 '64

Lubrication of small motor bearings for unattended service in automatic equipment. G. H. Kitchen. il Lub Eng 20:311-15 Ag '64

Control

Adjustable speed drive system. il diag Automation 11:197 Ap '64

Analysis of a half-cycle response magnetic amplifier with resistance of a-c servomotor load. J. S. Bajwa and H. R. Weed. bibliog diags IEEE Trans Applications & Ind 83:222-33 Jl '64

Converting speed-torque curves graphically. J. Miro. diags Control Eng 11:69-72 Jl '64

Designing safety into motor control centers. F. J. Prince. il Safety Maint 128:14-16 O '64

Effective motor-control troubleshooting. R. J. Lawrie. diags Elec Constr & Maint 62:57-9 D '63

Electric motors in which commutation is by switching devices such as controlled silicon rectifiers. A. Tustin. diags Inst E E Proc 111:151-2 Ja '64

How to maintain motor controls. R. J. Lawrie. il diag Elec Constr & Maint 63:84-7 Ap '64

Line capacity effect on a-c control circuits. H. A. Wright and T. F. Bellinger. diags Tappi 47:sup 157A+ O '64

New materials used in 5000-volt motor controller. Chem & Eng N 41:49 D 2 '63

Pulse control of d-c and a-c motors by silicon-controlled rectifiers. K. Heumann. bibliog il diags IEEE Trans Com & Electronics 83:390-9 Jl '64

Remote control of valve actuators. il Engineer 217:797 My 1 '64

Scr control in paper mills. H. Dooley. il diags Electronics 37:42-7 Je 29 '64

Variable-speed drives. il diag Engineer 216:958 D 6 '63

Variable speed eddy current prime mover. il Engineering 197:255 F 14 '64

Wide-range speed control for small motors. J. C. Taylor and F. P. Weigold. il diag Westinghouse Eng 24:146-9 S '64

See also

Electric controllers

Cooling

Cryogenically cooled motors. J. H. Redmond and F. W. Bott. il diags Electro-Tech 74:83-9 Jl '64

Hermetic compressors in modern applications. R. T. Divers and W. West. bibliog diags ASHRAE J 6:55-61 Ap '64

Design

Analysis and design of pole-change motors using phase-mixing techniques. F. C. Williams and others. diags Inst E E Proc 111:80-94 Ja '64

Brush holders for electric motors. J. C. H. Bone. il diag Engineer 217:1141-3 Je 26 '64

Electric motor reratings for design engineers. R. Kaplan and others. il diags Mech Eng 86:27-33 Ag '64

Motors double their output. il Iron Age 193:94-5 My 14 '64

Motors 45 per cent smaller, run hotter. il Product Eng 35:87-8 Ap 27 '64

Torque motor for quantity production. J. MacFarlane. il diags Engineer 217:866-8 My 15 '64

Failure

How can we stretch motor life? question and answers. diag Power 108:122-4 Ja '64

Motor burnout causes. Safety Maint 127:60 F '64

Fractional horsepower

Die casting end shields for motors. il diag Mod Metals 19:40+ Ja '64

Eddy-current brake for fractional horsepower motors. il Engineer 217:875 My 15 '64

Fractional-horsepower motors. J. Campbell. diags Machine Design 36:49-59 Mr 19 '64

Instrument motors. R. W. Matthews. diag Machine Design 36:121-5 Mr 19 '64

System for testing small motors. il diags Electro-Tech 73:120+ Je '64

Wide-range speed control for small motors. J. C. Taylor and F. P. Weigold. il diag Westinghouse Eng 24:146-9 S '64

Installation

Constructing electrical systems; motors and controllers. diags Elec Constr & Maint 63:165-6+ My '64

Maintenance and repair

Apparatus service. il diag Elec Constr & Maint 62:85-6+ D '63; 63:123-4 Mr; 119-20 Ap; 123-4 Je; 132+ Jl; 127-8 Ag; 149-50+ S '64

Effective motor-control troubleshooting. R. J. Lawrie. diags Elec Constr & Maint 62:57-9 D '63

Get more from your motors. D. K. Russell. Textile World 114:67-9 Ag '64

How to maintain motor controls. R. J. Lawrie. il diag Elec Constr & Maint 63:84-7 Ap '64

How to replace bearings. H. L. Kolb. il Am Mach 108:64-6 F 3 '64

Long motor life begins with assembly. R. C. Radtke. il diag Elec World 162:88+ Ag 10 '64

Maintenance of large motors and motor-generator sets. V. E. Schlossberg. il Elec Constr & Maint 63:104-7 Mr '64

Manufacture

Orders out of chaos, after fire, Bayonne plant, Electro dynamic div., General dynamics corp. il Mech Eng 85:61 N '63

Versatile equipment applies insulation in electrical motor manufacture. R. R. Sharetts. il diags Automation 11:64-6 Mr '64

Welded transition joints call for transitional design. G. H. Lynn and others. il Welding Eng 49:42-4 Jl '64

Miniaturization

Miniature motors, arise! E. Charkey. bibliog il Product Eng 35:98-101 O 12 '64

Mounting

Enclosures and mounting methods. T. C. Lloyd. il diags Machine Design 36:35-40 Mr 19 '64

Protection

Enclosures and mounting methods. T. C. Lloyd. il diags Machine Design 36:35-40 Mr 19 '64

Motor protection; design guide. il diags Machine Design 36:143-58 Ag 13 '64

Power station motor selection key to savings, reliability. A. E. Beardmore. il Elec World 161:56-8+ Ja 13 '64

Protect electric motors from high temperatures with aid of nomograph; data sheet. F. Caplan. Heating-Piping 35:147-8 N '63

Remote motors power machinery. il Elec Constr & Maint 63:105-6 F '64

Temperature rise and insulation. B. W. Bradbury. Machine Design 36:29-34 Mr 19 '64

Versatile equipment applies insulation in electrical motor manufacture. R. R. Sharetts. il diags Automation 11:64-6 Mr '64

Standards

Derated motors should boost plant output. diag Mill & Factory 74:73-5 Je '64

Electric motor reratings for design engineers. R. Kaplan and others. il diags Mech Eng 86:27-33 Ag '64

Motor rerating; how will energy-system engineers benefit? il Power 108:62-3 Jl '64

Motors 45 per cent smaller, run hotter. il Product Eng 35:87-8 Ap 27 '64

NEMA rerates frame sizes for integral-hp motors. diag Electro-Tech 73:113-14+ My '64

NEMA rerates three sizes of motors. il Automation 11:23 Je '64

NEMA revises electric motor standards. il Air Cond Heat & Ven 61:87 Je '64

New NEMA motor standards; what they mean to you. il diags Textile World 114:54-5 O '64

New standards cut motor sizes. il diags Chem Eng 71:104+ My 25 '64

ELECTRIC motors—Standards—*Continued*

Standards and specifications. Machine Design 36:144 Mr 19 '64

What NEMA's 1964 motor standards mean to you. il diag Heating-Piping 36:114-15 Je '64

What the new NEMA motor standards mean. M. K. Sieber. il diags Plant Eng 18:140-2 Jl '64

Starting

Connecting large machines to power systems. D. D. Stephen. bibliog il diags Inst E E Proc 110:1425-33 Ag '63; Discussion. 111: 1706-12 O '64

Motor starters; small and reliable. il diags Product Eng 35:46-7 Je 8 '64

Westinghouse A/200 series motor starters. il diags Mach 70:156 Je '64

Westinghouse announces a new line of motor starters. diags Iron & Steel Eng 41:194+ Jl '64

Temperature

Temperature rise and insulation. B. W. Bradbury. Machine Design 36:29-34 Mr 19 '64

Testing

Facilities for motor testing and research. il Engineering 197:303-4 F 21 '64

Motor tests using X-Y recorders. B. G. Hall. diags Electro-Tech 73:116+ My '64; Abstract. Instruments & Control Systems 37: 107 F '64

System for testing small motors. il diags Electro-Tech 73:120+ Je '64

Windings

Analysis and design of pole-change motors using phase-mixing techniques. F. C. Williams and others. diags Inst E E Proc 111:80-94 Ja '64

Glass banding of traction motor armatures. il Engineering 198:171 Ag 7 '64

Glass-bonded traction motor armatures. il Engineer 218:255 Ag 14 '64

Remote wire dereeling saves space. Penn electric motor co. il diags Elec Constr & Maint 63:127-8 Ag '64

ELECTRIC motors, Alternating current

A-c integral-horsepower motors. F. R. Lamkey. diags Machine Design 36:67-83 Mr 19 '64

Commutatorless alternating-voltage-fed variable-speed motor. C. S. Lamb. diags Inst E E Proc 110:2221-7 D '63; Abstract. Engineer 216:954-5 D 6 '63

Method of analysing the properties of 2-phase servo-motors and a.c. tachometers. D. E. Hesmondhalgh and E. R. Laithwaite. bibliog diags Inst E E Proc 110:2039-54 N '63

Significant factors in the selection of large ac motors. R. J. Conrad. il Water & Sewage Works 111:134-7 Mr '64

Static alternator controls three-phase motor. R. H. Murphy. diags Electronics 37:30-3 Ja 31 '64

Control

A-c variable speed system; Varidyne. il Water & Sewage Works 111:381-2 Ag '64

Applying adjustable frequency inverters for motor speed control. C. D. Helmick and K. Lipman. diags Automation 11:66-9 My '64

Cogging in slow-speed servos. diag Control Eng 11:59-60 Jl '64

Selecting ac servomotor compensation. A. F. Clarke, jr. diags Control Eng 11:99-105 O '64

Smooth speed regulator for a.c. series motors. diag Engineer 216:746 N 1 '63

Solid-state devices are heart of new adjustable-frequency drives. N. Peach. il diags Power 108:177-82 My '64 (reprints 25c)

Static adjustable frequency drives. K. A. Hultstrand. il diags Control Eng 11:57-63 Ap '64

Transductor variable speed drivers for a.c. motors. il diag Engineer 218:383 S 4 '64

Westinghouse introduces a new 5000-volt motor controller. il diag Iron & Steel Eng 40:159-60 D '63

Protection

High-temperature insulation in ac motors. R. F. Woll. Westinghouse Eng 24:50-3 Mr '64

Starting

Transient response characteristics of an a-c servomotor excited nonsinusoidally and through nonlinear source impedances. J. Law, jr. and N. L. Schmitz. flow diag il IEEE Trans Power Apparatus & Systems 83:584-8 Je '64

Tables, calculations, etc.

Analysis of the hysteresis motor. M. A. Copeland and G. R. Slemon. diags IEEE Trans Power Apparatus & Systems p34-42 Ap '63; 83:619-25 Je '64; Discussion. 83:652-3 Je '64

ELECTRIC motors, Direct current

Brushless d.c. motor. G. Ratcliff and B. J. Clifton. diag J Sci Instr 41:268 My '64

D-c integral-horsepower motors. J. F. Davis. il Machine Design 36:84-9 Mr 19 '64

Direct-current motors. J. R. Wickey. il diags Machine Design 36:20-3 Mr 19 '64

Linear d.c. motor. G. Ratcliff and J. Griffiths. diags J Sci Instr 41:267-8 My '64

User experience with powerful Ward Leonard d.c. machine drives for gas circulators at Calder Hall. E. L. Desbruslais. bibliog diags Inst E E Proc 109 pt A:279-87 Ag '62; Discussion. 109 pt A:287-91; 111:579-81 Ag '62, Mr '64

Control

Adjustable speed dc drives. G. J. Thaler and M. L. Wilcox. bibliog diags Control Eng 10: 75-99 N '63

Application guide for the use of d-c motors on rectified power. N. Kaufman. IEEE Trans Power Apparatus & Systems 83: 1006-9 O '64

Available adjustable speed dc drives; table lists drives designed as packaged units, motor plus speed control. R. J. Barber. Control Eng 10:103-6 N '63

Computer analysis of dc motor control. R. S. Hamby. diags Control Eng 10:100-2 N '63

Control of d.c. motors by thyristors. J. Forbes-Simcock. il diags Ind Electronics 2: 205-8 My '64

D.c. motor control by pulsed silicon controlled rectifiers. diags Engineer 216:1074 D 27 '63

Electric motor can be manually adjusted to the right speed. diag Product Eng 35:46-7 Ja 20 '64

New d.c. motor with fingertuning performance adjustment. Franklin Inst J 277: 296-7 Mr '64

Time response of a feedback thyratron controlled d-c motor with a nonlinear load. J. Miro. diags IEEE Trans Applications & Ind p76-80 Mr '64

Torque reversing drive for light dc target motor. A. V. Feltman and J. G. Cottingham. diags R Sci Instr 35:814-15 Jl '64

Design

Design of shell-type d-c motors for minimum weight. A. A. S. Danthine and P. L. R. Pirotte. diags IEEE Trans Applications & Ind p345-51 N '63; Abstract. Control Eng 10:167 Mr '63

Design of small d-c machines with a digital computer. L. E. Welch. flow diags diag IEEE Trans Power Apparatus & Systems p 1099-106 D '63

Standards

Revision of AISE d-c mill motor standard proposed. il Iron & Steel Eng 41:161 O '64

Starting

Magnetic saturation and eddy current effect in d-c machine voltage build-up. H. B. Hamilton. diags IEEE Trans Power Apparatus & Systems 83:606-10; Discussion. 650-1 Je '64

ELECTRIC motors, Induction

A-c power servomotors. G. Kiesel. il diags Machine Design 36:157-62 F 27 '64

Analysis of dynamic performance of induction motors in control systems. J. C. West and others. bibliog diags Inst E E Proc 111: 1468-78 Ag '64; Discussion. 111:1949-50 N '64

Application characteristics of torque motors. S. Noodleman. diags Automation 10:69-72 N '63

D.c. dynamic braking for direct determination of rotor impedance and power factor of induction machines. M. R. Krishnamurthy. bibliog diags Inst E E Proc 111: 1299-304 Jl '64

Electric motors for severe duties. il Engineer 217:142 Ja 17 '64

Hints for reapplying wound-rotor motors. R. C. Moore. diag Power 108:74-5 F '64

Impact extrusion by linear induction. il Engineering 198:302-3 S 4 '64

Induction motors. W. A. Anderson. il diags Machine Design 36:4-12 Mr 19 '64

NEMA rerate induction motors grow smaller. il diags Machine Design 36:242-6 Ap 23 '64

New standards cut motor sizes. il diags Chem Eng 71:104+ My 25 '64

ELECTRIC motors, Induction—*Continued*

Permanent-magnet synchronous motor. D. P. M. Cahill and B. Adkins. bibliog diags Inst E E Proc 109 pt A:483-91 D '62; Discussion. 110:2032 N '63

Range of squirrel-cage motors up to 4000 h.p. il Engineer 217:285 F 7 '64

Selecting motors for air conditioning cooling towers. T. H. Hamilton. il Air Cond Heat & Ven 61:51-4 Je '64

Survey of basic stray losses in squirrel-cage induction motors. K. K. Schwarz. bibliog diag Inst E E Proc 111:1565-74 S '64

Theory and application of the capacitor-excited induction generator. B. C. Doxey. diags Engineer 216:893-7 N 29 '63

Two-in-one drive creeps smoothly. G. W. Heumann. diag Control Eng 11:93 Jl '64

Control

Secondary controllers and resistors for wound rotor motors. T. F. Bellinger. diags Tappi 47:sup 148A-55A O '64

Switching drive of induction motors. M. S. Erlicki and others. bibliog il diags Inst E E Proc 110:1441-50 Ag '63; Discussion. 111:577-9 Mr '64

Three-speed single-winding induction motors. diags Engineer 217:399 F 28 '64

Variable-speed variable-frequency a.c. squirrel-cage motors. Engineer 216:782 N 8 '63

Voltage and impedance conditions for the rapid plugging of induction motors including Saturistor control. W. Shepherd. bibliog diags Inst E E Proc 111:1713-28 O '64

Design

Computer procedure for single-phase induction motor calculation and design. K. J. Waldschmidt. bibliog flow chart diag IEEE Trans Power Apparatus & Systems p867-75 D '63

Design of single-phase induction motors using a digital computer. L. M. Buchanan and T. F. Winters. diags IEEE Trans Power Apparatus & Systems p891-6 D '63

Students' linear motor project. il Engineer 217:525 Mr 20 '64

Starting

Self-excited synchronous generator for isolated power supply. P. L. Alger and R. S. Barton. diags IEEE Trans Power Apparatus & Systems 83:1002-6 O '64

Tables, calculations, etc.

Digital computer analysis of the instantaneous reversal transient in a single-phase motor. D. W. Novotny and J. J. Grainger. bibliog il diags IEEE Trans Power Apparatus & Systems 83:380-6 Ap '64; Discussion. 83:542-3 My '64; Reply. 83:874 Ag '64

Effect of voltage waveshape on the performance of a three-phase induction motor. G. C. Jain. diags IEEE Trans Power Apparatus & Systems 83:561-6 Je '64; Discussion. 83:744-5 Jl '64

Equivalent circuits with transformer elements for eddy current rotor induction motors derived from field equations. W. H. Koch. bibliog diags IEEE Trans Power Apparatus & Systems 83:567-83 Je '64

Single-phase motor performance, a new approach. I. G. Reddy. bibliog diags IEEE Trans Power Apparatus & Systems 83:611-14 Je '64

Testing

Measurement of stray losses in squirrel-cage induction motors. B. M. Bird. bibliog Inst E E Proc 111:1697-705 O '64

Stabilized doubly fed synchronous-induction machine; test results and computer solutions. N. L. Schmitz and V. D. Albertson. bibliog diags IEEE Trans Power Apparatus & Systems 83:858-64 Ag '64

Windings

Pole-change motors using phase-mixing technique. J. F. Eastham and E. R. Laithwaite. bibliog diags Inst E E Proc 109 pt A:397-409 O '62; Discussion. 110:1479-82; 111:321-3 Ag '63, F '64

Rotor windings for induction motors with arc-shaped stators. E. R. Laithwaite. diags Inst E E Proc 111:315-21 F '64

Three-speed single-winding squirrel-cage induction motors. W. Fong and G. H. Rawcliffe. il diags Inst E E Proc 110:1649-55 S '63; Discussion. 111:1460-2 Ag '64

ELECTRIC motors, Railway

See also

Electric locomotives

Control

Control of motor voltage in a.c. traction; with table of tap changing systems in service by countries. E. A. K. Jarvis. bibliog diags Inst E E Proc 111:1305-23 Jl '64

Pre-set speed control for electric trains. il Engineer 218:390 S 4 '64

ELECTRIC motors, Reluctance. See Electric motors, Synchronous

ELECTRIC motors, Synchronous

Permanent-magnet synchronous motor. D. P. M. Cahill and B. Adkins. bibliog diags Inst E E Proc 109 pt A:483-91 D '62; Discussion. 110:2032 N '63

Synchronous motors. G. L. Oscarson. il diags Machine Design 36:13-19 Mr 19 '64

Theory and performance of polyphase reluctance machines. P. J. Lawrenson and L. A. Agu. bibliog il diags Inst E E Proc 111:1435-45 Ag '64

See also

Selsyn apparatus

Control

Variable frequency power source for synchronous motors. P. E. V. Shannon. diag R Sci Instr 35:236-7 F '64

Starting

Synchronous drives for grinding mills. M. Krebs. diags Rock Prod 66:105-6 N '63

Windings

Mutual inductances of synchronous machines with damper windings. V. A. Kinitsky. diag IEEE Trans Power Apparatus & Systems 83:997-1001 O '64

ELECTRIC network analyzers. See Electric distribution—Network analyzers

ELECTRIC networks. See Electric distribution

ELECTRIC organs in fishes

Bioelectric power sources. S. Barnes. il diags Machine Design 35:120-4 D 5 '63

ELECTRIC oscillations. See Oscillations, Electric

ELECTRIC outages. See Electric power— Interruptions

ELECTRIC plants

See also

Atomic power plants
Boiler plants
Diesel-electric sets
Electric generator sets
Electric substations
Electric utilities
Power plants
Steam plants

Interconnection

Application of digital computer techniques to the economic scheduling of marginal generating units for the Pennsylvania-New Jersey-Maryland interconnection. L. T. Anstine and others. flow diag IEEE Trans Power Apparatus & Systems 83:316-20 Ap '64

Automatic dispatch links two utilities. V. Converti. il map Elec World 161:24-6 Ap 13 '64

Benefits seen as Manitoba joins MAPP. map Elec World 161:17 Ja 20 '64

Big intertie plan faces crucial test. Elec World 162:21 Jl 6 '64

California-BPA link plan firm, or not? map Elec World 161:57-8 Je 29 '64

Carolina-Virginia companies form power pool. A. J. Skaale. map Elec World 162:24-6 Ag 17 '64

Computer application to load-resource analysis. E. N. Freeman and J. S. Clubb. diags IEEE Trans Power Apparatus & Systems 83:336-40 Ap '64

Congress balky on NW-SW intertie plan. il map Elec World 162:59-61 Jl 13 '64

Contest to build California; BPA interties turns into sweepstakes. Elec World 160:72-3 N 18 '63

Digital-computer method for the calculation of power flow in an a.c.-d.c. interconnected power system. T. Horigome and N. Ito. bibliog flow chart diags Inst E E Proc 111:1137-44 Je '64

Diversity swap to save $40 million; Ill.-Mo. pool sells 200 mw of winter surplus to AEP system. map Elec World 161:22 Ap 27 '64

Economical tie-line capacity for an interconnected system. C. Szendy. diags IEEE Trans Power Apparatus & Systems 83:721-6 Jl '64

High-voltage d-c test program of the Bonneville power administration. R. S. Gens and R. F. Stevens. bibliog il map diags IEEE Trans Power Apparatus & Systems p 1054-60; Discussion. 1060-1 D '63

ELECTRIC plants—Interconnection—*Continued*

Hydro-Quebec designs first 735-kv line for 1965 cut-in. diags Elec World 161:34-5 Mr 9 '64
Interconnections are raising economic unit size. W. D. Marsh. Elec World 160:76-8+ N 18 '63
Laws need not bar pooling, NPS unit finds. Elec World 161:20 Ap 13 '64
Los Angeles utility backs Northwest intertie. Elec World 161:17-18 Mr 2 '64
Mathematical models help automate Iowa power pool planning. C. E. Parks and H. E. Lokay. flow diag Power Eng 67:71-2 N '63
Michigan pool completes first year; 375-mw addition planned for 1967. W. J. Mosley and H. C. Reasoner. il map Elec World 161:66-8+ Je 29 '64
Middle Fork American River project progress report. il maps Water & Sewage Works 111:224-8 My '64
Operation and maintenance of British Columbia hydro and power authority mainland-Vancouver Island 132-kv submarine cable interconnection. G. Barclay and A. L. Verhiel. il diags IEEE Trans Power Apparatus & Systems p876-84 D '63
Organization formed to guide Northwest-Southwest interties. Elec World 162:47 O 5 '64
Plans jell for Pacific Coast 500-kv ac interties. il map diags Elec World 162:26-9 Ag 31 '64
Power pooling places new demands on power circuit breakers. R. E. Bednarek and others. Elec World 161:24-6, cover My 11 '64
Probability math shows benefits of pooling. J. H. Cronin. Elec World 162:66-8 Jl 13 '64
Ready operations center for Colorado River plants. C. A. Kemp and J. K. Cummings. il map Elec World 162:24-5+ Jl 6 '64
Regional preference fight settled. maps Elec World 162:41 Ag 24 '64
SCEC expands 500-kv transmission; adds $17-million to grid's cost. F. E. Sanford and others. maps diag Elec World 161:23-4 Ja 20; 41-3 F 10 '64 (to be cont)
Story of MAPP; giant common-sense power pool. K. S. Vig. map plan Power Eng 68:61-4 F '64
Telemetry, key to interconnected systems operation and control. T. W. Hissey. il Power Eng 68:T8-9 Mr '64
Ties link Pacific Southwest, Northwest. map Elec World 162:17 O 26 '64

ELECTRIC plants (central stations)

Duty and development of modern power station plant. F. H. S. Brown. maps diag Inst Mech Eng Proc 177:1133-46 '63
Greenbelt setting helps make this steam station a showplace. il Elec World 160:26 D 16 '63
Key West may get new power, desalting plant. Water Works Eng 116:891 N '63

See also

Atomic power plants
Boiler plants
Electric distribution
Electric transmission
Electric utilities
Hydroelectric plants
Steam plants

Accidents

Utility tells how explosion wrecked stack. Elec World 160:88+ D 2 '63

Auxiliaries

Geared steam turbine for auxiliary drives. il Engineer 217:625 Ap 3 '64
Power station motor selection key to savings, reliability. A. E. Beardmore. il Elec World 161:56-8+ Ja 13 '64

Combined steam-gas turbines

See Electric plants (central stations)—Gas turbine auxiliaries

Construction

Should we revamp our methods of building big generating stations? F. J. Voss and F. B. Saas. il Power Eng 68:57-61 O '64

Control equipment

Central station computer systems achieve worldwide application. il diag Power 108:74-5 O '64
Computer control of power systems. il diag Engineer 218:535-6 O 2 '64
Computers make progress at two utilities. il Elec World 160:72-3 O 21 '63
Computing power station performance. P. Westercamp. diags Control Eng 10:72-5 D '63
Dynamic testing of power plants. J. T. O'Brien. il diag I S A J 11:65-8 Mr '64
Report on IEEE workshop on computer applications in power plants. R. B. Squires. Combustion 35:20-4 Mr '64
Successful start, operation of 300-mw unit verifies computer control. il diag Elec World 161:64-7+ My 4 '64
Taking the giant step in power plant automation; Gulf States Utilities' Riverside station. H. S. Drewry and J. R. Howard. il diag I S A J 11:53-60 Jl '64
Three computers give automated control. il Elec World 162:65 O 5 '64
Utilities pass milestone in automated power plants. il Elec World 160:78 N 4 '63

Costs

Boosts generator output 81.5 mw for $17 per kw. H. B. Wood. il Elec World 162:70-1+ Jl 27 '64
Economics of power plant use of coal. C. F. Hardy and J. S. Laird. il Min Cong J 49:38-40 N '63
How can a thermal peaking plant be built for $60 a kilowatt? diag Power Eng 68:54 Je '64
San Antonio improves on its low-cost tradition. J. Hochull. il Power 108:64-6 Ja '64

See also

Electric distribution—Costs

Design

Advanced technology in systems design. flow diags il diags Power 108:69-92 O '64
1964 energy systems design survey; charts and tables. Power 108:sup 1-56 O '64 (reprints $1)
Planning and design of the Tracy generating station. H. J. Petersen and P. B. Spicer. il plan Eng J 47:23-7 F '64
Power plant building services design. D. H. Roethenbach. diags Air Cond Heat & Ven 61:91-4 S '64
Striking architecture for Jersey power station. il Engineering 197:361 Mr 6 '64
Two supercritical steam units to make station largest west of Mississippi; Pacific gas & electric co. D. V. Kelly and R. M. Laverty. il diag Elec World 162:54-7+ N 2 '64

Diesel engine auxiliaries

Eleven Diesel units provide 30,000 kw of peaking power. A. J. Swank. il Power Eng 68:38-40 F '64
What's wrong with my Diesel? E. G. Huber. diag Power Eng 68:42-3 Jl '64

Diesel engine stations

Economics of large Diesel engines for electrical power generation. J. A. Pope. Inst Mech Eng Proc 177 no 38:1075-83; Discussion. 1085-94 '63
1964 energy systems design survey; utility, industrial, commercial and overseas installations. Power 108:sup22-8 O '64

Equipment

BIL's, other characteristics fixed for VEPCo's 500-kv equipment. C. L. Rudasill and C. L. Wagner. il Elec World 161:98-101 Ap 20 '64
Boiler feed pumps for Tilbury-B power-station. il Engineer 217:831 My 8 '64
Boosts generator output 81.5 mw for $17 per kw. H. B. Wood. il Elec World 162:70-1+ Jl 27 '64
Butterfly valves for cooling water systems in large power-stations. il Engineer 217:759 Ap 24 '64
Cardinal plant in Ohio integrates economic and technical advances. P. Sporn and J. A. Tillinghast. il diags Elec World 161:40-6 Mr 9 '64
Combination boiler feed pumps drive economical for big unit. A. W. Rankin. diags Elec World 160:90-2 N 4 '63
Design of 100-mw steam turbine-generator unit for Ravenswood no. 3. J. M. Driscoll and others. bibliog il diags A S M E Trans ser A 86:209-18 Ap '64
Early planning helps cut steam station construction cost. M. C. Abrahm and H. J. Petersen. il Power Eng 68:34-6 Ja '64
Industrial television in the generating industry. R. E. Blythe. il Ind Electronics 1:707-9 N '63
Keystone cooling towers will be record breaking. il Power Eng 68:47-8 S '64
Largest generator transformer; 425 mva. il Engineering 198:327 S 11 '64
Modify flame rods to reduce maintenance. L. Snipes. il Elec World 162:69-70 N 2 '64
900,000-kw turbine-generator for Bull Run station of TVA. C. Schabtach. il A S M E Trans ser A 86:219-24 Ap '64
1964 energy systems design survey; charts and tables. Power 108:sup 1-56 O '64 (reprints $1)

ELECTRIC plants (central stations)—Equipment—*Continued*

Northfleet power-station. il Engineer 216:728-30 N 1 '63
Precipitator ordered for Ravenswood. diag Elec World 162:28 N 9 '64
Preformed pipe insulation to 27½-in. dia meets startup deadline. il Elec World 162:90-1 O 5 '64
Steam station design survey, 8th. L. M. Olmsted. il Elec World 162:113-28 O 19 '64 (reprints $1)
Storage battery applications in a power plant. G. G. Law. diag Power Eng 68:44-6 O '64

Extensions

Computer design of single-area generation expansions. C. D. Galloway and L. L. Garver. bibliog flow diag IEEE Trans Power Apparatus & Systems 83:305-11 Ap '64
Indiana and Michigan Electric adds 50 per cent to system capacity with new Tanners Creek unit. il Power Eng 68:59 Ag '64

Fuel

Barge owners see bright future in coal transport to utility power plants. il Elec World 162:20-2 Ag 17 '64
Bucket wheel automates Chalk Point coal handling. il Elec World 162:23-4 O 26 '64
Coal by pipeline to Wakefield power-station. il Engineer 217:959 My 29 '64
Coal trip automated; manpower cut. R. S. Pollock. il Elec World 162:22+ S 14 '64
Economics of power plant use of coal. C. F. Hardy and J. S. Laird. il Min Cong J 49:38-40 N '63
Flyash sampling; guide to better combustion. H. C. Skaggs, jr. il Elec World 162:119-20 S 21 '64
Here's a simplified way to evaluate nuclear power economics; computer study of nuclear and fossil-fuel plants. R. W. Kupp and D. J. Sengstaken. Power Eng 68:34-5 Jl '64
Is coal the fuel for MHD power? D. Bienstock and others. bibliog flow diag diags Mech Eng 85:38-41 O '63; Discussion. 86:155-7 Ap '64
Lid kept on oil imports, utilities hurting. il Elec World 161:31-2 Mr 9 '64
New bucket wheel to stock Chalk Point coal. il Elec World 161:66 Je 1 '64
Nuclear estimates set ceiling for coal. A. F. Tegen. Elec World 162:22 Jl 20 '64
$1 million of unit-train cars ordered by Pennsylvania Power & Light. Elec World 160:73 O 21 '63
Sharp fuel competition coming in 70's. Elec World 161:31-4 Je 8 '64
Tracy generating station fuel oil storage and handling facilities. D. L. Harris and others. il plans diags Eng J 47:32-7 F '64
Utility buys own coal train. il Elec World 161:58 Je 29 '64
Wheel-type scrapers, loaders optimize stockpiling. il Elec World 161:109-10 Je 1 '64
Will King Coal's market be atomized? Elec World 162:83-6 N 2 '64

Gas engine stations

1964 energy systems design survey; utility, industrial, commercial and overseas installations. Power 108:sup22-8 O '64

Gas turbine auxiliaries

Avon aircraft engine and its industrial power applications. A. H. Fletcher. diags Inst Mech Eng Proc 177 no 38:1068-74; Discussion. 1085-94 '63
Combined steam and gas turbine plants producing electricity and process steam simultaneously. R. Ecabert. diags Combustion 36:36-41 Ag '64
56-mw power block gas turbine costs $65/kw. il Elec World 160:126 D 2 '63
45-mw gas turbine in Sweden logs 100 starts with no trouble. il Power Eng 68:41 F '64
42-mw gas turbine completes second year in Chivasso peak load plant, Italy. il diag Power 108:72 Je '64
Four jet engines help Louisville meet air conditioning load. Elec World 162:140 S 21 '64
Gas turbine-steam turbine combination expands utility system economically. J. O. Stephens and C. J. Baldwin. il diags Elec World 162:58-61 Ag 10 '64
Gas-turbine-supercharged cycle offers steam generator savings. W. P. Gorzegno and R. J. Zoschak. diags Elec World 162:54-7 O 5 '64
Gas turbines pay off on peaks. V. C. Summer. il Elec World 161:64-5+ Je 29 '64
Gas turbines re-power old generators and postpone new unit one year. T. W. Smith. il Power Eng 68:43 Ap '64
Holyoke unveils ten-mw gas-jet peaking power installation. Elec World 162:72 N 2 '64
Jet-gas turbine package plant developed. il Elec World 162:38 O 12 '64
121-mw peaking unit uses light turbojets. il Elec World 161:24 Ja 6 '64
Power block for bulk peaking requirements. H. A. Carlson. il diag Elec World 162:73-4 Jl 27 '64
37/42 mw gas turbine for power generation. A. Congiu. Combustion 35:34 Mr '64
Turbojet engines add power to Louisville plant during peak summer months. il IEEE Trans Power Apparatus & Systems 83:sup3A O '64
Worthington offers 10 to 30-mw jet power plants. il Elec World 161:36 Ja 6 '64
Zero ambient boosts gas turbine's capability 50 per cent, soaks up waste heat. R. W. Wade and others. diags Elec World 161:24-5 Je 8 '64

Interconnection

See Electric plants—Interconnection

Lighting

Lighting a load dispatch room; installation at Illinois power co.; lighting data sheet. W. Babcock. il plan Illum Eng 58:729-30 D '63
Vertical lighting from an indirect cove at Burrard thermal generating station. J. F. Hills. il diag Illum Eng 58:715-17 D '63

Load

Analysis of power system's power-density spectra. J. L. Cooke. bibliog IEEE Trans Power Apparatus & Systems p34-41 Ja '64
Computer application to load-resource analysis. E. N. Freeman and J. S. Clubb. diags IEEE Trans Power Apparatus & Systems 83:336-40 Ap '64
Digital load flow program for 1,000-bus systems. J. H. Cronin and M. B. Newman. flow diag IEEE Trans Power Apparatus & Systems 83:718-20 Jl '64
Distribution planning and all-electric load building. A. D. Bertolett and W. J. Cloues. bibliog diags IEEE Trans Power Apparatus & Systems p801-9; Discussion. 809-16; Reply. 816-18 D '63
Economical tie-line capacity for an interconnected system. C. Szendy. diags IEEE Trans Power Apparatus & Systems 83:721-6 Jl '64
Numerical techniques in solution of power-system load-flow problems. M. A. Laughton and M. W. H. Davies. bibliog flow diag diags Inst E E Proc 111:1575-88 S '64
Power system reliability. D. P. Gaver and others. diag IEEE Trans Power Apparatus & Systems 83:727-37 Jl '64; Discussion. 83:865-7; Reply. 867-8 Ag '64
Reactive sources, a method of evaluating their effectiveness. W. A. Klein and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:714-18; Discussion. 760-1 Jl '64
Review of some basic characteristics of probability methods as related to power system problems. C. W. Watchorn. IEEE Trans Power Apparatus & Systems 83:737-43 Jl '64; Discussion. 83:868-72; Reply. 872-3 Ag '64

Load dispatching

Accuracy of loss formula coefficients on the TVA power system. T. R. Walker and W. H. Hutchins. bibliog flow chart map diags IEEE Trans Power Apparatus & Systems p858-66 D '63
All-digital utility computer system. Westinghouse Eng 24:56 Mr '64
Arizona public service co's automatic digital dispatch and processing system in operation. il Elec World 160:128-9 D 2 '63
ADDAPS; Automatic digital dispatch and processing system. H. W. Lydick and J. F. Sutherland. il map diag Westinghouse Eng 24:66-71 My '64
Automatic dispatch links two utilities. V. Converti. il map Elec World 161:24-6 Ap 13 '64
Computer directs analog control system. K. K. Dols and others. il Elec World 161:92-3+ Je 15 '64
Dynamic testing of power plants. J. T. O'Brien. il diag I S A J 11:65-8 Mr '64
Economic power generation using linear programming. S. Fanshel and E. S. Lynes. bibliog diags IEEE Trans Power Apparatus & Systems 83:347-56 Ap '64
Microwave and 138-kv circuits share a tower. R. G. Meyerand. Power Eng 68:46 S '64

ELECTRIC plants (central stations)—Load dispatching—*Continued*

Plan digital dispatch of 12 units. W. B. Simonds. map Elec World 161:56-7 Ja 27 '64

Ready operations center for Colorado River plants. C. A. Kemp and J. K. Cummings. il map Elec World 162:24-5+ Jl 6 '64

Simulator pre-checks 120-kv switching orders. P. K. Peden. il diag Elec World 161:101 Je 1 '64

Slide rule allocates optimum loads. J. W. Young. il Elec World 161:112 Je 15 '64

Location

Evaluation of resistivity tests for design of station grounds in nonuniform soil. J. Endrenyi. bibliog diags IEEE Trans Power Apparatus & Systems p966-70 D '63

See also

Electric plants (central stations)—Mine-mouth plants

Maintenance and repair

Portable tool rooms cut unit downtime. il Elec World 162:92 O 5 '64

Management

Struggle against losses in the field of energy economics; sectional meeting of the World power conference. Engineering 198:439 O 2 '64

See also

Electric utilities—Management

Mine-mouth plants

Mine-mouth Kincaid plant will have at least 1120-mw capacity. il map Power Eng 68:57 F '64

Mine-mouth power station, Commonwealth Edison co., Chicago. il Mech Eng 86:61 Je '64

Navajo mine; Utah construction & mining co. il maps plan diag Coal Age 68:56-64 N '63

Portal plant will consume Illinois coal. il map Coal Age 69:28 F '64

Peak load

Eleven Diesel units provide 30,000 kw of peaking power. A. J. Swank. il Power Eng 68:38-40 F '64

Four jet engines help Louisville meet air conditioning load. Elec World 162:140 S 21 '64

Gas turbines pay off on peaks. V. C. Summer. il Elec World 161:64-5+ Je 29 '64

How can a thermal peaking plant be built for $60 a kilowatt? diag Power Eng 68:54 Je '64

How to evaluate pumped storage for peaking generation. J. Pett. diags Power Eng 68:28-32 Jl '64

How to make total use of steam plants for economic peaking power. J. C. Spahr and D. R. Cobb. il Power Eng 67:55-7 D '63

121-mw peaking unit uses light turbojets. il Elec World 161:24 Ja 6 '64

Power block for bulk peaking requirements. H. A. Carlson. il diag Elec World 162:73-4 Jl 27 '64

Pumped-storage plants are solving peaking problem. il Power Eng 68:26-7 Jl '64

7.8 per cent climb in summer peak loads. Elec World 160:46 O 21 '63

US economy + hot weather = new summer peaks. Elec World 162:18-19 O 26 '64

Winter peaks generally up. Elec World 161:118 Mr 23 '64

Safety measures

See also

Lightning arresters

Statistics

Electrical World annual statistical report: capacity additions; U.S. and Canada: tables. Elec World 161:91-102 F 24 '64

Electrical World annual statistical report. 60th; operating statistics. Elec World 161:82-3 F 24 '64

Supervisory control

Automatic dispatch links two utilities. V. Converti. il map Elec World 161:24-6 Ap 13 '64

Boiler-turbine-generator simulator helps train operators. A. J. Schager. il Power Eng 68:40 My '64

Check clock frequencies remotely. L. A. Watson. il diags Elec World 161:98 Je 1 '64

Computer-directed control set for '66. il Elec World 162:62 N 2 '64

Computer keeps tabs on new EDF plant near Paris. P. Liebray and B. Copin. il diags Elec World 162:46-9 Ag 24 '64

Computer to cope with catastrophe; automatic control of the National electricity grid. il diag Engineering 198:450-1 O 9 '64

Con Edison extends welcome at energy control center. il Elec World 160:34-5 D 30 '63

Dial a document; utilities company transmits safety material over telephone. il Safety Maint 128:29-31 N '64

New supervisory system cuts cooling tower fan control cost. R. J. Davis. il Elec World 160:18-19 N 25 '63

Operation of a radio alarm and control system extended to 100 miles. C. L. Gillis. il diag Elec World 161:20-1+, cover Mr 16 '64

Rugeley generating station. il Ind Electronics 1:788 D '63

Telemetry for the power field. il map diags Power Eng 68:T1-36 Mr '64

Underground stations

Tumut 2 underground power plant. I. L. Pinkerton and E. J. Gibson. bibliog il maps plans diags Am Soc C E Proc 90 [PO 1 no 3835]:33-58 Mr '64; Discussion. 90 [PO 3 no 4063]:135-46 O '64

Australia

Here's Australia; capsule sketch of power supply. I. Dawes. il Power Eng 68:52-3 Jl '64

Tumut 2 underground power plant. I. L. Pinkerton and E. J. Gibson. bibliog il maps plans diags Am Soc C E Proc 90 [PO 1 no 3835]:33-58 Mr '64; Discussion. 90 [PO 3 no 4063]:135-46 O '64

Canada

Wabamun coal handling facilities. Z. Kolisnyk. il diag Eng J 46:46-50 O '63

England

Northfleet power-station. il Engineer 216:728-30 N 1 '63

Rugeley generating station. il Ind Electronics 1:788 D '63

France

Computer keeps tabs on new EDF plant near Paris. P. Liebray and B. Copin. il diags Elec World 162:46-9 Ag 24 '64

Computing power station performance. P. Westercamp. diags Control Eng 10:72-5 D '63

Great Britain

Computer to cope with catastrophe; automatic control of the National electricity grid. il diag Engineering 198:450-1 O 9 '64

New developments in electrical power plants; illustrations with text. Engineer 217:86-7 Ja 10 '64

Ireland

Peat power in Ireland. il Mech Eng 85:61 D '63

North Carolina

10,000-mw complex for N.C. Elec World 162:22 O 12 '64

Okinawa

How U.S. power engineers are building a modern power plant on Okinawa. B. McCaw. il Power Eng 68:60-1 S '64

Quebec (province)

Planning and design of the Tracy generating station. H. J. Petersen and P. B. Spicer. il plan Eng J 47:23-7 F '64

Tracy generating station steel superstructure. R. H. Carrier and others. diags Eng J 47:28-31 F '64

Russia

USSR delays power plant construction. Elec World 161:20 F 3 '64

ELECTRIC plants, Cooperative

Cardinal plant in Ohio integrates economic and technical advances. P. Sporn and J. A. Tillinghast. il diags Elec World 161:40-6 Mr 9 '64

Co-op places complete reliance on solid-state microwave. O. E. Carnes. il map Elec World 160:40-1 D 30 '63

Co-ops fight FPC regulation. Elec World 162:18 Ag 3 '64

Electrical World annual statistical report, 60th; REA-financed systems. Elec World 161:87 F 24 '64

FPC weighs proposal to sell rural co-op. Elec World 162:99 O 19 '64

Ohio Power and co-ops join to build huge plant. il Elec World 160:79 N 4 '63

Rural co-ops plead; FPC go home. Elec World 160:14 D 23 '63

See also

National rural electric cooperative association

ELECTRIC potential. See Potential, Electric

ELECTRIC power

Bright outlook foreseen for electric power markets. Chem Eng 71:90 Ap 27 '64

Constructing electrical systems; power sources. il diags Elec Constr & Maint 63:192+ My '64

Energy systems take on major role in booming commercial building field. R. H. Marks. il diags Power 108:143-50 Ja '64 (reprints 25c)

New budget trims some power items. Elec World 161:49 Ja 27 '64

See also

Electric batteries
Electric currents
Electric distribution
Electric plants (central stations)
Electric transmission
Hydroelectric power
Magnetohydrodynamics
Power factor
Tidal power

also subdivision Power and Power supply under special subjects, e.g.

Cement plants
Chemical plants
Coal mines and mining
Electric welding
Electric welding, Arc
Metallurgical plants
Packing houses
Paper and pulp mills
Radio apparatus
Radio telephone
Steel works

International aspects

Benefits seen as Manitoba joins MAPP. map Elec World 161:17 Ja 20 '64

Canadian hydro for New York city; Grand Falls project would cost $1 billion. maps Eng N 172:13-14 Ja 16 '64

East Europe grid to ease shortages. map Elec World 161:52-3 Ja 13 '64

Scene is set for power exports to U.S. map Can Chem Process 48:42-4+ Mr '64

US, Canada breaking power barriers. il map Elec World 161:23-5 F 17 '64

Interruptions

Computer analysis of outage data. J. P. Lynskey and R. J. Sloane. IEEE Trans Power Apparatus & Systems 83:386-97 Ap '64; Discussion. 83:543-6; Reply. 546-7 My '64

Emergency power supplies. M. F. Brown. diags Control Eng 11:65-7 Ja '64

Evaluate factors affecting electric system response to power outages. A. H. Knable. Power 108:74-6 Je '64

Probability method for transmission and distribution outage calculations. Z. G. Todd. diags IEEE Trans Power Apparatus & Systems 83:695-701; Discussion. 756-7 Jl '64

Tempter in Eden is a power-age pest; barriers for repelling reptiles from substations. P. H. Shoun. il Elec World 161:26-7 Je 22 '64

West London power failure interim statement. il Engineer 217:830 My 8 '64

Meters

See Electric meters

Rates

See Electric rates

ELECTRIC precipitators

Big electrostatic precipitator program started at Public service co. of Colorado. C. Waselkow. il Power Eng 67:42-3 D '63

Bureau of mines high-temperature electrostatic precipitator. C. C. Shale. il diag Combustion 35:42-4 Ap '64

Electrostatic precipitator primer. J. Katz. bibliog diags Iron & Steel Eng 41:124-30 My '64

New precipitator design can handle any gas flow. V. W. Copcutt. il diags Combustion 35:46-8 D '63

Performance and application of electronic air cleaners in occupied spaces. D. J. Sutton and others. bibliog ASHRAE J 6:55-62 Je '64

Precipitator ordered for Ravenswood. diag Elec World 162:28 N 9 '64

ELECTRIC properties

Coexistence of magnetic and electric ordering in crystals. G. A. Smolenskii and V. A. Bokov. bibliog il J Ap Phys 35:915-18 pt 2 Mr '64

Effect of orientation on the electrical properties of epitaxial gallium arsenide. F. V. Williams. bibliog Electrochem Soc J 111:886-8 Jl '64

Effects of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64

Electrical and thermal properties of electron-bombarded silver selenide powders. A. S. Epstein. J Ap Phys 34:3641-2 D '63

Electrical characteristics of germanium oxidic films. R. D. Wales. Electrochem Soc J 111:478-80 Ap '64

Electrical properties of heavily doped silicon. P. W. Chapman and others. bibliog J Ap Phys 34:3291-5 N '63

Electrical properties of sea ice at 0.1 to 30 mc/s. F. L. Wentworth and M. Cohn. bibliog il diags J Res Nat Bur Stand 68D:681-91 Je '64

Electrical properties of selected rare earth compounds and alloys. F. J. Reid and others. bibliog Electrochem Soc J 111:943-50 Ag '64

Electrical properties of the $MoTe_2$-WTe_2 and $MoSe_2$-WSe_2 systems. E. Revolinsky and D. Beerntsen. bibliog J Ap Phys 35:2086-9 Jl '64

Electrical properties of thin polymer films. H. T. Mann; R. W. Christy. bibliog J Ap Phys 35:2173-84 Jl '64

Electroluminescent gallium arsenide diodes with negative resistance. K. Weiser and R. S. Levitt. bibliog il diag J Ap Phys 35:2431-8 Ag '64

Insulator boundary layers in magnetohydrodynamic channels. F. J. Hale and J. L. Kerrebrock. bibliog AIAA J 2:461-9 Mr '64

Optical and electrical properties of selenium-tellurium alloys. H. P. D. Lanyon. bibliog J Ap Phys 35:1516-23 My '64

Optical and electrical properties of single-crystal GaP vapor-grown on GaAs substrate. H. Flicker and others. bibliog diag J Ap Phys 35:2959-62 O '64

Particle orbit theory for an ionized gas. P. Mallozzi. diag Am J Phys 32:556-8 Jl '64

Photothresholds in Mg_2Ge. C. A. Mead. bibliog J Ap Phys 35:2460-2 Ag '64

Preparation and electrical properties of bismuth trisulfide. A. C. Glatz and V. F. Meikleham. bibliog il Electrochem Soc J 110:1231-4 D '63

Preparation and properties of thin-film hard superconductors. J. Edgecumbe and others. bibliog diags J Ap Phys 35:2198-202 Jl '64

Properties of rare-earth nitrides. N. Sclar. bibliog J Ap Phys 35:1534-8 My '64

Solid solutions in antiferroelectric region of the system $PbHfO_3$-$PbTiO_3$-$PbSnO_3$-$PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

Structural defects in GaP crystals and their electrical and optical effects. M. Gershenzon and R. M. Mikulyak. bibliog il J Ap Phys 35:2132-41 Jl '64

Synthesis and electronic properties of polypyridylacetylenes. Y. Okamoto and D. Alia. bibliog Chem & Ind p 1311-12 Jl 18 '64

Thermal and electrical properties of heavily doped Ge-Si alloys up to 1300°K. J. P. Dismukes and others. bibliog diag J Ap Phys 35:2899-907 O '64

See also

Ceramic materials—Electric properties
Electric resistance
Plastics—Electric properties

ELECTRIC propulsion for rockets. See Rocket propulsion

ELECTRIC prospecting. See Prospecting—Electric methods

ELECTRIC protective apparatus

Constructing electrical systems; overcurrent protection. il diags Elec Constr & Maint 63:106-16 My '64

Digital computer protective device co-ordination program. R. E. Albrecht and others. diags IEEE Trans Power Apparatus & Systems 83:402-10 Ap '64 (to be cont)

Excess demand warning system for steelmaking plant. Ind Electronics 1:782 D '63

Focal-point protection system for power reactors. D. D. Bowen. diags Inst E E Proc 110:2213-20 D '63; Discussion. 111:1593-6 S '64

Ground fault detection ensures plant power protection. D. T. Blizzard. diags Plant Eng 18:120-2 Ag '64

New differential stand-by protection. A. B. Sturton. diag Elec Eng 82:745-6 D '63

New super-strength insulator. A. D. Lantz. diag Elec World 161:70 Ja 13 '64

Protection switching for the L3 carrier system. G. P. Marki. diags Bell Lab Rec 41:381-7 N '63

Selective load shedding system. G. D. Rockefeller. il diags Westinghouse Eng 23:187-9 N '63

ELECTRIC protective apparatus—*Continued*
Two devices add to feeder continuity. C. Gilker. il diag Elec World 161:103 F 24 '64
See also
Electric circuit breakers
Electric distribution—Grounding
Electric fuses
Electric switchgear
Interlocking devices
Lightning arresters
Lightning protection
Reactors
Relays
Spark gap
also subdivision Protection under special subjects, e.g.
Electric equipment
Electric lines
Electric motors
Electric substations
Electric transformers

ELECTRIC pumping machinery. See Pumping machinery, Electric

ELECTRIC railroads
See also
Electric locomotives

Equipment and supplies

Overhead equipment inspection train. il Engineer 217:756 Ap 24 '64

Overhead construction

See also
Pantograph, Current collecting

Trains

Pre-set speed control for electric trains. il Engineer 218:390 S 4 '64

Switzerland

Swiss electric locomotives. il Engineer 218:389 S 4 '64

ELECTRIC rates
After 23 hearings, a rate increase. Elec World 162:111-14 Jl 13 '64
Do utilities underestimate kwhr usage? Elec World 161:44+ F 10 '64
Economic appraisal of geothermal power. A. Kaufman. il Min Eng 16:62-6 S '64
Electric heating survey; largest percentage of companies have 1.5c heating rate. J. D. Damon. Elec World 160:90-4 N 18 '63
Electricity costs and prices; abstracts of two papers. P. A. Lingard and G. England; H. Clay. Engineer 218:13-14 Jl 3 '64
FPC reports on all-electric home bills in major U.S. cities. Gas 39:109 D '63
New street lighting rate at Penn Power & Light gets results. Elec World 162:20-1 S 28 '64
Should we generate our own power; question and answers. il Power 108:160-1 F '64
Way to measure promotional rate effects. Elec World 161:119-22 F 24 '64
What's riding on Shrewsbury rate case? Elec World 161:53-4 My 4 '64

ELECTRIC reactors. See Reactors

ELECTRIC rectifiers
AEI brushless ac generators. il diag Engineering 197:482-3 Ap 3 '64
Applications of a gate controlled switch in d.c. power circuits. M. J. Wright. il diags Electronic Eng 36:16-20, 84-7 Ja-F '64
Bigger scr drives. B. Berman. il diags Product Eng 35:59-61 My 11 '64
Brushless excitation system for large ac generators. D. B. Hoover. il diags Westinghouse Eng 24:141-5 S '64
Choose the correct rectifier stack. E. Rodd. il Power Eng 67:64-5 D '63
Commutatorless variable speed motor for a.c. supplies. C. S. Lamb. diag Engineer 216:954-5 D 6 '63
Control of d.c. motors by thyristors. J. Forbes-Simcock. il diags Ind Electronics 2:205-8 My '64
D.c. motor control by pulsed silicon controlled rectifiers. diags Engineer 216:1074 D 27 '63
Dc power for tungsten plant. il diag Elec Constr & Maint 63:94-5 Mr '64
Electric motors in which commutation is by switching devices such as controlled silicon rectifiers. A. Tustin. diags Inst E E Proc 111:151-2 Ja '64
Gate-cathode connection for controlled rectifier stacks. R. A. Zakarevicius. diags IEEE Proc 52:1253-4 O '64
History of a.c.-to-d.c. conversion. J. H. P. de Villiers. il Inst E E Proc 111:1145-7 Je '64
How to use silicon controlled rectifiers in series or parallel. A. R. Mulica. il diags Control Eng 11:95-9 My '64
Large silicon rectifiers serve d-c industrial load economically. J. Agosta. il diags Power Eng 68:44-5 F '64
Light-activated switch expands uses of silicon-controlled rectifiers. E. K. Howell. il diags Electronics 37:53-61 My 4 '64
Magnetic-scr amplifier with lock-out controls for synchronizing and protection. R. E. Morgan and R. G. Hoft. bibliog diags IEEE Trans Com & Electronics 83:371-3 Jl '64
Mercury-arc valves for high-voltage d.c. transmission. U. Lamm. il diags Inst E E Proc 111:1747-53 O '64
New ignition system for cars. R. Van Houten and J. C. Schweitzer. il diag Electronics 37:68-72 O 5 '64
Now you can replace mercury arc tubes with equivalent silicon units. il diag Power 108:71-3 Mr '64
Photorectifiers with agar gel contacts. K. E. Plain and R. H. Bube. Electrochem Soc J 111:751-2 Je '64
Power control with silicon controlled rectifiers. J. C. Hey. il diags Elec Constr & Maint 63:94-7 F '64
Power rectifier facts for the electrofinisher. Z. Reibman and T. Mendel. Metal Finishing 62:56-8 Jl '64
Pulse control of d-c and a-c motors by silicon-controlled rectifiers. K. Heumann. bibliog il diags IEEE Trans Com & Electronics 83:390-9 Jl '64
Rating of silicon-controlled rectifiers when switching into high currents. N. Mapham. bibliog diags IEEE Trans Com & Electronics 83:515-19 S '64
Rectifier equipment for plasma research. Engineer 216:925 N 29 '63
Rectifiers; ignitron-to-silicon conversion. J. A. Viola. il diags Coal Age 69:88-90 Ja '64
Semiconductors; industrial giants in small packages. K. H. Sueker. diags Plant Eng 18:106-10 Jl '64
Silicon avalanche rectifiers. G. Duddridge. diags Electronic Eng 36:247-9 Ap '64
Scr basics for experimenters. C. Henry. il diags Radio-Electronics 35:26-8 Je '64
Scr circuit cuts cost. L. W. Staalberg. diags Electronic Ind 23:85 Ag '64
Silicon controlled rectifier circuit for the control of high wattage projection lamps. J. R. Wilson and F. Oppenheimer. diag R Sci Instr 35:1013-14 Ag '64
Scr control in paper mills. H. Dooley. il diags Electronics 37:42-7 Je 29 '64
Silicon controlled rectifier drives for machine tool application. C. E. Graf. diags Machine Design 36:154+ Je 4 '64; Excerpts. Automation 11:120-1 Jl '64
Scr phase control of inductive loads. F. W. Gutzwiller. diags Electro-Tech 73:119-23 Ap '64
Scr pulse power supply for resistance welding. D. L. Watrous. diags IEEE Trans Com & Electronics 83:362-6 Jl '64
Silicon controlled rectifier triggers ignitron. L. E. Frenzel, jr. diag Electronics 37:62-3 Je 1 '64
Scr's control tapped autotransformer. E. Chiesa and P. Toso. diags Control Eng 11:84-6 Ja '64
Silicon controlled rectifiers for 8A working. il Engineering 197:688 My 15 '64
Silicon diodes for frame grounding; U.S. Bureau of mines requirements. L. H. Harrison. Min Cong J 50:53-4 Mr '64
Silicon rectifier for traction substation. il Engineer 217:794 My 1 '64
Silicon rectifier gives plant more reliable d-c power in less space. E. Vettel. il Power Eng 68:44-5 Ja '64
Silicon rectifiers; their selection, application, installation and maintenance. V. E. Oswald and J. A. Viola. il Iron & Steel Eng 41:78-81; Discussion. 81-2 Ap '64
Simple method for measuring ripples in the output of industrial rectifiers. V. P. Walker. diag Plating 51:554-5 Je '64
Static adjustable frequency drives. K. A. Hultstrand. il diags Control Eng 11:57-63 Ap '64
Static relaying devices using magnetic cores and silicon-controlled rectifiers. G. R. Slemon and S. D. T. Robertson. bibliog diags IEEE Trans Com & Electronics 83:553-7 S '64
Thyristor variable-speed drives for machine tools. il Engineer 218:262-4 Ag 14 '64
Time ratio control with combined scr and sr commutation. R. E. Morgan. bibliog diags IEEE Trans Com & Electronics 83:366-7 Jl '64

ELECTRIC rectifiers—*Continued*

Transient suppression with controlled-avalanche rectifiers. diags Electro-Tech 72:124+ N '63

Voltage and current ripple in rectifier systems. J. Schaefer. diags IEEE Trans Applications & Ind p339-44; Discussion. 344 N '63

Voltage controls dual-pulse scr trigger. T. Wilson. diag Electronics 37:62-3 N 2 '64

Welding rectifier unit. il Engineer 217:707 Ap 17 '64

Widening world of the scr. J. C. Hey. il diags Electronics 37:78-85 S 21 '64

See also

Electric inverters

Radio rectifiers

Thyratron

Failure

Thermal stresses and fatigue in silicon power rectifiers. N. Klein. bibliog diags IEEE Trans Com & Electronics p208-16; Discussion. 216-19 Mr '64

Performance

Factors controlling the performance of cascade rectifier circuits. R. E. Jones and R. T. Waters. bibliog diags Inst E E Proc 111:1059-67 My '64

Protection

Protecting scr's and silicon rectifiers. E. K. Howell. bibliog il diags Control Eng 10:63-7 D '63

Protecting silicon rectifiers from transient overloads. K. Sueker. diags Electro-Tech 72:105-7 N '63

Protection of rectifiers with circuit breakers. L. W. Reinken. il diags Electro-Tech 73:89-95 F '64

Testing

Scr tester aids in standardization. il Electronics 37:111 Jl 27 '64

ELECTRIC relays. See Relays

ELECTRIC research

Closed-cycle M.P.D. generation experiment; open-cycle M.P.D. experiment. il Engineer 217:646-8 Ap 10 '64

Distribution systems ripe for r&d. Elec World 161:87 My 18 '64

800 kv transmission line research at Leatherhead. il Engineer 217:949-50 My 29 '64

Electrical research association. il Engineer 217:870 My 15 '64

Experimenting with high voltage ac lines. il Engineering 197:781-2 Je 5 '64

Southeastern electric exchange told r&d needs financing. Elec World 161:21 Ap 13 '64

Still trying to nail down r&d program. il Elec World 162:53-4 Ag 10 '64

Utility role in r&d; special report. Elec World 161:129-48 Mr 23 '64

See also

Electric laboratories

ELECTRIC resistance

Alternating current resistance of nonideal superconductors. J. L. Zar. bibliog diags J Ap Phys 35:1610-15 My '64

Anomalous resistivity of niobium stannide. D. W. Woodard and G. D. Cody. bibliog diag RCA R 25:393-404 S '64

Automated contact resistance probe. M. Antler and others. bibliog il diags R Sci Instr 34:1317-22 D '63

Comparisons of materials; electrical resistivity; tables. Materials in Design Eng 60:18 Mid-O '64

Components of the two-band resistivity tensor in semiconductors. R. G. Moore and J. A. Stamper. bibliog J Ap Phys 35:1545-9 My '64

Correlation of electrical measurements with chemical analysis in zinc- and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64

Distribution of a-c resistance in oxide films on aluminum. M. A. Heine and M. J. Pryor. bibliog il Electrochem Soc J 110:1205-14 D '63

Effect of thermal aging on the electrical resistivity of thin alloy films. E. R. Dean. bibliog J Ap Phys 35:2930-3 O '64

Effect of water vapor on the electrical resistance of anthracene. K. Kawasaki and K. Kanou. J Colloid Sci 18:886-8 D '64

Electrical analog of multiresistivity systems using single resistivity media and amplifier circuits. W. E. Haupin. diags R Sci Instr 35:1050-1 Ag '64

Electrical resistances of wires of low temperature coefficient of resistance useful in calorimetry (10°-380°K). G. T. Furukawa and others. R Sci Instr 35:113-14 Ja '64

Electrical resistivity measurements in detonating Composition B and Pentolite. R. L. Jameson and others. bibliog diags J Ap Phys 35:714-20 Mr '64

Electrical resistivity of metals due to plastic deformation. P. Feltham. bibliog diags Metallurgia 70:55-8 Ag '64

Electrical resistivity of pyrolytic beta MnO_2. J. S. Wiley and H. T. Knight. bibliog Electrochem Soc J 111:656-60 Je '64

Fet's synthesize negative resistance. C. E. Holland, jr. diags Electro-Tech 73:124-6 Ap '64

Frequency dependence of the resistivity of a fully ionized plasma. D. A. deWolf. IEEE Proc 52:197 F '64

Further properties and a suggested model for niobium oxide negative resistance. W. R. Beam and A. L. Armstrong. diag IEEE Proc 52:300-1 Mr '64

High resistance and derivative polarography. W. B. Schaap and P. S. McKinney. bibliog diag Anal Chem 36:29-35 Ja '64

Improved power stabilization in varying resistances. O. S. Wecksler. diags J Sci Instr 41:105-6 F '64

Improved technique for measuring skin resistance. L. E. H. Lindahl and others. diag Electronic Eng 36:245-6 Ap '64

Impurity conduction and negative resistance in thin oxide films. T. W. Hickmott. bibliog J Ap Phys 35:2118-22 Jl '64

Induction measurement of semiconductor and thin-film resistivity. T. O. Poehler and W. Liben. IEEE Proc 52:731-2 Je '64

Input resistance of transistor feedback amplifiers. E. de Boer. diags Electronic Eng 36:702-6 O '64

Light emitting characteristics of a GaAs diode having negative resistance. T. Yamamoto. diag IEEE Proc 52:409 Ap '64

Low-temperature-coefficient-of-resistance alloys. C. D. Starr and others. Electro-Tech 72:12 N '63

Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64

Magnetoresistance; better than Hall-effect multipliers. S. F. Sun. il diags Electronics 37:66-70 Ap 6 '64

Magnetoresistance effect in Advance and Evanohm wires at low temperatures in fields up to 50 kG. E. Lerner and J. G. Daunt. R Sci Instr 35:1069-70 Ag '64

Magnetoresistance of InSb at a microwave frequency. S. F. Sun. diags J Ap Phys 35:211-14 Ja '64

Magnetoresistance of the Corbino disk at microwave frequencies. C. B. Burckhardt and others. bibliog diags IEEE Proc 52:277-83 Mr '64

Measurement of the resistivity of epitaxial vapor grown films of silicon by an infrared technique. T. G. R. Rawlins. bibliog diags Electrochem Soc J 111:810-14 Jl '64

Measurement of winding temperatures by change of resistance. O. J. Tassicker. diags Inst E E Proc 111:1454-60 Ag '64

Metastable resistance states in the intermediate region of superconductors. B. Lalevic. bibliog J Ap Phys 35:1785-9 Je '64

Method for Hall mobility and resistivity measurements on thin layers. J. Lange. diags J Ap Phys 35:2659-64 S '64

More about negative-resistance circuits. H. J. Reich. diags IEEE Proc 52:1058-9 S '64

Negative resistance in Al-Al_2O_3-Se-Au sandwich cells. T. Mukerjee and J. Allan, 3d. diags J Ap Phys 35:2270-1 Jl '64

Negative resistance in copper-doped ferric oxide ceramic. S. F. Lo. il IEEE Proc 52:609-10 My '64

Negative resistance with composited thin-film active devices. R. Zuleeg and H. G. Dill. il diag IEEE Proc 52:195 F '64

Negative transfer resistance effect in *p*-type silicon. E. M. Suden and others. diag IEEE Proc 52:1051 S '64

New technique for the recognition of resistance in the presence of reactance. E. R. Wigan. diags Electronic Eng 36:238-9 Ap '64

Parallel-R calculator. M. S. Lieberman. il diag Radio-Electronics 35:50-1 Je '64

Paramagnetic susceptibility, electrical resistivity, and lattice parameters of nickel-rich nickel-tantalum alloys. H. Chessin and others. bibliog J Ap Phys 35:2419-23 Ag '64

ELECTRIC resistance—*Continued*

Parametric up-conversion by the use of nonlinear resistance and capacitance. D. P. Howson and A. Szerlip. bibliog diags Radio & Electronic Eng 27:425-34; Discussion. 439-41 Je '64

Piezoresistivity of manganin. D. Bernstein and D. D. Keough. bibliog il diag J Ap Phys 35:1471-4 My '64

Potential distribution and negative resistance in thin oxide films. T. W. Hickmott. bibliog diags J Ap Phys 35:2679-89 S '64

Precision over-under four-point probe with a small probe spacing. P. A. Schumann, jr. and L. S. Sheiner. bibliog il diags R Sci Instr 35:959-62 Ag '64

Preparation of semi-insulating gallium arsenide by chromium doping. G. R. Cronin and R. W. Haisty. bibliog Electrochem Soc J 111:874-7 Jl '64

Resistance between adjacent points of Liebman mesh. R. E. Aitchison. diags Am J Phys 32:566 Jl '64

Resistance compensation in polarography; application to high-resistance nonaqueous systems and to high current-density aqueous systems. W. B. Schaap and P. S. McKinney. bibliog diag Anal Chem 36:1251-8 Je '64

Resistance minimum in Evanohm wire. R. C. Pandorf and others. R Sci Instr 35:1070 Ag '64

Resistance of an infinite slab with a disk electrode. G. F. Foxhall and J. A. Lewis. diags Bell System Tech J 43:1609-17 pt 2 Jl '64

Resistance probe method for determining local solid particle mixing rates in a batch fluidized bed. T. Hayakawa and others. bibliog diag Can J Chem Eng 42:99-103 Je '64

Resistivity anomaly in doped barium titanate. W. Heywang. bibliog il diags Am Cer Soc J 47:484-90 O '64

Resistivity of ferromagnetic alloys. J. M. Sivertsen. bibliog J Ap Phys 35:2407-12 Ag '64

Room-temperature resistivity of Mo-Nb and Mo-Re alloys containing one percent iron. M. P. Sarachik. J Ap Phys 35:1094-5 pt 2 Mr '64

Series type d.c. negative resistance for analogue computers. P. V. Indiresan and S. Sataindra. bibliog diags Radio & Electronic Eng 26:417-20 N '63

Simple dc-ac negative-impedance converter, offering symmetrical *N*-type and *S*-type negative resistance. H. E. Kallmann. diags IEEE Proc 52:199-200 F '64

Spiral structure and moments in Gd-Dy alloys. R. M. Bozorth and J. C. Suits. bibliog J Ap Phys 35:1039-40 pt 2 Mr '64

Superconducting penetration depth of niobium stannide. G. D. Cody. bibliog diags RCA R 25:414-32 S '64

Theory of electrical resistivity of ferromagnetic metals. S. H. Liu. bibliog J Ap Phys 35:1087-8 pt 2 Mr '64

Thermal conductivity, thermoelectric power, and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

Thickness corrections to resistivity measurement by *Q*-meter. A. C. Brown. diags J Sci Instr 41:335-6 My '64

Three-point probe method for electrical characterization of epitaxial films. J. Brownson. diags Electrochem Soc J 111:919-24 Ag '64

Transconductance and how to measure it. R. W. Overholts. il diags Radio-Electronics 35:74+ Ja '64

Transfer-function synthesis with nonreciprocal constant-resistance two-port networks. A. W. Keen. bibliog diags Inst E E Proc 111:883-90 My '64

Unique current-controlled negative resistance generator. A. H. Marshak. bibliog il diags IEEE Trans Com & Electronics p182-4 Mr '64

Variation of electrical resistance with strain of keratin fibers with constant water content. J. E. Algie. Textile Res J 34:273-4 Mr '64

Voltage controls solid-state nonlinear resistance. F. D. Neu. diags Electronics 37:36+ F 21 '64

Zero-point detector for the Dauphinee-Mooser circuit. H. H. Soonpaa and others. bibliog diags R Sci Instr 34:1341-4 D '63

See also

Electric conductivity
Electric heating, Industrial
Insulation (electric)
Ohmmeters
Wheatstone bridge

ELECTRIC resistors

Cryogenic liquid level detector employing thermistors. J. D. Lewin. diag J Sci Instr 40:539-40 N '63

Design of transistor-resistor logic circuits by graphical means. C. W. M. Barrow. bibliog diags Electronic Eng 36:660-5 O '64

For best results in mercury lighting match ballast to system. R. I. Eddy. diags Plant Eng 18:134-7 Ap '64

Improvements in the design of precision wirewound resistors. J. R. Price. diag Electronic Eng 36:474-7 Jl '64

Lead-compensated thermistor probe. A. M. Jessop. diag J Sci Instr 41:503-4 Ag '64

Magnetoresistant analog multipliers. diag Electro-Tech 74:126 Ag '64

Multiple thermistors monitor car comfort. N. Hunter. diag Control Eng 11:125 My '64

Resistor reliability. il Electronic Ind 23:112+ Jl '64

Speer carbon resistors as thermometers for use below 1°K. W. C. Black, jr. and others. bibliog R Sci Instr 35:587-91 My '64

Theory and application of self-heated thermistors. M. Sapoff and R. M. Oppenheim. bibliog diags IEEE Proc 51:1292-305 O '63; Discussion. D. H. Bock and R. A. Dunklin. 52:973-4 Ag '64

Thermistor measures dielectric gas content. E. B. Murphy. diags Electronics 37:54-5 O 19 '64

Thermistor pressure gauge. R. H. Müller. Anal Chem 36:sup 119A Ap '64

Wet/dry bulb thermistor hygrometer with digital indication. R. M. Atkins. il diag Instruments & Control Systems 37:111-14 Ap '64

See also

Radio resistors

Testing

Failure-prone perfect resistors caught by new infrared technique. Machine Design 36:10 O 8 '64

Q-meter measurements on resistors. G. J. Johnson. diags Inst E E Proc 110:2033-8 N '63

Thermistor as a circuit element in low frequency systems. K. Kraus. bibliog diags J Sci Instr 41:384-5 Je '64

ELECTRIC retarders, Motor trucks. See Motor trucks—Retarders

ELECTRIC safety lamps. See Safety lamps, Electric

ELECTRIC service, Rural

See also

National rural electric cooperative association

ELECTRIC shavers

D.c. inverter for electric shavers. J. R. Nowicki. bibliog diags Wireless World 69:624-7 D '63

Shaving. Drug & Cosmetic Ind 94:110 Ja '64

ELECTRIC ship propulsion. See Ship propulsion, Electric

ELECTRIC shock

Electric shock hazard of underwater swimming pool lighting fixtures. A. W. Smoot and C. A. Bentel. bibliog diags IEEE Trans Power Apparatus & Systems 83:945-64 S '64

Electrical safety for beginners. G. P. Schleicher. il diags Q S T 48:52-3 Ag '64; Correction. 48:17 S '64

Portable defibrillator. G. G. Knickerbocker and others. il diags IEEE Trans Power Apparatus & Systems p 1089-93 D '63

Removing the shock hazard from spark-triggered arc electrodes. D. A. Sinclair. bibliog diags J Sci Instr 41:618-21 O '64

ELECTRIC shops (repair)

See also

Electrical apparatus service association

Equipment

Apparatus service. il diag Elec Constr & Maint 62:85-6+ D '63; 63:123-4 Mr; 119-20 Ap; 123-4 Je; 132+ Jl; 127-8 Ag; 149-50+ S '64

Apparatus service uses space-age techniques; electrical equipment service center in Salt Lake City. il Elec Constr & Maint 63:79-83 Ap '64

Service shop features handling and repair of heavy electrical equipment. il Elec Constr & Maint 63:90-2 Jl '64

ELECTRIC signals

Constructing electrical systems; signals and communications. diags Elec Constr & Maint 63:236+ My '64

ELECTRIC signals—*Continued*

Help for the stranded motorist; adapting the impedance measuring techniques. J. Bacon and R. L. Cosgriff. diag Control Eng 11:99+ Ap '64

See also

Annunciators

Electric alarms

Railroads—Signals

ELECTRIC spark

Effect of discharge products upon corona discharge and spark breakdown voltage. F. D. A. Boylett and J. S. T. Looms. bibliog diags Inst E E Proc 110:2292-6 D '63

Energy distribution of ions formed in the rf spark source. J. R. Woolston and R. E. Honig. bibliog il diags R Sci Instr 35:69-74 Ja '64

Spark erosion in liquid argon. I. A. Bucklow and L. E. Drain. diag J Sci Instr 41:614-17 O '64

Tracer-spark technique for velocity mapping of hypersonic flow fields. J. B. Kyser. il diag AIAA J 2:393-4 F '64; Discussion. 2:1517-18 Ag '64

See also

Electric arc

Electric cutting

Spark gap

ELECTRIC standards

Conference on precision electromagnetic measurements, Boulder, Colo. June 23-25. J Sci Instr 41:585-8 O '64

Effect of temperature on the stability of mica standards of capacitance. G. H. Rayner and L. H. Ford. bibliog J Sci Instr 41:149-52 Mr '64

Electrical standards at GE. S. C. Richardson. il Instruments & Control Systems 37:95-7 Ja '64

Four-terminal-pair networks as precision admittance and impedance standards. R. D. Cutkosky. diags IEEE Trans Com & Electronics p 19-22 Ja '64

How standardization cuts costs and speeds service restoration. H. E. Cody. Power Eng 68:55-6 F '64

Laboratory substandard for the production of small electrostatic charges. R. Gunn. diag R Sci Instr 35:867-8 Jl '64

Low-voltage power circuit breakers. V. L. Cox. Mag of Stand 35:142 My '64

NEMA's evaluation of utility equipment standards completed. Elec World 160:51 D 30 '63

New ratings for high-voltage circuit breakers. V. L. Cox. il Mag of Stand 35:163-5 Je '64

Significance of extra-high-voltage standards around the world. L. O. Barthold and E. M. Hunter. bibliog il Mag of Stand 34:372-7 D '63

Variable impedance power meter, and adjustable reflection coefficient standard. G. F. Engen. bibliog diags J Res Nat Bur Stand 68C:7-24 Ja '64

Zener diodes used as voltage standards. il diag Engineering 197:9 Ja 3 '64

See also

Electric circuit breakers—Standards

Electric equipment—Standards

Electronic apparatus and instruments—Standards

International electrotechnical commission

ELECTRIC stoves

New British cookers. il Engineering 197:432 Mr 20 '64

See also

Electronic stoves

Manufacture

Reliability improvement justifies capital expenditure. H. Thomas and J. C. Haufe. il Mach 70:100-4 F '64

ELECTRIC strength. See Dielectrics

ELECTRIC substations

BPA dedicates Big Eddy dc test center; acceptance tests continue. il Elec World 160:84-5+ N 4 '63

Four-track recorder monitors substation loads. C. Morrison. il Elec World 162:111 O 19 '64

Need more real estate for substation growth? P. Naney. plan Power Eng 68:52 My '64

Simplified central control of sub-stations. Engineering 198:457 O 9 '64

Source planning backs distribution. D. V. Menscer. plan diags Elec World 161:22+ Je 22 '64

See also

Electric distribution

Construction

Steel erection and grounding in constructing an outdoor substation. J. F. McPartland. il plan diags Elec Constr & Maint 63:110-13+ S '64

Design

Design 69-kv substation and line in tubular steel. P. A. Millerbernd. il Elec World 162:60-1 S 7 '64

Design standardization methods and techniques for substation facilities; IEEE committee report. bibliog IEEE Trans Power Apparatus & Systems 83:1029-34 O '64

Distribution substation structure is designed for flexibility. W. Juhnke. diags Power Eng 68:36-8 S '64

New equipment cuts in-plant systems costs. B. G. Bailey. Elec World 160:32-5 D 16 '63

1964 energy systems design survey; electric distribution trends and typical systems. Power 108:sup36-43 O '64

No room for a substation? then build it on a platform. il Power Eng 68:42 S '64

Pad mounts clean up clutter. F. F. Elliott. il Elec World 161:22 Je 8 '64

Reliability and economy guide SCEC's ehv substation design. C. E. Asbury and others. il diags Elec World 161:36-9+ Mr 9 '64

Scarce property sets station design; abstracts of papers. Elec World 161:82 Je 29 '64

Single-bus design proves best for substations. W. S. Einwechter and R. M. Pennypacker. il diags Elec World 162:60-1+ N 2 '64

Standardized 220-kv substation design lowers capital cost. C. L. Downs, jr. diags Power Eng 68:39-41 S '64

Substations and switchgear. il diag Power Eng 68:34-5 S '64

TVA designs a 500-kv substation. diag Power Eng 68:65 F '64

345-kv substations rising on seven sites. T. A. Griffin, jr. and R. M. Higbie. il diags Elec World 162:50-3+ S 7 '64

Utility converts old dc site to 160-mva network sub. J. C. Foss and F. G. Webb. il plan diag Elec World 162:54-5 S 7 '64

Utility substations get pretty appearance. il Eng N 173:25 O 22 '64

What BIL's for 500-kv substations? C. L. Wagner and others. diags Elec World 162:67-9+ Jl 27 '64

Equipment

Distribution substation structure is designed for flexibility. W. Juhnke. diags Power Eng 68:36-8 S '64

Expandable system remotely controls 138/34.5-kv substation. S. J. Brocato and A. B. Stevens. il diags Elec World 160:57-9 O 21 '63

Knockdown secondary-sub enclosures developed. il Elec World 160:100 N 18 '63

Mozart substation; the first supervisory controlled 12-4-kv substation at Hydro-Quebec with automatic data logger. R. E. Kozlowski. il diags IEEE Trans Power Apparatus & Systems 83:327-36 Ap '64

Reclosing scheme has foolproof record. H. C. Ruppert. diags Elec World 161:102 Ap 20 '64

Rigid ring bus serves 240-kv substation's special conditions. M. E. Bishop. il Elec World 161:26-7 F 3 '64

Silicon rectifier for traction substation. il Engineer 217:794 My 1 '64

Substations and switchgear. il diag Power Eng 68:34-5 S '64

Switch substation capacitor banks. G. S. Cannon. diags Elec World 162:29 Jl 20 '64

Why use cable trays in large transmission substations? J. R. Massey. il diags Power Eng 67:63-4 N '63

Protection

Insulation levels for Virginia electric and power co. 500-kv substation equipment. C. L. Wagner and others. diags IEEE Trans Power Apparatus & Systems 83:236-41 Mr '64; Discussion. 83:427 Ap '64

Tempter in Eden is a power-age pest; barriers for repelling reptiles from substations. P. H. Shoun. il Elec World 161:26-7 Je 22 '64

What BIL's for 500-kv substations? C. L. Wagner and others. diags Elec World 162:67-9+ Jl 27 '64

Standards

Design standardization methods and techniques for substation facilities; IEEE committee report. bibliog IEEE Trans Power Apparatus & Systems 83:1029-34 O '64

Minimum electrical clearances for substations based on switching surge requirements; AIEE committee report. bibliog IEEE Trans Power Apparatus & Systems p 1072-5; Discussion. 1075-6 D '63

ELECTRIC substations, Portable
138-12-kv portable sub rated 20 mva. il Elec World 160:101 N 4 '63
Portable capacitor bank supplies bus-control vars. il Elec World 161:62-3 Ja 27 '64

ELECTRIC substations, Underground
Substation goes underground. Elec World 161: 26 Je 8 '64

ELECTRIC switchgear
Air cylinder with limit switches. il Engineering 197:687 My 15 '64
Applications of a gate controlled switch in d.c. power circuits. M. J. Wright. il diags Electronic Eng 36:16-20, 84-7 Ja-F '64
Automatic aperture control for balanced filter X-ray diffractometry. S. C. Abrahams. bibliog diags R Sci Instr 34:1279-80 N '63
Bidirectional solid-state switch using backward-rectifier junctions. J. Lüscher and others. il diag IEEE Proc 52:610-11 My '64
Bidirectional static switch simplifies ac control. M. P. Southworth. il diags Control Eng 11:75-6 Mr '64
Choosing relays or solid-state switching. J. A. Pfingsten. il Electronic Ind 23:99+ Je '64
Controls regulate automatic spraying. G. R. Carr. il diag Ind Finishing 40:70+ Je '64
Decade box uses power resistors. J. H. Sutton. il diags Radio-Electronics 35:28-9 Jl '64
Design of a low inductance capacitor and switch assembly. R. S. Dike and E. L. Kemp. diags R Sci Instr 35:516-17 Ap '64
Electrical safety machinery control switches. Pit & Quarry 57:105-6 S '64
Electrical switches challenged by istors, odes, and trons. F. D. Yeaple. il diags Product Eng 35:81-3 F 3 '64
Fast-acting superconducting power switches. D. L. Ameen and P. R. Wiederhold. bibliog il diags R Sci Instr 35:733-7 Je '64
1500-volt hybrid switch has low on impedance. R. E. Thomas. diag Electronics 37: 74-5 Ag 10 '64
Fundamental limitations in rf switching and phase shifting using semiconductor diodes. M. E. Hines. bibliog diags IEEE Proc 52:697-708 Je '64
Gas-triggered inverse pinch switch. R. G. Jahn and others. diag R Sci Instr 34:1439-40 D '63
Gate-controlled solid-state power switch. H. F. Storm. il diags Electro-Tech 73:126+ Ap '64
High-voltage mercury-arc switch for heavy-current pulse duty. A. J. Booth and J. H. Holliday. il diags Inst E E Proc 110:1985-9 N '63
Inertia switches. E. S. Charkey. il diags Machine Design 36:174-80 Je 18 '64
Light-activated switch expands uses of silicon-controlled rectifiers. E. K. Howell. il diags Electronics 37:53-61 My 4 '64
Limit switch a low-cost sense of touch. il diags Mod Materials Handling 19:52-5 S '64
Limit switch programmer. il diag Product Eng 35:96 S 28 '64
Long-life reed switch rated for 5,000 volts. il diag Electronics 37:111 O 19 '64
Low-pressure gas discharge switches for use in fusion experiments. R. Hancox. bibliog diags Inst E E Proc 111:203-13 Ja '64
New switch facilitates equipment maintenance. O. M. Campbell. il diags Elec World 161:98 F 10 '64
New television switching equipment using uniselectors. H. Mirzwinski. il diags SMPTE J 73:465-7 Je '64
NDRO magnetic film memory mode using creep and boundary displacement switching. J. H. Hoper. diag J Ap Phys 35:762-3 pt 2 Mr '64
No. 101 ESS; the time-division switch unit. R. M. Averill and R. C. Stone. il diags Bell Lab Rec 41:425-31 D '63
Performance and the flux patterns of a special shape multi-aperture device. D. J. Morris. bibliog il diags Radio & Electronic Eng 27:153-63 F '64
Pressure casting facility utilizes fused load breaker switches. C. L. Moore. il diags Iron & Steel Eng 41:249-50 S '64
Problems in keeping critical a-c motors on the line. H. A. Wright and T. F. Bellinger. il diags Tappi 47:sup 149A-54A Je '64
Quiet, simple, inexpensive air-gap switch. R. Harvey and G. J. Yevick. diag R Sci Instr 34:1444-5 D '63
Reed switches for breadboarding. M. B. Knight. diags Electronics 37:93 My 18 '64
Remote-control capacitor switching advanced. diag Elec World 162:36 Ag 31 '64
Research and development centre of South Wales switchgear ltd. il Engineer 216:773-4 N 8 '63
Schmitt-trigger sensing switch. K. Hermann. diags Electro-Tech 73:132+ Mr '64
Sequential access ferrite store with stepping switch addressing. M. D. A. B. Rackowe. diags Electronic Eng 36:612-15 S '64
Silicon controlled switches. il Electronic Ind 23:27 Jl '64
Silicon controlled switches resist transients. il Electronics 37:101 Je 29 '64
Simple heat switch for low temperature use. J. G. Dash and J. Siegwarth. diags R Sci Instr 34:1276-7 N '63
Simulator pre-checks 120-kv switching orders. P. K. Peden. il diag Elec World 161:101 Je 1 '64
South Wales Switchgear's new research centre. Engineering 196:637 N 15 '63
Stray signals can't throw this desensitized switch. J. M. Gault and R. J. Sanford. bibliog il diags Electronics 37:68-71 Jl 27 '64
Substations and switchgear. il diag Power Eng 68:34-5 S '64
Switch controls arc furnace kvar. R. L. Ream and H. M. Pflanz. il diags Elec World 160: 25 N 11 '63
Switches, fast and clean. il Product Eng 35: 81-2 O 26 '64
Tr switch for use at 200 mc/s in air-filled coaxial line. W. I. Moore and D. T. O'Dell. diags Inst E E Proc 111:1625-9 O '64
Why today's switchgear is safer. S. H. Telander. il diag Safety Maint 127:20-4+ Ja '64
Wide voltage range high energy solid dielectric switch. H. J. Huber. diags R Sci Instr 35:1067-9 Ag '64
See also
Electric circuit breakers
Electric contactors
Switchboards

Installation

Constructing electrical systems; switches. il diags Elec Constr & Maint 63:94-105 My '64

Protection

Epoxy coating solves 4.16-kv switchgear insulation problems. W. R. Pascoe. il diag Elec World 161:51 Mr 9 '64

Testing

Compound circuit-type, 70,000 mva, high voltage test lab completed. il Elec World 160:49-50 D 30 '63
Ehv switch tests and switching surges. A. Foti and J. M. Lakas. bibliog il diag IEEE Trans Power Apparatus & Systems 83:266-71 Mr '64; Discussion. 83:435-6; Reply. 436-7 Ap '64
Test station for low-voltage switchgear. il Engineer 217:663 Ap 10 '64

ELECTRIC symbols
Electrical schematic diagrams. A. E. Welz. diags Machine Design 36:186-93 Je 18 '64
Graphic symbols; a shorthand. A. Pomeroy and S. A. Fricke. diags Mag of Stand 35: 169-70 Je '64
U.S. and European wiring symbols; comparative lists. G. W. Heumann. diags Product Eng 35:90-1 Ja 20 '64

ELECTRIC testing
See also
Dynamometers
Electric measurements
Electric resistance
also subdivision Testing under special subjects, e.g.
Electric equipment
Electric lines
Electric switchgear
Electric transformers
Relays

ELECTRIC thawing. See Thawing, Electric

ELECTRIC tools
Spark resistant tools. Soap & Chem Spec 40:162+ Mr '64

ELECTRIC tools, Portable
All-insulated drills for greater safety. il Engineering 197:254-5 F 14 '64
For personal use. il Engineering 197:336 F 28 '64
Getting the most out of portable tools. D. B. Dallas. il diags Tool & Manuf Eng 51:69-75 D '63
Hand tools hammer out big sales. T. M. Rohan. il Iron Age 193:46-7 F 13 '64
Polycarbonates for power tools. il Plastics World 22:20-1 Ag '64
Portable electric bevelling tool. il Engineer 216:965 D 6 '63

ELECTRIC tools, Portable—*Continued*

Portable electric slotting shears and nibbler. il Engineer 217:595 Mr 27 '64

Space tool corrals bucking torque. diags Iron Age 193:57 Ja 23 '64

Space tools come down to earth. T. Murray. il diags Am Mach 108:148E Ap 13 '64

Versatile power tools. il Engineering 198:316 S 4 '64

Zero torque in space; battery-powered space tool. diags Product Eng 35:45 Ja 20 '64

Safety measures

Double insulated portable power tools. il Plastics World 22:58-60 Ja '64

Insulating power tools and appliances with plastics. J. E. Hauck. il diags Materials in Design Eng 60:100-3 O '64

ELECTRIC toothbrushes. See Toothbrushes, Electric

ELECTRIC transformers

All-aluminum-coil transformer developed. il Elec World 161:38 Mr 2 '64

Calculation of transient voltages in a transformer connected to a transmission line. V. Lovass-Nagy and C. Szendy. bibliog diag Inst E E Proc 111:1133-6 Je '64

Colorful pole-type transformer 25 per cent smaller. il Elec World 162:36 Ag 3 '64

Commutation reactance of the transformer in a static power convertor. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:135-42 Ja '64

Compact distribution transformers. il Engineer 218:110 Jl 17 '64

Digital electrometer uses dc transformer. W. K. Volkers. il diags Instruments & Control Systems 37:149-52 S '64

Fluorocarbon gas used as transformer insulation. C. S. Collier. il Elec World 162:59+ O 5 '64

Integrated system transformer. il Engineer 218:189 Jl 31 '64

International comparison of voltage-transformer calibrations to 350 kv. F. K. Harris and others. bibliog il diags IEEE Trans Com & Electronics p 13-18; Discussion. p 18-19 Ja '64

Lashed secondary cable serves large load. E. J. O'Connor. il Elec World 160:113-14 O 21 '63

Pad-mounted supply cuts costs; Mays department store in Massapequa. G. D. Smith and W. E. Morehart. il diag Elec World 161:40+ F 10 '64

Product Engineering fifth annual master design awards; zero impedance distribution transformer. il Product Eng 35:109 Ap 27 '64

Superconductors not for transformers. Elec World 161:181 Mr 23 '64

Three-phase modular pad transformer developed. il Elec World 161:110-11 F 24 '64

Transformer components of cast resin. E. R. Hartill. il diag Engineer 218:62-4 Jl 10 '64

Transformer with matched rating. il Engineering 198:88 Jl 17 '64

Vapor-gas transformer sought by Con Edison. Elec World 161:84 My 4 '64

Wide band current transformers for the examination of current waveforms. F. J. U. Ritson and J. Wood. il diags Electronic Eng 36:483-5 Jl '64

See also

Electric substations

Radio transformers

Autotransformers

Analysis of networks with complex autotransformers. H. H. Happ. diags IEEE Trans Power Apparatus & Systems p75-81, 958-65; 83:707-14 Ap, D '63, Jl '64

Scr's control tapped autotransformer. E. Chiesa and P. Toso. diags Control Eng 11:84-6 Ja '64

Tired of chasing grounds? install a grounding transformer. H. Pritzlaff and E. Neydli. diags Plant Eng 17:96-7 D '63

Costs

Economics and power transformer design. T. H. Putman. diags IEEE Trans Power Apparatus & Systems p 1018-22; Discussion. 1022-3 D '63

How Vepco evaluates transformer bids. O. R. Compton. Elec World 160:89-90 D 2 '63

Design

Automate transformer design-engineering. il Elec World 161:73-4 Ja 13 '64

Automated design; electronic relief from routine. il Machine Design 36:150-3 F 13 '64

Cast-coil transformers. il diags Plant Eng 18:134-5 Jl '64

Computerize transformer design engineering. W. Long. il Elec World 161:136+ Ap 6 '64

Development of the d-c instrument transformer for the precision measurement of highest direct currents. W. Kramer. bibliog il diags IEEE Trans Com & Electronics 83:382-90 Jl '64

Developments in the design of large power transformers. H. W. Kerr and S. Palmer. bibliog il diags Inst E E Proc 111:823-32 Ap '64

Economics and power transformer design. T. H. Putman. diags IEEE Trans Power Apparatus & Systems p 1018-22; Discussion. 1022-3 D '63

Enameled-foil transformers offer flexibility. H. W. Book. il Elec World 162:53+ Ag 24 '64

Largest generator transformer; 425 mva. il Engineering 198:327 S 11 '64

New approach to distribution transformer design. H. W. Book. il diag Westinghouse Eng 24:110-13 Jl '64

Special transformer tank. J. Hewitt. il diags Engineer 218:275-7 Ag 21 '64

Zero impedance distribution transformer. J. J. Astleford, jr. and R. J. Radus. il diags IEEE Trans Power Apparatus & Systems 83:918-23; Discussion. 923-5; Reply. 925-6 S '64

Failure

Incipient transformer fault detected by combustible gas monitoring program and ultrasound tests. C. I. Crawford and A. F. Wilson. il diag IEEE Trans Power Apparatus & Systems 83:926-30 S '64

Fires and fire protection

Improved test for water-spray fire system. E. T. Woznicki. il Elec World 161:75 Je 29 '64

Installation

Constructing electrical systems; transformers. il diags Elec Constr & Maint 63:123-30 My '64

Knockdown secondary-sub enclosures developed. il Elec World 160:100 N 18 '63

Load

Evaluation of substation transformer loading using simulation techniques. J. P. Fitzgerald and others. bibliog flow diag IEEE Trans Power Apparatus & Systems 83:411-21 Ap '64; Discussion. 83:548-50; Reply. 550-1 My '64

Improved methods and accuracy for transformer load calculations. J. R. Meinke. flow chart IEEE Trans Power Apparatus & Systems 83:640-3; Discussion. 658-60 Je '64

Loading guide for 65 C rise distribution transformers. C. R. Acker. bibliog flow chart IEEE Trans Power Apparatus & Systems 83:893-900; Discussion. 900-1 S '64

Relative transformer aging obtained under ASA load-time recommendations when using different estimating procedures and aging curves. M. F. Beavers. bibliog IEEE Trans Power Apparatus & Systems 83:909-13; Discussion. 913-14 S '64

Transformer load study nears completion. il Elec World 161:75 Ja 13 '64

Losses

Anomalous iron losses in cold-reduced grain-oriented transformer steel. F. Brailsford and R. Fogg. bibliog diags Inst E E Proc 111:1463-7 Ag '64

Maintenance and repair

Press/temp readings check transformer seal. G. R. Deinema. Elec World 160:73-4 D 16 '63

Manufacture

Resistance welding; foil-butt welds for transformer tanks. il diag Welding Eng 49:45 F '64

Upgrading production facilities avoids excess-capacity costs. il Elec World 161:57-8 F 10 '64

Noise

Barrier walls cut transformer noise. A. R. Compton and A. L. Trice. il diags Elec World 160:82-3+ N 18 '63

Silicon-iron and transformer noise. Engineering 197:601 My 1 '64

Oil

See Insulating oil

Painting

Fluidized-bed coating protects transformers. W. A. Munkacsy. il Ind Finishing 40:44-7+ Ap '64

Painting transformer components. G. E. Toles. il Metal Finishing 62:57-8 F '64

ELECTRIC transformers—*Continued*

Protection

Foil-wound solid insulation transformer called greatest breakthrough in 50 years. il Power Eng 68:61 Ag '64

Method for estimating the thermal life expectancy of distribution transformers. R. E. Rood. IEEE Trans Power Apparatus & Systems p 1015-18 D '63

New transformers have solid-cast insulation. il Elec World 161:116 Je 15 '64

Protection of power transformers; 1962 relays committee survey of practices. IEEE Trans Power Apparatus & Systems p 1040-4 D '63

Transformer protected three BIL-steps down. A. R. Koerber. il Elec World 160:60+ O 21 '63

Voltage stress as a factor in thermal evaluation program for insulation systems in distribution transformers. M. F. Beavers and G. F. Lipsey. bibliog il IEEE Trans Power Apparatus & Systems 83:902-8; Discussion. 908-9 S '64

Tables, calculations, etc.

Current instrument transformer error calculations. J. Meisel. bibliog diags IEEE Trans Power Apparatus & Systems p 1082-5 D '63

Improved methods and accuracy for transformer load calculations. J. R. Meinke. flow chart IEEE Trans Power Apparatus & Systems 83:640-3; Discussion. 658-60 Je '64

Method for estimating the thermal life expectancy of distribution transformers. R. E. Rood. IEEE Trans Power Apparatus & Systems p 1015-18 D '63

Transformers/secondaries readily determined. C. H. Bennett. Elec World 160:120-2 D 2 '63

Tanks

Special transformer tank. J. Hewitt. il diags Engineer 218:275-7 Ag 21 '64

Tap changing

Simple controls up ltc transformer value. L. F. Emerson. il diags Elec World 161:128 My 18 '64

Temperature

Loading guide for 65 C rise distribution transformers. C. R. Acker. bibliog flow chart IEEE Trans Power Apparatus & Systems 83:893-900; Discussion. 900-1 S '64

Measurement of winding temperatures by change of resistance. O. J. Tassicker. diags Inst E E Proc 111:1454-60 Ag '64

Relative transformer aging obtained under ASA load-time recommendations when using different estimating procedures and aging curves. M. F. Beavers. bibliog IEEE Trans Power Apparatus & Systems 83:909-13; Discussion. 913-14 S '64

Testing

Carousel, punch card automate transformer quality control system. il diags Elec World 161:78+ Je 29 '64

Incipient transformer fault detected by combustible gas monitoring program and ultrasound tests. C. I. Crawford and A. F. Wilson. il diag IEEE Trans Power Apparatus & Systems 83:926-30 S '64

Multi-range standard facilitates current transformer testing. J. F. Trauth. il Elec World 161:62 Ja 27 '64

On-the-job-load-test for substation transformers. A. H. Potter. il diag Elec Constr & Maint 63:99+ Ag '64

735-kv transformer tested for Quebec hydro. il Elec World 162:72 N 2 '64

Tough spec for a floor; 90,000-lb shear load, no reinforcing, for transformer testing. C. G. Robinson. il diags Plant Eng 17:129-30 N '63

Transformer load study nears completion. il Elec World 161:75 Ja 13 '64

Transportation

Handle 250-mva transformer without crane. R. Morris. il Elec World 162:104-5 Ag 10 '64

Windings

Characteristics of sheet windings in transformers. E. A. Goodman. diags Elec Eng 82:673-6 N '63

Effect of winding potentials on voltage transformer errors. N. L. Kusters and others. diags IEEE Trans Power Apparatus & Systems p 115-21 F '64

Fault-current limitation for large transformers using reactors in the tertiary winding. M. J. Lantz and M. T. Yee. diags IEEE Trans Power Apparatus & Systems 83:637-40; Discussion. 658 Je '64

Measurement of winding temperatures by change of resistance. O. J. Tassicker. diags Inst E E Proc 111:1454-60 Ag '64

New transformer coils use all-aluminum foil. il Steel 154:33+ Je 15 '64

Study of the initial surge distribution in concentric transformer windings. G. M. Stein. bibliog diags IEEE Trans Power Apparatus & Systems 83:877-91; Discussion. 891; Reply. 891-3 S '64

Superconductive windings in power transformers. K. J. R. Wilkinson. diags Inst E E Proc 110:2271-9 D '63; Discussion. 111:1195-8 Je '64

Transformers with interleaved windings. A. M. Lockie. diags IEEE Trans Power Apparatus & Systems 83:914-18 S '64

ELECTRIC transient phenomena

Analyze power transients to protect semiconductor equipment. N. Peach. il diags Power 108:183-8 Ag '64 (reprints 25c)

Charge-control equivalent circuit for predicting transient radiation effects in transistors. C. R. Rosenberg and others. diags IEEE Trans Com & Electronics 83:494-501 S '64

Determination of switching surge withstand voltages for ehv insulation systems. J. B. Owens. il IEEE Trans Power Apparatus & Systems 83:263-6 Mr '64; Discussion. 83:430-5 Ap '64

Digital computation of transients in synchronous machines with capacitive loads. M. S. Chen and W. C. Duesterhoeft, jr. bibliog diags IEEE Trans Power Apparatus & Systems 83:369-76 Ap '64

Digital computer analysis of the instantaneous reversal transient in a single-phase motor. D. W. Novotny and J. J. Grainger. bibliog il diags IEEE Trans Power Apparatus & Systems 83:380-6 Ap '64; Discussion. 83:542-3 My '64; Reply. 83:874 Ag '64

Digital computer iterative method for simulating switching surge responses of power transmission networks. A. Arismunandar and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:356-68; Discussion. 444-5; Reply. 445-6 Ap '64

Effect of autoreclosing circuit breakers on transient stability in e.h.v. transmission systems. W. D. Humpage and B. Stott. bibliog flow diag diags Inst E E Proc 111:1287-98 Jl '64

Ehv switch tests and switching surges. A. Foti and J. M. Lakas. bibliog il diag IEEE Trans Power Apparatus & Systems 83:266-71 Mr '64; Discussion. 83:435-6; Reply. 436-7 Ap '64

Field measurement of surges when switching in 345-kv stations. A. J. McElroy and others. bibliog il map diags IEEE Trans Power Apparatus & Systems 83:250-63 Mr '64; Discussion. 83:428-30 Ap '64

Frequency of occurrence and the magnitude of short duration transients in low-voltage supply mains. J. H. Bull and W. Nethercot. bibliog diags Radio & Electronic Eng 28:185-90 S '64

Frequency response through impulse excitation. J. K. Scully. diags Electro-Tech 74:53-6 Jl '64

Full scale surge testing of Virginia electric and power co. 500-kv line insulation. J. A. Rawls and others. bibliog il diags IEEE Trans Power Apparatus & Systems 83:245-50 Mr '64

Graphical method for solving transient stability problems. K. W. Ho. bibliog diags Inst E E Proc 111:335-42 F '64

High-frequency transient voltage measuring techniques. H. W. Lord. il diag IEEE Trans Com & Electronics p602-5 N '63

How the switching-surge family affects line insulation. J. W. Kalb. bibliog il diags IEEE Trans Power Apparatus & Systems p 1024-31; Discussion. 1031-3 D '63

Influence of governors on power-system transient stability. J. L. Dineley and M. W. Kennedy. bibliog diags Inst E E Proc 111:98-106 Ja '64; Discussion. 111:1446-52 Ag '64

Integrating spacecraft electronics. A. B. Whitaker and C. Schuhlein. bibliog diags Space/Aeronautics 42:53-9 Ag '64

Measuring transient overvoltage on instrument feeders. H. J. Turner. bibliog il diags Radio & Electronic Eng 28:191-7 S '64

ELECTRIC transient phenomena—*Continued*

Minimum electrical clearances for substations based on switching surge requirements; AIEE committee report. bibliog IEEE Trans Power Apparatus & Systems p 1072-5; Discussion. 1075-6 D '63

Multi-generator transient-stability performance under fault conditions. E. C. Scott and others. bibliog diags Inst E E Proc 110:1051-64 Je '63; Discussion. 110:1799-804; 111:587-8 O '63, Mr '64

Novel principle of transient high-voltage generation. R. A. Fitch and V. T. S. Howell. bibliog il diags Inst E E Proc 111:849-55 Ap '64

Protecting silicon rectifiers from transient overloads. K. Sueker. diags Electro-Tech 72:105-7 N '63

Reduce underground equipment BIL. H. O. Stoelting and R. T. Kaupie. diag Elec World 161:28-9 Mr 2 '64

Solution of transient-stability problems through the number-series approach. N. Dharma Rao and H. N. Ramachandra Rao. bibliog diags Inst E E Proc 111:775-88 Ap '64

Study of power-system transient stability by a combined computer. J. L. Dineley. bibliog diags Inst E E Proc 111:107-14 Ja '64; Discussion. 111:1446-52 Ag '64

Study of the initial surge distribution in concentric transformer windings. G. M. Stein. bibliog diags IEEE Trans Power Apparatus & Systems 83:877-91; Discussion. 891; Reply. 891-3 S '64

Transient analysis of thin-film structures. F. A. Lindholm and W. W. Happ. bibliog diags Radio & Electronic Eng 26:421-35 N '63

Transient analysis of transmission lines with nonlinear terminations. C. R. Pendred. diags IEEE Proc 52:190 F '64

Transient generators for audio testing. J. L. Grauer. diags Audio 48:22-3+ S '64

Transient performance of a turbine flowmeter in water. D. J. Higson. il diag J Sci Instr 41:317-20 My '64

Transient performance of loudspeaker dividing networks. R. M. Mitchell. diags Audio 48:24+ Ja '64

Transient phenomenon in an isotropic plasma without collision loss. S. N. C. Chen. IEEE Proc 51:1045-6 Jl '63; Discussion. C. M. Knop. diags 52:99 Ja '64

Transient response characteristics of an a-c servomotor excited nonsinusoidally and through nonlinear source impedances. J. Law, jr. and N. L. Schmitz. flow diag il IEEE Trans Power Apparatus & Systems 83:584-8 Je '64

Transient response of junction transistor to base current pulse. L. J. Giacoletto. diag IEEE Proc 52:627-8 My '64

Transient response of tuned circuits. H. G. Leventhall. bibliog il diags Inst E E Proc 111:311-14 F '64

Transient stability of an isolated radial power network with varied load division. B. J. Gevay and W. H. Schippel. bibliog diags IEEE Trans Power Apparatus & Systems 83:964-9; Discussion. 969-70 S '64

Transient suppression with controlled-avalanche rectifiers. diags Electro-Tech 72:124+ N '63

Use of *P-L-N*-structures in investigations of transient recombination from high injection levels in semiconductors. L. W. Davies. bibliog diags IEEE Proc 51:1637-42 N '63

Voltage effects of capacitive load on the synchronous generator. J. L. Dineley and K. J. Glover. bibliog diags Inst E E Proc 111:789-95 Ap '64; Discussion. 111:1452-3 Ag '64

Weather, corona, and the decay of trapped energy on transmission lines. J. E. Beehler. bibliog il diags IEEE Trans Power Apparatus & Systems 83:512-20; Discussion. 552-3; Reply. 553-4 My '64

Zero-crossing detector suppresses transients. J. L. Mairn and D. A. Thalimer. diags Control Eng 11:129 O '64

See also
Overvoltage

Bibliography

Bibliography on the surge performance of transformers and rotating machines; second supplement. P. A. Abetti. IEEE Trans Power Apparatus & Systems 83:855-8 Ag '64

ELECTRIC transmission

Britain weighs ehv transmission over 400 kv. J. H. M. Sykes. il map Elec World 161:24-5+ My 25 '64

Con Edison weighs dc on Labrador line. map Elec World 160:14+ D 9 '63

Dc testing to determine ground current effects. il Elec World 161:123-4 Ap 20 '64

Edison electric institute r&d program gives priority to dc study. Elec World 161:136-7 Mr 23 '64

Effect of autoreclosing circuit breakers on transient stability in e.h.v. transmission systems. W. D. Humpage and B. Stott. bibliog flow diag diags Inst E E Proc 111:1287-98 Jl '64

Energy transportation conference, 1st, St Louis. Power Eng 67:44-5 D '63

Energy transportation conference, 1st, St Louis, Nov. 10-12; abstracts of papers. Coal Age 68:122-6 D '63; Elec World 160:99-106 D 2 '63

Ehv transmission patterns vary; winter meeting of IEEE. diags Elec World 161:75-8 F 24 '64

Future ehv apparatus needs and ratings in profile. A. J. Stegeman. il Elec World 161:60-6 Ja 13 '64

High-voltage d-c transmission; general background and present technical status. A. U. Lamm. bibliog il diags IEEE Trans Power Apparatus & Systems p62-9; Discussion. 69-70; Reply. 70-1 Ja '64

Mercury-arc valves for high-voltage d.c. transmission. U. Lamm. il diags Inst E E Proc 111:1747-53 O '64

Much r&d ahead for dc transmission. Elec World 161:47+ F 10 '64

Soviets build 500-kv grid in Siberia. il map Elec World 161:17-19, cover Mr 30 '64

Study of power-system transient stability by a combined computer. J. L. Dineley. bibliog diags Inst E E Proc 111:107-14 Ja '64; Discussion. 111:1446-52 Ag '64

Transmission and distribution expenditures; tables. Elec World 161:74-7 Ja 27 '64

Transmission and distribution; special section. il diags Power Eng 68:34-42 Ap '64

See also
Electric cables
Electric conductors
Electric conduits
Electric distribution
Electric driving
Electric lines
Electric plants—Interconnection
Electric plants (central stations)—Load dispatching
Electric switchgear
High voltages
International conference on large high tension electric systems
Voltage regulation

Losses

See Electric losses

Tables, calculations, etc.

Calculation of the regulation characteristics of d-c transmission systems. A. Gavrilović and D. G. Taylor. diags IEEE Trans Power Apparatus & Systems 83:215-23 Mr '64

Fundamental frequency voltages due to single-phase earth faults on h.v. lines with resistance earthing. J. S. Vosper. bibliog diags Inst E E Proc 110:1990-2000 N '63

ELECTRIC trucks

Another try with electric trucks. il Iron Age 194:13 Jl 30 '64

Progress in the application of electric drive to truck haulage equipment. E. R. Borcherdt. il Min Cong J 50:38-40+ My '64

ELECTRIC trucks, Industrial

Elwell-Parker opens new test facility. il Iron & Steel Eng 41:234 S '64

GM's small-parts storage; space misers fill the cube. J. A. Eaton. il Mod Materials Handling 19:40-3 Ag '64

How to select safe lift trucks. F. C. Schuster. il Welding Eng 49:55-7 N '64

1964 materials handling and packaging directory; powered floor equipment. il Mod Materials Handling 19:105-50 My '64

Program trains operators for safe lift truck handling. D. G. Neill. diags Plant Eng 18:124-7 S '64

Truck manufacturer works on futures with new r&d facility. il Mod Materials Handling 19:9 S '64

Utility lassoes prospects for electric trucks. il Elec World 161:81 Mr 9 '64

Control

Electronic control cuts battery waste. il Engineering 198:101 Jl 24 '64

Fork lifts perform. il Product Eng 35:46 Je 8 '64

Handling's automatic pilot the driverless tractor. il Mod Materials Handling 19:46-9 S '64

ELECTRIC units

Ohms and mhos. M. E. Parker. Gas 39:19 D '63

ELECTRIC utilities

Clean air act will affect utilities. il Elec World 162:45-6 O 5 '64
Comparison of British and American utilities. Elec World 161:31-4 Mr 16 '64
Electric utilities; how big the horizons? D. F. Garvin. Elec World 162:31-4 O 26 '64
Fallout protection for the power industry. P. J. McCoy and others. diags Power Eng 68:53-5 My; 48-50 Je '64
Forces influencing engineering education from power. L. Dwon. bibliog IEEE Trans Power Apparatus & Systems 83:826-37 Ag '64; Same. Combustion 35:28-39 Ap '64; Discussion. IEEE Trans Power Apparatus & Systems 83:837-52; Reply. 852-5 Ag '64
New reactor concepts attract utility interest. Elec World 161:50-1 Ap 6 '64
1964; what's ahead for electric utilities? Elec World 160:55-62 D 30 '63
Non-sales employees get active in sales at Puget Sound P&L. Elec World 162:142 O 5 '64
Philadelphia utilities antitrust damage award to be appealed. Elec World 161:87-8+ Je 15 '64
Selling in the sixties. Elec World 161:92-3 Ap 20; 18 Ap 27; 56-7+ My 4; 21 My 11; 88-9+ My 18; 22 My 25; 46-7 Je 1; 21 Je 8; 90-1 Je 15; 61 Je 29 '64
Utilities will gain from survey if FPC avoids pitfalls. P. Sporn. Elec World 160:115 N 18 '63
Utility role in r&d; special report. Elec World 161:129-48 Mr 23 '64
Vending; kwhr plum for utilities. Elec World 161:31-4 My 25 '64
What's wrong with natural monopoly? J. T. Moore. Elec World 161:83-6 Ja 13 '64

See also

Edison electric institute
Electric industries
Electric lines
Electric plants (central stations)
Gas companies—Electric utility competition
Northwest electric light and power association
Southeastern electric exchange

Accounting

Data processing firmly entrenched in billing. Elec World 161:111 Ap 20 '64
Do utilities underestimate kwhr usage? Elec World 161:44+ F 10 '64
Encoder reads meters for edp billing. D. R. Stuettig. il Elec World 160:45-6 D 30 '63
Microfilm and video speed customer information. A. N. Brown. il Elec World 162:64-6 Jl 27 '64
Tele-processing to save $1-million. J. L. Braswell and others. il map Elec World 162:70-1+ Jl 13 '64
Yes-men accountants can hurt utilities. W. Gale. Elec World 162:31-4 Jl 6 '64

See also

National conference of electric and gas utility accountants

Advertising

Customer must be satisfied: Electric comfort heating exposition and conference, 3d, Chicago. Elec World 161:192+ Mr 23 '64
Live better electrically program to get more advertising impact in '64. Elec World 160:169 O 21 '63
Private lighting serves new needs. il Elec World 160:66+ D 30 '63
Showmobile provides on-site demonstrations. L. E. Geffinger and R. F. McShane. il Elec World 161:95+ Je 29 '64
Two Boston electric utilities take to tv to battle competitive fuels. J. V. MacDonald and P. S. Mansfield. il Elec World 161:50-1 Ja 27 '64
Utility ad men rap promotion payments. Elec World 161:20 My 25 '64
Utility lassoes prospects for electric trucks il Elec World 161:81 Mr 9 '64
Where utilities are putting advertising funds. Elec World 161:22 F 3 '64

Appliance selling

Appliance sales: one record year after another. Elec World 161:31-4 F 3 '64
For sales, moment of truth at hand: annual Edison electric institute sales conference, 30th. Elec World 161:94+ Ap 20 '64
New forces affecting home energy sales. Elec World 162:31-4 Ag 17 '64
Positive action on heat storage advocated at IEEE meeting. Elec World 161:127-8 F 24 '64
Ten errors sales supervisors make. Elec World 161:31-4 Ja 20 '64
What electric utilities can do to boost appliance sales. Elec World 161:90-1 Je 15 '64

Buildings

Utility office building has dramatic features. il diag Elec World 161:142+ F 10 '64

Costs

How utilities can figure nuclear fuel costs. D. G. Adler. diags Elec World 162:114-17 S 21 '64
Lower fuel prices seen by NPS group. map Elec World 161:19-20 Ap 13 '64
Utilities report on political spending. Elec World 161:43-4 Je 1 '64

Customer relations

Bill carries per-day cost of electricity. il Elec World 162:61 Jl 27 '64
Customer must be satisfied: Electric comfort heating exposition and conference, 3d, Chicago. Elec World 161:192+ Mr 23 '64
Duke sets out to meet 100,000 friends. il Elec World 160:74-5 N 18 '63

Development work

Distribution planning and all-electric load building. A. D. Bertolett and W. V. Cloues. bibliog diags IEEE Trans Power Apparatus & Systems p801-9; Discussion. 809-16; Reply. 816-18 D '63
Future power market. flow diag il diags Mech Eng 86:58-9 S '64

Emergency problems

Electrical damage and restoration in Alaska. H. P. Scott. il map diags Elec Constr & Maint 63:75-82 Je '64

Employees

After they're hired, what happens? Elec World 160:129-31 N 4 '63
Does programed learning really work? Elec World 161:31-4 Mr 30 '64
Employees get on the sales bandwagon. Elec World 161:61 Je 29 '64
Simulator trains plant operators. R. T. Garrett and A. H. Van Sickle. il diag Elec World 161:72-5 Je 1 '64
Utility men and educators face facts. Elec World 161:116+ Mr 23 '64

See also

Linemen

Equipment and supplies

Adapt drill to dig post holes. il Elec World 161:123 Ap 20 '64
Close-coupled hardware eliminates ehv grading rings. R. W. Harmon. il diags Elec World 161:128-9 Ap 20 '64
Electric utility methods: construction, operation, maintenance: special report (cont). il diags Elec World 160:85-150 Ag 12; 83-155 O 21; 39-94 D 16 '63
Electric utility methods; special report. il diags Elec World 161:65-122 F 10; 65-129 Ap 6; 71-135 Je 1; 162:69-134 Ag 10; 81-130 O 5 '64 (to be cont)
Equipment evaluation; 34th annual engineering conference of the Missouri Valley electric association. Elec World 161:101+ Je 15 '64
Install reclosers in energized 23-kv line. S. C. Harrelson. il Elec World 161:124 My 18 '64
McCabe-Powers body co. expands facility for vehicular-equipment market. il Elec World 162:133+ O 19 '64
Mobile equipment today; special report. il Elec World 162:75-94 Jl 13 '64
Molded rubber accessories provide new flexibility in 15-kv shielded cable systems. R. C. Ruete. il Elec World 161:126-7 Mr 23 '64
NEMA's evaluation of utility equipment standards completed. Elec World 160:51 D 30 '63
Polypropylene rope passes three year service test. G. S. Heylin. il Elec World 161:104-5 F 24 '64
Public utilities buyers group mid-winter conference, New Orleans. Elec World 161:115+ Mr 23 '64
Relay conference, Atlanta, Ga. Elec World 161:102 Je 15 '64
Sophisicated communications, plus Trukveyor optimize Con Ed's stores operation. il diag Elec World 162:68-9 N 2 '64
Well planned reconductoring program pays off. J. M. Van Name. il Elec World 160:102-5 O 21 '63
What it takes in tools and equipment to build and maintain a power system. il Power Eng 68:34-41 O '64

See also

Linemens equipment
Motor trucks in repair service

ELECTRIC utilities—*Continued*

Exhibits

Art of ehv exhibit attracts interest of patrons, public at Atlanta opening. il Elec World 162:50-1 N 2 '64

Finance

Electrical World annual statistical report, 60th; financial. Elec World 161:84-6 F 24 '64

Making financial relations work. Elec World 162:87-90 S 7 '64

Southeastern electric exchange told r&d needs financing. Elec World 161:21 Ap 13 '64

Transmission and distribution surge ups 1964 capital budget 11.6 per cent to '58 record of $4.9 billion. Elec World 161:66-7 Ja 27 '64

Utility capital spending to be 2.4 per cent higher in '65. Elec World 162:20 Ag 31 '64

Utility finance; planning makes the difference. Elec World 161:91-4 My 4 '64

Utility finance; there are inconsistencies. Elec World 160:133-6 D 2 '63

Way to measure promotional rate effects. Elec World 161:119-22 F 24 '64

See also
Electric rates

Gas competition

Gas men want bigger share of the energy market. Elec World 162:49 N 2 '64

Gas will gain; British electrical power convention, Eastbourne. Elec World 162:60-1 Jl 27 '64

How electric heat will beat competition. map Elec World 161:91-4 Je 29 '64

Two Boston electric utilities take to tv to battle competitive fuels. J. V. MacDonald and P. S. Mansfield. il Elec World 161:50-1 Ja 27 '64

Utilities may be losing a lot of farm market revenue to LP gas. Elec World 162:135-8 O 5 '64

What kinds of competition do electric utilities face? J. D. Savage. Elec World 161:56-7+ My 4 '64

Government ownership

How profitable is nationalized power? D. T. Braymer. Elec World 161:59-60 Je 29 '64

No TVA power involved in dispute. K. Holum. Elec World 160:76 D 30 '63

See also
Hydroelectric plants—Government ownership

Laws and regulations

Commissioners; amend power act! Elec World 161:69+ Je 29 '64

Co-ops fight FPC regulation. Elec World 162:18 Ag 3 '64

Democrats stress power cooperation. Elec World 162:23 Ag 31 '64

FPC gives the nod to private power in Snake River ruling. map Eng N 172:47 F 13 '64

FPC weighs proposal to sell rural co-op. Elec World 162:99 O 19 '64

How Congress acted on power issues. Elec World 162:97-8 O 19 '64

Investor utility wins Mountain Sheep. il Elec World 161:17-18 F 17 '64

Iowa regulatory unit goes slow. Elec World 160:117 N 18 '63

Laws need not bar pooling, NPS unit finds. Elec World 161:20 Ap 13 '64

Territorial integrity disputes ahead in Iowa? Elec World 160:104 N 4 '63

Underground lines get boost from federal housing agency. Elec World 160:15 N 11 '63

Utility execs ask Congress to change right-of-way rules. Elec World 160:47 O 21 '63

What's riding on Shrewsbury rate case? Elec World 161:53-4 My 4 '64

See also
Electric rates

Maintenance and repair

Electric utility methods: construction, operation, maintenance; special report (cont). il diags Elec World 160:85-150 Ag 12; 83-155 O 21; 39-94 D 16 '63

Electric utility methods; special report. il diags Elec World 161:65-122 F 10; 65-129 Ap 6; 71-135 Je 1; 162:69-134 Ag 10; 81-130 O 5 '64 (to be cont)

Protective maintenance training course for electrical utilities. il Elec World 160:110-11 D 16 '63

Management

Communications can't be taught. Elec World 161:31-4 Mr 2; 75-8 Mr 9 '64

Compact computer system announced; IBM's System 360. il Elec World 161:132 Ap 20 '64

Computer puts finger on hidden heat loads. R. C. Stevenson, jr. diags Elec World 161:18-19 Ja 20 '64

Detroit Edison levels workload on men and resources with CPM and MARS. L. W. Coombe and C. M. Baer. il Elec World 162:110-12 S 21 '64

How utilities use Critical Path scheduling. Elec World 161:31-4 Ap 13 '64

Local sales information now secured quickly. flow chart Elec World 162:156+ O 19 '64

Private weather firms help utilities. Elec World 160:39-42 D 9 '63

Should management be involved in public affairs? Elec World 162:31-4 Ag 3; 157-60 Ag 10 '64

Top GE team shuffles utility group; re-directs research. Elec World 161:18-19 Ja 6 '64

Top management takes leadership in sales. il Elec World 162:55-66 Ag 24 '64

Public relations

Con Edison extends welcome at energy control center. il Elec World 160:34-5 D 30 '63

Electricity is fun in this classroom. il Elec World 160:48 O 21 '63

How Youth conference on atom becomes top news-making event. Elec World 160:15-16 N 25 '63

Should management be involved in public affairs? Elec World 162:31-4 Ag 3; 157-60 Ag 10 '64

Utilities should improve image, NELPA told. Elec World 162:100 N 2 '64

Utilities vs. all-industry; where do donations go? Elec World 160:119-22 D 16 '63

Utility men urged to get in politics. Elec World 162:98 N 2 '64

Purchasing

Transportation is co-captain of vehicle selection team. T. J. Galligan, jr. Elec World 162:92-3 Jl 13 '64

Radio communication

Application of matrix methods to the solution of travelling-wave phenomena in polyphase systems. L. M. Wedepohl. bibliog diags Inst E E Proc 110:2200-12 D '63

C.E.G.B. telemetering system. J. W. Dillow. il diags Ind Electronics 2:157-60, 209-12 Ap-My '64

Co-op places complete reliance on solid-state microwave. O. E. Carnes. il map Elec World 160:40-1 D 30 '63

New needs spur microwave system expansion. H. C. Wilson. il map Elec World 162:58-9+ S 7 '64

Operation of radio alarm and control system extended to 100 miles. C. L. Gillis. il diags Elec World 161:20-1+, cover Mr 16 '64

Tubeless microwave to link American electric power system's microwave communications network. il Elec World 162:140 S 21 '64

Rates

See Electric rates

Records

EDP boosts meter department efficiency. W. L. Earthman. il diags Elec World 160:94-6 D 2 '63

Work record facsimile transmitted for safety. R. M. Carpenter. il Elec World 162:102 Ag 10 '64

Safety measures

Safety cable protects tower climber. il Elec World 162:83 O 5 '64

Some do's and don'ts on safety belts and straps. il Elec World 160:130-2+ O 21 '63

Securities

Should combination companies spin-off their gas assets? Elec World 161:31-4 Ja 6 '64

Service

Call diverter for 24-hr service. il Elec World 161:116 F 10 '64

Handle meter service orders faster with punched card system. A. C. Scott. il Elec World 160:84 D 16 '63

Service companies

See also
American public power association

Statistics

Annual electrical industry forecast, 15th, 1965-1980. A. J. Stegeman. Elec World 162:121-36 S 21 '64

Electrical World annual statistical report, 60th. Elec World 161:65-80 Ja 27; 79-102 F 24 '63

FPC studies US total-electric homes. Elec World 160:161-4 O 21 '63

ELECTRIC utilities—Statistics—*Continued*

Future ehv apparatus needs and ratings in profile. A. J. Stegeman. il Elec World 161:60-6 Ja 13 '64

Load growth; hard work ahead. Elec World 161:185-8 Mr 23 '64

1963 utility net incomes up 6.2 per cent. map Elec World 161:31-4 My 11 '64

7.8 per cent climb in summer peak loads. Elec World 160:46 O 21 '63

Winter peaks generally up. Elec World 161:118 Mr 23 '64

Year's output passes one trillion kwhr. Elec World 160:32 D 30 '63

Alaska

Electrical damage and restoration in Alaska. H. P. Scott. il map diags Elec Constr & Maint 63:75-82 Je '64

Appalachian region

Electric power's stake in Appalachia. maps Elec World 161:33-5 F 10 '64

California

Contest to build California; BPA interties turns into sweepstakes. Elec World 160:72-3 N 18 '63

Forest fires hit big utility system. il Elec World 162:19-20 O 12 '64

Two supercritical steam units to make station largest west of Mississippi; Pacific gas & electric co. D. V. Kelly and R. M. Laverty. il diag Elec World 162:54-7+ N 2 '64

Canada

Canadian construction budgeted 10 per cent higher for 1964. Elec World 161:78-9 Ja 27 '64

Canadian trends similar to US. Elec World 161:115 Ap 20 '64

Great Britain

Gas will gain; British electrical power convention, Eastbourne. Elec World 162:60-1 Jl 27 '64

How profitable is nationalized power? D. T. Braymer. Elec World 161:59-60 Je 29 '64

Hawaii

Hawaiian electric co. revenues up 50 per cent. Elec World 161:124 Ja 27 '64

Idaho

Keep BPA line out Idahoans plead. map Elec World 161:83-4 My 18 '64

Illinois

New needs spur microwave system expansion. H. C. Wilson. il map Elec World 162:58-9+ S 7 '64

Iowa

Iowa regulatory unit goes slow. Elec World 160:117 N 18 '63

Territorial integrity disputes ahead in Iowa? Elec World 160:104 N 4 '63

Louisiana

Two states, utilities join hands to build power project on the Sabine River. map Elec World 161:18 My 25 '64

New York (state)

Utility goes abroad for new business. Elec World 161:90-1 Ap 20 '64

North Carolina

PUC nixes all-electric pay program. il Elec World 161:64-5 F 24 '64

Southwestern states

Giant power complex for Southwest? il map Elec World 162:17-18 Ag 3 '64

Power pace quickens in southwest. il Elec World 161:17 Ap 27 '64

Southwest utilities plan $10.5-billion expansion. map Elec World 162:17-18 S 28 '64

Ten southwestern utilities join forces and launch power plan to cost $10.5 billion. Eng N 173:34 O 1 '64

Texas

San Antonio improves on its low-cost tradition. J. Hochuli. il Power 108:64-6 Ja '64

Two states, utilities join hands to build power project on the Sabine River. map Elec World 161:18 My 25 '64

ELECTRIC vehicles

An electric-powered vehicle for large river measurements. H. H. Stevens, jr. and G. R. Dempster, jr. il Civil Eng 34:74 Je '64

See also

Electric trucks

Control

Battery vehicle control system. il Engineer 217:244 Ja 31 '64

ELECTRIC water heaters

Wiring and control at home. il Engineering 197:656 My 8 '64

ELECTRIC waves

Circular electric wave propagation in periodic structures. G. W. Luderer and H. G. Unger. bibliog diags Bell System Tech J 43:755-83 Mr '64

See also

Electromagnetic waves
Harmonics (electric waves)
Oscillations, Electric
Radio waves
Wave guides

ELECTRIC welding

Advances in automotive production techniques; welding. il Mach 70:115-18 D '63

Advantages of high-frequency induction resistance welding. D. L. Robinson. diag Welding Eng 49:53-4 Ag '64

Applications continue to mount for high-frequency welding. il Iron Age 193:101-2 Ap 9 '64

Applying weld fasteners in production operations. G. F. Grey. il diags Automation 11:81-6 Jl '64

Automated weld line builds VW Beetles. il diag Steel 154:54-5 F 17 '64

Automatic welding in the vertical position; electroslag and electrogas. J. E. Norcross. il diags Iron & Steel Eng 41:135-43; Discussion. 143-4 Je '64

Copper alloys can be resistance welded; with data sheet. C. L. Bulow. il Welding Eng 49:90+ Ap '64; Same cond. Tool & Manuf Eng 52:91-2 My '64

Die cast zinc can be stud welded. il Welding Eng 49:82 N '64

Electric resistance weld pipe mill produces 80 ft lengths at National works. il Iron & Steel Eng 41:244 S '64

Electricweld pipe made direct from coils. il Steel 154:72+ My 11 '64

Electroslag welding of submarine bulkheads. il diag Am Mach 108:96-7 Mr 16 '64

Evaluating weldability of various materials. R. D. Engquist. Welding Eng 49:47-8+ O '64

Fabrication of the Molten-salt reactor experiment heat exchanger core. R. G. Donnelly and G. M. Slaughter. bibliog il diags Welding J 43:118-24 F '64

Fiber metal for joining. J. F. Rudy. il Welding J 42:sup529-34 D '63

Insulated wire welding process. M. Perl. il diag Welding J 43:512-16 Je '64

Matrix reinforced thermal protective system. S. Rovin and others. bibliog il diags Welding J 43:sup329-36 Jl '64

Modern welded pipe processes. A. Palynchuk. Can Min & Met Bul 57:119-22; Discussion 137-8 F '64

Modular galvanized swimming pool is fabricated by button welding. il Welding J 43:759 S '64

1964 production preview; welding. Am Mach 108:136-8 Ja 20 '64

Process and design criteria for resistance welding René 41. D. T. Lovell and C. N. Anderson. il diags Welding J 43:sup307-19 Jl '64

Redesign to welded fabrication calls for new concepts. J. Mikulak. il diags Welding Eng 49:76+ Je '64

Resistance welding of composite sections. E. J. Del Vecchio. il diags Welding J 43:505-6 Je '64

Resistance welding of copper-to-copper. il Product Eng 35:51-2 Ap 13 '64

Resistance welding; reduced operating costs with water line quick-disconnect. il Welding Eng 48:41 N '63

Resistance welding speeds tapered tube production. il Steel 154:63 My 18 '64

Resistance welding; tapered tubes at 35 ft per minute. il Welding Eng 49:72 Je '64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Seam welding defects in austenitic stainless; data sheet. diags Welding Eng 49:61 Ja '64

Swedes use new rw seam welder at New York world's fair. il Welding Eng 49:56 My '64

Tests speed new uses for high-frequency welding. H. B. Osborn, jr. il diags S A E J 72:76-7 O '64

Unusual joining techniques; seminar abstracts. il Metal Prog 84:152+ N '63

ELECTRIC welding—*Continued*

Welder bonds smaller leads. G. Rose. il diag Electronics 37:56+ Ja 17 '64

Welders look at three new processes. R. G. Dermott. Metal Prog 85:122-3 Ap '64

Welding ball bearing retainers. il Metal Prog 86:119-20 Jl '64

Which way to weld? resistance, TIG, or electron beam; with visual comparison. J. King. il diags Product Eng 35:77-87 O 12 '64

You can cut joining costs as much as 50 per cent. il Steel 154:43-51 Ap 27 '64

Bibliography

Literature review of the physical metallurgy of electric resistance welding. W. F. Savage and others. bibliog Welding J 43:sup 140-4 Mr '64

Electrodes

Factors involved in the resistance seam welding of austenitic and hardenable stainless steel. F. B. Nance and others. il diags Welding J 43:sup209-14 My '64

Joining and fastening of materials; welding rods and electrodes; tables. Materials in Design Eng 60:539-41 Mid-O '64

Metal powders in welding electrodes. D. Harvey and P. V. Chapman. il Welding J 43:686-9 Ag '64

Microwelds develop muscles. F. R. Sullivan. il S A E J 72:100-2 O '64

Moisture absorption in low hydrogen electrode coatings and porosity in welds. B. J. Bradstreet. Welding J 43:sup43-8 Ja '64

New approach produces stronger welds. J. Heuschkel. Materials in Design Eng 59:87-9 Ja '64

New electrode permits welding of cast iron without preheat. il Iron & Steel Eng 41:175-6 Je '64

Properties of tubular stainless steel electrodes. H. N. Farmer, jr. il diag Welding J 43:667-72+ Ag '64

Rods hold tight weld chemistry. il diag Iron Age 193:127 F 20 '64

Seam welding developments. il Automobile Eng 54:323 Jl '64

Stainless electrode selection tips. Welding Eng 49:60 Mr '64

Welding speeds construction of world's biggest dragline. il Welding J 42:893-4 N '63

Power supply

400 cycle resistance welding. J. F. Deffenbaugh and F. E. Murray. il diags Welding J 42:sup557-64 D '63

High frequency power sources for welding. W. C. Rudd. il Iron & Steel Eng 41:145-9 O '64

Latest developments in high frequency welding; abstract. H. B. Osborn, jr. Automation 11:126-7 My '64

Preheating and stress relieving of hydraulic actuator assemblies. il Metallurgia 69:173-4 Ap '64

Scr pulse power supply for resistance welding. D. L. Watrous. diags IEEE Trans Com & Electronics 83:362-6 Jl '64

Silicon-rectifier power supply for multiple-operator welding. il Mach 70:194+ F '64

Single source powers 30 welders. Eng N 172:172 Je 18 '64

Stable energy levels mean better welds for microcircuitry. C. R. Sargeant and P. San Clemente. diags S A E J 72:66-7 Jl '64

Testing

How to evaluate mismatch and gap in welded joints. R. A. Roen. Welding Eng 49:68-9 Ja '64

Moisture absorption in low hydrogen electrode coatings and porosity in welds. B. J. Bradstreet. Welding J 43:sup43-8 Ja '64

Monitoring system improves spot weld quality. il Engineering 197:585 Ap 24 '64

New job for ultrasonics; checking pipe welds at 60 fpm. E. H. Uecker. il diags Am Mach/Metalworking Manuf 107:59-61 D 23 '63

Nondestructive testing; a necessity for welding; engineering data sheet. il Welding Eng 49:41-7 Je '64 (reprint 50c)

Resistance welding of Inconel 718 nickel base alloy. W. D. Padian and R. P. Robelotto. il diags Welding J 43:sup49-56 F '64

Weld heat-affected zone of 18 per cent nickel maraging steel. W. A. Petersen. bibliog il Welding J 43:sup428-32 S '64

ELECTRIC welding, Arc

Arc spot welds join aluminum to hosts of other metals. il Iron Age 192:80-1 N 21 '63

Arc spotwelding more than triples production. il Steel 154:123 Ap 20 '64

Arc-welded stud is Y-shaped to hold concrete refractories. il Welding Eng 49:54 My '64

Arc welding. diags Materials in Design Eng 60:107-18 N '64 (reprints 35c)

Arc welding helps to design guyed tower 3000 feet high. A. Amirikian. il diags Welding J 42:955-62 D '63

Arc welding produces machine prototype. L. P. Gajda. diag Tool & Manuf Eng 52:77 Je '64

Arc welding trouble-shooting chart; engineering data sheet. Welding Eng 49:41 Mr '64

Bulk process welding. R. F. Arnoldy. il diags Welding J 42:885-91 N '63

Design, fabrication and construction of the Calcasieu River bridge. J. Karol. il maps diags Welding J 42:867-80 N '63

Designing for arc welding; winners of the 1963 award program. il diags Product Eng 34:71-7 N 25 '63

Development of weld fabrication techniques for the S-IC Saturn V vehicle. D. M. Daley, jr. and D. C. Jefferys. il Welding J 43:34-41 Ja '64

Epoxy joins welding in tough build-up job. il diag Welding Eng 49:45 Jl '64

Factors in successful welding of machinery steels. A. W. Taylor. il Welding Eng 49:46-9 S '64

How to weld Invar. M. D. Bellware. il diags Welding Eng 49:41-3 N '64

New developments in plasma arc weld surfacing. R. S. Zuchowski and E. Garrabrant. il diag Welding J 43:13-16+ Ja '64

New welding stud design speeds refractory installation. il Steel 154:74 My 11 '64

Open-arc unit increases roller frame welding. il Welding Eng 49:78 Jl '64

Plasma makes a better weld. il Steel 155:116-17 O 19 '64

Redesign to all-welded frame improves corn cutter, cuts costs. W. E. Witt. il Welding Eng 49:74-6 Ag '64

Research efforts keep welding on the beam. H. F. Jones. il Iron Age 193:66 My 14 '64

Stud welder cuts costs on aluminum facing. il Welding Eng 49:85 N '64

Stud welding cuts costs in precast concrete panel erection. il Welding J 43:610 Jl '64

Stud welding gun cuts costs 50 per cent. il Welding Eng 49:54 Jl '64

Temperature-dependence of the rate of underbead cracking in an arc-welded low-alloy steel. A. E. Flanigan and J. L. Kaae. il Welding J 43:sup80-5 F '64

Use of stud welded connectors for field bolting of structural steel. il Welding J 43:518-19 Je '64

Versatile arc welding set. il Engineer 218:373 S 4 '64

Welded steel cut bell tower cost 51 per cent. G. A. Crawford and M. W. Jackson. il Welding Eng 49:44 N '64

Welded transition joints call for transitional design. G. H. Lynn and others. il Welding Eng 49:42-4 Jl '64

Welding gives pedestrian bridge good appearance, easy cleaning. H. V. Sargent. il Welding Eng 49:46 N '64

Welding joins aluminum to other metals easily. il Electronics 36:56-7 N 22 '63

Welding of 18 per cent Ni-Co-Mo maraging alloys. C. M. Adams, jr. and R. E. Travis. il diag Welding J 43:sup 193-7 My '64

Welding of modern special property steels. R. A. Kubli and N. D. Freeman. il diags Welding J 43:679-85 Ag '64

Welding 3½ and 9 per cent nickel steels and 36 per cent nickel-iron alloy for cryogenic service. J. W. Flannery and C. E. Witherell. bibliog diags Materials Res & Stand 4:533-9 O '64

Carbon dioxide shielding

Arcspot takes minutes out of jigmaking. il Steel 153:117+ D 9 '63

Automatic CO_2 welding of perimeter type automotive frames. J. F. Blamy. il Mach 70:111-16 My '64

CO_2 arc-spot welding of 0.28- and 0.38-inch thick steel. il Mach 70:117-18 D '63

CO_2-Mig cuts 50 per cent from weld-time on complex shapes. il Welding Eng 49:115 Ap '64

CO_2-O_2 mixture at 4:1 speeds welding. diag Steel 153:33 D 23 '63

CO_2 welding cuts time 50 per cent on mobile crane carrier chassis. il Welding Eng 49:82 S '64

CO_2 welding equals or exceeds earlier work. L. J. Cunningham and J. Baker. il Oil & Gas J 62:119-20+ S 21 '64

CO_2 welding pays off in Milwaukee. il Gas 40:125 N '64

CO_2 welding units slash costs. il Steel 153:103 N 25 '63

ELECTRIC welding, Arc—Carbon dioxide shielding—*Continued*

Flux cored wire speeds welding of T-1. il Metal Prog 85:121-2 F '64

Fully automatic CO_2 welding may stage comeback in 1964. P. Reed. il Oil & Gas J 62:106-9 My 11 '64

Is CO_2-Mig replacing submerged-arc? il Welding Eng 49:43-7 Ap '64 (reprints 50c)

Mig welding costs for Mg, Al and ss; engineering data sheet. diags Welding Eng 49:59 My '64

New aluminum Mig spot welding technique. il Welding Eng 49:72 My '64

Redesign, CO_2-Mig cut bucket cost 49 per cent. N. G. Steinmann. diags Welding Eng 49:54+ S '64

Semiautomatic welding of transmission pipelines. G. J. Williams and others. il diags Welding J 43:111-17 F '64

Significance of wire diameter in the CO_2 welding of pipe; abstract. A. A. Smith and S. A. Dye. il Metal Prog 85:162-4+ Ap '64

Switch to CO_2-Mig arc spot welding reduces cutter costs. il Welding Eng 48:44-5 N '63

Tried CO_2 weld shielding? W. H. Wooding. il diag Am Mach/Metalworking Manuf 107:76-7 N 25 '63

Two redesigns, to CO_2-Mig spot speed production, improve product. il Welding Eng 49:88 Jl '64

Visible-arc CO_2 welding speeds girth seam welding on large storage tanks. il Welding J 43:125-6 F '64

Welding rides on a carousel. il Iron Age 193:70-1 Ja 16 '64

Costs

Electron-beam welding; materials and costs. K. J. Miller and L. M. Reese. il Machine Design 36:165-8 My 7 '64

Mig welding costs for Mg, Al and ss; engineering data sheet. diags Welding Eng 49:59 My '64

Electrodes

New plant produces 2,000 tons of weld wire per month. il Welding Eng 49:67 Ja '64

Two new products reduce tanker costs. il Welding Eng 49:70-1 Ja '64

Welding of 60 chromium-40 nickel alloy to low carbon and stainless steels. H. J. Lander and others. bibliog il diags Welding J 43:sup 198-201 My '64

What's behind fine-wire welding? H. B. Cary. il diags Iron Age 194:131-4 O 29 '64

Electron beam welding

Big electron beam welder goes into production at the Atomic fuel div. of Westinghouse electric corp. L. W. Collins, jr. il diag Mach 70:79-83 Ja '64

Electron beam joins brazed refractory metals. P. Jacobson and M. Schwartz. il diags Welding Eng 49:48-50 Ap '64

Electron beam produces crack-free refractory welds. S. M. Robelotto. il diag S A E J 72:54-6 F '64

Electron beam welding. K. J. Miller and L. M. Reese. il diags Machine Design 36:218-22 Ap 23; 165-8 My 7 '64

Electron beam welding of large structures. W. A. Wilson and others. il Metal Prog 85:84-7 Mr '64

Electron-beam welding rejuvenates design of down-to-earth products; glove valves. A. W. Young. il Iron Age 194:58-9 Jl 2 '64

Electron beam welds tungsten; the unweldable. W. P. McGregor. il Mach 70:97-102 Jl '64

Electronic devices making strides in metalworking. S. B. Ruth. il diag Electronic Ind 23:62-5 Ja '64

International conference on electron and ion beam science and technology, Toronto, May 4-7; program and abstracts of papers. J Metals 16:329-35, 659-61 Ap, Ag '64

New techniques for metals joining in the space age; by electron beams. R. Bakish. bibliog diag J Metals 16:238-9 Mr '64

New tools open new fields for electron-beam welding. J. R. King. il diag Am Mach 108:63-5 Ap 27 '64

Precision electron welder uses low beam voltage. K. Aaland and R. Hill. il diags Electronics 37:32-5 Mr 6 '64

Present use, future hopes for plasma, electron beam, laser. il diags Welding Eng 49:35-40; Discussion. 40-2 Ja '64

Production applications of electron beam welding. J. W. Meier. il diags A S M E Trans ser B 86:280-6 Ag '64

Production-line packaging of solid-state circuits. D. J. Garibotti and L. R. Ullery, jr. il diags Electronics 37:73-9 S 7 '64

Recent advances in electron beam welding technology. J. W. Meier. il Welding J 42:963-7 D '63

Tooling for electron beam welding. M. M. Schwartz. il diag Tool & Manuf Eng 51:87-90 N '63

Walking seal for electron-beam welds. il diags Am Mach/Metalworking Manuf 108:90-1 Je 22 '64

Welding characteristics of commercial columbium alloys. J. M. Gerken and J. M. Faulkner. bibliog il Welding J 42:sup 84-96 F '63; Abstract. Metal Prog 85:161A+ My '64

Welding 18 per cent Ni maraging steel by electron beam. M. L. Kohn and C. D. Schaper. il Metal Prog 85:93-4 My '64

Which way to weld? resistance, TIG, or electron beam; with visual comparison. J. King. il diags Product Eng 35:77-87 O 12 '64

Heliarc process

See also
Electric welding, Arc—Inert gas shielding

Hygienic aspects

Spirometric measurements in welders. T. N. Hunnicutt, jr. and others. bibliog Archives Environmental Health 8:661-9 My '64

Inert gas shielding

All-position method welds thick plate. il Iron Age 192:102 D 12 '63

Aluminum truck body use in mining industry to increase rapidly. il diags Welding Eng 49:46-7 Jl '64

Automatic peripheral welding of converter covers to housings. il Mach 70:115 D '63

Copper; a study of its alloys, character, and its weldability; with engineering data sheet. il Welding Eng 48:33-7 N '63

Crankshaft reclamation. il Automobile Eng 54:408-11 S '64

Design for button welding saves 70 per cent in man-hours. il Welding J 43:609 Jl '64

Five million feet of automatic welding per year; glass-lined water heaters. E. R. Temme and R. M. Davis. il diag Welding J 42:881-4 N '63

Flexible Mig, Tig cut weld costs. il Welding Eng 49:74 Je '64

Gas lenses for welding torches. il Engineer 217:622 Ap 3 '64

Gas metal-arc spot welding of magnesium. R. D. Koeplinger and L. F. Lockwood. il diags Welding J 43:195-201 Mr '64

Gas metal-arc welding gives big lift to Alaska railroad. il Welding J 43:126-7 F '64

Gas metal-arc welding used to fabricate aluminum church steeple. il Welding J 43:690-1 Ag '64

Gas-shielded arc welding of 18 per cent nickel maraging steel. D. A. Corrigan. bibliog il diags Welding J 43:sup289-94 Jl '64

Gas tungsten-arc welding techniques with a new electronically controlled power supply. F. J. Grist and R. L. Hawkins. il diags Welding J 43:598-604 Jl '64

How to trouble shoot Mig welding units. R. R. Kottmeier. il Welding Eng 49:110-14 Ap '64

How to weld Ti-6Al-4V rocket cases. G. L. Vonnegut and others. il diags Metal Prog 86:119-23 S '64

Improvement of gas metal-arc spot welds. S. A. Agnew and W. N. Canulette. il diags Welding J 43:sup 184-92 Ap '64

Inert-gas-shielded arc welding of copper. G. W. Scott. il diags Tool & Manuf Eng 53:85-8 Ag '64

Line copes with varied parts, low production rate. diag Welding Eng 48:39-40 D '63

Manufacture of egcr core 1 fuel assemblies. G. M. Tolson and M. G. Arlotti. bibliog il diags Welding J 43:280-6 Ap '64

Microstructure study in a welded superalloy. W. A. Owczarski and C. P. Sullivan. bibliog il Welding J 43:sup393-9 S '64

Mig fabricates world's largest lift truck. il Welding Eng 48:42 N '63

Mig units increase production up to 35 per cent. il Welding Eng 49:52 F '64

Mig welded spiral pipe home-made in Hawaii. il Welding Eng 49:86-7 N '64

Mig welding and gas-cleaned wire cut sink costs. il Welding Eng 49:75 O '64

Modular Tig unit could replace resistance spot. il Welding Eng 48:37-8 D '63

New techniques up seal life 50 times. il Welding Eng 49:50 Mr '64

Out-of-chamber welding of thick titanium. B. M. Glasgal and Z. Kalajian. il diags Welding J 43:405-8+ My '64

Pigma: new weld method for minimum porosity. il Steel 155:30-1 O 5 '64

ELECTRIC welding, Arc—Inert gas shielding *—Continued*

Positioning counts on this Mig job. il Welding Eng 49:70 Je '64
Push-button Mig spot welds panels. il Welding Eng 49:79 Ap '64
Push-pull wire feeding extends working radius of gas metal-arc process. R. R. Lobosco and E. J. Ruland. il diags Welding J 43:581-4+ Jl '64
Revolving assembly line for gas metal-arc welding. A. L. Gentilie. il Welding J 43:510-11 Je '64
Shear strength of aluminum welds; single fillet-inert gas processes; engineering data sheet. diags Welding Eng 49:63 Ag '64
Shielding gases for arc welding; how to match them to jobs. C. R. Felmley. il diags Iron Age 194:55-7 Ag 6 '64
Solid consumable insert rings improve ship ride weld quality. H. Thielsch. il Naval Eng J 76:147-9 F '64
Spectrographic monitoring of inert-gas shields for atmospheric contaminants. E. L. Grove and others. bibliog il diags Welding J 43:sup282-8 Je '64
Vapor-shielded arc welding doubles output. il Mach 71:166-7 O '64
Welding characteristics of LA141XA magnesium-lithium alloy sheet. A. T. D'Annesa and E. Willner. bibliog il diag Welding J 43:sup 1-9 Ja '64
Welding from the inside out. il diag Am Mach 108:60-1 My 25 '64
Welding in controlled atmospheres. K. J. Miller. il Metal Prog 84:118-21+ N '63
Welding in the construction of the Hydroskimmer. J. C. Kaluzny. il Welding J 43:202-4 Mr '64
Welding nickel-iron alloys of the Invar type. C. E. Witherell. bibliog il Welding J 43:sup 161-9 Ap '64
Welding of submarine cable repeaters. H. W. Garbe and P. A. Yeisley. il Welding J 43:287-95 Ap '64
Welding speeds viaduct repairs. M. H. Frank. il Welding J 42:892-3 N '63
What's behind fine-wire welding? H. B. Cary. il diags Iron Age 194:131-4 O 29 '64
Which way to weld? resistance, TIG, or electron beam; with visual comparison. J. King. il diags Product Eng 35:77-87 O 12 '64
World's longest continuous welding project; armorless deep sea cable. H. O. Jones. il diag Welding J 43:737-44 S '64

Power supply

Arc-welding power supplies. E. F. Steinert. il Westinghouse Eng 24:135-40 S '64
Gas tungsten-arc welding techniques with a new electronically controlled power supply. F. J Grist and R. L. Hawkins. il diags Welding J 43:598-604 Jl '64
Which welding power source? data will help you choose. E. F. Steinert. il Plant Eng 18:134-8 S '64

Submerged arc

Better tooling for better welding. J. D. Brown. il Am Mach/Metalworking Manuf 107:123-4 O 14 '63
Butt welding of plates from one side. il Engineer 217:762 Ap 24 '64
Equipment simplicity justifies automation. P. McGonigle. il Welding Eng 49:48-9 Jl '64
Fabricated beams demand further welding. il Engineering 198:215 Ag 14 '64
Heat flow in welding heavy steel plate. Z. Paley and others. bibliog il diags Welding J 43:sup71-9 F '64
Improved submerged-arc welding raises speed and toughness. il diag Iron Age 193:59-61 Ap 16 '64
Is CO_2-Mig replacing submerged-arc? il Welding Eng 49:43-7 Ap '64 (reprints 50c)
Modification of Geneva Works steel ladles. R. F. Anderson. il diags Iron & Steel Eng 41:147-50 S '64
Stainless steel cladding with strip electrode. il Engineer 216:1039 D 20 '63
Sub-arc, A441 save $200,000. il Welding Eng 48:66 D '63
Sub-arc welds desert railroad trestle. il Welding Eng 49:82 Ap '64
Sub-arc welds T-1 dipper sticks. diag Welding Eng 49:58 Mr '64
Third generation welding fixture fabricates box sections four times faster. F. Mackenbach. il diags Welding J 43:299-300+ Ap '64

Testing

Comparison of processes for welding ultrahigh strength sheet steels. R. E. Travis and others. il diags Welding J 42:sup9-17 Ja '63; Abstract. Metal Prog 85:181-2 My '64
Effects of porosity in quenched and tempered steel. J. W. Bradley and R. B. McCauley. bibliog il diag Welding J 43:sup408-14 S '64
Methods to establish procedures for welding low alloy steels. B. J. Bradstreet. bibliog diags Eng J 46:37-41 N '63
Rocket blastoff depends on welded motor cases. il Welding Eng 49:46-8 My '64
Temperature effects on the hydrodynamic compression treatment of spot welds. G. Welter and J. A. Choquet. bibliog il Welding J 43:sup202-8 My '64
Welding nickel-iron alloys of the Invar type. C. E. Witherell. bibliog il Welding J 43:sup 161-9 Ap '64

ELECTRIC welding machines

Automatic vertical welding machine. il Marine Eng/Log 69:82 Jl '64
Automatic welding chops gondola rebuilding costs by one-third. E. W. Mann. il Welding J 43:44-5 Ja '64
Automatic welding of nine per cent nickel steel for low temperature service. J. J. Wright and W. B. Sharav. il diags Welding J 43:745-52 S '64
Automatic welding of small diameter pieces. il Engineering 197:423 Mr 20 '64
Automatic welding of small diameter workpieces. il Engineer 218:197 Jl 31 '64
Automatic welding of thin-gage materials. R. J. Oertel. il Welding Eng 49:42-4 Ag '64
Big welds by Bethlehem. L. Nickert. il Comp Air Mag 69:6-9 My '64
Electroslag solves a head-forming problem. il Welding Eng 49:70 Jl '64
Factors involved in the resistance seam welding of austenitic and hardenable stainless steel. F. B. Nance and others. il diags Welding J 43:sup209-14 My '64
Girth seam welding of tank farm cuts construction time. il Welding Eng 49:68+ O '64
Heat control for fan increases welder life. Welding Eng 49:76-7 O '64
Investigation of the properties of electroslag welds in varous steels. R. S. Rote. il diag Welding J 43:421-6 My '64
Kaiser sells automatic beam welder. il diags Eng N 171:47-8 N 28 '63
Keep your weld wire moving! B. C. Motl. diags Am Mach 108:86-8 S 14 '64
Laser welder makes continuous bead. il Electronics 37:11 Ja 10 '64
Maintenance costs slashed with automatic welder. R. S. Torgerson. il Rock Prod 67:78-9 Je '64
Percussive-welding machine for lamp electrodes. il Engineer 217:963 My 29 '64
Portable system furnishes air for mechanized spotwelding. R. R. Irving. il Iron Age 193:52-3 Ja 9 '64
Resistance welding; foil-butt welds for transformer tanks. il diag Welding Eng 49:45 F '64
Resistance welding machines cut downspout elbow costs; speed spark plug production. il Welding Eng 49:77 N '64
Resistance welding method adapted to tapered tubing manufacture. il Iron & Steel Eng 41:165 My '64
Resistance welding of Inconel 718 nickel base alloy. W. D. Padian and R. P. Robelotto. il diags Welding J 43:sup49-56 F '64
Roll-spot welds join Atlas fuel tanks. il Welding Eng 49:95 Ap '64
Self-setting, parallel-gap welder saves time and rejects. J. Shank. il diag Electronics 36:91-2+ D 6 '63
Shearwelder speeds up processing of coils. il Steel 154:31+ Je 15 '64
Special couplings help. il Safety Maint 127:57 Je '64
Special resistance welding and Tig techniques applied to tubing. il Welding Eng 49:77 Jl '64
Steel company welds high-strength steel with new electroslag process. il Welding J 43:760 S '64
Strip welder and peeler. il diag Mech Eng 86:55 My '64
Three-phase rectifier welding equipment. il Engineer 217:284 F 7 '64
Timer for resistance welding machine. il Engineer 217:1044 Je 12 '64
Tiny welder speeds microworking. il Steel 154:60 Ja 20 '64
Unique setup welds aluminum converter parts; Buick motor div., Flint, Mich. H. Chase. il Automotive Ind 131:58-9 Ag 1 '64
Unit shears, welds, planishes coiled aluminum strips. il Welding Eng 49:80 S '64
Versatile arc welding set. il Engineer 218:373 S 4 '64
Welding from the inside out. il diag Am Mach 108:60-1 My 25 '64

ELECTRIC welding machines—*Continued*

Welding looped tubing cuts cost, saves space. diag Welding Eng 49:72 S '64

Welding machine for tube sealing. il Engineer 217:488 Mr 13 '64

Welding plays production role in custom-designed lines. R. R. Irving. il diags Iron Age 192:147-9 D 5 '63

Welding rectifier unit. il Engineer 217:707 Ap 17 '64

Which welding power source? data will help you choose. E. F. Steinert. il Plant Eng 18:134-8 S '64

Control

Equipment simplicity justifies automation P. McGonigle. il Welding Eng 49:48-9 Jl '64

Fiat automated welding line. il diag Automobile Eng 54:192-7 My '64

Linear ramp prevents weld pinholes. J. Grist. diags Control Eng 11:91+ Jl '64

Mechanical feedback regulates hydropneumatic speed control. T. Nakamura and Y. Okabe. il diags Hydraulics & Pneumatics 17:61-5 Je '64

Nelson stud fastener system with modular control unit. il Mach 71:222 O '64

New electrical controls for welding. Engineering 198:342 S 11 '64

Speed control circuit starts and stops welder smoothly. T. V. De Agostino. il diag Hydraulics & Pneumatics 16:100-1 N '63

Spot weld quality control. il Engineer 217:708 Ap 17 '64

Tv monitor simplifies welding of vessels. J. Giron. il Mach 70:132-5 N '63

Welding machine timer. il Engineer 218:289 Ag 21 '64

Fixtures

Economical fixturing can be obtained by sensible designing. L. Lane. il Welding Eng 49:36-9 Ag '64

Third generation welding fixture fabricates box sections four times faster. F. Mackenbach. il diags Welding J 43:299-300+ Ap '64

Maintenance and repair

Automated maintenance class room. il Safety Maint 128:55 O '64

How to trouble shoot Mig welding units. R. R. Kottmeier. il Welding Eng 49:110-14 Ap '64

Successful preventive maintenance. il Welding Eng 49:35-40, 42 Mr '64 (reprints 50c)

Numerical control

Equating $1500 against a 12 inch weld in electronic tubes. il Welding J 43:428-9 My '64

Modified nc drill welds circuit modules. L. W. Leckliter. il Control Eng 10:93 D '63

Welding automation. il diags Welding Eng 48:33-40 D '63

ELECTRIC welding machines, Portable

Automatic tube-welding guns make leakproof heat-exchanger joints. il Oil & Gas J 62:120 Ap 27 '64

Combination welder is versatile. il Eng N 173:42 S 3 '64

In-place ferrous tube splicer. R. S. Collins. il Mach 70:101-3 Ja '64

ELECTRIC wire

Cryogenic characteristics of alloy wires. A. B. Kaufman. il Instruments & Control Systems 37:119-21 Mr '64

Hand coiler speeds wire handling. R. G. Remington. il Elec World 161:122 F 10 '64

High-temperature wire and cable. D. Binch. il Electronic Ind 23:91-3+ Je '64

Improvements in the design of precision wire-wound resistors. J. R. Price. diag Electronic Eng 36:474-7 Jl '64

Magnetic properties of cupron wire at low temperatures. E. Lerner and others. R Sci Instr 35:117 Ja '64

Magnetoresistance effect in Advance and Evanohm wires at low temperatures in fields up to 50 kG. E. Lerner and J. G. Daunt. R Sci Instr 35:1069-70 Ag '64

Measurements of skew, dispersion, and creep in plated wires. H. S. Belson. il diags IEEE Trans Com & Electronics 83:317-20 My '64

Remote wire dereeling saves space, Penn electric motor co. il diags Elec Constr & Maint 63:127-8 Ag '64

Resistance minimum in Evanohm wire. R. C. Pandorf and others. R Sci Instr 35:1070 Ag '64

Speedy n/c machines process, wrap wire. il Steel 155:48-9 Ag 31 '64

Superconductive columbium-tin wire. L. C. Shaheen. Electro-Tech 72:11-12 N '63

Technical progress in communications wires and cables 12th annual symposium, Asbury Park, N.J. Dec. 4-6; abstracts of papers. Rubber Age 94:639-41 Ja '64

Versatile machine winds potentiometer coils. il diag Automation 11:65-8 F '64

See also

Electric cables

Electric contacts

Joints

Electrical terminations; wrapped-wire connections. J. E. Schaeffer. bibliog il diags Machine Design 36:202-8 My 21 '64

Insulated wire welding process. M. Perl. il diag Welding J 43:512-16 Je '64

Manufacture

High speed fine wire enameling equipment. D. C. Peisert. Wire & Wire Prod 39:231-3+ F '64

Protection

Determining permeability constants of wire insulation and cable jacket. A. G. Ferrari. bibliog il diags Mod Plastics 41:153-4+ Je '64

Ethylene-propylene rubber for wire and cable insulation. W. C. Smith and others. bibliog il Rubber World 149:54-65 Mr '64

Foaming FEP for wire insulation. S. K. Randa. diag Plastics Tech 10:42-4 Ap '64

High speed rotating disc dot dash coding apparatus for application of vinyl ink marks on PVC insulated conductors. H. L. Woellner. il diags Wire & Wire Prod 39:1026-8+ Jl '64

Insulation resistance changes in polyethylene when exposed to high temperature and humidity. W. D. Paist. diags Wire & Wire Prod 39:1587-90+ O '64

New polyethylenes for wire and cable. A. J. Houston and others. bibliog diag Rubber World 149:40-5 Mr '64

Polyester film laminates for wire insulation. W. L. Gore and R. E. Martz. il Wire & Wire Prod 39:380-2+ Mr '64

Wire and cable insulation problems of space vehicles. L. D. Walker. Wire & Wire Prod 39:401+ Mr '64

Wiring insulation. il Electronic Ind 23:144-5 F '64

Rating

Current rating for bundled wire. A. M. Samborsky. bibliog Machine Design 36:188-96 O 22 '64

Testing

Improved wire diameter gage with automatic control. W. C. Hutchins. Wire & Wire Prod 39:859-60+ Je '64

Tester checks individual wires, indicates faults. diag Automation 11:21 F '64

ELECTRIC wiring

Air conditioner outlets. diags Elec Constr & Maint 63:118 Mr '64

Comparing permanent electrical connections. G. W. Mills. il Bell Lab Rec 41:366-9 O '63

Conductors for close quarters; thin-insulation wiring. A. G. Schuh. il diags Product Eng 34:63-70 N 25 '63

Distribution simplified by pullboxes, racks and hangers at Calaveras cement plant in Redding, Calif. il diags Elec Constr & Maint 62:121-2 N '63

Evaluate 200-amp meter sockets. D. F. Carlisle. diags Elec World 160:97-8 D 2 '63

Flat-type wiring cable; it unrolls like a ribbon and lies flat on the floor; abstract. C. P. Christman. il S A E J 72:85 F '64

Managing electrical maintenance; wiring. L. LaValley. il diag Textile Ind 128:120-2+ Ap '64

Multi-outlet assembly for research labs. il Elec Constr & Maint 63:90+ Ja '64

National wiring sales conference, 20th, Chicago, Feb. 24-25. Elec Constr & Maint 63:174-7 Ap '64

New Underwriters' Laboratories testing station. J. H. Watt. il diag Elec Constr & Maint 63:90-3 Mr '64

Solderless wrapping of pigtail components. R. H. Van Horn. il Bell Lab Rec 41:414-18 D '63

Steel ducting for underfloor electrics. il Engineering 198:245 Ag 21 '64

U.S. and European wiring symbols; comparative lists. G. W. Heumann. diags Product Eng 35:90-1 Ja 20 '64

Utility wiring plan aids apartment sales. il diag Elec World 161:138 Je 15 '64

Wiring and control at home. il Engineering 197:656 My 8 '64

ELECTRIC wiring—*Continued*

Wiring installation methods in static switching, analog and digital control. F. Geisheimer. bibliog diags Iron & Steel Eng 41:131-8; Discussion 138-40 Jl '64

Wiring solution for a long club room. il Illum Eng 59:544 Ag '64

Wiring systems tailored to needs; flat conductor cable systems. il Automation 10:13 N '63

See also

Electric codes
Electric distribution
Electric fuses
Electric lines
Electric transmission
Electricity in the home
Insulation (electric)
National electrical code

Diagrams

Machine-aided preparation of electrical diagrams. H. M. Kalish. il diags Bell Lab Rec 41:338-45 O '63

Standards

Available ASA receptable designs and their application. P. J. Schram. diags Elec Constr & Maint 63:102-3 Je '64

Symbols

See Electric symbols

ELECTRIC wiring (change over). See Electric distribution—Change over

ELECTRIC wiring tools

Stripper simplifies removal of poly cable insulation. il Elec World 161:84-5 Je 1 '64

Wire tightener aids with many jobs. J. H. Ratcliff, jr. il Elec World 161:86 Ap 6 '64

ELECTRIC workers

See also

Linemen

ELECTRICAL apparatus service association

Annual meeting, 31st, New York, June 14-18; with abstracts of papers. Elec Constr & Maint 63:185-90 Jl '64

ELECTRICAL contractors association, National. See National electrical contractors association

ELECTRICAL inspectors, International association, of. See International association of electrical inspectors

ELECTRICAL manufacturers association, National. See National electrical manufacturers association

ELECTRICALLY exploded wires. See Exploding wire phenomena

ELECTRICITY

See also

Corona (electricity)
Dielectrics
Electric currents
Electroacoustics
Electrodynamics
Electrostatics
Hall effect
Insulation (electric)
Lighting
Photoelectric effect
Piezoelectricity
Reciprocity theorem
Thermoelectricity

Physiological effect

Electrical stimulation of bacteria. G. Spohr. il Water Works & Wastes Eng 1:41-3 Ap '64

Study and teaching

Electricity is fun in this classroom. il Elec World 160:48 O 21 '63

ELECTRICITY, Injuries from

Electrical hazards in fighting fires. il Safety Maint 128:32-4 S '64

See also

Electric equipment—Safety measures
Electric shock

ELECTRICITY, Static

Frictional electrification of belts of insulating materials. R. G. Cunningham. il J Ap Phys 35:2332-7 Ag '64

No-static blending for worsted tops. il Textile World 113:60-2 D '63

Plastics and static buildup: a review of the how, why and where of static charge. D. J. Doyle. il Plastics World 22:26-7 O '64

Reduce static hazards by minimizing the human element. P. N. Malherbe. diags Oil & Gas J 62:108 F 17 '64

Static electricity, an industrial hazard. G. Corfield. Gas 40:15 My '64

Static electricity: industry's invisible hazard. D. J. Doyle. il diags Safety Maint 128:45-50+ N '64

ELECTRICITY in air conditioning

Electric heating and cooling; steady progress; conference report. R. Zumwalt. Air Cond Heat & Ven 61:89 Jl '64

Thermoelectric air conditioners. il diag Mech Eng 86:69 Jl '64

Thermoelectric air conditioning for all-year climate control. il diag Power 108:104 Jl '64

Total-electric heating-cooling used in suburban Philadelphia hi-rise apartments. W. A. Schertzer. il Air Cond Heat & Ven 61:108-9 O '64

See also

Electric fans

ELECTRICITY in mining

About silicon diodes and dc frame grounds. il Coal Age 69:98-100 Ag '64

Electricity in mines. C. D. Wilkinson. Inst E E Proc 111:73-9 Ja '64

Modern underground power centers; Geco mines ltd. F. E. Hill. diags Can Min & Met Bul 57:763-4 Jl '64

Operating experience with 4160 volts at the face. A. J. W. Schwandt. il diag Min Cong J 49:76-8 O '63

Problems and developments in the application of electricity to mining; abstract. E. Loynes. Inst E E Proc 111:375-6 F '64

See also

Coal mines and mining—Electric equipment
Coal mines and mining—Power
Mine hoisting, Electric
Prospecting—Electric methods

Safety measures

See also

Safety lamps, Electric

ELECTRICITY in refrigeration

See also

Refrigerators

ELECTRICITY in the home

Do utilities underestimate kwhr usage? Elec World 161:44+ F 10 '64

Evaluate 200-amp meter sockets. D. F. Carlisle. diags Elec World 160:97-8 D 2 '63

FPC studies US total-electric homes. Elec World 160:161-4 O 21 '63

Golden Glow home promotes total-electric living. il Elec Constr & Maint 63:84-6 Jl '64

Key home services united into one compact package. il Elec World 162:91 S 7 '64

Magnetic-tape recording meters improve load survey accuracy. F. G. Hammer and J. W. Crawford. Elec World 160:98-100 N 4 '63

Topeka's all-electric apartments prove out. il plans Elec Constr & Maint 63:68-9 Ja '64

Total-electric home insurance rates reduced. il Elec World 161:98 My 4 '64

Why the lag in residential sales? Elec World 161:21 My 11 '64

See also

Apartment houses—Electric equipment
Electric apparatus and appliances, Domestic
Electric heating
House lighting

ELECTRICITY in the petroleum industry

Flexibility is the key to new electric rig's efficiency. il Pet Management 35:70-1 N '63

Remote station self-sufficiency via gas flow turbine generator. S. J. Bellassai. il Gas Age 130:26-8+ N '63

24,000-v system cuts waterflood costs. W. B. Bleakley. il diag Oil & Gas J 62:152-4 O 5 '64

See also

Gasoline plants—Power
Petroleum—Pumping, Electric
Petroleum—Well drilling, Electric
Petroleum pipe lines—Pumping stations, Electric
Petroleum products pipe lines—Pumping stations, Electric

ELECTRICITY on the farm

Brooders. conversions have tremendous potential as rural load. Elec World 162:92 N 2 '64

Electricity for world agriculture. E. W. Golding and P. G. Finn-Kelcey. bibliog Inst E E Proc 109 pt A:321-35 Ag '62; Discussion. 109 pt A:335-8; 111:358-60 Ag '62, F '64

Farm exhibitions promote total-electric concept. il Elec World 162:91-2 Ag 24 '64

Utilities may be losing a lot of farm market revenue to LP gas. Elec World 162:135-8 O 5 '64

Vice president solves shrinking farm load. E. J. Hurley. il Elec World 162:63 Ag 24 '64

See also

Electrohorticulture

ELECTRICITY supply

Electricity for world agriculture. E. W. Golding and P. G. Finn-Kelcey. bibliog Inst E E Proc 109 pt A:321-35 Ag '62; Discussion. 109 pt A:335-8; 111:358-60 Ag '62, F '64

Man on bicycle symbolizes power in undeveloped lands. R. C. Hamilton. diags S A E J 72:68-71 O '64

Statistics

Norway leads kwhr use per capita. Elec World 161:23 Ap 13 '64

Africa

Power for Africa conference. Addis Ababa, Oct. 21-31. Engineer 216:866 N 22 '63

Alaska

Low-cost power to speed growth of Kenai Peninsula. il Power Eng 68:54 F '64

Quake-hit Alaska systems recovering. il Elec World 161:49-50 Ap 6 '64

Australia

Here's Australia; capsule sketch of power supply. I Dawes. il Power Eng 68:52-3 Jl '64

Brazil

Brazil's power industry growth lags. L. D. Blachford. il map Elec World 162:55+ Ag 10 '64

British Columbia

Operation and maintenance of British Columbia hydro and power authority mainland-Vancouver Island 132-kv submarine cable interconnection. G. Barclay and A. L. Verhiel. il diags IEEE Trans Power Apparatus & Systems p876-84 D '63

California

Los Angeles utility backs Northwest intertie. Elec World 161:17-18 Mr 2 '64

New geysers to harness. il map Elec World 160:15-16+ D 9 '63

Canada

Power in Canada. il Eng J 46:31-5+ O '63

Scene is set for power exports to U.S. map Can Chem Process 48:42-4+ Mr '64

US, Canada breaking power barriers. il map Elec World 161:23-5 F 17 '64

Detroit

Detroit Edison levels workload on men and resources with CPM and MARS. L. W. Coombe and C. M. Baer. il Elec World 162:110-12 S 21 '64

Europe

East Europe grid to ease shortages. map Elec World 161:52-3 Ja 13 '64

Fiji Islands

Geothermal heat shows possible use in the Fiji Islands. J. N. Monro. il Min Eng 16: 66-7 S '64

Finland

Finland reports power plant construction since World war II. IEEE Trans Power Apparatus & Systems 83:sup5A-6A Ag '64

Florida

Plan digital dispatch of 12 units. W. B. Simonds. map Elec World 161:56-7 Ja 27 '64

France

Electricity production and consumption in France. Engineer 217:364 F 21 '64

Progress in direct current transmission. il Engineer 217:1157-8 Je 26 '64

Great Britain

Britain weighs ehv transmission over 400 kv. J. H. M. Sykes. il map Elec World 161: 24-5+ My 25 '64

British utility executive views CEGB's power troubles; interview with A. R. Cooper. Elec World 160:75+ N 18 '63

Duty and development of modern power station plant. F. H. S. Brown. maps diag Inst Mech Eng Proc 177:1133-46 '63

Electricity consumer research. Engineer 217: 398-9 F 28 '64

Electricity supply developments in England and Wales; C.E.G.B. annual report. Engineer 218:580-2 O 9 '64

First 300 mw turbine-generator on the grid. il Engineering 197:153 Ja 24 '64

How the grid is designed to take it. diag Engineering 198:187-8 Ag 7 '64

Oil-filled cables go under water. il diags Engineering 198:193 Ag 14 '64

Progress in direct current transmission. il Engineer 217:1157-8 Je 26 '64

Hawaii

Optimize Hawaiian underground distribution. J. F. Richardson, jr. and others. flow chart diags Elec World 162:64-6+ Ag 10 '64

Idaho

House rejects southern Idaho power line. Chem & Eng N 42:26 Je 22 '64

Italy

Dc link to use sea-ground return. il map Elec World 162:69+ Jl 13 '64

Jacksonville Beach, Florida

Underground distribution cuts costs, solves tree problems. B. H. Brantley. il Elec World 161:28-9, cover Ja 20 '64

Key West, Florida

Hurricanes rip at Key West's new 69-kv line over land and water. M. E. Rosam, 2d. il Elec World 160:20-2 N 11 '63

Labrador

Con Edison weighs dc on Labrador line. map Elec World 160:14+ D 9 '63

London

West London power failure interim statement. il Engineer 217:830 My 8 '64

Massachusetts

500 mw today, 2,000 mw tomorrow on Cape Cod. plan Elec World 162:19 Ag 3 '64

Mexico

Mexico pushes electric power for industry. il map Elec World 162:48-9+ S 7 '64

Michigan

Michigan pool completes first year; 375-mw addition planned for 1967. W. J. Mosley and H. C. Reasoner. il map Elec World 161:66-8+ Je 29 '64

Middle western states

Chicago-Twin-Cities 345-kv line economies. map Elec World 160:28-9+ D 16 '63

Diversity swap to save $40 million; Ill.-Mo. pool sells 200 mw of winter surplus to AEP system. map Elec World 161:22 Ap 27 '64

Mid-Continent area power planners study plans 5,956 mw by 1980. Elec World 162: 108 S 21 '64

Story of MAPP; giant common-sense power pool. K. S. Vig. map plan Power Eng 68: 61-4 F '64

Moscow

Dual voltages make Muscovites see red. il Elec World 161:19-20 Je 8 '64

New York (city)

Canadian hydro for New York city; Grand Falls project would cost $1 billion. maps Eng N 172:13-14 Ja 16 '64

Computer-directed control set for '66. il Elec World 162:62 N 2 '64

Con Edison extends welcome at energy control center. il Elec World 160:34-5 D 30 '63

345-kv manhole splicing nears finish in Astoria tunnel under the East River. C. T. Hatcher. il diags Elec World 161:120-3+ Mr 23 '64

345-kv substations rising on seven sites. T. A. Griffin, jr. and R. M. Higbie. il diags Elec World 162:50-3+ S 7 '64

New Zealand

New Zealand has big power plans. map Eng N 171:42 N 28 '63

Northwestern states

Los Angeles utility backs Northwest intertie. Elec World 161:17-18 Mr 2 '64

Ohio

Ohio Power and co-ops join to build huge plant. il Elec World 160:79 N 4 '63

Pennsylvania

Utilities launch Susquehanna River Basin study il map Elec World 162:20-1 Jl 20 '64

Puerto Rico

Operation bootstrap. R. V. Urrutia. il Power Eng 67:47-9 D '63

Submarine cable links Puerto Rican islands. J. Negroni and K. P. Roberts. il map Elec World 162:26-7 O 26 '64

Quebec (province)

Thermal power station joins a Canadian hydro complex. H. J. Petersen. il plan Power Eng 68:49-52 F; 56-9+ Ap '64

ELECTRICITY supply—*Continued*

Russia

Soviet output on target, but plans hit. Elec World 161:64-5 F 24 '64

Soviets build 500-kv grid in Siberia. il map Elec World 161:17-19, cover Mr 30 '64

Soviets eye geothermal development. map Oil & Gas J 62:122-4 Jl 27 '64

USSR delays power plant construction. Elec World 161:20 F 3 '64

Sardinia

Dc link to use sea-ground return. il map Elec World 162:69+ Jl 13 '64

Scotland

Electrical transmission and distribution in the south of Scotland. A. Erskine and others maps diags IEEE Trans Power Apparatus & Systems 83:1016-27; Discussion. 1027-8; Reply. 1028-9 O '64

Southeastern states

Carolina-Virginia companies form power pool. A. J. Skaale. map Elec World 162:24-6 Ag 17 '64

No TVA power involved in dispute. K. Holum. Elec World 160:76 D 30 '63

Sweden

Development of the Swedish 400-kv network. G. Jancke. il map IEEE Trans Power Apparatus & Systems 83:197-205 Mr '64; Discussion. 83:422-5; Reply. 425-6 Ap '64

Sweden; new energy plans take hold. J. J. O'Connor. il map diags Power 108:179-86 F '64 (reprints 25c)

United States

Diversity less than one per cent of peaks. map Elec World 160:80 N 4 '63

Hamilton Falls power; which way out? il map Elec World 162:59-60 Jl 27 '64

Scene is set for power exports to U.S. map Can Chem Process 48:42-4+ Mr '64

Western states

Congress balky on NW-SW intertie plan. il map Elec World 162:59-61 Jl 13 '64

Economic appraisal of geothermal power. A. Kaufman. il Min Eng 16:62-6 S '64

House unit trims federal power funds. Elec World 160:14 N 25 '63

Regional preference fight settled. map Elec World 162:41 Ag 24 '64

Wyoming

Plant takes special coal-water systems. Elec World 161:128 Mr 23 '64

ELECTROACOUSTIC transducers

Isopentane bond for low temperature ultrasonics. R. Stern and others. R Sci Instr 35:1077-8 Ag '64

Multi-frequency transducers improve ultrasonic cleaning. E. G. Cook. il Electronics 36:54+ N 22 '63

New types of ultrasonic transducers. il Bell Lab Rec 42:133 Ap '64

New types of ultrasonic transducers operate in 100- to 1000-mc range. N. F. Foster. Franklin Inst J 277:513 My '64

Ultrasonic generator operates at 800,000 cycles per second. Chem & Eng N 42:50 O 19 '64

ELECTROACOUSTICS

Electroacoustic amplifier with net electrical gain. F. S. Hickernell and N. G. Sakiotis. diag IEEE Proc 52:194-5 F '64

Electroacoustic revolution. L. L. Beranek. il Audio 48:10+ Ag '64

ELECTROCARDIOGRAPH

Amplifier can be adjusted to cancel unbalanced noise. J. R. Smith, jr. diag Electronics 37:60-1 Ag 24 '64

ELECTROCARDIOGRAPHY

E.c.g. recorder for active subjects. H. Hirschberg. diags Electronic Eng 36:38-9 Ja '64

Pulse period meter with short response time, applied to cardiotachometry. P. A. Tove and J. Czekajewski. bibliog diags Electronic Eng 36:290-5 My '64

Studies in ecology of coronary heart disease; variations in the human electrocardiogram under conditions of daily life. L. E. Hinkle, jr. and others. il Archives Environmental Health 9:14-20 Jl '64

ELECTROCHEMICAL analysis

Analytical technique detects and measures trace metals; abstract. F. J. Berlandi and H. B. Mark, jr. Chem & Eng N 42:84 S 14 '64

Anodic stripping voltammetry of gold and silver with carbon paste electrodes. E. S. Jacobs. il diag Anal Chem 35:2112-15 D '63

Application of potentiostatic current integration to the study of the adsorption of cobalt(III)-(ethylenedinitrilo)tetraacetate on mercury electrodes. F. C. Anson. Anal Chem 36:932-4 Ap '64

Application of stripping analysis to the determination of silver(I) using graphite electrodes. S. P. Perone. bibliog Anal Chem 35:2091-4 D '63

Electroanalytical controlled-potential instrumentation. G. L. Booman and W. B. Holbrook. bibliog il diags Anal Chem 35:1793-809 N '63

Electrochemical determination of xanthine oxidase and inhibitors. G. G. Guilbault and others. Anal Chem 36:606-10 Mr '64

Electrochemical fractionation; potentiostatic chromatography and elution voltammetry. D. K. Roe. bibliog diag Anal Chem 36:2371-2 N '64

Galvanostalametry; a new technique, based on the negative pressure of liquids, for investigating electrochemical phenomena at an electrode. J. L. Sligh and A. Brenner. il diags Electrochem Soc J 110:1136-42 N '63

Review of fundamental developments in analysis; electronanalysis and coulometric analysis. A. J. Bard. Anal Chem 36 [no 5]:70R-9R bibliog(p77R-9R) Ap '64

Review of fundamental developments in analysis; electrochemical relaxation techniques. W. H. Reinmuth. bibliog Anal Chem 36 [no 5]:211R-19R Ap '64

Role of the electroanalytical chemist in biochemical research. W. C. Purdy. bibliog il Anal Chem 36:sup29A-39A Ap '64

Use of the motion picture camera in interferometric electrochemical investigations. R. N. O'Brien. il diag Electrochem Soc J 111:1300-2 N '64

ELECTROCHEMICAL apparatus

Electrochemical *p*H-stat and its application to corrosion studies. F. A. Posey and others. bibliog diags Electrochem Soc J 110:1183-90 D '63

Heath analog computer as a versatile analytical tool. G. W. Ewing and T. H. Brayden, jr. diags Anal Chem 35:1826-8 N '63

Multipurpose electrochemical instrument for control of potential or current. G. Lauer and others. bibliog diags Anal Chem 35:1789-93 N '63

Multipurpose operational amplifier instrument for electroanalytical studies. W. L. Underkofler and I. Shain. il diags Anal Chem 35:1778-83 N '63

Practical instrument synthesizer. C. F. Morrison. bibliog diags Anal Chem 35:1820-6 N '63

ELECTROCHEMICAL cutting

Chemical milling, electrochemical machining, and electric discharge machining. C. L. Faust. il Machine Design 36:163+ Ag 13 '64

Cincinnati Elektrokem milling machines designed for efficient electrochemical machining. il Mach 70:142-3 Jl '64

Electro chemical machining. C. F. Carter. Light Metal Age 22:6 Ag '64

Electrochemical machining; abstract. W. B. Kleiner. Metal Prog 85:148-9 Je '64

Electrochemical machining: now a practical production too. W. B. Kleiner and F. A. Pitschke. diags S A E J 72:66-8 N '64

Electrochemical machining; process on the move. il Steel 154:89-94 Ap 20 '64

Electro-chemical machining sculptures complex shapes in tough alloy forgings. A. W. Young. il Iron Age 193:143-5 Je 11 '64

Electrochemical machining takes big bites at low cost, says firm. il Steel 155:84-5 S 28 '64

Electrogel machining of honeycomb core. J. L. Jamieson and L. A. Holmes. il diag Tool & Manuf Eng 51:105-6 N '63

Exotic materials need exotic metal-removal. R. L. Rod and others. il diags S A E J 72:46-53 Mr '64

Miniature electrochemical method deburrs, removes stock selectively. il Mach 70:137 Ap '64

New cost cutting frontiers. il diags Steel 154:80-9 Ap 13 '64

Power unit packs big punch for edm and ecm. R. H. Eshelman. il Iron Age 194:125 O 29 '64

ELECTROCHEMICAL society

Annual report of the board of directors, of the secretary, and financial statement. Electrochem Soc J 111:sup 149C-51C Jl '64

Meeting. New York. Sept. 29-Oct. 3; abstracts of papers. Metal Finishing 61:78-80 N '63

ELECTROCHEMICAL society—*Continued*
Meeting, Toronto, May 3-7; program and abstracts of papers. Electrochem Soc J 111: sup45C-81C Mr '64
Meeting, Washington, Oct. 11-15; program and abstracts of papers. Electrochem Soc J 111:sup 169C-209C Ag '64
Scientific communication; presidential address. W. J. Hamer. Electrochem Soc J 111:sup 145C-7C Jl '64

ELECTROCHEMISTRY
Advanced electrode assembly for electrochemical measurements in aqueous solutions. H. G. Feller and J. Osterwald. diags Electrochem Soc J 111:119-20 Ja '64
Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36: 2062-4 O '64
Behavior of the iodide-iodine couple at platinum electrodes. R. A. Osteryoung and F. C. Anson. bibliog Anal Chem 36:975-80 My '64
Constant current transition time investigations of the electrochemical oxidation of formate-formic acid at a smooth platinum electrode. R. A. Munson. bibliog il Electrochem Soc J 111:372-6 Mr '64
Correlation of electrochemical oxidation potential of organic compounds with photoionization potential. W. C. Neikam and others. bibliog Electrochem Soc J 111:1190-2 O '64
Determination of charge passed following application of potential step in study of electrode processes. J. H. Christie and others. Anal Chem 35:1979 N '63
Difference effect on magnesium dissolving in acids. W. J. James and others. bibliog Electrochem Soc J 110:1117-20 N '63
Direct current metering equipment. il Ind & Eng Chem 56:73 O '64
Electrochemical behavior and corrosion of iron crystals in ammonium nitrate solutions. J. Flis and others. bibliog il diags Corrosion 20:184-8 Je '64
Electrochemical behavior of aluminum alloys susceptible to intergranular corrosion; electrode kinetics of oxide-covered aluminum. F. H. Haynie and S. J. Ketcham. bibliog diags Corrosion 19:403-7 D '63
Electrochemical behavior of nickel compounds. A. K. M. Shamsul Huq and others. bibliog Electrochem Soc J 111:270-86 Mr '64
Electrochemical calorimetry. A. Brenner and S. L. Catey. bibliog diags Electrochem Soc J 111:1225-30 N '64
Electrochemical chlorination of n-dodecane. F. N. Ruehlen and others. diag Electrochem Soc J 111:1107-9 O '64
Electrochemical oxidation of ethylene; an experimental study. M. Green and others. bibliog diags Electrochem Soc J 111:721-8 Je '64
Electrochemical oxidation of formic acid on platinum. C. W. Fleischmann and others. bibliog Electrochem Soc J 111:602-5 My '64
Electrochemical oxidation of propane at room temperature. V. R. José and V. D. Long. bibliog diag J Ap Chem 14:64-9 F '64
Electrochemical studies using conducting glass indicator electrodes. T. Kuwana and others. bibliog Anal Chem 36:2023-5 S '64
Electrochemical study of kinetics of a chemical reaction coupled between two charge transfer reactions; potentiostatic reduction of *p*-nitrosophenol. G. S. Alberts and I. Shain. bibliog diag Anal Chem 35:1859-66 N '63
Electrochemical study of thin adsorbed oxygen films on rhodium in oxygen-saturated acid solution. J. P. Hoare. bibliog Electrochem Soc J 111:232-6 F '64
Electrochemistry of diphenylpicrylhydrazyl. E. Solon and A. J. Bard. bibliog Am Chem Soc J 86:1926-8 My 20 '64
Electrochemistry of inorganic difluoramino compounds; the mechanism of the electrochemical oxidation of difluoramine and the use of this reaction in the synthesis of alkyl difluoramines. G. A. Ward and C. M. Wright. bibliog Am Chem Soc J 86:4333-9 O 20 '64
Electrochemistry of the dissolution of zirconium in aqueous solutions of hydrofluoric acid. R. E. Meyer. bibliog diag Electrochem Soc J 111:147-55 F '64
Electrode reactions and mechanism of silicon anodization in N-methylacetamide. E. F. Duffek and others. bibliog il diag Electrochem Soc J 111:1042-6 S '64
Evaluating the effective resistances of diaphragms or electrolytic separators. R. E. Meredith and C. W. Tobias. bibliog il diag Electrochem Soc J 110:1257-60 D '63
Galvanostalametry; electrochemical phenomena detector. Franklin Inst J 277:187-8 F '64
Interferometer for electrochemical investigations. R. N. O'Brien. bibliog il diags R Sci Instr 35:803-6 Jl '64
Magnesium spinel coating electrochemically formed on magnesium; HAE (modified). H. W. Huggins. Plating 51:317-23 Ap '64
New applications of electrochemistry; abstract and discussion. W. F. K. Wynne-Jones. Chem & Ind p842-3 My 16 '64
Relative electrocatalytic activity of noble metals in the oxidation of ethylene. H. Dahms and J. O. Bockris. diag Electrochem Soc J 111:728-36 Je '64
System gives useful current densities. G. Sandstede. Chem & Eng N 42:42-3 My 18 '64

See also
Electrochemical analysis
Electrodeposition of metals
Electrodes
Electrolysis
Electrolytes
Electrolytic cells
Electrometallurgy
Electroplating
Ionization, Electrolytic
Metal cleaning, Electrolytic
Reduction, Electrolytic

Bibliography

Book reviews. Published in monthly numbers of Journal of the Electrochemical society

ELECTRODEPOSITION of metals
Application of an X-ray technique to the examination of electrodeposits. R. Brownsword and J. P. G. Farr. il diag Electrochem Soc J 111:378-9 Mr '64
Assembly; new job for electroforming. A. G. Buschow. il diags Mach 70:104-6 Ag '64
Carrier technique for quantitative electrodeposition of actinides. M. Y. Donnan and E. K. Dukes. bibliog diag Anal Chem 36: 392-4 F '64
Cell for the small scale electrodeposition of radioactive metals. P. M. Dryburgh. diag J Sci Instr 41:640 O '64
Development of preferred orientation in copper electrodeposits by cyclic stressing. M. Suzuki. bibliog il diags Inst Metals J 92:141-5 '63-64
Duplication of fine screw threads by electroforming. K. Raman and others. J Sci Instr 41:340-1 My '64
Electrodeposited dispersion-hardened alloys, key to high-temperature strength. C. R. Smith. J Metals 15:740-1 O '63
Electrodeposited palladium as a low-energy circuit contact coating. G. D. Fatzer. il Plating 50:1000-5 N '63
Electrodeposition of iron from aqueous solutions onto an aluminum alloy. E. H. Cook and F. L. McGeary. bibliog il Corrosion 20:111-14 Ap '64
Electrodeposition of nickel-iron-phosphorus thin films for computer memory use. W. O. Freitag and others. Electrochem Soc J 111: 35-9 Ja '64
Electrodeposition of rhenium-nickel alloy; ammonium perrhenate electrolyte. L. Domnikov. bibliog Metal Finishing 62:49-51 Ja '64
Electroforming. A. D. Squitero. il diags Am Mach 108:73-6 Ap 27 '64
Electroforming from rtv patterns or molds. il Plating 51:998-9 O '64
Electroforming of aluminum optical components. il Light Metal Age 22:4-5 Ag '64
Electroforming of refractory metals. G. W. Mellors and S. Senderoff. bibliog il Plating 51:972-5 O '64
Electroforming + room temperature vulcanizing silicone rubber = new process for plastics tooling. il Plastics Tech 10:16-17 Ag '64
Evaluation of the Adcock chemical and vacuum fusion methods for oxygen in electrodeposited chromium. A. Lench and others. bibliog Anal Chem 36:337-9 F '64
Fabrication by copper electroforming; flush copper helical antenna on epoxy base. L. Missel and M. E. Shaheen. il diags Metal Finishing 62:61-3 S '64
GE electroforms aluminum; gets two microinch finish il Steel 155:33 Jl 13 '64
Growth twins and branching of electrodeposited copper dendrites. F. Ogburn. il Electrochem Soc J 111:870-2 Jl '64
Have you considered electroforming? F. L. Siegrist. il Metal Prog 86:219-20+ O '64
Hollow antennas. il Electronics 37:27 Ag 24 '64

ELECTRODEPOSITION of metals—*Continued*
Nickel-cobalt-copper ternary alloy deposition from the pyrophosphate bath. M. Sarojamma, and T. L. Rama Char. bibliog Chem & Ind p620-1 Ap 11 '64
Nickel-cobalt-iron ternary alloy deposition from the pyrophosphate bath. D. V. Subrahmanyam and T. L. Rama Char. Chem & Ind p2010-11 D 28 '63
Properties of materials; electrodeposited coatings; tables. Materials in Design Eng 60:384-7 Mid-O '64
Proposed recommended practice for the processing of mandrels for electroforming. Plating 51:1075-8 N '64
Quasistatic flux reversal characteristics of electrodeposited thin permalloy films. R. D. Fisher and others. diags Electrochem Soc J 111:39-42 Ja '64
Tough skin for lightweight antennas. il Product Eng 35:76 O 26 '64
Where electroforming shortcuts job costs. il Steel 154:104-8 Je 8 '64
X-ray determination of residual stresses in electrodeposited coatings. G. W. Bush and H. T. Read. bibliog diags Electrochem Soc J 111:289-96 Mr '64
See also
Electroplating

ELECTRODES
Adsorption dependent stripping analysis at the graphite electrode. S. P. Perone and T. J. Oyster. Anal Chem 36:235-6 Ja '64
Adsorption of cobalt(III) trisethylenediamine at mercury electrodes. H. A. Laitinen and L. M. Chambers. Anal Chem 36:1881-2 Ag '64
Adsorption of n-decylamine on solid metal electrodes. J. O. Bockris and D. A. J. Swinkels. bibliog Electrochem Soc J 111:736-43 Je '64
Adsorption of naphthalene on solid metal electrodes. J. O. Bockris and others. bibliog Electrochem Soc J 111:743-8 Je '64
Advanced electrode assembly for electrochemical measurements in aqueous solutions. R. G. Feller and J. Osterwald. diags Electrochem Soc J 111:119-29 Ja '64
Amperometric titration of uranium(IV) with cerium(IV) utilizing pyrolytic graphite electrode. H. E. Zittel and F. J. Miller. bibliog diag Anal Chem 36:45-7 Ja '64
Anode gas reactions in aluminum electrolysis. J. Thonstad. bibliog diags Electrochem Soc J 111:955-65 Ag '64
Anodic oxidation of formic acid at platinum electrodes. M. H. Gottlieb. bibliog Electrochem Soc J 111:465-72 Ap '64
Anodic polarization curves of the platinum electrode in neutral and alkaline potassium chloride solutions. B. M. Blavatnik and G. A. Tsiganov. Corrosion 19:421-3 D '63
Anodic stripping voltammetry of gold and silver with carbon paste electrodes. E. S. Jacobs. il diag Anal Chem 35:2112-15 D '63
Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36:2062-4 O '64
Application of potentiostatic current integration to the study of the adsorption of cobalt(III)-(ethylenedinitrilo)tetraacetate on mercury electrodes. F. C. Anson. Anal Chem 36:932-4 Ap '64
Application of radiography to the study of the structure and operation of porous electrodes. M. Bonnemay and others. bibliog il diags Electrochem Soc J 111:265-9 Mr '64
Application of stripping analysis to the determination of silver(I) using graphite electrodes. S. P. Perone. bibliog Anal Chem 35:2091-4 D '63
Behavior of the iodide-iodine couple at platinum electrodes. R. A. Osteryoung and F. C. Anson. bibliog Anal Chem 36:975-80 My '64
Bromine-zinc secondary cells. S. Barnartt and D. A. Forejt. bibliog il diags Electrochem Soc J 111:1201-4 N '64
Capacity measurements on rapidly polarized germanium electrodes. P. J. Boddy and W. J. Sundburg. il diag Electrochem Soc J 110:1170-2 N '63
Charging the silver oxide electrode with periodically varying current. C. P. Wales. Electrochem Soc J 111:131-5 F '64
Chronopotentiometry and chronoamperometry with unshielded planar electrodes. P. J. Lingane. bibliog Anal Chem 36:1723-6 Ag '64
Coke breeze backfill for anodes. M. E. Parker. Gas 40:19 F '64
Comparison of pyrolytic carbon film electrode with wax-impregnated graphite electrode. A. L. Beilby and others. bibliog il Anal Chem 36:22-6 Ja '64
Confirmation of Gambill-Greene straight-flow burnout heat flux equation at higher flow velocity. J. Mayersak and others. il A S M E Trans ser C 86:297-8 My '64
Constant current transition time investigations of the electrochemical oxidation of formate-formic acid at a smooth platinum electrode. R. A. Munson. bibliog il Electrochem Soc J 111:372-6 Mr '64
Convenient cell design for studies employing shielded solid electrodes. H. B. Mark, jr. diags Anal Chem 36:958-9 Ap '64
Coplanar-electrode insulated-gate thin-film transistors. P. K. Weimer and others. bibliog il diags RCA R 24:661-75 D '63
Coulometric diffusion layer titrations using the ring-disk electrode with amperometric end point detection. S. Bruckenstein and D. C. Johnson. Anal Chem 36:2186-7 O '64
Current flow between electrodes of unequal area immersed in a low-gas-pressure plasma. M. J. Kofoid. bibliog il diags IEEE Trans Com & Electronics 83:294-302 My '64
Design and performance of temperature compensated electrodes for oxygen measurements. R. Briggs and M. Viney. diags J Sci Instr 41:78-83 F '64
Determination of charge passed following application of potential step in study of electrode processes. J. H. Christie and others. Anal Chem 35:1979 N '63
Distributed network analysis of porous electrode capacitors. J. Vergnolle. diags Electrochem Soc J 111:799-804 Jl '64
Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64
Electric stresses at conducting surfaces located in the field between plane parallel electrodes. B. Salvage. Inst E E Proc 111:1173-6 Je '64
Electric stresses at conducting surfaces located in the field between plane parallel electrodes; experiments with an electrolytic tank. M M. Sakr and B. Salvage. Inst E E Proc 111:1179-81 Je '64
Electrode assembly for anodization of semiconductors. E. A. Benjamini and E. F. Duffek. il R Sci Instr 35:237-8 F '64
Electrolytic cell for X-ray diffraction studies of electrode phenomena. J. Burbank and C. P. Wales. il diag Electrochem Soc J 111:1002-5 Ag '64
Electrooxidation or reduction of organic compounds into aqueous solutions using carbon paste electrode. T. Kuwana and W. G. French. Anal Chem 36:241-2 Ja '64
Ethyl alcohol oxidation at platinum electrodes. R. A. Rightmire and others. bibliog diags Electrochem Soc J 111:242-7 F '64
Evidence for adsorption of cobalt(III)-(ethylenedinitrilo) tetraacetate at platinum electrodes. F. C. Anson. bibliog Anal Chem 36:520-3 Mr '64
Fabrication and use of pyrolytic graphite electrode for voltammetry in aqueous solutions. F. J. Miller and H. E. Zittel. bibliog il Anal Chem 35:1866-9 N '63
Fisher expands pH electrode line. il Chem & Eng N 42:51-2 O 12 '64
Fluid transpiration through anodic boundary of an electric arc. C. Sheer and others. bibliog il diags AIAA J 2:483-9 Mr '64
Galvanostalametry; a new technique, based on the negative pressure of liquids, for investigating electrochemical phenomena at an electrode. J. L. Sligh and A. Brenner. il diags Electrochem Soc J 110:1136-42 N '63
Hydrogen evolution and surface oxidation of nickel electrodes in alkaline solution. J. L. Weininger and M. W. Breiter. bibliog diag Electrochem Soc J 111:707-12 Je '64
Joining and fastening of materials; welding rods and electrodes; tables. Materials in Design Eng 60:539-41 Mid-O '64
Kinetics of redox reactions on passive electrodes. A. C. Makrides. bibliog Electrochem Soc J 111:392-400 Ap '64
Ligand bridging in the oxidation of chromium(II) at mercury electrodes. J. G. Jones and F. C. Anson. bibliog Anal Chem 36:1137-8 My '64
Mechanism of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:1078-86 S '64
Methods for the calculation of polarization in porous electrodes. F. A. Posey. bibliog diag Electrochem Soc J 111:1173-81 O '64
Multilayer membrane electrode; activity of magnesium and strontium salts in mixed electrolytes. H. P. Gregor and others. bibliog Am Chem Soc J 85:3926-8 D 20 '63

ELECTRODES—*Continued*

Multilayer membrane electrodes: biionic potentials across nonpressurized membranes. J. Bagg and H. P. Gregor. Am Chem Soc J 86:3626-9 S 20 '64

New electrodes for chronopotentiometry in thin layers of solution. A. T. Hubbard and F. C. Anson. diags Anal Chem 36:723-6 Ap '64

New methods of obtaining fuel cell electrodes: aluminum-nickel mixed powder hydrogen electrode. A. R. Despić and others. bibliog il Electrochem Soc J 111:1109-12 O '64

Photogalvanic effects with anodized zirconium and niobium electrodes. R. E. Salomon and others. bibliog Electrochem Soc J 110:1163-5 N '63

Plasma source gives controlled temperatures. M. L. Thorpe. diag Chem & Eng N 42:85 F 3 '64

Pt/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. il Electrochem Soc J 110:1142-6 N '63

Polarization characteristics of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:605-9 My '64

Polarization studies of molten carbonate fuel cell electrodes. I. Trachtenberg. il diag Electrochem Soc J 111:110-13 Ja '64

Potential barriers and emission-limited current flow between closely spaced paralled metal electrodes. J. G. Simmons. bibliog diags J Ap Phys 35:2472-81 Ag '64

Potentiometric titration of metal ions using a silver electrode. J. S. Fritz and B. B. Garralda. Anal Chem 36:737-41 Ap '64

Powder plus extrusion equals duplex electrode. il diags Steel 153:82+ D 16 '63

Practical reference electrode. J. Giner. diag Electrochem Soc J 111:376-7 Mr '64

Pre-amplifier for use with micro-electrodes. I. D. Pugsley. bibliog il diags Electronic Eng 35:788-91 D '63

Preparation and surface area measurements of platinized-platinum electrodes. M. J. Joncich and N. Hackerman. bibliog diags Electrochem Soc J 111:1286-9 N '64

Pyrolytic graphite spectrographic electrodes. J. B. Mooney and others. il diags Anal Chem 36:703-4 Mr '64

Reaction at the iron alkaline electrode. A. J. Salkind and others. bibliog Electrochem Soc J 111:493-5 My '64

Recent developments in electrophoretic coatings. M. Ortner. bibliog il Plating 51:885-9 S '64

Relative field gradient at the edge of an electrode in a four-electrode system. P. D. Agarwal. bibliog flow chart diags IEEE Trans Com & Electronics 83:502-9 S '64

Removing the shock hazard from spark-triggered arc electrodes. D. A. Sinclair. bibliog diags J Sci Instr 41:618-21 O '64

Resistance of an infinite slab with a disk electrode. G. F. Foxhall and J. A. Lewis. diags Bell System Tech J 43:1609-17 pt 2 Jl '64

Reversible oxygen electrodes. N. Watanabe and M. A. V. Devanathan. bibliog diag Electrochem Soc J 111:615-19 My '64

Short-pulse techniques; kinetics of the triiodide/iodide reaction on a platinum electrode in neutral solution. S. Schuldiner and C. H. Presbrey, jr. bibliog il diags Electrochem Soc J 111:457-65 Ap '64

Simple gas electrode structure for the evaluation of catalysts (electrocatalysts) in working fuel cells. W. T. Grubb and C. J. Michalske. bibliog il Electrochem Soc J 111:477-8 Ap '64

Study of surface oxides on platinum electrodes. J. S. Mayell and S. H. Langer. bibliog diags Electrochem Soc J 111:438-46 Ap '64

Surface oxidation of gold electrodes. S. B. Brummer and A. C. Makrides. bibliog Electrochem Soc J 111:1122-8 O '64

Synthesis method of electrostatic gun design. D. S. Colburn and others. diags AIAA J 2:322-7 F '64

Theory of stationary electrode polarography; single scan and cyclic methods applied to reversible, irreversible, and kinetic systems. R. S. Nicholson and I. Shain. bibliog Anal Chem 36:706-23 Ap '64

Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64

Traveling-wire electrode machines precision slits. J. Kotora, jr. and D. Strack. il Tool & Manuf Eng 53:51-2 O '64

Tubular platinum electrode. W. J. Blaedel and others. bibliog diags Anal Chem 35:2100-3 D '63

Vacuum insulation of high voltages utilizing dielectric coated electrodes. L. Jedynak. bibliog J Ap Phys 35:1727-33 Je '64

Visible radiation from metal anodes preceding electrical breakdown. C. J. Bennette and others. bibliog J Ap Phys 35:3054-5 O '64

Voltammetric determination of permanganate at the gold electrode. C. O. Huber. diag Anal Chem 36:1873-4 Ag '64

See also

Cathodes

Electric welding—Electrodes

Electric welding, Arc—Electrodes

Electrolytic cells

ELECTRODES, Glass

Electrochemical studies using conducting glass indicator electrodes. T. Kuwana and others. bibliog Anal Chem 36:2023-5 S '64

Use of glass reference electrode in potentiometric titration of halides with silver nitrate in $LiNO_3$-KNO_3 eutectic melt. H. T. Tien. Anal Chem 36:929-30 Ap '64

ELECTRODIALYSIS. See Dialysis

ELECTRODYNAMICS

Application of air bearings to an electrodynamic vibration standard. T. Dimoff and B. F. Payne. il diags J Res Nat Bur Stand 67C:327-33 O '63

Electrodynamics in the presence of moving matter. C. T. Tai. IEEE Proc 52:307-8 Mr '64

Matteucci effect: its interpretation and its use for the study of ferromagnetic matter. R. Skórski. bibliog il diags J Ap Phys 35:1213-16 Ap '64

Study of electrodynamics of moving media. C. T. Tai bibliog IEEE Proc 52:685-9 Je '64

See also

Electric conductivity

Inductance

Reciprocity theorem

Wave mechanics

ELECTROENCEPHALOGRAPHY

Psycho-command and psycho-reaction. J. F. Dusailly. il diags Radio-Electronics 35:44-5 S '64

ELECTROFORMING. See Electrodeposition of metals

ELECTROHORTICULTURE

Biological lighting; abstract. E. D. Bickford. diags Illum Eng 59:602-3 S '64

ELECTROHYDRAULIC control

Designing the servo drive for a rocking table. H. R. Martin and J. E. Carrington. il diags Hydraulics & Pneumatics 17:84-9 Jl '64

Electro-hydraulic cranes for handling ship's cargo. il Engineer 218:418-19 S 11 '64

Electrohydraulic system controls paving head. J. Girvan. il diag Hydraulics & Pneumatics 17:90+ Ap '64

Tracer diesinking gets a lift. il Am Mach 108:79-80 Ap 27 '64

ELECTROHYDRAULIC forming. See Sheet metal work

ELECTROHYDRODYNAMICS. See Magnetohydrodynamics

ELECTROKINETIC potentials. See Potential, Electric

ELECTROLUMINESCENCE. See Luminescence

ELECTROLYSIS

Alkaline chloride electrolysis. il Ind Chem 39:638-40 D '63

Anode gas reactions in aluminum electrolysis. J. Thonstad. bibliog diags Electrochem Soc J 111:955-65 Ag '64

Ceramic double cell for crystal growth by fused salt electrolysis. W. Kunnmann and A. Ferretti. diag R Sci Instr 35:465-6 Ap '64

Continuous quantitative electrolysis. W. J. Blaedel and J. H. Strohl. bibliog diags Anal Chem 36:1245-51 Je '64

Controlled-potential electrolysis of hindered half-esters. W. H. Harwood and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:105-12 Je '64

Electrolysis in anhydrous hydrogen fluoride. H. H. Rogers and others. bibliog diags Electrochem Soc J 111:701-7 Je '64

Electrolytic preparation of sodium hyponitrite. C. N. Polydoropoulos. diag Chem & Ind p 1686 O 19 '63

Hydrogen chloride electrolysis (Hoechst-Uhde): Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:179 N '63

Kinetic order of irreversible reactions following electrolysis. R. C. Pinkerton. bibliog Electrochem Soc J 11:596-601 My '64

Preparation of oxamide from cyanide by glow-discharge electrolysis. E. H. Brown and others. Electrochem Soc J 111:123 Ja '64

ELECTROLYSIS—*Continued*

Simple masking technique for the electrolytic treatment of metals and semiconductors. J. G. Gibson. diag J Sci Instr 41:395 Je '64

Solid state potentiostat for controlled potential electrolysis. F. Lindstrom and J. B. Davis. il diag Anal Chem 36:11-15 Ja '64

Studies on alternating current electrolysis; double layer resistance and electrode area as factors in electrode kinetics. D. D. Bump and A. E. Remick. bibliog diags Electrochem Soc J 111:981-8 Ag '64

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode. G. W. Castellan and others. bibliog diags Electrochem Soc J 111:1273-83 N '64

See also

Electrochemical analysis

Electrodes

Electrolytic cells

Electrolytic corrosion

Ions

Metal cleaning, Electrolytic

ELECTROLYTES

Anodic oxidation of tantalum in formic acid electrolytes. D. M. Cheseldine. bibliog Electrochem Soc J 111:1128-32 O '64

Anodic oxidation of titanium in formic acid electrolytes. D. M. Cheseldine. Electrochem Soc J 111:1005-7 Ag '64

Bromine-zinc secondary cells. S. Barnartt and D. A. Forejt. bibliog il diags Electrochem Soc J 111:1201-4 N '64

Cathodic reduction of manganese dioxide in alkaline electrolyte. G. S. Bell and R. Huber. bibliog Electrochem Soc J 111:1-6 Ja '64

Coacervating soap-electrolyte solutions. I. Cohen and A. Libackyj. bibliog J Colloid Sci 19:560-70 Ag '64

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Correction to the Poisson-Boltzmann equation for unsymmetrical electrolytes. L. Onsager. bibliog Am Chem Soc J 86:3421-3 S 5 '64

Desalination of sodium halide electrolytes by a differential redox method. E. I. Onstott. bibliog diag Electrochem Soc J 111:966-73 Ag '64

Diffusion of a polyelectrolyte in aqueous solution in the absence of added salt. M. Nagasawa and H. Fujita. bibliog il Am Chem Soc J 86:3005-12 Ag 5 '64

Effect of electrolytes on circular dichroism curves of $[Co(en)_3]Cl_3$. H. L. Smith and B. E. Douglas. Am Chem Soc J 86:3885-7 S 20 '64

Effect of electrolytes on the ultracentrifugal stability of emulsions. R. D. Vold and R. C. Groot. bibliog J Colloid Sci 19:384-98 Ap '64

Electrodeposition of rhenium-nickel alloy; ammonium perrhenate electrolyte. L. Domnikov. bibliog Metal Finishing 62:49-51 Ja '64

Excluded volume of polyelectrolyte in salt solutions. A. Takahashi and M. Nagasawa. bibliog Am Chem Soc J 86:543-8 F 20 '64

Experimental investigation on the freezing of droplets of water and of aqueous solutions, with particular reference to the influence of the solute. Y. Uzu and others. bibliog diags J Colloid Sci 18: 697-704 O '63

Formation of metal oxide films using gaseous and solid electrolytes. J. L. Miles and P. H. Smith. bibliog il diags Electrochem Soc J 110:1240-5 D '63

Hydration of micelles of association colloidal electrolytes. P. Mukerjee. bibliog J Colloid Sci 19:722-8 O '64

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of cathodic processes on insulated metals in electrolytes. N. D. Tomashov and others. bibliog diag Corrosion 20:218-21 Jl '64

Mechanism of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:1078-86 S '64

Methanol fuel cell with an invariant alkaline electrolyte. E. J. Cairns and D. C. Bartosik. bibliog il diag Electrochem Soc J 111:1205-10 N '64

Multilayer membrane electrodes; activity of magnesium and strontium salts in mixed electrolytes. H. P. Gregor and others. bibliog Am Chem Soc J 85:3926-8 D 20 '63

New deionization techniques based upon weak electrolyte ion exchange resins. R. Kunin and B. Vassiliou. bibliog flowsheet Ind & Eng Chem Proc Design 3:404-9 O '64

New fuel cell for aerospace. il Chem Eng 70:125-6 N 11 '63

Oral electrolytes stimulate growth. Manuf Chem 35:65+ My '64

Oxidation of aluminum by carbon dioxide in the presence of cryolitic electrolyte. S. Gjerstad and B. J. Welch. bibliog diag Electrochem Soc J 111:976-80 Ag '64

Polarography in acetonitrile of titanium tetrachloride and tetraiodide in various supporting electrolytes. I. M. Kolthoff and F. G. Thomas. bibliog Electrochem Soc J 111:1065-74 S '64

Polyelectrolytes as ABS suppressors. G. A. Rhame. Water & Sewage Works 111:44-5 Ja '64

Self-regulating chromium baths; Russian tetrachromate electrolyte. L. Domnikov. bibliog il Metal Finishing 61:65-8+ N '63

Theoretical activity coefficients of an ideal Debye-Hückel electrolyte. J. F. Skinner and R. M. Fuoss. bibliog Am Chem Soc J 86:3423-7 S 5 '64

Thermogalvanic cells with silver iodide as a solid electrolyte. J. L. Weininger. bibliog il diags Electrochem Soc J 111:769-74 Jl '64

Transition time of electrode reactions without supporting electrolytes. P. Bro. Electrochem Soc J 111:1104-5 S '64

Viscosities of cellulosic polyelectrolytes in organic solvents containing potassium iodide. M. E. Rowley and E. K. Gruschow. Anal Chem 36:616-18 Mr '64

See also

Electrodes

Electrolysis

Electrolytic cells

Conductivity

Effect of pressure on the conductivity of battery electrolytes. R. A. Horne and others. bibliog Electrochem Soc J 110:1282-3 D '63

Factors affecting the transport of silver in silver-alkaline batteries. T. P. Dirkes and L. A. Vander Lugt. diags Electrochem Soc J 111:629-32 Je '64

Ion association in polyvalent symmetrical electrolytes; the conductance of manganese (II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64

Ionic conductivity of cubic solid solutions in the system $CaO-Y_2O_3-ZrO_2$. D. W. Strickler and W. G. Carlson. bibliog Am Cer Soc J 47:122-7 Mr '64

Mechanism of electrolytic rectification. A. Middelhoek. bibliog Electrochem Soc J 111:379-80 Mr '64

Synthesis of tetraisoamylammonium tetraisoamylboride; a reference electrolyte for the evaluation of single ion conductivities. J. F. Coetzee and G. P. Cunningham. Am Chem Soc J 86:3403-4 Ag 20 '64

Transport numbers in pure molten $AgNO_3$ and AgCl by a simplified weighing method. P. Duby and H. H. Kellogg. bibliog diag Electrochem Soc J 111:1181-3 O '64

Transport numbers in stabilized zirconia. D. T. Bray and U. Merten. bibliog Electrochem Soc J 111:447-52 Ap '64

ELECTROLYTIC cells

Adaptation of a galvanic cell for microanalysis of oxygen. H. Lipner and others. bibliog diags Anal Chem 36:204-6 Ja '64

Alkali metal voltaic cells. D. C. Hamby and others. bibliog diags Electrochem Soc J 111:998-1002 Ag '64

Constancy of a modified Weston standard cell over long periods. W. C. Vosburgh and R. G. Bates. Electrochem Soc J 111:997-8 Ag '64

Continuous quantitative electrolysis. W. J. Blaedel and J. H. Strohl. bibliog diags Anal Chem 36:1245-51 Je '64

Electric stresses at conducting surfaces located in the field between plane parallel electrodes: experiments with an electrolytic tank. M. M. Sakr and B. Salvage. Inst E E Proc 111:1179-81 Je '64

Electric stresses in gaseous cavities in solid dielectrics; experiments with an electrolytic tank. M. M. Sakr and B. Salvage. diag Inst E E Proc 111:1176-9 Je '64

Electrochemical primary cell producing alternating current. M. Clarke. bibliog Chem & Ind p 1655-7 S 26 '64

ELECTROLYTIC cells—*Continued*

Electrolytic cell for X-ray diffraction studies of electrode phenomena. J. Burbank and C. P. Wales. il diags Electrochem Soc J 111:1002-5 Ag '64

Electrolytic titanium from $TiCl_4$; operation of a reliable laboratory cell. M. J. Rand and L. J. Reimert. bibliog diag Electrochem Soc J 111:429-34 Ap '64

Hydro-chromagraph, a process-type water analyzer combining chromatographic separation and electrolysis cell detection. C. J. Penther and L. J. Notter. il diags Anal Chem 36:283-6 F '64

Improved galvanic cell for determination of oxygen concentrations in fluids. F. J. H. Mackereth. bibliog diags J Sci Instr 41:38-41 Ja '64

Mechanism of the electro-oxidation of acetylene on platinum. J. W. Johnson and others. bibliog diag Electrochem Soc J 111:863-70 Jl '64

New method of simulating space charge in the electrolytic tank. B. C. Gregory and K. F. Sander. bibliog diags Inst E E Proc 111:1766-70 O '64

Production of hypochlorite by direct electrolysis of sea water; electrode materials and design of cells for the process. A. F. Adamson and others. diags J Ap Chem 13:483-95 N '63

Velocity controlled electrolytic tank field plotter. J. M. Richards and J. C. H. Geisow. bibliog diags J Sci Instr 41:28-33 Ja '64

ELECTROLYTIC corrosion

Corrosion of lead by alternating current. C. E. Galimberti. bibliog il diags Corrosion 20:150-7 My '64

Development of the electrochemical theory of metallic corrosion. N. D. Tomashov. bibliog diags Corrosion 20:7-14 Ja '64

Electrochemical behavior of steel in concrete. D. A. Hausmann. bibliog il diags Am Concrete Inst J 61:171-88 F '64

Electrodeposition of iron from aqueous solutions onto an aluminum alloy. E. H. Cook and F. L. McGeary. il Corrosion 20:111-14 Ap '64

Excellent antigalvanic corrosion capacity of tin on light metals. Light Metal Age 22:10 Je '64

Galvanic corrosion in concrete containing calcium chloride. T. E. Wright and I. H. Jenks. il diags Am Soc C E Proc 89 [ST 5 no 3669]:117-32 O '63; Discussion. 90 [ST 1 no 3812]:281 F; [ST 2 no 3886]:393-4 Ap '64

Mechanism of crevice corrosion. I. L. Rosenfeld and I. K. Marshakov. bibliog diags Corrosion 20:115-25 Ap '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of cathodic processes on insulated metals in electrolytes. N. D. Tomashov and others. bibliog diag Corrosion 20:218-21 Jl '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of deterioration of insulating coatings on metals in electrolytes. N. D. Tomashov and others. bibliog diags Corrosion 20:125-8 Ap '64

See also

Corrosion and anti-corrosives

ELECTROLYTIC grinding. See Grinding, Electrolytic

ELECTROLYTIC ionization. See Ionization, Electrolytic

ELECTROLYTIC polarization. See Polarization, Electrolytic

ELECTROLYTIC polishing. See Polishing, Electrolytic

ELECTROLYTIC reduction. See Reduction, Electrolytic

ELECTROMACHINING. See Electric cutting

ELECTROMAGNETIC field

Current topics in the stochastic theory of radiation. F. J. Zucker. diags J Res Nat Bur Stand 68D:989-93 S '64

Electric and magnetic fields. A. Glaser. bibliog diags Electro-Tech 72:83-104b N '63 (reprints $1)

Electromagnetic fields in lossy media. J. R. Wait. J Res Nat Bur Stand 68D:463-5 bibliog(p464-5) Ap '64

Electromagnetic fields of a small loop antenna on the surface of a polarizable medium. B K. Bhattacharyya. bibliog Geophysics 29:814-31 O '64

Fields excited by periodic beam currents in a cavity-loaded tube. F J. Kriegler and others. diag J Ap Phys 35:1721-6 Je '64

Geometrical model of electromagnetic fields. E. S. Lowry. bibliog diags Am J Phys 31:871-82 N '63

Near electromagnetic field. C. L. Marquardt. bibliog diags Electro-Tech 73:55+ Ja '64 (reprints $1)

Partially coherent electromagnetic fields. F. J. Zucker. J Res Nat Bur Stand 68D:460-2 bibliog(p461-2) Ap '64

Radiation field of a magnetic dipole antenna in a conical sheath. D. C. Pridmore-Brown. diags J Math & Phys 43:199-217 S '64

Radiation in a lossless magneto-ionic medium at frequencies high relative to the electron gyrofrequency. J. W. Marini. bibliog diags J Res Nat Bur Stand 67D:707-16 N '63

Radiation through cylindrical plasma sheaths. J. H. Harris. diags J Res Nat Bur Stand 67D:717-33 N '63

Radiometeorological study; analysis of vhf field strength variations and refractive index profiles. B. R. Bean and others. bibliog map diag J Res Nat Bur Stand 67D:597-604 N '63

Resource letter FC-1 on the evolution of the electromagnetic field concept. W. T. Scott. Am J Phys 31:819-26 N '63

ELECTROMAGNETIC pumps. See Pumps, Electromagnetic

ELECTROMAGNETIC shielding

Electromagnetic shielding for laboratories. il Engineering 198:283 Ag 28 '64

Magnetic shielding by a superconducting cylinder. L. L. Vant-Hull and J. E. Mercereau. bibliog diags R Sci Instr 34:1238-42 N '63

New technics in r-f room construction. E. A. Lindgren. il diags Electronic Ind 22:152-5 D '63

ELECTROMAGNETIC theory

Potential operator in quasi-static electromagnetic theory. M. R. Harris. bibliog diags Inst E E Proc 110:2093-101 N '63; Discussion. 111:1371-2 Jl '64

See also

Hall effect

ELECTROMAGNETIC waves

Auroral measurements and upper atmospheric physics. R. E. Meyerott and J. E. Evans. bibliog il map diags AIAA J 2:1169-74 Jl '64

Consequences of symmetry in periodic structures. P. J. Crepeau and P. R. McIsaac. diags IEEE Proc 52:33-43 Ja '64

Dispersion characteristics of circular waveguides containing isotropic plasma. P. J. B. Clarricoats and J. S. L. Wong. diag Inst E E Proc 111:1087-90 Je '64

Electromagnetic properties of finite plasmas. M. P. Bachynski and K. A. Graf. bibliog diags RCA R 25:3-53 Mr '64

Electromagnetic wave propagation in a random medium. W. C. Hoffman. bibliog J Res Nat Bur Stand 68D:455-9 Ap '64

Electromagnetic wave propagation in inhomogeneous plasmas and/or magnetoplasmas. W. C. Hoffman. J Res Nat Bur Stand 68D:486-9 bibliog(p488-9) Ap '64

Electromagnetic waves in parameter space for finite magnetoplasmas. V. L. Granatstein and S. P. Schlesinger. bibliog diags J Ap Phys 35:2846-55 O '64

Experimental observation of travelling backward waves in dielectric-loaded circular waveguide. P. J. B. Clarricoats and K. R. Slinn. diag Inst E E Proc 111:1090-2 Je '64

Experimental verification of transverse modes in concave optical resonators. J. T. Verdeyen and others. bibliog il diag IEEE Proc 51:1775-6 D '63

Generation of spin waves in nonuniform dc magnetic fields; calculation of the coupling length. E. Schlömann and R. I. Joseph. J Ap Phys 35:167-70 Ja '64

Generation of spin waves in nonuniform magnetic fields; conversion of electromagnetic power into spin-wave power and vice versa. E. Schlömann. bibliog diag J Ap Phys 35:159-66 Ja '64

Generation of spin waves in nonuniform magnetic fields; magnetoelastic interaction. E. Schlömann and R. I. Joseph. bibliog J Ap Phys 35:2382-90 Ag '64

Guided waves in statistically random media. A. E. Karbowiak. bibliog diags Inst E E Proc 111:222-30 F '64

Inhomogeneous media and guided waves. R. E. Collin and A. A. Oliner. J Res Nat Bur Stand 68D:469-79 bibliog(p477-9) Ap '64

Integrating spacecraft electronics. A. B. Whitaker and C. Schuhlein. bibliog diags Space/Aeronautics 42:53-9 Ag '64

Investigation of plasma boundaries with electromagnetic surface waves. H. W. Wassink and A. J. Estin bibliog diags J Ap Phys 35:2795-800 O '64

Kinetic theory of waves in a warm plasma excited by a current source. H. H. Kuehl. bibliog diag J Math & Phys 43:218-26 S '64

ELECTROMAGNETIC waves—*Continued*

Method of characteristics solution for electromagnetic wave propagation in a gyromagnetic medium. W. B. Hatfield and B. A. Auld. bibliog J Math & Phys 43:34-7 Mr '64

Mode-conversion loss in a sequential confocal lens system. C. C. Eaglesfield. bibliog Inst E E Proc 111:610-15 Mr '64

Optimum waveforms subject to both energy and peak-value constraints. D. W. Tufts and D. A. Shnidman. diags IEEE Proc 52:1002-7 S '64

Perturbation formula for a ferrite-loaded helix. K. P. Ivanov. bibliog diag Radio & Electronic Eng 28:87-8 Ag '64

Propagation of electromagnetic waves through a continuously varying stratified anisotropic medium. G. H. Price. bibliog diag J Res Nat Bur Stand 68D:407-18 Ap '64

Radiation field produced by an infinite slot in an infinite cylinder surrounded by a homogeneous plasma sheath. D. L. Sengupta. bibliog diags Inst E E Proc 111:950-8 My '64

Radiation from a ferrite cylinder. J. C. Palais. bibliog J Ap Phys 35:779-81 pt 2 Mr '64

Reciprocity theorem for the interaction of electromagnetic plane waves with a one-dimensional inhomogeneous slab. C. T. Swift. IEEE Proc 51:1268-9 S '63; Discussion. L. B. Felsen. 52:221-2 F '64

Slow waves in ferrites and their interactions with electron streams. J. Spector and A. W. Trivelpiece. bibliog diags J Ap Phys 35:2030-9 Jl '64

Surface-wave resonance phenomena on dielectric tubes. A. L. Cullen and others. bibliog diags Inst E E Proc 111:215-21 F '64

Surface waves along a plasma-air boundary. L. W. Zelby. diag IEEE Proc 51:1774 D '63

Theory of radiation from sources immersed in anisotropic media. J. R. Wait. J Res Nat Bur Stand 68B:119-36 Jl '64

Tunable source of millimeter and submillimeter electromagnetic radiation. I. B. Bott. il diags IEEE Proc 52:330-2 Mr '64

Vernier exhaust perturbations on radar and altimeter systems during a lunar landing. P. Molmud. bibliog diag AIAA J 1:2816-19 D '63

Vlf propagation in a compressible ionosphere. R. B. Kieburtz. bibliog J Res Nat Bur Stand 68D:795-805 Jl '64

See also

Radio waves

Diffraction

Diffraction and scattering. L. B. Felsen and V. H. Weston. J Res Nat Bur Stand 68D:490-9 bibliog(p496-9) Ap '64

Propagation and diffraction in uniaxially anisotropic regions. L .B. Felsen. bibliog diags Inst E E Proc 111:445-64 Mr '64

Radar scattering from coated perfect conductors: application to the semi-infinite cone and use of exact eikonal. H. Überall. bibliog J Res Nat Bur Stand 68D:749-66 Je '64

Simplified theory of diffraction at an interface separating two dielectrics. J. Kane and S. N. Karp. bibliog diags J Res Nat Bur Stand 68D:303-10 Mr '64

Reflection

Microwave reflection from small-diameter plasma columns. R. A. Stern. bibliog diags J Ap Phys 34:2562-5 S '63; Discussion. J. Willis. 35:734 Mr '64

Reflection of electromagnetic waves from a lossy magnetoplasma. J. R. Wait and L. C. Walters. bibliog diags J Res Nat Bur Stand 68D:95-101 Ja '64

Scattering

Diffraction and scattering. L. B. Felsen and V. H. Weston. J Res Nat Bur Stand 68D:490-9 bibliog(p496-9) Ap '64

Distribution of specular points on a rough spherical surface. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1039-47 S '64

Electromagnetic scattering coefficients for concentric spheres and the problem of interference free enclosures. R. A. Eldred and others. diag J Res Nat Bur Stand 68D:1145-54 O '64

Scattering and absorption of plane waves by cylindrically symmetrical underdense zones. F. A. Albini. bibliog diag AIAA J 2:524-30 Mr '64

Scattering by a sphere. T. B. A. Senior and R. F. Goodrich. bibliog Inst E E Proc 111:907-16 My '64

Scattering of waves by many bodies. J. E. Burke and V. Twersky. J Res Nat Bur Stand 68D-500-10 bibliog(p508-10) Ap '64

Theory of loaded scatterers. R. F. Harrington. bibliog Inst E E Proc 111:617-23 Ap '64

ELECTROMAGNETISM

Antipodal image of an electromagnetic source. K. Toman. diag IEEE Proc 52:212-14 F '64

Electromagnetic acceleration correction to the Debye relaxation time. R. W. Schmieder. Am J Phys 31:885-6 N '63

Electromagnetic behavior of the vortex sponge. E. M. Kelly. Am J Phys 32:657-65 S '64

Electromagnetic compatibility testing techniques. W. A. Taylor. il Electronic Ind 23:80-3 Ap '64

Electromagnetic exposure system for Siemens electron microscope. G. F. Bahr and others. il diag R Sci Instr 34:1443-4 D '63

Electromagnetic levitator. H. E. White and H. Weltin. il diags Am J Phys 31:925-9 D '63

Electromagnetic mixing of metals and alloys. J. J. Schott. diag R Sci Instr 35:411-12 Mr '64

Electromagnetic performance of niobium-stannide ribbon. H. C. Schindler and F. R Nyman. bibliog diag RCA R 25:570-81 S '64

Electromagnetic theory of electrical machines. S. A. Nasar. diags Inst E E Proc 111:1123-31 bibliog(p 1129-30) Je '64

Field results of the electromagnetic casing inspection log. J. M. Edwards and S. G. Stroud. il diag J Pet Tech 16:377-82 Ap '64

High-speed relay actuator. A. G. Guibert. diags Electro-Tech 73:119-23 Mr '64

Light waves mixing in nonlinear anisotropic media. D. Solimini. bibliog diags IEEE Proc 51:1408-11 N '63

Magnetoelectric flowmeter. V. Cushing. bibliog diags R Sci Instr 35:496-9 Ap '64

U.S. national committee report for commission 6 of URSI; subcommission 6.3. electromagnetics. bibliog J Res Nat Bur Stand 68D:435-517 Ap '64

See also

Faraday effect

Magnetic field

ELECTROMAGNETS

Analysis of degradation effects in superconductive niobium stannide solenoids. E. R. Schrader and F. Kolondra. bibliog diag RCA R 25:582-95 S '64

Application of the Garrett method to calculation of coil geometries for generating homogeneous magnetic fields in superconducting solenoids. H. L. Marshall and H. E. Weaver. diags J Ap Phys 34:3175-8 N '63

Approximate solution to flux concentration by hydromagnetic flow. J. M. Baker. bibliog diag AIAA J 2:112-13 Ja '64

Behavior of rectangular hysteresis loop cores in every application. L. Gilli and A. R. Meo. bibliog diags IEEE Proc 51:1578-84 N '63

Engineering flux-switching models for toroidal and multipath cores. D. Nitzan. bibliog diags IEEE Trans Com & Electronics 83:309-14 My '64

Flexible conductor coil for magnetic field generation. D. J. Spencer. il diag R Sci Instr 35:409-10 Mr '64

Gas, magnetic, and MHD bearings filling new needs. J. W. Beams and others. il diags S A E J 72:72-5 Mr '64

Grain size effects in silicon steels upon the ac core loss components. R. E. Lenhart. J Ap Phys 35:861-2 pt 2 Mr '64

Half-Helmholtz coils and a new sectorial coil scheme. A. D. Moore. diags IEEE Trans Com & Electronics 83:314-16 My '64

Magnet and vacuum system for Nimrod. il diag Engineer 217:855-6 My 15 '64

Magnetic core integrator. D. W. Zehner and I. I. Kaplan. il diags IEEE Trans Com & Electronics 83:253-60 My '64

MHD generator magnet contract. il Engineering 198:535 O 23 '64

Multiple cores used to simulate a variable volt-second saturable transformer for application in self-oscillating inverters. R. W. Sterling and others. diags IEEE Trans Com & Electronics 83:288-94 My '64

New electric flux pump. Franklin Inst J 277:625 Je '64

New high field cryogenic magnet. Franklin Inst J 276:545 D '63

1960's: superconductivity's decade? E. Leslie. il diag Radio-Electronics 35:29 Ag '64

Nonlinear analysis of ferrite-core circuits. S. W. F. Ching and O. B. Stram. bibliog diags IEEE Proc 51:1761-6 D '63

Optimum spacing of coil pairs. F. R. Crownfield, jr. diags R Sci Instr 35:240-1 F '64

ELECTROMAGNETS—*Continued*

Recent developments in the manufacture of permalloy powder cores; abstract. A. J. Harendza-Harinxma. Electro-Tech 74:122+ Ag '64

Spectrum of Barkhausen noise for periodic magnetisation of ferromagnetic materials in bulk. K. G. Warren and K. B. Reed. bibliog diags Inst E E Proc 111:387-92 F '64

Superconducting coils. R. H. Levy and Z. J. J. Stekly. bibliog il Astronautics & Aeronautics 2:30-8 F '64

Superconducting generators for superconducting magnets. diag Westinghouse Eng 24: 114 Jl '64

Superconducting Helmholtz pair. J. M. Younse and N. G. Einspruch. diags IEEE Proc 52:1238-9 O '64

Superconducting magnet design. J. D. A. Day. diag J Sci Instr 40:583-5 D '63

Use of pneumatic gauging for aligning an electromagnet. B. W. Petley and K. Morris. diags J Sci Instr 40:608 D '63

See also

Lifting magnets

Solenoids

Design

Magnetic bottles for containing extremely hot plasmas. E. E. Callaghan. il diag Space/Aeronautics 41:113-14+ Je '64

Magnetic suspension and balance system for wind tunnel application. J. E. Chrisinger and others. bibliog il diags Roy Aeronautical Soc J 67:717-24 N '63

Tape recorder breakthrough; cross field head. R. N. Angus. diags Mod Phot 28:93+ S '64

Manufacture

Pressing and clamping laminated cores. J. H. Walker and others. diags Inst E E Proc 111:565-77 Mr '64

Power supply

Current regulator for a 10 000-A dc 7.5-mw magnet power supply. B. H. Smith and others. il diags R Sci Instr 35:340-52 Mr '64

Electric flux pump. il Mech Eng 86:66-7 Jl '64

GE's electric flux pump opens door for 100,000 Gauss super magnets. il diag Eng & Min J 165:128 Ap '64

Magnet power supply for the 7 GeV proton synchrotron Nimrod. P. Bowles and others. bibliog flow diag plans diags Inst E E Proc 110:561-602 Mr '63; Discussion. 110:2233-6 D '63

Magnets punch holes to generate huge currents. diag Machine Design 36:12 Ap 9 '64

Transistorized high current stabilizer and field sweep for an electromagnet. J. B. Cook and others. diags J Sci Instr 41:390-2 Je '64

Protection

Insulation for 11-kv 280-kg pulsed magnet. J. D. Milne and others. il R Sci Instr 35: 1229-30 S '64

ELECTROMECHANICAL devices

Choppers compensate ac servos. E. R. Schlesinger. diags Control Eng 11:113-14 S '64

Coordinate measuring machine. il Mech Eng 86:48 Ja '64

Cube-root coordinate color-difference computer. M. E. Faulhaber and P. D. Schnelle. bibliog diags R Sci Instr 35:1157-60 S '64

Current-source excitation-type electromechanical pulser. H. C. Pande. bibliog diags IEEE Trans Com & Electronics 83:528-35 S '64

Electromechanical filters for 50 to 500 kilohertz. A. Russen. bibliog il diags Elec Com 39 no 3:423-34 '64

Electromechanical pH stat providing bidirectional control. C. W. Cotman and D. M. Smith. bibliog diags J Sci Instr 41:561-3 S '64

Ferreed. A. Feiner. bibliog il diags Bell System Tech J 43:1-14 Ja '64; Same IEEE Trans Com & Electronics p73-8 Ja '64

Ferreed. A. Feiner and R. L. Peek, jr. il diags Bell Lab Rec 42:70-4 F '64

Memory unit for a sorting machine. G. R. Bowd. il diag Engineer 217:658-9 Ap 10 '64

New miniaturized dry reed glass sealed contacts. I. S. Rafuse. il Bell Lab Rec 42: 99-100 Mr '64

No. one electronic switching system scanner, signal distributor, and central pulse distributor. L. Freimanis and others. il diags Bell System Tech J 43:2255-82 pt 2 S '64

No. one electronic switching system switching network frames and circuits. D. Danielsen and others. diags Bell System Tech J 43:2221-53 pt 2 S '64

No. 101 ESS; the time-division switch unit. R. M. Averill and R. C. Stone. il diags Bell Lab Rec 41:425-31 D '63

Shutter for continuous square wave modulation of a pencil of light. R. G. Berry and O. C. Jones. diags J Sci Instr 41:92-4 F '64

Telepuls and FMX modular electromechanical and electronic remote control. K. Bartels. bibliog il diags Elec Com 38 no 4:487-94 '63

ELECTROMECHANICAL transducers

Accurate pressure transducers for extreme environments. P. J. Colburn. il diags Ind Electronics 2:407-9 S '64

Analog transducers for dimensional metrology. R. H. Cerni. diags Machine Design 35:210+ N 21 '63

Ceramic materials used in vibration transducers. il Engineering 198:298 S 4 '64

Low-pressure marvels; solid-state transducers. J. C. Sanchez. bibliog il diags Astronautics & Aeronautics 2:50-3 Ap '64

Non-contacting self-calibrating vibration transducer. G. B. Foster. il diag Instruments & Control Systems 36:83-4 D '63

Nonlinear twin-T network for capacitive transducers. K. S. Lion. diags R Sci Instr 35:353-6 Mr '64

Piezoelectric transducer yields ultrahigh waves. Steel 155:151+ S 14 '64

Rotary torsion-bar pressure transducer is insensitive to vibration. il diag Instruments & Control Systems 37:87 Ja '64

Semiconductor strain-gage pressure sensors. J. C. Sanchez. bibliog il Instruments & Control Systems 36:117-20 N '63

Sensors can be used in many ways. G. A. Brewer. diag Power Eng 68:T15 Mr '64

Special electromechanical transducer. Franklin Inst J 277:90 Ja '64

Specification characteristics of pressure transducers. H. N. Norton. Instruments & Control Systems 36:91-5 D '63

Torque motor as a separate servovalve component. N. D. Trbovich. il diags Hydraulics & Pneumatics 17:103-4+ My '64

Transducer system gives pressure in binary form. Chem & Eng N 42:49 N 2 '64

Transducers for measurement; introduction and theory of pressure measurement. L. E. Bollinger. diags I S A J 11:45-8 Ag '64

Transducers in digital process control. R. H. Cerni. bibliog diags Instruments & Control Systems 37:123-6 S '64

Ultra-sensitive angular transducer using ferromagnetic film resonance. T. E. Hasty and T. C. Penn. diags IEEE Trans Com & Electronics 83:558-61 S '64

Vibrating membrane electrometer with high conversion gain. J. Dimeff and J. W. Lane. il diags R Sci Instr 35:666-8 Je '64

ELECTROMETALLURGY

Present status and future trends in the production of magnesium. J. D. Hanawalt. bibliog il J Metals 16:559-63 Jl '64

See also

Electric furnaces, Metallurgical

Electrodeposition of metals

Electroplating

also subdivision Electrometallurgy under special subjects, e.g.

Aluminum metallurgy

Copper metallurgy

Iron metallurgy

Steel metallurgy

Zinc metallurgy

ELECTROMETERS

Digital electrometer uses dc transformer. W. K. Volkers. il diags Instruments & Control Systems 37:149-52 S '64

Hybrid electrometer preamplifier. R. D. Russell and others. diag J Sci Instr 41:487 Jl '64

New electrometer of high sensitivity. F. R. Shonka and others. il diags R Sci Instr 35: 1046-9 Ag '64

Vibrating membrane electrometer with high conversion gain. J. Dimeff and J. W. Lane. il diags R Sci Instr 35:666-8 Je '64

Vibrating reed electrometers. W. R. Williams and R. C. Hawes. il diags Instruments & Control Systems 36:112-15 N '63

ELECTRON accelerators

Beam profile monitor for linear electron accelerator. D. E. Martz and J. D. Robinson. diag R Sci Instr 34:1246-8 N '63

Electronic weapon against cancer; clinical linear accelerator. N. A. Austin. il diags Electronics 37:88-92 Ap 6 '64

High current linear induction accelerator for electrons. N. C. Christofilos and others. bibliog il diags R Sci Instr 35:886-90 Jl '64

Omega-minus experiment. W. B. Fowler and N. P. Samios. il diags Sci Am 211:36-45 O '64

ELECTRON accelerators—*Continued*
Shielding moderate-energy electron accelerators. K. M. Murray. bibliog diags Nucleonics 22:61-7 F '64
See also
Cyclotron
Synchrotron

ELECTRON beams. See Electrons—Beams

ELECTRON gun
Diocotron gain reduction and space charge smoothing in crossed-field guns. R. P. Wadhwa. IEEE Proc 52:315-16 Mr '64
Electron gun assembly. C. V. Starkey. il Engineer 218:246-8 Ag 14 '64
Electrostatically focused electron gun for hollow beams. H. L. Hartnagel. bibliog diags Inst E E Proc 111:57-66 Ja '64
Limitations on electron beam density of unipotential electron guns at low voltages. J. A. Simpson and C. E. Kuyatt. bibliog diag J Res Nat Bur Stand 67C:279-81 O '63
Multistage electron guns. il diags Engineering 198:283 Ag 28 '64
Multistaged low-voltage electron guns. J. A. Simpson and C. E. Kuyatt. Franklin Inst J 277:186-7 F '64
Precision electron welder uses low beam voltage. K. Aaland and R. Hill. il diags Electronics 37:32-5 Mr 6 '64
Proposed mechanism for the broadband noise in long crossed-field guns. T. Van Duzer and R. D. Harris. bibliog il diags J Ap Phys 35:1642-3 My '64
Ultra-low-noise traveling-wave-tube gun with two beam-forming electrodes. A. L. Eichenbaum. diags IEEE Proc 52:613-14 My '64

ELECTRON microscope
Absorption contrast effect in bcc metals. S. E. Bronisz and D. L. Douglass. bibliog il J Ap Phys 34:713-14 Ap '63; Discussion. B. Hudson. 35:724-5 Mr '64
Adsorption of some organic surfactants on rutile surfaces; electron microscope studies. G. D. Cheever and E. G. Bobalek. bibliog il Ind & Eng Chem Fundamentals 3:89-94 My '64
Apparatus for the study of fatigue of thin metal films in the Hitachi H.U. 11 electron microscope. L. E. Murr and M. A. Wilkov. bibliog il diag J Sci Instr 40:594-6 D '63
Brighter image; first use of a two-stage intensifier and television monitor with the microscope. Electronics 37:32+ O 5 '64
Determination of metal foil thickness and orientation in electron microscopy. M. von Heimendahl. il diags J Ap Phys 35:457-8 F '64
Device for producing droplet samples of suspensions for electron microscopy and especially for quantitative particle assay. W. J. Harris. diag J Sci Instr 41:636-7 O '64
Domain structure of hcp and fcc cobalt above room temperature. P. J. Grundy and R. S. Tebble. il J Ap Phys 35:923-4 pt 2 Mr '64
Effect of substructure on the nucleation of grain-boundary cavities in magnesium. A. E. B. Presland and R. I. Hutchinson. bibliog il diags Inst Metals J 92:264-9 '63-64
Electromagnetic exposure system for Siemens electron microscope. G. F. Bahr and others. il diag R Sci Instr 34:1443-4 D '63
Electron field emission studies of the oxidation of nickel. J Metals 16:433 My '64
Electron metallography of chemical attack upon some alloys susceptible to stress corrosion cracking. H. W. Pickering and P. R. Swann. bibliog il diags Corrosion 19:373-89 N '63
Electron microscope for biology. il Engineer 216:862-3 N 22 '63
Electron microscope goes on tv. il Iron Age 194:72 O 1 '64
Electron microscope observation of fission fragment tracks in plastics. A. G. Malmon. il J Ap Phys 34:3634-5 D '63
Electron microscope observations of the crystallization of anodically formed tantalum and niobium oxide films. R. E. Pawel and J. J. Campbell. bibliog il Electrochem Soc J 111:1230-4 N '64
Electron microscope observations on the fine structure of rayon. W. M. Kaeppner. bibliog il Tappi 46:637-44 N '63
Electron microscope scans area a fraction of the size of a pinhead. il Elec Eng 82:738 D '63
Electron microscope shows five angstrom resolution. il Steel 155:97-8 O 26 '64
Electron microscope study of the precipitation of M_3Si and σ-phase formation in a 12 per cent Cr-4 per cent Ni steel. J. V. Hardy and G. T. Brown. il Iron & Steel Inst J 202:437-40 My '64
Electron microscope today and tomorrow. K. Ito and P. S. Miller. il Res/Develop 15:10-13 Je '64
Electron microscopes; television attachment increases magnification power to two million times. il Product Eng 35:64 O 12 '64
Electron microscopic technique for determining the percent crystallinity of glass-ceramic materials. G. B. Carrier. bibliog il Am Cer Soc 47:365-7 Ag '64
Electron optical observations of fine-grained silica minerals. E. A. Monroe. bibliog il Am Mineralogist 49:339-47 Mr '64
Electronic techniques for study of metals. il Engineer 218:24 Jl 3 '64
Electropolishing unit for rapid thinning of metallic specimens for transmission electron microscopy. R. C. Glenn and R. D. Schoone. il diag R Sci Instr 35:1223-4 S '64
Engineering easy electron microscopy. il Engineering 196:656 N 22 '63
Evaluation of passivated integrated circuits using the scanning electron microscope. T. E. Everhart and others. bibliog il diags Electrochem Soc J 111:929-36 Ag '64
Evaporator for use in an electron microscope. A. E. Curzon and K. Kimoto. diags J Sci Instr 40:601-2 D '63
Field-emission microscopy of twins in vapor-grown fcc whiskers. A. J. Melmed. bibliog il diags J Ap Phys 34:3325-8 N '63
Flaws in anodic Ta_2O_5 films. D. A. Vermilyea. bibliog il diags Electrochem Soc J 110:250-62 Ap '63; Discussion. K. Huber. 110:1286-9 D '63
Gas reactor for hot stage transmission electron microscopy. E. J. Gallegos. il diags R Sci Instr 35:1123-4 S '64
Goniometer specimen cartridge control stage for Siemens Elmiskop I. P. R. Ward. diags J Sci Instr 41:479-80 Jl '64
Graphite defects observed by electron microscopy. G. Bonfiglioli and A. Mojoni. bibliog il J Ap Phys 35:683-5 Mr '64
High-temperature u.h.v. thermionic electron emission microscope records critical problems pictorially. il Res/Develop 15:64-5 N '64
Image contrasts in thin carbon films observed by shadow electron microscopy. D. B. Dove. il J Ap Phys 35:1652-3 My '64
Jet thinning device for preparation of Al_2O_3 electron microscope specimens. N. J. Tighe. il diags R Sci Instr 35:520-1 Ap '64
Lorentz microscopy of magnetic domains of single-crystal films. H. Sato and others. bibliog il J Ap Phys 35:822-3 pt 2 Mr '64
Metal fracture: how and why? electron microscope may allow scientists to solve old puzzle. il diags Iron Age 193:66-8 Ap 16 '64
Metal microscope and Dewar system for field emission studies. W. R. Savage and F. J. Low. bibliog il diags R Sci Instr 35:848-50 Jl '64
Metallography at the atomic level. A. H. Cottrell. bibliog il diags Inst Metals J 90:449-56 '61-62; Abstract. Metal Prog 85:170+ F '64
Microjet method for preparation of wire samples for transmission electron microscopy. R. Stickler and R. J. Engle. il diags J Sci Instr 40:518-20 N '63
Microprobe technique for the analysis of multiphase microcrystalline powders. E. W. White. Am Mineralogist 49:196-7 Ja '64
Microscopy of pigment-elastomer systems. W. M. Hess and F. P. Ford. il Rubber Chem & Tech 36:1175-229 bibliog(p 1227-9) D '63
Modified goniometer specimen holder for the Siemens electron microscope operating under long focal length conditions. U. Valdrè. il diags J Sci Instr 41:327-8 My '64
Morphology of PbO_2 in the positive plates of lead acid cells. J. Burbank. bibliog il Electrochem Soc J 111:765-8 Jl '64
New high resolution electron microscope for biologists. Franklin Inst J 277:298-9 Mr '64
New method of analyzing crystal defects. diag Bell Lab Rec 42:252 Jl-Ag '64
New technique detects crystal structure imperfections. Franklin Inst J 278:72-3 Jl '64
Nontoxic technique for electrolytically polishing and thinning gold. J. D. Meakin. R Sci Instr 35:763 Je '64
Observation of antiferromagnetic domains in cobaltous oxide by means of the electron microscope. G. Remaut and others. bibliog il J Ap Phys 35:1351-2 Ap '64
Observing crack growth with the field emission microscope. S. A. Hoenig and D. L. Creighton. bibliog il diag Materials Res & Stand 3:899-901 N '63
Particle size determination of film-forming latices by electron microscopy. E. Vanzo and others. il J Colloid Sci 19:578-83 Ag '64

ELECTRON microscope—*Continued*

Possible influence of electric charge effects on the initial growth processes occurring during the vapor deposition of metal films onto substrates inside the electron microscope. D. B. Dove. bibliog J Ap Phys 35:2785-6 S '64

Preparation of beryllium specimens for transmission electron microscopy by the Knuth system of electropolishing. F. J. Wilhelm. bibliog diag J Sci Instr 41:343-4 My '64

Rapid technique for preparing thin foils for electron microscopy from bulk samples of aluminium alloys. G. Blankenburgs and M. J. Wheeler. il diag Inst Metals J 92:337-8 '63-64

Review of fundamental developments in analysis; electron microscopy. M. C. Botty and others. Anal Chem 36 [no 5]:173R-99R bibliog(p 195R-9R) Ap '64

Scanning electron microscope maps surface details. Westinghouse Eng 24:31-2 Ja '64

Scanning microscope studies surface of electronic devices. Chem & Eng N 41:56 N 18 '63

Self-supporting specimens for transmission electron microscopy. M. Solow. bibliog il R Sci Instr 35:512-14 Ap '64

Semiconductor cathode preparation for field emission microscopy. W. R. Savage. bibliog diag R Sci Instr 35:605-6 My '64

Study of contamination rates in an electron microscope. R. L. Patterson and C. M. Wayman. bibliog il diag R Sci Instr 34:1213-15 N '63

Thin mica for electron microscopy. E. L. Fontanella. diags R Sci Instr 35:124 Ja '64

Transmission electron microscope investigation of removal of mechanical polishing damage on Si and Ge by chemical polishing. R. Stickler and G. R. Booker. il diags Electrochem Soc J 111:485-8 Ap '64

Transmission electron microscopy of cleaved silicon. D. R. Frankl. bibliog il J Ap Phys 34:3514-16 D '63

Transmission electron microscopy of glass-ceramics. P. E. Doherty and R. R. Leombruno. bibliog il diags Am Cer Soc J 47:368-70 Ag '64

Variations in diffraction camera factor for the Siemens Elmiskop I. W. K. Armitage and A. MacConaill. J Sci Instr 41:401 Je '64

Wafering of bulk specimens for transmission electron microscopy. B. Mastel and H. E. Kissinger. il J Sci Instr 41:510-11 Ag '64

Work hardening and dislocation arrangement of fcc single crystals; electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

Replica technique

Freeze-fixing of cells and tissues to preserve life. il Res/Develop 15:63 N '64

Identification of rubber compounding ingredients by electron microscopy. E. B. Prestridge. bibliog il Rubber Age 94:916-18 Mr '64

Non-destructive direct carbon-replica method for examination of Si surfaces. R. Stickler. bibliog il J Sci Instr 41:523-4 Ag '64

Replica techniques for electron microscopy of wood and paper. W. A. Côté, jr. and others. bibliog il Tappi 47:477-84 Ag '64

Simple method for the single or repeated replication of selected areas of surfaces in electron microscopy. I. M. Watt. diag J Sci Instr 41:107-8 F '64

Simplified preparation method for carbon replicas and carbon film for specimen support in electron microscopy. G. Münch. bibliog R Sci Instr 35:524 Ap '64

ELECTRON microscopy society of America

Annual meeting, 22d, Detroit, Oct. 13-16; abstracts of papers. J Ap Phys 35:3074-100 O '64

ELECTRON multipliers

Direct viewing of Debye-Scherrer patterns with transmission secondary electron multipliers. G. W. Goetze and A. Taylor. il diag R Sci Instr 34:1434-6 D '63

Interpolating multipliers and related interpolators. A. Nathan. diags IEEE Proc 51:1549-54 N '63

Mass spectrometer detector using two semiconductor magnetic electron multipliers. N. C. Fenner and R. G. Ridley. diags J Sci Instr 41:157-9 Mr '64

ELECTRON optics

Advanced physical techniques for the study of metals. il diags Metallurgia 70:49-52 Jl '64

Conference on electron probe microanalysis, Reading, Sept. 26-27; recent advances in the instrumentation and technique of electron probe microanalysis. T. Mulvey. bibliog il diags J Sci Instr 41:61-5 F '64

Digital analysis of electron-optical systems. B. A. Carré and W. M. Wreathall. bibliog diags Radio & Electronic Eng 27:446-54 Je '64

Electron-probe microanalysis of a nodular scale growth on an austenitic stainless steel. G. C. Wood and others. bibliog il Iron & Steel Inst J 202:685-95 Ag '64

Electro-optical tape storage tubes. Engineering 197:399 Mr 13 '64

Empirical method for electron microanalysis. T. O. Ziebold and R. E. Ogilvie. Anal Chem 36:322-7 F '64

Identification of intermetallic layers formed on aluminized steel by means of the electron-probe microanalyser. H. J. Lamb and M. J. Wheeler. il Inst Metals J 92:150-2 '63-64

Investigation of the copper-rich portion of the copper-zirconium phase diagram by electron-probe microanalysis. M. J. Donachie, jr. Inst Metals J 92:180 '63-64

Just a detail; seal for electron optical instruments. J. M. Sturrock. diags Engineer 218:546-7 O 2 '64

Metallurgical microanalysis with the electron probe. J. R. Cuthill and others. bibliog il diags J Metals 15:763-8 O '63

Minute areas chemically analysed with new instrument; electron probe microanalyser. il Metallurgia 69:199-200 Ap '64

Modification of electron probe to detect carbon. J. Merritt and others. il Anal Chem 35:2209 D '63

Night vision improves. il Electronics 37:32+ Ap 20 '64

Proposed optoelectronic method of achieving very fast digital logic. E. H. Cooke-Yarborough and others. bibliog diags Inst E E Proc 111:1641-52 O '64

Refining the skill of the steel makers; Tube Investments new research instrument. il diags Engineering 198:6-7 Jl 3 '64

Scanning electron-probe microanalysis in the metals industry. B. R. Banerjee and others. bibliog il diag J Metals 15:769-73 O '63

Use of electron probe microanalysers with gamma-active materials. B. M. Jeffery and G. K. Williamson. diag J Sci Instr 41:172-4 Mr '64

Use of electron probes in the study of recombination radiation. D. B. Wittry and D. F. Kyser. bibliog il J Ap Phys 35:2439-42 Ag '64

See also

Electron microscope

Kerr cell

Oscillographs, Cathode ray

ELECTRON-probe microanalyzer. See Electron optics

ELECTRONEGATIVITY

Dependency of vicinal coupling constants on the configuration of electronegative substituents. D. H. Williams and N. S. Bhacca. bibliog Am Chem Soc J 86:2742-3 Jl 5 '64

Semiempirical treatment of molecular structures; electronegativity and atomic terms. G. Klopman. bibliog Am Chem Soc J 86:1463-9 Ap 20 '64

Use of basicity and oxidative coupling potential to obtain group electronegativity. D. H. McDaniel and A. Yingst. bibliog Am Chem Soc J 86:1334-6 Ap 5 '64

ELECTRONIC apparatus and instruments

Accurate wideband multiplier-square law detector. R. H. Frater. bibliog diags R Sci Instr 35:810-13 Jl '64

Alignment of a logarithmic amplifier-detector. R. E. Richardson. diags R Sci Instr 34:1446-7 D '63

Ac measurement by phase-sensitive conversion. S. Herman. il diags Instruments & Control Systems 37:115-19 Ap '64

Analog signal multiplier. O. S. Meixell. il diags Elec Com 38 no 4:443-56 '63

Apparatus for measuring characteristics of superconducting tunnel junctions. J. S. Rogers and others. bibliog diags R Sci Instr 35:208-13 F '64

Apparatus for observing phase transitions of incandescent materials. G. N. Rupert. bibliog diags R Sci Instr 34:1183-7 N '63

Automated contact resistance probe. M. Antler and others. bibliog il diags R Sci Instr 34:1317-22 D '63

Automatic bridge balancing. il Engineer 217:145 Ja 17 '64

Automatic plot of piezoelectric resonance. A. Aharoni and D. Sapoznikov. il diag R Sci Instr 35:1370-1 O '64

ELECTRONIC apparatus and instruments —*Continued*

Automatic statistical analysis. W. E. Mason. il diag Ind Electronics 2:58-60 F '64
Automatic synchronous excitation of suspended systems. F. V. Hunt. diags R Sci Instr 34:1254-7 N '63
Beam profile monitor for linear electron accelerator. D. E. Martz and J. D. Robinson. diag R Sci Instr 34:1246-8 N '63
Black box; stereo analyzer. B. White. il diags Radio-Electronics 35:38-9 Mr '64
Bootstrap ohmic multiplier. W. J. Jirafe. bibliog diags Electronic Eng 35:717-21 N '63
Build yourself a flutter meter. J. Wagner. il diags Radio-Electronics 35:24-6 Mr '64
Central read-out system for radio-isotope assay. il Ind Electronics 2:390 Ag '64
Coherent frequency waveform synthesizer. F. E. Nathanson and M. Davidson. il diag IEEE Proc 51:1773-4 D '63
Compact instrument combines six functions. il Electronics 37:121 O 5 '64
Components, materials, equipment. Published in monthly numbers of Electro-technology
Components: the state-of-the-mart. S. Feldman. il Electronic Ind 23:14-16+ Je '64
Conference on precision electromagnetic measurements, Boulder, Colo. June 23-25. J Sci Instr 41:585-8 O '64
Continuously adjustable constant current source. T. C. Penn. diag R Sci Instr 35:919-20 Jl '64
Controlling sound-reinforcement systems automatically. D. L. Klepper. il diag Audio 48:22+ Ap '64
Cool world of components. R. J. Allen and E. Niehenke. diag Electronics 37:75-9 Je 15 '64
Cryogenic electronics. R. W. Schmitt. IEEE Proc 52:1091 O '64
Design of an experimental electron beam machine. P. A. Einstein and others. bibliog il diag J Sci Instr 40:562-7 D '63
Design trends. Published in monthly numbers of Electro-technology
Designing plastics parts for electrical and electronic uses. S. Levy. diags Plastics World 22:40-5 O '64
Device for coupling a pulse height discriminator to a scanning X-ray spectrometer. K. Weber and J. Marchal. bibliog diags J Sci Instr 41:15-22 Ja '64
Digital correlator detects voice fundamental. R. B. Stone and G. M. White. bibliog il diags Electronics 36:28-30 N 22 '63
Digital counters and controllers for process control. il Ind & Eng Chem 56:58-9 Mr '64
Digital flow monitor-calibrator. A. H. Hurst. il diags Instruments & Control Systems 37:127-8 Je '64
Digital instrumentation; special report. G. J. Flynn. bibliog il diags Electronics 37:57-72, cover My 18 '64
Digitima; decimal multi-turn time digitizer. D. S. Evans. il diags Electronic Eng 35:712-16 N '63
Direct-reading meter gives impedance and phase angle. P. Lund. il diags Electronics 37:57-9 Ja 3 '64
Electrical switches challenged by istors, odes, and trons. F. D. Yeaple. il diags Product Eng 35:81-3 F 3 '64
Electronic analyzer for measuring velocities and the concentration of spermatozoa. R. Rikmenspoel. bibliog diags R Sci Instr 35:52-7 Ja '64
Electronic assessment of pasture growth. F. J. Hyde. diags Electronic Eng 36:666-70 O '64
Electronic counter. O. H. Davie. bibliog diags Ind Electronics 2:339-43 Jl '64
Electronic distance measuring devices. C. M. Smith. Pub Works 95:114-15+ F '64
Electronic equipment. Published in monthly numbers of Electronic engineering
Electronic inspector checks billets. il Iron Age 192:83 N 21 '63
Electronic instrumentation in petroleum refineries. W. H. Topham. bibliog il diags Radio & Electronic Eng 26:389-95 N '63
Electronic monitoring system for surgery at the National institutes of health. il Anal Chem 36:sup31A-4A+ My '64
Electronic muscle exerciser. il diag Radio-Electronics 35:43 N '64
Electronic road roughness indicator. il Engineering 198:261 Ag 28 '64
Electronic slide changer. W. G. Landriew. il diag Radio-Electronics 35:29 Je '64
Electronic theodolite. A. McDonald. diags J Sci Instr 41:263-4 My '64
Electronic torque meter. il Engineer 218:255 Ag 14 '64
Electronic witch takes guesswork out of pipe finding. J. W. Still. il diags Pub Works 95:101-2 Jl '64
Electronics in thermal analysis. il Ind Electronics 1:769 D '63
Elliott sequence control system. G. S. Smith. il diag Ind Electronics 2:309-12 Jl '64
Equipment review. Published in monthly numbers of Industrial electronics
Equivalence and optimal strategies for some minimum fuel discrete systems. E. Polak. diags Franklin Inst J 277:150-61 F '64
External beam cross section distribution display. J. G. Cottingham. il diag R Sci Instr 35:517-18 Ap '64
Frequency sensor stabilizes triangular-wave generator. D. E. Cottrell. il diags Electronics 37:38-40 F 28 '64
GC electronics automatic tube tester model 36-802. il Radio-Electronics 35:63 Je '64
Gamma-ray circular polarization analyzer using a rapidly alternating magnetic field. R. E. Pechacek and others. il diags R Sci Instr 35:58-63 Ja '64
General-purpose phase-sensitive detector. E. A. Faulkner and R. H. O. Stannett. diags Electronic Eng 36:159-61 Mr '64
Ground water located by electronic gravel detector. C. M. Jensen. il map Pub Works 95:84-6 Mr '64
Hall-effect gyrators, isolators, and circulators with high efficiency. S. Grützmann. bibliog diags IEEE Proc 51:1584-8 N '63; Discussion. 52:845-7; Reply. 847-8 Jl '64
Hall effect; key to higher-performance instrumentation. N. G. Sakiotis and A. L. Aden. bibliog il diags I S A J 10:51-5 D '63
Heathkit model IM-30 transistor tester. il Audio 47:38 D '63
Hexagonal ferrites for millimeter resonance isolators. D. R. Taft and others. bibliog Electro-Tech 73:85-8 Ja '64
Hexnash; electric game. J. Allison. il diags Radio-Electronics 34:82 D '63
High-speed relay actuator. A. G. Guibert. diags Electro-Tech 73:119-23 Mr '64
Hum sniffer. L. E. Greenlee. il diags Radio-Electronics 35:52-4 O '64
Improved technique for measuring skin resistance. L. E. H. Lindahl and others. diag Electronic Eng 36:245-6 Ap '64
IEEE electron devices Hall effect session, Washington, Oct. 29-Nov.1; abstracts of papers. Electronics 36:51-3 N 22 '63
Instrument electronics. D. S. Luppold. il diags Plant Eng 17:121-4 Ag; 143-6 S; 134-8 N '63
Instrument for continuous high resolution measurement of changes in the velocity of ultrasound. R. J. Blume. bibliog diags R Sci Instr 34:1400-7 D '63
Instrument measuring the decay of height differences in the surface of a layer of viscous liquid. U. Zorll. il diags J Sci Instr 41:290-4 My '64
Instrumentation for shock testing. D. B. Arlidge and R. F. Morse. bibliog diags Electro-Tech 72:96-101 D '63
Instruments for noise measurement. H. J. Purkis. bibliog diags J Sci Instr 41:284-9 My '64
Instruments for research and evaluation. il Brit Plastics 37:92-7 F '64
International symposium on nuclear electronics, Paris, Nov. 25-27. Electronics 36:43+ D 13 '63
Kerr cell measuring system for high voltage pulses. D. C. Wunsch and A. Erteza. bibliog diags R Sci Instr 35:816-20 Jl '64
Low frequency random step generator. B. R. Wilkins. bibliog diags Electronic Eng 36:386-9 Je '64
Low temperature passivation of silicon devices using evaporated lead film. T. Tokuyama. IEEE Proc 52:723-4 Je '64
Magnetics; its applications in electronics. bibliog il diags Electronics 37:61-84 Je 29 '64
Marvelous electronic diaper change indicator. D. W. Cramp. diag Radio-Electronics 35:50 F '64
Master timer. W. G. Dilley. il diag Audio 48:19-20+ F '64
Measurements using counting techniques. R. L. Chafin and J. Ahlstrom. il diags Instruments & Control Systems 37:109-14 Je '64
Mekometer for measuring distances of about 50 metres. R. H. Bradsell. diag Engineer 216:1019 D 20 '63
Method of approximation for Langmuir probes. T. S. Pak. J Sci Instr 41:180-1 Mr '64
Microwave diodes; a progress report. L. Riebman. il diag Electronic Ind 22:86-8+ N '63
Microwave power leveler for K band. E. A. Rinehart and R. L. Legan. il diag R Sci Instr 35:103-4 Ja '64
Millimeter-wave techniques. A. Karp and J. Allison. J Res Nat Bur Stand 68D:663-7 bibliog(p666-7) My '64

ELECTRONIC apparatus and instruments —*Continued*

Modern multimeter. R. H. Marshall. il diag Instruments & Control Systems 37:121 Ap '64
NPL mekometer for measuring distance. Engineering 197:31 Ja 3 '64
Navy tries solid-state compass. C. M. Wiley. il diags Electronics 37:57-8 F 14 '64
Neon-bulb keyer. H. J. Gensler, jr. il diags Q S T 48:38-42 S '64
New developments in interconnection techniques. W. V. Buster. il Electronic Ind 23:129-30+ Je '64
New field effect device may aid integrated circuit design. H. C. Nathanson and others. diags Electronics 36:44+ N 29 '63
New improvement in Bell Systems artificial larynx. il Bell Lab Rec 42:39 Ja '64
New inspection technique uses eddy currents. il diag Product Eng 34:35 D 23 '63
New monitor for reactors. M. A. Schultz. diag Electronics 36:30 D 6 '63
New opto-electronic device. Franklin Inst J 276:573 D '63
New products. Published in monthly numbers of Electronic industries
New products. Published in monthly numbers of Radio-electronics
New products. Published in weekly numbers of Electronics thru March 23 and biweekly thereafter
New superconducting energy storage system. Franklin Inst J 277:180-1 F '64
New suspended solids recorder. G. B. Thorpe. il diags Ind Electronics 2:415-18 S '64
New technique for the recognition of resistance in the presence of reactance. E. R. Wigan. diags Electronic 36:238-9 Ap '64
Noise generators. diag Am J Phys 32:sup5-6 Jl '64
Novel field-effect device provides broadband gain. F. M. Wanlass. il diags Electronics 36:30-3 N 1 '63
Optoelectronics at work. I. Wunderman. il diags Electronics 37:58-67 Jl 27 '64
Parallel-R calculator. M. S. Lieberman. il diag Radio-Electronics 35:50-1 Je '64
Parametric devices. R. Rafuse. bibliog J Res Nat Bur Stand 68D:661-3 My '64
Particle reference: all-electronic guidance system. il Electronics 37:28+ Je 29 '64
Pattern recognizer probes dolphin speech. F. Shunaman. il diags Radio-Electronics 35:40-2, cover Ap '64
Phase sensitive detector for long integration time. B. V. Rollin. diag J Sci Instr 41:239 Ap '64
Plastics and electronics for sea lights. il Engineering 197:589 Ap 24 '64
Point-contact flexode. B. E. Tompkins. il diag IEEE Proc 52:1064 S '64
Potter coordinate measuring machine. il Mach 70:177-8 D '63
Precision voltage reference decades. I. Queen. il diag Radio-Electronics 35:70 N '64
Preliminary evaluation of a new electronic polarographic instrument. E. P. Parry and R. A. Osteryoung. Anal Chem 36:1366-7 Je '64
Probing active systems statistically for faults. A. A. Wolf. diags IEEE Proc 52:443-4 Ap '64
Radio-Electronics goes to the World's fair. il Radio-Electronics 35:50-2 S '64
Repetitive function synthesizer and spectrum display. J. R. James and M. H. N. Potok. il diags Electronic Eng 35:792-800 D '63
Ryotron, a new cryogenic device. R. A. Gange. bibliog diags IEEE Proc 52:1216-23 O '64
Ryotron, a variable inductance cryogenic device. J. C. Miller and others. il plans diags IEEE Proc 52:1223-33 O '64
Self-balancing transformer ratio arm bridges. R. Calvert and J. Mildwater. diags Electronic Eng 35:782-7 D '63
Shake-up in spectrum analyzers. L. Dulberger. il Electronics 37:102+ O 19 '64
Shark shocking. B. Kofoed. il Comp Air Mag 69:26-7 My '64
Silistor; electronic Shmoo. Electronics 37:38+ S 7 '64
Simple d.c. sensing device. M. Pacák. diag Electronic Eng 36:48-9 Ja '64
Snorekill. M. U. Fips. il Radio-Electronics 35:44-5 Ap '64
Sonac sensing and switching devices. il diag Engineering 198:270-1 Ag 28 '64
Space-charge-limited solid-state devices. G. T. Wright. diags IEEE Proc 51:1642-52 bibliog(p 1651-2) N '63
Stabilizer tube test set. D. T. Smith. diag Electronic Eng 36:260 Ap '64
Statistical accuracy of the logarithmic counting-rate meter; discussion. Inst E E Proc 110:2310-12 D '63
Steel base electronic parts are bronze plated. il Steel 154:71 Ap 6 '64
Superconductors in instrumentation. D. H. Parkinson. bibliog diags J Sci Instr 41:68-77 F '64
Tachometry in industry. E. K. Elphee. il diags Ind Electronics 1:713-15 N '63
Ten signals at a glance. J. E. Russell. il diags Electronics 37:54-7 Je 29 '64
Test set aids two-way radio jobs. B. Barbee. il diag Radio-Electronics 35:46-8 Je '64
Theory of current collection of moving cylindrical probes. M. Kanal. bibliog diags J Ap Phys 35:1697-703 Je '64
Transient detector. C. K. Adams. diag Electronic Ind 23:125 Ap '64
Transistor bridge switches microvolts. M. V. Kalfaian. diag Electronics 37:60 Ja 3 '64
Transistor tester. M. F. Sizmur. il diags Wireless World 70:253-7 My '64; Discussion. 70:524-5 O '64
Transistorized radiation-field-actuated lightning flash counter. B. S. Sonde. bibliog il diags IEEE Proc 51:1501-6 N '63
Unusual instruments for control and measurement. M. Mandl. il diags Radio-Electronics 35:50-2 Ap '64
Use of Langmuir probes to study ion-electron recombination. C. B. Kretschmer and H. L. Petersen. bibliog diag J Ap Phys 34:3209-17 N '63
Vibration monitoring equipment for industrial plant. il Ind Electronics 2:68 F '64
Wanted: solar-flare predictors. J. A. Strasser. diag Electronics 37:40-3 Ja 10 '64
Wide-range audio-frequency pulse modulator. M. E. Bryan and W. Tempest. il diags Electronic Eng 36:154-8 Mr '64

See also
Clocks, Electronic
Gages, Electronic
Musical instruments, Electronic
Numerical control
Oscillators
Scales, Electronic
Transducers
Translating machines

also subdivision Electronic equipment under special subjects, e.g.
Airplanes
Airplanes, Military
Automobiles
Railroads
Ships
Space vehicles
Submarine boats

Cooling

Circuit designers can cut costs by early consideration of heat-transfer problems. E. Trunk. il Electronics 37:66-8 S 21 '64
Cooling high-power equipment by forced-air convection. L. Katz. il diags Electronics 37:69-72 S 21 '64
Effective area of cooling fins. R. L. Peters. diag Electro-Tech 73:116 F '64
Transistor heat dissipators; special report. bibliog il diags Electronics 37:83-106 S 7 '64 (reprints 50c)

Costs

Lower costs for telecontrol systems. il Engineering 197:832 Je 19 '64
Training engineers in cost-cutting techniques. L. K. Singer. Electronic Ind 23:156-7+ My '64

Design

Frame-grid mechanical design. T. Harrett. diag Inst E E Proc 111:1119-22 Je '64
Just a detail: seal for electron optical instruments. J. M. Sturrock. diags Engineer 218:546-7 O 2 '64
Microelectronics in equipment design. S. S. Forte. il diags Electronic Eng 36:586-90 S; 696-701 O '64
Nickel and nickel alloys; electrical/electronic design parameters. J. L. Shaw and F. L. Perry. bibliog il Electro-Tech 73:101-9 My '64
Operability. R. C. Winton. il diags Ind Electronics 2:323-5 Jl '64
Today's semiconductors; special report. bibliog il diags Electronics 36:37-60 D 6 '63
Vibration control; applications. J. E. Ruzicka. bibliog il diags Electro-Tech 73:75-82 Ja '64
What the designer should know about indicators. J. H. Anderson and J. D. McElwain. il Electronic Ind 23:77-82 Ag '64

Exhibitions

Competition keynotes the IEEE show. il Electronics 37:62+ Mr 13 '64
Domestic receivers and tape recorders at Hanover fair. il Wireless World 70:275-7 Je '64

ELECTRONIC apparatus and instruments —Exhibitions—*Continued*

Electrical engineers exhibition, 12th, London, March 18-25. il Ind Electronics 2:140-2 Mr '64
Electronic equipment at Hanover fair; April 26-May 5. il Electronic Eng 36:490-5 Jl '64
Electronics at Farnborough. il Wireless World 70:513-16 O '64
Firato 63, Amsterdam. il Wireless World 69:561-2 N '63
French control systems sophisticated, as usual: Mesucora exhibit, Paris. A. Erikson. il Electronics 36:14-15 N 29 '63
Genoa fair 1963. Wireless World 69:563-4 N '63
Industrial electronics; Fair programed for fun. G. V. Novotny. il Electronics 37:99-102+ Ap 6 '64
Institute of physics and Physical society annual exhibition, 48th, London. il diags Ind Electronics 2:92-7 F '64
Instruments, electronics and automation exhibition, London, May 25-30; with floor plans and list of exhibitors. il Ind Electronics 2:220-9 My '64
International audio festival and fair, London; list of exhibitors and products displayed. il Wireless World 70:167-72, 239-41 Ap-My '64
International conference and exhibit on aerospace electro-technology, Phoenix, Ariz. April 19-25; program. Electro-Tech 73:10-12+ Ap '64
I.E.A. 1964. il Wireless World 70:334-8 Jl '64
International exhibition of electronic components, Paris, Feb. 7-12. il Electronic Eng 36:336-9 My '64
International instruments, electronics and automation exhibition, London, May 25-30. il Engineer 217:891-2, 930-2, 990-2 My 22-Je 5 '64; Engineering 197:702-3 My 22 '64; Electronic Eng 36:413-20 Je '64; Ind Electronics 2:276-83 Je '64; Wireless World 70:278-94 Je '64
International products seen at London shows. il Wireless World 70:492-4 O '64
International telemetering exhibition, London. il Ind Electronics 1:746-7 N '63
Physical society exhibition, 48th, London, Jan. 6-9. Wireless World 70:89-94 F '64; Electronic Eng 36:188+ Mr '64
Profusion of developments; International convention of electrical and electronics engineers, New York. il diag Product Eng 35:43-4 Ap 13 '64
Salon international des composants électroniques, 7th, Paris, Feb. 7-12. il Engineer 217:362-4 F 21 '64; Wireless World 70:141-4 Mr '64
Salon international radio-télévision, Paris, Sept. 5-15. il Wireless World 69:568-9 N '63
S.B.A.C. flying display and exhibition, 24th, Farnborough, Sept. 7-13. il Ind Electronics 2:470-4 O '64; Electronic Eng 36:713-19 O '64
Wescon 1963: electronics exhibition, San Francisco. Wireless World 69:543-4 N '63

Failure

Built-in reliability. F. A. Applegate Electro-Tech 74:40-5 O '64
Commercial aircraft prospects for microelectronics. J. R. Moore and R. M. Ashby. bibliog flow diag il diags Astronautics & Aeronautics 2:34-40 Ap '64
Electronic system reliability; an American viewpoint. P. S. Darnell. diag Inst E E Proc 111:284-90 F '64
Epoxy-encapsulated electronic modules. G. R. Bretts and others. il Plastics Tech 10:32-4 Ja '64
Estimating Weibull-distribution parameters. J. V. J. Ravenis, 2d. bibliog Electro-Tech 73:46-54 Mr '64
Integrating spacecraft electronics. A. B. Whitaker and C. Schuhlein. bibliog diags Space/Aeronautics 42:53-9 Ag '64
National symposium on reliability and quality control, 10th, Washington. Electronics 37:39-42 Ja 17 '64
New calculation method for the over-all system reliability. E. Midzuta. diags IEEE Proc 52:1057 S '64
Quality defects; principal cause of failure. G. A. Raymond. il Space/Aeronautics 42:80+ Ag '64
Reliability. P. Alelyunas. bibliog il diags Space/Aeronautics 42:48-55 O '64
Reliability and quality in communications. E. G. D. Paterson. diags Ind Quality Control 20:15-23+ bibliog(p37-8) Mr '64
Semiautomatic fault-isolation system. diag Electro-Tech 72:13 D '63
Simplifying system-reliability calculations. J. G. Lawrence. diags Electro-Tech 73:109-14 Mr '64
Survey of analytical techniques in reliability engineering. L. C. Thomas. bibliog Eng J 47:29-32 Ap '64
What should a reliability program cost? F. E. Wenger. Ind Quality Control 20:21-2 Ja '64

Maintenance and repair

Don't miss the boats! J. L. Lovett. il Radio-Electronics 35:40-2, cover My '64
Good many tape recorder ills can be cured, or better yet prevented, with a few simple maintenance procedures. L. Zide. Mod Phot 28:56+ S '64
Maintainability prediction and measurement. B. L. Retterer and R. L. McLaughlin. bibliog Ind Quality Control 20:16-20 D '63
Make your own service manuals. R. K. Re. Radio-Electronics 35:37 O '64
Money in electronics afloat. R. C. Beard. il diags Radio-Electronics 35:60-1 S; 46-8 O '64
Problem; standardizing instruments, solution; digital systems. D. Gertz and L. Leavitt. il diags Electronics 37:65-70 O 19 '64
Profits in electronics afloat. R. C. Beard. il Radio-Electronics 35:46-8 O '64
When in doubt, calibrate! R. N. Centerville. diags Radio-Electronics 35:58-60 N '64

Manufacture

Cold pressure welding ideal for electronic parts. il Automation 11:28 Ag '64
Cold-welding of electronic assemblies simplified with hydraulic presses; Scully-Anthony corp. il Mach 70:125 Ag '64
Compressed air as a grinding fluid. il Comp Air Mag 68:22-3 D '63
Electromagnetic compatibility is management responsibility; abstract. F. J. Nichols. S A E J 72:88 F '64
Electronics factory designed for whatever the future brings. il diags Eng N 173:30-1 Jl 16 '64
Etching of plastic film produces no punch, no die hole patterns. H. B. Thoeni. il Am Mach/Metalworking Manuf 107:65-6 D 23 '63
Insulated wire welding process. M. Perl. il diag Welding J 43:512-16 Je '64
Machine inserts transistors; wraps leads. C. L. Brooks. il diags Tool & Manuf Eng 52:96-7 Ap '64
Manufacturing multi-range meters. A. Cattle. il diags Ind Electronics 2:263-6 Je '64
Multiple pin-hole camera for microelectronics. T. E. Price. il diags Ind Electronics 2:85-8 F '64
Plating on semiconductor and electronic devices. E. F. Duffek. bibliog il diags Plating 51:877-83 S '64
Programmed machine cuts cost of plastic parts. B. E. Shereshaw. il Electronics 36:48-9 D 27 '63
Self-setting, parallel-gap welder saves time and rejects. J. Shank. il diag Electronics 36:91-2+ D 6 '63
Speedy assembly on standard presses. il Mach 70:123 Ja '64
Symposium on electron beam processes for microelectronics, Malvern. J Sci Instr 41:589-91 O '64
Welder bonds smaller leads. G. Rose. il diag Electronics 37:56+ Ja 17 '64
Wetting agent solves photoetching problem. I. F. Barditch and C. Z. Leinkram. il diag Electronics 36:54+ D 13 '63
What makes a solder joint good? J. D. Keller. il diags Electronics 36:50-1 N 29 '63

Miniaturization

Bringing microelectronics to spacecraft. C. Husson. il Astronautics & Aeronautics 2:29-33 Ap '64
Compatible circuits highlight 3d microelectronics symposium, St Louis, April 13-15. Electro-Tech 73:113-14 Je '64
Components. L. H. Dulberger and others. il Electronics 37:50-1 Ja 3 '64
Electronic hope for the helpless. A. Zimmerman. il Electronics 37:108-11 My 4 '64
Forward step in microcircuits: thin-film transistors form scanning generator. M. F. Wolff. il diag Electronics 37:23-5 F 21 '64
Microelectronics; its impact on naval ships. W. R. Boehm. il diags Naval Eng J 76:365-75 Je '64
Molded parts miniaturize electronic package, cut costs, too. il Mod Plastics 42:95-7+ O '64
Multiple pin-hole camera for microelectronics. T. E. Price. il diags Ind Electronics 2:85-8 F '64
Tiny welder speeds microworking. il Steel 154:60 Ja 20 '64

ELECTRONIC apparatus and instruments —Miniaturization—*Continued*

Using microcircuits in high-resolution range counters. L. C. Drew. il diags Electronics 36:31-3 N 22 '63

Noise

Influence of mismatch error in noise performance measurements. M. M. Brady. IEEE Proc 52:1075-6 S '64

Investigation of noise in Venetian blind photomultipliers. J. C. Barton and others. bibliog J Sci Instr 41:599-604 O '64

Power supply

Added capacitor sweeps power supply. M. H. Crothers. diag Electronics 37:62 Je 1 '64

Bench supply for transistor radios. W. Lemons. il diag Radio-Electronics 35:38-9 My '64

D-c analysis of regulated supplies. W. D. Becher. diags Electro-Tech 74:38-43 S '64

High-efficiency low-frequency power source for vibration excitation. B. H. Venning. bibliog diags Radio & Electronic Eng 27:55-63 Ja '64

Measuring transient overvoltage on instrument feeders. H. J. Turner. bibliog il diags Radio & Electronic Eng 28:191-7 S '64

Reducing ripple in regulated supplies. V. R. Cunningham. diags Electronic Ind 22:63-4 D '63

Simple, high-performance series stabilizer. D. J. Collins. il diags Electronic Eng 36:330-1 My '64

Versatile power supply for low level voltage-current characteristic measurements. R. Varteresian. diags R Sci Instr 34:1265-6 N '63

Zener diode bias supply. R. L. Ives. diag Radio-Electronics 34:38 D '63

Protection

Arc-safe components. diag Mech Eng 86:132 Ap '64

Modern electronics packaging. A. A. McKenzie. il Electronics 37:33-48 bibliog(p48) F 7 '64

Refractory potting ceramic protects space electronics. Chem & Eng N 42:45-6 Ag 3 '64

To protect and support components; encapsulation methods. W. B. Wallace. bibliog il Product Eng 34:88-97 N 11 '63

Radiation effect

Electronic design for nuclear space vehicles: how radiation environment affects electronic design approaches. D. J. Niehaus and F. Larin. bibliog diags Nucleonics 22:85-6+ My '64

Standards

Standard equipment practice for ITT Europe. F. Beerbaum and others. il diags Elec Com 39 no 2:199-211 '64

State of the art of transductor application in Germany. A. Lang. bibliog il diags IEEE Trans Com & Electronics 83:409-23 Jl '64

Testing

Built-in reliability. F. A. Applegate. Electro-Tech 74:40-5 O '64

By-the-book procedures certify instruments. il diag Plant Eng 18:112-13 Je '64

Central testing organization within ITT Europe. C. A. Meuleau. il Elec Com 39 no 2:212-19 '64

Checking out tape recorders. H. Burstein. il diags Radio-Electronics 35:35-7 Mr '64

Electromagnetic compatibility testing techniques. W. A. Taylor. il Electronic Ind 23:80-3 Ap '64

Electronic modules get speedy test. il Iron Age 192:88 D 19 '63

Harness tester detects and indicates intermittent faults. diag Electronics 37:56 Ja 24 '64

Infrared detectors, taking the temperature of electronic components to detect internal ailments. Product Eng 35:73-4 O 26 '64

Machines evaluate, assemble components. il Steel 155:115 O 19 '64

New generator tests data handling systems. L. Mobley. il diags Electronic Ind 23:108-10 Jl '64

Predicting system checkout error. W. D. Moon. diags Electro-Tech 73:46-50 Ja '64

Quick checkout for modular equipment. il diag Space/Aeronautics 40:96+ N '63

Review of step-stress testing. D. S. Peck. Bell Lab Rec 42:327-9 O '64

Scanning locates microelectronic flaws. il diag Electronics 37:119 My 18 '64

Scanning microscope studies surface of electronic devices. Chem & Eng N 41:56 N 18 '63

Vibration

New designs in shock and vibration protection. R. Butler. diags Electronic Ind 23:164-6+ Je '64

Vibration control: applications. J. E. Ruzicka. bibliog il diags Electro-Tech 73:75-82 Ja '64

ELECTRONIC calculator. See Calculating machines

ELECTRONIC circuits

Active nonreciprocal realisation of the compact symmetrical network for transfer-function synthesis. A. W. Keen. bibliog diags Inst E E Proc 111:1075-9 Je '64

Admittance parameter of a general pentode network. A. B. Bhattacharyya. diags Electronic Eng 35:829 D '63

All silicon tape playback preamps and recording circuit. J. Abajian, jr. and D. V. Jones. il diags Audio 48:22-8+ O '64

Application of silicon planar p-n-p-n switches. S. Lukens. diags Ind Electronics 2:438-40 S '64

Automatic flip-flop reset circuit. M. H. Gold. diags Electro-Tech 72:110+ D '63

Bi-quinary scaling: accuracy and simplicity at 500 mc. R. Engelmann. diags Electronics 36:34-6 N 15 '63

Boost for electronic tuning. L. A. Weldon and R. L. Kopski. il diags Electronics 37:49-53 Ap 6; 61-3 Ap 20 '64

Bridging and mixing techniques. C. E. Wood. diags Audio Eng Soc J 12:55-65 Ja '64

Broadband balanced idler circuit for parametric amplifiers. J. D. Pearson and K. S. Lunt. bibliog diags Radio & Electronic Eng 27:331-5 My '64

Certain class of LC time variant ladder two ports. S. G. S. Shiva. diag IEEE Proc 52:1266-8 O '64

Choppers compensate ac servos. E. R. Schlesinger. diags Control Eng 11:113-14 S '64

Circuit for finding the root-mean square. R. S. Entenmann. diags IEEE Proc 52:193 F '64

Circuit to simulate latent heat effects for thermal analog computers. J. E. Sunderland and R. J. Grosh. bibliog diags Food Tech 18:1455-6 S '64

Circuit with a twist; cascode follower. R. W. Johnson. diags Electronics 36:69-70 D 6 '63

Compressor amplifier features balanced push-pull circuit. L. M. Hilles. il diags Electronics 37:36-7 Ja 24 '64

Conditioned-reflex circuits. K. C. Wehr. bibliog diags Electronics 37:66-70 Ag 24 '64

Constant magnitude, variable phase circuit for low impedance loads. M. D. Daybell. diags R Sci Instr 35:1237-8 S '64

Construction of a network function from its specified even part. N. DeClaris and S. K. Mitra. IEEE Proc 52:302 Mr '64

Construction of minimum-phase network functions from prescribed even or odd part. H. Ruston. IEEE Proc 52:216-17 F '64

Correspondence between second-order linear differential equations and RLC series circuits. S. G. S. Shiva. diags IEEE Proc 51:1797 D '63; Discussion. 52:866 Jl '64

Definition of *Q* of *rc* networks. S. C. Dutta Roy. diags IEEE Proc 52:421 Ap '64

Deposition of tantalum films with an open-ended vacuum system. J. W. Blade and others. bibliog il diag Bell System Tech J 43:127-42 Ja '64

Diffused junctions interconnect circuits. S. B. Gray. il diags Electronics 37:70+ F 14 '64

Digital readout device for analog integrators. E. C. Toren, jr. and C. P. Driscoll. bibliog diag Anal Chem 35:1809-10 N '63

Direct approach to Q-point stabilization. F. W. Brands. diags Audio 48:44+ Ap '64

Direct voltage trigger circuit. T. K. Hemingway and J. Willis. diags Wireless World 68:460-1 O '62; Discussion. H. R. Henly. 70:40-1 Ja '64

Dispersion and impedance of dielectric-supported ring-and-bar slow-wave circuits. E. A. Ash and others. bibliog diags Inst E E Proc 111:629-41 Ap '64

Drivers for optical diodes. E. L. Bonin. bibliog il diags Electronics 37:77-82 Ag 10 '64

Dynamic operation of the in-line cryotron in bistable circuits. A. E. Brennemann and others. bibliog il diags IEEE Proc 52:228-38 Mr '64

Effect of small variations of impedance on the pole and zero locations for a passive linear network. D. J. Storey. Inst E E Proc 110:2181 D '63

ELECTRONIC circuits—*Continued*

Elements of transistor pulse circuits. T. D. Towers. diags Wireless World 70:2-8, 74-80, 128-32, 199-203, 242-6, 351-7, 403-7, 463-70, 534-9, 634-9 Ja-My, Jl-O, D '64; Discussion. 70:560-1, 617-19 N-D '64

Ensuring the reliability of transistors used in logic circuits. H. Brändle. Naval Eng J 76:377-86 Je '64

Epic process isolates integrated circuit elements with silicon dioxide. diags Electro-Tech 74:136 Jl '64

Evaluation of passivated integrated circuits using the scanning electron microscope. T. E. Everhart and others. bibliog il diags Electrochem Soc J 111:929-36 Ag '64

Ferrite core parameter measurements at very high switching currents. M. C. Stevens. bibliog diags Electronic Eng 36:470-3 Jl '64

Fet's synthesize negative resistance. C. E. Holland, jr. diags Electro-Tech 73:124-6 Ap '64

Frustrating problem of inductors in integrated circuits. W. E. Newell. bibliog diags Electronics 37:50-2 Mr 13 '64

Further tables of element values for inductively coupled double-tuned networks. S. S. Hakim. diags Inst E E Proc 111:1637-40 O '64

Future of thin-film active devices. C. Feldman. bibliog il diags Electronics 37:23-6 Ja 24 '64

Generalized circuits for electroanalytical instrumentation. W. M. Schwarz and I. Shain. bibliog diags Anal Chem 35:1770-8 N '63

Guide to today's cricuit interconnections; with tables. il diags Electronic Ind 23:48-9+ My '64

Hamilton's modified principle applied to nonlinear circuit problems. M. Kristiansen and L. G. Clark. bibliog diags IEEE Trans Com & Electronics p598-601 N '63

Helpful transistor analog; four-layer pnpn device. R. A. Stasior. il diags Electronics 37:66-73 Ag 10 '64

Honeywell ups reliability of integrated circuitry. il Steel 154:29 F 3 '64

Immittance synthesis in the non-reciprocal domain. A. W. Keen. bibliog diags Inst E E Proc 110:2118-24 D '63

Improved power stabilization in varying resistances. O. S. Wecksler. diags J Sci Instr 41:105-6 F '64

Impulse response stability criteria. R. W. Newcomb. bibliog IEEE Proc 52:97-8 Ja '64

Infinite networks on a plane. A. Prabhakar and N. Kumar. diags Electronic Eng 35:829 D '63

Integrated circuits today and tomorrow. C. L. Hogan. il diags Electronic Ind 23:58-61+ Je '64

International solid-state circuits conference, Philadelphia, Feb. 19-21. Electronic Ind 23:56-8+ F '64

Introduction to the synchro transolver. A. E. Hayes. bibliog il diags Electronic Ind 22:69-74 D '63

Killing the parasitics; isolated integrated circuits. diags Electronics 37:29-30 Ap 6 '64

Logarithmic time-base. R. N. Alcock. diags Electronic Eng 36:404-6 Je '64

Low-cost circuit measures frequency translation. S. E. Watford. diags Electronics 36:51 N 8 '63

Magnetic amplifier telemetry encoder circuit. B. K. Bose. il diags IEEE Proc 52:1076 S '64

Magnetoresistance; better than Hall-effect multipliers. S. F. Sun. il diags Electronics 37:66-70 Ap 6 '64

Matrices for basic two-port networks. E. H. Kopp. bibliog diags Electro-Tech 73:34-9 Mr '64

Mechanical binary scaler. B. I. H. Scott. diag Am J Phys 32:645-6 Ag '64

More about negative-resistance circuits. H. J. Reich. diags IEEE Proc 52:1058-9 S '64

Multiple-loop feedback circuits. S. S. Hakim. bibliog diags Inst E E Proc 110:1955-9 N '63

N2 carrier solid state circuitry. W. P. Kuebler. diags Bell Lab Rec 42:127-32 Ap '64

Negative resistance computing element. A. K. Godden and T. Cookes. diags Electronic Eng 35:751-3 N '63

New look at the parallel tuned circuit. D. E. Mertens. diags Electro-Tech 73:58-62 My '64

New nonreciprocal transmission line device. R. J. Mohr. diags IEEE Proc 52:612 My '64

New semiconductor networks reduce system complexity. C. R. Cook, jr. and B. M. Martin. il(cover) diags Electronics 37:25-9 Ja 10 '64

Nonlinear analysis of ferrite-core circuits. S. W. F. Ching and O. B. Stram. bibliog diags IEEE Proc 51:1761-6 D '63

Normalized stability plot for tunnel-diode circuits. H. Gruenberg. diag IEEE Proc 52:733 Je '64

Noteworthy circuits. Published in monthly numbers of Radio-electronics

Optimal rearrangeable multistage connecting networks. V. E. Beneš. diags Bell System Tech J 43:1641-56 pt 2 Jl '64

Parametric energy conversion by nonlinear admittances. R. S. Engelbrecht. diags Inst Radio Eng Proc 50:312-21 Mr '62; Discussion. K. L. Hughes and D. P. Howson. IEEE Proc 52:729-30 Je '64

Passive circuit adjustment of parametric amplifiers incorporating varactor diodes. T. Buckley. diags J Sci Instr 41:333-4 My '64

Permutation groups, complexes, and rearrangeable connecting networks. V. E. Beneš. bibliog diags Bell System Tech J 43:1619-40 pt 2 Jl '64

Power of time and exponential current chronopotentiometry. R. W. Murray. bibliog diags Anal Chem 35:1784-9 N '63

Preventing second breakdown in transistor circuits. P. Schiff. il diags Electronics 37:66-74 Je 15 '64

Problem in designing high-speed ferrite switches. S. Sugimoto and M. Sugiyama. IEEE Proc 52:1252 O '64

Quinary scalers; measure time intervals digitally. R. Engelmann. il diags Electronics 37:34-6 Ja 31 '64

Reliable digital monitoring circuit; abstract. M. C. Kidd. diag Electro-Tech 74:120 Ag '64

Resistive loss in transmission lines as a limit to computer store size. M. J. W. Taylor. diag IEEE Proc 52:1270 O '64

Self-healing electronic circuits. Engineering 197:223 F 7 '64

Semiconductors are circuits. L. Stern. il diags Radio-Electronics 35:24-5 Ja '64

Set of ideal network elements. A. W. Keen. diags Inst E E Proc 110:2182-4 D '63

Scr circuit cuts cost. L. W. Staalberg. diags Electronic Ind 23:85 Ag '64

Simple dc-ac negative-impedance converter, offering symmetrical *N*-type and *S*-type negative resistance. H. E. Kallmann. diags IEEE Proc 52:199-200 F '64

Simplified explicit solution of networks with two internal nodes. S. D. Bedrosian. diags IEEE Trans Com & Electronics p218-24 Mr '64

Smaller, better magnetic amplifiers for power and control circuits. bibliog il diags Electronics 37:69-73 Je 29 '64

Solderless connector for electronic breadboards. H. Sear. diag J Sci Instr 41:399-400 Je '64

Solving for transients in r-c networks. A. Goodman. diag Electronic Ind 23:72-4 Ja '64

Some properties of the tunnel diode balanced pair circuit. N. E. Wiseman. bibliog diags Radio & Electronic Eng 26:492-4 D '63

Some simple Dekatron coupling circuits. A. J. Oxley. bibliog diags Electronic Eng 36:227-32 Ap '64

Stability of nonlinear sampled-data systems with finite sampling duration. C. Y. Lee. diags IEEE Proc 52:734 Je '64

Steady-state analysis of periodically interrupted circuits by means of symmetrical components. D. J. Hanrahan. bibliog diags IEEE Trans Com & Electronics p589-93 N '63

Structural effects in thin-film sandwich emitters. L. A. Harris. bibliog il diags J Ap Phys 35:268-76 F '64; Discussion. 35:3056-7 O '64

Structure of a cryogenic associative processor. J. D. Barnard and others. bibliog diags IEEE Proc 52:1182-90 O '64

Symmetrical clipping. R. M. Rowland. diags Q S T 48:61-2 Je '64

Tables of element values for capacitively coupled double-tuned networks. S. S. Hakim. bibliog diags Inst E E Proc 111:1093-8 Je '64

Transient analysis of thin-film structures. F. A. Lindholm and W. W. Happ. bibliog diags Radio & Electronic Eng 26:421-35 N '63

Transient response of tuned circuits. H. G. Leventhall. bibliog il diags Inst E E Proc 111:311-14 F '64

Transistor current-switching circuits. Y. N. Bapat. bibliog diags Radio & Electronic Eng 27:353-64 My '64

True r.m.s. voltage measuring circuit. J. C. Cluley. diags Electronic Eng 36:300-3 My '64

ELECTRONIC circuits—*Continued*

Use of the transistor as a switch in precise analogue-digital-convertor circuits. A. J. Uphill. bibliog diags Inst E E Proc 111: 1385-92 Ag '64

VR-tube regulation; why and how. A. Weiss. diags Q S T 48:54-7 O '64

Will nuclear irradiation dope integrated circuits? Electronics 36:96 D 6 '63

Zero-point detector for the Dauphinee-Mooser circuit. H. H. Soonpaa and others. bibliog diags R Sci Instr 34:1341-4 D '63

See also

Electric circuits

Design

Balanced bipolar circuits improve magnetic shift-register performance. E. E. Newhall. bibliog il diags Electronics 37:54-9 O 5 '64

Basic considerations in integrated circuit design. L. Stern. il diags Electro-Tech 74:91-7 S '64

Circuit designers can cut costs by early consideration of heat-transfer problems. E. Trunk. il Electronics 37:66-8 S 21 '64

Computer programs for circuit design. H. Falk. Electro-Tech 73:101-4+ Mr '64

Custom-integrated circuits by design kit. il diags Electronics 37:109 S 21 '64

Design of transistor-resistor logic circuits by graphical means. C. W. M. Barrow. bibliog diags Electronic Eng 36:660-5 O '64

Designer's casebook. il diags Electronics 37: 72-3 Mr 23; 74-5 Ap 6; 72-3 Ap 20; 76-8 My 4; 92-3 My 18; 62-3 Je 1; 80-4 Je 15; 52-3 Je 29; 58-60 Jl 13; 72-5 Jl 27; 74-6 Ag 10; 60-6 Ag 24; 80-2 S 7; 74-7 S 21; 64-7 O 5; 54-7 O 19; 62-5 N 2 '64

Designing logic circuits. il Engineer 217:1139 Je 26 '64

Designing noise immunity into high-speed circuits. D. R. Gipp. diags Electronics 37: 66-72 S 7 '64

Distributed circuit design. M. Kahn. diags Electro-Tech 73:93-6 My '64

Equations for manipulating tolerances; engineer's notebook. G. H. Ashbridge. Electronic Ind 23:83 Mr '64

Four-layer diodes form staircase generator. H. W. Wieder. diags Electronics 37:55-7 Jl 13 '64

Hybrid approach to integrated circuits. D. R. Tibbetts. il diags Ind Electronics 2:391-4 Ag '64

Hybrid electrometer preamplifier. R. D. Russell and others. diag J Sci Instr 41:487 Jl '64

Integrate-and-dump operator for serial correlators. R. M. Seeley. diags Electronic Eng 36:601-4 S '64

Introduction to practical transistor circuit design. G. P. Hobbs. diags Wireless World 70: 433-7, 518-22 S-O '64; Discussion. 70:560 N '64

Linear delay circuits using constant-current diode. S. S. Hakim. diags Ind Electronics 1:780-1 D '63

Low speed single supply NOR logic system. G. Flanagan and L. Molyneux. bibliog diags Electronic Eng 36:460-3 Jl '64

Method of driving uniselectors by transistors. K. J. Gough. diags Electronic Eng 36:632-3 S '64

Microcircuit uses matched input transistors. il diags Electronics 37:135 S 7 '64

Molecular electronics and the circuit engineer. E. A. Sack. il diags Westinghouse Eng 24:2-7 Ja '64

Monostable circuits need power only when they work. L. L. Kleinberg. diags Electronics 37:56-9 Ag 24 '64

New approach to transistor circuit design. I. M. Gottlieb. diag Radio-Electronics 35: 76+ F '64

New radiation-resistant computer circuits. Franklin Inst J 278:69-70 Jl '64

Noise behavior in semiconductor devices. E. G. Fonda. bibliog diags Electronic Ind 23:72-8 Ap '64

Non-linear cr circuits using silicon carbide varistors. W. G. P. Lamb. diags Electronic Eng 36:692-3 O '64; Discussion. 36:849 D '64

NOR/NAND logic the easy way. C. F. Hill. diags Control Eng 11:81-3 My '64

No. one electronic switching system circuit packs and connectors. J. G. Chevalier and R. K. Eisenhart. il Bell System Tech J 43: 2441-56 pt 2 S '64

No. one electronic switching system logic circuits and their application to the design of the central control. W. B. Cagle and others. il diags Bell System Tech J 43:2055-95 S '64

100V 100mA regulated power supply using transistors. R. E. Aitchison and W. S. Lamond. diags Electronic Eng 36:604-5 S '64

Parametric amplifiers used in electroacoustics; condenser microphone amplifier with semiconductor elements. E. de Niet. bibliog diags Audio Eng Soc J 12:186-91 Jl '64

Pulse power supply design for laser pumping. S. J. Grabowski. il diags Electronics 36: 33-5 D 20 '63

Semiconductor integrated circuits; a producer's view of design problems. F. J. Van Poppelen, jr. il diags Astronautics & Aeronautics 2:59-65 Ap '64

Semiconductor networks. il Electronic Ind 23:65 F '64

Sequential switching logic. M. D. Wilt. diags Electro-Tech 72:50-4 D '63

Signal flow graphs. O. J. Wheaton. diags Electronic Eng 36:486 Jl '64

Simplified r-c ladder network design. C. F. White. diags Electronics 37:71-3 Ap 6 '64

Solid statement of the control facts; Morgan the logical. E. L. Rudisill. diags Product Eng 35:114-21 Je 22 '64

Switching speed of a tunnel-diode transistor logic inverter. H. C. Josephs. diags Electro-Tech 74:52-6 Ag '64

Transfer-function synthesis with nonreciprocal constant-resistance two-port networks. A. W. Keen. bibliog diags Inst E E Proc 111:883-90 My '64

Trends in logic circuit design. A. Lambert. bibliog il diags Electronics 36:38-45 D 6 '63

Tunnel-diode circuits invert direct to alternating current. F. M. Carlson. bibliog il diags Electronics 37:56-65 S 21 '64

Using a computer for circuit analysis. H. M. Wall. il diags Electronics 37:56-61 N 2 '64

Using the computer for integrated circuit analysis. L. C. Drew and A. G. Atwood. diags Electronic Ind 23:52-7 Jl '64

Voltage stabilizer for cold-cathode tube circuits. A. J. Oxley. diags Electronic Eng 36:548-9 Ag '64

Worst case analysis in analog circuit design. P. A. Milone and F. J. Sposato. il diags Electronic Ind 23:78-81 Mr '64

Failure

Ceramic substrate improves microcircuit reliability. il Electronics 36:51 N 22 '63

System reliability when failure depends on a parameter that ages. F. R. Van Wagner. diags Ind Quality Control 21:253-8 N '64

Techniques for the diagnosis of switching circuit failures. J. M. Galey and others. bibliog diags IEEE Trans Com & Electronics 83:509-14 S '64

Manufacture

Circuits by the yard. Electronics 37:34 S 21 '64

Combined sputtering and evaporation plant. il Metallurgia 69:206-7 My '64

40 circuits at a time. il Electronics 37:26-7 Ag 24 '64

Laser welding of semiconductor. T. E. Price. diags Ind Electronics 2:478-9 O '64

Linear microcircuits scarce? now you can breadboard your own. D. D. Robinson. il diags Electronics 37:58-64 O 19 '64

Making circuits you can't see; almost. il Mill & Factory 73:50-1 D '63

Microcircuit coating is part automatic. il Engineering 197:296 F 21 '64

Ministac, a versatile method for constructing component assemblies. H. T. Prior. il diags Elec Com 39 no 2:190-8 '64

Molecular interconnections for integrated circuits. W. A. England. il diag Astronautics & Aeronautics 2:54-6 Ap '64

New developments in microcircuit packaging. D. E. McElroy. il Electronic Ind 23:56-60 Ap '64

Photo-etching thin-film circuits. C. W. Skaggs. il diags Electronics 37:94-8 Je 15 '64

Production-line packaging of solid-state circuits. D. J. Garibotti and L. R. Ullery, jr. il diags Electronics 37:73-9 S 7 '64

Quantitative adhesion measurements of electroless copper to copper and gold. B. F. Rothschild and R. G. Nabors. diags Plating 51:1063-5 N '64

Semiconductor integrated circuits; a producer's view of design problems. F. J. Van Poppelen, jr. il diags Astronautics & Aeronautics 2:59-65 Ap '64

Soldering circuit board components. A. H. Strecclus. il diags Automation 11:55-7 Ag '64

Tape control speeds drilling of printed-circuit cards. il Mach 71:134 S '64

Thin films for all. il Electronics 37:27 O 5 '64

Vacuum system for microcircuit production. il Engineer 217:317 F 14 '64

ELECTRONIC circuits—*Continued*

Miniaturization

Building with microcircuits. il Engineer 218: 187 Jl 31 '64

Circuits by the yard. Electronics 37:34 S 21 '64

Computer features microelectronics. il Electronic Ind 23:166-8 My '64

Computer in the microcircuit design room. M. F. Wolff. il diags Electronics 37:100-2+ Mr 23 '64

Computers, a microelectronic triumph. il Product Eng 35:89-90 Ap 27 '64

Depositing active and passive thin-film elements on one chip. H. Borkan. bibliog il diags Electronics 37:53-60 Ap 20 '64

Designing practical circuit boards. R. A. Nagy. Electronic Ind 23:83-5 My '64

Equipment makers push thin-film microcircuits. M. Wolff. diag Electronics 37:80+ F 7 '64

Fast circuit costs less. il diag Electronics 37:26 Ag 24 '64

Ferranti to produce complete instrument-channel sub-assemblies in a single flat-pack. Electronics 37:119-20 N 2 '64

Film circuits produced via nonvacuum technique. il Steel 155:28 Ag 31 '64

Flat cable shrinks microcircuit modules. il Electronics 37:44 F 21 '64

Functional electronics uses basic properties. Engineering 196:570 N 1 '63

Hybrid approach to integrated circuits. D. R. Tibbetts. il diags Ind Electronics 2:391-4 Ag '64

Integrated circuits. A. J. Narud and A. J. Jensen. Space/Aeronautics 42 no 4:80-3 '64-65

Integrated circuits for general use. il Engineering 198:89 Jl 17 '64

Integrated circuits shrink a doppler radar system. E. M. Pacifico and S. King. il diags Electronics 37:74-9 Mr 23 '64

Integrated microcircuits and control. Control Eng 10:67+ N '63

IBM burns its bridges. L. H. Young. il diag Electronics 37:101-3 Ap 20 '64

IBM introduces edp microminiature modules. Chem & Eng N 42:36 Ap 13 '64

IBM redesigns computer line. il Automation 11:13-14 My '64

IBM system/360 uses microelectronic logic circuits. il Space/Aeronautics 41:121+ Je '64

Linear microcircuits scarce? now you can breadboard your own. D. D. Robinson. il diags Electronics 37:58-64 O 19 '64

Low-frequency integrated circuits achieved with thermal transfer. W. T. Matzen and R. A. Meadows. il diags Electronics 37:54-7 Jl 27 '64

Making circuits you can't see; almost. il Mill & Factory 73:50-1 D '63

Manufacturing ingenuity produces microminiature circuits. il Tool & Manuf Eng 52: 71-2 Je '64

Microcircuit coating is part automatic. il Engineering 197:296 F 21 '64

Microcircuit uses matched input transistors. il diags Electronics 37:135 S 7 '64

Microcircuits offer high speed. il diag Electronics 37:50 F 28 '64

Microelectronics. F. Leary. bibliog il diags Space/Aeronautics 41:68-84 F '64

Microelectronics in equipment design. S. S. Forte. il diags Electronic Eng 36:586-90 S; 696-701 O '64

Microelectronics; present and future; symposium. Electro-Tech 74:107-16 Ag '64

Microelectronics: unlocking the treasure chest. W. Liben. bibliog il diags Astronautics & Aeronautics 2:20-8 Ap '64

Ministac, a versatile method for constructing component assemblies. H. T. Prior. il diags Elec Com 39 no 2:190-8 '64

Modules by the millions. A. Ashburn. il Am Mach 108:66-7 Ap 27 '64

Molecular blocks simplify microcircuits V. Uzunoglu and M. H. White. diags Electronics 37:36-9 F 14 '64

Molecular-electronic radar and infrared tracking systems. Westinghouse Eng 24: 152 S '64

Molecular electronics: its impact on manufacturing. T. W. Black. il diags Tool & Manuf Eng 51:79-84 D '63

Mosaic integrated circuits. D. A. Naymik. il diags Electro-Tech 73:11-12 My '64

Multichip circuits get off the ground. J. Eimbinder. il diag Electronics 37:105-7 S 21 '64

Navy expects big reliability gain from microminiaturization program. Space/Aeronautics 40:23+ N '63

New circuits for computers. H. Moss. Electronics 37:25-6 O 19 '64

New computer line expands control capabilities. il Iron & Steel Eng 41:147-8+ My '64

New developments in microcircuit packaging. D. E. McElroy. il Electronic Ind 23:56-60 Ap '64

New microelectronic computer system. Franklin Inst J 278:68 Jl '64

1964; the year microcircuits grew up. il Electronics 37:10-11 Mr 13 '64

Novel high-*Q* inductance and a tuned oscillator for microminiature circuits. S. C. D. Roy. diag IEEE Proc 52:214-15 F '64

Optical coupling; new approach to microcircuit interconnections. M. A. Gilleo and J. T. Last. bibliog il diags Electronics 36: 23-7 N 22 '63

Plug-together units form fastest computer for any problem. il Machine Design 36:14 Ap 23 '64

Production-line packaging of solid-state circuits. D. J. Garibotti and L. R. Ullery, jr. il diags Electronics 37:73-9 S 7 '64

Solid-state integrated circuits are now commercial. il Product Eng 35:55-6 Mr 30 '64

Stable energy levels mean better welds for microcircuitry. C. R. Sargeant and P. San Clemente. diags S A E J 72:66-7 Jl '64

Thin-film microcircuits; what they are; how they're made. T. W. Black. il diag Tool & Manuf Eng 52:77-80 My '64

Thin films; dark horse in electronic packaging. R. P. Radke. il diags S A E J 72:64-7 S '64

Plastics embedment

Encapsulating with plastic shells. M. Ross. il Ind Electronics 2:441-4 S '64

Epoxy-encapsulated electronic modules. G. R. Bretts and others. il Plastics Tech 10:32-4 Ja '64

Epoxy molding powders; new method of encapsulation for welded modules. H. L. Uglione, jr. and A. R. Bell, jr. il diags Mod Plastics 41:133-4+ Ag '64

Epoxy-resin castings for high-voltage parts. F. Colby and R. Ursch. il diag Electro-Tech 73:101-2+ Ja '64

Improving the package. Electronics 37:26+ Je 29 '64

Metal-filled encapsulant; beryllium oxide raises thermal conductivity. il Plastics World 22:36 O '64

What is welded electronic packaging? S A E J 72:106 My '64

Printed circuits

Cam lock clamps the boards to connect printed circuits. il diags Machine Design 36:10 Ap 9 '64

Degradation of cured paper-epoxy resulting from lamination. E. C. Jubb, jr. il diags Mod Plastics 41:115-17+ D '63

Designing practical circuit boards. R. A. Nagy. Electronic Ind 23:83-5 My '64

50-nanosecond printed circuit linear gate using transistors. A. Barna and J. H. Marshall. bibliog il diags R Sci Instr 35: 881-5 Jl '64

Iron or machine can solder printed cables. il Electronics 36:74-6 N 15 '63

Linear microcircuits scarce? now you can breadboard your own. D. D. Robinson. il diags Electronics 37:58-64 O 19 '64

Modular circuit assemblies. il Engineer 217: 319 F 14 '64

New process for printed wiring boards developed. il Steel 155:47 N 2 '64

Plating through holes in printed circuit boards; evaluation of some copper baths. J. W. Dini. bibliog il Plating 51:119-24 F '64

Printed circuits for everyone; illustrations with text. C. Henry. Radio-Electronics 35: 36-8 Ap '64

Soldering circuit board components. A. H. Streccius. il diags Automation 11:55-7 Ag '64

Unetched wiring; electroless plating process. Electronics 37:28+ O 19 '64

Protection

Ceramic that foams; potting compound that protects electronic circuitry. Electronics 37: 27-8 Jl 27 '64

Wanted; circuit breakers. Electronics 37:28+ Jl 13 '64

Testing

Automatic circuit tester. K. Wakeen. il diags Electronics 37:76-80 Jl 27 '64

Effect of a deposited coupling loop on the high-speed switching properties of a magnetic thin film. B. C. Reardon. bibliog diags IEEE Trans Com & Electronics 83: 549-53 S '64

ELECTRONIC clocks. See Clocks, Electronic
ELECTRONIC computers. See Calculating machines
ELECTRONIC control
- Application of silicon planar p-n-p-n switches. S. Lukens. diags Ind Electronics 2:438-40 S '64
- Automatic blade angle control for motor graders. A. T. Macdonald. il diags Ind Electronics 1:755-8 D '63
- Automatic control for a shoe warehouse. Electronic Eng 36:447 Jl '64
- Automatic electronic control of pre-paint treatment process. diag Automotive Ind 131:69 Jl 15 '64
- Automatic switching of sensitive thermocouples. J. L. Goldberg and H. M. King. il diags Electronic Eng 36:591-5 S '64
- Automation of a gas compressor station. B. S. Simon and J. B. Vraspir. diags Gas 40:90-3 F '64
- Continuous weighing control. il Engineer 217:910 My 22 '64
- Custom studio recording console. W. G. Dilley. il diags Audio Eng Soc J 12:330-4 O '64
- Cutting controller costs. E. S. Ida and D. W. St Clair. il diags Control Eng 11:86-91 O '64
- Dynamic optimisation of a boiler. H. Nicholson. bibliog flow diag diags Inst E E Proc 111:1479-99 Ag '64
- Electronic control; how can it help the papermaker? J. R. Lavigne. il diag Tappi 47:sup 116A-19A Jl '64
- Electronic controls for aerospace propulsion. C. B. Brahm. il diags Astronautics & Aeronautics 2:44-9 Ap '64
- Electronic controls tame Little Squirt. il diags Machine Design 35:164-5 N 21 '63
- Electronic die-pressure control holds key to quality extrusion. G. A. Pettit and R. L. Eckman. diags Plastics Tech 10:39-42 My '64
- Electronic drive system controls speed and torque. il Food Eng 36:106 Ap '64
- Electronic fare collector. diag Product Eng 35:40-1 Jl 6 '64
- Electronic feedback scheme allows engine to determine its own best setting. diags Product Eng 35:54 S 28 '64
- Electronic queueing control for materials handling. G. Clark. Radio & Electronic Eng 26:347-56 O '63
- Electronic sequence control for programming events. D. J. Shombert. diags R Sci Instr 35:120-2 Ja '64
- Electronic ticket barrier control. diag Engineer 217:580 Mr 27 '64
- Electronic ticket barrier for the underground. il Engineering 197:446 Mr 27 '64
- Electronic ticket inspection. il Engineer 217:106 Ja 10 '64
- Fabramatic electronically controlled punching and notching machine. il Mach 71:161 S '64
- Five uses for Hall transducers. G. W. Heumann. il diags Control Eng 11:57-60 Ja '64
- Fork lifts perform. il Product Eng 35:46 Je 8 '64
- French road finisher with electronic controls. il Engineering 198:184 Ag 7 '64
- Gear-box accuracy claimed for electronic transmission. diag Machine Design 36:12 O 22 '64
- Independent plugboard control applies to practically every type of machine tool. il Engineering 196:728 D 6 '63
- Inside Citroen; electronic controls and tv monitors used. D. Scott. il diag Automotive Ind 131:63-7 Ag 15 '64
- Instrument electronics; control loop responses. D. S. Luppold. diags Plant Eng 17:134-8 N '63
- Integrated forging press and manipulator. il Engineer 217:723-4 Ap 24 '64
- Integrated microcircuits and control. Control Eng 10:67+ N '63
- Living neuro-electronic systems. P. M. Kelly. bibliog diags Space/Aeronautics 42:52-9 S '64
- Mohole dig demands floating control system in deep water. diag Elec Eng 82:739 D '63
- New for coal-handling; electronic fingers on the pulse. il diags Mod Materials Handling 18:46-7 N '63
- Programmed forging press features digital thickness controller. C. Finkl. il diags Control Eng 11:101+ F '64
- Quick-scan control; deviation indication, trend recording. il Control Eng 10:97 D '63
- Remote control of valve actuators. il Engineer 217:797 My 1 '64
- Remote supervisory control system. Engineer 218:290 Ag 21 '64
- Simple automatic frequency control system for reflex klystrons. R. K. Waring, jr. diags R Sci Instr 34:1228-9 N '63
- Static-switching control system for a pallet loading machine. G. Cooper and F. Shaw. il diag Ind Electronics 2:421-4 S '64
- Telepuls and FMX modular electromechanical and electronic remote control. K. Bartels. bibliog il diags Elec Com 38 no 4:487-94 '63

ELECTRONIC cooking
- Microwaves improve color control. il Food Eng 36:95 Ag '64

ELECTRONIC data processing
- Advanced planning to meet the impact of automation in large scale test environments. G. J. Kashuba. diags Naval Eng J 75:1003-12 D '63
- Air line shows new switching system. Franklin Inst J 277:297-8 Mr '64
- Air travel seat reservation. Engineer 216:859 N 22 '63
- ACS business operations fully computerized. il Chem & Eng N 42:74+ O 12 '64
- Arkansas Louisiana hires an electronic wizard. il Gas 40:62-5 F '64
- Atlantic Pipe Line's new computer frees dispatchers from routine calculations. map Oil & Gas J 62:52-3 Ja 20 '64
- Automated job shop; the computer lends a hand. D. B. Dallas. il Tool & Manuf Eng 52:77-80 Mr '64
- ADDAPS; Automatic digital dispatch and processing system. H. W. Lydick and J. F. Sutherland. il map diag Westinghouse Eng 24:66-71 My '64
- Automatic data logging for experimentation and quality control. C. A. Bicking and others. il Ind Quality Control 20:12-16 D '63
- Automatic data processing, interpreting, and reporting of results of emission spectrographic analyses. D. D. Tunnicliff and J. R. Weaver. Anal Chem 36:2318-21 N '64
- Automatic data processing takes firm control of plant maintenance costs. G. M. Hall. il Power 108:80-2 F '64
- Automatic traffic data processing. V. L. Ransom. il diags Bell Lab Rec 42:302-7 O '64
- Automating maintenance functions of cement plants. P. W. Sherwood. il Pit & Quarry 57:117-19 Jl '64
- Automation's new challenge, linking process computers to business direction. G. J. Hess and R. W. Kirkland. il diags Iron & Steel Eng 41:133-43 Mr '64
- Brooklyn succeeds in teaming up men, machines and station plan. R. V. Delaney. il Gas 40:68-71 Jl '64
- Business computer system. il Engineer 218:70 Jl 10 '64
- Carrier service supplies the link in central data processing. il Am Gas Assn Mo 46:24 Ap '64
- Clerk Maxwell memorial lecture, 5th. G. Radley. il Radio & Electronic Eng 28:3-12 Jl '64
- Compact computer system announced; IBM's System 360. il Elec World 161:132 Ap 20 '64
- Computer controls chemical inventory; Celanese chemical co. il Chem & Eng N 41:37 D 9 '63
- Computer corrects wagon wastage. P. J. Robins. il map diag Ind Electronics 2:10-13 Ja '64
- Computer regulates gas flow. F. N. Woodruff. diag Oil & Gas J 62:90-2 My 4 '64
- Computer schedules foundry operations. W. Huskonen. il diags Foundry 92:38-42 F '64
- Computer sets up a conference. Chem Eng 70:62 N 25 '63
- Computer solves casting mysteries. il Iron Age 194:71-3 N 5 '64
- Computer to cut cost of capital estimating. Chem Eng 71:80+ Ag 17 '64
- Computers are coming. Mech Eng 86:57 O '64
- Computers cut cost of quality. il Steel 154:101-2 Ap 6 '64
- Computers in metalworking, today and tomorrow. C. R. Weymueller. il Metal Prog 85:109-13+ F '64
- Computers on ice patrol. il Electronics 37:27 Ap 6 '64
- Computers open new horizons in casting technology; abstract. J. Zotos. Metal Prog 86:196+ S '64
- Conversion of laboratory data for computer analysis. H. E. Tompkins. bibliog Am J Pub Health 53:1953-9 D '63
- Core-analysis and electric-log data gang up on formation-evaluation problems. R. J. Granberry and others. bibliog Oil & Gas J 62:115-16+ Ag 3; 82-4 Ag 10; 136-8+ Ag 17; 89-91 Ag 24 '64
- Cowper stoves in the light of regenerator theory. J. I. T. Green. diag Iron & Steel Inst J 202:833-9; Discussion. 849-55 O '64

ELECTRONIC data processing—*Continued*

Data compressor; abstract. R. J. Allen. Electronics 37:163 My 18 '64
Data culled from assembly lines for instant quality control. il Iron Age 193:58-60 Ap 2 '64
Data-handling equipment for a high-speed wind tunnel. F. Shaw. il diags Ind Electronics 2:316-20 Jl '64
Data link equipment. Electronic Eng 36:226 Ap '64
Data logging on board ship. A. J. Boseley. il diag Ind Electronics 2:259-62 Je '64
Data processing and synthetic aperture antennas. A. Ksienski. bibliog J Res Nat Bur Stand 68D:446-50 Ap '64
Data processing at Ordnance depot. Engineer 216:703-4 O 25 '63
Data processing firmly entrenched in billing. Elec World 161:111 Ap 20 '64
Data processing for numerical control of machine tools. D. F. Walker. il diags Radio & Electronic Eng 26:501-15 D '63
Data processing peripheral equipment. il Engineer 217:55 Ja 3 '64
Data processing proves its value at PMI. H. Martin. il Foundry 91:96-7+ N '63
Data processing system. il Automation 10:93 D '63
Data system cuts credit card work. il diag Pet Management 36:140-1 Ag '64
Data system guides moldmaking. il Iron Age 193:76 My 28 '64
Design and application of computers for radar data processing. R. A. Ballard and L. Moore. Radio & Electronic Eng 26:407-15 N '63
Designing identification codes for business systems integration. J. W. Fulton. Automation 11:89-92 O '64
Determining data system accuracy. W. J. Irwin and D. E. Korsch. bibliog I S A J 11:55-60 S '64
Diecaster uses edp to learn costs. W. D. Huskonen. flow diag il Foundry 92:131-4 O '64
Digital audio-conversion systems. H. Grunstein and H. Van Gelder. diags Electro-Tech 73:108-9 F '64
DVM, the digital voltmeter. il Instruments & Control Systems 37:101-7 Je '64
Distribution designed by new method. E. G. Neigut. diag Water Works & Wastes Eng 1:46-9 Mr '64
Dividends from edp. E. C. Zajac. il Gas 40:51-5 Ap '64
Du Pont reduces costs of data handling. J. R. Bailey. il Chem Eng Prog 60:67-70 My '64
Efficient manufacturing control starts with data collection. R. L. O'Connor. il diags Automation 11:43-7 Ja '64
80-channel data logging equipment. il Engineering 197:10 Ja 3 '64
Edp at NSP; Northern states power co.'s experiences with electronic data processing. H. Chucker. flow charts il plan diag Gas 39:99-103 O; 61-4 N; 66-9 D '63
Edp boosts meter department efficiency. W. L. Earthman. il diags Elec World 160:94-6 D 2 '63
Electronic data processing has grown up. D. Stoner. Am Gas Assn Mo 45:23-4+ D '63
Edp or pencil and paper. G. B. Cohen. Ind Quality Control 20:8-10 My '64
Edp program pays off for Cleveland firm. Steel 154:110+ F 10 '64
EDS-0009 cuts design manhours to seconds. Steel 153:106 N 25 '63
Electronics; new force in hospital design. J. Falick. diags Arch Forum 120:90-1 Ap '64
Encoder reads meters for edp billing. D. R. Stuettig. il Elec World 160:45-6 D 30 '63
Ferrite-core system controls two stations. D. D. Compton. il Oil & Gas J 61:96-8 D 9 '63
Forest management cost control by electronic data processing. O. F. Hall. bibliog Paper Ind 46:109-12 My '64
Graphic data processing introduced by IBM. Chem & Eng N 42:80 N 9 '64
Handle meter service orders faster with punched card system. A. C. Scott. il Elec World 160:84 D 16 '63
Handling of test data by computers. J. T. Burr and others. flow diag il Tappi 47:sup 135A-8A S '64
High-stability magnetic tape for data- processing systems. A. Rusch and others. il Electro-Tech 72-91-5 D '63
Hough homes in on receiving; keeping ahead of the flow. il Mod Materials Handling 19:46 Jl '64
How automation plays a part in water-quality surveillance. G. E. McCallum and H. Stierli. il Water Works & Wastes Eng 1:68-70 My '64
Impact of the users' needs on the design of data processing systems; conference, Edinburgh, March 31-April 3. Engineer 217:651 Ap 10 '64
Incremental digital recorder puts more data on less tape. F. Beeler. il diags Electronics 37:48-51 Je 29 '64
Information must move with flow of materials. F. G. Withington. il diags Mod Materials Handling 19:60-7 Ja '64
IBM introduces edp microminiature modules. Chem & Eng N 42:36 Ap 13 '64
IBM unveils new generation computer. il Pet Management 36:146+ My '64
IBM's 360 hailed as start of new era for computers. Steel 154:44-5 Ap 13 '64
It's a tougher job to manage nowadays. R. L. Martino. il Can Chem Process 48:65-6 S '64
Late orders handled in 30 minutes vs. two days before. E. Bametzrieder. il Steel 154:67 F 24 '64
Lyman to install process computer system early next year. Am Dyestuff Rep 53:944 O 26 '64
Machines evaluate, assemble components. il Steel 155:115 O 19 '64
Magnetic tape helps stack data from common depth point. il Oil & Gas J 62:65 S 7 '64
Maintenance records; data processing provides decision-making records. Diesel Equip Supt 42:35-8 S '64
MFS studies information systems. Foundry 92:25+ N '64
Maveric; data transmission system errors. Mech Eng 86:60-1 Ag '64
Mozart substation; the first supervisory controlled 12-4-kv substation at Hydro-Quebec with automatic data logger. R. E. Kozlowski. il diags IEEE Trans Power Apparatus & Systems 83:327-36 Ap '64
Multichip circuits get off the ground. J. Eimbinder. il diag Electronics 37:105-7 S 21 '64
Need info pdq? edp can give it! S. I. Greenberg. S A E J 72:77 S '64
Needed, edp pioneers to prospect for gold in paperwork mountains. il Steel 153:70-5 D 16 '63
New brain has big memory; IBM system/360. W. N. Redstreake. il Iron Age 193:35 Ap 16 '64
New computers may provide big-job planning assistance. il Arch Rec 135:86+ Mr '64
New generator tests data handling systems. L. Mobley. il diags Electronic Ind 23:108-10 Jl '64
New look for the old telegraph. R. K. Andres and L. P. Correard. il diags Electronics 37:85-90 Mr 23 '64
New standard code for teletypewriters. J. F. Auwaerter. il diags Bell Lab Rec 41:394-400 N '63
Part numbers vs data processing. H. A. Pohs. diags Mag of Stand 35:202-6 Jl '64
Pattern recognition device, Minos II, can be taught to scan up to 6600 weighted variables of a problem and come up with solution based on past experience. il diag Product Eng 35:53-4 Ja 20 '64
Pins and loops read out miner deployment data. A. J. Spencer. diags Control Eng 11:123 My '64
Piping network design is computerized. L. Critides. Ind & Eng Chem 56:11-12 Je '64
Planning a management information system. J. Moss. il Automation 11:58-61 Ag '64
Power demand predicting computer reduces plant power cost. Iron & Steel Eng 41:231-2 S '64
Processing data from N.A.S.A. satellites. Radio & Electronic Eng 28:54 Jl '64
Processing satellite data. il Engineer 217:691 Ap 17 '64
Processing UK2's findings. il Engineering 197:558 Ap 17 '64
Product Engineering fifth annual master design awards; computer for business applications. il diag Product Eng 35:115 Ap 27 '64
Program for the automatic issue and revision of illustrated parts catalogs. W. H. Maurer and M. L. Reynolds. diags IEEE Trans Applications & Ind 83:137-42 My '64
Providing timely production data. R. D. Bernhard. il Automation 11:48-55 Mr '64
Quality control by three-bracket testing. J. M. McCormick and F. W. Preston. il Am Cer Soc Bul 43:439-42 Je '64
Receiving water monitoring. C. V. Gibbs. il map Water Works & Wastes Eng 1:52-5 S '64
Reflections on aircraft instrumentation. A. H. Duncan. il diags Engineering 196:783-4 D 20 '63

ELECTRONIC data processing—*Continued*

Remote monitoring of tanker performance. il Marine Eng/Log 69:53 Jl '64

Report on IEEE workshop on computer applications in power plants. R. B. Squires. Combustion 35:20-4 Mr '64

Reports keep watchful eye on maintenance costs. N. G. Harris and S. Fuchs. diags Plant Eng 18:114-17 Ag '64

Sampled data system simulation. D. B. Bruck. diag Instruments & Control Systems 37:147 My '64

Selection and utilization of data processing equipment. B. Waxman. Am J Pub Health 53:1960-2 D '63

Slow sampling saves time. il Electronics 36:40-1 N 29 '63

Socal uses electronic data processing to PEEP at investment potential. H. J. Haynes. Oil & Gas J 62:62-3 Ag 24 '64

Spark chamber data-handling system using television cameras. H. L. Anderson and A. Barna. il diags R Sci Instr 35:492-5 Ap '64

Specifying digital systems. R. Bireley. il diags Instruments & Control Systems 37:117-20 Jl '64

SAC gets ultrafast system for information handling. il Steel 155:29+ Jl 20 '64

Telephone accounts by computer. Engineer 218:220 Ag 7 '64

Time-sharing data-acquisition system. B. Brentnall and W. H. Horton. il diags Instruments & Control Systems 37:115-18 Je '64

Top managers getting with automation. diags Engineering 196:802-3 D 27 '63

Total management-information system; how it is achieved. Can Chem Process 48:80 O '64

UniRoyal; processing progress. il Rubber World 150:28 Ag '64

U.S. Rubber opens computer center. il Chem & Eng N 42:29 Jl 6 '64

Upgrading a company's information systems. J. E. Ryan. flow diag Automation 11:48-52 My '64

Use of computer in wire rope accounting procedures provides accuracy speed and economy. R. T. McCarthy. il Wire & Wire Prod 39:570+ Ap '64

Use of electronic computers in searching out nutritional interrelationships. W. H. James. Anal Chem 36:1848-9 Ag '64

What integrated data processing means to a small manufacturer. il Mill & Factory 74:78-9 Mr '64

See also

Data processing service centers

Numerical control

ELECTRONIC music. See Music, Electronic

ELECTRONIC organ. See Organ, Electronic

ELECTRONIC ovens

Instant cure; electronic method cuts small parts curing time. il Plastics World 22:42-3 Ap '64

Microwave heating comes out of the kitchen. il Chem Eng 71:114 N 9 '64

ELECTRONIC ovens, Baking

Microwave at the kitchen door. L. H. Dulberger. il diag Electronics 37:111-14 S 7 '64

ELECTRONIC stoves

Commercial reliability program paid for itself; Raytheon's Radarange. E. G. Lebre. bibliog il diag Product Eng 35:75-8 Ap 13 '64

ELECTRONICS

Chemical electronics; abstract. M. Tanenbaum. Ind & Eng Chem 56:15-16 O '64

Clerk Maxwell memorial lecture, 5th. G. Radley. il Radio & Electronic Eng 28:3-12 Jl '64

Electronic materials, research, and education: panel discussion. J Metals 16:595-6+ Jl '64

Electronics: the expanding frontier. R. C. G. Williams. il Inst E E Proc 111:7-14 Ja '64; Abstract. Engineer 216:743 N 1 '63

International symposium on nuclear electronics, Paris, Nov. 25-27. J Sci Instr 41:121-2 Mr '64

Molecular electronics and the circuit engineer. E. A. Sack. il diags Westinghouse Eng 24:2-7 Ja '64

New techniques for new ceramics. A. C. Allen. il Cer Ind 84:49-58+ Jl '64

Optoelectronics' advance slows down; Solid-state conference, Philadelphia. il Electronics 37:10-11 F 28 '64

Recent developments of electronic special effects in television. U. Messerschmid. il diags SMPTE J 73:468-72 Je '64

What's your EQ? Published in monthly numbers of Radio-electronics

See also

Cybernetics

Electron optics

Electronic circuits

Institute of electrical and electronics engineers

Oscillographs, Cathode ray

Pulse techniques (electronics)

Bibliography

Book reviews. Published in monthly numbers of Electronics engineering

Books. IEEE Proc 52:111-12 Ja '64

Books. Published in monthly numbers of ISA journal

Books received. Published in monthly numbers of Wireless world

New books. Electronics 37:142-3 Ap 6; 109 Je 1; 154-5 Je 15; 114-15 Je 29; 117 Jl 13; 135 Jl 27; 161 Ag 10; 134-5 Ag 24; 181 S 7; 134 S 18; 159 O 5; 142-3 O 19; 110-11 N 2; 164 N 16; 104-5 N 30; 139 D 14; 103 D 28 '64

New books. Published in monthly numbers of Electro-technology

New books. Published in monthly numbers of Industrial electronics

New tech data for engineers. Published in monthly numbers of Electronics industries

Technical abstracts. Electronics 37:137-9 Mr 23; 144-8 Ap 6; 141-4 Ap 20; 141-2 My 4; 159-63 My 18; 110-12 Je 1; 157-9 Je 15; 116-17 Je 29; 118-19 Jl 13; 136-7 Jl 27; 163-4+ Ag 10; 137-8 Ag 24; 182 S 7; 137+ S 18; 160+ O 5; 144 O 19; 112+ N 2; 166+ N 16; 106 N 30; 140+ D 14; 104-5 D 28 '64

Medical applications

Advanced techniques in medical electronics. A. H. Urmer. il diags Electronic Ind 23:42-3+ Jl '64

Brain sonar; ultrasonic medical equipment. il Electronics 37:34 Ap 6 '64

Device for displaying the distribution of positron emitting nuclides *in vivo*. P. C. R. Turner and P. D. Freebrey. il diag J Sci Instr 41:276-7 My '64

Electronic muscle exerciser. il diag Radio-Electronics 35:43 N '64

Electronics in the service of medicine. il Ind Electronics 2:301 Je '64

Fast thermal scanner assists medical research. H. Swiss. il diag Ind Electronics 2:215-16 My '64

Heart monitor. il Electronics 37:151-2 O 19 '64

Integrating electronic science with the healing arts. S. Feldman. il Electronic Ind 23:28-31+ Jl '64

Internal cardiac pacemaker. il diags Engineering 197:598-9 My 1 '64

Lasers and you. Electronics 37:28 Ag 24 '64

Miniature magnet travels through body. il Electronics 37:44+ Ja 10 '64

Muscle substitutes and myo-electric control. A. Bottomley and others. bibliog il diags Radio & Electronic Eng 26:438-48 D '63

New improvement in Bell Systems artificial larynx. il Bell Lab Rec 42:39 Ja '64

Painless photocoagulation by laser. il Engineering 197:591 Ap 24 '64

Photooptical instrumentation in medicine. I. Rehman. bibliog il diags SMPTE J 73:635-42 Ag '64

Pulse period meter with short response time, applied to cardiotachometry. P. A. Tove and J. Czekajewski. bibliog diags Electronic Eng 36:290-5 My '64

Special ultrasound eye probe. il Electronics 37:30+ O 5 '64

Transistor circuit for adapting a multichannel analyzer to neurophysiological work. O. D. Sittler and P. Tsao. il diags R Sci Instr 35:872-4 Jl '64

Video tube probes human cells. C. R. Whetstone. il(cover) diag Electronics 37:40-1 Ja 31 '64

What's ahead in biomedical measurements? L. E. Slater. bibliog il I S A J 11:55-60 F '64

Military use

Air force seeks new weapons breakthroughs. J. F. Mason. Electronics 37:46-7 Mr 6 '64

Anti-guerrilla gear. J. F. Mason. il Electronics 37:83-5 Je 1 '64

Army seeks optical readers. R. J. Ward. diag Electronics 37:14-15 Ja 10 '64

Army wants surveillance, armament gear for air arm. J. F. Mason. il Electronics 36:10-11 N 29 '63

Defense and space money tighter. S. Payne and H. Chesire. Electronics 37:10-11 Ja 24 '64

ELECTRONICS—Military use—*Continued*

Defense industry cuts trigger more diversity talk; IEEE convention on military electronics. Control Eng 11:26-7 O '64

Electrical engineering in the Royal navy. il Engineer 218:208-9 Ag 7 '64

Electronics in the Mekong Delta. J. F. Mason il Electronics 37:114+ S 7 '64

Equipment for limited war tested in Middle East. J. F. Mason. il map Electronics 37:99-101 My 4 '64

Fine Italian hand at the Pentagon; Eugene G. Fubini. S. Powell and others. Electronics 37:102-4+ O 5 '64

Integrated avionics. Electronics 37:28 Je 29 '64

International shakedown. il Electronics 37:25 Mr 23 '64

Is arms race key to disarmament? B. France. Electronics 37:10-11 F 14 '64

Jungle sounds. il Electronics 37:32 S 21 '64

Military electronics. L. H. Dulberger and others. il Electronics 37:42-7 Ja 3 '64

Military electronics; our man in Washington. S. Payne. Electronics 37:112-16 Ag 10 '64

Natural undersea laboratory tests navy's new weapons. J. F. Mason. il map diag Electronics 37:106-7+ Ap 6 '64

Night vision improves. il Electronics 37:32+ Ap 20 '64

Quest for compatibility. J. M. Carroll. il diags Electronics 37:79-84 My 18 '64

Southern comfort. T. Maguire. il diags Electronics 37:90-2 Je 1 '64

Weapons for limited war. J. F. Mason. il diag Electronics 37:98+ Ag 24 '64

Patents

New patents. Published in monthly numbers of Radio-electronics

Patents in the circuit court. Electronics 37:23 N 2 '64

Standards

Electronics color codes. diag Electronics 36:37-40 N 15 '63

Standards proposed for flatpacks. il Electronics 37:52+ Ja 17 '64

Study and teaching

Electronics for r&d. H. V. Malmstadt and C. G. Enke. il Res/Develop 15:88 Mr '64

Instruction in electronic drawing for students of radio and electronic engineering at professional level. bibliog Radio & Electronic Eng 28:198-200 S '64

Programed instruction simplifies study of electronics. H. G. Rice. il diags Plant Eng 18:128-30 My '64

Survey of digital-logic training devices. S. B. Gray. il Electronics 37:71-83 Ag 24 '64

Training engineers in cost-cutting techniques L. K. Singer. Electronic Ind 23:156-7+ My '64

Surveying use

See Radar—Surveying use

Traffic control use

Electronic guidance for highway safety. J. J. O'Mara. Civil Eng 34:38-40 O '64

Jam in the tube. il Electronics 37:28-9 Ap 6 '64

ELECTRONICS in aeronautics

Aviation electronics (cont). il Aircraft Eng 36:151, 228, 255, 296 My, Jl-S '64

Electronics. bibliog il diags Space/Aeronautics 42 no 4:61-88 '64-65

Electronics at Farnborough. il Wireless World 70:513-16 O '64

Electronics for civil aviation; international symposia at Malvern and Farnborough. Wireless World 69:621-3 D '63

Electronics for the SST; what's ahead? L. D. Shergalis. il Electronics 36:24-5 N 15 '63

Evaluating materials for airborne electronics equipment. S. A. Ali. Materials in Design Eng 59:84-5 Mr '64

Integrated avionics. Electronics 37:28 Je 29 '64

See also

Airplanes—Electronic equipment

Airplanes, Supersonic—Electronic equipment

ELECTRONICS industry

Belt-tightening time; wholesale shakeout of small microwave firms Electronics 37:32+ Ap 6 '64

Building an electronic capability by acquisitions. E. T. Ebersol and S. Feldman. il Electronic Ind 23:118-22+ Mr '64

Cause for alarm; slump in jobs in electronics. il Electronics 37:105-6+ My 18 '64

Electronics' future; editorial. H. Gernsback. Radio-Electronics 35:26-7 Jl '64

Electronics marketers get the rules of the new game. I S A J 11:30+ Ap '64

Electronics markets; special report with color chart. L. H. Dulberger and others. il Electronics 37:37-56 Ja 3 '64

Engineer's view of the government electronics market. P. M. Kelly. il Electronics Ind 23:38-44 Ap '64

Fresh start for markets. I S A J 11:28+ My '64

Help wanted, Negro. D. Smith. il Electronics 37:95-7 Mr 23 '64

Honing its data, Dept. of commerce sees good year. I S A J 11:26 Mr '64

How many jobs in 1970? Electronics 37:14-15 Ja 31 '64

Making use of sales engineers. L. J. Chamberlain. il Electronic Ind 22:48+ N '63

Marketing industrial control computers. S. Feldman. il Electronic Ind 22:32-6 D '63

Merger-go-round. L. H. Dulberger. il Electronics 37:91-3 Je 29 '64

Microwaves; a market in transition. S. Feldman. il Electronic Ind 22:58-63+ N '63

Military electronics; our man in Washington. S. Payne. Electronics 37:112-16 Ag 10 '64

Moving a plant calls for precise planning. A. J. Steele. il Electronic Ind 23:48-52 Ap '64

Negroes help themselves. F. Pitman. il Electronics 37:97-8 Mr 23 '64

New budget; weapons procurement cut $2 billion. J. F. Mason. Electronics 37:10-11+ F 7 '64

New shift in purchasing to affect industry. C. W. Irven. il Electronic Ind 22:69-70+ N '63

Nine product development areas ripe for electronics firms. Steel 155:42-3 Ag 24 '64

1964 IEEE Fellows look at the future. Electronic Ind 23:44-5+ Mr '64

PERT aids small projects, too. il diag Electronics 36:66+ D 20 '63

Pressing need for better marketing data. S. Feldman. il Electronic Ind 23:42-3+ Ja '64

Profile; the heat-sink industry. J. Eimbinder. diags Electronics 37:84-91 S 7 '64

Review and forecast for the electronic industry. il Electronic Ind 23:24-5+ Ja '64

Should we sell to the Russians? Electronics 37:105-6+ Ap 20 '64

Six more computers announced. S. B. Gray. il Electronics 36:10-11 D 13 '63

Some reflections on profits and research in the instrument industry. P. A. Sprague. I S A J 11:79-84 My '64

Technical information sources. Electronics 37:R 19-23 Jl 25 '64

Trade activity with reds picking up, so is smuggling through iron curtain. il Electronics 37:79-81 N 2 '64

Why small electronic firms fail. P. Geddes. Electronic Ind 23:34-6+ Mr '64

See also

Women in the electronics industry

Directories

Directory section of Electronics buyers' guide, 1964-65. Electronics 37:P 1-242, M 1-210 Jl 25 '64

Finance

Financing the expansion of instrument sales. H. L. Goldstein. I S A J 11:76-7 Ap '64

1963 springboard bounces '64 hopes high. I S A J 11:21 Mr '64

International aspects

GE and Bull outline partnership plan. il Chem & Eng N 42:48 Ag 10 '64

International electronics. L. H. Dulberger and others. il Electronics 37:50-2 Ja 3 '64

Low volume manufacturing in underdeveloped countries. G. C. Jones and others. Electronic Ind 22:232-3+ Ap '63; Discussion. M. Hamid. 22:142-4 D '63

One approach to foreign markets: cross-licensing. R. J. Bramlett. Electronic Ind 23:158-9+ F '64

Securities

Long slide for glamour stocks. L. H. Dulberger. Electronics 37:10-11 Mr 6 '64

Arizona

Profile of Arizona electronics. il Electronic Ind 23:169-73 Ag '64

Canada

New numerical control aims at U.S. market. Electronics 36:41+ N 22 '63

Europe

Central testing organization within ITT Europe. C. A. Meuleau. il Elec Com 39 no 2:212-19 '64

ELECTRONICS industry—Europe—*Continued*

Europe, newest battleground for U.S. computer companies. P. Jackson. il Electronics 37:100-4 S 21 '64

Standard equipment practice for ITT Europe. F. Beerbaum and others. il diags Elec Com 39 no 2:199-211 '64

France

DeGaulle's grand design booms French electronics. D. Barlow. il Electronics 37:41+ Mr 6 '64

Germany

Americans eye rocky German road. R. Mikton. il Electronics 37:53-5 F 14 '64

Audio and hi fi in West Germany. C. G. McProud. il map Audio 48:47-62 N '64

Great Britain

British institution of radio engineers; presidential address. J. L. Thompson. Engineer 216:938 D 6 '63

Frank Cousins, chief of Ministry of technology. Electronics 37:119 N 2 '64

New research council for electronics. Engineering 198:131 Jl 31 '64

1964 prospects of all engineerings: telecommunications and instrumentation. il Enginering 197:135-7 Ja 17 '64

U.K. instrument market follows U.S. patterns. I S A J 11:28 Mr '64

Israel

Electronics in Israel. W. W. MacDonald. il maps diags Electronics 37:23-9 Ja 17 '64

Japan

State of the art of magnetic amplifiers in Japan. J. Yamaguchi. bibliog il diags IEEE Trans Com & Electronics 83:578-82 S '64

U.S. licensing spurs Japanese computer industry. C. Cohen. il Electronics 37:63-5 Ja 3 '64

New England

Industrial revolution brewing in New England. il Electronics 37:88-91 N 2 '64

Research in New England. T. Maguire. bibliog il diags Electronics 36:23-7 N 1 '63

Scotland

Electronic industry in Scotland. Electronic Eng 36:590 S '64

Western states

Changing picture in western electronics. Electronic Ind 23:160-3 Ag '64

How the West wins business. H. C. Hood and L. D. Shergalis. il Electronics 37:106+ Ag 10 '64

Political influences on western industry. D. A. Watkins. Electronic Ind 23:164+ Ag '64

Wescon 1963: electronics exhibition, San Francisco. Wireless World 69:543-4 N '63

Western electronic show and convention, Los Angeles, Aug. 25-28; abstracts of papers. Electronics 37:60-5 Ag 10 '64

Western electronic show and convention, Los Angeles, Aug. 25-28; with program. il map Electronic Ind 23:30-2+ Ag '64

Western electronics show and convention, Los Angeles. Product Eng 35:67-8 S 14 '64

WEMA, focal point of western electronics. Electronic Ind 23:174-6 Ag '64

What makes Wescon run? R. Lovell. Electronics 37:103-6 Ag 10 '64

ELECTRONICS research

Allen Clark research centre; Plessey group extensions opened. il Metallurgia 69:218-22 My '64

British institution of radio engineers annual meeting; presidential address. J. L. Thompson. bibliog Radio & Electronic Eng 27:2-10 Ja '64

Cesium migration may give clue to new family of electronic devices. il Elec Eng 82:741 D '63

Chemicals affect oscillistor output. D. C. T. Shang. bibliog il diag Electronics 36:46+ D 13 '63

Electronic materials, research, and education; panel discussion. J Metals 16:595-6+ Jl '64

Gearing military r & d to economic growth. R. A. Solo. Electro-Tech 73:93-8 Je '64

High frequency electronic research at the Institut für hochfrequenztechnik ETH, Zurich, Switzerland. F. E. Borgnis and others. bibliog IEEE Proc 51:1615-20 N '63

Industrial electronics research at the Allen Clark research centre. il Engineer 217:574 Mr 27 '64

National electronics research council. Radio & Electronic Eng 28:73-4 Ag '64

New research council for electronics. Engineering 198:131 Jl 31 '64

Research; by a firm that relies on it; Allen Clark research centre. il diags Engineering 197:447-8 Mr 27 '64

Research for communications; Standard telecommunication laboratories, ltd. il Engineer 217:857 My 15 '64

Staying in front in telecommunications; Standard telephone laboratories. il Engineering 197:668 My 15 '64

ELECTRONS

APS Division of electron physics, the first 20 years. L. Marton. Phys Today 17:44-6+ O '64

Carrier transport across electroluminescent *p-n* junctions in GaAs. J. I. Pankove. bibliog diag J Ap Phys 35:1890-2 Je '64

Charge carrier inertia in semiconductors. K. S. Champlin and others. bibliog diags IEEE Proc 52:677-85 Je '64

Comparative anatomy of models for double injection of electrons and holes into solids. A. Rose. bibliog diags J Ap Phys 35:2664-78 S '64

Comparison of methods for determining electron trap distributions. R. H. Bube. J Ap Phys 35:3067-9 O '64

Correlation of structure of phosphate pesticides with response in electron affinity detectors. C. E. Cook and others. bibliog diags Anal Chem 36:2354-8 N '64

Effect of space charge upon the transport of charge carriers. A. L. Ward. bibliog J Ap Phys 35:469-74 Mr '64

Effects of charged particles on the motion of an earth satellite. C. L. Brundin. bibliog AIAA J 1:2529-38 N '63

Efficiency of production of characteristic X radiation from pure elements bombarded by electrons. D. E. Brown and R. E. Ogilvie. bibliog diags J Ap Phys 35:309-14 F '64

Electric field excitation of electrons from shallow traps in CdSe thin-film triodes. T. O. Poehler and D. Abraham. J Ap Phys 35:2452-5 Ag '64

Electron attachment in a neon spark chamber. J. U. Burnham and M. G. Thompson. J Sci Instr 41:108-10 F '64

Electron densities from satellite antenna impedance. O. C. Haycock and K. D. Baker. il diags IEEE Trans Com & Electronics 83:458-62 S '64

Electron distribution in the ionosphere. J. W. Wright. J Res Nat Bur Stand 68D:589-94 bibliog(p592-4) My '64

Electron donor ability of 7-oxabicyclo[2.2.1] heptane. M. Tamres and others. bibliog Am Chem Soc J 86:3934-6 O 5 '64

Electron drift, velocity detector for gas chromatography. V. N. Smith and J. F. Fidiam. diags Anal Chem 36:1739-44 Ag '64

Electron effective mass in ZnSe. D. T. F. Marple. bibliog J Ap Phys 35:1879-82 Je '64

Electron ejection and fluorescence in aqueous β-naphthol solutions. M. Ottolenghi. bibliog Am Chem Soc J 85:3557-62 N 20 '63

Electron extinction distance in silicon. D. R. Frankl. bibliog il J Ap Phys 36:217-19 Ja '64

Electron flow in the biological fuel cell. A. E. Herner and others. diag Res/Develop 15: 27-9 Je '64

Electron fluctuations in an equilibrium turbulent plasma. A. Demetriades. bibliog AIAA J 2:1347-9 Jl '64

Electron monochromator utilizing the scattering resonance in helium. J. A. Simpson and others. R Sci Instr 34:1454-5 D '63

Electron paramagnetic resonance study of electron exchange effects in reduced aromatic hydrocarbon polymers. D. H. Eargle, jr. bibliog diag Am Chem Soc J 86:2567-9 Jl 5 '64

Electron-transfer processes; the scope of the reaction between carbanions or nitranions and unsaturated electron acceptors. G. A. Russell and others. bibliog diags Am Chem Soc J 86:1807-14 My 5 '64

Electron transfer reactions involving *N*-benzohydrylidene aniline. A. G. Evans and B. D. Phillips. Chem & Ind p 1718 O 10 '64

Electron tunneling through asymmetric films of thermally grown Al_2O_3. S. R. Pollack and C. E. Morris. bibliog il diags J Ap Phys 35:1503-12 My '64

Electron velocity distributions in gases. J. C. Bowe. bibliog diag Am J Phys 31:905-12 D '63

Electronic conduction in single crystals of uranium dioxide. P. Nagels and others. bibliog il J Ap Phys 35:1175-80 Ap '64

ELECTRONS—*Continued*

Electronic specific heat associated with localized states in actinide metals. W. R. Scott and others. J Ap Phys 35:1092-3 pt 2 Mr '64
Electronic structures of square-planar metal complexes; a square-planar rhodium (II) complex. E. Billig and others. bibliog Am Chem Soc J 86:926-7 Mr 5 '64
Electrostatic plasma containment system and electron motion through grids. R. G. Herb. diags R Sci Instr 35:569-72 My '64
Energy dependence of extinction distance and transmissive power for electron waves in crystals. H. Hashimoto. bibliog il diags J Ap Phys 35:277-90 F '64; Correction. 35:2788 S '64
Equilibrium electron density on Mars. E. D. Shane. AIAA J 2:1497-9 Ag '64
Evaluation of the Archard electron diffusion model. D. B. Brown and R. E. Ogilvie. bibliog J Ap Phys 35:2793-5 O '64
Excitation of characteristic X rays by protons, electrons, and primary X rays. L. S. Birks and others. diags J Ap Phys 35:2578-81 S '64
Far-flow approximations for precursor ionization profiles. L. Wetzel. bibliog AIAA J 2:1208-14 Jl '64
Fermi statistics of two-dimensional free-electron systems. J. P. McKelvey and E. F. Pulver. diags Am J Phys 32:749-61 O '64
Formation and reactions of radiation-produced electrons and atomic hydrogen in γ-irradiated ice. L. Kevan and others. bibliog Am Chem Soc J 86:771-6 Mr 5 '64
Fragmentation of some boron hydrides by electron impact. T. P. Fehlner and W. S. Koski. bibliog Am Chem Soc J 86:581-6 F 20 '64
Limiting-current densities in the presence of a magnetic field. E. A. Ash. bibliog diags J Ap Phys 35:298-301 F '64
Luminescent components induced in materials by 20-mev electrons. W. C. Dickinson and A. F. Lauzon. diag Nucleonics 21:60+ S '63
Measurement of electron temperature in low-pressure cesium thermionic energy converters. R. A. Chapman and others. bibliog diags J Ap Phys 35:2813-25 O '64
Microwave determination of average electron energy and density in He-Ne discharges. E. F. Labuda and E. I. Gordon. J Ap Phys 35:1647-8 My '64
Microwave reflection by nonuniform plasmas with exponential electron distribution. K. T. Yen. bibliog J Ap Phys 35:290-4 F '64; Discussion. C. R. Mullin and E. D. Shane IEEE Proc 52:1272-3 O '64
Modern views on the electron theory of metals and alloys. E. R. Petty. bibliog diags Metallurgia 70:12-17 Jl '64
Modulation of infrared by free carrier absorption. R. B. McQuistan and J. W. Schultz. bibliog diags J Ap Phys 35:1243-8 Ap '64
New chemiluminescent reaction is general. E. A. Chandross and F. I. Sonntag. il Chem & Eng N 42:32+ Ag 31 '64
New hot electron propulsion technique. Franklin Inst J 277:373-4 Ap '64
Novel chemiluminescent electron-transfer reaction. E. A. Chandross and F. I. Sonntag. bibliog Am Chem Soc J 86:3179-80 Ag 5 '64
Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64
Photomultiplier and electronic study of Geiger counter pulses in air. H. M. Herreman and L. B. Loeb. bibliog il diags J Ap Phys 34:3160-7 N '63
Possibilities of amplification of sound waves at microwave frequencies. H. J. E. H. Pauwels. IEEE Proc 52:300 Mr '64
Proposal for a two-stage semiconductor laser through tunneling and injection. S. Wang. bibliog diags J Ap Phys 34:3443-50 D '63
Radiation in a lossless magneto-ionic medium at frequencies high relative to the electron gyrofrequency. J. W. Marini. bibliog diags J Res Nat Bur Stand 67D:707-16 N '63
Rate of the tris-(2,2′-dipyridine)-osmium(II)-octacyanomolybdate(V) electron-transfer-reaction. R. Campion and others. Am Chem Soc J 85:3528-9 N 5 '63
Relative reactivities of positions on biphenyl in the generation of reactive species by electron irradiation and in subsequent ring substitution. W. M. Hutchinson and others. bibliog Am Chem Soc J 85:3358-62 N 5 '63
Scheme for increasing the effectiveness of space-charge neutralization in electron-ion systems. R. P. Wadhwa. diags IEEE Proc 52:728-9 Je '64
Slow electron transfer through evaporated Au films. H. Kanter. J Ap Phys 34:3629-30 D '63
Some aspects of electron motion in biased DCFEM operation. O. L. Gaddy and D. F. Holshouser. IEEE Proc 52:413-14 Ap '64
Spark chamber finds antiparticle electrons. P. Meyer. Electronics 37:78 F 7 '64
Speed and kinetic energy of relativistic electrons. W. Bertozzi. il diags Am J Phys 32:551-5 Jl '64
Straggling of electrons in layered media. N. G. Parke, 3d and others. J Ap Phys 35:3065-6 O '64
Superconductive tunneling. M. D. Fiske and I. Giaever. bibliog diags IEEE Proc 52:1155-63 O '64
Supernova electrons. Sci Am 210:71 F '64
Synthetic and electron spin resonance studies of six-coordinate complexes related by electron-transfer reactions. A. Davison and others. bibliog Am Chem Soc J 86:2799-805 Jl 20 '64
Ten pi electron system is aromatic. E. Vogel. Chem & Eng N 42:40-1 O 5 '64
Thermoelectric power of hot carriers. J. Zucker. bibliog diag J Ap Phys 35:618-21 Mr '64
Voltage decay measurement of photoexcitation and trapping of carriers in selenium. P. J. Regensburger. diag J Ap Phys 35:1863-5 Je '64
Zirconium dioxide-oxygen reactions; molecular oxygen adsorption with electron transfer. T. Smith. bibliog Electrochem Soc J 111:1020-7 S '64

See also

Bremsstrahlung
Electric discharges
Electron multipliers
Ionization, Gaseous
Photoelectric effect
Positrons
Vacuum tubes

Absorption

Absorption contrast effect in bcc metals. S. E. Bronisz and D. L. Douglass. bibliog il J Ap Phys 34:713-14 Ap '63; Discussion. B. Hudson. 35:724-5 Mr '64

Beams

Advances in field emission. W. P. Dyke. il diags Sci Am 210:108-16+ Ja '64
Analysing crystal defects by electron beam scanning. il Engineer 218:38 Jl 3 '64
Analyzing minute surface contaminants. H. S. Kartsher. il Mach 70:145-6 My '64
Beam-plasma discharge; buildup of oscillations. W. D. Getty and L. D. Smullin. bibliog il diags J Ap Phys 34:3421-9 D '63
Beam profile monitor for linear electron accelerator. D. E. Martz and J. D. Robinson. diag R Sci Instr 34:1246-8 N '63
Beam stability in dc-pumped cyclotron-synchronous wave amplifiers. J. C. Bass. IEEE Proc 52:843 Jl '64
Behavior of electron beams under magnetic compression. O. P. Gandhi and N. C. Vaidya. IEEE Proc 52:1052-3 S '64
Calculation of the spherical aberration coefficient from beam emittance diagrams. A. Galejs and P. H. Rose. R Sci Instr 35:644-5 My '64
Compensated reversed field focusing of electron beams. P. F. C. Burke. bibliog diags IEEE Proc 51:1653-9 N '63
Computer experiments on ion-beam neutralization with initially cold electrons. D. A. Dunn and I. T. Ho. bibliog diags AIAA J 1:2770-7 D '63
Conducting film formed by electron bombardment of tungsten hexacarbonyl vapor in vacuum. O. G. Fritz, jr. J Ap Phys 35:2272 Jl '64
Design of an experimental electron beam machine. P. A. Einstein and others. bibliog il diag J Sci Instr 40:562-7 D '63
Double check for steel. il Electronics 37:32 Ag 24 '64
Dual-purpose electron beam. Franklin Inst J 276:457-8 N '63
Dynamic reconvergence of electron beams in c.r.t. deflection systems; its application to colour displays. E. W. Bull and R. D. Galloway. diags Inst E E Proc 111:1212-18 Jl '64
Electron beam cutting. F. H. Samuelson. Light Metal Age 22:8 Ag '64
Electron beam in a cathode-ray tube. C. Weber. bibliog diag IEEE Proc 52:996-1001 S '64
Electron beam-plasma interaction in a traveling-wave tube. K. R. U. Weimer and H. Bodt. IEEE Proc 52:965-6 Ag '64
Electron beam profile measurements. G. E. Fischer. R Sci Instr 35:1081 Ag '64

ELECTRONS—Beams—*Continued*

Electron-bombardment evaporation source for nickel-iron alloys. J. C. Brice and U. Pick. bibliog diag J Sci Instr 41:633-5 O '64

Electrons work tiny ferrites. R. A. Shahbender. il diags Electronics 36:72+ N 15 '63

Equipment and techniques for low temperature electron irradiations. L. F. Lowe and others. diags R Sci Instr 34:1348-50 D '63

Exotic materials need exotic metal-removal. R. L. Rod and others. il diags S A E J 72: 46-53 Mr '64

Heating effect of an electron beam impinging on a solid surface, allowing for penetration. J. Vine and P. A. Einstein. bibliog il diags Inst E E Proc 111:921-30 My '64

High-current density Brillouin-focused electron beam. L. Kikushima and C. C. Johnson. diag IEEE Proc 52:82-3 Ja '64

International conference on electron and ion beam science and technology, Toronto, May 4-7; program and abstracts of papers. J Metals 16:329-35, 659-61 Ap, Ag '64

Irradiation in plastics processing; where we stand today. W. Brenner and R. Vermes. bibliog il Plastics Tech 10:28-31 Ja '64

Irradiation of iron and 5-79 Mo permalloy with 2-mev electrons. D. I. Gordon and R. S. Sery. bibliog J Ap Phys 35:879-80 pt 2 Mr '64

Laser-formed apertures for electron beam instruments. J. F. Norton and J. G. McMullen. il diag J Ap Phys 34:3640-1 D '63

Limitations on electron beam density of unipotential electron guns at low voltages. J. A. Simpson and C. E. Kuyatt. bibliog diag J Res Nat Bur Stand 67C:279-81 O '63

Mechanism of high-power-density electron beam penetration in metal. H. Schwarz. bibliog il diags J Ap Phys 35:2020-9 Jl '64

Modes of operation of an electron beam floating zone melting furnace; growth of single crystals of metals and alloys. H. G. Sell and W. M. Grimes. il diag R Sci Instr 35: 64-8 Ja '64

New method of analyzing crystal defects. Franklin Inst J 278:225 S '64

Noise in Adler tubes. A. Frohlich. IEEE Proc 52:868 Jl '64

Phase-space occupation of electron, proton, and photon beams. R. Katz and B. Curnutte, jr. Am J Phys 32:617-18 Ag '64

Power spectra measurements on ultralow-noise beams. J. M. Hammer. bibliog diags J Ap Phys 35:1147-53 Ap '64

Proof of the Eulerian small signal power theorem for rotational electron beams. D. L. Bobroff. J Ap Phys 35:3044-5 O '64

Relative energy calibration of mono-energetic electron beams. S. M. Horszowski. bibliog diags J Sci Instr 40:532-4 N '63

Screen mesh factors affect electron beam. E. C. Muly and H. L. L. van Paassen. diags Electronics 36:62-3 N 15 '63

Simultaneous observation of diffusion-induced dislocation slip patterns in Si with electron beam scanning and optical means. W. Czaja and G. H. Wheatley. bibliog il J Ap Phys 35:2782-3 S '64

Slow waves in ferrites and their interactions with electron streams. J. Spector and A. W. Trivelpiece. bibliog diags J Ap Phys 35:2030-9 Jl '64

Static theory of density and potential distribution in a beam-generated plasma. D. A. Dunn and S. A. Self. bibliog diags J Ap Phys 35:113-22 Ja '64

Symposium on electron beam processes for microelectronics, Malvern. J Sci Instr 41: 589-91 O '64

Thermal velocity effects in axially symmetric solid beams. P. T. Kirstein. bibliog diag J Ap Phys 34:3479-90 D '63

Thermal velocity limit to current density in a beam. A. J. Lichtenberg. bibliog diags J Ap Phys 35:315-19 F '64

Velocity modulation of a relativistic electron beam. P. C. T. DeBoer. J Ap Phys 35:2789-92 O '64

Visual and photographic study of electron beams. K. J. Ausburn. il J Ap Phys 35: 111-13 Ja '64

See also

Electric furnaces, Electron beam vacuum melting

Electric welding, Arc—Electron beam welding

Electron gun

Oscillographs, Cathode ray

Capture

Analysis of sulfur compounds with electron capture/hydrogen flame dual channel gas chromatography. D. M. Oaks and others. bibliog diag Anal Chem 36:1560-5 Jl '64

Behavior of demeton in electron affinity detectors. J. E. Barney, 2d and others. bibliog diag Anal Chem 35:2206-8 D '63

Change of pace; electron-capture (EC) detector for the analysis of pesticide residues. Food Tech 18:1175 Ag '64

Chemical oxidation of selected organic pesticides. C. A. Buescher and others. bibliog diag WPCF J 36:1005-14 Ag '64

Comparison of electron capture and hydrogen flame detectors for gas chromatographic determination of trace amounts of metal chelates. D. K. Albert. bibliog Anal Chem 36:2034-5 S '64

Determination of capture cross sections by optical quenching of photoconductivity. R. H. Bube and F. Cardon. bibliog J Ap Phys 35:2712-19 S '64

Determination of lead alkyls by gas chromatography with electron capture detector. E. J. Bonelli and H. Hartmann. Anal Chem 35:1980-1 N '63

Electron capture processes in the γ-radiation of organic halides in hydrocarbon rigid matrices. E. P. Bertin and W. H. Hamill. bibliog Am Chem Soc J 86:1301-4 Ap 5 '64

Gas chromatography retention times and sensitivity data for insecticides and herbicides. E. J. Bonelli and others. bibliog diag J Agri & Food Chem 12:333-6 Jl '64

Quantitative determination of parts-per-million quantities of nitrogen dioxide in nitrogen and oxygen by electron-capture detection in gas chromatography. M. E. Morrison and others. Anal Chem 36:2256-9 N '64

Rapid cleanup of dairy products for analysis of chlorinated insecticide residue by electron capture gas chromatography. B. E. Langlois and others. bibliog J Agri & Food Chem 12:243-5 My '64

Diffraction

Construction of hemispherical grids. P. W. Palmberg and others. diags R Sci Instr 35: 244-5 F '64

Diffraction; mapping the surfaces. il diag Product Eng 35:49 F 3 '64

Effects of electron correlation in X-ray and electron diffraction. L. S. Bartell and R. M. Gavin, jr. bibliog Am Chem Soc J 86: 3493-8 S 5 '64

Electron diffraction determination of the molecular structure of the butyl halides; the structure and conformational analysis of isobutyl chloride. G. H. Pauli and others. bibliog Am Chem Soc J 86:1286-8 Ap 5 '64

Electron diffraction diffuse streaks from single-crystal tin films. R. W. Vook and A. Baltz. bibliog il diag J Ap Phys 35:1952-5 Je '64

Electron diffraction for analysis of ferroelectric crystal. S. Yamaguchi. il J Ap Phys 35:2559-60 Ag '64

Electron diffraction study of a pyroelectric tourmaline crystal. S. Yamaguchi. il J Ap Phys 35:1654-5 My '64

Electron diffraction study of thin oxide films on iron single crystals. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:508-12 My '64

Fluctuation of the object in electron diffraction. S. Yamaguchi. il J Ap Phys 34:3536-8 D '63

Interaction of oxygen with (110) nickel. R. L. Park and H. E. Farnsworth. bibliog diags J Ap Phys 35:2220-6 Jl '64

Low-energy electron diffraction. L. H. Germer. bibliog il diags Phys Today 17:19-23 Jl '64; Discussion. 17:67 N '64

Low-energy electron diffraction studies of gas adsorption on platinum (100), (110), and (111) surfaces. C. W. Tucker, jr. bibliog il diags J Ap Phys 35:1897-905 Je '64

Low-energy electron-diffraction study of the cleaved (110) surfaces of InSb, InAs, GaAs, and GaSb. A. U. Mac Rae and G. W. Gobeli. bibliog il diags J Ap Phys 35:1629-38 My '64

Measurement of the particle weight of a colloid by electron diffraction. Y. Yamaguchi. il J Colloid Sci 18:596-8 Ag '63

Molecular structure of 1,3,5-cycloheptatriene in the vapor phase as determined by the sector electron diffraction method. M. Traetteberg. bibliog Am Chem Soc J 86: 4265-70 O 20 '64

New technique for measurement of electron diffraction patterns of polycrystalline materials. J. H. Richardson and R. F. Schneidmiller. diag R Sci Instr 35:983-4 Ag '64

Scattering factors and other properties of low-energy electron diffraction. J. J. Lander and J. Morrison. bibliog il diags J Ap Phys 34:3517-35 D '63

ELECTRONS—Diffraction—*Continued*

Simple electron diffraction camera for the examination of alkali antimonide photoelectric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64

Slide rule method for indexing electron diffraction patterns. W. R. Roser and G. Thomas. il diag R Sci Instr 35:613-15 My '64

Structure of gaseous copper(II) nitrate as determined by electron diffraction. R. E. LaVilla and S. H. Bauer. bibliog Am Chem Soc J 85:3597-600 N 20 '63

Structure of 1,2,5-thiadiazole as determined by gas electron diffraction. F. A. Momany and R. A. Bonham. bibliog Am Chem Soc J 86:162-4 Ja 20 '64

Structure of oriented, vapor-deposited GaAs films, studied by electron diffraction. E. K. Müller. bibliog il diags J Ap Phys 35:580-5 Mr '64

Study of the thermal oxidation of tantalum and niobium by means of electron-diffraction and capacity measurements. J. Harvey and P. H. G. Draper. bibliog il Inst Metals J 92:136-40 '63-64

Emission from metals

Advances in field emission. W. P. Dyke. il diags Sci Am 210:108-16+ Ja '64

Analysis of *exo*-electron glow curves. J. F. Young and D. J. Williams. bibliog diags J Ap Phys 34:3157-60 N '63

Basic theory of the mercury cathode spot. A. W. Hull. bibliog diags J Ap Phys 35:490-6 Mr '64

Correlation of emission processes for adsorbed alkali films on metal surfaces. N. S. Rasor and C. Warner. bibliog diag J Ap Phys 35:2589-600 S '64

Effect of temperature on photo-exoemission. J. F. Young and D. J. Williams. bibliog J Ap Phys 35:2279-82 Ag '64

Exo-electron emission due to ultrasonic irradiation. J. A. M. Langenecker and D. B. Ray. bibliog diag J Ap Phys 35:2586-8 S '64

Structural effects in thin-film sandwich emitters. L. A. Harris. bibliog il diags J Ap Phys 35:268-76 F '64; Discussion. 35:3056-7 O '64

See also

Electrons—Thermionic emission

Shot effect

Energy levels

Analysis of the spectrum of neutral atomic bromine (Br I). J. L. Tech. bibliog il J Res Nat Bur Stand 67A:505-54 N '63

Energy bands; described in circuit language. T. Roddam. diags Wireless World 70:360-3 Jl '64

Franck-Condon factors to high vibrational quantum numbers; No band systems. R. W. Nicholls. bibliog J Res Nat Bur Stand 68A:535-40 S '64

Generalized thermal *J-V* characteristic for the electric tunnel effect. J. G. Simmons. bibliog J Ap Phys 35:2655-8 S '64

Intermediate atomic energy levels found. il Chem & Eng N 42:40-2 Mr 9 '64

Nonequilibrium ionization due to electron heating. J. L. Kerrebrock and M. A. Hoffman. bibliog diags AIAA J 2:1072-87 Je '64

Relationship of Bohr orbital quantum condition to Planck oscillator energy levels. A. D. Crowell. Am J Phys 32:643-4 Ag '64

Research techniques for exploring atomic structure. il diag Engineer 217:882-4 My 15 '64

Simple two-band model and transport properties of pyrolytic graphites. C. A. Klein. bibliog diags J Ap Phys 35:2947-57 O '64

Spectra confirm energy level for U(V); abstract. D. G. Karraker. Chem & Eng N 42:58+ Ap 13 '64

Statistical mechanics of a quantum system of hard lines. D. Henderson. bibliog Am J Phys 32:795-8 O '64

Pairs

Electron pairing and linear H_3^+. J. W. Linnett. bibliog Am Chem Soc J 86:2519-20 Je 20 '64

General bond length-bond energy correlation proposed for first-row elements. N. McKelvie. Chem & Eng N 42:47-8 F 17 '64

Nature of the two-electron chemical bond; electron pairing and H_3^+. H. Shull. bibliog Am Chem Soc J 86:1469-74 Ap 20 '64

Volume requirement of the unshared pair of electrons in amines. N. W. J. Pumphrey and M. J. T. Robinson. bibliog Chem & Ind p 1903-4 N 30 '63

Recombination

Analogue computation of diffusion controlled recombination equations. H. J. Wintle. bibliog diag J Sci Instr 41:178-9 Mr '64

Mechanism of afterglow in neon flashtubes. P. D. Johnson and others. bibliog J Ap Phys 35:1128-30 Ap '64

Use of electron probes in the study of recombination radiation. D. B. Wittry and D. F. Kyser. bibliog il J Ap Phys 35:2439-42 Ag '64

Use of Langmuir probes to study ion-electron recombination. C. B. Kretschmer and H. L. Petersen. bibliog diag J Ap Phys 34:3209-17 N '63

Use of *P-L-N* structures in investigations of transient recombination from high injection levels in semiconductors. L. W. Davies. bibliog diags IEEE Proc 51:1637-42 N '63

Scattering

Cross section of the electron-induced *6s-6p* transition in cesium. L. K. Hansen. bibliog J Ap Phys 35:254-5 Ja '64

Scattering factors and other properties of low-energy electron diffraction. J. J. Lander and J. Morrison. bibliog il diags J Ap Phys 34:3517-35 D '63

Secondary emission

Calculation of high-energy secondary electron emission. J. A. Sawyer and V. A. J. van Lint. bibliog diags J Ap Phys 35:1706-11 Je '64

Field-enhanced secondary electron emission from films of low density. G. W. Goetze and others. bibliog il diags J Ap Phys 35:482-9 Mr '64

Secondary electron conduction (SEC) for signal amplification and storage in camera tubes. G. W. Goetze and A. H. Boerio. il diags IEEE Proc 52:1007-12 S '64

Secondary electron production from alpha particles emerging from gold. J. N. Anno. bibliog diag J Ap Phys 34:3495-9 D '63

Simple comparison method for determining the coefficient of secondary electron emission by positive ions. R. F. Hall and G. F. Weston. bibliog diag J Sci Instr 40:573-5 D '63

Total secondary emission coefficient of gold black. T. D. Roberts and D. S. Burch. bibliog R Sci Instr 35:1067 Ag '64

Spin

Band theory of ferromagnetism, antiferromagnetism, and spin waves. D. C. Mattis. bibliog J Ap Phys 35:1085-6 pt 2 Mr '64

Corrections to the moments of modulation broadened magnetic resonance line shapes. G. V. H. Wilson. J Sci Instr 41:98-9 F '64

Electron spin resonance of molecules adsorbed on synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:749-57 Mr 5 '64

Electron spin resonance spectra of different solvates of *m*-nitrophenol negative ion in a mixed solvent. C. Corvaja and G. Giacometti. Am Chem Soc J 86:2736 Jl 5 '64

Electron spin resonance studies of aromatic polynitro compounds. I. Bernal and G. K. Fraenkel. bibliog diags Am Chem Soc J 86:1671-5 My 5 '64

Experimental studies of standing spin-wave modes in ferromagnetic films. M. Nisenoff and R. W. Terhune. J Ap Phys 35:806-7 pt 2 Mr '64

Improved method of calculating spin properties from spin-polarized wave functions. L. C. Snyder and T. Amos bibliog Am Chem Soc J 86:1647-8 Ap 20 '64

Magnetic transition layer spin configuration. R. F. Soohoo. J Ap Phys 35:927-8 pt 2 Mr '64

Magnetism in one-dimensional systems; Heisenberg model for infinite spin. M. E. Fisher. Am J Phys 32:343-6 My '64

Matrices of spin-orbit interaction in the electron configurations $np^2\ n' p$ and $np^4\ n' p$. J. L. Tech. J Res Nat Bur Stand 67A:555-9 N '63

Measurement of spin-wave dispersion in MnF_2 at 4.2°K. G. G. Low and others. bibliog J Ap Phys 35:998-9 pt 2 Mr '64

Mechanical analogue of electron spin inversion and maser action: with a simple description of maser operation. A. E. Karbowiak. bibliog il diags Inst E E Proc 110:2241-7 D '63

Oxygen adsorption on silicon surfaces observed via electron spin resonance. K. A. Müller and others. bibliog J Ap Phys 35:2254-6 Jl '64

Physical basis for Hund's rule. N. Karayianis and C. A. Morrison. bibliog Am J Phys 32:216-20 Mr '64

ELECTRONS—Spin—*Continued*

Rare-earth-conduction electron interaction in *4d* and *5d* Laves phases compounds. D. Shaltiel and others. bibliog J Ap Phys 35:978-9 pt 2 Mr '64

Specific heat and longitudinal correlation function for the Heisenberg ferromagnet. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35:946-7 pt 2 Mr '64

Spin correlations among narrow-band electrons. J. B. Goodenough. diag J Ap Phys 35:1083-4 pt 2 Mr '64

Spin exchange in solutions of potassium naphthalenide. J. C. Danner and T. R. Tuttle, jr. Am Chem Soc J 85:4052-3 D 20 '63

Spin-wave excitation in cubic rare-earth compounds. N Tsuya and Y. Ebina. bibliog J Ap Phys 35:800-1 pt 2 Mr '64

Spin-wave resonance in magnetic films on the basis of the surface-spin-pinning model and the volume inhomogeneity model. C. F. Kooi and others. bibliog J Ap Phys 35:791-7 pt 2 Mr '64

Spin waves in EuS; abstract. S .H. Sharap. bibliog J Ap Phys 35:988 pt 2 Mr '64

Thermionic emission

Improved thermionic emitter using uniaxially oriented tungsten. I. Weissman and M. L. Kinter. bibliog il diags J Ap Phys 34:3187-94 N '63

Materials for 2000-C thermionic emitters. D. M. Scruggs. Electro-Tech 72:12-13 D '63

Problem of electron velocity distribution. P. A. Lindsay. bibliog diags IEEE Proc 51:1710-22 D '63

Sputter-ion pumps with thermionic electron injection. E. H. Hirsch. diag J Sci Instr 41:426-30 Jl '64

Status of thermoelectrics and thermionics. L. W. Perry. Machine Design 36:196+ F 13 '64

Theoretical current-voltage curve in low-pressure cesium diode for electron-rich emission. C. M. Goldstein. diag J Ap Phys 35:728-9 Mr '64

Thermionic emission from hot particles in a plasma. C. C. Johnson and C. K. Bullock. J Ap Phys 35:2804-5 O '64

Thermionic emission of vapor-deposited molybdenum cathodes. M. N. Huberman and R. A. Holzl. il diag J Ap Phys 35:1357-8 Ap '64

Thermionic studies of various uranium compounds. G. A. Haas and J. T. Jensen, jr. bibliog J Ap Phys 34:3451-7 D '63

Velocity

Discussion of the theory of ionospheric cross modulation. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1109-22 O '64

Electron collision frequency in the ionospheric *D* region. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1123-6 O '64

Experimental determination of the drift velocity of low-energy electrons in Ar, N_2, CO_2, several Ar-N_2 mixtures, and several Ar-CO_2 mixtures. N. E. Levine and M. A. Uman. bibliog diags J Ap Phys 35:2618-24 S '64

Superconducting energy gap and net electron drift velocity as functions of temperature and Cooper-pair drift velocity. R. H. Parmenter and L. J. Berton. RCA R 25:596-612 S '64

Velocity modulation of a relativistic electron beam. P. C. T. DeBoer. J Ap Phys 35:2789-92 O '64

ELECTROOSMOSIS. See Osmosis

ELECTROPHORESIS

Application of an analog computer in analytical chromatographic and electrophoretic separations. K. Abel and F. W. Noble. bibliog diag Anal Chem 36:1855-6 Ag '64

Automatic electrophoretic analyses. il diags Res/Develop 15:14-24 Je '64

Cataphoresis in helium-neon mixtures. A. L. Schmeltekopf, jr. bibliog diags J Ap Phys 35:1712-17 Je '64

Cataphoretic purification of neon. H. C. Miller. bibliog flow diag J Ap Phys 35:1745-8 Je '64

Desalting by high voltage electrophoresis. H. Y. T. Yang and M. R. Shetlar. il diag Anal Chem 35:2224 D '63

Electrophoresis unit reduces analysis time, strip work-up. Chem & Eng N 41:48 N 25 '63

Electrophoretic properties in aqueous detergent systems. M. E. Ginn and others. bibliog il Am Oil Chem Soc J 41:112-16 F '64

Electrophoretic studies of turbidity removal with ferric sulfate. A. P. Black and J. V. Walters. bibliog Am Water Works Assn J 56:99-110 Ja '64

Filtration and electrophoretic mobility studies of flocculated silica suspensions. J. C. Kane and others. bibliog Am Chem Soc J 86:3450-3 S 5 '64

Fractionation of mixed solids by high-voltage electrophoresis. G. Todd and G. A. Wild. bibliog il Anal Chem 36:1025-8 My '64

Interaction of electrophoretic and dielectrophoretic forces. W. F. Pickard. bibliog Electrochem Soc J 111:1234-8 N '64

Mechanism of electrophoretic migration in paper. J. C. Giddings and J. R. Boyack. bibliog Anal Chem 36:1229-33 Je '64

Review of fundamental developments in analysis. R. D. Strickland. Anal Chem 36 [no 5]:80R-92R bibliog(p84R-92R) Ap '64

Separation of lignin sulfonates from hemicelluloses by electrophoresis-convection. W. Q. Yean and D. A. I. Goring. bibliog il diags Tappi 47:16-19 Ja '64

Separation of some pairs of inorganic ions by column electrophoresis. T. B. Pierce and P. F. Peck. diag Chem & Ind p 1202-3 Jl 20 '63; Discussion. p 1724 O 26 '63

Some factors affecting mobility measurements in paper electrophoresis. R. H. Hackman and M. Goldberg. bibliog Anal Chem 36:1220-2 Je '64

Surface properties and flow behavior of kaolinite; electrophoretic mobility and stability of kaolinite sols. R. J. Hunter and A. E. Alexander. J Colloid Sci 18:820-32 bibliog(p831-2) D '63

Velocity-depth relationship in microelectrophoresis cell for asphaltenes in nitromethane. J. R. Wright and R. R. Minesinger. J Colloid Sci 18:802-4 O '63

ELECTROPHORETIC coating. See Painting, Industrial

ELECTROPHOTOGRAPHY

Effect of moisture and type of binder on electrophotographic behavior. O. C. Klein. bibliog Tappi 47:sup 145A-8A S '64

Electrophotographic paper requirements for multicolor electrostatic printing. F. C. Myers and J. W. Gladden. bibliog il Tappi 47:sup 139A-44A S '64

Liquid development of electrophotographic images for office copy processes. D. E. Hanson. Tappi 47:sup 149A-50A S '64

ELECTROPHYSIOLOGY

See also

Electric organs in fishes

Apparatus

Some aspects of instrumentation in experimental physiology; abstract. W. G. Walter. Chem & Ind p432-3 Mr 14 '64

See also

Electrocardiograph

ELECTROPLATING

Advances in electroplating decorative, microcracked chromium. W. H. Safranek and H. R. Miller. bibliog il Plating 51:543-50 Je '64

Better plated-ABS parts. Plastics Tech 10:12 Ap '64

Binary alloys of indium with zinc or cadmium; deposition from sulfamic acid baths. L. Domnikov. bibliog Metal Finishing 62:73-5+ S '64

Coating methods juggle plastics-metals fortunes. F. Arne. il Chem Eng 71:76-8 Ja 20 '64

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Corrosion resistance of iron-zinc coated steel. Engineering 197:280 F 21 '64

Deposition of nickel-tungsten alloys; acid peroxide solutions. L. Domnikov. bibliog Metal Finishing 62:68-71 Ap '64

Determination of trace elements in electroplating solutions by atomic absorption spectroscopy. C. M. Whittington and J. B. Willis. bibliog il Plating 51:767-73 Ag '64; Discussion. 51:1197 D '64

Development of the electroplating industry in the Argentine Republic. P. A. Weinberg. il Metal Finishing 62:80-3 My '64

Effect of annealing on the microstructure and hardness of some nickel electrodeposits. R. Weil and others. bibliog il Electrochem Soc J 111:1046-52 S '64

Effect of some addition agents on stress in nickel deposits; abstract. S. A. Watson. Metal Prog 85:188+ Ap '64

Electrodeposition of cobalt. F. R. Morral. bibliog il Metal Finishing 62:82-7 Je; 59-64 Jl '64

ELECTROPLATING—*Continued*

Electrodeposition of iron-cobalt alloys from the sulfamate bath. S. S. Misra and T. L. Rama Char. bibliog il Plating 51:423-8 My '64

Electrodeposition of iron-zinc alloys; production from sulfamate baths. S. S. Misra and T. L. Rama Char. bibliog il Metal Finishing 62:88-93 Je '64

Electrodeposition of nickel-molybdenum alloys; plating from concentrated ammonia solutions. L. Domnikov. bibliog Metal Finishing 62:57-60 Ag '64

Electrophoretic deposition; a versatile coating method. C. P. Gutierrez and others. bibliog diag Electrochem Soc J 109:923-7 O '62; Abstract. Metal Prog 84:173-5 D '63

Electroplate colorful parts. il Product Eng 35:56-7 Ap 13 '64

Electroplates broaden use of plastics. P. West. il Materials in Design Eng 60:96-9 N '64

Electroplating from fluoborate solutions; abstract and discussion. D. H. Booth. Chem & Ind p271-2 F 15 '64

Electroplating on titanium and titanium alloys. W. B. Harding. bibliog il Plating 50: 131-5 F '63; Abstract. Metal Prog 86:167-8 Jl '64

Iron-nickel-chromium baths; deposition of stainless steel. L. Domnikov. bibliog Metal Finishing 62:61-5 Mr '64

Iron-zinc alloy offers good surface protection. Steel 154:58+ F 24 '64

Methods for minimizing hydrogen embrittlement in electroplated high strength alloy steels. E. E. Dougherty. diag Plating 51: 415-22 My '64

Plastics in electro plating; economies effected by a blanket of floating polypropylene spheres. il Automobile Eng 54:407 S '64

Platers stress speed, versatility; Industrial finishing exposition, 6th, St Louis. Iron Age 193:50 Je 25 '64

Plating of lead-tin-antimony ternary alloys. D. L. Cox. Plating 51:976-7 O '64

Plating on tungsten. C. Marzano. bibliog il Plating 51:207-11 Mr '64

Producing colored coatings on various metals; black nickel plating electrolyte. J. A. McCarthy. Metal Finishing 62:56-60+ S '64

Recommended practice for preparation of and electroplating on aluminum alloys. Plating 51:559-64 Je '64

Recommended practice for preparation of and electroplating on stainless steel; ASTM standard. Plating 51:788-90 Ag '64

Satin nickel by co-deposition of Finely dispersed solids; abstract. T. W. Tomaszewski and others. Metal Prog 86:182+ S '64

Science for electroplaters (cont). L. Serota. il diags Metal Finishing 61:83-6+ N; 71-4+ D '63; 62:60-1 Ja; 68-71 F; 76-9 Mr; 72-5 Ap; 103-6 My; 94-5 Je; 65-8+ Jl; 73-4+ Ag; 79-81 S; 81-3 O '64

Study of electroplating addition agents by radiotracer methods; abstract and discussion. J. Edwards. Chem & Ind p331-2 F 22 '64

Surface treatments and electroplated coatings on uranium. J. K. Gore and R. Seegmiller. bibliog il Plating 50:215-20 Mr '63; Discussion. 50:1012-13 N '63

Tin becomes new middle man for plating on aluminum. il Iron Age 194:78-9 Ag 13 '64

Trouble plating magnesium? J. W. Natwick. il diag Am Mach 108:104-6 F 17 '64

Ultrafast plating covers contours. J. E. Sandford. il Iron Age 194:77-9 S 17 '64

What's new in brush plating. M. Rubinstein. il Materials in Design Eng 58:102-3 D '63

Wire plating. D. Elliott. Wire & Wire Prod 39:874-5+ Je '64

See also

American electroplaters society
Bronze plating
Cadmium plating
Chromium plating
Copper plating
Electrodeposition of metals
Gold plating
Nickel plating
Tin plating

Defects

Science for electroplaters; chromium-inclusions. L. Serota. il Metal Finishing 61:90+ O; 83-6+ N '63

Power

Power rectifier facts for the electrofinisher. Z. Reibman and T. Mendel. Metal Finishing 62:56-8 Jl '64

Specifications

Improved process specifications for plated parts. W. B. Harding. il Metal Prog 86: 156-60 O '64

Terminology

Tentative definitions of terms relative to electroplating. Plating 51:219-23 Mr '64

Testing

Non-destructive thickness measurement; beta-ray back-scatter method. B. B. Joffe and R. S. Modjeska. diags Metal Finishing 61:44-9 D '63

Plated surfaces get fast check. il Iron Age 194:64 Ag 20 '64

Radioisotopes speed measurement of precious metal plating thickness. G. A. Goethner. il Plating 51:429-32 My '64

Waste

Science for electroplaters; chromium; rinse waste. L. Serota. flow diags diags Metal Finishing 62:103-6 My '64

ELECTROPNEUMATIC control

Conditioning on-line vapor fraction analyzer signals for process control. W. R. Thompson. diags I S A J 11:67-8 Je '64

ELECTROPOLISHING. See Polishing, Electrolytic

ELECTROSTATIC field. See Electric field

ELECTROSTATIC generators. See Electric generators, Electrostatic

ELECTROSTATIC paint spraying. See Paint spraying, Electrostatic

ELECTROSTATIC precipitators. See Electric precipitators

ELECTROSTATIC printing. See Printing, Electrostatic

ELECTROSTATICS

Analysis of an electrostatic shield for space vehicles. F. H. Vogler. bibliog diags AIAA J 2:872-8 My '64

Cathode-ray printer tube. R. H. Compton. diags Electro-Tech 74:128-30 Jl '64

Coating with flock electrostatically. P. C. Bardin. il Ind Finishing 40:58-60 D '63

Crystal lattice energies and the electrostatic self energies of gaseous ions. R. H. Stokes. bibliog diags Am Chem Soc J 86:982-6 Mr 20 '64

Dynamic flexural rigidity apparatus with electrostatic excitation. B. Hsu. bibliog diags J Sci Instr 41:153-6 Mr '64

Elastic modulus of polymers from resonant flexure of clamped disks. J. Roberts. bibliog diag J Sci Instr 41:357-60 Je '64

Electrostatically focused electron gun for hollow beams. H. L. Hartnagel. bibliog diags Inst E E Proc 111:57-66 Ja '64

Electrostatically induced rotary and vortical motion. P. A. Silberg and G. Goshgarian. il diags IEEE Proc 52:732-3 Je '64

Equilibrium value for the charge-to-mass ratio of droplets produced by electrostatic dispersion. S. A. Ryce. J Colloid Sci 19:490-2 Je '64

Laboratory substandard for the production of small electrostatic charges. R. Gunn. diag R Sci Instr 35:867-8 Jl '64

New low-noise transistor circuit for electrostatic microphones. P. J. Baxandall. bibliog il diags Wireless World 69:538-42, 593-7 N-D '63

New method for focusing klystrons. A. J. Prommer. bibliog il diags Electronic Ind 23:152-3+ Je '64

Radioactive static eliminators. D. Taylor. il diags Ind Electronics 1:717-19 N '63

Single-ended wide-range electrostatic tweeters with high efficiency and improved dynamic range. K. O. Johnson. il diags Audio Eng Soc J 12:204-9 Jl '64

Telstar-shaped electrostatic speaker. R. J. Matthys. bibliog il diags Audio 48:19-24+ My; 28-30+ Je '64

See also

Electric charges
Electric discharges

ELECTROTECHNICAL commission, International. See International electrotechnical commission

ELECTROTHERAPEUTICS

Apparatus

See also

Diathermy apparatus

ELEMENTARY education. See Education, Elementary

ELEMENTARY particles. See Particles, Elementary

ELEMENTS, Chemical. See Chemical elements

ELEVATORS

Automatic pallet elevator in warehouse. il Engineering 197:809 Je 12 '64

Electric elevator permits low roof lines. il Arch Rec 134:151 D '63

Elevatoring high-rise apartment buildings. G. R. Strakosch. diags Arch Rec 135:191-2+ Je '64

Hydraulic lift has separate thrust tube. diag Hydraulics & Pneumatics 16:37 N '63

Hydaulic lift installations. il diags Engineer 217:301-2 F 14 '64

See also

Hoisting machinery

Control

Express passenger lifts. il Engineering 198: 158-60 Jl 31 '64

ELLIPSE

Fowler Ellipsograph facilitates drawing perfect ellipses. il Mach 70:146-7 D '63

ELLIPSOID

Experimental study of the strength of standard flanged and dished and ellipsoidal heads convex to pressure. R. Bart. il diags A S M E Trans ser B 86:188-92 My '64

Ferromagnetic resonance relaxation, wide spin-wave coverage by ellipsoids. A. S. Risley and H. E. Bussey. J Ap Phys 35: 896-7 pt 2 Mr '64

Lift on an oscillating ellipsoid of revolution. M. Sevik. bibliog il diags AIAA J 2:646-51 Ap '64

Vertical water-exit and -entry of slender symmetric bodies. J. P. Moran. bibliog AIAA J 2:1480-2 Ag '64

ELLIPSOMETERS

Ellipsometer investigation of vapor adsorption on etched silicon. B. H. Claussen. bibliog Electrochem Soc J 111:646-52 Je '64

Ellipsometry; valuable tool in surface research. K. H. Zaininger and A. G. Revesz. diags RCA R 25:85-115 bibliog(p 112-15) Mr '64

Room temperature oxidation of iron at low pressures. J. Kruger and H. T. Yolken. bibliog il diag Corrosion 20:29-33 Ja '64

ELM

Diseases and pests

New fungicide fights Dutch elm disease. R. T. Tweit and others. il Chem & Eng N 42: 29 S 14 '64

EMBANKMENTS

Contractor processes half the fill for ten-million-cu-yd dam. il Eng N 172:28-30 Mr 26 '64

Designers and contractors outwit bad materials at Briones dam. il diag Eng N 172: 70-2+ F 13 '64

Foundation aspects of the Rainy Lake causeway. M. A. J. Matich and others. bibliog il plans diags Eng J 46:23-31 N '63; Discussion. 46:40 D '63

Oahe dam; geology, embankment, and cut slopes. D. K. Knight. bibliog il plans diags Am Soc C E Proc 89 [SM 2 no 3466]:99-125 Mr '63; Discussion. 89 [SM 6 no 3701]: 123-4 N '63; Reply. 90 [SM 3 no 3907]:165-7 My '64

Use of surcharges in highway construction. W. F. Kleiman. bibliog map diags Am Soc C E Proc 90 [SM 5 no 4048]:331-48 S '64

Wet fill and dry fill plague construction at Cheney dam. il Eng N 172:30-1 Ja 16 '64

See also

Causeways
Railroads—Earthwork

EMBASSY buildings

Great Britain plans new embassy in Rome. il diags Arch Rec 135:12-13 Mr '64

Johansen's honeycomb embassy opens. il plan Prog Arch 45:216-19 S '64

New work, a new style: sinewy drum for Dublin. il plans Arch Forum 121:144-7 Ag-S '64

Precast annular Embassy. il plans diags Prog Arch 45:155-63 F '64

U.S. plants embassy in auld sod. il Eng N 172:88 Ap 2 '64

EMBOSSING

Rotary embossing prepainted coil. H. Lewis. il Mod Metals 20:32+ Je '64

EMBOSSING (plastics)

Getting a new look with valley printing. M. Marlowe and M. W. Neitlich. il diags Mod Plastics 41:104-6+ Je '64

Plastics add an exciting new dimension. il diags Mod Plastics 41:90-3 My '64

EMBRITTLEMENT. See Brittleness

EMBRYOLOGY

See also

Metamorphosis

EMERALDS

Distinction between natural and synthetic emeralds. I. Sunagawa. il Am Mineralogist 49:785-92 My '64

EMERALDS, Artificial

Distinction between natural and synthetic emeralds. I. Sunagawa. il Am Mineralogist 49:785-92 My '64

EMERGENCY generator sets. See Electric generator sets

EMERGENCY lighting. See Electric lighting sets

EMETINE

Emetine for infection; abstract. P. Synek and V. Synek. Drug & Cosmetic Ind 95:119 Jl '64

EMINENT domain

Discovery process in highway land acquisition. S. Goldstein and others. Pub Roads 33:21-37 bibliog(p30-1) Je '64

Evaluation of partial taking of property for right-of-way. G. V. Broderick and F. I. Thiel. Pub Roads 33:38-44 Je '64

EMISSIVITY

Total emittance of animal integuments. R. C. Birkebak and others. diags A S M E Trans ser C 86:287-8 My '64

Total hemispherical emissivity of 20 per cent Cr:25 per cent Ni:Nb-stabilized steel. D. A. Howl and A. F. Davis. diags Iron & Steel Inst J 202:523-6 Je '64

EMPHYSEMA

Emphysema after low-level exposure to NO_2. G. Freeman and G. B. Haydon. il pl(p 117) Archives Environmental Health 8:125-8; Discussion. 129-31 Ja '63

Emphysema and. J. P. Wyatt and V. Fischer. bibliog il Ind Med 33:213-19 Ap '64

Studies in experimental emphysema. O. J. Balchum and others. bibliog Archives Environmental Health 8:132-8 Ja '64

EMPLOYEE morale. See Morale

EMPLOYEES

Employee security is a local issue. V. B. Day. Automation 11:150-1 Ap '64

See also

Absenteeism (labor)
Age and employment
Arbitration, Industrial
Building trades—Labor conditions
Chemical workers
Collective bargaining
Efficiency, Industrial
Employment systems
Foremen
Government employees
Handicapped
Hygiene, Industrial
Job satisfaction
Labor contracts
Labor turnover
Medical service, Industrial
Municipal employees
Payrolls
Physical examinations
Research workers
Steel workers
Suggestion systems
Supervisory workers
Trade secrets
Wages
Woman—Employment

also subdivision Employees under special subjects, e.g.

Atomic power plants
Electric utilities
Food factories
Hosiery mills
Hospitals
Hotels
Oil companies
Paper and pulp mills
Petroleum refineries
Rock products plants
Rubber factories
Sand and gravel plants
Sewage disposal plants
Waterworks

Opinion polls

How's your employee morale? E. J. Benge. il Textile Ind 128:61-5 Mr '64

Promotion

Climbing three ladders to success. R. O. Campbell. Oil & Gas J 62:58-9 N 2 '64

Engineering motivation: what do promotions depend on? Machine Design 36:151-2 Mr 26 '64

How Atlantic discovers and develops management talent. G. T. Kinney. Oil & Gas J 62:102-5+ Ap 27 '64

Rating

Management methods of inspection control. H. J. Jacobson. il Ind Quality Control 21:24-8 Jl '64

EMPLOYEES—Rating—*Continued*

Take a new look at performance appraisal. M. S. Kellogg. Hydrocarbon Process & Pet Refiner 43:247-50 S '64

See also

Supervsiory workers—Rating

Selection

See Employment systems

EMPLOYEES, Government. See Government employees

EMPLOYEES, Retirement of. See Retirement

EMPLOYEES, Training of

Boiler-turbine-generator simulator helps train operators. A. J. Schager. il Power Eng 68:40 My '64

Developing the desire and capacity for promotion; or training for advancement. P. C. Baldwin. Paper Ind 46:291-3 Jl '64

Distribution personnel improvement program at Indianapolis. R. L. Williams. Am Water Works Assn J 56:1105-10 S '64

Does programed learning really work? Elec World 161:31-4 Mr 30 '64

Evaluating and using programmed instruction. G. A. Keluche. il Electronic Ind 23:123-9 Jl '64

Granite City retrains for technology. il Steel 154:56-7 F 17 '64

How Conoco trains operators with PILOT. C. Weltge and H. Clement. Hydrocarbon Process & Pet Refiner 43:253-4+ S '64

How do you train personnel? A. Krapek. Heating-Piping 36:110 O '64

How the oil industry finds tomorrow's managers. G. T. Kinney. Oil & Gas J 62:96-8+ Je 15 '64

Improvement of work performance through a utility training program. G. C. Sopp. Am Water Works Assn J 56:1097-104 S '64

Keeping up-to-date. S. S. Dubin and H. L. Marlow. il Chem Eng Prog 60:26-8 S '64

Life-long learning, a means for overcoming obsolescence. D. S. Bushnell. Automation 11:264+ Ap '64

Lunch-hour seminars thwart technical obsolescence at Dow chemical co.'s Britton research laboratory. Chem Eng 71:232+ Je 8 '64

Management and the design engineer. General electric co. E. Freiburghouse. Mech Eng 86:26-8 Ap '64

Managing electrical maintenance: on-the-job training for learner electricians. L. LaValley. il Textile Ind 128:71-2+ F '64

Manufacturer training centers aid to better fleet maintenance; abstract. F. P. Plovick. S A E J 71:90 D '63

Monsanto engineers and managers return to classrooms. il Chem & Eng N 42:34-5 Ap 27 '64

New approach to foundry training. Foundry 91:192+ N '63

Nuclear know-how for Japanese users. il Engineering 197:468 Ap 3 '64

On-the-job training in water utilities; panel discussion. Am Water Works Assn J 56:378-86 Ap '64

Operator training and certification in Michigan. M. S. Richmond and D. M. Pierce. WPCF J 35:1529-34 D '63

Operators run simulated refinery for pre-startup experience. R. E. Lieber. il diags Control Eng 11:105-7 S '64

Paper machine training. L. C. Anderson. Paper Ind 46:490-3 S '64

Plan brings campus to company; Motorola, inc. L. J. Money. il Iron Age 194:94-6 Ag 27 '64

Plant and equipment maintenance; training personnel. Food Eng 35:74 D '63

Program trains operators for safe lift truck handling. D. G. Neill. diags Plant Eng 18:124-7 S '64

Programed instruction trims training time. Steel 154:28 Je 22 '64

Progress in programmed instruction. M. Van Auken. il Chem Eng 71:145-50 Ap 27 '64

Protective maintenance training course for electrical utilities. il Elec World 160:110-11 D 16 '63

Report of the committee on personnel advancement, 1963. WPCF J 36:217-39 F '64

Retraining for change. S. L. Wolfbein. Automation 11:104-6+ Ap '64

Rising crisis in skills. il Steel 155:38-66 S 7 '64 (reprints $2)

Shaping and controlling human behaviour in man-machine systems. L. C. Silvern. bibliog il diags Inst Mech Eng Proc 177 no 34:935-47 '63; Same. Naval Eng J 76:595-604 Ag '64; Discussion. Inst Mech Eng Proc 177 no 34:948-9; Reply. 949-50 '63

Some things we have learned about training. R. E. Lawton. Paper Ind 46:487-9 S '64

Suggested basic operator training course outline. WPCF J 36:1069-81, 1293-302 S-O '64 (to be cont)

Training for coater startup. E. A. Norris. Paper Ind 64:597-8 O '64

Training for job safety. E. A. Brand. il Am Gas Assn Mo 46:4-6+ S '64

Training in today's industrial economy. E. G. Fisk. Paper Ind 46:385-9 Ag '64

Training lifting operators; what's that load weigh? il diags Mod Materials Handling 19:38-9 Ag '64

Training maintenance manpower, a big problem. Power Eng 68:T22 Mr '64

Training program for instrument technicians. R. Tobi. Instruments & Control Systems 37:137-40 F '64

Training program for the glass container industry. il Glass Ind 45:407, 476-7+ Ag-S '64

Training programs are first step in getting the most from today's tools. J. S. Randall. Am Mach 108:71 Je 8 '64

Varieties of in-service training. J. N. Kraras. il Am Water Works Assn J 56:387-92 Ap '64

See also

Apprentices

Safety instructions and training

also subdivision Training under special subjects, e.g.

Coal miners

Foremen

Linemen

Petroleum workers

Railroads—Employees

Salesmen

Supervisory workers

Technical workers

Textile workers

Welders

EMPLOYEES as sales promoters

Non-sales employees get active in sales at Puget Sound P&L. Elec World 162:142 O 5 '64

EMPLOYEES benefit plans

Ever-expanding field of fringe benefits. E. W. Stearn. Rock Prod 66:73-4+ D '63

Pensions prod early retirement. il Chem & Eng N 42:34-6 My 11 '64

Why OCAW's goal is more fringe benefits. J. Knight. Oil & Gas J 62:66-7 F 17 '64

EMPLOYEES lunchrooms and cafeterias. See Lunchrooms and cafeterias, Employees

EMPLOYERS liability

Check points on employer-employee law. G. T. Medlock and R. D. Stevens. Pit & Quarry 56:106-8 N '63

Engineering law; a workman and his tools. E. Mitchell. Engineer 218:178 Jl 31 '64

Engineering law; when the employee is careless. E. Mitchell. Engineer 217:302-3 F 14 '64

Hazy relationship with contractor increases owner's liability. R. A. Brown. Heating-Piping 36:112 Mr '64

See also

Workmens compensation

EMPLOYMENT

Automation and employment. Am Mach 108:75 Je 8 '64

Employment; how jobs are being filled. Can Chem Process 47:31-2 N '63

Engineer hiring slacks off. Pet Management 36:173 S '64

Job generators should be encouraged. E. W. Leaver. Automation 11:80-1 Ap '64

Memo to engineers: better keep pace. Steel 155:25-6 Jl 13 '64

Our future and automation. S. Lenher. map Automation 11:174-6+ Ap '64

Two viewpoints on employment trends. I. T. Ellis; R. L. Martino. Chem Eng 71:197-9 O 12 '64

What employment statistics show. E. Clague. Automation 11:48-9+ Ap '64

See also

Age and employment

Discrimination in employment

Handicapped

Negroes—Employment

Payrolls

Unemployment

EMPLOYMENT agencies

Engineering employment service modernized. Civil Eng 34:46-7 Jl '64

Engineering societies personnel service modernized. Mech Eng 86:82 S '64

EMPLOYMENT contracts. See Labor contracts

EMPLOYMENT management

Are your workers out of date? W. Jenness. il Mill & Factory 74:72-4 Ap '64

EMPLOYMENT management—*Continued*

Art of delegating responsibility. G. H. Rand. Paper Ind 46:295-6 Jl '64

Criticism; how to give it. Mod Materials Handling 19:89-90 Ap '64

Dealing out discipline. J. W. Whittlesey. Chem Eng 71:160+ My 25 '64

Don't shoot the foreman. Engineering 198: 191 Ag 14 '64

Effectiveness, not just efficiency. Am Gas Assn Mo 45:29-30 N '63

Eleven ways to waste engineering talent. R. G. Murdick. Machine Design 36:188-92 Ap 23 '64

Employe attitudes; a supervisory barometer. M. Brown. Hydrocarbon Process & Pet Refiner 43:147-8+ F '64

Employment qualifications for custodial personnel. A. DePastino. Safety Maint 127:54-6 Je '64

Exchange ideas by being on the level. R. B. Morton. Hydrocarbon Process & Pet Refiner 43:109-111 Ag '64

Good manager manages men. T. H. Lawrence. Pet Management 36:102-5 S '64

Holding professionals takes understanding. R. R. Kay. il Iron Age 192:56 N 21 '63

How to motivate employees. A. E. Finnessy. Safety Maint 126:58-60+ D '63

How to squelch intraplant politicking. H. Popper. Chem Eng 71:118+ Mr 30 '64

How's your employee morale? E. J. Benge. il Textile Ind 128:61-5 Mr '64

Human factors and plant innovations. L. Lindquist and J. Ganschow. Chem Eng 71: 156+ Je 22 '64

Keep good guys in your company saddle. R. A. Clifford. Hydrocarbon Process & Pet Refiner 43:105-8 Ag '64

Management for engineers. E. J. Tangerman. Product Eng 35:116 My 25; 79 Je 8; 122 Je 22 '64

Personnel manager's role. J. M. Bridges. Chem & Ind p392-4 Mr 7 '64

Personnel practices in textiles. H. E. Steele. Textile World 114:64-70 Mr '64

Psychological side of management. H. W. Morgan. Paper Ind 46:294-5 Jl '64

Recreation; key to good employee relations. il Textile World 114:56-9 O '64

Sports for employees; is the cost justifiable? Rubber Age 95:94 Ap '64

Telling the truth to engineers. R. A. Labine. Chem Eng 71:103-4+ Ja 6 '64

Use depth perception in employe relations. A. N. Smith. Hydrocarbon Process & Pet Refiner 43:171-2+ Jl '64

Why do engineers quit their jobs? B. Schauerte. Hydrocarbon Process & Pet Refiner 43:191-4 O '64

You can keep 'em on the payroll. M. E. Lynch and C. B. Lepak. Hydrocarbon Process & Pet Refiner 43:185-8+ O '64

See also

Absenteeism (labor)
Bonus system
Building trades—Labor conditions
Communication in management
Efficiency, Industrial
Employees
Employees, Training of
Employees benefit plans
Factory management
Foremen
Government employees
Hygiene, Industrial
Industrial management
Industrial relations
Job satisfaction
Labor turnover
Leadership
Medical service, Industrial
Music in industry
Organization in industry
Psychology, Industrial
Safety devices and measures
Suggestion systems
Time keeping
Time study

Interviewing

Engineering motivation: performance-appraisal interview. Machine Design 36:112-14 Ap 9 '64

EMPLOYMENT of women. See Woman—Employment

EMPLOYMENT stability

See also

Labor turnover

EMPLOYMENT systems

Are your workers out of date? W. Jenness. il Mill & Factory 74:72-4 Ap '64

Do you need employment contract? R. A. Labine. Chem Eng 71:214+ S 14 '64

Employment of the handicapped; placement. T. Gucker, 3d. Archives Environmental Health 9:104-6 Jl '64

Equity and employment contracts. A. S. Davis, jr. Chem Eng 71:148+ Je 22 '64

Here's an effective way to recruit and train power engineers. L. Dwon. Power Eng 68: 49-52 S; 53-5 O '64

How to find that better job. D. E. Kaldenberg. Chem Eng 70:190+ D 9 '63

Methods of personnel recruitment and selection. R. J. McLeod. Am Water Works Assn J 56:1111-16 S '64

Perspective, inc. finds the right man for a company and the right company for a man. Product Eng 35:52 Ja 20 '64

Students and companies profit from summer job programs. J. S. Strong. il Chem & Eng N 42:88-92 Ja 27 '64

Two old-time ideas head list of ways to recruit new men. I S A J 10:27 O '63

See also

Employment agencies
Handicapped
Labor turnover
Physical examinations

Advertising aids

Chemists seek descriptive information from recruitment advertisements. Chem & Eng N 41:31 D 16 '63

Job hunting made easy. il Chem Eng Prog 60:18-19 Ag '64

What should a technical recruitment ad say? Chem Eng Prog 60:29 F '64

Interviews

Campus recruiting. R. N. Stapleton; F. Coss. Chem Eng 71:106-8 Mr 30; 202+ Ap 13 '64

Engineer examines recruiting practices. Illum Eng 58:674-5 N '63

Getting or changing a job demands planning. G. R. Baker. il Chem & Eng N 42:64-70 Ja 27 '64

How to conduct your next interview. D. E. Kaldenberg. Hydrocarbon Process & Pet Refiner 43:136+ Ja '64

EMULSIFIERS

Classification of emulsifiers. G. Carriere. Am Perfumer 79:27-31+ Mr '64

Conjoined crystals. N. H. Kuhrt and others. Am Oil Chem Soc J 40:725-33 D '63

Developments in cosmetic emulsifiers; Crodafos. Manuf Chem 35:46-8 Jl '64

Emulsifiable pesticide concentrates. K. L. Johnson. il Soap & Chem Spec 40:93-6+ S '64

Enhances process cheese; flavorless phosphate emulsifier. Food Eng 36:104 F '64

Stearyl monoglyceridyl citrate as an emulsifier enhancer. J. J. Geminder. Am Oil Chem Soc J 41:92-4 F '64

Study of the activity on the skin of sugar esters, sucroglycerides and derivatives when used as detergents and emulsifiers in cosmetics. L. Nobile and others. bibliog Am Perfumer 79:19-28 Jl '64

EMULSIONS

Autoxidation of fatty materials in emulsions. D. H. Saunders and others. bibliog Am Oil Chem Soc J 39:434-9; 41:347-51 O '62, My '64

Chromatographically homogeneous egg lecithin as stabilizer of emulsions for intravenous nutrition. H. J. Zeringue and others. bibliog Am Oil Chem Soc J 41:688-91 O '64

Crystallization of emulsified triglycerides. W. Skoda and M. Van den Tempel. bibliog J Colloid Sci 18:568-84 Ag '63

Determination of hydrophile-lipophile balance by gas-liquid chromatography. P. Becher and R. L. Birkmeier. bibliog flow diag diag Am Oil Chem Soc J 41:169-72 Mr '64

Effect of electrolytes on the ultracentrifugal stability of emulsions. R. D. Vold and R. C. Groot. bibliog J Colloid Sci 19:384-98 Ap '64

Emulsifiable and fire resistant rust preventives. V. Y. S. Hong and D. Bootzin. bibliog il Lub Eng 20:9-15 Ja '64

Fat-emulsifying properties of prerigor and postrigor pork proteins. J. C. Trautman. Food Tech 18:1065-6 Jl '64

Flavor studies of solidified water-in-milk fat emulsions. J. B. Mickle and others. bibliog Food Tech 18:1483-5 S '64

Long-term tolerance study of two fat emulsions for intravenous nutrition in dogs. B. Edgren and others. bibliog il Am J Clinical Nutrition 14:28-36 Ja '64

Novel process for making polyethylene polish emulsions. il diag Soap & Chem Spec 40: 167+ Ap '64

EMULSIONS—*Continued*

Particle-size analyzer for emulsion photomicrographs. P. Becher. diags J Colloid Sci 19:468-72 Je '64

Particle size measurement in heterodisperse emulsions using depolarization measurements. W. W. Graessley and J. H. Zufall. bibliog J Colloid Sci 19:516-24 Ag '64

Quick-cool emulsions. Drug & Cosmetic Ind 94:759-60 My '64

Rheology of emulsions and suspensions. J. G. Oldroyd. bibliog Am Perfumer 79:85-7 Je '64

Size reduction of emulsion globules by steam injection. V. A. Jones and others. bibliog diags Food Tech 18:1463-6 S '64

Soil stabilization; Coherex. F. S. Rostler and W. M. Kunkel, jr. bibliog il diags Ind & Eng Chem 56:27-33 Ap '64

Ultrasonic emulsification. W. W. McCarthy. il Drug & Cosmetic Ind 94:821-4+ Je '64

Water emulsion paint; coalescence. N. Gaynes. Ind Finishing 40:106-8 D '63

See also

Emulsifiers

Latex

EMULSIONS, Photographic. See Photographic emulsions

ENAMEL and enameling

Architect's choice; gold decorated porcelain enamel. F. Gibson. il Cer Ind 83:41-3 Ag '64

Ceramic labels; a designers view. W. Joachim. Glass Ind 45:20-3 Ja '64

Crystallization characteristics of lead molybdate in low-temperature enamels. R. B. Amin and R. L. Cook. il Am Cer Soc Bul 42:703-7 N '63

Decorated beverage bottles. R. A. Hennings. diag Glass Ind 45:289-92+ Je '64

Gloss of baked alkyd urea-formaldehyde finishes pigmented with titanium dioxide. M. B. Alpert and others. bibliog il diag Ind & Eng Chem Product Res & Develop 2:264-9 D '63

How to design steel parts for porcelain enameling. R. S. Sheldon. diags Cer Ind 84:59-61 Jl '64

Lacquer or enamel, which finish to use. K. Schreiber. Ind Finishing 40:52-4 S '64

Porcelain enamel for heat exchange surfaces. H. W. Huffcut. il Am Cer Soc Bul 43: 128-310 F '64

Properties of materials; porcelain enamels. Materials in Design Eng 60:400-1 Mid-O '64

Smiths new plant for metal finishing. il Engineering 197:476-7 Ap 3 '64

Thin porcelain enamel coatings. B. W. King and D. J. Bowers. il Am Cer Soc Bul 43: 390-1 My '64

Versatile oven bakes enamel. W. L. Thomson. il Am Mach 108:84-5 S 28 '64

See also

Ceramic coating

Sheet metal, Enameled

Adherence

Relation between molecular force calculations and observed strengths of enamel-metal interfaces. W. J. O'Brien and G. Ryge. bibliog il diags Am Cer Soc J 47:5-8 Ja '64

Testing

Effect of corrosion on the appearance of colored enamels. A. C. Bersticker and B. J. Sweo. bibliog il diags Am Cer Soc Bul 43:191-2+ Mr '64

Porcelain enamel; seven-year test findings. Product Eng 35:44-5 S 28 '64

Weather testing proves long life for aluminum porcelain enamel. A. L. Sopp, jr. il Cer Ind 83:80-3 S '64

ENAMELED sheet metal. See Sheet metal, Enameled

ENAMINES. See Amines

ENARGITE

Enargite in the zinc-lead deposits of the upper Mississippi Valley district. A. V. Heyl. diags Am Mineralogist 49:1458-61 S '64

ENCEPHALITIS, Epidemic

Houston continues spraying to control encephalitis epidemic. Chem & Eng N 42:30 S 7 '64

ENCYCLOPEDIAS

See also

Physics—Dictionaries and encyclopedias

ENDOCRINOLOGY

See also

Gonadotropin

ENDOSCOPE and endoscopy

Endoscopic photography using fiber optics. B. I. Hirschowitz. il diag SMPTE J 73:625-6 Ag '64

Small inspection endoscopes. il Engineer 217: 706 Ap 17 '64

ENDRIN

Pollution conference blames endrin for fish kills. Chem & Eng N 42:28 My 18 '64

USPHS insists endrin is fish killer. Chem & Eng N 42:25-6 Jl 6 '64

Velsicol denies endrin caused fish kill. Chem & Eng N 42:28-9 Ag 10 '64

ENERGY. See Force and energy

ENETRON. See Vacuum tubes

ENGINE rooms. See Ships—Engine rooms

ENGINEER (periodical)

Engineer index 1856-1959. C. E. Prockter, comp. Engineer 217:273 F 7 '64

ENGINEERING

Achievement, 1963; pictorial survey. Engineer 217:17-48, 81-104 Ja 3-10 '64

Challenge of personal professional development. C. M. Sinnett. Res/Develop 15:37 N '64

Challenge to engineering. G. L. Haller. Automation 11:46+ O '64

Creativity in engineering and science. A. H. Nissan. Tappi 47:sup34A+ Je '64

Design and the engineer. Q. Hogg. Chem & Ind p508 Mr 21 '64

Designers and management. H. N. G. Allen. Engineer 217:473 Mr 13 '64

Engineering; a changing profession. Chem Eng Prog 60:22 Ja '64

Engineering and the industry's future. W. F. Gillespie. Tappi 47:sup32A+ Ja '64

Engineering problems in space research. H. Massey. diags Inst Mech Eng Proc 177: 1125-32, pl 1-3 '63

Engineering works go on show as modern art. il Eng N 173:28-9 Jl 23 '64

Essays on engineering. G. C. Lammers. Hydrocarbon Process & Pet Refiner 43:258-9 S; 197-8 O; 235-6 N '64

How to check consistency in values for physical properties. S. F. Borg. il Machine Design 36:113-14 Jl 30 '64

Implementing the Feilden report on engineering design. Engineer 217:429 Mr 6 '64

Just a detail. bibliog il diags Engineer 217: 435-7, 477-9, 524-5, 576-7, 615-16, 658-9, 700-1, 746-8, 786-7, 827-8, 866-8, 903-5, 957-8, 998-9, 1036-7, 1071-4, 1141-3; 218:6-9, 62-4, 104-6, 135-7, 182-4, 217-19, 246-8, 275-7, 328-9, 372-3, 407-10, 451-2, 511-13, 546-7, 584-6 Mr 6-O 9 '64

Mathematics and the engineer. R. B. McTernan. Engineer 218:374-5 S 4 '64

Mathematics as an educational discipline for the engineer. P. L. Taylor. diags Inst E E Proc 110:775-84 Ap '63; Discussion. 110:2300-4 D '63

Obsolescent engineer. W. G. Torpey. Mech Eng 85:28-9 O, 84 D '63

Partial agreement on corporate practice, but no approval for model law this year. Eng N 173:26 Ag 27 '64

Professional responsibility of engineering. R. B. Smith. Mech Eng 86:18-20 Ja '64; Discussion. M. B. Richardson. 86:79 Je '64

Science ain't everything. W. R. Marshall, jr. il Chem Eng Prog 60:17-21 Ja '64

Selling U.S. engineering abroad. Eng N 173: 27-8 O 1 '64

Strain gage readings; measurement engineering. P. K. Stein. il diags Instruments & Control Systems 37:133-7 Ap '64

Surveying and mapping, and environmental engineering. W. T. Pryor. il Am Soc C E Proc 90 [SU 2 no 3961]:1-15 Jl '64

20th century engineering; where is the architect? il Prog Arch 45:61 Ag '64

What's where in the Pacific Northwest. il map Civil Eng 34:44-6 Ag '64

See also

Aeronautic engineering

Airports

Architecture

Automobile engineering

Biomedical egineering

Blasting

Chemical engineering

Civil engineering

County engineering

Curves

Dams

Drilling and boring (earth and rocks)

Electric engineering

Engineers

Grouting

Highway engineering

Lighting

Lighting engineering

Marine engineering

Mechanical engineering

Mining engineering

Nuclear engineering

Petroleum engineering

Plastics engineering

Pumping

ENGINEERING—See also—*Continued*
Railroad engineering
Reservoirs
Safety engineering
Standards, Engineering
Steam engineering
Surveying
Technology
Telephone
Tunnels and tunneling
Water supply engineering

Bibliography

Abstracts. Eng J 47:44-60 Mr '64
Design literature. Published in bi-weekly numbers of Product engineering
Engineer's library. Published in bi-weekly numbers of Machine design
New books for the plant engineer. Published in monthly numbers of Plant engineering
New engineering books (cont). Power Eng 67:72 D '63; 68:60-1 Ja; 84-6 F; 86+ Ap; 76+ Je; 75-7 Jl; 99 Ag; 88+ S; 83-7 O '64
Notes on books received in Engineering societies library. Published in monthly numbers of Mechanical engineering
Review of books (cont). il Engineer 216:638-40, 812-15, 1026-9; 217:130-3, 344-7, 508-11, 694-7, 898-901, 1075-9; 218:99-103, 278-82, 448-50 O 18, N 15, D 20 '63, Ja 17, F 21, Mr 20, Ap 17, My 22, Je 19, Jl 17, Ag 21, S 18 '64
Selected abstracts of publications of the National bureau of standards (cont). bibliog J Res Nat Bur Stand 67C:353-9; 68C:61-72, 125-34, 183-93 O '63-Jl '64
See also
Engineering index

History

Centenaries in engineering. il Engineering 197:4-5 Ja 3 '64

Some new light on Matthew Boulton. R. A. Pelham. il diag Engineer 217:503-5 Mr 20 '64

Political aspects

Engineers' voice in government urged. Elec World 161:17 F 3 '64

Social aspects

Engineer and the unfolding world. R. R. Pattinson. Inst E E Proc 111:615-16 Mr '64

Engineering vs. science; a philosophy engineers can use. Elec World 162:197-200 S 21 '64

Hour of destiny for engineering. N. D. Lea. Civil Eng 33:70-1 N '63

Modern engineering and society. J. H. Hollomon. Chem & Eng N 42:66-71 Je 29 '64

Philosophy of Herbert Hoover. J Pet Tech 16:12-14 Ja '64

Role of invention in organized society. E. H. Land. Product Eng 35:60-2 Mr 2 '64

Using engineering to enslave you. A. J. Ackerman. bibliog Civil Eng 34:67-70 Jl '64

Your obligation to society. E. A. Walker. Chem Eng 71:170+ Mr 16 '64

Study and teaching

Case of the missing curriculum. K. S. Curtis. Am Soc C E Proc 90 [SU 2 no 3963]: 27-48 bibliog(p45-8) Jl '64

Illinois and Colorado form engineering co-op. Chem & Eng N 42:47-8 Je 22 '64

Reflections on the teaching of engineering at a university. J. Kestin. Am Scientist 51:437-45 D '63

Taking engineering into the schools. il Engineering 198:108-9 Jl 24 '64
See also
Engineering education
Engineering teachers
also subdivision **Study and teaching** under special subjects, e.g.
Aeronautic engineering
Civil engineering
Electric engineering
Industrial engineering
Mechanical engineering
Mineral engineering
Tool engineering

Tables, calculations, etc.

Engineering derivation of the Navier-Stokes equations. H. A. Einstein. diags Am Soc C E Proc 89 [EM 3 no 3533]:1-7 Je '63; Discussion. 89 [EM 4 no 3616]:99-102 Ag; [EM 5 no 3687]:105-6 O '63; 90 [EM 1 no 3811]: 163-6 F '64; Reply. 90 [EM 4 no 4000]:151-5 Ag '64

Estimate design engineering costs. H. C. Bauman. Hydrocarbon Process & Pet Refiner 43:141-4 O '64

Numerical analysis. S. Kravitz. Product Eng 35:105-7 My 11; 139-42 My 25; 123-5 Je 8; 162-4 Je 22; 107-9 Jl 6 '64
Optimization of engineering problems. C. Zener and R. Duffin. diag Westinghouse Eng 24:154-60 S '64
Predicting the final, steady state of a system. J. A. Curtis. Product Eng 35:171-2 O 26 '64
Table for finding the distance from radius center of centroids of circular segments. W. L. Olsasky, comp. diag Product Eng 35: 139 My 25 '64
See also
Hydraulics—Tables, calculations, etc.

Terminology

Engineered English; why communications fail. W. C. Busby. Product Eng 35:67 My 11 '64
Locating engineering literature; EJC's Thesaurus of engineering terms. R. A. Jacobson. Machine Design 36:152-8 Je 18 '64

Canada

Crisis in industrial research in Canada. D. M. Myers and F. Noakes. Eng J 47:37-40 Je '64; Discussion. P. H. Jones. 47:64+ O '64

Czechoslovakia

Czechoslovak journey. il Engineer 217:412-14, 454-5, 495-6 F 28-Mr 13 '64

France

World of design; France. R. M. Koff. il diags Product Eng 35:88-95 O 12 '64

Great Britain

At the top of the engineering employers. Engineering 197:736 My 29 '64
Changing role of the consulting engineer. Engineering 197:243 F 14 '64
Developments in the British large marine Diesel engine during the past decade. P. Jackson. il diags Inst Mech Eng Proc 177 no 33:897-919; Discussion. 919-28; Reply. 928-34 '63
Engineers and television. P. J. Wallace. Engineer 218:309-10 Ag 28 '64
Engineers at the cross-roads. H. G. Conway. bibliog Engineering 198:266-8 Ag 28 '64
Engineers' incomes. Engineer 216:770-1 N 8 '63
Institution of mechanical engineers conference on education for design, Oct. 16-17. Engineer 216:722 N 1 '63
Institution of mechanical engineers discusses the Feilden committee's report on mechanical engineering design. Engineering 196: 514-15 O 25 '63
Mechanical engineering's little Needy; National economic development council. R. Shone. Engineering 196:739 D 13 '63
News in pictures. Engineer 217:141, 183, 240, 283, 316, 354, 404, 444, 484, 528, 581, 621, 665, 705, 761, 796, 832, 873, 909, 962, 1003, 1042, 1097, 1162; 218:27, 67, 108, 141, 188, 222, 251, 286, 337, 381, 420-1, 459, 517, 556-7, 590 Ja 17-My 22, Je 26-O 9 '64
Round Britain display of good design. il Engineering 197:340 Mr 6 '64
Science, research and development under Mr Hogg. Engineering 197:242 F 14 '64
Scientific and technological manpower in Great Britain. W. Jackson. Engineer 216: 908-9 N 29 '63
Some new light on Matthew Boulton. R. A. Pelham. il diag Engineer 217:503-5 Mr 20 '64
Two cultures in engineering design; art and science. R. H. Evans and W. Houghton-Evans. il Engineering 197:373 Mr 13 '64

Why are salaries higher for engineers? Engineering 196:579 N 8 '63

World of design; Britain, typically understood. R. M. Koff. il Product Eng 35:63-71 Ag 17 '64

India

Indian engineering association activities. Engineer 217:192 Ja 24 '64

Indian engineering news (cont). Engineer 216: 827, 867, 964; 217:289, 325 N 15-22, D 6 '63, F 7-14 '64

Italy

World of design; Italy; much more than style. R. M. Koff. il Product Eng 35:88-95 S 14 '64

Japan

Japan, a quiet explosion. il Product Eng 35:57-9 Ja 20 '64

Pakistan

Equipment superintendent, Jack Keller, Mangla dam contractors, West Pakistan. il Diesel Equip Supt 42:18-21 Ag '64

ENGINEERING—Pakistan—*Continued*

Fighting dust at Mangla project, West Pakistan. il Diesel Equip Supt 42:22-3 Ag '64

Russia

Engineer in society; what makes Ivan run? Machine Design 35:115-18 D 5 '63

World of design; Russia revisited. E. J. Tangerman. il Product Eng 35:73-5 F 17 '64

ENGINEERING, Biomedical. See Biomedical engineering

ENGINEERING colleges

Bristol aeroplane technical college under industry's wing. il Engineering 197:754-5 Je 5 '64

CAT's; quo vadis? il Engineering 198:320-1 S 11 '64

College grades can predict salary progress. A. Roe and others. bibliog Chem Eng 71: 230+ N 9 '64

Colleges of advanced technology. G. N. Patchett. Inst E E Proc 110:2305-8 D '63

Fifty engineering schools employed most academic r&d scientists and engineers. Chem & Eng N 41:46 D 2 '63

Further education staff college, Blagdon, Somerset. il Engineering 197:44-5 Ja 10 '64

In pursuit of sandwiched learning; Northampton CAT. il Engineering 197:697-701 My 22 '64

Manchester college of science and technology. R. H. Peters; T. K Ross. il Chem & Ind p 1089-94 Je 27 '64

Teaching aircraft design in the post-graduate course at the College of aeronautics, Cranfield. A. F. Newell and D. Howe. il diags Aircraft Eng 36:330-2 O '64

Where the best students are engineers; Institute of technology at Helsinki. il Engineering 198:418-19 O 2 '64

Curriculum

Educating engineers; some practical considerations. H. P. Rodes. diag Tool & Manuf Eng 53:45-7 Jl '64

Engineering education at a crossroad. J. W. Rittenhouse. bibliog IEEE Trans Power Apparatus & Systems 83:817-21; Discussion. 821-6 Ag '64

Forces influencing engineering education from power. L. Dwon. bibliog IEEE Trans Power Apparatus & Systems 83:826-37 Ag '64; Same. Combustion 35:28-30 Ap '64; Discussion. IEEE Trans Power Apparatus & Systems 83:837-52; Reply. 852-5 Ag '64

Lowell Tech's paper engineering program. H. H. Reynolds and N. H. Keeney. il Tappi 47:sup29A+ S '64

Project lab proves out at MIT. Chem & Eng N 42:43-4 Jl 20 '64

Role of surveying in civil engineering education. M. O. Schmidt. Am Soc C E Proc 89 [SU 1 no 3420]:27-33 F '63; Discussion. 89 [SU 2 no 3563]:95-6 Je; [SU 3 no 3684]: 185-9 O '63; Reply. 90 [SU 1 no 3885]:65-6 Ap '64

Enrollment

Engineer enrollments may start climb. Oil & Gas J 61:66 D 16 '63

Engineering enrollments and degrees. Tappi 47:sup 118A-19A F '64

Study plots course of engineer needs. Pet Management 36:84-5 Mr '64

Graduate work

AEC facility taking part in graduate program. il Chem & Eng N 42:46 F 3 '64

Graduate school lures engineering students. Chem Eng 71:106 Ja 6 '64

Relations with industry

Phillips tries to educate the educator. il Oil & Gas J 62:34-5 Je 1 '64

See also

Engineering education—Industry cooperation

ENGINEERING contracts

Engineering law; torts and contracts. E. Mitchell. Engineer 218:214 Ag 7 '64

Single or multiple contracts? M. J. Horsch. Air Cond Heat & Ven 61:85-6 O '64

What engineers should know about contracts. J. J. Steinke. Chem Eng 71:137-40 Ja 20; 139-44 F 17 '64

See also

Roads—Contracts

ENGINEERING departments

Management view of the plant engineer. R. J. Quirk. Plant Eng 18:147 Ap '64

Plant engineer's log. J. R. Latham. Published in monthly numbers of Plant engineering

Revolving sleeve keeps schedule board current; Automatic machinery engineering section at Colgate-Palmolive co. il diag Plant Eng 18:136-7 Je '64

Which is for you; big plant or little plant? Product Eng 35:73-80 S 14 '64

See also

Industrial engineering

ENGINEERING drawing. See Drafting room practice

ENGINEERING drawings

Classifying 250,000 drawings by the Brisch system. W. J. Hallett. diags Machine Design 36:140-4 F 13 '64

Computer turns talents to piping drawings. diag Oil & Gas J 62:144 My 18 '64

Engineering drawing by a psychologist. J. Spencer. Engineering 196:665 N 22 '63

Engineering drawings in a hurry. H. R. Preiss. il Pub Works 95:120-1 S '64

Half-size prints. il Mech Eng 86:66 Mr '64

Instruction in electronic drawing for students of radio and electronic engineering at professional level. bibliog Radio & Electronic Eng 28:198-200 S '64

IBM ties computer to drawings. il Eng N 173:22 N 5 '64

Modified numerals for engineering drafting; Aperture card systems. W. C. Cadwell. il Automotive Ind 131:86 O 15 '64

Ozalid diazo printing machines. il diag Engineering 196:754-5 D 13 '63

ENGINEERING economics

Economics of process selection in the iron and steel industry. M. D. J. Brisby and others. bibliog flow diags diags Iron & Steel Inst J 202:721-9; Discussion. 729-34 S '64

Estimate design engineering costs. H. C. Bauman. Hydrocarbon Process & Pet Refiner 43:141-4 O '64

Financial concepts for economic studies. P. H. Jeynes and C. J. Baldwin. Westinghouse Eng 24:8-14 Ja '64

Free engineering; why does it cost so much? Power 108:66-7 Mr '64

Methods of economic comparisons. P. H. Jeynes and C. J. Baldwin. flow chart Westinghouse Eng 24:122-8 Jl '64

Training engineers in cost-cutting techniques. L. K. Singer. Electronic Ind 23:156-7+ My '64

ENGINEERING education

Anti-obsolescence programs. Machine Design 36:159 Je 18 '64

Appreciation of design. D. H. Chaddock. Engineering 197:182 Ja 31 '64

Back to the classrooms. I S A J 11:30-2+ Jl '64

Case history; AIME section attacks continuing education problem. R. W. Taylor. J Metals 16:846 O '64

Civil engineering education. W. H. Wisely. Civil Eng 34:37 O '64

Civil engineering professor quits teaching after 27 years, protests trend. Eng N 173: 14-15 Jl 30 '64

Closed circuit Ph.D.s. Electronics 37:30 Ag 24 '64

Continuing education; a professional imperative. R. M. Green. Am Soc C E Proc 89 [PP 1 no 3403]:93-8 Ja '63; Discussion. 90 [PP 1 no 3776]:57-61 Ja '64; Reply. [PP 2 no 3910]:63 My '64

Continuing education ultimately up to individual. P. Kyropoulos. S A E J 72:53-5 Je '64

Corrosion, a problem in engineering education. M. E. Holmberg. Naval Eng J 76: 285-7 Ap '64

Creativity can be taught. P. H. Hill. il Machine Design 36:132-5 Ag 27 '64

Dangerous trend in engineering education. J. K. Finche. Civil Eng 34:64 Ap '64

Educating engineers; some practical considerations. H. P. Rodes. diag Tool & Manuf Eng 53:45-7 Jl '64

Educating tomorrow's engineers. A. C. Ingersoll. Mech Eng 85:20-1 D '63

Education for future engineering. R. Schuhmann, jr. il J Metals 15:935-8 D '63

Education for industry. H. P. Rodes. Mech Eng 86:26-8 S '64

Educational opportunity and engineering obsolescence. M. A. Williamson. Res/Develop 15:15-16 S '64

Effect of the space age on the engineering profession. R. W. Johnson. Am Soc C E Proc 90 [PP 1 no 3747]:1-7 Ja '64

Engineering education and accreditation. W. P. Kimball. J Pet Tech 16:265-8 Mr '64

Engineering education at a crossroad. J. W. Rittenhouse. bibliog IEEE Trans Power Apparatus & Systems 83:817-21; Discussion. 821-6 Ag '64

Engineering is . . . R. B. Smith. Mech Eng 86:44-6 My '64; Discussion S. I. Freedman. 86:86-7 Jl '64

Engineering obsolescence curbed by continuing education programs. I S A J 11: 45+ S '64

ENGINEERING education—*Continued*
Engineers go to grad school on tv. map Eng N 173:34 O 1 '64
Engineers lost for words? A. J. Kirkman. Engineer 217:889 My 22 '64; Discussion. D. L. Reeves. 218:800 N 13 '64
Forces influencing engineering education from power. L. Dwon. bibliog IEEE Trans Power Apparatus & Systems 83:826-37 Ag '64; Same. Combustion 35:28-30 Ap '64; Discussion. IEEE Trans Power Apparatus & Systems 83:837-52; Reply. 852-5 Ag '64
How to spark civil engineering; new enthusiasm at M.I.T. C. L. Miller. Eng N 172:54-6 F 13 '64
Institution of mechanical engineers conference on the practice of and education for engineering design; proceedings. Inst Mech Eng Proc 178 pt 3B:6-64 '63-64
Interdisciplinary education for urban planning. H. L. Michael. Am Soc C E Proc 90 [PP 1 no 3751]:29-33 Ja '64; Discussion. J. M. Abernathey. 90 [PP 2 no 3910]:67-8 My '64
Interview with Professor S. Timoshenko. E. M'Ewen. Naval Eng J 76:185-9 Ap '64
Keeping up-to-date. S. S. Dubin and H. L. Marlow. il Chem Eng Prog 60:26-8 S '64
Meeting the challenge of change through engineering education. W. R. Bruce. Tool & Manuf Eng 52:81-3 Ap '64
Modern engineering and society. J. H. Hollomon. Chem & Eng N 42:66-71 Je 29 '64
Next generation departs from tradition. Product Eng 35:56-7 Ja 6 '64
Objectives in continuing education for the engineer. D. S. Scott. bibliog Eng J 47:31-4 S '64
Open letter on high-speed photography and education. J. H. Waddell. Res/Develop 14:43-4 N '63
Practicing engineer; his thoughts on continuing education to avoid obsolescence. Mech Eng 86:94 Mr '64
Professional development, the student's responsibility. J. R. Wright. Am Soc C E Proc 90 [PP 1 no 3748]:9-13 Ja '64
Research and industrial health. E. Keller. Ind & Eng Chem 56:12+ F '64
Resurgence of interest in engineering design. C. J. Freund. Product Eng 34:78-9 D 9 '63
Teaching the realities of engineering. il Chem Eng 71:106+ F 3 '64
Technical literature in continued education. R. J. Schwarz. IEEE Proc 52:755 Jl '64
U.S. engineers with business qualifications earn ten per cent more. Engineering 197:663 My 15 '64
See also
Engineering colleges—Curriculum
Engineering students
Engineers council for professional development
Metallurgical education
Technical education
also subdivision Study and teaching under special subjects, e.g.
Aeronautic engineering
Chemical engineering
Civil engineering
Electric engineering
Mechanical engineering
Mineral engineering
Mining engineering
Petroleum engineering

Cooperative plan

Cooperative education; this work-study program can provide excellent training for the student engineer. il Mech Eng 86:88-9 Je '64

Industry cooperation

Bristol aeroplane technical college under industry's wing. il Engineering 197:754-5 Je 5 '64
Ceramic engineering manpower crisis; role of an industrial fellowship program. R. Russell, jr. Am Cer Soc Bul 43:410-12 My '64
Education for industry. H. P. Rodes. Mech Eng 86:26-8 S '64
Here's an effective way to recruit and train power engineers. L. Dwon. Power Eng 68:49-52 S; 53-5 O '64
In pursuit of sandwiched learning; Northampton CAT. il Engineering 197:697-701 My 22 '64
Monsanto engineers and managers return to classrooms. il Chem & Eng N 42:34-5 Ap 27 '64
Operatives and craftsmen; a stocktaking. Engineering 197:818 Je 19 '64
Real engineering situations needed on campus. S A E J 72:55 S '64
Technical obsolescence; attitudes on education. Machine Design 36:124-7 Jl 16 '64
Work-study program in mining engineering education. D. Piper. Min Cong J 50:60-2 Ag '64
You say I'm technically obsolescent; how do I update? E. J. Tangerman. Product Eng 35:76-9 Ag 31 '64
See also
International association for the exchange of students for technical experience

Canada

What should engineers be taught? C. P. Bennett. Eng J 47:52-3 Ag '64

Finland

Where the best students are engineers; Institute of technology at Helsinki. il Engineering 198:418-19 O 2 '64

Great Britain

CAT's; quo vadis? il Engineering 198:320-1 S 11 '64
Colleges of advanced technology. G. N. Patchett. Inst E E Proc 110:2305-8 D '63
Design conference that was different. P. J. Wallace. Engineer 217:725-7 Ap 24 '64
Digital computer among undergraduates. il Engineering 197:850-1 Je 26 '64
Education and training of engineers. G. S. Bosworth. Engineer 217:927, 986-7, 1025-6 My 29-Je 12 '64; Discussion. H. Clausen. 218:60 Jl 10 '64
Effective teaching in engineering; success of a summer school. W. E. Morton. Engineer 218:305-6 Ag 28 '64
Engineering design after Feilden. diags Engineering 197:594-5 My 1 '64
Getting our values right; need to strengthen technology in modern society. W. Jackson. Engineering 196:793 D 20 '63
How is the training act going to work? BACIE's spring conference. Engineering 197:626 My 8 '64
In pursuit of sandwiched learning; Northampton CAT. il Engineering 197:697-701 My 22 '64
Industry and the universities; abstract. J. Baker. Engineering 196:501 O 18 '63
Looking ahead. A. J. S. Pippard. Engineer 217:549-50 Mr 27 '64
Management studies in sandwich form; Brunel college. il Engineering 198:256-7 Ag 28 '64
More engineers from public schools? Engineering 197:66 Ja 17 '64
New developments in engineering education; illustrations with text. Engineer 217:82-3 Ja 10 '64
On to common engineering and physics? il Engineering 197:406 Mr 20 '64
Operatives and craftsmen; a stocktaking. Engineering 197:818 Je 19 '64
Scientific and technological manpower in Great Britain. W. Jackson. Engineer 216:908-9 N 29 '63
Tackling training with and for research; BP research centre. Engineering 197:531 Ap 17 '64
Taking engineering into the schools. il Engineering 198:108-9 Jl 24 '64
Who is to train the training officer? il Engineering 197:786-7 Je 12 '64

Latin America

Latin American education probed. Chem & Eng N 42:59 N 9 '64

ENGINEERING education, American society for. See American society for engineering education

ENGINEERING ethics
AIA clarifies its ethical standards. Eng N 173:12 Jl 30 '64
AIA to clarify employment ethics. Eng N 173:23 Jl 16 '64
Architects toughen ethical standards. Eng N 172:17-18 Je 25 '64
Engineers speak out on ethics! Chem Eng 70:177-84 D 9 '63
Ethics of planned obsolescence. il Machine Design 36:136-8 Ag 27 '64
Legacy of Merlin. D. E. Marlowe. Mech Eng 86:26-9 F '64
NSPE irked by AIA ethical standard. Eng N 173:29 Jl 9 '64
Needed; stronger engineering groups. J B. Jolly. Chem Eng 71:112+ Ag 3 '64
Proper use of common sense and engineering in secondary recovery. J. E. Russell. J Pet Tech 16:1003-5 S '64
Some ethical implications of professional planning. J. M. Abernathey. Am Soc C E Proc 90 [PP 2 no 3896]:23-9 My '64

ENGINEERING ethics—*Continued*

Stepping-stones to professionalism. G. A. Lessells. il Chem Eng 71:86+ Ag 31 '64

Where is engineering pointing? R. A. Labine. Chem Eng 71:138+ O 26 '64

ENGINEERING graduates

After they're hired, what happens? Elec World 160:129-31 N 4 '63

Group project way into industry. il diag Engineering 196:724-5 D 6 '63

Industry boosts starting salary offers. Oil & Gas J 62:49 Ja 13 '64

Perspective, inc. finds the right man for a company and the right company for a man. Product Eng 35:52 Ja 20 '64

Utility men and educators face facts. Elec World 161:116+ Mr 23 '64

What waits for the young engineer? Elec World 161:159-62 Ap 20 '64

ENGINEERING index

Engineering index offers information from more than 1700 publications in 22 languages. J Metals 16:264 Mr '64

Engineering index plans for the future. Mech Eng 86:80-1 S '64

ENGINEERING institute of Canada

Annual general and professional meeting, Banff, Alta. May 27-29. Eng J 47:36-7 Ag '64

1963 technical papers. Eng J 46:54-7 D '63

ENGINEERING instruments

See also

Electric instruments

Surveying instruments

ENGINEERING laboratories

Caterpillar builds a technical center. il Eng N 172:39-40 Mr 5 '64

Engineering-research laboratory. D. W. Karger and R. G. Murdick. il Machine Design 36:108-11 Je 4 '64

Laboratory teaching in fluid mechanics, King's college, London. M. J. Kenn. il Engineering 196:596-7 N 8 '63

Morgan's Northfields laboratories. il Metallurgia 68:175-7 O '63

New laboratory at IBM. plan diags Arch Forum 120:86-7 F '64

Philips research laboratories at Eindhoven, the Netherlands. J. H. van Santen. il Chem & Ind p 1564-70 S 12 '64

Plain bearing research and development; Glacier metal co. il Engineer 218:509-10 S 25 '64

Precision laboratory in an industrial park; Laucks laboratories, inc. il plan Arch Rec 134:128-9 D '63

P/A eleventh annual design awards; research and development facilities for a U.S. corporation. il diags Prog Arch 45:126-9 Ja '64

Railway research looks to the future. il Engineering 197:750-2 My 29 '64

Research center for tomorrow's equipment; Caterpillar technical center. il Roads & Streets 107:68-9+ Mr '64

Rugby's new water turbine house. il Engineering 198:521 O 23 '64

See also

Automobile laboratories

Electric laboratories

Hydraulic laboratories

Metallurgical laboratories

Equipment

Engineering research and development service. il Engineer 218:23 Jl 3 '64

Glacier expands plain bearing research. il Engineering 198:404 S 25 '64

Inventory index proposed for testing apparatus. M. D. Morris. Civil Eng 34:52-3 Jl '64

ENGINEERING law. See Law

ENGINEERING libraries

Organizing an engineering library. W. Dukes. il Air Cond Heat & Ven 61:82-4 O '64

See also

Engineering societies library, New York

Technical libraries

ENGINEERING literature

Locating engineering literature; EJC's Thesaurus of engineering terms. R. A. Jacobson. Machine Design 36:152-8 Je 18 '64

See also

Technical writing

ENGINEERING management. See Industrial management

ENGINEERING materials. See Materials

ENGINEERING profession. See Engineers

ENGINEERING reports

Communication? or is it really how to sell your ideas. A. N. McKnight. Product Eng 35:70-4 My 11 '64

How to control engineering in new-product development. T. W. Rogerson. Product Eng 35:102-4 Mr 16 '64

Responsibility reporting; International minerals & chemical corp. P. F. Mataich. il Min Cong J 49:102-4 O '63

Today's records; tomorrow's reports. A. N. Weiner. il diag Machine Design 36:117-19 F 27 '64

What do engineers think of paperwork? R. D. Stevens. Pet Management 36:82-5 O '64

Write better reports! J. B. Devine. Tool & Manuf Eng 53:73-4 S '64

You, too, can write a good engineering report. R. D. Stevens. Plant Eng 18:147 S '64

See also

Technical writing

ENGINEERING research

Czechoslovakia today; research in machine tools. E. J. Tangerman. il Product Eng 35:69-71 Mr 30 '64

Engineering market research theory and practice. L. A. Williams and R. J. Finlayson. Inst Mech Eng Proc 177 no 32:877-91; Discussion. 892-4; Reply. 895 '63

Engineering research and development service. il Engineer 218:23 Jl 3 '64

Engineer's contribution to the development of metal-working processes. H. Ford. bibliog il diags Inst Metals J 91:353-60 '62-63; Same. Naval Eng J 75:1013-21 D '63

Examples of research facilities; illustrations with text. Engineer 217:84-5 Ja 10 '64

Furnace research and development; Wood Lane laboratories of A.E.I.-Birlec ltd. il Engineer 218:89-90 Jl 17 '64

Ideas should hit a peak when production is in a valley. T. M. Rohan. il Iron Age 194:40-2 S 3 '64

Instrument industry is big spender for r&d. I S A J 11:28-9 Ag '64

National science foundation elevates status of engineering. Machine Design 36:15 Jl 16 '64

Nonsense talked about research. Engineering 197:179 Ja 31 '64

Production engineering research plans. il Engineering 197:430-1 Mr 20 '64

Real engineering situations needed on campus. S A E J 72:55 S '64

Research and development. H. Clausen. Engineer 217:616-17 Ap 3 '64

Rutgers marks dual celebration; dedication of engineering center and centennial. il Mech Eng 86:93 Jl '64

Spear making updated. B. Pundick. Am Mach 108:58-9 Ag 3 '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers. Tool & Manuf Eng 52:99-105 Mr; 81-3 My; 53:65-8 Jl; 77-9 Ag '64

See also

Aeronautic research

Automobile research

Electric research

Engineering laboratories

Hydraulic research

Industrial research

Iron research

Lighting research

Mining research

Railroad research

Refrigeration research

Scientific research

Steel research

ENGINEERING societies

Association of German engineers annual meeting, Munich, June 3-6. Engineer 218:77 Jl 10 '64

Changing role of our engineering societies. W. S. Hill. Am Cer Soc Bul 43:611-15 S '64

Do we need another professional society? M. A. Williamson. Res/Develop 14:33-5 D '63

Engineering societies become active in governmental programs. W. J. Harris, jr. J Metals 16:434-5 My '64; Same. J Pet Tech 16:529-30 My '64

How Canadian engineers run their profession. J. R. Marshall. map Chem Eng 71:218+ O 12 '64

Indian engineering association activities. Engineer 217:192 Ja 24 '64

Needed; stronger engineering groups. J. B Jolly. Chem Eng 71:112+ Ag 3 '64

See also

American institute of mining, metallurgical and petroleum engineers

American institute of plant engineers

American society of civil engineers

American society of mechanical engineers

American society of tool and manufacturing engineers

Audio engineering society

Engineering institute of Canada

Engineers council for professional development

ENGINEERING societies—See also—*Continued*
Illuminating engineering society
Institute of electrical and electronics engineers
Institution of mechanical engineers
National society of professional engineers
Society of automotive engineers
Standards engineers society

Directories

Directory of engineering societies, associations, institutes; data sheet. Heating-Piping 36:157-8 My '64

ENGINEERING societies library, New York
Engineering libraries look to the future. Mech Eng 86:79-80 S '64
Notes on books received in library. Published in monthly numbers of Mechanical engineering
Recent books added. Published in monthly numbers of Civil engineering

ENGINEERING standards. See Standards, Engineering

ENGINEERING students
Industry lends a helping hand to budding engineers and scientists. Mech Eng 86:160-1+ Ap '64
Professional development, the student's responsibility. J. R. Wright. Am Soc C E Proc 90 [PP 1 no 3748]:9-13 Ja '64
Why go in for engineering? Engineering 198:449 O 9 '64
See also
International association for the exchange of students for technical experience

ENGINEERING teachers
Engineering registration; educators view. J. J. Uicker. Mech Eng 86:26-7 My '64
Who is to train the training officer? il Engineering 197:786-7 Je 12 '64

ENGINEERING writing
Engineers write news? H. A. Pohs. Product Eng 35:78-9 Ja 6 '64

ENGINEERS
Another look at manpower. Chem Eng Prog 60:24-5 S '64
Army's top engineer heads big civilian force; General Walter K. Wilson, jr. il Eng N 173:42-4+ Jl 23 '64
Career opportunities in oil. T. Armstrong. Oil & Gas J 61:109-18 N 11 '63 (reprints 50c)
Composition of the engineering profession. W. H. Wisely. Civil Eng 34:33-4 Je '64
Creating an effective professional climate. D. E. Jones. Machine Design 36:78-82 Ja 2 '64
Demand for engineers. Machine Design 36:77 Jl 30 '64
Demand for engineers is easing. Elec World 162:31-4 O 12 '64
Design engineers and the law; abstract. E. L. Rushmer. Steel 154:79 Je 29 '64
Effect of the space age on the engineering profession. R. W. Johnson. Am Soc C E Proc 90 [PP 1 no 3747:]:1-7 Ja '64
Eleven ways to waste engineering talent. R. G. Murdick. Machine Design 36:188-92 Ap 23 '64
Engineer and the economic system. K. J. Charles. bibliog diags Eng J 47:35-40 Ap '64
Engineer cutbacks; a study of the national situation by our regional bureaus, with city-by-city details. Product Eng 35:49-56 Jl 6 '64
Engineer examines recruiting practices. Illum Eng 58:674-5 N '63
Engineer hiring slacks off. Pet Management 36:173 S '64
Engineer in society. Machine Design 35:148-51 N 21; 115-18 D 5 '63
Engineer-management relations probed. Pet Management 36:133-4 Ag '64
Engineer on trial for dam collapse. Eng N 173:14-15 O 29 '64
Engineer utilization. Machine Design 35:100-2 D 19 '63; 36:83-6 Ja 2; 138-40 Ja 16; 86-8 Ja 30; 146-8 F 13 '64
Engineer vs. scientist. J. D. Coutinho. Mech Eng 86:78 Je '64; Discussion. E. E. Drucker. 86:74-5 S '64
Engineering employment service modernized. Civil Eng 34:46-7 Jl '64
Engineering job market softens. Chem Eng 71:170+ Ap 27 '64
Engineering motivation. Machine Design 36:114-16 F 27; 132-4 Mr 12; 151-2 Mr 26; 112-14 Ap 9 '64
Engineering shortage; fact or fallacy; engineers viewpoints. Mech Eng 86:28-37 Mr '64; Discussion. D. P. Scotto. 86:79-80 Je '64
Engineering shortage; now you see it, now you don't. R. A. Labine. Chem Eng 71:146+ Ag 17 '64
Engineers and other people. J. J. Dougherty. Naval Eng J 76:605-10 Ag '64
Engineers at the cross-roads. H. G. Conway. bibliog Engineering 198:266-8 Ag 28 '64
Engineers at the crossroads. H. G. Conway. Engineer 218:368-9 S 4 '64
Engineers in management. N. R. Crump. Eng N 47:24-6 Mr '64
Essays on engineering. G. C. Lammers. Hydrocarbon Process & Pet Refiner 43:258-9 S; 197-8 O; 235-6 N '64
Essential partnership between the engineer and the metallurgist. N. P. Inglis. diag Engineer 217:994-6 Je 5 '64
Facts needed on scientific manpower. Chem & Eng N 42:47-8 Jl 13 '64
Fifty engineering schools employed most academic r&d scientists and engineers. Chem & Eng N 41:46 D 2 '63
For better utilization of manpower. Product Eng 35:49-50 Ag 17 '64
Heavy industry feels engineer pinch. G J. McManus. il Iron Age 194:25-6 Jl 30 '64
How best to utilize scientists and engineers? il Chem Eng Prog 60:20-3 S '64
How engineers feel about communication. C. H. Vervalin. Hydrocarbon Process & Pet Refiner 43:97-101 Ag '64
How professional is engineering? six authors take a hard look at the engineer's situation. Mech Eng 86:18-24 Je '64; Discussion. 86:74-5 Ag '64
How to find that better job. D. E. Kaldenberg. Chem Eng 70:190+ D 9 '63
If there's a shortage of engineering talent, why retire the leaders? E. Raudsepp. Machine Design 35:134-8 N 7 '63
Image of the ideal engineer. E. Raudsepp. Machine Design 36:194-6 Ap 23 '64
Legacy of Merlin. D. E. Marlowe. Mech Eng 86:26-9 F '64
Let's take a new look at the engineer as executive. R. G. Murdick. diags Product Eng 35:94-6 F 3 '64
Manpower. Product Eng 35:53-4 Jl 20 '64
Manpower shortage easing. Chem Eng Prog 60:11-13 Ag '64
Memo to engineers; better keep pace. Steel 155:25-6 Jl 13 '64
New demand study changes line-up but not the number. I S A J 11:22+ Mr '64
Peace corps engineer. il Mech Eng 86:96-8 F '64
Practicing engineer; his thoughts on continuing education to avoid obsolescence. Mech Eng 86:94 Mr '64
Professional engineers; an international comparison. Engineering 196:660 N 22 '63
Psychology of supervision. G. A. Lessells. bibliog Chem Eng 71:176+ My 11; 152+ My 25 '64
Putting a premium on engineering manpower. Chem Eng 71:86 Ag 17 '64
Relationships with management. Machine Design 36:132-5 S 24; 140-3 O 8; 164-6 O 22 '64
Retired engineer in the Peace corps; Ralph Cole. P. D. Hardberger. il Civil Eng 33:54-5 N '63
Role of engineers in food research. C. P. Lentz. bibliog Food Tech 18:503+ Ap '64
Role of the architect-engineer in planning and building research facilities. J. W. Beyvl. il plans Res/Develop 15:28-31 Mr '64
Safety in design. B. V. Zolli. Naval Eng J 76:466-7 Je '64
Shrinking job mart hits older engineers hardest. I S A J 11:20 Ag '64
69 per cent more scientists and engineers needed by 1970. Chem & Eng N 41:13-14 D 23 '63
So you want to start a company? G. B. Baty. Machine Design 36:122-31 Mr 12 '64
Soft job mart says no engineer shortage. I S A J 11:26 My '64
Stage two in bringing engineers together; Engineer's guild attempts to clarify relationship between Guild and the Engineering institutions council. Engineering 197:402 Mr 20 '64
Stepping-stones to professionalism. G. A. Lessells. il Chem Eng 71:86+ Ag 31 '64
Study plots course of engineer needs. Pet Management 36:84-5 Mr '64
Technical obsolescence. Machine Design 36:148-51 Je 18; 92-5 Jl 2; 124-7 Jl 16 '64
Telling the truth to engineers. R. A. Labine. Chem Eng 71:103-4+ Ja 6 '64
Unemployment; responsibility of the engineer? J. Harrington, jr. Automation 11:154-5 Ap '64
We have others, so why not a creative specialist? R. Paulson. Product Eng 34:80-1 N 25 '63
West German pioneers in concrete; Ulrich Finsterwalder. Eng N 173:99-100 O 8 '64
What do engineers think of paperwork? R. D. Stevens. Pet Management 36:82-5 O '64
Where is engineering pointing? R. A. Labine. Chem Eng 71:138+ O 26 '64

ENGINEERS—*Continued*
Who speaks for the engineering profession? AIME-sponsored seminar, national problems affecting the engineering profession. J Metals 16:737-8 S '64
Why do engineers quit their jobs? B. Schauerte. Hydrocarbon Process & Pet Refiner 43:191-4+ O '64
You say I'm technically obsolescent; how do I update? E. J. Tangerman. Product Eng 35:76-9 Ag 31 '64
Young turks charge into new jobs. I S A J 11: 20 O '64
Your obligation to society. E. A. Walker. Chem Eng 71:170+ Mr 16 '64
See also
Ceramic engineers
Chemical engineers
Civil engineers
Consulting engineers
Electric engineers
Engineering ethics
Engineering graduates
Engineering societies
Engineers council for professional development
Fairbairn, William
Fulton, Robert
Highway engineers
Industrial engineers
Marine engineers
Mechanical engineers
Mining engineers
Petroleum engineers
Radio engineers
Safety engineers
Sanitary engineers
Stuart, Herbert Akroyd
Women as engineers

Fees

How do you calculate reasonable value of engineer's services? R. A. Brown. Heating-Piping 36:150 O '64

Public relations

How society rates engineers. Machine Design 35:148-51 N 21 '63

Registration

Becoming a professional engineer. R. G. Stranix. Electronic Ind 22:159-60+ D '63
Engineering registration. F. E. Lyford and others. Mech Eng 86:22-7 My '64
Evaluating your professional engineering experience qualifications. J. D. Constance. Machine Design 36:86-91 Jl 2 '64
Facilitating registration of AIME members as professional engineers. J. L. Gillson. Min Eng 16:46+ Je '64; Same. J Pet Tech 16: 775-6 Jl '64
Professional engineering license; key to professionalism. H. C. Bauman. il Chem Eng 71:144+ S 28 '64
Progress and problems in national professional registration. J. D. Constance. Machine Design 35:152-4 N 21 '63
Should you get a professional engineers license? J. D. Constance. Chem Eng 71: 114+ Mr 2 '64
Status for sanitary engineers: American sanitary engineering intersociety board. Eng N 172:36-7 Mr 5 '64

Reports

See Engineering reports

Salaries

Beginning salaries start leveling off. Machine Design 36:6 Ja 16 '64
College grades can predict salary progress. A. Roe and others. bibliog Chem Eng 71: 230+ N 9 '64
Engineer pay rose more in 1962-63 than in 1961-62. I S A J 10:24-5 D '63
Engineering motivation; money as a motivator. Machine Design 36:114-16 F 27 '64
Engineering salaries; basic rate goes up. Chem Eng 70:94+ D 23 '63
Engineers' incomes. Engineer 216:770-1 N 8 '63
Higher pay for federal engineers. Eng N 172:19-20 My 7 '64
U.S. engineers with business qualifications earn ten per cent more. Engineering 197: 663 My 15 '64
Why are salaries higher for engineers? Engineering 196:579 N 8 '63
See also
Civil engineers—Salaries

Unions

State of the unions. Electronics 37:101-5 Jl 27 '64

Canada

How Canadian engineers run their profession. J. R. Marshall. map Chem Eng 71:218+ O 12 '64

Japan

Engineer's life; no luxuries and a lot more work. il Product Eng 35:84-7 Ja 20 '64

ENGINEERS as salesmen
Making use of sales engineers. L. J. Chamberlain. il Electronic Ind 22:48+ N '63

ENGINEERS council for professional development
Student attrition session, Chicago; abstracts of papers. Mech Eng 85:79+ D '63

ENGINEERS joint council
Federal impact grows and grows. il Chem Eng Prog 60:22-4 F '64
Journal of Metals adopts the EJC indexing and abstracting approach. bibliog J Metals 16:680+ S '64

ENGINES
Colloid engines designed to push substantial loads for long distances through space. il Product Eng 35:41 Ja 20 '64
See also
Air engines
Automobile engines
Crankcases
Crankshafts
Diesel engines
Flywheels
Fuel
Heat engines
Internal combustion engines
Marine engines
Rocket engines
Steam turbines

ENGLAND
See also
Electric plants (central stations)—England
Geology—England

ENGLISH CHANNEL tunnel
Channel tunnel could walk into place. il Eng N 172:16 Mr 26 '64
Channel tunnel geological survey. Engineer 218:587 O 9 '64
English Channel crossing. J. O. Bickel. il maps diags Civil Eng 34:35-9, cover Jl '64
Tunnel will link England and France. Eng N 172:46 F 13 '64
Under the choppy Channel, a Chunnel. I. Ross. Eng J 47:41-2 Je '64

ENGLISH language
Ain't advertising awful? B. Lasky. Inland Ptr/Am Lithogr 152:116 D '63

Dictionaries

Dictionary for minimum redundancy encoding. E. S. Schwartz. bibliog diags Assn for Computing Mach J 10:413-39 O '63

ENGRAVING
See also
Lithography
Photoengraving

ENLARGING (photography). See Photography—Enlarging

ENOLS
Acylations of ketals and enol ethers. R. D. Youssefyeh. Am Chem Soc J 85:3901-2 D 5 '63
Chemistry of conjugate anions and enols; the kinetically controlled enolization of α,β-unsaturated ketones and the nature of the transition state. S. K. Malhotra and H. J. Ringold. bibliog Am Chem Soc J 86:1997-2003 My 20 '64
Reaction of dichlorocarbene with enol acetates-novel 2,2-dichloro-1-steroidalcyclopropyl acetates. C. E. Cook and M. E. Wall. bibliog Chem & Ind p 1927-8 D 7 '63

ENRICHED food. See Food, Enriched

ENTEROCOCCI. See Streptococci

ENTHALPY. See Thermodynamics

ENTRANCES

Lighting

Originality in emphasis lighting. I. Passman and H. W. Stentz. il Illum Eng 59:32-3 Ja '64

ENTROPY
Applicability of minimum rate of entropy production to the solidification of lamellar eutectics. W. A. Tiller. diags J Ap Phys 34:3615-17 D '63
Entropy factors for thermally activated unpinning of dislocations. A. V. Granato and others. bibliog diags J Ap Phys 35:2732-45 S '64
Entropy production in vibrational-nonequilibrium nozzle flow. L. N. Connor and W. D. Erickson. AIAA J 2:397-8 F '64

ENTROPY—*Continued*
Estimation of steady-state steam void-fraction by means of the principle of minimum entropy production. S. M. Zivi. bibliog A S M E Trans ser C 86:247-51; Discussion. 251-2 My '64
Hypersonic area rule. M. D. Ladyzhenskii. diags AIAA J 1:2696-8 N '63
Inequality of Clausius. J. H. Potter. bibliog diags Combustion 35:31-6 Je '64
Isothermal changes of enthalpy, entropy, and heat capacity based on modified reduced Berthelot equation. C. T. Hsu. bibliog A I Ch E J 9:854-5+ N '63
Method of determining saturated liquid and saturated vapor entropy. M. A. Walker. AIAA J 1:2636-8 N '63
Semipermeable membrane and the Gibbs paradox. P. Fong. Am J Phys 32:170-1 F '64
Some comments on entropy and information. P. Rodd. Am J Phys 32:333-5 My '64
Specific retentions of monofunctional organic solutes in monofunctional hexadecyl derivatives. A. B. Littlewood. bibliog Anal Chem 36:1441-51 Jl '64
Thermal equilibration of *cis-* and *trans*-β-decalones; an example of an unusually large entropy of isomerization. R. L. Augustine and J. A. Caputo. Am Chem Soc J 86:2751-2 Jl 5 '64
See also
Mollier diagrams

ENVIRONMENT
Certain environmental conditions and hematological disorders. F. I. Haurani and L. M. Tocantins. Archives Environmental Health 8:778-804 bibliog(p794-804) Je '64
Challenge of our environment. R. E. Eckardt. bibliog Archives Environmental Health 9:127-32 Jl '64
Digital computers and environmental control. G. P. Fisher and W. R. Lynn. Am Soc C E Proc 90 [PP 1 no 3749]:15-20 Ja '64
Effects of environment on genitourinary tract J. K. Lattimer. Archives Environmental Health 9:8-13 Jl '64
Environment in relation to cancer. L. Wade. bibliog Archives Environmental Health 7:172-8 Ag '63; Discussion. 7:737-8 D '63
Environmental health, once again; editorial. Am J Pub Health 53:1836-8 N '63
Environmental health; present and future; symposium. Am J Pub Health 54:69-84 Ja '64
Environmental research. W. J. McGuinness. Prog Arch 45:190 Ap '64
Habitat selection. S. C. Wecker. diags Sci Am 211:109-16 O '64
Human machine, work and environment. F. H. Fuller. bibliog Mech Eng 85:22-6 D '63; Discussion. 86:81-2 Je '64
Man, his environment and health; Eastern states health education conference. Am J Pub Health 54:sup3, 1-83 pt 2 Ja '64
Sealed environment in relation to health and disease. J. H. Schulte. bibliog flow diag Archives Environmental Health 8:438-52 Mr '64
Surveying and mapping, and environmental engineering. W. T. Pryor. il Am Soc C E Proc 90 [SU 2 no 3961]:1-15 Jl '64
See also
Ecology
Testing laboratories—Environmental chambers

ENZYMES
Acetaldehyde-2-deoxy-D-ribose 5-phosphate aldolase complex; comparison of the product obtained on borohydride reduction and hydrolysis with synthetic N^6-ethyllysine. O. M. Rosen and others. bibliog Am Chem Soc J 86:2092-3 My 20 '64
Activity of amino acid-activating enzymes in tissues from protein-depleted rats. S. Gaetani and others. bibliog J Nutrition 84:173-8 O '64
Aiding dextrose; new technology, world politics. il Chem Eng 71:82+ S 28 '64
CCl_4 toxicity; hepato-structural and enzymatic change. B. D. Dinman and others. il Archives Environmental Health 7:630-6 bibliog(p645-6) D '63
Colorimetric determination of glucose, fructose, and sucrose in plant materials using a combination of enzymatic and chemical methods. G. Johnson and others. bibliog J Agri & Food Chem 12:216-19 My '64
Degradation of synthetic polypeptides; degradation of poly-α,L-glutamic acid by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86:3913-18 O 5 '64
Degradation of synthetic polypeptides; degradation of poly-α,L-lysine by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86:3918-22 O 5 '64
Effect of added lysine in swine diets on lean cuts and enzyme activity in the heart and liver. R. L. Shirley and others. bibliog J Agri & Food Chem 11:530-1 N '63
Effect of diet and digestive processes on proteolytic enzymes. J. T. Snook and J. H. Meyer. bibliog J Nutrition 83:94-102 Je '64
Effects of enzyme addition on the quality of freeze-dehydrated chicken meat. M. E. Sosebee and others. bibliog Food Tech 18:551-4 Ap '64
Enzymatic in vitro degradation of DDT by susceptible and DDT-resistant body lice. A. S. Perry and others. bibliog J Agri & Food Chem 11:457-62 N '63
Enzyme conversion of starch. J. E. Maryanski. Paper Ind 46:209-12 Je '64
Enzyme is stereospecific. G. J. Schroepfer, jr. Chem & Eng N 42:44 Ja 27 '64
Enzymed syrups save dollars. J. V. Ziemba and others. Food Eng 36:93-5 My '64
Formation, nature, and prevention of precipitates in frozen and thawed beers. G. J. Haas and A. I. Fleischman. J Agri & Food Chem 12:409-11 S '64
Isolation of enzyme-substrate complex aids study of enzymic catalysis. K. Yagi. Chem & Eng N 42:34 Ag 10 '64
Kinetic consequences of the acyl-enzyme mechanism for the reactions of specific substrates with chymotrypsin. B. Zerner and M. L. Bender. bibliog Am Chem Soc J 86:3669-74 S 20 '64
Kinetic evidence for the formation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolyses of specific substrates. B. Zerner and others. bibliog Am Chem Soc J 86:3674-9 S 20 '64
Kinetic method for analysis of mixtures employing enzyme-catalyzed reactions. H. B. Mark, jr. bibliog Anal Chem 36:1668-9 Jl '64
Microbial synthesis in industry and its relation to microbial physiology. S. J. Pirt. bibliog diags Chem & Ind p 1772-7 O 24 '64
Microbiological and enzymatic assays of riboflavin analogues. C. S. Yang and others. bibliog J Nutrition 84:167-72 O '64
Multienzyme complex reassmbles itself. L. J. Reed and others. il Chem & Eng N 42:52-3 S 7 '64
Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed reactions of N-acetyl-L-tryptophan derivatives at low pH. F. J. Kézdy and others. bibliog Am Chem Soc J 86:3690-6 S 20 '64
Oxazolidinethiones and volatile isothiocyanates in enzyme-treated seed meals from 65 species of cruciferae. M. E. Daxenbichler and others. bibliog J Agri & Food Chem 12:127-30 Mr '64
Plant enzyme system produces cellulose. il Chem & Eng N 42:44-5 F 3 '64
Protein structure-function correlation aided. D. E. Koshland, jr. and M. Burr. il diags Chem & Eng N 42:42-3 N 2 '64
Response of digestive enzymes to dietary protein. J. T. Snook and J. H. Meyer. bibliog J Nutrition 82:409-14 Ap '64
Separation and purification of DDT-degrading enzymes from the human body louse. S. Miller and A. S. Perry. bibliog J Agri & Food Chem 12:167-9 Mr '64
Studies of rat liver and kidney enzymes. J. H. Hutchinson and others. bibliog Am J Clinical Nutrition 14:291-309 My '64
Studies on improved recovery of protein from rendering-plant raw materials and products; acid and enzyme hydrolysis. L. G. Criswell and others. bibliog Food Tech 18:1493-7 S '64
Synthesis of cellulose by an enzyme system from a higher plant. A. D. Elbein and others. Am Chem Soc J 86:309-10 Ja 20 '64
What you can do with enzymes. Food Eng 36:80-1 My '64
See also
Acetylcholinesterase
Cholinesterase
Chymotrypsin
Coenzymes
Cystine
Esterases
Galactosidases
Glucosidases
Kinases
Lipase
Oxidases
Papain
Phosphatases

ENZYMES—See also—*Continued*
Ribonuclease
Transaminases
Trypsin
Urease

Analysis

Fluorometric determination of lipase, acylase, alpha-and gamma-chymotrypsin and inhibitors of these enzymes. G. G. Guilbault and D. N. Kramer. bibliog Anal Chem 36:409-12 F '64

Resorufin acetate as substrate for determination of hydrolytic enzymes at low enzyme and substrate concentrations. D. N. Kramer and G. G. Guilbault bibliog Anal Chem 36:1662-3 Jl '64

Inactivation

Betaines of 3-hydroxyproline; assignment of configuration and inhibition of acetylcholinesterase. F. Sakiyama and others. bibliog Am Chem Soc J 86:1842-4 My 5 '64

Electrochemical determination of xanthine oxidase and inhibitors. G. G. Guilbault and others. Anal Chem 36:606-10 Mr '64

Estimation of a few nanograms of fluoride in presence of phosphate by use of liver esterase. C. McGaughey and E. C. Stowell. bibliog Anal Chem 36:2344-50 N '64

Simple test for trypsin inhibitors in soybeans. J. Ilany-Feigenbaum. bibliog Food Tech 18:884-5 Je '64

Tetrahydrohomofolate, a specific inhibitor of thymidylate synthetase. L. Goodman and others. bibliog Am Chem Soc J 86:308-9 Ja 20 '64

EOCENE period. See Geology, Stratigraphic—Eocene

EPICHLOROHYDRIN

Cellulose-epichlorohydrin reaction in the presence of neutral salt and salt-alkali solutions. J. B. McKelvey and others. bibliog Textile Res J 34:759-67 S '64

Identification and estimation of finishes based on dichloropropanol. H. R. Cooper and J. G. Roberts. bibliog diag Soc Dyers & Col J 80:428-9 Ag '64

ORF develops treatment for cellulosics. Can Chem Process 47:68-9 D '63

EPICYCLIC gearing. See Gearing, Planetary

EPIDEMICS

Efficacy of varied doses of gamma globulin during an epidemic of infectious hepatitis, Hoonah, Alaska, 1961. R. D. Aach and others. bibliog Am J Pub Health 53:1623-9 O '63

Epidemiologic studies of a large urban outbreak of infectious hepatitis. W. H. Mosley and others. bibliog maps Am J Pub Health 53:1603-17 O '63

Epidemiologic study of diarrhea in an alien student population in Cairo, Egypt. J. E. Banta and others. bibliog Am J Pub Health 54:940-6 Je '64

Epidemiological aspects of Coxsackie and Echo virus infections in tropical areas. J. P. Fox. bibliog Am J Pub Health 54:1134-42 Jl '64

Epidemiological basis for the control of influenza. A. D. Langmuir and others. bibliog Am J Pub Health 54:563-71 Ap '64

Epidemiology of disease associated with lead. T. D. Sterling. bibliog Archives Environmental Health 8:333-48 F '64

Historical epidemiology; editorial. F. B. Rogers. Am J Pub Health 53:1694-6 O '63

Physician related outbreak of hepatitis. W. J. Dougherty and R. Altman. Am J Pub Health 53:1618-22 O '63

Problems encountered in behavioral science research in epidemiological studies. W. I. Wardwell and C. B. Bahnson. bibliog Am J Pub Health 54:972-81 Je '64

Social science theory as a source of hypotheses in epidemiological research. J. Cassel. bibliog Am J Pub Health 54:1482-8 S '64

See also
Infectious diseases
Plague

EPITAXY. See Crystallization

EPOXIDES

Chemistry of ylids; diphenylsulfonium alkylides, a stereoselective synthesis of epoxides. A. W. Johnson and others. bibliog Am Chem Soc J 86:918-22 Mr 5 '64

Molecular rearrangements; chlorine migration in the epoxide-carbonyl rearrangement. R. N. McDonald and P. A. Schwab. bibliog Am Chem Soc J 85:4004-9 D 20 '63

Non-catalytic oxidation of olefins to epoxides with molecular oxygen. F. W. Meadus and K. U. Ingold. bibliog Can J Chem Eng 42:86-7 Ap '64

Nuclear magnetic resonance-spectra of three-membered ring compounds; substituent effects on monosubstituted 1,1-dichlorocyclopropanes and epoxides. K. L. Williamson and others. bibliog Am Chem Soc J 86:762-5 Mr 5 '64

EPOXY compounds

Acid-catalyzed conversion of epoxyesters to hydroxyesters. G. Maerker and others. bibliog diags Am Oil Chem Soc J 41:585-8 S '64

Epoxidation of ethylenic linkages by chromic acid; oxidation of triphenyl(tolyl)ethylene by chromic oxide. G. E. M. Moussa. bibliog J Ap Chem 13:470-2 O '63

New nonionic detergents derived from epoxidized oils. K. L. Johnson. bibliog il Am Oil Chem Soc J 41:191-8 Mr '64

Novel reaction of the oxiirane and thiirane ring. J. F. McGhie and others. Chem & Ind p460-1 Mr 14 '64

Photochemical and thermal rearrangement of α,β-epoxyketones. C. K. Johnson and others. Am Chem Soc J 85:3894-6 D 5 '63

Protection of the 4,5-epoxy-3-oxo-moiety in steroids. D. J. Collins and J. J. Hobbs. bibliog Chem & Ind p 1063-4 Je 20 '64

Vernonia anthelmintica (L.) Willd; highly purified epoxy components from the seed oil. C. F. Krewson and F. E. Luddy. il Am Oil Chem Soc J 41:134-6 F '64

Analysis

Direct titration of epoxy compounds and aziridines. R. R. Jay. Anal Chem 36:667-8 Mr '64

EPOXY resins. See Resinous products

EQUATION of motion

Angular momentum equations for a swivel-nozzle rocket. H. W. Butler. diag A S M E Trans ser E 31:355-6 Je '64

Application of thermodynamics to thermo-mechanical, fracture, and birefringent phenomena in viscoelastic media. R. A. Schapery. bibliog J Ap Phys 35:1451-65 My '64

Charged particle orbits in a logarithmic potential. R. H. Hooverman. diags J Ap Phys 34:3505-8 D '63

Dynamic analysis for lunar alightment. A. P. Cappelli. il diags AIAA J 1:1119-25 My '63; Discussion. R. E. Lavender. 1:2196-7 S '63; Reply. 2:412-13 F '64

Dynamic analysis of inelastic multi-degree systems. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 89 [EM 6 no 3730]:193-215 D '63

Electromagnetic behavior of the vortex sponge. E. M. Kelly. Am J Phys 32:657-65 S '64

Engineering derivation of the Navier-Stokes equations. H. A. Einstein. diags Am Soc C E Proc 89 [EM 3 no 3533]:1-7 Je '63; Discussion. 89 [EM 4 no 3616]:99-102 Ag; [EM 5 no 3687]:105-6 O '63; 90 [EM 1 no 3811]:163-6 F '64; Reply. 90 [EM 4 no 4000]:151-5 Ag '64

Equations of motion for spin stabilization analysis in terms of Euler angles. P. S. Carroll. diag AIAA J 2:1483-5 Ag '64

Motion of the center of gravity of a variable-mass body. V. Punga. AIAA J 2:1482 Ag '64

New theoretical method used to calculate reaction rates. M. Karplus and others. Chem & Eng N 42:44-6 Ap 6 '64

Orbital motion in the theory of general relativity. J. D. Anderson and J. Lorell. bibliog AIAA J 1:1372-4 Je '63; Discussion. 2:1869-70 O '64

Particle motion in the equatorial plane. V. L. Pisacane. diag AIAA J 2:1361-4 Ag '64

Periodic response of a general yielding structure. P. C. Jennings. bibliog Am Soc C E Proc 90 [EM 2 no 3871]:131-66 Ap '64

Series solution of equations for re-entry vehicles with variable lift and drag coefficients. Y. C. Shen. bibliog diag AIAA J 1:2487-90 N '63

Solution to Euler's gyrodynamics. C. F. Harding. diag A S M E Trans ser E 31:325-8 Je '64

Theory of the air-supported puck. W. M. Whitney. diags Am J Phys 32:306-12 Ap '64

Tractor and semi-trailer handling. F. Jindra. bibliog diags Automobile Eng 53:438-46 O '63; Discussion. 54:94-7 Mr '64

EQUATION of state

Application of Benedict-Webb-Rubin equation of state to hydrogen sulfide-hydrocarbon mixtures. R. Simon and J. E. Briggs. bibliog diag A I Ch E J 10:548-50 Jl '64

Critical temperature and the equation of state. R. E. Hansen. bibliog Chem Eng Prog 60:49-52 Ap '64

EQUATION of state—*Continued*
Equation of state for linear polymer monolayers. K. Motomura and R. Matuura. bibliog J Colloid Sci 18:52-64 Ja '63; Correction. 18:696 S '63
Equation of state of oligomer and polymer liquids. R. Simha and A. J. Havlik. bibliog Am Chem Soc J 86:197-204 Ja 20 '64
Flow graph of moment distribution. C. C. Feng and R. D. Benton. bibliog diags Am Soc C E Proc 90 [ST 2 no 3870]:153-77 Ap '64
Generalized correlation of the constants of the Benedict-Webb-Rubin-Friend equation for paraffinic isomers. H. H. Beyer and R. G. Griskey. bibliog A I Ch E J 10:764-6 S '64
Generalized virial equation of state derived from experimental data. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:625-31 S '64
Plasma equation of state. D. C. Kelly. bibliog Am J Phys 31:827-8 N '63; Discussion. H. Wergeland. 32:566-7 Jl '64
Rational equation of state for water and water vapor in the critical region. E. S. Nowak. bibliog A S M E Trans ser C 86:320-6 Ag '64
Rheological equations of state. W. R. Schowalter. bibliog il diags Chem Eng Prog 60: 52-6 Ag '64
Statistical thermodynamics of chain molecule liquids; an equation of state for normal paraffin hydrocarbons. P. J. Flory and others. bibliog Am Chem Soc J 86:3507-14 S 5 '64
See also
Virial coefficients

EQUATIONS
Converting process equations for analog computer control. G. Platt. diags Control Eng 11:65-8 F '64
Estimating vapor pressures; a comparison of equations. D. G. Miller. bibliog Ind & Eng Chem 56:46-57 Mr '64
Governing equations for the shapes of molten zones. R. E. Green, jr. bibliog diag J Ap Phys 35:1297-301 Ap '64
Graphic solution of higher-order equations. B. L. Deekshatulu. diags Instruments & Control Systems 37:130-3 Ja '64
Isothermal changes of enthalpy, entropy, and heat capacity based on modified reduced Berthelot equation. C. T. Hsu. bibliog A I Ch E J 9:854-5+ N '63
New basic form for vapor pressure equations. R. C. Hall. bibliog Can J Chem Eng 42:152-4 Ag '64
New theoretical analysis of adsorption phenomena, introductory part; the characteristic expression of the main regular types of adsorption isotherms by a single simple equation. I. Kühn. bibliog J Colloid Sci 19: 685-98 O '64
Solution of the equations of change by Galerkin's method. L. J. Snyder and others. bibliog diag A I Ch E J 10:535-40 Jl '64
Symmetrical form of the four-suffix Margules equations for quaternary systems. C. S. Lu and Y. L. Wang. bibliog Ind & Eng Chem Fundamentals 3:271-2 Ag '64
See also
Differential equations
Fokker-Planck equation
Hammett equation
Lagrange equations

EQUATIONS, Algebraic
Numerical analysis. S. Kravitz. Product Eng 35:123-5 Je 8 '64

EQUATIONS, Difference. See Difference equations

EQUATIONS, Differential. See Differential equations

EQUATIONS, Integral. See Integral equations

EQUATIONS, Linear
ALPAK system for nonnumerical algebra on a digital computer; systems of linear equations and a class of side relations. J. P. Hyde. bibliog Bell System Tech J 43:1547-62 pt 2 Jl '64
Analysis of a second order linear ordinary differential equation with five regular singular points. H. L. Crowson. bibliog J Math & Phys 43:38-44 Mr '64
Approximate model for linear time variant systems. S. G. S. Shiva. diags IEEE Proc 52:727 Je '64
Calculating system linearity. H. Y. Wong. diag Electronic Ind 23:111-12 Mr '64
How to check linear systems stability. C. H. Hoffman. diags Control Eng 11:75-80 Ag '64
Numerical analysis. S. Kravitz. Product Eng 35:162-4 Je 22 '64
Process of isolation for the evaluation of the constants of integration of linear differential equations. J. Morris. bibliog Inst E E Proc 111:1777-80 O '64
Solution of the linearized equations of multicomponent mass transfer. H. L. Toor. bibliog A I Ch E J 10:448-55, 460-5 Jl '64
Solutions of a class of linear partial differential equations with variable coefficients. W. F. Ames and H. de la Cuesta S. bibliog J Math & Phys 42:301-6 D '63

EQUATIONS, Nonlinear
Axisymmetric deflections of shallow conical shells. G. A. Wempner. bibliog diags Am Soc C E Proc 90 [EM 2 no 3877]:181-93 Ap '64
Dynamic nonlinear response of reinforced concrete arches. V. N. Gupchup and J. M. Biggs. bibliog flow chart diags Am Soc C E Proc 89 [ST 4 no 3596]:225-48 Ag '63; 90 [ST 4 no 4001]:261-5 Ag '64
Free resonant oscillations of a conservative two-degree-of-freedom system. R. A. Struble and G. K. Warmbrod. bibliog diags Franklin Inst J 278:195-209 S '64
Frequency-domain condition for the stability of feedback systems containing a single time-varying nonlinear element. I. W. Sandberg. bibliog diags Bell System Tech J 43: 1601-8 pt 2 Jl '64
$\mathcal{L}_2$-boundedness of solutions of nonlinear functional equations. I. W. Sandberg. bibliog Bell System Tech J 43:1581-99 pt 2 Jl '64
New approach to the plotting of phase-plane trajectories. B. L. Deekshatulu and I. Suryanarayana Murthy. bibliog diags Inst E E Proc 111:1771-4 O '64
Nonlinear analysis in the phase plane. T. A. Bickart. bibliog diags Franklin Inst J 278: 256-61 O '64
Nonlinear differential equations can be analyzed directly for stability. il Chem & Eng N 42:40-1 Mr 30 '64
Numerical solution of systems of nonlinear equations. F. Freudenstein and B. Roth. bibliog Assn for Computing Mach J 10:550-6 O '63
R-x, R^2-x planes; some new ideas for the study of nonlinear systems. B. L. Deekshatulu. bibliog diags IEEE Trans Applications & Ind p305-15 N '63
Techniques for analysis of certain non-linear systems. B. L. Deekshatulu. bibliog IEEE Trans Applications & Ind 83:258-62 Jl '64
Transient response of nonlinear systems. P. F. Cunniff. diags Am Soc C E Proc 89 [EM 2 no 3474]:19-46 Ap '63; Correction. 90 [EM 1 no 3811]:157 F '64
$x^{(n)}$-x plane for analysis of certain second-order nonlinear systems. B. L. Deekshatulu. IEEE Trans Applications & Ind p315-17 N '63

EQUATIONS, Roots of
Analytical representation of the root-locus. C. K. Wojcik. diags A S M E Trans ser D 86:37-43 Mr '64
Circuit for finding the root-mean square. R. C. Entenmann. diags IEEE Proc 52:193 F '64
Coefficients of partial fractions. V. R. Riggins. diags Electro-Tech 74:44-7 S '64
Finding quintic-equation roots; data file. C. R. Seliger. Control Eng 11:107-8 My '64
Root locus determination by the use of real roots. I. B. Huang and C. C. Wei. diags IEEE Trans Applications & Ind 83:246-52 Jl '64
Root-locus study of synchronous-machine regulation. C. A. Stapleton. diags Inst E E Proc 111:761-8 Ap '64
Roots of Legendre functions of variable index. P. C. Waterman. bibliog J Math & Phys 42:323-8 D '63
Roots of polynomials. A. J. Sykas. bibliog Electro-Tech 73:109-16 Ap '64
Simple stability criterion. P. W. Becker. bibliog diags A S M E Trans ser D 86:44-9; Discussion. 49-50 Mr '64

EQUATIONS, Simultaneous
How to solve non-compatible simultaneous equations. R. M. Ingels. Chem Eng 71:133-6 O 26 '64
Numerical analysis. S. Kravitz. Product Eng 35:162-4 Je 22 '64
Various simultaneous equations for interzonal divergences and link assignments. L. F. Butas. diags Traffic Q 18:383-405 Jl '64

EQUILIBRIUM, Chemical. See Chemical equilibrium

EQUILIBRIUM, Donnan. See Donnan equilibrium

EQUIPMENT, Construction. See Construction equipment

EQUIPMENT industries

See also

Associated equipment distributors

Clark equipment company

Construction equipment

Machine tool industry

Petroleum equipment industries

Plumbing supplies industry

Welding equipment industry

Directories

Annual specifying and buying directory of products for mechanical system design, 1963-64. Air Cond Heat & Ven 60:103-5+ O; 107-38 D '63; 61:107-10+ F; 119-20+ Ap '64

Buyers' guide to pollution control equipment and supplies and directory of manufacturers. Water Works & Wastes Eng 1:93-108 S '64

Buyers' guide; water works equipment and supplies and directory of manufacturers. Water Works & Wastes Eng 1:135-50 My '64

Classified list of companies supplying products and services to the textile industry. Textile World 114:317-412 Jl '64

Coal Age mining guidebook; buying directory. Coal Age 69:277-81+ Jl '64

E&MJ's 1964 buying directory. Eng & Min J 165:209-48 Je '64

1964 buyer's guide. Textile Ind 128:231-108 Mid-S '64

1964 directory: heating, piping, and air conditioning equipment for industrial, commercial, institutional and public buildings; classified by products, trade names, manufacturers' addresses. Heating-Piping 36:sup 1d-210d Ja '64

1964 equipment directory. diags Mod Materials Handling 19:7-84, B 1-12 My '64

Quik-chek plant equipment directory. Food Eng 36:128-9+ S '64

Tool and manufacturing engineer suppliers directory. Tool & Manuf Eng 53:125-486 Ag '64

Where-to-buy foundry equipment supplies, materials, and services. Foundry 92:219-38 O '64

See also

Atomic power equipment industry—Directories

Electric apparatus industry—Directories

Photographic supplies industry—Directories

EQUIPMENT leasing. See Machinery—Leasing

EQUIVALENT electric circuits. See Electric circuits, Equivalent

ERBIUM

Changes in magnetization of single-crystal dysprosium, erbium, and holmium in high magnetic fields. R. B. Flippen. bibliog J Ap Phys 35:1047-8 pt 2 Mr '64

ERGOT

Mechanism of the formation of ring C of ergoline. S. Wong and others. bibliog Chem & Ind p 1762-3 N 2 '63

ERIE, Lake

Comparison of actual with predicted waveheights and periods for the north shore of Lakes Ontario and Erie. A. Brebner and B. P. Sangal. bibliog il Eng J 47:32-6; Discussion. 42+ Mr '64

ERIOCHROME cyanine R

Spectrophotometric determination of fluoride by zirconium-eriochrome cyanine R. P. L. Sarma. bibliog Anal Chem 36:1684-5 Jl '64

ERIONITE. See Zeolites

EROSION

Atlantic sediments, erosion rates, and the evolution of the continental shelf; some speculations. J. Gilluly. bibliog maps Geol Soc Bul 75:483-92 Je '64

Baselevel, lithosphere surface, and time-stratigraphy. H. E. Wheeler. bibliog diags Geol Soc Bul 75:599-609 Jl '64

Fluvioglacial erosion near Knob Lake, central Quebec-Labrador, Canada. E. Derbyshire. bibliog maps Geol Soc Bul 73:1111-26, pl 1-4 S '62; Discussion. J. D. Ives and R. P. Kirby. 75:917-22 pl 1; Reply. 923-5, pl 1 S '64

Origin of continental slopes. R. S. Dietz. bibliog diags Am Scientist 52:50-69 Mr '64

Retreat of lakeshore bluffs. H. J. Pincus. bibliog il diags Am Soc C E Proc 90 [WW 1 no 3809]:115-34 F '64

Soil erosion and highway maintenance. H. J. Rathfoot. il Pub Works 95:108-9 Je '64

Study of channel erosion and sediment transport. C. F. Nordin, jr. bibliog il map diags Am Soc C E Proc 90 [HY 4 no 3984]:173-92 Jl '64

Wind-driven sand in Coachella Valley, Calif. R. P. Sharp. bibliog map diags Geol Soc Bul 75:785-803, pl 1-2 S '64

See also

Alluvium

Soil conservation

EROSION of metals

Oxides erode turbine blades. T. H. Gladney and H. S. Fox. il Elec World 160:38-9+ D 30 '63

See also

Cavitation

Hydraulic machinery—Cavitation

ERRORS

Accuracy of the bubble meter method for gas flow measurements. A. Levy. bibliog diag J Sci Instr 41:449-53 Jl '64

Checking the accuracy of correlations. J. W. DeFarges. diags Chem Eng 71:157-8 Mr 16 '64

Comparison of error transfer matrices for circular orbits. A. H. Greene and W. F. Jaros, jr. diag AIAA J 1:2623-5 N '63

Compensating gyro drifts. H. L. Kreitzburg, jr. diags Control Eng 10:113-16 N '63

Control of brake performance tests. V. Leah. diags Automobile Eng 54:178-81 My '64

Covariance matrix approximation. L. B. Schlegel. AIAA J 1:2672-3 N '63

Current instrument transformer error calculations. J. Meisel. bibliog diags IEEE Trans Power Apparatus & Systems p 1082-5 D '63

Data transmission over a self-contained error detection and retransmission channel. F. E. Froehlich and R. R. Anderson. bibliog diags Bell System Tech J 43:375-98 pt 2 Ja '64

Degradation effects of arbitrary phase errors on high-resolution radar performance. D. K. Cheng. bibliog Inst E E Proc 111:1375-8 Ag '64

Detecting errors after correction. R. T. Chen and D. T. Tang. IEEE Proc 52:974-5 Ag '64

Determination of dominant error sources in an inertial navigation system by iterative weighted least squares. W. Eisner and A. F. Goodman. bibliog diag AIAA J 2:722-7 Ap '64

Determination of error rates for narrow-band communication of binary-coded messages in atmospheric radio noise. A. D. Spaulding. bibliog IEEE Proc 52:220-1 F '64

Digital linear interpolation and the binary rate multiplier. W. Arnstein and others. diags Control Eng 11:79-83 Je '64; Discussion. 11:12-13 S '64

Dynamic error in transducers; data sheet. M. Weiss. Machine Design 36:127-8 Ja 30 '64

Dynamic testing of resolver error. S. Harac. il diag Control Eng 10:123 N '63

Effect of misclassification on estimated relative prevalence of a characteristic; errors in two variables. A. Keys and J. K. Kihlberg. diag Am J Pub Health 53:1661-5 O '63

Effect of winding potentials on voltage transformer errors. N. L. Kusters and others. diags IEEE Trans Power Apparatus & Systems p 115-21 F '64

Effective bandlimits of Gaussian processes under a mean-square error criterion. R. A. McDonald and P. M. Schultheiss. diags IEEE Proc 52:1080-1 S '64

Effects of error in the element values and the converter transfer characteristic on the responses of active rc filters. A. G. J. Holt and F. W. Stephenson. bibliog diags Radio & Electronic Eng 26:449-57 D '63

Error analysis. P. K. Stein. Instruments & Control Systems 37:136-8 Je '64

Error analysis and compensation with a differential digital analyzer. C. Page. Instruments & Control Systems 37:141-4 Jl '64

Error-detection equipment for Telex. il Ind Electronics 2:349 Jl '64

Error propagation in astro-inertial guidance systems for low-thrust missions. H. M. Dusek. bibliog diags AIAA J 2:879-84 My '64

Error rate in a multiple-frequency-shift system. H. Akima. bibliog Inst E E Proc 111:547-55 Mr '64

Error statistics for reinforced concrete beams. T. Zsutty. bibliog Am Soc C E Proc 89 [ST 6 no 2732]:235-70 D '63; Discussion. 90 [ST 4 no 4001]:321-3 Ag '64

Errors in least-squares inverse filtering. J. F. Claerbout and E. A. Robinson. Geophysics 29:118-20 F '64

Errors in noise measurements due to the finite amplitude range of the measuring instrument. C. E. Cohn. R Sci Instr 35:701-3 Je '64

Errors in the evaluation of moments of a paramagnetic resonance line. H. S. Judeikis. J Ap Phys 35:2615-17 S '64

ERRORS—*Continued*
Errors in the measurement of 2V with the universal stage. M. Munro. bibliog diags Am Mineralogist 48:308-23 Mr '63; Discussion. A. C. Tobi. 49:812-13; Reply. 813-15 My '64
Errors in vacuum microbalances caused by unequal thermal expansion of the balance arms. C. H. Massen and others. bibliog diags J Sci Instr 41:302-7 My '64
Errors of reflectivity measurements and of calculations of refractive index n and absorption coefficient k. H. Piller and K. v. Gehlen. bibliog Am Mineralogist 49:867-82 Jl '64
Estimate of errors for approximate solutions of the simplest equations of gasdynamics. S. K. Godunov. AIAA J 2:208-15 Ja '64
Estimation of the autocorrelation functions of radio tracking errors. R. R. Hunziker. AIAA J 2:1135-6 Je '64
Exact two-body error sensitivity coefficients. K. C. Kochi. AIAA J 2:1502-4 Ag '64
Finding error coefficients from poles and zeros; data file. T. J. Kobylarz. Control Eng 11:89-90 Mr '64
Generalized multistep predictor-corrector methods. W. B. Gragg and H. J. Stetter. bibliog Assn for Computing Mach J 11:188-209 Ap '64
How design errors influence the functioning of gear trains. E. Buckingham and E. K. Buckingham. il diags Mach 70:107-20 Ag '64
Human factors in design of reliable systems. A. D. Swain. diags Machine Design 36:292+ Ap 23 '64
Influence of mismatch error in noise performance measurements. M. M. Brady. IEEE Proc 52:1075-6 S '64
Input-error-limiting automata. S. Winograd. bibliog Assn for Computing Mach J 11:338-51 Jl '64
Large source of error in absolute X-ray integrated intensity determinations. B. W. Batterman. diag R Sci Instr 35:1374-5 O '64
Machine computation of association constants from spectrophotometric data; an analysis of errors. K. Conrow and others. bibliog Am Chem Soc J 86:1025-9 Mr 20 '64
Maveric; data transmission system errors. Mech Eng 86:60-1 Ag '64
Measurement error propagation. J. R. Miller, 3d. Instruments & Control Systems 37:133-4 Je '64
Method for correction of accumulated error in 180° pulses in Carr-Jurcell experiment. R. C. Wayne and others. il diags R Sci Instr 35:1051-5 Ag '64
Probing active systems statistically for faults. A. A. Wolf. diags IEEE Proc 52:443-4 Ap '64
Recent developments in automatic error correction. P. R. Keller. bibliog il diag Wireless World 70:62-6, 118-21 F-Mr '64
Sources of error in X-ray measurements of residual stress. B. D. Cullity. bibliog J Ap Phys 35:1915-17 Je '64
Sources of errors in ac servos: data file. J. B. Heaviside. diag Control Eng 11:85-6 F '64
Spectrophotometer wavelength reliability. M. E. Auerbach and others. Ind Quality Control 20:45-7 My '64
Surface contamination of La_2O_3 and Nd_2O_3 by B_2O_3; a source of error in X-ray diffractometry. S. Stecura and W. J. Campbell. Am Cer Soc J 47:468 S '64
Tape recording errors. G. H. Schulze. diags bibliog I S A J 11:61-6 My '64
Thermocouple for vacuum tests minimizes errors. R. C. Turner and G. D. Gordon. diag Space/Aeronautics 41:256 Ja '64
Three port tuned microwave reflectometer. M. Brady. bibliog diags J Sci Instr 41:440-4 Jl '64
Total environment monitor. S. V. Preskitt and J. E. Fix. il Instruments & Control Systems 36:77-8 D '63
Tracking and tracing error measurements. D. H. Cooper. bibliog diags Audio Eng Soc J 12:312-26, 344+ O '64
Type I and type II errors; question and answer. Ind Quality Control 20:26 Ap '64
Where are the errors in metering residual fuel for truck shipments? H. R. Stover. diags Oil & Gas J 62:76-7 S 28 '64
Z is for zero defects. P. B. Crosby. Am Mach 108:148A-148D Ap 13 '64

ERRORS, Theory of
Approximate distribution of nearly circular orbits. R. E. Beckwith. bibliog AIAA J 2:913-16 My '64

ERYTHROCYTES
Constancy of red blood cell lipids in man during extreme variations of dietary fat intake. J. G. Hill and others. bibliog Am Oil Chem Soc J 41:393-7 Je '64
Dietary fat and the structure and properties of rat erythrocytes. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 81:75-80; 82:323-32 S '63, Mr '64
Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63

ESCALATORS
Developments in escalator design. il Engineer 217:585 Mr 27 '64
Escalators shrink a Dallas tower. il Eng N 172:16 Ja 16 '64
Pedestrian-carrying moving belt outdoors. il Engineering 197:685 My 15 '64

ESCAPEMENT mechanism
Escapement provides regular intermittent drive. P. Olney. diags Mach 70:130-1 N '63

ESCHERICHIA coli
Coliform standards for recreational waters; progress report. Am Soc C E Proc 89 [SA 4 no 3617]:57-94 bibliog(p91-4) Ag '63; Discussion. 89 [SA 6 no 3745]:77-8 D '63; 90 [SA 1 no 3813]:173 F; [SA 2 no 3884]:39-46 Ap '64; Reply. 90[SA 5 no 4097]:47-9 O '64
Comparison of membrane filter counts and most probable numbers of coliform in San Diego's sewage and receiving waters. D. A. Hoffman and others. map WPCF J 36:109-17 Ja '64
Dissolved oxygen and survival of coliform organisms and enterococci. N. B. Hanes and others. diag Am Water Works Assn J 56:441-6 Ap '64
Effectiveness of potassium permanganate for disinfection. J. L. Cleasby and others. bibliog il Am Water Works Assn J 56:466-74 Ap '64
Observations of coliform bacteria in streams. F. W. Kittrell and S. A. Furfari. bibliog WPCF J 35:1361-85 N '63
Rapid carbon test for coliform bacteria in water. R. M. Scott and others. bibliog Am J Pub Health 54:827-44 My '64
Reevaluation of the significance of the coliform bacteria. H. F. Clark and P. W. Kabler. bibliog Am Water Works Assn J 56:931-6 Jl '64
Significance of coliforms in frozen vegetables. D. F. Splittstoesser and W. P. Wettergreen. bibliog Food Tech 18:392-4 Mr '64
Synthesis of 4-amino-4,6-dideoxy-D-galactose and identification with the 4-amino-4,6-dideoxyhexose from escherichia coli strain Y-10. C. L. Stevens and others. bibliog Am Chem Soc J 86:2937-8 Jl 20 '64
Synthesis of viosamine (4-amino-4,6-dideoxy-D-glucose) by double inversion at C-4 and identification with the 4-amino-4,6-dideoxyhexose from escherichia coli strain. B. C. L. Stevens and others. bibliog Am Chem Soc J 86:2939-40 Jl 20 '64

ESERAMINE. See Alkaloids

ESSENTIAL oils
Essential oil markets 1963. Drug & Cosmetic Ind 94:427 Mr '64
Flavor, what it is, and why? J. J. Broderick. Am Perfumer 79:27-8 My '64
New British perfumery materials factory; Ashford, Kent. il Soap & Chem Spec 40:189+ Ag '64
Perfumery and essential oils. W. D. Fordham. bibliog Manuf Chem 34:530-2+ N '63; 35:67-70 Ap '64
Syringa. Drug & Cosmetic Ind 94:261 F '64
They went thattaway! Food Tech 18:875 Je '64
See also
Citronella oil
Lemon oil
Peppermint oil

Analysis

Instrumental analysis in the evaluation of rare and expensive essential oils. C. Mann. Am Perfumer 78:15-16 N '63
Mustard seed processing; essential oil composition. L. D. Kirk and others. bibliog Am Oil Chem Soc J 41:599-602 S '64

ESSO standard oil company
Esso's a step closer to national name. Oil & Gas J 62:62 Mr 23 '64

ESTERASES
Estimation of a few nanograms of fluoride in presence of phosphate by use of liver esterase. C. McGaughey and E. C. Stowell. bibliog Anal Chem 36:2344-50 N '64

ESTERASES—*Continued*

Synthetic peptide models of enzyme active sites; l-threonyl-l-alanyl-l-seryl-l-histidyl-l-aspartic acid, an active esterase model. P. Cruickshank and J. C. Sheehan. bibliog Am Chem Soc J 86:2070-1 My 20 '64

ESTERIFICATION

Catalytic esterification of saturated carboxylic acids with ethylene under high pressure. S. K. Bhattacharyya and C. R. Lahiri. bibliog J Ap Chem 13:544-7 D '63

Dimethoxypropane induced transesterification of fats and oils in preparation of methyl esters for gas chromatographic analysis. M. E. Mason and G. R. Waller. bibliog Anal Chem 36:583-6 Mr '64

Mechanisms of esterification of 2-benzoylbenzoic acids. M. S. Newman and C. Courduvelis. Am Chem Soc J 86:1893-4 My 5 '64

ESTERS

Acid catalysed hydrolysis of esters. B. Loev. Chem & Ind p 193-4 F 1 '64

Application of specific response factors in the gas chromatographic analysis of methyl esters of fatty acids with flame ionization detectors. F. G. Ackman and J. C. Sipos. bibliog Am Oil Chem Soc J 41:377-8 My '64

Base catalysis of imidazole catalysis of ester hydrolysis. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:833-7 Mr 5 '64

Behavior of esters in liquid hydrogen fluoride. E. J. Hedgley and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:1576-86 Ap 20 '64

Benzopyrylium salts; reaction of flavylium perchlorate with ethyl esters of α-amino acids. R. L. Shriner and R. Sutton. bibliog Am Chem Soc J 85:3989-91 D 20 '63

Chromatographic analysis of sucrose esters of long chain fatty acids. H. Mima and N. Kitamori. bibliog Am Oil Chem Soc J 41:198-200 Mr '64

Controlled-potential electrolysis of hindered half-esters. W. H. Harwood and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:105-12 Je '64

Dynamic aspects of cholesterol ester metabolism in rabbits with atherosclerosis. L. Swell and others. bibliog J Nutrition 81:263-70 N '63

End-group analysis and number-average molecular weight determination of some polyalkylene glycols and glycol polyesters using nuclear magnetic resonance spectroscopy. T. F. Page, jr. and W. E. Bresler. bibliog Anal Chem 36:1981-5 S '64

Equilibrium distribution of acyl groups between primary and secondary hydroxyl positions in partial esters. J. D. Brandner and R. L. Birkmeier. bibliog Am Oil Chem Soc J 41:367-70 My '64

Ester, ether, and carbonyl functions as *ortho* participants in the dissociation of iodobenzene dichloride. L. J. Andrews and others. bibliog Am Chem Soc J 86:687-90 F 20 '64

Heats of combustion of aliphatic long chain peroxyacids, *t*-butyl peroxyesters, and related acids and esters. H. A. Swain, jr. and others. bibliog Am Chem Soc J 86:2562-6 Jl 5 '64

Hydroboration; the reaction of unsaturated esters with diborane and disiamylborane. H. C. Brown and K. A. Keblys. bibliog Am Chem Soc J 86:1795-801 My 5 '64

Intramolecular aminolysis of esters and transamidation. R. B. Martin and others. bibliog Am Chem Soc J 86:2406-13 Je 20 '64

Investigation of maleate-fumarate isomerization in unsaturated polyesters by nuclear magnetic resonance. L. G. Curtis and others. bibliog Ind & Eng Chem Product Res & Develop 3:218-21 S '64

Isolation, identification, and gas chromatographic estimation of some esters and alcohols of lemon oil. R. M. Ikeda and E. M. Spitler. bibliog J Agri & Food Chem 12:114-17 Mr '64

Kinetic demonstration of a metastable intermediate in a nucleophilic displacement at a thiol-ester bond. T. C. Bruice and L. R. Fedor. Am Chem Soc J 86:738-9 F 20 '64

Molecular structure of the methyl ester of *o*-nitrobenzenesulfenic acid. W. C. Hamilton and S. J. LaPlaca. bibliog Am Chem Soc J 86:2289-90 Je 5 '64

Neighboring group effects on ester hydrolysis. Y. Shalitin and S. A. Bernard. bibliog Am Chem Soc J 86:2291-2 Je 5 '64

Nonlinear structure-reactivity correlations; the imidazole-catalyzed hydrolysis of esters. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:837-46 Mr 5 '64

Nutritional studies of polyglycerol esters. V. K. Babayan and others. Am Oil Chem Soc J 41:434-7 Je '64

Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolysis of specific ester substrates at low pH. F. J. Kézdy and M. L. Bender. Am Chem Soc J 86:937-8 Mr 5 '64

Peptide synthesis via active esters; racemization and ring-opening reactions of optically active oxazolones. M. Goodman and L. Levine. bibliog Am Chem Soc J 86:2918-22 Jl 20 '64

Photochemistry of α-keto acids and α-keto esters. P. A. Leermakers and G. F. Vesley. bibliog Am Chem Soc J 85:3776-9; 86:1768-71 D 5 '63, My 5 '64

Physical properties of fatty acid methyl esters. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:142-5, 426-9, 514-15, 524-6, 675-8 F, Je-Ag, O '64

Quantitative saponification of highly hindered esters by perchlorate anion catalysis. D. E. Jordan. bibliog Anal Chem 36:2134-8 O '64

Rapid semi-micro method for preparation of methyl esters from triglycerides using chloroform, methanol, sulphuric acid. K. V. Peisker. Am Oil Chem Soc J 41:87-8 Ja '64

Study of the activity on the skin of sugar esters, sucroglycerides and derivatives when used as detergents and emulsifiers in cosmetics. L. Nobile and others. bibliog Am Perfumer 79:19-28 Jl '64

Synthesis and characterization of nitronic esters. N. Kornblum and R. A. Brown. bibliog Am Chem Soc J 86:2681-7 Jl 5 '64

Use of esters of N-hydroxysuccinimide in peptide synthesis. G. W. Anderson and others. bibliog Am Chem Soc J 86:1839-42 My 5 '64

See also

Cellulose esters

Analysis

Integrated absorption standardization for infrared determination of ester content in oxidized polyethylene. J. N. Lomonte. bibliog Anal Chem 36:192-4 Ja '64

ESTHETICS

Aesthetics of design. R. S. Latham. Product Eng 34:114-16 N 11 '63

Future of urban environment. il plans diags Prog Arch 45:162-222 O '64

More on aesthetics. J. N. Sidall. Product Eng 34:115-16 N 11 '63

Wavy line versus the Cube. L. Mumford. il diags Arch Rec 135:111-16 Ja '64

ESTIMATES

Enigma of oil and gas economics. W. B. Davis. bibliog Pet Management 36:53-60 Ag '64

Estimate design engineering costs. H. C. Bauman. Hydrocarbon Process & Pet Refiner 43:141-4 O '64

Estimating forms; three new ideas. il Dom Eng 204:102-4 S '64

Estimating petrochemical plant costs from flow sheets. C. C. Schwartz. plan Oil & Gas J 61:156-9 N 11 '63

Financial concepts for economic studies. P. H. Jeynes and C. J. Baldwin. Westinghouse Eng 24:8-14 Ja '64

Preliminary estimates for steam-jet air ejectors. Chem Eng 71:120+ F 3 '64

Project yields by a probability method. W. D. Maughan and R. Y. Kawano. bibliog map Am Soc C E Proc 89 [HY 3 no 3513]:41-60 My '63; Correction. 89 [HY 5 no 3656]:171 S '63; Discussion. 89 [HY 5 no 3708]:279-86 N '63; 90 [HY 1 no 3783]:273-6 Ja '64; Reply. 90 [HY 3 no 3911]:327-30 My '64

Why cost estimates go astray. R. Williams, jr. Chem Eng Prog 60:15-18 Ap '64

See also subdivision Estimates under special subjects, e.g.

Building
Chemical engineering
Electric contractors
Piping

ESTROGENS

Analysis

Determination of estrogens in low and high titer urines using thin layer and gas liquid chromatography. H. H. Wotiz and S. C. Chattoraj. bibliog Anal Chem 36:1466-72 Jl '64

Photogrammetry of estrogens on thin layer chromatograms by a one-step photographic procedure. G. M. Jacobsohn. il diag Anal Chem 36:2030-2 S '64

Quantitation of estrone, estradiol, and estriol on thin layer chromatograms by a photogrammetric procedure. G. M. Jaobsohn. bibliog il Anal Chem 36:275-9 F '64

ESTRONE
Reductive aromatization of steroidal dienones; a new method for the preparation of estrone. H. L. Dryden, jr. and others. Am Chem Soc J 86:742-3 F 20 '64

ESTUARIES
Biological and chemical features of tidal estuaries. H. F. Frolander. bibliog map diags WPCF J 36:1037-48 Ag '64
Estuarine water quality management and forecasting. R. V. Thomann and M. J. Sobel Am Soc C E Proc 90 [SA 5 no 4116]: 9-36 O '64
Methods of predicting conditions of a polluted estuary; abstract. W. S. Preddy and others. WPCF J 36:320-1 Mr '64
Model simulation of salinity intrusion in tidal estuaries. D. I. H. Barr. bibliog diags Engineer 216:885-93 N 29 '63
Pollution study of a future tidal estuary; Dominguez Channel, Los Angeles. C. A. Rambow. bibliog map diag WPCF J 36: 520-8 Ap '64
Radio-linked tide gauges in the Thames estuary. il diags Engineer 216:849-50 N 22 '63
Significance of longitudinal dispersion in the analysis of pollution in estuaries; abstract. D. R. F. Harleman. WPCF J 36:285 Mr '64

ETCHING (glass)
Effect of silicone quenching and acid polishing on the strength of glass. P. C. Fletcher and J. J. Tillman. bibliog Am Cer Soc J 47:379-82 Ag '64
Etching polished depressions in glass plates. P. W. Kendall. J Sci Instr 41:485 Jl '64
Growth spirals on glass. R. M. Tichane and L. B. Wilson. il J Ap Phys 35:2537-40 Ag '64

ETCHING (metals)
Accurate location of chemically etched areas. J. W. Tunwall. il Tool & Manuf Eng 53: 61-3 N '64
Capacitance and microstructure of etched aluminum foils. R. Bakish and R. Kornhaas. il diags Materials Res & Stand 3:640-3 Ag '63; Discussion. 4:301-2 Je '64
Comparison of copper etchants. E. C. Jubb, jr. diags Plating 51:311-16 Ap '64
Controlled etching of tunnel diodes. A. M. Goodman. diags R Sci Instr 35:642-4 My '64
Hand-held stylus erases metal. il Iron Age 193:90 F 13 '64
New etchant brings out grain boundaries in martensitic steels. G. A. Dreyer and others. il Metal Prog 86:116-17 Jl '64
Photoetched parts. W. A. Strauss, jr. il diags Machine Design 36:132-5 Je 4 '64
Photo-etching thin-film circuits. C. W. Skaggs. il diags Electronics 37:94-8 Je 15 '64
Role of the competing etching process in determining the quality of pyrolytically grown silicon and germanium films. E. G. Bylander. bibliog J Ap Phys 35:1358-9 Ap '64
Wetting agent solves photoetching problem. I. F. Barditch and C. Z. Leinkram. il diag Electronics 36:54+ D 13 '63

ETCHING (minerals)
Chemical etching of germanium in solutions of HF, HNO$_3$, H$_2$O and HC$_2$H$_3$O$_2$. B. Schwartz and H. Robbins. bibliog Electrochem Soc J 111:196-201 F '64
Electrochemical and ion bombardment etching of pyrolytic graphite. A. Tarpinian. bibliog il Am Cer Soc J 47:532-3 O '64
Etch pits in BaTiO$_3$ single crystals. W. S. Rothwell. il Am Cer Soc J 47:409-11 Ag '64
Etching of gallium arsenide with nitric acid. D. F. Kyser and M. F. Millea. il Electrochem Soc J 111:1102-4 S '64
Etching of germanium substrates in gaseous hydrogen chloride. J. A. Amick and others. il diags RSA R 24:473-87 D '63
Formation of electrochemical etch pits on the Arabic (111) face of copper. U. Bertocci and others. il diag Electrochem Soc J 110: 1190-4 D '63
Origin of anomalous etch pits in minerals. R. L. Fleischer and others. bibliog il Am Mineralogist 49:794-800 My '64
Water vapor as an etchant for silicon. T. L. Chu and R. L. Tallman. bibliog Electrochem Soc J 111:1306-7 N '64

ETHANE
Catalysis over supported metals; kinetics of ethane hydrogenolysis over nickel surfaces of known area. D. J. C. Yates and others. bibliog Am Chem Soc J 86:2996-3001 Ag 5 '64
Critical temperatures and critical pressures for the ethane-*n*-butane-*n*-pentane system. V. S. Mehra and G. Thodos. bibliog J Ap Chem 14:265-8 Je '64
Joule-Thomson effects for nitrogen-ethane mixtures. A. L. Stockett and L. A. Wenzel. bibliog diags A I Ch E J 10:557-61 Jl '64
Nuclear magnetic resonance spectra of substituted ethanes; *meso*- and *dl*-2,5-diphenylhexanediol-2,5. D. Jung and A. A. Bothner-By. bibliog Am Chem Soc J 86:4025-7 O 5 '64
Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64
Zs of methane and ethane at low pressure. C. B. Wallace, jr. and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 O '64

ETHANOL. See Alcohol

ETHANOLAMINE
Kinetics of absorption of carbon dioxide in monoethanolamine solutions at short contact times. J. K. A. Clarke. bibliog diags Ind & Eng Chem Fundamentals 3:239-45 Ag '64
Nomographs give properties of monoethanolamine solutions. A. Devore. bibliog Chem Eng 71:164 F 17; 176 Mr 16; 210 Ap 13 '64
Vapor pressure nomograph for CO$_2$ and H$_2$S over MEA. G. E. Mapstone. Hydrocarbon Process & Pet Refiner 43:196+ My '64

Manufacture

Ethanolamines; The Leonard process co. diag Hydrocarbon Process & Pet Refiner 42:163 N '63

ETHANOLYSIS. See Alcoholysis

ETHERS
Acylations of ketals and enol ethers. R. D. Youssefyeh. Am Chem Soc J 85:3901-2 D 5 '63
Alkyloxymethyl ethers of sucrose and glucose as surfactants. G. R. Ames and others. bibliog J Ap Chem 14:245-9 Je '64
Catalytic hydrogenolysis of δ-lactones to cyclic ethers. J. T. Edward and J. M. Ferland. bibliog Chem & Ind p975 Je 6 '64
Claisen rearrangement of 1-substituted 2-naphthyl allyl ethers. J. Green and D. McHale. Chem & Ind p 1801-2 O 24 '64
Explosion of diglyme and lithium aluminium hydride. H. R. Watson. Chem & Ind p665 Ap 18 '64
Formation of 2,4-dimethoxy-6-methylphenylacetone from 3,5-dimethoxybenzyl isopropenyl ether; a new variant of the Claisen rearrangement. W. J. le Noble and P. J. Crean. Am Chem Soc J 86:1649-50 Ap 20 '64
Hydrogen bonding in gaseous mixtures; nitric acid ether systems. D. J. Millen and O. A. Samsonov. Chem & Ind p 1694-5 O 19 '63
Hydrogen bonding studies; the thermodynamics of hydrogen bonding of phenol to ethers and related compounds. R. West and others. Am Chem Soc J 86:3227-9 Ag 20 '64
Large salt effects and mechanism in acetone and ether. S. Winstein and others. Am Chem Soc J 86:305-7 Ja 20 '64
Mechanism of the rearrangement of *p*-quinamines to 4-aminodiphenyl ethers. B. Miller. bibliog il Am Chem Soc J 86: 1127-35 Mr 20 '64
Mechanisms of photochemical reactions in solution; photodimerization of methyl β-naphthyl ether. J. S. Bradshaw and G. S. Hammond. bibliog Am Chem Soc J 85:3953-5 D 20 '63
Nonionic surface-active agents; the effect of the alkyl and the polyglycol chain length on the critical micelle concentration of some monoalkyl polyethers. J. E. Carless and others. bibliog J Colloid Sci 19:201-12 Mr '64
Reaction of ethers with acetyl chloride and the identification of products by gas chromatography. P. Waszeciak and H. G. Nadeau. bibliog Anal Chem 36:764-7 Ap '64
Solvent effect on the electronic spectra of ion pairs; ketyls in ethers. J. F. Garst and others. bibliog diag Am Chem Soc J 86:412-18 F 5 '64
Solvolytic halogenation of olefins in ethers. I. G. Dinulescu and others. Chem & Ind p840-1 My 16 '64
Structure of butyllithium in ether; a solvated dimer. Z. K. Cheema and others. diag Am Chem Soc J 85:3517-18 N 5 '63
Studies on the chemistry of aspenwood; the ether-insoluble, water-soluble components of aspen spent sulfite liquor. I. A. Pearl and D. L. Beyer. bibliog Tappi 47:458-62 Ag '64
Transfer reactions involving boron; reactions of the intermediate organoboranes formed by hydroboration of enol ethers. D. J. Pasto and C. C. Cumbo. bibliog Am Chem Soc J 86:4343-50 O 20 '64

ETHERS—*Continued*

Vibrational spectra and structures of digermyl ether and digermyl sulfide. T. D. Goldfarb and S. Sujishi. bibliog Am Chem Soc J 86:1679-83 My 5 '64

See also

Vinyl ethers

Manufacture

New polyether and propylene oxide plants of the Pfizer group. il Ind Chem 40:188-9 Ap '64

ETHICS

See also

Engineering ethics

Professional ethics

ETHOXYCARBONYL compounds

Carbethoxynitrene; selectivity of the C-H insertion. W. Lwowski and T. J. Maricich. Am Chem Soc J 86:3164-5 Ag 5 '64

ETHOXYCARBONYL group

Thermal rearrangement of 9-ethoxycarbonylbicyclo[6.1.0]nona-2,4,6-triene. K. F. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:905-8 Mr 5 '64

ETHOXY compounds

Secondary alcohol ethoxylates as degradable detergent materials. R. C. Myerly and others. bibliog Soap & Chem Spec 40:78-80+ My '64

ETHYL acetate

Cyclisations following radical addition to ethyl diallylacetate. J. I. G. Cadogan and others. Chem & Ind p753 My 2 '64

ETHYLAMINE

Role of dissolved lithium in the reaction between triethylsilane and ethylamine. A. Viste and H. Taube. bibliog Am Chem Soc J 86:1691-3 My 5 '64

Spectrophotometric determination of ethyl-, diethyl-, and triethylamine in aqueous solution. G. Dahlgren. bibliog Anal Chem 36:596-9 Mr '64

Structure-reactivity relationship of olefin reductions with lithium in ethylamine; a comparison of the ethylamine and ammonia systems. A. P. Krapcho and M. E. Nadel. bibliog Am Chem Soc J 86:1096-100 Mr 20 '64

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

ETHYL benzene

Mechanism of transalkylation of the ethylbenzene with gallium bromide-hydrogen bromide. A. Streitwieser, jr. and L. Reif. bibliog Am Chem Soc J 86:1988-93 My 20 '64

Substituent effects of nuclear magnetic resonance chemical shifts in *para*-substituted phenylhexachlorobicyclo[2.2.1]heptenes and ethylbenzenes. K. L. Williamson and others. bibliog Am Chem Soc J 86:4021-5 O 5 '64

Tritium nuclear magnetic resonance spectroscopy; observation of high-resolution signals from the methyl and methylene groups of ethylbenzene; the nonradiochemical use of tritium as a tracer. G. V. D. Tiers and others. bibliog Am Chem Soc J 86:2526-7 Je 20 '64

Manufacture

Olefin-aromatic alkylation; Universal oil products co. diag Hydrocarbon Process & Pet Refiner 42:207 N '63

ETHYL cellulose

Ethyl cellulose. A. L. Bird. Machine Design 36:61-3 S 17 '64

Properties of materials; cellulose nitrate and ethyl cellulose; molded, extruded; tables. Materials in Design Eng 60:216 Mid-O '64

See also

Hydroxyethyl cellulose

ETHYL crotonate

Some reactions of ethyl crotonate. R. H. Peters and others. Chem & Ind p37 Ja 4 '64

ETHYL ether

Concerning the structure of the Grignard reagent; in diethyl ether; relevance of Grignard composition to the mechanism of addition to ketones. E. C. Ashby and M. B. Smith. bibliog Am Chem Soc J 86:4363-70 O 20 '64

Photolysis of spiro[2.5]octa-1,4-dien-3-one in ethyl ether; a note on the mechanism of photolysis of 2,5-cyclohexadienones. D. I. Schuster and C. J. Polowczyk. bibliog Am Chem Soc J 86:4502-3 O 20 '64

Reaction of 5′-thymidylic acid with the condensation product of phosphorus pentoxide and ethyl ether. F. N. Hayes and E. Hansbury. bibliog Am Chem Soc J 86:4172-5 O 5 '64

ETHYL group

Cage combination and disproportionation of $CH_3 + C_2H_5 \rightarrow$ products; the effect of solvents and temperature. P. S. Dixon and others. Am Chem Soc J 85:3344-6 N 5 '63

Optically active *O*-ethyl ethylphosphonochloridothionates; a new route to optically active organophosphorous compounds. J. Michalski and M. Mikolajczyk. Chem & Ind p661-2 Ap 18 '64

ETHYL iodide. See Iodoethane

ETHYLENE

Acetaldehyde from ethylene (Aldehyd G.m.b.H.); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:131 N '63

Acetaldehyde via ethylene oxidation gets tryout in single-stage design; process flowsheet. il Chem Eng 70:150-2 D 9 '63

Analysis of ethylene polymers and copolymers by high resolution nuclear magnetic resonance. R. S. Porter and others. diag Anal Chem 35:1948-50 N '63

Catalytic esterification of saturated carboxylic acids with ethylene under high pressure. S. K. Bhattacharyya and C. R. Lahiri. bibliog J Ap Chem 13:544-7 D '63

Cation radical of tetrakis(dimethylamino) ethylene. K. Kuwata and D. H. Geske. bibliog Am Chem Soc J 86:2101-5 Je 5 '64

Chemisorption and surface chemistry of ethylene on supported platinum catalysts. P. J. Lucchesi and others. bibliog Am Chem Soc J 86:1494-7 Ap 20 '64

Consecutive ion-molecule reactions in ethylene. S. Wexler and R. Marshall. bibliog diag Am Chem Soc J 86:781-7 Mr 5 '64

Cyclobutane formation from mercury-photosensitized reactions of ethylene. J. P. Chesick. bibliog Am Chem Soc J 85:3718-19 N 20 '63

Effect of oils on ethylene-propylene terpolymer. Rubber World 149:54-9 Ja '64

Elastomeric thermoplastic ethylene copolymers; Ultrathene. il diags Chem Eng 71: 98+ Ap 27 '64

Electrochemical oxidation of ethylene; an experimental study. M. Green and others. bibliog diags Electrochem Soc J 111:721-8 Je '64

Epoxidation of ethylenic linkages by chromic acid; oxidation of triphenyl(tolyl)ethylene by chromic oxide. G. E. M. Moussa. bibliog J Ap Chem 13:470-2 O '63

Equilibria in the hydration of ethylene and of propylene. C. S. Cope. bibliog A I Ch E J 10:277+ Mr '64

Evaluation of cross-linking coagents in ethylene-propylene rubber. L. P. Lenas. Ind & Eng Chem Product Res & Develop 2:202-8 S '63; Same. Rubber Chem & Tech 37:229-45 Ja '64

Insertion reaction by methyne forms ethylene. A. P. Wolf and G. Stöcklin. il Chem & Eng N 42:46-7 Ja 27 '64

Investigation of comonomer distribution in ethylene-acrylate copolymers with thermal methods. K. J. Bombaugh and others. diags Anal Chem 35:1834-7 N '63

Kinetics of the oxidation of ethylene by aqueous palladium(II) chloride. P. M. Henry. bibliog Am Chem Soc J 86:3246-50 Ag 20 '64

Limitations on measuring flow rates of polyethylene and ethylene copolymers by extrusion plastometer. A. A. Harban and R. M. McGlamery. bibliog diag Materials Res & Stand 3:906-9 N '63

Mass spectrometry in carbohydrate chemistry; ethylene dithioacetal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:4027-30 O 5 '64

Mass spectrometry in structural and stereochemical problems; the mass spectrometric fragmentation of ethylene ketals. Z. Pelah and others. bibliog Am Chem Soc J 86:3722-9 S 20 '64

New EVA copolymers. Plastics Tech 10:11 Ap '64

New family of tough, rubber-like plastics. il Materials in Design Eng 59:96-7 My '64

New sulfur-curable ethylene-propylene rubber. H E. Haxo, jr. and others. bibliog il Rubber Age 94:255-67 N '63

Optimizing electrical properties of ethylene-propylene terpolymers. J. R. Wolfe, jr. and I. D. Roche. Rubber World 149:62-6 N '63

Philadelphia rubber group symposium on EPT, Jan. 24; abstracts of papers. Rubber Age 95:129-30 Ap '64

Photoelimination of ethylene from 2-pentanone. P. Ausloos and R. E. Rebbert. Am Chem Soc J 86:4512-13 O 20 '64

Photoisomerization depends on concentration; abstract. C. M. Orlando and others. Chem & Eng N 42:43 Ap 20 '64

ETHYLENE—*Continued*

Properties of a new unsaturated ethylene-propylene elastomer. H. H. Waddell and others. bibliog Rubber Age 94:427-37 D '63

Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64

Relative electrocatalytic activity of noble metals in the oxidation of ethylene. H. Dahms and J. O. Bockris. diag Electrochem Soc J 111:728-36 Je '64

Semibatch oeration of a recirculation reactor for the hydrogenation of ethylene. J. P. Leinroth, jr. and T. K. Sherwood. bibliog diag A I Ch E J 10:524-9 Jl '64

U.S. Rubber to double capacity of new ethylene-propylene rubber plant. H. S. Pylant. il diag Oil & Gas J 62:94-5 Ag 3 '64

Vinyl chloride operation converts to ethylene feed. il Chem Eng 71:112 O 12 '64

Vinyl chloride production switched to ethylene base. K. W. Brooks. il diag Oil & Gas J 62:118-19 O 19 '64

See also

Polyethylene

Manufacture

Acetylene and ethylene (Hoechst HTP process); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:135 N '63

Acetylene and ethylene; Research association of polymer raw material. Chiyoda chemical engineering and construction co. diag Hydrocarbon Process & Pet Refiner 42:134 N '63

Cedar Bayou plant doubles Gulf's ethylene capacity. flow diag il Oil & Gas J 62:210-12 O 12 '64

Ethylene and propylene; the Lummus co. flow diag Hydrocarbon Process & Pet Refiner 42:167 N '63

Ethylene; C. F. Braun & co. diag Hydrocarbon Process & Pet Refiner 42:165 N '63

Ethylene from crude oil; Badische anilin- & soda-fabrik AG. diag Hydrocarbon Process & Pet Refiner 42:164 N '63

Ethylene (Lurgi-Ruhrgas); Lurgi corp. diag Hydrocarbon Process & Pet Refiner 42:168 N '63

Ethylene makers plan to add capacity of three billion lb. Oil & Gas J 62:44-5 Mr 30 '64

Ethylene; Petrocarbon developments ltd. flow diag Hydrocarbon Process & Pet Refiner 42:169 N '63

Ethylene; Stone & Webster engineering corp. flow sheet Hydrocarbon Process & Pet Refiner 42:170 N '63

Ethylene; the M. W. Kellogg co. diag Hydrocarbon Process & Pet Refiner 42:166 N '63

Polyethylene and ethylene-propylene copolymers; Standard oil company (Ind.). diag Hydrocarbon Process & Pet Refiner 42:218 N '63

Revamped naphtha cracking for high-purity ethylene; process flowsheet. E. Guccione. il Chem Eng 70:196-8 N 11 '63

Rising ethylene demand spurs expansion talk. Chem & Eng N 42:27-8 S 14 '64

Selected process flow sheets for petrochemicals; ethylene-propylene. Oil & Gas J 62:108 S 7 '64

Shell broadens its base in European ethylene. il Chem & Eng N 42:60 Jl 20 '64

Shell plans U.K. ethylene expansion. Chem & Eng N 42:94 F 3 '64

Upgrading by-products. S. M. Parkhill. il diags Comp Air Mag 69:8-13 Ja '64

ETHYLENE, Liquid

Enjay offers liquid ethylene in double-duty bulk trailers. il Chem & Eng N 42:30 Je 22 '64

ETHYLENE carbonates

Manufacture

Ethylene carbonate; Jefferson chemical co. diag Hydrocarbon Process & Pet Refiner 42:174 N '63

ETHYLENE compounds

New corona- and heat-resistant cable insulation based on ethylene propylene rubber. R. B. Blodgett and R. G. Fisher. bibliog IEEE Trans Power Apparatus & Systems p980-8; Discusion. il 988-90 D '63

Spectrophotometric determination of iron in ethylene amines with phenyl-2-pyridyl ketoxime. R. Chernin and E. R. Simonsen. Anal Chem 36:1093-5 My '64

ETHYLENEDIAMINE

Polarography of lanthanum(III), praseodymium(III), and ytterbium(III) in anhydrous ethylenediamine. L. C. Hall and D. A. Flanigan. bibliog diags Anal Chem 35:2108-12 D '63

ETHYLENEDIAMINE tetraacetic acid

Application of potentiostatic current integration to the study of the adsorption of cobalt(III)-(ethylenedinitrilo)tetraacetate on mercury electrodes. F. C. Anson. Anal Chem 36:932-4 Ap '64

Determination of iron(III) by (ethylenedinitrilo)tetraacetic acid replacement titrimetry following selective separation by column extraction. S. S. Yamamura. Anal Chem 36:1858-61 Ag '64

Determination of traces of alkaline earths in alkali halides by spectrophotometric titration in the ultraviolet. E. P. Parry and G. W. Dollman. bibliog Anal Chem 36:1783-6 Ag '64

(Ethylenedinitrilo) tetraacetic acid titration of barium in presence of other alkaline earth elements. H. F. Combs and E. L. Grove. Anal Chem 36:400-2 F '64

Evidence for adsorption of cobalt(III)-(ethylenedinitrilo)tetraacetate at platinum electrodes. F. C. Anson. bibliog Anal Chem 36:520-3 Mr '64

Indirect volumetric determination of cobalt in ferrous alloys with EDTA as indicated by Eriochrome Black T. G. A. Bauer. Anal Chem 36:691-2 Mr '64

Nuclear magnetic resonance studies of metal aminopolycarboxylate complexes. R. J. Day and C. N. Reilley. bibliog Anal Chem 36:1073-6 My '64

Potentiometric titration of metal ions using a silver electrode. J. S. Fritz and B. B. Garralda. Anal Chem 36:737-41 Ap '64

Proton magnetic resonance spectra and structures of ethylenediaminetetraacetic acid, methyliminodiacetic acid, and nitrilotriacetic acid chelates of molybdenum(VI). S. I. Chan and others. bibliog Am Chem Soc J 86:377-9 F 5 '64

Spectrophotometric determination of primary amines in aqueous solution with copper-(ethylenedinitrilo)tetraacetic acid. I. M. Citron and A. Mills. Anal Chem 36:208-10 Ja '64

Zinc and cadmium thickness determination; weight-area method employing EDTA. S. Konishi. Metal Finishing 62:84-6 My '64

Analysis

New spectrophotometric method for the determination of (ethylenedinitrilo)tetraacetic acid. C. J. Parker, jr. Anal Chem 36:236-7 Ja '64

ETHYLENE oxide

Ethylene oxide capacity nears two billion lb/year. H. S. Pylant. il Oil & Gas J 62:124 Ap 27 '64

Ethylene oxide growth will be modest. Chem & Eng N 42:30-1 Ap 6 '64

Interaction between some acid wool dyes and nonylphenol-ethylene oxide derivatives; diffusion coefficients of dyes in aqueous solutions containing surfactants. B. R. Craven and A. Datyner. bibliog Soc Dyers & Col J 79:515-19 N '63

Relation of structure of ethylene oxide ether-type nonionic surfactants to herbicidal activity of water-soluble herbicides. L. L. Jansen. bibliog diags J Agri & Food Chem 12:223-7 My '64

Analysis

Analysis of fatty acid-ethylene oxide adducts by countercurrent distribution. F. P. Wetterau and others. bibliog Am Oil Chem Soc J 41:383-7 My '64

Determination of ethylene oxide in air. N. E. Bolton and N. H. Ketcham. diag Archives Environmental Health 8:711-20 My '64

Determination of nonionic ethylene oxide adduct in some commercial products. J. R. Weber and others. bibliog Anal Chem 36:678-9 Mr '64

Manufacture

Ethylene oxide and glycol; Japan catalytic chemical co. diag Hydrocarbon Process & Pet Refiner 42:173 N '63

Ethylene oxide and glycol; Shell development co. diag Hydrocarbon Process & Pet Refiner 42:172 N '63

Ethylene oxide; Scientific design co. flow sheet Hydrocarbon Process & Pet Refiner 42:171 N '63

Physiological effect

Chronic toxicity of ethylene oxide. R. E. Joyner. bibliog Archives Environmental Health 8:700-10 My '64

ETHYLENIMINE
Reaction between anhydrous ethyleneimine and water. P. F. Pascoe and W. A. Sherbrock-Cox. bibliog diag J Ap Chem 13: 564-72 D '63

ETHYNYL benzene
Organic sulfur compounds; free-radical addition of thiols to phenylacetylene. A. A. Oswald and others. bibliog Am Chem Soc J 86:2877-84 Jl 20 '64

ETHYNYL group
Conformational analysis; the conformational preference of the ethynyl group. R. J. Ouellette. bibliog Am Chem Soc J 86:3089-90 Ag 5 '64

ETIOLOGY. See Diseases—Causes and theories of causation

ETTRINGITE
Oriented overgrowths of thaumasite on ettringite. A. B. Carpenter. bibliog il Am Mineralogist 48:1394-6 N '63

EUCALYPTUS
Behavior of salts of a carboxymethylated eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:170-6 Mr '64
Carboxymethylation of a eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:107-10 F '64

EUGENE, Oregon

Water supply

Water by remote control. K. W. Rinard. diag Water Works & Wastes Eng 1:67-8 O '64

EUROPE
See also
Gas, Natural—Europe, Supply to
also subdivision Europe under special subjects, e.g.
Aluminum industry and trade
Automobile industry and trade
Chemical industries
Electric lines
Electricity supply
Electronics industry
Food industry and trade
Gas, Natural
Gas, Natural—Pipe lines
Gas industry
Lime industry
Metal trade
Mines and mineral resources
Patent laws and regulations
Petroleum industry and trade
Petroleum pipe lines
Petroleum products pipe lines
Radio broadcasting
Refrigerating industries
Scientific research
Space research
Steel industry and trade
Television broadcasting
Textile industry
Water supply

Commercial policy

See also
European free trade association

Economic union

See European economic community

EUROPEAN association of exploration geophysicists
Annual meeting, 25th, Liege, Belgium, June 3-5; program and abstracts of papers. Geophysics 29:893-908 O '64

EUROPEAN coal and steel community
Coal economics in Europe, 1963. O. Anderson. il Min Cong J 50:74-8 F '64
First decade of E.C.S.C. Engineer 216:787-9 N 8 '63
Problems of a contracting mining community; European experience. F. M. Vinck. Min Eng 16:57-9 Je '64

EUROPEAN economic community
Africa: EEC's bid for larger markets. L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:97-113 Jl '64
Common market creates new packaging concepts. R. S. Dickens. il Food Eng 36:46-8 Mr '64
Common patents for the common market. bibliog il Chem & Eng N 42:86-102+ Je 15 '64 (reprint $1)
De Gaulle unlikely to quit EEC. Chem & Eng N 42:90 N 9 '64
Europe lowers contractor bars. Eng N 173:64 Ag 6 '64
How labor affects EEC chemical costs. L. H. Frampton. bibliog Hydrocarbon Process & Pet Refiner 43:127-32 F '64
Impact of the foreign market on the United States economy. C. W. Eurenius. Paper Ind 46:389-90 Ag '64

EUROPEAN free trade association
Plastics association meeting, 7th, Fredensborg, Denmark, April 13-15. Brit Plastics 37:298-9 Je '64
Plastics association plenary meeting, Hämeenlinna, Finland, Sept. 16-17. Brit Plastics 36: 642-3 N '63

EUROPEAN organization for nuclear research
European nuclear research centre (C.E.R.N.). il plans Engineer 217:1011-13 Je 5 '64
European organization for nuclear research. Phys Today 17:97+ My '64

EUROPIUM
Atomic absorption spectra of europium, thulium, and ytterbium using a flame as line source. R. K. Skogerboe and R. A. Woodriff. Anal Chem 35:1977 N '63
Epr of exchange-coupled pairs of Eu^{2+} in CaO and SrO. B. A. Calhoun and J. Overmeyer. J Ap Phys 35:989-90 pt 2 Mr '64
Fluorescence and stimulated emission from trivalent europium in yttrium oxide. N. C. Chang. bibliog il J Ap Phys 34:3500-4 D '63
Fluorescence of the europium and terbium dibenzoylmethides. M. Metlay. bibliog Electrochem Soc J 111:1253-5 N '64
Kinetics of the reduction of some cobalt(III) complexes by chromium(II), vanadium (II), and europium(II). J. P. Candlin and others. bibliog Am Chem Soc J 86:1019-22 Mr 20 '64
Magnetic properties of Eu; abstract. G. P. Arnold and others. J Ap Phys 35:1031 pt 2 Mr '64

Analysis

Determination of europium(II) and total europium in europium-activated lithium iodide scintillation crystals. D. A. Constanzo. bibliog Anal Chem 36:2042-4 S '64

EUROPIUM compounds
Ferromagnetic europium compounds. T. R. McGuire and M. W. Shafer. bibliog J Ap Phys 35:984-8 pt 2 Mr '64
High-temperature heat capacity of ferromagnets having first- and second-neighbor exchange; application to EuS. P. J. Wojtowicz. J Ap Phys 35:991-3 pt 2 Mr '64
Laser action in europium dibenzoylmethide. E. J. Schimitschek and R. B. Nehrich, jr. bibliog il J Ap Phys 35:2786-7 S '64
Spin waves in EuS; abstract. S. H. Charap. bibliog J Ap Phys 35:988 pt 2 Mr '64

EUROPIUM hydroxide
Thermal decomposition of europium hydroxide. R. C. Rau and W. J. Glover, jr. bibliog il Am Cer Soc J 47:382-7 Ag '64

EUROPIUM oxide
Paramagnetic susceptibility of Eu_2O_3 from 300° to 1300°K. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:1181-3 Ap '64

EUSTIS, Florida

Sewerage

Expansion by duplication. W. H. Kuhrt, jr. and A. E. O'Neall. il diag Water Works & Wastes Eng 1:102-4 My '64

EUTECTICS
Accelerated spheroidization of eutectoid steels by concurrent deformation. J. L. Robbins and others. bibliog il Iron & Steel Inst J 202:804-7 O '64
Applicability of minimum rate of entropy production to the solidification of lamellar eutectics. W. A. Tiller. diags J Ap Phys 34:3615-17 D '63
Constitution and microstructure of some binary alkali halide mixtures. J. G. Loxham and A. Hellawell. bibliog il diags Am Cer Soc J 47:184-8 Ap '64
Factors affecting the modification of the aluminium-silicon eutectic. V. D. Davies and J. M. West. bibliog il diags Inst Metals J 92:175-80 '63-64
Fractional solidification of eutectic-forming mixtures. W. R. Wilcox. bibliog Ind & Eng Chem Fundamentals 3:235-9 Ag '64
Joints made leaktight via eutectic bonding. il Steel 154:61-2 F 3 '64
Mechanisms of crystallization in binary eutectic systems. V. D. Davies. bibliog il diag Inst Metals J 93:10-14 '64-65
Origin of rod-like eutectic. A. S. Yue. bibliog il Inst Metals J 92:248-9 '63-64
Solidification of iron-carbon alloys of nearly eutectic composition. G. Koves and L. F. Mondolfo. il Iron & Steel Inst J 202:424-6 My '64
Solidification of lamellar eutectic systems. W. A. Tiller and R. Mrdjenovich. bibliog il J Ap Phys 34:3639-40 D '63
Structure of eutectics. B. E. Sundquist and others. bibliog il Inst Metals J 91:204-8 '62-63; Abstract. Metal Prog 85:178-9 F '64

EVAPORATED milk. See Milk, Evaporated

EVAPORATION
Aiming for better evaporation, crystallization. il Chem Eng 71:100+ My 11 '64
Air systems and Yankee drying. T. Gardner. Tappi 47:210-14 Ap '64
Aluminum floating deck. il Light Metal Age 22:24 Ag '64
Behavior of evaporating electrically charged droplets. A. Doyle and others. diag J Colloid Sci 19:136-43 F '64
CdS thin-film formation by the method of co-evaporation. F. A. Pizzarello. diag J Ap Phys 35:2730-2 S '64
Combined sputtering and evaporation plant. il Metallurgia 69:206-7 My '64
Direct contact heat transfer for sea water evaporation. C. R. Wilke and others. bibliog flow sheet il diags Chem Eng Prog 59:69-75 D '63
Epitaxy of compound semiconductors by flash evaporation. J. L. Richards and others. il J Ap Phys 34:3418-20 N '63
Estimating evaporation from insolation. R. K. Lane. bibliog Am Soc C E Proc 90 [HY 5 no 4025]:33-41 S '64
Estimating evapotranspiration from solar radiation. M. E. Jensen and H. R. Haise. bibliog Am Soc C E Proc 89 [IR 4 no 3737]: 15-41 D '63; Discussion. J. E. Christiansen. 90 [IR 2 no 3941]:63-4 Je '64
Estimating forced evaporation from cooling ponds. G. E. Harbeck, jr. Am Soc C E Proc 90 [PO 3 no 4061]:1-9 O '64
Evaporation; CE feature report. F. C. Standiford, jr. bibliog il diags Chem Eng 70:157-76 D 9 '63 (reprints 50c)
Evaporation from Pyramid and Winnemucca Lakes, Nevada. S. T. Harding. map Am Soc C E Proc 88 [IR 1 no 3083]:1-13 Mr '62; Discussion. 88 [IR 2 no 3170]:119-23 Je; [IR 3 no 3286]:49-57 S; [IR 4 no 3377]:53-4 D '62; Reply. 89 [IR 2 no 3554]:65-7 Je '63; 90 [IR 1 no 3848]:111-13 Mr '64
Evaporation system recovers plating solutions from contaminated rinse water. H. E. P. Barta. il diag Automation 11:54-6 My '64
Falling film yields superphosphoric acid. il diag Chem Eng 71:94+ My 11 '64
Gas-film effects in the linear pyrolysis of solids. R. H. Cantrell. bibliog il diags AIAA J 1:544-50 Jl '63; Discussion. W. H. Andersen. bibliog 2:404-6; Reply. 406-7 F '64
Heat transfer and pressure drop of refrigerants evaporating in horizontal tubes. R. C. Johnston, jr. and J. B. Chaddock. ASHRAE J 6:91-2 My '64
Method for the continuous measurement of thickness and deposition rate of conducting films during a vacuum evaporation. J. A. Turner and others. il diags J Sci Instr 40: 557-61 D '63
Method for vacuum evaporation of silicon oxide films. F. Nesh. diag R Sci Instr 34:1437 D '63
Miscibility of III-V semiconductors studied by flash evaporation. E. K. Müller and J. L. Richards. il diags J Ap Phys 35: 1233-41 Ap '64
Preventing evaporation losses from atmospheric storage tanks. J. G. Devys. il diags Chem Eng 71:87-90 Mr 30 '64
Separation of evapotranspiration and deep percolation. L. S. Willardson and W. L. Pope. bibliog Am Soc C E Proc 89 [IR 3 no 3638]:77-88 S '63; Discussion. 90 [IR 1 no3848]:139-41 Mr; [IR 2 no 3941]:55-7 Je '64
Slow electron transfer through evaporated Au films. H. Kanter. J Ap Phys 34:3629-30 D '63
Solar salt production control by flame photometry. H. P. Rothbaum and W. Kitt. Chem & Ind p 1392 Ag 1 '64
Theory of whisker growth and evaporation. J. A. Simmons and others. bibliog J Ap Phys 35:2271-2 Jl '64
Unique consumptive use curve related to irrigation practice. V. E. Hansen. bibliog Am Soc C E Proc 89 [IR 1 no 3449]:43-50 Mr '63; Discussion. 89 [IR 3 no 3655]:97-105 S; [IR 4 no 3746]:47-51 D '63; Reply. 90 [IR 2 no 3941]:51-2 Je '64
Uses laser beam for thin-film evaporation at 2° K. F. L. Bonem. il diag Res/Develop 15:50-2 Je '64
Visual study of two-phase flow while evaporating in horizontal tubes. W. R. Zahn. bibliog flow diag il diags A S M E Trans ser C 86:417-29 Ag '64
See also
Distillation
Drying
Gasoline—Evaporation losses
Reservoirs—Evaporation control
Sublimation
Vaporization
Volatility

EVAPORATORS
ASHRAE project to study evaporator response. W. F. Stoecker. diags ASHRAE J 6:79 S '64
Analytical applications and construction of long-tube vaporizers. B. D. Ash. diags Anal Chem 36:1363-5 Je '64
Another simple rotary evaporator. R. Baker and others. il diag Chem & Ind p55-6 Ja 11 '64
Calculation of evaporator heat balances from operating data. D. Wetherhorn. diag Tappi 47:sup 168A-71A F '64
Continuous evaporator system. diag Engineer 218:290 Ag 21 '64
Converts surplus milk to concentrates and drys. A. V. Gemmill. il diags Food Eng 36:54-6 Ap '64
Dual-purpose electron beam. Franklin Inst J 276:457-8 N '63
Efficient but inexpensive rotary film evaporator. A. J. Collings. diag Chem & Ind p 1271 Jl 11 '64
Evaporating with economy. O. D. Turner and J. V. Ziemba. il diags Food Eng 36:39-41 Ag '64
Evaporation; CE feature report. F. C. Standiford, jr. bibliog il diags Chem Eng 70:157-76 D 9 '63 (reprints 50c)
Evaporator causes less heat damage. il Engineering 198:239 Ag 21 '64
Evaporator for use in an electron microscope. A. E. Curzon and K. Kimoto. diags J Sci Instr 40:601-2 D '63
Evaporator level indication. W. A. Huss. il diags Combustion 35:36-8 Mr '64
Flash evaporator meets high-pressure boiler demand to top quality makeup. G. Ostroot, jr. and W. L. Buettner. il diags Power 108:70-3 F '64
Flow resistance with boiling refrigerants. B. Pierre. diags ASHRAE J 6:58-65 S; 73-7 O '64
Low operating costs, a feature of thermal compression evaporation. H. L. Smith, jr. Tappi 46:sup 182A-3A D '63
Ring sealed rotary evaporator. R. J. Ferrier and R. W. Marsh. il diag Chem & Ind p 1559-60 S 5 '64
Rotary film evaporator. J. G. Alsing. diag Chem & Ind p55 Ja 11 '64
Rotary film evaporator for solid concentrates. I. C. P. Smith. diag Chem & Ind p54 Ja 11 '64
Simple electron bombardment apparatus for evaporating boron. K. L. Erdman and others. diag R Sci Instr 35:122-3 Ja '64
60-sq.-ft., all-glass climbing film evaporator. Franklin Inst J 277:180 F '64
Small-scale reboiler simulates process conditions. C. W. Roos. diag Chem Eng 71: 175 Mr 16 '64
Thin film evaporation. L. E. Najder. flow chart il diag Ind & Eng Chem 56:26-30 F '64
Thin-film evaporator can produce dry powders. il diag Chem Eng 70:52+ D 23 '63
Two new evaporators go to work. diags Food Eng 36:137-8 My '64
Unique thin-film evaporator cuts processing time. diag Chem Eng 70:76+ N 25 '63
Vacuum-spray evaporator. W. Schultz. il diags Food Eng 36:62-3 Ag '64
Vapor reheat process for water desalination. D. F. Othmer and others. flow sheet il Chem Eng Prog 59:63-8 D '63

Design
Designing thermosiphon reboilers. G. A. Hughmark. il diag Chem Eng Prog 60:59-61 Jl '64
Plastic spots enhance heat transfer. il Can Chem Process 48:69+ O '64
Sizing vertical flash tanks; reference data. R. E. Bolaffio. diag Air Cond Heat & Ven 61:83-4 Jl '64

EVIDENCE (law)
See also
Photography, Legal

EVOLUTION
Early relatives of man. E. L. Simons. il map diags Sci Am 211:50-62 Jl '64
Evolution of bowerbirds. E. T. Gilliard. il diag Sci Am 209:38-46 Ag '63; Discussion. 209:10+ D '63
Protein offers clue to evolution. E. Margoliash and E. L. Smith. il Chem & Eng N 42:52-4 Ag 17 '64

EVOLUTION—*Continued*
Strategy of evolution. L. B. Slobodkin. bibliog Am Scientist 52:342-57 S '64
See also
Man
Species

EXAMINATIONS
Computer aid with examination results. B. Downs and N. J. Cubitt. Engineering 196: 661 N 22 '63
See also
Physics—Examinations

EXAMINATIONS, Physical. See Physical examinations

EXCAVATING machinery
Army research engineers breed mechanical war horses. J. H. Kerkering. il diags S A E J 72:68-71 My '64
Articulated dozer is a pusher. il Eng N 172: 170 Mr 19 '64
Backhoe excavates for cofferdam. il Eng N 171:167 D 19 '63
Backhoe strips itself for travel. il Eng N 173: 32 O 29 '64
Barge rig digs faster on land than water. il Eng N 173:32-3 S 24 '64
Belt loader and dozers eat through 900,000 yard shale cut. il Roads & Sts 107:56-9 F '64
Big Eartha is truck mounted. il Eng N 172: 110 F 13 '64
Big equipment speeds work on Interstate 95. il Diesel Equip Supt 42:62 O '64
Big rigs solve a rocky problem. il Eng N 173: 39+ Jl 16 '64
Big wheel replaces draglines at Oroville. il Eng N 172:26-7 My 14 '64
Dozer blade serves five ways. il Eng N 173: 49 Jl 16 '64
Dry-break saves fueling costs. il Eng N 173: 89-90 Jl 2 '64
Excavator has telescoping boom. il Eng N 173:32 O 29 '64
Excavator with its own firm base. il diag Engineering 197:217 F 7 '64
Fast 40-yd walker ups Caney Creek productivity. il Coal Age 69:66-8 Je '64
Fifth wheel does the digging; crawler-mounted wheel excavator. il Eng N 171:45-6 N 21 '63
How to boost open-pit productivity; materials handling; productivity measured. B. R. Henderson. il Eng & Min J 164:82-7 N '63
Human engineering improves operator efficiency. il Coal Age 69:134+ Jl '64
Hydraulic backhoe digs deep. il Eng N 172: 188 Je 18 '64
Hydraulic backhoe telescopes. il Eng N 172: 50 F 27 '64
Hydraulic crawler-mounted excavator. il Engineer 217:627 Ap 3 '64
Man-made seal materials challenge natural rubber for tough jobs. B. C. Vandermar and R. W. Malcolmson. diags S A E J 72: 76-84 Jl '64
Mobile excavator/loader machine. il Engineer 217:270 F 7 '64
New earth moving machines; illustrations with text. Engineer 217:97 Ja 10 '64
Pipeline products. il Gas Age 131:26-7, 30 Mr '64
Poclain: one machine; 40 attachments. il Eng N 172:57-8 Je 11 '64
3,500-cu-yd-an-hour digging wheel makes debut at San Luis dam. il Eng N 172:28-30 My 7 '64
Track or tires for cheaper dirt? il Coal Age 68:84-6+ D '63
Track or tires for low-cost dirt? il Rock Prod 67:100-2+ F '64
Tracks or tires? factors to consider in selecting bulldozers. il Eng & Min J 165:161-3 Je '64
Walking mechanism for a dragline. A. T. Heath. il diags Engineer 218:135-7 Jl 24 '64
Welding speeds construction of world's biggest dragline. il Welding J 42:893-4 N '63
World's biggest earthmoving job makes history in Pakistan; Mangla dam project. P. B. Harder. il Roads & Sts 107:64-9+ Ag '64
See also
Buckets
Dredges
Earthwork
Mining machinery
Road making machinery
Rock drills
Scrapers
Shoveling machines
Trenching machinery
Tunneling machines

Maintenance and repair

For operating safety, inspect wire rope boom supports. R. O. Kasten. il diags Pit & Quarry 56:115-16+ Je '64; Same. Safety Maint 128:14-16 Ag '64
How big tires are retreated for lower earthmoving costs. il Roads & Sts 106:36-8+ N '63
Isbell's pampered tires see little down time. il Roads & Sts 107:60-2 F '64
Mobile equipment servicing with systematic program. Pit & Quarry 57:32 Jl '64
Rubber-tired tractor shovel maintenance; lube and service. H. C. Burt. il Pit & Quarry 56:131 F '64

Models

Scale models found good route to soil mechanics data. R. J. Sullivan. S A E J 72:69 N '64

Testing

Advances in telemetry open new roads to testing. O. E. Kienow. il diag S A E J 72: 54-5 Jl '64
Scale models found good route to soil mechanics data. R. J. Sullivan. S A E J 72:69 N '64

EXCAVATION
Presplitting studied at Cincinnati transportation conference. Civil Eng 34:40-1 My '64
Soil solidification sinks elevator shaft. diag Eng N 172:170+ Je 18 '64
Stability of cuts in soft soils. T. C. Kenney. bibliog diags Am Soc C E Proc 89 [SM 5 no 3647]:17-37 S '63; Discussion. 90 [SM 3 no 3907]:177-8 My; [SM 4 no 3979]:183-9 Jl '64
See also
Ditches
Drilling and boring (earth and rocks)
Excavating machinery
Grading (earthwork)
Shoring and underpinning
Subways—Construction
Trenches
Tunnel shields
Tunnels and tunneling

Costs

Close bids on bank stabilization; unit prices. Eng N 173:40 O 29 '64

Safety measures

Death in a hole. Heating-Piping 35:155-6 N '63
Sliding trench shields can prevent tragic cave-ins. il diags Roads & Sts 106:42-5+ N '63

EXCAVATION, Subaqueous
Diver operates crawler drill in water deep as 90 ft. il Eng 172:18-19 Ja 30 '64
See also
Blasting, Subaqueous
Bridges—Foundations and piers
Dredging
Tunnels and tunneling, Subaqueous

EXCHANGE of students for technical experience, International association for the. See International association for the exchange of students for technical experience

EXCITATION equipment
Brushless excitation system for large ac generators. D. B. Hoover. il diags Westinghouse Eng 24:141-5 S '64
Developments in turbogenerator excitation systems. M. A. Buchta. bibliog diags Tappi 47:sup 131A-5A Je '64
Excitation of large turbogenerators. V. Easton. bibliog diags Inst E E Proc 111: 1040-8 My '64; Discussion. 111:1754-5; Reply. 1755-6 O '64
Improved excitation system for a-c generators. F. I. Biggs. il diag Power Eng 68: 54-5 Ap '64
Self-excited synchronous generator for isolated power supply. P. L. Alger and R. S. Barton. diags IEEE Trans Power Appartus & Systems 83:1002-6 O '64
Static exciter for alternators up to 75 kva. il Engineer 218:144 Jl 24 '64
Theory and application of the capacitor-excited induction generator. B. C. Doxey. diags Engineer 216:893-7 N 29 '63
Transient response characteristics of an a-c servomotor excited nonsinusoidally and through nonlinear source impedances. J. Law jr. and N. L. Schmitz. flow diag il IEEE Trans Power Apparatus & Systems 83:584-8 Je '64
Underexcited operations of generators. J. Kekela and L. Firestone. map diag IEEE Trans Power Apparatus & Systems 83:811-15; Discussion. 815-17 Ag '64

EXECUTIVES

Executivism, how to climb the executive ladder. B. G. Davis. Mech Eng 86:22-5 Jl '64; Discussion. 86:94-5 N '64

Handbook for executive success. Chem Eng 71:150+ Ja 20 '64

How early can you spot tomorrow's managers? G. T. Kinney. Oil & Gas J 62:100-2 Ag 10 '64

How Standard oil co. (New Jersey) selects its overseas managers. Pet Management 36:60-1 Jl 15 '64

How to succeed in business with a personal assistant. A. J. M. Sykes. Engineering 197:347 Mr 6 '64

Key to competition is management. L. C. Megginson. Pet Management 36:91-5 Ja '64

Learn to use the managerial grid. C. H. Vervalin. Hydrocarbon Process & Pet Refiner 43:191-4 Ap; 184+ My '64

Let's take a new look at the engineer as executive. R. G. Murdick. diags Product Eng 35:94-6 F 3 '64

Manager status commands high price. N. E. Trumbull. Pet Management 36:69-73 Mr '64

Outside activities; how many should you have? N. N. Shaulis. Hydrocarbon Process & Pet Refiner 43:143-4 F '64

Petroleum management man. E. Adams. Pet Management 36:81-3 S; 79-81 O '64

Professional managers now run Sinclair. G. T. Kinney. Oil & Gas J 62:48-9 My 4 '64

Three views of management development; symposium. Oil & Gas J 62:142-5 Ag 3 '64

What makes the managing director tick? Engineering 198:309 S 4 '64

Which kind of manager are you? A. Uris. Textile World 114:61-3 Mr '64

Your boss's eye is on you. G. T. Kinney. Oil & Gas J 62:50-1 Je 29 '64

See also

Industrial management
Office management
Organization in industry
Supervisory workers

Health and hygiene

Some health problems of executives; abstracts of papers. Engineering 197:564-5 Ap 24 '64

Salaries

Executive paycheck study shows salaries are changed but the race is the same. Elec World 160:39-42 N 11 '63

Executives take home more pay. Chem Eng 71:167-8 Jl 20 '64

Training

Executive training now old fashioned. Oil & Gas J 62:70-1 F 17 '64

How Atlantic discovers and develops management talent. G. T. Kinney. Oil & Gas J 62:102-5+ Ap 27 '64

How Shell sharpens young managers. il Oil & Gas J 62:93-4 O 19 '64

Planning succession in a specialist field. Engineering 197:3 Ja 3 '64

See also

Supervisory workers—Training

EXERCISE

Physical activity of obese and nonobese adolescent girls appraised by motion picture sampling. B. A. Bullen and others. bibliog Am J Clinical Nutrition 14:211-23 Ap '64

EXHAUST heat boilers. See Boilers, Waste heat

EXHAUST systems

Design and application of grease filters. R. M. Pasch. bibliog il diag ASHRAE J 6:64-71 My '64

Glass fiber ventilating system serves wire coating line. il Heating-Piping 36:228-9 Mr '64

Inadequate spray exhaust caused mysterious trouble. K. Schreiber. Ind Finishing 40:93-5 O '64

Laboratory hood ventilation. R. S. Brief. diags Air Cond Heat & Ven 61:51-3 Ap '64

Need stretch in your ducting? il Textile Ind 128:171 My '64

Plastic exhaust system stops corrosion attack. il Steel 155:65 Jl 20 '64

Try push-pull ventilation for long-run economy. K. F. Biddle. il diag Plant Eng 18:144-5 My '64

Two approaches to exhausting toxic particles. M. Birken. il diags Plant Eng 18:126-9 Ap '64

Ventilating hoods move with tilting furnaces. S. E. Williams. il diags Plant Eng 18:113-14 F '64

Ventilation of plating, pickling and anodizing tanks; abstract. G. M. Hama. diag Air Cond Heat & Ven 61:51 Ap '64

What is the best way to handle refrigerant leakage? answers. Power 108:162-3 Ag '64

See also

Dust removal

also subdivision Exhaust under special subjects, e.g.

Airplane engines
Automobile engines
Diesel engines
Gas turbines, Aircraft
Internal combustion engines
Rocket engines

EXHIBITION buildings

American standards help build the Fair. il Mag of Stand 35:67-70, cover Mr '64

Curvilinear buildings support convention hall. il diag Prog Arch 45:82 Je '64

Engineering features of free-form concrete thin shell for Eastman Kodak pavilion. L. Zetlin. il diags Am Concrete Inst J 61:1249-59 O '64

Functionality is keynote of welded exhibit structure. R. R. Franceschi and L. F. Greene. il diag Welding Eng 49:45 N '64

Johnson pavilion at World's fair showcase of specialties. il Soap & Chem Spec 40:132-3+ My '64

Preview: New York World's fair 1964-1965. il Arch Rec 135:137-44 F '64

Special report on the World's fair. F. Schneller. il diags Civil Eng 34:54-68 Je '64

Air conditioning

Cooling keynotes World's fair. L. Smith. il plans diag Heating-Piping 36:106-11 Ap '64

Gas cooling is truly a first at the Fair. il Am Gas Assn Mo 45:12-14 D '63

Electric equipment

Unique distribution powers New York world's fair. J. H. Watt. il diag Elec Constr & Maint 62:51-3+ D '63

Lighting

Lighting at the fair; pavilions. B. C. Cooper. il Elec Constr & Maint 63:100+ Jl '64

Lighting details of the Kodak photo-tower; New York world's fair. C. J. Bartleson and others. il diags Illum Eng 59:375-81 sec 2 My '64

Lighting innovations featured at 1964-1965 New York world's fair. il Illum Eng 59:sup 5A-6A Ap '64

New York world's fair 1964-1965 lighting. J. S. Hamel and others. il diags Illum Eng 59:644-59 O '64

EXHIBITION grounds

Welcome mat for New York fair visitors. il Roads & Sts 107:104+ Mr '64

Lighting

Five luminaries light five acres at Utah's State fairgrounds. il Elec Constr & Maint 63:121 Jl '64

Lighting at the fair. B. C. Cooper. il plan diags Elec Constr & Maint 63:93-100+ Jl '64

Lighting innovations featured at 1964-1965 New York world's fair. il Illum Eng 59:sup 5A-6A Ap '64

New York world's fair 1964-1965 lighting. J. S. Hamel and others. il diags Illum Eng 59:644-59 O '64

EXHIBITIONS

EXPO '67; Canadian universal and international exhibition, Montreal. il Comp Air Mag 68:14-18 D '63

International factory equipment exhibition, 12th, Manchester, Sept. 28-Oct. 3. il Chem & Ind p 1808 O 24 '64

One major 1964 exhibition empowers architecture to reflect goals of program; Swiss national exhibition, Lausanne. il plan Arch Rec 135:14-15 My '64

Swiss build a thinking man's fair. O. Tanner. il plan Arch Forum 121:92-9 Jl '64

Swiss national exhibition, Lausanne, April 30-October 25. il Engineer 218:113-16 Jl 17 '64

20th century engineering exhibition, New York. il Arch Rec 136:16-17 S '64

See also

New York (city)—Worlds fair, 1964

also subdivision Exhibitions under special subjects, e.g.

Aeronautics
Agricultural machinery
Air conditioning equipment
Architecture
Atomic power
Automation

EXHIBITIONS—See also—*Continued*
Automobiles
Chemical industries
Construction equipment
Control equipment
Electric apparatus and appliances
Electronic apparatus and instruments
Gas industry
Graphic arts
Heating equipment
Household products
Instruments
Mechanical handling
Motor buses
Motor cycles
Motor trucks
Office appliances
Packaging
Petroleum equipment industries
Petroleum industry and trade
Physical apparatus and instruments
Radio apparatus
Refrigeration and refrigerating machinery
Rock products industry
Science
Scientific apparatus and instruments
Television apparatus
Textile machinery
Tools
Welding machines

EXHIBITS
Anatomy of a promotion; Inter-Oil promotion exhibit. C. B. O'Neal. il Pet Management 36:130+ Ap '64
Designing an acre of rocks; utilize reinforced plastics for major World's fair exhibit. il Plastics World 22:24-5 My '64
Engineering works go on show as modern art. il Eng N 173:28-9 Jl 23 '64
Show toppers from ceramographic exhibit. il Am Cer Soc Bul 43:580-2 Ag '64
See also
Electric utilities—Exhibits
Gas companies—Exhibits

EXHIBITS, Traveling
Japanese industry takes to the water. il Engineering 197:854 Je 26 '64
Showmobile provides on-site demonstrations. L. E. Geffinger and R. F. McShane. il Elec World 161:95+ Je 29 '64
Traveling shows bolt together. il Eng N 172:84 My 21 '64

EXPANDED clay and shale association
Annual meeting, Miami Beach, Jan. 9-10; abstracts of papers. Pit & Quarry 56:154+ Mr '64
Annual meeting, 10th, Miami Beach, Jan. 9-10. Rock Prod 67:110 Mr '64
Midyear meeting, New York, Aug. 6-7; abstracts of papers. Pit & Quarry 57:97-8+ O '64; Rock Prod 67:102+ O '64

EXPANDED metal. See Sheet metal, Expanded

EXPANSION (heat)
Coefficient of thermal expansion and Young's modulus for a one-dimensional model of a solid. J. Mazur and R. J. Rubin. bibliog Am J Phys 31:835-6 N '63
Coefficient of thermal expansion; reduced state correlation for water in the gaseous and liquid states. K. J. De Witt and G. Thodos. bibliog Can J Chem Eng 41:258-60 D '63
Comparisons of materials; coefficient of thermal expansion; tables. Materials in Design Eng 60:21 Mid-O '64
Condensation of metal vapors during rapid expansion; liquid drop nucleation theory. P. G. Hill and others. bibliog A S M E Trans ser C 85:303-14; Discussion. 314-16; Reply. 316-17 N '63
Designing for thermal expansion through piping configuration. J. A. Masek. il diags Heating-Piping 35:123-5 N '63
Errors in vacuum microbalances caused by unequal thermal expansion of the balance arms. C. H. Massen and others. bibliog diags J Sci Instr 41:302-7 My '64
Expansion indicator. L. H. Cook. diag R Sci Instr 35:758-9 Je '64
Factors to watch in designing piping for flexibility. J. A. Masek. diags Heating-Piping 36:97-9 F '64
Influence of clay and water on expansion defects. B. C. Yearley. il diags Foundry 92:73-7 N '64 (to be cont)
Simplified stress analysis for piping systems. L. Maurer and others. bibliog diags Air Cond Heat & Ven 61:94-8 O '64
Temperature dependence of the expansion coefficient of liquid glycerides. P. W. Hendrikse. bibliog Am Oil Chem Soc J 41:184-5 Mr '64
Thermal expansion and change in volume of uranium dioxide on melting. J. A. Christensen. il Am Cer Soc J 46:607-8 D '63
Thermal expansion apparatus for use with differential thermal analysis equipment. E. M. Barrall, 2d and others. bibliog diags Anal Chem 36:2316-18 N '64
Thermal expansion of complex beams. R. Isakower. Product Eng 35:172-4 O 26 '64
See also
Glass—Expansion and contraction

EXPANSION (mathematics)
Asymptotic expansion for the multivariate normal distribution and Mills' ratio. H. Ruben. bibliog J Res Nat Bur Stand 68B:3-11 Ja '64
Asymptotic expansions for circular cylindrical shells. E. Reissner. A S M E Trans ser E 31:245-52 Je '64
Chebyschev expansion of the sine and cosine integrals. R. Barakat and A. Houston. J Math & Phys 42:331-3 D '63
Functional techniques for the analysis of the nonlinear behavior of phase-locked loops. H. L. Van Tress. bibliog diags IEEE Proc 52:894-911 Ag '64
Local similarity expansions of the boundary-layer equations. W. B. Bush. AIAA J 2:1857-8 O '64

EXPANSION joints. See Pipe joints

EXPERIMENTAL airplanes. See Airplanes, Experimental

EXPERIMENTAL design
Analysis of rail steel bar welds by two-level factorial design. S. M. Wu. diags Welding J 43:sup 179-83 Ap '64
Application of experimental design to the study of a test method. R. T. Thaxter and P. Hubbe. Tappi 46:sup 189A-92A; Discussion. J. Mandel. sup 193A-4A D '63
Automatic data logging for experimentation and quality control. C. A. Bicking and others. il Ind Quality Control 20:12-16 D '63
Components of variance in a fixed model; problem and reply. C. R. Hicks. Ind Quality Control 20:37+ N '63
Design screening experiments for situations in which the number of variables is very large; question and answer. Ind Quality Control 20:48-9 F '64
Estimates of variations; questions and answers. Ind Quality Control 21:158+ S '64
Experimental study of surface cooling by bubbles during nucleate boiling of water. T. F. Rogers and R. B. Mesler. bibliog il diag A I Ch E J 10:656-60 S '64
Influence of data processing on the design and communication of experiments. S. W. Golomb. J Res Nat Bur Stand 68D:1021-4 S '64
Model building technique for chemical engineering kinetics. W. G. Hunter and R. Mezaki. flow diag A I Ch E J 10:315-22 My '64
Statistical correlation of the efficiency of perforated trays. R. N. Finch and M. Van Winkle. bibliog diag Ind & Eng Chem Proc Design 3:106-16 Ap '64
Statistical design and analysis of qualification test program for a small rocket engine. S. R. Wood and D. E. Hartvigsen. bibliog Ind Quality Control 20:14-18 Je '64

EXPERIMENTAL psychology. See Psychology, Experimental

EXPERIMENTAL roads. See Roads, Experimental

EXPLODING wire phenomena
Exploding wire triggered spark gap. R. A. Harraway. diag J Sci Instr 41:399 Je '64
Exploding wires. W. G. Chace. il Phys Today 17:19-24 Ag '64
Hard superconducting films from exploding wires. M. Garbuny and others. J Ap Phys 34:3642-3 D '63

EXPLORER. See Satellites, Artificial

EXPLOSIONS
Approximate heats of explosion using differential thermal analysis. R. L. Bohon. bibliog diags Anal Chem 35:1845-52 N '63
Danger! air-line explosions ahead. J. E. Mallow. Hydrocarbon Process & Pet Refiner 43:157 Mr '64
Danger, explosive vapors. E. E. Miller. il Mech Eng 85:31-3 D '63
Explosion of diglyme and lithium aluminium hydride. H. R. Watson. Chem & Ind p665 Ap 18 '64
Explosion testing becomes a booming business. il Chem Eng 71:98+ N 9 '64
Flammable gas explosion in large oil circuit breaker. J. R. Johnston. il diags IEEE Trans Power Apparatus & Systems p 1094-7; Discussion. 1097-8 D '63
Hazards with ammonia and mercury. G. Thodos. A I Ch E J 10:274 Mr '64
Litigious gas explosions. S. Hammon. Gas 40:84-6 Je '64

EXPLOSIONS—*Continued*

Petroleum transport borrows a safety idea from the process industries. G. J. Grabowski. diags Oil & Gas J 62:118-19 My 18 '64

Water, the worst explosive. W. L. Nelson. Oil & Gas J 62:148 Mr 16 '64

See also

Boiler explosions

Coal mines and mining—Accidents and explosions

Detonation

Dust explosions

Inflammable liquids

Inflammable mixtures

Petroleum refineries—Explosions

Pressure vessels—Failure

Shock waves

EXPLOSIVE forming. See Sheet metal work

EXPLOSIVE welding. See Welding

EXPLOSIVES

Applications of the high-speed focal-plane shutter camera to explosives research. T. P. Liddiard, jr. and others. il diags SMPTE J 72:927-30 D '63

California quarry saves money with new explosive. J. R. Bogert. il Rock Prod 67:104-7 My '64

Detonation initiated by high-pressure gas loading of a solid explosive. D. Price and F. J. Petrone. bibliog J Ap Phys 35:710-14 Mr '64

Dow steps up activity in blasting agents' new plant will be able to make 25 million pounds a year of metallized explosives il Chem & Eng N 42:29-30 Ap 27 '64

Electrical resistivity measurements in detonating Composition B and Pentolite. R. L. Jameson and others. bibliog diags J Ap Phys 35:714-20 Mr '64

Explosive-driven high-field system for physics applications. R. S. Caird and others. diag J Ap Phys 35:781 pt 2 Mr '64

Explosives and the hazards and testing of explosives; symposium; abstracts of papers. bibliog Ind & Eng Chem 56:31-5 F '64

MS-80, a safe blasting agent. il Eng N 172:39-40 Je 4 '64

Shear waves from explosive sources. J. E. White and R. L. Sengbush. diags Geophysics 28:1001-19 D '63

Truck delivers directly to blast holes so contractor can blast without handling explosives. il Eng N 173:30 Jl 30 '64

See also

Ammonium nitrate

Atomic blasting

Blasting

Bombs

Cyclotrimethylene trinitramine

Detonation

Detonators

Fuses

Inflammable mixtures

Pentaerythritol tetranitrate

Tetracene (explosive)

Trinitrotoluene

Safety measures

Explosion testing becomes a booming business. il Chem Eng 71:98+ N 9 '64

Testing

Statistical evaluation of blasting tests in longwall slashing. G. Anders. Can Min & Met Bul 57:49-51 Ja '64

Transportation

ICC seeks cause of truck blast. Eng N 173:67 Ag 6 '64

EXPONENTIAL functions. See Functions, Exponential

EXPORT trade

Air cargo opportunities abroad. J. C. Cook. il I S A J 11:63-6 Je '64

Business combinations are legal in promoting export trade. M. Yondorf. Paper Ind 45:540-2 Ja '64

Canadian instruments win export sales. il Can Chem Process 48:49-50 Mr '64

Chemical exports double in ten years. G. E. McCormack. il Can Chem Process 48:35+ Mr '64

Export is for everyone; export market for British plastics materials. il Brit Plastics 37:281-99 Je '64

Here's some of the hurdles in exporting. N. Cannon. Can Chem Process 48:41+ Mr '64

How to export your product and increase your profit. H. L. Goldstein. Drug & Cosmetic Ind 95:176+ Ag '64; Same. Light Metal Age 22:15-16 Ag '64; Same. Paper Ind 46:595-7 O '64

ICI changes its Soviet trade policy. Chem & Eng N 42:43 Ja 6 '64

Jamaica keeps growing; two new projects will boost bauxite shipments to the U.S. M. Eigo. il maps diags Eng & Min J 165:50-7 Ja '64 (to be cont)

Japan; export market for western Canadian bituminous coal. T. G. Ewart. Can Min & Met Bul 57:537-9 My '64

Standardization and the development of trade. A. Y. Viatkine. Mag of Stand 35:237 Ag '64

U.S. exports of methanol set record this year. Chem & Eng N 42:25-6 O 19 '64

Statistics

Facts and figures for the chemical process industries; exports and imports. V. Kinnard. maps Chem & Eng N 42:86-9 S 7 '64

EXPOSURE meters

Beseler Topcon Super D. L. Stern. Ind Phot 13:43+ Ja '64

Lenses for meters? B. Sherman and H. Keppler. diags Mod Phot 28:75 Jl '64

Meter angle error? H. Keppler. il Mod Phot 28:74 Jl '64

Modern's 1964 exposure meter directory. D. L. Miller. Mod Phot 28:66-7 Jl '64

EXPRESSWAYS

Big Boston turnpike job shifts into high. H. J. McKeever. il Roads & Sts 107:56-9 My '64

Boston gets hard-to-build, but badly needed expressway. il Eng N 172:40-1 F 20 '64

Chicago opens a new expressway. il Eng N 173:23 O 22 '64

Detroit's avant garde expressway lighting. il Illum Eng 59:118-19 F '64

Expressway maintenance. C. H. Lang. il Civil Eng 34:42-4 S '64

Improving transportation on Long Island. il Pub Works 94:88-9 N '63

Integration of urban motorways; abstract. T. E. H. Williams. Engineer 216:905 N 29 '63

Interstate system accident research. S. R. Byington. maps Pub Roads 32:256-66 D '63

Little Rhode Island is solving big highway problems fast. il Eng N 173:34-6 O 15 '64

Los Angeles; more freeways for a freeway town. il map Eng N 172:58-60+ F 13 '64

Motor road; forerunner of the universal city. C. T. Larson. maps Traffic Q 18:459-90 O '64

Oregon sets the pace on the interstate. C. S. Larson. il diag Civil Eng 34:32-3 Ap '64

Preston-Lancaster motorway. il diag Engineer 218:123-5 Jl 24 '64

Ribbon cutting spotlights fast expressway construction. il Roads & Sts 107:52-5+ Ja '64

South Africa's approach to urban traffic and freeways. S. S. Morris. 3pls Traffic Q 18:202-18 Ap '64

States back tv-monitored highway. Eng N 171:58 N 14 '63

Use of gas burners eliminates cooling tower fog near expressway. il Heating-Piping 35:62 N '63

Warns slow states; get going on interstate highway system. R. Whitton. Roads & Sts 106:61-2 D '63

EXTENSOMETERS

Capacitance extensometers for microstrain measurements. D. E. Hartman and others. bibliog diags R Sci Instr 34:1272-3 N '63

Combination recording sorption balance and extensometer. H. Roper and J. G. Bryden. diags J Sci Instr 41:84-7 F '64

Extensometer for hot specimen. A. J. Bush. il I S A J 11:49-50 Ag '64

Extensometers on mills help improve quality control. Iron & Steel Eng 40:151 D '63

Instrument to measure transverse strain. A. J. Lobdell and others. il diag Materials Res & Stand 4:8-11 Ja '64

Magnetically coupled extensometer. R. T. Ratcliffe. diag J Sci Instr 41:115-16 F '64

Measuring elongation of steel. Metallurgia 70:112 S '64

Measuring strain at 7000°F. diags Iron Age 193:89 Mr 19 '64

EXTERIOR lighting. See Buildings—Exterior lighting

EXTRACTION apparatus

Apparatus for continuous extraction of nonpolar compounds from water applied to determination of chlorinated pesticides and intermediates. L. Kahn and C. H. Wayman. diag Anal Chem 36:1340-3 Je '64

Costs for rotating disk contractors. J. Clerk. diag Chem Eng 71:232 O 12 '64

Extraction unit can be adapted to many processes. Chem & Eng N 42:51-2 Je 22 '64

Longitudinal mixing studies in a pulsed extraction column. G. A. Sehmel and A. L. Babb. bibliog Ind & Eng Chem Proc Design 3:210-14 Jl '64

EXTRACTION apparatus—*Continued*

Method to record or control the number of Soxhlet syphonings. A. B. Dehlsen. diags J Sci Instr 41:522 Ag '64

Solvent extraction engineering and design. K. W. Becker. Am Oil Chem Soc J 41:sup 8+ O '64

Solvent extraction; rotating disc contactor. P. J. King and E. Rhodes. bibliog diags Manuf Chem 35:51-5 Je '64

Soxhlet micro-extractor. A. Husain and D. C. Spanner. diag J Sci Instr 41:185-6 Mr '64

Versatile new liquid extractor. R. E. Treybal. bibliog il diag Chem Eng Prog 60:77-82 My '64

EXTRACTION processes

AP&CC's new process separates borates from ore by extraction. C. R. Havighorst. flowsheet il Chem Eng 70:228-32 N 11 '63

Amine extraction-spectrographic determination of tantalum in plutonium. R. Ko. bibliog Anal Chem 36:1290-1 Je '64

Application of the discrete maximum principle to crosscurrent extraction with a simple recycle stream. R. L. Zahradnik and D. H. Archer. diag Ind & Eng Chem Fundamentals 3:384-6 N '64

Aromatic extraction process uses DMSO. il Chem & Eng N 42:50-1 O 5 '64

Controlled-cycling extraction. T. T. Szabo and others. bibliog diags Chem Eng Prog 60:66-70 Ja '64

Cyclone contactor speeds up solvent extraction. il diag Chem Eng 71:24-5 Ag 31 '64

Determination of cesium and rubidium after extraction with 4-sec-butyl-2(α-methylbenzyl)phenol. W. J. Ross and J. C. White. bibliog Anal Chem 36:1998-2000 S '64

Determination of residual solvents in solvent extracted meals. Y. S. Lewis and S. Nelakantan. diag Am Oil Chem Soc J 41:211-12 Mr '64

Determination of small amounts of manganese by oxidation of 8-aminoquinoline, extraction, and spectrophotometry. V. K. Gustin and T. R. Sweet. bibliog Anal Chem 36:1674-6 Jl '64

Distribution of nitric acid between tri-n-butyl phosphate and water. P. E. Burns and C. Hanson. bibliog J Ap Chem 14:117-21 Mr '64

Droplet behaviour and mass transfer rates in liquid-liquid extraction operations. J. D. Thornton. bibliog il diags Ind Chem 39:632-6; 40:13-16 D '63-Ja '64

Duo-Sol; Milwhite co. flow diag Hydrocarbon Process & Pet Refiner 43:215 S '64

Effect of seed preparation on efficiency and oil quality in filtration extraction of rapeseed. J. R. Reynolds and C. G. Youngs. bibliog il diags Am Oil Chem Soc J 41:63-5 Ja '64

Equilibrium studies on the solvent extraction of some transition metals with naphthenic acid. A. W. Fletcher and D. S. Flett. bibliog J Ap Chem 14:250-7 Je '64

Extractability of selected metal ions with high molecular weight amines. B. E. McClellan and V. M. Benson. bibliog Anal Chem 36:1985-7 S '64

Extraction and determination of karathane residues in fruits. W. W. Kilgore and K. W. Cheng. J Agri & Food Chem 11:477-9 N '63

Extraction designing made easier. E. D. Oliver. Hydrocarbon Process & Pet Refiner 42:107-8 D '63

Extraction of iron(III) from concentrated phosphoric acid. N. Haberman. Anal Chem 36:1876-7 Ag '64

Extraction of submicrogram amounts of molybdenum with cupferron-chloroform using molybdenum-99. W. B. Healy and W. J. McCabe. Anal Chem 35:2117-19 D '63

Extraction of thorium from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:41-6 Ja '64

Extraction of uranium(VI) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Furfural extraction of gas oils; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:216 S '64

Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

Liquid-liquid extraction of cesium with 2-thenoyltrifluoroacetone. P. Crowther and F. L. Moore. bibliog Anal Chem 35:2081-5 D '63

Mathematical determination of concentration profiles in two-phase continuous countercurrent extractors. N. P. Wilburn. bibliog diag Ind & Eng Chem Fundamentals 3:189-95 Ag '64

New approach to separation of trivalent actinide elements from lanthanide elements. F. L. Moore. bibliog Anal Chem 36:2158-62 O '64

New method for elution of conjugated steroids from paper strips. L. Kornel. bibliog diags Anal Chem 36:443-4 F '64

New neptunium recovery facility at the Hanford Purex plant. J. P. Duckworth and L. R. Michels. bibliog il diags Ind & Eng Chem Proc Design 3:302-6 O '64

New plant puts science into cotton seed processing; process flowsheet. W. H. Witz and W. B. Hendrick. il Chem Eng 71:48-50 Ag 31 '64

New solvent for aromatics extraction. G. Cousserans. bibliog diags Hydrocarbon Process & Pet Refiner 43:149-52 Je '64

New solvent system for improved extraction of activated charcoal. C. E. Hamilton. Water & Sewage Works 110:422-3 D '63

Paper partition chromatographic determination of per cent solute extracted into organic phase. P. Kabasakalian. bibliog Anal Chem 36:2202-4 O '64

Phenol extraction; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:218 S '64

Phosphate rock solubilization by repeated extractions with citrate solutions. W. M. Hoffman and H. J. Breen. J Agri & Food Chem 12:344-6 Jl '64

Propane deasphalting and fractionation; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:219 S '64

Propane extraction; Foster Wheeler corp. flow diag Hydrocarbon Process & Pet Refiner 43:221 S '64

Radiochemical determination of cerium by solvent extraction method. M. A. Awwal. bibliog Anal Chem 35:2048-50 D '63

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

Recycle in liquid extraction. R. E. Treybal. bibliog diags Ind & Eng Chem Fundamentals 3:185-8 Ag '64

Review of fundamental developments in analysis; extraction. G. H. Morrison and H. Freiser. Anal Chem 36 [no 5]:93R-116R bibliog(p 108R-16R) Ap '64

Saline water conversion via extraction. B. B. Carr. flow diags il diags Chem Eng Prog 59:59-62 D '63

Second solvent improves extraction. D. G. Hutton. bibliog diag Hydrocarbon Process & Pet Refiner 43:138-40 Ag '64

Selective liquid-liquid extraction of radiotin with 2-thenoyltrifluoroacetone. J. R. Stokeley and F. L. Moore. bibliog Anal Chem 36:1203-6 Je '64

Separation and determination of iron(II) and iron(III) with anthranilic acid using solvent extraction and spectrophotometry. D. L. Dinsel and T. R. Sweet. bibliog Anal Chem 35:2077-81 D '63

Separation of technetium from mixed fission products by solvent extraction with tributyl phosphate. M. H. Campbell. bibliog Anal Chem 35:2052-4 D '63

Separations using solvent extraction. H. Green. bibliog Metallurgia 70:143-9 S '64 (to be cont)

Solvent extraction gains in hydrometallurgy. il Chem & Eng N 42:48-50 Ap 6 '64

Solvent extraction may be way to purify sewage effluents; abstract. M. A. Zeitoun. Chem & Eng N 42:74+ Ap 20 '64

Solvent extraction of platinum and palladium with derivatives of dithiocarbamic acid. J. T. Pyle and W. D. Jacobs. bibliog Anal Chem 36:1796-9 Ag '64

Solvent extraction recovers vanadium from waste stream; process flowsheet. F. A. Seeton. Chem Eng 71:112-14 F 17 '64

Spectrophotometric determination of tin(IV) by extraction of stannic iodide into ethyl iodide. A. D. Paul and J. A. Gibson, jr. bibliog Anal Chem 36:2321-4 N '64

Sulfolane extraction; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:224 S '64

Sulfolane finds new uses in extraction. Chem & Eng N 42:50+ My 18 '64

Thermodynamic cycles for recovery of water by solvent extraction. R. R. Davison and D. W. Hood. bibliog flow sheet diag Ind & Eng Chem Proc Design 3:399-404 O '64

EXTRACTION processes—*Continued*
Transient characteristics of continuous extraction with agitation. H. K. Staffin and J. C. Chu. bibliog diags A I Ch E J 10:98-105 Ja '64
Unsolved research problems in liquid-liquid extraction; effect of axial mixing upon performance of extraction columns. J. A, Gerster. bibliog Chem Eng Prog 59:79 N '63
See also
Leaching
Solvents

EXTRASENSORY perception
See also
Psychical research

EXTRATERRESTRIAL bases
See also
Lunar bases

EXTRATERRESTRIAL vehicles. See Vehicles, Extraterrestrial

EXTREME value theory. See Statistical methods

EXTRUSION dies. See Dies, Extrusion

EXTRUSION machines
Cold extrusion press cuts need for tooling. il Steel 154:71 My 11 '64
Cold forming advanced by double-action. il diags Engineering 197:522-3 Ap 10 '64
Combination cold extrusion press. il diag Engineer 217:690 Ap 17 '64
Developments in steel extrusion; recent experiences with the 1150 ton extrusion press at the works of Low Moor fine steels ltd. R. Cox. il diags Iron & Steel Inst J 202:246-60 Mr '64; Discussion. 202:757-62 S '64
Dynapak bangs out thin wall extrusions. il Steel 153:73 N 11 '63
Effect of die land length on the surface appearance of low melt index polyethylene extrudates. J. S. King and A. J. Durno. il diags Wire & Wire Prod 39:553-5+ Ap '64
Extrusion of aluminium rod at the Prescot works of B.I.C.C. ltd. W. J. Bannister. il Wire & Wire Prod 38:1706-9+ N '63
Extrusion press built in record time: Fielding and Platt installation at Indalex. il plan Metallurgia 69:10-12 Ja '64
Fast cycling extrusion press for aluminium. il Engineering 197:202 Ja 31 '64
500 ton cold extrusion press. il Engineering 196:535 O 25 '63
Furnace feeds hot billet shear. il Iron Age 194:155 S 24 '64
Laboratory extrusion press for copper alloys. N. A. Ratcliff. il diag Metallurgia 68:193-4 O '63
Press extrudes, upsets, pierces. il diags Iron Age 193:144-5 My 21 '64
Unique hydraulic press for cold extrusion. il Metallurgia 69:225-7 My '64
Waterbury Farrel Raycarl headers. il Mach 70:187+ Jl '64

Numerical control

Programmed speed-control methods for extrusion presses. H. R. Fernbach. il diag Inst Metals J 92:145-8 '63-64; Same. Light Metal Age 22:12-14 F '64

EXTRUSION machines (for plastics)
Contacting device for sheet and film. L. L. Scheiner. il Plastics Tech 10:36 Jl '64
Controlling extruded tube or pipe wall thickness. A. Halegua. il diag Plastics Tech 10:37-40 Jl '64
Dry air in extrusion. il Plastics World 22:22 F '64
Electronic die-pressure control holds key to quality extrusion. G. A. Pettit and R. L. Eckman. diags Plastics Tech 10:39-42 My '64
Extrusion problems. il diags Plastics World 22:24 Ja '64
Improvement of screw extruder with non-eccentric cross head. N. Okazaki. il diags Wire & Wire Prod 39:881-3+ Je '64
New 60-inch polyethylene extruder on-stream at Thilmany. A. W. J. Dyck. il Paper Ind 45:429-32 N '63
Pumping non-Newtonian fluids. G. E. Alves. bibliog Chem Eng Prog 60:39-40 Ag '64
Quality in extrusion. C. E. Maillefer. diags Wire & Wire Prod 39:1645-7+ O '64
Screw design for high-speed extrusion coating. J. P. Goslin and R. T. Van Ness. il diag Tappi 47:240-4 Ap '64
Surfacing cuts maintenance costs for extruder screw used in plastic pellitizing. il Welding J 42:976-7 D '63
System described for automating extruder die adjustment: beta gage seminar. Plastics Tech 10:59 My '64
Verical extrusion system for methacrylate sheet. il diags Mod Plastics 41:50+ Ap '64

EXTRUSION process
Aluminum extrusion packaging specifications. Light Metal Age 21:13-14 D '63
Aluminium extrusion plant. il Engineer 216:1030 D 20 '63
Aluminum impact extrusions. A. Katz. il diags Machine Design 36:150-4 Ag 27 '64
Car axles get high speed cold extrusion. il Engineering 198:537 O 23 '64
Case histories in cold extrusion. R. G. Dermott. il Metal Prog 86:118-23 O '64
Cold extrusion from the practical side. R. A. P. Morgan. il diags Metal Prog 86:124-7 O '64
Cold extrusion of metals by high pressure liquid: abstract. H. L. D. Pugh. Metal Prog 85:146+ My '64
Cold extrusion shortcuts costs. il Steel 154:50-1 Mr 23 '64
Cold powder extrusion shapes tungsten. il Iron Age 194:140 S 10 '64
Developments in steel extrusion. R. M. L. Elkan; R. Cox. bibliog il diags Iron & Steel Inst J 202:236-60 Mr '64; Discussion. 202:757-62 S '64
Direct under water extrusion of copper tubes produces large coils, eliminates pickling and saves cold drawing. A. I. Nussbaum. il Wire & Wire Prod 39:737+ My '64
Don't overlook steel extrusions. J. J. Barrett. il diags Materials in Design Eng 60:96-8 S '64
Extruders predict 21 per cent increase in 1964. Mod Metals 20:33-4+ Jl '64
Extruding nonferrous metal tubes. il Automation 11:70 My '64
Extruding refractory metals. I. Perlmutter and V. DePierre. il diags Metal Prog 84:90-5+ N '63
Extrusion and stretch reducing of tubular products. A. Klein and others. il diags Iron & Steel Eng 41:97-103; Discussion. 103-5 Jl '64
Extrusion forms tungsten tubes. il diags Iron Age 193:78-9 Ja 16 '64
Extrusion handling equipment. J. W. Nelson. il diags Mod Metals 20:32+ Ap; 62+ My; 50+ Je '64 (to be cont)
Extrusion into water or inert gas. il Metallurgia 69:253-4 Je '64
Extrusion of thin wall tubes eliminates machining. W. G. McEwan. il diags Tool & Manuf Eng 51:89-90 D '63
Extrusion users report. Mod Metals 20:38+ Jl '64
Extrusion work order cost analysis. Light Metal Age 21:10-11 D '63
Extrusions + synthetic rubber make versatile tools for press brakes. il diags Mod Metals 20:84-5 Jl '64
Fibre textures of aluminium alloy extruded rod and plate. E. Hirosawa. bibliog il diags Inst Metals J 92:78-81 '63-64
Foreign markets for aluminum extrusions. J. Logan. Light Metal Age 21:15-16+ D '63
Hydrostatic extrusion, a technique of promise. Metal Prog 85:87 My '64
Impact extrusion by linear induction. il Engineering 198:302-3 S 4 '64
Induction heating of ferrous and non-ferrous billets for forging and extrusion. J. B. Ingall and R. S. Ellis. diags Inst Metals J 92:161-70 '63-64
Integrated extrusion plant offers one-stop service. il Mod Metals 20:68-9 Mr '64
Man of the year; General Extrusions' Fred Schuler. il diags Mod Metals 19:31-2+ Ja '64
Metallurgical bonding of dissimilar metals by co-extrusion. P. Lowenstein and W. B. Tuffin. diags Machine Design 36:227-8+ My 21 '64
Multi-purpose covers built of extrusions. il Mod Metals 20:64+ Ap '64
Patterned extrusions. il diags Light Metal Age 21:17-18 D '63
Powder plus extrusion equals duplex electrode. il diags Steel 153:82+ D 16 '63
Process peels metal at superspeeds; Flo-Peeling. il diags Steel 154:61-3 My 11 '64
Recent trends in metal-forming processes. H. A. J. Dennison. il diags Engineering 196:602-3 N 8 '63
Recent trends in metals forming. H. A. J. Dennison. il diags Wire & Wire Prod 39:92-3+ Ja '64
Scale-free extrusion of copper. il Engineer 217:978 My 29 '64
Small-diameter tungsten tubing made by extrusion process. Chem & Eng N 42:40 Ag 10 '64
Some considerations of the mechanics of hydrostatic extrusion. A. Rozner and J. H. Faupel. bibliog il diags Franklin Inst J 277:217-36 Mr '64

EXTRUSION process—*Continued*
Three-dimensional transfer unit increases versatility of cold extrusion. il Mach 70:93-4 D '63
Tubes extruded under water. il Iron Age 193: 73 Ja 16 '64
Unique use of extrusions wins architectural award. il Mod Metals 20:70 Jl '64
What about cold extrusion. R. W. Perry. il diags Am Mach 108:61-5 Ag 3 '64
Which variables affect extrusion? Iron Age 194:126 O 8 '64
See also
Dies, Extrusion

EXTRUSION process (ceramics)
Extrusion properties of non-clay oxides. J. F. White and A. L. Clavel. bibliog diag Am Cer Soc Bul 42:698-702 N '63
Hot extrusion of UO_2 fuel elements. J. Hunt and P. Loewenstein. il diags Am Cer Soc Bul 43:562-5 Ag '64

EXTRUSION process (plastics)
A.c./d.c. adjustable speed drive for plastic film extrusion. J. R. Stephens and others. il diag Tappi 46:sup 195A-8A D '63
Big savings for the short pieces. R. Marx. il diags Mod Plastics 41:98-9 Ap '64
Custom packages from standard extrusions. il Plastics World 22:58-9 Ap '64
Designing dies for monofilaments. D. Poller and O. L. Reedy. bibliog diags Mod Plastics 41:133-8 Mr '64
Extruded netting set to snare big markets. il Mod Plastics 41:80-3+ N '63
Extrusion die design to reduce melt fracture. A. G. Ferrari. diags Wire & Wire Prod 39:1036-8+ Jl '64
Film extrusion with beta gages: quality up, costs down. G. R. Gerhard. Plastics Tech 10:39-43 F '64
Flat die vinyl film extrusion. G. J. Koch and B. M. O'Rear. il plan Mod Plastics 41: 138+ Je '64
How to solve some problems in quality extrusion. Plastics Tech 10:57 Mr '64
Improving adhesion of polyethylene extrusion coatings. G. R. DeHoff and T. F. McLaughlin, jr. il diags Mod Plastics 41:107-10+ N '63
Influence of extrusion variables on polyethylene extrusion coating performance. H. J. Nalepa and C. C. Cooper. il Tappi 47:266-70 My '64
News in thermosetting processing. R. C. Hosford. il Plastics Tech 10:43-54 My '64
Post-forming rigid PVC shapes. il Plastics Tech 10:42-3 Ag '64
Priming paper for extrusion coating. A. R. Hurst and C. G. Morse. bibliog diag Tappi 47:sup 125A-8A Jl '64
Vacuum sizing of plastics pipe. J. L. Vermillion. diag Mod Plastics 42:130-1 O '64
What's new in production reinforced plastics processing. R. C. Hosford. il Plastics Tech 10:47-58 O '64

EXTRUSION process (rubber). See Rubber goods—Manufacture

EYE
Retinex. E. H. Land. bibliog il Am Scientist 52:247-64 Je '64
See also
Lacrimal organs
Retina
Sight

Diseases and defects

Sulfacetamide eye drops. Drug & Cosmetic Ind 94:272 F '64
See also
Blindness
Conjunctivitis

Injuries

Special ultrasound eye probe. il Electronics 37:30+ O 5 '64

Movements

Control mechanisms of the eye. D. H. Fender. il map diags Sci Am 211:24-33 Jl '64

Protection

Effective municipal eye safety program. A. J. Sziarto. Pub Works 95:170 F '64
Eye protection from slashing. il Safety Maint 127:16 Je '64
Eyes have it. il Safety Maint 128:23-4 N '64
Keeping up with eye protection developments. il Safety Maint 127:29-34 Mr '64
Less than a 100 per cent program is unsafe to eyes. W. A. Barnes. il Safety Maint 127:16-19 F '64
Make them see what blindness means. L. S. Milley. Safety Maint 127:12-13 Ja '64
Prevention of industrial eye injuries. Welding Eng 49:63-4 S '64
See also
Goggles

EYE (amphibia)
Vision in frogs. W. R. A. Muntz. il diags Sci Am 210:110-15+ Mr '64; Discussion. 210:10+ My '64

EYRING, Henry
Peter Debye award in physical chemistry. por Chem & Eng N 42:76 F 24 '64

F

FM. See Radio frequency modulation

FABRICS, Military. See Military fabrics

FABRICS, Textile. See Textile fabrics

FACADES
Arch form as a facade motif; Inwood Manor, Houston, Tex. il plan Arch Rec 136:118-19 Ag '64

FACSIMILE transmission
Army seeks optical readers. R. J. Ward. diag Electronics 37:14-15 Ja 10 '64
Blueprints by wire; long distance xerography. diag Product Eng 35:47-8 Je 8 '64
Budd's phone-facsimile set-up speeds written or printed data and drawings. il Automotive Ind 130:78-9 Je 1 '64
Dial a document; utilities company transmits safety material over telephone. il Safety Maint 128:29-31 N '64
Experimental transmission system designed for high-speed facsimile. il Bell Lab Rec 42:158 My '64
Experimental transmission system designed for high-speed facsimile. Franklin Inst J 277:508-9 My '64
Facsimile is coming of age. S. Feldman. il Electronic Ind 23:38-42 My '64
Facsimile system speeds Bethlehem Steel orders. il Steel 155:56 Jl 6 '64
Long distance xerography; instant prints, thousands of miles from the drawing. il Machine Design 36:12 My 21 '64
Power spectral density of random facsimile signal. L. E. Franks. IEEE Proc 52:431-2 Ap '64
Work record facsimile transmitted for safety. R. M. Carpenter. il Elec World 162:102 Ag 10 '64

FACTORIES
Maintaining industry's landscaping. il plan Plant Eng 18:106-9 Ap '64
See also
Airplane factories
Automobile factories
Cement plants
Chemical plants
Drug factories
Factory management
Food factories
Foundries
Glass factories
Industrial buildings
Machine works
Metal working plants
Paper and pulp mills
Potteries
Textile mills
Water supply for factories
Woolen and worsted mills

Air conditioning

Air conditioning industrial areas. C. S. Cave. diags Air Cond Heat & Ven 61:71-3 S '64
Air distribution in clean rooms. C. Sooter. il diags Air Cond Heat & Ven 61:75-8 My '64
Credit air conditioning with increased production at small manufacturing plant. W. White. il Heating-Piping 36:100-1 O '64
Design considerations for industrial makeup air and heat conservation and recovery. J. H. Clarke. il diags Air Cond Heat & Ven 61:28-41 F '64
Design criteria for clean room air conditioning systems; data file. bibliog il plans diags Heating-Piping 35:165-84 N '63
Determining feasibility of factory air conditioning; reference data. A. T. Spangler. Air Cond Heat & Ven 61:81-8 Ag '64
Factory joinery gets air-conditioning. flow diag il Engineering 196:790-1 D 20 '63
Plant management chooses gas engine air conditioning. J. T. Cartland. il Heating-Piping 35:105-7 D '63
Plant takes to gas for heating and cooling economy. il Plant Eng 18:159-60 Ja '64

FACTORIES—Air conditioning—*Continued*
Ponded roof cuts 300 tons off a-c load. J. Molnar. il diags Heating-Piping 36:123-7 O '64
Tolerances thrive on controlled air. il Iron Age 194:72 O 22 '64
Warm-weather solutions for industrial plants; fully air-conditioned plant in Florida. il plans diags Prog Arch 45:162-5 Ap '64
See also
Air conditioning, Industrial

Cleaning

Spray method cuts cleaning costs 80 per cent. L. Nielson. il Plant Eng 18:133-4 F '64
Ten aids for plant engineers; Plant engineering and maintenance show, Cleveland. il Food Eng 36:100-1 Ap '64

Cleanliness

Air distribution in clean rooms. C. Sooter. il diags Air Cond Heat & Ven 61:75-8 My '64
Analyzing minute surface contaminants. H. S. Kartsher. il Mach 70:145-6 My '64
Clean rooms don't just happen; define the need, then design the room. P. Wathen and W. Lough. il diag Plant Eng 17:106-9 D '63
Clean working areas; plant engineering discipline. R. R. Griner. il diags Plant Eng 18:132-5 Mr '64
Compressor supplies clean room with dry, oil-free air. il Plant Eng 18:143 S '64
Design criteria for clean room air conditioning systems; data file. bibliog il plans diags Heating-Piping 35:165-84 N '63
Design techniques for industrial clean rooms. V. G. Crane. bibliog il diags Air Cond Heat & Ven 60:57-63 D '63
How clean is clean? D. A. Eckhardt and others. diags S A E J 72:82-5 O '64
Improved techniques handle clean-room problems. il diag S A E J 72:54-9 Mr '64
Just one speck of dust. T. Murray. Am Mach/Metalworking Manuf 108:87 Je 22 '64
Model shop accuracy at production line speeds; International business machines corp. R. F. Boedecker and A. C. Turits. il Am Mach 108:91-3 Mr 16 '64
Plant-wide clean room. il Mill & Factory 73:56-7 D '63
Seamless plastics assist cleanup in cleanroom. il Plastics World 21:93 N '63
You can measure your floor dirt. R. J. Weatherby and S. A. Furfari. il Safety Maint 127:52-4+ My '64

Control equipment

Controlling concentration and contamination in metal-preparation systems. H. J. McVey. il diag Mach 70:123-5 My '64
How shift registers control sequential operations. E. C. Fensholt and M. Damjanovich. il diags Automation 11:70-5 S '64
Transducers in digital process control. R. H. Cerni. bibliog diags Instruments & Control Systems 37:123-6 S '64
Unique handling integrates grinding wheel processes. R. W. Miklitsch. il diag Automation 11:59-63 Mr '64

Design

Architect's expanding role in industrial design. F. L. Whitney. il Arch Rec 136:168+ Jl '64
Automobile industry accentuates trends in industrial design. J. J. Andrews. Arch Rec 136:172+ Jl '64
Developments in industrial construction. S. King. Arch Rec 136:175-6 Jl '64
Earlier payout through tight project scheduling and control. H. M. Betzig. Am Oil Chem Soc J 41:sup58+ Mr '64
Electronics factory designed for whatever the future brings. il diags Eng N 173:30-1 Jl 16 '64
Industrial architecture; proving ground for comprehensive services. J. R. Carroll, jr. Arch Rec 136:167-8 Jl '64
National fire protection conference, 2d, London; abstracts of papers. Engineer 217:423-4 Mr 6 '64
Rice university conference develops five factory projects. il plans diags Arch Rec 134:115-20 D '63
Warm-weather solutions for industrial plants. il plans diags Prog Arch 45:162-71 Ap '64
Who lays out the plant? R. Muther and others. Mod Materials Handling 19:46-8 Ap '64

Electric equipment

Advantages of all-electric designs get utility backup support. J. J. O'Connor il diags Power 108:84-6 O '64
All-electric plant; Schweber electronics co. R. L. Hatschek. il diag Mill & Factory 74:82-5 Ap '64
Boost electrical productivity. il Mill & Factory 74:70-2 Je '64
Derated motors should boost plant output. diag Mill & Factory 74:73-5 Je '64
Electrical estimating for the plant engineer. N. J. DeYoung. il Plant Eng 18:108-10 F; 142-4 Mr; 148-50 Ap; 150-2 My; 145-7 Je; 152+ Jl; 140-2 Ag; 150-2 S; 152+ O '64
Electrical load control system. diag Engineer 217:628 Ap 3 '64
Electrical system features of a new electronics plant; Maxson electronic corp. J. H. Watt. il diag Elec Constr & Maint 63:77-81 Ag '64
Evaluate factors affecting electric system response to power outages. A. H. Knable. Power 108:74-6 Je '64
Floor-stands support plant busway system. il Elec Constr & Maint 63:117 Ag '64
For electric control reliability keep voltage within design tolerances. R. Russo. diags Power 108:90-2 O '64
Get more from your electrical system. R. L. Hatschek. il Mill & Factory 74:74-7 Mr '64
Have power in reserve. il diag Mill & Factory 74:122-6 My '64
How low power factor costs money. J. Schachner. diag Mill & Factory 75:92 O '64
How much emergency power do we need? question and answers. diags Power 108:178-80 Ap '64
How we planned our emergency light and power. J. Molnar. il plan diags Plant Eng 18:138-40 Je '64
Look at the future; power and drives. J. Schachner and R. H. Wilcox. il diags Mill & Factory 75:100-12 N '64
Manufacturing maintenance engineers' know-how handbook; electrical. Published in monthly numbers of Mill & Factory
Maximum demand power indicator. G. Cooper. il diags Ind Electronics 2:267-72 Je '64
Multiple voltages serve power, light and process heating. il diag Elec Constr & Maint 63:83-5 F '64
New equipment cuts in-plant systems costs. B. G. Bailey. Elec World 160:32-5 D 16 '63
1964 energy systems design survey; all-electric buildings. Power 108:sup29-33 O '64
1964 energy systems design survey; total energy approach scores impressive gains. Power 108:sup34-5 O '64
Power distribution in Univac computer engineering center. J. Molnar. il diags Elec Constr & Maint 63:86-90 Ag '64
Survey for electrifying savings. J. Schachner. il Mill & Factory 75:70-3 S '64
Tired of chasing grounds? install a grounding transformer. H. Pritzlaff and E. Neydli. diags Plant Eng 17:96-7 D '63
See also
Electric driving
Electric tools, Portable
Factories—Lighting
Paper and pulp mills—Electric equipment

Equipment

Bader lamp making machinery; electric light bulbs and tubes. il diags Engineering 196:722-3 D 6 '63
Development area labour suits new firm. il Engineering 197:295 F 21 '64
Distributor and the third market; equipment modernization or upgrading. il Mill & Factory 74:85-100 My '64
Do-it-yourself equipment solves special material handling problems. G. Berkwitt. il Mill & Factory 74:80-3 Je '64
Dual drain pipes separate acids, save solvents; Hughes Aircraft's Semi-conductor division. il Plant Eng 18:134-5 Je '64
Engineering and maintenance. R. L. Oliverson, ed. Published in monthly numbers of Plant engineering
Fitting compressed air capacity to production. T. M. Joyce. il Hydraulics & Pneumatics 17:16+ My '64
Flammable liquids travel the safe way; through pipe. D. L. Cooper. il Plant Eng 18:132-3 My '64
International factory equipment exhibition, 11th, London, Nov 11-16. il Engineering 196:619 N 15 '63; Chem & Ind p 1949-50 D 14 '63
International factory equipment exhibition, 12th, Manchester, Sept. 28-Oct. 3. il Chem & Ind p 1808 O 24 '64
Maintenance guide for glassed steel equipment. C. Knoll. il diags Mill & Factory 74:76-9 F '64

FACTORIES—Equipment—*Continued*
Manufacturing/maintenance engineers' know-how handbook; maintenance and plant services. Published in monthly numbers of Mill & Factory
New home of Dana Perfumes; Wilkes-Barre, Penn. G. E. Toles. il Am Perfumer 79:21-4 Ja '64
New plant and equipment. Published in weekly numbers of Engineering
Nine point plan to improve service of hydraulic line systems. il diags Plant Eng 17:123-5 D '63
1964 buyer's guide issue; materials handling and packaging. Mod Materials Handling 19:1-316 My '64
Now, a plug-in air supply. il Mod Materials Handling 19:49 Je '64
One way to link production with energy systems engineering. J. J. Novotny. Power 107:62-3 N '63
Plant engineering and maintenance show, Cleveland. il Product Eng 35:67 F 17 '64
Plant engineering equipment. M. E. Heniken, ed. Published in monthly numbers of Plant engineering
Plant engineers' digest. E. B. Skubik, ed. Published in monthly numbers of Plant engineering
Plant engineer's guide to movable partitions. S. W. Oppenhuizen. il diag Plant Eng 18:118-20 Ja '64
Product reviews. Published in monthly numbers of Mill and factory
Roll in savings with industrial reels. G. Berkwitt. il diags Mill & Factory 74:118-21 My '64
Self-cleaning filter gives plant air new life. il diag Plant Eng 17:126 D '63
What's new in plant lubrication. R. L. Hatschek. il Milk & Factory 74:83-6 Ja '64
See also
Conveying machinery
Depreciation
Factories—Maintenance and repair
Machinery—Leasing
Machinery—Reconstruction
Machinery, Replacement of
Material handling
Mechanical handling
Piping
Radio telephone in factories
also subdivision Equipment under special subjects, e.g.
Automobile factories
Chemical plants
Paper and pulp mills
Woodworking shops

Expansion

Brisk demand invites plant expansions. Chem & Eng N 42:23-4 Mr 30 '64
Compressor capacity geared to plant expansion. T. M. Joyce. il Plant Eng 18:130-1 Ja '64
Expansion by design; Wm. J. Stange co. il Food Eng 36:78-9 F '64
Fuller's expansion program. J. Geschelin. plan Automotive Ind 129:75+ N 15 '63
Survey replies forecast 17 per cent gain in aluminum use. Mod Metals 19:58+ Ja '64

Fire protection

See Fire protection

Flood damage

Industry weathers flood damage. il Iron Age 193:54-5 Mr 19 '64

Floors

Concrete damage floored by epoxies. J. Bayuk. il Mill & Factory 74:101-3 My '64
Corrosion-resistant floors. S. L. Steinberg. il Chem Eng 71:178+ Mr 16 '64
Epoxy flooring. R. F. Ytterberg. il Prog Arch 45:181-2 Ap '64
Floor panels heat economically. J. R. Wark. il Elec World 161:61+ Ja 27 '64
Floor resurfacing by contract. W. Wadl and L. Preston. il Plant Eng 18:117-18 Ap '64
Paving roof decks and industrial floors. L. Tuttle. il diags Civil Eng 34:58-61 Jl '64
Trouble-free industrial concrete floor. C. B. Wigton, jr. il Arch Rec 135:193-4 Jl '64
See also
Food factories—Floors

Food services

See Lunchrooms and cafeterias, Employees

Heating and ventilation

Computer plant installs heat-of-light system. il diag Elec World 162:177+ S 21 '64
Design considerations for industrial makeup air and heat conservation and recovery. J. H. Clarke. il diags Air Cond Heat & Ven 61:28-41 F '64
Floor panels heat economically. J. R. Wark. il Elec World 161:61+ Ja 27 '64
Fuels forum; how to keep warm. diags Mill & Factory 75:70-4 O '64
Gas infrared heaters provide comfort heating at Virginia plant; fuel savings result. il Air Cond Heat & Ven 61:89-90 Ag '64
Gravity ventilation. F. P. Darnell. diags Plant Eng 17:104-5 D '63
Heat pump, radiant panels condition electronics plant. il diags Arch Rec 135:170-1 Ja '64
Heating systems for pitch fibre pipe plant. Engineering 197:422 Mr 20 '64
Industrial plant electrical floor heating. J. R. Wark. il Elec Constr & Maint 63:85-7 Mr '64
Roof venting of industrial fires. il Engineer 217:374-6 F 28 '64
Total energy in Vancouver; Finning tractor & equipment co. E. T. Nesbitt. il Gas 40:103-6 Ag '64
Try push-pull ventilation for long-run economy. K. F. Biddle. il diag Plant Eng 18:144-5 My '64
Warm-weather solutions for industrial plants; accent on natural ventilation in Venezuela. il plans diags Prog Arch 45:166-71 Ap '64
See also
Exhaust systems

Layout

Going in circles boosts production. L. J. Githens. il diag Mill & Factory 74:112-13 My '64
New plant built for competition; Torrington manufacturing co.'s Machine div. plan Tool & Manuf Eng 51:113 D '63
Unified telephone centre's space economies. il Engineering 197:780 Je 5 '64
Who lays out the plant? R. Muther and others. Mod Materials Handling 18:46-8 Ap '64
See also
Machine shops—Layout
Models, Lay-out

Lighting

Brightness control improves plant lighting comfort. V. Kempf. il diags Plant Eng 18:118-21 Mr '64
Computer plant installs heat-of-light system. il diag Elec World 162:177+ S 21 '64
Designing industrial plants to heat with light. C. J. Troy. bibliog diags Illum Eng 59:150-5 Mr '64
Low-cost emergency lighting. E. J. Leonard. diag Plant Eng 17:112-13 D '63
More ideas for a lighting man's file; lighting on schedule; Acme chain plant. il Illum Eng 59:479-80 Jl '64
More ideas for a lighting man's file; quality lighting aids round-the-clock production. il Illum Eng 59:477-9 Jl '64
Paint your plant with floodlights. J. P. Heck. il Food Eng 36:101-2 S '64
Polarization controversy; does polarized lighting really reduce reflected glare? R. Dulude and others. il diags Plant Eng 18:132-5 Ja; 139-41 F '64
Precision lighting aids precision work at Marotta valve corp. R. L. Zahour. il Elec Constr & Maint 63:78-9 Ja '64
Tricky inspection problem solved. il Illum Eng 59:523 Ag '64
200 fc relighting pays for itself in one year. il Elec Constr & Maint 63:129 S '64
What's wrong with our leather inspecting lighting system? answers. il Power 108:136-7 Jl '64

Location

Picking a plantsite by digital computer. il Chem Eng 71:88+ Ja 20 '64
Warm-weather solutions for industrial plants. il plans diags Prog Arch 45:162-71 Ap '64
See also
Chemical plants—Location
Textile mills—Location

Lunchrooms

See Lunchrooms and cafeterias, Employees

Maintenance and repair

AIPE asks its members: what are your major problems? Plant Eng 18:112-13 Ja '64
Applying chemical cleaning solvents. C. M. Loucks. bibliog il Heating-Piping 36:171-86 S '64
Applying quality control to maintenance jobs. Chem Eng 71:126 Mr 2 '64

FACTORIES—Maintenance and repair—*Cont.*

Are equipment manufacturers short-changing maintenance? Plant Eng 18:132-3 Je '64

Craft scheduling program boosts maintenance efficiency to 90 per cent. M. D. O'Hern. Plant Eng 18:111-13 My '64

Dow program trains, tests maintenance weldors. R. F. Woollard. il Plant Eng 18:136-8 Jl '64

Engineering and maintenance. R. L. Oliverson, ed. Published in monthly numbers of Plant engineering

Epoxy repair putty sticks strongly. il Engineering 196:646 N 22 '63

Factory maintenance; will you or an in-plant crew get the job? Dom Eng 203:104-5+ My '64

Fast two-way communication takes legwork out of maintenance. H. Kaufman. il Plant Eng 18:124-6 Jl '64

Good design approach can prevent corrosion problems. C. G. Munger. il diags Plant Eng 18:131-3 Jl '64

How much money for maintenance? C. J. Vlahos. Mill & Factory 74:88-90 Mr '64

How to solve most maintenance welding problems. L. D. Richardson. il Welding Eng 49:46-8 Ja; 46-8 F '64

Is contract lubrication practical? Plant Eng 18:114-17 Je '64

Japanese annual plant engineering show and conference, 4th, Tokyo. Plant Eng 18:128-9 Ja '64

Maintenance for integrated systems. A. R. Wood. il Automation 11:69-72 Je '64

Manufacturing/maintenance engineers' know-how handbook; maintenance and plant services. Published in monthly numbers of Mill & Factory

National plant engineering and maintenance conference and show, Cleveland, Jan. 27-30; list of exhibitors, products on display and program. Plant Eng 18:137-52 Ja '64

Plant engineering and maintenance conference and show, 15th, Cleveland, Jan. 27-30. Elec Constr & Maint 63:155-6 F '64

Plant engineering and maintenance show, Cleveland. il Product Eng 35:67 F 17 '64

Plant engineering and maintenance show, Cleveland, Jan. 27-30; product finding service. Plant Eng 17:125 N '63

Preventive maintenance and controlled lubrication systems. G. Capel and E. Nozewski. Lub Eng 20:265-71; Discussion. 272 Jl '64

Profits from maintenance. H. S. Mann. Mill & Factory 74:60-9 Ja '64

Role of maintenance in plant policies. C. J. Vlahos. il Mill & Factory 75:78-80 Ag '64

Seven steps lead to efficient plant lubrication. B. Carson. Plant Eng 18:118-20 S '64

Snow problem is no problem at GE's Nela Park. il Plant Eng 17:102-3 D '63

Steps for chemical cleaning of piping systems. C. M. Loucks. bibliog il Heating-Piping 36:179-94 My '64

Tested yardsticks for measuring maintenance. il Mill & Factory 74:114-17 My '64

Three elements of preventive maintenance planning. C. Frank. Plant Eng 17:144 N '63

We analyzed, then revamped for top efficiency of our maintenance crews. J. A. Fogle. plan Plant Eng 18:106-11 Ja '64

What should it be; maintenance specialists, or multicraftsmen? C. J. Vlahos. il Mill & Factory 75:51-3 Jl '64

When planning a plant lubrication program, keep it simple for best results. R. E. Marks. il Plant Eng 18:125-7 Ja '64

See also

Factories—Painting

Maintenance contracts

Maintenance departments

also subdivision Maintenance and repair under special subjects, e.g.

Airplane factories

Chemical plants

Machinery

Steel works

Moving

Moving a plant calls for precise planning. A. J. Steele. il Electronic Ind 23:48-52 Ap '64

Phoenix myth re-enacted by Electro Dynamic plant. il Water & Sewage Works 110:sup 74A+ N '63

Trailers reduce 400-hour machinery move to 50 hours. J. G. Lancello and B. F. Reinhart. il Plant Eng 18:122-3 My '64

Painting

Selecting the right protective coating. S. Danoff and H. Kaufman. il Plant Eng 17:90-2 D '63

Water emulsified linseed oil stops bleeding. V. W. Sharrar. il Plant Eng 18:114 My '64

When is the best time to paint? question and answers. il Power 108:158-9 My '64

Protection

Choose the right protective lighting arrangement. V. R. Bishop. il Plant Eng 18:132-3 O '64

Crisis in the night! il Safety Maint 128:35-6 Ag '64

Locks and keys; sentinels of plant security. G. M. Betz and E. A. Eder. il Plant Eng 18:118-20 Je '64

Records

See also

Maintenance departments—Records

Production control

Punched card system

Remodeling

How plant engineering tackled consolidation of three plants in two cities. W. M. Campbell. diags Plant Eng 18:121-3 Je '64

Move or modernize? modernize, this finishing company says; Ankokas dyeing & processing co. il Textile World 114:102-4 Ap '64

Plant engineers spend $1 million for new tenants. il Plant Eng 18:150-1 O '64

Unique handling integrates grinding wheel processes. R. W. Miklitsch. il diag Automation 11:59-63 Mr '64

Roofs

Keep a sound roof over your head. E. J. Titsworth. il Mill & Factory 75:82-4 S '64

Plant roof replaced under mobile shelters. il Eng N 172:18-19 Ja 2 '64

Ponded roof cuts 300 tons off a-c load. J. Molnar. il diags Heating-Piping 36:123-7 O '64

Roof venting of industrial fires. il Engineer 217:374-6 F 28 '64

Shell shelters aluminum smelter. il Eng N 172:23 Ja 2 '64

Space trusses roof tube plant. il Eng N 172:18 Mr 26 '64

Visitors

See Visitors

Water supply

See Water supply for factories

Yards

Lighting

Choose the right protective lighting arrangement. V. R. Bishop. il Plant Eng 18:132-3 O '64

FACTORY communication

Communications cuts inventory levels. il diags Mod Materials Handling 19:77 N '64

See also

Radio telephone in factories

FACTORY costs

Analyzing costs for total energy. N. J. Mazzocco. il Heating-Piping 36:133-7 Ja '64

Application of symbolic logic to a selection problem. J. G. Root. bibliog Op Res 12:519-26 Jl '64

Automatic data processing takes firm control of plant maintenance costs. G. M. Hall. il Power 108:80-2 F '64

Computers; management tools for planning and control; abstract. F. C. Bibbs. Automation 11:144-5 Ag '64

Cost breakeven point in attribute sampling. C. A. Martin. bibliog Ind Quality Control 21:137-44 S '64

Cost comparison of rotational casting with injection moulding and blow moulding. W. C. Johnson. Brit Plastics 37:378-81 Jl '64

Developing a realistic approach to profit improvement. G. C. Lennox. Machine Design 36:82-4 Ja 30 '64

Estimating instrument costs. J. S. Page. Instruments & Control Systems 36:105-7 D '63

Fixed-price development is no answer; try a research approach. R. G. Dexter. il Automation 10:64-6 D '63

How much money for maintenance? C. J. Vlahos. Mill & Factory 74:88-90 Mr '64

Look beyond raw material price for cost of materials. A. V. Gunn. Product Eng 35:92-3 Mr 16 '64

Reports keep watchful eye on maintenance costs. N. G. Harris and S. Fuchs. diags Plant Eng 18:114-17 Ag '64

Science of plant utilities control; actual vs. forecasted costs. E. J. Weiss. Plant Eng 18:144-6 Ap '64

FACTORY costs—*Continued*
Science of plant utilities control; forming a survey committee. E. J. Weiss. Plant Eng 18:156-8 Ja '64
Science of plant utilities control; utilities waste in dollars. E. J. Weiss. Plant Eng 18:157-9+ My '64
Sequencing a one state-variable machine; solvable case of the traveling salesman problem. P. C. Gilmore and R. E. Gomory. bibliog diags Op Res 12:655-79 S '64
Sintering and savings can be synonymous. L. Alexander. il diags S A E J 72:56-9 S '64
Standardization + modernization boosts sales 50 per cent. W. J. Davidson. il Mach 71:129-32 S '64
Value engineering. W. F. Ruggles and others. il diags Product Eng 34:43-9 D 23 '63; 35:90-6 Mr 30; 91-101 Je 22 '64
Yardsticks for rate of return; evaluating equipment proposals. K. Dornish, jr. diags Automation 11:71-3 Ag '64
See also
Airplane factories—Costs

FACTORY floors. See Factories—Floors

FACTORY management
AIPE asks its members; what are your major problems? Plant Eng 18:112-13 Ja '64
Determine process characteristics simply by filtering plant data. P. M. E. M. van der Grinten. diags Control Eng 11:61-4 Jl '64
Electromagnetic compatibility is management responsibility; abstract. F. J. Nichols. S A E J 72:88 F '64
Good costing can prove the unexpected. J. H. Middleton. Engineering 196:761 D 13 '63
Know what workers can do. H. J. Duel. Mill & Factory 75:85-7 O '64
Management view of the plant engineer. R. J. Quirk. Plant Eng 18:147 Ap '64
Personnel survey key to plant space allocation. T. T. Hurst. Plant Eng 18:134-7 My '64
Science of plant utilities control. E. J. Weiss. Plant Eng 17:98-101 D '63; 18:156-8 Ja; 142-4 F; 156-9 Mr; 114-6 Ap; 157-9+ My; 143-4 Je '64 (reprints $1)
Stone age production control works in the space age. R. B. Heldt. Mill & Factory 74:89-90 Ap '64
Survey for electrifying savings. J. Schachner. il Mill & Factory 75:70-3 S '64
Transaction-oriented information handling systems. D. B. Thompson. diags Control Eng 11:87-94 Ja; 91-5 F; 73-6 Jl; 89-91 Ag '64
See also
Assembling methods
Bonus system
Control boards
Control charts
Efficiency, Industrial
Employees
Employment management
Engineering departments
Factories—Maintenance and repair
Factory costs
Foremen
Hygiene, Industrial
Industrial engineering
Industrial management
Industrial relations
Inspection
Inventories
Janitors
Job work
Machine shop management
Material handling
Mechanical handling
Medical service, Industrial
Music in industry
Office management
Organization in industry
Packing for shipment
Photographic departments
Planning
Production
Production control
Purchasing
Research departments
Routing systems
Safety devices and measures
Schedules
Shipment of goods
Shipping departments
Standardization
Stores systems
Suggestion systems
Time keeping
Tool engineering
Tool rooms
Visitors
also subdivision Management under special subjects, e.g.
Airplane factories
Chemical plants
Drug factories
Flour mills
Food factories
Hosiery mills
Knitting mills
Paint shops
Paper and pulp mills
Rubber factories
Textile mills

Quality control

Applying quality control to maintenance jobs. Chem Eng 71:126 Mr 2 '64
Blueprint for reliability; Westinghouse adopts defense-plant technique to commercial products. E. J. Tangerman. Product Eng 35:117-28 O 26 '64
Edp or pencil and paper. G. B. Cohen. Ind Quality Control 20:8-10 My '64
Employ quality control in the fabrication of refrigerant piping. H. L. Mayers. Heating-Piping 35:92-4 D '63
Government and the inspector. R. W. Smiley. Ind Quality Control 20:4-7 Ap '64
Information flow is the first step in organizing your quality control. M. R. Monashkin. flow chart diags Am Mach/Metalworking Manuf 107:69-72 D 23 '63
Introducing quality control. C. C. Erhardt. bibliog Ind Quality Control 20:10-13 My '64
New quality control techniques with programmed data; abstract. T. E. Shipley, jr. Automation 11:143-4 Ag '64
Practical applications of the Weibull distribution. J. N. Berrettoni. Ind Quality Control 21:71-9 Ag '64
Problem 1-64; question and answer. Ind Quality Control 20:46-7 Ja '64
Qual-Man-Ex (quality control management exercise). V. Rehg. Ind Quality Control 21:192-7 O '64
Reliability improvement justifies capital expenditure. H. Thomas and J. C. Haufe. il Mach 70:100-4 F '64
Reliability's big saving: customers. T. A. Daly and P. H. Ockerman. Steel 155:100-2 N 2 '64
Tools that make total quality control work. B. Sussman. il Ind Quality Control 21:10-16 Jl '64
Total QC, industry's answer to quality dilemma. C. J. Vlahos. il Mill & Factory 74:108-11 My '64
Two worlds of quality control. J. M. Juran. Ind Quality Control 21:238-44 N '64
Z is for zero defects. P. B. Crosby. Ind Quality Control 21:182-5 O '64
See also
Inspection
Welding shops—Quality control

FACTORY sanitation
See also
Dust collectors
Dust removal
Food factories—Sanitation
Lavatories

FACTORY transportation
Dolly production line cuts costs, permits flexibility. il Steel 155:61 Jl 20 '64
Electric train monorail: a new flexibility in routing. il diags Mod Materials Handling 19:44-7 F '64
Handling's automatic pilot the driverless tractor. il Mod Materials Handling 19:46-9 S '64
Lockheed's pegboard approach to all-size parts protection. il Mod Materials Handling 19:48-54 Ag '64
Look at the future; material handling. G. J. Berkwitt. il diags Mill & Factory 75:90-100 N '64
Special-purpose heavy-duty trailer. il Engineer 217:79 Ja 10 '64
Special trailer for furnace box and hot anode transportation at Fort William. il Metallurgia 69:114 Mr '64
Transfer car reduces investment in BOF vessels. R. B. McCready and K. W. Forster. diags Iron & Steel Eng 41:176-7 Jl '64
See also
Conveying machinery
Electric trucks, Industrial
Material handling
Mechanical handling
Motor trucks, Industrial
Pallets
Tractors, Industrial
Trucks

FADING (radio waves). See Radio transmission—Fading

FAIRBAIRN, William
Fairbairn and mechanical properties of materials. A. I. Smith. bibliog por Engineer 216:543-5, 1015-17; 217:1133-6 O 4, D 20 '63, Je 26 '64

FAIRFAX COUNTY, Virginia
See also
Water supply—Fairfax County, Virginia

FAIRS
See also
Exhibitions
New York (city)—Worlds fair, 1964

FALLOUT, Radioactive. See Radioactive fallout

FALLOUT shelters. See Atomic bomb shelters

FANKUCHEN, Isidor
Obituary. por Phys Today 17:102 S '64

FANS, Electric. See Electric fans

FANS, Mechanical
Boiler fan corrosion that is no longer. il Engineering 196:776 D 20 '63
Design of contra-rotating fans. A. R. Collar. bibliog diags Roy Aeronautical Soc J 67: 725-30 N '63
Heat control for fan increases welder life. Welding Eng 49:76-7 O '64
New supervisory system cuts cooling tower fan control cost. R. J. Davis. il Elec World 160:18-19 N 25 '63
See also
Electric fans

Blades

Fan blades; use of acetal. il Plastics World 22:31 Mr '64

Noise

How to select a quiet in-line centrifugal fan. R. A. Benoit. diags Air Cond Heat & Ven 61:54-5 Ap '64

FAR EAST
See also
Nutrition problems—Far East

FARADAY effect
Faraday rotation of rare-earth (III) borate glasses. C. B. Rubinstein and others. J Ap Phys 35:2338-40 Ag '64
Light circulator using the Faraday effect of heavy flint glass. S. Saito and others. diag IEEE Proc 52:979 Ag '64
Novel ferrite quarter-wave plate. J. Helszajn. diags Radio & Electronic Eng 27:455-8 Je '64

FARADAY rotation. See Faraday effect

FARE collecting turnstiles. See Turnstiles, Fare collecting

FARM accidents
Occupational disease of farm workers. I. West. bibliog Archives Environmental Health 9:92-8 Jl '64

FARM labor
Children of families who follow the crops; a responsibility for public health; editorial. Am J Pub Health 54:520-1 Mr '64
Occupational disease of farm workers. I. West. bibliog Archives Environmental Health 9:92-8 Jl '64

FARM machinery. See Agricultural machinery

FARM produce
See also
Crops

FARM tractors. See Tractors, Farm

FARRAND, Livingston
L. Farrand (1867-1939); promoter of public health; editorial. Am J Pub Health 53:1995-9 D '63

FASTENINGS
Applying weld fasteners in production operations. G. F. Grey. il diags Automation 11: 81-6 Jl '64
Cold forming fasteners of high strength steel. J. L. Peterson and R. M. Smith. il Metal Prog 85:91-3 Je '64
Cold heading as related to wire quality. J. Stalter. il Wire & Wire Prod 39:1009-10+ Jl '64
Fastener tension and torque. T. Green. il diags Instruments & Control Systems 37: 99-100 F '64
Fasteners are engineered at Chevrolet motor div. il Steel 153:155-6 N 25 '63
Fastening moldings; drawings with text. P. Kostanty. Machine Design 35:153-7 D 5 '63
Fastening wire forms. E. T. Wayne. il diags Machine Design 36:116-18 Jl 2 '64
Fixture speeds up fastener job. il Iron Age 193:107 Mr 26 '64
Flat springs hold panels and doors; drawings with text. F. W. Wood, jr. Product Eng 35:88-9 Mr 30 '64
For repeated high loads, try press-fit studs. J. H. Stroebel and T. L. Johnson. il diags Product Eng 35:99-103 My 25 '64
Guide to automotive fasteners. J. Geschelin; N. M. Lloyd. il diags Automotive Ind 129: 78-80+ O 15; 68-70 N 15 '63; 130:63-5 Ja 15; 37-40 Mr 1; 57-8 Ap 1; 81-2 My 15 '64
How special diet can reduce fat assembly costs. il diags Steel 155:58-9 Jl 20 '64
It's plastics for fasteners these days. J. E. Searle, jr. il Plastics World 21:28-30 D '63
Joining and fastening. Materials in Design Eng 60:529-43 Mid-O '64
Locked threaded fastener. H. G. Dacey. il Materials in Design Eng 59:120-1 Ap '64
Modified austempering produces stronger fastener. il Wire & Wire Prod 39:1333+ S '64
New developments in threaded fasteners. F. M. Giordano. diags Tool & Manuf Eng 52:65-7 Ja; 66-8 F '64
Novel fixture installs thread inserts quickly. il Mach 70:138-9 F '64
Nylon toggle plug for fixing to thin panels. il Engineering 197:83 Ja 17 '64
Plastic-coated fastener. H. M. Schoen and R. F. Horan. Wire & Wire Prod 39:715-17+ My '64
Raycarl process; its impact on cold-headed parts. H. F. Phipard. il diags Iron Age 193: 61-3 Je 4 '64
Recommended AQL for fasteners; reference sheet. Tool & Manuf Eng 52:127-8 Ap '64
Response of timber joints with metal fasteners to lateral impact loads. C. A. Jordan. il Materials Res & Stand 3:368-76 My '63; Discussion. 3:914 N '63
Self-aligning panel fasteners. il diag Mach 71:176 O '64
Seven methods for fastening carbon and graphite parts. L. F. Simbeck and V. A. Nolan. il diags Machine Design 36:147-50 Ap 9 '64
Siding fastener is hidden. il Eng N 173:52 Ag 20 '64
Simplified fastener sharply reduces cost of cable installation. il Marine Eng/Log 69: 84+ Mr '64
Slotted spring pins find many jobs; drawings with text. R. O. Parmley. Product Eng 35:68-9 Ag 31; 74-5 S 28 '64
Snap fasteners for polystyrene. E. Burns. diags Product Eng 35:94-5 Mr 16 '64
Steel, aluminum, stainless steel and nonferrous threaded nails in residential construction. A. S. Tisch. Wire & Wire Prod 39:563-4+ Ap '64
Stronger titanium fasteners for high temperatures. C. Hood. Space/Aeronautics 40: 105 N '63
Wire for cold forming precision products. F. C. Boyd. il diags Wire & Wire Prod 38:1704-5+ N '63
World of fasteners tightens up. R. R. Irving. il Iron Age 194:111-18 Ag 27 '64
See also
Bolts and nuts
Latches
Screws
Staples

FASTING
Effect of fasting on the incorporation in vitro of palmitate-C^{14} into glycerolipids of mitochondria. A. Chareonchai and R. M. Johnson. bibliog J Nutrition 81:387-91 D '63
Elevated riboflavin levels in urine of fasting human subjects. H. G. Windmueller and others. bibliog Am J Clinical Nutrition 15: 73-6 Ag '64

FASTNESS of dyes. See Dyes, Fastness of

FAT
Changes in the fatty acid pattern of the adipose tissue of obese subjects while on a reducing regimen. I. Macdonald and P. J. C. Barry. Am J Clinical Nutrition 15:158-60 S '64
Edible meat fats; current status of production and use in the United States. J. B. Woerfel. il Am Oil Chem Soc J 41:sup4+ Ja '64
Effect of dietary fat on the glyceride structure of rat carcass fat. E. G. Perkins. bibliog Am Oil Chem Soc J 41:285-9 Ap '64
Fat-emulsifying properties of prerigor and postrigor pork proteins. J. C. Trautman. Food Tech 18:1065-6 Jl '64
Fatty acid composition of adipose tissue in normal and abnormal subjects. A. G. A. Heffernan. bibliog Am J Clinical Nutrition 15:5-10 Jl '64
Heat of combustion values of the protein and fat in the body and wool of sheep. O. L. Paladines and others. bibliog J Nutrition 82:145-9 Ja '64
Influence of intramuscular fat level on organoleptic, physical, and chemical characteristics of irradiated pork. L. A. Whitehair and others. bibliog il Food Tech 18:230-41 F '64
Pesticide content of human fat tissue. W. S. Hoffman and others. bibliog Archives Environmental Health 9:387-94 S '64

FATIGUE

Exploit your peak energy periods. A. Uris. il Chem Eng 71:154+ F 17 '64

FATIGUE in metals

Achievement of high fatigue strength in steel. W. E. Duckworth. bibliog Metallurgia 69:53-5 F '64

Apparatus for the study of fatigue of thin metal films in the Hitachi H.U. 11 electron microscope. L. E. Murr and M. A. Wilkov. bibliog il diags J Sci Instr 40:594-6 D '63

Axial fatigue testing of sheet materials down to -423 F. R. D. Keys and F. R. Schwartzberg. il diag Materials Res & Stand 4:222-4 My '64

Bearings get new odds on survival. C. L. Kobrin. il Iron Age 192:71-4 N 28 '63

Changes in the influence of atmospheric humidity during fatigue of an aluminum alloy. J. A. Bennett. bibliog il diags J Res Nat Bur Stand 68C:91-100 Ap '64

Comparative vibration fatigue tests 84/19 ACSR Chukar versus 61-strand 5005. B. Hondalus. il IEEE Trans Power Apparatus & Systems 83:971-4 S '64; Discussion. 83:1069-70 O '64

Controlled atmosphere fatigue machine. K. U. Snowden. bibliog il diag J Sci Instr 41:470-1 Jl '64

Copper alloys for extreme temperatures. C. L. Bulow. Chem Eng 71:162+ Ja 20 '64

Corrosion fatigue of aluminium alloys as affected by metallic coatings and impressed currents; abstract and discussion. J. A. Whittaker and H. King. Chem & Ind p979-80 Je 6 '64

Crack propagation in low cycle fatigue of mild steel. S. T. Rolfe and W. H. Munse. Metal Prog 85:152+ My '64

Critical aspects in bearing fatigue testing. J. F. Moult. Lub Eng 19:503-9; Discussion. 509-11 D '63

Cumulative damage in impulse fatigue tests. S. Tanaka. il diags A S M E Trans ser D 85:535-8 D '63

Cyclic leading machine for slow fatigue tests. P. W. Turner and R. Royles. il diags Engineer 217:264-6 F 7 '64

Definitions of fatigue-notch factor. H. J. Grover. diags Materials Res & Stand 4:493-4 S '64

Design practices to minimize sleeve-bearing fatigue. R. F. Jacobs. il diags Machine Design 35:134-9 D 19 '63

Effect of cross-sectional shape on fatigue strength of steel. M. R. Raghavan. bibliog il diags Materials Res & Stand 4:290-5 Je '64

Effect of mode of stressing in fatigue testing. B. Cina. Metal Prog 85:144+ My '64

Effect of proof stress on the notched fatigue strength of the aluminum alloy HE 15. P. G. Forest. Roy Aeronautical Soc J 67:596-8 S '63; Discussion. E. R. Welbourne. 67:798-9 D '63

Effects of rate of cycling on the unusual fatigue behaviour of two high-strength aluminium alloys. J. M. Finney. bibliog il Inst Metals J 92:380-2 '63-64

Exploratory studies of mechanical cycling fatigue behavior of materials for the supersonic transport; abstract. D. N. Gideon and others. Metal Prog 86:206+ Ag '64

Extending fatigue limits. J. B. Saxton. S A E J 72:54 Ag '64

Fasteners keep their heads. il diag Iron Age 193:156 Je 11 '64

Fatigue characteristics of open-end thick-walled cylinders under cyclic internal pressure. T. E. Davidson and others. bibliog il diags A S M E Trans ser D 85:555-65 D '63

Fatigue crack propagation characteristics of titanium and two titanium alloys. N. E. Frost and K. Denton. diags Metallurgia 70:113-20 S '64

Fatigue crack propagation in sheet specimens. H. Grover. diags Materials Res & Stand 4:430-2 Ag '64

Fatigue life studies are active. J. Geschlin. Automotive Ind 130:55-6 Ap 1 '64

Fatigue limit and the discontinuity in *S/N* fatigue curves of steels. T. R. F. Williams and J. A. Abdilla. il Engineer 218:325-6 Ag 28 '64

Fatigue of metals. G. R. Gohn and others. bibliog il diags Materials Res & Stand 3:105-39 F '63; Discussion. 4:80 F '64

Fatigue of metals accelerated by prolonged exposure to high vacuum; abstract. R. H. Christensen. Metal Prog 86:296 O '64

Fatigue properties of steel rope wire. J. N. Kenyon. il Materials Res & Stand 2:553-6 Jl '62; Discussion. 4:425-6 Ag '64

Fatigue strength of members containing cracks. W. J. O'Donnell and C. M. Purdy. bibliog diags A S M E Trans ser B 86:205-12; Discussion. 213 My '64

Fillet rolling boosts fatigue life and bending moment of crankshafts. H. Chase. il diag Mach 70:140-3 Mr '64

Flexural fatigue tests of prestressed steel I-beams. W. D. Reneker and C. E. Ekberg, jr. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3868]:131-51 Ap '64; Discussion. J. W. Fisher and B. T. Yen. 90 [ST 4 no 4001]:341-3 Ag '64

Geometrical effects in strain cycled aluminum. M. H. Raymond and L. F. Coffin. bibliog il diags A S M E Trans ser D 85:548-54 D '63

Get to the root of fatigue failures. D. L. Weigel. diags Tool & Manuf Eng 53:71-2 N '64

High-strain-fatigue in metals. T. H. Turner. Engineer 217:782-3 My 1 '64; Discussion. F. J. Beer. 218:274 Ag 21 '64

High temperature oil evaluation in full-scale bearing fatigue tests. J. H. Gustafson. diag Lub Eng 20:65-8 F '64

How gear life can be predicted. E. J. Wellauer. il diags Power 108:80-1 My '64

How residual stress affects fatigue. Iron Age 193:139 Mr 12 '64

Influence of ageing processes on the fatigue limit of a body-centred-cubic iron. P. O. Kettunen. bibliog il diags Iron & Steel Inst J 202:209-15 Mr '64

Influence of decarburization on the fatigue properties and the propagation of cracks in silicon steels. B. Spiegler and others. bibliog il diag Iron & Steel Inst J 202:509-17 Je '64

Internal pressure cyclic fatigue test of an HY-80 marine boiler drum. I. Berman and D. H. Pai. il diags Welding J 43:sup24-32 Ja '64

Interpretive report on cumulative fatigue damage in the low cycle range. S. S. Manson. bibliog diags Welding J 43:sup344-52 Ag '64

Low-cycle fatigue. Mech Eng 85:40-3 My '63; Same. Naval Eng J 75:967-70 D '63

Low cycle fatigue damage in pressure-vessel materials. J. G. Sessler and V. Weiss. bibliog diags A S M E Trans ser D 85:539-45; Discussion. 546-7 D '63

Low-temperature fatigue testing machine. M. A. Wilkov and L. E. Murr. il diag Materials Res & Stand 4:285-7 Je '64

Metal fatigue in near-safe specimens, illustrated by copper and brass under alternating torsion. W. A. Wood and others. il Inst Metals J 91:391-4 '62-63; Abstract. Metal Prog 85:176+ Je '64

Nature of fatigue. K. L. Fetters. il diags J Pet Tech 16:869-72 Ag '64

New bearing fatigue testing machine from Distington. il diag Metallurgia 69:50 Ja '64

New plant for the big fatigue test; British Railways fatigue laboratory. il diags Engineering 197:665-7 My 15 '64

Peening increases fatigue strength of welded aluminum. G. E. Nordmark. il diag Metal Prog 84:101-3 N '63

Persistence of voids after annealing of fatigued copper. S. M. Cousland and K. R. Sargant. bibliog il Inst Metals J 92:185-6 '63-64

Predictability of fatigue in aluminum structural design. il Light Metal Age 22:17 F '64

Predicting fatigue life of structures for random and sinusoidal vibrations; data sheet. J. J. Frank. diag Machine Design 36:203-6 Je 18 '64

Prediction of fatigue failure using ultrasonic surface waves; abstract. J. G. Rasmussen. diag Metal Prog 84:168+ N '63

Predictions of roll spalling in four-high mills based on fatigue strength of roll materials and wear pattern of rolls. K. N. Tong and M. K. Chakko. bibliog il diags Iron & Steel Eng 41:143-72; Discussion. 172-3 Jl '64

Preparation of R. R. Moore fatigue specimens from superstrength steels. J. Tarwater. il Materials Res & Stand 4:289 Je '64

Pressure fluctuations and fatigue stresses in storage pumps and pump-turbines. R. A. Strub. bibliog il diags A S M E Trans ser A 86:191-4 Ap '64

Programming fatigue tests. il Engineering 198:535 O 23 '64

Results of a fifteen-year program of flexural fatigue testing of gear teeth. J. B. Seabrook and D. W. Dudley. bibliog il A S M E Trans ser B 86:221-37; Discussion. 237-9 Ag '64

FATIGUE in metals—*Continued*

Riveted and bolted joints; truss-type tensile connections. E. Chesson, jr. and W. H. Munse. bibliog il diags Am Soc C E Proc 89 [ST 1 no 3412]:67-106 F '63; Discussion. A. J. Francis. 89 [ST 5 no 3688]:329-30 O '63; Reply. 90 [ST 2 no 3886]:351-2 Ap '64

Role of blade vibration failures in improving steam turbine reliability. G. A. Luck. il diags Engineer 216:674-80 O 25 '63

Rolling fatigue test machine. il diag Automobile Eng 54:106-7 Mr '64

Simple analysis of fatigue data. E. J. Gumbel. Ind Quality Control 20:14-17 My '64

Slip process peculiar to fatigue. M. E. Packer and W. A. Wood. il Inst Metals J 92:299 '63-64

SAE discusses fatigue; meeting, Detroit. Automotive Ind 130:27-8 My 1 '64

Some metallurgical factors influencing the thermal-fatigue resistance of wrought nickel-chromium-base high-temperature alloys. A. W. Franklin and others. bibliog il diags Inst Metals J 92:313-22 '63-64

Special purpose and high strength steels. G. H. Klouman. bibliog il diags Chem Eng Prog 60:100-6 Jl '64

Statistical analysis of fatigue limits using the logistic function. A. H. Soni and R. E. Little. bibliog Materials Res & Stand 4:471-4 S '64

Temperature effects on the hydrodynamic compression treatment of spot welds. G. Welter and J. A. Choquet. bibliog il Welding J 43:sup202-8 My '64

Thermal cracks in rotor crucial in large-turbine cyclic operation. W. R. Berry and I. Johnson. diags Elec World 161:94-7+ Je 15 '64

Triaxial tensile stress fatigue testing. G. Welter and J. A. Choquet. bibliog il Welding J 42:sup565-70 D '63

Vacuum fatigue tester. B. Steverding. diag R Sci Instr 35:565-8 My '64

William Fairbairn and mechanical properties of materials. A. I. Smith. bibliog il diags Engineer 217:1133-6 Je 26 '64

FATS and oils. See Oils and fats

FATTY acids. See Acids, Fatty

FAUCETS

Fast-awakening sleeping beauty of the fittings field single-control faucets. il Dom Eng 203:99-107 Mr '64

Fordilla faucet may make the village well obsolete. R. V. Ford. il Eng N 171:36-7 N 21 '63

Taps and shower fixtures. il Engineering 197: 208 Ja 31 '64

FAUJASITE. See Zeolites

FAULTS (electric distribution). See Electric distribution—Grounds and faults

FAULTS (geology)

Age and stratigraphic implications of major fault in Llano region, central Texas. T. Freeman and G. L. Wilde. bibliog il maps diag Am Assn Pet Geologists Bul 48:714-18 My '64

Age of the grabens in southeastern Utah. I. J. Witkind. bibliog maps Geol Soc Bul 75:99-105 F '64

Apparent right-lateral separation on Chatham Strait fault, southeastern Alaska. E. H. Lathram. bibliog map Geol Soc Bul 75:249-51 Mr '64

Gravity slide faulting on Bowes Dome, Bearpaw Mountains area, Montana. J. R. Shouldice. bibliog maps diags Am Assn Pet Geologists Bul 47:1943-51 N '63

Moody and Hill system of wrench fault tectonics; discussion. J. J. Prucha. bibliog il maps diags Am Assn Pet Geologists Bul 48: 106-11; Reply. 112-22 Ja '64

Occurrence and exploration significance of strike-slip faults in southern New Brunswick, Canada. G. W. Webb. bibliog il maps diags Am Assn Pet Geologists Bul 47:1904-27 N '63

Origin of continental slopes. R. S. Dietz. bibliog diags Am Scientist 52:50-69 Mr '64

Rebound in redesign of Oahe Dam hydraulic structures. L. B. Underwood and others. bibliog il maps plans diags Am Soc C E Proc 90 [SM 2 no 3820]:65-86 Mr '64

Slickensides and fault movements. H. D. Tjia. map diags Geol Soc Bul 75:683-5 Jl '64

Table of post-cretaceous geologic events along the hurrricane fault, near Cedar City, Iron County, Utah. P. Averitt. bibliog map Geol Soc Bul 75:901-7 S '64

Troublesome fault. Sci Am 209:69-70 N '63

Wrench faulting in Cyprus. P. S. Bagnall. bibliog maps diags J Geol 72:327-45, pl 1 My '64

FECES

Analysis

Birefringence of plant fibrous cellulose and microcrystalline cellulose in human stools freezer-stored immediately after evacuation. T. W. Tusing and others. bibliog il J Agri & Food Chem 12:284-7 My '64

Fecal dye markers in metabolic balance studies. L. Lutwak and B. T. Burton. bibliog Am J Clinical Nutrition 14:109-11 F '64

FECUNDITY

Energy intake and fertility of male chickens. J. E. Parker and G. H. Arscott. il J Nutrition 82:183-7 F '64

FEDERAL aviation agency. See United States —Federal aviation agency

FEDERAL communications commission

See also

Radio laws and regulations

FEDERAL housing administration

FHA awards recognize architectural merit. il Arch Rec 135:14-15 Ja '64

FHA; build homes for open space. plans Eng N 171:19-20 D 12 '63

FHA joins the tenants' war against noise. diags Arch Forum 120:96-7 Mr '64

Federal housing agencies encouraging good design. R. C. Weaver and others. il Arch Rec 136:103-9 Ag '64

FEDERAL power commission

FPC broadens its jurisdiction again. Oil & Gas J 61:127 N 18 '63

FPC evaluating policies. N. Regeimbal. Gas 40:17+ F '64

FPC gives the nod to private power in Snake River ruling. map Eng N 172:47 F 13 '64

FPC hits gas men with $85,000 query. il Oil & Gas J 61:88-9 N 11 '63

FPC opens California gas-supply case. Oil & Gas J 61:50 N 25 '63

FPC policy on temporary rates attacked. Oil & Gas J 62:46 Mr 9 '64

FPC reports on all-electric home bills in major U.S. cities. Gas 39:109 D '63

FPC spooks gas-pipeline investors. Oil & Gas J 62:45-6 Je 15 '64

FPC to study attitude toward pipelines. Oil & Gas J 62:47 F 3 '64

FPC's Ross doubts wisdom of area pricing. Oil & Gas J 61:115 D 2 '63

Johnson keeps 'em jumping. N. Regeimbal. Gas 40:19+ Mr '64

Producers kick off attack on FPC. Oil & Gas J 62:75-6 Ap 6 '64

Rural co-ops plead; FPC go home. Elec World 160:14 D 23 '63

A way out for FPC. J. W. McKie. Oil & Gas J 62:76-8+ Ag 31 '64

FEDERAL trade commission

Can the FTC prevent the dumping of gasoline on the market? Oil & Gas J 62: 50-1 Mr 23 '64

FTC orders P&G to sell Clorox. Soap & Chem Spec 40:49-50 Ja '64

FEDERATION of European biochemical societies

Meeting, 1st, London; with abstracts of papers. Chem & Ind p961-5 Je 6 '64

FEDERATION of sewage and industrial wastes association. See Water pollution control association

FEED mechanisms

Automatic feed for large lamination blanks. il Am Mach 108:88 Ag 17 '64

Designing parts for automatic feeding. W. Taylor. diags Machine Design 36:188-9 Mr 26 '64

Feed drives for automatically-controlled machine tools. M. Monk. il Ind Electronics 2: 3-7 Ja '64

Feed mechanism for moulding machines. il Engineer 218:425 S 11 '64

Feeding parts with oscillating hoppers. A. H. Haberstump. il diags Automation 11:76-9 S '64

From Japan, parts handling mechanisms; drawings with text. S. Arichika. Product Eng 35:100-3 S 14 '64

Holding uniform tension during die feed. J. R. Shaffer. il Am Mach 108:97 Mr 16 '64

Mechanized part feed and tubular riveting quadruple sash lock output. il Mach 70:131 My '64

Nuclear gage guides material flow. Eng N 173:52 Ag 20 '64

Paper feed mechanisms for bank printer. diags Product Eng 35:32-3 Mr 2 '64

Tips for high-speed feeding. il Automation 11:82-4 O '64

What you should know about press feeds and unloaders. R. Le Grand. il diags Am Mach 108:113-32, cover My 11 '64 (reprints 50c)

See also

Hoppers

FEED water
What causes drum level surges? answers. diags Power 107:158-9 D '63
See also
Feed water regulators

Testing

Automated power station water treatment is on the rise. R. D. Goldberg. il Power Eng 68:44-5 Ag '64
Determination of carbon dioxide in boiler feedwater. H. Gaunt and C. Shanks. flow diag diag Chem & Ind p651-3 Ap 18 '64
Indirect determination of free hydroxide ion in high pressure boiler water. S. Barker. bibliog Chem & Ind p 1617-20 S 19 '64
Simple method checks sodium content of boiler water. W. B. Gurney. il diag Elec World 161:125 Mr 23 '64

FEED water heaters
Copper-nickel alloys for feed-water heater service. B. E. Hopkinson. bibliog il Corrosion 20:80-8; Discussion. 88 Mr '64
Heaters in cascade improve efficiency. R. M. Arrowsmith. il diags Engineering 197: 860-2 Je 26 '64
Quick detect feedwater heater leaks. K. Lehner. il diags Elec World 161:96+ Ap 6 '64
Tests on new 500-mw unit complicated by two turbine driven boiler feed pumps. R. H. Dunham. il diag Elec World 160:86-8 D 2 '63

Maintenance and repair

Exfoliation-type corrosion of cupro-nickel feedwater heater tubes and removal of corrosion products by chemical cleaning. J. M. Decker and J. C. Marsh. il Combustion 36: 47-8 Ag '64

FEED water indicators. See Water level indicators

FEED water pumps. See Pumps. Feed water

FEED water purification
American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on water conditioning. Combustion 35:38-40 Je '64
Anion resin characteristics and forecasting of optimum replacement interval. J. H. Griffin, jr. Am Water Works Assn J 56: 616-20 My '64
Current trends in condensate treatment. F. N. Kemmer. bibliog il Power 108:76-9 My '64
Evaporator level indication. W. A. Huss. il diags Combustion 35:36-8 Mr '64
External regeneration; a feature of condensate demineralizer. il Water & Sewage Works 111:465 O '64
Feed pretreatment to enhance water desalting. Chem Eng 71:94+ S 14 '64
Five chemical treatments condition NCRA's boiler and cooling water. il Oil & Gas J 62:150-1 Mr 16 '64
Flash evaporator meets high-pressure boiler demand for top quality makeup. G. Ostroot, jr. and W. L. Buettner. il diags Power 108: 70-3 F '64
How and why of water treatment for systems at O'Hare airport. M. Callahan. il Heating-Piping 36:90-3 F '64; Same. Water & Sewage Works 111:165-7 Ap '64
Improved basis for coordinated phosphate-pH control of boiler water. V. M. Marcy and S. L. Halstead. bibliog Combustion 35:45-7 Ja '64
New regenerable process upgrades condensate for boiler feed. Y. T. Allen and S. B. Applebaum. il diags Power 108:74-6 Mr '64
Packaged water treatment controls. C. S. Bilisoly. flow diag il diags Power 108:76-8 O '64
Removal of scale-forming elements from sea water. M. G. Dunseth and M. L. Salutsky. bibliog flow sheet Ind & Eng Chem 56:56-61 Je '64
Status of condensate and feedwater purification in today's utility power plants. V. J. Calise and C. Dallman. Combustion 35:38 Mr '64
Ultrapure water for power plants. V. J. Calise and C. Dallman. bibliog diags Mech Eng 86:44-50 S '64
See also
Water softening

FEED water regulators
Six possible causes of boiler flooding; question and answer. diag Dom Eng 203:93 F '64
What's the remedy for boiler flooding in apartment house? question and answer. diags Dom Eng 202:58-9+ D '63

FEEDBACK control systems
Active compensating networks. K. A. Ivey. diag Control Eng 10:111-12 N '63
Analytical representation of the root-locus. C. K. Wojcik. diags A S M E Trans ser D 86:37-43 Mr '64
Condition for the $\mathcal{L}\infty$-stability of feedback systems containing a single time-varying nonlinear element. I. W. Sandberg. diag Bell System Tech J 43:1815-17 pt 2 Jl '64
Control theory. R. Bellman. il diags Sci Am 211:186-90+ S '64
Controller settings and loop performance; a rapid estimate. P. S. Buckley. diags Control Eng 11:81-2 Ag '64
Damped vibration absorber as a problem in closed loop control. J. I. James. diags Roy Aeronautical Soc J 68:694-6 O '64
Decreasing the threshold in fm by frequency feedback. L. H. Enloe. bibliog diags Inst Radio Eng Proc 50:18-30 Ja '62; Discussion. IEEE Proc 52:1039-44 S '64
Disturbances; their effect upon control systems. J. G. Balchen. diags Ind Chem 39: 582-9 N '63
Effect of feedback control on chemical reactor stability. J. S. Berger and D. D. Perlmutter. diags A I Ch E J 10:238-45 Mr '64
Feedback boosts laser beam. diags Electronics 36:42-3 D 13 '63
Feedback in cyclotron-wave frequency multipliers. C. Yeh and J. C. Lee. diag IEEE Proc 52:314 Mr '64
Feedback machine trims pistons. R. H. Eshelman. il Iron Age 192:80-1 N 28 '63
Feedback signals link melter to oxygen steelmaking. B. Blum. il Iron Age 192:84-5 N 21 '63
Feedback stiffens air bearings. H. L. Wunch and C. A. Scoles. diag Control Eng 11:99 Ap '64
Feedback stiffens D'Arsonval movement. R. Bergeson. diags Control Eng 11:121 S '64
Finding error coefficients from poles and zeros; data file. T. J. Kobylarz. Control Eng 11:89-90 Mr '64
Frequency-domain condition for the stability of feedback systems containing a single time-varying nonlinear element. I. W. Sandberg. bibliog diags Bell System Tech J 43:1601-8 pt 2 Jl '64
Fuel-optimal control of a double integral plant with response time constraints. M. Athans. bibliog diags IEEE Trans Applications & Ind 83:240-6 Jl '64
Functional techniques for the analysis of the nonlinear behavior of phase-locked loops. H. L. Van Trees. bibliog diags IEEE Proc 52:894-911 Ag '64
Fundamentals of linear control theory. W. P. Chapman. diags ASHRAE J 6:64-8 Ap '64
Fundamentals of strip mill automatic gage control systems. J. W. Wallace. diags Iron & Steel Eng 41:193-202 S '64
Generalization of Mitrović's method. D. D. Šiljak. bibliog diags IEEE Trans Applications & Ind 83:314-20 S '64
Limitation of current-feedback. G. May. diag Electronic Eng 36:266-7 Ap '64
Linearisation of backlash in control systems with random inputs. W. A. Brown. bibliog diags Inst E E Proc 111:379-86 F '64
Method for comparing small ac voltages in the presence of large dc components. E. J. Rogers. diags R Sci Instr 35:130-2 Ja '64
Method for raising the load capability of stereo cutters. H. Redlich and H. J. Klemp. diags Audio Eng Soc J 12:231-5 Jl '64
Minimizing feedback in high-frequency transistor amplifiers. C. B. Parker. diags Electronic Ind 23:68-71 Ja '64
Minimum fuel control of a second-order linear process with a constraint on time-to-run. H. O. Ladd, jr. and B. Friedland. bibliog diags A S M E Trans ser D 86:160-8 Mr '64
Multiple-loop feedback circuits. S. S. Hakim. bibliog diags Inst E E Proc 110:1955-9 N '63
Numerically controlled miller optimizes own production. R. Sem. diags Control Eng 11: 93+ Ag '64
Operational trigger for precise control. P. Lefferts. il diags Electronics 37:50-5 N 2 '64
Optimized feedback control of dead-time plants by complementary feedback. W. Giloi. diags IEEE Trans Applications & Ind 83:183-9 My '64
Pattern recognition and adaptive control. B. Widrow. bibliog il diags IEEE Trans Applications & Ind 83:269-77 S '64
Performance limits for feedback control systems. G. Rabow. bibliog diags IEEE Trans Applications & Ind p351-6 N '63
Quasi-linearization design of nonlinear feedback control systems. K. Chen. bibliog diags IEEE Trans Applications & Ind 83:189-95 My '64

FEEDBACK control systems—*Continued*

Response of nonlinear closed-loop systems to random inputs. J. E. Gibson and R. Sridhar. bibliog diags A S M E Trans ser D 86:132-8 Mr '64

Self-optimising control systems; abstract. P. H. Hammond. Chem & Ind p432 Mr 14 '64

Sensitive threshold circuit using positive and negative nonlinear feedback. R. C. Johnston. diags IEEE Proc 51:1788-9 D '63

Sensitivity problem in continuous and sampled-data linear control systems by generalized Mitrović method. P. Kokotović and D. D. Šiljak. bibliog IEEE Trans Applications & Ind 83:321-4 S '64

Sensors will optimize metal cutting, experimenters hope. D. Aronson. il Control Eng 11:19-20+ Ag '64

Signal distortion in nonlinear feedback systems. I. W. Sandberg. bibliog diags Bell System Tech J 42:2533-50 N '63

Simple stability criterion. P. W. Becker. bibliog diags A S M E Trans ser D 86:44-9; Discussion. 49:50 Mr '64

Stability of subharmonic oscillations in nonlinear systems. R. Oldenburger and R. E. Nicholls. bibliog diags A S M E Trans ser D 86:116-20 Mr '64

Stability study of pulse-width-modulated feedback systems. E. I. Jury and T. Nishimura. bibliog diags A S M E Trans ser D 86:80-6 Mr '64

Time response of a feedback thyratron controlled d-c motor with a nonlinear load. J. Miro. diags IEEE Trans Applications & Ind p76-80 Mr '64

Torque-controlled drive evaluated for turning operations. il Mach 70:113-15 Jl '64

Unity bit coding method by negative feedback. H. Inose and Y. Yasuda. bibliog il diags IEEE Proc 51:1524-35 N '63

Use tuned heads for spectrum analysis. J. L. Douce and P. J. Parr. diags Control Eng 11:63-5 Ag '64

When is a linear control system optimal? R. E. Kalman. bibliog A S M E Trans ser D 86:51-60 Mr '64

Wideband feedback coherence control for superregenerative NQR spectrometers. G. E. Peterson and P. M. Bridenbaugh. diags R Sci Instr 35:698-700 Je '64

See also

Servomechanisms

FEEDERS

Bench-scale feeder keeps slurries in suspension. R. Lee and J. D. King. diag Chem Eng 71:150+ S 28 '64

Short and accurate metering; of spices. il Engineering 198:179 Ag 7 '64

Solids feeders. C. A. Lee. il diags Chem Eng 71:119-34 F 17 '64 (reprints 50c)

Triplex calculator adjusts dry chemical feeds. A. A. Hirsch. diag Chem Eng 71:154+ Jl 6 '64

Vibratory feeders and conveyors. A. Musschoot. il diags Mech Eng 86:51-3 S '64

West Des Moines recarbonation; proportional, two-stage application of liquid CO_2 with one V-notch feeder. A. C. Ward. il diag Water Works Eng 116:882-3 N '63

What you should know about feeders; special report. S. Levine. il diags Rock Prod 67:61-73+ Ag '64

FEEDERS, Electric distribution. See Electric distribution

FEEDING and feeding stuffs

Contribution to the knowledge of the structure of two hydropericardium-producing factors from a toxic fat. J. C. Wootton and W. L. Courchene. bibliog diags J Agri & Food Chem 12:94-8 Ja '64

Oral electrolytes stimulate growth. Manuf Chem 35:65+ My '64

Sequential approach to the feed-mix problem. L. W. Swanson and J. G. Woodruff. Op Res 12:89-109 Ja '64

See also

Alfalfa
Poultry—Feeding
Soybean meal
Swine—Feeding

Energy value

Energy nutrition and milk secretion in the dairy cow. J. A. F. Rook and J. E. Storry. bibliog Chem & Ind p 1778-87 O 24 '64

Energy utilization by sheep as influenced by the physical form, composition and level of intake of diet. O. L. Paladines and others. bibliog J Nutrition 83:49-59 My '64

Influence of protein and energy on growth and protein utilization in the growing chicken. J. D. Summers and others. J Nutrition 82:463-8 bibliog(p467-8) Ap '64

Manufacture

Air cylinders sequence feed mixer. W. E. Cavanaugh. il diags Hydraulics & Pneumatics 17:94-5 My '64

Soybean and mixed-feed plant processing wastes. R. S. Engelbrecht and others. flow diag il plan diag WPCF J 36:434-42 Ap '64

Standard equipment processes crambe seed. il Chem & Eng N 42:50+ Mr 2 '64

FELDSPAR

Absence of optically positive potash feldspar in the Inyo Mountains, California-Nevada. D. O. Emerson. bibliog Am Mineralogist 49:194-5 Ja '64

Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64

Ages of zircon and feldspar concentrates from North American beach and river sands. D. Ledent and others. bibliog map J Geol 72:112-22 Ja '64

Alkali feldspars of the Tatoosh pluton in Mount Rainier national park. T. L. Wright. bibliog il maps diags Am Mineralogist 49:715-35 My '64

Ammonium in alkali feldspars. D. S. Barker. bibliog Am Mineralogist 49:851-8 Jl '64

Buddingtonite, an ammonium feldspar with zeolitic water. R. C. Erd and others. bibliog diags Am Mineralogist 49:831-50 Jl '64

Causes of optical-crystallographic scatter of plagioclase in grain mounts. T. A. Vogel. diag Geol Soc Bul 74:1403-4 N '63

Coexisting albite and oligoclase in some schists from New Zealand. B. W. Evans. bibliog il diag Am Mineralogist 49:173-9 Ja '64

Genesis of plagioclase twinning in the Nonewaug granite. K. E. Seifert. diags Am Mineralogist 49:297-320 bibliog(p318-20) Mr '64

Optical-crystallographic scatter in plagioclase. T. A. Vogel. bibliog Am Mineralogist 49:614-33 My '64

Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64

See also

Anorthite
Nepheline

FELT

Felt radial seals. E. A. Smith. il diags Machine Design 36:4-5 Je 11 '64

Properties of materials; wool felts; tables. Materials in Design Eng 60:360-5 Mid-O '64

Synthetic fibers improve felt properties. il diag Materials in Design Eng 60:100-3 N '64

FELTING of wool. See Wool—Felting

FELTS (paper making)

Better understanding of press and felt performance; engineering approach. J. W. Welch. diags Paper Ind 46:29-33+ Ap '64

Evaluation of the Madeleine felt drying system. E. W. Ramsdell. diag Paper Ind 46:402-6 Ag '64

Felt soils: cause and removal. G. R. Smart and R. L. Fiske. il diags Tappi 46:sup202A-6A N '63

How full felt width suction cleaning benefits papermakers. F. J. McGrath. diags Paper Ind 45:663-4 Mr '64

Initial study of the water removal process in the plain press nip. C. S. Yih and S. J. McNamara. Tappi 47:153-6 Mr '64

Madeleine hot air felt drier roll system. F. W. Cassirer. il diags Tappi 47:sup 175A-9A S '64

New aspects of multicylinder machine felts. R. G. Wilson and J. Wilbur. Tappi 46:sup 157A-8A N '63

Principles and practice of permeability measurement in drier felts. E. Race and T. Hindle. bibliog il diag Tappi 47:452-7 Ag '64

Use of manmade fiber felts in the paper industry. D. B. Wicker. Mod Textiles Mag 45:39-41 F '64

FENCE posts

Concrete-in-steel fence posts. il Engineering 198:467 O 9 '64

FENCES

New approach to cutting fence maintenance: resin-clad components. il diags Mod Plastics 42:130 S '64

Plastics-protected chain-link fence. il Plastics World 22:24-5 O '64

See also

Fence posts

FENDERS, Dock

Offshore mooring island for supertankers. V. Biancato and J. H. Finger. il diags Am Soc C E Proc 88 [WW 4 no 3311]:1-17 N '62; Discussion. 89 [WW 2 no 3527]:99-104 My '63; Reply. 90 [WW 2 no 3917]:21-6 My '64

FENDLERIDINE. See Alkaloids

FENDLERINE. See Alkaloids

FERMENTATION

Biological ennoblement; improvement of the nutritive value of foods and dietary regiment by biological agencies. B. S. Platt. bibliog il Food Tech 18:662-7+ My '64

Determination of phenylacetic acid in penicillin fermentation media by means of gas chromatography. A. O. Niedermayer. Anal Chem 36:938-9 Ap '64

Development of fermentation processes; abstract. L. M. Miall. Chem & Ind p 1071-2 Je 20 '64

Fermentation could expand broadly. Chem & Eng N 42:42+ Ja 13 '64

Fermentation course includes pilot plant work; Rutgers university. il Chem & Eng N 42:46-7 Jl 6 '64

Fermentation moves to firmer ground. J. W. Hoelscher. il Chem Eng 71:96+ Ap 13 '64

General-purpose fermentor has removable vessel. Chem & Eng N 42:50 Ag 31 '64

International fermentation symposium. 2d. April 13-17; abstracts of papers. Chem & Ind p547-52 Mr 28 '64

Microbial synthesis in industry and its relation to microbial physiology. S. J. Pirt. bibliog diags Chem & Ind p 1772-7 O 24 '64

Process for the production of lysine by chemical and microbiological synthesis. B. S. Gorton and others. bibliog Ind & Eng Chem Product Res & Develop 2:308-14 D '63

Production of steam-volatile phenols during the cooking and alcoholic fermentation of grain. R. D. Steinke and M. C. Paulson. bibliog diag J Agri & Food Chem 12:381-7 Jl '64

Solar power via a botanical process. W. J. Oswald and C. G. Golueke. diag Mech Eng 86:40-3 F '64

Some aspects about using bacterial pure cultures in the manufacture of fermented sausages. F. P. Niinivaara and others. bibliog il diags Food Tech 18:147-53 F '64

Some economic aspects of the fermentation industry. G. Hayman. Chem & Ind p 1483-41 Ag 15 '64

Studies on the utilization of tempeh protein by weanling rats. L. R. Hackler and others. bibliog J Nutrition 82:452-6 Ap '64

Tempeh fermentation; package and tray fermentations. A. Martinelli and others. bibliog il diags Food Tech 18:761-5 My '64

Training for the fermentation industry. J. J. H. Hastings. Chem & Ind p 1475-9 Ag 22 '64

See also

Brewing

FERMI-DIRAC statistics

Fermi statistics of two-dimensional free-electron systems. J. P. McKelvey and E. F. Pulver. diags Am J Phys 32:749-61 O '64

FERRATES

Action of water on calcium aluminoferrites. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:453-63 S '64

Computer study of transient spin-wave build-up in ferrites. K. J. Harker and H. J. Shaw. J Ap Phys 35:902-3 pt 2 Mr '64

Delta ferrite in austenitic stainless steel. I. Tajiri and others. il Iron & Steel Inst J 202:122-3 F '64

Design considerations for ferrite junction circulators. J. Rowley and E. Sheehan. IEEE Proc 52:221 F '64

Determination of ferrous oxide in ferrites. K. L. Cheng. Anal Chem 36:1666-7 Jl '64

Diamond tooling solves manufacturing problem. il Tool & Manuf Eng 53:89-90 Ag '64

Differential thermal analysis and Mössbauer studies in rare-earth orthoferrites. M. Eibschütz and others. bibliog J Ap Phys 35:1071-2 pt 2 Mr '64

Electrons work tiny ferrites. R. A. Shahbender. il diags Electronics 36:72+ N 15 '63

Ferrimagnetic resonance in polycrystalline ferrite and garnet disks at L-band frequencies. W. E. Case and others. bibliog diag J Res Nat Bur Stand 68C:85-9 Ap '64

Ferrite core parameter measurements at very high switching currents. M. C. Stevens. bibliog diags Electronic Eng 36:470-3 Jl '64

Ferrite-core system controls two stations. D. D. Compton. il Oil & Gas J 61:96-8 D 9 '63

Ferrite memory. L. L. Marlow. il Instruments & Control Systems 37:127-8 O '64

Ferrites; can they be deposited as thin films? diags Electronics 37:84+ F 7 '64

Fine-grained ferrites; $Ni_{1-x}Co_xFe_2O_4$; high-power microwave and rf properties. W. W. Malinofsky and R. W. Babbitt. J Ap Phys 35:1012-14 pt 2 Mr '64

Flux distribution in multiaperture ferrite cores. P. D. Cooper and B. Kostyshyn. bibliog il diags IEEE Trans Com & Electronics 83:575-8 S '64

Growth and properties of single crystals of hexagonal ferrites. R. O. Savage and A. Tauber. bibliog il diag Am Cer Soc J 47:13-18 Ja '64

Helical line with circumferentially magnetised ferrite cylinder. K. P. Ivanov. diag Inst E E Proc 111:1692-3 O '64

Hexagonal ferrite isolators. D. R. Taft. diags J Ap Phys 35:776-8 pt 2 Mr '64

Hexagonal ferrites for millimeter resonance isolators. D. R. Taft and others. bibliog Electro-Tech 73:85-8 Ja '64

High-speed ferrite-core storage system. D. B. G. Edwards and others. bibliog il plan diags Inst E E Proc 111:1501-10 S '64

Improved union of digit-select lines and sense lines in word-select ferrite-core memory systems. R. Laupheimer. diags IEEE Proc 52:432-3 Ap '64

Induced magnetic anisotropy in ferrite single crystals. E. M. Gyorgy and F. J. Schnettler. bibliog J Ap Phys 35:1648-9 My '64

Influence of spin waves upon harmonic generation in ferrites. P. M. Richards and H. J. Shaw. bibliog J Ap Phys 35:187-96 Ja '64

Laminated ferrite memory. R. Shahbender and others. bibliog il diags RCA R 24:705-29 D '63

Magnetic exchange anisotropy in mixtures of barium, strontium, or lead ferrite with potassium ferrite. W. L. Roth and F. E. Luborsky. J Ap Phys 35:966-7 pt 2 Mr '64

Microwave magnetics. diags Electronics 37:74-7 Je 29 '64

Molded memory array; abstract. R. F. Elfant and others. Electronics 37:110 Je 1 '64

New hexagonal ferrite, establishing a second structural series. J. A. Kohn and D. W. Eckart. J Ap Phys 35:968-9 pt 2 Mr '64

Nonlinear analysis of ferrite-core circuits. S. W. F. Ching and O. B. Stram. bibliog diags IEEE Proc 51:1761-6 D '63

Novel ferrite quarter-wave plate. J. Helszajn. diags Radio & Electronic Eng 27:455-8 Je '64

No. one electronic switching system call store; a 0.2-megabit ferrite sheet memory. R. M. Genke and others. il diags Bell System Tech J 43:2147-91 S '64

Performance of the core-equivalent of the transfluxor shift register. G. W. Dick. bibliog diags IEEE Trans Com & Electronics 83:566-70 S '64

Perturbation formula for a ferrite-loaded helix. K. P. Ivanov. bibliog diag Radio & Electronic Eng 28:87-8 Ag '64

Piezomagnetism of biased ferrites. A. P. Greifer. bibliog J Ap Phys 35:1065-6 pt 2 Mr '64

Problem in designing high-speed ferrite switches. S. Sugimoto and M. Sugiyama. IEEE Proc 52:1252 O '64

Q band ferrite isolator for the circular TE_{01} wave mode. J. M. Hale and H. E. M. Barlow. diags Inst E E Proc 111:1556-61 S '64

Radiation from a ferrite cylinder. J. C. Palais. bibliog J Ap Phys 35:779-81 pt 2 Mr '64

Reciprocal ferrite phase shifter. G. Buchta. bibliog diags IEEE Proc 52:304-5 Mr '64

Second-harmonic magnetic modulator using ferrite core materials. R. C. Foss. bibliog diags IEEE Trans Com & Electronics 83:561-6 S '64

Sequential access ferrite store with stepping switch addressing. M. D. A. B. Rackowe. diags Electronic Eng 36:612-15 S '64

Slow waves in ferrites and their interactions with electron streams. J. Spector and A. W. Trivelpiece. bibliog diags J Ap Phys 35:2030-9 Jl '64

Spinel-type ferrites containing fluorine. M. Schieber. bibliog J Ap Phys 35:1072-3 pt 2 Mr '64

Superparamagnetism in magnetically dilute systems. Y. Ishikawa. bibliog diag J Ap Phys 35:1054-9 pt 2 Mr '64

Test and display equipment for multi-aperture shift registers. P. Broomer. bibliog diags Radio & Electronic Eng 26:338-46 O '63

Titrimetric determination of zinc with tetracyano-mono-1,10-phenanthroline-ferrate(II). A. A. Schilt and A. V. Nowak. bibliog Anal Chem 36:845-8 Ap '64

FERRATES—*Continued*

Wide-temperature-range ferrite cores for computer memories. H. P. Lemaire and others. bibliog diags RCA R 25:308-18 Je '64

See also

Barium ferrate

Lithium ferrates

Manganese ferrates

Nickel ferrates

Zinc ferrates

Testing

Square-loop ferrites for logic application. D. L. Fresh and R. G. West. bibliog Am Cer Soc J 47:395-7 Ag '64

FERRIC chloride. See Iron chlorides

FERRIC sulfate. See Iron sulfates

FERRIS wheels

Size is no barrier to precision assembly; giant ferris wheel at New York worlds fair. il Mill & Factory 74:80-1 Ap '64

FERRITES. See Ferrates

FERROALLOYS

Adds large ferroalloy furnace. il Foundry 92:23+ Mr '64

Furnace fires ferroalloy fight. T. M. Rohan. il Iron Age 193:26-7 Ja 23 '64

Giant ferroalloy furnace with interchangeable hearths puts Interlake in silicon market. il Iron & Steel Eng 41:137-8+ F '64

Largest ferroalloy furnace on stream. il J Metals 16:138-9 F '64

Plastics versus ferrous metals. R. Sen. Brit Plastics 37:124-6 Mr '64

FERROCENE. See Iron compounds

FERROCYANIDES

Precipitation chromatography; separation of metals as ferrocyanides on filter paper. A. M. Liimatta and J. D. Spain. bibliog il Anal Chem 35:1898-900 N '63

FERROELECTRIC effect

Anomalous behaviour of blast pressure gauges with ferroelectric ceramic elements. J. C. Muirhead and W. J. Fenrick. diags J Sci Instr 41:483-4 Jl '64

Effects of constant dc fields on the hysteresis loops of ferroelectric $Bi_4Ti_3O_{12}$ crystals. S. E. Cummins. bibliog il J Ap Phys 35:3045-6 O '64

Metastable ferroelectric sodium niobate. R. H. Dungan and R. D. Golding. bibliog diags Am Cer Soc J 47:73-6 F '64

Nucleation and growth of ferroelectric domains in $BaTiO_3$ at fields from 2 to 450 kv/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il diag J Ap Phys 34:3255-60 N '63

Oscillations of ferroelectric bodies. D. R. Callaby and E. Fatuzzo. bibliog diags J Ap Phys 35:2443-51 Ag '64

Switching behavior in ferroelectric potassium nitrate. R. A. Dork and others. J Ap Phys 35:1984-5 Je '64

FERROFINING. See Lubricating oils—Manufacture

FERROMAGNETIC materials. See Magnetic materials

FERROMAGNETIC resonance. See Magnetic resonance

FERROMAGNETISM. See Magnetism

FERROUS chloride. See Iron chlorides

FERRY bridges

Mobile bridge-ferry built by Chrysler. il Automotive Ind 130:114 Ja 15 '64

FERRYBOATS

Assembly-line hydrofoil ferries. il Marine Eng/Log 69:48-9 Ag '64

Closed-circuit t.v. at Dover car ferry terminal. il Engineer 218:186 Jl 31 '64

Distinctive ships; British Railways' new ferry Avalon. il Marine Eng/Log 68:82-3+ D '63

Distinctive ships; superferry Malaspina for the state of Alaska's fleet. il Marine Eng/Log 68:70-1+ D '63

Distinctive ships; VW's biggest automobile carrier Johann Schulte. il Marine Eng/Log 68:80 D '63

Fast ferry in UK-Denmark service is wonderful way to travel. il Marine Eng/Log 69:16F-16H Ag '64

Passenger/car ferry M.V. England. G. W. Tripp. il Engineer 218:12-13 Jl 3 '64

Seagoing ferryboat joins Alaska's fleet. il Marine Eng/Log 69:60-1 O '61

SS Avalon, British railways' newest Channel ferry. il plans Marine Eng/Log 68:47-53 N '63

Two ship conversions; S.S. Falaise and S.S. Normannia to car ferries. G. W. Tripp. il Engineer 217:953 My 29 '64

See also

Train ferries

FERTILITY. See Fecundity

FERTILIZER factories

Fertilizer plants completed on Aruba. Chem & Eng N 41:30 D 16 '63

Lone Star fertilizer plant is scheduled for fall completion. Oil & Gas J 62:89 Ja 20 '64

New fertilizer plant Portugal's largest. Oil & Gas J 62:88-9 My 4 '64

Equipment

Aluminum use in the fertilizer industry. B. H. Wyma and R. H. Wagner. bibliog il Chem Eng Prog 60:55-62 My '64

Fertilizer-plant corrosion licked. J. Sordo G. il diag Oil & Gas J 62:84-6 Je 1 '64

Giant economy-size compressors save for ammonia plant. T. R. Kendrick. il Oil & Gas J 62:150-1 My 11 '64

Solve measuring problems in piping liquefied NH_3. C. A. Lee. diags Heating-Piping 36:102-5 Je '64

Safety measures

How to handle fertilizer plant fires. Safety Maint 126:33 D '63

FERTILIZER industry

Ammonia rides fertilizer boom. H. M. Wilson; H. S. Pylant. il map diags Oil & Gas J 62:65-74 F 3 '64

Compatibility of lime and fertilizer. L. F. Farison. diags Pit & Quarry 56:120-2+ My '64

Fertilizer makers scramble for market position. Chem & Eng N 41:25 N 25 '63

Fertilizer producers face antitrust suits. Chem & Eng N 42:24 F 24 '64

Oil firms push deeper into fertilizers. Oil & Gas J 62:66-7 S 7 '64

Semiannual inventory of new plants and facilities: fertilizers. Chem Eng 71:151-2 Ap 27; 117-18 O 26 '64

Trustbusters shift to phosphate fertilizers. Chem & Eng N 42:23-4 My 11 '64

Weather disrupts fertilizer sales. Chem & Eng N 42:27 Jl 6 '64

World fertilizer production. G. C. Sweeney, jr. maps Chem & Eng N 41:89-94 D 2 '63

Advertising

See also

Lime as fertilizer—Advertising

Laws and regulations

California joins Iowa in push for switch to elemental guarantees for fertilizer. Chem & Eng N 42:23-4 Je 1 '64

Statistics

Facts and figures for the chemical process industries; chemicals for agriculture. H. H. Shepard and J. N. Mahan. Chem & Eng N 42:130-3 S 7 '64

World fertilizer requirements. R. Coleman. Chem & Eng N 41:84-8 D 2 '63

Canada

1963 review/64 preview; chemical specialties. Can Chem Process 48:56 Ja '64

Portugal

Portugal fertilizer plant starts. il Oil & Gas J 62:140 My 25 '64

Texas

Lone Star builds market ahead of plant. il plan Oil & Gas J 62:96-7 O 5 '64

FERTILIZERS

Ammoniation of fluidized triple superphosphate fertilizers. E. G. Shook and others. J Agri & Food Chem 12:347-51 Jl '64

Ammoniation of triple superphosphate fertilizers with gaseous ammonia and with nitrogen solutions. R. F. Nunn and others. bibliog diag J Agri & Food Chem 12:351-7 Jl '64

Bulk blending of fertilizer material; effect of size, shape, and density on segregation. G. Hoffmeister and others. bibliog diag J Agri & Food Chem 12:64-9 Ja '64

Calcium ammonium and calcium potassium pyrophosphate systems. E. H. Brown and others. J Agri & Food Chem 12:70-3 Ja '64

Calcium ammonium orthophosphates. A. W. Frazier and others. bibliog J Agri & Food Chem 12:198-201 My '64

Fertilizer packaging. il Plastics World 22:12-13 Ja '64

Fertilisers and plant nutrients (cont). D. P. Hopkins. bibliog Manuf Chem 34:584-6 D '63; 35:56+ Mr; 53-4 Jl '64

Fluoride-induced phosphate reversion in fertilizer mixtures. E. J. Fox. bibliog J Agri & Food Chem 11:446-51 N '63

FERTILIZERS—*Continued*

Granulation characteristics of a 5-4-12 (5-10-15) fertilizer containing potassium nitrate. D. R. Boylan and D. V. Kamat. il diags J Agri & Food Chem 12:423-8 S '64

How much ammonia for world's needs? L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:135-40 O '64

Minor element release from organic-N fertilizer materials in laboratory and field studies. J. G. Fiskell and others. bibliog J Agri & Food Chem 12:363-7 Jl '64

New laboratory is center for research on fertilizers and inorganic chemicals; Armour. il Anal Chem 35:sup93A-5A N '63

Quality of phosphorus in mixed fertilizers are revealed by solubility in water, neutral ammonium citrate, and alkaline ammonium citrate solutions. J. W. Gilliam and B. Wright. bibliog J Agri & Food Chem 12: 205-7 My '64

Segregation studies of dry blended fertilizer. L. J. Pircon and others. diags J Agri & Food Chem 12:357-62 Jl '64

Solubility relationships in liquid fertilizer systems based on superphosphoric acid. A. V. Slack and others. diags J Agri & Food Chem 12:154-7 Mr '64

Vitreous calcium metaphosphate; some properties of its aqueous systems. E. H. Brown and J. R. Lehr. bibliog diag J Agri & Food Chem 12:201-4 My '64

Why oil is moving into fertilizers. G. T. Kinney. Oil & Gas J 61:17-18+ D 23 '63

Worldwide fertilizer bandwagon picks up speed. Chem Eng 70:38+ D 23 '63

See also

Ammonium phosphates
Lime as fertilizer
Manures
Potash
Refuse as fertilizer
Sewage irrigation

Analysis

Analytical procedures for nitrogen fertilizers containing phosphates and sulfates. H. G. Graham, jr. and T. C. McRight. bibliog J Agri & Food Chem 12:140-3 Mr '64

Determination of water in granular fertilisers by a modified Karl Fischer method. I. Johnston and E. J. Smith. Chem & Ind p315 F 22 '64

Manufacture

Advances in the technology of fertilizers. S. Strelzoff and S. Vasan. bibliog il Chem Eng Prog 59:60-5 N '63

Cheap imported ammonia for fertilizer complex. il Chem Eng 71:106 Mr 16 '64

Concentrated-fertiliser production. il Engineer 218:28 Jl 3 '64

Nitrogen complex combines technologies; Columbia Nitrogen plant at Augusta, Ga. il Chem & Eng N 42:68-9 Ap 20 '64

Nitrogen fertilizer plant integrates Dutch and American know-how; process flowsheet. P. Ellwood. Chem Eng 71:136-8 My 11 '64

Telemetering transducers transmit tire temperatures. diag Machine Design 36:12 My 7 '64

World fertilizer production. G. C. Sweeney, jr. maps Chem & Eng N 41:89-94 D 2 '63

See also

Phosphates—Manufacture

FEVER

See also

Q fever

FIBER board

Fatty acid sizing of hardboards. G. D. Sinclair. bibliog Tappi 47:579-83 S '64

Manufacture

Highly mechanised chipboard plant; Airscrew-Weyroc ltd; illustrations with text. Engineer 218:454-5 S 18 '64

Opening of mineral fibre board plant. il Engineering 196:728 D 6 '63

Weyroc's fifth British chipboard plant. il Engineering 198:377 S 18 '64

Testing

Quality control in wood chipboard production. M. E. Critchley. il Brit Plastics 37: 202-4 Ap '64

Short column crush test of corrugated fiberboard. J. W. Koning, jr. bibliog il Tappi 47:134-7 Mr '64

Wood fiberboard studies; nailhead pull-through method to determine the effects of fungi on strength. W. Merrill and D. W. French. il diags Tappi 47:449-51 Ag '64

FIBER glass. See Glass fibers

FIBER optics. See Optics

FIBER reinforced metals. See Metals—Fiber reinforcement

FIBERS

Aluminum casting problems solved by fiber refractories. T. R. Tate. il Mod Metals 20: 44+ My '64

Apparent cell-wall density of wood and pulp fibers. P. N. Yiannos. bibliog diag Tappi 47:468-71 Ag '64

Cellulose forms carbon fibers; abstract. M M. Tang and R. Bacon. Chem & Eng N 42:62 Ap 13 '64

Experience in defibering high groundwood paper stock. H. E. Corwin and A. Schabowski. il Tappi 47:sup 123A-4A Jl '64

Future of flexible fibrous materials. J. H. Ross. il diags Am Dyestuff Rep 53:178-82 Mr 2 '64

High consistency refining of fibers. W. B. West. diag Tappi 47:313-17 Je '64; Discussion. 47:518-19 Ag '64

Influence of fiber strength on sheet properties of hardwood pulps. R. M. Kellogg and F. F. Wangaard. bibliog il Tappi 47:361-7 Je '64

Inorganic fibers. J. A. Goodrich and R. Matchett. il Product Eng 35:96-100 Ag 3; 63-6 Ag 31 '64

Lockheed reveals new fiber composite. Steel 153:47+ N 25 '63

Properties of materials; inorganic fibers; tables. Materials in Design Eng 60:366 Mid-O '64

Strength of papermaking fibers. K. W. Britt and P. N. Yiannos. bibliog diag Tappi 47: 427-31 Jl '64

Studies in adsorption; measurement of external specific surface of fibres by solution adsorption. C. H. Giles and A. H. Tolia. bibliog J Ap Chem 14:186-95 My '64

TAPPI Fibrary. Tappi 47:sup 106A+ My '64

Tree, the fiber, and the product. O. G. Traczewitz. Tappi 47:sup40A+ F '64

Wood characteristics and kraft paper properties of four selected loblolly pines. A. C. Barefoot and others. bibliog Tappi 47:343-56 Je '64

See also

Asbestos
Bristles
Cotton fibers
Glass fibers
Jute
Metal fibers
Paper making materials
Ramie
Textile fibers
Wool

Testing

Difference between sulfate and sulfite pulps; aspects from the viewpoint of individual fiber strength. L. G. A. Kull il diag Tappi 46:sup 198A-202A N '63

Effect of stress applied during drying on some of the properties of individual pulp fibers. C. A. Jentzen. bibliog il Tappi 47: 412-18 Jl '64

FIBROGRAPHS

Evaluation of length parameters obtained with the digital fibrograph with special reference to fiber length nonuniformity. J. Prakash. bibliog Textile Res J 34:857-65 O '64

Factors affecting fiber length-scanning measurements. K. L. Hertel and R. Lawson. bibliog il diags Textile Res J 34:866-80 O '64

FIELD ion microscope. See Ion microscope

FIJI ISLANDS

See also

Electricity supply—Fiji Islands

FILAMENTS

Analytical design for optimum filamentary pressure vessels. H. U. Schuerch and O. R. Burggraf. bibliog il diags AIAA J 2:809-20 My '64

Apparatus for stress-rupture testing of filaments in a controlled environment. R. W. Jech and others. il R Sci Instr 35:314-15 Mr '64

Refractory fiber composites for aerospace applications. diags Materials in Design Eng 60:137+ S '64

Strong for space; filament or thread of boron. il Pet Management 36:148 Mr '64

Whisker-metal composites stay strong at high temperatures. W. H. Sutton. Space/Aeronautics 40:98+ N '63

Why not use metal wires in filament winding? D. V. Rosato. il Iron Age 193:102-3 Mr 26 '64

Wound tubing; novel approach to aluminum fabrication. R. R. Irving. il Iron Age 193: 73-5 My 7 '64

FILAMENTS, Plastic

Acoustic verification of structural integrity of Polaris chambers. A. T. Green and others. il diags Mod Plastics 41:137-9+ Jl '64
Designing dies for monofilaments. D. Poller and O. L. Reedy. bibliog diags Mod Plastics 41:133-8 Mr '64
Fibers keep pipe under wraps. il Iron Age 194:158 S 24 '64
Filament winding goes after commercial markets. R. R Irving. il Iron Age 192:159-61 N 14 '63
Filament winding goes commercial. S. W. Keegin and R. F. Siefert. il Machine Design 36:130-3 My 7 '64
Filament winding is coming of age. M. L. Chazottes. il diags Can Chem Process 48: 90+ Ap '64
Filament winding puts strength where needed. G. Epstein. il diags Materials in Design Eng 59:90 F '64
Filament wound glass reinforced staves for large rocket cases. A. Hegarty il Brit Plastics 37:196 Ap '64
Filament-wound structures. R. E. Young. il Mod Plastics 42:160+ S '64
High-strength epoxy resins. Chem Eng 71:110 Mr 16 '64
Lab filament winding unit tests specimens and materials. Chem & Eng N 42:46 F 24 '64
Railroad tank car. C. V. Little. il Materials in Design Eng 59:122-3 Ap '64
Strength degradation of filament-wound pressure vessels. J. O. Outwater and W. J. Seibert. bibliog Mod Plastics 41:151-2+ My '64
Structural design considerations for fibrous glass pressure vessels. J. T. Hofeditz. bibliog diags Mod Plastics 41:127+ Ap '64
Wash-away mandrels for filament winding. N. K. Hankins and D. G. Prideaux. il Mod Plastics 41:115-16+ N '63
What's new in production reinforced plastics processing. R. C. Hosford. il Plastics Tech 10:47-58 O '64
When to design for filament winding. J. S. Howard, jr. il Product Eng 35:102-7 O 26 '64
Wound reinforced plastic uses gain. Steel 154:68+ F 17 '64
Zoom expected in filament winding. S. W. Keegin. il Plastics World 22:26-7 My '64

FILES and filing (documents, etc.)

Alphabetizing rules must be flexible. B. Lasky. Inland Ptr/Am Lithogr 153:82 Ap; 76 My '64
Streamlining plant engineering paperwork. G. Meehan. il Plant Eng 18:118-20 F '64

FILES and rasps

Reversible blade file. il Engineer 218:383 S 4 '64

FILLETS

Fillet rolling boosts fatigue life and bending moment of crankshafts. H. Chase. il diag Mach 70:140-3 Mr '64

FILLING

See also
Causeways

FILLING machines

Aero-Chem expands, diversifies. il Soap & Chem Spec 39:81-2 D '63
New container handling problems. il Soap & Chem Spec 39:249+ D '63
Saves through accurate filling: rotary net weigher accurately packs French fries up to 150 cpm. D. Garnett and J. V. Ziemba il diag Food Eng 36:60-2 Ap '64
Soap plant observer; control of filling machines. W. J. Beach. il diag Soap & Chem Spec 39:151-2+ N '63

FILLING materials

See also
Paper making—Fillers
Plastics—Fillers
Rubber, Artificial—Fillers

FILM boiling. See Boiling

FILM strips. See Slide films

FILMS

Action of waves on monolayers simulated: abstract. V. K. La Mer and T. W. Healy. Chem & Eng N 42:60 Ap 13 '64
Adsorption and coadsorption studies at ionized surface layers by means of α-disintegration recoils. M. Avrahami and N. H. Steiger. bibliog J Colloid Sci 18: 863-77 D '63
Bentonite films to protect steel from oxidation. S. Ray and W. O. Williamson. bibliog il J Ap Chem 13:509-16 N '63
Capillary-wave-damping by insoluble organic monolayers. W. D. Garrett and J. D. Bultman. J Colloid Sci 18:798-801 O '63
Coefficient to characterize gaseous diffusion through monolayers at the air/water interface. J. G. Hawke and A. G. Parts. bibliog diag J Colloid Sci 19:448-56 Je '64
Collapse of protein monolayers. F. MacRitchie. bibliog J Colloid Sci 18:555-61 Ag '63
Composition of stearic acid monolayers from calcium-containing substrates. J. Bagg and others. bibliog Am Chem Soc J 86:2759-63 Jl 20 '64
Composition of the surface film on aqueous solutions of aliphatic alcohols. J. J. Kipling. bibliog J Colloid Sci 18:502-11 Ag '63
Dielectric behavior of the film formed on mica cleaved in moist air. S. Ruthberg and L. Frenkel. bibliog diags J Res Nat Bur Stand 68A:173-83 Mr '64
Droplet formation from a liquid film over a rotating cylinder. S. I. Cheng and J. Cordero. il AIAA J 1:2597-601 N '63
Effect of pH and salt content of the hypophase on molecular area relationships for monomolecular films of quaternary ammonium stearates. J. L. Pauley and others. bibliog J Colloid Sci 19:602-5 S '64
Effect of surface active agents on the stability of falling liquid films. S Whitaker. bibliog diags Ind & Eng Chem Fundamentals 3:132-42 My '63
Effective thermal conductance from a thin film into liquid helium. H. Seki and I. Ames. bibliog il diags J Ap Phys 35:2069-73 Jl '64
Ellipsometry; valuable tool in surface research. K. H. Zaininger and A. G. Revesz. diags RCA R 25:85-115 bibliog(p 112-15) Mr '64
Equation of state for linear polymer monolayers. K. Motomura and R. Matuura. bibliog J Colloid Sci 18:52-64 Ja '63; Correction. 18:696 S '63
Film diffusion-controlled kinetics in binary ion exchange. T. G. Smith and J. S. Dranoff. bibliog diag Ind & Eng Chem Fundamentals 3:195-200 Ag '64
Film flow along a vertical cylinder. N. A. Hassan and J. B. Franzini. diags Am Soc C E Proc 90 [EM 4 no 3995]:23-35 Ag '64
Films ten atoms thick, grown inside an ultrahigh vacuum chamber. il Mech Eng 85:52 D '63
Gas-film effects in the linear pyrolysis of solids. R. H. Cantrell. bibliog il diags AIAA J 1:1544-50 Jl '63; Discussion. W. H. Andersen. bibliog 2:404-6; Reply. 406-7 F '64
Hydraulics of thin film flow. J. B. Franzini and N. A. Hassan. diags Am Soc C E Proc 90 [HY 2 no 3816]:23-36 Mr '64
Image contrasts in thin carbon films observed by shadow electron microscopy. D. B. Dove. il J Ap Phys 35:1652-3 My '64
Ionization of monolayers of fatty acids from C_{14} to C_{18}. J. A. Spink. bibliog J Colloid Sci 18:512-25 Ag '63
Light scattering by soap films. A. Vrij. bibliog diags J Colloid Sci 19:1-27 Ja '64
Liquid film controlled mass transfer in agitated vessels. D. N. Miller. bibliog Ind & Eng Chem 56:18-27 O '64
Method for compressing monomolecular films at oil-water interfaces. D. B. Zilversmit. diag J Colloid Sci 18:794-8 O '63
Method for determination of velocity distribution in a thin liquid film. S. L. Persson. AIAA J 2:372-3 F '64; Discussion. 2:1865-6 O '64
Method for vacuum evaporation of silicon oxide films. F. Nesh. diag R Sci Instr 34: 1437 D '63
Molecular structure in monolayers of saturated triglycerides on water as related to three-dimensional polymorphic forms. D. R. Merker and B. F. Daubert. bibliog Am Chem Soc J 86:1009-12 Mr 20 '64
Monolayer capacity in the physical adsorption of gases on solids. K. S. W. Sing. bibliog Chem & Ind p321-2 F 22 '64
Monolayer properties of fatty acids. E. D. Goddard and J. A. Ackilli. bibliog J Colloid Sci 18:585-95 Ag '63
Optical-acoustic effects in solid films. A. V. Houghton and R. U. Acton. bibliog il AIAA J 2:120-1 Ja '64
Performance of a small rotating substrate holder for vacuum deposition. C. D. Hopkins and others. diags J Sci Instr 41:167-8 Mr '64
Photochemistry of long-chain fatty alcohols for evaporation control. A. Golden and others. bibliog Am Water Works Assn J 56:784-92 Je '64
Pressure drop and liquid film thickness of two-phase annular and annular-mist flows. S. F. Chien and W. Ibele. bibliog il diags A S M E Trans ser C 86:89-96 F '64

FILMS—*Continued*

Problem of drainage of fluids on vertical surfaces. C. Gutfinger and J. A. Tallmadge. A I Ch E J 10:774+ S '64

Propagation characteristics of capillary ripples; capillary ripple velocity and attenuation dispersion on clean water surfaces and on various monolayers. J. A. Mann, jr. and R. S. Hansen. bibliog J Colloid Sci 18:805-19 D '63

Propagation characteristics of capillary ripples; theory of velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen and J. A. Mann, jr. bibliog J Ap Phys 35:152-8 Ja '64

Rates of formation of thermal oxides of silicon. H. C. Evitts and others. diag Electrochem Soc J 111:688-90 Je '64

Relationship between the Froude and Reynolds numbers in failing vertical films. S. Portalski. bibliog A I Ch E J 10:584+ Jl '64

Retardation of water evaporation by the monolayers of octadecyl alcohol and of its condensation products with ethylene glycol. R. N. Shukla and others. bibliog J Ap Chem 14:236-9 Je '64

Specimen holder for film thickness measurement. P. A. Gould and U. Pick. diags J Sci Instr 41:474 Jl '64

Spectrometer for optical studies of ultrathin films. A. G. Tweet. bibliog diags R Sci Instr 34:1412-17 D '63

Spreading of organo-bentonites on water. W. H. Slabaugh. J Colloid Sci 19:165-72 F '64

Structure of thin detergent films; abstract and discussion. J. M. Corkill. Chem & Ind p58-9 Ja 11 '64

Studies on unimolecular layers of modified proteins. bibliog diags J Colloid Sci 18:625-46 S '63

Surface balance for production of rapid changes of surface area with continuous measurement of surface tension. R. M. Mendenhall and A. L. Mendenhall, jr. bibliog il diags R Sci Instr 34:1350-2 D '63

Suspension process for reservoir evaporation control. R. G. Dressler. bibliog Ind & Eng Chem 56:36-9 Jl '64

Theoretical consideration of the low pressure region of protein monolayers. K. Motomura. bibliog J Colloid Sci 19:425-32 Je '64

Thin film evaporation. L. E. Najder. flow chart il diag Ind & Eng Chem 56:26-30 F '64

Three-point probe method for electrical characterization of epitaxial films. J. Brownson. diags Electrochem Soc J 111:919-24 Ag '64

Turbulent film condensation. J. Lee. bibliog diags A I Ch E J 10:540-4 Jl '64

Unique thin-film evaporator cuts processing time. diag Chem Eng 70:76+ N 25 '63

Use of index of refraction liquids for the measurement of the refractive index of thin transparent films on silicon. A. E. Lewis. Electrochem Soc J 111:1007-9 Ag '64

See also
Cellophane
Membranes
Oil films

FILMS, Magnetic. See Films, Metallic

FILMS, Metallic

Adaptation of an X-ray diffractometer for thin film studies by total reflection of X rays. R. L. Mozzi and O. J. Guentert. bibliog diags R Sci Instr 35:75-9 Ja '64

Advanced solar cells. L. D. Massie. bibliog il diags Space/Aeronautics 42:60-5 S '64

Aging and stabilization of electrodeposited cylindrical magnetic thin films. J. T. Chang and others. J Ap Phys 35:830-1 pt 2 Mr '64

Anodic oxidation of tantalum in formic acid electrolytes. D. M. Cheseldine. bibliog Electrochem Soc J 111:1128-32 O '64

Antireflection films on GaAs electroluminescent diodes. O. A. Weinreich. bibliog diags Electrochem Soc J 110:1124-6 N '63

Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64

Apparatus for the study of fatigue of thin metal films in the Hitachi H.U. 11 electron microscope. L. E. Murr and M. A. Wilkov. bibliog il diag J Sci Instr 40:594-6 D '63

Automatic thin film vacuum deposition system of high stability. R. B. Brownell and others. diags R Sci Instr 35:1147-50 S '64

Behavior and nature of thin oxide films on some metals in gaseous media and in electrolyte solutions. V. V. Andreeva. bibliog il Corrosion 20:35-46 F '64

Behavior of thin-film coupled ultrasonic delay lines. J. E. Lovell and A. Yelon. bibliog il diags IEEE Trans Com & Electronics 83:524-8 S '64

Beta gauge measures thin metallic films. diag Can Chem Process 48:73+ Ap '64

CdS thin-film formation by the method of co-evaporation. F. A. Pizzarello. diag J Ap Phys 35:2730-2 S '64

Charge storage effects in tantalum oxide films. R. Dreiner. bibliog diag Electrochem Soc J 111:27-34 Ja '64

Chemical deposition of thin films of lead selenide. R. A. Zingaro and D. O. Skovlin. bibliog Electrochem Soc J 111:42-7 Ja '64

Coercive force of angle of incidence films. W. J. Schuele. bibliog il J Ap Phys 35:2558-9 Ag '64

Combined sputtering and evaporation plant. il Metallurgia 69:206-7 My '64

Compatible circuits highlight 3d microelectronics symposium, St Louis, April 13-15. Electro-Tech 73:113-14 Je '64

Compositional and thickness dependence of the ferromagnetic anisotropy in resistance of iron-nickel films. E. N. Mitchell and others. bibliog J Ap Phys 35:2604-8 S '64

Computers; rod with a memory. il Product Eng 35:73 Ag 3 '64

Condenser microphones with electret foil. G. M. Sessler and J. E. West. diag Audio Eng Soc J 12:129-31 Ap '64

Conducting film formed by electron bombardment of tungsten hexacarbonyl vapor in vacuum. O. G. Fritz, jr. J Ap Phys 35:2272 Jl '64

Conduction in very thin films at high electric fields. N. M. Bashara and L. A. Weitzenkamp. J Ap Phys 35:1983-4 Je '64

Conduction through thin tantalum oxide films. C. L. Standley and L. I. Maissel. bibliog J Ap Phys 35:1530-4 My '64

Conductive coatings on glass shielding. D. A. Ansley and W. O. Benjamin. Illum Eng 59:545-50 Ag '64

Control of properties of magnetic thin films for shifting registers. A. C. Tickle. J Ap Phys 35:768-9 pt 2 Mr '64

Controlled transformer for use in magnetic film logic. J. G. Edwards. diag J Sci Instr 41:270-2 My '64

Correlation of emission processes for adsorbed alkali films on metal surfaces. N. S. Rasor and C. Warner. bibliog diag J Ap Phys 35:2589-600 S '64

Coupled biaxial films. H. Chang. diags J Ap Phys 35:770-1 pt 2 Mr '64

Critical-state phenomena and flux jumping in niobium stannide. J. P. McEvoy. bibliog diags RCA R 25:533-41 S '64

Critical temperature of niobium and tantalum films. J. R. Rairden and C. A. Neugebauer. bibliog diags IEEE Proc 52:1234-8 O '64

Cryoelectric memories. L. L. Burns. bibliog il diags IEEE Proc 52:1164-76 O '64

Cubic phase in vapor-deposited CdS films. C. A. Escoffery. bibliog il diags J Ap Phys 35:2273-4 Jl '64

Deposition of tantalum films with an open-ended vacuum system. J. W. Blade and others. bibliog il diag Bell System Tech J 43:127-42 Ja '64

Deposition of thin metallic coatings by use of surface reduction techniques. T. C. Franklin and N. F. Franklin. bibliog diag Plating 51:890-2 S '64

Deposition temperature and compositional dependence of negative anisotropy in nickel-iron films. G. P. Weiss and D. O. Smith. bibliog J Ap Phys 35:818-20 pt 2 Mr '64

Description of magnetic switching in disperse anisotropy films. R. L. Coren. bibliog diags J Ap Phys 35:201-5 Ja '64

Dielectric loss spectra of corrosion films on zirconium. P. J. Harrop and J. N. Wanklyn. bibliog Electrochem Soc J 111:1133-6 O '64

Dispersion in thin magnetic films. J. M. Daughton and A. V. Pohm. bibliog diags IEEE Trans Com & Electronics 83:247-50 My '64

Distribution of a-c resistance in oxide films on aluminum. M. A. Heine and M. J. Pryor. bibliog il Electrochem Soc J 110:1205-14 D '63

Domain structure of narrow thin films of Ni-Fe. K. Kuwahara and others. J Ap Phys 35:820-1 pt 2 Mr '64

Effect of a deposited coupling loop on the high-speed switching properties of a magnetic thin film. B. C. Reardon. bibliog diags IEEE Trans Com & Electronics 83:549-53 S '64

Effect of aging on surface roughness of thin films. R. J. Prosen and others. bibliog il Electrochem Soc J 111:488-91 Ap '64

FILMS, Metallic—*Continued*

Effect of crystallite size and orientation on the magnetization ripple in permalloy films. A. Baltz and W. D. Doyle. bibliog il J Ap Phys 35:1814-18 Je '64
Effect of nonuniform magnetization on the spin-wave spectrum in thin ferromagnetic films. J. T Davies. bibliog J Ap Phys 35:804-5 pt 2 Mr '64
Effect of temperature and environment on the structure of thin single-crystal nickel films. E. I. Alessandrini. bibliog il diag J Ap Phys 35:1606-10 My '64
Effect of thermal aging on the electrical resistivity of thin alloy films. E. R. Dean. bibliog J Ap Phys 35:2930-3 O '64
Effect of vacuum annealing of oxide films on the oxidation of copper-nickel alloy. T. Yamashina and T. Nagamatsuya. Electrochem Soc J 111:249-52 F '64; Discussion. 111:1439-40 D '64
Effects of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64
Electric field excitation of electrons from shallow traps in CdSe thin-film triodes. T. O. Poehler and D. Abraham. J Ap Phys 35:2452-5 Ag '64
Electrical characteristics of germanium oxidic films. R. D. Wales. Electrochem Soc J 111:478-80 Ap '64
Electrochemical study of thin adsorbed oxygen films on rhodium in oxygen-saturated acid solution. J. P. Hoare. bibliog Electrochem Soc J 111:232-6 F '64
Electrodeposition of nickel-iron-phosphorus thin films for computer memory use. W. O. Freitag and others. Electrochem Soc J 111:35-9 Ja '64
Electron-bombardment evaporation source for nickel-iron alloys. J. C. Brice and U. Pick. bibliog diag J Sci Instr 41:633-5 O '64
Electron diffraction diffuse streaks from single-crystal tin films. R. W. Vook and A. Baltz. bibliog il diag J Ap Phys 35:1952-5 Je '64
Electron diffraction study of thin oxide films on iron single crystals. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:508-12 Mr '64
Electron microscope observations of the crystallization of anodically formed tantalum and niobium oxide films. R. E. Pawel and J. J. Campbell. bibliog il Electrochem Soc J 111:1230-4 N '64
Electron tunneling through asymmetric films of thermally grown Al_2O_3. S. R. Pollack and C. E. Morris. bibliog il diags J Ap Phys 35:1503-12 My '64
Electrostatic torsion balance for magnetic film measurements. W. T. Siegle and W. R. Beam. diags R Sci Instr 35:1173-5 S '64
Elimination of the edge effect in superconducting indium and tin films. I. Ames and H. Seki. bibliog diag J Ap Phys 35:2066-8 Jl '64
Epitaxial growth of gallium arsenide on germanium substrates; relationship between fault formation in gallium arsenide films and the surface of their germanium substrate. T. Gabor. bibliog il diags Electrochem Soc J 111:817-27 Jl '64
Equipment makers push thin-film microcircuits. M. Wolff. diag Electronics 37:80+ F 7 '64
Evaluation of cadmium selenide films for use in thin-film transistors. F. V. Shallcross. bibliog diags RCA R 24:676-87 D '63
Experimental studies of standing spin-wave modes in ferromagnetic films. M. Nisenoff and R. W. Terhune. J Ap Phys 35:806-7 pt 2 Mr '64
Ferrites; can they be deposited as thin films? diags Electronics 37:84+ F 7 '64
Ferromagnetic resonance in multidomain thin films. T. E. Hasty. bibliog diags J Ap Phys 35:1434-41 My '64
Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64
Field emission from vacuum-deposited metallic film and its role in electric breakdown in vacuum. R. N. Sudan and F. Gonzalez-Perez. bibliog diag J Ap Phys 35:2269-70 Jl '64
Field-enhanced secondary electron emission from films of low density. G. W. Goetze and others. bibliog il diags J Ap Phys 35:482-9 Mr '64
Film circuits produced via nonvacuum technique. il Steel 155:28 Ag 31 '64
Flaws in anodic Ta_2O_5 films. D. A. Vermilyea. bibliog il diags Electrochem Soc J 110:250-62 Ap '63; Discussion. K. Huber. 110:1286-9 D '63
Formation of metal oxide films using gaseous and solid electrolytes. J. L. Miles and P. H. Smith. bibliog il diags Electrochem Soc J 110:1240-5 D '63
Future developments in large magnetic film memories. J. I. Raffel. il diags J Ap Phys 35:748-53 pt 2 Mr '64
Future of thin-film active devices. C. Feldman. bibliog il diags Electronics 37:23-6 Ja 24 '64
Getter sputtering for the preparation of thin films of superconducting elements and compounds. H. C. Theuerer and J. J Hauser. diags J Ap Phys 35:554-5 Mr '64
Graphite masks cut thin-film expense. Electronics 36:61+ N 8 '63
Growth kinetic of discontinuous thermal oxide films; aluminum. R. W. Bartlett. bibliog Electrochem Soc J 111:903-8 Ag '64
Hall-effect studies in deposited CdS thin films. R. S. Muller and B. G. Watkins. IEEE Proc 52:425-6 Ap '64
Hard superconducting films from exploding wires. M. Garbuny and others. J Ap Phys 34:3642-3 D '63
Heat-treatment of anodic oxide films on tantalum. D. M. Smith and others. bibliog diags Electrochem Soc J 110:1264-76 D '63; Discussion. G. J. Korinek. 111:762-3; Reply. 763-4 Je '64
High photovoltages in silicon and silicon carbide films and their origin from a trap-induced space charge. H. W. Brandhorst, jr. and A. E. Potter, jr. bibliog J Ap Phys 35:1997-2003 Jl '64
Identification of oxide defects in high-strength aluminium alloy plate. A. J. Bryant and A. N. Turner. il Inst Metals J 92:253-4 '63-64
Impurity conduction and negative resistance in thin oxide films. T. W. Hickmott. bibliog J Ap Phys 35:2118-22 Jl '64
Induction measurement of semiconductor and thin-film resistivity. T. O. Poehler and W. Liben. IEEE Proc 52:731-2 Je '64
Influence of oxygen on the surface mobility of tin atoms in thin films. H. L. Caswell and Y. Budo. bibliog il J Ap Phys 35:644-7 Mr '64
Influence of vapor composition on the growth rate of morphology of gallium arsenide epitaxial films. R. E. Ewing and P. E. Greene. il diags Electrochem Soc J 111:1266-9 N '64
Inhomogeneity in the magnitude of the anistropy field in thin nickel-iron films. H. N. Oredson and E. J. Torok. J Ap Phys 35:810-11 pt 2 Mr '64
Interaction between magnetic film storage elements. P I. Bonyhard. J Ap Phys 35:764-5 pt 2 Mr '64
Interactions between adjacent cells in magnetic-film storage matrixes. P. Mossman. bibliog diags Inst E E Proc 111:1411-16 Ag '64
Interactions between Ni and NiO. A. E. Berkowitz and J. H. Greiner. bibliog J Ap Phys 35:925-6 pt 2 Mr '64
Investigations of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64
Kinetics of anodic oxidation of iron in neutral solution. N. Sato and M. Cohen. bibliog Electrochem Soc J 111:512-22 My '64
Kinetics of recombination of Frenkel defects in anodic oxide films on tantalum. L. Young. bibliog Electrochem Soc J 111:1289-92 N '64
Kinetics of redox reactions on passive electrodes. A. C. Makrides. bibliog Electrochem Soc J 111:392-400 Ap '64
Kinetics of the aging of anodic oxide film on iron. N. Sato and M. Cohen. Electrochem Soc J 11:624-5 My '64
Laboratory experiments on the Hall effect using evaporated metal films. M. A. Jeppesen and others bibliog diag Am J Phys 31:860-3 N '63
Linewidths in ferromagnetic thin films: abstract P. E. Wigen and M. R. Shanabarger. J Ap Phys 35:804 pt 2 Mr '64
Lorentz microscopy of magnetic domains of single-crystal films. H. Sato and others. bibliog il J Ap Phys 35:822-3 pt 2 Mr '64
Low-power thin-film memory. C. J. Kriessman and others. bibliog il diags IEEE Trans Com & Electronics 83:519-24 S '64
Low temperature passivation of silicon devices using evaporated lead film. T. Tokuyama. IEEE Proc 52:723-4 Je '64

FILMS, Metallic—*Continued*

Low-temperature properties of evaporated lead films. H. L. Caswell and others. bibliog il diag J Ap Phys 34:3261-6 N '63
Magnetic annealing of thin permalloy films. S. B. Greenberg and E. Korostoff. J Ap Phys 35:1653-4 My '64
Magnetic-film-controlled invertor and isolator. J. G. Edwards. diag Inst E E Proc 111:1117-18 Je '64
Magnetic memory elements with biaxial anisotropy. E. W. Pugh. diags IEEE Trans Com & Electronics 83:544-8 S '64
Magnetic properties of Ni-Fe-Cr films. M. S. Cohen. J Ap Phys 35:834-5 pt 2 Mr '64
Magnetization curling in tapered edge films. R. M. Hornreich. il diag J Ap Phys 35:816-17 pt 2 Mr '64
Magnetization of niobium-stannide films in transverse fields. J. J. Hanak. bibliog il diags RCA R 25:551-69 S '64
Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64
Maximum average energy density as the criterion for phase transition in thin superconductive films. K. L. Cheng. bibliog J Ap Phys 35:1302-5 Ap '64
Measurement of ferromagnetic resonance of thin permalloy films at low bias field. D. T. Ngo. diag J Ap Phys 34:3626 D '63
Measurement of magnetic thin film rotational properties and uniformity. D. M. Ellis and C. J. Bader. diags R Sci Instr 34:1188-90 N '63
Mechanical properties of vacuum-deposited gold films. J. M. Blakely. bibliog il diags J Ap Phys 35:1756-9 Je '64
Mechanism of ripple formation in thin films. R. J. Spain and I. B. Puchalska. il J Ap Phys 35:824-5 pt 2 Mr '64
Metal films' role in fixed resistors. W. E. McLean. il Electronic Ind 23:42-3+ Je '64
Method for the continuous measurement of thickness and deposition rate of conducting films during a vacuum evaporation. J. A. Turner and others. il diags J Sci Instr 40:557-61 D '63
Microelectronics; unlocking the treasure chest. W. Liben. bibliog il diags Astronautics & Aeronautics 2:20-8 Ap '64
Model for fission-fragment damage in thin polycrystalline metal films. A. N. Goland and A. Paskin. bibliog J Ap Phys 35:2188-94 Jl '64
Modified representation for thin-film triodes. D. Abraham and T. O. Poehler. IEEE Proc 52:416-17 Ap '64
Monitoring the magnetostriction of thin films during vacuum deposition. C. H. Tolman and others. il diags R Sci Instr 35:738-41 Je '64
Multilayer dielectric- and magnetic-film memory cell designed for optical read out. D. O. Smith. bibliog diag J Ap Phys 35:772-3 pt 2 Mr '64
Nature of burned anodic coatings. A. E. Hultquist. bibliog Electrochem Soc J 111:1302-3 N '64
Negative resistance with composited thin-film active devices. R. Zuleeg and H. G. Dill. il diag IEEE Proc 52:195 F '64
New method of thin film analysis uses xenon flash lamp. il Bell Lab Rec 42:141 Ap '64
New method of thin film analysis uses xenon flash lamp. Franklin Inst J 277:511-12 My '64
New technique of niobium film production. Franklin Inst J 277:375-6 Ap '64
Niobium films from one-millionth inch thick. il Engineering 197:422 Mr 20 '64
Nondestructive read-out in thin magnetic film memories. W. Jutzi. IEEE Proc 52:875 Jl '64
NDRO magnetic film memory mode using creep and boundary displacement switching. J. H. Hoper. diag J Ap Phys 35:762-3 pt 2 Mr '64
1/f noise in thin films of semiconductors. K. M. Kiser. bibliog il Electrochem Soc J 111:556-60 My '64
Operation of the cryogenic continuous film memory cell. J. D. Barnard and others. bibliog il diags IEEE Proc 52:1177-81 O '64
Optimization of magnetic parameters in thin films DRO storage elements. R. J. Petschauer and others. J Ap Phys 35:766-7 pt 2 Mr '64
Organic rectifying junction. J. E. Meinhard. diag J Ap Phys 35:3059-60 O '64
Orientation of vacuum-deposited Be thin films. R. R. Verderber. il diags J Ap Phys 35:1643-4 My '64
Origin of biaxial anisotropy in polycrystalline films. R. J. Prosen and others. diags J Ap Phys 35:826-7 pt 2 Mr '64
Origin of domain-wall creeping in magnetic films. A. Green and others. diag J Ap Phys 35:812-13 pt 2 Mr '64
Oxidation kinetics of zirconium in the temperature range 400°-600°C. R. J. Hussey and W. W. Smeltzer. bibliog il Electrochem Soc J 111:564-8 My '64
Oxidation of iron single crystals around 200°C. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:501-8 My '64
Oxide film protects heat exchanger tubing. Power 107:58 N '63
Oxide films formed on copper single crystal surfaces in water. J. Kruger and J. P. Calvert. bibliog diags Electrochem Soc J 111:1038-41 S '64
Oxide films; iron-oxygen reaction. Product Eng 35:89 Je 22 '64
p-type tellurium thin-film transistor. P. K. Weimer. bibliog il IEEE Proc 52:608-9 My '64
Photomask-photoresist techniques for cryotron fabrication. J. P. Pritchard, jr. and others. bibliog il diags IEEE Proc 52:1207-15 O '64
Pores in tantalum oxide films and their influence on the photoresponse. R. Dreiner and J. Schimmel. bibliog Electrochem Soc J 111:453-6 Ap '64
Possible influence of electric charge effects on the initial growth processes occurring during the vapor deposition of metal films onto substrates inside the electron microscope. D. B. Dove. bibliog J Ap Phys 35:2785-6 S '64
Potential distribution and negative resistance in thin oxide films. T. W. Hickmott. bibliog diags J Ap Phys 35:2679-89 S '64
Precise oxide spray coats computer memory disc. G. Close. il Mach 70:112-14 N '63
Preparation and properties of GaAs-GaP, GaAs-Ge, and GaP-Ge heterojunctions. M. Weinstein and others. bibliog il diags Electrochem Soc J 111:674-82 Je '64
Preparation and properties of thin-film hard superconductors. J. Edgecumbe and others. bibliog diags J Ap Phys 35:2198-202 Jl '64
Preparation and properties of vapor-deposited niobium stannide. J. J. Hanak and others. bibliog il diags RCA R 25:342-65 S '64
Preparation of single-crystal films of PbS. R. B. Schoolar and J. N. Zemel. bibliog il diag J Ap Phys 35:1848-51 Je '64
Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64
Procedure for stripping anodic oxide films from tantalum and niobium. R. E. Pawel. R Sci Instr 35:1066-7 Ag '64
Properties of molybdenum-permalloy films. K. Y. Ahn and W. R. Beam. J Ap Phys 35:832-3 pt 2 Mr '64
Properties of superconducting niobium films made by asymmetric ac sputtering. R. Frerichs and C. J. Kircher. bibliog diag J Ap Phys 34:3541-3 D '63
Quantitative calculation of the magnetic ripple of uniaxial thin permalloy films. H. Hoffmann. bibliog diag J Ap Phys 35:1790-8 Je '64
Quasistatic flux reversal characteristics of electrodeposited thin permalloy films. R. D. Fisher and others. diags Electrochem Soc J 111:39-42 Ja '64
Quasistatic properties of RIS films of oxidized permalloy. C. H. Wilts. il J Ap Phys 35:2097-101 Jl '64
Relationship between the Schottky emission mechanism and the energy bands of thin-film metal-insulator-metal configuration. M. Hacskaylo. bibliog diag J Ap Phys 35:2943-7 O '64
Role of the competing etching process in determining the quality of pyrolytically grown silicon and germanium films. E. G. Bylander. bibliog J Ap Phys 35:1358-9 Ap '64
Ryotron, a variable inductance cryogenic device. J. C. Miller and others. il plans diags IEEE Proc 52:1223-33 O '64
Scratch test for measuring adherence of thin films to oxide substrates. M. M. Karnowsky and W. B. Estill. bibliog il R Sci Instr 35:1324-6 O '64
Selected glass substrates and the magnetic parameters of thin films. J. S. Lemke. bibliog il IEEE Trans Com & Electronics 83:245-7 My '64
Silicon dioxide films grown at low temperatures. il Bell Lab Rec 42:205 Je '64

FILMS, Metallic—*Continued*
Simple electron diffraction camera for the examination of alkali antimonide photoelectric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64
Single-crystal boron films on silicon. A. F. Armington and others. il J Ap Phys 35:730-1 Mr '64
Slow electron transfer through evaporated Au films. H. Kanter. J Ap Phys 34:3629-30 D '63
Some structure-property relationships in thin magnetic films. K. Y. Ahn and others. il J Ap Phys 35:1187-90 Ap '64; Discussion. 35:3051-2 O '64
Source of acceptors in low resistivity vacuum-deposited germanium films. E. G. Bylander and others. bibliog J Ap Phys 34:3407-8 N '63
Spin-wave resonance in magnetic films on the basis of the surface-spin-pinning model and the volume inhomogeneity model. C. F. Kooi and others. bibliog J Ap Phys 35:791-7 pt 2 Mr '64
Static magnetic field associated with a thin film ferromagnetic slab. C. A. Combs, jr. and J. H. Wujek, jr. diags Franklin Inst J 277:305-12 Ap '64
Static magnetization reversal in thin films of Co-Ni-P. G. Bate and others. J Ap Phys 35:972-3 pt 2 Mr '64
Steady-state B-H hysteresigraph for thin ferromagnetic films using a torque magnetometer. E. J. Torok and others. il diags R Sci Instr 35:1039-40 Ag '64
Stress effects in evaporated permalloy films. H. L. Pinch and A. A. Pinto. bibliog J Ap Phys 35:828-9 pt 2 '64
Stresses in anodic films. D. A. Vermilyea. bibliog Electrochem Soc J 110:345-6 Ap '63; Discussion. 110:1289-91; 111:755 D '63, Je '64
Structural and magnetic properties of sputtered NiFe films grown in a dc discharge environment. E. Kay. bibliog il J Ap Phys 35:2936-42 O '64
Structural and optical characteristics of thin GaAs films. J. E. Davey and T. Pankey. bibliog il diags J Ap Phys 35:2203-9 Jl '64
Structural effects in thin-film sandwich emitters. L. A. Harris. bibliog il diags J Ap Phys 35:268-76 F '64; Discussion. 35:3056-7 O '64
Structure of electroless cobalt films. R. D. Fisher and D. E. Koopman. il Electrochem Soc J 111:263-4 F '64
Structure of oriented, vapor-deposited GaAs films, studied by electron diffraction. E. K. Müller. bibliog il diags J Ap Phys 35:580-5 Mr '64
Structure of oxide films formed on individual crystal grains of stainless steels. G. Shimaoka. bibliog il diags Electrochem Soc J 110:1177-82 D '63
Studies in high light-fastness of dyes; the fading of anionic dyes in anodic alumina films. C. H. Giles and K. V. Datye. bibliog J Ap Chem 13:473-83 N '63
Studies on the oxygen gradients in oxidizing metals. J. P. Pemsler. il Electrochem Soc J 111:381-5 Ap '64
Study of standing spin waves in thin permalloy films at radio and ultrahigh frequencies. T. E. Hasty. bibliog il diags J Ap Phys 35:1486-93 My '64
Superconducting niobium films by vacuum deposition. P. Fowler. bibliog diags J Ap Phys 34:3538-40 D '63
Superconducting thin films of niobium, tantalum, tantalum nitride, tantalum carbide, and niobium nitride. D. Gerstenberg and P. M. Hall. bibliog diag Electrochem Soc J 111:936-42 Ag '64
Superconducting-to-normally conducting transitions in strip transmission line structures. A. R. Sass and F. J. Friedlaender. bibliog diags J Ap Phys 35:1494-500 My '64
System for displaying thin-film plated wire switching characteristics under disturbed conditions. B. A. Kaufman. il diags R Sci Instr 35:1163-6 S '64
Ta_2O_5 films formed with nonsteady potentials. D. A. Vermilyea. il Electrochem Soc J 111:883-4 Jl '64
Temperature dependence of domain wall creep in thin Ni-Fe magnetic film. M. E. Sweet. J Ap Phys 35:814-15 pt 2 Mr '64
Thin-film first; 315 RMC(rod memory computer). il Electronics 37:30 Jl 27 '64
Thin-film microcircuits; what they are; how they're made. T. W. Black. il diag Tool & Manuf Eng 52:77-80 My '64
Thin-film radiative heat-transfer gage. R. M. Nerem and G. H. Stickford. bibliog diag AIAA J 2:1647-9 S '64
Thin-film thickness from theoretical expressions for conductivity and isothermal Hall effect. W. F. Leonard and R. L. Ramey. bibliog diag J Ap Phys 35:2963-5 O '64
Thin film tunnel luminescence. R. M. Hill. IEEE Proc 51:1664 N '63
Thin film X-ray standard. J. E. Davey. diags R Sci Instr 35:1372-3 O '64
Thin films; dark horse in electronic packaging. R. P. Radke. il diags S A E J 72:64-7 S '64
Thin films for all. il Electronics 37:27 O 5 '64
Torque and rotational hysteresis in fcc single-crystal cobalt films. W. D. Doyle. bibliog J Ap Phys 35:929-30 pt 2 Mr '64
Transient analysis of thin-film structures. F. A. Lindholm and W. W. Happ. bibliog diags Radio & Electronic Eng 26:421-35 N '63
Ultra-sensitive angular transducer using ferromagnetic film resonance. T. E. Hasty and T. C. Penn. diags IEEE Trans Com & Electronics 83:558-61 S '64
Uniaxial anisotropy due magnetoelastic energy in constrained polycrystalline films. F. G. West. bibliog J Ap Phys 35:1827-40 Je '64
Unsupported single-crystal films of germanium. C. W. Skaggs and J. R. Jones. il J Ap Phys 35:3013-15 O '64
Uses laser beam for thin-film evaporation at 2° K. F. L. Bonem. il diag Res/Develop 15:50-2 Je '64
Vapor-deposited superconductive films of Nb, Ta, and V. C. A. Neugebauer and R. A. Ekvall. bibliog il diag J Ap Phys 35:547-53 Mr '64
Wall motion by reverse Néel walls in thin films. C. E. Patton, 3d and F. B. Humphrey. bibliog J Ap Phys 35:921-2 pt 2 Mr '64

FILMS, Photographic. See Moving picture films; Photography—Films

FILMS, Plastic. See Plastic films

FILMS, X ray. See X ray films

FILTER cloth
Cutting the costs of assembly. il Mod Plastics 42:100-3+ S '64
Using fire hydrants to survey nuisance organisms. A. A. Hirsch. il diags Water & Sewage Works 111:357-9 Ag '64
Vacuum filter cloths; a guide to selection and care. W. L. Shedden. il Water Works & Wastes Eng 1:46-51+ Ap '64; Same. flow diag Water & Sewage Works 111:168-72, 211-13 Ap-My '64

FILTER paper
Glass filter paper suspension of precipitates for liquid scintillation counting. D. R. Johnson and J. W. Smith. Anal Chem 35:1991-2 N '63
Measuring filter-paper performance faster with a radioiron technique. I. J. Gruverman. diags Nucleonics 21:70+ D '63

FILTERS, Air. See Air filters

FILTERS, Electric. See Electric filters

FILTERS and filtration
Automatic filter. diags Engineer 218:339 Ag 28 '64
Effect on filtration of polyelectrolyte coatings of diatomite filter media. C. S. Oulman and others. Am Water Works Assn J 56:1233-8 S '64
Effects of algae on plant operation; joint discussion. bibliog Am Water Works Assn J 56:1201-16 S '64
Evaluation of diatomite filters for water plants. R. P. Schmitt. il diag Am Water Works Assn J 56:1047-53; Discussion. J. R. Scrivener. 1053-4 Ag '64
Extrusion problems. il diags Plastics World 22:24 Ja '64
Hydraulic and particle size characteristics of some diatomite filter aids. J. H. Dillingham and E. R. Baumann. bibliog il Am Water Works Assn J 56:793-808 Je '64
Mechanics of inclined filters in earth dams. V. J. Patel and others. bibliog diags Am Soc C E Proc 90 [SM 2 no 3840]:87-110 Mr '64
Modified form of diatomite filtration equation. E. R. Baumann and C. S. Oulman. Am Water Works Assn J 56:330-2 Mr '64
Package water filter can travel. il Eng N 172:50 Mr 5 '64
Philadelphia Aquarama filters handle 3.8 mgd. il Water & Sewage Works 111:138-9 Mr '64
Progress in filtration. K. J. Ives. bibliog diags Am Water Works Assn J 56:1225-32 S '64
Reevaluation of granular-carbon filters for taste and odor control. M. E. Flentje and D. G. Hager. bibliog Am Water Works Assn J 56:191-7 F '64
Searching look at rapid sand gravity filters. J. W. Burton. diag Tappi 47:sup 157A-61A Ja '64

FILTERS and filtration—*Continued*

Some chemical aspects of rapid sand filtration. C. R. O'Melia and D. K. Crapps. flow diag Am Water Works Assn J 56:1326-44 bibliog(p 1343-4) O '64; Excerpts. Pub Works 95:130 D '64

Streaming potentials in diatomite filtration of water. C. S. Oulman and E. R. Baumann. bibliog flow sheet diags Am Water Works Assn J 56:915-30 Jl '64

Studies of modifications in water filtration. G. G. Robeck and others. bibliog flow diag il Am Water Works Assn J 56:198-213 F '64; Abstract. Pub Works 95:144+ Ap '64

Theoretical aspects of diatomite filtration. E. R. Baumann and others. bibliog il Water & Sewage Works 111:229-33, 290-4, 331-6 My-Jl '64

Theory of water filtration. T. R. Camp. bibliog diags Am Soc C E Proc 90 [SA 4 no 3990]:1-30 Ag '64

Valveless filter cleans water automatically. il diag Plant Eng 18:115-16 Ap '64

Valveless filter installed for iron removal. J. R. Gardner and A. J. Stika. il diag Pub Works 95:109-10 Mr '64

See also
Filtration plants
Sewage disposal—Filtration
Trade waste disposal—Filtration

FILTERS and filtration (bacteriology)

Comparison of membrane filter counts and most probable numbers of coliform in San Diego's sewage and receiving waters. D. A. Hoffman and others. map WPCF J 36:109-17 Ja '64

Filter replaces pasteurizer, produces bottled beer with tap flavor. F. K. Lawler. flow diag il diags Food Eng 35:45-7 D '63

Membrane filters block beer spoilage. il Chem Eng 71:62+ F 17 '64

Microfiltration reduces beer spoilage. il Chem & Eng N 41:48-9 D 2 '63

FILTERS and filtration (technical chemistry)

Analysis of brown stock washing systems. B. Fitch and W. H. Pitkin. flow sheet diags Tappi 47:sup 170A-2A+ O '64

Clearing up some misconceptions about liquid filtration. C. A. Jahreis. Chem Eng 70:237-40 N 11 '63

Continuous contact filtration; Filtrol corp. flow diag Hydrocarbon Process & Pet Refiner 43:201 S '64

Determination of molecular weights of proteins by gel filtration on Sephadex. J. R. Whitaker. bibliog Anal Chem 35:1950-3 N '63

Effect of sodium silicate on the filtration rate of asbestos fiber. E. Martinez. Can Min & Met Bul 57:1042-4 O '64

Filter know-how adds years to hydraulic service. A. H. Engstrom. il diags Plant Eng 18:120-3 Jl '64

Filtering made easier; American maize products co. E. C. Scott and F. Grothman. il Food Eng 36:64-5 Ap '64

Filters for reactor containment. J. W. Walker and A. H. Peters. bibliog il diags Mech Eng 85:46-50 S '63; Same. Naval Eng J 76:135-40 F '64

Filtration process increases solvent recovery. il Manuf Chem 35:100 S '64

Filtration; theory and practice; annual review. J. L. Englesberg. Ind & Eng Chem 56:65-70 bibliog(p69-70) O '64

Fine filter functions forever. il Machine Design 36:12 Jl 2 '64

Gaussian distribution of dirt particles. Product Eng 34:86-7 D 9 '63

International filtration exhibition, London, Feb. 11-14. il Engineer 217:393 F 28 '64; Engineering 197:285 F 21 '64

Nuclepore tape filters. il Product Eng 35:62 O 12 '64

Offers programmed filtration; horizontal plate filter called the Funda processor. il diags Food Eng 35:96 D '63

Percolation filtration; Minerals & chemicals Philipp corp. flow diag Hydrocarbon Process & Pet Refiner 43:212 S '64

Potable water recovered from urine by filtration. il Chem & Eng N 42:50-1 Ap 6 '64

Rapid solids determination using glass fiber filters. B. M. Wyckoff. il Water & Sewage Works 111:277-80 Je '64

Role of porosity in filtration; new definition of filtration resistance. F. M. Tiller and M. Shirato. diags A I Ch E J 10:61-7 Ja '64

Simplifies filter-aid handling; Corn products co. develops bulk handling system for diatomite filter aid. C. A. Cocks. il diag Food Eng 35:79-80 D '63

Sterile filtration. G. P. Vogel. il Am Perfumer 79:65-6 Je '64

Synthetic fibers improve felt properties. il diag Materials in Design Eng 60:100-3 N '64

Titanium shows cost savings in filter application. il Light Metal Age 22:19 Je '64

See also
Filter paper
Oil filters

Cleaning

Navy steered to cleaner plane hydraulic systems. N. F. Robinson. S A E J 72:76-7 Ja '64

Testing

Method for determining the average specific filtration resistance of pulps at constant pressure. R. O. Gertjejansen. il Tappi 47:19-21 Ja '64

FILTRATION plants

Microfloc process in water treatment. A. H. Rice and W. R. Conley. il diags Tappi 47:sup 167A-71A Ja '64

New water treatment facility for southern California; Robert B. Diemer filtration plant, Yorba Linda. A. E. Bowers and E. L. Griffith. il map plan diags Water & Sewage Works 111:433-45 O '64

New York apple country taps Lake Ontario. N. M. Fuller. il Water & Sewage Works 111:347-9 Ag '64

Plant changes keep pace with new treatment developments at Nashville's Lawrence filter plant. R. L. Lawrence, jr. il plan Water Works Eng 116:956-8 D '63

See also
Filters and filtration

Design

Quality and cost evaluation of treatment processes for a specific water. L. E. Hanson. bibliog Am Water Works Assn J 56:535-42 My '64

Equipment

Advances in taste and odor removal with granular carbon filters. M. E. Flentje and D. G. Hager. bibliog il diag Water & Sewage Works 111:76-9 F '64

Aluminum conduit in Chicago's new filtration plant. il Water & Sewage Works 111:282-3 Je '64

Automation in water treatment; equipment selection to meet trends in filter plant design and operation. M. E. Rogers. il diags Tappi 47:sup 161A-7A Ja '64

Effect of control systems on filter performance. M. E. Rogers. bibliog flow chart diags Am Water Works Assn J 56:907-14 Jl '64

Instrumentation and automation in Chicago's Central district plant. M. Roth. il map diag Water Works & Wastes Eng 1:71-4 My; 36-9 Je '64

New filter system removes iron from municipal water supply. flow diag il diag Water & Sewage Works 111:284-6 Je '64

Now all Chicago drinks filtered water. il Eng N 173:28 O 15 '64

Simple, effective water treatment with two-valve diatomite filter. il diag Pub Works 95:108-9 Ag '64

What's new in Troy's filter plant? P. W. Prendiville. diag Water Works & Wastes Eng 1:80-1+ My '64

FINANCE

See also
Credit
Gold as money
Inflation (finance)
Investments
Silver as money

also subdivision Finance under special subjects, e.g.
Building
Chemical industries
Electronics industry
Gas companies
Gas industry
Oil companies
Paper industry and trade
Petroleum industry and trade
Public utilities
Rapid transit
Roads
Rock products industry
Scientific research
Sewerage
Textile industry
Waterworks

United States

See also
Budget—United States
Grants-in-aid

FINGER nails
Normal nail. C. Achten. bibliog diags Am Perfumer 79:23-6 S '64
Recent advances in preparations for the nail; fingernail elongators and cuticle removers. G. T. Walker. bibliog Am Perfumer 79:77-9 Je '64

FINISHING
See also
Metal finishing
Plastics—Finishing
Textile finishing

FINISHING materials
Coating ceramic beads; question and answers. Ind Finishing 40:104-6 N '63
Producing an attractive iridescent finish. Ind Finishing 40:114-15 S '64
Progress in coatings. il diags Materials in Design Eng 58:93-108 D '63
Properties of materials; finishes and coatings; tables. Materials in Design Eng 60:383-403 Mid-O '64
Protective coatings; annual review. F. Scofield. bibliog Ind & Eng Chem 56:49-50 Ag '64
Solids vs viscosity in finishing materials. K. G. Meades. Ind Finishing 40:102-3 Ag '64
Ultra-violet absorbers in finishing materials. Ind Finishing 40:108-10 N '63
See also
Ceramic coating
Glass coating
Lacquer and lacquering
Paint
Pearl essence
Resinous products—Finishing materials

Bibliography

Organic finishing developments of 1963. H. P. Preuss. il Metal Finishing 62:48M-48Z bibliog(p48Y-48Z) Ja '64

Patents

Organic finishing developments of 1963. H. P. Preuss. il Metal Finishing 62:48M-48Z bibliog(p48Y-48Z) Ja '64

Testing

New test evaluates quality of anodized aluminum. E. T. Englehart and G. Sowinski, jr. diag S A E J 72:51-2 F '64

FINLAND
See also subdivision Finland under special subjects, e.g.
Architecture
Electricity supply
Engineering education
Hydroelectric plants
Medical service, Industrial
Mines and mineral resources
Nickel industry and trade
Textile industry

FIR
Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64
Extracts and reaction products from bark. W. J. Burgon. Tappi 47:sup 124A-6A My '64
Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64
Tracheid length variation patterns in Douglas-fir and selection of extreme variants. J. W. Duffield. bibliog Tappi 47:122-4 F '64

FIRE alarms
Warning and control at home. il Engineering 197:560 Ap 17 '64

FIRE apparatus
Fire protection must be custom designed. diags Safety Maint 127:30-2+ F '64
Keeping up with fire protection developments. il Safety Maint 126:34-41 D '63
New fire fighting techniques; fire demonstration spectacular in Boston. T. F. O'Connell, jr. il Safety Maint 127:32-3 Ja '64
Portable fire pump. il Engineer 217:1043 Je 12 '64
See also
Fire extinguishers
Fire protection
Sprinkling systems

FIRE apparatus, Motor
Fire engine can pump 70 stories straight up. il diags Product Eng 35:43-4 My 11 '64
Fire fighting ladder's quick, firm base. il Engineering 198:166 Ag 7 '64
New fire-fighting truck combines foam and dry chemicals. il Oil & Gas J 62:87 N 2 '64

FIRE boats
Go anywhere fireboat. il Marine Eng/Log 69:74+ O '64

FIRE brick
Billet furnace takes few special bricks. il Steel 154:108 Mr 16 '64
Direct bonding of basic brick. B. Davies and F. H. Walther. bibliog il Am Cer Soc J 47:116-22 Mr '64
Effect of moisture on strength of refractory brick. W. J. Smothers and others. Am Cer Soc J 47:414-15 Ag '64
Effect of various atmospheres on thermal conductance of refractories. R. C. Young and others. bibliog diag Am Cer Soc J 47:205-10 My '64
Ford Motor uses a special brick in B blast furnace. il Iron & Steel Eng 41:204+ Jl '64
Future refractories and steelmaking. R. E. Birch. bibliog il J Metals 16:512-15 Je '64
General refractories co. modernizes Warren plant. il Iron & Steel Eng 41:162 Mr '63
Insulating firebrick developed for 2800-F, 100 per cent dry hydrogen service. Iron & Steel Eng 41:183-4 Je '64
Resistance of basic brick to deterioration from changes in atmosphere. D. H. Hubble. bibliog il Am Cer Soc Bul 43:506-9 Jl '64
Rotary-hearth billet furnace utilizes sawtooth profile. il Iron & Steel Eng 41:164 Ap '64
Trends in refractories for melting furnaces. R. E. Pardee. il Foundry 92:48-51 Ja '64

Testing

Special refractories association load test. T. J. Taylor. il diags Am Cer Soc Bul 42:741-4 D '63

FIRE departments
See also
Firemen

FIRE detectors. See Detectors

FIRE extinction
Dousing a solid-propellant fire. Chem Eng 71:38 Ag 3 '64
Electrical hazards in fighting fires. il Safety Maint 128:32-4 S '64
Fighting fires with firemen. L. J. Mamer. il Safety Maint 128:42-4 N '64
Fume-neutralizing chemical helps put out ship fire. Marine Eng/Log 68:92+ N '63
How to handle flammable liquid spills. Safety Maint 127:45-6 Mr '64
New fire fighting techniques; fire demonstration spectacular in Boston. T. F. O'Connell, jr. il Safety Maint 127:32-3 Ja '64
Novel solution to special fire problem; monoammonium phosphate. il Safety Maint 127:42-3 Mr '64
Review of dry chemicals; fire extinguishing agents. il Safety Maint 127:42-4 Ap '64
Two-component system fights oil fires. il Chem & Eng N 42:44 Je 29 '64
See also
Coal mines and mining—Fires and fire protection
Fire boats
Fire extinguishers
Sprinkling systems

FIRE extinguishers
Fire protection for industry. il Engineer 216:902-4 N 29 '63
Things to consider in fire extinguisher use. E. W. Fair. Foundry 92:130-2 F '64
To prevent fires from starting and spreading. Ind Finishing 40:33-4 S '64

FIRE houses
Firehouse next door. il plans Prog Arch 45:126-31 Mr '64

FIRE hydrants. See Hydrants

FIRE losses
Random walks, fire damage amount and other Paretian risk phenomena. B. Mandelbrot. bibliog Op Res 12:582-5 Jl '64

FIRE proofing. See Fireproofing

FIRE protection
Are your waste cans fire-safe? il Safety Maint 127:34-5 My '64
Control for grease duct fires. Safety Maint 128:36-7 S '64
Crisis in the night! il Safety Maint 128:35-6 Ag '64
Don't play with fire. J. Schachner. il diags Mill & Factory 75:74-7 Ag '64
Fire front. Published in monthly numbers of Safety maintenance
Fire protection during demolition. Safety Maint 128:32-4 Jl '64
Fire protection for industry. il Engineer 216:902-4 N 29 '63
Fire protection must be custom designed. diags Safety Maint 127:30-2+ F '64
Fire research. il Engineer 218:97-8 Jl 17 '64
Fire tests rule out combustible containers. il Safety Maint 128:35-6 S '64

FIRE protection—*Continued*
- National fire protection conference, 2d, London; abstracts of papers. Engineer 217:423-4 Mr 6 '64
- 1963 editions of fire safety standards issued by the National fire protection association. Safety Maint 127:34 Ja '64
- Pensacola roll paper storage fire. W. J. Orey. diags Tappi 47:sup 145A-8A Ap '64
- Production fires; symbols of neglect. il Mill & Factory 75:79-81 O '64
- Reemphasize the human element in fire prevention. A. B. Kelly. il Safety Maint 128:32-5+ O '64
- Roof venting of industrial fires. il Engineer 217:374-6 F 28 '64
- Simultaneous parametric programs. R. J. Swersey. diag Op Res 12:781-3 S '64
- Sparks from hand tools? Gas Age 131:33 Jl '64
- Water utility protection against fire. K. J. Carl. Am Water Works Assn J 55:1441-9 N '63

See also
- Detectors
- Fire apparatus
- Fire boats
- Fire extinction
- Fire extinguishers
- Fireproof construction
- Fireproofing of textiles
- Inflammable liquids
- Inflammable mixtures
- Sprinkling systems

also subdivision Fires and fire protection under special subjects, e.g.
- Chemical plants
- Coal mines and mining
- Data processing service centers
- Electric transformers
- Hospitals
- Gas, Natural
- Paint shops
- Petroleum industry and trade
- Petroleum refineries

Laws and regulations
- Common bond; NFPA and A.G.A. W. L. Walls. Am Gas Assn Mo 46:17-18 O '64
- Flammability testing; recent developments in testing and law enforcement. C. A. Baker. bibliog Am Dyestuff Rep 53:259-61 Mr 30 '64
- National fire codes. Safety Maint 127:44 Mr '64

FIRE pumps. See Fire apparatus

FIRE resisting materials
- Bureau of mines evaluates fire resistance of hydraulic fluids. S. P. Polack. il diag Iron & Steel Eng 41:105-8; Discussion. 108-10 Ag '64
- Compatibility; matching seals to fire-resistant fluids. J. N. Smith. Hydraulics & Pneumatics 17:112+ S '64
- Emulsifiable and fire resistant rust preventives. V. Y. S. Hong and D. Bootzin. bibliog il Lub Eng 20:9-15 Ja '64
- Flame-retardant papers and laminates. H. F. Arledter and others. il diag Tappi 47:sup 48A+ Ag '64
- Formation and evaluation of fire-resistant hydraulic fluids. R. J. Foitl and W. J. Kucera. Iron & Steel Eng 41:117-19; Discussion. 119-20 Jl '64

See also
- Asbestos
- Concrete construction—Fire resistance
- Paint, Fire resisting
- Plastics—Fire resistance
- Refractory materials
- Silicones

FIRE service (water supply)

See also
- Sprinkling systems

FIRE trucks. See Fire apparatus, Motor

FIREARMS

See also
- Rifles

FIREBOATS. See Fire boats

FIREMEN
- Fighting fires with firemen. L. J. Mamer. il Safety Maint 128:42-4 N '64

FIREPLACES
- Change of wire boost screen production. il Wire & Wire Prod 39:1323+ S '64

FIREPROOF construction
- National fire protection conference, 2d, London; abstracts of papers. Engineer 217:423-4 Mr 6 '64
- These features are essential in fire-safe vaults. G. M. Betz. il Plant Eng 18:148-9 S '64

See also
- Concrete construction—Fire resistance

FIREPROOFING
- Flame retardant market is hinged to plastics. il Chem & Eng N 42:32-3 Je 1 '64
- Preparation of *N*-alkenyl- and *N-m*-styrylphosphoramidates and their application as flame retardants for wood. P. C. Arni and E. Jones. bibliog J Ap Chem 14:221-8 Je '64

FIREPROOFING of textiles
- Fire-resistant clothing: no inventory problem. il Safety Maint 128:8-9 Ag '64
- Flame-resistant cotton fabrics from USDA. W. A. Reeves and V. R. Bourdette. bibliog il Textile Ind 128:105-6+ Ja '64
- Flame-retardant cellulose; a new method of evaluation. P. M. Hay. Am Dyestuff Rep 53:812-15 S 14 '64
- Flammability testing; recent developments in testing and law enforcement. C. A. Baker. bibliog Am Dyestuff Rep 53:259-61 Mr 30 '64
- Ingenuity spells success with flame-retardant finish. il Textile World 114:121-2 N '64
- New flame retarder survives water soaking. Mod Textiles Mag 45:44 Ap '64
- Phosphorylation of cotton with inorganic phosphates. D. M. Gallagher. bibliog Am Dyestuff Rep 53:361-3 My 11 '64
- Pilot plant and mill applications of tris (1-aziridinyl) phosphine oxide finishes to cotton fabrics. R. B. LeBlanc. Am Dyestuff Rep 53:291-3 Ap 13 '64
- Profit potential for flameproofing finishes. P. W. Sherwood. Mod Textiles Mag 45:23-4 F '64
- Use of 1-(perfluoroacyl)aziridines on wool. A. G. Pittman. Textile Res J 33:953-5 N '63
- Weathering characteristics of lightweight flame-retardant finishes for cotton fabrics. J. B. Bullock and others. bibliog Textile Res J 34:691-700 Ag '64

FIRES
- Formwork burns on two projects; ignited by propane-fueled salamanders. il Eng N 172:17 Ja 9 '64
- Heat turned on research. il Engineering 198:66 Jl 17 '64
- Is fire winning? Safety Maint 126:32 D '63
- Orders out of chaos, after fire, Bayonne plant, Electro dynamic div., General dynamics corp. il Mech Eng 85:61 N '63
- Phoenix myth re-enacted by Electro-Dynamic plant. il Water & Sewage Works 110:sup74A+ N '63
- Production fires: symbols of neglect. il Mill & Factory 75:79-81 O '64

See also
- Fire extinction
- Fire protection
- Flames
- Forest fires
- Inflammable liquids
- Inflammable mixtures
- Oil fires
- Spontaneous combustion

also subdivision Fires and fire protection under special subjects, e.g.
- Chemical plants
- Gas, Natural
- Hospitals
- Petroleum refineries

FIREWORKS
- Volumetric determination of perchlorates in pyrotechnics. B. J. Alley and H. W. H. Dykes. Anal Chem 36:1124-6 My '64

FIRING

See also
- Boilers—Firing
- Fuel
- Open hearth furnaces—Firing

FIRST aid in illness and injury
- Emergency first-aid crew; Chicago ambulance service. il Safety Maint 127:54-6 Mr '64
- Emergency medical guide. J. Henderson. Safety Maint 127:46-7 Ja '64
- Keeping up with first aid developments. il Safety Maint 128:58-67 N '64
- Mass casualties. H. J. Bennett. plan diag Ind Med 33:728-31 O '64
- Planning for care of injured radiating patients. W. D. Norwood. il plan diag Archives Environmental Health 8:474-9 Mr '64

FISCHER reagent
- Determination of moisture in ion exchange resins by Karl Fischer reagent. F. X. Pollio. Anal Chem 35:2164-5 D '63
- Determination of water in granular fertilisers by a modified Karl Fischer method. I. Johnston and E. J. Smith. Chem & Ind p315 F 22 '64
- Determination of water in red fuming nitric acid by Karl Fischer titration. E. A. Burns and R. F. Muraca. bibliog il Anal Chem 35:1967-70 N '63

FISCHER reagent—*Continued*

Use of Karl Fischer reagent for the determination of water in condensates of sodium tetraborate and diols. C. B. Jordan. Anal Chem 36:424-5 F '64

FISCHER-TROPSCH process

Design and operations of a pilot-scale plant for hydrocarbon synthesis in the slurry phase. R. Farley and D. J. Ray. bibliog il diags Inst Pet J 50:27-44; Discussion. 45-6 F '64

Hydrogen sulfide poisoning of nitrided and carbided iron catalysts in the Fischer-Tropsch synthesis. F. S. Karn and others. bibliog Ind & Eng Chem Product Res & Develop 3:33-8 Mr '64

FISH, Dried

Studies on the production of better-quality salt-cured and sun-dried mackerel (rastrelliger canagurta). D. P. Sen and N. L. Lahiry. bibliog Food Tech 18:1611-14 O '64

Thermal conductivity of some freeze-dried fish. G. Lusk and others. il Food Tech 18:1625-8 O '64

FISH, Frozen

Basic quality changes in frozen seafood. W. J. Dyer. ASHRAE J 6:40-2+ My '64

Cold storage of cod fillets treated with polyphosphates. E. Tanikawa and others. bibliog il Food Tech 17:1425-30 N '63

Fish cold storage plant; Mutwal, Ceylon. A. W. Lantz. plan diags ASHRAE J 6:38-40 Ag '64

Freezing seafood now and in the future. J. W. Slavin. ASHRAE J 6:43-8 My '64

Polymer packaging for freezing and preservation of fish. W. Pichel. ASHRAE J 6:78-9 O '64

Time-temperature tolerance of frozen seafood. J. A. Peters. bibliog ASHRAE J 6:72-5+ Ag '64

FISH, Smoked

Botulism outbreak from smoked whitefish. Food Tech 18:71-2+ Ja '64

FISH as food

Fish; a prime health food; rich in polyunsaturated fatty acids and protein. M. E. Stansby. Food Eng 36:47 F '64

Proximate composition of silver salmon. N. L. Karrick and C. E. Thurston. J Agri & Food Chem 12:282-4 My '64

See also

Sardines

Tuna fish

Preservation

Preservation of fresh unfrozen fishery products by low-level radiation. R. O. Brooke and others. bibliog Food Tech 18:1056-64 Jl '64

Spoilage

Basic quality changes in frozen seafood. W. J. Dyer. ASHRAE J 6:40-2+ My '64

Effect of temperature on the spoilage of wet white fish. R. Spencer and C. R. Baines. bibliog Food Tech 18:769-73 My '64

Time-temperature tolerance of frozen seafood. J. A. Peters. bibliog ASHRAE J 6:72-5+ Ag '64

Storage

Cold storage of retail-packed fillets of mackerel and herring. A. Liljemark. bibliog Food Tech 18:380-2 Mr '64

Liquor loss as an index to fish texture; abstract. T. Little and R. H. Smithies. Chem & Ind p 1294; Discussion. 1294-5 Jl 18 '64

FISH culture

Taking trout eggs pneumatically. il diag Comp Air Mag 69:16-17 Mr '64

FISH flour. See Fish meal

FISH industry

Great Britain

Fish technology in Britain; abstract. G. H. O. Burgess. Chem & Ind p 1293-4; Discussion. 1294-5 Jl 18 '64

FISH meal

Assessment of nutritive value of fish flour in the treatment of convalescent kwashiorkor patients. P. J. Pretorius and A. S. Wehmeyer. bibliog Am J Clinical Nutrition 14:147-55 Mr '64

FISH oil

Fatty acid composition of oils from 21 species of marine fish, freshwater fish and shellfish. E. H. Gruger, jr. and others. bibliog Am Oil Chem Soc J 41:662-7 O '64

Fish; a prime health food; rich in polyunsaturated fatty acids and protein. M. E. Stansby. Food Eng 36:47 F '64

Identification of a major polyunsaturated C_{16} acids of marine oils by GLC separation factors on normal and organosilicone polyesters. R. G. Ackman and P. M. Jangaard. bibliog Am Oil Chem Soc J 40:744-5 D '63

Oxidation of a highly unsaturated herring oil. H. Astrup. Chem & Ind p 107 Ja 18 '64

Structure of polyenoic odd- and even-numbered fatty acids of mullet (mugil cephalus). N. Sen and H. Schlenk. bibliog Am Oil Chem Soc J 41:241-7 Mr '64

Synthesis of triglycerides from fish oil fatty acids. L. W. Lehman and E. J. Gauglitz, jr. bibliog Am Oil Chem Soc J 41:533-5 Ag '64

See also

Cod liver oil

FISH poisons

Aquatic life needs protection. C. M. Tarzwell. il Chem Eng Prog 59:27-8 N '63

Avoidance of copper-zinc solutions by young salmon in the laboratory. J. B. Sprague. il diags WPCF J 36:990-1004 bibliog(p 1003-4) Ag '64

Behavior of fish exposed to toxic substances; abstract. S. Ishio. WPCF J 36:270-1 Mr '64

DDT persistence and its effect on aquatic insects and fish after an aerial application. E. B. Welch and J. C. Spindler. bibliog map WPCF J 36:1285-92 O '64

Development and use of a direct method of evaluating toxicity to fish; abstract. J. S. Alabaster and F. S. H. Abram. WPCF J 36:272 Mr '64

Farm use of pesticides not to blame for massive river fish kills. Chem & Eng N 42:23-4 Je 8 '64

How do you purify the Mississippi? Eng N 172:15 Ap 30 '64

Pesticide levels low in West Coast fish; abstract. D. M. DeVries and others. Chem & Eng N 42:71 Ap 20 '64

Pesticides get tangled in net of dead fish. map Chem Eng 71:82+ Je 22 '64

Physiological effects of pollutants on aquatic organisms; abstract. M. Fujiya. WPCF J 36:330 Mr '64

Pollution conference blames endrin for fish kills. Chem & Eng N 42:28 My 18 '64

Toxicological effects of herbicides on the fish environment. C. R. Walker. bibliog il Water & Sewage Works 111:113-16, 173-5 Mr-Ap '64

USPHS insists endrin is fish killer. Chem & Eng N 42:25-6 Jl 6 '64

Velsicol denies endrin caused fish kill. Chem & Eng N 42:28-9 Ag 10 '64

FISH processing plants

New fish processing plant; Vita food products. Food Tech 18:471 Ap '64

Equipment

Designs production for flexibility and QC; Blue water seafoods, inc. J. V. Ziemba. flow sheet il Food Eng 36:64-7 Jl '64

Fish cold storage plant; Mutwal, Ceylon. A. W. Lantz. plan diags ASHRAE J 6:38-40 Ag '64

FISH protection

Electric fish screens. A. E. Hanson. Am Water Works Assn J 56:938 Jl '64

See also

Dams—Fish problem

FISHER award

Fisher award in analytical chemistry to J. Mitchell, jr. Chem & Eng N 42:72 Ap 6 '64

FISHES

Concerning the nonphotochemical biosynthesis of vitamin D_3 in fish. G. A. Blondin and others. bibliog Am Chem Soc J 86:2528-9 Je 20 '64

Ecology of fishes. G. V. Nikolsky. Review, by H. G. Vevers. Chem & Ind p 1378-9 Ag 1 '64

Gambusia; industrial effluent monitors. R. C. Davis. Water & Sewage Works 111:259-61 Je '64

See also

Dams—Fish problem

Fish as food

Herring

Sharks

Tuna fish

Nutrition

Nutrition of salmonoid fishes. A. N. Woodall and others. bibliog il J Nutrition 82:475-82; 83:177-85; 84:125-35 Ap, Jl, O '64

FISHING

Biological aspects; their influence on future supplies; abstract. H. A. Cole. Chem & Ind p 1293; Discussion. 1294-5 Jl 18 '64

FISHING boats

Electric equipment

Constant current propulsion for trawler. il Engineering 198:88 Jl 17 '64

Log recorder improves trawler efficiency. il Ind Electronics 2:321-2 Jl '64

Equipment

Constant current propulsion and trawl winch system. il Engineer 218:378 S 4 '64

Development of equipment for trawlers. J. J. Waterman. il Engineering 196:502-4, 542-4 O 18-25 '63

Fishing with hydraulic power. il Hydraulics & Pneumatics 17:16+ Ag '64

Freezing of fish at sea. G. Vortselas. bibliog flow diag il ASHRAE J 6:42-5 O '64

Mother ships for U.S.S.R. fishing fleet. il Engineer 216:1007 D 13 '63

New approach to stern trawler design; Ross Daring. il Engineering 196:558-9 N 1 '63

Scientific approach to catching fish. Engineering 197:431 Mr 20 '64

Trawler modernization to improve efficiency. il Engineering 196:611 N 15 '63

FISHING reels. See Fishing tackle

FISHING tackle

Finishing balsa wood; pinhole trouble; question and answer. Ind Finishing 40:98+ D '63

Fishing gear finished, dried by infrared. il Ind Finishing 40:39 Ja '64

Intrepid Elite fishing reel. il diags Engineering 197:554-5 Ap 17 '64

FISSION, Nuclear. See Nuclear reactions

FITS (machinery)

Abradable coatings resist heat. il diag Iron Age 193:137 Ap 30 '64

Art and science of stud driving. W. S. Brown. diags Mach 70:107-16 Je '64

Chemical lock bonds fittings; Loctite retaining compound. il diags Iron Age 192:78-9 N 28 '63

Expansion fits with nitrogen; nomograph; reference book sheet. T. G. Hicks. Am Mach 108:161 Ap 13 '64

For reliable interchangeability use these clearance hole tables. L. D. Skonnord. diags Product Eng 35:110-15 My 25 '64

How clearances vary with temperature. W. J. Quinn. diag Tool & Manuf Eng 52:125-6 Ap '64

New chemical makes press fits stronger. il diags Materials in Design Eng 59:120+ Ja '64

Screw-thread fits. R. B. Belford. diags Machine Design 35:186-8 N 7 '63

Shrink fitting with flameless heat. il Am Mach/Metalworking Manuf 107:114 O 14 '63

Size and location tolerancing. R. E. Stanley. diags Machine Design 36:160-5 S 24 '64

Temperature for shrink fits; reference book sheet. T. G. Hicks. Am Mach/Metalworking Manuf 107:75 D 23 '63

FITZGERALD-LORENTZ contraction

Mechanical model for Fitzgerald contraction. L. Epstein. diag IEEE Proc 52:95-6 Ja '64

FIXMAN, Marshall

ACS award in pure chemistry. por Chem & Eng N 42:78 F 10 '64

FIXTURES, Lighting. See Lighting fixtures

FIXTURES, Machine tools. See Machine tools—Fixtures

FLAMES

Catalyzed copper-copper oxide flame reactions of selected organohalogens in the presence of methane and air. E. A. Eads. Anal Chem 36:2373 N '64

Conductivity probe measurements in flames. R. A. Olson and E. C. Lary. bibliog il diag AIAA J 1:2513-16 N '63

Effect of wind on buoyant diffusion flames. O. A. Pipkin and C. M. Sliepcevich. bibliog il diag Ind & Eng Chem Fundamentals 3:147-54 My '64

Fire and water at National chemical laboratory. Engineering 198:208 Ag 14 '64

Flame-contact studies of fabrics. A. M. Stoll and others. bibliog il A S M E Trans ser C 86:449-56 Ag '64

Flame priming extends to paper coating. R. E. Greene. il Chem & Eng N 42:48 N 2 '64

See also

Gas burners

Ignition

Inflammable mixtures

Oxyacetylene flame

FLAMMABILITY. See Inflammable liquids

FLANGES

Beat buckling in truck frames. S. J. Shomberger and E. A. Wingerson. diag S A E J 72:66-7 Ja '64

Cut vessel flange costs by computer. T. H. Korelitz. diags Hydrocarbon Process & Pet Refiner 43:125-9 Jl '64

Design of high-pressure integral and welding neck flanges with pressure-energized ring joint gaskets. R. Eichenberg. il diags A S M E Trans ser B 86:199-203; Discussion. 204 My '64

Stability of elasto-plastic wide-flange columns. G. F. Hauck and S. L. Lee. bibliog diags Am Soc C E Proc 89 [ST 6 no 3738]:297-324 D '63; Discussion. M. G. Lay and T. V. Galambos. 90 [ST 2 no 3886]:419-20 Ap '64; Reply. 90 [ST 5 no 4066]:205 O '64

See also

Pipe flanges

Pipe joints

FLARE stacks. See Petroleum refineries—Flare stacks

FLARES, Solar. See Sun—Prominences

FLASH evaporators. See Evaporators

FLASH point

Correlate flash point with I.B.P. and ten percent distillation point. E. J. Barriga. Hydrocarbon Process & Pet Refiner 43:200 O '64

Easy way to characterize lube stocks. R. A. Woodle. Hydrocarbon Process & Pet Refiner 43:149-52 Ag '64

FLASHING

How to use stainless steel for flashing. D. W. Pettigrew. il diags Arch Rec 134:201-2 N '63

Prefabricated flashing for parapet walls. H. Edwards. il diags Arch Rec 135:209-10 My '64

FLASHING lamps. See Electric lamps—Flashing

FLASHLIGHT photography. See Photography, Flashlight

FLAVAN

Synthesis of flavans. M. M. Bokadia and B. L. Verma. bibliog Chem & Ind p235 F 8 '64

FLAVANDIOL

Absolute configurations of free phenolic forms of diastereoisomeric flavan-3,4-diols related to (+)-mollisacacidin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1555 S 5 '64

Natural diastereoisomeric flavan-3,4-diols related to (+)-mollisacadicin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1799-800 O 24 '64

FLAVANOL

Fluorometric determination of tungsten with flavanol. R. S. Bottei and B. A. Trusk. Anal Chem 35:1910-12 N '63

Synthesis of flavan-3-ols. P. N. Verma and M. M. Bokadia. bibliog Chem & Ind p807-8 My 9 '64

FLAVINS

Photochemistry of riboflavin; the hydrogen transfer process in the anaerobic photobleaching of flavins. W. M. Moore and others. bibliog Am Chem Soc J 85:3367-72 N 5 '63

FLAVONES

Flavone glycosides of pyrus species. A. H. Williams. Chem & Ind p 1318 Jl 18 '64

One-step synthesis of dihydroflavonols. N. B. Mulchandani and M. S. Chadha. Chem & Ind p 1554 S 5 '64

FLAVONOIDS

Characterization of flavonoids and coumarins by their absorption spectra on paper chromatograms. M. J. Saxby. Anal Chem 36:1145-6 My '64

FLAVONOLS. See Flavones

FLAVOR

Aseptic canning of foods; chemical and flavor changes in strained beef. B. S. Luh and others. bibliog Food Tech 18:212-15 F '64

Effect of some fungicides on the flavor of canned strawberries. G. W. Hope. bibliog J Agri & Food Chem 12:189-91 Mr '64

Flavour of black tea. R. L. Wickremasinghe and T. Swain. bibliog Chem & Ind p 1574-5 S 12 '64

Flavor potentiators. Food Eng 36:62 My '64

Flavor studies of solidified water-in-milk fat emulsions. J. B. Mickle and others. bibliog Food Tech 18:1483-5 S '64

Flavor, what it is, and why? J. J. Broderick. Am Perfumer 79:27-8 My '64

History and development of flavor nucleotides. A. Kuninaka and others. bibliog il(cover) Food Tech 18:287-93 Mr '64

Home-use test by consumers of the flavor effects of disodium inosinate in dried soup. J. F. Caul and S. A. Raymond. Food Tech 18:353-7 Mr '64

Isolation and localization of the precursors of roasted peanut flavor. M. E. Mason and G. R. Waller. bibliog flow chart flow diag il J Agri & Food Chem 12:274-8 My '64

FLAVOR—*Continued*
Latest yeast products add flavor character and improve nutritional value. N. Lyall. Food Eng 36:98-9 My '64
Oxidized-metallic and grassy flavor components of autoxidized milk fat. E. G. Hammond and F. D. Hill. bibliog Am Oil Chem Soc J 41:180-4 Mr '64
Plankton as a source of flavor. Food Tech 18:546 Ap '64
Progress and problems in flavours. R. W. Moncrieff. bibliog Manuf Chem 35:63-5+ S '64
Relationship between molecular structure and flavor perceptibility of aliphatic aldehydes. P. W. Meijboom. bibliog Am Oil Chem Soc J 41:326-8 Ap '64
Relationship of peroxide value and thiobarbituric acid value to development of undesirable flavor characteristics in fats. W. D. Pohle and others. Am Oil Chem Soc J 41:649-50 O '64
Sensory evaluation of foods; a look backward and forward. R. M. Pangborn. il Food Tech 18:1309-13 bibliog(p 1312-13) S '64
Shelf life of chilled orange juice with heat treatment and preservatives. N. B. Rushing and V. J. Senn. bibliog Food Tech 18:1222-4 Ag '64
Study of the applicability of a modified thiobarbituric acid test to flavor evaluation of fats and oils. G. A. Jacobson and others. bibliog Am Oil Chem Soc J 41:124-8 F '64
Sweet smell of success. Food Tech 18:999 Jl '64
Ultraviolet absorbancy of volatiles as a measure of oxidative flavor deterioration in egg powders. O. S. Privett and others. bibliog diags Food Tech 18:1485-8 S '64
Volatile sulfur compounds in potatoes. M. R. Gumbmann and H. K. Burr. bibliog J Agri & Food Chem 12:404-8 S '64

FLAVORING materials
Changing face of the flavour industry. W. J. Downey and R. J. Eiserle. il Manuf Chem 35:66-7 S '64
Encapsulation of flavours. P. Moxey. il Manuf Chem 35:68-9 S '64
Flavor-modifying properties of disodium inosinate. C. H. Kurtzman and L. B. Sjöström. Food Tech 18:1467-9 S '64
Flavoring materials; a current review. R. L. Swaine. Am Perfumer 79:35-44 bibliog(p42-4) Jl '64
Flavours and the law. C. A. Vodoz. Manuf Chem 35:60-2 S '64
Instrumentation as applied to a number of aromatic and flavoring materials; abstract. V. D. Johnston. Am Perfumer 78:24 N '63
Peach flavor. Drug & Cosmetic Ind 93:707 N '63
Perfume and flavor research facility in Switzerland has developed special analytical instruments; Firmenich & cie. il Anal Chem 36:sup79A-81A Ag '64
Progress and problems in flavours. R. W. Moncrieff. bibliog Manuf Chem 35:63-5+ S '64
Purchasing practices in perfumery and flavor material. L. G. Pochat. Am Perfumer 78:40-4 N '63
Synthetic flavors, fragrances gain new role. il Chem & Eng N 42:25-6 My 11 '64
See also
Spices

FLAVYLIUM compounds
Benzopyrylium salts; reaction of flavylium perchlorate with ethyl esters of α-amino acids. R. L. Shriner and R. Sutton. bibliog Am Chem Soc J 85:3989-91 D 20 '63
Flavylium salt-phloroglucinol condensation reactions. L. Jurd and A. C. Waiss, jr. Chem & Ind p 1708-9 O 10 '64

FLAX
Intrinsic tenacities of natural cellulosic fibers. L. B. DeLuca. bibliog Textile Res J 34:110-16 F '64

FLEXIBLE couplings. See Couplings

FLEXIBLE pipes. See Pipes, Flexible

FLEXIBLE rotors. See Rotors

FLEXIBLE tubes. See Tubes, Flexible

FLEXOGRAPHY
Flexographic down-fold gluer. W. J. Hurrell. diags Tappi 47:sup 156A-9A Ap '64

FLEXURE. See Bending

FLIES
Enzymatic degradation of parathion in organophosphate-susceptible and -resistant houseflies. F. Matsumura and C. J. Hogendijk. bibliog J Agri & Food Chem 12:447-53 S '64
See also
Fly sprays and repellents

FLIGHT
See also
Aerodynamics

FLIGHT, Space. See Space flight

FLIGHT simulators
Colorful terrain; new flight simulator. Electronics 37:26+ N 2 '64
Designing the servo drive for a rocking table. H. R. Martin and J. E. Carrington. il diags Hydraulics & Pneumatics 17:84-9 Jl '64
Flight simulation for research. D. H. Perry and J. M. Naish. bibliog il diags Roy Aeronautical Soc J 68:645-60; Discussion. 660-2 O '64
Ground and flight testing. B. H. Goethert. il Astronautics & Aerospace Eng 1:54-62 N '63
Lunar landing research vehicle simulates moon-gravity descent. il Space/Aeronautics 42:73+ S '64
Lunar landing will be made at Langley. il diag Machine Design 36:6 Jl 2 '64
Maneuverable spacecraft. il Mech Eng 86:45 Ja '64
Moon operations here on earth. D. E. Hewes and A. A. Spady, jr. il diags Astronautics & Aeronautics 2:24-9 F '64
New G-effect tester creates Coriolis forces. il Machine Design 36:6 Jl 30 '64
Rotational flight simulator for astronaut training. Franklin Inst J 277:183 F '64
Scubadivers man a mockup to study zero-g. il Machine Design 36:14 S 10 '64
Simulating manned space flight. O. Romaine. il diags Space/Aeronautics 40:68-72 D '63
Simulating the moving perspective view from an aircraft. P. M. Carey. il diags SMPTE J 73:854-7 O '64
Use of color film in manufacture of color map transparencies for radar trainers. E. E. Griffith. il diags SMPTE J 73:849-53 O '64
Vibrators; longest stroke and highest thrust. il Aircraft Eng 36:213 Jl '64
See also
Air pilots, Military—Training

FLOATING cranes. See Cranes, Floating

FLOATING power plants. See Power plants, Floating

FLOATS (parades)
Design, Pasadena style; float construction. N. F. Wood. il diags Machine Design 36:142-6 Ja 16 '64

FLOCCULATION
Computer simulation of floc formation in a colloidal suspension. M. J. Vold. bibliog diag J Colloid Sci 18:684-95 S '63
Energetics of flocculation and redispersion by polymers. T. W. Healy and V. K. La Mer. bibliog J Colloid Sci 19:323-32 Ap '64
Flocculation of pinacyanol chloride in alkali silicate solutions. M. A. McGarry and J. F. Hazel. J Colloid Sci 19:294-301 Ap '64
Formation of pellet-like flocs of kaolinite by polymer chains. M. Yusa and A. M. Gaudin. bibliog il Am Cer Soc Bul 43:402-6 My '64
Internal mutual flocculation in clay suspensions. H. van Olphen. bibliog J Colloid Sci 19:313-22 Ap '64
Power dissipation in biological flocculation; abstract. G. M. Fair and R. S. Gemmell. WPCF J 36:301 Mr '64
See also
Sewage disposal—Coagulation
Water purification—Coagulation

FLOCK printing
Coating with flock electrostatically. P. C. Bardin. il Ind Finishing 40:58-60 D '63
Electrostatic flocking in seven steps. il Textile World 114:88-9 O '64
Expanding potential for flocked fabrics. T. W. Qualman. Mod Textiles Mag 45:37-8 Ag '64
Flocking; new enthusiasm for an old process. T. Henke. il diags Mod Textiles Mag 45:31-3+ Je '64
Flocking up-to-date. S. M. Suchecki. il diags Textile Ind 128:59-70 My '64
New glamour for flocked fabrics. diags Textile Ind 128:88-9 S '64
Today's improved flocking techniques. K. K. Griffin. il diags Mod Textiles Mag 45:39-44 Ag '64
What flock adhesive to use and why. Ind Finishing 40:113-14 S '64

FLOOD control
Design of a small flood control spillway. A. R. Pagan. plan diag Pub Works 95:112-14 Ag '64
Development, management, and operation of water resources in Miami (Ohio) conservancy district. M. L. Mitchell. Tappi 47:sup 139A-42A Ja '64
Diesel pump stations bail out flooded farmland in Florida. C. J. Bottomley. il Power Eng 67:65-6 N '63

FLOOD control—*Continued*

Flood control prompts sewerage construction. C. A. Lessig. il Pub Works 95:115-16 Ag '64

Flood plain management improves man's environment. J. E. Goddard. il maps plan diag Am Soc C E Proc 89 [WW 4 no 3702]: 67-84 N '63; Discussion. T. Dalrymple. 90 [WW 2 no 3917]:39-46 My '64; Reply. 90 [WW 4 no 4117]:149-56 N '64

Floods intensify county work load. il Pub Works 95:160 Ap '64

Metropolitan drainage planning in Los Angeles County. M. E. Salsbury. maps Am Soc C E Proc 89 [SA 6 no 3739]:37-46 D '63; Discussion. D. Van Sickle. 90 [SA 4 no 4006]:101-2 Ag '64

Pumps take ten-ft gulps; flood protection for St Louis. il Mech Eng 86:56-7 Ag '64

St Louis floodwall is doweled to rock. il diags Eng N 172:32-3 Ap 9 '64

Small watershed project eliminates flood hazards. G. S. Smith. il Pub Works 94: 103-4 D '63

See also

Ohio River—Flood control projects
Rivers—Regulation
Spillways

FLOODLIGHTING. See Light projection

FLOODS

Flood waves in prismatic channels. F. M. Henderson. Am Soc C E Proc 89 [HY 4 no 3568]:39-67 Jl '63; Discussion. 90 [HY 1 no 3783]:329-35 Ja '64; Reply. 90 [HY 4 no 3980]:241-7 Jl '64

Hydrology of spillway design floods; large structures, limited data. V. A. Koelzer and M. Bitoun. maps Am Soc C E Proc 90 [HY 3 no 3913]:261-93 My '64

Hydrology of spillway design; large structures, adequate data. F. F. Snyder. bibliog map Am Soc C E Proc 90 [HY 3 no 3915]: 239-59 My '64; Discussion. M. A. Benson. 90 [HY 5 no 4050]:297-300 S '64

See also

Flood control
Rain and rainfall

Italy

Before and after at Vaiont dam; illustrations with text. Eng N 171:27 D 5 '63

Vaiont reservoir disaster; geologic causes of tremendous landslide and flood wave. G. A. Kiersch. bibliog il map diags Civil Eng 34:32-9 Mr '64

Montana

Floods down dam, prize bridge. il Eng N 172:63 Je 18 '64

New Hampshire

Small watershed project eliminates flood hazards. G. S. Smith. il Pub Works 94: 103-4 D '63

FLOOR cleaning

Materials and methods for modern commercial floor care. J. H. Merscher. Soap & Chem Spec 40:89-90+ Je '64

New concept in floor maintenance; soap resistant polishes. R. E. Zdanowski. il Soap & Chem Spec 40:91-2+ Ag '64

New treatment cuts floor cleaning costs. il Engineering 197:759 Je 5 '64

Packaging of floor care products. E. M. Raabe. il Soap & Chem Spec 40:179+ My '64

Removal of modern floor polishes. G. H. Gray and J. Domin. Soap & Chem Spec 40: 51-4+ Jl; 57-9 Ag '64

You can measure your flood dirt. R. J. Weatherby and S. A. Furfari. il Safety Maint 127:52-4+ My '64

FLOOR coverings

Getting a new look with valley printing. M. Marlowe and M. W. Neitlich. il diags Mod Plastics 41:104-6+ Je '64

Selecting a floor. Prog Arch 44:146 D '63

See also

Carpets

FLOOR finishes

Monolithic toppings help solve floor problems. W. A. Severance and S. V. Sheppard. il diags Food Eng 36:84-6 Ap; 74-5 Je '64

FLOOR polishers

New treatment cuts floor cleaning costs. il Engineering 197:759 Je 5 '64

FLOOR wax

Dry-bright shine on hardwood floors. il Can Chem Process 48:53-5 O '64

Formulating solution polishes. G. L. Brown and others. diags Soap & Chem Spec 40: 127-9+ My '64

Materials and methods for modern commercial floor care. J. H. Merscher. Soap & Chem Spec 40:89-90+ Je '64

New concept in floor maintenance; soap resistant polishes. R. E. Zdanowski. il Soap & Chem Spec 40:91-2+ Ag '64

Novel process for making polyethylene polish emulsions. il diag Soap & Chem Spec 40:167+ Ap '64

Packaging of floor care products. E. M. Raabe. il Soap & Chem Spec 40:179+ My '64

Reign and wane of waxes in the polish industry. M. Bloch. Soap & Chem Spec 39: 74-6+ N '63

Removal of modern floor polishes. G. H. Gray and J. Domin. Soap & Chem Spec 40:51-4+ Jl; 57-9 Ag '64

Testing

Effect of temperature on polymer based floor polishes. R. H. Cahill and F. L. McCarthy. il diag Soap & Chem Spec 40:88-90+ Ap '64

Method for evaluating the heel mark resistance of polishes. B. Berkeley and W. J. Hackett. bibliog il Soap & Chem Spec 40:115+ O; 107+ N '64

Use of gas chromatography in analysis of floor polishes. W. K. Miller and others. bibliog flow diag diag Soap & Chem Spec 39:135+ D '63

Use of light transmission in wax emulsion analysis. L. D. Queen and others. il Soap & Chem Spec 40:99+ Mr '64

FLOORING, Plastic

Concrete damage floored by epoxies. J. Bayuk. il Mill & Factory 74:101-3 My '64

Epoxy flooring. R. F. Ytterberg. il Prog Arch 45:181-2 Ap '64

Laminate surfacing. il Plastics World 22: 72 Ja '64

FLOORING, Tile

Ceramic tile's advantages. il Safety Maint 128:52-4 S '64

Tips on the care of cork tile. T. V. Fisher. Safety Maint 127:61-2 Mr '64

FLOORS

Effect of floor surface temperature on comfort. R. G. Nevins and others. ASHRAE J 6:97-8 Je '64

Industrial plant electrical floor heating. J. R. Wark. il Elec Constr & Maint 63:85-7 Mr '64

Revolving restaurant for post office tower. il diag Engineer 216:985-6 D 13 '63

See also

Bridges—Floors
Factories—Floors

FLOORS, Aluminum

No slipping on aluminium floor planks. il Engineering 197:16 Ja 3 '64

FLOORS, Asphalt

Paving roof decks and industrial floors. L. Tuttle. il diags Civil Eng 34:58-61 Jl '64

FLOORS, Concrete

Concrete damage floored by epoxies. J. Bayuk. il Mill & Factory 74:101-3 My '64

Corrosion-resistant floors. S. L. Steinberg. il Chem Eng 71:178+ Mr 16 '64

Electric heat warms kindergarten floors in Chicago schools. il diag Heating-Piping 35:102-4 D '63

Machine cleans rough concrete slab. il Engineering 198:121 Jl 24 '64

Polystyrene foam floor cores bring insulation, reduce building cost. il Mod Plastics 42:126 S '64

Prestressed steel girders carry prestressed concrete floor. il Eng N 172:24-5 Mr 26 '64

Tough spec for a floor; 90,000-lb shear load, no reinforcing, for transformer testing. C. G. Robinson. il diags Plant Eng 17:129-30 N '63

Trouble-free industrial concrete floor. C. B. Wigton, jr. il Arch Rec 136:193-4 Jl '64

Ultimate strength of reinforced concrete flat slabs. M. W. Self. il diags Am Soc C E Proc 90 [ST 4 no 4013]:205-33 Ag '64

What users think of concrete raft floors. il Engineering 197:14-15 Ja 3 '64

Resurfacing

Floor resurfacing by contract. W. Wadl and L. Preston. il Plant Eng 18:117-18 Ap '64

Testing

Laboratory study of a 45-foot square flat plate structure. S. A. Guralnick and R. W. La Fraugh. bibliog il plans diags Am Concrete Inst J 60:1107-85 S '63; Discussion. 61:2013-15 Mr '64

FLOORS, Wood

Finishing plywood block flooring. il Ind Finishing 40:58 F '64

Tips on the care of wood floors. T. V. Fisher. il Safety Maint 127:59+ Ja '64

FLORIDA

See also subdivision Florida under special subjects, e.g.
Architecture, Domestic
Canals
Electricity supply
Geology
Mines and mineral resources
Petroleum
Petroleum industry and trade
Phosphate rock
Public health
Roads
Sewerage
Water supply

FLORIDA BAY

Variations in the oxygen and carbon isotope ratios of Florida Bay mollusks and their environmental significance. R. M. Lloyd. bibliog maps J Geol 72:84-111 Ja '64

FLOTATION process

Analog computers find application in control of flotation circuits. T. M. Morris and R. M. Edwards. diags Min Eng 16:67-9 Ag '64

Cationic flotation of silica from algoma siderite. J. G. Morrow and others. Can Min & Met Bul 56:868-73 D '63

Conversion of metallic oxide mineral surfaces to sulphides. E. S. Rousseau and C. L. Sollenberger. bibliog il Eng & Min J 165:122-4 Je '64

Flotation of iron ores. N. B. Melcher and D. W. Frommer. bibliog il Min Cong J 49:29-33 D '63

How Inco recovers 68 per cent iron ore pellets. il Eng & Min J 165:71 Jl '64

Longer rows superior to multiple circuits for rougher flotation at Atlas. L. H. Lange. Min Eng 15:49-50 N '63

L-D floats electrum, gold, silver. flow sheet Eng & Min J 165:69 Ja '64

New technology of iron and steel; ore preparation. F. C. Price. il diags Chem Eng 71:180-2 S 14 '64

Republic mine's hot flotation technique now handling two million tons of iron ore annually. C. Bjorne and J. Keeley. il Min Eng 16:65-9 Je '64

USBM tests on selective iron ore flotation point way to greater recoveries. D. W. Frommer. bibliog flow sheet Min Eng 16:67-71+ Ap '64

See also
Trade waste disposal—Flotation process

FLOTATION process (coal)

Dewatering flotation slurries in centrifuges at Stotesbury. R. L. Llewellyn. il diag Coal Age 69:88-91 Ap '64

Flotation becomes necessary in coal preparation plants. Chem & Eng N 42:64 My 25 '64

Flotation with insoluble reagents; effects of surface-active reagents on the spreading of oil at coal-water interfaces. A. R. Burkin and J. V. Bramley. J Ap Chem 13:417-22 O '63

Froth flotation in modern coal preparation plants. R. E. Zimmerman. il diag Min Cong J 50:26-32 My '64

See also
Coal washing

FLOTATION process (non-metals)

Floating limestone at Permanente. J. C. Kleiber and G. M. Meisel. flow sheet il Min Eng 16:39-44 Mr '64; Same. Pit & Quarry 57:158-60+ Jl '64

How the Boutin flotation column works. diag Can Chem Process 48:45 Ag '64

Production of defluorinated stone. W. Windle. il diag Ind Chem 40:121-5 Mr '64

Studies on contact angles at uraninite surfaces. T. R. Madhaven and K. K. Majumdar. bibliog Can Min & Met Bul 57:31-2 Ja '64

FLOUR

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-94 bibliog (p392-4) Mr '64

Fate of sulfuryl fluoride in wheat flour. R. W. Meikle. bibliog diags J Agri & Food Chem 12:464-7 S '64

Improving the paste viscosity of dried, gelatinised wheat flour. G. H. Edwards. Chem & Ind p 1428-9 Ag 8 '64

See also
Cottonseed flour
Soybean flour

Analysis

Chemical constituents of flour from cytologically synthesized and natural cereal species. M. Vaisey and A. M. Unrau. bibliog J Agri & Food Chem 12:84-6 Ja '64

FLOUR mills

Management

Effective management training; General Mills' Sperry operations. I. C. Miller. il Food Eng 36:72-3 Ap '64

FLOW meters

Circulating pump and flowmeter for kinetic reaction apparatus. D. Kalló and others. diags J Sci Instr 41:338-40 My '64

Development of a solid-liquid flow meter. N. L. Ackerman and C. Niyomthai. bibliog diags Am Soc C E Proc 90 [HY 2 no 3829]:121-39 Mr '64; Discussion. C. D. D. Howard. 90 [HY 5 no 4050]:271 S '64

Digital flow monitor-calibrator. A. H. Hurst. il diags Instruments & Control Systems 37:127-8 Je '64

Flexible shaft solves TCC-unit flow-measurement problem. il Oil & Gas J 62:94 Ja 13 '64

Flow measurement with a suspension wire. B. B. Sharp. bibliog diags Am Soc C E Proc 90 [HY 2 no 3821]:37-53 Mr '64

Flowmeter for measuring very low rates of helium gas flow. R. M. Black and others. diag J Sci Instr 41:345-6 My '64

Gas bearing turbine flowmeter. Engineer 216:1073 D 27 '63

Gas flow measurement by electrothermal process. il diag Product Eng 35:49 Ja 6 '64

Larger natural-gas role seen for mass flowmeter. il diag Oil & Gas J 62:179-80 S 7 '64

Low-cost flowmeter. il Engineer 218:223 Ag 7 '64

Magnetic flow meter in the continuous coloring of paper. D. Rutherford. Tappi 47:sup 143A-4A Ap '64

Magnetoelectric flowmeter. V. Cushing. bibliog diags R Sci Instr 35:496-9 Ap '64

Mass flow by temperature measurement. il diags Instruments & Control Systems 37:95-7 Mr '64

Mass flowmeter calibration. L. N. Mortenson. il diag Instruments & Control Systems 37:133-6 Mr '64

Measuring flow? consider these rotameter designs. L. S. Harris. diags Plant Eng 17:114-17 D '63

Microflowmeter for use with water. R. F. Benseman. diag J Sci Instr 41:100-1 F '64

Modifications lead to more accuracy for count method for measuring flow rates; abstract. D. E. Hull and B. A. Fries. il Chem & Eng N 42:72 Ap 20 '64

Parkinson Cowan metering and measurement. il diags Engineering 197:86-8 Ja 17 '64

Positive-displacement meters are here to stay. J. C. Westbrook. diag Oil & Gas J 62:102-4 Ag 24 '64

Sensing devices measure fluid flow; drawings with text. G. Bloom. Product Eng 35:80-1 Jl 20 '64

Simple flowmeter checks flow; ok, high, low. L. M. Polentz. diag Hydrocarbon Process & Pet Refiner 43:200+ O '64

Sintered plate flowmeter. J. D. Chase. diag J Sci Instr 41:386-7 Je '64

Synthetic jewel bearings make accurate gas flow meter; with nomograph. G. Golub. Chem Eng 71:146 O 26 '64

Techniques for measuring low flows. S. Blechman. il Instruments & Control Systems 36:82-5 O '63

Temporary flow measurement in sewers and drains. M. H. Diskin. diags Am Soc C E Proc 89 [HY 4 no 3574]:141-59 Jl '63; Discussion. 90 [HY 2 no 3853]:383-7 Mr; [HY 6 no 4130]:241-4; Reply. 245-7 N '64

Today's flow measurement. L. J. Kemp. il diag Instruments & Control Systems 37:147-8 Ap '64

Transient performance of a turbine flowmeter in water. D. J. Higson. il diag J Sci Instr 41:317-20 My '64

Turbine flowmeter for gases. H. J. Evans. il diag Instruments & Control Systems 37:103 Mr '64

FLOW meters—*Continued*

Use of sharp-edged orifices for metering pulsating flow. S. W. E. Earles and J. M. Zarek. bibliog diag Inst Mech Eng Proc 177 no 37:997-1012; Discussion. 1013-22; Reply. 1022-4 '63

Versatile total-count method helps operations. D. E. Hull. bibliog il Hydrocarbon Process & Pet Refiner 43:151-6 O '64

What you should know about metering low flows. G. D. Keller. il diags Chem Eng 71: 127-32+ S 28 '64

See also

Gas meters
Orifice meters
Pitot tubes
Rotameters
Steam meters
Venturi tubes
Water meters

Testing

Accuracy of current meter measurements. R. W. Carter and I. E. Anderson. Am Soc C E Proc 89 [HY 4 no 3572]:105-15 Jl '63; Discussion. 90 [HY 1 no 3783]:349-55 Ja '64; Reply. 90 [HY 3 no 3911]:343-4 My '64

Swept-volume meter prover aids research. il Oil & Gas J 61:116-17 O 21 '63

FLOW of fluids. See Fluids

FLOW of gas. See Gas flow

FLOW of water. See Water flow

FLOW regulators

Accurate flow-regulating valve has wide capacity range. il diag Chem Eng 71:114 My 11 '64

Distillers co. ltd. metering pumps. il diags Engineering 197:418-20 Mr 20 '64

Hydraulic flow-control valves. E. A. Di Bartolo. diags Machine Design 35:68-74 D 12 '63

Understanding pressure-compensated flow controls. C. O. Breitsprecher. diags Hydraulics & Pneumatics 17:72+ Je '64

See also

Proportioning equipment

FLOW sheets

Try signal flow graphs to simplify analog programming; data file. S. M. Becker. diags Control Eng 11:109-11 S '64

FLOWERS, Color of. See Color of flowers

FLOWERS, Photography of. See Photography of flowers

FLUE dust

Bureau of mines high-temperature electrostatic precipitator. C. C. Shale. il diag Combustion 35:42-4 Ap '64

Carbonation and shrinkage studies of nonplastic, expanded slag concrete containing fly ash. G. W. Washa and R. L. Fedell. Am Concrete Inst J 61:1109-24 S '64; Supplement. pt 2:1-9 '65

Corson co. researches fly ash lightweight aggregate. L. J. Minnick. bibliog il Rock Prod 67:74-7 S '64

Design and operation of a fume and dust collection system for two 10-ton electric furnaces. W. W. Bintzer. il diags Iron & Steel Eng 41:115-23 F '64

Eastern sintering plant now producing fly ash pellets. R. L. Wirt and W. A. Rumberger. il diags Rock Prod 67:62-6 Je '64

Economy in planning and designing of BOF waste gas-cooling and dust-collecting plants. R. Kemmetmuller. flow diag il diags Iron & Steel Eng 41:203-17 S '64

Fly ash plant in operation. Elec World 162:61 Jl 13 '64

Flyash sampling; guide to better combustion. H. C. Skaggs, jr. il Elec World 162:119-20 S 21 '64

Further economies in soil stabilization with pulverized fuel ash. Engineering 198:171 Ag 7 '64

Heat curing of sand, lime, fly ash mixtures. M. Mateos. Materials Res & Stand 4:212-17 My '64

Hot briquetting of flue dust. F. J. McMulkin and N. G. Thomas. il diag J Metals 16:246-51 Mr '64

Is the fly ash disposal problem solved? S. Levine. bibliog il Rock Prod 67:60-1 Je '64

Lightweight aggregate from fly ash. A. S. Pearson. il diags Civil Eng 34:50-3 S '64

Measurement of the specific surface of fly ash. S. K. Chopra and S. N. Narain. bibliog Materials Res & Stand 4:487-90 S '64

Pipe system squelches noxious fumes from kiln stacks; McNear co. il Rock Prod 66: 95 D '63

Precipitator ordered for Ravenswood. diag Elec World 162:28 N 9 '64

Sand-fly ash bricks. M. Mateos. bibliog Materials Res & Stand 4:427-30 Ag '64

Seek bulk outlets for fly ash. diag Elec World 161:45-6 F 10 '64

Sintering profit from a waste-disposal problem. D. MacDonald. il diag Chem Eng 71: 34+ Ag 31 '64

Transportation

New process provides dustless dumping of flyash at Rivesville. il diag Power Eng 67: 54-6 N '63

FLUE gas

Atmospheric pollution by SO_2 from an isolated chimney. E. Zielinski. il diags Combustion 35:16-25 F '64

Effect of flue-gas contaminants on refractory structures at elevated temperatures; abstract. G. H. Criss and R. R. Schneider. Combustion 35:46 F '64

Energy recovery for profit. P. R. Des Jardins. bibliog il diags Chem Eng 71:161-8 My 11 '64

Flue gas temperature measurement procedures. W. B. Kirk. diags ASHRAE J 6:40-4 Je '64

Water-cooled membrane hoods for basic oxygen furnaces. E. Durham. il plans diags Iron & Steel Eng 41:108-17; Discussion. 117-18 Ap '64

Analysis

Apparatus for measuring carbon in flue gases. il Engineer 216:820-1 N 15 '63

Are your fired-heater test data correct? R. D. Reed. diag Oil & Gas J 61:123-4 N 4 '63

Continuous determination of bath carbon in the basic oxygen process. D. A. Dukelow and others. diag Iron & Steel Eng 41:67-71 O '64

Direct determination of hydrocarbon sulfides in kraft gases by gas-liquid chromatography. E. W. Thomas. bibliog Tappi 47:587-8 S '64

Effluent gas analysis for end-point carbon control. D. MacFarlane. diag J Metals 16: 715-17 S '64

Here's how to watch H_2S and SO_2 content. diag Can Chem Process 48:106+ Je '64

Optimum conditions for steelmaking determined by mass spectrometer. il Iron & Steel Eng 41:209-10 Jl '64

Cleaning

Automated phosphoric acid plant controls pollution. H. O. Grant. il Water Works & Wastes Eng 1:54-6 O '64

Chemical engineering problems in the pulp and paper industry; fluid mechanics. Tappi 47:sup 141A F '64

Controls solids in coal fumes. Chem & Eng N 42:60 My 4 '64

Economy in planning and designing of BOF waste gas-cooling and dust-collecting plants. R. Kemmetmuller. flow diag il diags Iron & Steel Eng 41:203-17 S '64

Effective scrubber to remove chlorine from aluminium-factory gaseous effluents. W. E. Race and R. Lewis. il diags Inst Metals J 92:205-7 '63-64

Flue-gas purification unit makes by-product acid. il diag Chem Eng 71:92+ Je 8 '64

Fume arrestment, ISI special report 83; review. J. S. Carter. Iron & Steel Inst J 202: 775-6 S '64

Gas cleaner also recovers byproduct iron oxide. il Chem Eng 71:68+ F 17 '64

Gas cleaning at rotor installation. Engineer 217:12 Ja 3 '64

Industry approach to the problem of air pollution control. L. P. Roy. map Eng J 47:25-8 Ja '64

Oxygen converter gas recovery. diag Engineer 216:1008 D 13 '63

Palladium curbs hydrogen waste. il Iron Age 193:86 My 7 '64

Removal of sulfur oxides from flue gas with alkalized alumina at elevated temperatures. D. Bienstock and others. bibliog flow sheet il diags A S M E Trans ser A 86:353-8; Discussion. 358-60 Jl '64

Sulfur-smoke removal system. flow diag il Mech Eng 86:58 Ag '64

System eliminates solids and sulphur fumes from stack discharge. diag Iron & Steel Eng 41:167 My '64

Sampling

Selection of gas-sampling systems. L. K. Barnes. diags Power 108:84-5 S '64

FLUES

See also

Chimneys

FLUID amplifiers
Combined analytical and experimental approach to the development of fluid-jet amplifiers. F. T. Brown. bibliog diags A S M E Trans ser D 86:175-82; Discussion. 183-4 Je '64
Fluid amplifiers. il diags Mech Eng 86:62 F '64
Fluid amplifiers; capabilities and applications. W. E. Gray and H. Stern. bibliog il diags Control Eng 11:57-64 F '64
Fluid amplifiers now; Control Engineering special report. bibliog il diags Control Eng 11:73-100 S '64 (reprints 75c)
Fluid amplifiers of glass shaped by photoetching. C. M. Harman and L. W. Langley. diag Materials in Design Eng 60:117+ Jl '64
Young's modulus apparatus with hydraulic amplification. D. Nahshol. il diags Am J Phys 32:567-9 Jl '64

FLUID machinery. See Hydraulic machinery

FLUID mechanics. See Hydromechanics

FLUID motors. See Hydraulic motors

FLUID power transmission. See Hydraulic transmission

FLUIDIZATION
Ammoniation of fluidized triple superphosphate fertilizers. E. G. Shook and others. J Agri & Food Chem 12:347-51 Jl '64
Catalytic vapour-phase oxidation of xylenes in fluidised bed. S. K. Bhattacharyya and R. Krishnamurthy. flow diag J Ap Chem 13:547-52 D '63
Destruction of caking properties of coal by pretreatment in a fluidized bed. A. J. Forney and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:48-53 Mr '64
Diffusion and glass transition in simple liquids. J. Naghizadeh. bibliog J Ap Phys 35:1162-5 Ap '64
Direct path from refractory oxides to carbides. diag Chem Eng 70:134+ N 11 '63
Effects of solid thermal properties on heat transfer to gas fluidized beds. E. N. Ziegler and others. bibliog il diag Ind & Eng Chem Fundamentals 3:324-8 N '64
First fluidized solids lime mud recovery system in a paper mill; S. D. Warren co. H. J. Hotz and others. il diag Pit & Quarry 56:116-19+ My '64
Fluid-bed roasting reactions of copper and cobalt sulfide concentrates. F. J. Thoumsin and R. Coussement. bibliog J Metals 16:831-4 O '64
Fluidization, dominant trend in today's European lime industry. R. Ironman. il diags Rock Prod 67:95-6+ Mr '64
Fluidized-bed coating protects transformers. W. A. Munkacsy. il Ind Finishing 40:44-7+ Ap '64
Fluidized-bed coatings. Ind Finishing 40:87 Je '64
Fluidized bed curing nears commercial stage. il Rubber World 149:57-8 N '63
Fluidized-bed process for coating castings. P. C. Bardin. il Ind Finishing 40:86-7 D '63; Discussion. 40:103-4 F '64
Fluidized bed process gives heavy coating. Ind Finishing 40:120-1 My '64
Fluidized bed pyrolysis of coal. J. F. Jones and others. flow sheet il Chem Eng Prog 60:69-73 Je '64
Fluidized beds; answer to peak power? J. S. M. Botterill and D. E. Elliott. bibliog Engineering 198:146-7 Jl 31 '64
Fluidized beds; faster food freezing. il diag Engineering 198:154 Jl 31 '64
Fluidized beds; heat treatment as well? il diags Engineering 198:177-8 Ag 7 '64
Fluidized coal bed temperature control. diags Engineering 197:489 Ap 3 '64
Fluidized solids lime process. M. W. Brandt and others. bibliog flow sheets il diags Tappi 47:sup 137A-41A My '64
Fluidizing speeds particle coating. il Food Eng 36:98 Ag '64
Fluohmic lab reactor reaches 2300° C. diag Chem & Eng N 42:68-9 N 9 '64
Fundamentals of fluid bed roasting of sulphides. J. L. Stollery. bibliog flow sheet il diag Eng & Min J 165:96-101 O '64
Gas plating, an introduction. C. E. MacNeill. bibliog diags Metal Finishing 61:40-4+ Jl '63; Abstract. Metal Prog 86:200+ S '64
Gas-solid reaction in a fluidized bed. P. N. Rowe. bibliog il diags Chem Eng Prog 60:75-80 Mr '64
Heat transfer in spouted beds. M. A. Malek and B. C. -Y. Lu. bibliog diags Can J Chem Eng 42:14-20 F '64
Homogeneous fluidization. E. Ruckenstein. bibliog Ind & Eng Chem Fundamentals 3:260-8 Ag '64
Hot cyclone development improves lime yield. M. Shafer. flow sheet il diags Chem Eng Prog 59:95-9 N '63
Improved fluid bed calcination hikes lime production; process flowsheet. C. R. Havighorst. il Chem Eng 71:104-6 O 26 '64
Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman bibliog diags A I Ch E J 10:652-5 S '64
Kinetics of hydrogen reduction of iron ore in a batch-fluidized bed. J. Feinman. bibliog diags Ind & Eng Chem Proc Design 3:241-7 Jl '64
Kinetics of particle growth in the fluidized bed calcination process. E. S. Grimmett. bibliog il diags A I Ch E J 10:717-22 S '64
Lateral solids mixing in fluidized-packed beds. J. D. Gabor. bibliog diags A I Ch E J 10:345-50 My '64
Liquid metal system heats fluidizing-bed waste process. Chem & Eng N 42:40-1 Ag 24 '64
Mechanism of heat transfer to a fixed surface in a fluidized bed. E. N. Ziegler and W. T. Brazelton. bibliog diag Ind & Eng Chem Fundamentals 3:94-8 My '64
New application for fluidized calciners. D. MacAskill. diag Ind & Eng Chem 56:9-10 S '64
Particle-to-gas heat transfer in fluidized beds. A. C. Juveland and others. bibliog diags Ind & Eng Chem Fundamentals 3:329-33 N '64
Plastic coatings by fluidized bed process. il Prog Arch 44:143-5 D '63
Production of uranium hexafluoride in a fluidized bed reactor by the reaction of uranium tetrafluoride with oxygen. C. D. Scott and others. bibliog il diag Ind & Eng Chem Proc Design 3:266-70 Jl '64
Protect complex metal parts with the fluidized-bed process. F. J. Nagel. bibliog il Product Eng 35:84-91 Ag 3 '64
Quenching the plasma reaction by means of the fluidized bed. W. M. Goldberger and J. H. Oxley. bibliog diag A I Ch E J 9:778-82 N '63
Radial gas mixing in fluidized-packed beds. J. D. Gabor and W. J. Mecham. bibliog diag Ind & Eng Chem Fundamentals 3:60-5 F '64
Rate-controlling step and rate equation for the reduction of haematite with hydrogen in a fluidised bed. G. R. Venkitakrishnan and G. N. Bhat. bibliog J Ap Chem 14:141-7 Ap '64
Reciprocating flow fixed bed contactor. I. H. Spinner and R. F. Hunter. bibliog diags Can J Chem Eng 42:28-34 F '64
Resin clad valves; fluidized bed process. il Plastics World 21:44-5 N '63
Resistance probe method for determining local solid particle mixing rates in a batch fluidized bed. T. Hayakawa and others. bibliog diag Can J Chem Eng 42:99-103 Je '64
Silver sprayed cylindrical mesh packing in a fluidized bed. A. E. McIlhinney and G. L. Osberg. Can J Chem Eng 42:232-3 O '64
Some segregation effects in packed-fluidized beds. J. P. Sutherland and K. Y. Wong. bibliog Can J Chem Eng 42:163-7 Ag '64
Spouting of mixed particle-size beds. J. W. Smith and K. V. S. Reddy. bibliog flow diag diag Can J Chem Eng 42:206-10 O '64
Study of ammoniation reactions in a fluidized bed of superphosphate. L. F. Albright and others. bibliog flow sheet J Agri & Food Chem 12:73-9 Ja '64
Transport of powdered metals. H. L. Burge and others. il diag Chem Eng Prog 60:45-6 F '64
Treatment of neutral sulfite semichemical spent liquors in a fluidized-bed reactor. G. G. Copeland and J. E. Hanway, jr. flow sheet il diags Tappi 47:sup 175A-84A Je '64
Water in a desalination fluidized bed. J. Kanyok and R. S. Brodkey. il diags Ind & Eng Chem 56:34-7 Ap '64

FLUIDS
Accelerated motion of a sphere in a viscous fluid. L. M. Brush, jr. and others. bibliog Am Soc C E Proc 90 [HY 1 no 3764]:149-60 Ja '64; Discussion. 90 [HY 4 no 3980]:365-9 Jl '64
Additional modes of instability for Poiseuille flow over flexible walls. F. D. Hains. AIAA J 2:1147-8 Je '64

FLUIDS—*Continued*

Analytical study of heat and mass transfer in multiparticle systems at low Reynolds numbers. R. Pfeffer and J. Happel. bibliog A I Ch E J 10:605-11 S '64

Analytical treatment of the laminar flow of annulus forming fibrous suspensions in vertical pipes. H. Meyer. bibliog diag Tappi 47:78-84 F '64

Another look at non-Newtonian flow. F. A. Holland. bibliog diags Chem Eng 71:135-8 Ag 17 '64

Asymptotic solution for combined free and forced convection in vertical and horizontal conduits with uniform suction and blowing. L. F. Carter and W. N. Gill. bibliog diags A I Ch E J 10:330-9 My '64

Backflows in rotating fluids moving axially through expanding cross sections. R. W. Gore and W. E. Ranz. bibliog il diags A I Ch E J 10:83-8 Ja '64

Band diffusion with variable parameters along flow. W. H. Li. bibliog diags Am Soc C E Proc 90 [EM 5 no 4106]:343-61 O '64

Behavior of non-Newtonian fluids in the entry region of a pipe. M. Collins and W. R. Schowalter. bibliog A I Ch E J 9:804-9 N '63

Calculate pressure drop the easy way; local resistance to flow. L. Dodge. diags Product Eng 35:63-8 Mr 2 '64

Characteristics of the backwater curve. H. R. Vallentine. diags Am Soc C E Proc 90 [HY 4 no 3964]:39-49 Jl '64

Chemical engineering aspects of fluid dynamics. M. Weintraub. Ind & Eng Chem 56:43-8 bibliog(p47-8) Ap '64

Composite photographs show fluid-flow relationships. il diag Chem Eng 71:144 O 26 '64

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog (p608-10) Ap '64

Conveyability of materials of mixed particle size. F. A. Zenz. bibliog diags Ind & Eng Chem Fundamentals 3:65-75 F '64

Design of orifice-type flow reducers. M. C. Ziemke and B. G. McCallie. diags Chem Eng 71:195-8 S 14 '64

Determine Reynolds number quickly; with nomograph; data sheet. F. Caplan. Power 108:96 O '64

Direct analogy between mass and heat transfer to beds of spheres. A. Sen Gupta and G. Thodos. bibliog diag A I Ch E J 9:751-4 N '63

Direct method for friction factor calculation. K. M. Yao. Water & Sewage Works 111:100-4 F '64

Discharge coefficient characteristics of orifices. F. V. A. Engel and W. Stainsby. bibliog Engineer 218:161-8 Jl 31 '64

Discharge coefficient of Bingham fluid. Y. C. Yen and C. Tien. Can J Chem Eng 41:83-4 Ap '63; Discussion. W. Kozicki and K. S. Yuan. 41:280 D '63

Disintegration of a turbulent water jet. T. F. Chen and J. R. Davis. il diags Am Soc C E Proc 90 [HY 1 no 3772]:175-206 bibliog(p204-6) Ja '64; Correction. 90 [HY 6 no 4130]:273 N '64

Drag and oscillatory motion of freely falling cylindrical particles. E. K. Marchildon and others. bibliog diags Can J Chem Eng 42:178-82 Ag '64

Dynamic stability of rotating shafts in viscous fluids. W. H. Walston and others. bibliog il diags A S M E Trans ser E 31:291-9 Je '64

Eddy formation in film flow down a vertical plate. S. Portalski. bibliog diags Ind & Eng Chem Fundamentals 3:49-53 F '64

Engineering derivation of the Navier-Stokes equations. H. A. Einstein. diags Am Soc C E Proc 89 [EM 3 no 3533]:1-7 Je '63; Discussion. 89 [EM 4 no 3616]:99-102 Ag; [EM 5 no 3687]:105-6 O '63; 90 [EM 1 no 3811]:163-6 F '64; Reply. 90 [EM 4 no 4000]:151-5 Ag '64

Enthalpy values for hypothetical fluids from vapor-liquid equilibrium data. J. R. Welker and others. bibliog A I Ch E J 10:380-2 My '64

Expression for bed-load transportation. M. S. Yalin. bibliog Am Soc C E Proc 89 [HY 3 no 3525]:221-50 My '63; Discussion. C. F. Nordin, jr. and J. P. Beverage. 90 [HY 1 no 3783]:303-13 Ja '64; Reply. 90 [HY 3 no 3911]:331-2 My '64

Film flow along a vertical cylinder. N. A. Hassan and J. B. Franzini. diags Am Soc C E Proc 90 [EM 4 no 3995]:23-35 Ag '64

First-order perturbations of laminar free-convection boundary layers on a vertical plate. K. T. Yang and E. W. Jerger. bibliog diag A S M E Trans ser C 86:107-15 F '64

Flow characteristics of axisymmetric expansions. M. C. Chaturvedi. bibliog il diag Am Soc C E Proc 89 [HY 3 no 3515]:61-92 My '63; Discussion. 89 [HY 5 no 3656]:173-7 S '63; 90 [HY 1 no 3783]:277-85 Ja '64; Reply. 90 [HY 5 no 4050]:147-8 S '64

Flow characteristics of cryogenic fluids in vacuum. il diag Res/Develop 15:64 Mr '64

Flow in threadless copper pipe; reference data. Air Cond Heat & Ven 61:65-8 F '64

Flow in volutes and its effect on centrifugal pump performance. R. C. Worster. bibliog diags Inst Mech Eng Proc 177 no 31:843-61; Discussion. 861-73; Reply. 874-5 '63

Flow measurement in rotating machinery. J. C. Pemberton and G. O. Ellis. il Instruments & Control Systems 37:105-6 Mr '64

Flow method for measuring transport properties at flame temperatures. G. Ember and others. bibliog diags A I Ch E J 10:68-73 Ja '64

Flow models and scaling laws for flow through porous media. R. A. Greenkorn. bibliog il Ind & Eng Chem 56:32-7 Mr '64

Flow of second-order fluids with heat transfer. A. C. Srivastava. bibliog AIAA J 2:749-50 Ap '64

Flow of viscoelastic Maxwell fluid. K. C. Bagchi. AIAA J 2:759-61 Ap '64

Flow of viscous fluids over weirs. E. W. Slocum. diag Can J Chem Eng 42:196-200 O '64

Fluctuations in the local rate of turbulent mass transfer to a pipe wall. P. Van Shaw and T. J. Hanratty. bibliog diags A I Ch E J 10:475-82 Jl '64

Fluid computers. O. L. Wood and H. L. Fox. il diags Naval Eng J 76:248-56 Ap '64

Fluid friction flow resistance in pipe. L. Dodge. diag Product Eng 35:94-7 F 17 '64

Fluid-temperature transients in a dual-heat-exchanger system. H. Thal-Larsen and W. V. Loscutoff. diags A S M E Trans ser D 86:23-31 Mr '64

Fluid throttling devices for controlled flow resistance. L. Dodge. il diags Product Eng 35:81-7 Mr 30 '64

Forces in a moving bed of particulate solids with interstitial fluid flow. H. L. Brandt and B. M. Johnson. bibliog diags A I Ch E J 9:771-7 N '63

Friction and forced convection heat-transfer characteristics in tubes with twisted tape swirl generators. E. Smithberg and F. Landis. bibliog il diags A S M E Trans ser C 86:39-49 F '64

Frictional pressure drop in two-phase flow. A. E. Dukler and others. bibliog A I Ch E J 10:38-51 Ja '64

Fundamentals of the theory of rotating fluids. I. N. Howard. bibliog A S M E Trans ser E 30:481-5 D '63

General exact solutions for the diffusion equations of momentum, heat, and mass in spiral viscous flows. W. J. Yang. bibliog J Ap Phys 35:1749-51 Je '64

Heat transfer characteristics of fluids moving in a Taylor system of vortices. C. Y. Ho and others. bibliog diags A I Ch E J 10:194-202 Mr '64

Heat transfer for turbulent flow in rectangular ducts with two heated and two unheated walls. J. L. Novotny and others. bibliog diag A I Ch E J 10:466-70 Jl '64

Heat transfer in the critical region; temperature and velocity profiles in turbulent flow. R. D. Wood and J. M. Smith. bibliog diags A I Ch E J 10:180-6 Mr '64

Hydraulic bridge for measuring small temperature difference. A. A. R. El Agib. diags J Sci Instr 41:596-8 O '64

Hydraulic efficiency of aluminum pipe over a large range of Reynolds' numbers. A. Brebner. Can J Chem Eng 42:45-6 F '64

Hydraulics of thin film flow. J. B. Franzini and N. A. Hassan. diags Am Soc C E Proc 90 [HY 2 no 3816]:23-36 Mr '64

Impact tube size in fluid velocity measurement. I. B. Goldman and J. M. Marchello. bibliog A I Ch E J 10:775+ S '64

Improved galvanic cell for determination of oxygen concentrations in fluids. F. J. H. Mackereth. bibliog diags J Sci Instr 41:38-41 Ja '64

Initial instability of a viscous fluid, interface. W. E. Ranz and W. M. Dreier, jr. bibliog il diags Ind & Eng Chem Fundamentals 3:53-60 F '64

Instabilities and secondary flow. A. H. Nissan and F. C. Haas. bibliog diags Tappi 47:sup 26A+ Mr '64

FLUIDS—*Continued*

Instability of parallel flow of inviscid fluid in a rotating system with variable Coriolis parameter. L. N. Howard and P. G. Drazin. bibliog J Math & Phys 43:83-99 Je '64

Instrument for measuring low fluid velocities. B. R. Clayton and E. G. Farmer. il diags J Sci Instr 40:579-82 D '63

Isothermal bulk modulus of selected fluids to 700 F and 10,000 psig. V. Hopkins and others. A S M E Trans ser D 86:463-8 S '64

Laminar boundary layer with fluid injection. A. R. Maddox. AIAA J 2:133-5 Ja '64

Laminar flow in a plate heat exchanger. B. W. Jackson and R. A. Troupe. bibliog il diags Chem Eng Prog 60:62-5 Jl '64

Laminar flow in the inlet section of parallel plates. Y. L. Wang and P. A. Longwell. bibliog A I Ch E J 10:323-9 My '64

Laminar flow of a heat-generating fluid in a parallel-plate channel. E. M. Sparrow and others. bibliog A I Ch E J 9:797-804 N '63

Laminar heat transfer in a channel with unsteady flow and wall heating varying with position and time. R. Siegel and M. Perlmutter. bibliog diag A S M E Trans ser C 85:358-65 N '63

Laminar heat transfer to non-Newtonian fluids in the entrance region of a circular conduit. R. A. Pawlek and C. Tien. bibliog diag Can J Chem Eng 42:223-7 O '64

Linear fluid-barrier detection by well pressure measurements. E. G. Davis, jr. and M. F. Hawkins, jr. bibliog J Pet Tech 15:1077-9 O '63; Discussion. M. B. Standing. 16:259-60 Mr '64

Linearized analysis of the pressure waves in a tank undergoing an acceleration. F. E. Ehlers. AIAA J 2:110-12 Ja '64

Longitudinal dispersion of thermal energy through porous media with a flowing fluid. D. W. Green and others. bibliog diags A I Ch E J 10:645-51 S '64

Mass transfer from a flat surface to an impinging turbulent jet. V. V. Rao and O. Trass. bibliog diags Can J Chem Eng 42:95-9 Je '64

Mass transfer from solid spheres. R. B. Keey and J. B. Glen. bibliog il Can J Chem Eng 42:227-32 O '64

Mass transfer in a packed, pulsed column. J. H. Krasuk and J. M. Smith. bibliog diag A I Ch E J 10:759-63 S '64

Measurements of turbulent flow development in tubes and annuli with square or rounded entrances. R. M. Olson and E. M. Sparrow. bibliog diags A I Ch E J 9:766-70 N '63

Mixing two fluids in a closed conduit. A. K. Johnston and D. B. Stewart. il diags Ind & Eng Chem Proc Design 3:5-7 Ja '64

New friction-factor chart for pipe flow. R. S. Ramalho and others. Chem Eng 71:153-4 Jl 20 '64

New impedance method for determining viscoelastic constants. E. L. Spitznagel, jr. and others. il diags R Sci Instr 35:582-6 My '64

New technique takes 3-D photographs for measuring velocity and direction of flow fluids. il diag Oil & Gas J 62:120 S 14 '64

Non-Newtonian fluids. bibliog il Chem Eng Prog 60:35-56 Ag '64

Normal stress effects in second-order fluids. B. D. Coleman and H. Markovitz. bibliog J Ap Phys 35:1-9 Ja '64

Numerical and experimental study of damped oscillating manometers: non-Newtonian fluids. J. C. Biery. bibliog diags A I Ch E J 10:551-7 Jl '64

Numerical method for the solution of the energy equation for steady turbulent heat transfer. M. R. Strunk and F. F. Tao. bibliog A I Ch E J 10:269-73 Mr '64

Oscillating sphere in a rotating viscous fluid. M. P. Singh. AIAA J 2:1513-14 Ag '64

Oscillatory behavior of normal stresses in viscoelastic fluids. M. C. Williams and R. B. Bird. bibliog diags Ind & Eng Chem fundamentals 3:42-9 F '64

Pair ratio method of measuring small temperature difference. A. A. R. El Agib. diags J Sci Instr 41:592-5 O '64

Performance of a diffuser with fully-developed pipe flow at entry. P. Bradshaw. Roy Aeronautical Soc J 67:733 N '63

Photography plots fluid flow. il diag Pet Management 36:118 S '64

Polytropic efficiency in constant area duct flow. T. B. Ferguson. Engineer 217:948 My 29 '64

Precise measurement and prediction of bulk-modulus values for fluids and lubricants. E. E. Klaus and J. A. O'Brien. bibliog A S M E Trans ser D 86:469-74 S '64

Prediction of wall shear stress distribution in the eccentric annulus. W. T. Snyder. diag A I Ch E J 10:418-19 My '64

Pressure drop due to the entrance region in ducts of arbitrary cross section. T. S. Lundgren and others. bibliog A S M E Trans ser D 86:620-6 S '64

Problem of drainage of fluids on vertical surfaces. C. Gutfinger and J. A. Tallmadge. A I Ch E J 10:774+ S '64

Problem of pneumatic pressure lag; flow in a tubing system. A. L. Ducoffe and F. M. White, jr. bibliog diags A S M E Trans ser D 86:234-46 Je '64

Proceedings of the symposium on the interaction between fluids and particles, London, June 20-22, 1962. Review, by F. H. H. Valentin. Chem & Ind p 1817-23 N 16 '63

Profile relaxation in Newtonian jets. S. Middleman. bibliog Ind & Eng Chem Fundamentals 3:118-22 My '64

Propagation of a pulse in a fluid sphere. Z. Alterman and P. Kornfeld. diags Geophysics 29:259-87 Ap '64

Reduction of the simple hygrosteric fluid to the Stokesian fluid. A. W. Marris. bibliog A S M E Trans ser E 31:170-4 Je '64

Relationship between the Froude and Reynolds numbers in falling vertical films. S. Portalski. bibliog A I Ch E J 10:584+ Jl '64

Resistance of cylindrical piers in open-channel flow. T. Hsieh. diags Am Soc C E Proc 90 [HY 1 no 3770]:161-73 Ja '64; Discussion. 90 [HY 5 no 4050]:223-30 S '64

Review on vortex streets, periodic wakes, and induced vibration phenomena. A. W. Marris. bibliog diags A S M E Trans ser D 86:185-93; Discussion. 193-5; Reply. 195-6 Je '64

Reynolds number symposium. bibliog il diags A S M E Trans ser A 86:225-98 Jl '64

Similar solutions of boundary-layer equations for power-law fluids. J. N. Kapur and R. C. Srivastava. A I Ch E J 10:775+ S '64

Singular solutions at boundary intersections in two dimensional quasi-linear homogeneous partial differential equations. C. W. Gear. bibliog J Math & Phys 43:100-10 Je '64

Solutions of equation $\Psi xx+{}^1/_x\Psi x+Kx^ne^\Psi=0$. E. A. Kearsley. bibliog J Res Nat Bur Stand 67B:245-7 O '63

Some comparisons between compressible and incompressible treatments of compressible fluids. R. P. Benedict. A S M E Trans ser D 86:527-37 S '64

Stability of a viscous flow between two rotating coaxial cylinders. Y. S. Yu. bibliog Franklin Inst J 277:140-9 F '64

Statistical behavior of a turbulent multicomponent mixture with first-order reactions. Y. H. Pao. bibliog diag AIAA J 2:1550-9 S '64

Steady fluid flow in a radial vaneless diffuser. W. Jansen. bibliog diags A S M E Trans ser D 86:607-17; Discussion. 617-19 S '64

Steady radial flow between parallel plates. D. Geiger and others. A S M E Trans ser E 31:354-5 Je '64

Techniques for p-v-t measurements. R. T. Ellington and B. E. Eakin., bibliog il diags Chem Eng Prog 59:80-8 N '63

Temperature distribution and heat transfer in annular two-phase (liquid-liquid) flow. M. Bentwich and S. Sideman. bibliog Can J Chem Eng 42:9-13 F '64

Thermal instability of completely confined fluids inside some particular configurations. S. Ostrach and D. Pnueli. bibliog il diags A S M E Trans ser C 85:346-54 N '63

Thermal method of determining the rate of flow in pipes. il diags Naval Eng J 76:305-9 Ap '64

Thermodynamics of perfect elastic fluids. B. Bernstein and others. bibliog J Res Nat Bur Stand 68B:103-13 Jl '64

Today's flow measurement. L. J. Kemp. il diag Instruments & Control Systems 37:147-8 Ap '64

Transient mass transfer in a fixed bed. S. Masamune and J. M. Smith. bibliog Ind & Eng Chem Fundamenatls 3:179-81 My '64

Transition from slug to homogeneous two-phase flows. R. Moissis. bibliog diags A S M E Trans ser C 85:366-70 N '63

Transport of water through monolayers of long-chain *n*-paraffinic alcohols. V. K. La Mer and others. bibliog J Colloid Sci 19:673-84 O '64

Turbulent flow in rectangular ducts. H. J. Leutheusser. bibliog diags Am Soc C E Proc 89 [HY 3 no 3508]:1-19 My '63; Discussion. R. E. Nece. 90 [HY 1 no 3783]:271-2 Ja '64; Reply. 90 [HY 4 no 3980]:229 Jl '64

FLUIDS—*Continued*

Turbulent flow with suspended particles. M. Hino. bibliog Am Soc C E Proc 89 [HY 4 no 3579]:161-85 Jl '63; Correction. 90 [HY 2 no 3853]:389-90 Mr '64

Turbulent motion and mixing in a pipe. J. Lee and R. S. Brodkey. bibliog diags A I Ch E J 10:187-93 Mr '64

Turbulent wakes in pressure gradients. P. G. Hill and others. bibliog diag A S M E Trans ser E 30:518-24 D '63

Two-dimensional fluid motion through a spout composed of four plane walls. G. C. K. Yeh. diags Franklin Inst J 277:256-65 Mr '64

Two-phase pressure drop across vertically mounted thick plate restrictions. J. O. Cermak and others. bibliog diags A S M E Trans ser C 86:227-39 My '64

Upper and lower bounds on the drag coefficient of a sphere in a power-model fluid. M. L. Wasserman and J. C. Slattery. bibliog A I Ch E J 10:383-8 My '64

Use of sharp-edged orifices for metering pulsating flow. S. W. E. Earles and J. M. Zarek. bibliog diag Inst Mech Eng Proc 177 no 37:997-1012; Discussion. 1013-22; Reply. 1022-4 '63

Vapor pressures of Rankine-cycle fluids. G. C. Szego. Nucleonics 21:158 Ag '63

Velocity distributions in two-dimensional laminar liquid-into-liquid jets in power-law fluids. C. Gutfinger and R. Shinnar. bibliog diags A I Ch E J 10:631-9 S '64

Velocity of fluid from a nozzle; data sheet. V. P. Bokil. Power 108:86 Ap '64

Viscosity correlations for nonpolar dense fluids. K. E. Starling and R. T. Ellington. bibliog A I Ch E J 10:11-15 Ja '64

Viscous and boundary effects on virtual mass. N. L. Ackermann and A. Arbhabhirama. diag Am Soc C E Proc 90 [EM 4 no 4014]: 123-30 Ag '64

Viscous flow around fluid spheres at intermediate Reynolds numbers. A. E. Hamielec and A. I. Johnson. bibliog Can J Chem Eng 40:41-5; 41:246-51 Ap '62, D '63

Viscous fluid flow under the influence of a resonant acoustic field. K. R. Purdy and others. bibliog il diags A S M E Trans ser C 86:97-106 F '64

Zonal flow inside an impulsively started rotating sphere. E. R. Benton. AIAA J 2: 1840-1 O '64

See also

Boundary layer
Couette flow
Drops
Equation of state
Flow meters
Gas flow
Hydraulics
Hydrodynamics
Jets
Liquids
Nozzles
Permeability
Solution (chemistry)
Turbulence
Vaporization
Viscosity
Vortex motion
Water flow

FLUMES

Natural roughness effects in rigid open channels. A. G. Mirajgoaker and K. L. N. Charlu. bibliog il Am Soc C E Proc 89 [HY 5 no 3630]:29-44 S '63; Discussion. 90 [HY 3 no 3911]:351-61 My '64; Reply. 90 [HY 6 no 4130]:251-4 N '64

Temporary flow measurement in sewers and drains. M. H. Diskin. diags Am Soc C E Proc 89 [HY 4 no 3574]:141-59 Jl '63; Discussion. 90 [HY 2 no 3853]:383-7 Mr; [HY 6 no 4130]:241-4; Reply. 245-7 N '64

See also

Parshall flume

FLUORESCENCE

Effect of substituent groups on fluorescence of metal chelates. R. J. Argauer and C. E. White. bibliog Anal Chem 36:2141-4 O '64

Effect of viscosity on the internal deactivation modes of the triplet state. S. J. Ladner and R. S. Becker. Am Chem Soc J 86:4205-6 O 5 '64

Electron ejection and fluorescence in aqueous β-naphthol solutions. M. Ottolenghi. bibliog Am Chem Soc J 85:3557-62 N 20 '63

Fluorescence and stimulated emission from trivalent europium in yttrium oxide. N. C. Chang. bibliog il J Ap Phys 34:3500-4 D '63

Fluorescence of carbon disulfide vapor. J. Heicklen. bibliog diag Am Chem Soc J 85: 3562-5 N 20 '63

Fluorescence of the europium and terbium dibenzoylmethides. M. Metlay. bibliog Electrochem Soc J 111:1253-5 N '64

Fluorescent compounds for calibration of excitation and emission units of spectrofluorometer. R. J. Argauer and C. E. White. bibliog Anal Chem 36:368-71 F '64

Method for determining the threshold of laser materials. A. Lempicki and R. L. Martin. IEEE Proc 51:1778-9 D '63

Single-triplet crossing is efficient at low pressures; abstract. C. S. Parmenter. Chem & Eng N 42:46 S 14 '64

Soft X-rays used to detect light elements. Chem & Eng N 41:40-1 N 25 '63

Spectral properties of rare earth oxide phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:311-17 Mr '64

Study of the calcium molybdate-rare earth niobate systems. L. H. Brixner. bibliog il diag Electrochem Soc J 111:690-7 Je '64

Super radiant narrowing in fluorescence radiation of inverted populations. A. Yariv and R. C. C. Leite. bibliog J Ap Phys 34: 3410-11 N '63

Systems BaO-MgO-P_2O_5 and BaO-ZnO-P_2O_5 compounds and fluorescence. M. V. Hoffman. diags Electrochem Soc J 110:1223-7 D '63

X-ray fluorescence analysis of modified cottons. V. W. Tripp and others. bibliog Textile Res J 34:773-7 S '64

See also

Dyes and dyeing—Fluorescence
Fluorometric analysis
Luminescence
Mossbauer effect

FLUORESCENCE spectra. See Spectrum—Fluorescence spectra

FLUORESCENT dyes. See Dyes and dyeing—Fluorescence

FLUORESCENT lamps. See Electric lamps, Fluorescent

FLUORIDATION of water. See Water supply—Fluorine content

FLUORIDES

Allylic fluorides; solvolysis of 1,3,5,7,7,7-hexafluoro-1-heptene. T. J. Dougherty. bibliog Am Chem Soc J 86:2236-40 Je 5 '64

Another fluoride toothpaste gains ADA recognition. Chem & Eng N 42:25 Ag 10 '64

Determination of silica in the presence of phosphate and fluoride. F. W. Czech and others. bibliog Anal Chem 36:2026-7 S '64

Effect of magnesium, fluoride, and ascorbic acid on metabolism of connective tissue. D. J. Thompson and others. bibliog J Nutrition 84:27-30 S '64

Equilibrium distribution of metal-fluoride complexes. G. Goldstein. bibliog Anal Chem 36:243-4 Ja '64

Fluoride-induced phosphate reversion in fertilizer mixtures. E. J. Fox. bibliog J Agri & Food Chem 11:446-51 N '63

Fluorides stabilize lamp filaments. J. Schroeder. il Chem & Eng N 42:77-8 S 14 '64

Racemization of an optically active fluorosilane without displacement of fluoride ion; evidence for an expanded-octet mechanism. L. H. Sommer and P. G. Rodewald. Am Chem Soc J 85:3898-9 D 5 '63

Science for electroplaters; chromium; fluoride-fluosilicate baths. L. Serota. il Metal Finishing 62:94-5 Je; 65-8+ Jl '64

Thermoanalysis of some inorganic fluorides and silicofluorides. E. S. Freeman and V. D. Hogan. bibliog Anal Chem 36:2337-40 N '64

25-year revolution in hexafluoride chemistry. B. Weinstock. il diags Chem & Eng N 42: 86-100 S 21 '64

Welding of pure copper for containers for high-purity molten fluorides with H_2 and HF. C. F. Weaver and others. J Sci Instr 40:543 N '63

See also

Aluminum fluoride
Boron fluorides
Cadmium fluoride
Calcium fluoride
Chlorine fluorides
Cryolite
Cyanogen fluoride
Fluorspar
Krypton fluorides
Lanthanum fluorides
Lead fluorides
Magnesium fluoride
Manganese fluorides
Phosphorus fluorides
Sodium fluoride
Uranium fluorides
Vinyl fluoride
Water supply—Fluorine content

Analysis

Amperometric titration of chromium in mixtures of fluoride salts. R. F. Apple and H. E. Zittel. bibliog Anal Chem 36:983-5 My '64

FLUORIDES—Analysis—*Continued*

Analysis of volatile inorganic fluorides by gas liquid chromatography. A. G. Hamlin and others. bibliog il diags Anal Chem 35: 2037-44 D '63

Detection of submicrogram amounts of fluoride on the ring oven with thorium chloranilate. J. E. Barney, 2d. bibliog diags Anal Chem 36:247-8 Ja '64

Determination of microfluoride content in presence of high chromium(VI) concentrations. V. L. Eggebraaten and J. L. Nugent. Anal Chem 36:1150-1 My '64

Estimation of a few nanograms of fluoride in presence of phosphate by use of liver esterase. C. McGaughey and E. C. Stowell. bibliog Anal Chem 36:2344-5 N '64

Ion-exchange method for determination of fluoride in potable waters. F. S. Kelso and others. bibliog Anal Chem 36:577-9 Mr '64

Paper disk method for the spectrophotometric microestimation of inorganic fluoride. J. G. Aldous and others. bibliog il Anal Chem 36:335-7 F '64

Simple, interference-free determination of fluoride in water. A T. Palin. Water & Sewage Works 111:461-4 O '64

Spectrophotometric determination of fluoride by zirconium-eriochrome cyanine R. P. L. Sarma. bibliog Anal Chem 36:1684-5 Jl '64

Spectrophotometric determination of trace fluoride in organic compounds following combustion in oxyhydrogen flame-quartz combustion tube. D. E. Willis and W. T. Cave. bibliog diags Anal Chem 36:1821-5 Ag '64

FLUORINATION

Action of elementary fluorine upon organic compounds; the direct fluorination of perhalonitriles. B. C. Bishop and others. Am Chem Soc J 86:1827-30 My 5 '64

Fluorination of copper. P. M. O'Donnell and A. E. Spakowski. bibliog diag Electrochem Soc J 111:633-6 Je '64

Gas-solid reaction in a fluidized bed. P. N. Rowe. bibliog il diags Chem Eng Prog 60:75-80 Mr '64

Mechanism of fluorination; the effect of temperature and of fluorine concentration upon the olefin dimerization reaction; a new fluorination apparatus. W. T. Miller, jr. and others. bibliog diags Am Chem Soc J 86:51-6 Ja 5 '64

FLUORINE

Action of elementary fluorine upon organic compounds; the direct fluorination of perhalonitriles. B. C. Bishop and others. Am Chem Soc J 86:1827-30 My 5 '64

Desorption of fluorine from molybdenum. C. H. Skeen. bibliog J Ap Phys 35:463-4 F '64

Flash bulbs brighter with fluorine filler. il Chem & Eng N 42:50 O 12 '64

Fluorine; the most reactive element. G. Corfield. Gas 40:15 Mr '64

Influence of unsaturation and of fluorine substitution on ketone-alcohol equilibrium constants; a measure of α,β-unsaturated ketone resonance energy and of halogen destabilization. H. J. Ringold and others. bibliog Am Chem Soc J 86:4510-12 O 20 '64

Quantitative scale of acceptor strengths from fluorine nuclear magnetic resonance shielding. R. W. Taft and J. W. Carten. Am Chem Soc J 86:4199-200 O 5 '64

Spinel-type ferrites containing fluorine. M. Schieber. bibliog J Ap Phys 35:1072-3 pt 2 Mr '64

See also

Water supply—Fluorine content

Analysis

Apparatus for quantitative determination of fluorine in a mixture of oxygen and fluorine. S. W. Comer. diag Anal Chem 36:1693-4 Jl '64

Determination of fluorine in fluorine-oxygen mixtures. S. Kaye and J. E. Koency. diag Anal Chem 36:1838-40 Ag '64

Determination of fluorine in organic compounds by fast neutron activation analysis. R. Blackburn. Anal Chem 36:669-71 Mr '64

Formation of lead chloride fluoride at lower pH values for gravimetric purposes. R. A. Bournique and L. H. Dahmer. bibliog Anal Chem 36:1786-9 Ag '64

Quantitative determination of hydrogen and fluorine in organic compounds by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. bibliog diags Anal Chem 36:1713-21 Ag '64

FLUORINE compounds

Flash bulbs brighter with fluorine filler. il Chem & Eng N 42:50 O 12 '64

Fluorinated boron hydride synthesized. Franklin Inst J 277:509-10 My '64

Polyfluoropyridines. R. E. Banks and others. Chem & Ind p835 My 16 '64

Synthesis of methyl 3-deoxy-3-fluoro-β-L-xylopyranoside. N. F. Taylor and others. bibliog Chem & Ind p928-9 My 30 '64

Synthesis of N-fluoro-compounds. R. E. Banks and others. Chem & Ind p 1803 O 24 '64

Thermal cyclization of hexafluorobutadiene to hexafluorocyclobutene. E. W. Schlag and W. B. Peatman. bibliog diags Am Chem Soc J 86:1676-9 My 5 '64

See also

Teflon

FLUORINE in the body

Effect of dietary fluoride upon the magnesium calcinosis syndrome. Y. Chiemchairsri and P. H. Phillips. bibliog J Nutrition 81:307-11 D '63

Effects of dietary magnesium and fluoride on the magnesium content of tissues from growing chicks. F. D. Griffith and others. bibliog diags J Nutrition 83:15-19 My '64

FLUORITE. See Calcium fluoride

FLUOROBORATES

Electroplating from fluoborate solutions; abstract and discussion. D. H. Booth. Chem & Ind p271-2 F 15 '64

Phenyltropylium fluoroborate. J. W. Wilt and D. Piszkiewicz. bibliog Chem & Ind p 1761-2 N 2 '63

FLUOROCARBONS

Azeotropic aerosol propellants. J. R. Haase and R. J. Scott. bibliog Soap & Chem Spec 40:105+ Ag '64

Characteristics of Kynar polyvinylidene fluoride as an insulating material. A. A. Dukert and N. T. Hall. Wire & Wire Prod 39:235-9+ F '64

Copolymer with lamellar morphology. R. K. Eby. bibliog il J Res Nat Bur Stand 68A: 269-72 My '64

Critical opalescence of a fluorocarbon-hydrocarbon liquid mixture; normal perfluoroheptane-normal heptane. B. Chu. bibliog Am Chem Soc J 86:3557-61 S 5 '64

Dry fluorocarbon requires no added resin as a bonding agent. Product Eng 35:49 Ja 20 '64

Flexible light; called Panelescent Tape-Lite. il Plastics World 22:12 Je '64

Fluorine-containing polymers as solid supports in gas chromatography. J. J. Kirkland. bibliog Anal Chem 35:2003-9 D '63

Fluorine-containing polymers for application on wool. A. G. Pittman and W. L. Wasley. bibliog Am Dyestuff Rep 53:366-9 My 11 '64

Fluorocarbanions; rates of base-catalyzed hydrogen-deuterium exchange, isotope effects, and acidity of monohydrofluorocarbons. S. Andreades. bibliog Am Chem Soc J 86:2003-10 My 20 '64

Fluorocarbon gas used as transformer insulation. C. S. Collier. il Elec World 162: 59+ O 5 '64

Fluorocarbon outlook is uncertain. Chem & Eng N 42:29 S 7 '64

Fluorocarbon plastics. il Materials in Design Eng 59:93-104 F '64 (reprints 35c)

Fluorocarbon resins in corrosion prevention. C. A. Homsy. bibliog il(cover) diags Ind & Eng Chem 56:20-8 Mr '64

Fluorocarbon tape serves as seal and bearing. il Materials in Design Eng 59:132+ My '64

Fluorocarbon use expanding. il Chem & Eng N 42:32-3 Mr 9 '64

Fluorocarbons. C. E. Jolley and others. il Machine Design 36:67-75 S 17 '64

Frictional properties of polyethylenes and perfluorocarbon polymers. R. C. Bowers and W. A. Zisman. bibliog Mod Plastics 41:139-40+ D '63

Growing potential for fluorocarbons. il diag Brit Plastics 37:226-31 My '64

New versatility in fluorocarbon-metal laminates. il Mod Plastics 41:79+ N '63

Polymer bond; untreated fluorocarbon bonded without melting. il Plastics World 22:23 S '64

Preparation and application of a perfluorocarbon vacuum sealant. C. R. Wellman. il Anal Chem 35:697-8 Mr '64

Processing and fabrication of a high-temperature fluid-resistant fluorocarbon elastomer. D. A. Stivers and P. D. Lanin. Ind & Eng Chem Product Res & Develop 3: 61-7 Mr '64

Properties of materials; fluorocarbons; molded, extruded; tables. Materials in Design Eng 60:236 Mid-O '64

FLUOROCARBONS—*Continued*

Radiation-initiated polymerization; search for new fluoropolymers. P. J. Manno. bibliog Nucleonics 22:64-7 Je '64

Sorting out the fluorocarbon plastics. S. Ricklin. il Machine Design 36:149-51 My 7 '64

Two-component system fights oil fires. il Chem & Eng N 42:44 Je 29 '64

See also

Chlorotrifluoroethylene

Analysis

Laboratory evaluation of solid fluorocarbon materials as wire drawing lubricants. A. F. Gerds and C. B. Ogle. il Wire & Wire Prod 38:1696-700 N '63

Thiourea as substrate for gas chromatography of fluorocarbons. J. C. Mailen and others. Anal Chem 36:1883 Ag '64

FLUOROMETRIC analysis

Automatic triparametric recording in fluorometry of polynuclear hydrocarbons. M. M. Schachter and E. O. Haenni. bibliog il diags Anal Chem 36:2045-7 S '64

Fluorometric and spectrophotometric determination of aluminum in industrial water. C. A. Noll and L. J. Stefanelli. Anal Chem 35:1914-16 N '63

Fluorometric determination of lipase, acylase, alpha-and gamma-chymotrypsin and inhibitors of these enzymes. G. G. Guilbault and D. N. Kramer. bibliog Anal Chem 36:409-12 F '64

Fluorometric determination of tungsten with flavanol. R. S. Bottei and B. A. Trusk. Anal Chem 35:1910-12 N '63

Fluorometric determination of uranium with rhodamine B. N. R. Andersen and D. M. Hercules. bibliog Anal Chem 36:2138-41 O '64

Fluorometric method for the determination of urea in blood. J. E. McCleskey. bibliog Anal Chem 36:1646-8 Jl '64

Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64

Review of fundamental developments in analysis. C. E. White and A. Weissler. Anal Chem 36 [no 5]:116R-29R bibliog(p 124R-9R) Ap '64

FLUOROSCOPY

Contrast and detail perception in television and ciné systems for medical fluoroscopy. E. W. Webster and R. Wipfelder. bibliog il diags SMPTE J 73:617-21 Ag '64

Fluoroscoping spacecraft flaws. Mach 71:136 O '64

Scintillation cameras; autofluoroscope. M. A. Bender and M. Blau. bibliog il diags Nucleonics 21:52-6 O '63

Stereocineradiography. bibliog diags SMPTE J 73:622-4 Ag '64

FLUOROSTEROIDS

Steroids; spectra and stereochemistry; a study of the mechanism of long-range 19-proton-6β-fluorine coupling in 6β-fluorosteroids. A. D. Cross. bibliog Am Chem Soc J 86:4011-16 O 5 '64

Steroids; spectra and stereochemistry; a survey of long-range proton-fluoride coupling in fluorosteroids. A. D. Cross and P. W. Landis. bibliog Am Chem Soc J 86:4005-10 O 5 '64

FLUORSPAR

Barite zoning in the Illinois-Kentucky fluorspar district. E. A. Brecke. maps Econ Geol 59:299-302 Mr '64

Fluorspar, 1963. P. M. Ambrose. Eng & Min J 165:148-9 F '64

Fluorspar pelletizing ready to start. il Chem & Eng N 42:78-9 Mr 9 '64

Manto deposits of fluorspar northern Coahuila, Mexico. A. K. Temple and R. M. Grogan. bibliog il maps diags Econ Geol 58:1037-53 N '63; Discussion. L. G. Gutiérrez. 59:935-6 Ag '64

Production of defluorinated stone. W. Windle. il diag Ind Chem 40:121-5 Mr '64

Seismic method tested in Illinois fluorspar district. R. B. Johnson. diags Min Eng 16:55-6 Ja '64

FLUOSILICATES

Science for electroplaters; chromium; fluoride-fluosilicate baths. L. Serota. il Metal Finishing 62:94-5 Je; 65-8+ Jl '64

FLUOSILICIC acid

Now commercial: AlF_3 synthesis from superphosphate byproduct; process flowsheet. F. Weinrotter. il Chem Eng 71:132-4 Ap 27 '64

FLUX

Flux-injection unit cuts brazing time. il Welding Eng 49:62+ F '64

Fluxing of copper alloy castings. J. F. Wallace and R. J. Kissling. bibliog Foundry 92:60-5 N '64

Joining and fastening; soldering fluxes; brazing filler metal; tables. Materials in Design Eng 60:538 Mid-O '64

See also

Solder and soldering

FLUXMETERS

New type of flux meter for the measurement of high magnetic fields at low temperatures. J. R. Houck and R. Bowers. bibliog diags R Sci Instr 35:1170-2 S '64

FLY ash. See Flue dust

FLY sprays and repellents

Testing

Aerosol and pressurized space spray insecticide test method for flying insects; official method of CSMA. Soap & Chem Spec Blue Book p226-8+ '64

Aerosol fly sprays. A. H. Yeomans and others. Soap & Chem Spec 40:110+ O '64

FLYWHEELS

Adjustable flywheel overcomes vibration. il diag Tool & Manuf Eng 52:62 Ja '64

Flywheel brake system for a tug. Naval Eng J 75:963-4 D '63

FOAM

Dynamic foam test. W. G. Spangler. bibliog il Am Oil Chem Soc J 41:300-6 Ap '64

Froth-contact heat exchangers. A. Poll and W. Smith. bibliog diag Chem Eng 71:111-16 O 26 '64

Mass transfer in the cross-circulation drying of a foam. M. Komanowsky and others. bibliog diags Ind & Eng Chem Proc Design 3:193-7 Jl '64

Novel uses for aqueous foams. A. R. Aidun and others. bibliog Chem Eng 71:145-6+ F 17 '64

Soap and syndet foam evaluation. A. Shansky. bibliog diags Soap & Chem Spec 40:57-61 Ap '64

Suds control and transfer. il diag Mech Eng 85:64-5 N '63

FOAMED ceramic materials. See Ceramic materials, Cellular

FOAMED plastics. See Plastics, Foamed

FOAMED rubber. See Rubber, Foamed

FOAMING

Exploratory studies on batch and continuous foam separation. R. B. Grieves and others. bibliog flow diags Can J Chem Eng 41:252-7 D '63

Factors affecting foam production and stabilization of tropical fruit products. R. P. Bates. Food Tech 18:93-6 Ja '64

Foaming in a natural gasoline absorber. W. E. Glausser. diags Chem Eng Prog 60:67-8 O '64

How to use silicones for lube oil antifoams; abstract. R. W. Awe. S A E J 72:110 Ja '64

New method devised for evaluating foaming of automatic transmission fluids; abstract. B. E. Nagel. S A E J 72:106-7 Ja '64

Standard test for foaming agents. G. I. Freeze. diags Oil & Gas J 62:168+ Jl 27 '64

Studies on detergent foaming, its effects on plant processes, and its control. J. J. Wirts. WPCF J 36:418-20; Discussion. 420-3 Ap '64

FOCUS (optics)

Alternating-gradient focusing and related properties of conventional convergent lens focusing. S. E. Miller. diags Bell System Tech J 43:1741-58 pt 2 Jl '64

FOCUSING. See Photography—Focusing

FOG

Runway visibility in thick fog. D. M. Finch il diags Am Soc C E Proc 90 [AT 2 no 4112]:95-121 O '64

FOILS. See Metal foils

FOKKER-PLANCK equation

Phase-locked loop dynamics in the presence of noise by Fokker-Planck techniques. A. J. Viterbi. bibliog diags IEEE Proc 51:1737-53 D '63

Response of a loaded nonlinear string to random excitation. S. T. Ariaratnam. A S M E Trans ser E 29:483-5 S '62; Discussion. 30:634-6 D '63

FOLDS (geology)

Cross fold deformation by simple shear. E. S. O'Driscoll. bibliog il diags Econ Geol 59:1061-93 S '64

Folds and folding. F. A. Donath and R. B. Parker. diags Geol Soc Bul 75:45-62, pl 1-8 bibliog(p61-2) Ja '64 (reprints 75c)

FOLDS (geology)—*Continued*

Opinion of structural mechanics of Central Basin platform area, west Texas. J. W. Harrington. bibliog il maps diags Am Assn Pet Geologists Bul 47:2023-38 D '63

Pattern of folded folds in the Appalachian Piedmont along Susquehanna River. J. Freedman and others. bibliog maps diags Geol Soc Bul 75:621-38, pl 1-5 Jl '64

Thin-skinned tectonics in the plateau and northwestern Valley and Ridge provinces of the central Appalachians. V. E. Gwinn. maps diags Geol Soc Bul 75:863-99, pl 1-2 bibliog(p897-9) S '64

FOLIC acid

Distribution of folic acid active compounds in individual foods. R. Santini and others. bibliog Am J Clinical Nutrition 14:205-10 Ap '64

Effect of propionate on the dietary vitamin B_{12}, biotin and folic acid requirement of the rat. D. E. Hogue and J. M. Elliot. bibliog J Nutrition 83:171-5 Je '64

Effect of small doses of folic acid in nutritional megaloblastic anemia. G. Izak and others. bibliog Am J Clinical Nutrition 13:369-77 D '63

Effect of vitamin B_{12} therapy in a patient with folic acid deficiency. J. B. Alperin. bibliog il Am J Clinical Nutrition 15:117-23 S '64

Folic acid activity of Indian dietary articles and the effect of cooking on it. D. K. Banerjee and J. B. Chatterjea. bibliog Food Tech 18:1081-3 Jl '64

Serum vitamin B_{12} and folic acid activity in lactovegetarian and nonvegetarian healthy adult Indians. B. M. Mehta and others. Am J Clinical Nutrition 15:77-84 bibliog (p83-4) Ag '64

Tetrahydrohomofolate, a specific inhibitor of thymidylate synthetase. L. Goodman and others. bibliog Am Chem Soc J 86:308-9 Ja 20 '64

FOOD

Distrbiution of 5′-ribonucleotides in foods and their application to foods. H. Shimazono. bibliog il(cover) Food Tech 18:294+ Mr '64

Innovations in ingredients; products, applications, directory, bibliography. bibliog il Food Eng 36:53-124 My '64

New packages and products. Published in monthly numbers of Food engineering

Sweet smell of success. Food Tech 18:999 Jl '64

See also

Bakers and bakeries
Baking
Cereals, Prepared
Diet
Digestion
Fish as food
Flavor
Food industry and trade
Food poisoning
Food preservation
Food supply
Infants food
Nutrition
Rice
Shortening
Space flight—Food problems
Sweetening agents

Analysis

See also

Milk—Analysis

Bacteriology

Acetylmethylcarbinol and diacetyl as chemical indexes of microbial quality of apple juice. M. L. Fields. bibliog Food Tech 18:1224-8 Ag '64

Beef microbial quality determined by extract-release volume (ERV). J. M. Jay. Food Tech 18:1637-41 O '64

Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K Ijichi and others. bibliog Food Tech 18:1628-32 O '64

Irradiation preservation of Pacific Coast shellfish; relation of bacterial counts, trimethylamine and total volatile base to sensory evaluation of irradiated king crab meat. J. Spinelli and others. bibliog Food Tech 18:933-7 Je '64

Microbiological aspects of high protein foods; abstract. D. A. Mossel. Chem & Ind p 1298 Jl 18 '64

Significance of coliforms in frozen vegetables. D. F Splittstoesser and W. P. Wettergreen. bibliog Food Tech 18:392-4 Mr '64

Use of magnetic stirrers in microbiological analyses. D. E. Carter and J. H. Nelson. Food Tech 18:1497 S '64

Chemistry

Proximate composition of silver salmon. N. L. Karrick and C. E. Thurston. J Agri & Food Chem 12:282-4 My '64

See also

Coloring matter in food
Proteins

Color

Effect of pH adjustment and high-temperature short-time processing on color and pigment retention in spinach purée. S. M. Gupte and F. J. Francis. bibliog Food Tech 18:1645-8 O '64

Factors influencing storage stability of canned tomato paste. B. S. Luh and others. bibliog Food Tech 18:561-4 Ap '64

Microwaves improve color control. il Food Eng 36:95 Ag '64

Retains vegetable green; new pH-control additives for blanching and canning. G. J. Malecki. Food Eng 36:93-4 Je '64

Storage stability of tomato ketchup with various sweeteners. R. M. Pangborn and B. S. Luh. bibliog Food Tech 18:576-83 Ap '64

Systematic identification of artificial food colors permitted in the United States. R. L. Stanley and P. L. Kirk. bibliog J Agri & Food Chem 11:492-5 N '63

See also

Browning
Coloring matter in food

Manufacture

Extrusion challenges you. J. V. Ziemba. il diags Food Eng 36:57-61 Ag '64

Tailoring raw materials to suit the processor. A. W. Brant and R. C. Pearl. il Food Tech 18:1339-44 S '64

Moisture content

Determination of moisture in foods by gas chromatography. W. M. Schwecke and J. H. Nelson. Anal Chem 36:689-90 Mr '64

Spoilage

See also

Canned food—Spoilage
Fish as food—Spoilage

Standards

FDA standards for vanilla products. Food Tech 18:718 My '64

Summary of symposia on food standards and overseas technical aid. Food Tech 18:972-4 Jl '64

Storage

Consumer preference evaluation of the storage stability of foods. D. R. Peryam. bibliog Food Tech 18:1460-3 S '64

Edible corn-carbohydrate food coatings. L. Allen and others. bibliog diags Food Tech 17:1437-46 N '63

Effect of storage and processing temperatures on honey quality. J. W. White, jr. and others. bibliog Food Tech 18:555-8 Ap '64

Long-term storage of foods. J. F. Hearne. bibliog Food Tech 18:318-21+ Mr '64

Protection of food from insect damage during long-term storage. H. Laudani. bibliog Food Tech 17:1522-5 D '63

See also

Cold storage
Fish as food—Storage
Fruit—Storage

Testing

Analytical reference service. H. P. Kramer. Am J Pub Health 54:1531-5 S '64

Sensory evaluation of foods: a look backward and forward. R. M. Pangborn. il Food Tech 18:1309-13 bibliog(p 1312-13) S '64

Sensory testing guide for panel evaluation of foods and beverages. bibliog Food Tech 18:1135-41 Ag '64

Transportation

In-transit heater car speeds cargo unloading. il Food Eng 35:116 N '63

Shipping damage to canned foods. il Food Tech 18:1157-9 Ag '64

FOOD, Canned. See Canned food

FOOD, Dried

Armour expands freeze-dry plant. il Food Eng 36:134-5 My '64

Cheese and meat solids spray-dried to order at Armour & co. J. V. Ziemba. il Food Eng 35:63-4 N '63

Evaluation of dried foodstuffs; abstract. H. Mohler. Chem & Ind p 1299 Jl 18 '64

Finned tube dryer speeds tumbling freeze-drying. V. F. Kaufman and others. il Food Eng 36:58-61 Jl '64

FOOD, Dried—*Continued*

Freeze drying faces the future. R. V. Hughson. bibliog il diag Chem Eng 71:155-60 Jl 20 '64

Freeze-drying vacuum equipment. J. R. Barret and others. diag Food Tech 18:38-41 Ja '64

Fresh-flavored instant applesauce powder. G. Johnson and others. Food Tech 18:1237-9 Ag '64

Progress in food dehydration, 1939-1964. E. Seltzer. bibliog Food Tech 18:1363-6 S '64

Pure pumpkin powder. M. Komanowsky and others. Food Eng 36:107-8 My '64

Recent advances in food dehydration other than freeze-drying; abstract and discussion. G. Evans. Chem & Ind p583-4 Ap 4 '64

Self-contained unit speeds vacuum-drying research. il Food Eng 36:100 F '64

What's new in freeze-drying. J. H. Nair. diag Food Eng 36:132-3 My '64

See also

Drying (fruits and vegetables)
Eggs, Dried
Fruit, Dried
Milk, Dried
Poultry, Dried
Vegetables, Dried

Packages

Storage properties of potato flakelets. F. H. Drazga and others. bibliog Food Tech 18:1201-4 Ag '64

Storage

Storage behavior of powdered dehydrated cranberries. Z. I. Kertesz and others. Food Tech 17:1569-72 D '63

FOOD, Enriched

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-94 bibliog(p392-4) Mr '64

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Effect of iron supplementation of sow rations on the prevention of baby pig anemia. C. H. Chaney and C. E. Barnhart. bibliog J Nutrition 81:187-92 N '63

Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63

Periodic B-vitamin supplementation of growing rats fed a vitamin-free diet. W. J. H. Stielau and J. H. Meyer. bibliog J Nutrition 81:330-4 D '63

Protein-rich foods for overcoming nutritional deficiencies; the industrial viewpoint. H. W. Bruins. il diags Food Tech 18:995-7 Jl '64

Restoration of nonfat dry milk with vitamins A and D. J. C. Bauernfeind and G. K. Parman. Food Tech 18:174-7+ F '64

70 per cent-protein soy concentrate offers low-cost enrichment. il Food Eng 35:114 N '63

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with dl-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

Supplementation of cereal proteins with amino acids. R. Bressani and others. bibliog J Nutrition 79:333-9; 80:80-4; 81:399-404 Mr, My, D '63

FOOD, Frozen

Fluidized beds: faster food freezing. il diag Engineering 198:154 Jl 31 '64

Food freezing plant at Grimsby. il Engineer 218:341 Ag 28 '64

Freezes whole mushrooms in liquid nitrogen. il Food Eng 36:148 S '64

Progress with and prospects for refrigerated foods. W. H. Cook. bibliog Food Tech 18:1368-70 S '64

Speeds product freezing. C. A. Mills. il Food Eng 36:sup82B+ Ja '64

Stands by itself; flat-bottom pouch for soft drinks. il Food Eng 36:70 Jl '64

Two advanced chiller-freezers guard product quality. il Food Eng 36:107 Ap '64

See also

Eggs, Frozen
Fish, Frozen
Meat, Frozen
Poultry, Frozen
Sauces, Frozen
Sea food, Frozen
Shrimps, Frozen
Vegetables, Frozen

Defrosting

Frozen food reheat time cut 40-60 per cent. H. L. McPherson. il Am Gas Assn Mo 46:13+ Ja '64

Limits of edibility; defrost of frozen prepared turkey dinners and macaroni and cheese dinners. A. C. Peterson and others. il Am J Pub Health 54:649-59 Ap '64

Moisture content

Translocation and equilibration of moisture in canned frozen bread. K. G. Weckel and others. bibliog Food Tech 18:1480-2 S '64

Packages

Convenience foods; a boom is on. R. Willett. il Food Eng 36:83-5 Je '64

Oriental expression; Chun King corp. K. J. Hannigan. il Food Eng 36:84-5 Mr '64

Polymer packaging for freezing and preservation of fish. W. Pichel. ASHRAE J 6:78-9 O '64

Seven efficiency aids for frozen food packers; illustrations with text. Food Eng 36:100-1 Je '64

Spoilage

Limits of edibility; defrost of frozen prepared turkey dinners and macaroni and cheese dinners. A. C. Peterson and others. il Am J Pub Health 54:649-59 Ap '64

Storage

Time-temperature tolerance of frozen seafood. J. A. Peters. bibliog ASHRAE J 6:72-5+ Ag '64

Time-temperature tolerance of frozen seafoods. J. P. Lane. Food Tech 18:1100-6 bibliog(p 1105-6) Jl '64

See also

Meat, Frozen—Storage

Transportation

Liquid CO_2 refrigeration system tested vs mechanical for transport. diag Food Eng 36:87 F '64

FOOD, Irradiated

Influence of intramuscular fat level on organoleptic, physical, and chemical characteristics of irradiated pork. L. A. Whitehair and others. bibliog il Food Tech 18:230-41 F '64

FOOD additives

Antibiotics; their use in the food industry; abstracts and discussion. Chem & Ind p 1495-6 Ag 22 '64

Chemicals; twenty-five years of progress. L. A. Hall. il Food Tech 18:1377-80 S '64

Determination of antioxidants in certain food products and packaging materials by gas chromatography. W. M. Schwecke and J. H. Nelson. bibliog J Agri & Food Chem 12:86-9 Ja '64

Effects of chemical treatments on refrigerated apple juice. J. Y. Do and D. K. Salunkhe. bibliog Food Tech 18:584-6 Ap '64

EEC issues directive on food preservatives. Chem & Eng N 42:26 F 24 '64

Flavor potentiators. Food Eng 36:62 My '64

How cellulose gum can work for you. J. B. Batdorf. il Food Eng 36:66-8 Ag '64

New ingredients and additives. Published in monthly numbers of Food engineering

Proposed standards for food additives published. Chem & Eng N 42:29 F 10 '64

Rapid detection and determination of mineral oil on dried fruit by thin layer chromatography. F. Radler and M. V. Grncarevic. bibliog il J Agri & Food Chem 12:266-7 My '64

Retains vegetable green; new pH-control additives for blanching and canning. G. J. Malecki. Food Eng 36:93-4 Je '64

Some benzopyrylium compounds potentially useful as color additives for fruit drinks and juices. L. Jurd. Food Tech 18:559-61 Ap '64

Some unsolved problems of food additive toxicology; abstract and discussion. L. Golberg. Chem & Ind p21-2 Ja 4 '64

Systematic identification of artificial food colors permitted in the United States. R. L. Stanley and P. L. Kirk. bibliog J Agri & Food Chem 11:492-5 N '63

Update of ok additives; supplemental list covers direct-additive regulations issued since March 1, 1963. Food Eng 36:110-11 My '64

What you can do with enzymes. Food Eng 36:80-1 My '64

FOOD adulteration and inspection

Triglyceride gas chromatography as a means of detecting butterfat adulteration. A. Kuksis and M. J. McCarthy. Am Oil Chem Soc J 41:17-21 Ja '64

FOOD and agriculture organization of the United Nations
Canada-Mysore project. J. H. Hulse. il Chem & Ind p 1358-61 Jl 25 '64
Canada-Mysore project. J. H. Hulse. il Food Tech 18:1168-73 Ag '64

FOOD and drug administration. See United States—Food and drug administration

FOOD blenders
Tumbling blender has 0.1 per cent accuracy. il Food Eng 36:132 Mr '64

FOOD brokers
See also
Food industry and trade

FOOD containers
Bulk shipper cuts costs: Hex-Keg. il Food Eng 35:98 D '63
Fluid foods go bulk. J. V. Ziemba. il Food Eng 35:46-7 N; 48-51 D '63
Metals for food containers; the electromotive series and clostridium botulinum. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18:360-2 Mr '64
New packages and products. Published in monthly numbers of Food engineering
Reconditions drums chemically. il Food Eng 36:109 Ja '64
See also
Milk containers

FOOD contamination
Adventitious toxic factors in protein concentrates. L. Friedman. bibliog Food Tech 18:1553-4+ O '64
Pest control, chemical residues, and the quality of the finished product. E. F. Stier. Food Tech 18:168-71 F '64
Radioactive fallout problems in food, water, and clothing. M. Eisenbud. bibliog Archives Environmental Health 8:606-12 Ap '64
Raw-material inspection. E. L. Holmes and T. L. Huge. il Food Eng 36:86-7 Je '64

FOOD engineering. See Food technology

FOOD factories
Precast TTs enclose huge plant. il diags Eng N 173:32-3 O 1 '64
Two-level scheme for food processing. il plans diag Arch Rec 134:132-4 D '63
See also
Bakers and bakeries
Canneries
Fish processing plants

Cleaning

Multi-purpose concentrate ups sanitizing efficiency; Consan. Food Eng 35:118 N '63

Control equipment

Automatic package weight control. T. G. McBrady. il diags I S A J 10:59-63 D '63
Automation breakthrough. il Food Eng 36:140-1 My '64
Monitors temperature with an alarm. M. B. Golber. il Food Eng 36:70+ Ag '64
17 new instruments for process control; illustrations with text. Food Eng 35:98-100 N '63

Design

Consider pre-engineered materials and techniques. P. M. Green. il Food Eng 36:83-4 S '64
Emerging trends in food plant design. F. L. Whitney. il Food Tech 18:162-4+ F '64
Expansion by design; Wm. J. Stange co. il Food Eng 36:78-9 F '64
General Foods builds four-in-one factory. F. K. Lawler. il plan Food Eng 36:47-50 S '64
Latest prefab components. R. J. Atkinson. il diag Food Eng 36:78+ S '64
Trends in plant services. J. A. Faas. il Food Eng 36:87-8+ S '64
Wall-less food plants seen for the future. il Arch Rec 135:60 Ap '64

Electric equipment

Unique speed reducer offers infinitely adjustable ratios. il diags Food Eng 36:96 F '64

Employees

Plant and equipment maintenance; training personnel. Food Eng 35:74 D '63
See also
Food technologists

Equipment

Advances in processing, handling, control at New York city chemical exposition. il Food Eng 36:66-8 F '64
Aluminium; its applications in the chemical and food industries; tr. by W. C. E. Barnes. J. Junière and M. Sigwalt. Review. by E. W. Skerrey. Chem & Ind p 1724-6 O 10 '64
Approved polyester offers lower-cost corrosion control. diag Food Eng 36:102 F '64
Armour expands freeze-dry plant. il Food Eng 36:134-5 My '64
Centrifuges flavor from juice. F. K. Lawler. flow sheet il diag Food Eng 36:42-5 Ag '64
Continuous raisin coater. E. Lowe and others. il diag Food Tech 17:1447-9 N '63
Delrin guide rails curb container damage. il Food Eng 35:124 N '63
Ejector vacuum systems. C. F. Sweet. diag Food Eng 36:70-4 Ja '64
Equipment performance checklists. Food Eng 36:106-8+ S '64
Evaporating with economy. O. D. Turner and J. V. Ziemba. il diags Food Eng 36:39-41 Ag '64
Fluidizing speeds particle coating. il Food Eng 36:98 Ag '64
Grader's screen is adjustable. il Food Eng 36:100 Ag '64
Irradiation nears reality; pilot plant pioneers processing, shipping and marketing of irradiated seafoods. J. W. Slavin and P. Miller. diags Food Eng 36:92+ Ja '64
Making Amora mustard. il Comp Air Mag 69:4-6 Je '64
New equipment and supplies. Published in monthly numbers of Food engineering
Offers programmed filtration; horizontal plate filter called the Funda processor. il diags Food Eng 35:96 D '63
On-line instrument measures filtering agents' efficiency. il Food Tech 18:330 Mr '64
Plant sanitation and maintenance. Published in monthly numbers of Food engineering
Plate heat exchanger in the food industries. R. J. S. Seligman; G. A. Dummett. bibliog il diags Chem & Ind p 1602-12 S 19 '64
Production-line automatic measuring units for transparent sheet materials. il Food Tech 17:1520 D '63
Pumps and continuous processing. J. P. Bolanowski. il diags Food Tech 18:32-7 Ja '64
Quik-chek plant equipment directory. Food Eng 36:128-9+ S '64
Sampling devices. N. L. Johnson. il diags Food Tech 17:1516-20 D '63
Short and accurate metering; of spices. il Engineering 198:179 Ag 7 '64
Simplifies filter-aid handling; Corn products co. develops bulk handling system for diatomite filter aid. C. A. Cocks. il diag Food Eng 35:79-80 D '63
Simplifies juice recovery. J. A. Murch and N. F. Roger. diag Food Eng 36:42-3 F '64
Speeds product freezing. C. A. Mills. il Food Eng 36:sup82B+ Ja '64
Split second timing enables steam plant modernization. S. L. Bunting. il Heating-Piping 36:128-30 Ap '64
Sun-Maid innovates advances. F. K. Lawler. il diag Food Eng 36:46-50 Ag '64
Trends in plant services. J. A. Faas. il Food Eng 36:87-8+ S '64
22 ways to improve processing; national exposition for food processors in Dallas; illustrations wth text. Food Eng 36:74-6 Ap '64
U.S. freeze-dryer in Sweden; FMC's horizontal cylinder. il Food Eng 35:54-6 N '63
Vacuum-spray evaporator. W. Schultz. il diags Food Eng 36:62-3 Ag '64
What's new in freeze-drying. J. H. Nair. diag Food Eng 36:132-3 My '64
See also
Canneries—Equipment
Food machinery
Poultry processing plants—Equipment

Experimental plants

Pilot plant preparation of defatted peanuts. J. Pominski and others. bibliog il Am Oil Chem Soc J 41:66-8 Ja '64

Floors

Monolithic toppings help solve floor problems. W. A. Severance and S. V. Sheppard. il diags Food Eng 36:84-6 Ap; 74-5 Je '64

Layout

General Foods builds four-in-one factory. F. K. Lawler. il plan Food Eng 36:47-50 S '64
Tomorrow's plant today: Kitchens of Sara Lee. il plan Food Eng 36:68-71 S '64

Location

Selecting a plant site. M. Fulton. diag Food Eng 36:51-3 S '64

Maintenance and repair

Plant and equipment maintenance. Food Eng 35:63-74 D '63

FOOD factories—*Continued*

Management

Incentive technique in work simplification. W. A. Schumacher and J. V. Ziemba. Food Eng 35:41-3 N '63
Meaning of management. C. E. French. Food Eng 36:85-6+ Ag '64
New product and package r&d. Food Eng 35:77-88 N '63
Tips to management. Published in monthly numbers of Food engineering
Why you need packaging director. E. A. Leonard. il Food Eng 36:52-3 Mr '64

Quality control

Accents quality control at Star-Kist Foods. L. Trauberman. il Food Eng 36:52-3 Ap '64
Quality control in processing foods. C. H. Brokaw and A. Kramer. bibliog il Food Tech 18:1319-24 S '64
Revised tables for determining significance of differences. A. Kramer. Food Tech 17:1596-7 D '63
Sanitation complements quality control. Food Eng 36:101-3 Ja '64

Sanitation

Food hygiene in the United Kingdom. M. Parry. Am J Pub Health 54:1078-91 Jl '64
Monolithic toppings help solve floor problems. W. A. Severance and S. V. Sheppard. il diags Food Eng 36:84-6 Ap; 74-5 Je '64
Plant sanitation and maintenance. Published in monthly numbers of Food engineering
Progress in food plant sanitation. R. H. Vaughn. bibliog il Food Tech 18:1393-6 S '64
Raw-material inspection. E. L. Holmes and T. L. Huge. il Food Eng 36:86-7 Je '64
Sanitation complements quality control. Food Eng 36:101-3 Ja '64
Summons from FDA; or how to conduct yourself at an FDA hearing; one-act drama. T. L. Hugé. Food Eng 35:41-4 D '63; 36:85-6+ Ja '64

Waste

Biological treatment of protein water from manufacture of potato starch. J. C. Buzzell, jr. and others. bibliog flow diag Water & Sewage Works 111:327-30 Jl '64
Food processing waste disposal. W. W. Fisk. il Water & Sewage Works 111:417-20 S '64
Lagooning and spray irrigation system solves Nestle's instant coffee-tea wastes problems. D. J. Molloy. il Water Works & Wastes Eng 1:68-70 F '64
Management of wastes in the food producing and food processing industries. S. A. Hart and P. H. McGauhey. bibliog il Food Tech 18:432-8 Ap '64

FOOD habits
Changing food habits. J. Yudkin and J. C. McKenzie, eds. Review. by A. L. Bacharach. Chem & Ind p 1519-21 Ag 29 '64
Possible goitrogenic effects of selected Japanese foods. E. L. Socolow and M. Suzuki. bibliog il J Nutrition 83:20-6 My '64

FOOD handling
Food industry bears down on unit loads; the problem's focal point is size. Mod Materials Handling 19:6-7 O '64
Four-in-one bulk carton. A. N. Prater. il Food Eng 35:82-3 D '63
General Foods' pallet pool; now everybody benefits. J. A. Eaton. il diags Mod Materials Handling 18:42-5 N '63
Offers pushbutton storage. il Food Eng 36:142 My '64
Physical characteristics of recirculated waters as related to their sanitary condition. W. A. Mercer. il diags Food Tech 18:335-40+ Mr '64
Protects temperature-sensitive liquids; thermos insulated tank car. il Food Eng 36:130 Mr '64
Puerto Rico studies handling; abundance for mañana. il Mod Materials Handling 19:44-5 N '64
Save with pneumatic conveying. J. V. Ziemba. il diags Food Eng 36:78-81+ Jl '64
Tips on bulk handling, storage of chocolate. Food Eng 35:69 N '63
Unusual handling features evolved for big freezer. diag Plant Eng 18:132 F '64

FOOD industry and trade
Comparative evaluation of national food production capacity. S. A. Kaloyereas. Food Tech 17:1498-9 D '63
Consumer confidence, major food industry asset. C. W. Cook. Food Tech 18:1570+ O '64
Convenience foods; a boom is on. R. Willett. il Food Eng 36:83-5 Je '64
Courses for the meat trade; abstract. A. V. Pettit. Chem & Ind p397-8 Mr 7 '64
Fifty years of new-product development, 1939-1989. H. H. Mottern and A. H. Johnson. bibliog Food Tech 18:1333-6 S '64
In-process gases aid quality. J. V. Ziemba. il Food Eng 36:61-3 Ja; 75-7 F '64
Management's viewpoint; abstract. V. C. Hender. Chem & Ind p389-90; Discussion. 390-1 Mr 7 '64
1964 forecast. il Food Eng 36:47-55 Ja '64
U.S. food industry ranks fourth in new-foreign-business activity. Food Tech 18:348 Mr '64
See also
Bakers and bakeries
Canned food
Caterers and catering
Food, Frozen
Food packages
Supermarkets

Bibliography

Ingredient bibliography. Food Eng 36:118+ My '64

Directories

Quik-chek ingredients directory. Food Eng 36:114-16 My '64

Finance

Hunt foods and industries report many solid gains. Food Tech 18:45-6 Ja '64

International aspects

Summary of symposia on food standards and overseas technical aid. Food Tech 18:972-4 Jl '64

Laws and regulations

See also
Food laws and regulations

Patents

New food patents. Published in monthly numbers of Food technology
Recent inventions. Published in monthly numbers of Food engineering
U.S. patent system. L. J. Janowski. diag Food Tech 18:673-9 My '64

Europe

Food technology in Europe; symposium abstracts. Chem & Ind p 1291-304 Jl 18 '64

Great Britain

Food hygiene in the United Kingdom. M. Parry. Am J Pub Health 54:1078-91 Jl '64

Latin America

Food technology in Latin America. J. P. Guzmán. il map Food Tech 17:1500-8 D '63

FOOD laboratories
FDA expands lab facilities. il Food Eng 36:73-5 My '64
Lipton builds for progress; pacesetting laboratory and administrative building. F. K. Lawler. il plan Food Eng 36:54-8 S '64
Systems for information retrieval in small laboratories. P. Khan and J. Rosen. bibliog il diag Food Tech 18:846-9 Je '64
University of Leeds opens food science laboratories. il Food Tech 18:62-3 Ja '64

FOOD laws and regulations
EEC issues directive on food preservatives. Chem & Eng N 42:26 F 24 '64
Flavours and the law. C. A. Vodoz. Manuf Chem 35:60-2 S '64
Update of ok additives; supplemental list covers direct-additive regulations issued since March 1, 1963. Food Eng 36:110-11 My '64
See also
Coloring matter in food
United States—Food and drug administration

FOOD machinery
Advances in processing, handling, control at New York city chemical exposition. il Food Eng 36:66-8 F '64
Continuous processing machine makes franks by the mile. il diag Machine Design 36:148-9 O 8 '64
Eight latest advances for cost-minded millers; equipment and machinery displayed at miller's show, Chicago; illustrations with text. Food Eng 36:90-1 Jl '64
Extrusion challenges you. J. V. Ziemba. il diags Food Eng 36:57-61 Ag '64
New automatic frankfurter processing machine. il Food Tech 18:1577-8 O '64
New equipment and supplies. Published in monthly numbers of Food engineering
Processing skinless frankfurters. il diag Automation 11:76-8 F '64

FOOD machinery—*Continued*

Quik-chek plant equipment directory. Food Eng 36:128-9+ S '64

22 ways to improve processing; national exposition for food processors in Dallas; illustrations with text. Food Eng 36:74-6 Ap '64

See also

Dough mixers

Cleaning

Cuts cleaning costs; self-contained unit delivers high-pressure water for effective cleaning of equipment and lines. il Food Eng 36:98 F '64

Efficient circulation system improves tank cleaning at Koester bakery. flow diag il diag Food Eng 36:56-7 F '64

FOOD mixers

Solids blending. G. M. Kovac and J. V. Ziemba. diag Food Eng 36:45-51 Ap; 69-72 Je '64

Twin-cone mixer blends gently, accurately. il Food Eng 36:105-6 Ja '64

See also

Food blenders

FOOD packages

Cellophane bag is reclosable. il Food Eng 36:109 Ap '64

Cold storage of retail-packed fillets of mackerel and herring. A. Liljemark. bibliog Food Tech 18:380-2 Mr '64

Common market creates new packaging concepts. R. S. Dickens. il Food Eng 36:46-8 Mr '64

New packages and products. Published in monthly numbers of Food engineering

Self-adhesive labels provide versatility. il Food Eng 36:71-2 Mr '64

See also

Food, Frozen—Packages

Food containers

Fruit—Prepackaging

Meat—Prepackaging

FOOD packaging

Achieves reliable overwrapping at 260 per min. il Food Eng 36:77 Ja '64

Adapted idea generates economy package. F. P. Mueller. il diag Food Eng 36:76-8 Je '64

Bagged hot fudge; new concept cuts costs. il Plastics World 22:24 S '64

Barrier component; polyvinylidene chloride latex for packaging fresh foods. S. Moss. il Plastics World 22:40-1 Ap '64

Bulk density, a versatile measure of food texture and bulk. R. L. LaBelle. il(cover) Food Tech 18:879-84 Je '64

Edible packaging film made from new type of corn. Food Tech 18:877 Je '64

Glass container market. F. S. Child. Glass Ind 44:616-17+ N '63

Improved tea pack; polyester film replaces fiber string on tea bags. il Plastics World 22:26-7 Ap '64

Improves portion packaging; polyethylene-coated pack for finger-squeeze metering of coffee cream. J. V. Ziemba. il Food Eng 35:59-60 D '63

Laminated and coated polyolefin films. G. Jordan. il Plastics World 22:56-7 Ap '64

Look beyond machine specs; Golden grain macaroni co. V. DeDomenico. il Food Eng 36:78+ Ap '64

Package treatment versus direct application as a means of incorporating BHT in shredded breakfast cereals. E. F. Caldwell and others. bibliog Food Tech 18:383-6 Mr '64

Packaging advance from Sweden. il diag Food Eng 36:64-6 Ja '64

Packaging for machine vending. F. J. Serdahely. il Food Eng 36:58-9 F '64

Packaging of foods in laminate and aluminum-film combination pouches. B. S. Luh and G. de la Hoz. bibliog Food Tech 18:1473-6 S '64

Packaging pointers. Published in monthly numbers of Food engineering

Past, present and future of packaging processed foods. A. H. Andersen. il Food Tech 18:1399-403 S '64

Portion-packs jam in foil. il Food Eng 36:54-5 Ag '64

Pouch packing hits new high. J. V. Ziemba. il diag Food Eng 36:56-8 Mr '64

Preservation and packaging of Indian foods. G. Kameswara Rao and others. bibliog Food Tech 18:108-10 Ja '64

Recommended procedures for handling and storing flexible packaging materials. D. L. McCready. il Food Eng 36:99-100 Mr '64

Saran-coated paper for flexible food packaging. Paper Ind 46:379 Ag '64

Saran latex fills barrier gap. S. Moss. Food Eng 36:66-8 Mr '64

Saves through accurate filling; rotary net weigher accurately packs French fries up to 150 cpm. D. Garnett and J. V. Ziemba. il diag Food Eng 36:60-2 Ap '64

Stands by itself; flat-bottom pouch for soft drinks. il Food Eng 36:70 Jl '64

Tape handle spells success. il Food Eng 36:93-4 Mr '64

Ten top aids for better packing; highlights at AMI show. il Food Eng 35:56-7 D '63

Tough resin films push their way into new field. il Chem Eng 71:72-4 O 26 '64

Toxicity problems associated with the use of plastics materials in food packaging. C. A. Brighton. Brit Plastics 37:448-51 Ag '64

Why you need packaging director. E. A. Leonard. il Food Eng 36:52-3 Mr '64

FOOD poisoning

Development of clostridium botulinum in experimentally inoculated sterile skim milk held at low temperatures. O. W. Kaufmann and A. R. Brillaud. bibliog Am J Pub Health 54:1514-21 S '64

Food poisoning involving zinc contamination. M. A. Brown and others. bibliog Archives Environmental Health 8:657-60 My '64

See also

Botulism

FOOD preferences

Acceptability of blast-frozen and liquid-frozen turkey hens and toms. P. J. Barrie and others. bibliog Food Tech 18:565-7 Ap '64

Consumer preference evaluation of the storage stability of foods. D. R. Peryam. bibliog Food Tech 18:1460-3 S '64

FOOD preservation

Effect of heat processing in flexible films on product quality. J. R. Geisman and others. bibliog diag Food Tech 17:1563-7 D '63

Food preservation. bibliog il Food Tech 18:1363-92 S '64

Food preservation and processing in developing countries. C. R. Pascual. flow sheet il map Food Tech 18:1021-4 Jl '64

Microbiological aspects of high protein foods: abstract. D. A. Mossel. Chem & Ind p 1298 Jl 18 '64

Preservation and packaging of Indian foods. G. Kameswara Rao and others. bibliog Food Tech 18:108-10 Ja '64

See also

Canned food

Canning and preserving

Cold storage

Food, Frozen

Food, Irradiated

Food additives

Meat—Preservation

Radiation sterilization

Commercial interest increasing rapidly in food irradiation. Nucleonics 21:23 D '63

Effect of gamma irradiation on the spoilage of canned pork luncheon meat. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18:1078-80 Jl '64

Food preservation; radiation. S. A. Goldblith. bibliog il Food Tech 18:1384+ S '64

Irradiated foods study may spark new industry. Steel 154:49 Ap 13 '64

Irradiation nears reality; pilot plant pioneers processing, shipping, and marketing of irradiated seafoods. J. W. Slavin and P. Miller. diags Food Eng 36:92+ Ja '64

Irradiation preservation of Pacific Coast shellfish. D. Miyauchi and others. bibliog Food Tech 18:928-37 Je '64

Preservation of fresh unfrozen fishery products by low-level radiation. R. O. Brooke and others. bibliog Food Tech 18:1056-64 Jl '64

Preservation of shrimp. A. F. Novak. ASHRAE J 6:37-9 My '64

Some effects of gamma radiation on the keeping quality of apples. L. M. Massey, jr. and others. bibliog J Agri & Food Chem 12:268-74 My '64

FOOD research

Application of a small digital computer to research and development work. G. B. Pratt. bibliog il Food Tech 18:512-15 Ap '64

Basic to food progress; developments in food science. M. A. Joslyn. bibliog il Food Tech 18:1300-4 S '64

Coordinating food research with marketing. L. E. Klinger bibliog diags Food Tech 17:1368-72 N '63

Current status of instrumentation in milk and food research. R. B. Read, jr. bibliog diags Am J Pub Health 53:1579-86 O '63

Engineered foods. A. Lachmann. il Food Eng 36:58-61 My '64

FOOD research—*Continued*
Food-production ideas offered for meeting population rise. Chem Eng 71:92+ My 25 '64
New product and package r&d. Food Eng 35:77-88 N '63
Role of engineers in food research. C. P. Lentz. bibliog Food Tech 18:503+ Ap '64
See also
Food laboratories
Meat research
Nutrition research

Bibliography

Literature. Published in monthly numbers of Food technology

FOOD service, industrial. See Lunchrooms and cafeterias, Employees

FOOD stores
See also
Supermarkets

FOOD supply
Better use of the world's fauna for food. J. D. Ovington. Review, by T. McLachlan. Chem & Ind p612-13 Ap 11 '64
Changes in retail market food supplies in the United States in the last seventy years in relation to the incidence of coronary heart disease, with special reference to dietary carbohydrates and essential fatty acids. M. A. Antar and others. Am J Clinical Nutrition 14:169-78 bibliog(p 177-8) Mr '64
How much ammonia for world's need? L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:135-40 O '64
Man and hunger; the perspectives of history. A. J. Toynbee. Food Tech 18:990-3 Jl '64
Man's food in a competitive world. W. Slater. Chem & Ind p 1785-7 N 9 '63
See also
Food and agriculture organization of the United Nations
United nations food conference, 1963

FOOD technologists
Courses in food science and technology; abstract. J. D. Mounfield. Chem & Ind p395-6 Mr 7 '64
Development of technologists in the food industry; abstract and discussion. J. D. Mounfield. Chem & Ind p391-2 Mr 7 '64

FOOD technology
Advances in technology. Published in monthly numbers of Food engineering
Food engineering trends, 1964±25. W. M. Urbain. bibliog il Food Tech 18:1353-60 S '64
Food precooling symposium. il ASHRAE J 5:33-49 N '63
Food technology in Europe; symposium abstracts. Chem & Ind p 1291-304 Jl 18 '64
Food technology in Latin America. J. P. Guzmán. il map Food Tech 17:1500-8 D '63
Interactions of food technology with nutrition during the last twenty-five years. A. F. Morgan. bibliog Food Tech 18:1314-18 S '64
1964 prospects of all engineerings: food engineering. il Engineering 197:141-2 Ja 17 '64
Today; a quarter past one. B. H. Morgan. il Food Tech 18:983-8 Jl '64
What's ahead technically. il Food Eng 36:50-5 Ja '64

Bibliography

Literature. Published in monthly numbers of Food technology
Systems for information retrieval in small laboratories. P. Khan and J. Rosen. bibliog il diag Food Tech 18:846-9 Je '64
Useful new books. Published in monthly numbers of Food engineering

Study and teaching

Australian food technology course. Food Tech 18:1038 Jl '64
Canada-Mysore project. J. H. Hulse. il Chem & Ind p1358-61 Jl 25 '64
Canada-Mysore project. J. H. Hulse. il Food Tech 18:1168-73 Ag '64
City of Liverpool college of technology regional college; Department of food technology. E. C. Roberts. Chem & Ind p999-1000 Je 13 '64
Dairy industry and higher education. V. H. Nielsen. Food Tech 17:1526-8 D '63
Educating our food scientists and technologists. H. W. Schultz. bibliog il Food Tech 18:1295-8 S '64
Technical training for the food industry; symposium. Chem & Ind p389-98; Discussion. 398-9 Mr 7 '64
University of Leeds opens food science laboratories. il Food Tech 18:62-3 Ja '64

FOOD values
Amino acid composition and nutritive value proteins. P. B. Rama Rao and others. bibliog J Nutrition 82:88-92 Ja '64
Assessment of nutritive value of fish flour in the treatment of convalescent kwashiorkor patients. P. J. Pretorius and A. S. Wehmeyer. bibliog Am J Clinical Nutrition 14:147-55 Mr '64
Biological ennoblement; improvement of the nutritive value of foods and dietary regimens by biological agencies. B. S. Platt. bibliog il Food Tech 18:662-7+ My '64
Comparison of vitamin B_6 values of selected food samples by bioassay and microbiological assay. E. W. Toepfer and others. bibliog J Agri & Food Chem 11:523-5 N '63
Effect of three years of freezer storage on the thiamine, riboflavin, and niacin content of ripened and unripened beef. B. Meyer and others. bibliog J Agri & Food Chem 11:525-7 N '63
Effects of processing on B-vitamin and mineral contents of bulgur. J. W. Pence and others. bibliog Food Tech 18:765-8 My '64
Engineered foods. A Lachmann. il Food Eng 36:58-61 My '64
Free and total gossypol, epsilon-amino lysine, and biological evaluation of cottonseed meals and flours in Central America. R. Bressani and others. bibliog J Agri & Food Chem 12:278-82 My '64
Latest yeast products add flavor character and improve nutritional value. N. Lyall. Food Eng 36:98-9 My '64
Nutrient-to-calorie ratios in applied nutrition. E. W. Crampton. bibliog J Nutrition 82:353-65 Mr '64
Nutritional aspects of alcoholic beverages. E. C. Barton-Wright. Chem & Ind p506-7 Mr 21 '64
Nutritional quality of survival biscuits and crackers. J. B. Longenecker and H. P. Sarett. bibliog Am J Clinical Nutrition 13:291-6 N '63
Nutritional value of proteins of oriental soybean foods. B. R. Standal. bibliog J Nutrition 81:279-85 N '63
Nutritive value of proteins in canned navy beans. W. D. Powrie and E. Lamberts. bibliog Food Tech 18:111-13 Ja '64
Pepsin pancreatin digest index of protein quality evaluation. W. R. Akeson and M. A. Stahmann. bibliog J Nutrition 83:257-61 Jl '64
Production and nutritional evaluation of extrusion-cooked full-fat soybean flour. G. C. Mustakas and others. bibliog flow sheet diags Am Oil Chem Soc J 41:607-14 S '64
Protein-energy relationship in adult rats. P. A. Garcia and C. E. Roderuck. bibliog J Nutrition 82:224-36 F '64
Studies on a spray-dried infant food based on peanut protein isolate with full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals; protein efficiency ratio and over-all nutritive value. S. R. Shurpalekar and others. bibliog Food Tech 18:900-2 Je '64

FOOD workers
See also
Food technologists

FOOT

Protection

See also
Shoes, Safety

FOOT bridges. See Bridges, Foot

FOOTINGS
Dissipation of elastic wave energy in granular soils. J. R. Hall, jr. and F. E. Richart, jr. bibliog il diags Am Soc C E Proc 89 [SM 6 no 3698]:27-56 N '63; Discussion. 90 [SM 3 no 3907]:181-3 My; [SM 4 no 3979]:195-7 Jl '64
How to calculate footing soil bearing by computer. E. Czerniak. il diags Hydrocarbon Process & Pet Refiner 43:109-14 Mr '64
Settlement response caused by footing groups. R. J. Krizek and R. L. Kondner. diags Am Soc C E Proc 90 [SM 5 no 4045]:269-87 S '64

FOOTINGS, Concrete
Chimney foundations. J. W. Smith and M. Zar. bibliog diags Am Concrete Inst J 61:673-700 Je '64
Design of isolated square column footing. C. Rodriguez. diags Am Concrete Inst J 61:889-90 Jl '64
Foundation bolts for heavy drives. C. A. Lee. diags Am Concrete Inst J 61:189-93 F '64; Discussion. P. Fischer. 61:1203-6 S '64
Investigation and testing of footing-type grounding electrodes for electrical installations. H. G. Ufer. diags IEEE Trans Power Apparatus & Systems 83:1042-8 O '64
New approach to dowel sizing for tower foundations. A. A. Brown. diags Hydrocarbon Process & Pet Refiner 43:153-6 Ap '64

FOOTINGS, Concrete—*Continued*

Steel plant's huge foundations call for round-the-clock work. il diag Eng N 172:28-30 Je 4 '64

Tall towers will sit on deep foundations. M. S. Kapp. il diags Eng N 173:36-8 Jl 9 '64

Uplift resistance of transmission tower footings. E. A. Turner. diags Am Soc C E Proc 88 [PO 2 no 3187]:17-33 Jl '62; Discussion. H. O. Ireland. 89 [PO 1 no 3652]: 115-18 S '63; Reply. 90 [PO 1 no 3849]: 67-8 Mr '64

FORAMINIFERA, Fossil

Foraminiferal biofacies in sediments of Gulf of Batabano, Cuba, and their geologic significance. O. L. Bandy. bibliog maps Am Assn Pet Geologists Bul 48:1666-79 O '64

Foraminiferal facts, fallacies, and frontiers. A. R. Loeblich, jr. and H. Tappan. Geol Soc Bul 75:367-92 bibliog(p389-92) My '64

Lower cretaceous *orbitolina* from east Potrillo Mountains, Dona Ana County, New Mexico. D. H. Lokke. bibliog maps Am Assn Pet Geologists Bul 48:231-3 F '64

Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72: 477-83 Jl '64

FORCE and energy

Concentrated force in an elastically embedded disk. J. Dundurs. diags A S M E Trans ser E 30:568-70 D '63

Elasto-plastic medium containing a cylindrical cavity under uniform internal pressure. R. D. Bhargava and C. B. Sharma. Franklin Inst J 277:422-7 My '64

Energy density; a new concept for efficient metal removal. diags Iron Age 193:74-5 My 28 '64

Energy equipartition; a restatement. W. N. Lawless. Am J Phys 32:686-7 S '64

Evaluation of mooring forces. S. Li. bibliog diags Am Soc C E Proc 88 [WW 4 no 3313]: 19-37 N '62; Discussion. 89 [WW 2 no 3527]: 105-6 My; [WW 3 no 3621]:63-70 Ag '63; Reply. 90 [WW 1 no 3814]:137-50 F '64

Focusing of neutral particle beams by fictitious force fields. D. F. Dempsey. diags J Ap Phys 34:3220-3 N '63

Forces in a moving bed of particulate solids with interstitial fluid flow. H. L. Brandt and B. M. Johnson. bibliog diags A I Ch E J 9:771-7 N '63

Heat transfer and forces for free-molecule flow on a concave cylindrical surface. E. M. Sparrow and others. bibliog diags A S M E Trans ser C 86:1-9; Discussion. 9-11 F '64

Longitudinal Knudsen forces. J. A. Poulis and others. bibliog diags J Sci Instr 41:295-301 My '64

Optically induced forces in a dielectric; comparison of theory and experiment. A. Bramley and J. E. Rosenthal. IEEE Proc 52:1064-5 S '64

Photophoretic force. M. H. Rosen and C. Orr, jr. bibliog diags J Colloid Sci 19:50-60 Ja '64

Radial kinetic energy term in the Schrödinger equation for a central force. F. S. Crawford, jr. Am J Phys 32:611-14 Ag '64

Relative energy calibration of mono-energetic electron beams. S. M. Horszowski. bibliog diags J Sci Instr 40:532-4 N '63

Some energy and momentum considerations in the perforation of plates. A. C. Giere. AIAA J 2:1471-2 Ag '64

See also

Centrifugal force
Coriolis force
Dynamics
Impact
Pendulum
Power (mechanics)
Pressure
Surface energy

FORD CITY, Pennsylvania

Sewerage

How Ford City got a free sewer system. il Water Works & Wastes Eng 1:67+ Ja '64

FORECASTS

Forecasting periodic trends by exponential smoothing. J. M. Dobbie. Op Res 11:908-18 N '63

FORECASTS (economics)

See also

Business forecasting

FOREIGN aid. See Economic assistance, American

FOREIGN expansion. See Business—Foreign expansion

FOREIGN subsidiaries. See Corporations—Foreign subsidiaries

FOREIGN visitors

West German health officials tour United States. Ind Med 33:240-2 Ap '64

FOREMEN

Don't shoot the foreman. Engineering 198:191 Ag 14 '64

Foreman vs. the union organizer. J. W. Whittlesey. Chem Eng 71:108+ Ja 6 '64

Foreman's view of safety. G. B. Elliott. Safety Maint 127:10-11+ Mr '64

How the British train preparation men. A. Rowan and D. W. Horsfall. Coal Age 69: 94-6 Ja '64

Let the foreman prove out welding work standards. R. Miller and H. B. Kelbaugh. il Welding Eng 49:44-6 O '64

See also

Mine foremen
Supervisory workers

Training

See also

Supervisory workers—Training

FOREST fires

Forest fire control aircraft in Canada. D. G. Fraser. bibliog Roy Aeronautical Soc J 68: 546-52 Ag '64

Forest fires hit big utility system. il Elec World 162:19-20 O 12 '64

Simultaneous parametric programs. R. J. Swersey. diag Op Res 12:781-3 S '64

FOREST management

Cost control in timberland regeneration. J. W. Johnson. Paper Ind 46:410-13 Ag '64

Cost efficiencies in a forest enterprise. J. H. Bamping and J. L. Clutter. Paper Ind 46: 302-4 Jl '64

Forest management cost control by electronic data processing. O. F. Hall. bibliog Paper Ind 46:109-12 My '64

FOREST planting

Cost control in timberland regeneration. J. W. Johnson. Paper Ind 46:410-13 Ag '64

FOREST products

See also

Turpentine
Wood pulp

FORESTRY research

Growth chamber study of superior tree progeny. W. R. Wyatt and W. L. Beers, jr. il Paper Ind 45:546-7 Ja '64

International union of forest research organization conference. Forest products section, Madison, Wis. Tappi 46:sup 118A-20A N '63

Syracuse College of forestry; $238,000 in grants awarded for research. Tappi 47:sup 117A Je '64

FORESTS and forestry

See also

Forest fires
Lumbering

FORGE shops

Logic, a new partner for forging. il Iron Age 193:117-20 F 20 '64

Equipment

High speed forging manipulator. il Metallurgia 69:229-30 My '64

FORGING

Cold-forming parts from wire. Automation 11:32 My '64

Drill making gets a new twist. il Iron Age 194:119 Ag 27 '64

Effect of aluminium additions on forgeability, austenite grain coarsening temperature, and impact properties of steel. L. A. Erasmus. bibliog il Iron & Steel Inst J 202:32-41 Ja '64; Abstract. Metal Prog 85:192+ Je '64

Firm adds roll forging to drillmaking methods; Vermont tap & die co. il Steel 155:35 Ag 17 '64

Forging at its best; the no-draft process. H. W. Bredin. il diags Mach 70:91-7 F '64

Forging Chevrolet parts. J. Dunne. il Automotive Ind 130:41-2 Mr 1 '64

Hydrodynamic forming. R. M. Cogan il diags Mach 70:127-33 Jl '64

Induction heating of ferrous and non-ferrous billets for forging and extrusion. J. B. Ingall and R. S. Ellis. diags Inst Metals J 92:161-70 '63-64

Slug heating hikes forge output 50 per cent. il Steel 154:115 My 4 '64

See also

Dies
Forge shops

FORGING machinery

Eccentrically mounted hammers beat billets into barrels. il diag Machine Design 36: 152-3 O 8 '64

Europe's largest die forging press. il Aircraft Eng 36:246-7 Ag '64

Faster steel ring forging by hydraulic forging press. il diag Mech Eng 85:55 D '63

FORGING machinery—*Continued*

Fully automated header upsets and flanges axle tubes. H. Chase. il diag Automotive Ind 130:83-5 My 15 '64

High-velocity forging. S. A. Skeen. il diags Mach 71:117-23 O; 112-20 N '64

Mark II counterblow hammer has two columns. il Engineering 197:91 Ja 17 '64

Multiforge horizontal forging and upsetting machine. il Engineer 217:467-8 Mr 13 '64

Overhanging piston rod of automatic die lubricator extends without binding. F. T. Stone. il diag Hydraulics & Pneumatics 16:104-5 N '63

Self-contained hydraulic forming and forging press. il Mach 71:190 S '64

30 000-tonne die-forging press. il Engineer 218:230 Ag 7 '64

Two-column counterblow forging hammer. il Engineer 217:137 Ja 17 '64

Versatile cold-heading machine. il Mach 70:160 Ag '64

See also

Steam hammers

Control

Automatic forging machine handles combination work. il Mach 71:158 S '64

Forging machine aids push for automation. il Steel 154:122-3 Mr 30 '64

High-speed forging doubles production. il Am Mach 108:114-15 O 26 '64

Hot forging goes automatic. il diag Iron Age 194:142-3 O 29 '64

Influence of hydraulic equipment design on mobile forging manipulator equipment. S. W. Taylor. il Engineer 218:155-8 Jl 31 '64

Integrated forging press and manipulator. il Engineer 217:723-4 Ap 24 '64

Semiautomatic forging; faster and better. il Engineering 197:552 Ap 17 '64

Numerical control

British controls on an American forge. il Engineering 197:743 My 29 '64

Electronically controlled forging. il Ind Electronics 2:239-40 My '64

High-speed, 2-column forging press is automatically controlled. H. Winkler. il diags Iron & Steel Eng 41:151-3+ Ag '64

Programmed forging press features digital thickness controller. C. Finkl. il diags Control Eng 11:101+ F '64

FORGINGS

Automation comes to turbine blade machining. B. C. Brosheer. il diags Am Mach/Metalworking Manuf 107:97-102 D 9 '63

Cryothermal treatment stabilizes aluminum forgings. A. Incardona and H. Poett. il Tool & Manuf Eng 53:66-7 S '64

Designing with titanium forgings. R. B. Sparks and J. J. Zecco, jr. il diags Materials in Design Eng 60:91-5 N '64

Exports spur forgings to gain. T. M. Rohan. il Iron Age 192:122 D 5 '63

Forged titanium components for helicopters. il Light Metal Age 22:25 Je '64

Forger makes holes by hot piercing. il Steel 155:52-3 Ag 31 '64

Forging against back pressure. R. M. Cogan and G. L. Campbell. il diags Am Mach/Metalworking Manuf 107:105-7 O 14 '63

Large aluminium alloy ring forgings. il Engineering 196:521 O 25 '63

Precision forgings or die castings? J. Szinyei. il Materials in Design Eng 60:81-3 Jl '64

Radial forging of integral turbine wheels. R. W. Redlinger and others. il diag Am Mach 108:81-3 O 12 '64

Rapid quenching boosts production at McInnes. il Steel 155:62 O 5 '64

See also

Steel forgings

Testing

Nondestructive tests cut cost of forgings. il Am Mach 108:68 Ag 3 '64

FORGOTSON, James Morris

J. M. Forgotson, recipient of presidents award. W. R. Walton. por Am Assn Pet Geologists Bul 48:1441-2 Ag '64

FORMALDEHYDE

Chemistry of the autocatalytic reduction of copper by alkaline formaldehyde. R. M. Lukes. bibliog Plating 51:1066-8 N '64

Condensation of formaldehyde with N-bis(2-haloethyl)amines; structure of the products. G. R. Pettit and J. A. Settepani. Chem & Ind p 1805 O 24 '64

Distribution of oxymethylene groups in formaldehyde-treated cotton fabrics. D. M. Jones. bibliog Textile Res J 34:257-65 Mr '64

Equilibrium effects in determination of sulfur dioxide with pararosaniline and formaldehyde. H. A. Huitt and J. P. Lodge, jr. bibliog Anal Chem 36:1305-8 Je '64

Gloss of baked alkyd urea-formaldehyde finishes pigmented with titanium dioxide. M. B. Alpert and others. bibliog il diag Ind & Eng Chem Product Res & Develop 2:264-9 D '63

High-temperature reaction between formaldehyde and cellulose. E. Klein and B. E. M. Bingham. bibliog diag Textile Res J 34:585-93 Jl '64

Influence of formaldehyde concentration on the cross-links introduced into cotton cellulose. J. D. Guthrie. Textile Res J 33:955-8 N '63

Reaction kinetics of the formation of hexamethylenetetramine. R. K. Wood and W. F. Stevens. bibliog flow diag J Ap Chem 14:325-30 Ag '64

Reactions of formaldehyde with aromatic amines. W. V. Farrar. bibliog J Ap Chem 14:389-99 S '64

Spectrophotometric determination of urea-formaldehyde with anthrone. R. G. Westenhouse. Anal Chem 36:1875-6 Ag '64

Studies in the reaction of formaldehyde with unmodified, modified, and dyed celluloses. K. V. Datye and G. M. Nabar. bibliog Textile Res J 32:825-33, 883-90; 33:500-10; 34:546-52 O-N '62, Jl '63, Je '64

Sugar replaces formaldehyde in denitration. il Chem & Eng N 42:50-1 Ja 27 '64

Thermal degradation of melamine-formaldehyde resins. W. R. Moore and E. Donnelly. bibliog J Ap Chem 13:537-43 D '63

Wool fibers treated with ninhydrin or formaldehyde; mechanical properties. M. Feughelman and I. C. Watt. diags Textile Res J 34:643-4 Jl '64

Analysis

Gas chromatographic determination of free phenol and free formaldehyde in phenolic resins. M. P. Stevens and D. F. Percival. Anal Chem 36:1023-4 My '64

Manufacture

Formaldehyde; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:176 N '63

New expansions begin for formaldehyde. il Chem & Eng N 42:25-6 Ap 6 '64

FORMAMIDINE

Kinetics of hydrolysis of N,N′-diarylformamidines in alkaline dioxane solutions. R. H. DeWolfe. bibliog Am Chem Soc J 86:864-8 Mr 5 '64

FORMATES

Effects of nonpolar solvents on an ionic reaction; the ionic decomposition of *tert*-butylperoxy formate. R. E. Pincock. bibliog Am Chem Soc J 86:1820-6 My 5 '64

Ribonucleoside 2′.3′-cyclic orthoformates. M. Jarman and C. B. Reese. Chem & Ind p 1493-4 Ag 22 '64

See also

Copper formates

FORMIC acid

Anodic oxidation of formic acid at platinum electrodes. M. H. Gottlieb. bibliog Electrochem Soc J 111:465-72 Ap '64

Anodic oxidation of tantalum in formic acid electrolytes. D. M. Cheseldine. bibliog Electrochem Soc J 111:1128-32 O '64

Anodic oxidation of titanium in formic acid electrolytes. D. M. Cheseldine. Electrochem Soc J 111:1005-7 Ag '64

Constant current transition time investigations of the electrochemical oxidation of formate-formic acid at a smooth platinum electrode. R. A. Munson. bibliog il Electrochem Soc J 111:372-6 Mr '64

Determination of vanadyl porphyrins by demetalation with hydrogen bromide-formic acid. J. M. Sugihara and R. G. Garvey. bibliog Anal Chem 36:2374-6 N '64

Electrochemical oxidation of formic acid in the presence of dimethylformamide. S. D Ross and others. Am Chem Soc J 86:2745-7 Jl 5 '64

Electrochemical oxidation of formic acid on platinum. C. W. Fleischmann and others. bibliog Electrochem Soc J 111:602-5 My '64

Oxidation mechanism of formic acid on platinum at low potentials in acidic solutions. M. W. Breiter. bibliog Electrochem Soc J 111:1298-9 N '64

FORMING tools

Four-slide forming for speed and economy. I. J. Doell and E. A. Connell. il Tool & Manuf Eng 52:51-2 Ja '64

FORMS and blanks, Business

Coded form puts zip in handling; system for processing rejects saves time and materials. G. J. Gunderman. il diag Iron Age 193:91-2 My 14 '64

FORMS and blanks, Business—*Continued*

Estimating forms; three new ideas. il Dom Eng 204:102-4 S '64

How to select correct one-time carbon. Inland Ptr/Am Lithogr 153:70-1 Ap '64

Printing

Buyer looks at the business forms field. R. Marien. il Inland Ptr/Am Lithogr 153:55-7+ Ap '64

How Victor Business Forms built a new plant. il Inland Ptr/Am Lithogr 153:58-60 Ap '64

Review of 1964's business forms equipment. il Inland Ptr/Am Lithogr 153:66-9 Ap '64

FORSTERITE

Growth of forsterite crystals in a reactive crucible. W. Jordan and J. J. Naughton. Am Mineralogist 49:806-8 My '64

FORT LAUDERDALE, Florida

Sewerage

Instrumentation and automation; Ft. Lauderdale pollution control system. F. C. Funnell. il Water Works & Wastes Eng 1:64-5+ S '64

FORT WORTH, Texas

Sewerage

Sewage plant doubles as a test lab. il Eng N 173:40+ O 15 '64

FOSSIL foraminifera. See Foraminifera, Fossil

FOSSIL invertebrates. See Invertebrates, Fossil

FOSSIL pollen. See Pollen, Fossil

FOSTER CITY, California

Sewerage

Foster City; a designed community. A. W. Warren. map diags Water Works & Wastes Eng 1:59-61+ S '64

Water supply

Foster City; a designed community. A. W. Warren. map diags Water Works & Wastes Eng 1:59-61+ S '64

FOUCAULT pendulum

Amateur scientist; how to photograph air currents in color and build an accurate Foucault pendulum. il diags Sci Am 210:132-3+ F '64

FOUNDATION soils

Engineering measurements for Port Allen lock. R. I. Kaufman and W. C. Sherman, jr. diags Am Soc C E Proc 90 [SM 5 no 4020]:221-47 S '64

$59-million job shaken to stop? vibration of piledriving has raised fears for the safety of nearby structures. Eng N 171:20-1 N 28 '63

Fill settlement despite vertical sand drains. G. F. Sowers. plan Am Soc C E Proc 90 [SM 5 no 4044]:289-302 S '64

Foundation behavior of iron ore storage yards. R. B. Peck and T. Raamot. bibliog diags Am Soc C E Proc 90 [SM 3 no 3902]:85-122 My '64

How to calculate footing soil bearing by computer. E. Czerniak. il diags Hydrocarbon Process & Pet Refiner 43:109-14 Mr '64

Long thermopile. E. L. Long. il diag Civil Eng 34:36-9 Ap '64; Abstract. Eng N 171:62 N 14 '63

Pore pressures and bearing capacity of layered clays. T. C. Kenney. bibliog diags Am Soc C E Proc 90 [SM 4 no 3960]:27-55 Jl '64

Refrigerated pile permits heat flow from but not into the ground. Eng N 171:62 N 14 '63

Stabilizing the subsoil by vibro-replacement. il Engineering 198:466 O 9 '64

See also

Dams—Foundations
Roads—Subgrades
Soil mechanics

Testing

Compressibility of clay. G. A. Leonards and A. G. Altschaeffl. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4049]:133-55 S '64

Differential settlement at Selfridge air force base. G. B. Wallace and W. C. Otto. il plan diag Am Soc C E Proc 90 [SM 5 no 4047]:197-220 S '64

Pressure cell observations-Garrison dam project. H. A. Sikso and C. V. Johnson. il plans diags Am Soc C E Proc 90 [SM 5 no 4023]:157-79 S '64

Underwater inspection of test fill in Gatun Lake. A. P. Mann. il map Civil Eng 34:31-3 My '64

Variable-factors theory of bearing capacity. G. C. Y. Hu. bibliog diag Am Soc C E Proc 90 [SM 4 no 3969]:85-95 Jl '64

FOUNDATIONS

Bearing capacity of foundations. A. Balla. bibliog diags Am Soc C E Proc 88 [SM 5 no 3302]:13-24 O '62; Discussion. 89 [SM 1 no 3436]:319-20 F; [SM 2 no 3467]:149-50 Mr; [SM 3 no 3528]:171-6 My '63; Reply. 90 [SM 1 no 3781]:95-8 Ja '64

Box-type mat solves foundation problem. F. A. Hahn. il diag Civil Eng 34:62-3 Jl '64

Concept of curtain grouting evaluation. L. F. Grant. bibliog diags Am Soc C E Proc 90 [SM 1 no 3775]:63-92 Ja '64; Discussion. J. S. Winefordner. 90 [SM 4 no 3979]:207 Jl '64

Double pile resists subsoil acid. il diag Eng N 172:96-7 F 13 '64

Drilled caissons cut underpinning cost. V. C. Sloane. il diags Eng N 173:36+ S 3 '64

Finite beam-columns on elastic foundation. K. T. Sundara Raja Iyengar and S. Anantharamu. diags Am Soc C E Proc 89 [EM 6 no 3720]:139-60 D '63; Discussion. 90 [EM 2 no 3882]:257-9 Ap; [EM 3 no 3936]:289-90 Je '64; Reply. 90 [EM 6 no 4160]:249-52 D '64

Foundations fail in Japan earthquake. il Eng N 172:20 Je 25 '64

Golden Gateway; foundation design. W. W. Moore. il diags Civil Eng 34:33-5 Ja '64

Haste pays off in Hong Kong. il Eng N 173:42 Ag 27 '64

Influence functions for beams on elastic foundations. A. Dodge. diags Am Soc C E Proc 90 [ST 4 no 4002]:63-101 Ag '64

New approach to dowel sizing for tower foundations. A. A. Brown. diags Hydrocarbon Process & Pet Refiner 43:153-6 Ap '64

Old method with new twist solves bank shoring problem. H. R. Gould. il diag Civil Eng 34:50-2 F '64

Pile foundations for retaining structures. K. R. Patel. diags Civil Eng 33:43 D '63

Sunray Houma plant on floating slabs. J. J. Weatherby. il diags Hydrocarbon Process & Pet Refiner 43:109-12 Ap '64

Tall towers will sit on deep foundations. M. S. Kapp. il diags Eng N 173:36-8 Jl 9 '64

Tank cars line caisson foundations. il diag Eng N 173:84-5 Jl 2 '64

Works restaurant on clay layer. il Engineering 198:211 Ag 14 '64

See also

Caissons
Footings, Concrete
Foundation soils
Piers (foundations)
Piles and pile driving
Shoring and underpinning

also subdivision Foundations under special subjects, e.g.

Dams
Machinery
Roads

Settlement

Controlled water tests to preload tank foundations. R. D. Darragh. bibliog diags Am Soc C E Proc 90 [SM 5 no 4059]:303-29 S '64

Differential settlement at Selfridge air force base. G. B. Wallace and W. C. Otto. il plan diag Am Soc C E Proc 90 [SM 5 no 4047]:197-220 S '64

Effect of preconsolidation on settlements. L. Casagrande. diags Am Soc C E Proc 90 [SM 5 no 4041]:349-62 S '64

Engineering measurements for Port Allen lock. R. I. Kaufman and W. C. Sherman, jr. diags Am Soc C E Proc 90 [SM 5 no 4020]:221-47 S '64

Field observation of structures damaged by settlement. D. McKinley. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4054]:249-68 S '64

Methods of estimating settlement. T. W. Lambe. diags Am Soc C E Proc 90 [SM 5 no 4060]:43-67 bibliog (p65-7) S '64

Settlement of buildings on the MIT campus. H. M. Horn and T. W. Lambe. plans diags Am Soc C E Proc 90 [SM 5 no 4038]:181-95 bibliog(p 192-5) S '64

Settlement response caused by footing groups. R. J. Krizek and R. L. Kondner. diags Am Soc C E Proc 90 [SM 5 no 4045]:269-87 S '64

Subsurface stabilization of organic silty clay by precompression. E. Jonas. il Am Soc C E Proc 90 [SM 5 no 4031]:363-76 S '64

Tables, calculations, etc.

Dynamical compliance of rectangular foundations on an elastic half-space. W. T. Thomson and T. Kobori. bibliog diags A S M E Trans ser E 30:579-84 D '63

FOUNDATIONS, Subaqueous
See also
Bridges—Foundations and piers
Dams—Foundations

FOUNDING. See Aluminum founding; Copper founding; Foundry practice; Iron founding; Zinc founding

FOUNDRIES
New Chevy foundry. Automotive Ind 131:106 Jl 15 '64
Reducing your problems with foundry noises. E. W. Fair. Foundry 92:194+ O '64
See also
Foundry practice
International foundry congress

Air conditioning

Inspection stations are bright but cool. il diag Foundry 92:134 My '64

Control equipment

What is static control? O. N. Ibsen. il diags Foundry 92:48-51 Mr '64

Costs

See Foundry costs

Electric equipment

One foundry's experience with static controls. N. B. Luther. il diags Foundry 92:94-6+ My '64

Employees

Man to man. R. L. Lee. Published in monthly numbers of Foundry
New materials and processes create new liabilities for the foundry. G. E. Tubich. bibliog il Ind Med 33:79-85 F '64

Equipment and supplies

Automatic molding center improves uniformity of cast parts. il Foundry 92:82+ Ja '64
Casting producers step up spending for plants and equipment. Foundry 92:116-18 Ap '64
Chain conveyor for cooling castings. il Metallurgia 70:76 Ag '64
Conveyor goes under to bring efficiency up. diag Mod Materials Handling 19:49 Ap '64
Electric motor manufacturers modernize foundry. il Engineering 196:823 D 27 '63
Foundry for machine tool castings; Cincinnati milling machines ltd. il Engineer 218:506-7 S 25 '64
Foundry system features full automation. J. C. Miske. il Foundry 92:104-5+ O '64
From shot to shakeout; a fully automated foundry. il Steel 155:46-8 O 5 '64
Hale & Hale development programme; new melting plant and analytical facilities. il Metallurgia 70:18-20 Jl '64
How to benefit from a limited sand system. R. W. McIlvaine. il Foundry 91:134-5+ N '63
Hydraulics; positive power for foundry equipment. C. Storch. il Foundry 92:158+ Ap '64
Inventory of foundry equipment. il Foundry 92:119-25 Ap '64
Johnson Rolls' new foundry. il Metallurgia 69:85-7 F '64
Keeping competitive with modern tools. L. J. Pedicini and C. E. Fausel. Foundry 92:102-9 Ap '64
Look at a new financing method; equipment leasing. D. H. Kinnan. Foundry 92:112-15 Ap '64
Malleable foundry mechanizes production of medium size castings. R. H. Herrmann. il Foundry 92:88-9 Je '64
Mechanised foundry at electric motor factory. il Engineer 217:107 Ja 10 '64
Medium-sized foundry operates automatic molding line. A. W. Bardeen. il Foundry 92:56-61 Ag '64
Modernized foundry has automatic sand system, close metal control. R. H. Herrmann. il Foundry 92:66-9 N '64
National diecasting exposition, 3d, Detroit, Nov. 17-20; exhibitors' showcase. il Foundry 92:115-18 N '64
New engine component works in Gloucestershire. il Metallurgia 68:178-80 O '63
New equipment and supplies. Published in monthly numbers of Foundry
New foundry tool; the dual flow plasma torch. il diags Foundry 92:141-2+ Ag '64
New plant features brass and iron foundries. N. F. Wood. il Foundry 92:130+ Mr '64
New plant for Hale and Hale ltd. il Chem & Ind p 1227 Jl 4 '64
New shell mold foundry is well lighted and dust-free; Midwest foundry co. R. H. Herrmann. il plan Foundry 92:70-5 O '64
Overhead handling in mechanized foundry. il plan Metallurgia 68:159-60 O '63
Plants and equipment; AFS congress; abstracts of papers. Foundry 92:191-2 Je '64
Tornado disaster results in improved diecasting production. J. C. Miske. il plans Foundry 92:102-6 F '64
Updated blast equipment saves production time and money. il Foundry 91:161-2 D '63
Volkswagen develops mold pouring device. il Foundry 92:23 F '64
When to consider using shaft-mounted drives. C. W. Dorman. il diags Foundry 92:141-2 F '64
Where-to-buy foundry equipment, supplies, materials, and services. Foundry 92:327-46 Ap; 219-38 O '64
World's most beautiful foundry; Cincinnati milling machines limited. il diag Engineering 198:366-7 S 18 '64
See also
Casting machines
Crucibles
Electric furnaces, Iron founding
Foundry equipment manufacturers association
Foundry ladles
Foundry machinery
Furnaces, Iron founding
Grinding machines
Molding machines
Molds (for casting)
Sand, Foundry

Fires and fire protection

What's your fire philosophy? J. H. Cadieux. il Foundry 92:63-5 Mr '64

Layout

New line improves efficiency of moldmaking and drying. B. Huffman. il diag Foundry 92:162+ Ja '64
New shell mold foundry is well lighted and dust-free; Midwest foundry co. R. H. Herrmann. il plan Foundry 92:70-5 O '64
Newman foundry modernisation; mechanisation doubles productivity per man. il Metallurgia 69:55 F '64
Steel foundry designs compact molding line. E. Bremer. il plan Foundry 92:78-81 N '64

Lighting

Inspection stations are bright but cool. il diag Foundry 92:134 My '64

Maintenance and repair

Here's a system for automated line maintenance. R. R. Lee. Foundry 92:70-2 N '64

Management

See Foundry management

Safety measures

Ministry report on foundry goggles. Engineering 198:255 Ag 28 '64

Statistics

Foundry statistics. Published in monthly numbers of Foundry

FOUNDRIES, Portable
Take the foundry to the job. Mach 70:111 N '63

FOUNDRY costs
Controlling personnel costs. R. D. Stevens. Foundry 92:170+ My '64
Diecaster uses edp to learn costs. W. D. Huskonen. flow diag il Foundry 92:131-4 O '64
Gray iron foundry cuts molding sand cost. R. H. Herrmann. il Foundry 92:107-8 Jl '64
How to benefit from a limited sand system. R. W. McIlvaine. il Foundry 91:134-5+ N '63
Job costing; for profitability and control. I. G. Robinson. Foundry 92:89-91 S; 60-4 O '64
Keeping competitive with modern tools. L. J. Pedicini and C. E. Fausel. Foundry 92:102-9 Ap '64
Measuring and controlling grinding costs. E. L. Sinclair. il Foundry 92:78+ Jl '64
Nourish profit by controlling foundry costs. J. G. Berger. diags Foundry 91:45-7 D '63

FOUNDRY educational foundation
Annual college-industry conference, Chicago, April 16-17; abstracts of papers. Foundry 92:137-8+ Je '64
Membership growth permits expansion of Foundry educational foundation. il Foundry 92:122-3 S '64

FOUNDRY equipment manufacturers association
Annual meeting, White Sulphur Springs, W. Va. Oct. 17-19. Foundry 91:122+ D '63

FOUNDRY flasks

Wheel loader attachments speed flask handling. il Foundry 92:158 Mr '64

FOUNDRY furnaces. See Furnaces, Foundry

FOUNDRY furnaces, Electric. See Electric furnaces, Foundry

FOUNDRY laboratories

See also

Foundry research

FOUNDRY ladles

Modification of Geneva Works steel ladles. R. F. Anderson. il diags Iron & Steel Eng 41:147-50 S '64

Shaking ladle installation for foundry. il Engineer 217:249 Ja 31 '64

Special platform aids in ladle reline. il Iron & Steel Eng 41:172 O '64

FOUNDRY machinery

Automatic core machine. il Foundry 92:151 Ap '64

Here's a system for automated line maintenance. R. R. Lee. Foundry 92:70-2 N '64

Medium-sized foundry operates automatic molding line. A. W. Bardeen. il Foundry 92:56-61 Ag '64

Steel foundry designs compact molding line. E. Bremer. il plan Foundry 92:78-81 N '64

See also

Casting machines

Die casting machines

Molding machines

FOUNDRY management

Analysis of nonferrous foundry problems. J. S. Campbell and N. J. Rao. Foundry 92:44 Ja '64

Builds new business from new products. S. T. Barker. il diags Foundry 92:58-61 F '64

Computer schedules foundry operations. W. Huskonen. il diags Foundry 92:38-42 F '64

Controlling personnel costs. R. D. Stevens. Foundry 92:170+ My '64

Cutting costs through inventory control. T. R. Wolf. Foundry 92:85-7 Je '64

Data processing proves its value at PMI. H. Martin. il Foundry 91:96-7+ N '63

Data system guides moldmaking. il Iron Age 193:76 My 28 '64

Financing improvements with bank loans. P. R. Geisinger. Foundry 92:110-11 Ap '64

Nourish profit by controlling foundry costs. J. G. Berger. diags Foundry 91:45-7 D '63

Picking the right marketing strategy. J. L. Campbell. Foundry 92:52-5 Jl '64

Protecting job sheets in the foundry. il Foundry 92:148 F '64

Role of foundry middle management. H. K. Jackson. Foundry 92:267+ Ap '64

Should you merge your company or go it alone? E. P. Fillion, jr. Foundry 92:159-60+ S '64

See also

Castings—Cleaning

Foundries—Employees

Foundry practice

Quality control

Control adds strength, ductility to aluminum castings. D. N. Williams. il S A E J 72:68-70 F '64

Control is key to investment casting quality. C. Porter and J. Hockin. il Foundry 91:48-53 D '63

Guaranteeing castings adds customers at Dalton foundries inc. W. M. Dalton. il Foundry 92:61 Ja '64

Guaranteeing castings costs very little at Morris Bean & co. D. E. Scott. il Foundry 92:60 Ja '64

How Hoover co. controls diecasting quality. R. M. Archer and L. W. Miller. il Foundry 92:180-6 Ap '64

Inspection stations are bright but cool. il diag Foundry 92:134 My '64

New techniques improve casting quality and reliability. M. J. Diamond. diags Foundry 92:92-5 S '64

Process meetings help in quality control. K. M. Smith. Foundry 92:51-3 F '64

Statistical control in the small foundry. K. L. Edmondson. Foundry 92:249+ Ap '64

21 ways to fail in quality control. K. M. Smith. Foundry 92:46-50 Ag '64

FOUNDRY practice

Advances in casting techniques in automotive foundries. Mach 70:94 D '63

Aluminum spurs iron founders. H. F. Jones. il Iron Age 194:31 Jl 2 '64

Annual metals casting conference, Lafayette, Ind. Nov. 20-21; abstracts of papers. Foundry 92:128-32 Ja '64

Canadian foundrymen's conference, 9th, Toronto, Oct. 24-25; abstracts of papers. Foundry 91:148+ D '63

Computer solves casting mysteries. il Iron Age 194:71-3 N 5 '64

East Coast regional conference, New York, Sept. 13-14; abstracts of papers. Foundry 91:161-2+ N '63

Exothermics keep metal flowing to increase casting yields. il Iron Age 192:78-9 N 21 '63

How clay and water affect dry strength. B. C. Yearley and J. D. Hedberg. Foundry 92:76-9 Je; 60-2 Jl '64

How high should you go in high pressure molding? C. A. Sanders. il diag Foundry 92:51-5 Ag '64

Improved foundry practices. K. H. Kostenbader. il Iron & Steel Eng 41:121-3 My '64

Lifting properties of green molding sand. B. C. Yearley and R. R. Schaaf. il diags Foundry 92:62-5 F; 57-9 Mr '64

Making thin-section malleable iron castings. J. F. Wallace and H. Kunsmann. bibliog il diags Foundry 92:96-101 S '64

MFS studies information systems. Foundry 92:25+ N '64

Michigan regional foundry conference, Lansing, Jan. 23-24; abstracts of papers. Foundry 92:119-22 Mr '64

Missing a good casting bet? H. E. Trucks. il Am Mach 108:82-5 S 14 '64

New England regional foundry conference, 23d, Chicopee, Mass. Oct. 18-19; abstracts of papers. Foundry 91:113-14+ D '63

Northwest regional conference, 13th, Seattle, March 6-7; abstracts of papers. Foundry 92:164+ My '64

Ohio regional foundry conference, Columbus, Oct. 31-Nov. 1; abstracts of papers. Foundry 91:130-2+ D '63

Overseas steel castings industry is entering a growth period. R. H. Herrmann. il diag Foundry 92:85+ Ag '64

Present status of non-destructive testing in steel foundries. C. M. Stoch and J. D. Lavender. bibliog Metallurgia 70:25-30 Jl '64

Questions and answers. Published in monthly numbers of Foundry

Recent developments in vacuum melting and pouring. D. Rapoport. il diag Foundry 91:54-7 N '63

Review of the theories of the pressure diecasting process. I. D. Nussey and V. Kondic. bibliog diags Metallurgia 70:101-9 S '64 (to be cont)

Sand castings gain precision with flaskless molds. diags Iron Age 193:78-9 My '64

Sands required for high pressure molding. B. C. Yearley. Foundry 92:61-5 My '64

Southeastern regional conference, Chattanooga, Feb. 13-14; with abstracts of papers. Foundry 92:273+ Ap '64

Technological change; its impact on the foundry industry. il Foundry 92:172+ O '64

Tin additions improve cast iron. J. B. Long. bibliog il Foundry 92:42-5 Ag '64

Wisconsin regional conference, Milwaukee, Feb. 7-10; with abstracts of papers. Foundry 92:217+ Ap '64

World's oldest foundry organization. V. C. Faulkner. Foundry 91:158-9 D '63

See also

Aluminum founding

American foundrymens society

Bronze founding

Cast iron

Casting, Centrifugal

Castings—Cleaning

Copper founding

Cores

Die casting

Electric furnaces, Iron founding

Foundry machinery

Furnaces, Iron founding

International foundry congress

Iron founding

Lost wax process

Magnesium founding

Molds (for casting)

Pattern making

Steel castings

Zinc founding

Patents

Patents of interest. Published in monthly numbers of Foundry

Shaw process

See Molds (for casting)—Ceramic molds

Shell molding

New shell mold foundry is well lighted and dust-free; Midwest foundry co. R. H. Herrmann. il plan Foundry 92:70-5 O '64

Shell molding and coring. C. F. Walton. il Product Eng 34:100-3 N 11 '63

Study and teaching

Education: AFS congress; abstracts of papers. Foundry 92:137+ Jl '64

FOUNDRY practice—Study and teaching—*Continued*

New approach to foundry training. Foundry 91:192+ N '63

See also

Foundry educational foundation

FOUNDRY research

Foundry industry and research. B. E. Jacobs, jr. Foundry 92:190+ N '64

Fundamental papers; AFS congress; abstracts of papers. Foundry 92:144+ Jl '64

Gray iron research institute celebrates 25th anniversary. R. H. Herrmann. il Foundry 92:76-7 My '64

How to make research pay off. N. N. Sacks. Foundry 92:66-9 Ag '64

Indian regional foundry station. il Metallurgia 69:259-61 Je '64

Steel casting research here and abroad. C. W. Briggs. il Foundry 92:52-6 Ja '64

FOUNDRY sand. See Sand, Foundry

FOUNDRY workers. See Foundries—Employees

FOUNTAIN pens

Gold plating stainless steel; bright deposits on fountain pen nibs. A. Jogarao and others. il Metal Finishing 62:67+ O '64

FOUNTAINS

Decorative/functional spray pools. R. F. Coyne. flow diag il plan diags Air Cond Heat & Ven 61:63-9 My '64

Lung for New York's financial district; Chase-Manhattan plaza. il Prog Arch 45:214-15 S '64

Lighting

Homemade lighted fountain. il Illum Eng 59:492-3 Jl '64

Lighting at the fair; fountains and pools. B. C. Cooper. il diags Elec Constr & Maint 63:95-8 Jl '64

FOURDRINIER machines. See Paper making machinery

FOURIER series

Combined method for clamped plates using modified Fourier series. S. Gopalacharyulu. A S M E Trans ser E 30:627-8 D '63

Stresses in a layered half-plane. K. T. Sundara Raja Iyengar and R. S. Alwar. diags Am Soc C E Proc 90 [EM 4 no 4004]:79-96 Ag '64

Study of the correlation technique of generalized spectral analysis. G. W. Smith, jr. and P. R. Clement. bibliog diags Franklin Inst J 278:133-46 Ag '64

Synthesis of linear time-varying systems by Fourier approximation in the frequency domain. R. F. Brown. bibliog diags Inst E E Proc 111:1151-8 Je '64

FRACTIONAL horsepower motors. See Electric motors—Fractional horsepower

FRACTURE of glass. See Glass—Fracture

FRACTURE of polymers. See Polymers—Fracture

FRACTURES

Racial differences in hip fracture mortalities. L. Adelson and R. Oseasoa. Archives Environmental Health 9:206-8 Ag '64

FRAMED structures

Analysis of rigid frames by difference equations. H. S. Tsang. diags Am Soc C E Proc 89 [ST 2 no 3499]:127-59 Ap '63; Discussion. D. L. Dean and C. P. Ugarte. 89 [ST 5 no 3688]:351-61 O '63; Reply. 90 [ST 1 no 3812]:225-8 F '64

Constant shear moment distribution. M. Jordan. bibliog diags Am Soc C E Proc 89 [ST 6 no 3717]:43-70 D '63

Determination of elastic critical loads. L. K. Stevens and L. C. Schmidt. bibliog diags Am Soc C E Proc 89 [ST 6 no 3723]:137-58 D '63; Correction. 90 [ST 4 no 4001]:309-10 Ag '64

Dynamic analysis of elastic-plastic frames. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 90 [ST 2 no 3881]: 315-43 Ap '64

Dynamic plastic analysis of steel frames. B. Rawlings. bibliog diags Am Soc C E Proc 90 [ST 3 no 3954]:265-83 Je '64

Elastic and inelastic buckling of portal frames. K. H. Chu and A. Pabarcius. bibliog diags Am Soc C E Proc 90 [EM 5 no 4094]:221-49 O '64

Elastic buckling of rigidly-jointed braced frames. S. J. Britvec and A. H. Chilver. bibliog il diags Am Soc C E Proc 89 [EM 6 no 3736]:217-55 D '63; Discussion. N. C. Lind. 90 [EM 2 no 3882]:261-2 Ap '64; Reply. 90 [EM 6 no 4160]:257-63 D '64

Flexural calculation of nonuniform members. S. L. Wang. bibliog diags Am Soc C E Proc 89 [ST 6 no 3735]:271-95 D '63; Discussion. 90 [ST 4 no 4001]:325-32 Ag '64; Reply. 90 [ST 6 no 4157]:315-17 D '64

Frames of solid bars of varying cross sections. E. J. Krynicki and Z. E. Mazurkiewicz. diags Am Soc C E Proc 90 [ST 4 no 4010]:145-74 Ag '64

Here's your compendium of rigid frame formulas. W. Griffel. diags Product Eng 35:59-65 Ap 13 '64

Improved portal method for frame analysis. F. C. McCormick. Engineering 198:440 O 2 '64

Interaction of shear walls and frames. F. R. Khan and J. A. Sbarounis. bibliog diags Am Soc C E Proc 90 [ST 3 no 3957]:285-335 Je '64

Iterative limit load analysis for tall frames. N. C. Lind. bibliog diags Am Soc C E Proc 90 [ST 2 no 3867]:103-29 Ap '64; Discussion. M. G. Lay. 90 [ST 4 no 4001]:337-9 Ag '64

Large capacity multistory frame analysis programs. R. W. Clough and others. bibliog diags Am Soc C E Proc 89 [ST 4 no 3592]:179-204 Ag '63; Discussion. S. S. Tezcan. 90 [ST 2 no 3886]:369-70 Ap '64; Reply. 90 [ST 4 no 4001]:259-60 Ag '64

Latest prefab components. R. J. Atkinson. il diag Food Eng 36:78+ S '64

Limit analysis of grid frameworks. F. S. Shaw. diags Am Soc C E Proc 89 [ST 5 no 3658]:1-14 O '63; Discussion. S. S. Tezcan. 90 [ST 2 no 3886:383-6 Ap '64

Loading rate effects in structural steel design. R. N. Wright and W. J. Hall. bibliog diags Am Soc C E Proc 90 [ST 5 no 4084]:11-37 O '64

Matrix analysis of semi-rigidly connected frames. G. R. Monforton and T. S. Wu. bibliog flow chart diags Am Soc C E Proc 89 [ST 6 no 3713]:13-42 D '63; Discussion. 90 [ST 2 no 3886]:407-13 Ap; [ST 3 no 3940]:407-9 Je; [ST 4 no 4001]:287-90 Ag '64

Moment coefficients for frame analysis. F. P. Wiesinger and others. diags Am Soc C E Proc 89 [ST 6 no 3712]:1-12 D '63; Discussion. A. E. Crenshaw. 90 [ST 2 no 3886]:403-5 Ap '64

Moment equations for computer analysis of frames. S. S. Tezcan. bibliog flow chart diags Am Soc C E Proc 90 [ST 3 no 3926]:35-53 Je '64

Multi-storey frame in high-yield-stress steel. il Engineer 217:173-4 Ja 24 '64

Nomographs for analyzing rigid gable frames. J. W. Gillespie. bibliog diags Civil Eng 34:57-8 Ja '64

Nonlinear behavior of structural plane frames. S. A. Saafan. bibliog flow diag diags Am Soc C E Proc 89 [ST 4 no 3615]:557-79 Ag '63; Discussion. 90 [ST 2 no 3886]:381-2 Ap; [ST 4 no 4001]:277-8 Ag '64

Preliminary analysis of continuous curved girder frames. D. C. Carman and J. J. Tuma. bibliog diags Am Soc C E Proc 90 [ST 4 no 4012]:191-204 Ag '64

Shakedown analyses of some typical one-story bents. E. P. Popov and E. Becker. bibliog diags Am Soc C E Proc 90 [ST 5 no4069]:1-9 O '64

Simplified formulation of stiffness matrices. P. M. Wright. diags Am Soc C E Proc 89 [ST 2 no 3478]:33-48 Ap '63; Discussion. S. S. Tezcan. 89 [ST 6 no 3743]:445-9 D '63

Steel erection and grounding in constructing an outdoor substation. J. F. McPartland. il plan diags Elec Constr & Maint 63:110-13+ S '64

Structural analysis of multistory buildings. R. W. Clough and others. diags Am Soc C E Proc 90 [ST 3 no 3925]:19-34 Je '64

Structure designs governed by limited deformations. J. Solomon. il diags Am Soc C E Proc 89 [ST 6 no 3712]:71-99 D '63; Discussion. 90 [ST 4 no 4001]:291-6 Ag '64

Symmetrical frame solution by computer. E. Litton and J. S. Roper. Engineering 197:82 Ja 17 '64

Welded connections for space frame joints. R. H. Goldsmith. il plans diags Am Soc C E Proc 90 [ST 5 no 4100]:63-84 O '64

Zero sidesway axis of rigid frames. A. J. Celis and P. Glockner. Am Soc C E Proc 89 [ST 5 no 3662]:65-89 O '63; Discussion. 90 [ST 1 no 3812]:271-80 F; [ST 2 no 3886]:386-91 Ap '64; Reply. 90 [ST 4 no 4001]:281-3 Ag '64

FRAMING (building)

Design considerations for horizontal space frames. il diags Arch Rec 136:152-5 Ag '64

Design of haunched beams by fixed points. S. E. Huey. diags Am Soc C E Proc 90 [ST 2 no 3858]:13-29 Ap '64

Hub speeds space-frame erection. il Eng N 172:96+ My 21 '64

FRAMING (building)—*Continued*

Minimum weight plastic design of continuous frames. D. A. Sawyer and L. E. Grinter. bibliog diags Am Soc C E Proc 90 [EM 3 no 3927]:39-52 Je '64; Discussion. J. Heyman and W. Prager. 90 [EM 5 no 4093]: 459-61 O '64

Natural periods of vibration of buildings. G. W. Housner and A. G. Brady. bibliog diags Am Soc C E Proc 89 [EM 4 no 3613]: 31-65 Ag '63; Discussion. 89 [EM 6 no 3774]:279-82 D '63; 90 [EM 2 no 3882]:245-53 Ap '64; Reply. 90 [EM 4 no 4000]:161-2 Ag '64

Precast frame has column-free interior. il diag Eng N 172:77-8 My 21 '64

Precast panels on a frame; Northeast regional library, Philadelphia. il plans diags Prog Arch 45:156-61 S '64

Significance of the special nail in residential frame construction. E. G. Stern. bibliog il Wire & Wire Prod 39:384-99+ Mr '64

Stability of frames under primary bending moments. L. W. Lu. bibliog il diags Am Soc C E Proc 89 [ST 3 no 3547]:35-62 Je '63; Discussion. 89 [ST 5 no 3688]:367-71 O; [ST 6 no 3743]:455-8 D '63; 90 [ST 1 no 3812]:235-9 F '64; Reply. 90 [ST 4 no 4001]:255-6 Ag '64

Versatile structures for apartment framing. R. M. Gensert. plans diags Arch Rec 135: 178-9 Je; 136:185-8 Jl '64

FRANCE

See also

Gas. Natural—France. Supply to

also subdivision France under special subjects, e.g.

Airplane industry and trade
Aluminum industry and trade
Architecture. Domestic
Atomic power plants
Automobile industry and trade
Ceramic industries
Chemical industries
Colleges and universities
Electric plants (central stations)
Electricity supply
Electronics industry
Engineering
Gas. Natural
Hydroelectric plants
Machine tool industry
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Radio communication
Railroads—Electrification
Shipbuilding
Textile industry
Warships

Antiquities

Solutrean culture. P. E. L. Smith. il map diags Sci Am 211:86-94 Ag '64

Industries and resources

Visit to the Lorraine Basin. Engineer 216: 749-50 N 1 '63

FRANKFURT, Germany

Architecture

Frankfurt, a big, three-dimensional grid for varied, flexible growth. il plan Arch Forum 121:202-3 Ag-S '64

FRANKFURTERS. See Sausage

FRANKLIN institute

Annual meeting, Philadelphia, Jan. 15. Franklin Inst J 277:173-4 F '64

Medal day proceedings, Oct. 16, 1963. Franklin Inst J 276:546-64 D '63

FRANZEN, Ulrich

Seven new houses by U. Franzen. Arch Rec 134:127-42 N '63

FREE energy

Activities of silicon in metals and alloys. P. J. Bowles and others. bibliog diags Iron & Steel Inst J 202:113-21 F '64

Activity of gallium in NiGa and associated gallium-gallium oxide equilibria. A. U. Seybolt. bibliog diag Electrochem Soc J 111:697-700 Je '64

Estimate of free energy of formation of kyanite. R. W. Haskell and R. C. DeVries. bibliog Am Cer Soc J 47:202-3 Ap '64

Free energy as a parameter in biological treatment. J. A. Servizi and R. H. Bogan. bibliog Am Soc C E Proc 89 [SA 3 no 3539]: 17-40 Je '63; Discussion. 89 [SA 6 no 3745]: 61-75 D '63; Reply. 90 [SA 2 no 3884]:33-7 Ap '64

Study of free energy relationships in hindered phenols; correlation of spectral properties with substituent constants. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3402-6 N 5 '63

Study of free energy relationships in hindered phenols; linear dependence for solvation effects in ionization. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3397-402 N 5 '63

Thermodynamics of hydrides. J. H. E. Jeffes and H. McKerrell. bibliog Iron & Steel Inst J 202:666-76 Ag '64

Vapor-liquid equilibrium; a new expression for the excess free energy of mixing. G. M. Wilson. Am Chem Soc J 86:127-30 Ja 20 '64

FREE piston engines. See Gas turbines—Free piston engines

FREE ports and zones

New foreign-trade zone chosen as plant site. map Oil & Gas J 62:52-3 Jl 20 '64

FREE radicals. See Radicals (chemistry)

FREEDOM of speech. See Liberty of speech

FREEWAYS. See Expressways

FREEZERS

Two advanced chiller-freezers guard product quality. il Food Eng 36:107 Ap '64

Unusual handling features evolved for big freezer. diag Plant Eng 18:132 F '64

Manufacture

Aluminum inner shells for freezers handled in new finishing system. H. D. White. il Metal Finishing 62:65-7 Ap '64

Fabricating freezer cabinets. flow diag il diag Automation 10:60-3 D '63

FREEZING

Bod data retrieval through frozen storage. W. J. Fogarty and M. E. Reeder. bibliog Pub Works 95:88-90 Mr '64

Experimental investigation on the freezing of droplets of water and of aqueous solutions, with particular reference to the influence of the solute. Y. Uzu and others. bibliog diags J Colloid Sci 18:697-704 O '63

Formation, nature, and prevention of precipitates in frozen and thawed beers. G. J. Haas and A. I. Fleischman. J Agri & Food Chem 12:409-11 S '64

Freeze-concentration of dilute aqueous solutions. S. Kobayashi and G. F. Lee. Anal Chem 36:2197-8 O '64

Freeze-desalting of seawater goes into operation; process flowsheet. J. F. Houle. il Chem Eng 71:64-6 Ja 6 '64

Freeze-fixing of cells and tissues to preserve life. il Res/Develop 15:63 N '64

Freeze protection for ventilation and air conditioning symposium, New York, Feb. 11-14. ASHRAE J 6:50-6 Jl '64

Ice interface morphology and texture developed during freezing. J. D. Harrison and W. A. Tiller. bibliog il diags J Ap Phys 34:3349-55 N '63

Maximum and minimum bounds on freezing-melting rates with time-dependent boundary conditions. T. D. Hamill and S. G. Bankoff. diag A I Ch E J 9:741-4 N '63

Preserving domestic waste samples by freezing. P. E. Morgan and E. F. Clarke. Pub Works 95:73-5 N '64

Similarity solutions of the plane melting problem with temperature-dependent thermal properties. T. D. Hamill and S. G. Bankoff. Ind & Eng Chem Fundamentals 3:177-9 My '64

This winter, don't let one giant ice cube knock out your plant; prevent water storage tanks from freezing. J. M. Bass. diags Power 107:63-5 D '63

Unique International Mineral & Chemical tailing line solves freezing problem. J. Mitchell and R. Beach. il Eng & Min J 165:94-6 Ag '64

Vacuum-freezing and vapor-compression for desalting seawater; process flowsheet. R. R. Bridge. il Chem Eng 71:114-16 Je 22 '64

See also

Concrete—Freezing
Fish, Frozen
Food, Frozen
Frost
Ice
Refrigeration and refrigerating machinery
Soils—Freezing
Water pipes—Freezing

FREEZING points

Experimental findings on the abnormal freezing point depression of swelled cured natural rubber. G. Butenuth and H. Westlinning. bibliog diags Rubber Chem & Tech 37:311-25 Ap '64

Mercury freezing-point cell. C. O. Dengler. bibliog il diags Instruments & Control Systems 36:119-21 D '63

Simplified freezing point apparatus. G. S. Ross and A. R. Glasgow. diag Anal Chem 36:700-1 Mr '64

See also

Cryoscope

FREIGHT airplanes. See Airplanes, Freight

FREIGHT and freightage
See also
Freight rates
Freight ships
Packing for shipment
Shipment of goods

FREIGHT car service

Car reporting systems

Railroad car report system uses pictorial recording tape. il Automation 10:13 D '63

FREIGHT cars
Lubrication of air brake equipment on railroad freight cars. J. B. Driver. bibliog il diags Lub Eng 20:16-24 Ja '64
New York Central looks at new cars to boost steel traffic. il Steel 154:31+ F 24 '64
Standard parts, solution to railway welding problem. il Welding J 43:762 S '64
See also
Loading and unloading—Cars

Maintenance and repair

Automatic welding chops gondola rebuilding costs by one-third. E. W. Mann. il Welding J 43:44-5 Ja '64
Positioners flip TTX freight cars. il Welding J 43:209 Mr '64

Manufacture

Minimum weight factors for railway equipment. Materials in Design Eng 59:86 Mr '64

Weight

Scale weighs 82 cars in nine minutes. il Coal Age 68:139 D '63
Weighing cars in motion saves time and effort. il Mod Materials Handling 19:85 Ja '64

FREIGHT cars, Aluminum
Aluminium freight wagons; dual purpose. il Engineering 198:515 O 23 '64
Aluminum rides the rails. il Mod Metals 19:54+ N '63
Aluminum wants transport market; metal's use grows in highway, rail and marine hauling. P. J. Cathey. il Iron Age 193:88-9 F 20 '64

FREIGHT cars, Steel
Railroads sparkle with new stainless cars. il Materials in Design Eng 59:170+ Ap '64

FREIGHT handling
Air freight; a change and its promised savings. il Mod Materials Handling 19:53-60 N '64
Moving heavy loads, on air. il Engineering 198:359 S 18 '64
Road-rail transfer of tanks. il Engineer 217:1095 Je 19 '64
United Kingdom committee of the International cargo handling co-ordination assn. conference, Newcastle upon Tyne, Sept. 17-18; abstracts of papers. Engineer 218:588-9 O 9 '64
See also
Cargo handling
Container system (freight handling)
Containers (for shipping)
Freight ships
Hoisting machinery
Motor trucks in freight service
Ore handling
Terminals

FREIGHT rates
Air freight; a change and its promised savings. il Mod Materials Handling 19:53-60 N '64
Constructive mileage. E. A. Mohr. il maps Traffic Q 18:433-48 Jl '64
Shippers to fight proposed hike in permit fees. Oil & Gas J 62:76 S 7 '64
See also
Shipping—Rates

FREIGHT ships
Adjustable-voltage electric drive for cargo-ship winches. il Marine Eng/Log 69:82+ Mr '64
Are nuclear merchantmen here to stay? il diag Engineering 198:68-9 Jl 17 '64
Automated cargoliner, American Racer. il Marine Eng/Log 69:48-9 Jl '64
Britain's first universal bulk ship. il Engineering 197:384 Mr 13 '64
Bulk carrier Laidaure of 36200 tons deadweight. il Engineer 217:1015 Je 5 '64
Bulk carrier Laponia. il Engineer 216:1040 D 20 '63
Canadian motorship has many firsts. il Marine Eng/Log 69:16B+ Je '64
Cargo is easy to get at aboard Koudekerk. il diags Marine Eng/Log 69:56-8 O '64
Central engine-room control for cargo ships. R. E. Stillwagon. diags Westinghouse Eng 24:86-9 My '64
Distinctive ships; packaged lumber carrier Tiha. il Marine Eng/Log 68:74-5 D '63
Distinctive ships; Reynolds Metals' bulk carrier Inger. il Marine Eng/Log 68:86 D '63
First automated freighter. il Electronics 37:23 Je 29 '64
For Chile by Sharp out of Japan. il Marine Eng/Log 69:16D Ag '64
General cargo ships and bulk carriers; illustrations with text. Engineer 217:34-5 Ja 3 '64
Lumber ship Tiha. P. C. Dahan. il plans diag Marine Eng/Log 69:33-9 Ja '64
MV Carlton seems all hatches and holds. il Marine Eng/Log 70:54-5 My '64
MV Centaur. il plans Marine Eng/Log 69:37-45 Mr '64
New Danish cargoliner enters service. il Marine Eng/Log 69:22H Ja '64
New star shines in American shipping; SS Mormacargo. il plans Marine Eng/Log 69:68-78 S '64
Nuclear-powered passenger-cargo liner Savannah. il Engineer 218:96-7 Jl 17 '64
Refrigerated cargo ship North Isle. il Engineer 217:632 Ap 3 '64
Representative delivery and launching at IHI of Japan. il Marine Eng/Log 69:16F Jl '64
16,000-dwt motor ship delivered by Götaverken. il Marine Eng/Log 69:22I Ja '64
Unusual; from bow bulb to stern tube; SS Liryc. il Marine Eng/Log 69:28D O '64
See also
Ore ships
Tank ships

FREIGHT yards. See Railroads—Yards

FREON. See Chlorofluoromethanes

FREON 12. See Dichlorodifluoromethane

FREON 22. See Chlorodifluoromethane

FREQUENCY analyzers. See Sound—Apparatus

FREQUENCY changers
Analysis of diode modulators having frequency-selective terminations using computers. C. Kurth. bibliog diags Elec Com 39 no 3:369-78 '64
Characteristics of a new 3000-cps system for industrial and commercial lighting; abstract. J. H. Campbell and others. il Illum Eng 59:616-17 S '64
Converter translates charge to frequency. il diag Electronics 37:107 Ag 24 '64
Design of *X*-band varactor diode frequency multipliers. C. C. Hoffins. diag IEEE Proc 52:742-3 Je '64
Feedback in cyclotron-wave frequency multipliers. C. Yeh and J. C. Lee. diag IEEE Proc 52:314 Mr '64
Frequency changing of laser radiation. E. L. Thomas and J. K. Wright. diags J Sci Instr 41:277-9 My '64
Gain and directional properties of three- and four-frequency parametric devices. D. P. Howson. bibliog diags Inst E E Proc 111:1517-22 S '64
Mobiltrans 40 transmitter-converter. E. L. Campbell. il diag Q S T 48:58-9 O '64
New frequency multiplier. M. Camras. bibliog il diags IEEE Trans Power Apparatus & Systems p844-50; Discussion. 850-1 D '63
New magnetron shifts frequency fast. R. E. Edwards. il diags Electronics 37:76-81 Ap 6 '64
Parametric energy conversion by nonlinear admittances. R. S. Engelbrecht. diags Inst Radio Eng Proc 50:312-21 Mr '62; Discussion. K. L. Hughes and D. P. Howson. IEEE Proc 52:729-30 Je '64
Parametric frequency converters with nonlinear capacitance and resistance. D. P. Howson. IEEE Proc 52:425 Ap '64
Parametric frequency dividers. F. Butler. diags Wireless World 70:43-6 Ja '64
Simple low-frequency converter. G. H. Wilson. il diags Q S T 48:17-19 Ap '64
Simultaneous amplification and parametric frequency multiplication in vhf power transistors. J. K. Pulfer and A. E. Lindsay. diag IEEE Proc 52:212 F '64
Transistor frequency multiplier. N. Owen. il diag Electronic Eng 36:558 Ag '64
Unidirectional parametric converter using nonlinear reactances. D. P. Howson. diag IEEE Proc 52:1068-9 S '64
Unilateral parametric frequency converters with nonlinear conductance and capacitance. M. P. Beddoes and W. D. Little. diag IEEE Proc 52:332 Mr '64

FREQUENCY changers—*Continued*

Varactor diode doping distribution for high efficiency and large power capability frequency doublers. R. B. Ward. diags IEEE Proc 52:322-3 Mr '64

FREQUENCY control

Analysis of power system's power-density spectra. J. L. Cooke. bibliog IEEE Trans Power Apparatus & Systems p34-41 Ja '64

Applying adjustable frequency inverters for motor speed control. C. D. Helmick and K. Lipman. diags Automation 11:66-9 My '64

Symposium, 7th, Fort Monmouth, April 27-29. Phys Today 16:50-2+ D '63

FREQUENCY converters. See Frequency changers

FREQUENCY distribution (statistics)

Comparison of process inspection schemes. E. S. Page. bibliog Ind Quality Control 21:245-9 N '64

Distribution of the maximum length of a Poisson queue during a busy period. M. F. Neuts. diags Op Res 12:281-5 Mr '64

Generation of random-time pulses at an accurately known mean rate and having a nearly perfect Poisson distribution. G. White. il diags J Sci Instr 41:361-4 Je '64

Priority queues. L. Takács. bibliog Op Res 12:63-74 Ja '64

Queues with Poisson input and hyper-exponential output with finite waiting space. S. K. Gupta and J. K. Goyal. Op Res 12:75-81 Ja '64

Single-server bulk-queuing processes with binomial input. U. Narayan Bhat. bibliog Op Res 12:527-33 Jl '64

Trunking problem. O. Hellman. diags Op Res 12:276-80 Mr '64

Two-server bulk-service queuing process. K. L. Arora. bibliog Op Res 12:286-94 Mr '64

See also

Histograms

FREQUENCY dividers

Charge storage diode as a logic element. W. D. Ryan and H. B. Williams. bibliog diags Radio & Electronic Eng 27:293-9 Ap '64

Four-terminal controlled switch divides frequencies by ten. R. J. Wold. diags Electronics 37:81-2 Je 15 '64

Transistorized frequency divider using a phase shift oscillator. V. B. Gerard. diag Electronic Eng 36:632 S '64

Tunnel diode frequency divider. A. T. Bayliss. il diags Wireless World 70:303-4 Je '64

FREQUENCY measurement

Frequency response methods. G. A. Coon. I S A J 11:77-8 S; 81-2 O '64

Measurement of frequency deviation by a simulated frequency-modulated radar technique. B. S. Rao and D. E. N. Davies. Electronic Eng 36:100-2 F '64

See also

Clocks—Atomic clocks

Radio standards

FREQUENCY meters

Cb frequency meter. R. F. Scott. il Radio-Electronics 35:68+ F '64

Low frequency meters. il Engineer 218:382 S 4 '64

Simplest direct-reading frequency meter. I. Queen. il diag Radio-Electronics 35:34-5 F '64

FREQUENCY modulation. See Radio frequency modulation

FREQUENCY modulation receivers. See Radio receiving apparatus—Frequency modulation receivers

FREQUENCY modulation transmitters. See Radio transmitters—Frequency modulation transmitters

FREQUENCY standards

Quartz-crystal frequency standards. K. Baulk. il Elec Com 39 no 3:413-22 bibliog(p421-2) '64

FRESH water biology

Biological measurement of water pollution. T. W. Beak. bibliog il maps Chem Eng Prog 60:39-43 Ja '64

Hyacinth removal creates biological conditions; Hillsborough River. C. P. Roddy. il Water & Sewage Works 110:382-4 N '63

See also

Limnology

FRESH water flora

Hyacinth removal creates biological conditions; Hillsborough River. C. P. Roddy. il Water & Sewage Works 110:382-4 N '63

FRESNO, California

Streets

Reducing street maintenance costs. D. M. Winton. il Pub Works 95:127-8 O '64

FRETTING corrosion. See Corrosion and anticorrosives

FRICTION

Brief history of friction. R. Courtel and L. M. Tichvinsky. bibliog diags Mech Eng 85:55-9 S; 33-7 O '63; Same. Naval Eng J 76:451-60 Je '64; Discussion. R. L. Johnson. Mech Eng 86:78-9 O '64

Coefficient of kinetic friction for Dowex 50 ion exchange resin moving down a glass column. D. Hershey and F. N. Peebles. bibliog diags Ind & Eng Chem Proc Design 3:1-4 Ja '64

Coefficient of kinetic friction for waxed coating; proposed new suggested method T 664 su-64. diags Tappi 47:sup 129A-30A Ap '64

Contact of nonspherical elastic bodies transmitting tangential forces. P. J. Vermeulen and K. L. Johnson. bibliog A S M E Trans ser E 31:338-40 Je '64

Determination of the coefficient of friction at elevated temperatures using a plane-strain compression test. J. A. Bailey and A. R. E. Singer. bibliog Inst Metals J 92:378-80 '63-'64

Determination of the coefficient of kinetic friction in the case of extremely small displacements. D. H. Wiid and W. F. Beezhold. bibliog diag J Ap Phys 35:1169-75 Ap '64

Direct method for friction factor calculation. K. M. Yao. Water & Sewage Works 111:100-4 F '64

Effect of angle between direction of sliding and line of contact on friction and wear of a roller. F. Hirano and others. bibliog diags Lub Eng 20:57-64 F '64

Engineers put friction to rout via new lubrication concept. J. E. Sandford. il diags Iron Age 193:51-3 Ja 23 '64

Equations give quick estimates of friction temperatures. E. Rabinowicz. il diags Product Eng 35:97-9 Mr 30 '64

European research on lubrication; friction between non-lubricated solid bodies. T. Liu and R. J. Benzing. diags Lub Eng 19:470-1 N '63

Fighting friction's drag on motion. J. J. Obrzut. il Iron Age 193:133-4+ My 21 '64

Flow resistance with boiling refrigerants. B. Pierre. diags ASHRAE J 6:58-65 S; 73-7 O '64

Fluid friction flow resistance in pipe. L. Dodge. diag Product Eng 35:94-7 F 17 '64

Friction and forced convection heat-transfer characteristics in tubes with twisted tape swirl generators. E. Smithberg and F. Landis. bibliog il diags A S M E Trans ser C 86:39-49 F '64

Friction and heat-transfer measurements to turbulent pipe flow of water (Pr = 7 and 8) at uniform wall heat flux. R. W. Allen and E. R. G. Eckert. bibliog diags A S M E Trans ser C 86:301-10 Ag '64

Friction and wear. M. Roberts and E. Kingsbury. A S M E Trans ser D 86:368-9 bibliog(p380-1) Je '64

Friction and wear characteristics of dry lubricants; data sheet. P. H. Bowen. Machine Design 35:195-9 N 7 '63

Friction supports 15-story building. il diags Eng N 173:46-9 Ag 20 '64

Friction testing of shipping sack paper; a round robin. H. C. Martin. Tappi 47:sup 162A-5A S '64

Friction variation of PTFE and MoS_2 during thermal vacuum exposure. W. D. Craig, jr. bibliog il diags Lub Eng 20:273-6; Discussion. 276-7 Jl '64

Frictional properties of polyethylenes and perfluorocarbon polymers. R. C. Bowers and W. A. Zisman. bibliog Mod Plastics 41:139-40+ D '63

General solution of the rigid body impact problem. G. G. Herzl. diags AIAA J 2:959-61 My '64

Investigation of stick-slip in simulated slideways. W. G. Voorhes. bibliog diag Lub Eng 19:457-62 N '63

Investigation of the mechanism of the friction and wear of carbon. J. W. Midgley and D. G. Teer. bibliog il diags A S M E Trans ser D 85:488-93; Discussion. 493-4 D '63

Machine for measuring dynamic friction. H. P. Sponseller and F. M. Gavan. bibliog il diag Materials Res & Stand 3:992-5 D '63

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures. D. M. Eissenberg. bibliog diag A I Ch E J 10:403-7 My '64

Measurement of pointwise juncture condition of temperature at the interface of two bodies in sliding contact. F. F. Ling and T. E. Simkins. bibliog il diags A S M E Trans ser D 85:481-5; Discussion. 486-7 D '63

FRICTION—*Continued*

Method for the determination of the coefficient of friction of metals under conditions of bulk plastic deformation. A. T. Male and M. G. Cockcroft. bibliog il diag Inst Metals J 93:38-46 '64-65

Multifunctional friction-modifying agents. D. W. Dinsmore and A. H. Smith. diags Lub Eng 20:352-7 S '64

New friction-factor chart for pipe flow. R. S. Ramalho and others. Chem Eng 71:153-4 Jl 20 '64

Nonlinear compensation of a second-and third-order system with dry friction. C. N. Shen and H. Wang. bibliog diags IEEE Trans Applications & Ind p 128-36 Mr '64

Pressure drop and liquid film thickness of two-phase annular and annular-mist flows. S. F. Chien and W. Ibele. bibliog il diags A S M E Trans ser C 86:89-96 F '64

Relation between the friction and viscoelastic properties of rubber. K. A. Grosch. bibliog diags Rubber Chem & Tech 37:386-403 Ap '64

Relative influence of various factors on the stick-slip of metals. G. Niemann and K. Ehrlenspiel. diags Lub Eng 20:84-6 Mr '64

Resource letter F-1 on friction. E. Rabinowicz. Am J Phys 31:897-900 D '63

Role of atmospheric components in friction and boundary lubrication. W. E. Campbell. Machine Design 36:186+ Ag 27 '64

Segregation studies of dry blended fertilizer. L. J. Pircon and others. diags J Agri & Food Chem 12:357-62 Jl '64

Slippery-surface rubber reduces friction and wear. H. M. Gladstone and others. il Product Eng 35:96-8 Jl 20 '64

Traction drives. C. E. Kraus. diags Machine Design 36:106-12 Jl 2; 147-52 Jl 16 '64

See also

Skin friction

FRICTION, Internal

Apparatus for the measurement of Young's modulus and internal friction of metals. S. S. Lanting and H. A. Waterman. il diags J Sci Instr 41:605-8 O '64

Experimental investigation of the internal friction of small diameter quartz strands at low frequencies. J. H. Whitelaw. bibliog diags J Sci Instr 41:215-18 Ap '64

Internal friction effects in martensite. R. Ward and J. M. Capus. bibliog Iron & Steel Inst J 201:1038-43 D '63; Discussion. J. McGrath and R. Rawlings. 202:454; Reply. 454-6 My '64

Internal friction in beryllium. C. Y. Ang and K. T. Kamber. J Ap Phys 34:3405-7 N '63

Method for the automatic measurement of internal friction by a torsion pendulum. T. Lindveit and others. diags J Sci Instr 41:564-5 S '64

Residual pressure effects in polycrystalline aluminum. M. H. Miles and P. Gibbs. bibliog il J Ap Phys 35:1941-4 Je '64

Technique for analyzing composite internal-friction peaks. J. E. Hanlon and J. D. Wolf. R Sci Instr 35:1227 S '64

Ultrasonic loss in fused silica below 100°K. J. T. Krause. Am Cer Soc J 47:103 F '64

FRICTION welding. See Welding

FRIEDEL-CRAFTS reaction

Alkylbenzenes; Friedel-Crafts alkylations of *p*-xylene and mesitylene with propyl halides; concurrent rearrangements and reorientations. R. M. Roberts and D. Shiengthong. bibliog Am Chem Soc J 86:2851-7 Jl 20 '64

Aromatic substitution; Friedel-Crafts acetylation of benzene, alkybenzenes, and halobenzenes with acetyl halides and acetic anhydride. G. A. Olah and others. bibliog Am Chem Soc J 86:2198-202 Je 5 '64

Aromatic substitution; Friedel-Crafts isopropylation and *t*-butylation of halobenzenes. G. A. Olah and others. Am Chem Soc J 86:1065-6 Mr 20 '64

Aromatic substitution; Friedel-Crafts isopropylation of benzene and methylbenzenes with isopropyl bromide and propylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1046-54 Mr 20 '64

Aromatic substitution; Friedel-Crafts *t*-butylation of benzene and methylbenzenes with *t*-butyl bromide and isobutylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1060-4 Mr 20 '64

Friedel-Crafts and related reactions, vol. 1, General aspects. G. A. Olah, ed. Review, by P. F. G. Praill. Chem & Ind p647-50 Ap 18 '64

Friedel-Crafts reaction by rhenium pentachloride. J. Tsuji and others. Chem & Ind p543 Mr 28 '64

Friedel-Crafts reactions for the synthesis of heat-resistant aromatic polymers; abstract and discussion. L. N. Phillips. Chem & Ind p716-17 Ap 25 '64

New grasp of Friedel-Crafts catalysis. il Can Chem Process 47:47-8 N '63

FRINGE benefits. See Employees benefit plans

FRINGES (optics). See Interference (light)

FRITS

Study of the fritting reaction of zircon sand with sodium hydroxide using differential thermal analysis and X-ray techniques. H. S. Choi and H. Cross. bibliog il Can Min & Met Bul 57:966-72 S '64

FRITZSCHE award

Fritzsche award to Dr O. Jeger. Chem & Eng N 42:74 Ap 6 '64

FROGS

Vision in frogs. W. R. A. Muntz. il diags Sci Am 210:110-15+ Mr '64; Discussion. 210:10+ My '64

FROST

Analysis of frost phenomena on a cryo-surface. Franklin Inst J 277:293-4 Mr '64

Frost on a cryo-surface. il Engineering 197:61 Ja 10 '64

Heat, mass, and momentum transfer inside frosted tubes; experiment and theory. M. M. Chen and W. Rohsenow. bibliog il diags A S M E Trans ser C 86:334-40 Ag '64

See also

Roads—Frost damage

FROST heaving

Insulate pavement to prevent frost heave. il Eng N 172:38 Je 25 '64

International conference on permafrost, Lafayette, Ind. Nov. 11-15. Civil Eng 34:61 Ja '64

FROZEN desserts. See Desserts, Frozen

FROZEN fish. See Fish, Frozen

FROZEN gravies. See Sauces, Frozen

FROZEN meat. See Meat, Frozen

FROZEN poultry. See Poultry, Frozen

FROZEN shrimps. See Shrimps, Frozen

FROZEN vegetables. See Vegetables, Frozen

FRUCTOSE

Quantitative analysis of glucose and fructose in potatoes. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:109-12 Mr '64

FRUIT

Fruit technology; abstract. L. de Vos and L. Gersons. Chem & Ind p 1295-6; Discussion. 1297-8 Jl 18 '64

General application of near-infrared moisture analysis to fruit and vegetable materials. H. J. Gold. Food Tech 18:586-7 Ap '64

Natural gas boasts a green thumb. il diags Gas Age 130:30-1 D '63

See also

Apples
Apricots
Bananas
Blueberries
Cherries
Mangoes
Peaches
Pears
Prunes
Strawberries

Maturity

Effects of maturity and storage on certain biochemical changes in apricots and peaches. P. B. Deshpande and D. K. Salunkhe. bibliog Food Tech 18:1195-8 Ag '64

Production of a standard comparator for the skin color of mature cherries. N. Brearley and others. il Food Tech 18:1477-9 S '64

Prepackaging

Slit-film PE bag permits free air circulation for produce. il Mod Plastics 41:107 Jl '64

Preservation

See also

Canning and preserving

Storage

Effect of moisture on the accumulation of carbonyl-amine browning intermediates in freeze-dried peaches during storage. I. Y. Huang and H. N. Draudt. bibliog Food Tech 18:1234-6 Ag '64

Effects of maturity and storage on certain biochemical changes in apricots and peaches. P. B. Deshpande and D. K. Salunkhe. bibliog Food Tech 19:1195-8 Ag '64

Improves produce storage; Tectrol system. il diag Food Eng 36:88-9 Ap '64

FRUIT—Storage—*Continued*

Nonvolatile organic acids and core breakdown of Bartlett pears. M. W. Williams and M. E. Patterson. bibliog J Agri & Food Chem 12:80-3 Ja '64

Transportation

Coast to coast, by ship. R. Dahling. il Food Eng 36:sup82A Ja '64

Effect of mechanical vibrations on fruit damage during transportation with special reference to cling peaches. M. O'Brien and others. bibliog Food Tech 17:1578+ D '63

FRUIT, Candied

Sugar absorption in the fruit candying process. D. R. MacGregor and others. il Food Tech 18:1219-21 Ag '64

FRUIT, Dried

Coast to coast, by ship. R. Dahling. il Food Eng 36:sup82A Ja '64

Effect of moisture on the accumulation of carbonyl-amine browning intermediates in freeze-dried peaches during storage. I. Y. Huang and H. N. Draudt. bibliog Food Tech 18:1234-6 Ag '64

Explosive puffing applied to apples and blueberries. N. H. Eisenhardt and others. flow sheet il Food Eng 36:53-5 Je '64

New shape to dried fruits. Food Tech 18:1193 Ag '64

Rapid detection and determination of mineral oil on dried fruit by thin layer chromatography. F. Radler and M. V. Grncarevic. bibliog il J Agri & Food Chem 12:266-7 My '64

See also

Raisins

FRUIT, Ripening of

Modern banana processing facilities. R. P. Post, jr. diags ASHRAE J 6:46-8 Je '64

FRUIT flies

Fruit fly eradication. Soap & Chem Spec 39:87-8 D '63

Tert-butyl and *tert*-pentyl esters of 6-methyl-3-cyclohexene-1-carboxylic acid as attractants for the Mediterranean fruit fly. M. Beroza and others. J Agri & Food Chem 12:258-9 My '64

FRUIT handling

Brief review of the problems in developing boysenberry products. S. Leonard. il diags Food Tech 18:516-19+ Ap '64

Optical filters sort fresh produce. V. Harris. il Control Eng 11:114 Je '64

FRUIT juices

Characteristics of European fruit juices; abstract. V. L. S. Charley. Chem & Ind p 1297; Discussion. 1297-8 Jl 18 '64

Fruit juice production; abstract. W. Pilnik. Chem & Ind p 1296-7; Discussion. 1297-8 Jl 18 '64

Simplifies juice recovery. J. A. Murch and N. F. Roger. diag Food Eng 36:42-3 F '64

Some benzopyrylium compounds potentially useful as color additives for fruit drinks and juices. L. Jurd. Food Tech 18:559-61 Ap '64

Studies on concentrating the juice of the cashew apple (anacardium occidentale). J. S. Pruthi and others. bibliog Food Tech 17:1433-6 N '63

See also

Apple juice

Blueberry juice

FRUIT juices, Dried

See also

Grapefruit juice, Dried

Orange juice, Dried

FRUIT products, Dried

Factors affecting foam production and stabilization of tropical fruit products. R. P. Bates. Food Tech 18:93-6 Ja '64

Raisin paste; measurement and control of consistency. F. S. Nury and others. il Food Tech 18:377-9 Mr '64

FRUIT trade

See also

Citrus fruit

FRYING

Fatty acid components of fried foods and fats used for frying. L. T. Kilgore and W. D. Luker. bibliog Am Oil Chem Soc J 41:496-500 Jl '64

FRYING pans. See Kitchen utensils

FUEL

Fuels forum; how to keep warm. diags Mill & Factory 75:70-4 O '64

In next decade, smooth riding for motor fuels. il Chem Eng 71:92+ Jl 20 '64

1964 prospects for all engineerings. il Engineering 197:106-8 Ja 17 '64

See also

Boilers—Firing

Briquets (fuel)

Coal

Coke

Gas, Natural

Gas as fuel

Gasoline

Liquid fuel

Oil fuel

Petroleum coke

Propellants

Waste fuel

also subdivision Fuel under special subjects, e.g.

Blast furnaces

Diesel engines

Electric plants (central stations)

Gas turbines

Gas turbines, Aircraft

Nuclear reactors

Petroleum refineries

Steam plants

FUEL cells. See Electric batteries—Fuel cells

FUEL economy

Old and new values in space heating. C. B. Hershey. bibliog ASHRAE J 5:53-4 O '63; Discussion. 5:87 D '63; 6:12+ Ja '64; Am Gas Assn Mo 45:7+ D '63

See also

Soot blowers

Waste fuel

FUEL filters, Airplane

Emulsified water in jet fuels studied. W. M. Langdon and others. diag Pet Management 35:184-90 N '63

It's go for polyethylene in go/no-go gage. il diag Mod Plastics 41:89+ Jl '64

FUEL injection. See Diesel engines—Fuel feeding

FUEL oil. See Oil fuel

FUEL pumps. See Pumps, Fuel

FUEL research

International conference on combustion and the conversion of energy, Paris; abstracts of papers. Engineering 197:764-5 Je 5 '64

See also

Coal research

Coke research

Gas research

FUEL supply

Energy transportation conference points up sharp competition among railroads, pipelines, barges, ehv. Elec World 160:99-106 D 2 '63

What's ahead in energy? M. A. Elliott. bibliog Pet Management 36:70-8 O '64

Canada

Comparison of Canadian energy prospects; potential of coal-in-oil fuels. G. A. Vissac and R. P. Charbonnier. bibliog map Eng J 47:23-8 Ap '64

FUEL tanks. See subdivision Fuel tanks under special subjects, e.g. Airplanes, Jet propelled; Guided missiles; Rockets

FULTON, Robert

Robert Fulton, man of vision. I. McNeil. il diags Naval Eng J 76:611-18 Ag '64

FULVENES

Proton magnetic resonance spectra of three fulvenes. W. B. Smith and B. A. Shoulders. bibliog Am Chem Soc J 86:3118-22 Ag 5 '64

Synthesis and study of pseudoaromatic compounds; the synthesis of 8-vinylheptafulvene. D. J. Bertelli and others. bibliog Am Chem Soc J 86:3329-34 Ag 20 '64

FUMARIC acid

Electron spin resonance study of X-irradiated fumaric acid-urea crystals. O. H. Griffith and A. L. Kwiram. bibliog diags Am Chem Soc J 86:3937-41 O 5 '64

Investigation of maleate-fumarate isomerization in unsaturated polyesters by nuclear magnetic resonance. L. G. Curtis and others. bibliog Ind & Eng Chem Product Res & Develop 3:218-21 S '64

Monsanto raises maleic and fumaric prices. Chem & Eng N 41:28 N 18 '63

Pace quickens for food grade fumaric. Chem & Eng N 42:27-8 F 17 '64

FUMES

Air-pollution problems of the wrought-brass industry. N. H. Jackson. Inst Metals J 92:200-4 '63-64

Are fumes a welding hazard? il Welding Eng 49:35-9 O '64

Conference on fume arrestment in steel-making processes, London, Nov. 26-27; abstracts of papers. Engineer 217:49-50 Ja 3 '64

Controls solids in coal fumes. Chem & Eng N 42:60 My 4 '64

Design and operation of a fume and dust collection system for two 100-ton electric furnaces. W. W. Bintzer. il diags Iron & Steel Eng 41:115-23 F '64

FUMES—*Continued*

Fume arrestment. ISI special report 83; review. J. S. Carter. Iron & Steel Inst J 202:775-6 S '64

Fume control for copiers. il diag Product Eng 35:69 O 12 '64

Fume scrubber catches escaping acid fumes. E. F. Buonanno. diag Chem Eng 71:146 O 26 '64

Pipe system squelches noxious fumes from kiln stacks; McNear co. il Rock Prod 66:95 D '63

Pollution control in a phosphoric acid plant. H. O. Grant. il diag Chem Eng Prog 60:53-5 Ja '64

Properties of nickel fume generated in a plasma jet. T. B. Selover, jr. bibliog diags A I Ch E J 10:79-82 Ja '64

Relationship between chemical structure and fastness to light and gas fumes of nitrodiphenylamine dyes. R. S. Asquith and B. Campbell. bibliog Soc Dyers & Col J 79:678-85; Discussion. 685-6 D '63

System eliminates solids and sulphur fumes from stack discharge. diag Iron & Steel Eng 41:167 My '64

FUMIGANTS

Absorption of 1,2-dibromoethane by oranges and by materials used in their fumigation. I. M. Coggiola and F. E. Huelin. diags J Agri & Food Chem 12:192-6 Mr '64

Determination of phosphine in air by gas chromatography. T. Dumas. J Agri & Food Chem 12:257-8 My '64

Fate of sulfuryl fluoride in wheat flour. R. W. Meikle. bibliog diags J Agri & Food Chem 12:464-7 S '64

FUNCTION generators. See Calculating machines—Input-output equipment

FUNCTIONS

ALPAK system for nonnumerical algebra on a digital computer; rational functions of several variables and truncated power series with rational-function coefficients. W. S. Brown and others. Bell System Tech J 43:785-804 Mr '64

Autocorrelation-invariant functions and an associated orthogonal set of functions. R. A. Gonsalves. IEEE Proc 52:737-8 Je '64

Calculation of certain multiple generating functions. G. H. Weiss. J Res Nat Bur Stand 68B:13-15 Ja '64

Construction of a network function from its specified even part. N. DeClaris and S. K. Mitra. IEEE Proc 52:302 Mr '64

Direct method for Chebyshev approximation by rational functions. J. Stoer. bibliog Assn for Computing Mach J 11:59-69 Ja '64

Functional forms of dual-comparable functions and a necessary and sufficient condition for realizability of a majority function S. Muroga. bibliog IEEE Trans Com & Electronics 83:474-86 S '64

Generation and composition of functions. A. J. Goldman. J Res Nat Bur Stand 68B:99-101 Jl '64

Laplace transform of the sectionally-continuous derivative of a sectionally-continuous function. B. Rasof. Franklin Inst J 277:119-27 F '64

Liapunov functions of high order nonlinear systems. Y. H. Ku and N. N. Puri. Franklin Inst J 276:349-64 bibliog(p363-4) N '63

Mathematical method for the automatic scaling of a function. T. Giammo. Assn for Computing Mach J 11:79-83 Ja '64

Method for finding all the zeros of $f(z)$. R. P. Rich and H. Shaw. diags Assn for Computing Mach J 10:545-9 O '63

Numerical integration of non-analytic functions. P. C. Waterman and others. bibliog diag J Math & Phys 43:45-50 Mr '64

Obreschkoff-type integration and interpolation formulas for periodic functions. H. E. Salzer. J Math & Phys 43:241-50 S '64

Optimization and visualization of functions. G. A. McCue. diags AIAA J 2:99-100 Ja '64

Orthotropic beams under polynomial loads. I. K. Silverman. diags Am Soc C E Proc 90 [EM 5 no 4101]:293-319 O '64

Second method of Liapunov and Routh's canonical form. N. N. Puri and C. N. Weygandt. bibliog diags Franklin Inst J 276:365-84 N '63

Shape of one-port driving functions. D. P. Brown and M. B. Reed. bibliog Franklin Inst J 277:566-74 Je '64

Sifting property of a common function. H. Urkowitz. Inst Radio Eng Proc 50:2505 D '62; Discussion. IEEE Proc 51:1057-8; 52:967-9 Jl '63, Ag '64

Tricomi's ψ function. K. S. Nagaraja. J Math & Phys 43:261-2 S '64

See also

Bessel functions
Differentiation (mathematics)
Green function
Legendre functions
Transfer functions

FUNCTIONS, Exponential

Expansion of the generalized exponential integral in terms of Bessel functions. A. S. Meligy and E. M. El Gazzy. bibliog J Math & Phys 43:60-4 Mr '64

Forecasting periodic trends by exponential smoothing. J. M. Dobbie. Op Res 11:908-18 N '63

Orthonormal exponentials. D. C. Ross. bibliog diag IEEE Trans Com & Electronics p 173-6 Mr '64

Quadrature of some exponential transforms of cylindrical functions. J. Kane. J Math & Phys 43:140-3 Je '64

FUNCTIONS, Hypergeometric

Inequalities for the confluent hypergeometric function. B. Schweizer and A. Sklar. J Math & Phys 42:329-30 D '63

FUNCTIONS, Linear

Useful polygonal function. R. P. Benedict. Electro-Tech 73:38-41 Ja '64

FUNCTIONS, Nonlinear

Adaptive optimal control of nonlinear processes. A. E. Pearson. diags A S M E Trans ser D 86:151-9 Mr '64

Inequalities for stochastic nonlinear programming problems. O. L. Mangasarian and J. B. Rosen. bibliog Op Res 12:143-54 Ja '64

FUNCTIONS, Potential

Auxiliary potential function for seepage. B. B. Schimming and R. L. Kondner. diags Am Soc C E Proc 90 [IR 2 no 3930]:21-32 Je '64

FUNCTIONS, Transcendental

Absolute iteration and the solution of transcendental equations. S. T. Kowel. Franklin Inst J 278:210-18 S '64

FUNGI

Total synthesis of helminthosporal. E. J. Corey and S. Nozoe. bibliog Am Chem Soc J 85:3527-8 N 5 '63

Wood fiberboard studies; nailhead pull-through method to determine the effects of fungi on strength. W. Merrill and D. W. French. il diags Tappi 47:449-51 Ag '64

See also

Actinomycetes
Mildew
Molds (botany)
Mushrooms

FUNGI, Pathogenic

Antimycotic activity of some fatty acid derivatives. A. F. Novak and others. bibliog Am Oil Chem Soc J 41:503-5 Jl '64

Experimental mixed infections in mice; staphylococcus aureus and candida albicans. M. H. Lepper and others. bibliog il Archives Environmental Health 8:570-83 Ap '64

Fungi and sea water. Drug & Cosmetic Ind 95:619 O '64

See also

Mycoses
Ringworm

FUNGICIDES

Antimycotic activity of some fatty acid derivatives. A. F. Novak and others. bibliog Am Oil Chem Soc J 41:503-5 Jl '64

Attractive sales potential exists for biocidal finishes. P. W. Sherwood. Mod Textiles Mag 45:32+ O '64

Colorimetric determination of dexon residues in crops. C. A. Anderson and J. M. Adams. J Agri & Food Chem 11:474-7 N '63

Degradation of organomercury fungicides in soil. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:253-7 My '64

Effect of some fungicides on the flavor of canned strawberries. G. W. Hope. bibliog J Agri & Food Chem 12:189-91 Mr '64

Fungicides in agriculture and horticulture; abstract and discussion. D. Woodcock. Chem & Ind p843-4 My 16 '64

Fungitoxic properties of volatile corrosion inhibitors. D. M. Evans and I. Levisohn. il Chem & Ind p 1386-7 Ag 1 '64

How to control fungi in cooling towers. C. W. Brown. il diags Hydrocarbon Process & Pet Refiner 43:146-8 Ag '64

New fungicide fights Dutch elm disease. R. T. Tweit and others. il Chem & Eng N 42:29 S 14 '64

Thiabendazole antimycotic. H. J. Robinson. Drug & Cosmetic Ind 95:277-8 Ag '64

Tolnaftate; topical compound for the treatment of superficial mycotic infections. Drug & Cosmetic Ind 95:619 O '64

Two fungicidally active 5-chloro-4-aryl-1, 2-dithiol-3-ones derived from cumene and p-cymene. W. R. Diveley and others. bibliog J Agri & Food Chem 12:251-3 My '64

FUR bearing animals

See also

Minks

FURAN

Crystal structure of 3,4-furandicarboxylic acid. D. E. Williams and R. E. Rundle. bibliog Am Chem Soc J 86:1660-6 My 5 '64

FURANOSIDE

Configurational inversion within a furanoside ring by anchimerically assisted displacement; 5-deoxy-D-ribose from 5-deoxy-D-zylose. K. J. Ryan and others. bibliog Am Chem Soc J 86:2497-503 Je 20 '64

FURAZAN

Furazans and furazanium salts. R. A. Olofson and J. S. Michelman. bibliog Am Chem Soc J 86:1863-5 My 5 '64

Preparation and complex-forming ability of benzotrifurazan. A. S. Bailey and J. M. Evans. bibliog Chem & Ind p 1424-5 Ag 8 '64

FURFURAL

Experimental research on toxicity of furfural. N. Castellino and others. bibliog Archives Environmental Health 7:574-82 N '63

Furfural extraction of gas oils; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:216 S '64

Furfural refining; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:217 S '64

Quaternary liquid system benzene-furfural-iso-octane-cyclohexane. C. J. Henty and others. bibliog diag J Ap Chem 14:148-55 Ap '64

FURNACES

Finned tubes improve fired-heater efficiency. J. A. Judice. diags Oil & Gas J 61:153+ N 18 '63

See also

Blast furnaces
Fuel
Glass furnaces
Kilns
Oil burners
Refuse incinerators

Firing

Vycor, ceramic material heat-treated by gas. il Engineering 197:200 Ja 31 '64

Lining

Insulating firebrick developed for 2800-F, 100 per cent dry hydrogen service. Iron & Steel Eng 41:183-4 Je '64

FURNACES, Annealing

Advantages of direct-fired heating in continuous strip galvanizing. C. A. Turner. il diags Iron & Steel Eng 41:107-13 Mr '64

Air cushion annealing furnace produces fine grained aluminum sheet. diag Mod Metals 19:42-3 N '63

Britain's first continuous bright annealing line for stainless steel strip. il Metallurgia 69:175-6 Ap '64

Coil annealer does double duty. il Iron Age 193:98 Ap 23 '64

Compact lead-bismuth annealing plant. W. N. Jenkins; D. W. Games. bibliog il diags Iron & Steel Eng 41:106-14; Discussion. 114-16 Jl '64

Cooling coils in furnace base speed annealing cycles. diags Steel 154:54+ Ja 20 '64

Installation and operation of no. 5 continuous annealing line. L. G. Coscia. il diags Iron & Steel Eng 41:183-92 S '64

New annealing and galvanizing lines at Armco's Sheffield division. il Wire & Wire Prod 39:91+ Ja '64

Patenting process during the manufacture of high tensile steel wires for ACSR core. S. N. Nayar and J. Thomas. diags Wire & Wire Prod 39:556-8+ Ap '64

Wire annealing and galvanizing line improves production line efficiency with natural gas-fired nozzle mix-type burners. il Gas 40:76-7 My '64

See also

Electric furnaces, Annealing

Atmosphere control

Exotic metals challenge to heat treaters. il Steel 153:115 D 9 '63

Faster aluminum annealing aids grain size control. il Steel 155:56+ O 5 '64

Furnace atmospheres. N. K. Koebel; C. H. Vaughan. flow diag il diags Iron & Steel Eng 41:81-93; Discussion. 94-6 Jl '64

Republic's controlled atmosphere continous annealing furnace improves bar quality. il Iron & Steel Eng 40:153 D '63

Vacuum furnaces

Improved and new furnaces for bright annealing, patenting and galvanizing. K. Fritz. il plan diags Wire & Wire Prod 39:1551-4+ O '64

Vacuum annealing of copper wire. il diag Metallurgia 69:56-8 F '64

FURNACES, Boiler

Apartment heating costs cut by multiple-boiler system. il diag Arch Rec 134:144 D '63

Combined-circulation design eliminates by-pass, adds flexibility. W. W. Schroedter. flow diags diags Power Eng 68:43-5 S '64

Furnace temperature as a factor in combustion safety. E. S. Monroe, jr. diags Combustion 35:45-7 N; 32 D '63

Control

Ignition of burners in industrial furnaces. E. S. Monroe, jr. bibliog diags Combustion 36:44-7 S '64

Protection

See Boilers—Protection

FURNACES, Brazing

Atmosphere control

Quality joints, clean parts a result of atmosphere brazing. il Welding Eng 48:38-9 D '63

FURNACES, Carburizing

High temperature carburizing; furnaces do the job. E. E. Staples. il Metal Prog 85:74-6 My '64

Atmosphere control

Nitrogen addition speeds carburizing. il Steel 154:54-5 Je 29 '64

FURNACES, Foundry

Ventilating hoods move with tilting furnaces. S. E. Williams. il diags Plant Eng 18:113-14 F '64

See also

Electric furnaces, Foundry
Foundry practice
Furnaces, Iron founding

FURNACES, Galvanizing

Improved and new furnaces for bright annealing, patenting and galvanizing. K. Fritz. il plan diags Wire & Wire Prod 39:1551-4+ O '64

FURNACES, Heat treating

Furnace research and development; Wood Lane laboratories of A.E.I.-Birlec ltd. il Engineer 218:89-90 Jl 17 '64

Heat treating truck parts in a modern plant. R. A. Grayson. il Metal Prog 86:74-9 Jl '64

Heat treating unit in air conditioned shop isolated. il Steel 155:72+ Ag 17 '64

New heat treating line for coal mining equipment. C. P. Little and P. A. Williams. il Metal Prog 86:88-90 S '64

Preheating and stress relieving of hydraulic actuator assemblies. il Metallurgia 69:173-4 Ap '64

Recent heat treatment furnace installations; annual survey of developments. il Metallurgia 69:263-82 Je '64

Vertical radiant furnace heats rolls uniformly for hardening. R. E. Buckholdt. il Iron & Steel Eng 41:157-8 Ap '64

See also

Electric furnaces, Heat treating

Atmosphere control

Castings shed stresses in argon furnaces. il Iron Age 193:78 Mr 5 '64

Castings stew in their own gases; self-protecting atmosphere is generated in new heat treating furnace. E. J. Lenar. il Iron Age 194:71-3 Ag 13 '64

Controlling the case hardening of precision parts. N. P. Milano. il diag Metal Prog 84:78-81 N '63

Drive for scale-free surfaces. C. L. Kobrin. il Iron Age 194:113-20 O 8 '64

Furnace atmospheres. N. K. Koebel; C. H. Vaughan. flow diag il diags Iron & Steel Eng 41:81-93; Discussion. 94-6 Jl '64

Furnace flexible, cuts rejects. il Steel 153:88+ D 16 '63

Modern roller hearth furnace for bar stock. J. K. Seyler. il Wire & Wire Prod 39:1321+ S '64

Control

Automatic heat treating line improves bolt uniformity. il diag Iron Age 194:66-7 O 1 '64

Gas firing

Fuel economy in radiant tube furnaces. il diag Metallurgia 69:213-15 My '64

Gas heated equipment in Scotland. il Metallurgia 68:269-72; 69:25-7 D '63-Ja '64

FURNACES, Heating

Economical approach to increased heating capacity. R. L. Hoffman and J. E. Hovis. diags Iron & Steel Eng 40:127-34; Discussion. 134-5 N '63

Impact of new slab casting processes on reheating furnace design. C. Cone. diags Iron & Steel Eng 41:137-43; Discussion. 143-4 O '64

See also

Electric furnaces. Heating

Furnaces, Recuperative and regenerative

Atmosphere control

Role of self-generated atmospheres. F. S. Bloom. il diags Iron & Steel Eng 41:129-32 Mr '64

Control

Instrumentation and controls for operation of no. 2 soaking pits at Fairless works. W. E. Williams and J. H. Hacker. il diags Iron & Steel Eng 41:111-16 My '64

Gas firing

Direct heat scale-free furnace applications. F. B. Lanning. il diags Iron & Steel Eng 41:97-102; Discussion. 102-4 Ag '64

Preheat furnaces. Iron & Steel Eng 41:205-6 Ag '64

Lining

Billet furnace takes few special bricks. il Steel 154:108 Mr 16 '64

Rotary-hearth billet furnace utilizes sawtooth profile. il Iron & Steel Eng 41:164 Ap '64

FURNACES, Iron founding

Chevy's new foundry will melt 2560 tons nodular iron daily. Steel 154:51 My 25 '64

Ironmaking in the Stora rotary furnace. E. Bengtsson and others. diags J Metals 16: 337-9 Ap '64

Melting practice; how it has changed. Foundry 91:42-3 N '63

New plant for Hale and Hale ltd. il Chem & Ind p 1227 Jl 4 '64

Rotary furnace for smelting iron. Engineer 216:921 N 29 '63

Rotating furnace produces pig iron. Comp Air Mag 68:19-20 D '63

What properties users want in foundry coke. Foundry 92:66-7 Mr '64

See also

Cupola furnaces

Electric furnaces. Iron founding

FURNACES, Metallurgical

Blast or rotary furnace? Stora betting on latter. diag Steel 153:59 N 11 '63

Tiltable rotary versus reverberatory furnaces for refining copper. J. A. Bell. il diag Wire & Wire Prod 39:77-8+ Ja '64

Use of the similarity principle in predicting the optimum performance of iron reduction kilns. N. J. Themelis and others. bibliog diags Can Min & Met Bul 57:434-42 Ap '64

See also

Blast furnaces

Cupola furnaces

Furnaces, Reverberatory

Open hearth furnaces

FURNACES, Non-ferrous melting

Furnace to handle aluminum; question and answer. diags Foundry 92:67-8 F '64

FURNACES, Recuperative and regenerative

Approximate method for calculating heat transfer in glass furnace regenerators. J. N. Edmondson. diags Glass Ind 45:117-20+ Mr '64

FURNACES, Reverberatory

Aluminium melting; use of the reverberatory furnace. il diags Metallurgia 68:279-80 D '63

Anode furnace refractory practice at INCO's Copper refining div. E. F. Rabeau. diags Can Min & Met Bul 57:959-65 S '64

Tiltable rotary versus reverberatory furnaces for refining copper. J. A. Bell il diag Wire & Wire Prod 39:77-8+ Ja '64

FURNACES, Steel making

Basic oxygen furnaces and Kaldo highlights in Europe. W. Riedel and G. Weller. il diag Iron & Steel Eng 41:80-5 My '64

Basic oxygen steel furnaces get big plant; Bethlehem steel co's new Lackawanna plant near Buffalo. il Eng N 173:38-9 O 15 '64

Bottom replaces top in rebuilt converter. il Steel 154:92 Ap 13 '64

Economic evaluation of the FOS process. J. W. D. Pictor and P. A. Young. J Metals 16:516-19 Je '64

Hot model studies of the basic oxygen process. G. C. Smith and D. A. Dukelow. bibliog il diag J Metals 16:357-61 Ap '64

Modernization program at Duquesne works marked by completion of two 150-ton OSM furnaces. il Iron & Steel Eng 41:201+ Jl '64

New developments in basic oxygen furnaces in America. C. F. Simmers. diags Iron & Steel Eng 41:65-76; Discussion. 76-80 My '64

Operation bottoms up. il diags Iron & Steel Eng 41:152-4 Ap '64

Oxygen converters in existing open hearth buildings. R. P. Krause. il diags Iron & Steel Eng 41:121-30 Jl '64

Reduction of iron ore by the flame-smelting process. T. W. Johnson and J. Davison. bibliog flow sheet diags Iron & Steel Inst J 202:406-19 My '64

Relationship of furnace geometry and top blowing procedures. J. Reichmayr. diags Iron & Steel Eng 41:146-9 Ap '64

Rotor steelmaking and the Tandem furnace. E. Klein and K. Gebhard. bibliog il diags J Metals 16:522-8 Je '64

Scrap melting by the fuel-oxygen-scrap process. J. Pearson. J Metals 15:818 N '63

Tandem furnace process of the South African iron and steel industrial corp. E. Klein and K. Gebhard. diag Iron & Steel Inst J 201: 1050-1 D '63

Tilting furnaces take turns in tandem steelmaking. diags Iron Age 193:99-100 My 14 '64

Water-cooled membrane hoods for basic oxygen furnaces. E. Durham. il plans diags Iron & Steel Eng 41:108-17; Discussion. 117-18 Ap '64

See also

Electric furnaces. Steel making

Furnaces, Heating

Open hearth furnaces

Open hearth process

Control

Feedback signals link melter to oxygen steelmaking. B. Blum. il Iron Age 192:84-5 N 21 '63

Learning about instrumentation for basic oxygen furnaces. E. F. Pearson. il I S A J 11:69-74 F '64

Static and dynamic control of the basic oxygen process. H. W. Meyer and others. bibliog J Metals 16:501-7 Je '64

Lining

Future refractories and steelmaking. R. E. Birch. bibliog il J Metals 16:512-15 Je '64

High-alumina plastics and ramming mixes. K. K. Kappmeyer and others. il Am Cer Soc Bul 43:452-6 Je '64

Y-shaped studs anchor castable or gunited refractories. il Iron & Steel Eng 41:158 My '64

Numerical control

Computer control of the basic oxygen process. K. Katsura and others. bibliog diags J Metals 16:340-5 Ap '64

FURNITURE

Decorative laminates in the mass production of furniture. il Brit Plastics 37:128 Mr '64

Furniture for a language laboratory. N. Green. il diags Engineer 218:584-6 O 9 '64

See also

Interior decoration

Library furniture and equipment

Office furniture

Painting and finishing

Controlled dip coating of furniture legs. L. Hook. il Ind Finishing 40:42 Jl '64

Dip finishing of furniture legs. il Ind Finishing 40:116-17 Mr '64

Faster finishing with infrared drying. Ind Finishing 40:99-100 Ja '64

Finishing and decorating leather tops for furniture. R. L. Westwood. il Ind Finishing 40:36-8+ Ap '64

Finishing attractive office furniture. P. W. Daley. il Ind Finishing 40:24-8+ Je '64

Finishing furniture in a flexible cycle system. C. L. Wassum. il diag Ind Finishing 40:56-8+ S '64

Finishing library and laboratory furniture. R. O. Siren. il Ind Finishing 40:58-60+ Ag '64

Finishing of fine matched office suites. A. L. Larsen. il Ind Finishing 40:76-8+ F '64

Furniture finishes dry fast in infrared oven. il Ind Finishing 40:34-5 D '63

Plastic coatings by fluidized bed process. il Prog Arch 44:143-5 D '63

Selection of a furniture finish. C. Hatcher. Ind Finishing 40:82+ Jl '64

Selection of spray equipment for finishing furniture. Ind Finishing 40:100-1 O '64

FURNITURE, Built-in
Dormitory rooms. il plans diags Prog Arch 45:169-73 Mr '64
Pressure on space. il Engineering 196:800 D 20 '63

FURNITURE, Metal
Casual furniture firms face problems amidst prosperity. A. G. Rosenthal. il Mod Metals 19:23+ N '63

Manufacture

Project for the hobby welder. P. McKinney. il diag Welding Eng 49:62+ Je '64

Painting and finishing

Metal furniture given colorful baked finish. P. C. Bardin. il Ind Finishing 40:80-2+ N '63
Metalstand's setup for steel office furniture. P. C. Bardin. il Ind Finishing 40:24-6+ D '63
Painting diversified metal products. J. McNeff. il diags Ind Finishing 40:62-4+ Jl '64
Painting tubular steel parts electrostatically. R. K. Underwood. il Ind Finishing 40:44-6+ Jl '64
Steel furniture finished with electrostatic spray. W. W. Denhoff. il Ind Finishing 40:30-2+ O '64

FURNITURE, Plastic
Seamless plastics assist cleanup in cleanroom. il Plastics World 21:93 N '63

FURNITURE factories

Equipment

Air power for table tops at Superior Furniture. R. Krepela. il Comp Air Mag 69:22-4 My '64

FURNITURE polishes
Aerosol review, 1964: furniture polish. Manuf Chem 35:120 Mr '64
Johnson's British aerosol unit. il Soap & Chem Spec 39:115-18+ D '63

FUSED quartz. See Silica, Fused

FUSED salts. See Salts, Fused

FUSED silica. See Silica, Fused

FUSELAGE. See Airplanes—Fuselage

FUSES
Research on primers for blasting agents. N. M. Junk. il diags Min Cong J 50:98-101 Ap '64

FUSES, Electric. See Electric fuses

FUSION. See Melting

FUSION, Heat of
Determination of specific heat and heat of fusion by differential thermal analysis. D. J. David. bibliog diags Anal Chem 36:2162-6 O '64
Fusion rates of plasticizers. N. W. Touchette and others. Plastics Tech 10:33-5 Jl '64

FUSION reactions. See Nuclear reactions—Fusion

FUZES. See Fuses

G

GATT. See General agreement on tariffs and trade

GEM. See Air cushion vehicles

GADOLINIUM
Ferromagnetic resonance of single-crystal gadolinium; abstract. T. W. Moore and D. S. Rodbell. J Ap Phys 35:906 pt 2 Mr '64
Magnetization of gadolinium near its Curie temperature. F. J. Darnell and W. H. Cloud. bibliog J Ap Phys 35:935-6 pt 2 Mr '64
Neutron diffraction investigation of a gadolinium single crystal. G. Will and others. bibliog J Ap Phys 35:1045-6 pt 2 Mr '64
Saturation magnetostriction constants of gadolinium. J. Alstad and S. Legvold. bibliog J Ap Phys 35:1752-3 Je '64
Thermal conductivity and Lorenz function of gadolinium between 5° and 310°K. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:1043-4 pt 2 Mr '64

GADOLINIUM alloys
Ferromagnetism and incipient superconductivity in a $CeRu_2$+7.3 per cent $GdRu_2$ alloy. J. J. Drautman and others. bibliog J Ap Phys 35:974-5 pt 2 Mr '64
Spiral structure and moments in Gd-Dy alloys. R. M. Bozorth and J. C. Suits. bibliog J Ap Phys 35:1039-40 pt 2 Mr '64

GADOLINIUM oxide
Slow neutron capture gamma rays from samarium and gadolinium. D. L. Sastry and S. Jnanananda. bibliog diags J Sci Instr 41:497-500 Ag '64

GAGES
Accuracy measured in millionths tracks down machining errors. R. W. Militzer. il diags S A E J 72:50-3 Jl '64
Accurate tool positioning assisted by traveling indicator. il Mach 70:150 Ap '64
Better ID gaging boosts engine quality. il Am Mach 108:54-5 Ag 31 '64
Building-block gage measures to 50 millionths. il Mach 70:143 Mr '64
Comparison of fracture toughness of high-strength sheet steel as determined by compliance-gage and fracture-appearance methods. H. W. Maynor, jr. and R. E. Blair. bibliog il Welding J 43:sup358-60 Ag '64
Elements of gage control. E. G. Schilling and J. R. Lampus, jr. bibliog il Ind Quality Control 21:131-6 S '64
Expanding-plug dial-indicating gages speed in-process inspection. A. E. Atkins. il Mach 70:123-5 Ag '64
Gage blocks of superior stability; the attainment of ultrastability; abstract. M. R. Meyerson and M. C. Sola. Metal Prog 86:292+ O '64
Gage reads width of hot strip. diag Iron Age 193:61 Ap 2 '64
In-process inspection proves worth in transmission bore quality. il Mach 70:124-6 D '63
Novel height gage speeds checking. diags Iron Age 193:74 Mr 5 '64
Radioisotope gauging in the mining industry. B. W. Smith. bibliog flow diag il diags Can Min & Met Bul 57:37-44 Ja '64
Span bar broadens use of micrometer depth gage. E. J. Goulet. diags Mach 71:150 S '64
Starrett Last-Word indicators. il Mach 71:164 S '64
Throw away that separate go gage! E. S. Roth. diags Tool & Manuf Eng 53:70 N '64
V-slot gaging device insures belt transmission efficiency. W. H. Morson. diags Mach 70:126-7 Ag '64
What's new? B. A. Sussman, ed. Published in monthly numbers of Industrial quality control
See also
Ionization gages
Micrometers
Pressure gages
Strain gages
Thickness measurement
Vacuum gages
Water gages

Numerical control

N/c gaging recommended for four types of jobs. Steel 154:31+ Ap 6 '64

Testing

Evaluating performance of automatic gaging machines. R. L. Esken. il diags Tools & Manuf Eng 52:85-8 Mr '64
Federal transistorized gage-block comparators. il Mach 70:148 F '64
Gage builders seek faster testing devices. S. Hedden. Steel 155:33 Jl 6 '64
Gage inspection in millionths, not guesswork. G. Ashmead. il Mach 70:104-6 Ja '64
When and how to check dial indicators. R. A. Dana. il diags Tool & Manuf Eng 51:91-5 N '63

GAGES, Electric
Elotest electric limit indicators. il Mach 70:245 Ap '64

GAGES, Electronic
Air and electronic gaging. J. J. Dwyer, jr. diags Am Mach 108:95-110 O 12 '64 (reprints 50c)
Air-to-electronic gaging system mikes bores; checks tapers. il Iron Age 193:72-3 My 28 '64
Automatic gauging machine. Electronic Eng 36:377 Je '64
Automatic gauging machine. il Engineer 217:835 My 8 '64
Controlling extruded tube or pipe wall thickness. A. Halegua. il diag Plastics Tech 10:37-40 Jl '64
Digital read-out of section area for sheet samples. il Engineering 197:296 F 21 '64
Discharge gauge for transient density measurements. M. E. Levy. bibliog diags R Sci Instr 35:1232-3 S '64
Improved wire diameter gage with automatic control. W. C. Hutchins. Wire & Wire Prod 39:859-60+ Je '64
Lufkin electronic gaging system. il Mach 70:164 Ag '64
Strip gages feature measurement refinements. il diags Iron & Steel Eng 41:125-6 Ja '64

GAGES, Nuclear. See Radioactive substances—Industrial applications

GAGES, Pneumatic
- Air and electronic gaging. J. J. Dwyer, jr. diags Am Mach 108:95-110 O 12 '64 (reprints 50c)
- Air gages pull in tolerances. R. Johnston. il diags Iron Age 193:80-1 F 13 '64
- Air-to-electronic gaging system mikes bores; checks tapers. il Iron Age 193:72-3 My 28 '64
- Pneumatic gage puts zip in gear inspection. il Steel 155:49 N 2 '64
- Pneumatic gauging machine checks lip seals. il diag Hydraulics & Pneumatics 16:90-1 D '63
- Use of pneumatic gauging for aligning an electromagnet. B. W. Petley and K. Morris. diags J Sci Instr 40:608 D '63

GAGES, X ray
- Generation and behavior of X-rays in thickness measurements. W. R. Baarck. Iron & Steel Eng 40:108-10 N '63
- X-ray measurement of plastics film coatings. W. Arnold and D. Darnell. il diag Plastics World 22:32-3 Ja '64
- X-ray mike reads strip thickness. il Iron Age 93:103 Ap 9 '64
- X-rays record coating weights; programmed system logs weight of tin on flying strip. il diags Iron Age 193:64-5 Ap 16 '64

GAGING
- Liquid nitrogen gauge. S. M. Trujillo and L. L. Marino. diag J Sci Instr 41:184 Mr '64
- New tank gauging development. diag Ind Electronics 2:325 Jl '64
- Propellant gaging system for Apollo spacecraft. E. Ulicki. il diags Space/Aeronautics 42:68+ O '64
- Space-fuel gauge. Electronics 37:33 S 21 '64
- Tank logging system. J. T. Dobson. il diags Ind Electronics 2:30-3 Ja '64
- Toward more accurate tank-level gaging. B. P. Coe and M. P. Scarbel. diag Chem Eng 70:98+ D 23 '63

See also

Liquid level indicators

GAHNITE. See Spinels

GALACTIC systems
- Ball lightning, stellar rotation and radio galaxies. C. E. R. Bruce. Engineer 216:1047-8 D 27 '63
- Dwarf galaxies. P. W. Hodge. il diags Sci Am 210:78-86 My '64
- Galactic magnetism. Sci Am 211:46 Jl '64
- Quasi-stellar radio sources. J. L. Greenstein. il diag Sci Am 209:54-62 D '63

See also

Magellanic clouds

GALACTOMANNAN
- Dialdehyde galactomannan gums as wet end wet and dry strength additives. J. W. Opie and J. L. Keen. bibliog Tappi 47:504-7 Ag '64
- Some properties of galactomannans. P. A. Hui and H. Neukom. bibliog Tappi 47:39-42 Ja '64

GALACTOPYRANOSE
- Confirmation of the anomeric configuration of 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranosyl cyanide by proton magnetic resonance. B. Coxon and H. G. Fletcher, jr. bibliog Chem & Ind p662-3 Ap 18 '64

GALACTOSIDASES
- Lactase (beta-D-galactosidase). Y. Pomeranz. bibliog il Food Tech 18:682-7, 690-7 My '64

GALAXIES. See Galactic systems

GALENA
- Binary system PbS-PbSe. D. R. Simpson. bibliog Econ Geol 59:150-3 Ja '64
- Incorporation of uranium and silver by hydrothermally synthesized galena. J. J. Hutta and H. D. Wright. bibliog il Econ Geol 59:1003-24 S '64

GALILEI, Galileo
- Galileo and the law of inertia. S. Drake. Am J Phys 32:601-8 Ag '64
- Galileo pilgrimage. R. J. Seeger. Am J Phys 32:181-96 bibliog(p 194-6) Mr '64

GALLIUM
- Activity of gallium in NiGa and associated gallium-gallium oxide equilibria. A. U. Seybolt. bibliog diag Electrochem Soc J 111:697-700 Je '64
- Anion exchange separation of gallium, indium, and aluminum. J. Korkisch and I. Hazan. bibliog Anal Chem 36:2308-11 N '64
- Gallium. P. de la Breteque. bibliog il Ind & Eng Chem 56:54-5 Je '64
- Torsion effusion study of the vapor pressure and heat of sublimation of gallium. Z. A. Munir and A. W. Searcy. bibliog diag Electrochem Soc J 111:1170-3 O '64
- Trivalency of gallium ions formed during the dissolution of the metal in acids. M. E. Straumanis and K. A. Poush. bibliog il diags Electrochem Soc J 111:795-8 Jl '64

GALLIUM alloys
- Order-disorder change in Fe-Ga alloys. C. Dasarathy. Iron & Steel Inst J 202:51 Ja '64
- Some properties of GaSb-Ga_2Se_3 and GaSb-Ga_2Te_3 alloys. J. C. Woolley and K. W. Blazey. bibliog Electrochem Soc J 111:951-4 Ag '64

GALLIUM antimonide
- Low-energy electron-diffraction study of the cleaved (110) surfaces of InSb, InAs, GaAs, and GaSb. A. U. Mac Rae and G. W. Gobeli. bibliog il diags J Ap Phys 35:1629-38 My '64
- Some properties of GaSb-Ga_2Se_3 and GaSb-Ga_2Te_3 alloys. J. C. Woolley and K. W. Blazey. bibliog Electrochem Soc J 111:951-4 Ag '64

GALLIUM arsenide
- Absolute measurement of GaAs diodes radiation using solar cells. E. J. Schiel and J. J. Bolmarcich. IEEE Proc 51:1780-1 D '63
- Absorption data of laser-type GaAs at 300° and 77°K. W. J. Turner and W. E. Reese. bibliog diag J Ap Phys 35:350-2 F '64
- Amorphous modification of gallium-arsenic (V) oxide. A. G. Revesz and K. H. Zaininger. Am Cer Soc J 46:606 D '63
- Antireflection films on GaAs electroluminescent diodes. O. A. Weinreich. bibliog diags Electrochem Soc J 110:1124-6 N '63
- Breakdown and hysteresis in forward biased p-n GaAs luminescent junctions. R. C. C. Leite and A. Yariv. IEEE Proc 52:191-2 F '64
- Carrier transport across electroluminescent *p-n* junctions in GaAs. J. I. Pankove. bibliog diag J Ap Phys 35:1890-2 Je '64
- Characteristics of a continuous high-power GaAs junction laser. W. E. Engeler and M. Garfinkel. bibliog il diag J Ap Phys 35:1734-41 Je '64
- Cw operation of GaAs injection lasers. M. F. Lamorte and others. bibliog IEEE Proc 52:1257-8 O '64
- Cooperative effect in GaAs lasers. A. B. Fowler. bibliog J Ap Phys 35:2275-6 Jl '64
- Correlation of electrical measurements with chemical analysis in zinc- and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64
- Degradation in zinc-doped GaAs tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog J Ap Phys 35:2481-3 Ag '64
- Determination of oxygen in gallium arsenide by neutron activation analysis. R. F. Bailey and D. A. Ross. bibliog Anal Chem 35:791-4 Je '63; Discussion. 36:1879 Ag '64
- Diffused junctions in GaAs injection lasers. J. C. Marinace. il diag Electrochem Soc J 110:1153-9 N '63
- Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64
- Diffusion mechanism of Zn in GaAs and GaP based on isoconcentration diffusion experiments. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:1960-5 Je '64
- Diffusion of sulfur, selenium, and tellurium in gallium arsenide. T. H. Yeh. bibliog il Electrochem Soc J 111:253-5 F '64
- Diffusion of Zn into GaAs under the presence of excess arsenic vapor. H. Rupprecht and C. Z. LeMay. bibliog il J Ap Phys 35:1970-3 Je '64
- Direct observation of lithium precipitation at dislocations in GaAs. T. B. Light and K. B. Wolfstirn. il J Ap Phys 35:1649-51 My '64
- Effect of crystal orientation on Ge-GaAs heterojunctions. F. F. Fang and W. E. Howard. bibliog diags J Ap Phys 35:612-17 Mr '64
- Effect of orientation on the electrical properties of epitaxial gallium arsenide. F. V. Williams. bibliog Electrochem Soc J 111:886-8 Jl '64
- Efficiency measurements on GaAs electroluminescent diodes. S. V. Galginaitis. bibliog diag J Ap Phys 35:295-8 F '64
- Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64
- Electroluminescent gallium arsenide diodes with negative resistance. K. Weiser and R. S. Levitt. bibliog il diag J Ap Phys 35:2431-8 Ag '64
- Epitaxial growth of gallium arsenide on germanium substrates. T. Gabor. bibliog il diags Electrochem Soc J 111:817-27 Jl '64

GALLIUM arsenide—*Continued*

Epitaxial growth of GaAs using water vapor. G. E. Gottlieb and J. F. Corboy. bibliog il diag RCA R 24:585-95 D '63
Epitaxial growth of homogeneous solid solutions of GaAs-GaP. E. M. Hull. diags Electrochem Soc J 111:1295-6 N '64
Etching of gallium arsenide with nitric acid. D. F. Kyser and M. F. Millea. il Electrochem Soc J 111:1102-4 S '64
Excess current in gallium arsenide tunnel diodes. R. P. Nanavati and C. A. Morato De Andrade. IEEE Proc 52:869-70 Jl '64
Formed-point-contact varactor diodes utilizing a thin epitaxial gallium arsenide layer. C. A. Burrus. IEEE Proc 51:1777-8 D '63
Gas phase equilibria in the system GaAs-I_2. D. Richman. bibliog RCA R 24:596-602 D '63
Au-n-type GaAs Schottky barrier and its varactor application. D. Kahng. bibliog Bell System Tech J 43:215-24 Ja '64
Growth of As_2O_3 on GaAs. M. E. Straumanis and C. D. Kim. il diags Electrochem Soc J 111:1186-7 O '64
Growth of $(Ga_xIn_{1-x})As$ single crytals by vapor phase reaction. R. Sirrine. il Electrochem Soc J 111:750-1 Je '64
Growth of single-crystal gallium arsenide layers on germanium and metallic substrates. J. A. Amick. bibliog il diag RCA R 24:555-73 D '63
Hall effect investigation on lithium-diffused gallium arsenide. C. S. Fuller and H. W. Allison. bibliog J Ap Phys 35:1227-32 Ap '64
Incorporation of zinc in vapor grown gallium arsenide. V. J. Silvestri and F. Fang. bibliog il diags Electrochem Soc J 111:1164-7 O '64
Influence of vapor composition on the growth rate and morphology of gallium arsenide epitaxial films. R. E. Ewing and P. E. Greene. il diags Electrochem Soc J 111:1266-9 N '64
Internal second-harmonic generation in gallium arsenide lasers. L. D. Malmstrom and others. bibliog J Ap Phys 35:248-9 Ja '64
Light emitting characteristics of a GaAs diode having negative resistance. T. Yamamoto. diag IEEE Proc 52:409 Ap '64
Light-emitting diode; its application to a short-path television link. A. J. Goss and A. E. Sarson. bibliog il diags Wireless World 70:377-81 Ag '64
Light-emitting, formed-point-contact gallium arsenide and gallium arsenide-phosphide diodes. L. U. Kibler and others. IEEE Proc 52:850-1 Jl '64
Lithium-doped gallium arsenide tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog il J Ap Phys 35:3050-1 O '64
Low-energy electron-diffraction study of the cleaved (110) surfaces of InSb, InAs, GaAs, and GaSb. A. U. Mac Rae and G. W. Gobeli. bibliog il diags J Ap Phys 35:1629-38 My '64
Luminescence of GaAs grown in oxygen. W. J. Turner and others. diag J Ap Phys 34:3274-6 N '63
Modification of the near-field pattern of a GaAs laser by a magnetic field. A. B. Fowler and E. J. Walker. bibliog il J Ap Phys 35:727 Mr '64
Modification of the threshold current and near-field emission pattern of a GaAs laser by an adsorbed dielectric layer. E. J. Walker and A. E. Michel. il diag J Ap Phys 35:2285-9 Ag '64
Modulation of gallium arsenide lasers. Franklin Inst J 276:576 D '63
Optical and electrical properties of single-crystal GaP vapor-grown on GaAs substrate. H. Flicker and others. bibliog diag J Ap Phys 35:2959-62 O '64
Optical generation spectrum for the electron thermal-injection mechanism in GaAs diodes. W. N. Carr and J. R. Biard. bibliog J Ap Phys 35:2777-9 S '64
Output power from GaAs lasers at room temperature. C. C. Gallagher and others. il diag IEEE Proc 52:717-19 Je '64
P-n junctions as radiation sources. M. F. Lamorte and R. B. Liebert. bibliog diags Electronics 37:61-5 Jl 13 '64
Preparation and properties of GaAs-GaP, GaAs-Ge, and GaP-Ge heterojunctions. M. Weinstein and others. bibliog il diags Electrochem Soc J 111:674-82 Je '64
Preparation of $GaAs_xP_{1-x}$ by vapor phase reaction. W. F. Finch and E. W. Mehal. diag Electrochem Soc J 111:814-17 Jl '64
Preparation of semi-insulating gallium arsenide by chromium doping. G. R. Cronin and R. W. Haisty. bibliog Electrochem Soc J 111:874-7 Jl '64
Proposed geometry for obtaining a more highly collimated light beam of greater intensity from GaAs lasers. F. Harper. diags IEEE Proc 52:92-3 Ja '64
Pulse modulation application of the gallium arsenide light emitting diode. C. R. Seashore. il diag IEEE Proc 51:1781 D '63
Quantum efficiency of a new GaAs spontaneous infrared source. W. N. Carr and G. E. Pittman. diag IEEE Proc 52:204-5 F '64
Radiation effects in GaAs. L. W. Aukerman and others. bibliog J Ap Phys 34:3590-9 D '63
Ratio of interstitial to substitutional zinc in GaAs and its relation to zinc diffusion. K. Weiser. bibliog J Ap Phys 34:3387-9 N '63
Reactions of gallium arsenide with water vapor and hydrogen chloride gas. M. Michelitsch and others. diags Electrochem Soc J 111:1248-53 N '64
Refractive index of GaAs. D. T. F. Marple. bibliog J Ap Phys 35:1241-2 Ap '64
Shaped electroluminescent GaAs diodes. A. R. Franklin and R. Newman. bibliog diags J Ap Phys 35:1153-5 Ap '64
Spatial distribution of radiation from GaAs lasers. G. E. Fenner and J. D. Kingsley. bibliog il diags J Ap Phys 34:3204-8 N '63
Structural and optical characteristics of thin GaAs films. J. E. Davey and T. Pankey. bibliog il diags J Ap Phys 35:2203-9 Jl '64
Structure of oriented, vapor-deposited GaAs films, studied by electron diffraction. E. K. Müller. bibliog il diags J Ap Phys 35:580-5 Mr '64
Temperature limitation on continuous operation of GaAs lasers. S. Mayburg. bibliog diag J Ap Phys 34:3417-18 N '63
Transport of gallium arsenide by a close-spaced technique. P. H. Robinson. bibliog il diag RCA R 24:574-84 D '63
Transport of gallium arsenide in the vapor phase by chemical reaction. R. R. Fergusson and T. Gabor. bibliog diag Electrochem Soc J 111:585-92 My '64
Use of low-temperature deposited silicon dioxide films as diffusion masks in GaAs. S. W. Ing, jr. and W. Davern. il Electrochem Soc J 111:120-2 Ja '64
Vapor-phase synthesis and epitaxial growth of gallium arsenide. N. Goldsmith and W. Oshinsky. bibliog diag RCA R 24:546-54 D '63

GALLIUM bromides

Mechanism of transalkylation of ethylbenzene with gallium bromide-hydrogen bromide. A. Streitwieser, jr. and L. Reif. bibliog Am Chem Soc J 86:1988-93 My 20 '64

GALLIUM compounds

High-energy light emission from junctions in $GaAs_xP_{1-x}$ diodes. N. Ainslie and others. bibliog il J Ap Phys 35:105-7 Ja '64
Organogallium compounds; exact analysis of the nuclear magnetic resonance spectra of trivinyl- and tripropenylgallium-trimethylamine adducts. D. Moy and others. bibliog Am Chem Soc J 86:371-7 F 5 '64

GALLIUM oxides

Activity of gallium in NiGa and associated gallium-gallium oxide equilibria. A. U. Seybolt. bibliog diag Electrochem Soc J 111:697-700 Je '64
Amorphous modification of gallium-arsenic (V) oxide. A. G. Revesz and K. H. Zaininger. Am Cer Soc J 46:606 D '63
Dielectric properties and phases of some Ga_2O_3-Nb_2O_5 ceramic compositions. F. A. Philgreen. Am Cer Soc J 47:49-50 Ja '64
Epitaxial growth of GaP by a Ga_2O vapor transport mechanism. C. J. Frosch. bibliog il diag Electrochem Soc J 111:180-4 F '64
Growth of β-Ga_2O_3 by the Verneuil technique. A. B. Chase. il Am Cer Soc J 47:470 S '64
Reaction of GaP(s) with $H_2O(g)$ and the range of stability of GaP(s) under pressures of Ga_2O and P_2. C. D. Thurmond and C. J. Frosch. bibliog diag Electrochem Soc J 111:184-91 F '64

GALLIUM phosphide

Diffusion and solubility of zinc in gallium phosphide single crystals. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:374-8 F '64
Diffusion mechanism of Zn in GaAs and GaP based on isoconcentration diffusion experiments. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:1960-5 Je '64
Epitaxial growth of GaP by a Ga_2O vapor transport mechanism. C. J. Frosch. bibliog il diag Electrochem Soc J 111:180-4 F '64
Epitaxial growth of homogeneous solid solutions of GaAs-GaP. E. M. Hull. Electrochem Soc J 111:1295-6 N '64

GALLIUM phosphide—*Continued*

GaP surface-barrier diodes. H. G. White and R. A. Logan. bibliog diag J Ap Phys 34:1990-7 Jl '63; Discussion. M. Cowley and H. Heffner. 35:255-6 Ja '64

Growth of GaP crystals and *p-n* junctions by traveling solvent method. M. Weinstein and A. I. Mlavsky. bibliog il diag J Ap Phys 35:1892-4 Je '64

Light-emitting, formed-point-contact gallium arsenide and gallium arsenide-phosphide diodes. L. U. Kibler and others. IEEE Proc 52:850-1 Jl '64

New method of GaP growth. J. D. Broder and G. A. Wolff. il diags Electrochem Soc J 110:1150-3 N '63

Optical and electrical properties of single-crystal GaP vapor-grown on GaAs substrate. H. Flicker and others. bibliog diag J Ap Phys 35:2959-62 O '64

Preparation and properties of GaAs-GaP, GaAs-Ge, and GaP-Ge heterojunctions. M. Weinstein and others. bibliog il diags Electrochem Soc J 111:674-82 Je '64

Preparation of $GaAs_xP_{1-x}$ by vapor phase reaction W. F. Finch and E. W. Mehal. diag Electrochem Soc J 111:814-17 Jl '64

Quantum efficiency of the green and red electroluminescence of GaP. A. Pfahnl. bibliog il Bell System Tech J 43:333-4 Ja '64

Reaction of GaP(s) with $H_2O(g)$ and the range of stability of GaP(s) under pressures of Ga_2O and P_2. C. D. Thurmond and C. J. Frosch. bibliog diag Electrochem Soc J 111:184-91 F '64

Solid solubility and amphoteric behavior of tin in solution grown gallium phosphide. F. A. Trumbore and others. bibliog Electrochem Soc J 111:748-50 Je '64

Spectrophotometric determination of silicon in gallium phosphide. C. L. Luke. Anal Chem 36:2036-7 S '64

Structural defects in GaP crystals and their electrical and optical effects. M. Gershenzon and R. M. Mikulyak. bibliog il J Ap Phys 35:2132-41 Jl '64

GALVANIZED steel. See Steel, Galvanized

GALVANIZING

Advantages of direct-fired heating in continuous strip galvanizing. C. A. Turner. il diags Iron & Steel Eng 41:107-13 Mr '64

Galvanizing program cuts guard rail costs. il Roads & Sts 106:63-4 N '63

Major guide rail galvanizing program. J. A. Robertson. il Pub Works 95:114-17 O '64

New annealing and galvanizing lines at Armco's Sheffield division. il Wire & Wire Prod 39:91+ Ja '64

New system automates galvanizing operations. il Steel 155:33 Jl 20 '64

Regalvanizing; a good job shop market. Welding Eng 48:60+ N '63

Regalvanizing joints damaged in welding. M. L. Clark. il Welding J 43:311 Ap '64

Wire annealing and galvanizing line improves production line efficiency with natural gas-fired nozzle mix-type burners. il Gas 40:76-7 My '64

Zinc; versatile corrosion fighter. Plant Eng 17:93-5 D '63

See also

Steel, Galvanized

GALVANIZING furnaces. See Furnaces, Galvanizing

GALVANOMETERS

Galvanometer amplifier of increased range. W. B. Muir. diag R Sci Instr 35:408 Mr '64

High sensitivity galvanometer amplifier. R. H. Wood and H. S. Jongenburger. diag R Sci Instr 35:407-8 Mr '64

Inexpensive optical-lever amplifier for studying the Brownian motion of a galvanometer. K. S. White. bibliog diags Am J Phys 31:922-5 D '63

Measuring millimicrovolts with a ballistic galvanometer. K. Schröder and C. E. McCain. R Sci Instr 35:239-40 F '64

Vehicle performance recording. A. L. Alexander. il diags Automobile Eng 53:526-31 D '63

See also

Fluxmeters

GAME

Vitamin content and amino acid composition of some African game animals. I. Mann. bibliog J Agri & Food Chem 12:374-6 Jl '64

GAMES, Theory of

Bargaining behavior; a comparison between mature industrial personnel and college students. S. Siegel and D. L. Harnett. Op Res 12:334-43 Mr '64

Play games to cut errors. F. W. Tippitt and H. N. Forman, jr. bibliog Pet Management 36:65-9 O '64

Simulating an acceptance sampling plan. P. E. Torgersen and G. B. Thomas. bibliog diags Ind Quality Control 20:27-9+ D '63

Some optimal low-acceleration rendezvous maneuvers. B. H. Billik. bibliog diags AIAA J 2:510-16 Mr '64

GAMMA globulin. See Globulins

GAMMA ray cameras

Scintillation camera pictures human organs. il diag Machine Design 36:172 Je 18 '64

GAMMA ray spectrometers. See Spectrometers, Gamma ray

GAMMA rays

Effects of gamma radiation on the chemical properties of methyl cellulose. F. A. Blouin and others. bibliog Textile Res J 34:153-8 F '64

Formation and reactions of radiation-produced electrons and atomic hydrogen in γ-irradiated ice. L. Kevan and others. bibliog Am Chem Soc J 86:771-6 Mr 5 '64

Gamma irradiation effects in ruby. V. R. Johnson and R. W. Grow. IEEE Proc 52:185-6 F '64

Gamma irradiation of silicon; levels in *n*-type float-zone material. E. Sonder and L. C. Templeton. bibliog J Ap Phys 34:3295-301 N '63

Gamma-ray response of simple slit-collimated detectors. A. L. Lillegraven. diags J Ap Phys 35:1974-82 Je '64

Polarization of dielectrics by nuclear radiation; gamma-ray induced polarization. P. V. Murphy and B. Gross. bibliog J Ap Phys 35:171-4 Ja '64

Radiation hardening in alkali-halide crystals. J. S. Nadeau. bibliog diags J Ap Phys 35:1248-55 Ap '64

Sulfochlorination of cyclohexane induced by gamma radiation. A. Schneider and J. C. Chu. bibliog il diags Ind & Eng Chem Proc Design 3:164-9 Ap '64

22 gamma spectra of short-lived nucleides; data sheet. M. Okada. Nucleonics 21:62-3 N '63

Industrial applications

Availability of gamma facilities; list. Nucleonics 21:126-7 Ag '63

Better drill logging by gamma rays and resistivity; Peabody coal co. B. J. Archer, jr. and M. Warrick. Coal Age 69:79-81 S '64

Dow achievement; gamma irradiation in production of ethyl bromide. diag Chem Eng 70:234 N 11 '63

Nondestructive testing of pipes in hot blooms by gammascopic inspection; abstract. A. Kohn. Metal Prog 85:172-4 Mr '64

Sterilization of barley malt with gamma radiation. L. L. Kempe and others. bibliog J Agri & Food Chem 12:98-100 Ja '64

Trouble-shooting with gamma radiation. R. S. Eagle. diag Chem Eng Prog 60:69-71 O '64

See also

Radiography

Measurement

Gamma-ray and positron scintillation camera. H. O. Anger. il diags Nucleonics 21:56-9 O '63

Gamma-ray detection efficiency and image resolution in sodium iodide. H. O. Anger and D. H. Davis. R Sci Instr 35:693-7 Je '64

Measuring gamma activity with whole-body counters. G. R. Meneely and others. bibliog il Nucleonics 21:46-9 O '63

Multiplate shower counter for high energy gamma rays. S. Homma and others. diag R Sci Instr 35:506-8 Ap '64

Nonsaturating quantameter for very high intensity gamma-ray monitoring. H. Fischer and C. Schaerf. diag R Sci Instr 35:615-17 My '64

Self-powered dosimeter for gamma and X-radiation. R. Hosemann and H. F. H. Warrikhoff. bibliog diags Nucleonics 22:51-2+ Mr '64

Polarization

Gamma-ray circular polarization analyzer using a rapidly alternating magnetic field. R. E. Pechacek and others. il diags R Sci Instr 35:58-63 Ja '64

Scattering

Density and moisture gauges for the inventory of coal in storage. F. F. Rieke and R. A. Semmler. Combustion 35:25-7 Mr '64

180° Compton scattered-annihilation gamma-ray sum peak observed in gamma-ray spectrometry. W. S. Lyon. bibliog Anal Chem 36:682-3 Mr '64

GANTRIES. See Cranes, derricks, etc.

GAP, Spark. See Spark gap

GARAGES

Garage goes round and round. il Eng N 173:13 Jl 30 '64

Getting the most for the money in shop space for common carriers. R. L. Douglas. plans diags S A E J 71:44-6 D '63

Hotel houses ramped garage for guest parking; San Francisco Hilton hotel. W. C. Wing. il plan diag Eng N 172:28-30+ Mr 5 '64

Long joists span Madison garage. il Eng N 172:164 Je 18 '64

Mechanical car park. il Engineer 218:177 Jl 31 '64

Mechanical parking; a workable solution. il diags Engineering 198:278-9 Ag 28 '64

GARAGES, Municipal

Low-cost garage structure shows design finesse. il plans Arch Rec 135:164-6 Ja '64

GARDEN tools

Ground work. il Engineering 197:272 F 14 '64

Painting small spreaders. G. D. Tuttle. il Ind Finishing 40:24-6+ N '63

GARDEN tractors. See Tractors, Garden

GARDENS

Lighting

Outdoor lighting for the home. M. Fahsbender. il Elec Constr & Maint 63:102-8 Ag '64

GARNER, North Carolina

Sewerage

Garner pumps sewage to metropolitan plant. il Water & Sewage Works 110:417 N '63

GARNET

Big YIG's grow in salt. J. W. Nielsen. il diags Electronics 37:44-5 Ja 31 '64

Bismuth substitution in yttrium iron aluminum garnets. S. Geller and others. J Ap Phys 35:1754-6 Je '64

Cryogenic four-port circulator using single crystal yttrium iron garnet. R. L. Comstock. bibliog diag IEEE Proc 51:1768-9 D '63

Crystal field for Yb^{3+} in garnets; abstract. M. T. Hutchings and W. P. Wolf. bibliog J Ap Phys 35:1060 pt 2 Mr '64

Crystallographic data for rare-earth aluminum garnets. C. B. Rubinstein and R. L. Barns. Am Mineralogist 49:1489-90 S '64

Effect of rare-earth impurities on the ferrimagnetic resonance and nuclear relaxation in yttrium iron garnet. F. Hartmann-Boutron. bibliog J Ap Phys 35:889-91 pt 2 Mr '64

Experiments on an X-band garnet delay line. J. H. Collins and others. il diags Electronic Eng 36:627-9 S '64

Ferrimagnetic garnets containing pentavalent antimony. S. Geller and others. J Ap Phys 35:542-7 Mr '64

Ferrimagnetic garnets containing pentavalent vanadium. S. Geller and others. bibliog J Ap Phys 35:570-2 Mr '64

Ferrimagnetic resonance in polycrystalline ferrite and garnet disks at L-band frequencies. W. E. Case and others. bibliog diag J Res Nat Bur Stand 68C:85-9 Ap '64

Ferrimagnetic resonance of rare-earth-doped iron garnets. J. H. Van Vleck. bibliog J Ap Phys 35:882-8 pt 2 Mr '64

Ferrimagnetic resonance relaxation in rare-earth iron garnets; abstract. P. E. Seiden. J Ap Phys 35:891 pt 2 Mr '64

Field dependence of anisotropy in ytterbium-doped yttrium iron garnet. R. F. Pearson and K. Tweedale. J Ap Phys 35:1061-2 pt 2 Mr '64

Flux reversal in rare-earth-substituted yttrium iron garnets; abstract. W. Palmer. J Ap Phys 35:918 pt 2 Mr '64

Garnet isograd in pelitic rocks and its relation to metamorphic facies. M. P. Atherton. maps diags Am Mineralogist 49:1331-49 bibliog(p 1348-9) S '64

Goldmanite, a vanadium garnet from Laguna, New Mexico. R. H. Moench and R. Meyrowitz. bibliog maps Am Mineralogist 49:644-55 My '64

Growth of single-crystal garnets by a modified pulling technique. R. C. Linares. bibliog il diag J Ap Phys 35:433-4 F '64

Growth of single-crystal garnets of the system $\{Bi_{3-2x}Ca_{2x}\}[Fe_2](Fe_{3-x}V_x)O_{12}$. G. P. Espinosa and S. Geller. il J Ap Phys 35:2551-2 Ag '64

Importance of intrasublattice magnetic interactions and of substitutional ion type in the behavior of substituted yttrium iron garnets. S. Geller and others. diags Bell System Tech J 43:565-623 bibliog(p622-3) Mr '64

Induced anisotropy in YIG with Si and Mn additions. E. M. Gyorgy and F. J. Schnettler. J Ap Phys 35:1067-8 pt 2 Mr '64

Magnetic transitions in dysprosium aluminum garnet. M. Ball and others. bibliog J Ap Phys 35:937-8 pt 2 Mr '64

Magnetoelastic waves in yttrium iron garnet. W. Strauss. bibliog J Ap Phys 35:1022-3 pt 2 Mr '64

Magneto-optical properties of rare earth (III) aluminum garnets. C. B. Rubinstein, and others. J Ap Phys 35:3069-70 O '64

Magnetostriction of single-crystal dysprosium, gadolinium iron garnet, and dysprosium iron garnet. A. E. Clark and others. J Ap Phys 35:1028-9 pt 2 Mr '64

New rare earth garnets. il Bell Lab Rec 42:280 S '64

New rare earth garnets. Franklin Inst J 278:156-7 Ag '64

Order-disorder effects on ferromagnetic resonance. E. G. Spencer and R. T. Denton. bibliog J Ap Phys 35:2633-5 S '64

Oxygen ion diffusion in single-crystal and polycrystalline yttrium iron garnet. A. E. Paladino and others. bibliog il diag Am Cer Soc J 47:280-2 Je '64

Precise ferromagnetic resonance magnetometers for differential measurements in fields characterized by large gradients. C. F. Hempstead and others. il diags R Sci Instr 35:785-9 Jl '64

Spin-wave anisotropy effects in parallel pumping in YIG. J. C. Sethares and others. J Ap Phys 35:898-9 pt 2 Mr '64

Square-loop polycrystalline garnets with and without magnetic field heat treatment. E. A. Nesbitt and others. J Ap Phys 35:2934-5 O '64

Superparamagnetism in magnetically dilute systems. Y. Ishikawa. bibliog diag J Ap Phys 35:1054-9 pt 2 Mr '64

Wide-range garnet-tuned tunnel-diode oscillator. M. L. Wright. il IEEE Proc 52:631 My '64

YIG filters in the 50-500 mc range. R. Blau. IEEE Proc 52:1074-5 S '64

Spectra

Natural spectrum of polycrystalline YIG as a function of density. J. D. Holm and A. H. Morrish. bibliog il J Ap Phys 35:894-5 pt 2 Mr '64

Results of magnetic-optical investigation of rare-earth iron garnets. G. S. Krinchik and G. K. Tjutneva. bibliog J Ap Phys 35:1014-17 pt 2 Mr '64

GARRETT, Alfred B.

ACS award in chemical education. por Chem & Eng N 42:108 Mr 9 '64

GARRYINE. See Alkaloids

GARVAN medal

Garvan medal to Birgit Vennesland. Chem & Eng N 42:98 F 17 '64

GAS

See also

Gas as fuel
Gas industry
Gas producers
Liquefied petroleum gas
Propane
Sewage sludge—Gas production

Analysis

See Gas analysis

Laws and regulations

See also

Gas, Natural—Laws and regulations

GAS, Natural

Better processing, catalysts, equipment further reduce methane-reforming costs. G. T. Lee and others. flow diag diag Oil & Gas J 62:154-6 My 11 '64

Energy on the move; Columbia Gas motion film. il Am Gas Assn Mo 46:10-11 Jl-Ag '64

Gas firms drawn to non-regulated business. Pet Management 36:88-90 Jl '64

Gassing game. J. Clark. Published in monthly numbers of Gas

Growing outlet for majors' gas; their own refineries. maps Oil & Gas J 62:74-5 F 17 '64

Measurement, instrumentation, control. Published in monthly numbers of Gas

Metal industry gains from gas explosion. R. R. Kay. il Iron Age 194:72 S 17 '64

More insight into adsorption design. J. M. Campbell and others. bibliog diags Hydrocarbon Process & Pet Refiner 42:89-96 D '63

1964 picture looking brighter for natural-gas processors. Oil & Gas J 62:72-3 Mr 16 '64

Oil, gas future wins vote of confidence. Pet Management 35:188-9 D '63

GAS, Natural—*Continued*

Refresher course in gas production, transmission, distribution and utilization (cont). I. Deutsch. flow diags diags Gas 39: 81-6+ D '63

See also

Ethane

Gas as fuel—Natural gas

Independent natural gas association of America

Methane

Analysis

CIG's measurement lab serves company and associates. J. Light. il Gas 40:89-92 Jl '64

Determination of mercaptans in sour natural gases by gas liquid chromatography and microcoulometric titration. E. M. Fredericks and G. A. Harlow. bibliog diags Anal Chem 36:263-6 F '64

Genetic relation of various types of natural gas deposits in Japan. R. Sugisaki. bibliog maps diags Am Assn Pet Geologists Bul 48:85-101 Ja '64

Methods of determining hydrogen sulfide and total sulfur content. W. A. Garratt. Gas 40:74-7 Ja '64

Rapid analysis of condensate system by chromatography. D. M. Kehn. il diag J Pet Tech 16:Trans 435-40 Ap '64

Carbon dioxide content

New K-data show value of water wash. H. R. Froning and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:125-30 Ap '64

Competition with oil fuel

See Oil fuel industry—Natural gas competition

Compression

See also

Gas, Natural—Pipe lines—Compressor stations

Condensate wells

Big gas-condensate find near production. map Oil & Gas J 62:68+ Ap 20 '64

Conditioning

Adsorption process uses multistaging. F. C. Boston. il diags Hydrocarbon Process & Pet Refiner 43:141-5 Ag '64

Bidding the gas-processing plant. K. Brooks. Oil & Gas J 62:92-4 Jl 13 '64

Building this plant didn't come easily. R. H. Bench. il Oil & Gas J 62:57-8 Je 29 '64

Construction boosting capacity in gas processing and refining. R. B. Bizal. il Oil & Gas J 62:95 Jl 13 '64

Cost of operating gas-processing plant. W. L. Nelson. Oil & Gas J 62:164 Je 8 '64

Cryogenic techniques find new roles in natural-gas processing. Oil & Gas J 62:121-2 Jl 6 '64

Fluor solvent process plants; how they are working. P. A. Buckingham. bibliog Hydrocarbon Process & Pet Refiner 43:113-16 Ap '64

Gas processing is booming in south Louisiana. K. Brooks. map Oil & Gas J 62:99-101 Mr 16 '64

Gas processing still setting records. K. Brooks. Oil & Gas J 62:92-3 Mr 16 '64

Helium recovery plant. il Engineer 218:36-7 Jl 3 '64

How Phillips optimizes gas-processing plants. P. E. Schmidt and H. W. Hennigan. bibliog diags Oil & Gas J 62:134+ Ap 27 '64

How to design a natural-gas absorber. T. H. Russell and W. A. Thompson. bibliog diags Oil & Gas J 62:80-3 Je 1 '64

How to remove mercaptans from natural gas. W. W. Williams. diag Hydrocarbon Process & Pet Refiner 43:121-4 Jl '64

Industry adding 48 new plants in '64. R. B. Bizal. il Oil & Gas J 62:141-2 Mr 16 '64

Lease-gas processing (cont). R. N. Maddox. diags Oil & Gas J 61:85-6 D 9 '63; 62:81-2 Ja 13; 92-3 Ap 13; 146-8 My 25; 100-1 Jl 20; 97-8+ Ag 24; 74-5 S 28 '64

New Atlantic plant taps Bayou Sale gas. K. Brooks. il diag Oil & Gas J 62:96-7 Mr 23 '64

New K-data show value of water wash. H. R. Froning and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:125-30 Ap '64

New pilot data on Sulfinol process. C. L. Dunn and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:150-4 Mr '64; Same cond. Oil & Gas J 62:95-8 Mr 16 '64

1964 survey of U.S. and Canadian gas-processing plants; special report. R. B. Bizal. il Oil & Gas J 62:113-39 Mr 16 '64 (reprints $2)

Sun revamp boosts output at little increase in cost. W. T. Lawler. il Oil & Gas J 62:82-3 Ag 24 '64

Sunray Houma plant on floating slabs. J. J. Weatherby. il diags Hydrocarbon Process & Pet Refiner 43:109-12 Ap '64

Conservation

See also

Gas, Natural—Proration

Dehydration

Adsorption unit's dehydration capacity doubled at economical cost. R. L. White and J. M. Gregory. il diags Oil & Gas J 62:192-4 S 21 '64

Desiccant is changed during regeneration. il Oil & Gas J 62:137-8 O 19 '64

Drying with fixed-bed desiccants. J. B. Fleming and others. bibliog il Chem Eng 71:69-76 Ag 31 '64

El Paso changes dehydrator desiccant during regeneration cycle without stoppage. il Gas 40:97 Ag '64

Wellhead dehydration of natural gas with calcium chloride. O. W. Fowler. il diag Oil & Gas J 62:123-4 Ag 3 '64

Fires and fire protection

Wild well completed via unusual technique. il diag Oil & Gas J 62:168 Je 8 '64

Fuel use

See Gas as fuel—Natural gas

Geology

Gas producing zones of Greenbrier (Mississippian) limestone, southern West Virginia and eastern Kentucky. A. C. Youse. bibliog maps diags Am Assn Pet Geologist Bul 48:465-86 Ap '64

Genetic relation of various types of natural gas deposits in Japan. R. Sugisaki. bibliog maps diags Am Assn Pet Geologists Bul 48:85-101 Ja '64

Geology of Ray Sponaugle well, Pendleton County, West Virginia. W. J. Perry, jr. bibliog map diags Am Assn Pet Geologists Bul 48:659-69 My '64

Mancos-Mesaverde (upper cretaceous) intertonguing relations southeast Piceance Basin, Colorado. D. L. Warner. bibliog il maps diags Am Assn Pet Geologists Bul 48: 1091-107 Jl '64

Helium content

Extraction of helium from natural gas. il Engineering 196:568 N 1 '63

New plant contributing valuable helium. il Pet Management 35:168-9 N '63

Laws and regulations

Ban upheld on temporary rate hikes. Oil & Gas J 62:88 Ap 6 '64

California gas issue getting more complex. Oil & Gas J 62:95 Je 8 '64

Canadian gas transmission regulation and accounting. A. G. Austin. Am Gas Assn Mo 46:23-4+ Mr; 23-4+ Ap '64

Canadians feud over reserve figures. Oil & Gas J 62:60 Jl 13 '64

Court challenges FPC pricing policy. Oil & Gas J 62:30-1 Ag 31 '64

Examiner gives in on in-place gas sale. Oil & Gas J 62:60 Ag 24 '64

FPC evaluating policies. N. Regeimbal. Gas 40:17+ F '64

FPC examiner endorses gas competition. Oil & Gas J 62:81 S 21 '64

FPC fights for control of gas-reserve sales. Oil & Gas J 62:47 N 2 '64

FPC lease-transfer authority denied. Oil & Gas J 62:48 Ag 10 '64

FPC opens California gas-supply case. Oil & Gas J 61:50 N 25 '63

FPC to study attitude toward pipelines. Oil & Gas J 62:47 F 3 '64

FPC's Charles Ross; leaning toward decontrol of producers? C. La Motte. Oil & Gas J 62: 101-3 Ja 27 '64

FPC's really in a bind. H. K. Hudson and R. L. Howard. Oil & Gas J 62:72-5 Ag 24 '64

FPC's Ross doubts wisdom of area pricing. Oil & Gas J 61:115 D 2 '63

Gas producers, Swidler meet head on. Oil & Gas J 62:40-1 S 28 '64

Gas rate refunds. T. F. Bowes. Am Gas Assn Mo 46:25-7+ Ap '64

Incentives lower gas prices. Oil & Gas J 62: 53 S 28 '64

IPAA asks new approach on gas prices Oil & Gas J 61:39 N 25 '63

GAS, Natural—Laws and regulations—*Cont.*

Kansas commission wins in Hugoton case. Oil & Gas J 61:101 N 11 '63
Natural gas regulation problems, old and new. J. C. Swidler. Am Gas Assn Mo 45:13-14+ N '63
Oil-state congressmen take lead in warming up natural-gas issue. Oil & Gas J 62:74-5+ Ap 20 '64
One company's response to city taxes; Wenatchee, Washington. W. E. Wall. Gas 40:57-61 F '64
Producers kick off attack on FPC. Oil & Gas J 62:75-6 Ap 6 '64
Record wide spacing asked for record deep field. map Oil & Gas J 62:110-11 Jl 27 '64
Regulatory and legislative trends. Published in monthly numbers of Gas
Texas tightens controls on condensate. R. J. Enright. Oil & Gas J 61:104-5 D 2 '63
They agree on how, but not why gas producers should be regulated. Oil & Gas J 62:38-40 Je 29 '64
UGPL can stop taking gas from Continental, examiner rules. Gas 39:96 D '63
A way out for FPC. J. W. McKie. Oil & Gas J 62:76-8+ Ag 31 '64
See also
Gas. Natural—Rates
Pipe lines—Right of way

Liquefaction

Algerian gas to France, Britain. il Am Gas Assn Mo 46:2-4 F '64
Cryogenics comes to construction. Eng N 172:24 F 27 '64
First for Alabama Gas; LNG facility a unique source of peak shaving gas. flow chart il diag Am Gas Assn Mo 46:2-3+ My '64
French launch LNG tanker. il Oil & Gas J 62:100 S 14 '64
Insulated tanks for peak shaving. M. B. Clapp. diag Gas Age 131:34-7 Je '64
Liquefaction plant to use new method. diag Oil & Gas J 62:26-7 Je 29 '64
LNG; best way to supply Yukon? Can Chem Process 48:56 F '64
Liquefied natural gas plant. il diag Am Gas Assn Mo 46:2-3+ S '64
LNG plant to use expander cycle. il diag Pet Management 36:117+ Ag '64
New cavities increase storage space 12.3 per cent; with tables. R. B. Bizal. il Oil & Gas J 62:126-7+ O 19 '64 (reprints $1)
New LNG peak-shaving plan proposed. Oil & Gas J 62:48-9 Mr 30 '64
New LNG plant may clear way for other projects being considered. diag Oil & Gas J 62:48-9 Mr 9 '64
On stream; liquefaction plant for Sahara natural gas; process flowsheet. E. Guccione. Chem Eng 71:182-4 O 12 '64
Sahara gas shipped to Britain. il Mod Metals 20:54+ F '64
Storing liquefield natural gas underground. L. Critides. diags Ind & Eng Chem 56:9-10
Work drags on unique reservoir. il Oil & Gas J 62:101 O 5 '64
Ja '64
See also
Methane, Liquid

Measurement

Automatic gas-flow control system adaptable to gas field production. J. C. Anderson and L. M. McMillon. il maps diags J Pet Tech 16:253-8 Mr '64
Closing the measurement gap; symposium. il diags Gas 39:107-11 S; 130-42 O; 104-7 N; 105+ D '63; 40:53-61 Ja; 113-17 Mr; 70-1 Ap; 88-92 My '64
CIG's measurement lab serves company and associates. J. Light. il Gas 40:89-92 Jl '64
Integrators for field orifice meters. C. B. Nolte. il diag Instruments & Control Systems 37:137-8 O '64
Larger natural-gas role seen for mass flowmeter. il diag Oil & Gas J 62:179-80 S 7 '64
Recording instruments prove out for Cascade. il Gas 40:62-3 S '64
Sharing the responsibilities in gas measurement. G. W. McCullough. Gas 40:83-5 N '64
Storage measurement station design. J. O. Loker. il diags Gas 40:43-52 Ja '64

Offshore development

Computer defines gas field in record time. Gas 40:131 N '64
Dutch gas flames North Sea search. D Rigassi. il maps diags Pet Management 36:90-7+ My '64
Old units take on new job; three old compressors to handle gas from offshore leases. il Oil & Gas J 62:52-3 F 3 '64

Offshore drilling structures

Remote station self-sufficiency via gas flow turbine generator. S. J. Bellassai. il Gas Age 130:26-8+ N '63

Peak load

Automated peak-shaving plant serves fast-growing Massachusetts area. N. F. Stultz. il Gas 40:55-8 Jl '64
Buried pipe gas storage. W. H. Lewis. il Am Gas Assn Mo 46:30-2 F '64
First for Alabama Gas; LNG facility a unique source of peak shaving gas. flow chart il diag Am Gas Assn Mo 46:2-3+ My '64
How Btu control improves peak shaving with propane-air gas. P. E. Petrash. diag Gas 40:156-7+ O '64; Same. il Gas Age 131:32-3+ O '64
Insulated tanks for peak shaving. M. B. Clapp. diag Gas Age 131:34-7 Je '64
New LNG peak-shaving plan proposed. Oil & Gas J 62:48-9 Mr 30 '64
North Shore solves peak-day problems; propane-air is injected into two 12-in. and one 24-in. pipeline for distribution. il Gas 40:93 Jl '64
Peak shaving with propane-air; utilization and evaluation. C. C. Heath. il plan diags Gas 39:70-3 D '63
See also
Gas, Natural—Storage

Pipe lines

Bridge replaces buried crossing. D. H. McNeile. il Oil & Gas J 62:117-18 S 21 '64
Computerized pipeline data-gathering and control. R. P. Sanders and R. E. Schauer. il map diag Gas Age 131:21-5 O '64
Evaluation and development team serves all divisions at Northern Natural. L. M. Ward. il Oil & Gas J 62:99-103 My 11 '64
FPC spooks gas-pipeline investors. Oil & Gas J 62:45-6 Je 15 '64
FPC to study attitude toward pipelines. Oil & Gas J 62:47 F 3 '64
Foreman's innovations saves time, money. H. F. Unger. il Gas 40:88-9 Mr '64
42-inch pipe to store natural gas underground. il Gas 40:82 Ja '64
Interstate pipelines top $15-billion investment level. J. P. O'Donnell. Oil & Gas J 62:165+ Mr 16 '64
Metallurgical aspects of natural gas transmission pipelines. A. Hanson and J. G. Parr. Can Min & Met Bul 57:123-5; Discussion. 137-8 F '64
Multiphase flow in pipelines. A. E. McDonald and O. Baker. bibliog diags Oil & Gas J 62:68-71 Je 15; 171-5 Je 22; 64-7 Je 29; 118-19 Jl 6 '64
Natural gas pipe double jointed in plant. il Welding Eng 49:56-7 Ag '64
New line to serve iron, steel areas in the Great Lakes region. map Oil & Gas J 62:38 Mr 30 '64
Ol' Man River vs. the pipeliner. il Gas Age 131:21-3 Mr '64
180 miles of buried pipeline to be used for telemetering. il diag Oil & Gas J 62:129+ Jl 6 '64
Pipeline operation by the numbers. flow charts il diag Gas Age 131:34-6 Jl '64
Plastics pipe proven in the gas patch. B. Eklund. il diag Gas 40:82-7 Mr '64
Red Snapper line may be limited to gas. Oil & Gas J 61:34 D 23 '63
Retire old, install new Mississippi crossings. il Oil & Gas J 61:195+ N 18 '63
7.5 per cent rise in four-year gas construction seen. Am Gas Assn Mo 46:13 S '64
Shell's trunk lines in Mid-continent area are covered by microwave. H. C. Bozeman. il map Oil & Gas J 62:112-14 S 21 '64
Teaching financial analysts about gas pipelines. il Gas 40:78-80 N '64
Ton-mile estimates for the natural gas pipeline industry. M. H. Sonstegaard. Gas 40:87-9 Je '64

Cleaning

Pigging pays off in restoring efficiency of natural-gas pipelines. R. Lembcke. Oil & Gas J 62:76-9 Ag 10 '64

Compressor stations

Are your workhorses delivering top performance? il diag Oil & Gas J 62:88-91 Ja 13 '64
Automated compressor station overcame severe winter test; Mountain Fuel Supply's Nightingale station. Oil & Gas J 62:105-7 My 4 '64
Automated peak-shaving plant serves fast-growing Massachusetts area. N. F. Stultz. il Gas 40:55-8 Jl '64

GAS, Natural—Pipe lines—Compressor stations —*Continued*

Automation of a gas compressor station. B. S. Simon and J. B. Vraspir. diags Gas 40:90-3 F '64
Columbia Gulf building nine compressor stations in 4½ months. H. C. Bozeman. il Oil & Gas J 62:155-6 O 5 '64
Compressor-engine waste heat reconcentrates glycol. C. J. Carmichael. il diags Oil & Gas J 62:72-4 N 2 '64
Compressor station built with an eye to the future. H. C. Bozeman. diags Oil & Gas J 62:137 S 14 '64
Compressor station responds to flow set-point command. D. E. Anderson. il Oil & Gas J 62:139-40 Mr 2 '64
Computered dispatching cuts costs, ups efficiency for Pacific Gas. il diag Oil & Gas J 62:146+ Ag 3 '64
Computers control wellhead, replace chart meters in Louisiana gas field. W. B. Bleakley. il diag Oil & Gas J 61:184+ N 11 '63
Designing sales measuring and regulating stations. T. Z. McDaniel. il Gas 40:72-8 Jl; 76-81 Ag '64
Electronic analyzer aids in spotting engine ills. il diags Oil & Gas J 62:96-8 F 24 '64
From here, where, is how they describe Southern Union's Jicarilla, New Mexico station. P. S. Lemley. il Gas 40:118-19 Mr '64
Gas-engine preventive maintenance has spectacular payout. J. E. Mallow. diags Oil & Gas J 62:126-9 Je 8 '64
Gas turbines boost horsepower at two Transco stations. H. C. Bozeman. il diags Oil & Gas J 62:104-5 My 11 '64
How to build a packaged compressor station. H. C. Bozeman. il Oil & Gas J 61:192-4 N 11 '63
Hydraulic drive adds life to compressor units. il Oil & Gas J 62:163-4 Ap 6 '64
Infinite-step system provides close engine-loading control. R. J. Baker and M. Martin. il diag Oil & Gas J 62:118-20 Je 8 '64
Joint effort produces compact gas compressor set. il Gas 40:113-14 O '64
New compressor station is all automatic, remote-controlled. D. E. Anderson. il Gas 40:84-7 My '64
Now they're skid-mounting complete compressor stations. B. J. Hasha. il Oil & Gas J 62:112-14+ My 11 '64
Old units take on new job; three old compressors to handle gas from offshore leases. il Oil & Gas J 62:52-3 F 3 '64
Operating engine compressors in the Far North. J. R. Drum. il Gas 40:96-8 N '64
Pocket computers control remote engines on TGP pipeline. F. A. Schmidt. il Oil & Gas J 62:64-6 Ag 31 '64
Site to station in two months. D. Hale. il Pet Management 35:263-4+ N '63
Skelly automates down the middle. L. A. Murphy. il Pet Management 36:110+ Ap '64
Two turbine compressors run from single control. il Oil & Gas J 62:145-6 Ag 17 '64

Compressor stations, Electric

Automating remote stations. J. W. Joyner and B. P. Elder. diags J Pet Tech 16:757-9 Jl '64
Two flow-control lines dispatched from one center. J. P. O'Donnell. il map diags Oil & Gas J 62:108-11 S 21 '64

Construction

Buton coating; X-60 pipe and CO_2 welding team up. J. P. O'Donnell. il map Oil & Gas J 62:92-4+ Mr 30 '64
Laying through the muskeg; with snowmobile. il Gas Age 131:24-5 Mr '64
Lots of points solve Dutch pipeline's water problem. il Oil & Gas J 62:108-9 O 5 '64
Marsh line laid a mile a day. H. C. Bozeman. il map Oil & Gas J 62:89-93 Ag 3 '64
Natural gas comes to southern Oregon. J. S. Richards. il maps Gas 40:97-100+ O '64
New pipeline opens big area in northeastern British Columbia. J. P. O'Donnell. il map Oil & Gas J 62:66-8 N 2 '64
Pipeline construction: who's building where, U.S. and abroad. Published in the last issue of each month of Oil and gas journal
Propane line being taped at rate of 15,000 ft/day. il Oil & Gas J 62:146-7 Ag 17 '64
Sometimes it's faster to blast. il Gas Age 131:28-9 Mr '64
Texas crew completes Illinois gas line. il Welding Eng 49:50 N '64
Texas eastern transmission corporation builds Venice-New Roads line. il map Gas 40:55-69 Ag '64
Underwater tie-in saves for United. il Oil & Gas J 62:139 O 26 '64

Costs

Pipeline installation and equipment costs; special reports. J. P. O'Donnell. Oil & Gas J 62:87-102 Jl 6 '64 (reprints $1)

Gathering lines

Constructing and operating gas gathering and transmission systems in the Far North. A. Allyne and J. A. Stewart. il maps diag Gas 40:66-75 S '64
Gas well automation. H. J. Fitzgibbon. il map diags J Pet Tech 16:873-6 Ag '64
How Pemex automates oil gathering. J. E. Kastrop. flow diag il Pet Management 35:74-8 D '63
Telemetering and commingling save at Duson. W. B. Bleakley. il diag Oil & Gas J 61:76-8 D 23 '63

Location

Electronic surveying quickly spots pipeline route in south Louisiana. H. C. Bozeman. il map Oil & Gas J 62:110-11 My 11 '64

Maintenance and repair

Industry's first gastronaut. il diags Pet Management 36:79-81 F '64

Protection

Applying thermoelectric generation to cathodic protection. R. E. Hodge. il Gas 40:108+ O '64
Buton coating; X-60 pipe and CO_2 welding team up. J. P. O'Donnell. il map Oil & Gas J 62:92-4+ Mr 30 '64
Thermoelectric generator protects remote Montana pipeline. D. P. Price and R. Schwede. il map diag Gas 40:83-4+ Jl '64
Thermoelectric generators fill unique protective role. R. D. Carlton. Oil & Gas J 62:88-9 Ja 6 '64
You can't coat pipelines in a classroom. K. S. Hagius. Gas 40:98-9 F '64

Australia

Coming next for Australia; natural-gas pipelines? map Oil & Gas J 61:68-9 D 16 '63

British Columbia

Constructing and operating gas gathering and transmission systems in the Far North. A. Allyne and J. A. Stewart. il maps diag Gas 40:66-75 S '64
New pipeline opens big area in northeastern British Columbia. J. P. O'Donnell. il map Oil & Gas J 62:66-8 N 2 '64

Canada

Big doings up North: illustrations with text. Gas Age 131:27 S '64
Canadian contractor finds U.S. job tough. L. O. Rowland. il Pet Management 36:104-6+ My '64
Canadian gas transmission regulation and accounting. A. G. Austin. Am Gas Assn Mo 46:23-4+ Mr; 23-4+ Ap '64
Canadians mix imaginative with practical. map Oil & Gas J 62:114-15+ Ag 17 '64
Demand-geared Trans-Canada expansion hits high. L. O. Rowland. il map Pet Management 35:264-6+ D '63
Laying through the muskeg; with snowmobile. il Gas 131:24-5 Mr '64
Loop rush ranks Canada's year one of best. L. O. Rowland. il Pet Management 35:252-3+ N '63
Trans Canada plans to add 13 stations, 126 miles of pipe. map Oil & Gas J 62:126 F 17 '64

Europe

First link to be built this year. maps Oil & Gas J 62:78-9 F 10 '64
Mediterranean crossing will play big role. J. A. Kornfeld. il maps diags Pet Management 36:94-5+ Ag '64

Georgia

Natural gas goes to Georgia's off-shore islands. il Gas 40:96 S '64

Great Britain

British gas network awaits African methane. J. Trotter. il map Chem Eng 71:96-8 O 12 '64

Louisiana

Electronic surveying quickly spots pipeline route in south Louisiana. H. C. Bozeman. il map Oil & Gas J 62:110-11 My 11 '64
Marsh line laid a mile a day. H. C. Bozeman. il map Oil & Gas J 62:89-93 Ag 3 '64

GAS, Natural—Pipe lines—Louisiana—*Cont.*

Texas eastern transmission corporation builds Venice-New Roads line. il map Gas 40:55-69 Ag '64

Mexico

Pemex pipeline push aids Mexico's development. F. H. Love. il maps Pet Management 35:242-54 D '63

Missouri

FPC examiner endorses gas competition. Oil & Gas J 62:81 S 21 '64

Netherlands

Lots of points solve Dutch pipeline's water problem. il Oil & Gas J 62:108-9 O 5 '64

Oklahoma

New pipeline opens Arkoma Basin. R. J. Aiken. il map plan Gas 40:80-3 S '64

Russia

Soviet super lines lag despite claims. maps Pet Management 35:270+ N '63

Texas

Deep ground beds and rectifiers protect Seadrift's pipeline. il diag Oil & Gas J 62:124-5 F 17 '64

Line rushed for rich Coyanosa. map Oil & Gas J 62:40 Ag 31 '64

Sometimes it's faster to blast. il Gas Age 131:28-9 Mr '64

Two oil firms propose huge pipeline into Texas gas area. Oil & Gas J 62:66-7 Ag 17 '64

West Virginia

Custom made for West Virginia. J. F. Skinner. il Gas 40:76-9 S '64

Prices

Court challenges FPC pricing policy. Oil & Gas J 62:30-1 Ag 31 '64

Incentives lower gas prices. Oil & Gas J 62:53 S 28 '64

IPAA asks new approach on gas prices. Oil & Gas J 61:39 N 25 '63

Permian examiner favors incentive prices for gas. Oil & Gas J 62:82-5 S 21 '64

Rollback ordered on some Louisiana gas prices. Oil & Gas J 62:118-19 Ja 27 '64

Production methods

Atomic fracing may give huge gas yield. Oil & Gas J 62:110-11 O 12 '64

Standard test for foaming agents. G. I. Freeze. diags Oil & Gas J 62:168+ Jl 27 '64

Water-lift and disposal operations in low-pressure shallow gas wells. C. G. Melton and R. L. Cook. diag J Pet Tech 16:619-22 Je '64

Production rate

Computer regulates gas flow. F. N. Woodruff. diag Oil & Gas J 62:90-2 My 4 '64

Proration

Louisiana forms group to study gas proration. Oil & Gas J 62:64-5 Ag 17 '64

Louisiana to tackle gas proration. H. M. Wilson. Oil & Gas J 62:103-4 Jl 27 '64

Prospecting

All totals up, all signs go for Canada. maps Oil & Gas J 62:91-2+ Ag 17 '64

California gas find is promising. il map Oil & Gas J 62:125-6 Mr 30 '64

Canadian foothills belt now stretches nearly 100 miles farther south in British Columbia. F. J. Gardner. map Oil & Gas J 62:121 Mr 30 '64

Enigma of oil and gas economics. W. B. Davis. bibliog Pet Management 36:53-60 Ag '64

Hunton gas jumps state line. F. J. Gardner. map Oil & Gas J 62:131 Jl 13 '64

Interest centers in New Mexico's Eddy. map Oil & Gas J 62:156 F 17 '64

It takes many dry holes to open the windows needed to successfully locate new oil and gas fields. J. R. Rensch. maps Oil & Gas J 62:192-5 My 18 '64

New Mexico gets in on the deep act. J. C. McCaslin. map Oil & Gas J 62:123 S 28 '64

New West Virginia area probed for gas production. P. H. Price and O. L. Haugh. map Oil & Gas J 62:134 Ag 24 '64

Oil, gas pays abound in Texas' Floresville-Stockdale. L. L. Palmer. map Oil & Gas J 62:190-3 Ap 6 '64

Permian Basin may get biggest gas play. R. J. Enright. maps diags Oil & Gas J 62:202-6 My 11 '64

Saturation approach to exploration may aid oil hunters. diags Oil & Gas J 62:180-1 Ag 3 '64

Strike is first in Central Australia. map Oil & Gas J 62:100 Mr 2 '64

Rates

Area pricing; can FPC reach agreement? Oil & Gas J 62:61-2 Mr 16 '64

Area-pricing working well, FPC contends. Oil & Gas J 62:86 Mr 2 '64

Ban upheld on temporary rate hikes. Oil & Gas J 62:88 Ap 6 '64

Dutch post rates on gas. Oil & Gas J 62:126 O 12 '64

Gas rate refunds. T. F. Bowes. Am Gas Assn Mo 46:25-7+ Ap '64

Giant gas rate settlement. Gas 40:11-12 F '64

Influence of underground storage on purchase costs. O. W. Nelson. Am Gas Assn Mo 46:34-5 Ja '64

Is area pricing the solution? Oil & Gas J 61:37-41 D 9 '63

Louisiana pays gas users. Oil & Gas J 62:104 Jl 27 '64

Natural gas regulation problems, old and new. J. C. Swidler. Am Gas Assn Mo 45:13-14+ N '63

Statistics

API year-end review finds natural gas 1963 net production up, drilling down. Am Gas Assn Mo 46:29 Ja '64

Gas industry makes record gains. E. Adams. Pet Management 36:121 Ap '64

Gas-liquids' percentage gain lagging. Oil & Gas J 62:156 Ja 27 '64

Gas-storage capacity up 2.8 per cent but rate of growth is slowing. R. B. Bizal. Oil Gas J 62:93-9 My 4 '64 (reprints 50c)

Natural gas. Oil & Gas J 62:145 Jl 27 '64

Natural gas; production and consumption 1962. Gas Age 130:29-31 N '63

Natural gas reserves and production. il Am Gas Assn Mo 46:2-6 Ap '64

Storage

Buried pipe gas storage. W. H. Lewis. il Am Gas Assn Mo 46:30-2 F '64

Concrete solution for fuel storage woes. il Chem Eng 71:96 Mr 16 '64

Cryogenics comes to construction. Eng N 172:24 F 27 '64

Determining gas-filled pore volume in a water-drive gas-storage reservoir. R. M. Hubbard and J. R. Elenbaas. bibliog diag J Pet Tech 16:383-8 Ap '64

First for Alabama Gas: LNG facility a unique source of peak shaving gas. flow chart il diag Am Gas Assn Mo 46:2-3+ My '64

42-inch pipe builds storage system. il Gas Age 131:31 Mr '64

42-inch pipe to store natural gas underground. il Gas 40:82 Ja '64

Gas-storage capacity up 2.8 per cent but rate of growth is slowing. R. B. Bizal. Oil & Gas J 62:93-9 My 4 '64 (reprints 50c)

High-pressure 42-in. pipe used for gas storage. il Oil & Gas J 62:88-9 F 24 '64

How Sun safed and operates its Marcus Hook storage caverns. P. E. Coggins, jr. and J. A. McConnell. diags Oil & Gas J 62:112-14+ My 18 '64

Influence of underground storage on purchase costs. O. W. Nelson. Am Gas Assn Mo 46:34-5 Ja '64

Logging observation wells in gas storage. T. E. Lovan, jr. and L. D. McCluskey. J Pet Tech 16:745-50 Jl '64

New caverns boost liquefied-gas storage capacity 10½ percent. R. B. Bizal. il map Oil & Gas J 61:104-6+ O 21 '63 (reprints $1)

New cavities increase storage space 12.3 per cent; with tables. R. B. Bizal. il Oil & Gas J 62:126-7+ O 19 '64 (reprints $1)

Planning for a winter success story. H. H. Hoover. maps Gas 39:97-103 N '63

Storage measurement station design. J. O. Loker. il diags Gas 40:43-52 Ja '64

Storing liquefied natural gas underground. L. Critides. diags Ind & Eng Chem 56:9-10 Ja '64

Transco's in-ground storage facility set to begin service this winter. R. C. Proctor. il diag Oil & Gas J 62:92-3 N 2 '64

Two-way turbine; gas compressor unit to pump gas into and out of underground storage field. il Gas Age 131:39 O '64

Underground-storage capacity for liquefied gas; U.S. and foreign statistics. il Oil & Gas J 61:110-12+ O 21 '63

Underground storage on the line. G. Dippon. map Gas 40:78-80 My '64

Work drags on unique reservoir. il Oil & Gas J 62:101 O 5 '64

GAS, Natural—*Continued*

Sulfur content

Better H_2S analysis in natural gas. D. M. Mason. bibliog diags Hydrocarbon Process & Pet Refiner 43:145-50 O '64

Fluor solvent process plants; how they are working. P. A. Buckingham. bibliog Hydrocarbon Process & Pet Refiner 43:113-16 Ap '64

Girbotol; Girdler corp. flow diag Hydrocarbon Process & Pet Refiner 43:207 S '64

Glycol-amine gas treating; Fluor corp. flow diag Hydrocarbon Process & Pet Refiner 43:208 S '64

How to remove mercaptans from natural gas. W. W. Williams. diag Hydrocarbon Process & Pet Refiner 43:121-4 Jl '64

Methods of determining hydrogen sulfide and total sulfur content. W. A. Garratt. Gas 40:74-7 Ja '64

New K-data show value of water wash. H. R. Froning and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:125-30 Ap '64

New look at sulfur plants. A. R. Valdes. flow sheet diags Hydrocarbon Process & Pet Refiner 43:104-8 Mr; 122-4 Ap '64

Sulfur recovery; the Ralph M. Parsons co. diag Hydrocarbon Process & Pet Refiner 42:222 N '63

Tables, calculations, etc.

Report on the AGA manual for the determination of supercompressibility factors for natural gas. P. H. Miller. Gas 40:128-9 My '64; Same. Am Gas Assn Mo 46:11-13 Ap '64

Transportation

FPC broadens its jurisdiction again. Oil & Gas J 61:127 N 18 '63

Water problem

Glycol-amine gas treating; Fluor corp. flow diag Hydrocarbon Process & Pet Refiner 43:208 S '64

Water-lift and disposal operations in low-pressure shallow gas wells. C. G. Melton and R. L. Cook. diag J Pet Tech 16:619-22 Je '64

Well completion

Computers control wellhead, replace chart meters in Louisiana gas field. W. B. Bleakley. il diag Oil & Gas J 61:184+ N 11 '63

SNPA tames Lacq with ease; now. il Oil & Gas J 62:86 F 17 '64

Wild well completed via unusual technique. il diag Oil & Gas J 62:168 Je 8 '64

Well control

Gas well automation. H. J. Fitzgibbon. il map diags J Pet Tech 16:873-6 Ag '64

Well drilling

Aspects of gas deliverability. W. Hurst and others. bibliog J Pet Tech 15:Trans 668-76 Je '63; Discussion. 15:1150-1 O '63

Exploratory drilling in 1963. L. R. Newfarmer and E. L. Dillon. bibliog maps Am Assn Pet Geologists Bul 48:749-77 Je '64

Well drilling, Subaqueous

See also
Gas, Natural—Offshore drilling structures

Well logging

Logging observation wells in gas storage. T. E. Lovan, jr. and L. D. McCluskey. J Pet Tech 16:745-50 Jl '64

Well pressure

Determination of formation characteristics from two-rate flow tests. D. G. Russell. diags J Pet Tech 15:Trans 1347-55 D '63

How to find static reservoir pressure for gas well. E. T. Guerrero. bibliog Oil & Gas J 62:101-2 Ap 13; 137+ My 18; 70-2 Je 29 '64

Pressure drop threatens young field; Bryans Mill field in east Texas. map Oil & Gas J 62:32+ Ag 31 '64

Well spacing

Record wide spacing asked for record deep field. map Oil & Gas J 62:110-11 Jl 27 '64

Well testing

Standardization of gas well tests. L. D. Galloway and H. L. Kendrick. bibliog J Pet Tech 16:1113-16 O '64

Alaska

Developments in Alaska in 1963. J. M. Sweet. bibliog maps Am Assn Pet Geologists Bul 48:1035-49 Je '64

Anchorage, Alaska, Supply to

Anchorage story. il diag Gas Age 131:23-30+ Ag '64

When the earthquake struck. W. J. Stump. il maps Gas 40:70-5 Ag '64

Arizona

Developments in Arizona and western New Mexico, 1963. R. D. Mathews and T. E. Mayhew. maps Am Assn Pet Geologists Bul 48:993-8 Je '64

Arkansas

Arkoma gas field is big, complex. D. A. Six. map diags Oil & Gas J 62:214-18 Je 8 '64

Developments in Arkansas and north Louisiana in 1963. G. C. Shute and T. G. Carmody. bibliog map Am Assn Pet Geologists Bul 48:941-9 Je '64

Hunton gas jumps state line. F. J. Gardner. map Oil & Gas J 62:131 Jl 13 '64

Australia

Australian gas prospects keep growing. map Oil & Gas J 62:80-1 Jl 6 '64

Australian test flows gas from Permian. map Oil & Gas J 62:65-6 Ja 13 '64

Gas strike made in West Australia. Oil & Gas J 62:50-1 Je 1 '64

New stepout in Australia's Amadeus Basin has a good gas flow. map Oil & Gas J 62:48-9 Je 29 '64

Phillips-Sunray gas strike in Queensland sets two depth records. Oil & Gas J 62:70-1 S 7 '64

Queensland strike may be major gas find. il Oil & Gas J 62:120 N 2 '64

Strike is first in Central Australia. map Oil & Gas J 62:100 Mr 2 '64

Belgium, Supply to

Dutch may export gas to Belgium soon. map Oil & Gas J 62:95 My 11 '64

British Columbia

Canadian foothills belt now stretches nearly 100 miles farther south in British Columbia. F. J. Gardner. map Oil & Gas J 62:121 Mr 30 '64

See also
Gas, Natural—Pipe lines—British Columbia

California

California adds new gas reserves. C. J. Lawrence. map Oil & Gas J 61:230 N 11 '63

California gas find is promising. il map Oil & Gas J 62:125-6 Mr 30 '64

California producers push gas-exchange deal. Oil & Gas J 62:80 F 24 '64

FPC opens California gas-supply case. Oil & Gas J 61:50 N 25 '63

Two more enter fight for California gas market. Oil & Gas J 61:61-2 O 21 '63

Canada

All totals up, all signs go. maps Oil & Gas J 62:91-2+ Ag 17 '64

Building this plant didn't come easily. R. H. Bench. il Oil & Gas J 62:57-8 Je 29 '64

Canada adding capacity at a record clip. Oil & Gas J 62:94 Mr 16 '64

Canada's first helium plant operating at partial capacity. il Oil & Gas J 62:71 Mr 30 '64

Canada's investment must double. E. D. Loughney. Oil & Gas J 62:87-90 Ag 17 '64

Canadian horizon unbounded. W. H. Dalton. Gas Age 131:25 F '64

Canadians feud over reserve figures. Oil & Gas J 62:60 Jl 13 '64

Demand for Canadian oil, gas to soar. Oil & Gas J 61:98-100 N 4 '63

Developments in eastern Canada in 1963. J. E. S. Milne and R. D. Howie. bibliog maps diags Am Assn Pet Geologists Bul 48:1022-34 Je '64

Developments in western Canada in 1963. T. J. Latus. bibliog maps Am Assn Pet Geologists Bul 48:1009-21 Je '64

Gas share of Canadian market rises to 15 per cent. D. Cass-Beggs. Am Gas Assn Mo 46:12 Ja '64

Will the money be forthcoming? Oil & Gas J 62:37-9 F 3 '64

See also
Gas, Natural—Pipe lines—Canada

GAS, Natural—*Continued*

Colorado

Developments in Colorado and western Nebraska in 1963. C. A. Martin, jr. maps Am Assn Pet Geologists Bul 48:978-92 Je '64

Eastern states

Developments in Atlantic coastal states between New Jersey and South Carolina in 1962. H. G. Richards. Am Assn Pet Geologists Bul 48:957 Je '64

Europe

New horizons for gas in Europe. E. Symonds. bibliog maps J Pet Tech 16:499-502 My '64; Same. Gas 40:82-5 Ag '64; Same. Am Gas Assn Mo 46:10-13+ S '64

Europe, Supply to

Jersey plans to ship Libyan gas to Italy, Spain. Oil & Gas J 62:79 O 26 '64

France

Lacq gas feeds petrochem complex. G. L. Farrar. il diag Oil & Gas J 62:62-4 Ja 6 '64

SNPA tames Lacq with ease; now. il Oil & Gas J 62:86 F 17 '64

France, Supply to

Algerian gas to France, Britain. il Am Gas Assn Mo 46:2-4 F '64

Great Britain

Play sweeps across North Sea to English coast. Oil & Gas J 62:64-5 Ja 13 '64

Great Britain, Supply to

Algerian gas to France, Britain. il Am Gas Assn Mo 46:2-4 F '64

British gas network awaits African methane. J. Trotter. il map Chem Eng 71:96-8 O 12 '64

First Algerian gas enroute to Britain. Oil & Gas J 62:105-6 O 5 '64

Sahara gas shipped to Britain. il Mod Metals 20:54+ F '64

Idaho

Developments in Wyoming and Idaho in 1963. J. D. Copen. map Am Assn Pet Geologists Bul 48:965-9 Je '64

Illinois

Developments in Illinois in 1963. J. Van Den Berg and L. L. Whiting. maps Am Assn Pet Geologists Bul 48:820-8 Je '64

Indiana

Developments in Indiana in 1963. G. L. Carpenter. maps Am Assn Pet Geologists Bul 48:829-35 Je '64

Japan

Genetic relation of various types of natural gas deposits in Japan. R. Sugisaki. bibliog maps diags Am Assn Pet Geologists Bul 48:85-101 Ja '64

Japan, Supply to

Japan may soon use U.S., Canadian gas. J. P. O'Donnell. map Oil & Gas J 62:64-5 O 19 '64

Kansas

Kansas commission wins in Hugoton case. Oil & Gas J 61:101 N 11 '63

Kansas well taps shallow gas. il Oil & Gas J 62:116 Ja 6 '64

Kentucky

Oil and gas developments in Kentucky in 1963. E. Nosow. Am Assn Pet Geologists Bul 48:813-17 Je '64

Kuwait

Kuwait seeks market for surplus gas. map Oil & Gas J 61:67-8 D 16 '63

Libya

Jersey plans to ship Libyan gas to Italy, Spain. Oil & Gas J 62:79 O 26 '64

Louisiana

Developments in Arkansas and north Louisiana in 1963. G. C. Shute and T. G. Carmody. bibliog map Am Assn Pet Geologists Bul 48:941-9 Je '64

Developments in Louisiana Gulf Coast in 1963. N. E. Smith and J. S. Eldred. bibliog map Am Assn Pet Geologists Bul 48:930-40 Je '64

Louisiana forms group to study gas proration. Oil & Gas J 62:64-5 Ag 17 '64

Louisiana; high-pressure well completed. Oil & Gas J 62:37 Mr 30 '64

Louisiana pays gas users. Oil & Gas J 62:104 Jl 27 '64

Louisiana to tackle gas proration. H. M. Wilson. Oil & Gas J 62:103-4 Jl 27 '64

Mexico

Operations with muscle put Pemex in HPI forefront. il map Pet Management 35:198-204 D '63

Michigan

Developments in Michigan in 1963. R. E. Ives and G. D. Ells. map Am Assn Pet Geologists Bul 48:836-45 Je '64

Michigan well taps Stray pay. Oil & Gas J 62:134 Ag 24 '64

Mid-continent region

Developments in north Mid-continent in 1963. E. E. Pugh, jr. map Am Assn Pet Geologists Bul 48:846-51 Je '64

Middle East

How to put Middle East gas to work. C. S. Snodgrass and G. Gibson. maps Oil & Gas J 61:162-4+ D 30 '63

Montana

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

Nebraska

Developments in Colorado and western Nebraska in 1963. C. A. Martin, jr. maps Am Assn Pet Geologists Bul 48:978-92 Je '64

Netherlands

Caltex well snarls Dutch land squabble. map Oil & Gas J 61:91 D 30 '63

Dutch gas flames North Sea search. D. Rigassi. il maps diags Pet Management 36: 90-7+ My '64

Dutch may export gas to Belgium soon. map Oil & Gas J 62:95 My 11 '64

Dutch post rates on gas. Oil & Gas J 62:126 O 12 '64

Dutch set low gas prices to win markets at home. P. Swain. map Oil & Gas J 62:58-60 Ja 20 '64

France negotiating for big supply of Dutch natural gas. Oil & Gas J 61:42 D 23 '63

Frisian Islands lure North Sea drillers. map Oil & Gas J 62:64 Ja 13 '64

NAM's bid for Dutch permit protested. map Oil & Gas J 62:74 Ag 17 '64

Successes spark Dutch drilling. map Oil & Gas J 62:66+ O 19 '64

Nevada

Oil and gas developments in Utah and Nevada in 1963. R. P. Kunkel. maps Am Assn Pet Geologists Bul 48:970-7 Je '64

New Mexico

Developments in Arizona and western New Mexico, 1963. R. D. Mathews and T. E. Mayhew. maps Am Assn Pet Geologists Bul 48:993-8 Je '64

Developments in west Texas and southeastern New Mexico in 1963. C. R. Jones and others. bibliog map Am Assn Pet Geologists Bul 48:881-94 Je '64

Interest centers in New Mexico's Eddy. map Oil & Gas J 62:156 F 17 '64

New Mexico gets in on the deep act. J. C. McCaslin. map Oil & Gas J 62:123 S 28 '64

New York (state)

Gas and oil developments in New York state, 1963. W. L. Kreidler. map Am Assn Pet Geologists Bul 48:778-83 Je '64

New Zealand

New Zealand gas can't seem to find a market. Oil & Gas J 62:126 Jl 27 '64

North Dakota

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

North Sea

Frisian Islands lure North Sea drillers. map Oil & Gas J 62:64 Ja 13 '64

Play sweeps across North Sea to English coast. Oil & Gas J 62:64-5 Ja 13 '63

Wild well spurs North Sea play. il map Oil & Gas J 62:59-61 Jl 6 '64

GAS, Natural—*Continued*

Ohio

Ohio's first gas plant planned in Morrow County. Oil & Gas J 62:48-9 Mr 30 '64

Oil and gas developments in Ohio during 1963. W. L. Calvert and others. maps diags Am Assn Pet Geologists Bul 48:801-8 Je '64

Oklahoma

Arkoma gas field is big, complex. D. A. Six. map diags Oil & Gas J 62:214-18 Je 8 '64

Deep gas play in Oklahoma warms up. il map Oil & Gas J 62:46 Ja 20 '64

Developments in Texas and Oklahoma Panhandles in 1963. J. M. Shelby. map Am Assn Pet Geologists Bul 48:875-80 Je '64

Hunton gas jumps state line. F. J. Gardner. map Oil & Gas J 62:131 Jl 13 '64

Oil and gas exploration developments in Oklahoma during 1963. P. A. Chenoweth and D. L. Hansen. bibliog map Am Assn Pet Geologists Bul 48:852-74 Je '64

Oregon, Supply to

Natural gas comes to southern Oregon. J. S. Richards. il maps Gas 40:97-100+ O '64

Pennsylvania

Developments in Pennsylvania, 1963. W. S. Lytle. bibliog map diags Am Assn Pet Geologists Bul 48:784-800 Je '64

Quebec (province)

General review of oil and gas developments in the province of Quebec. J. B. Maughan. Can Min & Met Bul 57:641-7 Je '64

Rocky Mountain region

Basin study will unearth needed new ideas. il Oil & Gas J 62:124-5+ S 28 '64

Russia

Soviets have high hopes for desolate Siberian region. R. G. Gibson. map Oil & Gas J 62:112-14 Je 8 '64

South Dakota

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

Southeastern states

Developments in southeastern states in 1963. H. E. Karges and C. H. Bruce. map Am Assn Pet Geologists Bul 48:950-6 Je '64

Tennessee

Oil and gas developments in Tennessee in 1963. H. C. Milhous. map Am Assn Pet Geologists Bul 48:818-19 Je '64

Texas

Big gas-condensate find near production. map Oil & Gas J 62:68+ Ap 20 '64

Developments in east Texas in 1963. B. W. Fox. map Am Assn Pet Geologists Bul 48:916-21 Je '64

Developments in north Texas in 1963. V. Pettigrew. map Am Assn Pet Geologists Bul 48:895-900 Je '64

Developments in south Texas in 1963. G. M. Heinzelmann and others. map Am Assn Pet Geologists Bul 48:909-15 Je '64

Developments in Texas and Oklahoma Panhandles in 1963. J. M. Shelby. map Am Assn Pet Geologists Bul 48:875-80 Je '64

Developments in upper Gulf Coast of Texas in 1963. J. R. Reynolds and W. A. Piette. map Am Assn Pet Geologists Bul 48:922-9 Je '64

Developments in west-central Texas in 1963. W. L. Walton. map Am Assn Pet Geologists Bul 48:901-8 Je '64

Developments in west Texas and southeastern New Mexico in 1963. C. R. Jones and others. bibliog map Am Assn Pet Geologists Bul 48:881-94 Je '64

Lucky field on Gulf Coast has new gas production. Oil & Gas J 62:160-1 F 17 '64

Oil, gas pays abound in Texas' Florseville-Stockdale. L. L. Palmer. map Oil & Gas J 62:190-3 Ap 6 '64

Permian Basin may get biggest gas play. R. J. Enright. maps diags Oil & Gas J 62:202-6 My 11 '64

Pressure drop threatens young field: Bryans Mill field in east Texas. map Oil & Gas J 62:32+ Ag 31 '64

Producer-engineer-purchaser, a case history. J. R. Kubitz and H. M. Shearin. maps J Pet Tech 16:719-26 Jl '64

Texas tightens controls on condensate. R. J. Enright. Oil & Gas J 61:104-5 D 2 '63

United States

Crude reserves in U.S. slip again. Oil & Gas J 62:34-6 Mr 30 '64

Gas for future; 905 trillion cu ft. map Oil & Gas J 62:101-2 O 12 '64

Utah

Oil and gas developments in Utah and Nevada in 1963. R. P. Kunkel. maps Am Assn Pet Geologists Bul 48:970-7 Je '64

West Virginia

New West Virginia area probed for gas production. P. H. Price and O. L. Haugh. map Oil & Gas J 62:134 Ag 24 '64

Oil and gas developments in West Virginia in 1963. R. C. Tucker. Am Assn Pet Geologists Bul 48:809-12 Je '64

Western states

Developments in West Coast area in 1963. E. C. Doell. maps Am Assn Pet Geologists Bul 48:999-1008 Je '64

Wyoming

Developments in Wyoming and Idaho in 1963. J. D. Copen. map Am Assn Pet Geologists Bul 48:965-9 Je '64

Yukon, Supply to

LNG; best way to supply Yukon? Can Chem Process 48:56 F '64

GAS, Producer

See also

Gas producers

GAS analysis

Adaptation of a gas chromatograph for analysis of radioactive gas samples. A. D. Horton and others. diag Anal Chem 35:1988-9 N '63

Chemical scavenger probes in nonequilibrium gasdynamics. D. E. Rosner and others. bibliog AIAA J 2:779 Ap '64

Chromatographic analysis of gases from soils and vegetation, related to geochemical prospecting for petroleum. G. H. Smith and M. M. Ellis. bibliog Am Assn Pet Geologists Bul 47:1897-903 N '63

Complete gas chromatographic analysis of fixed gases with one detector using argon as gas carrier. D. P. Manka. flow diag Anal Chem 36:480-2 Mr '64

Determination of nickel and iron carbonyls in town gas. A. B. Densham and others. bibliog J Ap Chem 13:576-80 D '63

Determination of permanent gases dissolved in water by gas chromatography. A. A. Kilner and G. A. Ratcliff. flow diag Anal Chem 36:1615-17 Jl '64

Incipient transformer fault detected by combustible gas monitoring program and ultrasound tests. C. I. Crawford and A. F. Wilson. il diag IEEE Trans Power Apparatus & Systems 83:926-30 S '64

Microwaves analyze gas composition. diag Control Eng 11:101 Ap '64

Modified combustion pipette to analyse explosive mixtures of methane with air in Haldane mine-air analysis apparatus. A. K. Ghosh and B. Mitra. diags Chem & Ind p269-70 F 15 '64

Review of fundamental developments in analysis. A. P. Hobbs. Anal Chem 36 [no 5]: 130R-9R bibliog(p 137R-9R) Ap '64

Solid-state electric field generator for the monopole gas analyzer. S. J. Lins and M. C. Paul. diags R Sci Instr 35:1084-5 Ag '64

See also

Flue gas—Analysis

Gas, Natural—Analysis

Gases—Apparatus

GAS appliance industry

Directories

1964 buyers guide. Gas Age Buyers Guide p5-69 Ja '64

Statistics

Appliance sales up eight per cent last year. Am Gas Assn Mo 46:6-7+ Ja '64

Outlook for 1964 appliance sales. E. R. Martin. Gas Age 131:26-7 F '64

GAS appliance manufacturers association

Annual meeting, White Sulphur Springs, W. Va. Am Gas Assn Mo 46:23 Je '64

GAS appliances

Gas products. Published in monthly numbers of Gas

See also

Gas industry

Gas water heaters

Ignition devices

See Gas burners—Ignition devices

Standards

Common bond; NFPA and A.G.A. W. L. Walls. Am Gas Assn Mo 46:17-18 O '64

Revisions and additions to gas appliance standards approved. Am Gas Assn Mo 46:18 Je '64

Ventilation

New opportunity, making SE-ducts. Am Gas Assn Mo 46:23 F '64

Study of vent cowl performance and location. H. L. McPherson. il Am Gas Assn Mo 46:9-10 F '64

GAS appliances, Domestic

All-gas kitchen target of New Jersey campaign. il Am Gas Assn Mo 46:21+ Mr '64

Gas powers space age appliances at the World's fair. il Pet Management 36:112-13 Jl '64

Manhattan gas home. il Am Gas Assn Mo 46:14-15 O '64

Mobile homes and travel trailers. G. Corfield. Gas 39:15+ N '63

Outdoor gas consumers. il Gas Age 131:28-9 My '64

Ultimate house, modern setting for gas. il plan Am Gas Assn Mo 46:12-13 F '64

What do you think of gas as a fuel? what do you think of gas appliances? B. Eklund. il Gas 40:90-5 N '64

Working together works; annual home service workshop, 17th, New Orleans, Feb. 5-7. Am Gas Assn Mo 46:6-8 Mr '64

Merchandising

See also

Gas companies—Appliance selling

Gas stoves—Merchandising

GAS as fuel

Another look at the Uni-Plant concept. R. M. McIntyre. Gas 40:122-3 Ap '64

Estimating the economics of on-site generation. R. W. Chapin. Gas 40:106-10+ Jl '64

Gas-fired or infrared ovens: why; question and answer. Ind Finishing 40:96 Ag '64

Gas heated equipment in Scotland. il Metallurgia 68:269-72; 69:25-7 D '63-Ja '64

Gas infrared heaters provide comfort heating at Virginia plant; fuel savings result. il Air Cond Heat & Ven 61:89-90 Ag '64

Gas the garbageman. il Gas Age 131:30-3 S '64

Hi-rise battle plan. R. L. Leusch. Am Gas Assn Mo 46:10-12 My '64

How and why of gas in Scottish industry. il Engineering 196:698-700 N 29 '63

Industrial gas in Scotland. Engineer 216:917 N 29 '63

MAPP industrial fuel gas now distributed nationally. il Mach 70:122 My '64

Space center marks new energy concept. il Gas 40:131-4 Mr '64

Total energy systems. il diags Dom Eng 204:70-7 Jl '64

What do you think of gas as a fuel? what do you think of gas appliances? B. Eklund. il Gas 40:90-5 N '64

See also

Boilers—Gas firing

Carbon monoxide as fuel

Electric plants (central stations)—Gas engine stations

Gas appliances, Domestic

Gas cooking

Gas heaters

Gas heating

Gas heating, Industrial

Gas producers

Liquefied petroleum gas

Propane

Natural gas

Algas goes all-gas. diag Gas Age 131:28-9 Ap '64

All-gas high rise; Philadelphia apartment building. il Am Gas Assn Mo 46:9-10 Mr '64

Almost-total-energy package used in Atlanta apartment. il Gas 40:107-9 Ag '64

Ammonia products plant will use 50 million therms a year. R. Hays. il plan Gas 40:69-72 My '64

Architect's viewpoint on total energy. Z. Rike. il Gas 40:103-5 Je '64

Beach city to have West Coast's first total energy high-rise apartment. Gas 40:116-17 Je '64

Blueprint for the future for gas-fired total energy systems. S. Orlofsky. Gas 40:106+ Je '64

Canada's school-in-the-round features total energy concept. G. Campbell. il Gas 40:121-2 Ja '64

Creating total energy marketing programs. H. C. Finnell. Gas 39:58-60 N '63

Discount store cashes in on total energy. il plan Gas Age 131:24-6 Ap '64

Energy vista. J. J. Kennedy. diag Am Gas Assn Mo 46:24+ My '64

5860 apartments are fueled by all-gas power plant. il Gas 40:110-11 Je '64

Flame control; safety factor in process heating. E. F. Buonanno. diags Plant Eng 18:128-30 Jl '64

Gas boosts steel production. il Gas 40:81-2 N '64

Gas brings life to the desert. il Gas Age 131:25-7 Jl '64

Gas conquers hard-to-handle heating-cooling job. il Gas 40:110-11 Ag '64

Gas power in the desert. E. Sterrett. il Gas 40:sup3-5 O '64

Gas to power huge energy systems in Los Angeles. il Oil & Gas J 62:194 O 12 '64

Gas turbine energy system powers the Gas pavilion. H. C. Daudet. il diags Gas 40:113-18+ My '64; Excerpt. Am Gas Assn Mo 46:8-10+ Ap '64

Improve antiknock rating of LP-gas. A. E. Felt and R. V. Kerley. bibliog Hydrocarbon Process & Pet Refiner 43:157-64 Ap '64

Industrial engine developments. C. A. Weinert. il diags Automotive Ind 129:78-81+ N 15 '63

Integrating the modular on-site gas turbine energy system. W. L. Hinde and A. H. Williams. diag Gas Age 131:21-4 My '64

Miami moves from fuel oil to natural gas at Alexander Orr treatment plant. Water Works Eng 116:987 D '63

Modern motor inn uses modern fuel. il Gas Age 131:28-9 Je '64

Natural gas aids water supply. il Gas Age 130:36+ D '63

Natural gas boasts a green thumb. il diags Gas Age 130:30-1 D '63

Natural-gas irrigation project. il Mech Eng 86:67 Mr '64

New energy systems for building services. R. G. Meschino. bibliog diags Gas 40:112-15 Ja; 107-11 F; 127-30 Mr; 118-21 Ap '64

New era: total energy; A.G.A. residential and industrial and commercial gas sections, meeting, Oct. 15. Am Gas Assn Mo 45:22-3+ N '63

Northern Illinois-Gas sells total energy in new general office building. il Gas Age 131:22-4 Ap '64

Plant takes to gas for heating and cooling economy. il Plant Eng 18:159-60 Ja '64

Portland's Hoyt hotel revives good old days. il Am Gas Assn Mo 46:20-2 F '64

Preheat furnaces. Iron & Steel Eng 41:205-6 Ag '64

Qualco uses gas for precision casting of aluminum. il Gas 40:73-5 My '64

Small industry discovers total energy. il Gas Age 131:24-5 My '64

Small-turbine energy package. il Am Gas Assn Mo 46:30-2 O '64

Total energy: a concept becomes practical. Gas Age 131:21 Ap '64

Total energy comes to Canada. il diag Gas Age 131:38-9 Ag '64

Total energy for Canadian school. G. N. Campbell. plan diag Am Gas Assn Mo 46:32-3+ Ja '64; Excerpts. Gas 40:121-2 Ja '64

Total energy in Vancouver; Finning tractor & equipment co. E. T. Nesbitt. il Gas 40:103-6 Ag '64

Total energy on public display. il Gas Age 131:33 Ap '64

Total energy school. il Gas Age 131:27 Ap '64

Total turbine energy refrigeration. il diag Gas Age 131:23-6 Je '64

Tractor dealer runs shop with on-site generation system. il Gas 40:112 Ag '64

Uni-Plant metered energy service extended to residential market. Am Gas Assn Mo 46:10 Mr '64

Why 420-cycle electric power? H. C. Daudet. Am Gas Assn Mo 46:28-9+ Je '64

See also

Gas engines

Oil fuel industry—Natural gas competition

GAS bearings. See Bearings

GAS burners

Adjustable burner mount for use in atomic absorption spectroscopy. C. P. Eickoff and B. J. Sykes. il diag J Sci Instr 41:113-14 F '64

Economical approach to increased heating capacity. R. L. Hoffman and J. E. Hovis. diags Iron & Steel Eng 40:127-34; Discussion. 134-5 N '63

Gas-fired burner system. il Glass Ind 45:440-1 Ag '64

Gas-fired immersion-tube-heated tanks. il Engineer 216:959 D 6 '63

High intensity combustion for pulsating and sonic heating systems. L. B. Geller and others. bibliog diags ASHRAE J 6:41-7 S '64

Instantaneous braze heating-cooling makes new design practical; McIntire co. E. S. Chatlos. il diag Mach 70:121-2 Ag '64

Minnegasco goes full speed with hot rod. il Gas Age 131:32-3 Ja '64

Use of gas burners eliminates cooling tower fog near expressway. il Heating-Piping 35: 62 N '63

Wire annealing and galvanizing line improves production line efficiency with natural gas-fired nozzle mix-type burners. il Gas 40: 76-7 My '64

See also

Bunsen burner

Control

Flame control; safety factor in process heating. E. F. Buonanno. diags Plant Eng 18: 128-30 Jl '64

Ignition devices

Ignition system for multiple gas burners. il Engineering 197:153 Ja 24 '64

Noise

Gas burner combustion noise study. H. L. McPherson. il Am Gas Assn Mo 46:19 O '64

Safety measures

Obtain gas firing protection with flame safeguards. E. F. Buonanno. diags Plant Eng 18:153-4 S '64

GAS burning equipment

See also

Gas heating, Industrial

GAS carburizing. See Case hardening—Gas carburizing

GAS chromotagraphy. See Chromatographic analysis

GAS cleaning

Fiber filters now clean chlorine. J. H. Nichols and J. A. Brink, jr. flow sheet il diag Chem Eng 71:221-2 Je 8 '64

Infra-sonic effect of liquid separation in gas pulsation dampeners. W. S. Everett. il diag Gas 40:72+ Je '64

Novel separator efficiently removes impurities from gases. diag Chem Eng 71:96 Ag 17 '64

See also

Blast furnace gas—Cleaning

Gas purification

Venturi scrubbers

GAS companies

El Paso gives details on divesting. Oil & Gas J 62:66-7 O 26 '64

Evaluating LPG plants in demand areas. L. L. Raiford and W. W. Chew. bibliog Hydrocarbon Process & Pet Refiner 43:101-6 F '64

Northern sells its reserves. Oil & Gas J 62:82 Ag 3 '64

United Gas: mining for new profits. G. T. Kinney. il Oil & Gas J 62:68-71 S 7 '64

See also

Gas, Natural—Pipe lines

Gas industry

Accounting

Arkansas Louisiana hires an electronic wizard. il Gas 40:62-5 F '64

Brooklyn succeeds in teaming up men, machines and station plan. R. V. Delaney. il Gas 40:68-71 Jl '64

Canadian gas transmission regulation and accounting. A. G. Austin. Am Gas Assn Mo 46:23-4+ Mr; 23-4+ Ap '64

Electronic data processing has grown up. D. Stoner. Am Gas Assn Mo 45:23-4+ D '63

Flow-through vs. normalization: its effect on comparative analysis of utility financial statements. P. R. Friend and others. Am Gas Assn Mo 46:17-18+ S '64

Oil and gas well property accounting. R. H. Miller. Am Gas Assn Mo 46:23-6 O '64

String system of indexing. J. B. Pallock. plans Am Gas Assn Mo 46:23-5 S '64

See also

National conference of electric and gas utility accountants

Advertising

See Gas industry—Advertising

Appliance selling

Commercial customers account for 36 per cent of revenues of Peoples gas system. il Gas 40:60-1 Ap '64

Every employee's a salesman at Arkansas western gas co. B. S. Wright. Gas 39:72 N '63

Buildings

Control center goes underground. H. H. Young. il plan Oil & Gas J 62:99-100 Ja 13 '64

Functional, attractive, low cost; Greeley gas co.'s building program. J. A. Thompson. il Gas 40:64-5 S '64

Gas company's office building employs gas turbines for on-site total energy. il diags Air Cond Heat & Ven 60:72-3 D '63

Illuminating engineering aspects of Detroit's gas building. J. H. McDonald. il Illum Eng 58:654-7 N '63

Modular total energy system in operation at NI-Gas. J. F. Ebdon. il diag Gas 40:107-10 Ja '64

Northern Illinois-Gas sells total energy in new general office building. il Gas Age 131: 22-4 Ap '64

Customer relations

Customer service work. W. M. Kelly. Gas Age 131:34-5+ Ap; 32-4 My; 32-3+ Je '64

Gasman's garden; what people like and dislike about their gas company. Gas Age 131: 34 O '64

Hartford's customer opinion trend survey. H. R. Carlson. il Gas 40:59-65 Je '64

NAFOP; key to customer satisfaction. Am Gas Assn Mo 46:26-9 Mr '64

Dealer relations

Gas company woos dealers through movies; Wisconsin southern gas co. Gas Age 131:31 Ja '64

Electric utility competition

Coal, electricity unite to fight gas heat. Gas 40:155-7 Mr '64

Energy transportation conference points up sharp competition among railroads, pipelines, barges, ehv. Elec World 160:99-106 D 2 '63

Gas seeks oil's aid in heating fight. B. G. Duncan. Oil & Gas J 62:56-7 My 4 '64

Hi-rise battle plan. R. L. Leusch. Am Gas Assn Mo 46:10-12 My '64

More competition faces gas industry. Oil & Gas J 61:71 O 21 '63

Operation UPGRADE. D. S. Bittinger. il Am Gas Assn Mo 46:4-8+ My '64

Two Boston electric utilities take to tv to battle competitive fuels. J. V. MacDonald and P. S. Mansfield. il Elec World 161:50-1 Ja 27 '64

Emergency problems

Anchorage; earthquake-stricken community; Pacific Northwest utility personnel join in restoring service to normal. il Am Gas Assn Mo 46:20-1 My '64

Omaha flood. il Gas Age 131:35 O '64

Employees

Effectiveness, not just efficiency. Am Gas Assn Mo 45:29-30 N '63

Employment shows strength; 17th annual report survey. il Pet Management 36:104+ Je '64

Personnel and politics. Gas Age 131:34-6 Ja '64

Equipment and supplies

Can a small gas company successfully enter a market already dominated by other fuels? C. M. Swan. il Gas 40:90-3+ O '64

Compact car in the utility fleet. H. J. Wurth. il Gas Age 131:22-4 Ja '64

Evaluation of helicopter service in distribution company operations. A. B. Schloemer. il Gas 40:79-81 Je '64

Gas products. Published in monthly numbers of Gas

New trucks please company and drivers. il Gas 39:80 D '63

Northern Illinois Gas tests, adopts, new equipment; illustrations with text. Gas 40: 64-5 Ja '64

Remote reading of large volume customers; Milwaukee Gas Light. L. R. Weber. il diag Gas Age 130:22-5 N '63

Safety through service vehicle redesign. il Gas Age 130:40 N '63

Telemetering at Public Service. J. C. Domnik. il Gas 39:53-7 N '63

GAS companies—Equipment and supplies—*Cont.*

Transportation topics. C. Cunningham. Published in monthly numbers of Gas age

Village blacksmith not so obsolete. il Gas 39:94 D '63

What's new, products, equipment, appliances. Published in monthly numbers of Gas age

Exhibits

East Ohio Gas bakes a cake. il Am Gas Assn Mo 46:12-13 O '64

What happens to GIDea trading post exhibits when the convention is over. il Am Gas Assn Mo 46:21-2 Je '64

Working together works; annual home service workshop, 17th, New Orleans, Feb. 5-7. Am Gas Assn Mo 46:6-8 Mr '64

Finance

Diversification; yes? no? Arkansas Louisiana gas corp. il Am Gas Assn Mo 46:6-8+ O '64

Flow-through vs. normalization; its effect on comparative analysis of utility financial statements. P. R. Friend and others. Am Gas Assn Mo 46:17-18+ S '64

Gas companies continue advance; first half report. Pet Management 36:98-9 S '64

Gas firms drawn to non-regulated business. Pet Management 36:88-90 Jl '64

Teaching financial analysts about gas pipelines. il Gas 40:78-80 N '64

Utility finance; there are inconsistencies. Elec World 160:133-6 D 2 '63

Insurance requirements

Litigious gas explosions. S. Hammon. Gas 40:84-6 Je '64

Laws and regulations

El Paso outlines divestiture plan. Oil & Gas J 62:53 Jl 13 '64

FPC hits gas men with $85,000 query. il Oil & Gas J 61:88-9 N 11 '63

Pass tax savings along, FPC orders. Oil & Gas J 62:74 F 10 '64

See also

Gas, Natural—Laws and regulations

Management

Can a small gas company successfully enter a market already dominated by other fuels? C. M. Swan. il Gas 40:90-3+ O '64

Customer service work. W. M. Kelly. Gas Age 131:34-5+ Ap; 32-4 My; 32-3+ Je '64

Evaluation and development team serves all divisions at Northern Natural. L. M. Ward. il Oil & Gas J 62:99-103 My 11 '64

Lone star gas company's gas main extension policy. Gas Age 131:26-8 My '64

Producer-engineer-purchaser, a case history. J. R. Kubitz and H. M. Shearin. maps J Pet Tech 16:719-26 Jl '64

Summer billing. F. J. Maguire. Am Gas Assn Mo 46:25-6 My '64

Meter shops

New meter shop serves three-state area. J. W. Crisman. il plan Gas 40:68-71 Je '64

Public relations

A.G.A. public relations contests bring double rewards. Am Gas Assn Mo 46:19-20+ Mr '64

Juniors learn stockholders role. D. Martin. Pet Management 36:122+ F '64

PAR promotion, advertising and public information structure streamlined. W. H. Ligon. Am Gas Assn Mo 46:14-15 Je '64

U.N. wives make gas worldwide. il Am Gas Assn Mo 45:16-17+ D '63

When gas goes to school. il Am Gas Assn Mo 46:8-12 Je '64

Radio communication

Meet your two-way radio at least half-way. il Gas Age 131:30-2 Jl '64

Mountain fuel supply co. takes its first step in modern private communications. J. K. Duvall. il map Gas 39:110-12 D '63

Radio telecommunications network links Canada's Union gas co. system. il maps Gas 40:68-73 N '64

Shell's trunk lines in Mid-continent area are covered by microwave. H. Z. Bozeman. il map Oil & Gas J 62:112-14 S 21 '64

Transistorized radios slash operating costs. il Gas Age 131:32-4 Ag '64

United Gas has multifunction microwave system. Oil & Gas J 62:119 O 5 '64

Safety measures

Accident prevention conference, 16th, Atlantic City, Sept. 15-16. Am Gas Assn Mo 46:9-11 O '64

Safety via pragmatic idealism. A. W. Turner. il Am Gas Assn Mo 45:2-4+ D '63

Training for job safety. E. A. Brand. il Am Gas Assn Mo 46:4-6+ S '64

Worcester employees and contractors play it safe. J. L. Turnan. Gas 40:68-71 F '64

Securities

Should combination companies spin-off their gas assets? Elec World 161:31-4 Ja 6 '64

Service

Customer service work. W. M. Kelly. Gas Age 131:34-5+ Ap; 32-4 My; 32-3+ Je '64

NAFOP; key to customer satisfaction. Am Gas Assn Mo 46:26-9 Mr '64

Promptness promotes popularity. P. B. Bevan. il Gas Age 131:35-7 Ag '64

Taxation

One company's response to city taxes; Wenatchee, Washington. W. E. Wall. Gas 40:57-61 F '64

GAS compressors

Air-purged electric systems for a large compressor building having group B division two classification. J. Molle and others. bibliog il diags IEEE Trans Applications & Ind 83:209-15 Jl '64

College's diaphragm compressor. il Engineering 198:299 S 4 '64

Cut gas-compression equipment failure. E. H. Borgman. il Oil & Gas J 61:169-70+ N 11 '63

Giant economy-size compressors save for ammonia plant. T. R. Kendrick. il Oil & Gas J 62:150-1 My 11 '64

High-speed compressors rate high in survey. Oil & Gas J 62:102-3 Jl 20 '64

It's always go when gas makes snow. il Am Gas Assn Mo 46:8-9 S '64

North Shore solves peak-day problems; propane-air is injected into two 12-in. and one 24-in. pipeline for distribution. il Gas 40:93 Jl '64

Two-stage water ring compressor. il diags Engineer 217:193-4 Ja 24 '64

Two turbine compressors run from single control. il Oil & Gas J 62:145-6 Ag 17 '64

Vibration controlled by chemical grouting. G. P. Tschebotarioff. plan diags Civil Eng 34:34-5 My '64

See also

Gas, Natural—Pipe lines—Compressor stations

Control

Control systems for centrifugal gas compressors. R. N. Brown. diags Chem Eng 71:135-8 F 17 '64

Infinite-step system provides close engine-loading control. R. J. Baker and M. Martin. il diag Oil & Gas J 62:118-20 Je 8 '64

Cost of operation

Economics of gas turbine compressors. S. T. Robinson. Gas 39:99-104 D '63

Economics of high-speed compressor operation. J. E. Curtis. Pet Management 36:106-11 S '64

Maintenance and repair

E flat. A. D. Sullivan. Heating-Piping 35:157-9 N '63

Gas-engine preventive maintenance has spectacular payout. J. E. Mallow. diags Oil & Gas J 62:126-9 Je 8 '64

Tables, calculations, etc.

Nomographs speed gas concentration calculations. F. Caplan. Hydraulics & Pneumatics 16:122-3 N '63

Testing

Analyzer check-up improves engine-compressor performance. G. A. Gabriles. il diag Power 108:78-9 F '64

GAS containers

How to handle gas cylinder emergencies. Safety Maint 127:39 Je '64

Rapid depressurization of a gas storage cylinder. W. R. Byrnes and others. diags Ind & Eng Chem Proc Design 3:206-9 Jl '64

GAS cooking

Commercial cooking report. H. L. McPherson. il Am Gas Assn Mo 46:19 Jl-Ag '64

Italian cooking. il Am Gas Assn Mo 46:4-5 Je '64

GAS detectors

Electronic bloodhound detects concentrations of perchlorethylene. il Mech Eng 86:130 Ap '64

Electronic bloodhound detects even the faintest trace of a toxic gas. il Product Eng 35:31 Mr 2 '64

Gases for tracers and ionization control in gas-filled cables. T. A. Balaska and others. bibliog il IEEE Trans Power Apparatus & Systems 83:774-80; Discussion, 780-3 Ag '64

GAS distribution

All-plastics town saves estimated 17 per cent. R. Hays. il map Gas 40:92-4 Mr '64

Central LP system serves three towns in Rockies. il Gas Age 131:27 Je '64

Designing sales measuring and regulating stations. T. Z. McDaniel. il Gas 40:72-8 Jl; 76-81 Ag '64

Evaluation of helicopter service in distribution company operations. A. B. Schloemer. il Gas 40:79-81 Je '64

Good communication means safe construction. J. E. Johnson. Am Gas Assn Mo 46:16-17 F '64

Lone star gas company's gas main extension policy. Gas Age 131:26-8 My '64

Measurement, instrumentation, control. Published in monthly numbers of Gas

New plug for retiring gas lines. il diags Gas 39:73-5 N '63

Simplified approach to digital telemetering. B. C. Joyce. il diags Gas 40:86-8 Ag '64

See also

Gas, Natural—Pipe lines

Gas flow

Gas pipes

Manholes

Long distance lines

See also

Gas, Natural—Pipe lines

Supervisory control

Automatic gas-flow control system adaptable to gas field production. J. C. Anderson and L. M. McMillon. il maps diags J Pet Tech 16:253-8 Mr '64

Control center goes underground. H. H. Young. il plan Oil & Gas J 62:99-100 Ja 13 '64

Eastern Gas telemetry system. il diag Ind Electronics 2:492-3 O '64

Electronic gas-control system. il diag Ind Electronics 2:8-9 Ja '64

Gas distribution by remote control. il Engineering 198:239 Ag 21 '64

Gas distribution control. il Engineer 218:291 Ag 21 '64

Pipeline operation by the numbers. flow charts il diag Gas Age 131:34-6 Jl '64

Two flow-control lines dispatched from one center. J. P. O'Donnell. il map diags Oil & Gas J 62:108-11 S 21 '64

Tables, calculations, etc.

Designing distribution systems by computer. G. K. Dippon. map plans Gas 40:51-61 S '64

GAS engine stations. See Electric plants (central stations)—Gas engine stations

GAS engineering

Aspects of gas deliverability. W. Hurst and others. bibliog J Pet Tech 15:Trans 668-76 Je '63; Discussion. 15:1150-1 O '63

Institution of gas engineers 101st annual meeting, Blackpool, June 1-5. Chem & Ind p 1226 Jl 4 '64

Lease-gas processing (cont). R. N. Maddox. diags Oil & Gas J 61:85-6 D 9 '63; 62:81-2 Ja 13; 92-3 Ap 13; 146-8 My 25; 100-1 Jl 20; 97-8+ Ag 24; 74-5 S 28 '64

See also

Calculating machines—Gas engineering applications

Gas distribution

Study and teaching

School to make total energy move. Am Gas Assn Mo 46:13+ My '64

Tables, calculations, etc.

How Phillips optimizes gas-processing plants. P. E. Schmidt and H. W. Hennigan. bibliog diags Oil & Gas J 62:134+ Ap 27 '64

Terminology

Committee proposes revised symbols list to SPE membership. E. H. Mayer. J Pet Tech 16:649-56 Je '64; Discussion. G. W. Nabor. 16:894 Ag '64

GAS engines

Are your workhorses delivering top performance? il diag Oil & Gas J 62:88-91 Ja 13 '64

Gas brings life to the desert. il Gas Age 131:25-7 Jl '64

Gas power in the desert. E. Sterrett. il Gas 40:sup3-5 O '64

Market potential of gas prime movers for air compressor drive. M. E. White. Gas 40:sup 14 S '64

Natural-gas irrigation project. il Mech Eng 86:67 Mr '64

New energy systems for building services. R. G. Meschino. bibliog diags Gas 40:112-15 Ja; 107-11 F; 127-30 Mr; 118-21 Ap '64

Plant management chooses gas engine air conditioning. J. T. Cartland. il Heating-Piping 35:105-7 D '63

Recover gas engine heat to supplement heat pump. J. B. Olivieri. diag Heating-Piping 35:119-22 N '63

Roof-mounted gas engines cool apartment house. il Air Cond Heat & Ven 61:91 Je '64

Sewage disposal plants. il Diesel Equip Supt 42:34-5 Je '64

Utilizing gas engine total energy. G. M. Long. il Gas 40:sup3-6 N '64 (to be cont)

See also

Electric plants (central stations)—Gas engine stations

Power plants—Gas engine plants

Control

Compressor station responds to flow set-point command. D. E. Anderson. il Oil & Gas J 62:139-40 Mr 2 '64

Pocket computers control remote engines on TGP pipeline. F. A. Schmidt. il Oil & Gas J 62:64-6 Ag 31 '64

Cooling

Cooling down hot cooling water. H. B. Hester. il diag Water Works & Wastes Eng 1:62-3 Je '64

Ignition devices

Gas engine ignition today. L. S. Ulrey. diags Gas Age 131:19-23 S '64

Lubrication

Ashless detergent oils give year's service without drain. Oil & Gas J 62:87-8 Je 1 '64

Maintenance and repair

Gas-engine preventive maintenance has spectacular payout. J. E. Mallow. diags Oil & Gas J 62:126-9 Je 8 '64

On-the-spot lubricant analyses. il Pet Management 36:136+ S '64

Testing

Analyzer check-up improves engine-compressor performance. G. A. Gabriles. il diag Power 108:78-9 F '64

GAS flow

Adiabatic-wall temperature for flow of a radiation-absorbing gas. R. D. Cess. bibliog A S M E Trans ser C 86:288-9 My '64

Anisentropic gas flow. C. N. Kaul. AIAA J 2:1145 Je '64

Approximation of the eigenvalues for heat transfer in laminar tube slip flow. R. M. Inman. AIAA J 2:373-4 F '64

Calculations of real-gas effects in flow through critical-flow nozzles. R. C. Johnson. bibliog diags A S M E Trans ser D 86:519-26 S '64

Capillary coil helps to control small gas flows. R. W. Gallant. diag Chem Eng 71:118 Ag 3 '64

Density distribution over a moving circular plate in free-molecule flow (U). K. J. Touryan. diags AIAA J 2:559-61 Mr '64

Effect of diffusion thermo and thermal diffusion for helium injection into plane and axisymmetric stagnation flow of air. E. M. Sparrow and others. bibliog A S M E Trans ser C 86:311-19 Ag '64

Effect of gas flow on post-arc gap recovery. A. B. Shaw and D. Whittaker. bibliog diags Inst E E Proc 111:193-202 Ja '64

Effect of rougher-than-rough surfaces on molecular flow through short ducts. D. H. Davis and others. bibliog diags J Ap Phys 35:529-32 Mr '64

Estimate of errors for approximate solutions of the simplest equations of gasdynamics. S. K. Godunov. AIAA J 2:208-15 Ja '64

Exact solutions of gas-particle nozzle flows. H. A. Hassan. AIAA J 2:395-6 F '64

Flow distribution in centrifugal impellers. P. Polak. diags Engineer 218:175-6 Jl 31 '64

Flow of a rarefied gas between two parallel plates. C. Cercignani and A. Daneri. bibliog J Ap Phys 34:3509-13 D '63

Flowmeter for measuring very low rates of helium gas flow. R. M. Black and others. diag J Sci Instr 41:345-6 My '64

Gas-flow computations now electronically performed. Oil & Gas J 62:94 S 28 '64

General theory for the flow of weakly ionized gases. S. H. Lam. bibliog diags AIAA J 2:256-62 F '64

High resolution resistivity probe for determination of local void properties in gas-liquid flow. L. G. Neal and S. G. Bankoff. bibliog diags. A I Ch E J 9:490-4 Jl '63; Discussion. T. T. Anderson. 10:776+; Reply. 776+ S '64

How to correct regulator pulsation and vibration. H. J. Schneider. Gas 39:75-7 D '63

GAS flow—*Continued*

Laminar flow heat transfer to a gas with large temperature differences. W. M. Kays and W. B. Nicoll. bibliog diags A S M E Trans ser C 85:329-38 N '63

Linearized viscous free mixing with streamwise pressure gradients. M. H. Steiger and M. H. Bloom. bibliog diags AIAA J 2:263-6 F '64

Momentum and heat transfer correlations for a reacting gas in turbulent pipe flow. M. J. Callaghan and D. M. Mason. bibliog A I Ch E J 10:52-5 Ja '64

New precipitator design can handle any gas flow. V. W. Copcutt. il diags Combustion 35:46-8 D '63

N_2O is good efficiency-test tracer. diags Oil & Gas J 61:112+ D 16 '63

Nondimensional solutions of flows with vibrational relaxation. R. Phinney. bibliog AIAA J 2:240-4 F '64

Nozzle characteristics in the transition regime between continuum and free molecular flow. M. W. Milligan. bibliog diag AIAA J 2:1088-92 Je '64

Numerical study of hydrogen-fluorine kinetics in nozzles. K. A. Wilde. bibliog AIAA J 2:374-6 F '64

Prediction of gas flow rates through round wire screens. F. O. Smetana. A S M E Trans ser D 85:620-2; Discussion. 622-4 D '63

Pressure drop and liquid film thickness of two-phase annular and annular-mist flows. S. F. Chien and W. Ibele. bibliog il diags A S M E Trans ser C 86:89-96 F '64

Pressure variation in a tank undergoing an acceleration. R. C. Progelhof. diags AIAA J 2:1505-7 Ag '64

Similar solution for the laminar mixing of reactive gases. A. Casaccio. bibliog diags AIAA J 2:1403-9 Ag '64

Similarity in axisymmetric viscous free mixing with streamwise pressure gradient. M. H. Steiger. AIAA J 2:1509-10 Ag '64

Sintered plate flowmeter. J. D. Chase. diag J Sci Instr 41:386-7 Je '64

Slow viscous flow of rarefied gases through short tubes. R. W. Hanks and H. L. Weissberg. bibliog J Ap Phys 35:142-4 Ja '64

Stability of the hodograph equations in one-dimensional reacting gas flow. J. L. Throne. AIAA J 2:360-1 F '64

Temperature recovery factors for flow longitudinal to a circular cylinder. E. M. Sparrow and D. P. Fleming. bibliog AIAA J 2:386-7 F '64

Theoretical analysis of the exhaust system of an oil engine. E. H. Wright and K. F. Gill. diags Engineer 218:311-19 Ag 28 '64

Three-dimensional boundary layers with a normal wall velocity. R. J. Gribben. bibliog AIAA J 2:164-5 Ja '64

Transitional behavior for the simultaneous mass and heat transfer of gases flowing through packed and distended beds of spheres. A. Sen Gupta and G. Thodos. bibliog Ind & Eng Chem Fundamentals 3:218-20 Ag '64

Two-dimensional radiating gas flow by a moment method. P. Cheng. bibliog AIAA J 2:1662-4 S '64

See also
Air flow
Couette flow
Fluidization
Gas meters
Turbulence

GAS generators. See Gas producers

GAS heaters

Heat ball park's open air restaurants. il Heating-Piping 36:198-9 S '64

Infra-red heaters warm warehouse economically. il Gas 39:74 D '63

New space heating concepts. H. L. McPherson. il Am Gas Assn Mo 46:15+ Ap '64

Radiant gas heaters; ceramic-glass in cellular, foam and cast forms minimizes expansion problems. J. G. Lanning and C. W. Arnott. il Materials in Design Eng 59:118-19 Ap '64

Utilizing facts. Am Gas Assn Mo 45:11+ D '63

See also
Gas water heaters

GAS heating

Best bet for builders; gas heat. il Am Gas Assn Mo 46:13-14 Jl-Ag '64

Coal, electricity unite to fight gas heat. Gas 40:155-7 Mr '64

Gas seeks oil's aid in heating fight. B. G. Duncan. Oil & Gas J 62:56-7 My 4 '64

Gas sets new records in househeating. Am Gas Assn Mo 46:15-16 Jl-Ag '64

Multistory venting with SE-ducts. M. D. Ringler and H. Cullinane. bibliog flow diag il diags Air Cond Heat & Ven 61:55-61 S '64

Tomatoes for Thanksgiving; with gas heat. il Gas Age 130:32-3 N '63

See also
Gas heaters

Radiant heating

Outdoor infra-red heat lengthens track season. il Gas Age 131:28-9 Jl '64

GAS heating, Industrial

Propane/air; standby fuel for industry. E. J. Skerkoske. Am Cer Soc Bul 43:630-1 S '64

Revise Chicago code to approve direct-fired makeup air units. F. J. Ford. Heating-Piping 36:99-101 Ag '64

Slug heating hikes forge output 50 per cent. il Steel 154:115 My 4 '64

GAS in air conditioning

Air conditioned education. Gas Age 131:31 Ag '64

Air conditioning leasing plan pays off for City Gas of Florida. il Gas 40:sup7-10 N '64

At the Fair they're cooling with gas. il Gas Age 131:30-2 Ap '64

Breakthrough for gas air conditioning? il diag Dom Eng 204:82-4 Ag '64

Central plants will air condition 3000 retired families in Friendly Valley. il Gas 40:113 Je '64

Cooling keynotes World's fair. L. Smith. il plans diag Heating-Piping 36:106-11 Ap '64

Ductless 20 for 48. il Gas Age 131:28-9 Jl '64

Energy Vista. J. J. Kennedy. diag Am Gas Assn Mo 46:24+ My '64

Energy Vista telecast. il Am Gas Assn Mo 46:26-7 Jl-Ag '64

48-apartment housing complex energized by Uni-Plant. il Gas 40:104 Jl '64

Gas conquers hard-to-handle heating-cooling job. il Gas 40:110-11 Ag '64

Gas cooling at the Fair. J. Wyrtzen. il diags Prog Arch 45:172-8 Jl '64

Gas cooling for conventioneers; municipal convention hall, Asbury Park. il Am Gas Assn Mo 46:33 O '64

Gas cooling is truly a first at the Fair. il Am Gas Assn Mo 45:12-14 D '63

Gas sights on cooling, April 2-6, National gas air conditioning week. Am Gas Assn Mo 46:15 Mr '64

Operation UPGRADE. D. S. Bittinger. il Am Gas Assn Mo 46:4-8+ My '64

Plant takes to gas for heating and cooling economy. il Plant Eng 18:159-60 Ja '64

Three sales aids. Am Gas Assn Mo 46:25 Mr '64

Total air conditioning for total energy plant. il Gas Age 131:27 O '64

Total energy plant gets total air conditioning. il Gas 40:sup 14 N '64

Unique equipment supplies hot and chilled water to Washington Natural Gas's new building. Gas 40:126 My '64

World's largest gas heat pump air conditions shopping center. il Gas 40:sup3-5, cover S; sup6+ O '64

GAS in refrigeration

Multi-purpose refrigeration plant serves modern bakery. R. C. Dannenberg. il Gas 40:101-3 Jl '64; Same. Food Eng 36:95-7 S '64

Total turbine energy in refrigeration cycles. S. T. Robinson and J. W. Glessner. il diags Gas 40:111-17 Ap '64

GAS industry

Challenge of growth. J. E. Heyke, jr. Am Gas Assn Mo 45:11-12+ N '63

Commercial gas forum at hotel show, New York, Am Gas Assn Mo 45:27+ D '63

For mutual understanding. E. Parkes. Am Gas Assn Mo 45:8-10+ D '63

Gas industry; 1963 sales up six per cent; everything go for '64. E. Parkes. Gas Age 131:21-4+ F '64

Johnson administration and the gas industry. N. Regeimbal. Gas 40:41-2 Ja '64

Meeting of the sub-committee on units of the International gas union, 4th, Paris. Gas 40:89-90+ Ag '64

Metal industry gains from gas explosion. R. R. Kay. il Iron Age 194:72 S 17 '64

Overseas LP-gas markets lure Phillips. il Oil & Gas J 61:40-1 N 25 '63

Refresher course in gas production, transmission, distribution and utilization (cont). I. Deutsch. flow diags diags Gas 39:81-6+ D '63

Risk takers' dilemma. H. L. Plumley. Am Gas Assn Mo 45:15-16+ N '63

GAS industry—*Continued*

Utilizing facts. Am Gas Assn Mo 45:11+ D '63

See also

American gas association

Gas, Natural

Gas companies

Advertising

All-gas kitchen target of New Jersey campaign. il Am Gas Assn Mo 46:21+ Mr '64

Biggest year yet. il Am Gas Assn Mo 46:20-1 O '64

Energy on the move; Columbia Gas motion film. il Am Gas Assn Mo 46:10-11 Jl-Ag '64

Gas in tv and movie. il Am Gas Assn Mo 46:18-19 F '64

Gas sights on cooling, April 2-6, National gas air conditioning week. Am Gas Assn Mo 46:15 Mr '64

How utilities promote the Fair. il Am Gas Assn Mo 46:14-15 Ja '64

Ozzie and Harriet give gas a tv hit. il Am Gas Assn Mo 46:20-1 Ap '64

Pleasures of Chinese cooking; A.G.A.-GAMA 16-mm film. il Am Gas Assn Mo 46:6-8+ F '64

Promotion in depth. E. G. Silven. il Am Gas Assn Mo 46:16-18 Je '64

Sell total energy, gasmen advised by AGA head. E. Parkes. Oil & Gas J 62:78-9 F 17 '64

Tv bureau cites A.G.A. for outstanding performance in advertising. Am Gas Assn Mo 46:12 Mr '64

This promotion bags prospects. il Am Gas Assn Mo 46:5 O '64

Three sales aids. Am Gas Assn Mo 46:25 Mr '64

What do you think of gas as a fuel? what do you think of gas appliances? B. Eklund. il Gas 40:90-5 N '64

When gas goes to school. il Am Gas Assn Mo 46:8-12 Je '64

Coal trade competition

5.08-mill coal power for Los Angeles. il map Coal Age 69:28 My '64

Exhibitions

Gas cart with refrigeration unit to bring chef to table at Festival '64 restaurant. il Am Gas Assn Mo 46:20 Mr '64

Gas goes to the Fair, April 1964-October 1965. il Gas 40:56-9 Ap '64

Gas is fun at the Fair. il Am Gas Assn Mo 46:2-3 Je '64

Gas powers space age appliances at the World's fair. il Pet Management 36:112-13 Jl '64

Gas turbine energy system powers the Gas pavilion. H. C. Daudet. il diags Gas 40:113-18+ My '64; Excerpt. Am Gas Assn Mo 46:8-10+ Ap '64

Home builders see modern appliances at the National association of home builders exposition, Chicago, Dec. 11-15. il Am Gas Assn Mo 46:16-17 Ja '64

People, people, people; Festival of Gas pavilion. il Am Gas Assn Mo 46:20-1 Jl-Ag '64

Sectional plastic fabric ceiling among new features of gas pavilion. il Am Gas Assn Mo 46:24 F '64

Total energy on public display. il Gas Age 131:33 Ap '64

World's fair is natural-gas showcase. G. T. Kinney. il Oil & Gas J 62:70-1 Ag 3 '64

Finance

11.6 per cent more in '64. il Gas 40:81-3 My '64

Financing topped $1.7 billion in 1963. Am Gas Assn Mo 46:15 F '64

Gas industry financing gains 3.7 per cent. Am Gas Assn Mo 45:41 N '63

Industry financing off to slow start. Am Gas Assn Mo 46:18 My '64

Measuring return on new capital investments. E. R. Mellon. Am Gas Assn Mo 46:30 Ja '64

Why not trade LP-gas futures? H. R. Thomas. Oil & Gas J 62:92-3 S 21 '64

Merchandising

Another look at the Uni-Plant concept. R. M. McIntyre. Gas 40:122-3 Ap '64

Creating total energy marketing programs. H. C. Finnell. Gas 39:58-60 N '63

Every employee's a salesman at Arkansas western gas co. B. S. Wright. Gas 39:72 N '63

Gas industry poll; it's Balanced Power by a little landslide. il Gas 39:66-71 N '63

Gaslight sweepstakes; National gaslight day. il Am Gas Assn Mo 46:17-18 Ap '64

Industrial and commercial gas sales conference, Columbus, Ohio, March 31-April 2. Am Gas Assn Mo 46:27-9 My '64

New era; total energy; A.G.A. residential and industrial and commercial gas sections, meeting, Oct. 14. Am Gas Assn Mo 45:22-3+ N '63

Operation UPGRADE. D. S. Bittinger. il Am Gas Assn Mo 46:4-8+ My '64

Yardsticks for marketing. F. L. Gagné. Am Gas Assn Mo 46:26-9 S '64

See also

Gas companies—Appliance selling

Gas in air conditioning

Research

See Gas research

Statistics

Facts and figures. Published in American gas association monthly

Gas industry growth trend still rising. E. Parkes. Am Gas Assn Mo 46:2-5 Ja '64

Gas processing still setting records. K. Brooks. Oil & Gas J 62:92-3 Mr 16 '64

Natural gas; production and consumption 1962. Gas Age 130:29-31 N '63

Pipeline revenues totaled $5 billion in 1962. Gas 39:92 D '63

Algeria

First Algerian gas enroute to Britain. Oil & Gas J 62:105-6 O 5 '64

California

California gas issue getting more complex. Oil & Gas J 62:95 Je 8 '64

Colorado

Propane plants for mountain markets. J. A. Thompson. il Gas 40:66-7 F '64

Great Britain

Gas and chemical engineering achievements; illustrations with text. Engineer 217:88-9 Ja 10 '64

LNG nears debut in England. il Gas 40:72-4 F '64

Making sure there is a future for gas; Watson house research centre, London. il plan Engineering 196:734-5 D 6 '63

U.K. pushing gas-from-petroleum process. il Chem & Eng N 42:60-1 O 19 '64

Netherlands

Dutch gas will have to wait for market to develop. Oil & Gas J 62:68-9 O 19 '64

Dutch set low gas prices to win markets at home. P. Swain. map Oil & Gas J 62:58-60 Ja 20 '64

Scotland

How and why of gas in Scottish industry. il Engineering 196:698-700 N 29 '63

Industrial gas in Scotland. Engineer 216:917 N 29 '63

GAS laboratories

CIG's measurement lab serves company and associates. J. Light. il Gas 40:89-92 Jl '64

GAS leakage

Gas leakage in sealed systems. J. W. Graham. il Chem Eng 71:169-72+ My 11 '64

Locating leaks with leak-search records. M. C. Kelsey. il diags Gas 40:94-102 My '64

New mobile units aid downtown gas leakage surveys. il Gas 40:66-7 Je '64

GAS lifts

Evaluation of a stabilizer charged gas lift valve for multiple-phase flow using graphical techniques. V. L. Forsythe. bibliog diags J Pet Tech 16:Trans 683-98 Je '64; Discussion. 16:Trans 698-700, 1187-93 Je, O '64

Gas-lift valves now pumped downhole. diags Oil & Gas J 62:100-1 Je 8 '64

Mexican field is large gas-lift lab. il Pet Management 35:78-9 D '63

GAS lighting

Gaslight sweepstakes; National gaslight day. il Am Gas Assn Mo 46:17-18 Ap '64

Gasman's dream. il Gas Age 131:30-1 Je '64

High-speed installation with plastic-coated pipe. il Gas Age 131:30-1 My '64

Portland's Hoyt hotel revives good old days. il Am Gas Assn Mo 46:20-2 F '64

Solving high-low flame operation of gas lights. D. Eaton. il diags Gas 40:126-7 N '64

GAS lubrication. See Lubrication and lubricants

GAS manufacture

Census of federal coal research given at SME fall meeting in Salt Lake City. Min Eng 15:51-5 N '63

GAS manufacture—*Continued*

Lignite, coal make synthesis gas. Oil & Gas J 61:101 O 21 '63

Liquid sulphur from Coleshill alkazid plant. il Ind Chem 40:9-12 Ja '64

Pipeline gas from coal using nuclear heat. L. J. Pieroni and others. bibliog flow diag diag Chem Eng Prog 60:58-63 Je '64

Pipeline gas from oil shale by direct hydrogasification. H. L. Feldkirchner and H. R. Linden. bibliog diag Ind & Eng Chem Proc Design 3:218-26 Jl '64

Refresher course in gas production, transmission, distribution and utilization (cont). I. Deutsch. flow diags diags Gas 39:81-6+ D '63

Sun revamp boosts output at little increase in cost. W. T. Lawler. il Oil & Gas J 62: 82-3 Ag 24 '64

Synthesis gas; Imperial chemical industries, ltd., Selas corp. of America. diag Hydrocarbon Process & Pet Refiner 42:223 N '63

Synthesis gas; Shell development co. diag Hydrocarbon Process & Pet Refiner 42:224 N '63

U.K. pushing gas-from-petroleum process. il Chem & Eng N 42:60-1 O 19 '64

See also

Gas companies

Gas producers

By-products

How Honolulu gas co. updated washbox operations. G. B. Tuggle. diags Gas 40:86-9 N '64

See also

Ammonia—Manufacture

Complete gasification processes

Coleshill gas works. flow diag il diag Engineer 216:627-31 O 18 '63

Distinctive smell of Lurgi gas. Engineering 196:490-1 O 18 '63

GAS measurement

Determination of the mass of gas in a rapidly discharging vessel. R. C. Progelhof. bibliog diags AIAA J 2:137-9 Ja '64

Measurement, instrumentation, control. Published in monthly numbers of Gas

Records gas measurement readings. il Pet Management 36:128+ F '64

See also

Gas, Natural—Measurement

Gas meters

GAS meters

Automatic Toepler pump with built-in gas quantity meter. R. Gilissen and others. il diag R Sci Instr 35:855-7 Jl '64

Flow computers for gas measurement. M. J. Sergesketter. il Am Gas Assn Mo 46:27-9 O '64

Heat transfer flowmeter has no pressure drop. diags Space/Aeronautics 41:259 Ja '64

Tests of automatic remote meter reading termed successful. Gas 40:99 N '64

Trends in metering and regulation. H. J. Evans. il diags Gas 40:78+ Ja '64

Two meters in series monitor molecular weight of gases. S. Prahacs and J. J. O. Gravel. diag Chem Eng 71:238+ Je 8 '64

Maintenance and repair

Meter maintenance; southwestern style. il Gas Age 131:26-7 O '64

See also

Gas companies—Meter shops

Manufacture

CO_2 welding pays off in Milwaukee. il Gas 40:125 N '64

Industrial gas meters. il Engineer 216:742 N 1 '63

Parkinson Cowan metering and measurement. il diags Engineering 197:86-8 Ja 17 '64

Testing

Calibration of bell provers. H. V. Beck. diags Am Gas Assn Mo 46:30-2 S '64

Choice not chance with gas-meter tests. J. T. Breithaupt. bibliog Oil & Gas J 62:142-7 Je 8 '64

GAS mixing

Effects of interface combustion and mixing on shock-tunnel conditions. J. A. Copper. bibliog diags AIAA J 2:1669-71 S '64

Experiments on turbulent mixing in a partially ionized gas. J. Grey and P. F. Jacobs. bibliog il diags AIAA J 2:433-8 Mr '64

Linearized viscous free mixing with streamwise pressure gradients. M. H. Steiger and M. H. Bloom. bibliog diags AIAA J 2:263-6 F '64

Peak shaving with propane-air; utilization and evaluation. C. C. Heath. il plan diags Gas 39:70-3 D '63

Radial gas mixing in fluidized-packed beds. J. D. Gabor and W. J. Mecham. bibliog diag Ind & Eng Chem Fundamentals 3: 60-5 F '64

Review of problems in application of supersonic combustion. A. Ferri. bibliog diags Roy Aeronautical Soc J 68:575-95; Discussion. 595-7 S '64

Secondary injection of gases into a supersonic flow. E. E. Zukoski and F. W. Spaid. bibliog il diags AIAA J 2:1689-96 O '64

Similarity in axisymmetric viscous free mixing with streamwise pressure gradient. M. H. Steiger. AIAA J 2:1509-10 Ag '64

Turbulent mixing of coaxial jets. L. J. Alpinieri. bibliog diags AIAA J 2:1560-7 S '64

GAS oil

Composition of the dinuclear aromatics, C_{12} to C_{14}, in the light gas oil fraction of petroleum. B. J. Mair and T. J. Mayer. bibliog diags Anal Chem 36:351-62 F '64

Effect of pellet pore structure on catalyst performance in the hydrodesulphurization of straight-run gas oil. D. Van Zoonen and C. T. Douwes. bibliog Inst Pet J 49:383-91 D '63

Furfural extraction of gas oils; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:216 S '64

How hydrocracking can increase the value of marginal gas oils. Oil & Gas J 61:101-2+ D 16 '63

New slant on the construction of specifications and associated testing. R. W. Cranston and J. Gammon. Inst Pet J 50: 73-80 Mr '64

New tower increases vacuum gas-oil yield. il diag Oil & Gas J 62:95-6 F 10 '64

Analysis

Characterization and routine determination of nonbasic nitrogen types in cracked gas oils by linear elution adsorption chromatography. L. R. Snyder and B. E. Buell. bibliog Anal Chem 36:767-73 Ap '64

Rapid direct-reading spectrochemical method for the determination of trace metals in the ash from catalytic feed stocks. D. Hoggan and others. Anal Chem 36:1955-6 S '64

Routine determination of aromatic hydrocarbon types in catalytically cracked gas oils by linear elution adsorption chromatography. L. R. Snyder. bibliog diag Anal Chem 36:774-81 Ap '64

Manufacture

Delayed coking. flow diag Hydrocarbon Process & Pet Refiner 43:154 S '64

Fluid coking; Esso research and engineering co. flow diag Hydrocarbon Process & Pet Refiner 43:155 S '64

Gulf hydrocracking; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:144 S '64

Oil-gas expansion at Brooklyn Union. E. H. Luntey. il Am Gas Assn Mo 46:30-3 Je '64

GAS ovens, Baking

Manufacture

Caloric has installed two air hoists for the pickling of range components. L. Nickert. il Comp Air Mag 69:4-5 Jl '64

GAS pipes

Buried pipe gas storage. W. H. Lewis. il Am Gas Assn Mo 46:30-2 F '64

42-inch pipe builds storage system. il Gas Age 131:31 Mr '64

High-speed installation with plastic-coated pipe. il Gas Age 131:30-1 My '64

Plastic pipe research. il Am Gas Assn Mo 45: 29 D '63

Quick-connect progress report. H. L. McPherson. il Am Gas Assn Mo 46:11-12 Mr '64

60-ft. long pipe. J. S. Dickinson. il Gas 39: 108-9 N '63

See also

Gas, Natural—Pipe lines

Gas distribution

Cathodic protection

Applying thermoelectric generation to cathodic protection. R. E. Hodge. il Gas 40:108+ O '64

Corrosion control test stations for underground gas mains. J. Zimmermann. il diags Gas Age 131:28-31 O '64

Deep-well ground beds. L. C. Hill. diags Gas Age 130:32-3+ D '63

GAS pipes—Cathodic protection—*Continued*

Key to an effective cathodic protection program. J. W. Pierce. Gas 40:95-102 Mr '64

More widespread use seen for thermoelectric generators. L. C. Hill. il Oil & Gas J 62:158-60 Jl 27 '64

Thermoelectric generators fill unique protective role. R. D. Carlton. Oil & Gas J 62:88-9 Ja 6 '64

Cleaning

See also
Gas, Natural—Pipe lines—Cleaning

Corrosion

Corrosion prevention; distribution, transmission. M. E. Parker. Published in monthly numbers of Gas

See also
Gas pipes—Protection

Failure

Why high-strength tubular goods fail. S. H. Davis and H. W. Nippert. il Oil & Gas J 62:84-6 Ap 13 '64

Leakage

See Gas leakage

Maintenance and repair

Anchorage story. il diag Gas Age 131:23-30+ Ag '64

Key to an effective cathodic protection program. J. W. Pierce. Gas 40:95-102 Mr '64

Pipe storage in Calgary. il Gas 40:79 Ap '64

Renewing services without street openings at the main; Epi-SEAL system. F. C. Shaughnessy. il diag Gas 40:82-7 O '64

When the earthquake struck. W. J. Stump. il maps Gas 40:70-5 Ag '64

Protection

Corrosion prevention; distribution, transmission. M. E. Parker. Published in monthly numbers of Gas

Mill-applied plastic pipe coating. il Gas Age 130:34-5 N '63

See also
Gas pipes—Cathodic protection

Service pipes

Lone star gas company's gas main extension policy. Gas Age 131:26-8 My '64

Renewing services without street openings at the main; Epi-SEAL system. F. C. Shaughnessy. il diag Gas 40:82-7 O '64

Testing

Corrosion control test stations for underground gas mains. J. Zimmermann. il diags Gas Age 131:28-31 O '64

GAS pipes, Cast iron

Fuelling method of bell joint sealing. J. V. Roegiers. bibliog il Gas 40:59-67 Jl '64

GAS pipes, Plastic

Aerial system put to test. D. W. Denham. il Gas Age 130:34-6 D '63

All-plastics town saves estimated 17 per cent. R. Hays. il map Gas 40:92-4 Mr '64

Foreman's innovations save time, money. H. F. Unger. il Gas 40:88-9 Mr '64

How does flexible submarine pipe work for the gas industry? il diags Gas 40:53-7 Je '64

Plastics pipe industry reports to the gas industry. E. H. Look. Gas 40:79-82 Jl '64

Plastics pipe portal-to-portal. L. Stoll. il plan Gas 40:76-81 Mr '64

Plastics pipe proven in the gas patch. R. Eklund. il diag Gas 40:82-7 Mr '64

Plastics pipe '64. R. Eklund. Gas 40:69-75 Mr '64

GAS plating. See Metal coating

GAS producers

Generator gas firing for lime plants. R. Ironman. il Rock Prod 67:106+ F '64

Inert gas generator operates at low cost. il Iron & Steel Eng 41:172 Mr '64

Inert gas generators. il Engineer 217:584 Mr 27 '64

On-site generator supplies inert gas automatically, inexpensively. il diag Plant Eng 18:146+ Mr '64

GAS purification

How Honolulu gas co. updated washbox operations. G. B. Tuggle. diags Gas 40:86-9 N '64

How to purify high pressure gases. R. J. Bailey. diags Hydraulics & Pneumatics 16:116-21 N '63

Metavanadates scrub manufactured gas; process flowsheet. P. Ellwood. Chem Eng 71:128-30 Jl 20 '64

Nomographs speed gas concentration calculations. F. Caplan. Hydraulics & Pneumatics 16:122-3 N '63

See also
Gas cleaning

GAS rates

See also
Gas, Natural—Rates

GAS research

Foundation for growth; research in Consolidated natural gas co. F. E. Vandaveer and others. il Am Gas Assn Mo 46:2-4 O '64

Making sure there is a future for gas; Watson house research centre, London. il plan Engineering 196:734-5 D 6 '63

Why A.G.A. is reorganizing its r&d program. Am Gas Assn Mo 46:15-16+ My '64

GAS sampling

How to design gas sampling systems. L. K. Barnes. diags Hydrocarbon Process & Pet Refiner 43:157-62 Jl '64

See also
Flue gas—Sampling

GAS storage

Underground gas storage nears four trillion cu ft. Am Gas Assn Mo 46:20 Je '64

Underground-storage capacity for liquefied gas; U.S. and foreign statistics. il Oil & Gas J 61:110-12+ O 21 '63

See also
Butane—Storage
Gas, Natural—Storage
Gas tanks
Liquefied petroleum gas—Storage

GAS stoves

Merchandising

Picture window cooking; Minneapolis gas co. F. Eng. il Am Gas Assn Mo 45:19-21 D '63

U.N. wives make gas worldwide. il Am Gas Assn Mo 45:16-17+ D '63

GAS supply

Charlottesville, Virginia

Charlottesville, Va.'s gas system. T. W. Edwards. il maps Gas 39:61-5 D '63

Colorado

Central LP system serves three towns in Rockies. il Gas Age 131:27 Je '64

GAS tanks

Insulated tanks for peak shaving. M. B. Clapp. diag Gas Age 131:34-7 Je '64

Rigid foamed polyurethane insulation for oil refinery storage tanks. D. B. Bruce. il Brit Plastics 37:129-31 Mr '64

GAS turbine locomotives. See Locomotives, Gas turbine

GAS turbines

ASME gas turbine conference and product show, Houston, March 1-5; with abstracts of papers. Am Gas Assn Mo 46:28-31 Ap '64

Anatomy of gas turbines. D. D. Price. diags Gas 40:sup8+ S; sup 10+ O '64

Can gas turbines compete as air conditioning power sources? A. E. Congress. diag Heating-Piping 35:87-91 D '63; Discussion. 36:87-90+ Jl; 88+ O '64

Cercor; the development of a product. G. P. Smith. il diags Res/Develop 14:28-31 N '63

Cost of compressor drives. diags Chem Eng 71:116 Ja 6 '64

Economics of gas turbine compressors. S. T. Robinson. Gas 39:99-104 D '63

From here, where, is how they describe Southern Union's Jicarilla, New Mexico station. P. S. Lemley. il Gas 40:118-19 Mr '64

Gas-turbine drives show promise on fluid cat cracker. J. A. Boatright. il diags Oil & Gas J 62:78-82 Ap 13 '64

Gas turbine will desalt seawater. Eng N 171:55 N 14 '63

Gas turbines boost horsepower at two Transco stations. H. C. Bozeman. il diags Oil & Gas J 62:104-5 My 11 '64

Gas turbines; installed capacity charts. Power 107:205 D '63

Gas turbines; special report. B. G. A. Skrotzki. flow diags il diags Power 107:sup 1-24 D '63 (reprints 75c)

Gas turbines turn engineers' heads; illustrations with text. Pet Management 36:174-5 Ap '64

High-frequency operation of fluorescent lighting systems from gas-driven turbines. G. Gilleard. il diag Illum Eng 59:163-9 Mr '64

Joint effort produces compact gas compressor set. il Gas 40:113-14 O '64

Modular total energy system in operation at NI-Gas. J. F. Ebdon. il diag Gas 40:107-10 Ja '64

New energy systems for building services. R. G. Meschino. diags Gas 40:127-30 Mr '64

GAS turbines—*Continued*

Okan pipeline system; gas-turbine station. E. A. Slade. Oil & Gas J 61:144 N 4 '63

Small gas turbine provides drying heat and auxiliary power. R. R. Adams. il ASHRAE J 6:60-1 My '64

Total air conditioning for total energy plant. il Gas Age 131:27 O '64

Total energy systems. il diags Dom Eng 204:70-7 Jl '64

Total turbine energy in refrigeration cycles. S. T. Robinson and J. W. Glessner. il diags Gas 40:111-17 Ap '64

Total turbine energy refrigeration. il diag Gas Age 131:23-6 Je '64

Transient response of gas turbine plant heat exchangers. A. L. London and others. bibliog diags A S M E Trans ser A 86:127-35 Ap '64

Two-way turbine; gas compressor unit to pump gas into and out of underground storage field. il Gas Age 131:39 O '64

Utilizing gas engine total energy. G. M. Long. il Gas 40:sup3-6 N '64 (to be cont)

See also

American society of mechanical engineers—Gas turbine power division

Electric plants (central stations)—Gas turbine auxiliaries

Power plants—Gas turbine plants

Air supply

Atlas Copco rotary screw compressors. il diags Engineering 197:514-16 Ap 10 '64

Bearings

High-speed rotor suspension formed by fully floating hydrodynamic radial and thrust bearings. J. Dworski. il diags A S M E Trans ser A 86:149-60 Ap '64

Blades

Coal-fired gas turbine completes run with new blades. R. W. Cargill and others. il diag Power Eng 68:47-8 My '64

Radial forging of integral turbine wheels. R. W. Redlinger and others. il diag Am Mach 108:81-3 O 12 '64

Control

Use of compressor-inlet prewhirl for the control of small gas turbines. A. R. Shouman and J. R. Anderson. il diags A S M E Trans ser A 86:136-40 Ap '64

Cooling

Gas turbines need air cooling. il Oil & Gas J 62:68 Ja 6 '64

Design

Wanted: one design for four turbines. J. E. Montgomery and others. il diag S A E J 72:76-9 Mr '64

Free piston engines

Application of free-piston machinery to marine propulsion. C. W. Herbert and G. F. Milne. Naval Eng J 76:203-6 Ap '64

Fuel

Australian coal-fired turbine. il diag Engineer 217:282 F 7 '64

Australian success with coal-fired gas turbine. il diag Combustion 35:45 Ap '64

Coal-fired gas turbine completes run with new blades. R. W. Cargill and others. il diag Power Eng 68:47-8 My '64

Coal-fired gas turbine makes its first 1500-hour trial run. il Power Eng 67:48 N '63

Feeding coal to a gas turbine (cont). D. C. Strimbeck and others. bibliog il diags Combustion 35:41-4 Ja '64

Fuel properties; key to your gas turbine performance. P. Hobson. il Power 108:72-3 My '64

Gas-turbine-supercharged cycle offers steam generator savings. W. P. Gorzegno and R. J. Zoschak. diags Elec World 162:54-7 O 5 '64

How those residual-oil-fired turbines are performing. Oil & Gas J 62:130-1 Ap 20 '64

Operating results with gas turbines of large output. H. Pfenninger. il diags A S M E Trans ser A 86:29-49 Ja '64

Small-turbine energy package. il Am Gas Assn Mo 46:30-2 O '64

Warren likes gas turbines. il Pet Management 36:61-3 Ag '64

Noise

Gas turbine silencers. il Mech Eng 86:62-3 S '64

Gas turbine silencers. O. C. Eckel. bibliog A S M E Trans ser A 86:57-62 Ja '64

Silencing equipment for industrial gas turbines. il Engineer 218:37-8 Jl 3 '64

Performance

Cascade performance from tests with wheel of axial outlet. G. O. Ohlsson. bibliog A S M E Trans ser A 86:1-6 Ja '64

Operating results with gas turbines of large output. H. Pfenninger. il diags A S M E Trans ser A 86:29-49 Ja '64

Tables, calculations, etc.

Procedure for solution of gas-turbine and other combustion heat-balance problems with predetermined airflow. R. W. Foster-Pegg. diag A S M E Trans ser A 86:50-6 Ja '64

Testing

Low aspect ratio turbines. G. O. Ohlsson. bibliog diags A S M E Trans ser A 86:13-17 Ja '64

GAS turbines, Aircraft

Aircraft jets for pipeline pumping. R. F. Naples and D. M. Salls. il Mech Eng 86:38-9 My '64

American engine for manufacture in the U.K. il Engineer 217:795 My 1 '64

Avon aircraft engine and its industrial power applications. A. H. Fletcher. diags Inst Mech Eng Proc 177 no 38:1068-74; Discussion. 1085-94 '63

Beryllium and fiberglass new gas turbine lightweights? D. B. King and others. il diag S A E J 72:76-82 Je '64

Better balance for future aero-engines. il diag Engineering 197:526 Ap 10 '64

British aero engines for world market at the Farnborough show. il Engineering 198:328-9 S 11 '64

Efficiencies, thermodynamics and the by-pass engine. N. L. Filleul. flow diag Roy Aeronautical Soc J 67:736-7 N '63

Farnborough display; engines; illustrations with text. Engineer 218:412-13 S 11 '64

Four jet engines help Louisville meet air conditioning load. Elec World 162:140 S 21 '64

Gas turbine development; thirteen and a half years in commercial aircraft. A. C. Lovesey. il map diags Roy Aeronautical Soc J 68:517-28 Ag '64

Hypersonic propulsion. W. G. Osmun. diags Space/Aeronautics 41:80-3 Mr '64

Jet propulsion. J. A. Schetz. diags Space/Aeronautics 42 no 4:53-5 '64-65

Navy's prototype 30,000-hp jet-gas turbine plant in proving-out stage. il Marine Eng/Log 69:98 Ap '64

Power for supersonic flight. S. G. Hooker. il diags Roy Aeronautical Soc J 68:454-63 Jl '64

Spey power plant; Hawker Siddeley Trident. il diag Aircraft Eng 36:182-3 Je '64

Turbine-powered high wing monoplane. diags Engineer 218:516 S 25 '64

See also

Airplanes, Jet propelled

Air supply

Side walls for variable throat supersonic nozzle. G. Deane. il diags Engineer 218:372-3 S 4 '64

Blades

Blades that breathe up turbine engine performance. S. Lombardo and others. il diags S A E J 72:65-7 My '64

Castings shed stresses in argon furnaces. il Iron Age 193:78 Mr 5 '64

Control

Electronic controls for aerospace propulsion. C. B. Brahm. il diags Astronautics & Aeronautics 2:44-9 Ap '64

Pulse systems gain favor as controls for gas turbines. B. E. Blackaby. diag S A E J 72:98-9 My '64

Cooling

Blades that breathe up turbine engine performance. S. Lombardo and others. il diags S A E J 72:65-7 My '64

Design

Asymmetric inlet flow in axial turbomachines. B. S. Seidel. bibliog diags A S M E Trans ser A 86:18-28 Ja '64

Power for the Mach 3 supersonic transport. J. F. Dugan, jr. and others. bibliog il diags Astronautics & Aeronautics 2:44-51; Discussion. 51-3 S '64

Regeneration for an aircraft engine. R. E. Cutler and E. W. Spears. il diags Mech Eng 86:26-31 O '64

Some aspects of turboshaft engine installations in multi-engined helicopters. J. D. Sibley. Roy Aeronautical Soc J 68:391-7; Discussion. 397-8 Je '64

Supersonic turbines. G. O. Ohlsson. bibliog diags A S M E Trans ser A 86:7-12 Ja '64

GAS turbines, Aircraft—*Continued*

Exhaust

Honeycomb tailpipe saves weight in C-141; abstract. W. P. Gray and D. L. Linderman. il S A E J 71:83 D '63
Velocity profiles from compressible wall jets. R. L. Lawrence. diag AIAA J 2:574-5 Mr '64

Failure

Failure studies help engineers predict jet engine reliability. G. Reethof. bibliog S A E J 72:100-2 My '64

Fuel

Antioxidants show promise as jet fuel additives. Oil & Gas J 61:94-5 N 4 '63
Demand for jet fuel continues climb. D. H. Stormont. il Oil & Gas J 61:44-6 N 25 '63
Distillate hydrogenation; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:188 S '64
Emulsified water in jet fuels studied. W. M. Langdon and others. diag Pet Management 35:184-90 N '63
How to combat jet-fuel contaminants. Oil & Gas J 62:73-4+ Ja 6 '64
Jet fuel network. il Plastics World 22:18 Je '64
Jet-fuel outlook; slower gains. D. H. Stormont. il Oil & Gas J 62:61-3 Ag 3 '64
Kinetics of thermal cracking of paraffinic and naphthenic fuels at elevated pressures. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:33-7 Ja '64
Silver corrosion by aviation turbine fuel. S. A. W. Thompson and others. il plan diag Inst Pet J 50:61-8; Discussion. 68-72 Mr '64
Supersonic commercial jets need low-cost fuel. E. H. Wehner. S A E J 72:54-5 O '64

Fuel feeding

Fuel control fits many engines. P. J. Leeson. il diags S A E J 72:96-7 My '64
Fuel systems problems in high speed aircraft. W. G. Lydiard. il diags Roy Aeronautical Soc J 68:11-21; Discussion. 21-4 Ja '64
Hydromechanical fuel controls look good for Mach 3. J. R. Goerke. S A E J 72:87-8 My '64

Ignition devices

Flameout sensor relights engine automatically; abstract. H. C. Welch. diags S A E J 72:68-9 Ja '64

Manufacture

Boeing bulge-forms turbine engine parts. il Am Mach/Metalworking Manuf 107:239 N 11 '63
Numerically controlled lathe cuts cost of producing turbosupercharger components. F. W. Heurlin. il Mach 70:84-5 Ag '64

Noise

Jet engine oscillations and noises. S. L. Bragg. Engineer 217:268-9, 305-7 F 7-14 '64; Excerpts. il diags Engineering 197:270-2 F 14 '64
Noise from turbojet compressors. S. L. Bragg and R. Bridge. bibliog diags Roy Aeronautical Soc J 68:1-10 Ja '64

Performance

Regenerative turboprops promise endurance, payload hikes. P. E. Beam, jr. and others. bibliog il diag S A E J 72:62-5 Ap '64
Study of NASA and NACA single-stage axial flow turbine performance as related to Reynolds number and geometry. D. E. Holeski and W. L. Stewart. bibliog A S M E Trans ser A 86:296-8 Jl '64
Thrust nozzles for supersonic transport aircraft. D. Migdal and J. J. Horgan. bibliog il diags A S M E Trans ser A 86:97-104 Ap '64

Protection

Protective coatings cut gas turbine corrosion. M. F. Grandey. il S A E J 72:79-81 Ap '64

Specifications

Aircraft gas turbine specifications, 1964; tables. Automotive Ind 130:210-17 Mr 15 '64

Starting

Preformed ceramic cores improve fluid flow control. J. Webb. il diag Space/Aeronautics 41:254-5 Ja '64
Starting jet engines with plant air. R. A. Morley. il diag Hydraulics & Pneumatics 17:64-6 F '64

Testing

Air springs, engine tests, and belt tests. il Comp Air Mag 69:24 Ja '64
Design in action. il diags Machine Design 35:125 D 5 '63
Engine test plant. il Aircraft Eng 36:146 My '64
Test cell for overhauled big jets. il Engineering 197:416 Mr 20 '64

Thrust augmentation

Jet thrust augmentation. P. Polak. il diag Engineer 217:383-5 F 28 '64

Vibration

Gas turbine aero engine rotor balance and vibration. K. S. Hodgkinson. il diags Aircraft Eng 36:218-20 Jl '64
Jet engine oscillations and noises. S. L. Bragg. Engineer 217:268-9, 305-7 F 7-14 '64; Excerpts. il diags Engineering 197:270-2 F 14 '64
Protection of labyrinth seals from flexural vibration. J. S. Alford. bibliog il diags A S M E Trans ser A 86:141-7; Discussion. 148 Ap '64

GAS turbines, Automotive

Army looking for big abilities in small battlefield vehicles. F. B. Lux. S A E J 72:82-4 S '64
Chrysler gas turbine car. R. F. Ansdale. il diags Automobile Eng 53:484-9 N '63
Chrysler gas turbine car on world tour. il Engineer 216:701 O 25 '63
Chrysler Turbine car. il Lub Eng 19:479 D '63
Chrysler's auto turbine travels the long road home. bibliog il diags S A E J 72:38-52 Je '64
Do we really want a gas-turbine motor car; Chrysler corp.'s latest prototype. il diag Engineering 196:556-7 N 1 '63
Effect of longitudinal heat conduction on periodic-flow heat exchanger performance. G. D. Bahnke and C. P. Howard. bibliog diags A S M E Trans ser A 86:105-17; Discussion. 177-19; Reply. 119-20 Ap '64
Ford gas turbine truck project. H. W. Barclay. il diags Automotive Ind 131:43-6+ N 1 '64
Ford's bet on truck of the 1970s. il Steel 155:81-2 O 26 '64
Gas-turbine engine aids studies. il Mech Eng 86:104 F '64
Gas-turbine engine enters big-time racing. il Machine Design 36:8 My 7 '64
Gas turbine powers a big hauling rig. il Eng N 173:30-1 O 29 '64
Gas turbine vehicle; is it for you? J. M. Clark, jr. il diags Mech Eng 86:49-53 F '64
GM's gas turbine. il Automotive Ind 130:122+ My 15 '64
Highway train; Ford's super-truck. il diags Product Eng 35:69-70 O 26 '64
Materials are key to Ford turbine. il Iron Age 194:13 O 29 '64
Rover-BRM gas-turbine for Le Mans two litre class. il Engineering 197:533 Ap 17 '64
Turbine assembly line: Chrysler corp. J. Dunne. il Automotive Ind 130:25-7 F 1 '64
Turbine truck unveiled. il diags Machine Design 36:168-73 O 22 '64
Typical performance characteristics of gas turbine radial compressors. C. Rodgers. bibliog il diags A S M E Trans ser A 86:161-70; Discussion. O. E. Baljé. 170-4; Reply. 174-5 Ap '64
Vehicular gas turbine periodic-flow heat exchanger solid and fluid temperature distributions. J. R. Mondt. bibliog diags A S M E Trans ser A 86:121-6 Ap '64
What engine will power the car of tomorrow? E. S. Starkman. bibliog diags S A E J 72:34-9 Ap '64

See also

Locomotives, Gas turbine

GAS turbines, Marine

Application of free-piston machinery to Marine propulsion. C. W. Herbert and G. F. Milne. Naval Eng J 76:203-6 Ap '64
Lot of power in a small space. il Engineering 197:576 Ap 24 '64
Prime contractor details cutter's combined Diesel and gas turbine propulsion plant. il Marine Eng/Log 69:78 Jl '64

GAS water heaters

Commercial customers account for 36 per cent of revenues of Peoples gas system. il Gas 40:60-1 Ap '64
Gas heating for showers. il diag Engineering 197:848 Je 19 '64
New approach to positive temperature control of gas water heaters. C. D. Coffey and R. E. Solomon. il diag Gas 40:74-7 N '64
New hookup for commercial hot water-detergent mixture. il diag Dom Eng 202:158-61 N '63

GAS water heaters—*Continued*

New ways to heat water. H. L. McPherson. il Am Gas Assn Mo 45:5-6+ D '63

Leasing

Commercial water heater rental for restaurant dishwashing machines. il Gas Age 131: 35+ Mr '64

GAS works

Equipment

Coleshill gas works. flow diag il diag Engineer 216:627-31 O 18 '63

Oil-gas expansion at Brooklyn Union. E. H. Luntey. il Am Gas Assn Mo 46:30-3 Je '64

Peak load

See also

Gas, Natural—Peak load

GASEOUS insulating materials. See Dielectrics

GASEOUS ionization. See Ionization, Gaseous

GASES

Air Products markets specialty gases. il Chem & Eng N 42:25 F 17 '64

Analysis of a tubular gas lens. D. Marcuse and S. E. Miller. bibliog diags Bell System Tech J 43:1759-82 pt 2 Jl '64

Applying electric arcs to wind tunnels. P. G. Simpkins. il diags Engineering 196:638-40 N 15 '63

Binary diffusion coefficients in non-polar gases. J. N. Holsen and M. R. Strunk. bibliog Ind & Eng Chem Fundamentals 3:143-6 My '64

Blast wave density gauge using beta-radiation. J. M. Dewey and W. A. Anson. bibliog diags J Sci Instr 40:568-72 D '63

Cage effect in solution and gas phase with application to the determination of rate constants. R. K. Lyon. bibliog Am Chem Soc J 86:1907-11 My 20 '64

Carbon as a carrier mechanism for irritant gases. H. G. Boren. bibliog il(p 115-16) Archives Environmental Health 8:119-24; Discussion. 129-31 Ja '64

Characteristics of single- and multiple-hole orifice plates for gas-liquid reactions. D. M. Ottmers and H. F. Rase. bibliog flow diag diags Ind & Eng Chem Fundamentals 3:106-10 My '64

Coefficient to characterize gaseous diffusion through monolayers at the air/water interface. J. G. Hawke and A. G. Parts. bibliog diag J Colloid Sci 19:448-56 Je '64

Concentration and mass flow distributions in a gas-solid suspension. S. L. Soo and others. bibliog diags Ind & Eng Chem Fundamentals 3:98-106 My '64

Convenient break seal for the transfer of gases particularly suited to spectrometer samples. D. R. Llewellyn and C. J. O'Connor. diag Chem & Ind p52 Ja 11 '64

Correlating diffusion coefficients in binary gas systems. D. F. Othmer and H. T. Chen. bibliog Ind & Eng Chem Proc Design 1:249-54 O '62; Discussion. D. S. Scott. Ind & Eng Chem Fundamentals 3:278; Reply. 279-80 Ag '64

Correlation of adsorption equilibria of pure gases on activated carbon. W. H. Cook and D. Basmadjian. bibliog Can J Chem Eng 42:146-51 Ag '64

Correlation of some gas adsorption data extending to low pressures and supercritical temperatures. R. J. Grant and M. Manes. bibliog Ind & Eng Chem Fundamentals 3: 221-4 Ag '64

Dehydrating refrigerant piping systems. H. L. Mayers. il diag Heating-Piping 36:124-8 Ja '64

Detonation initiated by high-pressure gas loading of a solid explosive. D. Price and F. J. Petrone. bibliog J Ap Phys 35:710-14 Mr '64

Diffusivities of slightly soluble gases in water. J. E. Vivian and C. J. King. bibliog A I Ch E J 10:220-1 Mr '64

Effect of gaseous environment on fracture behavior of Al_2O_3. A. J. Mountvala and G. T. Murray. bibliog il Am Cer Soc J 47: 237-9 My '64

Effect of temperature driving force on heat transfer to a nonequilibrium chemically reacting gas. P. L. T. Brian and S. W. Bodman. bibliog Ind & Eng Chem Fundamentals 3:339-46 N '64

Electron velocity distributions in gases. J. C. Bowe. bibliog diag Am J Phys 31:905-12 D '63

Equivalence of pulse and step residence time measurements in a trickle-phase bed. L. B. Rothfeld and J. L. Ralph. diag A I Ch E J 9:852-3+ N '63

Extinction of gas-shock luminosity against transparent surfaces. R. A. Plauson and H. D. Mallory. bibliog il diag J Ap Phys 35: 502-7 Mr '64

Forces on aerosols in gas mixtures. J. R. Brock. bibliog J Colloid Sci 18:489-501 Ag '63

Free molecular heat transfer near a wall. A. K. Rebrov. AIAA J 2:215-16 Ja '64

Gas breakdown criterion for pulsed optical radiation. R. G. Tomlinson. IEEE Proc 52:721-2 Je '64

Gas lens using unlike, counter-flowing gases. D. W. Berreman. diags Bell System Tech J 43:1476-9 Jl '64

Gas lenses show promise for long distance laser communication. il diags Bell Lab Rec 42:294-5 S '64

Gas mixture lens measurements. A. C. Beck. il diag Bell System Tech J 43:1821-5 pt 2 Jl '64

Gas phase controlled mass transfer in two phase annular horizontal flow. J. D. Anderson and others. bibliog diags A I Ch E J 10: 640-4 S '64

Gas phase equilibria in the system $GaAs-I_2$. D. Richman. bibliog RCA R 24:596-602 D '63

Gas phase radiolysis of pentaborane-9. V. V. Subbanna and others. bibliog Am Chem Soc J 86:1304-6 Ap 5 '64

Gas phase reactions between carbon tetrachloride and mass analyzed ions of nitrogen between three and 200 e.v. E. R. Weiner and others. bibliog diags Am Chem Soc J 86:788-93 Mr 5 '64

Gas-producing agents in the production of lightweight aggregates. S. K. Chopra and others. bibliog J Ap Chem 14:181-5 My '64

Gas pumping in continuously operated ion lasers. E. I. Gordon and E. F. Labuda. il Bell System Tech J 43:1827-9 pt 2 Jl '64

Gas separations with permeable membranes. il Ind & Eng Chem 56:11 N '64

Gas-solid suspensions at high temperatures. E. M. Barston. J Ap Phys 35:2550-1 Ag '64

Gas-triggered inverse pinch switch. R. G. Jahn and others. diag R Sci Instr 34:1439-40 D '63

Gas weights, volume equivalents; engineering data sheet. Welding Eng 49:57 O '64

Heat leaks through rarefied gases. S. D. Probert and T. Thomas. J Sci Instr 41:182-3 Mr '64

Heat transfer coefficients for a hot gas oscillating at high amplitudes in a cylindrical chamber. M. D. Horton and others. bibliog diag A I Ch E J 10:580-3 Jl '64

Hydrogen bonding in gaseous mixtures; nitric acid ether systems. D. J. Millen and O. A. Samsonov. Chem & Ind p 1694-5 O 19 '63

Index of refraction of air, the absorption and dispersion of centimeter waves by gases. G. Boudouris. il diags J Res Nat Bur Stand 67D:631-84 bibliog(p681-4) N '63

Interactions of gas molecules with an ideal crystal surface. R. A. Oman and others. bibliog il diags AIAA J 2:1722-30 O '64

Isothermal changes of enthalpy, entropy, and heat capacity based on modified reduced Berthelot equation. C. T. Hsu. bibliog A I Ch E J 9:854-5+ N '63

Lasers; gases will guide light without absorbing or reflecting it. il diag Product Eng 35: 74 Ag 3 '64

Lens or light guide using convectively distorted thermal gradients in gases. D. W. Berreman. il diags Bell System Tech J 43: 1469-75 Jl '64

Low-energy electron diffraction studies of gas adsorption on platinum (100), (110), and (111) surfaces. C. W. Tucker, jr. bibliog il diags J Ap Phys 35:1897-905 Je '64

Mathematical solution for the condensation of vapors from noncondensing gases in laminar flow inside vertical cylinders. W. D. Baasel and J. C. Smith. bibliog A I Ch E J 9:826-30 N '63

Measurement of the velocity of sound in gases. H. J. Wintle. bibliog Am J Phys 31: 942-3 D '63

Mechanism of liquid-phase resistance to gas absorption in a packed column. J. E. Vivian. and C. J. King. bibliog flow diag diag A I Ch E J 10:221-7 Mr '64

Method for detecting weak sound waves in a low pressure gas. J. A. Dayton, jr and others. R Sci Instr 34:1451-2 D '63

Monolayer capacity in the physical adsorption of gases on solids. K. S. W. Sing. bibliog Chem & Ind p321-2 F 22 '64

Monte Carlo solution of radiant heat transfer in a nongrey nonisothermal gas with temperature dependent properties. J. R. Howell and M. Perlmutter. bibliog flow chart diag A I Ch E J 10:562-7 Jl '64

GASES—*Continued*

Monte Carlo solution of thermal transfer through radiant media between gray walls. J. R. Howell and M. Perlmutter. bibliog flow charts diags A S M E Trans ser C 86:116-22 F '64
Near infrared lasering in Ne-Cl$_2$ and He-Cl$_2$. R. A. Paananen and F. A. Horrigan. bibliog diag IEEE Proc 52:1261-2 O '64
Optical frequency electrical discharges in gases. R. W. Minck. il J Ap Phys 35:252-4 Ja '64
Organic ions in the gas phase; cycloheptatriene-7-*d*; decomposition of C$_7$H$_8^+$ and C$_7$H$_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63
Organic ions in the gas phase; loss of water from primary alcohols under electron impact. S. Meyerson and L. C. Leitch. bibliog Am Chem Soc J 86:2555-8 Jl 5 '64
Particle-to-gas heat transfer in fluidized beds. A. C. Juveland and others. bibliog diags Ind & Eng Chem Fundamentals 3:329-33 N '64
Permeation of gases through polyethylene films at elevated pressures. N. N. Li and E. J. Henley. bibliog diags A I Ch E J 10:666-70 S '64
Photography of burning gases. J. H Waddell. il Res/Develop 15:38-9 N '64
Prediction of the viscosity of nonpolar binary gaseous mixtures at atmospheric pressure. M. R. Strunk and others. bibliog A I Ch E J 10:483-6 Jl '64
Pulse radiolysis of gases. M. C. Sauer, jr. and L. M. Dorfman. bibliog Am Chem Soc J 86:4218-19 O 5 '64
Rapid estimation of minimum solubility of solids in gases. R. B. Hinckley and R. C. Reid. bibliog A I Ch E J 10:416-17 My '64
Reaction of methylene radicals with acetylene in the gas phase. T. Terao and others. bibliog Am Chem Soc J 85:3919-20 D 20 '63
Sensitive probe for measuring concentration profiles in water vapor-gaseous mixtures. M. R. Strunk and others. bibliog diag A I Ch E J 10:418+ My '64
Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D. I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64
Some aspects of gas separation. W. H. Granville. bibliog diags Ind & Eng Chem 56:32-7 My '64
Structure of gaseous copper(II) nitrate as determined by electron diffraction. R. E. LaVilla and S. H. Bauer. bibliog Am Chem Soc J 85:3597-600 N 20 '63
Technique for determining density distribution in low pressure, high temperature gases. C. A. Ziegler and others. il diags R Sci Instr 35:450-6 Ap '64
Technology spreads its gains; process developments set new trends in petroleum-derived gases. il Chem Eng 1:128-30 Ja 20 '64
Temperature variation of gamma for various gases; a student experiment. D. J. Cronin. diag Am J Phys 32:700-4 S '64
Thermal conductivities of gas-filled porous solids. J C. Harper and A. F. El Sahrigi. bibliog diag Ind & Eng Chem Fundamentals 3:318-24 N '64
Thermal conductivity of nonpolar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:26-30 Ja 64
Thermal gas lens measurements. A. C. Beck. diag Bell System Tech J 43:1818-20 pt 2 Jl '64
Thermodynamics of a reacting gas. M. S. Vardya. Am J Phys 32:520-5 Jl '64
Thermodynamics of gas solubility in mixed solvents. J. P. O'Connell and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:347-51 N '64
Thermodynamics of the interaction of atmospheres with alloy steels. R. Littlewood. bibliog Iron & Steel Inst J 202:143-6 F '64
Transport properties of a gas mixture. E. A. Desloge. Am J Phys 32:742-8 O '64
Transport properties of a simple gas. E. A. Desloge. Am J Phys 32:733-42 O '64
Turbine impellers as gas-liquid contacting devices. G. Hamer and N. Blakebrough. bibliog diags J Ap Chem 13:517-24 N '63
Two-phase gas-liquid convection heat transfer. E. J. Davis and M. M. David. bibliog Ind & Eng Chem Fundamentals 3:111-18 My '64
Use of adiabatic experiments for kinetic studies in fixed catalyst beds. J. P. Schmidt and others. bibliog diags A I Ch E J 10:149-54 Mr '64
Viscosity of polar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:275-7 Mr '64

See also

Absorption
Adsorption
Aerodynamics
Air
Ammonia
Boyle law
Bubbles
Chlorine
Coke oven gas
Electric discharges
Equation of state
Flue gas
Furnaces, Carburizing—Atmosphere control
Gas, Natural
Gas analysis
Helium
Hydrogen
Inflammable mixtures
Ionization, Gaseous
Joule-Thomson effect
Methane
Neon
Nitrogen
Oxygen
Propane
Vapor pressure
Vaporization
Vapors

Apparatus

Accuracy of the bubble meter method for gas flow measurements. A. Levy. bibliog diag J Sci Instr 41:449-53 Jl '64
Apparatus for measuring carbon in flue gases. il Engineer 216:820-1 N 15 '63
Automatic apparatus for measuring the absorption or evolution of gas at constant pressure. F. Neighbour and D. Verdin. bibliog diags J Sci Instr 41:219-21 Ap '64
Chamber for continuous mixing of high pressure combustible gases. R. A. Oman and J. Leng. diag R Sci Instr 35:861-2 Jl '64
Coulometric analysis with gas volume measurement. D. M. King and A. J. Bard. diag Anal Chem 36:2351-2 N '64
Density measurement and its application to orifice metering. A. B. Hubbard. il Gas 40:72-3+ Ap '64
Doser for microquantities of gas. A. Weinstein and H. C. Friedman. diag R Sci Instr 35:1083-4 Ag '64
Experimental investigation of the internal friction of small diameter quartz strands at low frequencies. J. H. Whitelaw. bibliog diags J Sci Instr 41:215-18 Ap '64
Gas reactor for hot stage transmission electron microscopy. E. J. Gallegos. il diags R Sci Instr 35:1123-4 S '64
Improvements to an M.S.2 type mass spectrometer. J. Cuthbert and others. diags J Sci Instr 41:431-4 Jl '64
Measurement of gas evolution rates. H. Block. diags J Sci Instr 41:370-2 Je '64
Performance studies of a quadrupole mass filter. W. M. Brubaker and J. Tuul. bibliog diags R Sci Instr 35:1007-10 Ag '64
Portable sulphur dioxide recorder. D. A. Lloyd and M Madden. diags J Sci Instr 41:622-5 O '64
Rapid routine separation and analysis of ^{14}CO and ^{14}CO$_2$ in mixtures of low activity. F. S. Feates. diag J Sci Instr 41:641-2 O '64
Simple gas circulation pump. K. L. Erdman and others. diag R Sci Instr 35:241 F '64
Simple modification of a commercial sulphur dioxide meter for the determination of other atmospheric pollutants. P. N. R. Nichols. bibliog diag Chem & Ind p 1654-5 S 26 '64
Simple partial pressure gauge. L. Goldstone. bibliog il diags R Sci Instr 35:1265-7 O '64
Supersonic annular nozzle as a differential barrier. C. H. Stallings and D. H. Martin. diag R Sci Instr 35:1011-13 Ag '64
System for continuous generation and fast transfer of radioactive gases. F. Pleasonton and C. H. Johnson. bibliog diags R Sci Instr 35:97-102 Ja '64
Turbine flowmeter for gases. H. J. Evans. il diag Instrument & Control Systems 37:103 Mr '64
Upside-down liquid nitrogen trap. H. W. Jones. diags R Sci Instr 35:1240-1 S '64

See also

Absorption apparatus
Gas compressors
Manometers
Scrubbers

Liquefaction

Kerr-McGee takes deeper step in cryogenics field. il diag Oil & Gas J 62:50-1 Ag 10 '64

GASES—Liquefaction—*Continued*

Thermodynamic comparison of large-scale liquefaction of air, hydrogen, and helium. R. E. Latimer and R. A. Mostello. bibliog A I Ch E J 10:407-15 My '64

Two new plants liquefy helium. G. Y. Robinson, jr. flow sheet il Hydrocarbon Process & Pet Refiner 43:153-5 Jl '64

See also
Gas, Natural—Liquefaction

Moisture content

Drying with fixed-bed desiccants. J. B. Fleming and others. bibliog il Chem Eng 71:69-76 Ag 31 '64

Measuring moisture in gases. F. C. Quinn. diags Instruments & Control Systems 37:141-2 S '64

Testing

Diffusion approximation for thermal radiation in gases with jump boundary condition. R. G. Deissler. bibliog diag A S M E Trans ser C 86:240-6 My '64

Radiant transfer through a gray gas between concentric cylinders using Monte Carlo. M. Perlmutter and J. R. Howell. bibliog flow chart diags A S M E Trans ser C 86:169-79 My '64

GASES, Asphyxiating and poisonous

Analysis of toxic gaseous combustion products. A. Fish and others. J Ap Chem 13:506-9 N '63

Apparatus for the rapid collection and determination of traces of toxic gases in air. R. G. Lidzey and F. M. Longmaid. diag Chem & Ind p 150 Ja 25 '64

Portable units aid gas detection at Bethlehem plant. il Iron & Steel Eng 41:135-6 Ja '64

See also
Carbon monoxide
Hydrogen sulfide

GASES, Compressed

Carbide opens propellant center on Coast. il Soap & Chem Spec 40:160+ Je '64

Compressed gas gun for controlled planar impacts over a wide velocity range. S. Thunborg, jr. and others. diag R Sci Instr 35:11-14 Ja '64

How to purify high pressure gases. R. J. Bailey. diags Hydraulics & Pneumatics 16:116-21 N '63

Quick disconnects help boost gas cylinder pressure testing. il Welding J 43:761 S '64

Rapid depressurization of a gas storage cylinder. W. R. Byrnes and others. diags Ind & Eng Chem Proc Design 3:206-9 Jl '64

GASES, Kinetic theory of

Determining true residence times in flow-system reactions. J. C. R. Turner. Ind & Eng Chem Fundamentals 3:88 F '64

Laboratory experiment on the kinetic theory of gases. F. L. Weichman. diag Am J Phys 31:930-1 D '63

Model for the transition regime in hypersonic rarefied gasdynamics. B. B. Hamel. bibliog diag AIAA J 2:1047-54 Je '64

Pressure on a gas boundary subjected to impulsive motion. P. A. Thompson. diag A S M E Trans ser E 31:345-6 Je '64

GASES, Liquefied

Cryogenic bearings. H. Hanau. bibliog il diags Machine Design 36:122-8 Je 4 '64

Device for rapid, low-loss pouring of liquid gases from pressure cylinders. S. Feuerstein. diag R Sci Instr 35:1236-7 S '64

NASA needs lion's share of liquid gases. E. E. Halmos, jr. Pet Management 36:134 F '64

Ten years of cryogenic research in USA. il Engineering 198:534 O 23 '64

See also
Helium, Liquid
Hydrogen, Liquid
Liquefied petroleum gas
Nitrogen, Liquid

Safety measures

Air condensing cryogenic fluids; how to use them safely. R. M. Neary. il diags Safety Maint 127:20-4+ Je '64

Storage

Automatic welding of nine per cent nickel steel for low temperature service. J. J. Wright and W. B. Sharav. il diags Welding J 43:745-52 S '64

Cryogenic in-ground storage. R. C. Proctor. diag J Pet Tech 16:393-4 Ap '64

Handling and storage of process materials; symposium. Chem & Ind p400-2 Mr 7 '64

Large cryogenic storage vessels. L. Adams. il ASHRAE J 6:48-9 Jl '64

New cavities increase storage space 12.3 per cent; with tables. R. B Bizal. il Oil & Gas J 62:126-7+ O 19 '64 (reprints $1)

New cryogenic vessels are called biggest ever. il Chem Eng 71:102 Je 8 '64

Transportation

Expanding tanks raise tanker capacity. il Oil & Gas J 61:38+ D 23 '63

GASES, Rare

Cesium-impregnated inert gas diodes. R. Forman and J. R. Reiss. diags J Ap Phys 35:2885-6 O '64

Chemistry of the noble gases. H. Selig and others. il diags Sci Am 210:66-77 My '64

Clean up of inert gases in a Penning discharge studied by a tracer technique. K. Kawasaki and others. bibliog il diags J Ap Phys 35:479-82 Mr '64

Determination of radioactive noble gases with a liquid scintillator. D. L. Horrocks and M. H. Studier. bibliog diags Anal Chem 36:2077-9 O '64

Experiments on the origin of moving striations. A. W. Cooper. bibliog il diags J Ap Phys 35:2877-84 O '64

Intermediate atomic energy levels found. il Chem & Eng N 42:40-2 Mr 9 '64

Laser action in mercury-rare gas mixtures. H. G. Heard and others. IEEE Proc 52:414, 1049-50 Ap, S '64

Line strengths for noble-gas maser transitions; calculations of gain/inversion at various wavelengths. W. L. Faust and R. A. McFarlane. diags J Ap Phys 35:2010-15 Jl '64

Lorentz-Lorenz function of the solidified rare gases. R. M. Mazo. bibliog Am Chem Soc J 86:3470-4 S 5 '64

Macrodetermination of oxygen in metal oxides by inert gas fusion. B. D. Holt and J. E. Stoessel. il diags Anal Chem 36:1320-4 Je '64

Noble-gas compounds. H. H. Hyman. Review, by N. Booth. Chem & Ind p 1305-6 Jl 18 '64

Rare gas ion reactions with ammonia. G. R. Hertel and W. S. Koski. bibliog Am Chem Soc J 86:1683-5 My 5 '64

Use of time resolution in identifying laser transitions in a mercury-rare gas discharge. W. M. Doyle. J Ap Phys 35:1348-9 Ap '64

van der Waals radii of gaseous ions of the noble gas structure in relation to hydration energies. R. H. Stokes. bibliog Am Chem Soc J 86:979-82 Mr 20 '64

See also
Argon
Xenon

GASKETS

Cutting technique aids gasket production. Rubber Age 95:412 Je '64

Design criteria for sealing gasketed joints. E. M. Smoley. diag Machine Design 35:174-7 N 21 '63

Design of high-pressure integral and welding neck flanges with pressure-energized ring joint gaskets. R. Eichenberg. il diags A S M E Trans ser B 86:199-203; Discussion. 204 My '64

Diesel cylinder head gaskets current status and future needs. L. E. Crouch and others. S A E J 72:84 Ag '64

Gasket board for chlorinators. A. A. Hirsh. flow diag il Water Works Eng 116:891 N '63

Gasket bolts in pressure vessel design. diags Product Eng 35:85-7 S 14 '64

Metallic gaskets. il diags Machine Design 36:90-101 Je 11 '64

Nonmetallic gaskets. E. M. Smoley and E. C. Frazier. il diags Machine Design 36:75-89 Je 11 '64

Plastic gaskets. il diags Mech Eng 86:60 Ag '64

TFE fluorocarbons for gaskets and packings. G. E. Horvath. il diags Machine Design 36:166-72 S 24 '64

Vinyl gaskets. il Plastics World 22:16-17 Je '64

Testing

Performance of zipper-type glazing gaskets. R. J. Mazzoni and others. il diags Materials Res & Stand 4:474-9 S '64

GASOLINE

LP-gas can compete with gasoline as a motor fuel. Oil & Gas J 62:62-3 O 26 '64

What should be done about fuels and lubricants for construction equipment? G. K. Brower. S A E J 72:48-50 F '64

See also
Petroleum refining

Alcohol mixtures

Alky-gasoline proposed as smog cure, but it would be costly. Oil & Gas J 62:56-7 My 25 '64

GASOLINE—*Continued*

Analysis

Determination of C_5 to C_{11} *n*-paraffins and hydrocarbon types in gasoline by gas chromatography. D. K. Albert. bibliog diags Anal Chem 35:1918-21 N '63

Anti-knock and anti-knock mixtures

Anti-knock compounds transported in bulk. il Engineering 198:62 Jl 10 '64

Engine performance, durability, are boosted by new additive. W. F. Schoen and R. L. Pontious. il Oil & Gas J 62:60+ N 2 '64

Future gasoline blends will require more phosphorus. Oil & Gas J 62:58-9 Mr 23 '64

Gasoline takes more phosphorus additives. il Chem & Eng N 42:30 My 18 '64

Illustration of industrial hygiene. R. A. Kehoe. bibliog Archives Environmental Health 8:378-83 Mr '64

Sinclair pins hopes on fuel additive. il Oil & Gas J 62:100-1 O 5 '64

Trace metals boost gasoline performance. W. F. Schoen and F. L. Voelz. il Chem & Eng N 42:40+ Ag 31 '64

Anti-oxidants

How to select gasoline antioxidants. J. D. Bartleson and C. C. Shepherd. bibliog Hydrocarbon Process & Pet Refiner 43:153-8 Ag '64

Blending

Blending system design saves money for Mobil. J. F. Schneider. il diag Pet Management 36:124+ Ap '64

Digital computer control and gasoline blending. D. B. Brandon. bibliog Instruments & Control Systems 36:123-4 D '63

In-line blending direct to pipeline cuts finished-gasoline inventory. V. G. Skogan and K. A. Anderson. il plan diags Oil & Gas J 61:126-31 D 2 '63

In-line blending spurred by digital control. il diag Chem Eng 71:80-2 Ap 27 '64

Mobil installs large in-line gasoline blenders. il Oil & Gas J 62:195 O 12 '64

Prospects are bright for development of gasoline-blending system which includes online octane blending. W. E. Green and J. T. Jones. diags Oil & Gas J 62:111-16+ Ap 27 '64

Sun finds the right blending formula. G. T. Kinney. il Oil & Gas J 62:98-9 Je 8 '64

Evaporation losses

Aluminum floating deck cuts evaporation loss. il Iron Age 194:31 Ag 13 '64

Volatile liquids protected by floating aluminum decks. diag Mod Metals 20:48 S '64

Gum formation

Control of gasoline quality in relation to inlet system deposits. S. R. Hills and M. J. van der Zijden. bibliog il Inst Pet J 50:105-18; Discussion. diag 118-22 My '64

Manufacture

Airlift TCC; Socony mobile oil co. flow diag Hydrocarbon Process & Pet Refiner 43:149 S '64

Aluminum chloride alkylation; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:166 S '64

Better refinery yields come from cracking heavy oils. G. E. McKenna and others. diags Hydrocarbon Process & Pet Refiner 43:113-16 My '64

Bulk acid polymerization; California research corp. flow diag Hydrocarbon Process & Pet Refiner 43:182 S '64

California polymerization; California research corp. and Hydrocarbon research, inc. flow diag Hydrocarbon Process & Pet Refiner 43:183 S '64

Cascade sulfuric acid alkylation; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:167 S '64

Catalytic reforming; M. W. Kellogg co. Hydrocarbon Process & Pet Refiner 43:158 S '64

Catforming; Atlantic refining co. Hydrocarbon Process & Pet Refiner 43:159 S '64

Cyclic powerforming provides high-yield hydrogen high-octane gasoline. W. F. Taylor and A. B. Welty, jr. bibliog diag Oil & Gas J 61:142+ D 2 '63

Delayed coking. flow diag Hydrocarbon Process & Pet Refiner 43:154 S '64

Effluent refrigeration alkylation; Stratford engineering corp. flow diag Hydrocarbon Process & Pet Refiner 43:168 S '64

Fluid catalytic cracking, model IV; Esso research and engineering co. flow diag Hydrocarbon Process & Pet Refiner 43:151 S '64

Fluid catalytic cracking, orthoflow; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:152 S '64

Fluid catalytic cracking; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:150 S '64

Gasoline plant expands to recover light hydrocarbons. il Oil & Gas J 62:75 Je 1 '64

Gasoline yields raised by H-Oil and Hy-C conversion. Oil & Gas J 62:94-5 Je 15 '64

Get both; hydrogen and high octane. M. H. Dalson and others. flow diag Hydrocarbon Process & Pet Refiner 43:175-8 My '64

H-oil and Hy-C eliminate fuel oils. A. R. Johnson and L. M. Rapp. bibliog il Hydrocarbon Process & Pet Refiner 43:165-8 My '64

H-oil; hydrocarbon research, inc. and Cities service research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:145 S '64

Houdriflow; Houdry process and chemical co. flow diag Hydrocarbon Process & Pet Refiner 43:153 S '64

Houdriforming; Houdry process and chemical co. Hydrocarbon Process & Pet Refiner 43:160 S '64

Hy-C; Hydrocarbon research, inc. and Cities service research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:146 S '64

HF alkylation; Perco; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:169 S '64

HF alkylation; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:170 S '64

Isomax; Universal oil products co. and California research corp. flow diag Hydrocarbon Process & Pet Refiner 43:147 S '64

Isomerate; Pure oil co. flow diag Hydrocarbon Process & Pet Refiner 43:175 S '64

Isomerization; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:176 S '64

Iso-plus Houdriforming; Houdry process and chemical co. flow diag Hydrocarbon Process & Pet Refiner 43:161 S '64

Light hydrocarbon recovery. flow diag Hydrocarbon Process & Pet Refiner 43:233 S '64

Met-X scores success at United. J. K. Ozawa and others. il Oil & Gas J 62:101-2+ F 10 '64

New catalysts boost gasoline yield. Oil & Gas J 62:52-3+ Ap 13 '64

New fluid cracking catalyst increases gasoline yields. R. W. Baker and others. diag Oil & Gas J 62:78-84 My 4 '64

New gasoline-sweetening role for lead sulfide. il diag Chem Eng 71:42+ F 3 '64

New hydrogenation process upgrades byproduct pyrolysis gasolines. D. H. Stormont. il diag Oil & Gas J 61:96-7 D 16 '63

New process for the hydrogenation of pyrolytic gasoline. Franklin Inst J 277:184-5 F '64

New process sweetens at low cost. G. A. O'Brien and others. flow diag Hydrocarbon Process & Pet Refiner 43:175-6 Je '64

Pentafining; Atlantic refining co. flow diag Hydrocarbon Process & Pet Refiner 43:180 S '64

Platforming; Universal oil products co. Hydrocarbon Process & Pet Refiner 43:162 S '64

Powerforming; Esso research and engineering co. Hydrocarbon Process & Pet Refiner 43:163 S '64

Research octane of thermal reformates. G. E. Mapstone. Hydrocarbon Process & Pet Refiner 42:258 N '63

Revamp of glycol separator cuts costs. G. E. Brooks. diags Oil & Gas J 62:98-9 Jl 20 '64

Selective hydrogenation; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:193 S '64

Shale oil a superior feedstock. il diag Oil & Gas J 62:71-3 Mr 9 '64

Solid phosphoric acid condensation; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:184 S '64

Team: hydrocracking and reforming. H. C. Huffman and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:181-6 Je '64

Thermal cracking; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:156 S '64

Ultraforming; Standard oil co. (Indiana). diag Hydrocarbon Process & Pet Refiner 43:164 S '64

Unicracking, JHC; Union oil co. of Calif. and Esso research & engineering co. flow diag Hydrocarbon Process & Pet Refiner 43:148 S '64

GASOLINE—Manufacture—*Continued*

XZ-15 fluid cracking catalyst increases gasoline production; abstract. R. W. Baker. Chem & Eng N 42:76-7 Ap 20 '64

See also

Gasoline plants

Prices

Below-cost gasoline sales attacked. Oil & Gas J 62:37 S 28 '64

Better buy than ever. Pet Management 36:176-7 S '64

Can the FTC prevent the dumping of gasoline on the market? Oil & Gas J 62:50-1 Mr 23 '64

Demand rises 1.7 per cent and now gasoline prices may finally be heading up. Oil & Gas J 62:68-9 Jl 6 '64

Gasoline prices are shaky. Oil & Gas J 62:59 Jl 13 '64

Gasoline prices finally rise. Oil & Gas J 62:71-3 My 11 '64

Gasoline prices pick up strength. Oil & Gas J 61:45 D 9 '63

High runs, high stocks, low prices. Oil & Gas J 62:77 F 24 '64

House group may probe gasoline marketing. Oil & Gas J 61:62 O 21 '63

Market fight blows up in Rockies. W. A. Bachman. map Oil & Gas J 62:23-5 Ag 31 '64

Mixed-up market; gasoline demand soars, prices sag. Oil & Gas J 62:101-2 Jl 27 '64

Price picture brightens. Oil & Gas J 62:70 Ap 20 '64

Retail prices react a week after spot changes. Oil & Gas J 61:114 D 2 '63

Seven majors drop gasoline discounts to GSA. Oil & Gas J 62:63 Jl 20 '64

Small refiners ask government help to end price wars. Oil & Gas J 62:68-9 Mr 16 '64

Sour prices spoil outlook. Oil & Gas J 62:35-6 S 28 '64

Sulfur content

Aviation gasoline corrosiveness caused by sulfate-reducing bacteria; prevention by growth inhibitors. A. M. Wachs and others. bibliog Ind & Eng Chem Proc Design 3:65-9 Ja '64

Bender; Petrolite corp., Petreco div. flow diag Hydrocarbon Process & Pet Refiner 43:199 S '64

Copper sweetening; Union carbide corp. Linde div. flow diag Hydrocarbon Process & Pet Refiner 43:202 S '64

Inhibitor sweetening. flow diag Hydrocarbon Process & Pet Refiner 43:209 S '64

Locap; Petrolite corp. Petreco div. flow diag Hydrocarbon Process & Pet Refiner 43:210 S '64

Merox; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:211 S '64

New process sweetens at low cost. G. A. O'Brien and others. flow diag Hydrocarbon Process & Pet Refiner 43:175-6 Je '64

Solutizer; Shell development co. flow diag Hydrocarbon Process & Pet Refiner 43:213 S '64

Testing

Control of gasoline quality in relation to inlet system deposits. S. R. Hills and M. J. van der Zijden. bibliog il Inst Pet J 50:105-18; Discussion. diag 118-22 My '64

Interrelation of fuel quality and petrol engine performance; present position and future prospects. D. Downs. diags Inst Pet J 49:361-70 D '63

Testing the oxidation of motor fuel in the presence of copper. R. Roels. bibliog Inst Pet J 50:22-6 Ja '64

GASOLINE, Natural

Foaming in a natural gasoline absorber. W. E. Glausser. diags Chem Eng Prog 60:67-8 O '64

Manufacture

Penex; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:179 S '64

Sulfur content

Adsorptive drying and sweetening; Union carbide corp. Linde div. flow diag Hydrocarbon Process & Pet Refiner 43:198 S '64

GASOLINE handling

Airplane fuel, from barge to plane. il map Civil Eng 34:34-5 Je '64

Dry-break saves fueling costs. il Eng N 173:89-90 Jl 2 '64

Polyethylene jerrycan gets ok. il Mod Plastics 41:86-7 F '64

See also

Gasoline pumps

GASOLINE industry

Court bans some marketing policies. Oil & Gas J 62:84-5 Ap 27 '64

Demands on refiners will increase in the next ten years. Oil & Gas J 62:78-9 My 18 '64

Gasoline market is bittersweet. Oil & Gas J 62:25-6 Je 29 '64

GSA has to explain fuel-buying policy. Oil & Gas J 62:82 Ag 3 '64

GSA may not make service-station sales contracts without discounts. Oil & Gas J 62:106-7 Je 22 '64

Government bid plan for buying gasoline may backfire. Oil & Gas J 62:50-1 Ap 13 '64

Humble-Tidewater deal is a stabilizer. il Oil & Gas J 61:42-3 D 9 '63

Majors' tire, battery, and accessories commissions are attacked. Oil & Gas J 62:45 My 4 '64

Marketing needs shortsighted leaders. H. Moir. Oil & Gas J 62:42-3 Je 1 '64

Military demand to top 800,000 b/d. G. T. Kinney. Oil & Gas J 62:28-9 N 2 '64

1965 cars will need more octanes. D. H. Stormont. il Oil & Gas J 62:79-80 S 21 '64

Profit studies focus on service stations. il Oil & Gas J 62:56-7 Jl 20 '64

Rising stocks undermine markets. Oil & Gas J 62:59-60 Ag 17 '64

Seven majors drop gasoline discounts to GSA. Oil & Gas J 62:63 Jl 20 '64

Six marketers may share federal vehicles business. Oil & Gas J 62:52-3 Mr 23 '64

Advertising

Marketers' spring plans put stress on fundamentals. il Oil & Gas J 62:77-9 Ap 27 '64

Statistics

Demand rises 1.7 per cent and now gasoline prices may finally be heading up. Oil & Gas J 62:68-9 Jl 6 '64

Highway motor-fuel use to climb 4.3 per cent. Oil & Gas J 62:93 O 5 '64

Sales volumes outpace profits. E. Adams. il Pet Management 36:120+ My '64

U.S. motor-fuel sales climb in 1963. Oil & Gas J 62:89 My 18 '64

Canada

Car clinics; new marketing wrinkle. il Oil & Gas J 62:123-4+ Ag 17 '64

Italy

Gulf to sell 71,000 b/d to Italy. Oil & Gas J 62:93 Mr 2 '64

Western states

Market fight blows up in Rockies. W. A. Bachman. map Oil & Gas J 62:23-5 Ag 31 '64

GASOLINE plants

Industry adding 48 new plants in '64. R. B. Bizal. il Oil & Gas J 62:141-2 Mr 16 '64

Costs

Cost of operating gas-processing plant. W. L. Nelson. Oil & Gas J 62:164 Je 8 '64

Power

Warren likes gas turbines. il Pet Management 36:61-3 Ag '64

Statistics

Gas liquids. Oil & Gas J 62:148 Jl 27 '64

1964 survey of U.S. and Canadian gas-processing plants; special report. R. B. Bizal. il Oil & Gas J 62:113-39 Mr 16 '64 (reprints $2.)

GASOLINE pumps

Robot station takes dollar bills. il Oil & Gas J 61:40-1 D 9 '63

Manufacture

Automatic machine eliminates parts cleaning bottleneck. il Mach 71:162-3 O '64

GASOLINE service stations

Car clinics; new marketing wrinkle. il Oil & Gas J 62:123-4+ Ag 17 '64

Concrete dinosaur is a service station. il Eng N 172:26-7 Ap 16 '64

Concrete mushrooms sprout in station. il Oil & Gas J 62:42-3 Ja 20 '64

Conoco tries new design for busy corners. il plan Oil & Gas J 62:72 F 10 '64

Gulf's pacesetter station; world's first drive-in gasoline station opened for business 50 years ago. Oil & Gas J 61:108-9 D 2 '63

How Mobil strengthens its dealer programs. il Oil & Gas J 61:92-3 N 11 '63

Marketers move to shine station image. Oil & Gas J 62:58 Ag 10 '64

Mobil seeks brand identity. il Oil & Gas J 62:79 F 24 '64

GASOLINE service stations—*Continued*

Profit studies focus on service stations. il Oil & Gas J 62:56-7 Jl 20 '64

Pure expands an experiment: new car center opens. Oil & Gas J 62:54 Ja 13 '64

Pyramid station planned. il Oil & Gas J 62:88 My 18 '64

Station Esso built from oil. il Oil & Gas J 62:33 Mr 30 '64

Tenneco tries unusual marketing plan. il Oil & Gas J 62:50 F 3 '64

Texaco experiments with new station design. il Oil & Gas J 62:115 Jl 27 '64

Automobile accessories

How to sell more automotive chemical specialties through service stations. K. N. Marriott. Soap & Chem Spec 39:149+ D '63

Equipment

See also

Gasoline pumps

Location

Highways frustrate marketers. il Oil & Gas J 62:63-5 F 17 '64

Side line selling

Canadian marketers go for tie-ins. il Oil & Gas J 62:82-3 Mr 2 '64

Majors' tire, battery, and accessories commissions are attacked. Oil & Gas J 62:45 My 4 '64

Marketers' spring plans put stress on fundamentals. il Oil & Gas J 62:77-9 Ap 27 '64

GASOLINE storage

Aluminum floating deck cuts evaporation loss. il Iron Age 194:31 Ag 13 '64

See also

Gasoline tanks

GASOLINE tanks

First Electrocoat plant in full production. il Metallurgia 69:180 Ap '64

GATES, Hydraulic

Emergency repair of dock gate anchorage. il Engineer 218:379 S 4 '64

Form-induced hydraulic forces on three-leaf intake gates. R. A. Elder and J. M. Garrison. diags Am Soc C E Proc 90 [HY 3 no 3905]:215-33 My '64

Hydraulic downpull on ice harbor powerhouse gate. P. M. Smith. il diags Am Soc C E Proc 90 [HY 3 no 3903]:193-213 My '64

Hydrodynamic analysis for high-head leaf gates. E. Naudascher and others. il diags Am Soc C E Proc 90 [HY 3 no 3904]:155-92 bibliog(p 186-92) My '64; Correction. 90 [HY 5 no 4050]:293-5 S '64

Navigation locks; navigation lock gates and valves. G. C. Richardson. bibliog il diags Am Soc C E Proc 90 [WW 1 no 3799]:79-102 F '64

New lifting device used at Priest Rapids dam. W. R. Martin. il diags Civil Eng 34:69-71 Je '64

New tainter gate hoist. H. S. Green. il diags Am Soc C E Proc 90 [PO 2 no 3970]:1-9 Jl '64

Radial gate trunnion bearing. R. A. Steele. diags Engineer 218:328-9 Ag 28 '64

Structural design practices for tainter crest gates. C. C. H. Tommerup. il diags Am Soc C E Proc 88 [PO 4 no 3348]:47-67 D '62; Discussion. 89 [PO 1 no 3652]:153-62 S '63; Reply. 90 [PO 1 no 3849]:79-86 Mr '64

See also

Locks (hydraulic engineering)

Valves, Hydraulic

GAUSSMETER. See Magnetic measurements

GEAR cutting

Hardened gear teeth cut with nylon. il Iron Age 192:86 N 21 '63

Large hobs may cut your cost of producing small gears W. G. Flanagan. il Mach 71:124-6 O '64

Tooth forms for hobs; drawings with text; reference book sheet. H. Gregg. Am Mach 108:73 Ag 3 '64

GEAR cutting machines

Advances in heavy duty gear cutting. il Engineering 197:490-1 Ap 3 '64

Gleason Hypoid Helixform gear finisher. il Mach 70:168 Ag '64

Production shaving machine for finishing large gears. il Mach 71:186 S '64

What's new in gear cutting? Am Mach/Metalworking Manuf 107:125 N 11 '63

GEAR grinding machines

Automatic all-purpose form-wheel precision gear grinder. il Mach 71:168-9 O '64

Automatic loading and unloading of pinion grinding machines. il Mach 70:119 D '63

Gear-finishing machine equipped with nylon lap. il Mach 70:204 Ap '64

Gear grinder finishes joint race. il diags Tool & Manuf Eng 51:76-7 D '63

Nylon gear lap will produce over 20,000 gears before requiring replacement. il Product Eng 34:60-1 N 25 '63

GEAR manufacturers association, American. See American gear manufacturers association

GEAR motors. See Gearmotors

GEAR testing machines

Automatic Red Ring internal gear inspection machine. il Mach 71:159-60 S '64

Line gives gears fast checkout. il diag Iron Age 193:69-71 F 6 '64

Red Ring automatic electronic gear inspection machine. il Mach 70:144 F '64

Test rigs for torque converters. H. J. Bunker. il diags Ind Electronics 1:759-66 D '63

GEARING

Change gears for metric threads; reference book sheet. J. H. Wilson. diags Am Mach/Metalworking Manuf 107:73 D 23 '63

Compact coaxial reduction gear. il diag Engineer 218:424 S 11 '64

Drawing gear tooth profiles graphically. il diags Engineering 197:219 F 7 '64

Maintenance of gear-type couplings. T. W. Chase and J. J. Kimmel. il diags Iron & Steel Eng 41:72-80; Discussion. 80-4 O '64

Perkins' new power system. il diags Diesel Equip Supt 42:28-31 Je '64

Selecting precision instrument gears; reference sheet. H. V. Christensen. Tool & Manuf Eng 51:95-6 D '63

See also

American gear manufacturers association

Automobiles—Gearing

Chain gear

Couplings

Hydraulic transmission

Internal combustion engines, Marine—Gearing

Speed variation

Design

Advantages and applications of preferred pitches in fine-pitch gears. L. D. Martin. diags Mach 71:135-45 S '64

Circular arc gears. diags Mech Eng 86:56 O '64

Designing planetary gear trains; data sheet. D. J. Myatt. diags Machine Design 36:203-4 Ja 16 '64

Electronic digital ratio equipment. A. Russell. bibliog il diags Radio & Electronic Eng 27:197-207 Mr '64

Fastening precision gear-plates; drawings with text. F. W. Wood, jr. Product Eng 35:72-3 Jl 6 '64

Gearing for higher speeds. T. R. Rideout. bibliog il Mech Eng 86:44-8 F '64

Gears for variable-speed strip recorders. il diags Product Eng 36:63 Jl 20 '64

High-hardness gears; key to compact reducers. I. Koenig. il diags Plant Eng 18:122-3 S '64

How design errors influence the functioning of gear trains. E. Buckingham and E. K. Buckingham. il diags Mach 70:107-20 Ag '64

How to design full and semi-recess action gears. E. K. Buckingham. il diags Product Eng 35:82-9 Je 8 '64

How to reduce gear noise. R. G. Schlegel and others. il diags Machine Design 36:134-42 F 27 '64

Operating pressure angle of enlarged spur pinions; data sheet. G. W. Michalec and D. S. Blohm. Machine Design 36:247-50 Ap 23 '64

Failure

Contact pressure and sliding velocities on hypoid gear teeth. W. Coleman. bibliog il diag Lub Eng 20:189-94 My '64

How gear life can be predicted. E. J. Wellauer. il diags Power 108:80-1 My '64

Should we calculate or correct gear distortion? Engineering 196:749 D 13 '63

Surface durability of helical and herringbone gears. E. J. Wellauer. bibliog il diag Machine Design 36:156-64 My 7 '64

Lubrication

Gear lubrication. W. J. Derner and others. A S M E Trans ser D 86:373-4 bibliog(p382) Je '64

Selecting gear lubricants. B. M. Dunham. Plant Eng 18:113-14 Ap '64

Maintenance and repair

Use and care of gear drives. D. Kinna. il Mill & Factory 75:82-4 O '64

Manufacture

Automatic assembling and precision reaming on a transfer machine. il Mach 70:104-5 D '63

GEARING—Manufacture—*Continued*

Broaching shapes king-size gears. il Iron Age 194:80-1 S 17 '64
Chamfering and deburring machine. il Engineer 217:590 Mr 27 '64
Cutting huge segmental gears in Italy. V. Negri. il diags Mach 70:126-30 My '64
Designers eye diecast zinc for more gearing. il Steel 155:52+ S 21 '64
Exothermics keep metal flowing to increase casting yields. il Iron Age 192:78-9 N 21 '63
Flame-cutting drops ring gear cost. W Wright. il diags Welding Eng 49:83-4 N '64
Gear hones; selection and use. R. E. Landstrom. il Tool & Manuf Eng 52:97-8 Mr '64
Gear honing reduces transmission noise. F. Stull. Am Mach 108:114 Ja 20 '64
Gearing for higher speeds. T. R. Rideout. bibliog il Mech Eng 86:44-8 F '64
Gears are made stronger with cold treatment. L. E. Arnold. il Metal Prog 86:143-5 O '64
Machine die-quenches big gears. R. H. Eshelman. il diags Iron Age 194:76-7 Ag 13 '64
Machining hypoid pinions. il diags Automobile Eng 53:490-3 N '63
Precision gears for instrumentation. Engineering 197:491 Ap 3 '64
Quality control of gear grinding. K. Yokota. Ind Quality Control 20:18-19 Je '64
Tailoring gear drives for tougher jobs. il diag Steel 154:42-5 F 3 '64
Timer gear wheels processed automatically. il Engineering 197:91 Ja 17 '64
Vibrating nylon finishes gears. Steel 154:120 Ja 27 '64
See also
Gear cutting
Gear cutting machines

Measurement

American gear metrology laboratory. Engineering 196:797 D 20 '63
Line gives gears fast checkout. il diag Iron Age 193:69-71 F 6 '64
Pneumatic gage puts zip in gear inspection. il Steel 155:49 N 2 '64

Noise

How to reduce gear noise. R. G. Schlegel and others. il diags Machine Design 36:134-42 F 27 '64

Specifications

Fine-pitch gear specification data; explanation of terms used in gear specifications; data sheets. Mach 71:165-6 S; 177-8 O '64

Standards

American gear metrology laboratory. Engineering 196:797 D 20 '63
Flame and induction-hardened gears; reference book sheet. diags Am Mach 108:79+ My 25 '64
International standards and coordinated gear rating; AGMA objectives. Mach 70:123 Jl '64

Tables, calculations, etc.

Epicyclic gear train; data sheet. D. E. Lewis and A. L. Clifton. diag Machine Design 36:175-9 Jl 16 '64
Gears; on with the new, off with the old. Product Eng 34:47-8 N 25 '63
Method for solving gear-mesh problems. W. E. Fischer. diag Product Eng 35:303-4 Ap 27 '64
R-factors quickly give speed ratios of planetary gear systems. J. H. Glover. il diags Product Eng 35:59-68 Ja 6 '64
Transfer of moment of inertia. M. F. Spotts. diags Product Eng 35:109-12 Ja 6 '64

Testing

Gears; how long a life? Product Eng 34:74 D 9 '63
Michigan Tool announces Pin-Masters for checking involute gears. il Mach 70:191 F '64
Performance of gears under high loads and low velocities. H. A. Cress and others. flow diag il diags A S M E Trans ser B 86:245-51 Ag '64
Results of a fifteen-year program of flexural fatigue testing of gear teeth. J. B. Seabrook and D. W. Dudley. bibliog il A S M E Trans ser B 86:221-37; Discussion. 237-9 Ag '64
Rights and wrongs of gear checking pressure. L. D. Martin. il diags Ind Quality Control 21:197-202 O '64
See also
Gear testing machines

GEARING, Bevel
Just a detail; spiral bevel drive gears. B. S. Gleed. diags Engineer 217:827-8 My 8 '64

GEARING, Epicyclic. See Gearing, Planetary

GEARING, Helical. See Gearing, Spiral

GEARING, Herringbone
Surface durability of helical and herringbone gears. E. J. Wellauer. bibliog il diag Machine Design 36:156-64 My 7 '64

GEARING, Hypoid
Contact pressure and sliding velocities on hypoid gear teeth. W. Coleman. bibliog il diag Lub Eng 20:189-94 My '64

GEARING, Planetary
Analysis of an improved planetary gear-transmission bearing. T. A. Harris and J. L. Broschard. bibliog il diags A S M E Trans ser D 86:457-61; Discussion. 461-2 S '64
Designing planetary gear trains; data sheet. D. J. Myatt. diags Machine Design 36:203-4 Ja 16 '64
Epicyclic gear train; data sheet. D. E. Lewis and A. L. Clifton. diag Machine Design 36:175-9 Jl 16 '64
Geared motors synchronize telescoping cylinders. G. A. Grappo. il diags Hydraulics & Pneumatics 17:102-3 S '64
High power variable ratio epicyclic gear; Margam B power station of the Steel company of Wales. il diag Engineering 196:681 N 29 '63
Hydroplanetary transmission units. M. Schachter. il diags Automobile Eng 54:278-83 Je '64
Limitations of epicyclic gears. W. A. Tuplin. diags Machine Design 36:124-6 Ja 30 '64
R-factors quickly give speed ratios of planetary gear systems. J. H. Glover. il diags Product Eng 35:59-68 Ja 6 '64
Speed reducers; spinning sun, adjustable planets. il diags Product Eng 35:53 F 3 '64
Sturmey-Archer AW three-speed hub. il diags Engineering 198:114-16 Jl 24 '64
Sun and planet gears produce intermittent speed change. P. Olney. diags Mach 70:132-3 My '64
Variable-ratio epicyclic gear pump drive. il diags Engineer 216:994-5 D 13 '63

GEARING, Plastic
Designing the flexspline with plastics for harmonic drive system. D. V. Tinder and W. R. Carey. il diags Mech Eng 86:50-3 Jl '64
Nylon gears cut printing press noise more than one-third. il Plastics World 21:66 N '63

GEARING, Spiral
Just a detail; spiral bevel drive gears. B. S. Gleed. diags Engineer 217:827-8 My 8 '64
Lead error for helical gears. D. Goodwill. diags Am Mach 108:79-83 S 28 '64
New tooth shape distributes stresses in spiral bevel gears. il Machine Design 36:10 Je 4 '64
Surface durability of helical and herringbone gears. E. J. Wellauer. bibliog il diag Machine Design 36:156-64 My 7 '64

GEARING, Worm
Worm gear reduction units. il Engineer 218:342 Ag 28 '64

GEARMOTORS
Compact gear motors. il Mech Eng 86:53 My '64
Corrosion resistant geared motors. il Engineering 198:139 Jl 31 '64
Gearmotors. il diags Machine Design 36:93-102 Mr 19 '64
Rotary pneumatic actuators. L. B. Taplin and A. J. Gregory. diags Control Eng 10:58-62 D '63
Strain gage tests add more science to heavy drives. il diags Steel 154:56-8+ Ap 6 '64

GEIGER-MÜLLER counters
Chlorine-neon Geiger-Müller counters with energy-independent gamma-ray efficiency. V. Danchenko and N. Mitrofanov. R Sci Instr 35:1076-7 Ag '64
Photomultiplier and electronic study of Geiger counter pulses in air. H. M. Herreman and L. B. Loeb. bibliog il diags J Ap Phys 34:3160-7 N '63
Two modifications of scalers for rate studies. T. S. Hodgson and B. E. Gordon. diags Anal Chem 36:2221-3 O '64

GELATIN
Gelatin; new space age material. Plastics Tech 10:58 F '64
Influence of gelatin on growth and liver pyridine nucleotide concentration of the rat. J. R. Savage and A. E. Harper. bibliog J Nutrition 83:158-64 Je '64
Precipitation reaction of carrageenan with gelatin. E. A. MacMullan and F. R. Eirich. bibliog J Colloid Sci 18:526-37 Ag '63

GELATIN—*Continued*
Three methods for the determination of the degree of substitution at protein-amino groups with special reference to substituted gelatins. W. G. Cobbett and others. bibliog J Ap Chem 14:296-302 Jl '64

GELS. See Colloids

GEMS
See also
Diamonds

GENERAL agreement on tariffs and trade
Problem for GATT, non-tariff barriers. J. Miller. Can Chem Process 48:49-50+ Je '64
Trade, tariffs, and chemicals. E. V. Anderson. il Chem & Eng N 42:60-84+ Ag 24 '64

GENERAL aniline and film corporation
Sale of General Aniline & Film nears final stages; last legal barrier removed. Chem & Eng N 42:30 Ap 27 '64

GENERAL electric company
Top GE team shuffles utility group; redirects research. Elec World 161:18-19 Ja 6 '64

GENERAL motors corporation
GM accelerates building program. Eng N 172:37-8 Mr 26 '64
General Motors introduces a new design direction; special report. W. L. Mitchell. il Automotive Ind 131:31-42 N 1 '64
My years with General motors. A. P. Sloan, jr. Review. by N. G. Shidle. S A E J 72: 47-9 My '64

GENERATORS, Electric. See Electric generators

GENERATORS, Radio. See Radio generators

GENETICS
DNA and the chemistry of inheritance. B. Commoner. bibliog diags Am Scientist 52: 365-88 S '64
Essays of a humanist. J. Huxley. Review, by A. E. Mirsky. Sci Am 211:135-8 O '64
Genetic code of a virus. H. Fraenkel-Conrat. il diags Sci Am 211:46-54 O '64
Genetics effects of radiation. C. E. Purdom. Review, by S. Abrahamson. il Nucleonics 22:78+ Mr '64
Hypotheses confirmed. Sci Am 210:54-6 Mr '64
See also
Chromosomes

GENITO-URINARY organs
Effects of environment on genitourinary tract. J. K. Lattimer. Archives Environmental Health 9:8-13 Jl '64

GENTIOBIOSE
Synthesis of the methyl glycoside of a derivative of a sulphur-containing analogue of gentiobiose; 6-*S*-β-D-glucopyranosyl-6-thio-α-D-glucopyranoside hepta-acetate. D. H. Hutson. bibliog Chem & Ind p750-1 My 2 '64

GEOCHEMISTRY
Bolivian tin mineralization and orogenic evolution. P. Ljunggren. maps Econ Geol 57:978-81 S '62; Discussion. A. Schneider-Scherbina. 58:456-9 My '63; Reply. 58:1348-51 D '63
Chemical aspects of hydrothermal alteration with emphasis on hydrogen metasomatism. J. J. Hemley and W. R. Jones. Econ Geol 59:538-69 bibliog(p567-9) Je '64
Chromatographic analysis of gases from soils and vegetation, related to geochemical prospecting for petroleum. G. H. Smith and M. M. Ellis. bibliog Am Assn Pet Geologists Bul 47:1897-903 N '63
Comparison of the composition of fossil and recent mollusk shells. O. H. Pilkey and H. G. Goodell. bibliog map Geol Soc Bul 75: 217-28, pl 1 Mr '64
Description and origin of uranium deposits in Shirley Basin, Wyo. R. E. Melin. maps diags Econ Geol 59:835-49 Ag '64
Distribution of beryllium in the Oslo region, Norway; a geochemical, stream sediment study. J. W. Brinck and A. Hofmann. bibliog map Econ Geol 59:79-96 Ja '64
Distribution of magnesium and iron between orthopyroxene and calcic pyroxene in natural mineral assemblages. R. Kretz. bibliog J Geol 71:773-85 N '63
Distribution of minor components during the formation of minerals. K. Nassau. bibliog Am Mineralogist 49:321-4 Mr '64
Dithizone field tests. H. E. Hawkes. Econ Geol 58:579-86 Je '63; Discussion. 59:721-2, 1178-9 Je, S '64
Effectiveness of shearing stresses in accelerating solid phase reactions at low temperatures and high pressures. F. Dachille and R. Roy. bibliog J Geol 72: 243-7 Mr '64
Emission spectrometric determination of beryllium in oilfield waters using plasma arc. A. G. Collins and C. A. Pearson. bibliog Anal Chem 36:787-9 Ap '64
Experimental determination of the reaction chalcopyrite + sulfur = pyrite + bornite from 350 to 500°C. P. B. Barton, jr. and P. Toulmin, 3d. bibliog diags Econ Geol 59: 747-52 Ag '64
Formation of ore deposits by water of compaction. E. A. Noble. maps diag Econ Geol 58:1145-56 bibliog(p 1155-6) N '63; Discussion. R. R. Reynolds. 59:723-4 Je '64
Geochemical and structural studies in batholithic rocks of southern California; structural geology of Rattlesnake Mountain pluton. R. S. MacColl bibliog map diags Geol Soc Bul 75:805-22, pl 1-7 S '64 (to be cont)
Geochemical approach to the problem of bauxite genesis in British Guiana. G. Harden and J. H. Bateson. bibliog diag Econ Geol 58:1301-8 D '63
Geochemical prospecting. D. H. Yardley. Min Eng 16:77 F '64
Geochemical studies at the Helen iron range. A. M. Goodwin. bibliog il maps diags Econ Geol 59:684-718 Je '64
Geochemistry of iron-rich ground water of southern Maryland. I. Barnes and W. Back. bibliog map diag J Geol 72:435-47 Jl '64
Geochemistry of some kyanites from Brazil. N. Herz and C. V. Dutra. bibliog il Am Mineralogist 49:1290-305 S '64
Hydrothermal versus syngenetic theories of ore deposition. R. H. Sales. maps Econ Geol 57:721-34 Ag '62; Discussion. bibliog diags 58:292-3, 444-6, 447-56, 609-18; 59:162-7 Mr-Je '63, Ja '64
Interaction of chemistry and mechanics in magmatism. R. F. Mueller. bibliog J Geol 71:759-72, pl 1 N '63
Iron sulfides formed from aqueous solution at low temperatures and atmospheric pressure. R. A. Berner. J Geol 72:293-306, pl 1-2 bibliog(p305-6) My '64
Kinetics of a replacement reaction. L. L. Ames, jr. bibliog diags Econ Geol 58:1229-36 D '63
Origin of certain magnetite-bearing pegmatites in the eastern part of the Bushveld Complex, South Africa. E. N. Cameron and G. A. Desborough. bibliog il maps diags Econ Geol 59:197-225 Mr '64
Paleosalinity in upper Visean Yoredale formation of England; geochemical method for locating porosity. C. T. Walker. bibliog map diags Am Assn Pet Geologists Bul 48:207-20 F '64
Phase-equilibrium relations in the system nepheline-albite-water at 1,000 kg/cm. A. D. Edgar. bibliog J Geol 72:448-60 Jl '64
Possible role of volatile metal compounds in ore genesis. K. B. Krauskopf. bibliog Econ Geol 59:22-45 Ja '64
Rapid determination of molybdenum in geochemical samples using dithiol. N. J. Marshall. bibliog Econ Geol 59:142-8 Ja '64
Re-examination of some suggested mechanisms for remobilization of sulfide orebodies. A. H. Sorensen. Econ Geol 58:1071-88 bibliog(p 1087-8) N '63; Discussion. A. W. Smith. 59:930-5 Ag '64
Solubility of cinnabar in Na_2S solutions at 50-250°C and 1-1,800 bars, with geologic applications. F. W. Dickson. bibliog diag Econ Geol 59:625-35 Je '64
Stability relations of carbon mineral assemblages in the southern California batholith. R. F. Mueller and K. C. Condie. bibliog maps J Geol 72:400-11, pl 1-2 Jl '64
Statistical case study in geochemical prospecting for copper. B. W. Brown. bibliog Econ Geol 59:492-8 My '64
Statistical design and analysis of geochemical exploration surveys. M. P. Nackowski and others. diags Min Cong J 50:56-9 My '64
Syngenesis of sulfide ores; desorption of adsorbed metal ions and their precipitation as sulfides. K. L. Temple and N. W. Le Roux. bibliog il diags Econ Geol 59:647-55 Je '64
Wall-rock alteration in the Goldfield district, Nevada. R. D. Harvey and C. J. Vitaliano bibliog map J Geol 72:564-79, pl 1 S '64
What is geochemistry's role in oil exploration? Oil & Gas J 62:220+ Je 8 '64
See also
Mineralogy
Ore deposits
Rocks
Weathering (rocks)

GEODESY
Vertical gradient of gravity. I. I. Mueller. bibliog diags Am Soc C E Proc 90 [SU 2 no 3975]:83-107 Jl '64

GEOGRAPHY
See also
Paleogeography

GEOLOGICAL age. See Geological time

GEOLOGICAL maps

Computer helps map oil structures. D. F. Merriam and J. W. Harbaugh. bibliog maps Oil & Gas J 61:158-9+ N 25 '63

Ecuador's new mineral development plan. A. D. Dwin. il maps Eng & Min J 165:109-17 O '64

Here's how to build a good subcrop map. C. F. Dodge. diags Oil & Gas J 62:96-7+ Je 29 '64

Mineral maps of the world. Eng & Min J 165:193-200 Je '64

Structure and mineralization of Campbell Chibougamau mines, Cedar Bay division. J. D. Koene. bibliog maps diags Can Min & Met Bul 57:1063-72 O '64

GEOLOGICAL models

Process-response models in geology. E. H. T. Whitten. Geol Soc Bul 75:455-63, bibliog (p462-3) My '64

GEOLOGICAL research

Is geologic field work obsolete? C. F. Park, jr. bibliog maps Econ Geol 59:527-37 Je '63

Pollen analyses of surface materials, from the southern San Juan Mountains, Colorado. L. J. Maher, jr. bibliog map Geol Soc Bul 74:1485-503 D '63
See also
Geophysical research

GEOLOGICAL societies
See also
American association of petroleum geologists

GEOLOGICAL society of America

Abstracts of papers submitted for six meetings, 1963. (Special paper no. 76) 341p Geological society of America, 231 E 46th St, New York 10017 '64

Annual meeting, New York, Nov. 17-20; and proceedings of the Society. Geol Soc Bul 74:sup 147-55 D '63

Proceedings. Geol Soc Bul 75:sup 101-21 Jl '64

Proceedings of the Society. Geol Soc Bul 75:sup93-100 Je '64

GEOLOGICAL surveys

Channel tunnel geological survey Engineer 218:587 O 9 '64

Helicopter exploration costs in northern Canada. C. E. G. Brown. Can Min & Met Bul 57:282-6 Mr '64

GEOLOGICAL time

Absolute dating of deep-sea cores by the Pa^{231}/Th^{230}(ionium) method. J. N. Rosholt and others. J Geol 69:162-85 bibliog(p 183-5) Mr '61; Discussion. G. A. Rusnak. 71:809-10 N '63

Age of the grabens in southeastern Utah. I. J. Witkind. bibliog maps Geol Soc Bul 75:99-105 F '64

Surface-barrier detectors make isotopic age measurements. W. L. Weiss and E. M. Whatley. Nucleonics 21:66 S '63
See also
Rocks—Age

GEOLOGISTS

Geology students become more scarce. Oil & Gas J 62:78 Jl 6 '64

GEOLOGISTS, Petroleum

Geologists hold future in their own hands. W. B. Weeks. Oil & Gas J 62:122-4 Mr 30 '64

Geologists ramble on seminar from Bahamas to New Mexico. il Oil & Gas J 61:92-3+ D 23 '63

Geology students become more scarce. Oil & Gas J 62:78 Jl 6 '64

Responsibility of geologists and petroleum engineers in meeting exploration demands in the future. M. T. Halbouty and T. D. Barber. J Pet Tech 16:239-43 Mr '64
See also
American association of petroleum geologists

Directories

American association of petroleum geologists membership directory. Am Assn Pet Geologists Bul 48:1-222 pt 2 Mr '64

GEOLOGY

Abstracts of papers submitted for six meetings, 1963. (Special paper no. 76) 341p Geological society of America, 231 E 46th St, New York 10017 '64

Geology: in the field; in the laboratory; in the library. P. W. Guild and others. bibliog il Min Eng 16:69-80 F '64

Oahe dam; geology, embankment, and cut slopes. D. K. Knight. bibliog il plans diags Am Soc C E Proc 89 [SM 2 no 3466]:99-125 Mr '63; Discussion. 89 [SM 6 no 3701]: 123-4 N '63; Reply. 90 [SM 3 no 3907]:165-7 My '64
See also
Caves
Conglomerate
Continental shelf
Dikes (geology)
Dip and strike, Determination of
Drift
Earth temperature
Earth tides
Earthquakes
Erosion
Faults (geology)
Folds (geology)
Gas, Natural—Geology
Geochemistry
Geological time
Geophysics
Glacial epoch
Glacial geology
Metamorphism
Mineral waters
Mineralogy
Mining geology
Mountains
Ocean
Ore deposits
Orientation (geology)
Paleoclimatology
Paleogeography
Peat
Petroleum—Geology
Rocks
Rocks, Igneous
Sand
Sedimentation and deposition
Shore lines
Stratification
Water, Underground
Weathering (rocks)

Bibliography

Reviews. J Geol 72:128, 250-3, 881-2 Ja-Mr, N '64

Reviews. Published in semi-quarterly numbers of Economic geology

Reviews and new publications. Published in monthly numbers of the Bulletin of the American association of petroleum geologists

Nomenclature

See also
Geology, Stratigraphic—Nomenclature

Statistical methods

Application of statistical time-series analysis of a limestone-shale sequence. W. Schwarzacher. bibliog J Geol 72:195-213, pl 1 Mr '64

Tables, calculations, etc.

Mathematical rotation of orientation data. D. C. Noble. Geol Soc Bul 75:247-8 Mr '64

Validity of geologic projection: a case history. E. E. Wahlstrom. maps diags Econ Geol 59:465-74 My '64

Alaska

Apparent right-lateral separation on Chatham Strait fault, southeastern Alaska. E. H. Lathram. bibliog map Geol Soc Bul 75:249-51 Mr '64

Stratigraphic and structural significance of cretaceous fossils from Tiglukpuk formation, northern Alaska. D. L. Jones and A. Grantz. bibliog il maps Am Assn Pet Geologists Bul 48:1462-74 S '64

Alberta

Age-dating studies on Precambrian rocks at Jasper, Alberta. C. R. Evans and others. bibliog map Can Min & Met Bul 57:33-6 Ja '64

New Permo-carboniferous nomenclature, western Alberta and adjacent regions. A. McGugan. bibliog Am Assn Pet Geologists Bul 48:357-9 Mr '64

Periglacial structures in the Saskatchewan gravels and sands of central Alberta, Canada. J. A. Westgate and L. A. Bayrock. bibliog map diags J Geol 72:641-8, pl 1-2 S '64

Antarctic regions

Rubidium-strontium ages from Antarctica. C. Craddock and others. bibliog map Geol Soc Bul 75:237-40 Mr '64

GEOLOGY—*Continued*

Appalachian region

Central Appalachian tectonics and the deep basin. H. P. Wodward. maps Am Assn Pet Geologists Bul 48:338-56 bibliog(p355-6) Mr '64

Early Pennsylvanian currents in the southern Appalachian Mountains. J. Schlee. bibliog maps diags Geol Soc Bul 74:1439-51, pl 1 D 1 '63

Thin-skinned tectonics in the plateau and northwestern Valley and Ridge provinces of the central Appalachians. V. E. Gwinn. maps diags Geol Soc Bul 75:863-99, pl 1-2 bibliog(p897-9) S '64

Argentina

Glacial geology of the east flank of the Argentine Andes between latitude 39°10'S. and latitude 41°20'S. R. F. Flint and F. Fidalgo. bibliog map diag Geol Soc Bul 75: 335-52, pl 1 Ap '64

Arizona

Alteration of Chinle siltstone and uranium emplacement, Arizona and Utah. A. M. Abdel-Gawad and P. F. Kerr. maps diags Geol Soc Bul 74:23-46, pl 1-2 bibliog(p44-6) Ja '63; Discussion. H. S. Johnson, jr. 75: 775-6; Reply. 777-80 Ag '64

Magnetic investigations of a ring dike, Buell Park. R. L. Dubois and W. W. Carey. bibliog maps diags Geophysics 29:553-64 Ag '64

Uranium-lead isotopic variations in zircons; a case study. L. T. Silver and S. Deutsch. bibliog maps diags J Geol 71:721-58, pl 1-2 N '63

Arkansas

Deeper oil possibilities of South Arkansas and North Louisiana. J. J. Chapman. maps diag Am Assn Pet Geologists Bul 47:1992-6 N '63

Australia

Association of mineralization and algal reef structures on Northern Rhodesian Copperbelt, Katanga, and Australia. W. G. Garlick. bibliog plan diags Econ Geol 59:416-27 My '64

Bermuda

Variations in the $O^{18}O^{16}$ and $C^{13}C^{12}$ ratios of diagenetically altered limestones in the Bermuda Islands. M. G. Gross. map diag J Geol 72:170-94 bibliog(p 193-4) Mr '64

Bolivia

Oriented lakes and lineaments of northeastern Bolivia. G. Plafker. maps diags Geol Soc Bul 75:503-22, pl 1-3 bibliog(p521-2) Je '64

Bounty Islands

Age and composition of a Bounty Islands granite and age of a Seychelles Islands granite. G. J. Wasserburg and others. bibliog map J Geol 71:785-9 N '63

Brazil

Maranhão paleozoic basin and cretaceous coastal basins, north Brazil. J. C. Mesner and L. C. P. Wooldridge. bibliog maps diags Am Assn Pet Geologists Bul 48:1475-512 S '64

Petrochemistry of a Precambrian amphibolite from the Jaraguá area, São Paulo, Brazil. C. D. Gomes and others. bibliog maps diags J Geol 72:664-80 S '64

British Columbia

Cretaceous of Vancouver, British Columbia, Canada. C. H. Crickmay and S. A. J. Pocock. bibliog il map Am Assn Pet Geologists Bul 47:1928-42 N '63

Magnetic and tectonic regionalization on Texada Island. D. H. Hall. bibliog il maps diags Geophysics 29:565-81 Ag '64

Potassium-argon age determinations of cenozoic volcanic rocks from British Columbia. W. H. Mathews. bibliog map Geol Soc Bul 75:465-8 My '64

Rock of British Columbia. il maps Min Eng 15:44-9 D '63

California

Barchan-dune movement in Imperial Valley, Calif. J. T. Long and R. P. Sharp. bibliog map diags Geol Soc Bul 75:149-56 F '64

Geochemical and structural studies in batholithic rocks of southern California; structural geology of Rattlesnake Mountain pluton. R. S. MacColl. bibliog map diags Geol Soc Bul 75:805-22, pl 1-7 S '64 (to be cont)

Geochronologic studies in the eastern Mojave Desert, Calif. M. A. Lanphere. maps J Geol 72:381-99 bibliog(p398-9) Jl '64

Gravity, volcanism, and crustal structure in the southern Cascade Range, Calif. L. C. Pakiser. bibliog maps Geol Soc Bul 75: 611-20 Jl '64

Pleistocene volcanism and deformation of the Trucke area, north of Lake Tahoe, Cal. P. W. Birkeland. bibliog maps Geol Soc Bul 74:1453-63 D '63

Potassium-argon dates of three pleistocene interglacial basalt flows from the Sierra Nevada, California. G. B. Dalrymple. bibliog map Geol Soc Bul 75:753-7 Ag '64

Revision of cretaceous lithostratigraphic nomenclature, northwest Sacramento Valley, Calif. M. A. Murphy and others. bibliog maps diag Am Assn Pet Geologists Bul 48: 496-502 Ap '64

Subdivision of San Lorenzo formation (eocene-oligocene) west-central California. E. E. Brabb. bibliog map diag Am Assn Pet Geologists Bul 48:670-9 My '64

California, Lower

Geology of the San Benito Islands, Baja California, Mexico. L. H. Cohen and others. bibliog maps Geol Soc Bul 74:1355-69, pl 1-4 N '63

Lower cretaceous pre-batholithic rocks of northern Baja California, Mexico. L. T. Silver and others. bibliog map Am Assn Pet Geologists Bul 47:2054-9 D '63

Canada

Fluvioglacial erosion near Knob Lake, central Quebec-Labrador, Canada. E. Derbyshire. bibliog maps Geol Soc Bul 73:1111-26, pl 1-4 S '62; Discussion. J. D. Ives and R. P. Kirby 75:917-22, pl 1; Reply. 923-5, pl 1 S '64

Ice-thrust ridges in western Canada. W. O. Kupsch. bibliog maps diags J Geol 70:582-94, pl 1 S '62; Discussion. J. R. Mackay and W. H. Mathews. 72:378-80 My '64

Rock magnetism and dike classification. D. W. Strangway. bibliog maps J Geol 72: 648-63 S '64

Caribbean region

Paleotemperature analysis of the Caribbean cores A254-BR-C and CP-28. C. Emiliani. map Geol Soc Bul 75:129-43 bibliog(p 141-3) F '64

Chile

Quaternary geology of Chile; brief outline. K. Segerstrom. bibliog maps Geol Soc Bul 75: 157-69 Mr '64

Stratigraphy and mineralogy of the manganese sedimentary deposits of Coquimbo Province, Chile. L. Aguirre and S. Mehech. il maps diag Econ Geol 59:428-42 My '64

Undulatory extinction in quartz grains of some Chilean granitic rocks of different ages. S. M. DeHills and J. Corvalán. Geol Soc Bul 75:363-6, pl 1-2 Ap '64

Colorado

Mancos-Mesaverde (upper cretaceous) intertonguing relations southeast Piceance Basin, Colorado. D. L. Warner. bibliog il maps diags Am Assn Pet Geologists Bul 48:1091-107 Jl '64

Petrology and isotopic-mineral age relations of a contact zone in the Front Range, Colo. S. R. Hart. bibliog maps J Geol 72: 493-525 S '64

Validity of geologic projection; a case history. E. E. Wahlstrom. maps diags Econ Geol 59: 465-74 My '64

Connecticut

Altitude, lithology, and the fall zone in Connecticut. R. F. Flint. bibliog maps diag J Geol 71:683-97 N '63

Cyprus

Wrench faulting in Cyprus. P. S. Bagnall. bibliog maps diags J Geol 72:327-45, pl 1 My '64

Eastern states

Cincinnati arch; mineralogical-statistical evidence of post-Ordovician origin. D. M. Scotford. bibliog diags Am Assn Pet Geologists Bul 48:427-36 Ap '64

Ecuador

Ecuador's new mineral development plan. A. D. Dwin. il maps Eng & Min J 165:109-17 O '64

Egypt

Diapiric structures in Egypt and Syria. S. Omara. bibliog il maps diags Am Assn Pet Geologists Bul 48:1116-25 Jl '64

GEOLOGY—*Continued*

England

Origin of the limestones-shale rhythm in the Blue Lias of England; a composite theory. A. Hallam. bibliog diags J Geol 72:157-69 Mr '64

Paleosalinity in upper Visean Yoredale formation of England; geochemical method for locating porosity. C. T. Walker. bibliog map diags Am Assn Pet Geologists Bul 48:207-20 F '64

Europe

Origin and occurrence of carbon dioxide and gaseous mineral waters, Variscian platform, central Europe. J. Vrba. bibliog map Econ Geol 59:874-82 Ag '64

Florida

Growth-rate estimates of a pleistocene coral reef of Florida. J. E. Hoffmeister and H. G. Multer. bibliog map Geol Soc Bul 75: 353-7, pl 1-2 Ap '64

Germany

Dynamic and kinematic analysis of deformed crinoid stems in a quartz graywacke. H.-U. Nissen. bibliog diags J Geol 72:346-60, pl 1-3 My '64

Great Britain

Stress chronology of the mid-paleozoic orogeny of the British Isles. W. E. Tremlett. bibliog map pl J Geol 71:793-800 N '63

Great Lakes region

Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64

Correlation of glacial lake stages in the Huron-Erie and Michigan Basins. J. H. Bretz. bibliog maps J Geol 72:618-27, pl 1 S '64

Lake Warren and the Two Creeks Interval. A. Dreimanis. bibliog J Geol 72:247-50 Mr '64

Greenland

Review of fossil floras and nonmarine deposits of west Greenland. B. E. Koch. map diags Geol Soc Bul 75:535-48, pl 1 bibliog(p547-8) Je '64

Hawaii

Potassium-argon ages from lavas of the Hawaiian Islands. I. McDougall. map Geol Soc Bul 75:107-27 bibliog(p 123-4) F '64

Idaho

Correlations and problems in Belt Series stratigraphy, northern Idaho and western Montana. J. E. Harrison and A. B. Campbell. bibliog maps diags Geol Soc Bul 74: 1413-27 D '63

New Mississippian formations and faunal zones in Chesterfield Range, Portneuf Quadrangle, Southeast Idaho. J. T. Dutro, jr. and W. J. Sando. bibliog maps diags Am Assn Pet Geologists Bul 47:1963-86 N '63

Patterned ground in the western Snake River Plain, Idaho, and its possible cold-climate origin. H. E. Malde. maps diag Geol Soc Bul 75:191-207, pl 1-4 bibliog(p205-7) Mr '64

Illinois

Ordovician explosion structure at Glasford, Ill. T. C. Buschbach and R. Ryan. bibliog il maps diag Am Assn Pet Geologists Bul 47:2015-22 D '63

India

Distribution of radioactivity in the Mosaboni copper mine, Bihar, India. E. V. Gangadharam and others. bibliog map Econ Geol 58:506-14 Je '63; Discussion. A. Mookherjee. 59:501-2 My '64

Indiana

Illinoian and Wisconsin glaciations in the Whitewater Basin, southeastern Indiana, and adjacent areas. A. M. Gooding. bibliog map diags J Geol 71:665-82 N '62

Petrography and evolution of Niagaran (Silurian) reefs, Indiana. D. A. Textoris and A. V. Carozzi. bibliog il map diags Am Assn Pet Geologists Bul 48:397-426 Ap '64

Petrology of the Jeffersonville limestone (middle Devonian) of southeastern Indiana. R. D. Perkins. bibliog maps Geol Soc Bul 74:1335-54, pl 1-5 N '63

Pleistocene vegetational studies in the Whitewater Basin, southeastern Indiana. R. O. Kapp and A. M. Gooding. map diags J Geol 72:307-26 bibliog(p325-6) My '64

Ireland

Contact metamorphism in relation to manner of emplacement of the granites of Donegal, Ireland. W. S. Pitcher and H. H. Read. bibliog maps diags J Geol 71:261-96 My '63; Discussion. M. J. Rickard. 72:682-4; Reply. 685 S '64

Israel

Relation of temperature distribution to ground-water movement in carbonate rocks of central Israel. R. Schneider. bibliog map diag Geol Soc Bul 75:209-15 Mr '64

Kansas

Basement depths from widely spaced aeromagnetic profiles in Kansas and Nebraska. J. S. Watkins. map diags Geophysics 29:80-6 F '64

Kentucky

Gas producing zones of Greenbrier (Mississippian) limestone, southern West Virginia and eastern Kentucky. A. C. Youse. bibliog maps diags Am Assn Pet Geologists Bul 48: 465-86 Ap '64

Mineral paragenesis and zoning in the central Kentucky mineral district. J. L. Jolly and A. V. Heyl. maps diags Econ Geol 59:596-624 bibliog(p622-4) Je '64

Labrador

Unmetamorphosed sandstone in northern Labrador. E. P. Wheeler, 2d. Geol Soc Bul 75:569-70 Je '64

Louisiana

Basal Tuscaloosa sediments, east-central Louisiana. H. V. Spooner, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1-21 Ja '64

Deeper oil possibilities of south Arkansas and north Louisiana. J. J. Chapman. map diags Am Assn Pet Geologists Bul 47:1992-6 N '63

Late recent rise of sea level. J. M. Coleman and W. G. Smith. bibliog map diag Geol Soc Bul 75:833-40 S '64

Look for ancient deltas in your search for oil. E. H. Rainwater. map diags Oil & Gas J 62:110-11+ Ja 6 '64

Stratigraphy of Lincoln Parish, Louisiana. W. Meade. bibliog Am Assn Pet Geologists Bul 48:718-21 My '64

Structure of Winnfield salt dome, Winnfield Parish, La. R. B. Hoy and R. Kühn. bibliog Am Assn Pet Geologists Bul 48:360-1 Mr '64

Subsurface structure and stratigraphy of Kent Bayou-Turtle Bayou-North Turtle Bayou complex, Terrebonne Parish, La. R. T. Sellars, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1705-25 O '64

Manitoba

Mineral deposits related to major structures in the Precambrian of Manitoba. J. F. Davies. maps Can Min & Met Bul 57:661-5 Je '64

Massachusetts

Boulder train of silicified paleozoic wood, southeastern Massachusetts. C. A. Kaye. bibliog map Geol Soc Bul 75:233-6, pl 1-2 Mr '64

Late quaternary sea-level change and crustal rise at Boston, Mass., with notes on the autocompaction of peat. C. A. Kaye and E. S. Barghoorn. il diags Geol Soc Bul 75:63-80 bibliog(p79-80) F '64

Pleistocene geology of outer Cape Cod, Mass. J. M. Zeigler and others. bibliog maps diags Geol Soc Bul 75:705-14, pl 1 Ag '64

Mexico

La Cueva intrusive complex and dome, northern Coahuila, Mexico. F. W. Daugherty. bibliog maps diags Geol Soc Bul 74:1429-38 pl 1 D '63

Late cretaceous stratigraphy in northern Coahuila, Mex. F. W. Daugherty and J. D. Powell. bibliog map Am Assn Pet Geologists Bul 47:2059-64 D '63

Middle western states

Classification of the Wisconsin glacial stage. H. E. Wright, jr. J Geol 72:628-37 bibliog(p636-7) S '64

Mississippi Valley

Late Mississippian rhythmic sediments of Mississippi Valley. D. H. Swann. bibliog maps diags Am Assn Pet Geologists Bul 48:637-58 My '64

GEOLOGY—*Continued*

Missouri

Low-amplitude aeromagnetic anomalies in southeastern Missouri. J. W. Allingham. bibliog maps diags Geophysics 29:537-52 Ag '64

Montana

Correlations and problems in Belt Series stratigraphy, northern Idaho and western Montana. J. E. Harrison and A. B. Campbell. bibliog maps diags Geol Soc Bul 74: 1413-27 D '63

Crushed pebble conglomerate of southwestern Montana. W. F. Tanner. bibliog map diags J Geol 71:637-41 S '63; Discussion. R. Scholten. 72:486-9; Reply. 489-92 Jl '64

Gravity slide faulting on Bowes Dome, Bearpaw Mountains area, Montana. J. R. Shouldice. bibliog maps diags Am Assn Pet Geologists Bul 47:1943-51 N '63

Late cenozoic uplift and exhumed Rocky Mountains of central western Montana. P. E. Wolfe. bibliog maps diag Geol Soc Bul 75:493-502, pl 1-4 Je '64

Microjointing in basement, middle Rocky Mountains of Montana and Wyoming. D. U. Wise. bibliog maps diags Geol Soc Bul 75:287-305, pl 1-4 Ap '64

Paleozoic rocks in northwestern Montana; a newly recognized occurrence. J. W. Keim and R. J. Rector. bibliog maps Geol Soc Bul 75:575-8 Je '64

Shoestring sandstones in cretaceous bearpaw shale in central Montana. G. R. Wulf. bibliog il map Am Assn Pet Geologists Bul 48:1196-8 Jl '64

Nebraska

Basement depths from widely spaced aeromagnetic profiles in Kansas and Nebraska. J. S. Watkins. map diags Geophysics 29:80-6 F '64

Nevada

Age of the Roberts Mountains formation (Silurian?) in the Great Basin. D. L. Clark and R. L. Ethington. bibliog maps Geol Soc Bul 75:677-82 Jl '64

Early Pennsylvanian history of Ely Basin, Nevada. A. H. Coogan. bibliog map diags Am Assn Pet Geologists Bul 48:487-95 Ap '64

Ely, Arcturus, and Park City groups (Pennsylvanian-Permian) in eastern Nevada and western Utah. H. J. Bissell. il map diags Am Assn Pet Geologists Bul 48:565-636 bibliog(p634-6) My '64

Paleozoic facies from the miogeosynclinal to the eugeosynclinal belt in thrust slices, central Nevada. M. Kay and J. P. Crawford. maps diags Geol Soc Bul 75:425-54, pl 1-6 bibliog(p452-4) My '64

Precambrian and paleozoic stratigraphy of Specter Range Quadrangle, Nye County, Nevada. B. C. Burchfiel. bibliog maps diags Am Asn Pet Geologists Bul 48:40-56 Ja '64

Structural geology of central northern Egan Range, Nevada. L. A. Woodward. bibliog maps diags Am Assn Pet Geologists Bul 48:22-39 Ja '64

Wall-rock alteration in the Goldfield district, Nevada. R. D. Harvey and C. J. Vitaliano. bibliog map J Geol 72:564-79, pl 1 S '64

New Brunswick

Occurrence and exploration significance of strike-slip faults in southern New Brunswick, Canada. G. W. Webb. bibliog il maps diags Am Assn Pet Geologists Bul 47:1904-27 N '63

Regional implications of Triassic paleocurrents, Maritime Provinces, Canada. G. D. Klein. bibliog pl maps J Geol 71:801-8 N '63

New Hampshire

Metamorphosed Silurian brachiopods from New Hampshire. A. J. Boucot and J. B. Thompson, jr. bibliog maps Geol Soc Bul 74:1313-33, pl 1-10 N '63

New Mexico

Anatomy of stratigraphic trap, Bisti field, N.Mex. F. F. Sabins, jr. bibliog flow diag il maps diags Am Assn Pet Geologists Bul 47:193-228, 2045-7 F, D '63

Intrusion of mobilized tuff, Catron County, N.Mex. R. Greenwood. Geol Soc Bul 74:1505 pl 1 D '63

Lower cretaceous orbitolina from east Potrillo Mountains, Dona Ana County, New Mexico. D. H. Lokke. bibliog maps Am Assn Pet Geologists Bul 48:231-3 F '64

Mapping pre-Niobrara unconformity may be key to new San Juan Basin oil. W. C. Penttila. maps diags Oil & Gas J 61:164-6 O 28 '63

Origin of the lakes in the Chuska Mountains, northwestern New Mexico. H. E. Wright, jr. bibliog maps Geol Soc Bul 75:589-97, pl 1-3 Jl '64

Symmetry, stratigraphy, and petrography of cyclic cretaceous deposits in San Juan Basin. F. F. Sabins, jr. bibliog il maps diags Am Assn Pet Geologists Bul 48:292-316 Mr '64

New York (state)

Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64

Gravity survey and geological interpretation, northern New York. G. Simmons. maps diags Geol Soc Bul 75:81-98, pl 1-4 bibliog (p97-8) F '64

Taconic stratigraphy in northern Washington County, New York. G. Theokritoff. maps Geol Soc Bul 75:171-90, pl 1-3 bibliog (p 189-90) Mr '64

Newfoundland

Lower carboniferous sedimentary rocks in southwestern Newfoundland and their relations to similar strata in western Cape Breton Island. D. M. Baird and P. R. Cote. bibliog maps diag Can Min & Met Bul 57: 509-20 My '64

North America

Post-Sauk and pre-Absaroka paleozoic stratigraphic patterns in North America. H. E. Wheeler. map diags Am Assn Pet Geologists Bul 47:1497-526 bibliog(p 1525-6) Ag '63; Discussion. 48:122-4 Ja '64

Pre-Trenton sedimentation and dolomitization, Cincinnati Arch province; theoretical considerations. W. L. Calvert. bibliog maps Am Assn Pet Geologists Bul 48:166-90 F '64

North Carolina

Is there a Fayetteville buried Triassic basin? W. E. Bonini. Am Assn Pet Geologists Bul 48:102 Ja '64; Discussion. R. G. Schipf. map 48:721-3 My '64

Northwest Territories, Canada

Statistical analysis of some aeromagnetic maps from the northwestern Canadian shield. C. W. Horton and others. bibliog maps diags Geophysics 29:582-601 Ag '64

Nova Scotia

Lower carboniferous sedimentary rocks in southwestern Newfoundland and their relations to similar strata in western Cape Breton Island. D. M. Baird and P. R. Cote. bibliog maps diag Can Min & Met Bul 57: 509-20 My '64

Preliminary age study and initial Sr^{87}/Sr^{86} of Nova Scotia granitic rocks by the Rb-Sr whole-rock method. H. W. Fairbairn and others. bibliog Geol Soc Bul 75:253-7 Mr '64

Regional implications of Triassic paleocurrents, Maritime Provinces, Canada. G. D. Klein. bibliog pl maps J Geol 71:801-8 N '63

Ohio

Mud cracks in the Ordovician Maysville group. H. J. Hofmann. bibliog maps diag J Geol 72:638-41, pl 1 S '64

Oklahoma

Diagenetic aspects of lower Morrowan, Pennsylvanian, sandstones, northwestern Oklahoma. W. L. Adams. bibliog il maps diags Am Assn Pet Geologists Bul 48:1568-80 S '64

Paleogeologic and quantitative lithofacies analysis, Simpson group, Oklahoma. M. W. Schramm, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1164-95 Jl '64

Tectonic framework of Eola and southeast Hoover oil fields and West Timbered Hills area, Garvin and Murray Counties, Oklahoma. B. H. Harlton. bibliog maps diags Am Assn Pet Geologists Bul 48:1555-67 S '64

Ontario

Sudbury structure as an astrobleme. R. S. Dietz. bibliog maps diags J Geol 72:412-34, pl 1-2 Jl '64

Oregon

Officer's Cave, a pseudokarst feature in altered tuff and volcanic ash of the John Day formation in eastern Oregon. G. G. Parker and others. bibliog maps diags Geol Soc Bul 75:393-401 pl 1-2 My '64

GEOLOGY—*Continued*

Pennsylvania

K-Ar dating of rocks and tectonic events in the Piedmont of southeastern Pennsylvania. D. M. Lapham and W. A. Bassett. bibliog map diag Geol Soc Bul 75:661-7 Jl '64

Pattern of folded folds in the Appalachian Piedmont along Susquehanna River. J. Freedman and others. bibliog maps diags Geol Soc Bul 75:621-38, pl 1-5 Jl '64

Structural patterns associated with the serpentinites of southeastern Pennsylvania. D. M. Lapham and H. L. McKague. bibliog diags Geol Soc Bul 75:639-59, pl 1 Jl '64

Quebec (province)

Discovery and exploration of the Poirier ore deposit. J. B. Boniwell and R. A. Dujardin. maps diags Can Min & Met Bul 57:945-52 S '64

Minimum age of middle Ordovician rocks in southern Quebec. W. H. Poole and others. diag Geol Soc Bul 74:1063-5 Ag '63; Discussion. 75:909-14 S '64

Silurian stratigraphy of Gaspe Peninsula, Quebec. C. F. Burk, jr. maps diags Am Assn Pet Geologists Bul 48:437-64 bibliog (p463-4) Ap '64

Russia

Siberian strike may throw new light on Cambrian oil. R. G. Gibson. il maps Oil & Gas J 62:82-4 F 10 '64

Saskatchewan

Collapse structures related to evaporites of the Prairie formation, Saskatchewan. G. De Mille and others. maps diags Geol Soc Bul 75:307-16, pl 1 Ap '64

Geology of the Choiceland iron deposit, Saskatchewan. R. L. Cheesman. maps Can Min & Met Bul 57:715-18 Jl '64

Seychelles Islands

Age and composition of a Bounty Islands granite and age of a Seychelles Islands granite. G. J. Wasserburg and others. bibliog map J Geol 71:785-9 N '63

Spanish West Africa

Middle Devonian stratigraphy of northeastern Spanish Sahara. D. D. Arden, jr. and W. A. Rehrig. bibliog maps Am Assn Pet Geologists Bul 48:1513-25 S '64

Syria

Diapiric structures in Egypt and Syria. S. Omara. bibliog il maps diags Am Assn Pet Geologists Bul 48:1116-25 Jl '64

Texas

Age and stratigraphic implications of major fault in Llano region, central Texas. T. Freeman and G. L. Wilde. bibliog il maps diag Am Assn Pet Geologists Bul 48:714-18 My '64

Age of basal mesozoic redbeds in north-central Texas. B. Watson. bibliog Am Assn Pet Geologists Bul 48:1726-7 O '64

Algal limestones of the Marble Falls formation (lower Pennsylvanian), central Texas. T. Freeman. bibliog map diag Geol Soc Bul 75:669-75, pl 1-3 Jl '64

Depositional topography and cyclic deposition in west-central Texas. W. E. Jackson. bibliog maps diags Am Assn Pet Geologists Bul 48:317-28 Mr '64

Look for ancient deltas in your search for oil. E. H. Rainwater. map diags Oil & Gas J 62:110-11+ Ja 6 '64

New Permian stratigraphic units in Glass Mountains, west Texas. G. A. Cooper and R. E. Grant. bibliog map Am Assn Pet Geologists Bul 48:1581-8 S '64

Opinion of structural mechanics of Central Basin platform area, west Texas. J. W. Harrington. bibliog il maps diags Am Assn Pet Geologists Bul 47:2023-38 D '63

Restudy and upgrade west Texas, Mississippian. W. F. Wright. map Oil & Gas J 61: 224-6+ N 11 '63

Stratigraphy of Permian outcrops, Coke County, Texas. C. E. Mear. bibliog il map diags Am Assn Pet Geologists Bul 47:1952-62 N '63

Texas' Marfa Basin may be ready to yield to oil hunters. B. Pearson. map diag Oil & Gas J 61:88-91 D 23 '63

Utah

Age of the grabens in southeastern Utah. I. J. Witkind. bibliog maps Geol Soc Bul 75: 99-106 F '64

Alteration of Chinle siltstone and uranium emplacement, Arizona and Utah. A. M. Abdel-Gawad and P. F. Kerr. maps diags Geol Soc Bul 74:23-46, pl 1-2 bibliog(p44-6) Ja '63; Discussion. H. S. Johnson, jr. 75: 775-6; Reply. 777-80 Ag '64

Crystallization Po_2 of syenite porphyry from Navajo Mountain, southern Utah. K. C. Condie. bibliog map Geol Soc Bul 75:359-62 Ap '64

Ely, Arcturus, and Park City groups (Pennsylvanian-Permian) in eastern Nevada and western Utah. H. J. Bissell. il map diags Am Assn Pet Geologists Bul 48:565-636 bibliog(p634-6) My '64

Table of post-cretaceous geologic events along the Hurricane fault, near Cedar City, Iron County, Utah. P. Averitt. bibliog map Geol Soc Bul 75:901-7 S '64

Upper tertiary surficial deposits near Cedar City, Iron County, Utah. P. Averitt. bibliog map diags Geol Soc Bul 75:37-44, pl 1-2 Ja '64

Venezuela

Paleozoic rocks of Mérida Andes, Venezuela. bibliog maps diag Am Assn Pet Geologists Bul 48:70-84 Ja '64; Discussion. 48:727-9 My '64

Vermont

Burchards member, Chipman formation, west-central Vermont; comments. C. W. Welby. map Geol Soc Bul 75:781-3 Ag '64

Washington (state)

Composite pleistocene snow line of Olympic Mountains and Cascade Range, Wash. S. C. Porter. bibliog maps Geol Soc Bul 75:477-81 My '64

Crystalline klippen in the Index District, Cascade Range, Washington. R. S. Yeats. bibliog maps Geol Soc Bul 75:549-61, pl 1-3 Je '64

Geology of a part of the south-central Cascade Mountains, Wash. M. L. Stout. maps diag Geol Soc Bul 75:317-34, pl 1 bibliog(p333-4) Ap '64

Late pleistocene glacial events and relative sea-level changes in the northern Puget Lowland, Washington. D. J. Easterbrook. maps Geol Soc Bul 74:1465-83, pl 1-3 bibliog (p 1482-3) D '63

Upward continuation of an aeromagnetic anomaly in Washington. N. C. Steenland and W. D. Gibbons. diags Geophysics 29:109-17 F '64

Void ratios and bulk densities as means of identifying pleistocene tills. D. J. Easterbrook. bibliog map Geol Soc Bul 75:745-50, pl 1-2 Ag '64

West Indies

Evolution of eastern Greater Antillean island arc. T. W. Donnelly. maps diags Am Assn Pet Geologists Bul 48:680-96 bibliog(p695-6) My '64

West Virginia

Gas producing zones of Greenbrier (Mississippian) limestone, southern West Virginia and eastern Kentucky. A. C. Youse. bibliog maps diags Am Assn Pet Geologists Bul 48: 465-86 Ap '64

Geology of Ray Sponaugle well, Pendleton County, West Virginia. W. J. Perry, jr. bibliog map diags Am Assn Pet Geologists Bul 48:659-69 My '64

Western states

Paleomagnetic results from Precambrian sedimentary rocks in the western United States. S. K. Runcorn. bibliog maps Geol Soc Bul 75:687-704 Ag '64

Regional gravity survey of the northern Great Salt Lake Desert and adjacent areas in Utah, Nevada, and Idaho. map diags Geol Soc Bul 75:715-40, pl 1 bibliog(p738-40) Ag '64

Relations of middle Ordovician time and rock units in basin ranges, western United States. R. J. Ross, jr. maps diags Am Assn Pet Geologists Bul 48:1526-54 bibliog(p 1552-4) S '64

Wyoming

Microjointing in basement, middle Rocky Mountains of Montana and Wyoming. D. U. Wise. bibliog maps diags Geol Soc Bul 75: 287-305, pl 1-4 Ap '64

Paleomagnetic correlation of units within Chugwater (Triassic) formation, west-central Wyoming. M. D. Picard. bibliog il map diags Am Assn Pet Geologists Bul 48:269-91 Mr '64

GEOLOGY—Wyoming—*Continued*

Petrology of Pennsylvanian rocks, Bighorn Basin, Wyoming. T. W. Todd. bibliog maps diags Am Assn Pet Geologists Bul 48:1063-90 Jl '64

Zambia

Association of mineralization and algal reef structures on Northern Rhodesian Copperbelt, Katanga, and Australia. W. G. Garlick. bibliog plan diags Econ Geol 59:416-27 My '64

Review of age determinations from Northern Rhodesia. N. J. Snelling and others. map Econ Geol 59:961-81 bibliog(p980-1) S '64

Stromatolites and other algal structures at Mufulira, Northern Rhodesia. S. P. Malan. bibliog il diags Econ Geol 59:397-415 My '64

GEOLOGY, Economic

Economic geology of a part of the Hillsboro, New Mexico, mining district. C. C. Reeves, jr. il map Econ Geol 58:1278-84 D '63

New nomogram for the solution of problems in structural and economic geology. G. W. Leney. diags Econ Geol 58:1326-39 D '63

Principles of geostatistics. G. Matheron. diags Econ Geol 58:1246-66 D '63

GEOLOGY, Mining. See Mining geology

GEOLOGY, Stratigraphic

Age and stratigraphic implications of major fault in Llano region, central Texas. T. Freeman and G. L. Wilde. bibliog il maps diag Am Assn Pet Geologists Bul 48:714-18 My '64

Anatomy of stratigraphic trap, Bisti field, N.Mex. F. F. Sabins, jr. bibliog flow diag il maps diags Am Assn Pet Geologists Bul 47:193-228, 2045-7 F, D '63

Baselevel, lithosphere surface, and time-stratigraphy. H. E. Wheeler. bibliog diags Geol Soc Bul 75:599-609 Jl '64

Possible mechanism for concentration of brines in subsurface formations. J. D. Bredehoeft and others. bibliog diags Am Assn Pet Geologists Bul 47:257-69 F '63; Discussion. 48:234-6; Reply. 236-8 F '64

Regionals and residuals in seismic prospecting for stratigraphic features. M. B. Dobrin and W. G. Rimmer. bibliog maps diags Geophysics 29:38-53 F '64

Stratigraphy of Lincoln Parish, Louisiana. W. Meade. bibliog Am Assn Pet Geologists Bul 48:718-21 My '64

Nomenclature

Amendment of article 31, remark (b) of the code of stratigraphic nomenclature on misuse of the term stage. G. M. Richmond and J. G. Fyles. Am Assn Pet Geologists Bul 48:710-11 My '64

New Permian stratigraphic units in Glass Mountains, west Texas. G. A. Cooper and R. E. Grant. bibliog map Am Assn Pet Geologists Bul 48:1581-8 S '64

New Permo-carboniferous nomenclature, western Alberta and adjacent regions. A. McGugan. bibliog Am Assn Pet Geologists Bul 48:357-9 Mr '64

Ottawa should be a middle Ordovician group. C. G. Winder. bibliog Am Assn Pet Geologists Bul 48:1730-2 O '64

Revision of cretaceous lithostratigraphic nomenclature, northwest Sacramento Valley, Calif. M. A. Murphy and others. bibliog maps diag Am Assn Pet Geologists Bul 48:496-502 Ap '64

Cambrian

Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64

Recent discoveries point to New York as the next major Cambrian province. O. D. Weaver. maps diags Oil & Gas J 62:114-19 Ag 10 '64

Siberian strike may throw new light on Cambrian oil. R. G. Gibson. il maps Oil & Gas J 62:82-4 F 10 '64

Taconic stratigraphy in northern Washington County, New York. G. Theokritoff. maps Geol Soc Bul 75:171-90, pl 1-3 bibliog (p 189-90) Mr '64

Carboniferous

New Permo-carboniferous nomenclature, western Alberta and adjacent regions. A. McGugan. bibliog Am Assn Pet Geologists Bul 48:357-9 Mr '64

Cenozoic

Late cenozoic uplift and exhumed Rocky Mountains of central western Montana. P. E. Wolfe. bibliog maps diag Geol Soc Bul 75:493-502, pl 1-4 Je '64

Potassium-argon age determinations of cenozoic volcanic rocks from British Columbia. W. H. Mathews. bibliog map Geol Soc Bul 75:465-8 My '64

Cretaceous

Age of basal mesozoic redbeds in north-central Texas. B. Watson. bibliog Am Assn Pet Geologists Bul 48:1726-7 O '46

Cretaceous of Vancouver, British Columbia, Canada. C. H. Crickmay and S. A. J. Pocock. bibliog il map Am Assn Pet Geologists Bul 47:1928-42 N '63

Late cretaceous stratigraphy in northern Coahuila, Mex. F. W. Daugherty and U. D. Powell. bibliog map Am Assn Pet Geologists Bul 47:2059-64 D '63

Lower cretaceous *orbitolina* from east Potrillo Mountains, Dona Ana County, New Mexico. D. H. Lokke. bibliog maps Am Assn Pet Geologists Bul 48:231-3 F '64

Lower cretaceous pre-batholithic rocks of northern Baja California, Mexico. L. T. Silver and others. bibliog map Am Assn Pet Geologists Bul 47:2054-9 D '63

Lower cretaceous-upper Jurassic stratigraphy of Umm Shaif field, Abu Dhabi marine areas, Trucial Coast, Arabia. F. T. Banner and G. V. Wood. bibliog map diags Am Assn Pet Geologists Bul 48:191-206 F '64

Mancos-Mesaverde (upper cretaceous) intertonguing relations southeast Piceance Basin, Colorado. D. L. Warner. bibliog il maps diags Am Assn Pet Geologists Bul 48:1091-107 Jl '64

Maracaibo yields more cretaceous oil. map Oil & Gas J 62:66 Je 15 '64

Maranhão paleozoic basin and cretaceous coastal basins, north Brazil. J. C. Mesner and L. C. P. Wooldridge. bibliog maps diags Am Assn Pet Geologists Bul 48:1475-512 S '64

Paleogeographic reconstructions by absolute age determinations of sand particles. A. B. Vistelius. map J Geol 72:483-6 Jl '64

Review of fossil floras and nonmarine deposits of west Greenland. B. E. Koch. map diags Geol Soc Bul 75:535-48, pl 1 bibliog(p547-8) Je '64

Revision of cretaceous lithostratigraphic nomenclature, northwest Sacramento Valley, Calif. M. A. Murphy and others. bibliog maps diag Am Assn Pet Geologists Bul 48:496-502 Ap '64

Shoestring sandstones in cretaceous Bearpaw shale in central Montana. G. R. Wulf. bibliog il map Am Assn Pet Geologists Bul 48:1196-8 Jl '64

Stratigraphic and structural significance of cretaceous fossils from Tiglukpuk formation, northern Alaska. D. L. Jones and A. Grantz. bibliog il maps Am Assn Pet Geologists Bul 48:1462-74 S '64

Stratigraphy and mineralogy of the manganese sedimentary deposits of Coquimbo Province, Chile. L. Aguirre and S. Mehech. il maps diag Econ Geol 59:428-42 My '64

Symmetry, stratigraphy, and petrography of cyclic cretaceous deposits in San Juan Basin. F. F. Sabins, jr. bibliog il maps diags Am Assn Pet Geologists Bul 48:292-316 Mr '64

Devonian

Collapse structures related to evaporites of the Prairie formation, Saskatchewan. G. De Mille and others. maps diags Geol Soc Bul 75:307-16, pl 1 Ap '64

Dynamic and kinematic analysis of deformed crinoid stems in a quartz graywacke. H.-U. Nissen. bibliog diags J Geol 72:346-60, pl 1-3 My '64

Genesis of potash rocks in middle Devonian prairie evaporite formation of Saskatchewan. W. M. Schwerdtner. bibliog diags Am Assn Pet Geologists Bul 48:1108-15 Jl '64

Middle Devonian stratigraphy of northeastern Spanish Sahara. D. D. Arden, jr. and W. A. Rehrig. bibliog maps Am Assn Pet Geologists Bul 48:1513-25 S '64

Oil yields of Devonian New Albany shales, Kentucky. J. W. Smith and K. E. Stanfield. bibliog Am Assn Pet Geologists Bul 48:712-14 My '64

Petrology of the Jeffersonville limestone (middle Devonian) of southeastern Indiana. R. D. Perkins. bibliog maps Geol Soc Bul 74:1335-54, pl 1-5 N '63

Eocene

Shale oil; it all started in eocene lakes. maps Oil & Gas J 62:66-7 Mr 9 '64

Subdivision of San Lorenzo formation (eocene-oligocene) west-central California. E. E. Brabb. bibliog map diag Am Assn Pet Geologists Bul 48:670-9 My '64

GEOLOGY, Stratigraphic—*Continued*

Jurassic

Lower cretaceous-upper Jurassic stratigraphy of Umm Shaif field, Abu Dhabi marine areas, Trucial Coast, Arabia. F. T. Banner and G. V. Wood. bibliog map diags Am Assn Pet Geologists Bul 48:191-206 F '64

Miocene

Subsurface structure and stratigraphy of Kent Bayou-Turtle Bayou-North Turtle Bayou complex, Terrebonne Parish, La. R. T. Sellars, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1705-25 O '64

Mississippian

Gas producing zones of Greenbrier (Mississippian) limestone, southern West Virginia and eastern Kentucky. A. C. Youse. bibliog maps diags Am Assn Pet Geologists Bul 48:465-86 Ap '64

Late Mississippian rhythmic sediments of Mississippi Valley. D. H. Swann. bibliog maps diags Am Assn Pet Geologists Bul 48:637-58 My '64

New Mississippian formations and faunal zones in Chesterfield Range, Portneuf Quadrangle, Southeast Idaho. J. T. Dutro, jr. and W. J. Sando. bibliog maps diags Am Assn Pet Geologists Bul 47:1963-86 N '63

Restudy and upgrade west Texas Mississippian. W. F. Wright. map Oil & Gas J 61:224-6+ N 11 '63

Oligocene

Subdivision of San Lorenzo formation (eocene-oligocene) west-central California. E. E. Brabb. bibliog map diag Am Assn Pet Geologists Bul 48:670-9 My '64

Ordovician

Geology of Ray Sponaugle well, Pendleton County, West Virginia. W. J. Perry, jr. bibliog map diags Am Assn Pet Geologists Bul 48:659-69 My '64

Minimum age of middle Ordovician rocks in southern Quebec. W. H. Poole and others. diag Geol Soc Bul 74:1063-5 Ag '63; Discussion. 75:909-14 S '64

Mud cracks in the Ordovician Maysville group. H. J. Hofmann. bibliog maps diag J Geol 72:638-41, pl 1 S '64

Ordovician explosion structure at Glasford, Ill. T. C. Buschbach and R. Ryan. bibliog il maps diag Am Assn Pet Geologists Bul 47:2015-22 D '63

Ottawa should be a middle Ordovician group. C. G. Winder. bibliog Am Assn Pet Geologists Bul 48:1730-2 O '64

Relations of middle Ordovician time and rock units in basin ranges, western United States. R. J. Ross, jr. maps diags Am Assn Pet Geologists Bul 48:1526-54 bibliog(p 1552-4) S '64

Sequence and correlation of lower and middle Ordovician graptolite faunas of North America. D. E. Jackson. diags Geol Soc Bul 75:523-34 bibliog(p533-4) Je '64

Taconic stratigraphy in northern Washington County, New York. G. Theokritoff. maps Geol Soc Bul 75:171-90, pl 1-3 bibliog (p 189-90) Mr '64

Paleozoic

Maranhão paleozoic basin and cretaceous coastal basins, north Brazil. J. C. Mesner and L. C. P. Wooldridge. bibliog maps diags Am Assn Pet Geologists Bul 48:1475-512 S '64

Paleozoic facies from the miogeosynclinal to the eugeosynclinal belt in thrust slices, central Nevada. M. Kay and J. P. Crawford. maps diags Geol Soc Bul 75:425-54, pl 1-6 bibliog(p452-4) My '64

Paleozoic rocks in northwestern Montana; a newly recognized occurrence. J. W. Keim and R. J. Rector. bibliog maps Geol Soc Bul 75:575-8 Je '64

Paleozoic rocks of Mérida Andes, Venezuela. bibliog maps diag Am Assn Pet Geologists Bul 48:70-84 Ja '64; Discussion. 48:727-9 My '64

Post-Sauk and pre-Absaroka paleozoic stratigraphic patterns in North America. H. E. Wheeler. map diags Am Assn Pet Geologists Bul 47:1497-526 bibliog(p 1525-6) Ag '63; Discussion. 48:122-4 Ja '64

Precambrian and paleozoic stratigraphy of Specter Range Quadrangle, Nye County, Nevada. B. C. Burchfiel. bibliog maps diags Am Assn Pet Geologists Bul 48:40-56 Ja '64

Stress chronology of the mid-paleozoic orogeny of the British Isles. W. E. Tremlett. bibliog map pl J Geol 71:793-800 N '63

Pennsylvanian

Algal limestones of the Marble Falls formation (lower Pennsylvanian), central Texas. T. Freeman. bibliog map diag Geol Soc Bul 75:669-75, pl 1-3 Jl '64

Diagenetic aspects of lower Morrowan, Pennsylvanian, sandstones, northwestern Oklahoma. W. L. Adams. bibliog il maps diags Am Assn Pet Geologists Bul 48:1568-80 S '64

Early Pennsylvanian currents in the southern Appalachian Mountains. J. Schlee. bibliog maps diags Geol Soc Bul 74:1439-51 pl 1 D '63

Early Pennsylvanian history of Ely Basin, Nevada. A. H. Coogan. bibliog map diags Am Assn Pet Geologists Bul 48:487-95 Ap '64

Ely, Arcturus, and Park City groups (Pennsylvanian-Permian) in eastern Nevada and western Utah. H. J. Bissell. il map diags Am Assn Pet Geologists Bul 48:565-636 bibliog(p634-6) My '64

Origin of Pennsylvanian underclays in the Illinois Basin. N. R. O'Brien. bibliog diags Geol Soc Bul 75:823-32 S '64

Permian Basin drillers look to Pennsylvanian. F. Wright. maps Oil & Gas J 61:136-8+ D 16 '63

Petrology of Pennsylvanian rocks, Bighorn Basin, Wyoming. T. W. Todd. bibliog maps diags Am Assn Pet Geologists Bul 48:1063-90 Jl '64

Permian

Ely, Arcturus, and Park City groups (Pennsylvanian-Permian) in eastern Nevada and western Utah. H. J. Bissell. il map diags Am Assn Pet Geologists Bul 48:565-636 bibliog(p634-6) My '64

New Permian stratigraphic units in Glass Mountains, west Texas. G. A. Cooper and R. E. Grant. bibliog map Am Assn Pet Geologists Bul 48:1581-8 S '64

New Permo-carboniferous nomenclature, western Alberta and adjacent regions. A. McGugan. bibliog Am Assn Pet Geologists Bul 48:357-9 Mr '64

Permian Basin drillers look to Pennsylvanian. F. Wright. maps Oil & Gas J 61:136-8+ D 16 '63

Stratigraphy of Permian outcrops, Coke County, Texas. C. E. Mear. bibliog il map diags Am Assn Pet Geologists Bul 47:1952-62 N '63

Pleistocene

Classification of the Wisconsin glacial stage. H. E. Wright, jr. J Geol 72:628-37 bibliog(p636-7) S '64

Composite pleistocene snow line of Olympic Mountains and Cascade Range, Wash. S. C. Porter. bibliog maps Geol Soc Bul 75:477-81 My '64

Correlation of glacial lake stages in the Huron-Erie and Michigan Basins. J. H. Bretz. bibliog maps J Geol 72:618-27, pl 1 S '64

Growth-rate estimates of a pleistocene coral reef of Florida. J. E. Hoffmeister and H. G. Multer. bibliog map Geol Soc Bul 75:353-7, pl 1-2 Ap '64

Illinoian and Wisconsin glaciations in the Whitewater Basin, southeastern Indiana, and adjacent areas. A. M. Gooding. bibliog map diags J Geol 71:665-82 N '63

Late pleistocene glacial events and relative sea-level changes in the northern Puget Lowland, Washington. D. J. Easterbrook. maps Geol Soc Bul 74:1465-83 pl 1-3 bibliog (p 1482-3) D '63

Paleotemperature analysis of the Caribbean cores A254-BR-C and CP-28. C. Emiliani. map Geol Soc Bul 75:129-43 bibliog(p 141-3) F '64

Patterned ground in the western Snake River Plain, Idaho, and its possible cold-climate origin. H. E. Malde. maps diag Geol Soc Bul 75:191-207, pl 1-4 bibliog (p205-7) Mr '64

Periglacial structures in the Saskatchewan gravels and sands of central Alberta, Canda. J. A. Westgate and L. A. Bayrock. bibliog map diags J Geol 72:641-8, pl 1-2 S '64

Pleistocene geology of outer Cape Cod, Mass. J. M. Zeigler and others. bibliog maps diags Geol Soc Bul 75:705-14, pl 1 Ag '64

Pleistocene vegetational studies in the Whitewater Basin, southeastern Indiana. R. O. Kapp and A. M. Gooding. map diags J Geol 72:307-26 bibliog(p325-6) My '64

GEOLOGY, Stratigraphic—Pleistocene—*Cont.*

Pleistocene volcanism and deformation of the Truckee area, north of Lake Tahoe, California. P. W. Birkeland. bibliog maps Geol Soc Bul 74:1453-63 D '63

Potassium-argon dates of three pleistocene interglacial basalt flows from the Sierra Nevada, California. G. B. Dalrymple. bibliog map Geol Soc Bul 75:753-7 Ag '64

Two pollen diagrams from southeastern Minnesota; problems in the regional late-glacial and postglacial vegetational history. H. E. Wright, jr. and others. map diags Geol Soc Bul 74:1371-95, pl 1-3 bibliog(p 1392-5) N '63

Void ratios and bulk densities as means of identifying pleistocene tills. D. J. Easterbrook. bibliog map Geol Soc Bul 75:745-50, pl 1-2 Ag '64

Pre-Cambrian

Age-dating studies on Precambrian rocks at Jasper, Alberta. C. R. Evans and others. bibliog map Can Min & Met Bul 57:33-6 Ja '64

Correlations and problems in Belt Series stratigraphy, northern Idaho and western Montana. J. E. Harrison and A. B. Campbell. bibliog maps diags Geol Soc Bul 74:1413-27 D '63

Geochronologic studies in the eastern Mojave Desert, Calif. M. A. Lanphere. maps J Geol 72:381-99 bibliog(p398-9) Jl '64

Geology of the Choiceland iron deposit, Saskatchewan. R. L. Cheesman. maps Can Min & Met Bul 57:715-18 Jl '64

Geology of the Raposos gold mine, Minas Gerais, Brazil. G. E. Tolbert. bibliog il maps diags Econ Geol 59:775-98 Ag '64

Mineral deposits related to major structures in the Precambrian of Manitoba. J. F. Davies. maps Can Min & Met Bul 57:661-5 Je '64

Origin of Precambrian iron formations. H. Lepp and S. S. Goldich. map Econ Geol 59:1025-60 bibliog(p 1057-60) S '64

Paleomagnetic results from Precambrian sedimentary rocks in the western United States. S. K. Runcorn. bibliog maps Geol Soc Bul 75:687-704 Ag '64

Petrochemistry of a Precambrian amphibolite from the Jaraquá area, São Paulo, Brazil. C. D. Gomes and others. bibliog maps diag J Geol 72:664-80 S '64

Petrology and isotopic-mineral age relations of a contact zone in the Front Range, Colo. S. R. Hart. bibliog maps J Geol 72:493-525 S '64

Precambrian and paleozoic stratigraphy of Specter Range Quadrangle, Nye County, Nevada. B. C. Burchfiel. bibliog maps diags Am Assn Pet Geologists Bul 48:40-56 Ja '64

Pre-Trenton sedimentation and dolomitization, Cincinnati Arch province; theoretical considerations. W. L. Calvert. bibliog maps Am Assn Pet Geologists Bul 48:166-90 F '64

Rock magnetism and dike classification. D. W. Strangway. bibliog maps J Geol 72:648-63 S '64

Why have we been hesitant? F. J. Gardner. Oil & Gas J 62:213 Je 8 '64

Quaternary

Late quaternary sea-level change and crustal rise at Boston, Mass., with notes on the autocompaction of peat. C. A. Kaye and E. S. Barghoorn. il diags Geol Soc Bul 75:63-80 bibliog(p79-80) F '64

Late recent rise of sea level. J. M. Coleman and W. G. Smith. bibliog map diag Geol Soc Bul 75:833-40 S '64

Quaternay geology of Chile; brief outline. K. Segerstrom. bibliog maps Geol Soc Bul 75:157-69 Mr '64

Silurian

Age of the Roberts Mountains formation (Silurian?) in the Great Basin. D. L. Clark and R. L. Ethington. bibliog maps Geol Soc Bul 75:677-82 Jl '64

Cincinnati arch; mineralogical-statistical evidence of post-Ordovician origin. D. M. Scotford. bibliog diags Am Assn Pet Geologists Bul 48:427-36 Ap '64

Metamorphosed Silurian brachiopods from New Hampshire. A. J. Boucot and J. B. Thompson, jr. bibliog maps Geol Soc Bul 74:1313-33, pl 1-10 N '63

Petrography and evolution of Niagaran (Silurian) reefs, Indiana. D. A. Textoris and A. V. Carozzi. bibliog il map diags Am Assn Pet Geologists Bul 48:397-426 Ap '64

Silurian stratigraphy of Gaspé Peninsula, Quebec. C. F. Burk, jr. maps diags Am Assn Pet Geologists Bul 48:437-64 bibliog (p463-4) Ap '64

Tertiary

Geology of the part of the south-central Cascade Mountains, Wash. M. L. Stout. maps diag Geol Soc Bul 75:317-34, pl 1 bibliog(p333-4) Ap '64

Review of fossil floras and nonmarine deposits of west Greenland. B. E. Koch. map diags Geol Soc Bul 75:535-48, pl 1 bibliog(p547-8) Je '64

Upper tertiary surficial deposits near Cedar City, Iron County, Utah. P. Averitt. bibliog map diags Geol Soc Bul 75:37-44, pl 1-2 Ja '64

Triassic

Is there a Fayetteville buried Triassic basin? W. E. Bonini. Am Assn Pet Geologists Bul 48:102 Ja '64; Discussion. R. G. Schipf. map 48:721-3 My '64

Paleomagnetic correlation of units within Chugwater (Triassic) formation, west-central, Wyoming. M. D. Picard. bibliog il map diags Am Assn Pet Geologists Bul 48:269-91 Mr '64

Regional implications of Triassic paleocurrents, Maritime Provinces, Canada. G. D. Klein. bibliog pl maps J Geol 71:801-8 N '63

GEOLOGY, Structural

Altitude, lithology, and the fall zone in Connecticut. R. F. Flint. bibliog maps diag J Geol 71:683-97 N '63

Central Appalachian tectonics and the deep basin. H. P. Woodward. maps Am Assn Pet Geologists Bul 48:338-56 bibliog(p 355-6) Mr '64

Cross fold deformation by simple shear. E. S. O'Driscoll. bibliog il diags Econ Geol 59:1061-93 S '64

La Cueva intrusive complex and dome, northern Coahuila, Mexico. F. W. Daugherty. bibliog maps diags Geol Soc Bul 74:1429-38 pl 1 D '63

Diapiric structures in Egypt and Syria. S. Omara. bibliog il maps diags Am Assn Pet Geologists Bul 48:1116-25 Jl '64

Evolution of eastern Greater Antillean island arc. T. W. Donnelly. maps diags Am Assn Pet Geologists Bul 48:680-96 bibliog(p695-6) My '64

Folds and folding. F. A. Donath and R. B. Parker. diags Geol Soc Bul 75:45-62, pl 1-8 bibliog(p61-2) Ja '64 (reprints 75c)

Geochemical and structural studies in batholithic rocks of southern California; structural geology of Rattlesnake Mountain pluton. R. S. MacColl. bibliog map diags Geol Soc Bul 75:805-22, pl 1-7 S '64 (to be cont)

Geophysical studies of basin structures along the eastern front of the Sierra Nevada, California. J. H. Healy and F. Press. bibliog maps Geophysics 29:337-59 Je '64

Gravity slide faulting on Bowes Dome, Bearpaw Mountains area, Montana. J. R. Shouldice. bibliog maps diags Am Assn Pet Geologists Bul 47:1943-51 N '63

Gravity, volcanism, and crustal structure in the southern Cascade Range, Calif. L. C. Pakiser. bibliog maps Geol Soc Bul 75:611-20 Jl '64

K-Ar dating of rocks and tectonic events in the Piedmont of southeastern Pennsylvania. D. M. Lapham and W. A. Bassett. bibliog map diag Geol Soc Bul 75:661-7 Jl '64

Late cenozoic uplift and exhumed Rocky Mountains of central western Montana. P. E. Wolfe. bibliog maps diag Geol Soc Bul 75:493-502, pl 1-4 Je '64

Moody Hill system of wrench fault tectonics; discussion. J. J. Prucha. bibliog il maps diags Am Assn Pet Geologists Bul 48:106-11; Reply. 112-22 Ja '64

New nomogram for the solution of problems in structural and economic geology. G. W. Leney. diags Econ Geol 58:1326-39 D '63

Opinion of structural mechanics of Central Basin platform area, west Texas. J. W. Harrington. bibliog il maps diags Am Assn Pet Geologists Bul 47:2023-38 D '63

Origin of the lakes in the Chuska Mountains, northwestern New Mexico. H. E. Wright, jr. bibliog maps Geol Soc Bul 75:589-97, pl 1-3 Jl '64

Photo from space; a new tool for oil exploration? H. Wilson. il map Oil & Gas J 61:72-3 O 21 '63

Slickensides and fault movements. H. D. Tjia. map diags Geol Soc Bul 75:683-5 Jl '64

GEOLOGY, Structural—*Continued*

Stratigraphic and structural significance of cretaceous fossils from Tiglukpuk formation, northern Alaska. D. L. Jones and A. Grantz. bibliog il maps Am Assn Pet Geologists Bul 48:1462-74 S '64

Structural geology of central northern Egan Range, Nevada. L. A. Woodward. bibliog maps diags Am Assn Pet Geologists Bul 48:22-39 Ja '64

Structural patterns associated with the serpentinites of southeastern Pennsylvania. D. M. Lapham and H. L. McKague. bibliog diags Geol Soc Bul 75:639-59, pl 1 Jl '64

Structure of Winnfield salt dome, Winnfield Parish, Louisiana. R. B. Hoy and R. Kühn. bibliog Am Assn Pet Geologists Bul 48:360-1 Mr '64

Sudbury structure as an astrobleme. R. S. Dietz. bibliog maps diags J Geol 72:412-34, pl 1-2 Jl '64

Table of post-cretaceous geologic events along the Hurricane fault, near Cedar City, Iron County, Utah. P. Averitt. bibliog map Geol Soc Bul 75:901-7 S '64

Tectonic framework of Eola and southeast Hoover oil fields and West Timbered Hills area, Garvin and Murray Counties, Oklahoma. B. H. Harlton. bibliog maps diags Am Assn Pet Geologists Bul 48:1555-67 S '64

Theory of internal buckling of a confined multilayered structure. M. A. Biot. bibliog diags Geol Soc Bul 75:563-8 Je '64

Thin-skinned tectonics in the plateau and northwestern Valley and Ridge provinces of the central Appalachians. V. E. Gwinn. maps diags Geol Soc Bul 75:863-99, pl 1-2 bibliog(p897-9) S '64

Tidal strain as a possible cause of microseisms and rock jointing. C. D. Holmes. bibliog Geol Soc Bul 74:1411-12 N '63

See also

Faults (geology)
Joints (geology)

GEOLOGY, Submarine. See Submarine geology

GEOMAGNETISM. See Magnetism, Terrestrial

GEOMETRICAL drawing

See also

Circles

GEOMETRICAL optics. See Optics, Geometrical

GEOMETRY

Geometrical representation of relations between changes in mass, energy, and momentum in special relativity. F. W. Sears, Am J Phys 32:59-60 Ja '64

Geometry. M. Kline. il diags Sci Am 211: 60-9 S '64

Geometry effects on the threshold of half-frequency whirl in self-acting, gas-lubricated journal bearings. B. Sternlicht and L. W. Winn. bibliog diags A S M E Trans ser D 86:313-20 Je '64

Geometry of manganese pentacarbonyl hydride, an X-ray diffraction study. S. J. LaPlaca and others. bibliog Am Chem Soc J 86:2288-9 Je 5 '64

Induced electric fields in coaxial geometry. P. J. Hart. diags J Ap Phys 35:508-11 Mr '64

String algorithm for shortest path in directed networks. V. Klee. diags Op Res 12:428-32 My '64

See also

Arcs
Ellipse
Topology

GEOMETRY, Analytic

Transformation of trilinear and quadriplanar coordinates to and from cartesian coordinates. J. B. Mertie, jr. bibliog diags Am Mineralogist 49:926-36 Jl '64

See also

Coordinates

GEOMETRY, Differential

Plane coordinate systems and map projections. E. Schmid. Am Soc C E Proc 90 [SU 2 no 3962]:17-25 Jl '64

GEOPHYSICAL instruments

New data-processing technique for the elimination of ghost arrivals on reflection seismograms. W. A. Schneider and others. diags Geophysics 29:783-805 O '64

See also

Seismographs

GEOPHYSICAL research

Attitude control for an orbiting observatory; OGO. D. D. Otten. bibliog diags Control Eng 10:81-5 D '63

Geophysical research, the American petroleum institute and the Petroleum research fund; report. R. B. McEuen and others. Geophysics 29:9-16 F '64

Geothermal research in Canada. A. M. Jessop. map Can Min & Met Bul 57:152-5 F '64

MURAC, a multiple reflection analog computer. D. Silverman and others. il diags Geophysics 28:975-89 D '63

New shear apparatus for temperatures of 1000°C and pressures of 50 kilobars. R. E. Riecker. il diags R Sci Instr 35:596-9 My '64

Orbiting observatories. I. Stambler. il diags Space/Aeronautics 42:34-42 S '64

See also

International geophysical year

GEOPHYSICS

Geophysical studies of basin structures along the eastern front of the Sierra Nevada, California. J. H. Healey and F. Press. bibliog maps Geophysics 29:337-59 Je '64

Patents. Published in bi-monthly numbers of Geophysics

Vertical gradient of gravity. I. I. Mueller. bibliog diags Am Soc C E Proc 90 [SU 2 no 3975]:83-107 Jl '64

See also

Earth movements
Earth temperature
Earth tides
Earthquakes
Gravity
Magnetism, Terrestrial
Meteorology
Petroleum—Prospecting—Geophysical methods
Prospecting—Geophysical methods
Sedimentation and deposition
Seismometry
Water, Underground
Weathering (rocks)

Bibliography

Abstracts (cont). Geophysics 28:1100-1; 29: 145-8, 332-3, 472-7, 657-9, 909-12 D '63-O '64

Reviews. Published in bi-monthly numbers of Geophysics

Tables, calculations, etc.

Calculation of total-intensity magnetic anomalies for certain bodies by digital computer. J. T. Hughson. maps diags Geophysics 29:54-66 F '64

Propagation of a pulse in a fluid sphere. Z. Alterman and P. Kornfeld. diags Geophysics 29:259-87 Ap '64

GEOTHERMAL steam. See Steam, Natural

GERM-free life

Germ-free isolators. P. C. Trexler. il diags Sci Am 211:78-80+ Jl '64

GERMANATES

Structure of borosilicate and borogermanate melts at 1300°C; a viscosity and density study. E. F. Riebling. bibliog Am Cer Soc J 47:478-83 O '64

See also

Lithium germanate

GERMANE. See Germanium hydrides

GERMANIUM

Bonding of electrical leads to germanium for ultrahigh-vacuum and high-temperature measurements. R. M. Chappel. bibliog diag J Ap Phys 35:2783-4 S '64

Capacity measurements on rapidly polarized germanium electrodes. P. J. Boddy and W. J. Sundburg. il diag Electrochem Soc J 110:1170-2 N '63

Chemical equilibrium in the germanium-iodine and germanium-bromine systems by weight-loss measurements. F. Jona and others. bibliog diags Electrochem Soc J 111: 413-17 Ap '64

Chemical etching of germanium in solutions of HF, HNO_3, H_2O and $HC_2H_3O_2$. B. Schwartz and H. Robbins. bibliog Electrochem Soc J 111:196-201 F '64

Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64

Dislocations in webs of germanium and silicon. S. O'Hara. bibliog il diag J Ap Phys 35:409-13 F '64

Effect of crystal orientation on Ge-GaAs heterojunctions. F. F. Fang and W. E. Howard. bibliog diags J Ap Phys 35:612-17 Mr '64

Effect of heat treatment on the optical properties of heavily doped silicon and germanium. W. G. Spitzer and others. bibliog J Ap Phys 35:206-11 Ja '64

Effect of solution trace impurities on I-V characteristics of electrodeposited surface barrier diodes. G. M. Krembs and M. M. Schlacter. bibliog il diag Electrochem Soc J 111:417-20 Ap '64

GERMANIUM—*Continued*

Electric-field-enhanced precipitation of Li in Ge. J. Blanc and M. S. Abrahams. il J Ap Phys 34:3638-9 D '63

Electrical characteristics of germanium oxidic films. R. D. Wales. Electrochem Soc J 111:478-80 Ap '64

Epitaxial deposition of silicon and germanium layers by chloride reduction. E. F. Cave and B. R. Czorny. bibliog il diags RCA R 24:523-45 D '63

Epitaxial growth of gallium arsenide on germanium substrates. T. Gabor. bibliog il diags Electrochem Soc J 111:817-27 Jl '64

Epitaxial p-type germanium and silicon films by the hydrogen reduction of $GeBr_4$, $SiBr_4$, and BBr_3. K. J. Miller and M. J. Grieco. bibliog diag Electrochem Soc J 110:1252-6 D '63

Epitaxial temperature of germanium deposited on calcium fluoride. A. Catlin and others. il J Ap Phys 35:251-2 Ja '64

Etching of germanium substrates in gaseous hydrogen chloride. J. A. Amick and others. il diags RCA R 24:473-87 D '63

Experiment offering varied experience; conductivity changes of a germanium crystal under tension and illumination. M. Allen and E. J. Saxl. bibliog diags Am J Phys 31:837-41 N '63

Germanium bolometer detector of millimeter wavelength thermal energy. D. G. Galloway and C. W. Tolbert. il diags R Sci Instr 35:628-30 My '64

Germanium diodes are doped with lithium. Chem & Eng N 42:91 Ap 13 '64

Germanium, 1963. D. E. Lundy. Eng & Min J 165:128 F '64

Growth of germanium epitaxial layers by the pyrolysis of germane. E. A. Roth and others. bibliog il diags RCA R 24:499-510 D '63

Growth of single-crystal gallium arsenide layers on germanium and metallic substrates. J. A. Amick. bibliog il diag RCA R 24:555-73 D '63

Impurity content of germanium crystallized from the liquid ternary alloy Ge-In-Sb. K. Lehovec and A. Slobodskoy. bibliog diag Electrochem Soc J 111:65-73 Ja '64

Infrared photoconductive characteristics of boron-doped germanium. H. Shenker and others. bibliog diag J Ap Phys 35:2965-70 O '64

Kinetics of anodic dissolution of germanium. P. J. Boddy. bibliog il diags Electrochem Soc J 111:1136-41 O '64

Microwave conductivity of germanium. M. W. Gunn. IEEE Proc 52:851 Jl '64

Modulation of infrared by free carrier absorption. R. B. McQuistan and J. W. Schultz. bibliog diags J Ap Phys 35:1243-8 Ap '64

New technology sparks an expansion for germanium. K. B. Landress. diags Electronics 37:62-5 Ap 6 '64

Optical heterodyning using point contact germanium diodes. C. K. N. Patel and W. M. Sharpless. il diag IEEE Proc 52:107-8 Ja '64

Preparation and properties of GaAs-GaP, GaAs-Ge, and GaP-Ge heterojunctions. M. Weinstein and others. bibliog il diags Electrochem Soc J 111:674-82 Je '64

Properties of $HF-H_2O_2$ treated germanium surfaces. P. Balk and E. L. Peterson. bibliog Electrochem Soc J 110:1245-52 D '63

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Role of the competing etching process in determining the quality of pyrolytically grown silicon and germanium films. E. G. Bylander. bibliog J Ap Phys 35:1358-9 Ap '64

Silicon replacing germanium as power transistors get bigger. S. Levine. il diags Electronics 37:42-9 N 2 '64

Slow surface relaxation of germanium. M. H. Pilkuhn. bibliog J Ap Phys 34:3302-5 N '63

Source of acceptors in low resistivity vacuum-deposited germanium films. E. G. Bylander and others. bibliog J Ap Phys 34:3407-8 N '63

Study of $HCl-H_2$ and $GeCl_4-H_2$ etching of germanium substrates for epitaxial deposition. K. J. Miller and M. J. Grieco. bibliog Electrochem Soc J 111:1099-101 S '64

Temperature dependence of ejection patterns in Ge sputtering. G. S. Anderson and others. il J Ap Phys 34:3492-5 D '63

Thermodynamic analyses of open tube germanium disproportionation reactions. A. Reisman and S. A. Alyanakyan. bibliog Electrochem Soc J 111:1154-64 O '64

Thermoelectric power of hot carriers. J. Zucker. bibliog diag J Ap Phys 35:618-21 Mr '64

Transmission electron microscope investigation of removal of mechanical polishing damage on Si and Ge by chemical polishing. R. Stickler and G. R. Booker. bibliog il diags Electrochem Soc J 111:485-8 Ap '64

Unsupported single-crystal films of germanium. C. W. Skaggs and J. R. Jones. il J Ap Phys 35:3013-15 O '64

See also

Transistors

GERMANIUM alloys

Alloyed germanium-silicon heterojunctions. J. Brownson. J Ap Phys 35:1356-7 Ap '64

Dislocation damping in dilute Cu-Ge alloys. N. F. Fiore and C. L. Bauer. bibliog J Ap Phys 35:2242-7 Jl '64

Germanium-silicon alloy heterojunctions. J. Shewchun and L. Y. Wei. bibliog il Electrochem Soc J 111:1145-9 O '64

Ge-Si thermoelectric power generator. B. Abeles and R. W. Cohen. J Ap Phys 35:247-8 Ja '64

Impurity content of germanium crystallized from the liquid ternary alloy Ge-In-Sb. K. Lehovec and A. Slobodskoy. bibliog diag Electrochem Soc J 111:65-73 Ja '64

Thermal and electrical properties of heavily doped Ge-Si alloys up to 1300°K. J. P. Dismukes and others. bibliog diag J Ap Phys 35:2899-907 O '64

X-ray measurements of faulting in α Cu-Ge alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 35:2629-33 S '64

GERMANIUM compounds

Vibrational spectra and structures of digermyl ether and digermyl sulfide. T. D. Goldfarb and S. Sujishi. bibliog Am Chem Soc J 86:1679-83 My 5 '64

GERMANIUM halides

Analysis

Purity examination of silicon and germanium halides by long-path infrared spectrophotometry. M. J. Rand. bibliog Anal Chem 35:2126-31 D '63

GERMANIUM hydrides

Growth of germanium epitaxial layers by the pyrolysis of germane. E. A. Roth and others. bibliog il diags RCA R 24:499-510 D '63

GERMANIUM oxides

Studies in germanium oxide systems. M. K. Murthy and others. bibliog Am Cer Soc J 47:328-31, 444-7 Jl, S '64

Ultrasonic relaxation loss in SiO_2, GeO_2, B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64

GERMANY

See also subdivision Germany under special subjects, e.g.

Airplane industry and trade
Atomic research
Automobile industry and trade
Bridges
Chemical industries
Chemical research
Coal mines and mining
Electronics industry
Geology
Machine tool industry
Medical service, Industrial
Moving picture industry
Oil burner industry
Petroleum industry and trade
Public health
Radio broadcasting
Shipbuilding
Space research
Standards
Steel works
Television broadcasting
Textile industry
Transportation
Warships

GERMICIDAL soap. See Soap, Antiseptic

GERMICIDES. See Disinfection and disinfectants

GERMINATION

Effects of solutions of urea and of ammonium and potassium salts on the germination of kale, barley and wheat. J. K. R. Gasser. Chem & Ind p 1687-9 O 3 '64

See also

Dormancy (plants)

GESTATION. See Pregnancy

GHANA

See also

Hydroelectric plants—Ghana

Warships—Ghana

GIBBERELLIC acid

Molecular and crystal structure of the di-p-bromobenzoate of the methyl ester of gibberellic acid. J. A. Hartsuck and W. N. Lipscomb. bibliog diags Am Chem Soc J 85: 3414-19 N 5 '63

GIBBERELLIN

Gas chromatographic separation of gibberellins. N. Ikekawa and others. bibliog Chem & Ind p 1728-9 O 26 '63

GIBBS, Willard, medal

Kolthoff wins Gibbs medal. Chem & Eng N 42:88 My 25 '64

GIBBS paradox. See Entropy

GIBBSITE

Thermal transformation of alumina trihydrate, hydrargillite. T. Sato. bibliog J Ap Chem 14:303-8 Jl '64

GIBSON, Horace Stephen

Obituary. por Inst Pet J 50:58-9 F '64

GIFFELS and Rossetti, inc.

Giffels & Rossetti, inc., reports. bibliog il diags Air Cond Heat & Ven 61:67-98 O '64

GIFTS

See also

Christmas gifts

GILLSON, Joseph L.

Obituary. por J Metals 16:740+ S '64; Same. Min Eng 16:97 S '64

GILSONITE

Tunnel borer and shaft drill teamed at American gilsonite co.'s hydraulic mining operation. il diag Eng & Min J 165:68-70 Jl '64

GIRBOTOL process. See Gas, Natural—Sulfur content

GIRDERS. See Beams and girders

GLACIAL epoch

Great infra-Cambrian ice age. W. B. Harland and M. J. S. Rudwick. il maps diags Sci Am 211:28-36 Ag '64

See also

Geology, Stratigraphic—Pleistocene

GLACIAL geology

Deformation of the Ross Ice Shelf, Antarctica. R. O. Kehle. map diags Geol Soc Bul 75:259-86, pl 1 bibliog(p285-6) Ap '64

Fluvioglacial erosion near Knob Lake, central Quebec-Labrador, Canada. E. Derbyshire. bibliog maps Geol Soc Bul 73:1111-26, pl 1-4 S '62; Discussion. J. D. Ives and R. P. Kirby. 75:917-22, pl 1; Reply. 923-5, pl 1 S '64

Glacial geology of the east flank of the Argentine Andes between latitude 39°10'S. and latitude 41°20'S. R. F. Flint and F. Fidalgo. bibliog map diag Geol Soc Bul 75:335-62, pl 1 Ap '64

Glaciations of Mount Kilimanjaro, northeast Tanganyika. C. Downie. bibliog diags Geol Soc Bul 75:1-16, pl 1-3 Ja '64

Ice-thrust ridges in western Canada. W. O. Kupsch. bibliog maps diags J Geol 70:582-94, pl 1 S '62; Discussion. J. R. Mackay and W. H. Mathews. 72:378-80 My '64

Illinoian and Wisconsin glaciations in the Whitewater Basin, southeastern Indiana, and adjacent areas. A. M. Gooding. bibliog map diags J Geol 71:665-82 N '63

Periglacial structures in the Saskatchewan gravels and sands of central Alberta, Canada. J. A. Westgate and L. A. Bayrock. bibliog map diags J Geol 72:641-8, pl 1-2 S '64

See also

Drift

Geology, Stratigraphic—Pleistocene

GLACIAL lakes

Correlation of glacial lake stages in the Huron-Erie and Michigan Basins. J. H. Bretz. bibliog maps J Geol 72:618-27, pl 1 S '64

GLADSTONE, Oregon

Water supply

Unique water supply promotes good economic climate. L. J. Blake. il plan Pub Works 94:112-13 D '63

GLANDS

See also

Lacrimal organs

Sebaceous glands

GLANDS, Ductless

See also

Parathyroid glands

Thymus gland

Thyroid gland

GLARE

Analysis of reflected glare and visual effect from windows. J. W. Griffith. bibliog diags Illum Eng 59:184-6; Discussion. 186-8 Mr '64

Self-dimming glass cuts glare out of sunlight. il Machine Design 36:8 F 13 '64

Uniform method for computing the probability of comfort response in a visual field. R. D. Bradley and H. L. Logan. bibliog plans diags Illum Eng 59:189-200; Discussion. 200-4; Reply. 204-6 Mr '64

GLASGOW

See also

Airports—Glasgow

Sewerage

New Glasgow sewage plant starts work. il Engineering 198:59 Jl 10 '64

GLASS

Adhesion of vapor-deposited aluminum to lime-soda glass. J. R. Frederick and K. C. Ludema. bibliog J Ap Phys 35:256-7 Ja '64

Borosilicate glasses. Materials in Design Eng 59:113-20 Je '64 (reprints 35c)

Bubble-induced nucleation and crystal growth in glass. C. Klingsberg. bibliog il diags Am Cer Soc J 47:97-100 F '64

Comparison of the optical Faraday rotation and magnetic susceptibility of cerous phosphate glass. S. B. Berger and C. B. Rubinstein. bibliog J Ap Phys 35:1798-801 Je '64

Composition and structure of inorganic nonmetallic solids. T. C. MacAvoy. diags Glass Ind 44:618-24+ N '63

Dissolution behavior of microporous glass. R. J. Charles. il Am Cer Soc J 47:154-5 Mr '64

Effects of titanium dioxide in glass. M. D. Beals and J. H. Strimple. bibliog Glass Ind 44:495-501+, 569-73+, 625-9+, 679-83+ S-D '63

Equilibrium in the glass-forming system TeO_2-V_2O_5. G. A. Chase and C. J. Phillips. Am Cer Soc J 47:467 S '64

Faraday rotation of rare-earth (III) borate glasses. C. B. Rubinstein and others. J Ap Phys 35:2338-40 Ag '64

Forms and shapes of materials; ceramic, glass, carbon and graphite; tables. Materials in Design Eng 60:472-3 Mid-O '64

Glass and ceramics for underwater vehicles. J. D. Stachiw. il diag Glass Ind 45:469-72+ S '64

Glass formation in carbonate systems. R. K. Datta and others. Am Cer Soc J 47:153 Mr '64

International conference on physics of noncrystalline solids, Delft, Netherlands, July 6-10. Am Cer Soc Bul 43:632 S '64

Laser oscillations at 0.918, 1.057, and 1.401 microns in Nd^{3+}-doped borate glasses. A. D. Pearson and others. il diag J Ap Phys 35:1704-6 Je '64

Light circulator using the Faraday effect of heavy flint glass. S. Saito and others. diag IEEE Proc 52:979 Ag '64

Method of producing extremely small holes in glass walls. D. G. Andersen and others. R Sci Instr 35:412 Mr '64

Microconductor arrays in glass. A. R. Hildebrand. diags Electro-Tech 73:118+ Je '64

Microcrystalline $BaTiO_3$ by crystallization from glass. A. Herczog. bibliog il diag Am Cer Soc J 47:107-15 Mr '64

Oxidation-reduction equilibria in iron-containing glass. W. D. Johnston. bibliog Am Cer Soc J 47:198-201 Ap '64

Photoionization and γ-induced oxidation of aromatic amines in rigid organic glasses. M. Kondo and others. bibliog Am Chem Soc J 86:1297-300 Ap 5 '64

Plutonium-bearing glass for nuclear applications. L. V. Jones and others. il Am Cer Soc Bul 43:131-5 F '64

Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64

Properties of materials; industrial glass; tables. Materials in Design Eng 60:336-7 Mid-O '64

Properties of soda aluminosilicate glasses. D. E. Day and others. bibliog Am Cer Soc J 45:579-81; 47:19-24 D 1 '62, Ja '64

Representative glasses; constitution and properties. W. A. Weyl and E. C. Marboe. bibliog Glass Ind 45:17-19+, 70-4, 128-30+ Ja-Mr '64

Reversibility of polyester adsorption on glass. R. R. Stromberg and W. H. Grant. bibliog J Res Nat Bur Stand 67A:601-6 N '63

Selected glass substrates and the magnetic parameters of thin films. J. S. Lemke. bibliog il IEEE Trans Com & Electronics 83: 245-7 My '64

Surface nucleation and crystal orientation in lithium silicate glass fibers. C. L. Booth and G. E. Rindone. bibliog il diag Am Cer Soc J 47:25-9 Ja '64

GLASS—*Continued*

Titanium makes bottles tougher. Product Eng 35:65 Mr 16 '64

Viscosity of a standard soda-lime-silica glass. A. Napolitano and E. G. Hawkins. bibliog il diags J Res Nat Bur Stand 68A: 439-48 S '64

What is happening to glass. G. Corfield. Gas 40:15 Ap '64

X-ray study of a cadmium borate glass. S. Block and others. Am Cer Soc J 46:557 N '63

See also

American ceramic society—Glass division
Enamel and enameling
Etching (glass)
Glass manufacture
Glassware
Glassy state
Pyrex
Stained glass
Windows

Analysis

Coulometric titration of total antimony and antimony(III) in glasses. W. M. Wise and J. P. Williams. Anal Chem 36:1863-4 Ag '64

Coulometric titration of total arsenic and arsenic(III) in glasses. W. M. Wise and J. P. Williams. bibliog Anal Chem 36:19-21 Ja '64

Electron microscopic technique for determining the percent crystallinity of glass-ceramic materials. G. B. Carrier. bibliog il Am Cer Soc J 47:365-7 Ag '64

Transmission electron microscopy of glass-ceramics. P. E. Doherty and R. R. Leombruno. bibliog il diags Am Cer Soc J 47:368-70 Ag '64

Chemistry

Ancient glass. R. H. Brill. il diags Sci Am 209:120-30 N '63

Influence of batch preparation process on the melting and fining of glass. W. H. Manring and W. C. Bauer. il Glass Ind 45:354-7, 413-16+ Jl-Ag '64

Phosphate; halide systems. M. K. Murthy and others. bibliog Am Cer Soc J 46:530-5, 558-9; 47:375-8 N '63, Ag '64

Coating

Chemical deposition of thin films of lead selenide. R. A. Zingaro and D. O. Skovlin. bibliog Electrochem Soc J 111:42-7 Ja '64

Conductive coatings on glass shielding. D. A. Ansley and W. O. Benjamin. Illum Eng 59:545-50 Ag '64

Window coating prevents sun glare. Ind Finishing 40:112 S '64

Color

See also

Glass, Colored

Decoration

Annual color seminar, 3d, Cleveland, Oct. 3-4; with abstracts of papers. Glass Ind 44:614-15+ N '63

Color decoration and printing on glass containers. J. W. Hackett and H. H. Holscher. bibliog il Glass Ind 45:237-43, 296-300, 358-61+, 420-5+ My-Ag '64

Decals; an answer to modern decorating trends; interview with Charles K. Silberstein. J. J. Svec. il Cer Ind 83:88-9+ S '64

Decorated beverage bottles. R. A. Hennings. diag Glass Ind 45:289-92+ Je '64

See also

Printing on glass

Devitrification

Orientation of cristobalite formed on the surface of amorphous silica plates. R. F. Hochman and J. D. Fleming. il diag Am Cer Soc J 47:104 F '64

Electric properties

Dielectric measurements on glass at very high pressure. D. Chakravorty and L. E. Cross. bibliog diag Am Cer Soc J 47:370-4 Ag '64

Electrode potentials in fused systems; effect of ion size on membrane potentials. K. H. Stern and J. A. Stiff. bibliog Electrochem Soc J 111:893-7 Ag '64

Fluid amplifiers of glass shaped by photoetching. C. M. Harman and L. W. Langley. diag Materials in Design Eng 60:117+ Jl '64

Hall effect in semiconducting glasses. W. F. Peck, jr. and J. F. Dewald. bibliog diag Electrochem Soc J 111:561-3 My '64

Hall effect-Seebeck effect sign anomaly in semiconducting glasses. A. D. Pearson. bibliog Electrochem Soc J 111:753-5 Je '64

New glass-ceramics for insulator seals. P. W. McMillan and B. P. Hodgson. il diags Materials in Design Eng 59:85-6 Ja '64

Semiconducting oxide glasses; general principle for preparation. J. D. Mackenzie. bibliog diag Am Cer Soc J 47:211-14 My '64

Space charge and electrode polarization in glass. P. M. Sutton. bibliog diag Am Cer Soc J 47:188-94, 219-30 Ap-My '64

Etching

See Etching (glass)

Expansion and contraction

Decorated beverage bottles. R. A. Hennings. diag Glass Ind 45:289-92+ Je '64

Volume changes in mixed-alkali silicate glasses. R. V. Caporali. bibliog Am Cer Soc J 47:412-13 Ag '64

Fracture

Brittleness of glass. L. N. Kopytov. Glass Ind 45:255 My '64

Modern concepts of fracture and flow. E. F. Poncelet. bibliog il diags Glass Ind 45:181-6, 251-4+, 307-11, 366-9+, 417-19 Ap-Ag '64

Modulus of rupture of glass in relation to fracture pattern. M. J. Kerper and T. G. Scuderi. bibliog diag Am Cer Soc Bul 43: 622-5 S '64

Similarities in the impact behavior of glasses and polycrystalline ceramics. C. J. Phillips and S. DiVita. bibliog Am Cer Soc Bul 42:685-7 N '63

Heat transmission

Experimental analysis of solar heat gain through insulating glass with indoor shading. C. W. Pennington and others. bibliog il diag ASHRAE J 6:27-39 F '64

Sealed residential living. W. J. McGuinness. Prog Arch 45:166 Ag '64

Selective reflectance; new approach to solar heat control. J. I. Yellott. bibliog il diags ASHRAE J 6:87-106 Ja '64

Solar heat gain factors and shading coefficients. D. J. Vild. ASHRAE J 6:47-50 O '64

Solar heat gain through double glass with between-glass shading. W. A. Smith and C. W. Pennington. bibliog ASHRAE J 6:50-3 O '64

History

Patents reflect advances in the American glass industry. A. S. Cookfair and J. E. Fabke. diags Glass Ind 45:521-5+, 604-8+ O-N '64 (to be cont)

Joining

Electron guns for resistance welds. il diags Am Mach 108:63-4 Ja 6 '64

Experiences with solder glass and students. J. G. King. diag Am J Phys 32:473-8 Je '64

Sealing with solder glass. R. H. Dalton. Am J Phys 32:479-82 Je '64

Joining to metal

Direct glass-metal seals. F. E. Gifford and A. Dolenga. il diags R Sci Instr 35:591-3 My '64

Hermetically sealed connector and its capabilities. A. Stasch. il Electronic Ind 23:72-7 My '64

High pressure, low temperature, glass-to-metal seal. T. S. Huang and others. diags R Sci Instr 35:637-8 My '64

Method for making multiple glass-tungsten rod seals. H. A. Kamphausen. diags J Sci Instr 40:605 D '63

Light transmission

Titanium dioxide; its effect on the transmission of various glasses. J. H. Strimple. Glass Ind 45:193-6 Ap '64

Ultraviolet-absorbing green glass. H. Moore. Glass Ind 45:244-8 My '64

Manufacture

See Glass manufacture

Polishing

Relation between the thickness of the affected glass and the diameter of abrasive grains in the grinding of glass. P. Y. Bokin. Glass Ind 45:139 Mr '64

Strains and stresses

Effect of small fraction of spherical porosity on elastic moduli of glass. D. P. H. Hasselman and R. M. Fulrath. bibliog il Am Cer Soc J 47:52-3 Ja '64

High-pressure effects on oxide glasses. J. D. MacKenzie. bibliog diags Am Cer Soc J 46:461-76; 47:76-80 O '63, F '64

GLASS—Strains and stresses—*Continued*

Modern concepts of fracture and flow. E. F. Poncelet. bibliog il diags Glass Ind 45:181-6, 251-4+, 307-11, 366-9+, 417-19 Ap-Ag '64

Modulus of rupture of glass in relation to fracture pattern. M. J. Kerper and T. G. Scuderi. bibliog diag Am Cer Soc Bul 43:622-5 S '64

Strength

Chemical strengthening of glass; abstract. J. S. Olcott. Metal Prog 85:141-3 Ja '64

Chemical tempering of glass induces residual stresses for diverse applications. C. B. King. il Res/Develop 15:20-3 Ap '64

Corning achievement; Chemcor process; extension of glass strength. Chem Eng 70: 233 N 11 '63

Effect of silicone quenching and acid polishing on the strength of glass. P. C. Fletcher and J. J. Tillman. bibliog Am Cer Soc J 47: 379-82 Ag '64

Glass strength test. il Glass Ind 45:80-1 F '64

Glassmaker breaks big panels, shatters an old idea. il Eng N 172:30-2 Ja 9 '64

Goal for structural glass; million psi strength. F. M. Ernsberger. bibliog il Glass Ind 45: 349-53+, cover Jl '64

Loss in fracture strength of borosilicate glass in vapors of differing dipole moments. J. H. Lunsford. bibliog Am Cer Soc J 47:309 Je '64

Mechanical properties of glass at elevated temperatures. M. J. Kerper and T. G. Scuderi. bibliog Am Cer Soc Bul 42:735-40 D '63

Response of glass in windows to sonic booms. R. W. McKinley. bibliog map Materials Res & Stand 4:594-600 N '64

Strength reduction and length changes in porous glass caused by water vapor adsorption. K. H. Hiller. bibliog J Ap Phys 35:1622-8 My '64

Strengthening by ion exchange. M. E. Nordberg and others. bibliog il diag Am Cer Soc J 47:215-19 My '64

Strengthening of glass by ion exchange. O. K. Botvinkin and O. N. Denisenko. Glass Ind 45:483 S '64

Thickness of large glass lights crucial. il Arch Rec 135:172 Ja '64

See also

Glass—Fracture

Surface

Effect of abrasion on the specific surface area of metals and glass. R. J. Adams and others. bibliog il Electrochem Soc J 111:774-80 Jl '64

Growth spirals on glass. R. M. Tichane and L. B. Wilson. il J Ap Phys 35:2537-40 Ag '64

Temperature effect

Changes in relation between refractive index and Young's modulus as the result of successive heat treatments. E. H. Hamilton. bibliog Am Cer Soc J 47:167-70 Ap '64

Eyes for the X-15. il Product Eng 35:65 Mr 16 '64

Glass materials system meets multi-design needs. il Materials in Design Eng 59:117 My '64

High-temperature energy relations in borates; alkaline-earth and lead borate compounds and their glasses. D. R. Stewart and G. E. Rindone. bibliog Am Cer Soc J 46:593-6 D '63

Mechanical properties of glass at elevated temperatures. M. J. Kerper and T. G. Scuderi. bibliog Am Cer Soc Bul 42:735-40 D '63

Testing

Properties and structure of glasses in the binary systems alkali-TiO_2. B. V. J. Rao. bibliog il Am Cer Soc J 47:455-63 S '64

Thickness of large glass lights crucial. il Arch Rec 135:172 Ja '64

Ultrasonic relaxation loss in SiO_2, GeO_2, B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64

See also

Glass—Fracture

GLASS, Cellular

Adsorption studies of water vapor on porous glass. K. Kawasaki and others. bibliog diags J Colloid Sci 19:144-51 F '64

All-glass sorption vacuum trap. F. B. Haller. diags R Sci Instr 35:1356-7 O '64

Diffusion and reaction in porous glass. M. R. Rao and J. M. Smith. bibliog flow diags A I Ch E J 10:293-7 My '64

Metal impregnation of porous glasses. W. G. Schmidt and R. J. Charles. il diag J Ap Phys 35:2552-3 Ag '64

Porous glass as an adsorbent for thin layer chromatography. J. K. G. Kramer and others. bibliog Anal Chem 36:2379-80 N '64

Strength reduction and length changes in porous glass caused by water vapor adsorption. K. H. Hiller. bibliog J Ap Phys 35:1622-8 My '64

GLASS, Colored

Annual color seminar, 3d, Cleveland, 3-4; with abstracts of papers. Glass Ind 44: 614-15+ N '63

Some ideas for producing brilliant and spectacular color shots by transmitted light. F. Bond. il Mod Phot 28:24+ S '64

Ultraviolet-absorbing green glass. H. Moore. Glass Ind 45:244-8 My '64

GLASS, Cut. See Cut glass

GLASS, Effect of radiation on

Ionic intermediates in γ-irradiated organic glasses at -196°. J. P. Guarino and W. H. Hamill. bibliog Am Chem Soc J 86:777-81 Mr 5 '64

GLASS, Effect of temperature on. See Glass—Temperature effect

GLASS, Laminated

Windshields; Shatterproof glass corp. il Glass Ind 45:293-5 Je '64

See also

Glass, Safety

GLASS, Optical

Conference on the physics of optical glass, Lathom, Lancs., Oct. 3-4. J Sci Instr 41: 66-7 F '64

Silver halide microcrystals are basis for photochromic glass. S. D. Stookey. Chem & Eng N 42:43 F 3 '64

GLASS, Photosensitive

Chameleon glass. il Mech Eng 86:62 Mr '64

Chameleon glass goes on and off forever. Materials in Design Eng 59:153+ Ap '64

Chameleon reaction; photochromic glasses. il Product Eng 35:50-1 F 3 '64

Experimental glass could be light valve. Space/Aeronautics 41:87-8 F '64

Glass with a shade of difference. il Plant Eng 18:150 Mr '64

New glass changes color when light waves strike. S. D. Stookey. il Electronics 37:42-3 Ja 31 '64

Photochromic glass. Electro-Tech 73:12-13 Mr '64

Photochromic glasses. il Glass Ind 45:88 F '64

Self-dimming glass cuts glare out of sunlight. il Machine Design 36:8 F 13 '64

Through a glass that darkens; photochromic glass. Sci Am 210:59 Mr '64

GLASS, Porous. See Glass, Cellular

GLASS, Safety

British standard for safety glass. H. J. H. Starks. Engineer 218:505 S 25 '64

See also

Glass, Laminated

GLASS, Stained. See Stained glass

GLASS, Structural

Glassmaker breaks big panels, shatters an old idea. il Eng N 172:30-2 Ja 9 '64

Goal for structural glass; million psi strength. F. M. Ernsberger. bibliog il Glass Ind 45: 349-53+, cover Jl '64

Structural glass for chemical plants. Ind & Eng Chem 56:11-12 N '64

GLASS, Volcanic. See Perlite

GLASS beads

Etched glass beads as gas chromatographic support. R. W. Ohline and R. Jojola. Anal Chem 36:1681-2 Jl '64

Glass beads for cleaning rubber molds. N. Randolph. il Rubber World 150:54-5 Je '64

Micro beads coated with a porous thin layer as column packing in gas chromatography; some properties of graphited carbon black as the stationary phase. I. Halász and C. Horváth. bibliog il Anal Chem 36:1178-86 Je '64

New technique for the preparation of coated glass-bead column for gas chromatography. I. Lysyj and P. R. Newton. diag Anal Chem 36:949-50 Ap '64

Parabolic microwave antenna. W. D. Williams. il Materials in Design Eng 59:131 Ap '64

Porous layer glass bead column packing in gas adsorption layer chromatography. I. Halász and C. Horváth. bibliog Anal Chem 36:2226-9 N '64

GLASS blowing and working

Amateur scientist; blowing glass for the amateur laboratory is really not as difficult as it may seem. C. L. Stong. diag Sci Am 210:129-30+ My '64

GLASS blowing and working—*Continued*

Application of a diaphragm valve for safe glass blowing on apparatus contaminated with radioactive or toxic materials. P. S. Rudolph. diag R Sci Instr 35:1237 S '64

GLASS ceramics. See Pyroceram

GLASS coating

Glass-coated microwire. H. J. Wagner. bibliog diags Wire & Wire Prod 39:869-72 Je '64

Maintenance guide for glassed steel equipment. C. Knoll. il diags Mill & Factory 74:76-9 F '64

GLASS construction

See also

Glass, Structural

Walls, Glass

GLASS container industry

Glass container manufacturers institute's huge growth. R. H. Hetzel. Cer Ind 84:74+ Jl '64

Glass container market. F. S. Child. Glass Ind 44:616-17+ N '63

Training program for the glass container industry. il Glass Ind 45:407, 476-7+ Ag-S '64

GLASS containers

Annual color seminar, 3d, Cleveland, Oct. 3-4; with abstracts of papers. Glass Ind 44:614-15+ N '63

Color decoration and printing on glass containers. J. W. Hackett and H. H. Holscher. bibliog il Glass Ind 45:237-43, 296-300, 358-61+, 420-5+ My-Ag '64

See also

Bottles

Manufacture

Art of swabbing. S. J. Singer, jr. diags Glass Ind 45:173-5+ Ap '64

Beryllium nickel plungers. O. H. Samuelson. il glass Ind 45:249-50 My '64

New factors influencing plant design in the glass container industry. diags Glass Ind 45:526-30 O '64

Newest glass container plant; Industrial glass co. il Glass Ind 45:191-2 Ap '64

Rapid annealing of glass containers. R. A. Fuller and A. K. Lyle. Glass Ind 44:668-71+ D '63

GLASS electrodes. See Electrodes, Glass

GLASS factories

First U.S. float glass plant now on stream; Pittsburgh plate glass co. il Glass Ind 45:176-8 Ap '64

See also

Glass manufacture

Equipment

Fine weighing keeps glass competitive. il Engineering 196:601 N 8 '63

Glassworks materials handling plant. il Engineer 216:762-4 N 8 '63

New equipment and supplies. Published in monthly numbers of Glass industry

New factors influencing plant design in the glass container industry. diags Glass Ind 45:526-30 O '64

Old and new methods in glass making; James A. Jobling's wear glassworks. il Engineering 198:337 S 11 '64

Self-dumping hoppers. il Glass Ind 45:488 S '64

See also

Glass tanks

Management

Management of glass plant construction. il Glass Ind 45:465-7+, 531-5+, 613-17+ S-N '64 (to be cont)

Quality control

Quality control by three-bracket testing. J. M. McCormick and F. W. Preston. il Am Cer Soc Bul 43:439-42 Je '64

GLASS fibers

Aerojet seeks better rocket case fibers. Steel 153:92-3 N 18 '63

Commercial machines for filament winding. M. Eig. il Plastics Tech 10:36-8 My '64

Diffuse scattering of X rays at very low angles from glass fibers. L. Cartz. bibliog J Ap Phys 35:2274-5 Jl '64

Effect of diameter upon elastic properties in thin fibers. H. Schuerch. bibliog diag AIAA J 2:569-71 Mr '64

Effect of filter media microstructure on dust collection. S. F. Duncan. il ASHRAE J 6:37-41 Ap '64

Endoscopic photography using fiber optics. B. I. Hirschowitz. il diag SMPTE J 73:625-6 Ag '64

Esso chemically bonds glass-to-rubber. il Rubber Age 95:616-17 Jl '64

Fiber-glass tanks. E. C. Young. il diags Mech Eng 86:36-41 O '64

Fiberglass strut facilitates line up-grading. W. C. Currence. il diag Elec World 161:124 Mr 23 '64

Fibers keep pipe under wraps. il Iron Age 194:158 S 24 '64

Firestone introduces radial-ply tires. il Chem & Eng N 42:70+ N 9 '64

Glass fiber advance; environmentally controlled firing increases strength and rigidity. il Plastics World 22:7 F '64

Glass-fiber array produces many beams. K. Ikrath and W. Schneider. il diags Electronics 36:28-9 N 1 '63

Glass-fiber cords in rubber. A. Marzocchi. il Mech Eng 86:38-9 Je '64

Glass fibers and fabrics; abstract. Am Dyestuff Rep 53:45 Ja 20 '64

Glass fibers chemically bonded with rubber. B. M. Vanderbilt and R. E. Clayton. il Chem & Eng N 42:48+ Je 15 '64

Glass fibers reinforce tires. il Ind & Eng Chem 56:12 Ag '64

Glass fibers: the new structural material. E. M. Lindsay. il Am Dyestuff Rep 53:679-82 Ag 3 '64

Glass filter paper suspension of precipitates for liquid scintillation counting. D. R. Johnson and J. W. Smith. Anal Chem 35:1991-2 N '63

Glass reinforcement upgrades rubber and plastics. il Chem Eng 71:98+ Jl 20 '64

Grinding goes faster, safer. R. H. Eshelman. il Iron Age 194:120-1 Ag 27 '64

Heat and air transfer in cold storage insulation. W. A. Lotz. ASHRAE J 6:53 Ap '64

Joining the hard ones; chemically bonding a rubbery composition around the individual glass fibers. il Product Eng 35:46 Jl 6 '64

Nonwoven fabrics gain strength. il diag Iron Age 192:85 D 19 '63

Preimpregnated glass fibre is tougher. il Engineering 197:184 Ja 31 '64

Radial ply tire with fiberglass cords held promising by Owens-Corning aide. Automotive Ind 131:78 Ag 1 '64

Rapid solids determination using glass fiber filters. B. M. Wyckoff. il Water & Sewage Works 111:277-80 Je '64

See also

Plastics—Glass reinforcement

Plastics, Laminated—Glass reinforcement

Testing

Effects of glass surfaces on laminating resins. P. W. Erickson and others. bibliog Mod Plastics 41:141-2+ Ag '64

GLASS furnaces

Approximate method for calculating heat transfer in glass furnace regenerators. J. N. Edmondson. diags Glass Ind 45:117-20+ Mr '64

See also

Glass tanks

Control

Fuels savings pay for combustion control equipment; Diamond glass co. P. M. Spatz. Cer Ind 83:54-5+ O '64

Design

Economy in design of furnace binding steel. J. P. Rawlins. diags Glass Ind 45:197+ Ap '64

Electric heating

Electric glass furnaces. C. R. Olson. il diags Westinghouse Eng 24:130-4 S '64

Savings high with electrically heated furnace. il diag Elec World 161:150 Ap 6 '64

Firing

Fuels savings pay for combustion control equipment; Diamond glass co. P. M. Spatz. Cer Ind 83:54-5+ O '64

Gas-fired burner system. il Glass Ind 45:440-1 Ag '64

Temperature recorder for decorating lehr. Glass Ind 45:556 O '64

Lining

Fused cast refractories. R. W. Brown. diags Glass Ind 45:536-8+ O '64

GLASS handling

Glass; how to handle with care. il diags Safety Maint 127:13-15+ My '64

GLASS lining

Caring for glass-lined equipment. D. B. Johnson. il Chem Eng 71:244+ Je 8 '64

Five million feet of automatic welding per year; glass-lined water heaters. E. R. Temme and R. M. Davis. il diag Welding J 42:881-4 N '63

GLASS lining—*Continued*

Glass-lined pipe stops grease build-up problem. R. E. Pailthorp. il Pub Works 95:95-7 Mr '64

GLASS machinery

Beryllium nickel plungers. O. H. Samuelson. il Glass Ind 45:249-50 My '64

Profile lathe for glass molds. il Glass Ind 45: 374 Jl '64

Patents

Inventions and inventors. Published in monthly numbers of Glass industry

GLASS manufacture

Borosilicate glass production. il Engineer 218: 366-7 S 4 '64

Chemical tempering of glass induces residual stresses for diverse applications. C. B. King. il Res/Develop 15:20-3 Ap '64

Fine weighing keeps glass competitive. il Engineering 196:601 N 8 '63

First U.S. float glass plant now on stream; Pittsburgh plate glass co. il Glass Ind 45: 176-8 Ap '64

Float process gives glass industry a new look. P. Elwood. il diag Chem Eng 71:38-40 F 3 '64

Float process points to cheaper glass. diag Eng N 173:21 S 24 '64

Floating glass on tin. diag Comp Air Mag 69:20 My '64

Glassworks materials handling plant. il Engineer 216:762-4 N 8 '63

Improvements in sheet glass manufacture. diags Glass Ind 45:474-5+ S '64

Influence of batch preparation process on the melting and fining of glass. W. H. Manring and W. C. Bauer. il Glass Ind 45:354-7, 413-16+ Jl-Ag '64

New processes and markets enliven glassmaking. P. Ellwood. il Chem Eng 71:72-4+ S 28 '64

Problems in glass batch sampling. P. Close, jr. bibliog il Cer Ind 83:48-51 Ag; 84-7 S '64

Sheet takes plunge into tin bath. A. C. Allen. il diags Cer Ind 84:64-6+ Jl '64

See also

Glass furnaces

Glassware—Manufacture

Molds (for glass)

History

Ancient glass. R. H. Brill. il diags Sci Am 209:120-30 N '63

Patents

Inventions and inventors. Published in monthly numbers of Glass industry

Patents reflect advances in the American glass industry. A. S. Cookfair and J. E. Fahke. diags Glass Ind 45:521-5+, 604-8+ O-N '64 (to be cont)

GLASS melting

Controlled atmosphere hot-stage for microscopic observation of glass melting phenomena. A. R. Conroy and others. bibliog il diags Glass Ind 44:76-9+, 139-43+ F-Mr '63; Discussion. L. Penberthy. 44:699-700 D '63; Reply. 45:99 F '64

Effects of raw materials on glass melting. J. W. Wright. Cer Ind 83:116-17+ S '64

Electric glass furnaces. C. R. Olson. il diags Westinghouse Eng 24:130-4 S '64

Influence of batch preparation process on the melting and fining of glass. W. H. Manring and W. C. Bauer. il Glass Ind 45:354-7, 413-16+ Jl-Ag '64

See also

Glass tanks

GLASS pipes. See Pipes. Glass

GLASS reinforcement of plastics. See Plastics—Glass reinforcement; Plastics. Laminated—Glass reinforcement

GLASS research

Controlled atmosphere hot-stage for microscopic observation of glass melting phenomena. A. R. Conroy and others. bibliog il diags Glass Ind 44:76-9+, 139-43+ F-Mr '63; Discussion. L. Penberthy. 44:699-700 D '63; Reply. 45:99 F '64

Corning develops automatic sunglass. il Steel 154:49 F 3 '64

German chemists develop HF glasses. il Chem & Eng N 42:42 Je 29 '64

Glass formation by unconventional techniques. D. R. Secrist and J. D. Mackenzie. bibliog diags Glass Ind 45:408-12+ Ag '64

Glass studies aided by random network. Cer Ind 83:111-12+ S '64

High energy forming of glasses and ceramics. R. L. Hallse. Am Cer Soc Bul 42:711 N '63

Phosphate: halide systems. M. K. Murthy and others. bibliog Am Cer Soc J 46:530-5. 558-9; 47:375-8 N '63. Ag '64

GLASS rods

Effect of silicone quenching and acid polishing on the strength of glass. P. C. Fletcher and J. J. Tillman. bibliog Am Cer Soc J 47:379-82 Ag '64

GLASS tanks

Calculation of temperature distribution in glass tanks by use of a special-purpose electric analog. A. R. Cooper, jr. and R. C. Buchanan. bibliog il diag Am Cer Soc J 46:588-92 D '63

Waste heat recovery for glass tanks. J. Waitkus. il diags Glass Ind 45:301-6+, 370-1+ Je-Jl '64

See also

Glass melting

GLASS trade

Glass industry, 1963; review. H. E. Simpson. Glass Ind 45:61-6+ F; 121-7 Mr '64

Report to the U.S. tariff commission. R. F. Barker. Glass Ind 45:426-7+ Ag '64

GLASS tubing

Quartz glass pressure vessels for hydrothermal studies. R. Speed and A. Filice. diags Am Mineralogist 49:1114-19 Jl '64

GLASS walls. See Walls. Glass

GLASSES. See Spectacles

GLASSWARE

Foreign exhibits promote ceramics for export. A. C. Allen. Cer Ind 83:110 S '64

New England glass co. featured by Toledo museum. il Am Cer Soc Bul 42:729 N '63

See also

Bottles

Cut glass

Glass tubing

Manufacture

Glass and ceramic forming methods. M. G Britton. il diags Glass Ind 45:75-9+ F; 137-8+ Mr '64

Old and new methods in glass making; James A. Jobling's wear glassworks. il Engineering 198:337 S 11 '64

See also

Molds (for glass)

GLASSWARE, Egyptian

Ancient glass. R. H. Brill. il diags Sci Am 209:120-30 N '63

GLASSWARE, Laboratory

Glass pressure reactor. L. M. Shorr and others. diag Chem & Ind p52-3 Ja 11 '64

New type of glass condenser. E. Segovia. diags Chem & Ind p 1952 D 14 '63

See also

Pipets

GLASSWARE, Roman

Ancient glass. R. H. Brill. il diags Sci Am 209:120-30 N '63

GLASSY state

Glass transition and ionic conductivity in cellulose acetate. R. E. Barker, jr. and C. R. Thomas. bibliog J Ap Phys 35:87-94 Ja '64

Theory and measurements of the glass-transformation interval of polystyrene. B. Wunderlich and others. bibliog J Ap Phys 35:95-102 Ja '64

Variation of glass temperature with pressure in polypropylene. E. Passaglia and G. M. Martin. bibliog J Res Nat Bur Stand 68A: 273-6 My '64

GLAUCARUBIN. See Lactones

GLAUCONITE

Geologic significance of fluviodetrital glauconite. E. G. Wermund. bibliog maps J Geol 72:470-6 Jl '64

Glauconites; cation exchange capacities and infrared spectra. M. H. Manghnani and J. Hower. bibliog Am Mineralogist 49:586-98 My '64

GLAZES

Vacuum breakdown at a glazed ceramic surface. R. Hayes and G. B. Walker. bibliog il diag Inst E E Proc 111:600-4 Mr '64

See also

Enamel and enameling

Frits

GLIDERS

Exploring new manned spacecraft concepts. V. W. Horton and others. il diags Astronautics & Aeronautics 2:42-7 My '64

Manned maneuverable reentry. I. Stambler. il diags Space/Aeronautics 41:44-52 My '64

Remote-controlled glider. il Electronics 37:34 O 5 '64

Ryan paraglider. il diag Engineering 197: 236-7 F 7 '64

GLIDING and soaring

Determination of maximum range for an unpowered atmospheric vehicle. D. J. Bell. Roy Aeronautical Soc J 68:111-16 F '64

GLOBES

Six foot globe shows geological structure. il diag Engineering 198:232 Ag 21 '64

GLOBINS

See also

Myoglobin

GLOBULINS

Efficacy of varied doses of gamma globulin during an epidemic of infectious hepatitis, Hoonah, Alaska, 1961. R. D. Aach and others. bibliog Am J Pub Health 53:1623-9 O '63

Epidemiologic studies of a large urban outbreak of infectious hepatitis. W. H. Mosley and others. bibliog maps Am J Pub Health 53:1603-17 O '63

Molecular interactions in β-lactoglobulin; optical rotatory dispersion of the genetic variants in different states of association. T. T. Herskovits and others. bibliog Am Chem Soc J 86:4445-52 O 20 '64

Molecular interactions in β-lactoglobulin; small-angle X-ray scattering investigation of the geometry of β-lactoglobulin A tetramerization. J. Witz and others. bibliog diags Am Chem Soc J 86:168-73 Ja 20 '64

GLOSS

Gloss of baked alkyd urea-formaldehyde finishes pigmented with titanium dioxide. M. B. Alpert and others. bibliog il diag Ind & Eng Chem Product Res & Develop 2:264-9 D '63

GLOVES, Safety

For the special job the special glove. il Safety Maint 126:23-4 D '63

Keeping up with arm and hand protection developments. il diags Safety Maint 127: 24-7 Ap '64

Testing

Should you test linemen's gloves with ac or dc? M. R. Gavin and W. H. Meade. il Safety Maint 127:22-5+ F '64

GLOW discharges. See Electric discharges

GLUCAN

Constitution of the glucan from mango (mangifera indica Linn). A. Das and C. V. N. Rao. bibliog Tappi 47:339-43 Je '64

GLUCOLYSIS

Influences of dietary carbohydrate-fat combinations on various functions associated with glycolysis and lipogenesis in rats. C. Carroll. bibliog J Nutrition 79:93-100; 82: 163-72 Ja '63, F '64

GLUCOMANNAN

Isolation and properties of a glucomannan from a white spruce pulp. J. M. Vaughan and E. E. Dickey. bibliog Tappi 47:142-3 Mr '64

GLUCONOLACTONE

Slashes smokehouse cure time; glucono delta lactone permits higher smoking temperature to accelerate formation of cured-meat color in wieners. Food Eng 36:152 S '64

GLUCOPYRANOSIDE

Synthesis of the methyl glycoside of a derivative of a sulphur-containing analogue of gentiobiose: 6-*S*-β-D-glucopyranosyl-6-thio-α-D-glucopyranoside hepta-acetate. D. H. Hutson. bibliog Chem & Ind p750-1 My 2 '64

GLUCOSE

Aiding dextrose; new technology, world politics. il Chem Eng 71:82+ S 28 '64

Alkyloxymethyl ethers of sucrose and glucose as surfactants. G. R. Ames and others. bibliog J Ap Chem 14:245-9 Je '64

Better pickles with dextrose. il Food Eng 36: 66 My '64

Cyclic sulphite ester of glucose. D. L. Ingles. Chem & Ind p366-7 F 29 '64

Mechanism of inhibition of non-enzymic browning by sulphite. E. F. L. J. Anet and D. L. Ingles. bibliog Chem & Ind p 1319 Jl 18 '64

Quantitative analysis of glucose and fructose in potatoes. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:109-12 Mr '64

Thermal polymerisation of glucose. H. Sugisawa and H. Edo. Chem & Ind p892-3 My 23 '64

Using catalyzed dextrose binder in dry sand molds. F. H. Hohn. il Foundry 92:186+ O '64

Analysis

Continuous analysis by the amperometric measurement of reaction rate. W. J. Bladel and C. Olson. diags Anal Chem 36:343-7 F '64

Quantitative analysis based on automatic measurement of slopes of nonlinear rate curves. H. L. Pardue. diags Anal Chem 36: 1110-12 My '64

GLUCOSE oxidase

Automatic potentiometric method for the determination of the absolute activity of glucose oxidase. H. L. Pardue and others. bibliog Anal Chem 36:735-7 Ap '64

Continuous analysis by the amperometric measurement of reaction rate. W. J. Blaedel and C. Olson. diags Anal Chem 36:343-7 F '64

Quantitative analysis based on automatic measurement of slopes of nonlinear rate curves. H. L. Pardue. diags Anal Chem 36: 1110-12 My '64

GLUCOSIDASES

Use of amyloglucosidase in breadmaking. Y. Pomeranz and others. bibliog Food Tech 18:1642-4 O '64

GLUCURONIC acid

Metabolism of carcinogen shows sex-linked differences. il Chem & Eng N 42:43-4 Je 8 '64

GLUE

Dialdehyde starch promising in glue for plywood industry. F. B. Weakley and C. L. Mehltretter. Chem & Eng N 42:58+ S 21 '64

Honeycomb core; dielectric curing of glue lines. il Plastics World 22:34 F '64

Lateral stability of glued laminated beams. R. F. Hooley and B. Madsen. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3948]:201-18 Je '64

See also

Adhesives

GLUTAMATES

Dynamic mechanical properties of poly-γ-benzyl-l-glutamate in a helicogenic solvent. N. W. Tschoegl and J. D. Ferry. bibliog Am Chem Soc J 86:1474-7 Ap 20 '64

GLUTAMIC acid

Degradation of synthetic polypeptides; degradation of poly-α,L-glutamic acid by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86: 3913-18 O 5 '64

Helix-coil transition in solutions of polyglutamic acid. M. Nagasawa and A. Holtzer. bibliog Am Chem Soc J 86:538-43 F 20 '64

Helix interruption constant for poly-L-glutamic acid from the pressure dependence of optical rotation. J. Rifkind and J. Applequist. bibliog Am Chem Soc J 86:4207-8 O 5 '64

GLUTAMINE

Analogs of oxytocin containing glycine in place of tyrosine, isoleucine, or glutamine. S. Drabarek. bibliog Am Chem Soc J 86: 4477-81 O 20 '64

Studies of rat liver and kidney enzymes; response to dietary protein deficiency and repletion during chronic administration of ammonium acetate and L-glutamine. J. H. Hutchinson and D. H. Labby. bibliog Am J Clinical Nutrition 14:302-9 My '64

GLUTARATES

Kinetics of hydrolysis of diethyl glutarate and β-substituted diethyl glutarates by α-chymotrypsin. S. G. Cohen and J. Crossley. bibliog Am Chem Soc J 86:1217-20 Mr 20 '64

GLUTARIMIDE

Glutarimide antibiotics; total synthesis of *dl*- and *l*-cycloheximide. F. Johnson. and others. bibliog Am Chem Soc J 86:118-19 Ja 5 '64

GLUTATHIONE

Constant current potentiometric titration of ascorbic acid and ascorbic acid-glutathione mixtures. C. O. Huber and H. E. Stapelfeldt. diags Anal Chem 36:315-18 F '64

Glutathione and the antithyrotoxic effect of methionine. L. W. Charkey and D. F. Hougham. bibliog J Nutrition 81:255-62 N '63

GLUTEN

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Filtering made easier; American maize products co. E. C. Scott and F. Grothman. il Food Eng 36:64-5 Ap '64

Supplementation of wheat gluten protein. W. L. Banks, jr. and others. J Nutrition 82:61-6 Ja '64

GLYCAL

Direct utilization of glycals for the preparation of purine deoxynucleosides. W. A. Bowles and R. K. Robins. bibliog Am Chem Soc J 86:1252-3 Mr 20 '64

GLYCERIDES

Catalytic elimination of cyclopropene-containing acids. A. J. Deutschman, jr. and others. bibliog Am Oil Chem Soc J 41:175-6 Mr '64

GLYCERIDES—*Continued*

Configuration of the disaturated glycerides in garcinia indica and vateria indica seed fats. A. R. S. Kartha. Am Oil Chem Soc J 41:456 Je '64

Continuous deglycerination of monoglycerides. J. A. Monick. flow diag Am Oil Chem Soc J 40:606-8 N '63

Crystallization of emulsified triglycerides. W. Skoda and M. Van den Tempel. bibliog J Colloid Sci 18:568-84 Ag '63

Determination of double bond position in unsaturated triglycerides by analysis of the oxidation products by gas liquid chromatography. A. P. Tulloch and B. M. Craig. bibliog Am Oil Chem Soc J 41:322-6 Ap '64

Determination of lactic acid in shortening containing lactylated glycerides, by liquid-liquid partition chromatography. R. J. Buswell. Am Oil Chem Soc J 41:457-9 Jl '64

Determination of the component glycerides of seed oils containing saturated oleic and linoleic acids. F. D. Gunstone and others. Chem & Ind p483 Mr 21 '64

Determination of the glyceride structure of fats; analysis of 14 animal and vegetable fats. M. R. Subbaram and C. G. Youngs. Am Oil Chem Soc J 41:595-6 S '64

Determination of the glyceride structure of fats; anomalous features of the seed fat of bitter gourd (momordica charantia). M. R. Subbaram and others. bibliog Am Oil Chem Soc J 41:691-2 O '64

Determination of the glyceride structure of fats; gas liquid chromatography of oxidized glycerides. C. G. Youngs and M. R. Subbaram. bibliog Am Oil Chem Soc J 41:218-21 Mr '64

Drugs and lipid transport. M. G. Horning and others. bibliog Am Oil Chem Soc J 41:697-701 O '64

Effect of controlled breakfast on serum cholesterol and triglycerides. F. J. Schilling and others. bibliog Am J Clinical Nutrition 15:1-5 Jl '64

Effect of dietary fat on the glyceride structure of rat carcass fat. E. G. Perkins. bibliog Am Oil Chem Soc J 41:285-9 Ap '64

Effect of heat on triglycerides of corn oil. M. R. Sahasrabudhe and I. G. Farn. bibliog diag Am Oil Chem Soc J 41:264-7 Ap '64

Effects of gormandizing and semicontinuous eating of equicaloric amounts of formula-type high fat diets on plasma cholesterol and triglyceride levels in human volunteer subjects. S. N. Jagannathan and others. bibliog Am J Clinical Nutrition 15:90-3 Ag '64

Glass paper chromatography and elatography of triglycerides. J. R. Swartwout and R. J. Gross. il diags Am Oil Chem Soc J 41:378-80 My '64

Lipid, cholesterol and triglyceride levels in obese women. S. H. Waxler and L. S. Craig. bibliog Am J Clinical Nutrition 14:128-32 Mr '64

Liver lipid accumulation in isoleucine-deficient rats. R. L. Lyman and others. bibliog J Nutrition 82:432-8 Ap '64

Long spacings of polymorphic crystalline forms of long-chain compounds, with special reference to triglycerides. F. D. Gunstone. bibliog Chem & Ind p84-9 Ja 18 '64

Measurement of solids in triglycerides using nuclear magnetic resonance spectroscopy. J. R. Taylor and others. Am Oil Chem Soc J 41:177-80 Mr '64

Molecular structure in monolayers of saturated triglycerides on water as related to three-dimensional polymorphic forms. D. R. Merker and B. F. Daubert. bibliog Am Chem Soc J 86:1009-12 Mr 20 '64

Nutritional evaluation of acetostearins in rats. R. D. Coleman and others. bibliog Am Oil Chem Soc J 40:737-42 D '63

Pancreatic lipase hydrolysis of triglycerides by a semimicro technique. F. E. Luddy and others. bibliog Am Oil Chem Soc J 41:693-6 O '64

Raney nickel catalyst of improved stability and reactivity in the hydrogenation of triglycerides. H. V. Tümer and others. bibliog Am Oil Chem Soc J 41:212-14 Mr '64

Rapid semi-micro method for preparation of methyl esters from triglycerides using chloroform, methanol, sulphuric acid. K. V. Peisker. Am Oil Chem Soc J 41:87-8 Ja '64

Relative reactivity toward hydrogenation of the oleoyl group in the 2- and 1,3-positions of triglycerides. H. V. Tumer and others. bibliog Am Oil Chem Soc J 41:413-15 Je '64

Separation of triglycerides by column chromatography on silica impregnated with silver nitrate. B. de Vries. bibliog Am Oil Chem Soc J 41:403-6 Je '64

Stearyl monoglyceridyl citrate as an emulsifier enhancer. J. J. Geminder. Am Oil Chem Soc J 41:92-4 F '64

Structure of high melting glycerides from the milk fat-globule membrane. D. P. Wolf and L. R. Dugan, jr. bibliog Am Oil Chem Soc J 41:139-41 F '64

Study of the activity on the skin of sugar esters, sucroglycerides and derivatives when used as detergents and emulsifiers in cosmetics. L. Nobile and others. bibliog Am Perfumer 79:19-28 Jl '64

Surface activity of symmetrical and unsymmetrical mono- and di-glycerides. L. Hartman. bibliog Am Oil Chem Soc J 41:519-20 Jl '64

Synthesis of triglycerides from fish oil fatty acids. L. W. Lehman and E. J. Gauglitz, jr. bibliog Am Oil Chem Soc J 41:533-5 Ag '64

Temperature dependence of the expansion coefficient of liquid glycerides. P. W. Hendrikse. bibliog Am Oil Chem Soc J 41:184-5 Mr '64

Triglyceride composition of native and rearranged butter and coconut oils. A. Kuksis and others. bibliog Am Oil Chem Soc J 41:201-5 Mr '64

Triglyceride gas chromatography as a means of detecting butterfat adulteration. A. Kuksis and M. J. McCarthy. Am Oil Chem Soc J 41:17-21 Ja '64

Use of rubber columns for the chromatographic separation of triglycerides and other non-polar compounds. J. R. Trowbridge and others. Am Oil Chem Soc J 41:306-8 Ap '64

Analysis

Analysis of triglycerides by consecutive chromatographic techniques. C. Litchfield and others. bibliog il Am Oil Chem Soc J 41:588-92 S '64

Determination of the glyceride structure of fats; distribution of individual saturated and unsaturated acids. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:445-8 Je '64

Exploitation of the selectivity of various chromatographic techniques for the study of the triglyceride structure of natural fats. M. J. McCarthy and A. Kuksis. bibliog Am Oil Chem Soc J 41:527-30 Ag '64

Relationship between optical activity and structure of natural triglycerides. C. Litchfield and R. Reiser. Am Oil Chem Soc J 40:749-50 D '63

Spectrophotometric determination of small amounts of 1-monoglycerides in fats. C. Szonyi and K. Sparrow. bibliog Am Oil Chem Soc J 41:535-7 Ag '64

GLYCERIN

Conjoined crystals. N. H. Kuhrt and others. Am Oil Chem Soc J 40:725-33 D '63

Find glycerol thermal conductivity; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:158 Je '64

Glycerol metabolism in choline-deficient rats. W. J. Longmore and A. B. Hastings. bibliog J Nutrition 83:103-6 Je '64

Nutritional studies of polyglycerol esters. V. K. Babayan and others. Am Oil Chem Soc J 41:434-7 Je '64

Phosphorylations and phosphonations of glycerol by recoil atoms. T. Yagi and others. bibliog Am Chem Soc J 85:3462-5 N 5 '63

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Analysis

Paper chromatographic separation, identification, and determination of diglycerols. H. Siegel and others. bibliog Anal Chem 36:502-5 Mr '64

Procedure for the simultaneous quantitative determination of glycerol and fatty acid contents of fats and oils. M. E. Mason and others. Anal Chem 36:587-90 Mr '64

GLYCEROL. See Glycerin

GLYCINE

Analogs of oxytocin containing glycine in place of tyrosine, isoleucine, or glutamine. S. Drabarek. bibliog Am Chem Soc J 86:4477-81 O 20 '64

Electron spin resonance in irradiated glycine crystals. J. R. Morton. bibliog Am Chem Soc J 86:2325-9 Je 20 '64

Interaction of urea and acetamide with polyglycine. J. A. Rupley and M. Praissman. Am Chem Soc J 85:3526-7 N 5 '63

GLYCINE—*Continued*

Raman spectra of carbon-deuterated glycine in various ionic forms. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:3439-44 S 5 '64

Some correlations between the hydrolysis of glycylglycine and of wool in sulphuric acid. R. S. Asquith and T. Shaw. bibliog Soc Dyers & Col J 79:524-6 N '63

GLYCOGEN

Effects of dietary creatine and related compounds on tissue glycogen deposition in rats. W. R. Todd and others. bibliog J Nutrition 82:301-5 Mr '64

GLYCOL

Analog computer design of an ethylene glycol system. W. A. Parker and J. W. Prados. il diags Chem Eng Prog 60:74-8 Je '64

Compressor-engine waste heat reconcentrates glycol. C. J. Carmichael. il diags Oil & Gas J 62:72-4 N 2 '64

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Retardation of water evaporation by the monolayers of octadecyl alcohol and of its condensation products with ethylene glycol. R. N. Shukla and others. bibliog J Ap Chem 14:236-9 Je '64

Revamp of glycol separator cuts costs. G. E. Brooks. diags Oil & Gas J 62:98-9 Jl 20 '64

Unusual risk; permanent eye and nerve injuries due to ethylene glycol. Ind Chem 40:89 F '64

GLYCOLS

Acid-catalyzed rearrangements of medium ring cycloalkene glycols. J. G. Traynham and P. M. Greene. bibliog Am Chem Soc J 86:2657-60 Jl 5 '64

Conformational effects and hydrogen bonding in 1,4-diols. L. P. Kuhn and others. bibliog diags Am Chem Soc J 86:650-8 F 20 '64

Determination of isomer distribution ratio in mixtures of the monoisobutyrates of 2,2,4-trimethyl-1,3-pentanediol by nuclear magnetic resonance. H. F. White and others. Anal Chem 36:1659-61 Jl '64

Dow study enlarges knowledge on glycol-hydrocarbon separation. Oil & Gas J 62:178-9 Je 22 '64

End-group analysis and number-average molecular weight determination of some polyalkylene glycols and glycol polyesters using nuclear magnetic resonance spectroscopy. T. F. Page, jr. and W. E. Bresler. bibliog Anal Chem 36:1981-5 S '64

High-performance toluene diisocyanate-polypropylene glycol castable elastoplastics. S. E. Berger and W. Szukiewicz. bibliog Ind & Eng Chem Product Res & Develop 3:129-32 Je '64

Intermolecular forces and chain flexibilities; internal pressures of polyethylene glycol in the region of its melting point. G. Allen and D. Sims. Rubber Chem & Tech 36:1000-2 O '63

New dew-point data for triethylene glycol solutions. J. C. Dingman and C. L. LeBas. diag Oil & Gas J 62:75-7 F 3 '64

New synthetic rubbers from copolymerization of butadiene and ene-yne diols. V. I. Nikitin. Rubber Chem & Tech 37:774-5 Jl '64

Separation and analysis of nonylphenoxy polyethylene glycol ether adducts by programmed temperature gas chromatography. H. G. Nadeau and others. bibliog Anal Chem 36:1914-17 S '64

Separation of isomeric toluidines by gas liquid partition chromatography using Ucon oil as stationary phase. J. S. Parsons and J. C. Morath. Anal Chem 36:237-8 Ja '64

Urethane elastomers prepared from dipropylene glycol-tolylene diisocyanate adducts. H. R. Bylsma. bibliog il Ind & Eng Chem Product Res & Develop 3:204-9 S '64

Use of Karl Fischer reagent for the determination of water in condensates of sodium tetraborate and diols. C. B. Jordan. Anal Chem 36:424-5 F '64

Vapor-liquid equilibrium; the system water-butyl glycol from 5 to 85°. G. Scatchard and G. M. Wilson. bibliog Am Chem Soc J 86:133-7 Ja 20 '64

Vinyl ethers of diethylene glycol. R. L. Zimmerman and others. bibliog flow sheet Ind & Eng Chem Product Res & Develop 2:296-303 D '63

Xenic acid reactions with *vic*-diols. B. Jaselskis and S. Vas. bibliog Am Chem Soc J 86:2078-9 My 20 '64

Analysis

Determination of primary alcohol groups in polyglycols using triphenylchloromethane. J. G. Hendrickson. bibliog Anal Chem 36:126-8 Ja '64

Manufacture

Ethylene oxide and glycol; Japan catalytic chemical co. diag Hydrocarbon Process & Pet Refiner 42:173 N '63

Ethylene oxide and glycol; Shell development co. diag Hydrocarbon Process & Pet Refiner 42:172 N '63

GLYCOLYSIS. See Glucolysis

GLYCOSIDES

Effects of substituents at $C(5)$ on the acid hydrolysis of glycosides. T. E. Timell. bibliog Chem & Ind p503-4 Mr 21 '64

Elaboration of the A/B ring system of sarmentosigenin E. M. E. Wolff and J. A. Muñoz. bibliog Chem & Ind p 1312-13 Jl 18 '64

Further studies on the isolation of glucosides from the barks and leaves of populus tremuloides and populus grandidentata. I. A. Pearl and S. F. Darling. bibliog Tappi 47:377-80 Je '64

Methyl 4-amino-4-deoxy-α-D-lyxoside. W. G. Overend and others. bibliog Chem & Ind p 1840-1 N 16 '63

Mustard seed processing; simple methods for following heat damage to protein meals. J. E. McGhee and others. bibliog Am Oil Chem Soc J 41:359-62 My '64

Phytolaccagenin; a light atom X-ray structure proof using chemical information. G. H. Stout and others. Am Chem Soc J 86:957-8 Mr 5 '64

Structure of monotropein, a modification. J. M. Bobbitt and others. Chem & Ind p931 My 30 '64

Vernadigin and 3-acetylstrophadogenin, two new cardenolides from adonis vernalis L. A. Poláková and Z. Čekan. bibliog Chem & Ind p 1766-7 N 2 '63

See also

Tomatine

GLYCYLGLYCINE

Proton magnetic resonance, anion-exchange, and polarographic studies of the cobalt-glycylglycine-oxygen complex. P. Tang and N. C. Li. bibliog Am Chem Soc J 86:1293-6 Ap 5 '64

GLYCYRRHIZA

Spectrophotometric determination of glycyrrhizic acid in licorice extract. R. H. Cundiff. Anal Chem 36:1871-3 Ag '64

GLYCYRRHIZIC acid

Analysis

Spectrophotometric determination of glycyrrhizic acid in licorice extract. R. H. Cundiff. Anal Chem 36:1871-3 Ag '64

GLYOXAL

Derivatives of glyoxal bis(2-hydroxyanil) as direct calcium reagents. F. Lindstrom and C. W. Milligan. bibliog Anal Chem 36:1334-8 Je '64

Glyoxal monoethyl hemiacetal. M. Zief and C. H. Schramm. Chem & Ind p234 F 8 '64

GNEISS

Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64

Mineralogy of amphibolite interlayers in the gneiss complex, northwest Adirondack Mountains, New York. A. E. J. Engel and others. map diag J Geol 72:131-56 bibliog(p 155-6) Mr '64

Studies on zircons from some garnetiferous sillimanite gneisses (khondalites) from Orissa and Andhra Pradesh, India. M. V. N. Murthy and H. N. Siddiquie. bibliog map J Geol 72:123-7. pl 1 Ja '64

GOGGLES

Eyes have it. il Safety Maint 128:23-4 N '64

Ministry report on foundry goggles. Engineering 198:255 Ag 28 '64

GOGGLES, Plastic

New lens material undergoes tests. il Safety Maint 128:11-13 S '64

Protecting the eyes of industry. il Engineering 198:157 Jl 31 '64

GOITER

Iodization of crude salt for the prophylaxis of goiter. C. Hunnikin. il diag Food Tech 18:1544-7 O '64

GOITER—*Continued*

Patterns of urinary iodine excretion in goitrous and nongoitrous areas. R. H. Follis, jr. bibliog Am J Clinical Nutrition 14:253-68 My '64

Possible goitrogenic effects of selected Japanese foods. E. L. Socolow and M. Suzuki. bibliog il J Nutrition 83:20-6 My '64

Possible reconciliation of the iodine-lack and infection hypotheses. I. Greenwald. bibliog Am J Clinical Nutrition 13:393-4 D '63

GOLD

Coagulation of colloidal gold. B. V. Enüstün and J. Turkevich. bibliog il Am Chem Soc J 85:3317-28 N 5 '63

Field-emission microscopy of twins in vapor-grown fcc whiskers. A. J. Melmed. bibliog il diags J Ap Phys 34:3325-8 N '63

Formation of platelike colloidal gold. Y. S. Chiang and J. Turkevich. bibliog il J Colloid Sci 18:772-83 O '63

Gold and money, 1963. W. J. Busschau. il Min Cong J 50:109-11 F '64

Gold-epitaxial silicon high-frequency diodes. D. Kahng and L. A. D'Asaro. bibliog diags Bell System Tech J 43:225-32 Ja '64

Gold, 1963. M. A. Kriz. Eng & Min J 165:90-5 F '64

High-temperature creep and fracture of polycrystalline gold. P. W. Davies and others. bibliog Inst Metals J 92:409-12 '63-64

Mechanical properties of vacuum-deposited gold films. J. M. Blakely. bibliog il diags J Ap Phys 35:1756-9 Je '64

Mechanism of gold diffusion into silicon. W. R. Wilcox and T. J. LaChapelle. bibliog J Ap Phys 35:240-6 Ja '64

Morphology of colloidal gold; a comparative study. W. O. Milligan and R. H. Morriss. bibliog il Am Chem Soc J 86:3461-7 S 5 '64

Negative resistance in Al-Al_2O_3-Se-Au sandwich cells. T. Mukerjee and J. Allan, 3d. J Ap Phys 35:2270-1 Jl '64

New uses for gold. Can Min & Met Bul 57:1076 O '64

Oxygen adsorption and double layer capacities; gold in perchloric acid. G. M. Schmid and R. N. O'Brien. bibliog diags Electrochem Soc J 111:832-7 Jl '64

Secondary electron production from alpha particles emerging from gold. J. N. Anno. bibliog diag J Ap Phys 34:3495-9 D '63

Slow electron transfer through evaporated Au films. H. Kanter. J Ap Phys 34:3629-30 D '63

Solubility of gold under inorganic supergene conditions. P. L. Cloke and W. C. Kelly. bibliog il diags Econ Geol 59:259-70 Mr '64

Surface oxidation of gold electrodes. S. B. Brummer and A. C. Makrides. bibliog Electrochem Soc J 111:1122-8 O '64

Threshold displacement energies and subthreshold displacements in copper and gold near 10°K. W. Bauer and A. Sosin. bibliog diag J Ap Phys 35:703-9 Mr '64

Total secondary emission coefficient of gold black. T. D. Roberts and D. S. Burch. bibliog R Sci Instr 35:1067 Ag '64

Voltammetric determination of permanganate at the gold electrode. C. O. Huber. diag Anal Chem 36:1873-4 Ag '64

Analysis

Anodic stripping voltammetry of gold and silver with carbon paste electrodes. E. S. Jacobs. il diag Anal Chem 35:2112-15 D '63

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Trimethylphenylammonium iodide as a quantitative precipitant for gold. W. W. White and J. R. Zuber. bibliog Anal Chem 36:2363-4 N '64

GOLD alloys

Antiphase domains in ordered Au_3Cu alloys. R. S. Toth and H. Sato. bibliog il J Ap Phys 35:698-703 Mr '64

Comparison of the creep and fracture behaviour of pure nickel, nickel-0·1 at.-per cent gold, and nickel-0·1 at.-per cent silver alloys at 500 and 600°C. J. P. Dennison and B. Wilshire. bibliog Inst Metals J 92:360-3 '63-64

Local ordering in Cu_3Au at low temperatures. L. H. Schwartz and J. B. Cohen. bibliog J Ap Phys 35:2260-2 Jl '64

Mechanical stresses during the oxidation of copper and their influence on oxidation kinetics. W. Jaenicke and others. bibliog il diags Electrochem Soc J 111:1031-7 S '64

Properties of the intermetallic phases in the system Au-Sn. M. B. McNeil. bibliog Electrochem Soc J 110:1169-70 N '63

Stress-corrosion cracking of short-range-ordered copper-gold single crystals. J. M. Hardwick and R. A. Dodd. bibliog Inst Metals J 92:339-40 '63-'64

Superconductivity; rapid cooling causes gold and germanium mix to become superconductors. Product Eng 35:54 Ag 17 '64

GOLD as money

Gold and money, 1963. W. J. Busschau. il Min Cong J 50:109-11 F '64

Gold, 1963. M. A. Kriz. Eng & Min J 165:90-5 F '64

GOLD coating

Architect's choice; gold decorated porcelain enamel. F. Gibson. il Cer Ind 83:41-3 Ag '64

GOLD leaf

Nontoxic technique for electrolytically polishing and thinning gold. J. D. Meakin. R Sci Instr 35:763 Je '64

GOLD metallurgy

Gold mills improve cyanidation process. diag Can Chem Process 48:67-8+ Ap '64

L-D floats electrum, gold, silver. flow sheet Eng & Min J 165:69 Ja '64

Semi-automatic monitor of cyanide solution strength for gold ore dissolution. G. G. Eichholz and C. A. Josling. il diags Can Min & Met Bul 57:287-91 Mr '64

GOLD mines and mining

Mining methods with emphasis on cost records at Getchell mine. C. C. Chamberlain. Min Cong J 49:93-6 O '63

Australia

Kalgoorlie; center of gold mining. il Min Eng 16:107-8 O '64

Brazil

Geology of the Raposos gold mine, Minas Gerais, Brazil. G. E. Tolbert. bibliog il maps diags Econ Geol 59:775-98 Ag '64

British Columbia

Combatting excessive heat underground at Bralorne. W. E. Field. il map diags Min Eng 15:76-7 D '63

Quebec (province)

Structure and mineralization of Campbell Chibougamau mines, Cedar Bay division. J. D. Koene. bibliog maps diags Can Min & Met Bul 57:1063-72 O '64

Yukon

Standard sprinkler system strips frozen overburden; Ballarat mines ltd. H. H. Schmidt. il Eng & Min J 165:80-1 Jl '64

GOLD ores

Origin of the gold-quartz deposits, Yellowknife, N.W.T.: discussion. map Econ Geol 57:1137-40; 58:804-7; 59:328-30, 1176-7 N '62, Ag '63, Mr, S '64

Similarities between some Canadian gold deposits and the Homestake deposits of South Dakota. G. W. McConnell. map Econ Geol 59:719-20 Je '64

GOLD plating

Automatic gilding for needle production. diag Metallurgia 69:174 Ap '64

Engineering applications for precious metal plating. D. G. Foulke. il Metal Prog 84:107-11+ D '63

Fabrication by copper electroforming; flush copper helical antenna on epoxy base. L. Missel and M. E. Shaheen. il diags Metal Finishing 62:61-3 S '64

Gold layer blocks hydrogen penetration. Steel 154:92+ My 25 '64

Gold plating stainless steel; bright deposits on fountain pen nibs. A. Jogarao and others. il Metal Finishing 62:67+ O '64

Gold plating to improve solderability on tin-nickel. A. W. Castillero. bibliog Metal Finishing 62:61 F '64

Lanett gets gold-plated loom winder. il Mod Textiles Mag 45:43 Je '64

New plating processes show bright promise. il Materials in Design Eng 58:138+ D '63

Preparation of a microscopic mount for measuring thickness of gold plate. P. C. Baldwin. il diag Plating 50:1006-8 N '63

Soldering to gold plating. W. B. Harding and H. B. Pressly. diag Metal Prog 86:155+ Jl '64

GOLDIE, Archibald H. R.

Obituary. J. M. Stagg. por Chem & Ind p655-6 Ap 18 '64

GOLDMANITE. See Garnet

GOLF

With Golfomat a foursome can play tournament golf on a full 18-hole golf course in a 10x24 ft area indoors. il diag Product Eng 34:59 N 25 '63

GOLF clubs
Amateur scientist; dynamics of a golf club. L. A. Graham. il Sci Am 210:131-3+ Ja '64
Plastics for golf club heads. il Engineering 198:106 Jl 24 '64

Manufacture

Electronics in golf-club shaft production. il diag Ind Electronics 2:445 S '64

GOLF links

Lighting

Floodlighting a golf course. J. F. McPartland. il diag Elec Constr & Maint 62:85-8 N '63
My floodlights for night golf. il plan Elec Constr & Maint 63:115 Mr '64
Newest thing in sports resorts; floodlighted golf and ski center. il Illum Eng 59:486-8 Jl '64
Practical aspects of lighting golf courses. R. E. Faucett and J. P. Cruikshank. bibliog il plans diags Illum Eng 59:671-84 O '64

GOLF links, Miniature

Lighting

Lighting a miniature golf course; installation at Swat miniature golf course; data sheet. C. F. Kramsvogel. il plan Illum Eng 59:72 Ja '64

GOLLNICK, Robert Louis
Memorial. E. R. Ring, jr. por Am Assn Pet Geologists Bul 48:126-7 Ja '64

GONADOTROPIN
Use of chorionic gonadotropin hormone in the treatment of obesity. B. W. Frank. bibliog Am J Clinical Nutrition 14:133-6 Mr '64; Discussion. A. T. W. Simeone. 15:188-90 S '64

GONIOMETERS
Goniometer and X-ray diffractometer for orientation, cutting and controlled positioning of crystals. G. V. Patser and H. Chessin. il J Sci Instr 41:52-4 Ja '64
Goniometer specimen cartridge control stage for Siemens Elmiskop I. P. R. Ward. diags J Sci Instr 41:479-80 Jl '64
Measurement of the misorientation of a crystal. W. A. Wooster. diags J Sci Instr 41:229-30 Ap '64
Modified goniometer specimen holder for the Siemens electron microscope operating under long focal length conditions. U. Valdrè. il diags J Sci Instr 41:327-8 My '64
New method of determining the orientation of crystals using a Weissenberg goniometer. W. A. Wooster. diags J Sci Instr 41:130-2 Mr '64
Thin film X-ray standard. J. E. Davey. diags R Sci Instr 35:1372-3 O '64

GORDON research conferences
Fifty international conferences scheduled on most active areas of basic research, June 15-September 4. Rubber Chem & Tech 37: sup xxxiv-xxxviii Ja '64

GOSSYPOL
All-vegetable protein mixtures for human feeding; effect of cooking mixtures containing cottonseed flour on free gossypol content. R. Bressani and others. bibliog Food Tech 18:1599-603 O '64
All-vegetable protein mixtures for human feeding; studies in dogs on the absorption of gossypol from cottonseed flour-containing vegetable protein mixtures. R. Bressani and others. bibliog J Nutrition 83:209-17 Jl '64
Free and total gossypol, epsilon-amino lysine, and biological evaluation of cottonseed meals and flours in Central America. R. Bressani and others. bibliog J Agri & Food Chem 12:278-82 My '64

GOVERNMENT contracts. See Contracts, Government

GOVERNMENT employees
Administration of a diabetes-screening program for federal employees. J. B. Hozier and A. B. Ederma. Ind Med 33:22-4 Ja '64
Administrative problems in organizing and maintaining an employee health service program. J. F. Kilgus, jr. Am J Pub Health 53:1890-3 D '63
Civil engineers in government service. E. E. Halmos, jr. Civil Eng 33:53-4 D '63
Civil servants strip splinter off NSPE. Eng N 173:21 S 3 '64
Government urged to help its scientists keep up to date. Chem & Eng N 42:26 Ag 3 '64
See also
Municipal employees

Salaries

Higher pay for federal engineers. Eng N 172:19-20 My 7 '64

GOVERNMENT expenditures
Managing the U.S. investment in military r&d. R. L. Gilpatric. Chem Eng 71:133-6 Ja 20 '64
See also
Airports—Federal aid
Budget—United States
Public works—Federal aid
Roads—Federal aid
United States—Appropriations and expenditures

GOVERNMENT investigations
Aerospace in perspective; Johnson at the helm, Congress probes r&d. Space/Aeronautics 41:10-11+ Ja '64
Approach to oil-data probe modified. Oil & Gas J 61:68-9 O 21 '63
Government seeks deep probe in oil statistics. C. La Motte. Oil & Gas J 62:30-1 Je 29 '64
House group may probe gasoline marketing. Oil & Gas J 61:62 O 21 '63
Senate and the Feds squeeze contractor. Eng N 172:15 Ja 30 '64

GOVERNMENT loans and grants
Agencies oppose cost limit on r&d grants. Chem & Eng N 42:32-3 My 18 '64
Better administration of r&d grants urged. Chem & Eng N 42:33-4 Ag 17 '64
Bond proposals meet resistance. Eng N 171:53-4 N 14 '63
Defense bill includes hike in construction spending. Eng N 171:20-1 N 21 '63
Education squabble. Eng N 171:55 N 14 '63
Federal urban transportation demonstration program. J. C. Kohl. Traffic Q 18:299-309 Jl '64
Goldwater; let the states build it. il Eng N 173:17-18 Jl 23 '64
House denies funds for federal lines. Elec World 162:19-20 Jl 6 '64
House unit trims federal power funds. Elec World 160:14 N 25 '63
LBJ counts on construction bills. Eng N 173:19-21 Jl 16 '64
NASA defends university programs. Chem & Eng N 41:24 D 2 '63
New budget trims some power items. Elec World 161:49 Ja 27 '64
Problems of a contracting mining community; United States experience. V. Roterus and F. Eaton. Min Eng 16:60-2 Je '64
Research-poor areas must help themselves; federal funds can supplement local efforts to improve r&d capability. J. H. Hallomon. Chem & Eng N 42:38 My 25 '64
$375-million transit aid on its way to commuters. Eng N 173:58-9 Jl 2 '64
Transit aid is on a slow track. il Eng N 173:19-21 Jl 16 '64

GOVERNMENT loans to industry
See also
United States—Small business administration

GOVERNMENT ownership
End to nuclear fuel monopoly urged. Elec World 161:19-20 Je 22 '64
Indonesia starts taking over Stanvac's North Sumatra marketing assets. Oil & Gas J 62:46-7 Je 29 '64
Objectives and control in nationalized industry. R. Edwards. Inst Mech Eng Proc 177:1173-80 '63
Problems of a contracting mining community; British experience. J. V. Wood. Min Eng 16:55-7 Je '64
See also
Electric utilities—Government ownership
Hydroelectric plants—Government ownership

GOVERNMENT printing office. See United States—Government printing office

GOVERNMENT purchasing. See Purchasing, Government

GOVERNMENT regulation of industry
Cooley bill, a monstrosity. G. H. Dockray. Textile Ind 128:29+ Ja '64
Do government and industry cooperate? E. E. Halmos, jr. Pet Management 36:142+ S '64
FPC hits gas men with $85,000 query. il Oil & Gas J 61:88-9 N 11 '63
FPC's Charles Ross; leaning toward decontrol of producers? C. La Motte. Oil & Gas J 62:101-3 Ja 27 '64
FPC's really in a bind. H. K. Hudson and R. L. Howard. Oil & Gas J 62:72-5 Ag 24 '64
FDA is now seeking the same regulatory power over medical devices that it now has over drugs. Product Eng 34:53 N 25 '63
Johnson will back JFK programs. Eng N 171:15-16 N 28 '63
Oil has no real choice in the presidential race. C. La Motte. Oil & Gas J 62:38-9 Ag 31 '64
Oil policy maker for government. S. Udall. Oil & Gas J 62:43-5 Ja 13 '64

GOVERNMENT regulation of industry—*Cont.*
President Johnson; an appraisal of his attitudes toward business. D. C. Cook. Elec World 160:84 D 2 '63
PUC nixes all-electric pay program. il Elec World 161:64-5 F 24 '64
Regulators. Pet Management 36:86-92+ Mr '64
Risk takers' dilemma. H. L. Plumley. Am Gas Assn Mo 45:15-16+ N '63
There must be a way to stop increasing inroads of government controls. J. G. Pew. Pet Management 36:112+ S '64
Trends in r&d management. G. A. Whittington. Res/Develop 14:25-9 D '63
You don't have to fight alone! K. E. Mundt. Min Cong J 50:28-30+ Mr '64
See also
Federal trade commission
Food laws and regulations
Trusts, Industrial—Law

GOVERNMENT research
Aerospace in perspective: Johnson at the helm. Congress probes r&d. Space/Aeronautics 41:10-11+ Ja '64
Aerospace in perspective; leadership. il fold chart diags Space/Aeronautics 41:60-70 Ja '64
Big worry; federal control of research. H. W. Ferguson. Oil & Gas J 61:116-17 N 18 '63
Engineering societies become active in governmental programs. W. J. Harris, jr. J Metals 16:434-5 My '64; Same. J Pet Tech 16:529-30 My '64
Federal impact grows and grows. il Chem Eng Prog 60:22-4 F '64
House committee urges wider distribution of r&d funds. Chem & Eng N 42:26 N 2 '64
How to keep informed today. W. L. Fleischmann. Metal Prog 84:122-3+ N '63
Industrial use of government r/d. G. Corfield. Gas 40:15 Mr '64
See also
Military research
Scientific research—Federal aid

GOVERNMENT specifications. See Specifications, Government

GOVERNMENT standards. See Standards, Government

GOVERNORS (machinery)
Developments in turbine governing. M. Gottlieb. il diags Tappi 47:sup 126A-30A Je '64
Displacement governing in a 2-machine system; a hybrid simulator study. P. A. W. Walker and A. S. Aldred. bibliog diags Inst E E Proc 111:325-34 F '64
Improved overspeed trip governor for marine turbines. H. E. C. Hims. il diags Engineer 218:499-500 S 25 '64
Influence of governors on power-system transient stability. J. L. Dineley and M. W. Kennedy. bibliog diags Inst E E Proc 111:98-106 Ja '64; Discussion. 111:1446-52 Ag '64
More efficient engine speed governor developed at Purdue. Marine Eng/Log 69:92 F '64
Mover governor. Iron & Steel Eng 41:211+ Ag '64
Power-system governor simulation. J. L. Dineley and E. T. Powner. bibliog diags Inst E E Proc 111:115-24 Ja '64; Discussion. 111:1446-52 Ag '64

GRABENS. See Faults (geology)

GRADE crossings
Aluminium lifting barriers for road traffic control. il Engineering 197:20 Ja 3 '64
Half-barrier for level crossings. il Engineer 217:1161 Je 26 '64
Long Island railroad eliminates grade crossings. il plan diags Eng N 171:90-1+ D 19 '63

GRADERS, Road. See Road making machinery

GRADING (earthwork)
Boys' athletic field graded at four cents a yard. il Roads & Sts 107:80-1 My '64
See also
Roads—Grading

GRADUATE work. See Colleges and universities—Graduate work

GRAIN
Peeling grain. A. I. Morgan and others. il diags Food Tech 18:1150-3 Ag '64
Production of steam-volatile phenols during the cooking and alcoholic fermentation of grain. R. D. Steinke and M. C. Paulson. bibliog diag J Agri & Food Chem 12:381-7 Jl '64
Responses of cereals to antioxidants. R. H. Anderson and others. bibliog Food Tech 17:1587-92 D '63
Some characteristics of cereal gums. V. Podrazký. Chem & Ind p712-13 Ap 25 '64
See also
Rice

Drying

Modified moving bed grain dryer. Y. K. Ahn and others. diags Ind & Eng Chem Proc Design 3:96-100 Ap '64
Optimum design of a moving bed grain drier by dynamic programming. Y. K. Ahn and others. bibliog diags Can J Chem Eng 42:117-20 Je '64

Transportation

Grain hauler finds way to reduce cold sludge and oil consumption. il Diesel Equip Supt 42:50 O '64

GRAIN size (steel). See Steel—Metallography

GRAIN storage
Paper warehouse: bags stored outside keep bulk dry. il Mod Materials Handling 19:52 N '64
Simple grain storage. il Engineer 218:343 Ag 28 '64

GRAMICIDIN
Formyl, a novel NH_2-terminal blocking group in a naturally occurring peptide: the identity of *seco*-gramicidin with desformylgramicidin. R. Sarges and B. Witkop. bibliog Am Chem Soc J 86:1861-2 My 5 '64
Gramicidin A; preparation and properties of *seco*-gramicidin A. S. I. Ishii and B. Witkop. bibliog Am Chem Soc J 86:1848-53 My 5 '64
Gramicidin A; primary sequence of valine and isoleucine gramicidin A. R. Sarges and B. Witkop. bibliog Am Chem Soc J 86:1862-3 My 5 '64

GRAMINE
Biosynthesis of gramine; the immediate precursors of the alkaloid. B. G. Gower and E. Leete. bibliog Am Chem Soc J 85:3683-5 N 20 '63

GRAMOPHONE records. See Phonograph records

GRAND RAPIDS, Michigan
See also
Airports—Grand Rapids, Michigan

Water supply

Water plant design provides space for ultimate expansion. R. J. Daverman and E. A. Schewe. il Pub Works 95:98-101 F '64

GRANDSTANDS
Steel framed cantilever for Royal Ascot grandstand. il Engineering 197:875 Je 26 '64

Heating and ventilation

Employ mass ventilation for track's grandstand. A. M. P. Amey. il Heating-Piping 36:136-7 Je '64

GRANITE
Age and composition of a Bounty Islands granite and age of a Seychelles Islands granite. G. J. Wasserburg and others. bibliog map J Geol 71:785-9 N '63
Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64
Contact metamorphism in relation to manner of emplacement of the granites of Donegal, Ireland. W. S. Pitcher and H. H. Read. bibliog maps diags J Geol 17:261-96 My '63; Discussion. M. J. Rickard. 72:682-4; Reply. 685 S '64
Crushed granite blending installation in British plant. il Pit & Quarry 56:105+ N '63
Genesis of plagioclase twinning in the Nonewaug granite. K. E. Seifert. diags Am Mineralogist 49:297-320 bibliog(p318-20) Mr '64
Modal variations within granitic outcrops. D. O. Emerson. Am Mineralogist 49:1224-33 S '64
Preliminary age study and initial Sr^{87}/Sr^{86} of Nova Scotia granitic rocks by the Rb-Sr whole-rock method. H. W. Fairbairn and others. bibliog Geol Soc Bul 75:253-7 Mr '64
Process-response models based on heavy-mineral content of the San Isabel Granite, Colorado. E. H. T. Whitten and R. E. Boyer. bibliog maps diags Geol Soc Bul 75:841-62 S '64
Superior's Pomona, N.C., crushed granite plant. W. E. Trauffer. il diags Pit & Quarry 56:84-9+ Je '64
Undulatory extinction in quartz grains of some Chilean granitic rocks of different ages. S. M. DeHills and J. Corvalán. Geol Soc Bul 75:363-6, pl 1-2 Ap '64

GRANITE dust
Twenty-six years' experience with dust control in the Vermont granite industry. H. B. Ashe and D. E. Bergstrom. bibliog il Ind Med 33:73-8 F '64

GRANTS-in-aid

ASTM grants-in-aid announced. Materials Res & Stand 4:328-9 Je '64

Four receive $50,000 Petroleum research fund grants. Chem & Eng N 42:58-9 Je 29 '64

National science foundation elevates status of engineering. Machine Design 36:15 Jl 16 '64

Sigma xi-RESA grants-in-aid of research. Am Scientist 52:sup250A+ S '64

Syracuse College of forestry; $238,000 in grants awarded for research. Tappi 47:sup 117A Je '64

GRANULAR materials

Advantages claimed for granular aspirin. il Manuf Chem 35:57-8 My '64

Comparison of some granular carriers for chlordan and heptachlor against the imported fire ant. W. F. Barthel and C. S. Lofgren. J Agri & Food Chem 12:339-42 Jl '64

Determination of water in granular fertilisers by a modified Karl Fischer method. I. Johnston and E. J. Smith. Chem & Ind p315 F 22 '64

Diluent tablet granulation. K. P. Perlman and others. bibliog Drug & Cosmetic Ind 94:660-2+ My '64

Disintegration of bodies of (granular) materials governed by the Coulomb rule. H. H. Bleich. diags A S M E Trans ser E 31:1-4 Mr '64

Dynamic pressure of granular material in deep bins. A. M. Turitzin. bibliog diags Am Soc C E Proc 89 [ST 2 no 3479]:49-73 Ap '63; Discussion. 89 [ST 5 no 3688]:337-46 O; [ST 6 no 3743]:451-2 D '63; Reply. 90 [ST 2 no 3886]:357-9 Ap '64

Fines processing: compacting cuts costs. flow diag il Engineering 198:29 Jl 3 '64

Forces in a moving bed of particulate solids with interstitial fluid flow. H. L. Brandt and B. M. Johnson. bibliog diags A I Ch E J 9:771-7 N '63

Goodrich Granu-Flow systems. il diag Rubber World 150:38 My '64

Granulates yeast extracts. Food Eng 36:134 Mr '64

Granulation characteristics of a 5-4-12 (5-10-15) fertilizer containing potassium nitrate. D. R. Boylan and D. V. Kamat. il diags J Agri & Food Chem 12:423-8 S '64

Handling and storage of process materials: symposium. Chem & Ind p400-2 Mr 7 '64

Handling of granular materials. J. F. Van Denburg. diags Soap & Chem Spec 40:149+ F '64

Portable granular material pump. K. Kristie. il diag Comp Air Mag 69:20-1 Ag '64

Profiling flow of particles through hopper openings. R. M. Laforge and B. K. Boruff. bibliog diags Ind & Eng Chem 56:42-6 F '64

Segregation of particles in the storage of materials. J. F. Van Denburg and W. C. Bauer. bibliog diags Chem Eng 71:135-40+ S 28 '64

Solids blender has gentle mixing action. il diag Chem Eng 71:102+ Je 22 '64

Steady gravity flow of frictional-cohesive solids in converging channels. A. W. Jenike. bibliog diags A S M E Trans ser E 31:5-11 Mr '64

GRAPEFRUIT juice, Dried

USDA creates grapefruit-juice powder. A. V. Gemmill. il Food Eng 36:100-1 My '64

GRAPEFRUIT oil

Analysis

Comparison of red and white grapefruit oils. J. W. Kesterson and R. Hendrickson. Am Perfumer 79:34-6 Ja '64

Rapid method for isolation and identification of sesquiterpene hydrocarbons in cold-pressed grapefruit oil. G. L. K. Hunter and W. B. Brogden, jr. bibliog Anal Chem 36:1122-3 My '64

GRAPHIC arts

Graphic arts information needs to be centralized. R. D. Kast. Inland Ptr/Am Lithogr 153:62-3 My; 91 Jl '64

TAPPI's place in international graphic arts. H. M. Annis. Tappi 47:sup 16A+ O '64

Exhibitions

Canadian graphic arts show, Toronto. il Inland Ptr/Am Lithogr 152:112 N '63

GRAPHIC methods

Adjusted traverse lengths and bearings by graphics. D. E. Edge. diag Civil Eng 34:63 Ap '64

Amplitude frequency response analysis and synthesis of unfactored transfer functions. J. S. Ausman. diags A S M E Trans ser D 86:32-6 Mr '64

Application of signal flow graphs to vibrating systems. D. J. Sanger. diags Engineer 218:172-5 Jl 31 '64

Automatic analog solution of algebraic equations and plotting or root loci by generalized Mitrović method. P. Kokotović and D. D. Šiljak. bibliog diags IEEE Trans Applications & Ind 83:324-8 S '64

Balancing loaded linkages. D. C. Tao. diags Machine Design 36:151-6 Ap 9 '64

Block diagrams of rotating machines. R. S. Peterson. bibliog diags Electro-Tech 73:30-7 Ja; 44-8+ F '64

Calculation and measurement of the gains of end-fire v.h.f. and u.h.f. aerials. R. G. Manton. diags Electronic Eng 36:8-11 Ja '64

Calculation of groundwave attenuation in the far diffraction region. L. E. Vogler. bibliog diag J Res Nat Bur Stand 68D:819-26 Jl '64

Characterization of the component distribution in the fractionation of multicomponent mixtures. R. M. Butler and I. S. Pasternak. bibliog Can J Chem Eng 42:47-53 Ap '64

Choice of a hodograph boundary for contracting ducts. J. C. Gibbings. Roy Aeronautical Soc J 68:420-2 Je '64

Circle diagram for optical resonators. J. P. Gordon. bibliog diags Bell System Tech J 43:1826-7 pt 2 Jl '64

Computing the time response of a deadtime process; data file. M. Tyner. Control Eng 11:79-81 Ap '64

Converting speed-torque curves graphically. J. Miro. diags Control Eng 11:69-72 Jl '64

Design of transistor-resistor logic circuits by graphical means. C. W. M. Barrow. bibliog diags Electronic Eng 36:660-5 O '64

Designing servocompensators graphically; data file. L. Q. Pena. diags Control Eng 11:79-81 Ja '64

Displacement and velocity in four-bar linkages. D. C. Tao. bibliog diags Machine Design 36:190-6 Mr 26 '64

Estimating forced evaporation from cooling ponds. G. E. Harbeck, jr. Am Soc C E Proc 90 [PO 3 no 4061]:1-9 O '64

Evaluation of a stabilizer charged gas lift valve for multiple-phase flow using graphical techniques. V. L. Forsythe. bibliog diags J Pet Tech 16:Trans 683-98 Je '64; Discussion. 16:Trans 698-700, 1187-93 Je, O '64

Existence of *k*-edge connected ordinary graphs with prescribed degrees. J. Edmonds. J Res Nat Bur Stand 68B:73-4 Ap '64

Faster three-dimensional plotting with preplotted array. il Electronics 37:93 N 2 '64

Flow graph of moment distribution. C. C. Feng and R. D. Benton. bibliog diags Am Soc C E Proc 90 [ST 2 no 3870]:153-77 Ap '64

Four graphical methods for designing double-lever mechanisms. D. C. Tao. diags Machine Design 36:159-66 Mr 12 '64

FRF: new optical tool. M. Langford. diags Ind Phot 13:6+ F '64

Generating formulas for the number of trees in a graph. S. D. Bedrosian. bibliog diags Franklin Inst J 277:313-26 Ap '64

Geometric representations of the Lorentz transformation. R. W. Brehme. diags Am J Phys 32:233 Mr '64

Graph finds space needed for piled bulk materials. J. D. Constance. Chem Eng 71:148 O 26 '64

Graph matching locates the proper thermoplastic. il Machine Design 36:8 O 8 '64

Graphic method for determining reactions and bending moments in beams: data sheet. R. Feng. diags Machine Design 36:191-4 F 13 '64

Graphic methods for calculating coverage attainable with communication satellites. R. Heppe. Elec Com 39 no 1:132-43 '64

Graphic representation of proton chemical shifts: general consideration and methyl and methylene groups. K. Nukada and others. bibliog Anal Chem 35:1892-8 N '63

Graphic solution of higher-order equations. B. L. Deekshatulu. diags Instruments & Control Systems 37:130-2 Ja '64

Graphical aids to noise figure measurement. M. D. Wood. diags Wireless World 70:258-9 My '64

Graphical analysis of hydronic systems. N. Holbay. diags Air Cond Heat & Ven 61:45-9 Mr '64

Graphical display. D. J. Logan. il Instruments & Control Systems 37:115-16 Jl '64

Graphical heat-transfer estimation. R. P. Benedict. bibliog Electro-Tech 73:93-7 Mr '64

GRAPHIC methods—*Continued*
Graphical method for solving transient stability problems. K. W. Ho. bibliog diags Inst E E Proc 111:335-42 F '64
Graphical method of appraising sheet steel drawing performance. J. Steen. Iron & Steel Eng 41:128-32 Je '64
Graphical models aid distillation. G. H. Weekley, jr. diag Hydrocarbon Process & Pet Refiner 43:115-18 Mr '64
Graphical solution of L networks. J. R. Johnson. diags Q S T 48:61 Je '64
Graphs aid deflection system design: reference sheets. K. W. Angel. diag Electronics 37:59+ F 7 '64
Graphs of finite idempotent Boolean relation matrices. D. Rosenblatt. bibliog J Res Nat Bur Stand 67B:249-56 O '63
Influence-line spectrum by graphical construction. C. G. Salmon and D. R. Buettner. diags Civil Eng 34:54-5 Jl '64
Mathematical and graphical interpretation of the log-normal law for particle size distribution analysis. J. E. Smith and M. L. Jordan. bibliog J Colloid Sci 19:549-59 Ag '64
Modified graphical method of absorption correction for the displacement of lines in a powder photograph. K. Viswanathan. bibliog Am Mineralogist 49:1474-80 S '64
New kind of horn to sound profits. R. L. Rowell. diags Hydrocarbon Process & Pet Refiner 43:173-6 Ap '64
Nonlinear analysis in the phase plane. T. A. Bickart. bibliog diags Franklin Inst J 278:256-61 O '64
Normalized stability plot for tunnel-diode circuits. H. Gruenberg. diag IEEE Proc 52:733 Je '64
One-man multifrequency transmission measurements. E. H. B. Bartelink and others. il diags IEEE Trans Com & Electronics 83:238-44 My '64
Operate safer using arrow diagraming. O. M. Allen and L. H. Vautrain. diag Hydrocarbon Process & Pet Refiner 43:129-30 My '64
Operating pressure angle of enlarged spur pinions; data sheet. G. W. Michalec and D. S. Blohm. Machine Design 36:247-50 Ap 23 '64
Optimal matchings and degree-constrained subgraphs. A. J. Goldman. bibliog J Res Nat Bur Stand 68B:27-9 Ja '64
Optimization and visualization of functions. G. A. McCue. diags AIAA J 2:99-100 Ja '64
Optimum locations of switching centers and the absolute centers and medians of a graph. S. L. Hakimi. bibliog diags Op Res 12:450-9 My '64
Plotting coverage circles for satellite communications. D. Levine and W. H. Welch. map diag Electronics 37:27-9 Ja 24 '64
Practical log-periodic antenna designs. G. J. Monser. il diags Electronics 37:91-4 My 4 '64
Science of plant utilities control; use of composite graphs. E. J. Weiss. Plant Eng 18:142-4 F '64
Signal-flow graphs. W. K. Chen. IEEE Proc 52:967 Ag '64
Signal flow graphs. O. J. Wheaton. diags Electronic Eng 36:486 Jl '64
Simple analysis of fatigue data. E. J. Gumbel. Ind Quality Control 20:14-17 My '64
Simple graphical method of determining torsional critical speeds of doubly overhung rotors; data sheet. N. F. Rieger. diags Machine Design 35:207-9 N 21 '63
Some properties of schedules for large projects with limited resources. J. D. Wiest. bibliog diags Op Res 12:395-418 My '64
Star point of unbalanced polyphase loads. E. Wilkinson. bibliog diags Inst E E Proc 111:376-7 F '64
Stresses in sandwich cylinders; data sheet. R. A. Gellatly and R. H. Gallagher. diags Machine Design 36:197-201 Mr 26 '64
System reliability; redundant networks. G. D. Weinstock. bibliog diags Electro-Tech 74:26-9+ Ag '64
Tabulation for deriving procedural rate constants from dynamic thermograms. J. A. Magnuson. Anal Chem 36:1807-10 Ag '64
Testing the consistency of vapor-liquid equilibrium data. L. C. Tao. bibliog flow chart Ind & Eng Chem 56:36-41 F '64
Three-dimensional type representation of hydrologic data. A. A. Hirsch. il Am Water Works Assn J 56:937 Jl '64
Transient response of nonlinear systems. P. F. Cunniff. diags Am Soc C E Proc 89 [EM 2 no 3474]:19-46 Ap '63; Correction. 90 [EM 1 no 3811]:157 F '64
Unit heater capacity factor; graph. J. D. Constance. Power 107:75 N '63
See also
Charts (calculating)
Control boards
Control charts
Curve fitting
Curve plotting
Flow sheets
Histograms
Least squares
Nomographs
Phase diagrams

GRAPHITE
Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36:2062-4 O '64
Changes in morphology of graphite in bismuth-treated cast irons. J. Pelleg. bibliog il Iron & Steel Inst J 202:739-45 S '64
Comparison of pyrolytic carbon film electrode with wax-impregnated graphite electrode. A. L. Beilby and others. bibliog il Anal Chem 36:22-6 Ja '64
Determines graphite tensile strength to 6000 F. il diag Res/Develop 15:9 Ag '64
Direct observation of double Bragg reflections in X-ray diffraction patterns of pyrolytic graphites. O. J. Guentert. bibliog diags J Ap Phys 35:1841-7 Je '64
Effect of oxidation on the reactivity of nuclear graphite towards air. A. R. Blake. bibliog J Ap Chem 14:382-8 S '64
Effective heat of ablation of graphite. E. P. Bartlett. AIAA J 2:171-3 Ja '64
Effects of thermal and r.f.-activated oxidation on the air reactivity of graphite. A. R. Blake and others. J Ap Chem 14:115-17 Mr '64
Electrochemical and ion bombardment etching of pyrolytic graphite. A. Tarpinian. bibliog il Am Cer Soc J 47:532-3 O '64
Evaluating coated particles of nuclear fuel. R. W. McClung and others. il Metal Prog 86:90-3 Jl '64
Expansion of annealed pyrolytic graphite. S. F. McKay. il J Ap Phys 35:1992-3 Je '64
Fabrication and use of pyrolytic graphite electrode for voltammetry in aqueous solutions. F. J. Miller and H. E. Zittel. bibliog il Anal Chem 35:1866-9 N '63
Forms and shapes of materials; ceramic, glass, carbon and graphite; tables. Materials in Design Eng 60:472-3 Mid-O '64
Foundry pig iron has nodular graphite. il Foundry 92:86 Mr '64
Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64
Gas chromatographic separation of hydrocarbons (C_1 to C_8) by carbon number using packed capillary columns. W. Schneider and others. bibliog Anal Chem 36:1533-40 Jl '64
Graphite and carbon. G. W. Morelli and F. Rusinko, jr. il Chem Eng 70:69-76 D 23 '63
Graphite defects observed by electron microscopy. G. Bonfiglioli and A. Mojoni. bibliog il J Ap Phys 35:683-5 Mr '64
Graphite generates antioxidant coating. il Chem Eng 71:108 My 11 '64
Graphite heater for MHD studies. J. Klepeis. diags R Sci Instr 35:846-7 Jl '64
Graphite jet velocity by a probe method. J. A. Howe and T. V. Molloy. J Ap Phys 35:2265-6 Jl '64
Graphite masks cut thin-film expense. Electronics 36:61+ N 8 '63
Graphite oxidation at low temperature. E. Effron and H. E. Hoelscher. bibliog flow diag A I Ch E J 10:389-92 My '64
Graphite support grid for a nuclear reactor. F. H. Turner. il diags Engineer 218:104-6 Jl 17 '64
Hydrogen-graphite reaction between 360 and 800°. P. Breisacher and P. C. Marx. bibliog diag Am Chem Soc J 85:3518-19 N 5 '63
Impervious graphite rupture discs. G. Sarvadi. il diags Instruments & Control Systems 37:135-7 S '64
Impregnation improves carbon-graphite. il Materials in Design Eng 60:93-5 S '64
Low friction computer tape. J. E. Snyker. il Materials in Design Eng 59:128 Ap '64
Mechanism of the vapor lubrication of graphite. P. Cannon. bibliog J Ap Phys 35:2928-9 O '64
New technique detects crystal structure imperfections. Franklin Inst J 278:72-3 Jl '64

GRAPHITE—*Continued*

Oxidation of pyrolytic carbon 1000° to 1500°C and oxygen pressures of 2 to 38 torr. E. A. Gulbransen and others. Electrochem Soc J 111:626-7 My '64

Oxidation of pyrolytic graphite at temperatures of 1400°-1800°F and at air velocities of 25-100 cm/sec. M. Levy and P. Wong. bibliog il Electrochem Soc J 111:1088-91 S '64

Properties of materials; carbon, graphite; molded, extruded; tables. Materials in Design Eng 60:338 Mid-O '64

Pyrolytic graphite spectrographic electrodes. J. B. Mooney and others. il diags Anal Chem 36:703-4 Mr '64

Semiquantitative prediction of the erosion of graphite nozzle inserts. L. J. Delaney and others. bibliog AIAA J 2:1428-33 Ag '64

Seven methods for fastening carbon and graphite parts. L. F. Simbeck and V. A. Nolan. il diags Machine Design 36:147-50 Ap 9 '64

Simple two-band model and transport properties of pyrolytic graphites. C. A. Klein. bibliog diags J Ap Phys 35:2947-57 O '64

Stress-strain distribution during transient heating of a transversely anisotropic material. B. H. Suzuki and J. Frisch. bibliog il A S M E Trans ser D 85:569-78 D '63

Structure-property relations for pyrolytic graphite. L. F. Coffin, jr. il diags Am Cer Soc J 47:473-8 O '64

Wear of graphite sliding on a steel surface and the influence of an electric current on the rate of wear. J. E. Thompson and M. J. B. Turner. bibliog diags Inst E E Proc 109 pt A:235-42 Je '62; Discussion. 111:149-50 Ja '64

When and how to employ graphite parts. L. S. Simbeck and V. A. Nolan. il Product Eng 35:54-7 Mr 2 '64

GRAPTOLITES

Sequence and correlation of lower and middle Ordovician graptolite faunas of North America. D. E. Jackson. diags Geol Soc Bul 75:523-34 bibliog(p533-4) Je '64

GRAS. See Grasses

GRASSES

Electronic assessment of pasture growth. F. J. Hyde. diags Electronic Eng 36:666-70 O '64

Tolerance of several grass species to 2-chloro-*s*-triazine herbicides in relation to degradation and content of benzoxazinone derivatives. R. H. Hamilton. bibliog J Agri & Food Chem 12:14-17 Ja '64

See also

Bamboo

GRATINGS, Diffraction. See Diffraction gratings

GRAVEL

Jigs clean up dirty gravel. il Rock Prod 67:88-9 Ap '64

Periglacial structures in the Saskatchewan gravels and sands of central Alberta, Canada. J. A. Westgate and L. A. Bayrock. bibliog map diags J Geol 72:641-8, pl 1-2 S '64

See also

Aggregates

Concrete—Aggregate

GRAVEL industry. See Sand and gravel industry

GRAVIMETERS

Borehole gravity meter and its application. R. R. Goodell and C. H. Fay. bibliog il diags Geophysics 29:774-82 O '64

Determination of Bouguer density in shallow holes. S. Thyssen-Bornemisza. bibliog Geophysics 29:445-6 Je '64

GRAVIMETRIC analysis

Analytical techniques for determining the composition of niobium stannide. K. L. Cheng and E. P. Bertin. bibliog RCA R 25:379-92 S '64

Apparatus for gravimetric determination of the effects of low pressure oxidation. R. W. Harrison and E. J. Delgrosso. bibliog diags J Sci Instr 41:222-4 Ap '64

Applications of differential thermal analysis and dynamic thermogravimetric analysis in textile research. R. F. Schwenker, jr. and others. bibliog Am Dyestuff Rep 53:817-27 S 14 '64

Determination of hydrogen in niobium. R. J. Walter and H. G. Offner. diag Anal Chem 36:1779-81 Ag '64

Formation of lead chloride fluoride at lower pH values for gravimetric purposes. R. A. Bournique and L. H. Dahmer. bibliog Anal Chem 36:1786-9 Ag '64

Gas chromatographic and gravimetric studies of uranium oxidation mechanism. T. Kondo and others. bibliog il diags Corrosion 20:314-20 O '64

Gravimetric determination of hexafluorophosphate as tetraphenylarsonium hexafluorophosphate. H. E. Affsprung and V. S. Archer. Anal Chem 35:1912-13 N '63

Gravimetric determination of zirconium and hafnium by aromatic carboxylic acids. A. K. Mukherji. Anal Chem 36:1064-6 My '64

Gravimetric gas chromatography. E. V. Piel. bibliog Anal Chem 36:696-7 Mr '64

Gravimetric method for determination of pentachlorophenol with nitron. A. M. Lode. bibliog Tappi 47:148-53 Mr '64

Rapid determination of percent reduction of iron ore. E. Price. Eng & Min J 165:118-20 Je '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for inorganic compounds. W. H. McCurdy, jr. and D. H. Wilkins. Anal Chem 36 [no 5]:381R-90R bibliog(p388R-90R) Ap '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for organic compounds. W. T. Smith, jr. and others. Anal Chem 36 [no 5]:391R-9R bibliog(p396 7-9R) Ap '64

Simultaneous differential thermal analysis and thermogravimetric analysis using the open-pan type of sample holder. H. G. McAdie. bibliog diag Anal Chem 35:1840-4 N '63

Simultaneous TGA and DTA analysis. H. P. Vaughan. il diags Res/Develop 15:38-41 S '64

Spring microbalance for magnetic susceptibility, adsorption, and thermogravimetric studies. L. N. Mulay and L. K. Keys. bibliog diag Anal Chem 36:2383-4 N '64

Tabulation for deriving procedural rate constants from dynamic thermograms. J. A. Magnuson. Anal Chem 36:1807-10 Ag '64

Thermogravimetric analysis of five salts of praseodymium, neodymium, and samarium. R. L. Wilfong and others. bibliog Am Cer Soc J 47:240-1 My '64

GRAVING docks. See Drydocks

GRAVITATION

Counterbalance system for dynamic testing of equipment designed to operate in a zero-g field. J. C. Nicklas. diags A S M E Trans ser D 86:91-6 Mr '64

Drop tower for free fall study. il Product Eng 35:36-7 Mr 2 '64

Flight acceleration facility for studying gravitational forces. il Comp Air Mag 69:18 Ag '64

Free-falling capsule to study weightless boiling. il Chem Eng 71:92 Je 22 '64

Gravitational collapse. H. Y. Chiu. bibliog il diags Phys Today 17:21-6+ My '64; Discussion. 17:70+ Jl; 56-7 S '64

Man in orbit. B. Kovit. il diags Space/Aeronautics 41:76-83 Je '64

NASA's in the cold, cold ground; 500 ft hole duplicates outer space. diag Eng N 172:21 Mr 5 '64

New approach to gravitational gradient determination of the vertical. J. W. Diesel. bibliog diags AIAA J 2:1189-96 Jl '64

Particle motion in the equatorial plane. V. L. Pisacane. diag AIAA J 2:1361-4 Ag '64

Redshift and deflection of photons by gravitation; comparison of relativistic and Newtonian treatments. A. J. O'Leary. bibliog Am J Phys 32:52-5 Ja '64

Scalar gravitation. M. Wellner and G. Sandri. bibliog diags Am J Phys 32:36-9 Ja '64

Scubadivers man a mockup to study zero-g. il Machine Design 36:14 S 10 '64

Time for a totally wetting liquid to deform from a gravity-dominated to a nulled-gravity equilibrium state. H. L. Paynter. bibliog diags AIAA J 2:1627-30 S '64

GRAVITY

Calculation of gravitational force components. R. J. Mercer. diag AAIA J 2:1166-7 Je '64

Effect of gravity on velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen. J Ap Phys 35:1983 Je '64

Effects of reduced gravity on nucleate boiling bubble dynamics in saturated water. R. Siegel and E. G. Keshock. bibliog il diags A I Ch E J 10:509-17 Jl '64

Free-falling cylinder springs to true zero-G. il Machine Design 36:6 Ag 13 '64

Gravitational exploration and the principle of equivalence. S. Thyssen-Bornemisza. bibliog Geophysics 29:301-3 Ap '64

GRAVITY—*Continued*

Gravity flow reinforced concrete pipe design. H. F. Peckworth and J. G. Hendrickson. diags Am Soc C E Proc 90 [PL 1 no 3771]: 33-48 Ja '64

Gravity-gradient excitation of a rotating cable-counterweight space station in orbit. V. Chobotov. bibliog diags A S M E Trans ser E 30:547-54 D '63

Gravity-gradient stabilization. R. J. Katucki. il diags Space/Aeronautics 42:42-7 O '64

Gravity survey and geological interpretation, northern New York. G. Simmons. maps diags Geol Soc Bul 75:81-98, pl 1-4 bibliog(p97-8) F '64

Gravity unit efficiently blends solids. diag Chem Eng 71:98+ Jl 6 '64

Gravity, volcanism, and crustal structure in the southern Cascade Range, Calif. L. C. Pakiser. bibliog maps Geol Soc Bul 75:611-20 Jl '64

Numerical calculation of the formula of reduction to the magnetic pole. V. Baranov and H. Naudy. diags Geophysics 29:67-79 F '64

Regional gravity survey of the northern Great Salt Lake Desert and adjacent areas in Utah, Nevada, and Idaho. map diags Geol Soc Bul 75:715-40, pl 1 bibliog(p738-40) Ag '64

Solution of highly curvilinear gravity flows. T. S. Strelkoff. bibliog diags Am Soc C E Proc 90 [EM 3 no 3950]:195-221 Je '64; Discussion. H. Rouse. 90 [EM 5 no 4093]: 467-70 O '64

Space station design parameter effects on artificial *g* field. C. A. Larson. diags AIAA J 2:1454-5 Ag '64

Vertical gradient of gravity. I. I. Mueller. bibliog diags Am Soc C E Proc 90 [SU 2 no 3975]:83-107 Jl '64

Vertical gravity gradient in borehole exploration. S. Thyssen-Bornemisza. bibliog Geophysics 28:1072-3 D '63

See also

Pendulum

GRAVITY meters. See Gravimeters

GRAVITY, Specific. See Specific gravity

GRAY iron. See Cast iron

GRAY iron founders society

Annual meeting, 35th, New Orleans, Oct. 16-18; with abstracts of papers. Foundry 91: 96+ D '63

Ductile iron conference, 4th, Madison, Wis. April 8-9; abstracts of papers. Foundry 92: 160+ Je '64

GRAYWACKE

Dynamic and kinematic analysis of deformed crinoid stems in a quartz graywacke. H.-U. Nissen. bibliog diags J Geol 72:346-60, pl 1-3 My '64

GREASE

Design and application of grease filters. R. M. Pasch. bibliog il diag ASHRAE J 6:64-71 My '64

See also

Lubricating greases

GREAT BRITAIN

See also

Gas, Natural—Great Britain. Supply to *also* subdivision Great Britain under special subjects, e.g.

Aeronautics, Commercial
Agricultural machinery industry
Agriculture
Air pollution
Airplane industry and trade
Aluminum industry and trade
Architecture
Atomic power plants
Atomic research
Automobile industry and trade
Bridges
Building
Building laws and regulations
Chemical industries
Coal mines and mining
Coal trade
Drug trade
Dye industry
Education
Electric apparatus industry
Electric industries
Electric lines
Electric plants (central stations)
Electric utilities
Electricity supply
Electronics industry
Engineering
Engineering education
Engineering research
Fish industry
Food industry and trade
Gas industry
Geology
Highway transportation
Hospitals
Hygiene, Industrial
Irrigation
Labor supply
Machine tool industry
Machinery industry
Medical colleges
Medical service, Industrial
Metal trade
Metal working industries
Mines and mineral resources
Moving picture industry
Office equipment industry
Oil industries
Petroleum
Petroleum industry and trade
Petroleum products pipe lines
Plastics industries
Radio broadcasting
Railroads
Railroads—Electrification
Roads
Science and state
Scientific education
Scientific research
Shipbuilding
Shipping
Space research
Steel industry and trade
Steel works
Technical education
Telephone
Television broadcasting
Textile industry
Trade unions
Transportation
Warships
Water supply

Antiquities, Roman

Roman bloom from Cranbrook, Kent. G. T. Brown. bibliog il Iron & Steel Inst J 202: 502-4 Je '64

Army

Ordnance and ordnance stores

Data processing at Ordnance depot. Engineer 216:703-4 O 25 '63

Commercial policy

Policies for plastics; how EGGD helps the exporter. Brit Plastics 37:294 Je '64

Economic policy

Commonwealth aid; do we get value? Engineering 197:275+ F 21 '64

Sunshades in October: an analysis of the main mistakes in British economic policy since the mid-nineteen fifties. N. Macrae. Review. by G. W. Smith. Chem & Ind p448-9 Mr 14 '64

Industries and resources

Control computers boom in Britain. D. Barlow. Control Eng 11:30 Je '64

Development area labour suits new firm. il Engineering 197:295 F 21 '64

National productivity year, a launching pad into the future? Engineering 196:692-3 N 29 '63

National productivity year conference, Eastbourne, Nov. 26-28. Chem & Ind p 16-20 Ja 4 '64

New works and plant; illustrations with text. Engineer 217:18-19 Ja 3 '64

1964 prospects for all engineerings; economic outlook. Engineering 197:96 Ja 17 '64

History

Industrial archaeology, an introduction, by K. Hudson and Archaeology and the microscope, by L. Biek. Review. by A. Clow. Chem & Ind p275-6 F 15 '64

National engineering laboratory

Research at N.E.L. improves engineering design. il Metallurgia 69:255-6 Je '64

National physical laboratory, Teddington

Open days. Engineer 217:985 Je 5 '64

Navy

Electrical engineering in the Royal navy. il Engineer 218:208-9 Ag 7 '64

Navy's need of electrical officers. il Engineering 198:38-9 Jl 10 '64

Royal navy, 1963. il Engineering 217:4-7 Ja 3 '64

GREAT BRITAIN—*Continued*

Scientific and industrial research, Department of

Laboratory of the government chemist, 1842-1963, Department of scientific and industrial research. D. T. Lewis. bibliog il Chem & Ind p 1702-13 O 26 '63

Opening of the new Laboratory of the government chemist. Chem & Ind p 718 Ap 25 '64

Tropical products institute. E. S. Hiscocks. il Chem & Ind p946-52 Je 6 '64

GREAT LAKES

Electrical conductivity of the Great Lakes. L. H. Doherty. bibliog map J Res Nat Bur Stand 67D:765-71 N '63

Low water hurts Great Lakes economy. map Eng N 173:63 Ag 6 '64

Water resources problems of the Great Lakes. W. Q. Kehr and C. R. Ownbey. Am Water Works Assn J 56:1167-72 S '64

See also

Erie, Lake
Ontario, Lake
Salt mines and mining—Great Lakes region
Shipping—Great Lakes

GREECE

See also

Aluminum industry and trade—Greece
Architecture—Greece
Building—Greece

Antiquities

Tunnel of Eupalinus. J. Goodfield. il maps diags Sci Am 210:104-10+ Je '64

GREEKS in Italy

Ancient Cumae. R. V. Schoder. il maps Sci Am 209:108-21 D '63

GREEN function

Image properties of a superconducting ground plane. A. R. Sass. diags J Ap Phys 35:516-21 Mr '64

Theory of radiation from sources immersed in anisotropic media. J. R. Wait. J Res Nat Bur Stand 68B:119-36 Jl '64

GREENE, Herbert

Obituary. G. V. Jacks. por Chem & Ind p 1015 Je 13 '64

GREENHOUSES

PVC glazed greenhouse. il Plastics World 22:40 Je '64

Heating and ventilation

Greenhouse temperature. il Engineering 198:412 S 25 '64

Heat pumps and solar units maintain glasshouse temperatures. il diag Plant Eng 18:126-8 Mr '64

Tomatoes for Thanksgiving; with gas heat. il Gas Age 130:32-3 N '63

GREENLAND

See also

Geology—Greenland
Paleobotany—Greenland

GREENSBORO, North Carolina

Sewerage

Complete wastewater treatment. il map Water & Sewage Works 111:118-21 Mr '64

GREENVILLE, Illinois

Water supply

New filter system removes iron from municipal water supply. flow diag il diag Water & Sewage Works 111:284-6 Je '64

GREETING cards

Firm must first print its product, then sell it; American greetings corp. of Cleveland. il Inland Ptr/Am Lithogr 153:72-3 My '64

Five specialties under one roof; Sangamon co. il Inland Ptr/Am Lithogr 153:50-1 Jl '64

See also

Christmas cards

GREIGITE. See Iron sulfides

GRIFFITH, A. A.

Memorial. D. Eyre. Engineer 216:766-7 N 8 '63

Obituary. Engineer 216:700 O 25 '63

GRIGNARD reaction

Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64

GRIGNARD reagents

Concerning the structure of the Grignard reagent; in diethyl ether; relevance of Grignard composition to the mechanism of addition to ketones. E. C. Ashby and M. B. Smith. bibliog Am Chem Soc J 86:4363-70 O 20 '64

Cyclopropanes; an optically active Grignard reagent and the mechanism of Grignard formation. H. M. Walborsky and A. E. Young. bibliog diags Am Chem Soc J 86:3288-96 Ag 20 '64

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

Infrared spectral studies of Grignard solutions. R. M. Salinger and H. S. Mosher. bibliog Am Chem Soc J 86:1782-6 My 5 '64

Kinetics of the addition of Grignard reagents to ketones. S. G. Smith and G. Su. bibliog Am Chem Soc J 86:2750-1 Jl 5 '64

Nucleophilic displacement reactions on organophosphorus esters by Grignard reagents. K. D. Berlin and others. bibliog Am Chem Soc J 86:1787-90 My 5 '64

Oxime tosylates react with Grignards; abstract. S. S. Pelosi, jr. and R. E. Lyle. Chem & Eng N 42:45 Ap 20 '64

Reaction of triphenylphosphine oxide with alkyllithium and Grignard reagents. D. Seyferth and others. bibliog Am Chem Soc J 86:1100-5 Mr 20 '64

Steric difference between the substitution reaction products of lithium alkyls and Grignard reagents with α-aminonitriles; an asymmetric reproduction. J. Yoshimura and others. bibliog Am Chem Soc J 86:3858-62 S 20 '64

GRIN. See Smiles

GRINDERS, Wood. See Wood grinders

GRINDING

Abrasive machining goes big. R. H. Eshelman. il Iron Age 193:55 F 27 '64

Analysis of centerless grinding. J. P. Gurney. bibliog diags A S M E Trans ser B 86:163-74 My '64

Belts grind out shiny finish. il Iron Age 194:101 Jl 23 '64

Compressed air as a grinding fluid. il Comp Air Mag 68:22-3 D '63

Contribution to the correlation theory for the grinding process. J. Peklenik. bibliog diags A S M E Trans ser B 86:85-94 My '64

Controlled-force grinding, a new technique for precision internal grinding. R. S. Hahn. il diags A S M E Trans ser B 86:287-93 Ag '64

Grinder zips off billet scale by striking while hot. il Iron Age 194:58-9 Jl 30 '64

Grinding boron carbide. F. M. Giordano. il Tool & Manuf Eng 53:57-9 Jl '64

Guarantee increased profits by keeping pace with weld grinding. E. C. Erickson. il Welding Eng 49:39-40 N '64 (reprints 50c)

How to grind and use spur bits. R. E. Clement. diags Am Mach 108:113-14 Ja 20 '64

New way to finish precision ways. R. H. Eshelman. il Iron Age 194:63 Ag 13 '64

Quality control of gear grinding. K. Yokota. Ind Quality Control 20:18-19 Je '64

Remove metal at lower cost by abrasive machining. G. Nisula. il diags Product Eng 35:106-9 My 25 '64

Review of metal processing literature, 1962: grinding. bibliog A S M E Trans ser B 86:64-5 F '64

Role of topography in the cutting performance of abrasive tools. H. T. McAdams. bibliog diags A S M E Trans ser B 86:75-81 F '64

Straight talk about abrasive machining. P. J. Gruber. Automotive Ind 131:132+ S 1 '64

Thin-wall aluminum sleeves ground without distortion. H. J. Gerber. il Mach 70:143 My '64

See also

Abrasive belts
Abrasives
Grinding machines
Honing
Machine shop practice

GRINDING, Electrolytic

Chemical milling, electrochemical machining, and electric discharge machining. C. L. Faust. il Machine Design 36:163+ Ag 13 '64

Dressable wheel could be breakthrough in electrolytic form grinding. il Am Mach 108:109 O 26 '64

Electrolytic grinding finishes microminiature parts. L. L. Trott. il Tool & Manuf Eng 52:81-2 Ja '64

New wheel enhances ECM form grinding. Steel 155:49 O 12 '64

Power unit packs big punch for edm and ecm. R. H. Eshelman. il Iron Age 194:125 O 29 '64

Wheels put bounce in grinding. J. E. Sandford. il Iron Age 194:58-9 O 15 '64

GRINDING machines

Abrasive belt grinding; a consideration for low unit cost productivity. B. Feinberg. il Tool & Manuf Eng 52:109-14 Mr '64

Abrasive machining: the big bite of tiny grains. R. H. Eshelman. il Iron Age 193: 93-100, cover Ap 9 '64

Air bearing grinding spindles. il Engineer 217:584 Mr 27 '64

American centreless grinding machine. il Engineering 197:491 Ap 3 '64

Automatic steel conditioning, a new horizon for cost reduction. P. DiLella. il Iron & Steel Eng 41:116-19; Discussion. 119-20 O '64

Big grinder pays off on small shafts. il Iron Age 192:156 D 5 '63

Brown & Sharpe microstatic cylindrical grinding machine with hydrostatic wheel-spindles. il Mach 70:166 Je '64

Brown & Sharpe ten in. grinders hold close diametral roundness tolerances. il Am Mach 108:91 Mr 30 '64

Bryant Centa-Form external form grinder. il Mach 70:138 N '63

Chucking grinder handles 30-inch diameter bearing rings. il Mach 70:197-8 F '64

Cincinnati 10-in. universal grinder combines versatility with high-production capability. il Am Mach/Metalworking Manuf 107:85 D 23 '63

Cincinnati universal grinding machine. il Mach 70:150 F '64

Crush grinding contours rolls, detours costs. il Steel 154:102-3 Je 8 '64

Crushtrue multiform grinding machine. il Mach 71:162 S '64

Finishing gets a new tool; free abrasive machining. il Iron Age 193:88-9 F 13 '64

Gardner heavy-duty double-disc grinder. il Mach 70:188 Je '64

Grinder roughs and finishes in one tangential pass. il diag Iron Age 192:92-3 D 12 '63

Grinding four diameters at one time. il Mach 70:137 F '64

Grinding machines: hydrostatic bearing supports spindle. il Product Eng 35:59 Mr 30 '64

Grinding machines; illustrations with text. Engineer 218:19 Jl 3 '64

Grinding red hot billets doubles removal rates. il Steel 155:80-3 Jl 27 '64

Hand scraping on a surface grinder; Thompson Hydrail. Am Mach 108:65 Jl 6 '64

High-precision internal grinding machine. il Mach 70:214 Ap '64

Internal grinder cuts slots with spin-slide motion. il diags Iron Age 194:64-5 Jl 9 '64

Modular grinder is tailored to its tasks. R. H. Eshelman. il Iron Age 193:127 Je 11 '64

Myford cylindrical grinder. il Mach 70:142 N '63

Piston poses production puzzle. R. H. Eshelman. il Iron Age 192:73 D 12 '63

Processing by abrasive machining. L. P. Tarosov. Automation 11:113-16 Ja '64

Product Engineering fifth annual master design awards: internal grinder. il diags Product Eng 35:114 Ap 27 '64

Roll grinder finishes rod while mounted on the mill. il Iron & Steel Eng 41:157-8 Je '64

Service company scouts for supplier of tools. il Steel 154:76 Ap 6 '64

Six jobs for vertical grinders. F. Kellner. il diags Am Mach 108:68-70 Jl 6 '64

Take heavier cut, abrasive users told; abstract. R. Merritt. il Iron Age 193:70 Mr 26 '64

Versatile low-cost sander/grinder. il Mach 71:196+ S '64

What's new in grinding? Am Mach/Metalworking Manuf 107:126-8 N 11 '63

Wheel-forming attachment for surface grinding machines. il Engineer 217:530 Mr 20 '64

See also

Abrasive belts

Gear grinding machines

Grinding wheels

Control

Advances in automotive production techniques; grinding. il Mach 70:119-22 D '63

Cincinnati plunge type piston relief grinder. il Mach 70:192+ D '63

Continuous automatic grinding of contoured parts from hardened bar stock. il diags Mach 70:145-7 Ap '64

Controlled force grinding. il diags Mech Eng 85:62 N '63

Controlled-force grinding, a new technique for precision internal grinding. R. S. Hahn. il diags A S M E Trans ser B 86:287-93 Ag '64

Numerical control

Automated roll grinder for the steel mill. A. T. Parrella. il diag Iron & Steel Eng 41:92-4 My '64

N/c grinder shaves millionths. A. W. Young. il Iron Age 194:68-9 O 1 '64

Numerically controlled grinding; abstract. R. J. Levi. Automation 11:128-9 My '64

GRINDING wheels

Abrasive machining; four papers. il diags Mech Eng 84:46-55 N '62; Same. Naval Eng J 76:35-44 F '64

Abrasives; before and after the weld. il Welding Eng 49:35-8 N '64 (reprints 50c)

Arborless grinding wheel permits higher speeds. il Steel 155:29-30 O 5 '64

Diamond grinding alumina parts. il Am Cer Soc Bul 43:223 Mr '64

Diamond tooling solves manufacturing problem. il Tool & Manuf Eng 53:89-90 Ag '64

Finer mesh improves nylon abrasive wheels. il Mach 70:232+ Ap '64

Form grinding of carbides: electrical discharge machining versus diamond wheel. A. E. Chambers. il Tool & Manuf Eng 52:93-5 Ap '64

Grinder runs faster without arbor. il Iron Age 194:145-7 S 24 '64

Grinding goes faster, safer. R. H. Eshelman. il Iron Age 194:120-1 Ag 27 '64

Guarantee increased profits by keeping pace with weld grinding. E. C. Erickson. il Welding Eng 49:39-40 N '64 (reprints 50c)

Man-made diamond reduces cost of grinding carbide form tools. L. A. Reif. il Mach 71: 112-13 S '64

New abrasive technique cuts production barrier. R. H. Eshelman. il Iron Age 194:52 O 22 '64

New idea in diamond wheels. il Am Mach 108:56-7 Ag 31 '64

New wheel enhances ECM form grinding. Steel 155:49 O 12 '64

Statistical polyhedron model of abrasive grain. H. T. McAdams. bibliog diags A S M E Trans ser B 85:388-93; Discussion. 393-4 N '63

Use of diamond grinding wheels; reference book sheets. L. I. Smith. Am Mach/Metalworking Manuf 107:147, 149 N 11 '63

Wheels put bounce in grinding. J. E. Sandford. il Iron Age 194:58-9 O 15 '64

When diamonds grind carbides; how to measure efficiency, economy. E. Ratterman. Tool & Manuf Eng 52:81-4 Je '64

See also

Grinding machines

Manufacture

Are today's grinding wheel markings adequate? A. E. Miller. Am Mach/Metalworking Manuf 107:67-8 D 23 '63

Transfer techniques link wheel finishing operations. R. W. Miklitsch. il diag Automation 11:57-61 My '64

Unique handling integrates grinding wheel processes. R. W. Miklitsch. il diag Automation 11:59-63 Mr '64

Safety measures

Plus values of the new American standard safety code for abrasive wheels. J. C. Arndt. il diags Mag of Stand 35:240-2 Ag '64

Testing

Bullets just nick grinding wheels. R. H. Eshelman. il Iron Age 194:119 S 10 '64

Comparison of static and dynamic hardness of grinding wheels. J. Peklenik and others. diags A S M E Trans ser B 86:294-8 Ag '64

Crush grading of grinding wheels. J. E. Price. diag Tool & Manuf Eng 52:78-80 Ja '64

Measuring and controlling grinding costs. E. L. Sinclair. il Foundry 92:78+ Jl '64

Tests demonstrate safety of high speed grinding wheels. il Foundry 92:153-4 O '64

Truing

Borrowed diamond wheel design trims form-grinding costs. il diag Mach 70:133-4 Ap '64

Continuous automatic grinding of contoured parts from hardened barstock. il diags Mach 70:145-7 Ap '64

Dressable wheel could be breakthrough in electrolytic form grinding. il Am Mach 108: 109 O 26 '64

Multipoint dressers speed form grinding. il diags Engineering 196:630-1 N 15 '63

Over-the-wheel dresser facilitates rapid truing. il Mach 70:238-9 Ap '64

GRISEOFULVIN

Control of tinea capitis among indigent populations. L. Friedman and others. bibliog Am J Pub Health 54:1588-98 S '64

GRISEOFULVIN—*Continued*

New synthesis of cyclohexenones; the double Michael addition of vinyl ethynyl ketones to active methylene compounds; application to the total synthesis of *dl*-griseofulvin. G. Stork and M. Tomasz. bibliog Am Chem Soc J 86:471-8 F 5 '64

GRIT blasting

Blast cleaned surfaces sometimes fool you. Ind Finishing 40:101-2 Je '64

Blast cleaning ship's tanks before painting. W. E. Hill. il Ind Finishing 40:84+ Je '64

GRIT chambers. See Sewage disposal plants—Grit chambers

GROCERY stores

Soap departments profitable. il Soap & Chem Spec 40:79-80+ O '64

GROOVING

Tape turning of complex grooves. il diags Am Mach/Metalworking Manuf 107:74-5 N 25 '63

Undercutting tool slots bore wall. W. H. Morson. diag Mach 70:122-3 Mr '64

GROPIUS, Walter

Tradition and continuity in architecture. W. Gropius. por Arch Rec 135:131-6 My; 133-40 Je; 136-151-6 Jl '64

GROUND effect machines. See Air cushion vehicles

GROUND water. See Water, Underground

GROUNDING (electric distribution). See Electric distribution—Grounding

GROUNDNUTS. See Peanuts

GROUNDS and faults. See Electric distribution—Grounds and faults

GROUPS, Theory of

Answers in set theory. Sci Am 210:55-6 Ja '64

Structures of an automation and its input semigroup. R. H. Oehmke. Assn for Computing Mach J 10:521-5 O '63

GROUTING

Concept of curtain grouting evaluation. L. F. Grant. bibliog diags Am Soc C E Proc 90 [SM 1 no 3775]:63-92 Ja '64; Discussion. J. S. Winefordner. 90 [SM 4 no3979]:207 Jl '64

Dry gravel pit means more efficient extraction. il Engineering 198:441 O 2 '64

Grout holes sunk through debris by overburden drilling method. il Roads & Sts 107:43 My '64

Grouting the prairie sediments. L. A. York. diags Can Min & Met Bul 57:63-7 Ja '64

Mounting and grouting for pumps. N. L. Meyerson. diags Air Cond Heat & Ven 60: 29-46 D '63

Pressure grout piles support 230-kv towers in boggy soil. G. Aslaksen. il diags Power Eng 68:47-8 Ja '64

Pressure grouting technique raises sunken slabs. F. Anderson. il Pub Works 95:97-8 Je '64

Some foundation considerations at the Grand Rapids hydro-electric project. J. R. Rettie and F. W. Patterson. il maps diags Eng J 46:32-8 D '63; Discussion. 47:98-9+ O '64

Vibration controlled by chemical grouting. G. P. Tschebotarioff. plan diags Civil Eng 34:34-5 My '64

Well grouting and well protection. K. E. Moehrl. bibliog diags Am Water Works Assn J 56:423-31 Ap '64

GROVE CITY, Pennsylvania

Streets

Public works, imagination and salesmanship; Grove City, Pa. F. E. Fisher. il Pub Works 95:84-7 My '64

GROWTH

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-95 bibliog (p392-4) Mr '64

Antagonism of poorly invertible D-amino acids toward growth promotion by readily invertible D-amino acids. S. H. Kamath and C. P. Berg. bibliog J Nutrition 82:237-42 F '64

Antagonism of the D-forms of the essential amino acids toward the promotion of growth by D-histidine. S. H. Kamath and C. P. Berg. bibliog J Nutrition 82:243-8 F '64

Application of newer knowledge of nutrition on physical and mental growth and development. J. Cravioto. bibliog Am J Pub Health 53:1803-9 N '63

Bone density and skeletal maturation as indexes of mineral status in children. D. E. Williams and others. bibliog Am J Clinical Nutrition 14:91-7 F '64

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Effect of dietary restriction of pregnant rats on body weight gain of the offspring. B. F. Chow and C. J. Lee. bibliog J Nutrition 82: 10-18 Ja '64

Growth of rats from normal dams restricted in diet in previous pregnancies. B. F. Chow. J Nutrition 83:289-92 Ag '64

Influence of gelatin on growth and liver pyridine nucleotide concentration of the rat. J. R. Savage and A. E. Harper. bibliog J Nutrition 83:158-64 Je '64

Thyroxine and antithyrotoxic effects in the chick. W. W. Westerfeld and others. bibliog J Nutrition 83:325-31 Ag '64

See also

Tree growth

GROWTH inhibiting substances

Metabolism of 3-amino-1,2,4-triazole-5-C^{14} by rats. S. C. Fang and others. bibliog J Agri & Food Chem 12:219-23 My '64

GROWTH promoting substances

Amateur scientist; extraction of growth-promoting substances from cantaloupe. R. C. Caggiano. Sci Am 211:100-3 Ag '64

Growth stimulating effects of high levels of vegetable oils. R. E. Isaacks and others. bibliog Am Oil Chem Soc J 40:747-9 D '63

See also

Plant growth

GRÜNEISEN law

Invariant form for the fusion equation. L. Knopoff. diag J Geol 72:376-7 My '64

GRUNERITE

Cummingtonite-grunerite series; a chemical, optical and X-ray study. C. Klein, jr. bibliog Am Mineralogist 49:963-82 Jl '64

GUANIDINE

Mercury(II) complexes of guanidine and ammonia, and a general discussion of the complexing of mercury(II) by nitrogen bases. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4325-9 O 20 '64

New synthesis of guanidines. A. M. Monro. bibliog Chem & Ind p 1806-7 O 24 '64

Presentation of the medical aspects of guanidine salts. A. Shansky. bibliog Am Perfumer 78:29-30 D '63

Toxicity and performance of guanidine salts in permanent waving. H. Bogaty and R. P. Giovacchini. Am Perfumer 78:45-7 N '63

GUANIDINIUM compounds

New complexes of guanidinium ion with tetraphosphate ion. J. I. Watters and S. Matsumoto. bibliog Am Chem Soc J 86: 3961-4 O 5 '64

Nonpolar group participation in the denaturation of proteins by urea and guanidinium salts; model compound studies. D. B. Wetlaufer and others. bibliog Am Chem Soc J 86:508-14 F 5 '64

GUANOSINE

Isolation of a 2-nitropurine from the reaction of guanosine with nitrous acid. R. Shapiro. bibliog Am Chem Soc J 86:2948-9 Jl 20 '64

GUAR

Some properties of galactomannans. P. A. Hui and H. Neukom. bibliog Tappi 47:39-42 Ja '64

GUARD rail. See Roads—Safety guards

GUARDS (machinery). See Machinery—Safety devices

GUATEMALA

See also

Architecture—Guatemala

Building—Guatemala

Public health—Guatemala

GUIDED missile bases

Crawlerway will support moon rocket from assembly to launch. il Eng N 173:26-7 Jl 23 '64

Major bids taken for record building; pile-driving ends, steelwork starts moon rocket assembly plant at Cape Kennedy. il Eng N 172:15 Ja 16 '64

Moon rocket haulway; world's heaviest roadbed. il plan diag Roads & Sts 107:56-8+ Je '64

Prestressed cables brace big cube: Vertical Assembly building housing the Moon-rocket booster. il Eng N 172:67 Mr 19 '64

Space truss braces huge building for moon rocket. A. Tedesko. il plans diags Eng N 172:24-8 F 6 '64

Buildings

Titan missile tower tops out. il Eng N 172: 49 F 13 '64

Construction

ICBM silos excavated like postholes. il Eng N 171:99 N 14 '63

GUIDED missile bases—Construction—*Cont.*

Safety battle for Kwajalein. il Safety Maint 126:20-1 D '63

Saturn/Apollo spaceport grows. K. H. Debus. il diag Astronautics & Aeronautics 2:34-8 Je '64

Electric equipment

Power plant for Bloodhound missile sites. il Engineer 217:186 Ja 24 '64

Electronic equipment

Fylingdales; B.M.E.W.S. now operational. il Wireless World 69:619-20 D '63

Mockup simulates Minuteman controls. T. Maguire. il map Electronics 37:14-15 F 28 '64

Modular check-out gear puts zip into missile test. D. B. Dobson. il S A E J 72:79-81 My '64

Equipment

Aluminum white room protects Gemini space capsule from contamination. il Light Metal Age 22:27 Ag '64

Busy pipeline relocated in 55 hours. R. A. Bainter. il Pet Management 36:91-3 Ap '64

Considering the critical parts in a design. Engineering 197:541 Ap 17 '64

Ground support equipment classifications aid designers. E. Jacobs. Hydraulics & Pneumatics 17:97-8+ Mr '64

Missile support. G. T. Drakeley and others. il Space/Aeronautics 42 no 4:221-4 '64-65

Soviet ballistic missile ground support equipment. D. J. Ritchie. il diags Naval Eng J 76:275-9 Ap '64

Spaceport spawns superlatives. A. H. Bagnulo. il diags S A E J 72:36-7 Je '64

Springs give Titan II post-nuclear bounce back. il diags Machine Design 35:166-7 N 21 '63

Steel sand castings capture aerospace applications. il Foundry 92:72-5 My '64

Hydraulic equipment

Hydraulic ground support for Saturn V. diags Hydraulics & Pneumatics 16:75-7 D '63

Rotary actuators swing tower arm. K. H. Meyer and W. E. Heese. diags Hydraulics & Pneumatics 16:80-1 D '63

GUIDED missile factories

Equipment

Lockheed's pegboard approach to all-size parts protection. il Mod Materials Handling 19:48-50 Ag '64

Tools for the industry (cont). il diag Aircraft Eng 36:150, 227, 257 My, Jl-Ag '64

Quality control

Government and the inspector. R. W. Smiley. Ind Quality Control 20:4-7 Ap '64

Quality auditing for missiles. P. S. Reis. bibliog Ind Quality Control 20:7-11 D '63

GUIDED missile handling

Hydraulics and bogie wheels drag away Saturn Gantry. il diags Machine Design 36:128-9 F 27 '64

Missile tower drive prevents slipping and skewing. diags Machine Design 36:146-7 Ag 27 '64

Saturn V launch environment and ground support equipment design. D. D. Buchanan. bibliog il plans diags Astronautics & Aeronautics 2:30-9 Mr '64

Welded tubular trailer solves transport problem for Atlas missile. T. B. Jefferson. il diag Welding Eng 49:40-3 O '64

GUIDED missiles

Calculation of the surface range of a ballistic missile. P. R. Escobal. diag AIAA J 2:571-3 Mr '64

Design considerations of the Russian Intercontinental ballistic missile and its associated space booster. D. J. Ritchie. il plans diags Aircraft Eng 36:286-91 S '64

Development of Blue Steel. R. H. Francis. il diags Roy Aeronautical Soc J 68:303-22 My '64

Interception of high-speed target by beam rider missile. O. R. S. Elnan and H. Lo. diag AIAA J 1:1637-9 Jl '63; Discussion. N. X. Vinh. 2:409 F '64

Progress in missiles and spacecraft at the Farnborough show. il Engineering 198:330-1 S 11 '64

Supersonic Magnus effect on a finned missile. E. R. Benton. bibliog diags AIAA J 2:153-5 Ja '64

Anti-submarine missiles

SUBROC on guard; anti-submarine missile is a water-air-water defense projectile. il Product Eng 34:29 D 23 '63

Anti-tank missiles

Gunner flies missile from launcher to target. il Machine Design 36:10 Mr 26 '64

Control

Aerospace in perspective; control. il diags Space/Aeronautics 41:138-55 Ja '64

Aligning Saturn missile's guidance system. W. S. Zukowsky. il diags Electronics 37:26-7 F 21 '64

Computer guides Saturn 1 payload into orbit. Franklin Inst J 278:154-5 Ag '64

Hot-gas servo controls missile; abstract. C. L. Conklin. diag S A E J 72:87 F '64

Living neuro-electronic systems. P. M. Kelly. bibliog diags Space/Aeronautics 42:52-9 S '64

Saturn I's instrument unit. il diag Product Eng 34:55-6 N 25 '63

Self-contained, unitized, modular hydraulic control system. il diags Product Eng 35:36 Mr 2 '64

Simplicity highlights Thor's gimbal actuation system. D. A. Steinmeyer. il diags Hydraulics & Pneumatics 17:132-4 My '64

Successful control of nose cone attitude. il Engineering 198:347 S 11 '64

See also

Inertial guidance systems

Defenses

B.M.E.W.S. at Fylingdales, Yorkshire; illustrations with text. Engineer 217:91 Ja 10 '64

Penetration aids. il diags Space/Aeronautics 41:47-59 F '64

Safeguard ballistic missile warning relay. il Engineering 196:670 N 22 '63

Design

Centaur 3. il Product Eng 35:60 Jl 20 '64

Dynamics and structures; spacecraft and missile structures. C. C. Gage. diags Space/Aeronautics 42 no 4:20-1 '64-65

Iterative analog determination of burning time and weight distribution in a two-stage rocket. K. S. Cook. il diags Instruments & Control Systems 36:129+ D '63

Electronic equipment

Air force seeks new weapons breakthroughs. J. F. Mason. Electronics 37:46-7 Mr 6 '64

Connector controversy. R. Lovell. il Electronics 37:120+ Je 15 '64

In-plant capabilities of a missile-maker. W. D. Fuller. Electro-Tech 74:115-16 Ag '64

Microelectronics in the Minuteman. R. C. Platzek. Electro-Tech 74:113-14 Ag '64

Minuteman by products. diags Electronics 37:26-7 Mr 23 '64

Temperature sensor for strain-gage transducer. S. Meieran. diag Electronics 37:77-8 My 4 '64

Equipment

Auxiliary equipment (cont). il Aircraft Eng 36:152, 224, 256, 294 My, Jl-S '64

High purity air compressor supplies Pershing air bearings. J. W. Mahanay. il diag Hydraulics & Pneumatics 17:121-5 S '64

Failure

Optimum test procedure under stress. H. Greenberg. bibliog Op Res 12:689-92 S '64

Transient radiation: ICBM bugaboo. H. C. Hood. diags Electronics 37:10-11 Ja 31 '64

Fuel tanks

Roll-Spot welds join Atlas fuel tanks. il Welding Eng 49:95 Ap '64

Hydraulic equipment

Ground support equipment classifications aid designers. E. Jacobs. Hydraulics & Pneumatics 17:97-8+ Mr '64

Simplicity highlights Thor's gimbal actuation system. D. A. Steinmeyer. il diags Hydraulics & Pneumatics 17:132-4 My '64

Launching

Machining a guided weapon launcher. il Engineer 217:394-5 F 28 '64

Steam-fired missile saves wear on the launch pad. il Machine Design 36:6 O 8 '64

Launching from ships

Prelaunch dynamic loads on space vehicles launched from ships. D. H. Mitchell. bibliog il diags Naval Eng J 76:45-55 F '64

Sea trials: Sea Horse and Sea Dragon to be launched at sea. il diag Product Eng 35:42 Ja 20 '64

Shipborne missile systems. R. K. Irvine. il Naval Eng J 76:352-8 Je '64

GUIDED missiles—*Continued*

Launching from submarines

Advancing state-of-the-art. L. Smith. il Astronautics & Aeronautics 2:56-8 Je '64
Submarine-launched antisub missile passes battle tests. il diag Machine Design 35:8 D 19 '63
SUBROC; a submarine-launched, rocket-propelled, inertially guided, long-range nuclear depth bomb. il diag Comp Air Mag 69:14-15 Ja '64

Load

Nonlinear response of cylindrical shells subjected to dynamic axial loads. R. S. Roth and J. M. Klosner. bibliog diag AIAA J 2:1788-94 O '64

Manufacture

Missile maker modifies tools to get on stream fast. il Iron Age 192:170-1 N 14 '63
Missile-tube heat treatment for Italy. il Engineering 197:297 F 21 '64
Precision machining of Polaris missile chambers. J. Heller. il Mach 70:98-9 F '64
Rotary milling slashes cost of producing Polaris rings. il diags Mach 70:133-4 Je '64
Tape turning of complex grooves. il diags Am Mach/Metalworking Manuf 107:74-5 N 25 '63
34-ft-dia rotary table to be used in machining, inspecting Saturn sections. il Am Mach 108:225 S 14 '64
Tough tolerances are held on big missile housings. il Steel 153:84 N 18 '63

Materials

Beryllium blast-off. il Mod Metals 20:70+ Mr '64
Beryllium gains as a structural material. il Chem & Eng N 42:27 F 24 '64
Beryllium goes structural. il Mach 70:144 Ap '64
Beryllium research opens new markets in aerospace. il Steel 154:57 F 24 '64
Beryllium structures. R. N. Kelly. il diag Space/Aeronautics 42:64-73 Jl '64
Cork cuts cost of missile insulation. il Am Mach 108:148H Ap 13 '64
Epoxy resin loses a round in aerospace. il Chem Eng 71:38 Mr 2 '64
First beryllium spacer for missile structure. il Materials in Design Eng 59:113+ My '64
Giant hydraulic press tests missile skin. il Hydraulics & Pneumatics 17:42 Jl '64
Materials. bibliog Space/Aeronautics 42 no 4:147-65+ '64-65
Metal tube hardening plant; Bombrini Parodi-Delfino. il Metallurgia 69:227-8 My '64
NASA outlines its toughest space materials problems; seeks solutions. diags Steel 153:70-2 N 18 '63
New materials; aircraft, missile or space vehicle applications (cont). il Aircraft Eng 36:154, 225, 258 My, Jl-Ag '64
Special methods improve missile insulation. Rubber Age 95:893 S '64

Plastics

Applications of plastic materials in aerospace: symposium series abstracts. il Chem Eng Prog 60:72+ Ap '64

Protection

Falling weight simulates nuclear blast. il diags Machine Design 36:166-7 S 10 '64

Recovery

Length of the laminar hypersonic wake during ballistic re-entry. P. S. Lykoudis. bibliog AIAA J 2:155-6 Ja '64

Testing

Advanced planning to meet the impact of automation in large scale test environments. G. J. Kashuba. diags Naval Eng J 75:1003-12 D '63
Design qualification. T. A. Simonds. Ind Quality Control 20:11-13+ F '64
High-speed X-ray films probe parts in motion. L. A. Milton. il Am Mach 108:148F-148H Ap 13 '64
Modular check-out gear puts zip into missile test. D. B. Dobson. il S A E J 72:79-81 My '64
New device studies missile radiation. Franklin Inst J 276:454-5 N '63
Simulation: key to Nike-Hercules system testing. R. D. Johnson. il diags Bell Lab Rec 41:388-93 N '63
Testing and instrumentation. bibliog diags Space/Aeronautics 42 no 4:187-202+ '64-65
Titan test experience and reliability engineering. R. W. Moyer. diags Space/Aeronautics 42:79-80 Ag '64

Tracking

Active laser tracker begins moving-target tests. J. F. Mason. il diag Electronics 37:10-11 Ja 10 '64
Automatic tv tracker keeps eye on missiles. J. R. Kruse. il diags Electronics 37:82-7 Ap 6 '64
Camera mount utilizing programed mirror rotation for missile tracking. L. E. Davidson. il diags SMPTE J 73:9-11 Ja '64
Communication and tracking equipment for Apollo and its lunar excursion module. Electronics 37:32 O 19 '64
Continuous wave laser tracking system. il Product Eng 35:94-5 Ap 27 '64
Development of a reliable miniature beacon for radar tracking of research rockets and balloons. W. F. Slaght and H. Morewood. il diags Eng J 47:26-31 Mr '64
Digitrac for handling radar data. S. M. Eriksson. diags Elec Com 39 no 3:360-8 '64
Distinctive ships; sophisticated missile ship General H. H. Arnold. il Marine Eng/Log 68:88+ D '63
Evolution of a radar. J. W. Schaefer. il diags Bell Lab Rec 42:48-57 F '64
Fylingdales; B.M.E.W.S. now operational. il Wireless World 69:619-20 D '63
NASA's newest trackers go to Australia. il Electronics 36:54+ N 8 '63
Photography in space of the ejection of a capsule containing a television camera and transmitter. B. H. Mollberg. bibliog il diag SMPTE J 73:481-90 Je '64
Tracking and surveillance. R. Cheetham and W. Weinstock. Space/Aeronautics 42 no 4:72-5 '64-65

Transportation

See Guided missile handling

Vibration

Vibration and shock testing. M. Gertel. diags Space/Aeronautics 42 no 4:191-6 '64-65

GUINEA pigs
Free amino acids in quartz-dusted guinea pigs. P. Bailey and T. A. Kilroe-Smith. bibliog Archives Environmental Health 9:53-7 Jl '64
Influence of dietary factors upon salmonella typhimurium infection in the guinea pig. D. P. Nabb and B. L. O'Dell. bibliog J Nutrition 84:191-9 O '64
Interrelationships of ascorbic acid and pantothenic acid in the young guinea pig. C. Pudelkewicz and C. Roderuck. J Nutrition 81:415-18 D '63
Nutritional studies with the guinea pig; determination of the linoleic acid requirement. M. E. Reid and others. bibliog il J Nutrition 82:401-8 Ap '64

GUITARS, Plastic
All-plastics Beatles guitar. il Brit Plastics 37:197 Ap '64

GULF COAST region
See also
Petroleum—Gulf Coast region

GULF of Batabano. See Batabano, Gulf of

GULF of Mexico. See Mexico, Gulf of

GULF oil corporation
Gulf drills all over the map. F. J. Gardner. map Oil & Gas J 61:223 N 11 '63

GUMMED paper. See Paper, Gummed

GUMS and resins
Photosensitized oxidation of pine gum to yield peroxides. W. H. Schuller and others. bibliog Ind & Eng Chem Product Res & Develop 3:97-100 Je '64
Some characteristics of cereal gums. V. Podrazký. Chem & Ind p712-13 Ap 25 '64
See also
Guar
Locust bean gum
Resinous products
Rosin
Turpentine

GUNITE
Sewer restored by gunite process. J. D. McDonald. il map Pub Works 95:103-4 F '64

GUNNERY
Development of high-speed automatic loading mechanisms for heavy anti-aircraft artillery. D. H. Chaddock. il diags Inst Mech Eng Proc 177 no 21:571-94; Discussion. 595-600; Reply. 600-1 '63
See also
Ballistics

GUNS
Chieftain gun control equipment. R. N. Evans. il diag Engineer 218:170-1 Jl 31 '64
Compressed gas gun for controlled planar impacts over a wide velocity range. S. Thounborg, jr. and others. diag R Sci Instr 35:11-14 Ja '64
See also
Rifles

Manufacture

Eccentrically mounted hammers beat billets into barrels. il diag Machine Design 36:152-3 O 8 '64

GUNS (ordnance)
Recoil exercising mechanism tests guns at four elevations. il Product Eng 35:58 Mr 30 '64

Manufacture

Innovations in machining break gun-boring records. L. W. Collins, jr. il diags Mach 70:100-3 Ag '64
Magnesium gun mountings. il Mod Metals 20:50 Mr '64

GUNS, Industrial
Gunning machine for refractories. il Engineer 218:338 Ag 28 '64
Pneumatic placement of castable refractories. M. V. Probst. il diags Iron & Steel Eng 41:151-3 S '64
Pneumatic placement of refractory castables. M. D. Cook and others. bibliog il Am Cer Soc Bul 42:486-9, 694-7; 43:380-2 S, N '63, My '64
Sprayed mortar forms joints. il Eng N 173:45 S 24 '64

GUNS, Spraying. See Spraying apparatus

GUYS
Arc welding helps to design guyed tower 3000 feet high. A. Amirikian. il diags Welding J 42:955-62 D '63

GYMNASIUMS
New work, a new style; clean sweep in Olympics. il Arch Forum 121:158-61 Ag-S '64
Tapered girders cut gym cost. R. S. Fling. il diag Eng N 172:148+ Mr 19 '64

Lighting

All-in-one lighting for multipurpose gym. il Illum Eng 59:21 Ja '64
Floodlighting for sports at Syracuse university. R. H. Goodman. il plan Elec Constr & Maint 63:96-8 Mr '64
Lighting a gymnasium; installation at Grant Road school, Regina, Sask; lighting data sheet. B. Higginson. il plan diags Illum Eng 58:695-6 N '63
Three lighting systems serve gymnasium. il plan Elec Constr & Maint 62:77-8 D '63

GYPSUM
Cement holds titanium during hot machining. il Steel 154:63 Je 15 '64
Effects of impurities and additions on the hydration of calcium sulphate plaster slurries. K. Schiller. bibliog diags J Ap Chem 14:209-17 My '64
Gypsum, 1963. L. H. Yeager. Eng & Min J 165:146-7 F '64
Kinetics of a replacement reaction. L. L. Ames, jr. bibliog diags Econ Geol 58:1229-36 D '63
1964 forecast. Rock Prod 67:66 Ja '64
Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64
Setting of a slurry. K. Schiller. J Ap Chem 13:572-5 D '63
See also
Plaster of Paris

Testing

Heat-of-solution calorimeter for inorganic building materials. H. G. McAdie. bibliog il diags Materials Res & Stand 4:413-17 Ag '64

GYPSUM mines and mining
Experience with Diesel haulage units underground. F. C. Appleyard. il Min Cong J 49:52-4 D '63

GYPSUM products
Flintrock production expanded with new eastern operation; Flintkote's New Jersey gypsum products plant. B. C. Herod. il Pit & Quarry 57:76-81 Ag '64
Process innovations highlights gypsum plant; Flintkote's Camden installation. J. H. Bergstrom. il Rock Prod 67:58-60 Ag '64
Top liner deinking for cylinder machines. E. M. Baker. Tappi 47:sup 119A-20A Jl '64

GYRO compass
Transistorised gyro compass. il Engineer 217:583 Mr 27 '64

GYROSCOPE
Angle of attack from body-fixed rate gyros. E. O. Nelson. diag AIAA J 2:1324-5 Jl '64
Attitude gyro employs crab configuration. il Electronics 37:66+ Ja 3 '64
Better dynamic preloading of gyro motors. H. Schnoll. diag Space/Aeronautics 41:94 Mr '64
Dual-element gas gyro minimizes drift. G. B. Speen. diag Space/Aeronautics 40:103+ D '63
Dynamically tuned free rotor gyro. E. W. Howe and P. H. Savet. il diags Control Eng 11:67-72 Je '64
Electric vacuum gyro; pinpoint for Polaris launching. H. W. Knoebel. il diags Control Eng 11:70-3 F '64
Gimbal-less gyro. il diag Mech Eng 86:59 My '64
Gyro-theodolite and its value in modern surveying practice. A. Falter. bibliog il diags Can Min & Met Bul 57:413-20 Ap '64
Gyro torquing signals at an arbitrary azimuth on an ellipsoidal earth. M. Kayton. diags AIAA J 1:2866-7 D '63
Nuclear gyroscopes. J. H. Simpson. bibliog il diags Astronautics & Aeronautics 2:42-4+ O '64
Simple air bearing gyroscopes. il Am J Phys 32:sup 13-14 S '64
Spherical flywheel for attitude control. F. K. Mueller and H. C. Rothe. il Space/Aeronautics 40:96 D '63
Teaching of gyroscopic precession. L. Larmore. Am J Phys 32:595-6 Ag '64
Unconventional inertial sensors. J. T. LaVan. il diags Space/Aeronautics 40:73-83 D '63

Mounting

Gyroflex has no gimbals. il diags Product Eng 35:46 Ja 20 '64

Testing

Isolation systems for gyro test platforms. diags Product Eng 35:63-4 Ag 3 '64

H

HAE finish. See Ceramic coating

HAEMANTHAMINE. See Alkaloids

HAFNATES
See also
Lead hafnate

HAFNIA. See Hafnium oxides

HAFNIUM
Diffusion of oxygen in hafnium. J. P. Pemsler. bibliog Electrochem Soc J 111:1185-6 O '64
Properties of materials; hafnium, thorium, uranium, vanadium, beryllium; wrought; tables. Materials in Design Eng 60:180 Mid-O '64
Zirconium and hafnium, 1963. D. E. Eilertsen. Eng & Min J 165:125 F '64

Analysis

Gravimetric determination of zirconium and hafnium by aromatic carboxylic acids. A. K. Mukherji. Anal Chem 36:1064-6 My '64

HAFNIUM carbide
Determination of free carbon in hafnium carbide. G. Feick and W. Giustetti. Anal Chem 36:2198-9 O '64
Hafnium carbide can be cast. Chem & Eng N 42:54+ F 17 '64
Hot-pressing mixed carbides of Ta, Hf, and Zr. J. J. Fischer. bibliog il Am Cer Soc Bul 43:183-5 Mr '64

HAFNIUM oxides
High-temperature electrical conductivity in the systems $CaO-ZrO_2$ and $CaO-HfO_2$. H. A. Johansen and J. G. Cleary. bibliog Electrochem Soc J 111:100-3 Ja '64
Thermal expansion measurements on thoria and hafnia to 4500°F. B. Ohnysty and F. K. Rose. bibliog diag Am Cer Soc J 47:398-400 Ag '64

HAIR
Degradation of human hair by papain. A. W. Holmes. bibliog il Textile Res J 34:706-12, 777-82 Ag-S '64

HAIR—*Continued*

New season, new fashion, new make-up. S. Rillon. il diags Am Perfumer 79:33-5 O '64
Setting properties of keratin fibres. A. D. Jenkins and L. J. Wolfram. bibliog il Soc Dyers & Col J 80:65-8 F '64

Dyeing and bleaching

Hair dye patent. Drug & Cosmetic Ind 95:114 Jl '64
Place of haircoloring in make-up today. R. Barkann. il Am Perfumer 79:81-3 O '64
Recent developments in the chemistry of hair dyes. C. V. Stead. bibliog il Am Perfumer 79:31-5 F '64

HAIR dryers

Mouldings for new hair drier. il Brit Plastics 37:127 Mr '64
Portable hair dryers; design for function. il Mod Plastics 41:90-2 D '63

HAIR preparations

Active ingredients for hair tonics. R. C. Heald. bibliog Am Perfumer 79:23-7 Ag '64
Aerosol review, 1964; hair preparations. Manuf Chem 35:108-10 Mr '64
Barr offers new hair spray resin polymer. il Soap & Chem Spec 40:134 F '64
Foam cold wave. Drug & Cosmetic Ind 93:881 D '63
Presentation of the medical aspects of guanidine salts. A. Shansky. bibliog Am Perfumer 78:29-30 D '63
Pressure packaged permanent wave lotion. Soap & Chem Spec 40:171-2 S '64
Shellac in hair sprays. J. W. Martin. Drug & Cosmetic Ind 94:828-30+ Je '64
Stability of commercial casein in cold wave lotion. A. Shansky. bibliog diags Am Perfumer 79:39-41 Ap '64
Thioglycolic acid in hair. Drug & Cosmetic Ind 94:915 Je '64
See also
Shampoos

Patents

Compositions for treatment of the hair. C. Zviak. bibliog Am Perfumer 79:45 Jl '64
Technical abstracts. Am Perfumer 79:45-8 Ag '64

Physiological effect

Clean bill for hair sprays. P. Alexander. bibliog il Manuf Chem 35:61-2+ Ag '64
Court decisions; cold wave solution injury. H. N. Morse. Drug & Cosmetic Ind 95:67 Jl '64
Toxicity and performance of guanidine salts in permanent waving. H. Bogaty and R. P. Giovacchini. Am Perfumer 78:45-7 N '63

Testing

Curl retention with hair sprays. A. B. Reed, jr. and I. Bronfein. il Drug & Cosmetic Ind 94:178-9+ F '64

HAIR sprays. See Hair preparations

HAIR waving preparations. See Hair preparations

HALIDES

Ammonia symmetrization of organomercuric halides. F. R. Jensen and B. Rickborn. bibliog Am Chem Soc J 86:3784-6 S 20 '64
Bis(urea) and thiourea adducts of the tetrachloroindate (III) anion. D. G. Tuck and E. J. Woodhouse. bibliog Chem & Ind p 1363-4 Jl 25 '64
Conductivity and thermoelectric potential measurement on perylene; metal halide complexes. M. S. Frant and R. Eiss. bibliog diags Electrochem Soc J 110:769-72 Jl '63; Discussion. 111:755-6 Je '64
Dehalogenation of propargyl and allenyl halides. T. L. Jacobs and R. D. Wilcox. bibliog Am Chem Soc J 86:2240-7 Je 5 '64
Determination of dissociation constants of ion pairs from kinetic data of bimolecular nucleophilic substitutions; the importance of solvation and ion pairing on the nucleophilic reactivity of the halide anions. W. M. Weaver and J. D. Hutchison. bibliog Am Chem Soc J 86:261-5 Ja 20 '64
Electron capture processes in the γ-radiation of organic halides in hydrocarbon rigid matrices. E. P. Bertin and W. H. Hamill. bibliog Am Chem Soc J 86:1301-4 Ap 5 '64
Exchange of parts between molecules at equilibrium; polyarsenous oxyhalides. J. R. Van Wazer and others. bibliog Am Chem Soc J 86:807-11 Mr 5 '64
Existence of phenylboron bromochloride. A. Finch and J. C. Lockhart. Chem & Ind p497-8 Mr 21 '64
Fused organic salts; bromohydroxy- and nitrohydroxydebromination and other reactions of organic halides with molten quaternary ammonium nitrates. J. E. Gordon. bibliog Am Chem Soc J 86:4492-3 O 20 '64
Gem-dihalides from α-haloamides. C. L. Stevens and others. bibliog Am Chem Soc J 85:3390-6 N 5 '63
Kinetics of displacement of halides from substituted quinones by sulfite. C. A. Bishop and others. bibliog Am Chem Soc J 85:3991-8 D 20 '63
Photochemical reduction of rare earth ions in fused halides. H. L. Pinch. Am Chem Soc J 86:3167-8 Ag 5 '64
Reaction mechanisms proposed for nitrogen compounds. Chem & Eng N 42:40-1 Ag 3 '64
Reactions of aroyl halides with phosphites; esters of aroylphosphonic acids. K. D. Berlin and H. A. Taylor. bibliog Am Chem Soc J 86:3862-6 S 20 '64
Studies in organophosphorus chemistry; conversion of alcohols and phenols to halides by tertiary phosphine dihalides. G. Wiley and others. bibliog Am Chem Soc J 86:964-5 Mr 5 '64
Synthesis of butenolides via a vinylogous acid halide. Y. S. Rao and R. Filler. bibliog Chem & Ind p280 F 15 '64
Thermodynamic properties of some methylphosphonyl dihalides from 15 to 335°K. G. T. Furukawa and others. bibliog J Res Nat Bur Stand 68A:367-79 Jl '64
See also
Alkali metal halides
Chlorides
Copper halides
Hydrobromic acid
Mercury halides
Potassium halides
Silicon halides
Silver halides
Sodium halides
Tin halides
Titanium halides
Zinc halides

Analysis

Differential electrolytic potentiometric determination of nanogram quantities of halides at extreme dilution by constant current coulometry. E. Bishop and R. G. Dhaneshwar. bibliog diags Anal Chem 36:726-30 Ap '64
Use of glass reference electrode in potentiometric titration of halides with silver nitrate in $LiNO_3$-KNO_3 eutectic melt. H. T. Tien. Anal Chem 36:929-30 Ap '64

HALL effect

Analog ratio computer uses Hall multiplier. H. H. Wieder. il diags Electronics 36:46-7 N 8 '63
Correlation of electrical measurements with chemical analysis in zinc- and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64
Ferromagnetic Hall effect at optical frequencies and inner effective magnetic field of ferromagnetic metals. G. S. Krinchik. bibliog J Ap Phys 35:1089-92 pt 2 Mr '64
Five uses for Hall transducers. G. W. Heumann. il diags Control Eng 11:57-60 Ja '64
Hall current and inlet disturbances in constant area channel flows. G. C. Oates. bibliog diags AIAA J 1:2785-92 D '63
Hall current plasma accelerator. G. L. Cann and G. L. Marlotte. bibliog diag AIAA J 2:1234-41 Jl '64
Hall-effect gyrators, isolators, and circulators with high efficiency. S. Grützmann. bibliog diags IEEE Proc 51:1584-8 N '63; Discussion. 52:845-7; Reply. 847-8 Jl '64
Hall effect in concentrated metal-ammonia solutions. D. S. Kyser and J. C. Thompson. Am Chem Soc J 86:4509 O 20 '64
Hall effect in semiconducting glasses. W. F. Peck, jr. and J. F. Dewald. bibliog diag Electrochem Soc J 111:561-3 My '64
Hall effect investigation on lithium-diffused gallium arsenide. C. S. Fuller and H. W. Allison. bibliog J Ap Phys 35:1227-32 Ap '64
Hall effect; key to higher-performance instrumentation. N. G. Sakiotis and A. L. Aden. bibliog il diags I S A J 10:51-5 D '63
Hall-effect reinforcement of high-frequency fields in semiconductors. H. E. M. Barlow. diags Inst E E Proc 111:231-4 F '64
Hall effect-Seebeck effect sign anomaly in semiconducting glasses. A. D. Pearson. bibliog il Electrochem Soc J 111:753-5 Je '64
Hall-effect studies in deposited CdS thin films. R. S. Muller and B. G. Watkins. IEEE Proc 52:425-6 Ap '64
Hall multipliers balance crankshafts. N. C. Sethne. diag Control Eng 11:117 S '64

HALL effect—*Continued*

IEEE electron devices Hall effect session, Washington, Oct. 29-Nov. 1; abstracts of papers. Electronics 36:51-3 N 22 '63

Investigation of Hall propulsor characteristics. H. E. Brandmaier and others. bibliog diags AIAA J 2:674-81 Ap '64

Laboratory experiments on the Hall effect using evaporated metal films. M. A. Jeppesen and others. bibliog diag Am J Phys 31:860-3 N '63

Magnetic-field spectrum analyzer. L. J. Greenstein and others. il diag R Sci Instr 35:1307-10 O '64

Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64

Magnetoresistance of the Corbino disk at microwave frequencies. C. B. Burckhardt and others. bibliog diags IEEE Proc 52:277-83 Mr '64

Method for Hall mobility and resistivity measurements on thin layers. J. Lange. diags J Ap Phys 35:2659-64 S '64

New devices from magnetic effects. il diags Electronics 37:78-83 Je 29 '64

New uses for Hall-effect modulators. A. R. Hilbinger. bibliog il diags Electronics 37:30-2 Ja 17 '64

Semiconducting behavior of substituted tungsten diselenide and its analogues. W. T. Hicks. bibliog diag Electrochem Soc J 111:1058-65 S '64

Square-root computer uses Hall multiplier. H. H. Wieder. diags Electronics 37:30-1 Ja 24 '64

Thin-film thickness from theoretical expressions for conductivity and isothermal Hall effect. W. F. Leonard and R. L. Ramey. bibliog diag J Ap Phys 35:2963-5 O '64

HALLOYSITE

Quantitative determination of kaolinite and halloysite by NH_4Cl retention measurement. K. Wada. bibliog diag Am Mineralogist 48:1286-99 N '63

Surface tension and the morphology of halloysite. E. W. Hope and J. A. Kittrick. bibliog il Am Mineralogist 49:859-66 Jl '64

HALLUCINATIONS and illusions

Hallucinogenic drugs. F. Barron and others. il diags Sci Am 210:29-37 Ap '64

HALOBENZENES

Aromatic substitution; acetylation of benzene, alkylbenzenes, and halobenzenes with methyloxocarbonium (acetylium) hexafluoro- and hexachloroantimonate. G. A. Olah and others. bibliog Am Chem Soc J 86:2203-9 Je 5 '64

Aromatic substitution; ferric chloride and aluminum chloride catalyzed chlorination of benzene, alkylbenzenes, and halobenzenes. G. A. Olah and others. bibliog Am Chem Soc J 86:1055-60 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of halobenzenes in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1044-6 Mr 20 '64

Aromatic substitution; Friedel-Crafts acetylation of benzene, alklybenzenes, and halobenzenes with acetyl halides and acetic anhydride. G. A. Olah and others. bibliog Am Chem Soc J 86:2198-202 Je 5 '64

Aromatic substitution; Friedel-Crafts isopropylation and *t*-butylation of halobenzenes. G. A. Olah and others. Am Chem Soc J 86:1065-6 Mr 20 '64

Some reactions of *o*-chloro-iodo-benzene with metals; abstract and discussion. H. Heaney. Chem & Ind p271 F 15 '64

HALOGEN compounds

Analysis of corrosive halogen compounds by gas chromatography. R. A. Lantheaume. diags Anal Chem 36:486-8 Mr '64

Catalyzed copper-copper oxide flame reactions of selected organohalogens in the presence of methane and air. E. A. Eads. Anal Chem 36:2373 N '64

Gas chromatography of aqueous solutions; determination of hydrocarbons and halocarbons. E. S. Jacobs. Anal Chem 35:2035-7 D '63

α-Halosulfones. L. A. Paquette. bibliog Am Chem Soc J 86:4085-92 O 5 '64

Mechanism of elimination reactions; kinetic preference for *exo-cis* bimolecular eliminations with *trans*-2,3-dihalonorbornanes. N. A. LeBel and others. bibliog Am Chem Soc J 86:4144-7 O 5 '64

Polarography of organic halogen compounds; sterically hindered alicyclic bromides. F. L. Lambert and others. Am Chem Soc J 86:3155-6 Ag 5 '64

Positive halogen compounds; solvent effects in the reactions of *t*-butoxy radicals. C. Walling and P. J. Wagner. bibliog Am Chem Soc J 86:3368-75 Ag 20 '64

Reaction of sulphur, selenium and tellurium halogenated compounds with Wittig reagents. N. Petragnani and M. D. Campos. Chem & Ind p 1461 Ag 15 '64

See also

Chlorides

Halides

Trichloroethylene

Analysis

Improved calomel reference electrode for nonaqueous titration of halogen acid salts of organic bases. J. R. Deily and L. Donn. diag Anal Chem 36:952 Ap '64

HALOGENATION

Elimination reactions of α-halogenated ketones; carbon-halogen and carbon-hydrogen bond strengths as orientation and rate-determining factors; deuterium isotope effects in dehydrobromination of 2-bromo-2-benzyl-1-indanone. D. N. Kevill and others. bibliog Am Chem Soc J 86:1553-7 Ap 20 '64

Halogenated aliphatic acids. J. K. Leasure. bibliog J Agri & Food Chem 12:40-3 Ja '64

Modification of the Fujiwara reaction for determination of polyhalogenated organic compounds. K. C. Leibman and J. D. Hindman. bibliog Anal Chem 36:348-51 F '64

Solvolytic halogenation of olefins in ethers. I. G. Dinulescu and others. Chem & Ind p840-1 My 16 '64

Steric effects of the nitro group on the uncatalyzed halogenation of methylbenzenes. E. Baciocchi and G. Illuminati. bibliog Am Chem Soc J 86:2677-80 Jl 5 '64

See also

Bromination

Chlorination

HALOGENS

Dehalogenation of propargyl and allenyl halides. T. L. Jacobs and R. D. Wilcox. bibliog Am Chem Soc J 86:2240-7 Je 5 '64

Exchange of parts between molecules at equilibrium; nonrandom redistribution of dialkylamino groups and halogens on triply connected phosphorus. J. R. Van Wazer and L. Maier. bibliog Am Chem Soc J 86:811-14 Mr 5 '64

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

See also

Chlorine

Iodine

Analysis

Specific detection of halogens and phosphorus by flame ionization. A. Karmen. bibliog il diags Anal Chem 36:1416-21 Jl '64

HALOPHOSPHATES

Role of calcium manganese orthophosphate in halophosphate phosphors. J. G. Rabatin and G. R. Gillooly. bibliog Electrochem Soc J 111:542-6 My '64

HALOTHANE. See Bromochlorotrifluoroethane

HAM

Assessing gain in the lean of hams. L. Kamm and others. bibliog Food Tech 18:1648-52 O '64

Certain properties of canned hams as influenced by conditions of thermal processing. E. Karmas and J. E. Thompson. bibliog Food Tech 18:248-51 F '64

Effect of internal temperature, pumping, and antibiotics on spoilage of hams given a dry salt cure. R. F. Kelly. bibliog Food Tech 18:1607-11 O '64

Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

HAMBURG

Rapid transit

Role of public transportation. V. R. Vuchic. bibliog 4pls Traffic Q 18:118-40 Ja '64

HAMMERS

See also

Pneumatic hammers

HAMMERS, Drop

Coiler makes hammer cushions. il Eng N 171:48 N 28 '63

Formability of sheet metals for product design; drop hammer forming. W. W. Wood. diags Materials in Design Eng 59:102-4 Je '64

HAMMETT equation

Hammett-Taft study of the addition of the trichloromethyl radical to substituted alkenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:242-4 Ja 20 '64

ρ-ρ relation and the reaction of *trans*-cinnamic acids with diphenyldiazomethane the basis of the Hammett equation. J. D. S. Ritter and S. I. Miller. bibliog Am Chem Soc J 86:1507-12 Ap 20 '64

HAMPSHIRE, G. K.

Obituary. H. Smith. por Chem & Ind p 1380 Ag 1 '64

HAND

Hand disability due to tenosynovitis. A. P. Kelly, jr. and H. S. Jacobson. bibliog il Ind Med 33:570-4 Ag '64

Protection

How to motivate hand safety. il Safety Maint 127:20-2 Mr '64

Keeping up with arm and hand protection developments. il diags Safety Maint 127:24-7 Ap '64

See also

Gloves, Safety

Wounds and injuries

Occupational Raynaud's II. W. F. Ashe and N. Williams. il Archives Environmental Health 9:425-33 O '64

HAND cleaners

Irritant effect of industrial hand cleaners on guinea pig and human skin. E. Skog. bibliog Archives Environmental Health 7:682-5 D '63

Waterless hand cleaners. M. N. Cruse and D. L. Miller. il Soap & Chem Spec 39:41-2+ N '63

HANDICAPPED

Electronic hope for the helpless. A. Zimmerman. il Electronics 37:108-11 My 4 '64

Employment of the handicapped; placement. T. Gucker, 3d. Archives Environmental Health 9:104-6 Jl '64

Filming of speech therapy clinic sessions via tape-to-film process. L. J. Schram. SMPTE J 73:774 S '64

Follow-up study of children seen in the diagnostic centers for handicapped children. J. R. Stifler and others. Am J Pub Health 53:1743-50 N '63

Handicapped ranking scale among parents of handicapped children. R. H. Barsch. Am J Pub Health 54:1560-7 S '64

Interviewer response bias in a survey of handicapping conditions among children. W. P. Richardson and others. Am J Pub Health 54:1092-9 Jl '64

Profitable employment of the handicapped. H. B. Burr. Ind Med 33:575-9 Ag '64

Rates of attendance and reasons for nonattendance at a clinic of handicapping conditions. W. P. Richardson and others. Am J Pub Health 54:1177-83 Ag '64

Study of reports of services for a dental treatment center for handicapped children. E. Wollin and others. Am J Pub Health 53:1685-93 O '63

Successful placement of handicapped workers. W. S. Allan. bibliog Archives Environmental Health 7:621-4 N '63

Walking aid for legless people. Engineer 217:180 Ja 24 '64

See also

Rehabilitation centers

HANDLES

Tape handles spells success. il Food Eng 36:93-4 Mr '64

HANDLING, Mechanical. See Mechanical handling

HANDLING of materials. See Material handling

HANGARS

Aluminum cladding for Persian hangar. il Engineering 198:260 Ag 28 '64

Lighting

Revamp or relamp? mercury system changeover proves more economical. J. F. Foulkes. il Plant Eng 18:138-9 My '64

HARBORS

Small-craft harbor problems. C. E. Lee. plans Am Soc C E Proc 90 [WW 3 no 4015]:1-9 Ag '64

Small craft harbors development; progress report. il plans diags Am Soc C E Proc 90 [WW 3 no 4016]:11-114 Ag '64

Swedish blasting method used at Genoa. Engineer 217:329 F 14 '64

See also

Callao, Peru—Harbor

Docks

Le Havre, France—Harbor

Los Angeles—Harbor

New York (city)—Harbor

Ports

Terminals

Libya

Libya's Benghazi harbor rehabilitated. il Eng N 173:31 S 3 '64

Taiwan

Pollution of a harbor in a subtropical area; abstract. M. P. Chow. WPCF J 36:314-15 Mr '64

HARD facing

Better control achieved with new surfacing torch. il Welding J 43:757-8 S '64

Bulk process welding. R. F. Arnoldy. il diags Welding J 42:885-91 N '63

Depositing a hard surface. Product Eng 35:42 Ag 31 '64

Don't scrap it, hard surface it. il Roads & Sts 107:103+ Je '64

Effective tooling for flame plating. F. F. Humbarger. il diags Mach 70:132-6 F '64

Electrode coats tools with hard carbide. il Iron Age 193:56 Ja 23 '64

Hard-faced heat hardens trencher's teeth. il Welding Eng 49:48 Ag '64

Hardfacing of crushing equipment. R. J. Mitchell. il diags Rock Prod 67:86+ Mr '64

Hardfacing; past, present, future. L. C. Barr and C. E. Rogers. bibliog il Welding J 42:968-74 D '63

Hardfacing saves furnace bell. J. K. Wilson. il Welding Eng 49:80-1 N '64

Hardfacing unit salvages oil drilling Kellys. il Welding Eng 49:54+ Mr '64

Hardfacing; where, when and how. il diags Welding Eng 49:35-41 Jl '64 (reprints 50c)

Hard-surfaced glass molds resist scoring and oxidation. il Welding J 43:607-8 Jl '64

Hard surfacing the world's largest slide valve. il Welding J 43:520 Je '64

New developments in plasma arc weld surfacing. R. S. Zuchowski and E. Garrabrant. il diag Welding J 43:13-16+ Ja '64

Properties of materials; hard facings; tables. Materials in Design Eng 60:388 Mid-O '64

Pump plungers like new at half the original cost. il Welding Eng 49:65 My '64

Reclamation by hard surfacing cuts keyed shaft costs 60 per cent. il Welding J 43:691-2 Ag '64

Structural straightener rolls; a do-it-yourself approach. J. L. Lindberg. il diags Iron & Steel Eng 41:139-46 S '64

Surfacing cuts maintenance costs for extruder screw used in plastic pelletizing. il Welding J 42:976-7 D '63

Surfacing cuts shaker table chankshaft replacement costs by 65 per cent. il Welding J 43:127-8 F '64

This shop grew on spray hardfacing; Brooks flame spray inc. il Welding Eng 49:67 Jl '64

See also

Alloys, Hard facing

Tungsten carbide coating

HARD rubber. See Ebonite

HARD woods

Chemical structure of lignin sulfonates. D. W. Glennie and J. S. Mothershead. bibliog Tappi 47:356-60 Je '64

Comparative neutral sulfite semichemical evaluation of northern hardwoods. F. M. Ernest and J. Potter. Tappi 47:sup 129A-31A Jl '64

HARDENING

Dislocation multipoles and their role in strain-hardening. H. S. Chen and others. bibliog diags J Ap Phys 35:2502-14 Ag '64

Dispersion strengthened lead; a new structural material. D. J. I. Evans and others. il Materials in Design Eng 59:105-7 Ap '64

Hardenability of alloy cast irons containing copper. T. R. Baruch and I. B. Elman. Foundry 91:106-8 D '63

Hardening mechanisms and the theory of deformation. H. Wiedersich. bibliog il diags J Metals 16:425-30 My '64

Implication of the multiplicative hardenability concept. J. H. Gittus. Iron & Steel Inst J 202:856 O '64

Linear strain hardening of cylindrical shells. B. J. Thorn and S. L. Lee. bibliog diags Am Soc C E Proc 90 [EM 4 no 4007]:97-122 Ag '64

Radiation hardening in alkali-halide crystals. J. S. Nadeau. bibliog diags J Ap Phys 35:1248-55 Ap '64

Salt baths minimize distortion in hardening thin-wall cylinders. il Am Mach 108:66-7 Mr 30 '64

HARDENING—*Continued*

Work hardening and dislocation arrangement of fcc single crystals; electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

Work hardening and dislocation arrangement of fcc single crystals; plastic deformation and slip line studies of nickel single crystals. S. Mader and others. bibliog il J Ap Phys 34:3368-75 N '63

Yield points in age-hardening magnesium alloys. K. G. Kent and A. Kelly. Inst Metals J 92:190-1 '63-64

See also

Case hardening
Cement—Setting
Hardness
Metals—Aging
Steel. Hardening of

HARDNESS

Comparisons of materials; hardness of metals; tables. Materials in Design Eng 60:32 Mid-O '64

Comparisons of materials; hardness of plastics, rubber and nonmetallics; tables. Materials in Design Eng 60:33 Mid-O '64

Effect of annealing on the microstructure and hardness of some nickel electrodeposits. R. Weil and others. bibliog il Electrochem Soc J 111:1046-52 S '64

Effect of crystal orientation on hardness of silicon carbide. P. T. B. Shaffer. il Am Cer Soc J 47:466 S '64

High-hardness gears; key to compact reducers. I. Koenig. il diags Plant Eng 18:122-3 S '64

Science for electroplaters; chromium-hardness. L. Serota. il Metal Finishing 61:71-4+ D '63; 62:60-1 Ja '64

See also

Steel. Hardening of

Testing

Comparison of static and dynamic hardness of grinding wheels. J. Peklenik and others. diags A S M E Trans ser B 86:294-8 Ag '64

Continuously measures hardness of steel. il Automation 11:12 F '64

Effect of temperature on polymer based floor polishes. R. H. Cahill and F. L. McCarthy. il diag Soap & Chem Spec 40:88-90+ Ap '64

Experimental analysis of the strain distribution in the neck of a tensile specimen. W. Truszkowski and Z. Jasieński. bibliog diags Inst Metals J 92:225-30 '63-64

Hardness conversion for forged steel rolls; with data sheet. A. A. Bradd and W. F. Shore. il Metal Prog 85:102+ Je '64

Hardness gaged as strip flies by. H. J. Hansen, jr. il Iron Age 192:73-5 N 21 '63

How to choose the best indentation hardness test. E. H. Enberg. diags Am Mach 108:89-100 Ag 17 '64 (reprints 50c)

How to measure hardness of pyrolytic carbon. T. M. Kegley, jr. and B. C. Leslie. il diags Nucleonics 21:62-4 D '63

Magnetic hardness gage measures strip at Gary Sheet and Tin. il Iron & Steel Eng 41:131-2 Ja '64

Relation between Vickers hardness and tensile strength. D. S. Dugdale and J. S. Hoggart. bibliog Metallurgia 69:127-9 Mr '64

Testing small tubing. J. D. Bean. il Metal Prog 85:102-4 Ap '64

Thermal probe for segregation detection. J. H. Westbrook and others. bibliog diags Electrochem Soc J 111:888-91 Jl '64

See also

Brinell hardness test

HARDWARE

National hardware show, New York. il Product Eng 35:68-9 O 12 '64

See also

Bolts and nuts
Casters
Hinges
Screwdrivers
Screws
Tools

HARDY, William Bate

Pioneer food scientist. B. Miles. por Chem & Ind p 1030-1 Je 13 '64

HARMONIC analysis

Frequency cross-over of simply-supported circular ring segments. F. C. Nelson. diags Franklin Inst J 278:20-7 Jl '64

Intermodulation distortion measurement. D. E. O. Waddington. bibliog il diags Audio Eng Soc J 12:221-5 Jl '64

Stability of subharmonic oscillations in nonlinear systems. R. Oldenburger and R. E. Nicholls. bibliog diags A S M E Trans ser D 86:116-20 Mr '64

See also

Bessel functions

HARMONIC drive. See Power transmission

HARMONICS (electric waves)

Efficient odd harmonic generation with opposingly biased varactor diodes. W. R. Avellino. diags IEEE Proc 52:868-9 Jl '64

Enchanced harmonic generation in magnetrons. W. Strauss and N. Kroll. diag IEEE Proc 52:884-93 Ag '64

Enhancement of second harmonic power generated by a dielectric crystal inside a laser cavity. J. K. Wright. diags IEEE Proc 51:1663 N '63

Harmonic absorbing filters in waveguide. J. Paine and H. S. V. Reeves. diags Elec Com 39 no 2:260-4 '64

Highly-efficient generation of a specified harmonic or sub-harmonic by means of switches. D. G. Tucker. bibliog il diags Radio & Electronic Eng 28:25-32 Jl '64

Inductance coefficients of rotating machines expressed in terms of winding space harmonics. R. B. Robinson. diag Inst E E Proc 111:769-74 Ap '64

Linear scales show mixer harmonics; reference sheets. R. T. Stevens. Electronics 37:37+ Ja 10 '64

Second-harmonic magnetic modulator using ferrite core materials. R. C. Foss. bibliog diags IEEE Trans Com & Electronics 83:561-6 S '64

Selected harmonic reduction in static d-c-a-c inverters. F. G. Turnbull. diags IEEE Trans Com & Electronics 83:374-8 Jl '64

True third harmonic tuning of e.h.t. transformers. F. D. Bate. diags Electronic Eng 36:688-92 O '64

HARP

Heavenly vibrations. il Mech Eng 86:54 Ja '64

HARTFORD, George Huntington, 2d

Huntington Hartford, a most unusual client. por Arch Forum 120:112-13 Mr '64

HARTFORD, Connecticut

Architecture

Office building complexes; insuring the growth of Hartford. il plans Arch Rec 135:178-87 Mr '64

HARTNAGEL, Chris Andrew

Memorial: with bibliography of his publications. E. S. C. Smith. por Geol Soc Bul 75: sup 1-5 bibliog(sup 4-5) Ja '64

HARVARD university

Experimentation in the Harvard tradition; Hoffman laboratory of experimental geology. il plans Prog Arch 45:144-7 Mr '64

HARVESTING machinery

Effects of mechanical harvesting on the quality of prunes. M. W. Miller and others. Food Tech 17:1451-3 N '63

High-speed photography aids in the development of mechanical asparagus harvester. il Res/Develop 15:23 F '64

Mobile pea viner. il Engineer 218:252 Ag 14 '64

Podding peas on the move. il Engineering 198:198 Ag 14 '64

Redesign to all-welded frame improves corn cutter, cuts costs. W. E. Witt. il Welding Eng 49:74-6 Ag '64

HASELTINE, Nate

James T. Grady award to N. Haseltine. por Chem & Eng N 42:126 Ap 13 '64

HASHISH. See Marihuana

HAT factories

Equipment

Conveyor solves wool hat problem. il Textile Ind 127:167+ N '63

HATCH covers

Bulk ship's hatch cover drive; five advantages at no extra cost. il Marine Eng/Log 69:109 S '64

HATS. Safety

Careless use, misuse and abuse of hard hats. il Safety Maint 127:20-2 My '64

Keeping up with head protection developments. il Safety Maint 127:27-30 Je '64

Prepreg from phenolic resin blend for better molding. il Mod Plastics 41:107 F '64

Spotlight on head protection. il Safety Maint 127:20-2 Ap '64

HAULAGE

See also

Locomotives. Industrial
Mine haulage
Motor trucks
Motor trucks in construction work
Petroleum—Transportation

HAWAII
See also subdivision Hawaii under special subjects, e.g.
Building
Electric utilities
Electricity supply
Geology
Sewerage
Water, Underground
Water supply

HAY
See also
Grasses

HAY drying
Small gas turbine provides drying heat and auxiliary power. R. R. Adams. il ASHRAE J 6:60-1 My '64

HAY handling
See also
Agricultural machinery

HEADLIGHTS, Automobile. See Automobiles—Lighting

HEADPHONES
Product preview section; headphones. il Audio 48:72+ Ag '64
Stereophonic listening headset. il Engineer 217:669 Ap 10 '64

HEALTH
Adolescent looks at his health and medical care. R. W. Deisher and C. A. Mills. Am J Pub Health 53:1928-36 D '63
Agriculture and health. C. G. King. bibliog Food Tech 18:1162-3+ Ag '64
See also
Executives—Health and hygiene

HEALTH education
Health education for responsible parenthood; preliminary considerations. M. S. Calderone. Am J Pub Health 54:1735-40 O '64
See also
Public health—Study and teaching

HEALTH insurance. See Insurance, Health

HEALTH physics society
Meeting and exhibition, Cincinnati, June 15-18; program, floor plan, list of exhibitors. Nucleonics 22:36A-36C+ Je '64

HEALTH records. See Public health records

HEARING
Noise; its effect and control in mining operations. A. Walker. bibliog diags Can Min & Met Bul 56:820-34 N '63; Discussion. P. Moon. 57:98 F '64
Noise suppression on rock drills. J. E. Gordon. Can Min & Met Bul 56:835-8 N '63
Rock drill noise; an approach. A. W. Wallace. diags Can Min & Met Bul 57:1038-41 O '64
See also
Ear—Injuries
Ear—Protection
Noise

Testing

Noisy storm over hearing standards. bibliog il Safety Maint 126:44-5+ D '63
Significance of new reference zero levels for audiometers. H. Davis and F. W. Kranz. Mag of Stand 35:71-5 Mr '64

HEART
Artificial heart keeps calf alive for more than 20 hours. il Product Eng 34:32 D 23 '63
Experimental external defibrillation. A. M. Dolan and others. bibliog il diags Eng J 47:39-43 S '64
Internal cardiac pacemaker. il diags Engineering 197:598-9 My 1 '64
Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63
Portable defibrillator. G. G. Knickerbocker and others. il diags IEEE Trans Power Apparatus & Systems p 1089-93 D '63
Simulating ventricular pump action. H. H. Hara. diags Instruments & Control Systems 37:158-9 Je '64
See also
Electrocardiograph

Diseases

Cardiovascular lesions in experimental copper deficiency in chickens. W. W. Carlton and W. Henderson. bibliog il J Nutrition 81:200-8 N '63
Changes in retail market food supplies in the United States in the last seventy years in relation to the incidence of coronary heart disease, with special reference to dietary carbohydrates and essential fatty acids. M. A. Antar and others. Am J Clinical Nutrition 14:169-78 bibliog(p 177-8) Mr '64
Computer diagnoses heart disease. Electronics 36:80+ D 6 '63
Congestive heart failure, the patient and the community. R. T. Benack. bibliog Am J Pub Health 54:1706-10 O '64
Correlations between water hardness and cardiovascular deaths in Oklahoma counties. R. D. Lindeman and J. R. Assenzo. bibliog map Am J Pub Health 54:1071-7 Jl '64
Dietary fat and coronary heart disease; abstract. A. N. Howard and G. A. Gresham. Chem & Ind p 1220-1 Jl 4 '64
Epidemiologic investigations in relation to diet in groups who show little atherosclerosis and are almost free of coronary ischemic heart disease. F. W. Lowenstein. bibliog(p 184-6) Am J Clinical Nutrition 15:175-86 S '64
Hypertension and cardiovascular abnormalities in starved-refed swine. G. S. Smith and others. bibliog il J Nutrition 82:173-82 F '64
Incidence of coronary artery disease in patients treated with the Sippy diet. W. S. Hartroft. bibliog Am J Clinical Nutrition 15:205-10 O '64
Mortality from heart disease at high altitude. W. E. Morton and others. bibliog Archives Environmental Health 9:21-4 Jl '64
New Mexico cardiovascular disease nursing project. S. J. Leland and others. Am J Pub Health 54:1118-24 Jl '64
Public health program for children with heart disease or rheumatic fever; Manhattan cardiac program. K. D. Brownell and R. K. Stix. Am J Pub Health 53:1587-93 O '63
Studies in ecology of coronary heart disease. L. E. Hinkle, jr. and others. il Archives Environmental Health 9:14-20 Jl '64
Water composition and cardiovascular health. bibliog Am Water Works Assn J 56:369-77 Ap '64
See also
Angina pectoris

HEAT
General exact solutions for the diffusion equations of momentum, heat, and mass in spiral viscous flows. W. J. Yang. bibliog J Ap Phys 35:1749-51 Je '64
See also
Aerodynamics, Hypersonic—Heating effect
Aerodynamics, Supersonic—Heating effect
Calorimeters and calorimetry
Combustion
Evaporation
Expansion (heat)
Insulation (heat)
Refuse incinerators—Heat utilization
Temperature
Thermochemistry
Thermodynamics
Thermoelectricity
Thermomagnetism
Waste heat

HEAT, Specific. See Specific heat

HEAT conduction
Analogical methods in three-dimensional, steady-state heat conduction. H. Schenck, jr. il diags Naval Eng J 76:587-93 Ag '64
Analytical solutions of the equation of heat conduction for a non-homogenous medium. H. S. Heaps and R. D. Srivastava. Can J Chem Eng 42:120-3 Je '64
Application of least squares method to the solution of the inverse problem of heat conduction. I. Frank. A S M E Trans ser C 85:378-9 N '63
Approximate method for the study of heat conduction in bars of arbitrary cross section. P. A. Laura and M. Chi. A S M E Trans ser C 86:466-7 Ag '64
Cryostat for measurement of heat conduction under mechanical loads. S. D. Probert and others. bibliog diags J Sci Instr 41:88-91 F '64
Effect of longitudinal heat conduction on periodic-flow heat exchanger performance. G. D. Bahnke and C. P. Howard. bibliog diags A S M E Trans ser A 86:105-17; Discussion. 117-19; Reply. 119-20 Ap '64
Effects of species diffusion and heat conduction on nonequilibrium flows behind strong shocks. W. E. Gibson and J. D. Buckmaster. bibliog AIAA J 2:1681-8 O '64
Exact solution of the inverse problem in heat conduction theory and applications. O. R. Burggraf. bibliog diag A S M E Trans ser C 86:373-80; Discussion. J. V. Beck. 380-1; Reply. 381-2 Ag '64
Heat conduction in deformed initially isotropic materials. G. C. Sih and G. F. Smith. A S M E Trans ser E 30:628-9 D '63
Influence of conduction on spacecraft skin temperatures. P. Hrycak. bibliog AIAA J 1:2619-21 N '63

HEAT conduction—*Continued*

Interaction of heat transfer by conduction, convection, and radiation in a radiating fluid. R. Viskanta. bibliog diag A S M E Trans ser C 85:318-28 N '63

Simulation of boundary conditions in heat conduction problems in a resistance-capacitance electrical analogue. K. S. Chan and K. R. Rushton. diags J Sci Instr 41:535-40 S '64

Simulation of unsteady-state heat conduction. diags Instruments & Control Systems 37:124-6 Ag '64

Solutions of heat-conduction problems with nonseparable domains. D. Dicker and M. B. Friedman. diags A S M E Trans ser E 30:493-9 D '63

Temperature distribution in a cylindrical rod moving from a chamber at one temperature to a chamber at another temperature. G. Horvay and M. Dacosta. bibliog diag A S M E Trans ser C 86:265-70 My '64

Unsteady one-dimensional heat conduction with a nonlinear boundary condition. P. D. Richardson. A S M E Trans ser C 86:298-9 My '64

See also

Prandtl number

HEAT conductivity

Analysis of corrosive halogen compounds by gas chromatography. R. A. Lantheaume. diags Anal Chem 36:486-8 Mr '64

Angstrom's experiment. D. J. McNeill. diag Am J Phys 32:642-3 Ag '64

Apparatus to measure the thermal conductivity of powders in vacuum from 120 to 350°K. K. Watson and C. A. Bauman. diags R Sci Instr 34:1235-8 N '63

Calibrating thermal conductivity gauges. J. M. Benson. il Instruments & Control Systems 37:115-17 S '64

Capillary gas chromatography using micro-volume thermal conductivity detectors. D. L. Camin and others. bibliog diags Anal Chem 36:1175-8 Je '64

Carbon skeleton chromatography using hot-wire thermal-conductivity detection. M. Beroza and R. Sarmiento. bibliog diags Anal Chem 36:1744-50 Ag '64

Comparisons of materials; thermal conductivity; tables. Materials in Design Eng 60:20 Mid-O '64

Corrections used in the adiabatic measurement of thermal conductivity using the Peltier effect. A. W. Penn. diag J Sci Instr 41:626-8 O '64

Effect of various atmospheres on thermal conductance of refractories. R. C. Young and others. bibliog diag Am Cer Soc J 47:205-10 My '64

Effective thermal conductance from a thin film into liquid helium. H. Seki and I. Ames. bibliog il diags J Ap Phys 35:2069-73 Jl '64

Estimate physical properties accurately: thermal conductivity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:127-8 Ag '64

Find acetone thermal conductivity; nomographs. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:148 Ap '64

Find glycerol thermal conductivity; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:158 Je '64

Find *i*-propanol thermal conductivity; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 42:128 D '63

Heat conductive sheeting: Cellotherm. W. J. Beach. diags Soap & Chem Spec 40:164+ Ag '64

Heat leaks through rarefied gases. S. D. Probert and T. Thomas. J Sci Instr 41:182-3 Mr '64

High-temperature oxidation: thermal conductivity method for oxidation measurements. J. B. Berkowitz-Mattuck. bibliog diag Electrochem Soc J 111:908-12 Ag '64

Lattice thermal conductivity of an isotopically disordered crystal. A. A. Maradudin. bibliog Am Chem Soc J 86:3405-13 S 5 '64

Measurement of thermal conductivity with mercury contacts. C. D. Bopp. bibliog diag Am Cer Soc J 47:151-2 Mr '64

Methods for determining liquid thermal conductivities. R. W. F. Tait and B. A. Hills. bibliog Ind & Eng Chem 56:29-35 Jl '64

Modified thermal conductivity detector for capillary columns. J. A. Petrocelli. diags Anal Chem 35:2220-1 D '63

Platinum as a thermal conductivity standard. G. A. Slack. bibliog J Ap Phys 35:339-44 F '64

Prediction of response factors for thermal conductivity detectors. B. D. Smith and W. W. Bowden. bibliog diag Anal Chem 36:82-6 Ja '64

Re-entry heat conduction of a finite slab with a nonconstant thermal conductivity. W. R. Wells. AIAA J 2:379-81 F '64

Simple device for measuring the thermal conductivity of liquids with moderate accuracy. D. T. Jamieson and J. S. Tudhope. bibliog diags Inst Pet J 50:150-3 Je '64

Structures of very high thermal conductance. G. M. Grover and others. il diag J Ap Phys 35:1990-1 Je '64

Superconducting energy gap of niobium stannide. R. W. Cohen and others. bibliog diag RCA R 25:433-52 S '64

Thermal and electrical properties of heavily doped Ge-Si alloys up to 1300°K. J. P. Dismukes and others. bibliog diag J Ap Phys 35:2899-907 O '64

Thermal conductivities of gas-filled porous solids. J. C. Harper and A. F. El Sahrigi. bibliog diag Ind & Eng Chem Fundamentals 3:318-24 N '64

Thermal conductivity and Lorenz function of gadolinium between 5° and 310°K. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:1043-4 pt 2 Mr '64

Thermal conductivity of epoxy resin systems. H. Hirsch and F. Koved. il Mod Plastics 42:133-4+ O '64

Thermal conductivity of nonpolar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:26-30 Ja '64

Thermal conductivity of some amorphous dielectric solids below 1°K. A. C. Anderson and others. bibliog diags R Sci Instr 34:1386-90 D '63

Thermal conductivity of some freeze-dried fish. G. Lusk and others. il Food Tech 18:1625-8 O '64

Thermal conductivity of α-sulfur. Y. Yoshizawa and others. J Ap Phys 35:1354-5 Ap '64

Thermal conductivity of titanium carbide, zirconium carbide, and titanium nitride at high temperatures. R. E. Taylor and J. Morreale. bibliog Am Cer Soc J 47:69-73 F '64

Thermal conductivity, thermoelectric power, and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

Thermal diffusivity of nickel from 25° to 500°C. E. L. Foley and R. B. Sawyer. bibliog J Ap Phys 35:3053 O '64

Transient thermal diffusivity technique for refractory solids. J. A. Cape and others. bibliog diags J Ap Phys 34:3550-5 D '63

Transport properties of a gas mixture. E. A. Desloge. Am J Phys 32:742-8 O '64

Transport properties of a simple gas. E. A. Desloge. Am J Phys 32:733-42 O '64

Understanding UO_2 thermal conductivity. D. R. de Halas. bibliog Nucleonics 21:92-4 O '63

Up-dating data on thermal conductivity of wrought aluminum alloys; data sheet. Mach 70:139-40 Ag '64

Variational analysis of ablation for variable properties. M. A. Biot and H. C. Agrawal. bibliog diags A S M E Trans ser C 86:437-42 Ag '64

See also

Heat transmission

Textile fabrics—Heat transmission

HEAT convection

Asymptotic solution for combined free and forced convection in vertical and horizontal conduits with uniform suction and blowing. L. F. Carter and W. N. Gill. bibliog diags A I Ch E J 10:330-9 My '64

Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:40-8 F '64

Combined radiation and convection in an asymmetrically heated parallel plate flow channel. E. G. Keshock and R. Siegel. bibliog diags A S M E Trans ser C 86:341-50 Ag '64

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog(p608-10) Ap '64

Cooling high-power equipment by forced-air convection. L. Katz. il diags Electronics 37:69-72 S 21 '64

Determination of forced convection surface-boiling heat transfer. A. E. Bergles and W. M. Rohsenow. bibliog diags A S M E Trans ser C 86:365-72 Ag '64

Effect of gage material on convective heat transfer. D. J. Collins and J. M. Spiegel. AIAA J 2:777-8 Ap '64

HEAT convection—*Continued*

Effects of oscillation on free convection from a vertical finite plate. V. D. Blankenship and J. A. Clark. bibliog diags A S M E Trans ser C 86:149-58 My '64

Experimental effects of transverse oscillations on free convection of a vertical, finite plate. V. D. Blankenship and J. A. Clark. il diags A S M E Trans ser C 86:159-65 My '64

First-order perturbations of laminar free-convection boundary layers on a vertical plate. K. T. Yang and E. W. Jerger. bibliog diag A S M E Trans ser C 86:107-15 F '64

Forced-flow effects on free-convection flow and heat transfer. S. Eshghy. diags A S M E Trans ser C 86:290-1 My '64

Forced, mixed, and free convection regimes. B. Metais and E. R. G. Eckert. A S M E Trans ser C 86:295-6 My '64

Free convective heat transfer to supercritical water experimental measurements. C. A. Fritsch and R. J. Grosh. bibliog flow diag A S M E Trans ser C 85:289-94 N '63

Heat transfer between a gas and a spherical surface with the combined action of free and forced convection. L. S. Klyachko. A S M E Trans ser C 85:355-7 N '63

Heat transfer by natural convection of mercury in enclosed spaces when heated from below and rotated. D. Dropkin and G. Gelb. bibliog diags A S M E Trans ser C 86:203-6 My '64

Interaction of heat transfer by conduction, convection, and radiation in a radiating fluid. R. Viskanta. bibliog diag A S M E Trans ser C 85:318-28 N '63

Laminar natural convection to an isothermal flat plate with a spatially varying acceleration. R. Lemlich and J. S. Steinkamp. bibliog diag A I Ch E J 10:445-7 Jl '64

Natural convection flows in parallel-channel systems. J. C. Chato. diags A S M E Trans ser C 85:339-45 N '63

Short-cut nomograms for natural convection coefficients. A. Devore. bibliog Hydrocarbon Process & Pet Refiner 42:109-14 D '63

Studies of the critical heat-flux for some binary mixtures and their components. M. Carne. bibliog il diags Can J Chem Eng 41:235-41 D '63

Thermal instability of completely confined fluids inside some particular configurations. S. Ostrach and D. Pnueli. bibliog il diags A S M E Trans ser C 85:346-54 N '63

Transient forced convection from a flat plate subjected to a step energy input. D. E. Adams and B. Gebhart. bibliog diags A S M E Trans ser C 86:253-8 My '64

Viscous fluid flow under the influence of a resonant acoustic field. K. R. Purdy and others. bibliog il diags A S M E Trans ser C 86:97-106 F '64

HEAT engines

Magnetic heat engine. H. S. Wolff. il J Sci Instr 41:281 My '64

Pressure drop across regenerator of a Stirling cycle machine. G. Walker. diags Engineer 216:1063-6 D 27 '63

Regenesis. diags Comp Air Mag 69:16-17 My '64

Theory of a ferromagnetic heat engine. F. Brailsford. diags Inst E E Proc 111:1602-6 S '64

See also

Gas turbines

Steam turbines

HEAT exchangers

Air-cooled heat exchangers. E. M. Cook. bibliog il diags Chem Eng 71:137-42 My 25; 131-6 Jl 6; 97-104 Ag 3 '64

Aluminum heat exchangers. il Metallurgia 70: 23 Jl '64

Bimetallic tubes save $10,000/year. il Oil & Gas J 62:160 Mr 16 '64

Cercor: the development of a product. G. P. Smith il diags Res/Develop 14:28-31 N '63

Compact heat exchangers. A. L. London. bibliog il diags Mech Eng 86:47-51 My; 31-4 Je; 33-6 Jl '64

Countercurrent heat exchange with vaporizing immiscible transfer agent. P. Harriott and H. Wiegandt. bibliog diags A I Ch E J 10:755-8 S '64

Dynamics of flow forced distributed parameter heat exchangers. F. J. Stermole and M. A. Larson. bibliog flow diag A I Ch E J 10:688-94 S '64

Epoxy tube plates for heat exchangers. il diag Engineering 196:620-1 N 15 '63

Fabrication of the Molten-salt reactor experiment heat exchanger core. R. G. Donnelly and G. M. Slaughter. bibliog il diags Welding J 43:118-24 F '64

Fluid-temperature transients in a dual-heat-exchanger system. H. Thal-Larsen and W. V. Loscutoff. diags A S M E Trans ser D 86:23-31 Mr '64

Froth-contact heat exchangers. A. Poll and W. Smith. bibliog diag Chem Eng 71:111-16 O 26 '64

Heat exchangers. C. J. King and J. R. Davis. il Machine Design 35:96-8 D 12 '63

Heat exchangers contoured to fit available space. G. J. Haislmaier. Steel 153:29 D 30 '63

Heat transfer in plate and frame exchangers. R. D. Crozier and others. bibliog il diag Chem Eng Prog 60:43-5 Ag '64

Laminar flow in a plate heat exchanger. B. W. Jackson and R. A. Troupe. bibliog il diags Chem Eng Prog 60:62-5 Jl '64

New heat exchanger boosts terminal efficiency. il Oil & Gas J 61:95 D 16 '63

Novel heat exchanger performs variety of processing operations. diag Chem Eng 71: 116 Mr 16 '64

Performance of a mechanically bonded fin heat exchanger. M. W. Milligan. il ASHRAE J 5:51-2 N '63

Piston ring increases heat-exchanger efficiency. W. Coopey. diags Chem Eng 71:182 My 11 '64

Plain and extended surface copper alloy tubes. A. F. Duffie. il diag Chem Eng Prog 60:47-52 Jl '64

Plate heat exchanger in the food industries. R. J. S. Seligman; G. A. Dummett. bibliog il diags Chem & Ind p 1602-12 S 19 '64

Production of long tubes for heat exchangers. il Engineer 218:65 Jl 10 '64

Scope reconstructs flaws in tubes. il Iron Age 192:101 D 12 '63

Seal floating head exchanger tubes without removing covers. V. Amato. diag Hydrocarbon Process & Pet Refiner 43: 196 My '64

Stainless steel tubes hold sea water coolant. il Elec World 162:36 N 9 '64

Technique for minimizing the specific weight of a finned beryllium space radiator. B. S. Leo. diag AIAA J 1:2847-8 D '63

Thilmany's vacu-therm system provides maximum heat recovery. A. W. J. Dyck. il diag Paper Ind 45:651-3 Mr '64

Transient response of gas turbine plant heat exchangers. A. L. London and others. bibliog diags A S M E Trans ser A 86:127-35 Ap '64

See also

Condensers (steam)

Control

Diverting valves cool burners. C. L. Mamzic and B. L. Johnson. il diag Control Eng 11: 94-5 S '64

How to select controls for end use exchangers in htw systems. W. H. Marcinkowski. flow diag il diags Heating-Piping 36:141-56 Mr '64; Discussion. R. E. Prescott. 36:84+; Reply. 86+ S '64

Corrosion

Oxide film protects heat exchanger tubing. Power 107:58 N '63

Porcelain enamel for heat exchange surfaces. H. W. Huffcut. il Am Cer Soc Bul 43:128-30 F '64

Design

Compact heat exchangers; design theory. A. L. London. bibliog il diags Mech Eng 86:47-51 My '64

Fixed tube-sheet heat exchangers. G. B. Boon and R. A. Walsh. bibliog diags A S M E Trans ser E 31:175-80 Je '64

Friction and forced convection heat-transfer characteristics in tubes with twisted tape swirl generators. E. Smithberg and F. Landis. bibliog il diags A S M E Trans ser C 86:39-49 F '64

Helical-tube heat exchangers; abstract. E. M. Smith. diag Engineering 197:232 F 7 '64

How to design finned-tube heat exchangers. D. E. Briggs and others. bibliog il diags Chem Eng Prog 59:49-59 N '63

Optimization study of space radiators. I. Rubin and M. Imber. bibliog diags AIAA J 2:353-8 F '64

Radiation and free convection heat transfer from wire and tube heat exchangers. H. E. Collicott and others. bibliog diags ASHRAE J 5:79-83 D '63

Short-cut nomographs for natural convection coefficients. A. Devore. bibliog Hydrocarbon Process & Pet Refiner 42:109-14 D '63

Thermal method of determining the rate of flow in pipes. il diags Naval Eng J 76: 305-9 Ap '64

HEAT exchangers—Design—*Continued*

Tube supports for heat exchanger. W. C. Martin, jr. il Materials in Design Eng 59:126-7 Ap '64

Vehicular gas turbine periodic-flow heat exchanger solid and fluid temperature distributions. J. R. Mondt. bibliog diags A S M E Trans ser A 86:121-6 Ap '64

Maintenance and repair

Automatic tube-welding guns make leak-proof heat-exchanger joints. il Oil & Gas J 62:120 Ap 27 '64

Eliminate heat-exchanger bottlenecks on-stream. H. C. Bozeman. il Oil & Gas J 61:96-7 O 21 '63

How to clean without shutdown. J. H. Van Sandt. il Oil & Gas J 61:75-6 N 25 '63

Installation and cleaning of stainless digester heater tubes. W. F. Helber and others. il diags Tappi 47:sup 160A-4A Jl '64

Manufacture

Pilot valve controls fluid in tube expander. B. Mazis. diag Hydraulics & Pneumatics 17:78-9 Ap '64

Wound tubing; novel approach to aluminum fabrication. R. R. Irving. il Iron Age 193:73-5 My 7 '64

Tables, calculations, etc.

Effect of longitudinal heat conduction on periodic-flow heat exchanger performance. G. D. Bahnke and C. P. Howard. bibliog diags A S M E Trans ser A 86:105-17; Discussion. 117-19; Reply. 119-20 Ap '64

Heat, mass, and momentum transfer inside frosted tubes; experiment and theory. M. M. Chen and W. Rohsenow. bibliog il diags A S M E Trans ser C 86:334-40 Ag '64

Heat requirements for processing solutions; calculation of heating surfaces. M. J. Reidt. diags Metal Finishing 62:60-6 O '64

Heat transfer through sheet fins. C. Kippenhan and D. F. Schnell. diags A S M E Trans ser C 86:293-5 My '64

How to figure true temperature difference in shell-and-tube exchangers. D. L. Gulley. bibliog diags Oil & Gas J 62:108-14 S 14 '64

Individual row heat transfer in a crossflow in-line tube bank. C. P. Welch and H. N. Fairchild. il diags A S M E Trans ser C 86:143-8 My '64

Rate of scale formation in tubular heat exchangers; mathematical analysis of factors influencing rate of decline of over-all heat transfer coefficients. B. J. Reitzer. bibliog diags Ind & Eng Chem Proc Design 3:345-8 O '64

Reduce trial and error in sizing heat exchangers. F. J. Neugebauer. bibliog diags Product Eng 35:96-9 S 14 '64

Temperature relations in shell and tube exchangers having one-pass split-flow shells. L. Jaw. bibliog diags A S M E Trans ser C 86:408-16 Ag '64

Thermal resistance of pipes and tubing. D. Stuhlbarg. Chem Eng 70:132 N 25 '63

Transient heat transfer in a vapor-heated heat exchanger with arbitrary timewise-variant flow perturbation. W. J. Yang. bibliog A S M E Trans ser C 86:133-42 My '64

What's optimum exchanger pressure drop? F. W. Lohrisch. Hydrocarbon Process & Pet Refiner 43:153-7 Je '64

Testing

New inspection technique uses eddy currents. il diag Product Eng 34:35 D 23 '63

HEAT flux. See Heat transmission

HEAT insulation. See **Insulation (heat)**

HEAT measurement. See **Pyrometers and pyrometry; Temperature—Measurement**

HEAT of adsorption. See **Adsorption, Heat of**

HEAT of combustion. See **Combustion, Heat of**

HEAT of fusion. See **Fusion, Heat of**

HEAT of solution. See **Solution, Heat of**

HEAT of sublimation. See **Sublimation, Heat of**

HEAT pump

All-electric plant; Schweber electronics co. R. L. Hatschek. il diag Mill & Factory 74:82-5 Ap '64

Building owner gets quality at low cost with heat pump. S. Francis. il Elec World 162:91-2 N 2 '64

Cooling capacity measurements of heat pumps. diag Engineering 196:703 N 29 '63

Heat pump employs panel heating as refrigerant condenser. E. L. Weber. il diag Heating-Piping 35:95-7 O '63; Discussion. 36:107-8 Ja '64

Heat pump gives low cost air conditioning. diag Engineering 197:812 Je 12 '64

Heat pump papers cover selection, heat recovery and weather data; ASHRAE symposium. Air Cond Heat & Ven 61:51-5 Mr '64

Heat pump, radiant panels condition electronics plant. il diags Arch Rec 135:170-1 Ja '64

Heat pumps and solar units maintain glass-house temperatures. il diag Plant Eng 18:126-8 Mr '64

Heat pumps bid for large office buildings, industrial plants. H. E. Rex. flow diag il diags Power 108:87-9 O '64

Heat pumps prove successful in Connecticut. il Elec World 162:103+ Jl 27 '64

Heat pumps solve problem in mobile schools. il Elec World 161:148 Je 1 '64

High-performance control and power supply for thermoelectric heat-pumping air-conditioning systems. A. A. Beck. diags IEEE Trans Applications & Ind 83:201-6 Jl '64

Lights, people heat a Wisconsin school. il plan diag Arch Rec 134:194-5 N '63

Maintenance of controlled temperature differences using a thermoelectric heat pump. L. Guczi and H. J. V. Tyrrell. diags J Sci Instr 41:468-9 Jl '64

New energy systems for building services. R. G. Meschino. bibliog diags Gas 40:112-15 Ja; 118-21 Ap '64

Office building or fallout shelter; heat pump provides air conditioning. R. G. Vanderweil. plan diags Heating-Piping 36:119-24 Ap '64

Precision controlled thermoelectric temperature chamber. A. L. Wennerberg. diag R Sci Instr 35:1191-3 S '64

Recover gas engine heat to supplement heat pump. J. B. Olivieri. diag Heating-Piping 35:119-22 N '63

Thermoelectric and thermomagnetic heat pumps. B. Varga and others. bibliog diag J Ap Phys 34:3430-41 D '63

Trichloroethylene conveys heat in air source heat pump serving office building complex; Detroit Edison co. R. E. Polkinghorne. il diag Heating-Piping 35:133-6 My '63; Discussion. 35:85-6 O; 104+ N '63

World's largest gas heat pump air conditions shopping center. il Gas 40:sup3-5, cover S; sup6+ O '64

Cost of operation

Computerizing heat pump operating costs. H. L. Milburn. plan diags ASHRAE J 6:67-71 Ag '64

Heat pumps up North. B. S. Szabo. Air Cond Heat & Ven 61:65-70 S '64

Weather data vs. operating costs. R. G. Werden. ASHRAE J 6:60-4 O '64

HEAT radiation

Adiabatic-wall temperature for flow of a radiation-absorbing gas. R. D. Cess. bibliog A S M E Trans ser C 86:288-9 My '64

Angle factors for radiant interchange between parallel-oriented tubes. E. M. Sparrow and V. K. Jonsson. diags A S M E Trans ser C 85:382-4 N '63

Combined radiation and convection in an asymmetrically heated parallel plate flow channel. E. G. Keshock and R. Siegel. bibliog diags A S M E Trans ser C 86:341-50 Ag '64

Determination of thermal radiation properties of materials. il Engineer 216:656-8 O 18 '63

Diffusion approximation for thermal radiation in gases with jump boundary condition. R. G. Deissler. bibliog diag A S M E Trans ser C 86:240-6 My '64

Direct indicating infra-red radiation meter. D. C. Belsey and W. P. Gabriel. diags J Sci Instr 40:526-8 N '63

Effect of asymmetrical thermal boundary conditions on radiating-fin heat transfer. E. M. Sparrow and V. K. Jonsson. A S M E Trans ser C 86:299-300 My '64

Exergy of heat radiation. R. Petela. bibliog diags A S M E Trans ser C 86:187-92 My '64

Experimental study of radiative transport from hot gases simulating in composition the atmospheres of Mars and Venus. C. S. James. bibliog il diag AIAA J 2:470-5 Mr '64

Geometric mean beam lengths for radiant heat-transfer calculations. R. V. Dunkle. bibliog diag A S M E Trans ser C 86:75-80 F '64

How equipment heat gain warms telephone building. G. C. Blackaller. plans diag Air Cond Heat & Ven 61:94-5 Jl '64

HEAT radiation—*Continued*

Interaction of heat transfer by conduction, convection, and radiation in a radiating fluid. R. Viskanta. bibliog diag A S M E Trans ser C 85:318-28 N '63

Linear acoustic gains and losses in solid propellant rocket motors. R. H. Cantrell and others. bibliog AIAA J 2:1100-5 Je '64

Methods for determining thermal radiation properties of materials developed. Franklin Inst J 276:544-5 D '63

Monte Carlo solution of thermal transfer through radiant media between gray walls. J. R. Howell and M. Perlmutter. bibliog flow charts diags A S M E Trans ser C 86:116-22 F '64

Naturally occurring thermal radiation in the range 1-10 Gc/s. D. L. Croom. bibliog diags Inst E E Proc 111:967-80 My '64

Preliminary estimates of radiative transfer effects on detached shock layers. R. Goulard. bibliog diags AIAA J 2:494-502 Mr '64

Radiant transfer through a gray gas between concentric cylinders using Monte Carlo. M. Perlmutter and J. R. Howell. bibliog flow chart diags A S M E Trans ser C 86:169-79 My '64

Radiation from isotropic volume source with interposing aperture. J. H. Chin. A S M E Trans ser C 86:289-90 My '64

Radiation heat transfer in semigray enclosures with specularly and diffusely reflecting surfaces. R. P. Bobco. bibliog diags A S M E Trans ser C 86:123-30 F '64

Radiation model for nonequilibrium molecular gases. C. F. Hansen. bibliog AIAA J 2:611-16 Ap '64

Radiation slip. R. F. Probstein. bibliog AIAA J 1:1202-4 My '63; Discussion. A. G. Hammitt. 2:975; Reply. 976 My '64

Shock-layer radiation for sphere-cones with radiative decay. J. H. Chin and L. F. Hearne. bibliog AIAA J 2:1345-7 Jl '64

Study of forward combustion in a radial system bounded by permeable media. G. W. Thomas. bibliog J Pet Tech 15:Trans 1145-9 O '63; Discussion. 15:Trans 1370-1 D '63

Thermal radiation of methane gas. R. H. C. Lee and J. Happel. bibliog diag Ind & Eng Chem Fundamentals 3:167-76 My '64

Transport of radiant energy through tapered tubes or tapered gaps. E. M. Sparrow and V. K. Jonsson. A S M E Trans ser C 86: 132 F '64

Two dimensional analysis of a radial heat wave. C. Chu. bibliog il(cover) diag J Pet Tech 15:Trans 1137-44 O '63

Ultraclean furnace utilizing radiation heating. T. Kinsel. bibliog diags R Sci Instr 35:1004-7 Ag '64

See also

Black body

Bolometers

Radiators

HEAT resisting alloys. See Alloys, Heat resisting

HEAT resisting materials

Char Motor. il Engineer 216:658 O 18 '63

Coatings protect refractory metals against oxidation above 2000 F. B. S. Payne, jr. il Res/Develop 15:28-31 Ap '64

For hydraulic systems, drives, dashpots, what's hot in fluids? H. M. Schiefer. il Product Eng 35:101-9 Ag 3 '64

High-temperature materials. I. Stambler. diags Space/Aeronautics 40:81-7 N '63

Jet engine parts; ceramic-like plastics. il diag Plastics World 21:40-1 D '63

Low temperature ceramic solves high temperature problems. A. C. Allen. il Cer Ind 83:52-4+ Ag '64

Mechanical properties of hot-pressed zirconium carbide tested to 2600°C. M. H. Leipold and T. H. Nielsen. bibliog il diag Am Cer Soc J 47:419-24 S '64

Spectroscopic analysis of high-temperature species comparatively simple. A. Snelson. il Res/Develop 15:16-18 F '64

Summary of the seventh meeting of the refractory composites working group; abstract. W. A. Gibeaut and H. R. Ogden. Metal Prog 85:190+ Ap '64

See also

Cermets

Pyroceram

Refractory materials

Steel, Heat resisting

Teflon

HEAT resisting metals. See Metals, Heat resisting

HEAT resisting steel. See Steel, Heat resisting

HEAT storage

Fluidized beds; answer to peak power? J. S. M. Botterill and D. E. Elliott. bibliog Engineering 198:146-7 Jl 31 '64

Hot water and public health. H. W. Angelery. Air Cond Heat & Ven 60:47-9 D '63

More storage heaters. il Engineering 197:304 F 21 '64

Off-peak electric heating storage unit developed and tested. diags Elec World 160: 144-6 N 4 '63

Positive action on heat storage advocated at IEEE meeting. Elec World 161:127-8 F 24 '64

Thermobank heat storage unit may have total energy application. Gas 40:116 Jl '64

HEAT transmission

Advances in heat transfer. T. F. Irvine and J. P. Hartnett, eds. Review, by J. Szekely. Chem & Ind p 1538-40 S 5 '64

Analysis of air arc-tunnel heat-transfer data. D. E. Rosner. bibliog AIAA J 2:945-8 My '64

Analysis of the critical heat-flux condition in high-pressure boiling water flows. F. E. Tippets. bibliog diags A S M E Trans ser C 86:23-33; Discussion. il 33-6; Reply. 36-8 F '64

Analytical study of heat and mass transfer in multiparticle systems at low Reynolds numbers. R. Pfeffer and J. Happel. bibliog A I Ch E J 10:605-11 S '64

Approximation of the eigenvalues for heat transfer in laminar tube slip flow. R. M. Inman. AIAA J 2:373-4 F '64

Asymptotic solution for combined free and forced convection in vertical and horizontal conduits with uniform suction and blowing. L. F. Carter and W. N. Gill. bibliog diags A I Ch E J 10:330-9 My '64

Calorimeter for measuring heat transfer. diag Franklin Inst J 277:291-3 Mr '64

Challenge of heat. Product Eng 35:42-3 Ag 31 '64

Circuit designers can cut costs by early consideration of heat-transfer problems. E. Trunk. il Electronics 37:66-8 S 21 '64

Condensing heat transfer in steam-air mixtures in turbulent flow. P. B. Stewart and others. bibliog flow diag diag Ind & Eng Chem Proc Design 3:48-54 Ja '64

Critical heat flux for nearly saturated water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il diags A S M E Trans ser C 86:59-67 F '64

Critical heat flux for subcooled water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il A S M E Trans ser C 86:68-74 F '64

Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86:12-22 F '64

Diffusion-thermo effects in stagnation-point flow of air with injection of gases of various molecular weights into the boundary layer. E. M. Sparrow and others. bibliog AIAA J 2:652-9 Ap '64

Direct analogy between mass and heat transfer to beds of spheres. A. Sen Gupta and G. Thodos. bibliog diag A I Ch E J 9:751-4 N '63

Direct contact heat transfer for sea water evaporation. C. R. Wilke and others. bibliog flow sheet il diags Chem Eng Prog 59: 69-75 D '63

Direct heat transfer measurements. F. C. Stempel and D. L. Rall. il diags I S A J 11:68-73 Ap '64

Dynamics of heat flow in paper machine calender rolls. W. C. Sawyer. Tappi 47:sup 145A-6A Mr '64

Effect of applied voltage on boiling heat transfer. M. Merkels, jr. and R. L. Durfee. bibliog il A I Ch E J 10:106-10 Ja '64

Effect of diffusion thermo and thermal diffusion for helium injection into plane and axisymmetric stagnation flow of air. E. M. Sparrow and others. bibliog A S M E Trans ser C 86:311-19 Ag '64

Effect of surface tension on factors in boiling heat transfer. J. B. Roll and J. E. Myers. bibliog A I Ch E J 10:530-4 Jl '64

Effect of temperature driving force on heat transfer to a nonequilibrium chemically reacting gas. P. L. T. Brian and S. W. Bodman. bibliog Ind & Eng Chem Fundamentals 3:339-46 N '64

Effect of thermal accommodation on cylinder and sphere drag in free molecule flow. G. S. Springer and S. W. Tsai. bibliog AIAA J 2:126-8 Ja '64

Effects of solid thermal properties on heat transfer to gas fluidized beds. E. N. Ziegler and others. bibliog il diag Ind & Eng Chem Fundamentals 3:324-8 N '64

Evaluation of two methods of tomato juice concentration; heat-transfer coefficients. J. Kopelman and H. C. Mannheim. bibliog il Food Tech 18:907-10 Je '64

HEAT transmission—*Continued*

Experimental investigation of boiling heat transfer and pressure-drop characteristics of Freon 11 and Freon 113 refrigerants. T. A. Blatt and R. R. Adt, jr. bibliog flow diag A I Ch E J 10:369-73 My '64

Film boiling of steam-water mixtures in annular flow at 800, 1100, and 1400 psi. E. E. Polomik and others. bibliog il diags A S M E Trans ser C 86:81-7; Discussion. 87-8 F '64

Flow of second-order fluids with heat transfer. A. C. Srivastava. bibliog AIAA J 2: 749-50 Ap '64

Fluid-temperature transients in a dual-heat-exchanger system. H. Thal-Larsen and W. V. Loscutoff. diags A S M E Trans ser D 86:23-31 Mr '64

Fluidized beds; answer to peak power? J. S. M. Botterill and D. E. Elliott. bibliog Engineering 198:146-7 Jl 31 '64

Forced convection boiling of potassium-mercury systems. Y. S. Tang and others. bibliog il diag A I Ch E J 10:617-20 S '64

Free convection heat transfer up to near-critical conditions. V. E. Holt and R. J. Grosh. flow diag Nucleonics 21:122-5 Ag '63

Free molecular heat transfer near a wall. A. K. Rebrov. AIAA J 2:215-16 Ja '64

Friction and forced convection heat-transfer characteristics in tubes with twisted tape swirl generators. E. Smithberg and F. Landis. bibliog il diags A S M E Trans ser C 86:39-49 F '64

Friction and heat-transfer measurements to turbulent pipe flow of water (Pr = 7 and 8) at uniform wall heat flux. R. W. Allen and E. R. G. Eckert. bibliog diags A S M E Trans ser C 86:301-10 Ag '64

Friction factors for fully developed turbulent flow in ducts with and without heat transfer. G. W. Maurer and B. W. LeTourneau. bibliog il diags A S M E Trans ser D 86: 627-36 S '64

Graphical heat-transfer estimation. R. P. Benedict. bibliog Electro-Tech 73:93-7 Mr '64

h/r heat transfer (cont). B. E. Lauer. Oil & Gas J 61:84 N 25; 49 D 23 '63; 62:105 Ja 13; 115 F 10; 121 F 24; 96 Mr 9; 104 Mr 23; 89 Ap 13; 127 Ap 20; 102 My 4; 143 My 18; 160 Je 8; 59 Je 29; 113 Jl 6; 163 Jl 27; 129 Ag 3; 110 Ag 24; 176 S 7; 78 S 28; 144 O 5; 103 O 19; 89 N 2 '64

Heat and mass transfer in a turbulent bed contactor. W. J. M. Douglas. bibliog diag Chem Eng Prog 60:66-71 Jl '64

Heat and mass transport in multiparticle systems. R. Pfeffer. bibliog Ind & Eng Chem Fundamentals 3:380-3 N '64

Heat flow in connected media of different temperature-dependent conductivities. R. B. Lazarus. diags R Sci Instr 34:1218-19 N '63

Heat flow in welding heavy steel plate. Z. Paley and others. bibliog il diags Welding J 43:sup71-9 F '64

Heat losses from horizontal ducts carrying high velocity air. A. C. Kent and R. G. Nevins. bibliog diags ASHRAE J 6:45-9 Mr '64

Heat transfer and forces for free-molecule flow on a concave cylindrical surface. E. M. Sparrow and others. bibliog diags A S M E Trans ser C 86:1-9; Discussion. 9-11 F '64

Heat transfer and pressure drop of refrigerants evaporating in horizontal tubes. R. C. Johnston, jr. and J. B. Chaddock. ASHRAE J 6:91-2 My '64

Heat transfer at zero Prandtl number in flows with variable thermal properties; discussion. AIAA J 2:1864-5 O '64

Heat transfer characteristics of fluids moving in a Taylor system of vortices. C. Y. Ho and others. bibliog diags A I Ch E J 10: 194-202 Mr '64

Heat transfer coefficients for a hot gas oscillating at high amplitudes in a cylindrical chamber. M. D. Horton and others. bibliog diag A I Ch E J 10:580-3 Jl '64

Heat transfer due to hydromagnetic channel flow with conducting walls. K. Jagadeesan. AIAA J 2:756-8 Ap '64

Heat transfer flowmeter has no pressure drop. diags Space/Aeronautics 41:259 Ja '64

Heat transfer for petroleum fractions. D. L. Voss and others. Hydrocarbon Process & Pet Refiner 43:130-4 Jl '64

Heat transfer for turbulent flow in rectangular ducts with two heated and two unheated walls. J. L. Novotny and others. bibliog diag A I Ch E J 10:466-70 Jl '64

Heat transfer from nonequilibrium ionized argon gas. C. Park. bibliog AIAA J 2:169-71 Ja '64

Heat transfer in film boiling with pulsating pressures. D. A. Di Cicco and R. J. Schoenhals. bibliog diags A S M E Trans ser C 86:457-60; Discussion. J. D. Parker. 460; Reply. 460-1 Ag '64

Heat transfer in plate and frame exchangers. R. D. Crozier and others. bibliog il diag Chem Eng Prog 60:43-5 Ag '64

Heat transfer in spouted beds. M. A. Malek and B. C. -Y. Lu. bibliog diags Can J Chem Eng 42:14-20 F '64

Heat transfer in the critical region; temperature and velocity profiles in turbulent flow. R. D. Wood and J. M. Smith. bibliog diags A I Ch E J 10:180-6 Mr '64

Heat transfer in the cylinders of reciprocating internal combustion engines. W. J. D. Annand. bibliog Inst Mech Eng Proc 177 no 36:973-90; Discussion. 991-5; Reply. 995-6 '63

Heat transfer on power law bodies. A. W. Maddox. AIAA J 2:1474-5 Ag '64

Heat transfer, symposium series abstracts. il Chem Eng Prog 60:77+ Ap '64

Heat transfer through low-density cellular materials. R. H. Harding. bibliog diags Ind & Eng Chem Proc Design 3:117-25 Ap '64

Heat transfer to boiling refrigerants 12 and 22; tr. by O. J. Nussbaum. G. V. Ratiani and D. V. Agaliani. bibliog diag ASHRAE J 5:53-5 D '63

How to rate finned-tube convection section in fired heaters. J. L. Schweppe and C. Q. Torrijos. bibliog diag Hydrocarbon Process & Pet Refiner 43:159-66 Je '64

Improved nucleate boiling heat transfer. R. K. Young and R. L. Hummel. bibliog il diag Chem Eng Prog 60:53-8 Jl '64

Insulator boundary layers in magnetohydrodynamic channels. F. J. Hale and J. L. Kerrebrock. bibliog AIAA J 2:461-9 Mr '64

Laminar flow in a plate heat exchanger. B. W. Jackson and R. A. Troupe. bibliog il diags Chem Eng Prog 60:62-5 Jl '64

Laminar flow of a heat-generating fluid in a parallel-plate channel. E. M. Sparrow and others. bibliog A I Ch E J 9:797-804 N '63

Laminar heat transfer to non-Newtonian fluids in the entrance region of a circular conduit. R. A. Pawlek and C. Tien. bibliog diag Can J Chem Eng 42:223-7 O '64

Laminar, transitional, and turbulent heat transfer after a sharp convex corner. V. Zakkay and others. bibliog diag AIAA J 2:1389-95 Ag '64

Liquid-metal heat transfer. R. D. Brooks and C. F. Bonilla. bibliog Nucleonics 22:43-8 Mr '64

Longitudinal dispersion of thermal energy through porous media with a flowing fluid. D. W. Green and others. bibliog diags A I Ch E J 10:645-51 S '64

Measurement of heat transfer coefficients for stove checkers. J. M. Ridgion and B. Kerrison. bibliog il diags Iron & Steel Inst J 202:315-18 Ap '64; Discussion. 202:849-55 O '64

Mechanism of heat transfer to a fixed surface in a fluidized bed. E. N. Ziegler and W. T. Brazelton. bibliog diag Ind & Eng Chem Fundamentals 3:94-8 My '64

Momentum and heat transfer correlations for a reacting gas in turbulent pipe flow. M. J. Callaghan and D. M. Mason. bibliog A I Ch E J 1052-5 Ja '64

Monte Carlo solution of radiant heat transfer in a nongrey nonisothermal gas with temperature dependent properties. J. R. Howell and M. Perlmutter. bibliog flow chart diag A I Ch E J 10:562-7 Jl '64

National heat transfer conference, 7th, Cleveland, Aug. 9-12; abstracts of papers. Chem Eng 71:213-16 O 12 '64

National heat transfer conference, 7th, Cleveland, Aug. 9-12; with program. Chem Eng Prog 60:108-10 Je '64; Mech Eng 86:106-7 Je '64

Particle-to-gas heat transfer in fluidized beds. A. C. Juveland and others. bibliog diags Ind & Eng Chem Fundamentals 3:329-33 N '64

Plastic spots enhance heat transfer. il Can Chem Process 48:69+ O '64

Plotting a plasma's profile. il Chem Eng 71:32 Ag 31 '64

Prediction of wall shear stress distribution in the eccentric annulus. W. T. Snyder. diag A I Ch E J 10:418-19 My '64

Propellant erosive burning. M. J. Zucrow and others. bibliog diags Chem Eng Prog 60:43-5 F '64

Radiation and free convection heat transfer from wire and tube heat exchangers. H. E. Collicott and others. bibliog diags ASHRAE J 5:79-83 D '63

HEAT transmission—*Continued*

Rate of heat transmission measured from 25° to 1200°C. Chem & Eng N 42:50+ O 19 '64

Response of highly precise balances to thermal gradients. L. B. Macurdy. bibliog il diags J Res Nat Bur Stand 68C:135-40 Jl '64

Simultaneous radiative and convective heat transfer in an absorbing, emitting, and scattering medium in slug flow between parallel plates. J. C. Chen. bibliog diags A I Ch E J 10:253-9 Mr '64

Sophisticated heat transfer upgrades solar water-desalting. Chem Eng 71:79-80 Je 22 '64

Spotted surfaces give high heat-transfer coefficients. Chem & Eng N 42:39 Ag 24 '64

Stratification in a pressurized container with sidewall heating. J. M. Ruder. bibliog diag AIAA J 2:135-7 Ja '64

Studies of the critical heat-flux for some binary mixtures and their components. M. Carne. bibliog il diags Can J Chem Eng 41:235-41 D '63

Temperature distribution and heat transfer in annular two-phase (liquid-liquid) flow. M. Bentwich and S. Sideman. bibliog Can J Chem Eng 42:9-13 F '64

Temperature recovery factors for flow longitudinal to a circular cylinder. E. M. Sparrow and D. P. Fleming. bibliog AIAA J 2:386-7 F '64

Thin-film radiative heat-transfer gage. R. M. Nerem and G. H. Stickford. bibliog diag AIAA J 2:1647-9 S '64

Transformations of the compressible turbulent boundary layer with heat exchange. L. Crocco. bibliog AIAA J 1:2723-31 D '63

Transistor heat dissipators; special report. bibliog il diags Electronics 37:83-106 S 7 '64 (reprints 50c)

Transitional behavior for the simultaneous mass and heat transfer of gases flowing through packed and distended beds of spheres. A. Sen Gupta and G. Thodos. bibliog Ind & Eng Chem Fundamentals 3:218-20 Ag '64

Transpiration cooling of a turbulent boundary layer in an axisymmetric nozzle. J. Librizzi and R. J. Cresci. bibliog diag AIAA J 2:617-24 Ap '64

Transport from extended surfaces. S. K. Stynes and J. E. Meyers. bibliog diags A I Ch E J 10:437-44 Jl '64

Turbulent contact absorber. H. R. Douglas and others. il diags Chem Eng Prog 59:85-9 D '63

Turbulent pipe flow heat transfer with a simultaneous chemical reaction of finite rate. P. L. T. Brian. bibliog A I Ch E J 9:831-41 N '63

Two-phase gas-liquid convection heat transfer. E. J. Davis and M. M. David. bibliog Ind & Eng Chem Fundamentals 3:111-18 My '64

See also
Blast furnace stoves
Emissivity
Glass—Heat transmission
Heat conduction
Heat conductivity
Heat convection
Heat exchangers
Heat radiation
Insulation (heat)
Textile fabrics—Heat transmission

Electric analogies

Analogical methods in three-dimensional, steady-state heat conduction. H. Schenck, jr. il diags Naval Eng J 76:587-93 Ag '64

Calculation of temperature distribution in glass tanks by use of a special-purpose electric analog. A. R. Cooper, jr. and R. C. Buchanan. bibliog il diag Am Cer Soc J 46:588-92 D '63

Complex problems solved with models. M. A. Albright. diags Hydrocarbon Process & Pet Refiner 43:135-8 Jl '64

Simulation of boundary conditions in heat conduction problems in a resistance-capacitance electrical analogue. K. S. Chan and K. R. Rushton. diags J Sci Instr 41:535-40 S '64

Tables, calculations, etc.

Analytical solutions of the equation of heat conduction for a non-homogeneous medium. H. S. Heaps and R. D. Srivastava. Can J Chem Eng 42:120-3 Je '64

Approximate method for calculating heat transfer in glass furnace regenerators. J. N. Edmondson. diags Glass Ind 45:117-20+ Mr '64

Boiling heat transfer with cryogenic fluids at standard, fractional, and near-zero gravity. H. Merte, jr. and J. A. Clark. bibliog il diags A S M E Trans ser C 86:351-8; Discussion. 358-9 Ag '64

Condensation heat transfer in the presence of a noncondensable gas. E. M. Sparrow and S. H. Lin. bibliog diag A S M E Trans ser C 86:430-6 Ag '64

Confirmation of Gambill-Greene straight-flow burnout heat flux equation at higher flow velocity. J. Mayersak and others. il A S M E Trans ser C 86:297-8 My '64

Cooling capacity measurements of heat pumps. diags Engineering 196:703 N 29 '63

Determination of forced convection surface-boiling heat transfer. A. E. Bergles and W. M. Rohsenow. bibliog diags A S M E Trans ser C 86:365-72 Ag '64

Direct-contact heat transfer between a single drop and an immiscible liquid medium. S. Sideman and H. Shabtai. il diag Can J Chem Eng 42:107-17 bibliog(p 115-17) Je '64

Dominant unstable wavelength and minimum heat flux during film boiling on a horizontal cylinder. J. H. Lienhard and P. T. Y. Wong. bibliog il diags A S M E Trans ser C 86:220-5; Discussion. 225-6 My '64

Effect of wall electrical conductance on magnetohydrodynamic heat transfer in a channel. J. T. Yen. bibliog A S M E Trans ser C 85:371-7 N '63

Film boiling on a horizontal tube in increased gravity fields. M. L. Pomerantz. bibliog il diags A S M E Trans ser C 86:213-18; Discussion. 218-19 My '64

Forced-flow effects on free-convection flow and heat transfer. S. Eshghy. diags A S M E Trans ser C 86:290-1 My '64

Geometric mean beam lengths for radiant heat-transfer calculations. R. V. Dunkle. bibliog diag A S M E Trans ser C 86:75-80 F '64

Heat transfer from a rotating disk with a stepwise discontinuous surface temperature. N. M. Schnurr. A S M E Trans ser C 86:467-8 Ag '64

Heat transfer through sheet fins. C. Kippenhan and D. F. Schnell. diags A S M E Trans ser C 86:293-5 My '64

Heat transfer to mercury flowing in-line through a bundle of circular rods. M. W. Maresca and O. E. Dwyer. bibliog flow sheet diags A S M E Trans ser C 86:180-6 My '64

Heat transfer to the turbulent separated flow of air downstream of a step in the surface of a plate. R. A. Seban. bibliog A S M E Trans ser C 86:259-64 My '64

Hot-wire measurements of turbulence correlations in a triangular duct. C. J. Cremers and E. R. G. Eckert. bibliog diags A S M E Trans ser E 29:609-14 D '62; Discussion. 30:636-7 D '63

How to figure cooling coils. M. A. Ramsey. diags Air Cond Heat & Ven 60:67-70 N; 50-2 D '63

Laminar flow heat transfer to a gas with large temperature differences. W. M. Kays and W. B. Nicoll. bibliog diags A S M E Trans ser C 85:329-38 N '63

Laminar heat transfer in a channel with unsteady flow and wall heating varying with position and time. R. Siegel and M. Perlmutter. bibliog diag A S M E Trans ser C 85:358-65 N '63

Limits on wall-thickness in the thin-wall calorimeter heat flux gauge. S. A. Gordon. bibliog diag A S M E Trans ser C 86:291-3 My '64

Measurement of the total transmittance of rock salt samples. S. M. DeCorso and J. W. Coltman. diag A S M E Trans ser A 86:495-6 O '64

Measurements of burnout conditions for flow of boiling water in a vertical annulus. K. M. Becker and G. Hernborg. bibliog flow diag diags A S M E Trans ser C 86:393-404; Discussion. M. Petrick. 404; Reply. 404-7 Ag '64

Methods of analysis of precooling data. I. J. Pflug and J. L. Blaisdell. bibliog ASHRAE J 5:33-40+ N '63

Nonlinear fin heat transfer. M. H. Cobble. bibliog diags Franklin Inst J 277:206-16 Mr '64

Numerical method for the solution of the energy equation for steady turbulent heat transfer. M. R. Strunk and F. F. Tao. bibliog A I Ch E J 10:269-73 Mr '64

Prediction of temperature in a rolling contact bearing assembly. T. A. Harris. bibliog diag Lub Eng 20:145-9; Discussion. 149-50 Ap '64

HEAT transmission—Tables. calculations. etc. —*Continued*

Radiation slip. R. F. Probstein. bibliog AIAA J 1:1202-4 My '63; Discussion. A. G. Hammitt. 2:975; Reply. 976 My '64

Solutions of heat-conduction problems with nonseparable domains. D. Dicker and M. B. Friedman. diags A S M E Trans ser E 30:493-9 D '63

Some effects of the orientation of the heating surface in nucleate boiling. P. M. Githinji and R. H. Sabersky. A S M E Trans ser C 85:379 N '63

Summary of experiments on local heat transfer from the rear of bluff obstacles to a low speed airstream. H. H. Sogin. bibliog diags A S M E Trans ser C 86:200-2 My '64

Temperature distribution in a cylindrical rod moving from a chamber at one temperature to a chamber at another temperature. G. Horvay and M. Dacosta. bibliog diag A S M E Trans ser C 86:265-70 My '64

Transient response of wire resistance thermometers. A. Quarmby. Roy Aeronautical Soc J 68:696-9 O '64

Use of temperature-sensitive coatings for obtaining quantitative aerodynamic heat-transfer data. R. A. Jones and J. L. Hunt. il AIAA J 2:1354-6 Jl '64

HEAT treatment

Beryllium-copper alloys. K. G. Wikle and L. D. Alspach. il diags Machine Design 36:162-8 Jl 16 '64

Cast irons and steels; heat treatment. J. F. Wallace and L. Leonard. Machine Design 36:198-200 Mr 12 '64

Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64

Effect of heat treatment on the optical properties of heavily doped silicon and germanium. W. G. Spitzer and others. bibliog J Ap Phys 35:206-11 Ja '64

Exotic metals challenge to heat treaters. il Steel 153:115 D 9 '63

Fluidized beds; heat treatment as well? il diag Engineering 198:177-8 Ag 7 '64

Heat treatment and fabrication of wrought titanium alloys; data sheet. Metal Prog 85:106 Ap '64

Heat-treatment of anodic oxide films on tantalum. D. M. Smyth and others. bibliog diags Electrochem Soc J 110:1264-76 D '63; Discussion. G. J. Korinek. 111:762-3; Reply. 763-4 Je '64

Heat treatment of René 41. J. T. Stacy. il Metal Prog 85:92-5 Mr '64

Hints on heat treating parts of powdered iron. V. Pryer. il Metal Prog 85:91-3 Ap '64

How to heat treat beryllium copper. J. B. Kuhn. il Metallurgia 68:155-9 O '63

How to improve dimensional stability in precision metal parts. D. O'Boyle. il diags Machine Design 36:113-17 Ja 30 '64

Iron powder parts, their processing and evaluation. C. R. Weymueller. il Metal Prog 85:156+ F '64

New heat treatments for Inconel X-750. H. L. Eiselstein and R. E. Crickmer. Metal Prog 84:116-17 N '63

1964 production preview; heat treating. Am Mach 108:140-2 Ja 20 '64

Thin foil gets heat treatment in feed-through furnace. A. W. Young. il Iron Age 193:80-1 Je 25 '64

See also

Aluminum alloys, Heat treatment of

Annealing

Case hardening

Electric furnaces, Heat treating

Furnaces, Heat treating

Quenching

Steel, Heat treatment of

Tempering

HEAT treatment of steel. See Steel, Heat treatment of

HEAT treatment shops

Control equipment

Automatic heat-treatment improves quality. B. Strothman. il diag Mach 70:134-6 Mr '64

Equipment

Continuous process for heat treating aluminum strip. Light Metal Age 21:20 D '63

Drive for scale-free surfaces. C. L. Kobrin. il Iron Age 194:113-20 O 8 '64

Heat treatment plant installed at Wolsingham steel co. il Metallurgia 69:9 Ja '64

Lindberg story; blueprint for job shop growth. il Steel 154:42-6 Mr 23 '64

New heat treat line offers production flexibility. F. J. Crowley. il Foundry 92:116+ Ja '64

New heat treating line for coal mining equipment. C. P. Little and P. A. Williams. il Metal Prog 86:88-90 S '64

Specialised heat treatment service. il Engineer 218:547-8 O 2 '64

HEATERS

Forced-air heaters win drilling converts. il Oil & Gas J 61:124-6 O 28 '63

How to rate finned-tube convection section in fired heaters. J. L. Schweppe and C. Q. Torrijos. bibliog diag Hydrocarbon Process & Pet Refiner 43:159-66 Je '64

Mobile heater aids pavement renewal. il Eng N 172:58 Je 11 '64

Unit heater capacity factor; graph. J. D. Constance. Power 107:75 N '63

See also

Electric heaters

Feed water heaters

Gas heaters

Oil heaters

Water heaters

Manufacture

Space heater finish had to stand 400° to 500°F. Ind Finishing 40:104-5 Ag '64

HEATING

Generation of elastic waves by transient surface heating. R. M. White. bibliog il diags J Ap Phys 34:3559-67 D '63

More solid fuel progress. il Engineering 198:220 Ag 14 '64

Off-peak electric heating storage unit developed and tested. diags Elec World 160:144-6 N 4 '63

Plumbing, heating, and cooling Fantasia; New York world's fair. il plan diags Dom Eng 204:85-102 Ag '64

Refrigerant vapor heating-cooling system. O. S. Lieberg. il diag Air Cond Heat & Ven 61:62-4 S '64

Thermoelectric systems of cooling and heating. A. B. Newton. il diags Heating-Piping 35:123-7 O; 152-4 N; 125-8 D '63

See also

American society of heating, refrigerating and air-conditioning engineers

Automobiles—Heating and ventilation

Boilers, Heating

Building—Heating aspects

Chimneys

Electric heaters

Electric heating

Fireplaces

Fuel

Gas heaters

Gas heating

Heat pump

Heating, Warm air

Heating from central stations

Hot water heating

Insulation (heat)

Lighting—Heating aspects

Oil burners

Oil heaters

Refractory materials

Solar heating

Steam heating

Swimming pools—Heating

Ventilation

also subdivision Heating and ventilation under special subjects, e.g.

Air raid shelters

Apartment houses

Barns and stables

Chemical laboratories

Churches

College buildings

Factories

Grandstands

Greenhouses

Hospitals

Laboratories

Library buildings

Motels

Moving picture theaters

Office buildings

Post offices

School buildings

Steam plants

Steel works

Store buildings

Bibliography

Book reviews (cont). Air Cond Heat & Ven 60:120+ N; 95-6 D '63; 61:108-9 Ap; 129-30 My; 122 Je; 114 Jl; 139-40 S; 148-9 O '64

Books and reports. Published in monthly numbers of Heating, piping and air conditioning

HEATING—Bibliography—*Continued*

Trade literature. Published in monthly numbers of Heating, piping and air conditioning

Trade literature supplement. Heating-Piping 36:2-68 pt 2 Ap; 2-74 pt 2 S '64

Control

See also
Thermostats

Costs

Computerizing heat pump operating costs. H. L. Milburn. plan diags ASHRAE J 6:67-71 Ag '64

Engineering study points up expense of excessive ventilation. D. Harper. Heating-Piping 35:133-4 D '63

How heat gains affect fuel bills. C. C. Thomas. Air Cond Heat & Ven 60:61-6 N '63

Old and new values in space heating. C. B. Hershey. bibliog ASHRAE J 5:53-4 O '63; Discussion. 5:87 D '63; 6:12+ Ja '64; Am Gas Assn Mo 45:7+ D '63

Radiant heating

Mean radiant and operative temperature for high-temperature sources of radiant heat. A. P. Gagge and others. bibliog il ASHRAE J 6:67-71 O '64

See also
Electric heating—Radiant heating

Tables, calculations, etc.

Automatic heating and air-conditioning calculations. D. D. Eschbach, jr. ASHRAE J 6:62-3 My '64

Experimental analysis of solar heat gain through insulating glass with indoor shading. C. W. Pennington and others. bibliog il diags ASHRAE J 6:27-39 F '64

United States degree days. Published in monthly numbers of Air conditioning, heating and ventilating

Weather data vs. operating costs. R. G. Werden. ASHRAE J 6:60-4 O '64

See also
Heat radiation

HEATING, Electric. See Electric heating

HEATING, Industrial

Are your fired-heater test data correct? R. D. Reed. diag Oil & Gas J 61:123-4 N 4 '63

Cold weather; cold paint; a remedy. Ind Finishing 40:58 N '63

Field stress relief of process vessels. il Welding Eng 49:52 Jl '64

Flame control; safety factor in process heating. E. F. Buonanno. diags Plant Eng 18:128-30 Jl '64

Gas-fired immersion-tube-heated tanks. il Engineer 216:959 D 6 '63

Hot machining. I. A. Dickter. il diags Mech Eng 86:37-41 Ja '64

Hydronic boiler technique reduces fire hazard. il diag Safety Maint 127:63-4 Ap '64

Radiant heat gains popularity. il Chem & Eng N 42:58-9 Mr 2 '64

Thermal liquid heating of molding presses. A. H. Bellac. il diags Rubber World 149:31-5 Mr '64

See also
Drying apparatus
Electric heating, Industrial
Furnaces, Heating
Furnaces, Recuperative and regenerative
Gas heating, Industrial
Heat treatment
Hot water heating
Infrared rays—Industrial heating
Ovens
Paint—Drying
Pebble heaters
Steam heating, Industrial
Steel, Heat treatment of
Welding

HEATING, Infrared

Fixture angles and placement pinpoint infrared heating. R. L. Boyd. il diags Plant Eng 18:110-15 O '64

Gas-fired infrared units heat ten million cu ft plant. il Heating-Piping 36:116-19 My '64

Gas infrared heaters provide comfort heating at Virginia plant; fuel savings result. il Air Cond Heat & Ven 61:89-90 Ag '64

Gas infra-red spot heating. il Glass Ind 45:204 Ap '64

High-intensity infrared heaters. bibliog diags ASHRAE J 5:42-8 D '63

Infrared for people heating. il Safety Maint 127:45-6 F '64

Infra-red heaters warm warehouse economically. il Gas 39:74 D '63

Infrared heating for outdoor tanks. J. Molnar. il diags Elec Constr & Maint 63:82-3 Jl '64

Outdoor infra-red heat lengthens track season. il Gas Age 131:28-9 Jl '64

612 infra-red heaters warm galvanizing mill. il Gas 40:118-20 Ja '64

HEATING, Warm air

Building height and costs lowered by underground air duct. C. B. Miller. il plan Air Cond Heat & Ven 61:60-3 Ap '64

Choose warm air to heat church. J. R. Rush. il plan diag Heating-Piping 36:130-1 Ag '64

Comparative performance of systems used for year-around air conditioning of Research residence 2. J. R. Wright. bibliog il plans diags ASHRAE J 5:67-74 N '63

Heat inflated swimming pool shelter. il Heating-Piping 36:48 S '64

Thermobloc heater with swivelling air distribution head. il Engineer 217:145 Ja 17 '64

Tables, calculations, etc.

Ceiling-line temperature; graph; data sheet. J. D. Constance. Power 108:94 S '64

HEATING boilers. See Boilers, Heating

HEATING contracts

It's the law! legal decisions of interest to contractors. Published in monthly numbers of Domestic engineering

Law and your profits. Published in monthly numbers of Heating, piping and air conditioning

HEATING effect in aerodynamics. See Aerodynamics, Hypersonic—Heating effect; Aerodynamics, Supersonic—Heating effect

HEATING equipment

Annual equipment specification digest; heating. il Air Cond Heat & Ven 61:19+ Ja '64

Equipment developments. Published in monthly numbers of Heating, piping and air conditioning

New equipment and materials. Published in monthly numbers of Air conditioning, heating and ventilating

New products on parade. Published in monthly numbers of Domestic engineering

Parts and products. Published in monthly numbers of ASHRAE journal

See also
Heat pump

Control

Three pipe control considerations. R. M. Barth. il diags ASHRAE J 5:53-8 N '63

Vernier tuning improves comfort from heating. R. F. Stephan. diags Heating-Piping 36:104-6 Ag '64

Design

Heat losses from horizontal ducts carrying high velocity air. A. C. Kent and R. G. Nevins. bibliog diags ASHRAE J 6:45-9 Mr '64

Exhibitions

International heating, ventilation and air-conditioning exhibition, London, April 20-25. il Engineer 217:789-90, 823-5 My 1-8 '64; Engineering 197:504-5 Ap 10 '64

National air-conditioning, heating and refrigeration exposition, 13th, Chicago, Jan. 20-23; with floor plan and list of exhibitors. Heating-piping 36:201-4 Ja '64

WACIA show, Los Angeles, Feb. 12-15; ARI show, Chicago, Jan. 20-23; with floor plan and lists of exhibitors. Air Cond Heat & Ven 61:11-18 Ja '64

Noise

Quiet high-velocity air distribution. V. V. Cerami and N. S. Shataloff. diags Air Cond Heat & Ven 61:71-80 Ag '64

HEATING from central stations

Douglas Aircraft elects to purchase chilled and ht water, compressed air. flow diag il plan Air Cond Heat & Ven 60:69-71 D '63

Field investigation of underground heat distribution systems. F. A. Govan and H. A. Borger. ASHRAE J 6:53-8+ My '64

Hartford story. L. Smith. il plan diags Heating-Piping 36:114-21 S '64

NDHA considers chilled water as a utility; panel discussion. Heating-Piping 36:112-13 Ag '64

Nuclear power heats a town in Sweden. W. Pichel. flow diag diags ASHRAE J 6:101-3 Mr '64

Oil heating goes central. il Engineering 197:784 Je 5 '64

Underground piping, district cooling, and a guide; annual meeting of National district heating association, Niagara Falls, Ontario. Air Cond Heat & Ven 61:67-70 Ag '64

HEATING furnaces. See Furnaces, Heating

HEATING industry

Why be low man on the totem pole of public esteem? B. Hamilton. Dom Eng 203: 72-3 Ja '64

See also

Heating contracts

Advertising

Ideas, to fire up your hydronic heating sales. il Dom Eng 203:88-98 Mr '64

Directories

Annual specifying and buying directory of products for heating, 1963-64. Air Cond Heat & Ven 61:119-20+ Ap '64

1964 directory; heating, piping, and air conditioning equipment for industrial, commercial, institutional and public buildings; classified by products, trade names, manufacturers' addresses. Heating-Piping 36:sup 1d-210d Ja '64

HEATING pipes

See also

Heating, Warm air

Hot water heating

HEATING, refrigerating and air-conditioning engineers, American society of. See American society of heating, refrigerating and air-conditioning engineers

HEATING research

Calculating human comfort. P. Kranz. bibliog diag ASHRAE J 6:68-77 S '64

Effect of floor surface temperature on comfort. R. G. Nevins and others. ASHRAE J 6:97-8 Je '64

Kansas State to dedicate research institute, continue ASHRAE environmental program. E. A. Bajster. il plans ASHRAE J 5:27-30 N '63

Kansas state university dedicates its Institute for environmental research. il Heating-Piping 35:23-4 D '63

Mean radiant and operative temperature for high-temperature sources of radiant heat. A. P. Gagge and others. bibliog il ASHRAE J 6:67-71 O '64

Old and new values in space heating. C. B. Hershey. bibliog ASHRAE J 5:53-4 O '63; Discussion. 5:87 D '63; 6:12+ Ja '64; Am Gas Assn Mo 45:7+ D '63

HEAVY media separation. See Sink and float process

HEAVY water. See Water—Heavy water

HEAVY water reactors. See Nuclear reactors —Heavy water reactors

HEELS, Plastic

Wide plastics usage in footwear. il Brit Plastics 37:472-9 S '64

HELICAL gearing. See Gearing, Spiral

HELICOPTERS

Civil aviation to 1970. R. Horonjeff and G. Ahlborn. bibliog diags Am Soc C E Proc 90 [AT 1 no 3891]:1-15 My '64

Development of French helicopters. P. H. L. Morain. il diags Roy Aeronautical Soc J 68:675-81; Discussion. 681-2 O '64

Evaluation of helicopter service in distribution company operations. A. B. Schloemer. il Gas 40:79-81 Je '64

Fixed-wing aircraft would land like a helicopter. il Machine Design 36:14 Je 4 '64

Helicopters: Sioux Scout. il Product Eng 34:77 D 9 '63

See also

Autogiros

Heliports

Blades

Helicopter rotor spar production. il Aircraft Eng 36:245 Ag '64

Helicopter spar gauging methods. il Engineering 198:126 Jl 24 '64

Helicopters switch blades. il Product Eng 35: 47 S 28 '64

Production of helicopters and hovercraft; abstract. E. Mensforth. diag Engineering 197: 553 Ap 17 '64

Rotor blade harmonic air loading. R. H. Miller. bibliog diag AIAA J 2:1254-69 Jl '64

Unsteady air loads on helicopter rotor blades. R. H. Miller. bibliog diags Roy Aeronautical Soc J 68:217-28; Discussion. 228-9 Ap '64

Whip-cracking blades double helicopter speed. il Machine Design 35:14 N 7 '63

Control

Togetherness pays off in power pack. S. Bangs. il diag Hydraulics & Pneumatics 17:136-7 My '64

Design

Development of the P.531. T. L. Ciastula. il diags Roy Aeronautical Soc J 68:399-413; Discussion. 414-17 Je '64

Forged titanium components for helicopters. il Light Metal Age 22:25 Je '64

Hot-cycle compound helicopter design has novel features. M. Harned and H. O. Nay. il diags S A E J 71:36-9 D '63

Some aspects of turboshaft engine installations in multi-engined helicopters. J. D. Sibley. Roy Aeronautical Soc J 68:391-7; Discussion. 397-8 Je '64

2000-year-old idea powers helicopter. R. R. Kay. il Iron Age 194:46 Jl 30 '64

Engineering use

Airlift for 400 kv transmission tower materials. il Engineering 197:327 F 28 '64

Big helicopters solve big problem; moving rigs in western Siberia. il Oil & Gas J 62: 112-13 Je 8 '64

Choppers lift drilling rigs into Colombian jungle. il map Oil & Gas J 62:82 Ap 20 '64

Copter places big pipe on roof. il Eng N 173:29 Jl 30 '64

'Copter rigs solve jungle drilling. L. C. Rogers. il Oil & Gas J 62:161+ My 11 '64

'Copter surveys 345-kv line through wilderness. il Elec World 162:72 Jl 27 '64

Copters cut time and cost. il Pet Management 36:116-17+ Je '64

Custom made for West Virginia. J. F. Skinner. il Gas 40:76-9 S '64

Flying crane proves out in flat terrain. P. Mako. il Elec World 162:62 S 7 '64

Helicopter added to crane hire fleet. il Engineering 198:373 S 18 '64

Helicopter exploration costs in northern Canada. C. E. G. Brown. Can Min & Met Bul 57:282-6 Mr '64

Helicopter rigs speed Yukon seismic work. il Oil & Gas J 62:250+ S 21 '64

Helicopter saves time and cost in line construction. E. L. Isaac. il Elec World 161: 24-5 Mr 2 '64

Helicopter, walkie-talkies save contractor time, money. il Heating-Piping 36:182-3 Je '64

Helicopters conduct survey off Holland. il Oil & Gas J 62:123 Ja 27 '64

Increasing the efficiency of helicopters on transmission-line construction. E. S. Zobel and R. A. Kravits. il Civil Eng 34:72-3 Je '64

Surveyors shoot at moving targets. Eng N 172:105 Ap 2 '64

Landing

Coast guard cutters to have HY-80 flight decks. il Welding Eng 49:75 Ap '64

Method of measuring helicopter landing loads. M. J. H. Harding. il diags Roy Aeronautical Soc J 68:323-9 My '64

Manufacture

Helicopter rotor spar production. il Aircraft Eng 36:245 Ag '64

Precious Metal Depositors silver plated helicopter engine bearings. il Metallurgia 69:83-4 F '64

Sikorsky turns to titanium forgings for high-performance helicopters. H. W. Bredin. il Mach 70:88-93 Jl '64

Vacuum-injection method molds newest epoxy helicopter part. il Plastics Tech 10:16 O '64

Noise

Recording aircraft noise to 100 kc. A. R. Soffel. il diags Audio Eng Soc J 12:214-20 Jl '64

Rotors

See Helicopters—Blades

Vibration

Elastomeric-and-steel sandwich spring dampens helicopter vibrations. il diag Product Eng 35:64-5 Jl 20 '64

HELIPORTS

Design

Heliport location and design. A. E. Slocombe. map plan Roy Aeronautical Soc J 68:529-34 Ag '64

Lighting

Heliport flight-deck lighting at World's fair. il Elec Constr & Maint 63:117-18+ Ag '64

HELIUM

Bombardment of tungsten with 20-keV helium atoms in a field ion microscope. M. K. Sinha and E. W. Müller. bibliog il diags J Ap Phys 35:1256-61 Ap '64

Cataphoresis in helium-neon mixtures. A. L. Schmeltekopf, jr. bibliog diags J Ap Phys 35:1712-17 Je '64

Direct measurement of atomic lifetimes; helium. T. M. Holzberlein. il diags R Sci Instr 35:1041-6 Ag '64

HELIUM—*Continued*

Effect of diffusion thermo and thermal diffusion for helium injection into plane and axisymmetric stagnation flow of air. E. M. Sparrow and others. bibliog A S M E Trans ser C 86:311-19 Ag '64

Effect of partition function cutoff upon the thermodynamic properties of atomic hydrogen and helium to 100 000°K. J. C. Hester and K. G. Sewell. bibliog J Ap Phys 35: 729-30 Mr '64

Electrical conduction and breakdown in argon and helium at temperatures from 1500°K to 2500°K. D. W. George. bibliog il diags Inst E E Proc 110:2063-72 N '63

Electron monochromator utilizing the scattering resonance in helium. J. A. Simpson and others. R Sci Instr 34:1454-5 D '63

Flowmeter for measuring very low rates of helium gas flow. R. M. Black and others. diag J Sci Instr 41:345-6 My '64

Insulated storage controls helium pressure. diag Space/Aeronautics 40:94-5 N '63

Intermolecular-force effects on the thermodynamic properties of helium with application. E. F. Harrison. bibliog AIAA J 2: 1854-6 O '64

Lifetime of helium-neon lasers. R Turner and others. bibliog diags R Sci Instr 35:996-1001 Ag '64

Pipeline gas from coal using nuclear heat. L. J. Pieroni and others. bibliog flow diag diag Chem Eng Prog 60:58-63 Je '64

Power output of the 6328 A helium-neon maser as a function of the resonant cavity length. S. S. Alpert and A. D. White. IEEE Proc 51:1665-6 N '63

Proposed nomenclature for helium allotropes. J. G. Daunt and others. bibliog Phys Today 17:50-1 Ja '64

Reduction of warm-up rate within a Dewar system by helium desorption. P. D. Gianino. R Sci Instr 35:910 Jl '64

Removal of tritium from He^3. K. L. Erdman and others. diag R Sci Instr 34:1280-1 N '63

Studies of the properties of the hollow cathode glow discharge in helium and neon. D. J. Sturges and H. J. Oskam. bibliog diag J Ap Phys 35:2887-94 O '64

Temperature control for helium refrigerator. Engineering 196:767 D 13 '63

Thermodynamic properties of high-temperature helium. J. C. Hester and K. G. Sewell. bibliog AIAA J 2:1329-32 Jl '64

See also

Gas, Natural—Helium content

Analysis

Chromatographic method for determination of trace impurities in grade-A helium. A. Purer and C. A. Seitz. diags Anal Chem 36:1694-5 Jl '64

Gas chromatographic analysis of hydrogen-helium gas mixtures. E. H. Baum. Anal Chem 36:438-9 F '64

Isotopes

Design of ^{3}He-filled fast proportional counters. J. L. Friedes and R. E. Chrien. bibliog diags R Sci Instr 35:469-72 Ap '64

^{3}He-Ne-CH_4 mixtures in a proportional counter for thermal neutrons. V. E. Krohn, jr. il diags R Sci Instr 35:853-4 Jl '64

Investigation of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64

Isotope can be used as low-temperature standard. Chem & Eng N 42:51-2 Ja 27 '64

Measuring precisely near absolute zero: helium-3 and low-temperature thermometry. W. J. Hauback and W. L. Taylor. il diags Res/Develop 15:19-23 S '64

Thermal diffusion recovers helium-3 isotope. il diag Chem Eng 70:64+ N 25 '63

Manufacture

Canada's first helium plant operating at partial capacity. il Oil & Gas J 62:71 Mr 30 '64

Canadian plant eases world's helium pinch. il Chem Eng 71:46+ Mr 30 '64

Extraction of helium from natural gas. il Engineering 196:568 N 1 '63

Helium recovery plant. il Engineer 218:36-7 Jl 3 '64

Largest helium plant operational on Bureau line; National helium corp. R. Martin. il Pet Management 35:248 N '63

New plant contributing valuable helium. il Pet Management 35:168-9 N '63

HELIUM, Liquid

Air Reduction plans national distribution of helium. Chem & Eng N 42:25 Je 8 '64

Another liquid helium level indicator. R. Ries and C. B. Satterthwaite. R. Sci Instr 35: 762-3 Je '64

Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64

Effective thermal conductance from a thin film into liquid helium. H. Seki and I. Ames. bibliog il diags J Ap Phys 35:2069-73 Jl '64

Efficient bulk transfer of liquid helium as a superfluid. W. F. Giauque. R Sci Instr 35: 904-5 Jl '64

Fast pace of scientific progress. il Comp Air Mag 69:22 F '64

Kerr-McGee takes deeper step in cryogenics field. il diag Oil & Gas J 62:50-1 Ag 10 '64

Liquid helium transfer tube. M. W. Dowley and R. D. Knight. diag R Sci Instr 34: 1449-50 D '63

Superconducting level gauges; vanadium and tinned constantan. B. F. Figgins and others. J Sci Instr 41:520 Ag '64

Superfluid helium container of Mylar construction. T. H Moss and others. diag R Sci Instr 34:1267-8 N '63

Two new plants liquefy helium. G. Y. Robinson, jr. flow sheet il Hydocarbon Process & Pet Refiner 43:153-5 Jl '64

HELMETS, Welders

Getting welding out of the dark. il Welding Eng 49:50 S '64

HELMINTHOSPORAL. See Fungi

HEMATINS

Analysis

Aseptic canning of foods; hematin and volatile sulfur compounds in strained beef. B. S. Luh and others. bibliog Food Tech 18:216-18 F '64

HEMATITE

Rate-controlling step and rate equation for the reduction of haematite with hydrogen in a fluidised bed. G. R. Venkitakrishnan and G. N. Bhat. bibliog J Ap Chem 14:141-7 Ap '64

HEMICELLULOSE

Hemicelluloses of sisal fiber (agave sisalana). P. P. Mukherjee. bibliog Textile Res J 34: 179 F '64

Separation of lignin sulfonates from hemicelluloses by electrophoresis-convection. W. Q. Yean and D. A. Goring. bibliog il diags Tappi 47:16-19 Ja '64

Xanthation and dexanthation of some hemicellulose fractions. I. Croon and A. Donetzhuber. bibliog diag Tappi 46:648-51 N '63

HEMLOCK

Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64

HEMLOCK (herb). See Conium maculatum

HEMOGLOBIN

Epidemiological analysis of the hemoglobin picture in parturient women of Jerusalem. S. L. Kark and others. bibliog Am J Pub Health 54:947-60 Je '64

More evidence supports crevice concept. A. H. Corwin. diags Chem & Eng N 41:42 D 2 '63

HEMOPHILIA

Social adaptation in chronic illness; a study of hemophilia. A. H. Katz. Am J Pub Health 53:1666-75 O '63

HEMPSTEAD, Long Island

Sanitary affairs

Unique incinerator develops power and provides salt water conversion. C. R. Velzy and C. O. Velzy. il diag Pub Works 95:90-5 Ap '64

HEPARIN

Manufacture of heparin. H. G. Hind. bibliog il Manuf Chem 34:510-14 N '63

Synthesis of *O*-α-D-glucopyranosyl-(1→4)-2-amino-2-deoxy-α-D-glucopyranose hydrochloride. M. L. Wolfrom and others. bibliog Chem & Ind p545 Mr 28 '64

HEPATITIS, Infectious. See Jaundice

HEPATITIS virus

Elusive etiologic agents of viral hepatitis. R. W. McCollum. bibliog Am J Pub Health 53:1630-4 O '63

HEPBURN, Arthur Japy

Obituary. por Naval Eng J 76:485-6 Je '64

HEPTACHLOR

Comparison of some granular carriers for chlordan and heptachlor against the imported fire ant. W. F. Barthel and C. S. Lofgren. J Agri & Food Chem 12:339-42 Jl '64

HEPTADIENE

Cyclization to a five-membered ring in the free-radical reaction of iodoperfluoroalkanes with 1,6-heptadiene. N. O. Brace. bibliog Am Chem Soc J 86:523-4 F 5 '64

HEPTANE

Second solvent improves extraction. D. G. Hutton. bibliog diag Hydrocarbon Process & Pet Refiner 43:138-40 Ag '64

HERBICIDES. See Weeds—Control

HEREDITY

See also

Genetics

HEREDITY of diseases

Familial factors in human lung cancer and smoking. G. K. Tokuhata. bibliog diag Am J Pub Health 54:24-32 Ja '64

Radiation and heredity. H. J. Muller. Am J Pub Health 54:42-50 pt 2 Ja '64

Sickle cell trait in relation to infection. W. Weiss. bibliog Archives Environmental Health 8:480-2 Mr '64

HERNIA

Inguinal herniorrhaphy: immediate return to unrestricted work; surgical techniques using local anesthesia. C. J. Bellis. bibliog il Ind Med 33:721-5 O '64

HERRING

Cold storage of retail-packed fillets of mackerel and herring. A. Liljemark. bibliog Food Tech 18:380-2 Mr '64

HERRINGBONE gearing. See Gearing, Herringbone

HETEROCYCLIC compounds

Electron transfer through organic structural units; aromatic and heterocyclic carboxylates as bridging groups in oxidation-reduction reactions. E. S. Gould and H. Taube. bibliog Am Chem Soc J 86:1318-28 Ap 5 '64

1H-cyclohepta[*d,e*]-1-pyrindine; a new conjugate-unsaturated heterocyclic system. L. L. Replogle. bibliog Am Chem Soc J 86:3137-42 Ag 5 '64

Heterocyclic nitrogen ylides. R. A. Olofson and others. Am Chem Soc J 86:1865-6 My 5 '64

Heterocyclic studies; the tautomeric structure of 3(5)-methyl-4-phenylpyrazole. J. A. Moore and C. L. Habraken. bibliog Am Chem Soc J 86:1456-7 Ap 5 '64

Heterocyclics may separate steroid activities. R. Pappo and C. J. Jung. Chem & Eng N 42:46-7 Ap 20 '64

New general heterocycle synthesis; use of acetylene dicarboxylic esters. J. B. Hendrickson and others. bibliog Am Chem Soc J 86:107-11 Ja 5 '64

New heteroaromatic compounds; derivatives of 4,3-borazaroisoquinoline. M. J. S. Dewar and R. C. Dougherty. bibliog Am Chem Soc J 86:433-6 F 5 '64

New heteroaromatic compounds; two analogs of triphenylene and a possible route to borazarene. G. C. Culling and others. bibliog Am Chem Soc J 86:1125-7 Mr 20 '64

Novel six-membered aluminum-nitrogen heterocycles *via* metalative cyclization. J. J. Eisch and M. E. Healy. bibliog Am Chem Soc J 86:4221-2 O 5 '64

Polyphosphine heterocycles. W. Mahler. Am Chem Soc J 86:2306-7 Je 5 '64

Reaction gives heterocyclics, carbocyclics. E. E. Schweizer and others. il Chem & Eng N 42:68-9 Jl 13 '64

Synthesis of a novel steroid heterocyclic system. E. W. Cantrall and others. Am Chem Soc J 86:2943-4 Jl 20 '64

Synthetic methods of organic chemistry; vol. 16. W. Theilheimer: Five- and six-membered compounds with nitrogen and oxygen (excluding oxazoles). R. H. Wiley, ed. Review by A. R. Katritzky. Chem & Ind p 1944-5 D 14 '63

Thiazolo[3.2-a]pyridinium ion; a new aromatic heterocyclic system. C. K. Bradsher and D. F. Lohr, jr. Chem & Ind p 1801 O 24 '64

Unsaturated heterocyclic systems. L. A. Paquette. bibliog Am Chem Soc J 86:4092-9 O 5 '64

HEXACHLOROCYCLOHEXANE

Mechanism of the dehydrochlorination of β-benzene hexachloride. J. Hine and others. Am Chem Soc J 85:3894 D 5 '63

HEXACHLOROCYCLOPENTADIENE

Reaction of hexachlorocyclopentadiene with alcohols and potassium hydroxide. W. H. Chang. bibliog diags Chem & Ind p709-10, 1491-2 Ap 25, Ag 22 '64

HEXACHLOROPHENE

Detection of dichlorophene, hexachlorophene, and other related bisphenols by gas liquid chromatography. P. J. Porcaro. bibliog Anal Chem 36:1664-6 Jl '64

Separation of hexachlorophene from organic matter prior to spectrophotometric estimation. V. D. Johnston and P. J. Porcaro. bibliog Anal Chem 36:124-6 Ja '64

HEXADECANE

Nuclear radiation-induced cracking of *n*-hexadecane. E. O. Guernsey and others. bibliog diags A I Ch E J 9:744-50 N '63

Specific retentions of monofunctional organic solutes in monofunctional hexadecyl derivatives. A. B. Littlewood. bibliog Anal Chem 36:1441-51 Jl '64

HEXADECANOL

Hexadecyl alcohol, a new material for cosmetic formulations. W. W. Edman and W. H. Lowden. Drug & Cosmetic Ind 93:631-2+ N '63

HEXADIENE

Cycloaddition: evidence of a biradical intermediate in the thermal addition of 1,1-dichloro-2,2-difluoroethylene to the geometrical isomers of 2,4-hexadiene. L. K. Montgomery and others. bibliog Am Chem Soc J 86:622-8 F 20 '64

HEXAFLUOROBUTADIENE

Configuration of C_8F_{12}, a saturated dimer of hexafluorobutadiene. I. L. Karle and others. diag Am Chem Soc J 86:2523 Je 20 '64

HEXAFLUOROPHOSPHATE

Gravimetric determination of hexafluorophosphate as tetraphenylarsonium hexafluorophosphate. H. E. Affsprung and V. S. Archer. Anal Chem 35:1912-13 N '63

HEXAMETHYLENE tetramine

Radical anions of adamantane and hexamethylenetetramine. K. W Bowers and others. Am Chem Soc J 85:3707 N 20 '63

Reaction kinetics of the formation of hexamethylenetetramine. R. K. Wood and W. F. Stevens. bibliog flow diag J Ap Chem 14:325-30 Ag '64

Manufacture

Hexamine; the Leonard process co. diag Hydrocarbon Process & Pet Refiner 42:177 N '63

HEXANE

Kihara and Lennard-Jones parameters for the isomeric hexanes. R. G. Griskey and others. bibliog diag A I Ch E J 10:584+ Jl '64

More insight into adsorption design. J. M. Campbell and others. bibliog diags Hydrocarbon Process & Pet Refiner 42:89-96 D '63

Polarization phenomena in electrical tests on hexane. A. A. Zaky and H. House. bibliog J Ap Phys 34:3194-9 N '63

Thermo properties of hydrocarbons: thermodynamic properties of *n*-hexane. L. N. Canjar and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 Je '64

HEXENE

Alkylation of benzene with 1-hexene using aluminum chloride-nitroalkane catalysts. H. S. N. Setty and H. W. Prengle, jr. bibliog Ind & Eng Chem Fundamentals 3:300-4 N '64

1,4-Chlorine shift and an estimate of the rate enhancement owing to chlorine participation in the addition of trifluoroacetic acid to 5-chloro-1-hexene. P. E. Peterson and E. V. P. Tao. Am Chem Soc J 86:4503-4 O 20 '64

HEXOSES

Mass spectra of O-isopropylidene derivatives of pentose and hexoses. D. C. De Jongh and K. Biemann. bibliog Am Chem Soc J 86:67-74 Ja 5 '64

HI-FI systems. See High fidelity sound systems

HIGH altitude flying. See Aviation—Altitude flying

HIGH buildings

Air conditioning a 41 story office building. L. R. Flook. il plans diag Heating-Piping 35:118-23 D '63

Boston's Prudential Tower puts new life into Back Bay. il Eng N 172:38-9 F 20 '64

Chicago's tallest topped out. il Eng N 173:29 O 15 '64

CBS headquarters; two hoists, two cranes pace four-day cycle. il diag Eng N 172:64-7 My 21 '64

HIGH buildings—*Continued*

Compact utilities hold down cost of high-rise laboratory. il plan diags Eng N 172:60-2 Ap 2 '64

Concrete skyscraper; shear walls built on the cross. il plan Eng N 173:70-2 O 8 '64

Construction loads on slabs with shored formwork in multistory buildings. P. Grundy and A. Kabaila. Am Concrete Inst J 60:1729-38 D '63; Discussion. 61:2081-3; Reply. 2084 pt 2 Je '64

Different kind of skyscraper; First Pasadena state bank, Pasadena, Tex. il plans Arch Forum 120:122-5 Mr '64

Economical office tower. il plans diags Arch Rec 135:153-6 My '64

Elevatoring high-rise apartment buildings. G. R. Strakosch. diags Arch Rec 135:191-2+ Je '64

Escalators shrink a Dallas tower. il Eng N 172:16 Ja 16 '64

First tower at M.I.T.; Earth sciences building, designed by alumnus I. M. Pei. il Arch Rec 136:135-8 O '64

45-story tower sits on 180-ton piles. il Eng N 173:65 Ag 6 '64

Golden Gateway; construction. D. Gillis. il Civil Eng 34:38-9 Ja '64

Golden Gateway; superstructures. S. E. Teixeira. il plans Civil Eng 34:36-9 Ja '64

How columns will be designed for 110-story buildings of New York's World trade center. il diags Eng N 172:48-9 Ap 2 '64

Innovation in Chicago. il plans Arch Rec 135:133-8 Ja '64

No towers atop this tower. il Eng N 173:92-3 Ag 6 '64

Office building complexes; a great port city planned for New York's lower west side. il plans diags Arch Rec 135:188-9 Mr '64

Philadelphia savings fund society building. W. H. Jordy and H. Wright. il diags Arch Forum 120:124-9+ My '64

Plumbness in high rise structural steel buildings. J. S. Storch. il diags Welding J 43:753-6 S '64

Private supplement to a civic undertaking; Blaustein building, Baltimore. il plans diag Prog Arch 45:132-7 Mr '64

Seagram buildings for Toronto. il Prog Arch 45:61 My '64

Skyscrapers grow in a cluster in Buenos Aires. Eng N 173:50 S 10 '64

Slipforms accelerate erection of concrete towers. J. F. Camellerie. il diag Eng N 172:24-5 Je 25 '64

Structural analysis of multistory buildings. R. W. Clough and others. diags Am Soc C E Proc 90 [ST 3 no 3925]:19-34 Je '64

Tall towers will sit on deep foundations. M. S. Kapp. il diags Eng N 173:36-8 Jl 9 '64

Temperature stresses in tall reinforced concrete buildings. P. Weidlinger. il diags Civil Eng 34:58-61 Ag '64

Tower and town houses in Philadelphia. il plans Arch Rec 136:110-13 Ag '64

Twin towers; Manhattan's World trade center. il plan diags Comp Air Mag 69:12-15 Mr '64

Twin towers to go 110 stories; World trade center in New York city. il diags Eng N 172:33-4 Ja 23 '64

Two towers planned for Toronto. il Eng N 172:24 Ap 23 '64

Vest-pocket skyscraper in Hollywood. il plans diag Arch Forum 120:114-17 Ap '64

World's biggest skyscrapers have New York up in the air. il plan diags Arch Forum 120:118-21 Mr '64

World's largest buildings proposed for Manhattan. il diags Prog Arch 45:57-9 F '64

Yama designs 110-story World trade center. il plan diags Arch Rec 135:14-15 F '64

HIGH energy rate forming. See Sheet metal work

HIGH fidelity sound systems

Audio and hi fi in West Germany. C. G. McProud. il map Audio 48:47-62 N '64

Audio clinic. J. Giovanelli. Published in monthly numbers of Audio

Basic questions and answers. C. Faye. Audio 48:36+ F '64

Current publications on audio. Audio Eng Soc J 12:262 Jl '64

Electronic music studio for the independent composer. G. Mumma. bibliog il Audio Eng Soc J 12:240-4 Jl '64

Equipment profile. Published in monthly numbers of Audio

Hi fi and the British. A. G. Watling. Audio 48:53 Je; 38 S '64

New products. Published in monthly numbers of Audio

New York high fidelity show; floor plans and list of exhibitors. Audio 48:80+ O '64

Open baffle parallel-series array. R. S. Oakley, jr. diags Audio 47:30+ D '63

Power. M. Horowitz. diags Audio 48:25-6+ Mr '64

Product preview section. il Audio 48:28-48+ Ag '64

Recorder increases dynamic range of high-fidelity recordings. diags Electronics 37:25 Je 29 '64

Single-ended wide-range electrostatic tweeters with high efficiency and improved dynamic range. K. O. Johnson. il diags Audio Eng Soc J 12:204-9 Jl '64

Stradford hi-fi-tv Adaptor model 480. il Radio-Electronics 35:67 O '64

Transistors, videotape, highlight the 1963 N.Y. high fidelity show. R. N. Angus. Mod Phot 28:98+ Ja; 90+ F '64

Very low voltage relay operation. R. L. Ives. il diag Audio 48:36 Ja '64

See also

Phonograph—High fidelity systems

Control

Houseful of hi-fi. H. M. Honig. il diags Audio 48:42+ Mr '64

Maintenance and repair

Start an audio service business? L. Eugene. il Radio-Electronics 35:40-2, cover Je '64

Noise

Hum sniffer. L. E. Greenlee. il diags Radio-Electronics 35:52-4 O '64

Testing

Techniques of making live-versus-recorded comparisons. E. Villchur. il diag Audio 48:34+ O '64

Tuning

Product preview section; tuners; fm, am, or am-fm. il Audio 48:36-40 Ag '64

HIGH frequency fluorescent lighting. See Electric lamps, Fluorescent

HIGH frequency heating. See Electric heating, Industrial—High frequency heating

HIGH pressure. See Pressure

HIGH pressure plants. See Steam plants—High pressure

HIGH school students

ACS local sections honor students, teachers. Chem & Eng N 42:68+ Je 22 '64

High school students use computers. il Chem & Eng N 42:48+ Ap 27 '64

School leaving due to pregnancy in an urban adolescent population. O. C. Stine and others. Am J Pub Health 54:1-6 Ja '64

Survey of the smoking habits of students of Newton high school; a cooperative project. L. Bajda. Am J Pub Health 54:441-6 Mr '64

Teenagers win ACS awards at Science fair. il Chem & Eng N 42:92-3 Je 1 '64

HIGH schools

College manner placed on high school science. il Chem & Eng N 42:44-5 My 11 '64

HIGH temperature. See Temperature

HIGH voltages

Application of new concepts to 500-kv system insulation co-ordination. E. H. Gehrig and others. bibliog diags IEEE Trans Power Apparatus & Systems p41-7; Discussion. 47-8 Ja '64

Artificial-pollution test for high-voltage outdoor insulators. C. H. A. Ely and P. J. Lambeth. bibliog diags Inst E E Proc 111:991-8 My '64; Discussion. 111:1589-92 S '64

BIL's, other characteristics fixed for VEPCo's 500-kv equipment. C. L. Rudasill and C. L. Wagner. il Elec World 161:98-101 Ap 20 '64

Britain weighs ehv transmission over 400 kv. J. H. M. Sykes. il map Elec World 161:24-5+ My 25 '64

Close-coupled hardware eliminates ehv grading rings. R. W. Harmon. il diags Elec World 161:128-9 Ap 20 '64

Complete ehv pipe-type cable plant. il Power Eng 68:56 O '64

Compound circuit-type, 70,000 mva, high voltage test lab completed. il Elec World 160:49-50 D 30 '63

Computer model picks ehv conductors. J. J. Laforest and C. B. Lindh. il Elec World 160:91-3 D 2 '63

Constructing electrical systems; high voltage. il diags Elec Constr & Maint 63:205-6+ My '64

Effect of autoreclosing circuit breakers on transient stability in e.h.v. transmission systems. W. D. Humpage and B. Stot. bibliog flow diag diags Inst E E Proc 111:1287-98 Jl '64

HIGH voltages—*Continued*
800kV transmission line research at Leatherhead. il Engineer 217:949-50 My 29 '64
Electrical constants and relative capabilities of bundled-conductor transmission lines. A. F. Gabrielle and others. bibliog diags IEEE Trans Power Apparatus & Systems p78-88; Discussion. p89-91; Reply. 91-2 Ja '64
Energy transportation, conference, 1st, St Louis, Nov. 10-12; abstracts of papers. Coal Age 68:122-6 D '63; Elec World 160: 99-106 D 2 '63
Engineering design features of the Pinard-Hanmer 500-kv transmission line. N. J. McMurtrie and others. bibliog map diags IEEE Trans Power Apparatus & Systems p54-60; Discussion. 60-2 Ja '64
Experimental evaluation of power-line carrier propagation on a 500-kv line. D. E. Jones and B. Bozoki. bibliog diag IEEE Trans Power Apparatus & Systems p 16-20; Discussion. 20-3 Ja '64
Experimenting with high voltage ac lines. il Engineering 197:781-2 Je 5 '64
Ehv nesting-cone insulators announced. il Elec World 162:138 S 21 '64
Ehv places new demands on power circuit breaker insulation levels. R. E. Bednarek and others. Elec World 161:70-2 Je 29 '64
Ehv surge testing facilities expanded at the Ohio Brass high voltage laboratory. il Elec World 161:36 Je 22 '64
Ehv tower's insulation matched to surge levels. J. G. Anderson. il Elec World 161: 54-5+ Ja 27 '64
Ehv transmission patterns vary; winter meeting of IEEE. diags Elec World 161:75-8 F 24 '64
Extra-high-voltage transmission systems; texts of papers. bibliog il maps diags IEEE Trans Power Apparatus & Systems 83:197-296 Mr '64; Discussion. 83:297-304, 422-42 Mr-Ap '64
480/960-v distribution proposed. Elec World 161:22 Mr 2 '64
Free Germans open hv school lab. il Elec World 162:99 N 2 '64
Fundamental frequency voltages due to single-phase earth faults on h.v. lines with resistance earthing. J. S. Vosper. bibliog diags Inst E E Proc 110:1990-2000 N '63
Future ehv apparatus needs and ratings in profile. A. J. Stegeman. il Elec World 161: 60-6 Ja 13 '64
High-voltage a.c. power systems in ships. Engineer 217:52 Ja 3 '64
High voltage deuterium filled grid controlled rectifiers. B. O. Baker and R. J. Wheldon. bibliog diags Electronic Eng 36:24-9 Ja '64
High-voltage d-c test program of the Bonneville power administration. R. S. Gens and R. F. Stevens. bibliog il maps diags IEEE Trans Power Apparatus & Systems p 1054-60; Discussion. 1060-1 D '63
High voltage d-c transmission, an engineering challenge. J. H. Harlow. il diags Power Eng 68:37-9 Ap '64
High-voltage d-c transmission; general background and present technical status. A. U. Lamm. bibliog il diags IEEE Trans Power Apparatus & Systems p62-9; Discussion. 69-70; Reply. 70-1 Ja '64
High voltage flash photolysis lamp. L. Lindqvist. bibliog il diag R Sci Instr 35:993-5 Ag '64
High-voltage mercury-arc switch for heavy-current pulse duty. A. J. Booth and J. H. Holliday. il diags Inst E E Proc 110:1985-9 N '63
High-voltage power transmission. L. O. Barthold and H. G. Pfeiffer. il maps diags Sci Am 210:38-47 My '64
High-voltage power transmission could endanger pipelines. maps diags Oil & Gas J 62:105+ Je 15 '64
High voltage pulse probe of fast rise time for spark chambers. J. Fischer. il R Sci Instr 35:125-6 Ja '64
How and why of strong magnetic fields. N. Kurti. bibliog il diags Inst Metals J 93: 1-10 '64-65
Indirect tests verify ratings of 500-kv circuit breakers. R. G. Colclaser, jr. diag Elec World 162:108-9+ O 19 '64
Influence of soil-moisture migration on power rating of cables in h.v. transmission systems. A. N. Arman and others. bibliog plan diags Inst E E Proc 111:1000-16 My '64
Interest in ehv and atomic power grows with more installations. Power Eng 68:41+ Jl '64
Investigation of corona loss and radio interference from transmission line conductors at high direct voltages. R. M. Morris and B. Rakoshdas. bibliog il diags IEEE Trans Power Apparatus & Systems p5-14; Discussion. 14-15; Reply. 15-16 Ja '64
Kerr cell measuring system for high voltage pulses. D. C. Wunsch and A. Erteza. bibliog diags R Sci Instr 35:816-20 Jl '64
Keystone ehv stations pinpointed. map Elec World 161:117 Mr 23 '64
Lists Cornell ehv test achievements. L. I. Komives. Elec World 162:67 N 2 '64
Mercury-arc valves for high-voltage d.c. transmission. U. Lamm. il diags Inst E E Proc 111:1747-53 O '64
New concepts solve ehv relaying. il diags Elec World 161:52-3+ Ja 27 '64
1964 Technical fortnight of Paris. D. T. Braymer. il Elec World 161:89+ Je 15 '64
Non-metallic cable distribution at 480/277 in discount department store. A. N. Reichel. il diags Elec Constr & Maint 63:80-4 Ja '64
Novel principle of transient high-voltage generation. R. A. Fitch and V.T. S. Howell. bibliog il diags Inst E E Proc 111:849-55 Ap '64
O-B's impulse generator nears completion. il Elec World 161:36 Ja 6 '64
Ontario Hydro's ehv line passes the halfway mark. il map Power Eng 68:65-7 Je '64
Operation and control of hv d-c transmission. P. G. Engström. diags IEEE Trans Power Apparatus & Systems p71-7 Ja '64
Polymer insulator for high-voltage transmission lines. F. C. Vose and F. S. Nichols. il Elec Eng 82:684-8 N '63
Predict and control switching-surge levels on ehv systems. D. D. Wilson and D. E. Hedman. il Elec World 160:36-7+ D 30 '63
Progress in direct current transmission. il Engineer 217:1157-8 Je 26 '64
Protective relaying for ehv systems. J. L. Blackburn. diags Westinghouse Eng 24:72-7 My '64
Reliability and economy guide SCEC's ehv substation design. C. E. Asbury and others. il diags Elec World 161:36-9+ Mr 9 '64
Self-propelled car for ehv construction. il Elec World 161:81 Je 29 '64
Servo comparator amplifier handles high voltages. J. S. MacDougall. diags Electronics 37:75-6 Ag 10 '64
Significance of extra-high-voltage standards around the world. L. O. Barthold and E. M. Hunter. bibliog il Mag of Stand 34:372-7 D '63
Simple, fast risetime, high voltage step generator. M. Sayer. il J Sci Instr 41:346-7 My '64
Solid, paper insulated pipe-type cable for hv dc. J. H. M. Sykes. Elec World 161:114+ Je 15 '64
Statistical evaluation rounds out ehv line design. J. G. Anderson and L. O. Barthold. diag Elec World 161:70-2 F 24 '64
Tests verify design for TVA's 500-kv towers. G. M. Wilhoite. il map diags Am Soc C E Proc 90 [PO 3 no 4082]:81-90 O '64
345,000-volt cable, how it's made. M. Barrangon. il diags Mech Eng 86:57-9 Jl '64
Transformer-ratio-arm bridge for high-voltage capacitance measurements. N. L. Kusters and O. Petersons. bibliog il diags IEEE Trans Com & Electronics p606-11 N '63
Transistorized high-voltage regulator using a.c. control. I. Izumi and M. Kokubu. diags Electronic Eng 36:554-6 Ag '64
USSR tells CIGRE about its 500 kv; Lebedev's report. D. T. Braymer. Elec World 161:21 Je 22 '64
Vacuum insulation of high voltages utilizing dielectric coated electrodes. L. Jedynak. bibliog diag J Ap Phys 35:1727-33 Je '64
W. E. Kerr high-voltage test center dedicated. il Elec World 161:38 My 25 '64
Wideband high voltage probe. R. Keller. il diags R Sci Instr 35:1057-60 Ag '64
See also
Overvoltage

HIGHER education. See Education. Higher

HIGHWAY accidents. See Automobile accidents

HIGHWAY administration
Comprehensive transportation planning. W. J. Burmeister. il Pub Works 95:78-80 Ja '64
Concern deepens over federal role. W. O. Wright. Roads & Sts 106:30+ N '63
How a county uses CPM. W. H. Metzler and S. C. Bucher. diags Pub Works 95:92-4 Mr '64
Police: pivot for highway safety efforts. Q. Tamm. Traffic Q 18:250-64 Ap '64

HIGHWAY administration—*Continued*
Progress in county highway administration in Indiana; abstract. E. S. Ward. Pub Works 95:136+ Ap '64
See also
American association of state highway officials
Highway inspection
Roads—Finance
Roads—Maintenance and repair
Roads, County
Western association of state highway officials

HIGHWAY departments
Cities warned to finish highway planning by summer. Eng N 173:64-5 Ag 6 '64
Contractor—SHD joint committee covers lot of ground. Roads & Sts 107:69+ My '64
In-service training for pre-engineering technicians. R. B. MacIndoe. il Pub Works 95:107-8 F '64
Open shop vs. the giant brain. J. C. Barrett. Traffic Q 18:523-34 O '64
See also
Radio telephone—Highway department use

Buildings

Economy highlights county building expansion. il Pub Works 95:110-11 Je '64

Equipment

Asphalt distributor today; dump truck tomorrow. C. L. Huisman. il Pub Works 95:68-70 N '64
Equipment needs changing for interstate highway mowing. J. E. Bell. S A E J 72:89 N '64
This loader is our all-purpose tool. J. F. Martin. il Pub Works 95:102 F '64
See also
Street cleaning apparatus

Laboratories

Today's tests promise better highways tomorrow; Pennsylvania department of highways laboratories. C. D. Jensen. il Pub Works 95:115-18 Je '64

Management

Engineering drawings in a hurry. H. R. Preiss. il Pub Works 95:120-1 S '64
Greer in Texas: 24 fruitful years. H. J. McKeever. Roads & Sts 107:60-3+ Ag '64
Red tape cutters keep freeway jobs on schedule. il Roads & Sts 107:69-71 Je '64
Summary analysis of reports on state highway department management. P. Famous. bibliog Pub Roads 32:286-92 F '64

Public relations

Kentucky fights litterbugs. il Pub Works 95:103 O '64

HIGHWAY engineering
How to make highways work harder. Eng N 173:23 S 24 '64
Land use planning and highway engineering. F. W. Hurd. Pub Works 95:150+ Je '64
New twists to c.r.t. recording. M. J. Langford. Ind Phot 12:48-9 N '63
See also
Bridges
Expressways
Roads
Roads—Location
Roads—Surveying
Traffic engineering

Bibliography

Street and highway digest. Published in monthly numbers of Public works

Tables, calculations, etc.

All-versine highway spiral formulas. G. J. Thornton-Smith. diag Am Soc C E Proc 88 [SU 1 no 3326]:41-50 N '62; Discussion. T. F. Hickerson. 89 [SU 2 no 3563]:93 Je '63; Reply. 90 [SU 1 no 3885]:61-2 Ap '64

HIGHWAY engineers
How a government agency trains and supports its engineers; the Bureau of public roads; abstract. H. T. Rosenberger. Pub Works 95:154+ S '64

HIGHWAY inspection
Push button programming for the county engineer. il Pub Works 94:97-8 D '63
Something new in inspector's handbooks; Pennsylvania department of highways. Roads & Sts 106:58 D '63

HIGHWAY law
Discovery process in highway land acquisition. S. Goldstein and others. Pub Roads 33:21-37 bibliog(p30-1) Je '64
Evaluation of partial taking of property for right-of-way. G. V. Broderick and F. I. Thiel. Pub Roads 33:38-44 Je '64
Photogrammetry and highway law. M. M. Abrams. bibliog Am Soc C E Proc 90 [SU 2 no 3989]:153-68 Jl '64

HIGHWAY officials, American association of state. See American association of state highway officials

HIGHWAY officials, Western association of state. See Western association of state highway officials

HIGHWAY research
BPR studies Buck Rogers vehicles. Eng N 171:24 N 21 '63
Highway research board announces contracts, issues report. Eng N 172:70 Je 18 '64
Perceptual and field factors causing lateral displacement. R. M. Michaels and L. W. Cozan. bibliog il diags Pub Roads 32:233-40 D '63
Priority needs in highway research. K. A. Stonex. bibliog il Pub Works 95:113-15 Ap '64
Road laboratory and the road user. il diags Engineering 198:169-70 Ag 7 '64
Today's tests promise better highways tomorrow; Pennsylvania department of highways laboratories. C. D. Jensen. il Pub Works 95:115-18 Je '64
See also
Roads, Experimental

HIGHWAY research board
Annual meeting, 43d, Washington, D.C. Eng N 172:37 Ja 23 '64
Mr Traffic heads road research; Wilbur S. Smith. Eng N 172:40-1 Ja 16 '64

HIGHWAY transportation
Algorithm for computing interzonal transfers using the gravity model. D. A. D'Esopo and B. Lefkowitz. bibliog diag Op Res 11:901-7 N '63
BPR studies Buck Rogers vehicles. Eng N 171:24 N 21 '63
Comprehensive transportation planning. W. J. Burmeister. il Pub Works 95:78-80 Ja '64
Ground transportation in the years ahead. D. K. Chacey. maps Traffic Q 18:188-201 Ap '64
Luminescent disc warns of hauling hazards. il diag Elec World 160:138+ O 21 '63
Motor road; forerunner of the universal city. C. T. Larson. maps Traffic Q 18:459-90 O '64
Ninety-six-wheel trailer for road transportation. il diags Engineer 216:692-4 O 25 '63
Predicting the modal split in Pittsburgh. L. E. Keefer. flow diag Am Soc C E Proc 89 [HW 1 no 3469]:13-25 Ap '63; Discussion. 90 [HW 1 no 3780]:109-12 Ja '64; Reply. 90 [HW 2 no 3997]:11-12 Ag '64
See also
Motor trucks in freight service
Road traffic
Trailers

Great Britain

Coming to terms with the private car. Engineering 196:675 N 29 '63
Integration of urban motorways; abstract. T. E. H. Williams. Engineer 216:905 N 29 '63
Planning to keep the traffic moving; Buchanan report Traffic in towns. il plan Engineering 196:706-7 D 6 '63

HILLSIDE architecture
Building types study; apartments; on a wooded California slope with a view. G. A. Christie. il plans Arch Rec 135:150-3 Ja '64
Compact saddle-roofed house that exploits a difficult site. il plans diag Arch Rec 135:157-60 My '64
Cross-shaped hilltop house provides wide variety of outlook. il plans Arch Rec 135:179-82 Ap '64
Exploitation of rational structure; hillside in Mill Valley, Calif. il plans diags Prog Arch 45:172-7 My '64
Hillside institute to make most of site; Agricultural and technical institute, Canton. il Prog Arch 45:76 Jl '64
Multi-level house for a rocky hilltop. il plans Arch Rec 135:100-3 Mid-My '64
Offices cling to rocky hilltop. il Eng N 173:13 O 29 '64
Solid against transparent; wooded hillside with brook at Bernardsville, N.J. il plans diags Prog Arch 45:160-5 My '64

HILSCH tube. See Vortex tube

HINGES
How to conceal hinges; drawings with text. F. W. Wood, jr. Product Eng 35:98-9 F 17; 58-9 Mr 2 '64
How to form integral hinges in polyethylene. S. A. Woods. il diags Mod Plastics 42:149-50+ S '64
Oscillating polypropylene hinge brings parts reduction. il diag Mod Plastics 42:114-15 S '64

HINGES—*Continued*

Power transmission device; hinging ability of polypropylene is extended to perform dynamic function. A. D. Smith. il Materials in Design Eng 59:116-17 Ap '64

HINSDALITE

Mineral equilibrium studies of the pseudomorphism of pyromorphite by hinsdalite. W. E. Baker. Am Mineralogist 49:607-13 My '64

HIP fracture. See Fractures

HIRE purchase plan. See Instalment plan

HIRING. See Employment systems

HISTIDINE

Active center histidine peptide of α-chymotrypsin. E. B. Ong and others. bibliog Am Chem Soc J 86:1271-2 Mr 20 '64

Antagonism of the D-forms of the essential amino acids toward the promotion of growth by D-histidine. S. H. Kamath and C. P. Berg. bibliog J Nutrition 82:243-8 F '64

Autoxidation of fatty materials in emulsions; factors affecting the histidine-catalyzed autoxidation of emulsified methyl linoleate. J. E. Coleman and others. bibliog Am Oil Chem Soc J 41:347-51 My '64

Copper (11) chelates of histidylhistidine and related compounds. M. A. Doran and others. bibliog Am Chem Soc J 86:2129-35 Je 5 '64

Nuclear magnetic resonance study of structures of cobalt(II)-histidine complexes. C. C. McDonald and W. D. Phillips. bibliog Am Chem Soc J 85:3736-42 D 5 '63

HISTOGRAMS

On-line analog generation of joint-interval histogram. J. H. Schulman and J. Thorson. il diags R Sci Instr 35:1314-15 O '64

Statistics with steel balls. il Ind Electronics 2:466 O '64

HISTOLOGY

See also

Tissues

HISTORY

See also subdivision History under special subjects, e.g.

Engineering
Moving picture photography
Steam engines

HOBBING

Tooth forms for hobs; drawings with text; reference book sheet. H. Gregg. Am Mach 108:73 Ag 3 '64

HOBBING machines

Adjustable flywheel overcomes vibration. il diag Tool & Manuf Eng 52:62 Ja '64

Hobbed buttress thread holds closure on rocket motor case. L. W. Collins, jr. il diag Mach 70:93-5 Ag '64

Hobbing machine for heavy-duty crown hobbing of splines on shafts. il Mach 70:176+ Ja '64

Hobbing speeds and feeds; reference book sheet. Am Mach 108:103+ Ag 17 '64

Large hobs may cut your cost of producing small gears. W. G. Flanagan. il Mach 71:124-6 O '64

Lead error for helical gears. D. Goodwill. diags Am Mach 108:79-83 S 28 '64

Lees-Bradner long column vertical hobber generates crowned and tapered splines. il Am Mach/Metalworking Manuf 107:172 O 14 '63

See also

Gear cutting machines

HOBS

Fully automatic hydraulic hob sharpener. il Mach 70:140 N '63

HODGKIN, Dorothy Crowfoot

Nobel prize given for vitamin B_{12} studies; D. C. Hodgkin honored. por Chem & Eng N 42:54-5 N 9 '64

HODOGRAPH. See Graphic methods

HOFMANN reaction

Dimers of 1,3-diphenylcyclobutadiene from the Hofmann elimination of 1,3-diphenyl-2,4-bis-(dimethylamino)-cyclobutane dimethiodide. E. H. White and H. C. Dunathan. bibliog Am Chem Soc J 86:453-8 F 5 '64

HOISTING

First choice for soft slings; the new test tube fibres. il diags Mod Materials Handling 18:48-53 N '63

See also

Lifting magnets
Mine hoisting
Slings and hitches

HOISTING machinery

Another cost-saving hoisting rig for big generators. il Power Eng 67:67 N '63

Ball bearing screws simplify lift mechanism design. diags Mod Materials Handling 19:59 Ap '64

New tainter gate hoist. H. S. Green. il diags Am Soc C E Proc 90 [PO 2 no 3970]:1-9 Jl '64

1964 Materials handling and packaging directory; overhead equipment. il Mod Materials Handling 19:215-40 My '64

Pilot ladder hoist. il Engineer 217:447 Mr 6 '64

Portable emergency hoist. il Coal Age 69:234 O '64

Powered hoists pace handling needs. G. J. Berkwitt. il Mill & Factory 75:66-9 S '64

Two-hold, heavy-lift boom. il Marine Eng/Log 69:50 Ag '64

See also

Buckets
Capstan
Conveying machinery
Cranes, derricks, etc.
Hydraulic jacks
Mine hoisting
Stacking machines
Wire rope

Safety measures

Code makes hoist safe for men and materials. il Eng N 173:106-7 Ag 6 '64

Easy way to handle heavy components; 3-to-1 safety factor needed. L. McWilliams. il Power 108:71 Je '64

HOISTING machinery, Electric

Electric deck auxiliaries. il Engineer 217:486 Mr 13 '64

See also

Mine hoisting, Electric

HOLDING devices

Cleaning work holders; stripping rejects. Ind Finishing 40:86 Ja '64

Effective tooling for flame plating. F. F. Humbarger. il diags Mach 70:132-6 F '64

Modified goniometer specimen holder for the Siemens electron microscope operating under long focal length conditions. U. Valdrè. il diags J Sci Instr 41:327-8 My '64

Modified Polaroid film holder for X-ray and neutron diffraction. H. G. Smith and D. L. Holcomb. diag R Sci Instr 34:1441 D '63

Novel fixture installs thread inserts quickly. il Mach 70:138-9 F '64

Performance of a small rotating substrate holder for vacuum deposition. C. D. Hopkins and others. diags J Sci Instr 41:167-8 Mr '64

Simple specimen holder for low temperature X-ray diffraction studies. B. Roessler and G. F. Bolling. diag R Sci Instr 35:230-1 F '64

See also

Clamps
Vises

HOLDING devices (machine work)

Fixture holds fragile work. N. Fried. diag Am Mach/Metalworking Manuf 107:109 D 9 '63

Fusible alloy acts as workholder. B. Rixon. il diags Am Mach/Metalworking Manuf 107:90-1 N 25 '63

Grinding fixture that insures desired work height. H. J. Gerber. diag Mach 70:137 N '63

Vee blocks give drilling unavoidable precision. A. W. Young. il Iron Age 192:77-9 D 19 '63

See also

Arbors and mandrels
Chucks
Machine tools—Fixtures

HOLLYWOOD, California

Architecture

Vest-pocket skyscraper. il plans diag Arch Forum 120:114-17 Ap '64

HOLLYWOOD, Florida

Water supply

Color suppression in the Hollywood water supply. G. W. Laurie, jr. and F. Southwell. Am Water Works Assn J 56:1153-9 S '64

HOLMES, Eusebius

Obituary. F. P. Coyne. por Chem & Ind p 1792 O 24 '64

HOLMIUM

Changes in magnetization of single-crystal dysprosium, erbium, and holmium in high magnetic fields. R. B. Flippen. bibliog J Ap Phys 35:1047-8 pt 2 Mr '64

HOME builders, National association of. See National association of home builders

HOME workshops. See Workshops, Home

HOMES, Institutional

See also

Childrens homes
Nursing homes

HOMOGENIZATION

Release of aqueous extracts by beef homogenates, and factors affecting release volume. J. M. Jay. diag Food Tech 18:1633-6 O '64

Ultrasonics for homogenisation and dispersion. K. Marshall. bibliog il diags Manuf Chem 34:562-6 D '63

HOMOGENIZERS

Micro-homogenizer. F. J. Wray and J. A. Richardson. il diag J Sci Instr 41:575-6 S '64

HOMOSTEROIDS

Synthesis and configuration of C-nor-D-homotestosterone acetate. S. M. Kupchan and S. D. Levine. bibliog Am Chem Soc J 86:701-8 F 20 '64

HONEY

Effect of storage and processing temperatures on honey quality. J. W. White, jr. and others. bibliog Food Tech 18:555-8 Ap '64

HONEYCOMB construction. See Laminated construction

HONG KONG

See also
Building—Hong Kong
Water supply—Hong Kong

HONING

Gear hones; selection and use. R. E. Landstrom. il Tool & Manuf Eng 52:97-8 Mr '64

Gear honing reduces transmission noise. F. Stull. Am Mach 108:114 Ja 20 '64

HONING machines

Hydrohoner for cylinder bores in V-8 engines. il Mach 71:163 S '64

Improved Red Ring gear-tooth honing machine. il Mach 70:211-12 Je '64

Long-stroke horizontal Hydrohoner. il Mach 70:133-4 Ag '64

Oscillating hones generate circular arcs. il diags Tool & Manuf Eng 52:60-1 Ja '64

Precision boring and honing of differential carriers. il Mach 70:110 D '63

Something new; tunnel honing. C. Emerson. il diag Am Mach 108:62-3 My 25 '64

Two-spindle Microhoner for spherical honing of small parts. il Mach 70:186 Mr '64

HONOLULU

Architecture

Designed for sun and trade winds; Queen Emma Gardens. il plans Arch Rec 136:126-8 Ag '64

Redevelopment proposed for downtown Honolulu. il plan Prog Arch 45:73 Ap '64

HOOD, Forrest Wilson

Memorial. R. J. Berryman. por Am Assn Pet Geologists Bul 48:362-3 Mr '64

HOODS, Exhaust system. See Exhaust systems

HOOVER, Herbert

New portrait. por Eng & Min J 165:94 S '64

HOPPERS

Chemical rolling stock on the upswing. Chem & Eng N 42:26 F 17 '64

New design criteria for hoppers and bins. J. R. Johanson and H. Colijn. bibliog il diags Iron & Steel Eng 41:85-98; Discussion. 98-104 O '64

Profiling flow of particles through hopper openings. R. M. Laforge and B. K. Boruff. bibliog diags Ind & Eng Chem 56:42-6 F '64

Self-dumping hoppers. il Glass Ind 45:488 S '64

Solids feeders. C. A. Lee. il diags Chem Eng 71:119-34 F 17 '64 (reprints 50c)

Why bins don't flow. A. W. Jenike. il diags Mech Eng 86:40-3 My '64; Excerpts. Combustion 35:27-8 Ja '64

HOPS

Volatile hop constituents; identification of methyl dec-4-enoate and methyl deca-4,8-dienoate. R. G. Buttery and others. bibliog Chem & Ind p 1981-2 D 21 '63

HOREHOUND

Major alkaloid of marrubium vulgare. W. W. Paudler and S. Wagner. bibliog Chem & Ind p 1693-4 O 19 '63

HORMONES

Evidence that cholesterol sulfate is a precursor of steroid hormones. K. D. Roberts and others. bibliog Am Chem Soc J 86:958-9 Mr 5 '64

Sebaceous gland hormone. Drug & Cosmetic Ind 94:448 Mr '64

Use of chorionic gonadotropin hormone in the treatment of obesity. B. W. Frank. bibliog Am J Clinical Nutrition 14:133-6 Mr '64; Discussion. A. T. W. Simeons. 15:188-90 S '64

See also
Adrenal glands—Hormones
Androgens
Estrone
Testosterone

HORNBLENDE

Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64

Mineralogy and paragenesis of amphiboles from Gibson Peak pluton, northern California. P. W. Lipman. Am Mineralogist 49:1321-30 S '64

Relation of atomic constitution to lattice parameters in some hornblendes from the Black Hills, South Dakota. B. Raychaudhuri. bibliog Am Mineralogist 49:198-206 Ja '64

See also
Amphibolites

HORNIG, Donald F.

President chooses new science adviser; D. F. Hornig to succeed Dr Jerome Wiesner. por Chem & Eng N 41:25-6 N 18 '63

HORSEPOWER

Horsepower measurement via force. D. B. Kendall. il diag Instruments & Control Systems 37:102-4 F '64

HORTICULTURE

Fungicides in agriculture and horticulture; abstract and discussion. D. Woodcock. Chem & Ind p843-4 My 16 '64

See also
Electrohorticulture

HOSE

Flexible metal hose handles vibration, expansion in cryogenic piping. il diag Heating-Piping 35:115-18, cover N '63

Flexible nylon hose. il Plastics World 22:63 Ja '64

Hose, fittings and assemblies; fluid power component selection charts. Hydraulics & Pneumatics 17:97 Ja '64

Hose, fittings, and couplings. R. G. Cox. diags Machine Design 35:106-11 D 12 '63

New hose for tank-truck cleaning. il Oil & Gas J 61:78 N 25 '63

Safety code issued for hose and hose assemblies. Iron & Steel Eng 41:159-60 Mr '64

Manufacture

Spider's dream wraps wires on hose. il Comp Air Mag 69:23 Jl '64

HOSE couplings

Hand coupling for high pressure hose. diag Engineering 196:483 O 18 '63

Hose, fittings, and couplings. R. G. Cox. diags Machine Design 35:106-11 D 12 '63

Quick-disconnect coupling use increasing. il Chem & Eng N 42:65-6 My 18 '64

Special couplings help. il Safety Maint 127:57 Je '64

HOSIERY

Nylon today, a galaxy of successful end uses. G. L. Solomon. il Mod Textiles Mag 45:47-8+ Ja '64

Dyeing

See Dyes and dyeing—Hosiery

Manufacture

Dyeing and finishing of ladies' full-length seamless hosiery made of Du Pont Cantrece nylon. G. M. Richardson and others. il Am Dyestuff Rep 53:703-8 Ag 17 '64

Good fit is designed. J. C. Cobert. il diags Textile Ind 128:84-5+ Ap '64

Over-the-calf specialists; Mauney hosiery mills. il Textile Ind 128:81-3 Ap '64

Right way to seam socks; Adams-Millis, pioneer user of this toe-closing method. il Textile Ind 128:70-3+ Ap '64

Watchdogging quality; key to finishing premium socks. il Textile World 114:101-2+ Mr '64

Testing

Modulus tests made on hosiery tops containing spandex. J. V. Boone. Am Dyestuff Rep 53:713-14 Ag 17 '64

HOSIERY mills

Aim at Hanes hosiery, keep quality and quantity moving higher. il Mod Textiles Mag 44:20-2+ D '63

You name it, they'll make it; Concord hosiery, inc. il Textile Ind 128:78-80 Ap '64

HOSIERY mills—*Continued*

Employees

Psychiatrist for your mill? L. Christiansen, jr. Textile World 113:66-7 D '63

Equipment

Aluminum cuts air-conditioning load. il Textile Ind 127:169+ N '63
Customer's wish their command; G & H hosiery co. il Textile Ind 128:100-1 Mr '64

Management

Capital expenditures; making decisions that win. il Textile World 114:52-5 Mr '64

Quality control

Watchdogging quality; key to finishing premium socks. il Textile World 114:101-2+ Mr '64

HOSPITALS

Educational qualifications of directors of survey, planning, and licensing programs for hospital and other health facilities. Am J Pub Health 54:330-3 F '64
Hospital as the center of community medical care; fact and fiction. G. Baehr. bibliog Am J Pub Health 54:1653-60 O '64
Hospital construction; very healthy. H. C. F. Arnold. Arch Rec 135:26 Ap '64
VA hospital scandal; building and politics. il Arch Forum 120:10 Mr '64
Voluntary organizations in medical care planning; community hospital planning associations. C. R. Rorem. Am J Pub Health 54:455-7 Mr '64

See also

Clinics
New York (city)—Hospitals
Water supply for hospitals

Air conditioning

Air conditioning in hospital operating rooms in West Germany. W. Pichel. diags ASHRAE J 6:76-7 Ag '64
Environmental control in hospital facilities. W. Viessman. bibliog Heating-Piping 36:129-32 Ja; 129-34 My '64; Discussion. 36:128-30; Reply. 130-3 O '64
Hospital in the round uses all-air, electric reheat system. diag Air Cond Heat & Ven 61:92 Jl '64
Self-contained units solve hospital modernization. il Heating-Piping 36:106-7 F '64
Water treatments keep hospital air conditioning operating. il Air Cond Heat & Ven 61:93 Jl '64

Cleanliness

Airborne infection in hospitals. J. G. Shaffer. bibliog Am J Pub Health 54:1674-82 O '64
Environmental control in hospital design. A. Greenberg. plans diags Arch Rec 136:202-6 O '64
Evaluation of hospital germicides. E. H. Spaulding. bibliog Soap & Chem Spec 40:71-4 Jl '64
Stainless steel piping distributes detergent for hospital sanitation. E. A. Kaplun. diags Heating-Piping 36:122-3 Jl '64
Survival of staphylococci on hospital surfaces. P. Skaliy and G. W. Sciple. bibliog Archives Environmental Health 8:636-41 My '64

Designs and plans

Aluminum hospital of tomorrow offers economical care. il Mod Metals 19:90 N '63
Big-city complex in a flexible cube; Bellevue hospital. il plans Arch Rec 135:194-7 Ap '64
Environmental control in hospital design. A. Greenberg. plans diags Arch Rec 136:202-6 O '64
Hospital engineering; applicable codes and requirements. R. J. Barnecut. il diag Air Cond Heat & Ven 61:64-9 Jl '64
Hospital engineering; design process. H. A. Friedman. il Air Cond Heat & Ven 61:59-63 Jl '64
Hospitals: building types study. il plans diags Arch Rec 136:177-96 O '64
Hospitals; the race with change. R. A. Miller. il plans diags Arch Forum 120:80-9 Ap '64
Radial wards serve a teaching hospital. il plans Arch Rec 135:198-9 Ap '64
Round hospital flies to the fair. il Eng N 171:20 N 28 '63

Electric equipment

Electrical equipment for hospitals. Engineer 217:649 Ap 10 '64
Electrical systems for hospital operating rooms. B. C. Biega. il diags Elec Constr & Maint 63:82-5 Ag '64
Special electrical control panel for hospital operating rooms. R. Loeb. il plan Elec Constr & Maint 63:98-9+ Ap '64

Employees

Back-room engineers of the hospitals. Engineering 197:276 F 21 '64
Health hazards to health workers; a neglected area; editorial. G. S. Siegel. Am J Pub Health 54:1001-3 Je '64

Equipment

Brewer system for storing drugs in a hospital. C. D. Fruin. il Ind Electronics 2:467-9 O '64
Electronic hospital opens. il diag Electronics 36:41 D 27 '63
Electronic monitoring system for surgery at the National institutes of health. il Anal Chem 36:sup31A-4A+ My '64
Electronics; new force in hospital design. J. Falick. diags Arch Forum 120:90-1 Ap '64
Engineering for the doctors. il diag Tool & Manuf Eng 53:96-7 Ag '64
Hospital engineering; piping for hospital distribution systems. G. Kasin. Air Cond Heat & Ven 61:77-82 Jl '64
New control center will monitor 19-building complex; Memphis' Baptist memorial hospital. il Plant Eng 18:138-9 Mr '64
New standard for hospital plumbing. Air Cond Heat & Ven 61:63-8 Je '64
Patients monitor for hospital out-patients departments. J. A. Reynolds. diags Electronic Eng 36:30-3 Ja '64
Precision, safety keynote design for hyperbaric oxygen facilities; Lutheran general hospital. W. D. Ludwig. il diag Heating-Piping 36:109-15 My '64
Product Engineering fifth annual master design awards; hospital infant feeding system. il diags Product Eng 35:116 Ap 27 '64

See also

Oxygen apparatus

Fires and fire protection

Hospital groups urged to close last gap in fire protection. il Safety Maint 127:33-4 F '64

Food service

How can we improve food service in nursing homes? J. C. Obert and M. E. Burr. bibliog Am J Pub Health 54:932-9 Je '64

Heating and ventilation

Self-contained units solve hospital modernization. il Heating-Piping 36:106-7 F '64

Lighting

Lighting hospital patient rooms. Arch Rec 134:192-3 N '63

Management

New control center will monitor 19-building complex; Memphis' Baptist memorial hospital. il Plant Eng 18:138-9 Mr '64
Responsibility of the board member of voluntary health agencies; editorial. P. D. Bonnet. Am J Pub Health 54:1766-8 O '64

Operating rooms

Air conditioning in hospital operating rooms in West Germany. W. Pichel. diags ASHRAE J 6:76-7 Ag '64
Electrical systems for hospital operating rooms. B. C. Biega. il diags Elec Constr & Maint 63:82-5 Ag '64
Special electrical control panel for hospital operating rooms. R. Loeb. il plan Elec Constr & Maint 63:98-9+ Ap '64
Sterile air in hospitals. H. N. Helfman. ASHRAE J 5:59-61 N '63

Power

Flexible emergency standby hospital power. W. E. Kennedy and M. Rukin. il diag Elec Constr & Maint 63:100-2 Ap '64
Hospital engineering; hospital power plants. H. J. Heger. Air Cond Heat & Ven 61:70-6 Jl '64

Safety measures

Hospital engineering; environmental health and safety. F. A. Gohr. diags Air Cond Heat & Ven 61:52-8 Jl '64

Waste

Hospital engineering; piping for hospital distribution systems. G. Kasin. Air Cond Heat & Ven 61:77-82 Jl '64
Removal of radioactive iodine from hospital sewage; abstract. T. A. Berezina and V. Y. Golikov. Pub Works 94:152-3 N '63

Great Britain

Back-room engineers of the hospitals. Engineering 197:276 F 21 '64

HOSPITALS, Psychiatric
Check list of spaces for a community mental health center. Arch Rec 134:196 N '63
Geriatrics building for a mental hospital. il plan Arch Rec 135:192-3 Ap '64
Mental hospitals. H. C. F. Arnold. Arch Rec 134:18 N '63
Mental hospitals; building types study. il plans Arch Rec 134:161-84 N '63

Statistics

Analysis of the service relationships between state mental hospitals and one local mental health program. R. S. McInnes and others. Am J Pub Health 54:60-8 Ja '64
Epidemiology of psychiatric emergencies in an urban health district. M. Fisch and others. Am J Pub Health 54:572-9 Ap '64

HOT water heating
Analysis of htw cycles shows capabilities of each. il diags Heating-Piping 36:122-5 Ag '64
Gas-man's nightmare; interview with L. W. Roye. Dom Eng 204:92-4+ S '64
Graphical analysis of hydronic systems. N. Holbay. diags Air Cond Heat & Ven 61:45-9 Mr '64
Heating and cooling a residence with hydronic room units located near the ceiling. W. S. Harris and R. R. Laschober. il plans diag ASHRAE J 6:53-9 F '64
High temperature water distribution system supplies heat to building complex. il Heating-Piping 36:227 Mr '64
High-temperature water for district heating. il diags Power 108:49-51 Ja '64
High temperature water from steam boilers serves single-building high school. J. Richardson. il diag Air Cond Heat & Ven 61:69-70 F '64
Htw system promises lower building and maintenance costs at Chicago Circle campus, University of Illinois. E. G. Magnuson. plan diag Power 108:67-70 S '64
Htw with packaged pressurizing units; design considerations. J. N. Saunders. il Air Cond Heat & Ven 61:54-7 Ag '64
Hot water boiler and heating system must work together. L. A. Roethe. diag Power 107:68-9 N '63
Hot water boiler damage; causes and remedies. L. A. Roethe. Plant Eng 17:111-13 N '63
How can we improve pump seal life? answers. Power 108:170-1 S '64
How single pump, steam cushion htw systems can be improved. il diags Heating-Piping 36:95-101 Je '64
Hydronic boiler technique reduces fire hazard. il diag Safety Maint 127:63-4 Ap '64
Ideas, to fire up your hydronic heating sales. il Dom Eng 203:88-98 Mr '64
Pipe htw through classrooms. il Heating-Piping 36:107-9 Jl '64
Questions and answers on Hartford loop. diags Dom Eng 203:90-1 My '64
Why doesn't zoning hookup work in motel? answer. il diags Dom Eng 203:88-9 My '64

Control

How to select controls for end use exchangers in htw systems. W. M. Marcinkowski. flow diag il diags Heating-Piping 36:141-56 Mr '64; Discussion. R. E. Prescott. 36:84+; Reply. 86+ S '64
How to stop chattering and water flow-through in one zone of a four-zone system; question and answer. diags Dom Eng 202:60-1 D '63
Team compressed air with steam to control school's water heaters. E. F. Gibbon. il Heating-Piping 36:246-7 My '64

Radiant heating

40 years of progress in radiant heating. R. I. Enzian. il diags Heating-Piping 36:138-42 Je '64; Discussion. A. L. Jaros, jr. 36:87 O '64
What keeps the floors warm when the heating coils are in the ceiling; question and answer. plan Dom Eng 202:62-3 D '63

HOT water supply
Consensus on service hot water. V. J. Pantuso. diags Air Cond Heat & Ven 61:52-62 F '64; Discussion. B. Janofsky. 61:87-8 Ap '64; Reply. 61:5+ Je '64
Designing hthw systems with nomographs. F. Caplan. Plant Eng 18:129-30 F '64
Hot water and public health. H. W. Angelery. Air Cond Heat & Ven 60:47-9 D '63
Hot water boiler and heating system must work together. L. A. Roethe. diag Power 107:68-9 N '63
Inherent safety of high-temperature water systems. il Power 108:58-9 Jl '64
New designs for htw. O. S. Lieberg. diags Air Cond Heat & Ven 61:55-7 Je '64
Operating problems with htw. diags Air Cond Heat & Ven 61:58 Je '64
Service hot water from air conditioning waste heat. J. A. Bedingfield. il diag Air Cond Heat & Ven 60:77-80 N '63
Team compressed air with steam to control school's water heaters. E. F. Gibbon. il Heating-Piping 36:246-7 My '64
What's the reason behind the crazy performance of valves in a tankless water heating system? question and answer. diag Dom Eng 202:64-5 D '63
See also
Electric water heaters
Water heaters

HOTELS
Dublin hotel is tightly planned. il plan Arch Rec 136:176 O '64
Giant composite girders roof underground hotel ballroom. il Eng N 171:40-1 N 28 '63
Hanging gardens on the rocks in Hawaii; hotel at Kaanapali Beach. il plans Arch Rec 135:149-54 Mr '64
Hawaiian hotel opens to landscape. il plan diags Arch Rec 136:174-5 O '64
Hotel planned as urban focal point. il plans Arch Rec 136:172-3 O '64
Hotel takes part in downtown renewal. il plans diag Arch Rec 136:166-7 O '64
Montreal builds 38-story hotel. il Eng N 173:49 O 22 '64
Perils of Frank Lloyd Wright; his Tokyo Imperial hotel threatened. il Prog Arch 45:89+ S '64
Resort hotel forms own environment. il plans Arch Rec 136:168-9 O '64
Tourist hotel on an ancient coast. il plans diags Arch Rec 136:170-1 O '64
27-story Ilikai apartment hotel overlooking Waikiki Beach is world's tallest building with precast, prestressed concrete framing. il Eng N 172:24 Ja 9 '64
Vines will cover concrete trellis; new Kahala Hilton hotel in Hawaii. il Eng N 172:23 Mr 5 '64
Walls cast non-stop 23 stories. il Eng N 172:81 My 21 '64
See also
Motels

Designs and plans

Hotel houses ramped garage for guest parking; San Francisco Hilton hotel. W. C. Wing. il plan diag Eng N 172:28-30+ Mr 5 '64
Multi-storey car park and hotel in one. il Engineering 196:713 D 6 '63
Rocket firm tests building model. il Eng N 172:53 Mr 19 '64
Round plan exploits surf-side lot. il plan Eng N 171:35 N 21 '63

Employees

Medical care, medical education, and hotel workers. J. N. Muller. Archives Environmental Health 7:705-8 D '63

Equipment

Gasman's dream. il Gas Age 131:30-1 Je '64

Lighting

Portland's Hoyt hotel revives good old days. il Am Gas Assn Mo 46:20-2 F '64

HOUDRIFLOW process. See Gasoline—Manufacture

HOUDRIFORMING process. See Gasoline—Manufacture

HOURS of labor
Moonlighting; a regional case study. A. N. Wecksler. Mill & Factory 75:71-3 Ag '64
See also
Overtime

HOUSE drainage. See Drainage, House

HOUSE lighting
Applied lighting competition 1963; 4th residential winner. M. L. Gale. il diags Illum Eng 59:24-30 Ja '64
Home personalized with light. R. W. Turek. il diags Illum Eng 58:658-63 N '63
Industry seeks one name for private lighting. Elec World 162:141 O 5 '64
Light, an architectural element. R. Grenald. il Illum Eng 58:707-11 D '63
Light topics. il Engineering 196:608 N 8 '63
New ideas in lighting. il Engineering 197:880 Je 26 '64
Outdoor lighting for the home. M. Fahsbender. il diags Elec Constr & Maint 63:102-8 Ag '64
Schoolgirl's dream room. il Illum Eng 59:494 Jl '64

HOUSE lighting—*Continued*

Solution for an A-frame house. il Illum Eng 59:235-8 Ap '64

Space magic with light. il plan diag Illum Eng 59:386-8 sec 2 My '64

Sparkle in speculation. D. L. Davis. il diags Illum Eng 59:524-7 Ag '64

Staircase lighting. il Illum Eng 59:490-1 Jl '64

Structural lighting. R. Haskell. il Illum Eng 58:718-21 D '63

Structural lighting for contemporary living; illustrations with text. Illum Eng 59:156-8 Mr '64

See also

Apartments—Lighting

HOUSEHOLD products

Aluminum marks time in booming housewares industry. il Mod Metals 20:60+ Mr '64

Chemicals in consumer market gain steadily. Chem & Eng N 42:26 Je 1 '64

Painting diversified metal products. J. McNeff. il diags Ind Finishing 40:62-4+ Jl '64

Exhibitions

National hardware show, New York. il Product Eng 35:68-9 O 12 '64

Standards

Standards for cooking utensils. G. Corfield. Gas 40:15 F '64

HOUSEHOLD products, Plastic

Housewares build a new image. il diag Mod Plastics 41:86-90+ Ag '64

HOUSES

See also

Apartment houses

Architecture, Domestic

Concrete houses

Country houses

Houses, Prefabricated

National association of home builders

Air conditioning

Heating and cooling a residence with hydronic room units located near the ceiling. W. S. Harris and R. R. Laschober. il plans diag ASHRAE J 6:53-9 F '64

Sealed residential living. W. J. McGuinness. Prog Arch 45:166 Ag '64

Heating and ventilation

Air leakage and pressure measurements on two occupied houses. G. T. Tamura and A. G. Wilson. bibliog plans ASHRAE J 5:65-73 D '63

Heating and cooling a residence with hydronic room units located near the ceiling. W. S. Harris and R. R. Laschober. il plans diag ASHRAE J 6:53-9 F '64

HOUSES, Concrete. See Concrete houses

HOUSES, Model

Ideal home looks ahead; 1964 Daily Mail ideal home exhibition. il Engineering 197:464 Mr 27 '64

HOUSES, Plastic

Architect looks at plastics in housing. A. Quarmby. plan diags Brit Plastics 37:28-31 Ja '64

Plastics homes. il Plastics World 22:40-1 Ag '64

Reinforced plastics private dwellings. il Engineer 217:959 My 29 '64

HOUSES, Prefabricated

Building homes by factory methods. il diags Engineering 197:837-9 Je 19 '64

Building houses from components. il Engineering 198:160 Jl 31 '64

Factory for industrialised housing. il Engineer 216:1025 D 20 '63

Factory starts producing Liverpool flats. il Engineering 198:210 Ag 14 '64

Industrialised housing at Kirkby; illustrations with text. Engineer 218:160 Jl 31 '64

Packaged houses. il Engineering 196:512 O 18 '63

Planned prefabrication system. Engineer 216:1072 D 27 '63

Prefab cottages made of prefinished aluminum. il Mod Metals 19:80 D '63

Prefab home's prefab core, contains mechanical utilities. il Eng N 171:56 D 5 '63

Prefabricated housing; three proposals. il diags Prog Arch 45:184-91 O '64

Reinforced plastics private dwellings. il Engineer 217:959 My 29 '64

Will factory made flats speed housing? il plans diags Engineering 197:52-3 Ja 10 '64

HOUSES, Remodeled

Georgetown house expanded. il plans Prog Arch 45:158-9 Mr '64

Manhattan gas home. il Am Gas Assn Mo 46:14-15 O '64

Trim truck aids siding operation. il Mod Metals 20:66 F '64

HOUSES, Row

New row house. R. P. Dober and R. C. Stauffer. il plans diags Prog Arch 45:116-65 Ag '64

Staggered for privacy and view: row house in Dallas. il plan Arch Rec 136:116-17 Ag '64

Tower and town houses in Philadelphia. il plans Arch Rec 136:110-13 Ag '64

HOUSES, Underground

Homes of tomorrow, underground? il plan Engineering 198:476 O 9 '64

Underground home of the future debuts at Fair. plan Elec World 161:165 Ap 20 '64

HOUSING

Better soundproofing in demand, because residential density will increase. Eng N 171:16 N 28 '63

Big year past, housing thinks ahead. Elec World 160:39-42 D 23 '63

Building and housing techniques and trends. il Eng N 172:54-6 Ja 23 '64

See also

Apartment houses

Housing projects

Old age—Housing

Slums

Costs

New York housing costs steady; public housing unit prices, 1963. Eng N 172:113 Mr 19 '64

United States

See also

United States—Public housing administration

HOUSING finance

Apartment Roundtable asks, what price urban living? il Arch Forum 120:84-91 Mr '64

Bare bones housing bill gets fat. Eng N 173:21 Ag 13 '64

See also

Building—Finance

HOUSING laws

FHA; build homes for open space. plans Eng N 171:19-20 D 12 '63

For LBJ's housing bill, mostly criticism. Arch Forum 120:5 Ap '64

Housing bill faces rough road. Eng N 172:19-21 Mr 5 '64

See also

Building laws and regulations

HOUSING projects

Architecture as total community; the challenge ahead; public housing as community. A. Mayer and C. Stein. il plans Arch Rec 135:169-78 Ap '64

Big draglines carve out Cape Coral canals and marinas. il Eng N 172:45-6 F 27 '64

GAO report attacks PHA for design excesses. Arch Rec 136:10 S '64

HOUSING projects, College

Single-loaded corridor for good outlook; Columbia faculty apartment, New York. il plan Arch Rec 136:124-5 Ag '64

HOUSING research

See also

Building research

HOUSTON, Texas

See also

Airports—Houston, Texas

Architecture

Arch form as a facade motif; Inwood Manor. il plan Arch Rec 136:118-19 Ag '64

Sewerage

Storm sewer tunnel threads the needle between highway bents. W. D. Murphy. il Pub Works 95:95-6 Ag '64; Same. Civil Eng 34:44-5 S '64

HOVERCRAFT. See Air cushion vehicles

HOWARD, Norman Joseph

Tribute. A. E. Berry. por Am Water Works Assn J 56:1369-74 O '64

HUBS

Hub speeds space-frame erection. il Eng N 172:96+ My 21 '64

HUDSON RIVER bridges

Steel truss evolution exemplified by Newburgh-Beacon bridge. il Roads & Sts 106:60, cover N '63

HUGHES, Edward David

Obituary. C. K. Ingold. por Chem & Ind p96-8 Ja 18 '64

HUMAN engineering

Electrical-connector failures. J. L. Seminara and M. Weinstein. bibliog il diags Machine Design 36:158-65 Ag 27 '64

HUMAN engineering—*Continued*
Engineering comfort into dentistry. S. S. Golden. il diags Mech Eng 86:38-42 Ag '64
Human engineering improves operator efficiency. il Coal Age 69:134+ Jl '64
Human factors in design of reliable systems. A. D. Swain. diags Machine Design 36:292+ Ap 23 '64
Human machine, work and environment. F. H. Fuller. bibliog Mech Eng 85:22-6 D '63; Discussion. 86:81-2 Je '64
Z is for zero defects. P. B. Crosby. Am Mach 108:148A-148D Ap 13 '64

HUMAN relations
Self-appraisal; a first responsibility. R. F. Moore. Chem & Eng N 41:68-70 D 2 '63
See also
Industrial relations

HUMANISM
Essays of a humanist. J. Huxley. Review, by A. E. Mirsky. Sci Am 211:135-8 O '64

HUMBLE oil and refining company
Decision nearing in Esso-Kyso suit. Oil & Gas J 61:88-9 D 30 '63
Esso's a step closer to national name. Oil & Gas J 62:62 Mr 23 '64

HUMIDIFICATION
How chemical dehumidification serves a pharmaceutical plant. T. M. Shea. il Heating-Piping 36:166-8 Ja '64
Improves produce storage; Tectrol system. il diag Food Eng 36:88-9 Ap '64

HUMIDIFIERS
Frequency response analysis of a wetted wall adiabatic humidifier. D. F. Bruley and J. W. Prados. bibliog diags A I Ch E J 10:612-16 S '64
Moisture control: V-11 Vapor-wheel humidifier. il Product Eng 34:87 D 9 '63
Portable humidifier maintains an ideal humidity level. diags Product Eng 35:64-5 Mr 30 '64
Put humidity where you want it; when you want it. C. E. Smallwood. diags Plant Eng 17:126-8 N '63
Sell humidifiers the year around; don't limit your efforts to just the dry air season. Dom Eng 202:118+ N '63
Spinning weather; so-called Condifil process, spreads an air curtain on both sides of a spinning frame. il diag Product Eng 35:55 Ag 17 '64
Winter humidity control. W. J. McGuinness. Prog Arch 45:164 F '64

HUMIDITY
Artificial temperature control and disease in America. A. Montagu. Archives Environmental Health 9:403-7 S '64
Atmospheric moisture-precipitation relations. F. A. Huff. maps Am Soc C E Proc 89 [HY 6 no 3696]:93-110 N '63
By-pass factor in its place! M. Ramsey. Air Cond Heat & Ven 61:105-7 O '64
Changes in the influence of atmospheric humidity during fatigue of an aluminum alloy. J. A. Bennett. bibliog il diags J Res Nat Bur Stand 68C:91-100 Ap '64
Data system key to control of cotton mill humidity. il Automation 10:73-4 N '63
Effect of high humidity environments on the strength of adhesive joints. D. J. Falconer and others. Chem & Ind p 1230-1 Jl 4 '64
Effect of humidity on flashover of air-gaps and insulators under alternating (50 c/s) and impulse of (1/50 μs) voltages. W. G. Standring and others. diags Inst E E Proc 110:1077-81 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64
Effect of relative humidity on the crease recovery of some modified rayon and cotton fabrics. R. A. Gill and R. Steele. bibliog Textile Res J 32:338-49 Ap '62; Discussion. 33:958-9 N '63
Effects of relative humidity, air, and vacuum on browning of dehydrated orange juice. M. Karel and J. T. R. Nickerson. bibliog diag Food Tech 18:1214-18 Ag '64
Effects of relative humidity and electric charge on the coalescence of curved water surfaces. N. R. Lindblad. bibliog diags J Colloid Sci 19:729-43 O '64
Evaporative cooling for textile mills. J. T. Lang. diags Heating-Piping 36:138-42 Ap '64; Discussion. D. Stimson. 36:90 N '64
Humidity drying of plastic clay. B. W. Lancaster and E. R. McCartney. bibliog il diags Am Cer Soc J 47:291-6 Je '64
Insulation resistance changes in polyethylene when exposed to high temperature and humidity. W. D. Paist. diags Wire & Wire Prod 39:1587-90+ O '64
Nomograph for relative humidity by slide rule. D. S. Davis. diag Paper Ind 46:108 My '64
Photochemical tendering and fading of dyed textiles at different humidities. A. H. Little and J. W. Clayton. bibliog Soc Dyers & Col J 79:671-7; Discussion. 677 D '63
Problem of humidity measurement in fading lamps. K. McLaren. Soc Dyers & Col J 79:618-22; Discussion. 630-1 D '63
Psychrometrics of dual duct systems. D. Rickelton. diag Heating-Piping 36:113-17 Mr; 147-51 Ap '64; Discussion. 36:82+; Reply. 84 Ag '64
Use a relative humidity and heat indicator. Ind Finishing 40:107 F '64
When outside wet-bulb is low. M. Ramsey. diags Air Cond Heat & Ven 61:99-101 S '64
Winter humidity control. W. J. McGuinness. Prog Arch 45:164 F '64
See also
Dampness in buildings
Dehumidification
Dehumidifiers
Hygrometers
Moisture

HUMULENE
Molecular structure of humulene; X-ray analysis of the silver nitrate adduct. J. A. Hartsuck and I. C. Paul. Chem & Ind p977-8 Je 6 '64
Stereochemistry of humulene. A. T. McPhail and others. bibliog Chem & Ind p976-7 Je 6 '64

HUNGARY
See also
Cement industry and trade—Hungary
Petroleum—Hungary

HUNTER, Dard
For D. Hunter life began at forty. H. F. Lewis. pors Tappi 46:sup28A+ N '63

HUREAULITE. See Manganese phosphate

HURRICANES
Hilda's visit is brief but costly for oil industry. map Oil & Gas J 62:104-6 O 12 '64
Hurricane Dora mauls northern Florida. il Elec World 162:105-6 S 21 '64
Hurricane Hilda's trail is still well marked. il Oil & Gas J 62:48-9 O 19 '64
Nested hurricane screens shield windows. il diags Arch Rec 135:186 Je '64

HYBRID computers. See Calculating machines—Hybrid computers

HYDRANTS
Using fire hydrants to survey nuisance organisms. A. A. Hirsch. il diags Water & Sewage Works 111:357-9 Ag '64

HYDRARGILLITE. See Gibbsite

HYDRATES
Hydrates at high pressures. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5, 734-40 Mr, S '64
Hydrates of methane and sulphur hexafluoride. L. D. Sortland and D. B. Robinson. bibliog diag Can J Chem Eng 42:38-42 F '64
Hydrothermal preparation of a gehlenite hydrate. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:449-52 S '64
Transition state characterization for the permanganate oxidation of fluoral hydrate. J. L. Kurz. bibliog Am Chem Soc J 86:2229-32 Je 5 '64
See also
Carbohydrates

HYDRATION
Acid-catalyzed conversion of epoxyesters to hydroxyesters. G. Maerker and others. bibliog diags Am Oil Chem Soc J 41:585-8 S '64
Effects of impurities and additions on the hydration of calcium sulphate plaster slurries. K. Schiller. J Ap Chem 14:209-17 My '64
Equilibria in the hydration of ethylene and of propylene. C. S. Cope. bibliog A I Ch E J 10:277+ Mr '64
Homogeneously catalyzed hydration of acetylenes by mercuric perchlorate-perchloric acid; evidence for a bis-(acetylene)-mercuric ion complex as an intermediate. W. L. Budde and R. E. Dessy. bibliog diag Am Chem Soc J 85:3964-70 D 20 '63
Hydration of micelles of association colloidal electrolytes. P. Mukerjee. bibliog J Colloid Sci 19:722-8 O '64
Kinetics of vapor-phase hydration of magnesium oxide. G. K. Layden and G. W. Brindley. bibliog il diag Am Cer Soc J 46:518-22 N '63
Reactivity of lime and related oxides; hydration of dolomitic lime. D. R. Glasson. J Ap Chem 14:125-8 Mr '64
Setting and hardening of gypsum plasters. W. C. Hansen. bibliog Materials Res & Stand 3:359-63 My '63; Discussion. 4:63-5; Reply. 65-6 F '64

HYDRATION—*Continued*

Setting of a slurry. K. Schiller. J Ap Chem 13:572-5 D '63

van der Waals radii of gaseous ions of the noble gas structure in relation to hydration energies. R. H. Stokes. bibliog Am Chem Soc J 86:979-82 Mr 20 '64

See also

Cement—Hydration

HYDRAULIC accumulators

Accumulators and boosters. A. A. Jacobellis; M. B. Sampson. il diags Machine Design 35:37-45 D 12 '63

Accumulators; fluid power component selection charts. Hydraulics & Pneumatics 17:74 Ja '64

Hydraulic extractor for end-mill holders. R. J. Nicholson. il Mach 70:124-5 Mr '64

Principles of fluid power storage. W. Ernst and H. Purcell. il diag Hydraulics & Pneumatics 16:97-9 D '63; 17:53-4+ F '64

HYDRAULIC brakes. See Brakes, Hydraulic

HYDRAULIC control

Automatic hydraulic takeups: installation and operation. D. R. Murphy. diags Coal Age 68:98-100+ D '63

Cavitation in valve-controlled hydraulic actuators. P. K. C. Wang and J. T. S. Ma. bibliog il diags A S M E Trans ser E 30:537-46 D '63

Closed circuit releases valve detents. O. Rice. il diags Hydraulics & Pneumatics 17:55-6 Ag '64

Colonial's Atlanta junction tank farm features central hydraulic system. J. P. O'Donnell. il Oil & Gas J 62:74-6 Ja 13 '64

Considerations in applying hydraulic winder drives. R. S. Carson. diags Automation 10:78-82 N '63

Control-panel valves set pressure and flow for remote components. C. H. Tepas and A. Antram. il diags Hydraulics & Pneumatics 17:98+ My '64

Direction-control valves. D. R. Sweeney. il diags Machine Design 35:75-80 D 12 '63

Fluid-flow flight control needs no electronics. W. J. Lewis. diags Space/Aeronautics 41:125+ Ap '64

Hydraulic control is versatile. diag Eng N 173:44+ Jl 16 '64

Hydraulic controls for gimbaling Saturn V engines. R. F. Church and J. Hadel. diags Hydraulics & Pneumatics 16:72-4 D '63

Hydraulic linear actuators. T. P. Watson. il diags Machine Design 35:46-52 D 12 '63

Hydraulic power and control circuit for a cutoff saw. diag Hydraulics & Pneumatics 17:24 Ap '64

Hydraulic systems; selecting control valves. R. Henke. diags Machine Design 36:172-4 Jl 16 '64

Hydraulics; positive power for foundry equipment. C. Storch. il Foundry 92:158+ Ap '64

In-line power pack on X-15 rocket plane. il diag Hydraulics & Pneumatics 17:127-8 S '64

Integrated forging press and manipulator. il Engineer 217:723-4 Ap 24 '64

Multiactuator drive system. il diags Automation 11:43-4 Mr '64

New blowout preventer control system solves problems offshore. M. Harding. il diags Oil & Gas J 62:132-3+ O 5 '64

Practical control system components. E. J. Kompass. bibliog diags Control Eng 11:82-5 S '64

Preheating and stress relieving of hydraulic actuator assemblies. il Metallurgia 69:173-4 Ap '64

Pressure and position controls for a compacting press. F. W. Dorenbos. diags Hydraulics & Pneumatics 17:61-3 F '64

Pressure control improves keyseater adjustments. il Hydraulics & Pneumatics 17:18 My '64

Programmed forging press features digital thickness controller. C. Finkl. il diags Control Eng 11:101+ F '64

Saving tools with antijump circuits. D. D. Wright. diags Hydraulics & Pneumatics 17:124+ My '64

Self-contained, unitized, modular hydraulic control system. il diags Product Eng 35:36 Mr 2 '64

Togetherness pays off in power pack. S. Bangs. il diag Hydraulics & Pneumatics 17:136-7 My '64

See also

Electrohydraulic control

Hydropneumatic control

HYDRAULIC conveying

Economics now key to solids pipelines. W. A. Doble. il Can Chem Process 47:50-2 D '63

Physical characteristics of recirculated waters as related to their sanitary condition. W. A. Mercer. il diags Food Tech 18:335-40+ Mr '64

Pipeline flow of capsules. G. W. Hodgson and others. bibliog diags Can J Chem Eng 41:43-51; 42:1-8, 69-76, 155-61, 168-73, 201-6 Ap '63, F-Ap, Ag, O '64; Discussion. 41:181, 212 Ag, O '63

HYDRAULIC driving. See Hydraulic transmission

HYDRAULIC engineering

Construction finishes and high-velocity flow. J. W. Ball. bibliog il diags Am Soc C E Proc 89 [CO 2 no 3646]:91-110 S '63; Discussion. 90 [CO 1 no 3851]:103-5 Mr; [CO 2 no 4051]:65-72 S '64

See also

Breakwaters

Bridges—Foundations and piers

Caissons

Calculating machines—Hydraulic engineering applications

Cofferdams

Dams

Docks

Drainage

Dredging

Flood control

Hydraulic jump

Hydraulic laboratories

Hydraulic mining

Hydraulic models

Hydraulic transmission

Hydraulics—Tables, calculations, etc.

Hydrodynamics

Hydroelectric plants

Hydrostatics

Irrigation

Locks (hydraulic engineering)

Mattresses (hydraulic engineering)

Penstocks

Piers

Pumping

Pumping stations

Pumps

Reservoirs

Rivers—Regulation

St Lawrence waterway and power project

Siphons

Spillways

Stream flow

Surge tanks

Tunnels and tunneling, Subaqueous

Turbines

Water

Water flow

Water supply engineering

Waterworks

Wells

HYDRAULIC fluids. See Hydraulic transmission

HYDRAULIC fracturing. See Petroleum—Production methods

HYDRAULIC gates. See Gates, Hydraulic

HYDRAULIC jacks

British system builds from the top down. il plan diags Arch Forum 120:92-5 Mr '64

Cave-ins are out when jack is in; hydraulic jack protects gas company street crews. il Gas Age 131:33 O '64

Lifting 100 tons on the level; four hydraulic jacks raise a 100-ton airplane for landing gear maintenance. K. C. Dawson. il diags Hydraulics & Pneumatics 16:109-11 N '63

HYDRAULIC jets. See Jets

HYDRAULIC jump

Hydraulic jump in all shapes of horizontal channels. R. Silvester. bibliog il diags Am Soc C E Proc 90 [HY 1 no 3754]:23-55 Ja '64; Discussion. 90 [HY 4 no 3980]:339-58 Jl; [HY 5 no 4050]:177-86 S '64; Reply. 90 [HY 6 no 4130]:265-8 N '64

Shapes for appurtenances in stilling basins. N. N. Pillai and T. E. Unny. bibliog diags Am Soc C E Proc 90 [HY 3 no 3888]:1-21 My '64

Some observations on the undular jump. L. E. Jones. bibliog diags Am Soc C E Proc 90 [HY 3 no 3901]:69-82 My '64

Submerged hydraulic jump. N. S. Govinda Rao and N. Rajaratnam. bibliog il plan diags Am Soc C E Proc 89 [HY 1 no 3404]:139-62 Ja '63; Discussion. 89 [HY 3 no 3529]:409-10 My; [HY 4 no 3580]:277-9 Jl; [HY 5 no 3656]:147-52 S '63; Reply. 90 [HY 3 no 3911]:313-16 My '64

Tables for depth before hydraulic jump. E. J. Middlebrooks and M. W. Corey. Water & Sewage Works 111:466-7 O '64

HYDRAULIC laboratories

Baldwin-Lima-Hamilton dedicates new hydraulic laboratory. il Elec World 161:38 Je 8 '64

HYDRAULIC laboratories—*Continued*

Water tunnel as a research tool. A. F. Lehman and T. E. Peirce. bibliog il diag Astronautics & Aeronautics 2:27-30 My '64

HYDRAULIC machinery

Automatic puller-press slashes setup time. il Elec Constr & Maint 63:149-50 S '64

Calculating horsepower losses in an air-oil system. J. Carpenter. diag Hydraulics & Pneumatics 16:90+ N '63

Cams multiply low pressure input forces. K. P. Schubert. diags Hydraulics & Pneumatics 16:86-7 N '63

Centrifugal types of dynamic shaft seals. G. M. Wood and others. il diags Machine Design 36:129-30+ Ja 30 '64

Cutter slices costs; Acushmet process co. N. Randolph. il Rubber World 149:60-1 D '63

Cylinders quickly couple 8000-hp coupling. diag Hydraulics & Pneumatics 17:20 S '64

Double pumps supply telescoping cylinders of unloading platform. W. A. Kostick. il diags Hydraulics & Pneumatics 16:84-5 N '63

Fishing with hydraulic power. il Hydraulics & Pneumatics 17:16+ Ag '64

Flow control valves reduce flow requirement, eliminate pump. R. E. Stauffer. il diags Hydraulics & Pneumatics 17:105-8+ O '64

Fluid power international exhibition, London, April 13-18. Engineer 217:757-8 Ap 24 '64; Engineering 197:503 Ap 10 '64

Fluid power products review. il diags Hydraulics & Pneumatics 17:133-235 Ja '64

High efficiency from new fluid coupling. il diag Engineering 197:80 Ja 17 '64

How oil temperature is controlled. W. P. Bartz. il diag Hydraulics & Pneumatics 17:46 F '64

Hydraulic clamping on car engine assembly. il Engineering 197:331 F 28 '64

Hydraulic draw bench cuts cylinder repacking. il Steel 155:31 S 21 '64

Hydraulic drilling rig. Engineer 216:820 N 15 '63

Hydraulic guillotine beheads concrete piles. il diag Eng N 172:92-3 My 21 '64

Hydraulic lift installations. il diags Engineer 217:301-2 F 14 '64

Hydraulic plate shear. il Engineer 217:1006 Je 5 '64

Hydraulic setting chock. il Engineer 217: 874 My 15 '64

Hydraulic takeup improves belt installation. il diag Coal Age 69:176+ Ap '64

Hydraulics and pneumatics; 1964 review of technical literature. Hydraulics & Pneumatics 17:67-82 Jl '64

Hydraulics cushion air cylinder. il Product Eng 35:108-9 O 12 '64

Improved hydraulic strain tests. il Engineering 198:251 Ag 21 '64

Influence of hydraulic equipment design on mobile forging manipulator equipment. S. W. Taylor. il Engineer 218:155-8 Jl 31 '64

Low energy rate forming cuts die costs. R. L. Ballard. il diag Hydraulics & Pneumatics 17:96-7 Jl '64

Machine tool hydraulics conference, 6th, Chicago. Automation 11:15 Jl '64; Mach 70: 134-5 Jl '64

Madan airhydropumps. il diags Engineering 196:594-5 N 8 '63

Massive weight holds rockets down for testing. il Product Eng 35:51 Ag 31 '64

Pilot valve controls fluid in tube expander. B. Mazis. diag Hydraulics & Pneumatics 17:78-9 Ap '64

Poclain; one machine, 40 attachments. il Eng N 172:57-8 Je 11 '64

Quick-disconnects help bottle milk. il Hydraulics & Pneumatics 17:26 My '64

Servo actuator stacks slugs of hydraulic fluid to produce an accurate digital readout. il diag Product Eng 34:36 D 23 '63

Six cylinders stack concrete blocks. diags Hydraulics & Pneumatics 17:18+ S '64

Six foot globe shows geological structure. il diag Engineering 198:232 Ag 21 '64

Three stage pump gives planer seven speeds. il Hydraulics & Pneumatics 17:22+ S '64

Trends in hydraulic equipment for mobile construction machinery. P. C. Mortenson. Automotive Ind 130:63-5 Je 15 '64

Unique tube pump slashes abrasive wear. diag Chem Eng 71:62+ F 3 '64

Vickers machine tool hydraulic conference, 6th, Chicago; with abstracts of papers. Automotive Ind 131:56-7 Ag 1 '64; Hydraulics & Pneumatics 17:20+ Ag '64

See also

Airplanes—Hydraulic equipment
Airplanes, Military—Hydraulic equipment
Airplanes, Supersonic—Hydraulic equipment
Hydraulic presses
Hydraulic rams
Ships—Hydraulic equipment
Tractors, Farm—Hydraulic equipment
Turbines
Valves, Hydraulic

Cavitation

Cavitation in an impeller; looking from the inside out. R. R. Langteau and E. R. Dodge. bibliog il diag Water & Sewage Works 111: 122-31 Mr '64

Cavitation properties of liquids. A. J. Stepanoff. diags A S M E Trans ser A 86:195-200 Ap '64

Cavitation tests on hydrofoils designed for accelerating flow cascade. F. Numachi. bibliog diags A S M E Trans ser D 86: 543-55 S '64

Choked flow about vented or cavitating hydrofoils. A. G. Fabula. bibliog diags A S M E Trans ser D 86:561-8 S '64

Design comments and experimental results for cavitation-resistant inducers up to 40,000 suction specific speed. M. K. Wright. il diags A S M E Trans ser A 86:176-80 Ap '64

Mechanism of head breakdown in cavitating inducers. J. K. Jakobsen. bibliog diags A S M E Trans ser D 86:291-305 Je '64

Cleaning

Hydraulic system filter choice is complex problem; abstract. T. I. Monroe. S A E J 72:105 Ja '64

Control

Electrical control of fluid power systems. K. B. Rexford. bibliog diags Hydraulics & Pneumatics 17:69-72 Mr '64

Design

Analogue computers speed hydraulic system design. R. N. Franzle. diags Hydraulics & Pneumatics 17:73-6 Ap '64

Connecting elements into circuits and systems. J. N. Shinn and W. A. Boothe. bibliog il diags Control Eng 11:86-93 S '64

Design for maintenance; the user challenges the machine tool builder. N. M. Hoffmann. il Lub Eng 20:231-8 Je '64

Design ideas from a numerically controlled machine tool. R. K. Sedgwick. il diags Hydraulics & Pneumatics 17:41-5 F '64

Fluid power book issue; design data; product directory. il diags Machine Design 35:1-390 D 12 '63

How to control hydraulic-system leakage. J. J. Pippenger. diags Machine Design 36: 199-202 Je 18 '64

Hydraulic systems. R. W. Henke. il diags Machine Design 36:144-8 My 7; 172-7 My 21; 144-50 Je 4; 119-23 Jl 2; 172-4 Jl 16; 108-12 Jl 30; 126-31 Ag 13; 166-73 Ag 27; 206-12 S 10; 173-82 S 24 '64 (reprints $2)

Nine point plan to improve service of hydraulic line systems. il diags Plant Eng 17: 123-5 D '63

Organization and operation of a Hydraulic dept. L. S. McNickle, jr. Iron & Steel Eng 41:125-8 Ap '64

Ten ways to use pilot-operated relief valves. M. J. Quinto and S. G. Taylor. diags Hydraulics & Pneumatics 17:87-9 My '64

Maintenance and repair

How they're simplifying fluid power maintenance. T. Goldoftas. il diags Hydraulics & Pneumatics 17:87-97 S '64

How to avoid aeration in hydraulic circuits. A. T. J. Hayward. diags Hydraulics & Pneumatics 16:79-83 N '63

How to control hydraulic-system leakage. J. J. Pippenger. diags Machine Design 36: 199-202 Je 18 '64

Hydraulic maintenance; preventive-selective program; Hanna coal co. L. S. Nickle, jr. Coal Age 69:82-5+ Ag '64

Hydraulic maintenance underground; status report. J. S. Schroeder. il diags Coal Age 69:105-8 Ap '64

Hydraulic service tips; noise in a hydraulic system. G. C. Bonnell. diag Hydraulics & Pneumatics 17:92 Mr '64

Organization and operation of a Hydraulic dept. L. S. McNickle, jr. Iron & Steel Eng 41:125-8 Ap '64

Specifications

Quick guide to product selection; specification charts. Hydraulics & Pneumatics 17: 73-120 Ja '64

Testing

Environmental testing of hydraulic pumps. J. A. Denneny, jr. and C. B. Brantley. il diags Hydraulics & Pneumatics 17:82-5 Je '64

HYDRAULIC mining

Cavity control, key to solution mining. il diag Can Chem Process 48:63-6 Je '64
Hydraulic mining research; progress report. E. R. Palowitch and W. T. Malenka. il plans diags Min Cong J 50:66-73 S '64
Hydraulic pitch mining; Vicary Creek system. il plan Coal Age 69:94-6+ Ap '64
Instant erosion; Minneapolis storm drain tunnel. R. L. Moxey. il plan diag Comp Air Mag 69:10-15 My '64
Kalium Chemicals to use solution mining technique to recover Saskatchewan potash. il diag Min Eng 16:72-3 Je '64
Kalium's potash solution mining plant will go on-stream this fall in Canada. il map plan Eng & Min J 165:110-13 Je '64
Significance of solution mining to the potash industry. B. P. Edmonds. il Can Min & Met Bul 57:953-5 S '64
Tunnel borer and shaft drill teamed at American gilsonite co.'s hydraulic mining operation. il diag Eng & Min J 165:68-70 Jl '64

HYDRAULIC models

Form-induced hydraulic forces on three-leaf intake gates. R. A. Elder and J. M. Garrison. diags Am Soc C E Proc 90 [HY 3 no 3905]:215-33 My '64
Hydraulic downpull on ice harbor powerhouse gate. P. M. Smith. il diags Am Soc C E Proc 90 [HY 3 no 3903]:193-213 My '64
Intruded salt-water wedge in porous media. R. R. Rumer, jr. and D. R. F. Harleman. bibliog diags Am Soc C E Proc 89 [HY 6 no 3707]:193-220 N '63; Correction. 90 [HY 4 no 3980]:337 Jl '64
Model simulation of salinity intrusion in tidal estuaries. D. I. H. Barr. bibliog diags Engineer 216:885-93 N 29 '63
Rock trap experience in unlined tunnels. J. J. Mattimoe and others. il diags Am Soc C E Proc 90 [PO 3 no 4067]:29-45 O '64
Scale models in hydraulic engineering. Pub Works 95:176+ Je '64
Shells sub for sand in tests. il Eng N 172:46 My 14 '64
Transitions for canals and culverts. W. P. Simmons. il diags Am Soc C E Proc 90 [HY 3 no 3918]:115-53 My '64
Water wave recording instrument for use in hydraulic models. J. B. Moore. diags J Sci Instr 41:321-3 My '64

HYDRAULIC motors

Designing a pressure intensifier. J. Morando. diags Hydraulics & Pneumatics 16:85-8 D '63
Fluid motors; fluid power component selection charts. Hydraulics & Pneumatics 17:94-5 Ja '64
Geared motors synchronize telescoping cylinders. G. A. Grappo. il diags Hydraulics & Pneumatics 17:102-3 S '64
Hydraulic front-wheel drive ups tractor pull. il diags Machine Design 36:150-1 O 8 '64
Hydraulic motors. il Engineer 216:1001 D 13 '63
Hydraulic motors. R. A. Manogue. diags Machine Design 35:53-8 D 12 '63
Hydraulic motors for rotary drives to 174 hp. il diag Engineering 197:155 Ja 24 '64
Hydraulic systems; selecting pumps and actuators. R. W. Henke. il diags Machine Design 36:119-23 Jl 2 '64
Hydraulic winch has integral fluid motor. diag Hydraulics & Pneumatics 17:32+ Mr '64
Hydrodifferential transmission; new designs for variable speed. M. Schacter. diags Hydraulics & Pneumatics 17:65-8 Ap; 65-7 Ag '64
New hydrostatic drive; vehicle's wheels house hydraulic motors. il Automotive Ind 131:37-8 Ag 1 '64
Vickers-Detroit hydraulic motors. il Engineer 217:108 Ja 10 '64

HYDRAULIC presses

Cincinnati Milling adds four models to Hi-production Hydroform press line. il Mach 71:198+ S '64
Cold-welding of electronic assemblies simplified with hydraulic presses; Scully-Anthony corp. il Mach 70:125 Ag '64
Combination cold extrusion press. il diag Engineer 217:690 Ap 17 '64
Dual pressure hydraulic system insures product quality. A. Pennanen. il diag Hydraulics & Pneumatics 16:113 N '63
Europe's largest die forging press. il Aircraft Eng 36:246-7 Ag '64
Extrusion and stretch reducing of tubular products. A. Klein and others. il diags Iron & Steel Eng 41:97-103; Discussion. 103-5 Jl '64
Faster steel ring forging by hydraulic forging press. il diag Mech Eng 85:55 D '63
15-ton hydraulic bench press. il Engineer 217:833 My 8 '64
Giant hydraulic press tests missile skin. il Hydraulics & Pneumatics 17:42 Jl '64
Hi-lo circuit uses pressure-compensated pump. N. M. Dean. il diags Hydraulics & Pneumatics 17:116-17 S '64
Hydrodynamic forming. R. M. Cogan. il diags Mach 70:127-33 Jl '64
Mobile hydraulic press facilities shop work. il Elec Constr & Maint 62:86+ D '63
Press centers red hot billets. il Iron Age 193:60 Ja 23 '64
Press extrudes, upsets, pierces. il diags Iron Age 193:144-5 My 21 '64
Press has infinitely variable speed drives. il Hydraulics & Pneumatics 16:32 N '63
Press has pressure-compensated pump. diag Hydraulics & Pneumatics 17:44+ Jl '64
Press stamps burr-free parts. R. H. Eshelman. il diags Iron Age 194:84-5 Jl 16 '64
Simple hydraulic vibrator. S. Stockwell. diag Hydraulics & Pneumatics 17:98 S '64
Small oil-filled pressure vessel capable of producing controlled pressures up to 200,000 psi. diag Product Eng 35:58 Mr 30 '64
30 000-tonne die-forging press. il Engineer 218:230 Ag 7 '64
Tubular frame hydraulic press. il Engineer 218:591 O 9 '64
200 psi + intensifier + linkage = 100 tons for molding fiberglass ladders. H. Hopfeld. il diags Hydraulics & Pneumatics 17:86 Mr '64
Unique hydraulic press for cold extrusion. il Metallurgia 69:225-7 My '64

Control

Controlling rate of pump output controls cylinder acceleration. F. G. Cizek. il diag Hydraulics & Pneumatics 17:86-7 Ap '64
Four pilot-operated check valves control closing speed of plastic molding press. il diags Hydraulics & Pneumatics 17:82-3 Mr '64

HYDRAULIC rams

Controlling pump displacement for accurate speed. R. V. McNeill. il diags Hydraulics & Pneumatics 17:102-4 O '64
Hydraulic ram automates wood-chopping chores. il diag Machine Design 36:168-9 Je 18 '64

HYDRAULIC research

Practical results of hydraulics research. il Civil Eng 34:38-40 Ag '64

HYDRAULIC transmission

Added hydraulics boost efficiency of threading machine. il Mach 71:123 O '64
Adjustable speed hydraulic drives. L. G. Jordan. il diags Iron & Steel Eng 41:91-7 Ap '64
Bubble-proof air relief valves. il Engineer 218:144 Jl 24 '64
Bureau of mines evaluates fire resistance of hydraulic fluids. S. P. Polack. il diag Iron & Steel Eng 41:105-8; Discussion. 108-10 Ag '64
Characteristics of hydraulic transmissions for mobile equipment. R. Henke. diags Hydraulics & Pneumatics 16:94+ N '63
Circuit ideas from a transfer molding machine. M. Brodsky. il diag Hydraulics & Pneumatics 17:88 Mr '64
Compact hydraulic marine gearbox. il diag Engineering 197:192 Ja 31 '64
Comparison of hydraulic and pneumatic systems. Z. L. Lansky. diags Machine Design 35:7-10 D 12 '63
Compatibility; matching seals to fire-resistant fluids. J. N. Smith. Hydraulics & Pneumatics 17:112+ S '64
Dashpots and damping. L. Dodge. diags Product Eng 35:69-73 S 28 '64
Development and testing of elastomeric materials for fluid sealing applications. C. M. Blow. Aircraft Eng 36:208-12 Jl '64
Dynamic response of fluid lines. A. F. D'Souza and R. Oldenburger. bibliog diags A S M E Trans ser D 86:589-98 S '64
Evaluation of potential 700°F. hydraulic fluids in a pump loop. V. Hopkins and D. R. Wilson. Ind & Eng Chem Product Res & Develop 3:38-43 Mr '64
Expanding horizons in fluid power. D. B. Gardiner. Hydraulics & Pneumatics 16:78 D '63
Filter know-how adds years to hydraulic service. A. H. Engstrom. il diags Plant Eng 18:120-3 Jl '64
Fluid power at work; keeping up with design, application, methods. Published in monthly numbers of Hydraulics and pneumatics
For hydraulic systems, drives, dashpots, what's hot in fluids? H. M. Schiefer. il Product Eng 35:101-9 Ag 3 '64

HYDRAULIC transmission—*Continued*
Formation and evaluation of fire-resistant hydraulic fluids. R. J. Foitl and W. J. Kucera. Iron & Steel Eng 41:117-19; Discussion. 119-20 Jl '64
High-speed mixer has hydrostatic drive. il Eng N 173:44 N 5 '64
High-temperature hydraulic fluids from petroleum. E. E. Klaus and others. bibliog Ind & Eng Chem Product Res & Develop 2:332-8 D '63
How to avoid aeration in hydraulic circuits. A. T. J. Hayward. diags Hydraulics & Pneumatics 16:79-83 N '63
How to calculate hydrostatic transmission coefficients. W. E. Wilson. Hydraulics & Pneumatics 17:104-6 S '64
How to control hydraulic-system leakage. J. J. Pippenger. diags Machine Design 36:199-202 Je 18 '64
Hydraulic drive adds life to compressor units. il Oil & Gas J 62:163-4 Ap 6 '64
Hydraulic equipment and fluids; principles systems, functions, maintenance. il diags Coal Age 69:69-84 Ja '64
Hydraulic fluids. D. C. McMacken. Machine Design 35:112-15 D 12 '63
Hydraulic fluids; fluid power component selection charts. Hydraulics & Pneumatics 17:100-1 Ja '64
Hydraulic lift has separate thrust tube. diag Hydraulics & Pneumatics 16:37 N '63
Hydraulic systems. R. W. Henke. il diags Machine Design 36:144-8 My 7; 172-7 My 21; 144-50 Je 4; 119-23 Jl 2; 172-4 Jl 16; 108-12 Jl 30; 126-31 Ag 13; 166-73 Ag 27; 206-12 S 10; 173-82 S 24 '64 (reprints $2)
Hydraulic transmission control maintains nonslip shifting. il diags Machine Design 36:214-15 Ap 23 '64
Hydraulic variable speed drive. il diag Plant Eng 17:106-7 N '63
Hydrodifferential transmissions; new designs for variable speed. M. Schacter. diags Hydraulics & Pneumatics 17:65-8 Ap; 65-7 Ag '64
Hydromechanical transmission for road vehicles. diag Engineer 218:109 Jl 17 '64
Hydrostatic drives for aircraft tow-tractors. il Product Eng 35:43 Ag 31 '64
Hydrostatic transmissions. W. E. Wilson and C. D. Lemme. Machine Design 36:178-87 Mr 26 '64
Linear fluid power transmission; an oil hydraulic oscillator. L. M. Sutherland. il diags Tappi 47:565-8 S '64
Mobile conveyor is hydraulically driven. il Eng N 172:34 Ap 30 '64
Modernizing the hydraulic circuit on a pipe lathe. J. Yonk and S. G. Tansey. il diag Hydraulics & Pneumatics 17:94-5 Mr '64
New 5606 fluid; shear stability up, contamination down. T. N. Deane. Hydraulics & Pneumatics 17:130-3 O '64
Nine point plan to improve service of hydraulic line systems. il diags Plant Eng 17:123-5 D '63
Open center circuit floats mower's cutters. J. Woodward. il diag Hydraulics & Pneumatics 17:90-1 My '64
Predicting elastomer-fluid compatability for hydraulic systems. A. Beerbower and others. bibliog Rubber Chem & Tech 37:246-60 Ja '64
Predicting on-the-job performance of hydraulic systems. M. O. Dustin. il diags Hydraulics & Pneumatics 17:70-2 Ap '64
Principles of fluid power storage. W. Ernst and H. Purcell. il diag Hydraulics & Pneumatics 16:97-9 D '63; 17:53-4+ F '64
Rx for hydraulic systems. Diesel Equip Supt 42:28-30 Mr '64
Reliable fluid systems. F. D. Yeaple. diags Product Eng 34:59-62 D 23 '63
Review of fluid power transmission. A. E. Bingham. bibliog il diags Naval Eng J 75:945-54 D '63
Saturn V fueldraulic gimbal system. J. B. Gayle. il diags Hydraulics & Pneumatics 16:69-71 D '63
Selecting and installing the hydraulic pump. D. E. Vosburgh. Lub Eng 20:299-304 Ag '64
Silting index; what it is, how to find it, what it tells. J. K. Van Loon. il Hydraulics & Pneumatics 17:78-80 Mr '64
Simplification of hydraulic line dynamics by use of infinite products. R. Oldenburger and R. E. Goodson. bibliog diags A S M E Trans ser D 86:1-8; Discussion. 9-10 Mr '64
Single lever controls vehicle drive; snow-cleaning machine. il diag Hydraulics & Pneumatics 17:16+ Jl '64
Some yardsticks for filtration of hydraulic fluids. A. A. Kuecken. Foundry 92:124-6 My '64
Spool valve times hydraulic flow. W. J. Millard. il diags Hydraulics & Pneumatics 17:96-7 My '64
Thermal analysis of hydraulic systems. J. D. Parker and F. C. McQuiston. bibliog diags Hydraulics & Pneumatics 17:57-61 Ag; 112-16 O '64
Time delay relief valve. P. Barkan and U. R. Tognella. diag Hydraulics & Pneumatics 17:118-19 O '64
Trailer drives itself through mud. il Eng N 172:178-80 Je 18 '64
Understanding pressure-compensated flow controls. C. O. Breitsprecher. diags Hydraulics & Pneumatics 17:72+ Je '64
Using pressure-compensated flow control valves. E. E. Dyal. diags Hydraulics & Pneumatics 17:81-3 Ap '64
Variable speed fluid drives. il diag Automation 11:85 Ja '64
Wash filters; new concept in contamination control. R. L. Carmon. il diags Hydraulics & Pneumatics 17:116-17 My '64
What you can get in manifolds. il Hydraulics & Pneumatics 16:88-9 N '63
See also
Airplanes—Hydraulic equipment
Airplanes, Military—Hydraulic equipment
Airplanes, Supersonic—Hydraulic equipment
Hydraulic motors
Torque converters
Tractors, Farm—Hydraulic equipment
also subdivision Transmission under special subjects, e.g.
Automobiles
Motor trucks
Motor vehicles

Terminology

Fluid power symbols. F. L. Mackin. diags Machine Design 35:11-15 D 12 '63
Proposed changes to standardize fluid power symbols. J. J. Pippenger. diags Plant Eng 18:119-21+ My '64

HYDRAULIC turbines. See Turbines

HYDRAULIC valves. See Valves, Hydraulic

HYDRAULICS
Hydraulic aspects of Arkansas River stabilization. M. S. Petersen. il map plans Am Soc C E Proc 89 [WW 4 no 3699]:29-65 N '63; Discussion. 90 [WW 1 no 3814]: 173 F; [WW 2 no 3917]:35-7 My '64
Hydraulic efficiency of aluminum pipe over a large range of Reynolds' numbers. A. Brebner. Can J Chem Eng 42:45-6 F '64
Shear measurement technique for rough surfaces. L. S. Hwang and E. M. Laursen. bibliog il diags Am Soc C E Proc 89 [HY 2 no 3451]:19-37 Mr '63; Discussion. P. S. Granville. 89 [HY 5 no 3656]:157-9 S '63; Reply. 90 [HY 4 no 3980]:221-2 Jl '64
See also
Floods
Fluids
Hydrostatics
Intakes
Jets
Liquids
National conference on industrial hydraulics
Nozzles
Run-off
Seepage
Settling tanks
Siphons
Water
Waves
Wells

Bibliography

Translations of foreign literature on hydraulics; progress report. Am Soc C E Proc 90 [HY 2 no 3844]:247-53 Mr '64

Electric analogies

Analogue procedure for determination of virtual mass. O. C. Zienkiewicz and B. Nath. bibliog il diags Am Soc C E Proc 90 [HY 5 no 4042]:69-81 S '64

Tables, calculations, etc.

Boundary flow along a circular cylinder. R. O. Reid and B. W. Wilson. bibliog diags Am Soc C E Proc 89 [HY 3 no 3512]:21-40 My '63; Discussion. 89 [HY 6 no 3708]: 277 N '63; Reply. 90 [HY 3 no 3911]:321-6 My '64
Characteristics of the backwater curve. H. R. Vallentine. diags Am Soc C E Proc 90 [HY 4 no 3964]:39-49 Jl '64
Domain variations in channel seepage flow. H. J. Morel-Seytoux. diags Am Soc C E Proc 90 [HY 2 no 3822]:55-79 Mr '64

HYDRAULICS—Tables, calculations, etc.—*Cont.*

End depth for circular channels. N. Rajaratnam and D. Muralidhar. bibliog diags Am Soc C E Proc 90 [HY 2 no 3828]:99-119 Mr '64; Discussion. 90 [HY 5 no 4050]:261-70 S '64

End depth for exponential channels. N. Rajaratnam and D. Muralidhar. bibliog diags Am Soc C E Proc 90 [IR 1 no 3819]: 17-39 Mr '64; Discussion. R. M. Advani. 90 [HY 5 no 4050]:253-6 S '64

Expression for bed-load transportation. M. S. Yalin. bibliog Am Soc C E Proc 89 [HY 3 no 3525]:221-50 My '63; Discussion. C. F. Nordin, jr. and J. P. Beverage. 90 [HY 1 no 3783]:303-13 Ja '64; Reply. 90 [HY 3 no 3911]:331-2 My '64

Flow characteristics of axisymmetric expansions. M. C. Chaturvedi. bibliog il diag Am Soc C E Proc 89 [HY 3 no 3515]:61-92 My '63; Discussion. 89 [HY 5 no 3656]:173-7 S '63; 90 [HY 1 no 3783]:277-85 Ja '64; Reply. 90 [HY 5 no 4050]:147-8 S '64

Hydraulics of thin film flow. J. B. Franzini and N. A. Hassan. diags Am Soc C E Proc 90 [HY 2 no 3816]:23-36 Mr '64

Moving interface in coastal aquifers. J. Bear and G. Dagan. il diags Am Soc C E Proc 90 [HY 4 no 3988]:193-216 Jl '64

Numerical solution to a dispersion equation. N. Yotsukura and M. B. Fiering. bibliog Am Soc C E Proc 90 [HY 5 no 4046]:83-104 S '64

Simple dimensional method for hydraulic problems. R. B. Whittington. diag Am Soc C E Proc 89 [HY 5 no 3629]:1-27 S '63; Discussion. 90 [HY 1 no 3783]:357-8 Ja; [HY 3 no 3911]:345-50 My '64; Reply. 90 [HY 6 no 4130]:249-50 N '64

Solving the equations of uniform flow. W. F. Pickard. Am Soc C E Proc 89 [HY 4 no 3567]:23-38 Jl '63; Discussion. 90 [HY 1 no 3783]:319-27 Ja '64; Reply. 90 [HY 4 no 3980]:239-40 Jl '64

Supplement to Peterson's design of replenishment wells. M. S. Hantush. Am Soc C E Proc 90 [IR 1 no 3838]:67-76 Mr '64

Turbulent flow in rectangular ducts. H. J. Leutheusser. bibliog diags Am Soc C E Proc 89 [HY 3 no 3508]:1-19 My '63; Discussion. R. E. Nece. 90 [HY 1 no 3783]:271-2 Ja '64; Reply. 90 [HY 4 no 3980]:229 Jl '64

Unsaturated flow in ground-water hydraulics. H. Bouwer. bibliog diags Am Soc C E Proc 90 [HY 5 no 4057]:121-44 S '64

HYDRAZIDES

Chemiluminescence of luminol and related hydrazides; the light emission step. E. H. White and M. M. Bursey. bibliog Am Chem Soc J 86:941-2 Mr 5 '64

Coulometric determination of carboxylic acid hydrazides. A. F. Krivis and others. bibliog Anal Chem 35:1955-7 N '63

Hydrogenation with diimide generated from chloroacetylhydrazide. R. Buyle and others. Chem & Ind p839 My 16 '64

Investigation of *p*-nitrobenzhydrazide as an acid-base indicator. G. J. Papariello and S. Commanday. Anal Chem 36:1028-30 My '64

Polarographic determination of *p,p'*-oxybis (benzenesulfonyl hydrazide) in polyethylene blends. C. C. Budke and others. Anal Chem 36:523-6 Mr '64

Reaction mechanisms proposed for nitrogen compounds. Chem & Eng N 42:40-1 Ag 3 '64

HYDRAZINE

Acid-base method for determining mixtures of either hydrazine-1,1-dimethylhydrazine or monomethylhydrazine-1,1-dimethyldrazine. H. E. Malone and R. A. Biggers. Anal Chem 36:1037-9 My '64

Ammonia oxidation; low-cost route to hydrazine; process flowsheet. E. Guccione. il Chem Eng 71:72-4 Mr 2 '64

Coulometric analysis with gas volume measurement. D. M. King and A. J. Bard. diag Anal Chem 36:2351-2 N '64

Determination of beta-hydroxyethyl-hydrazine in pineapples. M. P. Thomas and H. J. Ackermann. bibliog J Agri & Food Chem 12:432-3 S '64

Hydrazine as a rocket fuel. il Product Eng 35:29 Mr 2 '64

Hydrogenation of conjugated fatty acids with hydrazine. T. Takagi and B. M. Craig. bibliog Am Oil Chem Soc J 41:660-1 O '64

Proton magnetic resonance studies of the hydrogen-bonding properties of several hydrazines. J. R. Crook and K. Schug. bibliog Am Chem Soc J 86:4271-6 O 20 '64

Raschig synthesis of hydrazine; investigation of chloramine formation reaction. S. R. M. Ellis and others. bibliog diag Ind & Eng Chem Proc Design 3:18-22 Ja '64

Raschig synthesis of hydrazine; the stability of chloramine in the reaction solution. G. V. Jeffreys and J. T. Wharton. bibliog diag J Ap Chem 14:203-9 My '64

Reactions of 1,3-cyclohexanediones with hydrazine; a novel pyridazinopyridazine synthesis as a result of oxidation promoted by steric strain. J. K. Stille and R. Ertz. bibliog Am Chem Soc J 86:661-4 F 20 '64

Analysis

Analysis of ammonia-hydrazine mixtures for both components. S. S. Yamamura and J. H. Sikes. bibliog Anal Chem 35:1958-60 N '63

Controlled-potential coulometric determination of hydrazine. G. L. Booman and W. B. Holbrook. Anal Chem 35:1986-7 N '63

Polarography of derivatives of hydrazines with acetone. D. K. Banerjee and others. Anal Chem 36:2220-1 O '64

Specific determination of monomethyl hydrazine in dilute aqueous solutions containing other hydrazine derivatives. E. W. Neumann and H. G. Nadeau. Anal Chem 36: 640-1 Mr '64

HYDRAZOIC acid

Aromatic amination with hydrazoic acid catalyzed by Lewis acids; orientation, activity, and relative rates. P. Kovacic and others. bibliog Am Chem Soc J 86:1588-92 Ap 20 '64

HYDRAZONES

Base-induced pyrolysis of tosylhydrazones of α,β-unsaturated aldehydes and ketones; a convenient synthesis of some alkylcyclopropenes. G. L. Closs and others. bibliog Am Chem Soc J 85:3796-800 D 5 '63

Diazene-hydrazone rearrangement. D. M. Lemal and others. bibliog Am Chem Soc J 86:2395-401 Je 20 '64

Increasing sensitivity of 3-methyl-2-benzothiazolone hydrazone test for analysis of aliphatic aldehydes in air. T. R. Hauser and R. L. Cummins. Anal Chem 36:679-81 Mr '64

Synthesis of deoxy-compounds from carbohydrate toluene-*p*-sulphonylhydrazones. A. N. de Belder and H. Weigel. Chem & Ind p 1689 O 3 '64

Synthesis of dihydrooxadiazinones and study of geometrical isomerism in α-ketol carbethoxyhydrazones. M. Rosenblum and others. bibliog Am Chem Soc J 85:3874-8 D 5 '63

Wolff-Kishner reaction of hydrazones. H. H. Szmant and C. M. Harmuth. bibliog Am Chem Soc J 86:2909-14 Jl 20 '64

See also

Phenylhydrazones

HYDRAZYL

Electrochemistry of diphenylpicrylhydrazyl. E. Solon and A. J. Bard. bibliog Am Chem Soc J 86:1926-8 My 20 '64

HYDRIDES

Autoradiographic location of precipitated hydride in a Zr-two per cent Nb alloy. W. H. Erickson and D. Hardie. il Inst Metals J 92:191-2 '63-64

Carbonyl-stretching absorptions in the pentacarbonyl hydrides of manganese, technetium, and rhenium. D. K. Huggins and H. D. Kaesz. bibliog Am Chem Soc J 86: 2734-6 Jl 5 '64

Condensation of camphene and phenol; product formation via a direct 2,6-hydride transfer. W. F. Erman. bibliog diags Am Chem Soc J 86:2887-97 Jl 20 '64

Solvent-sensitive rearrangement of 7-substituted norbornadienes to cycloheptatriene using complex hydrides. B. Franzus and E. I. Snyder. bibliog Am Chem Soc J 85:3902-3 D 5 '63

Thermodynamics of hydrides. J. H. E. Jeffes and H. McKerrell. bibliog Iron & Steel Inst J 202:666-76 Ag '64

See also

Boron hydrides
Lithium aluminum hydride
Zirconium hydrides

HYDRIODIC acid

Convenient method for the removal of iodine from aqueous solutions of hydriodic acid. C. M. Davidson and R. F. Jameson. Chem & Ind p 1686-7 O 19 '63

Purification of hydrobromic and hydriodic acids by ion-exchange. H. Irving and P. D. Wilson. Chem & Ind p653-4 Ap 18 '64

Reactions of hydroxylamine-O-sulfonic acids with water and with hydriodic acid. P. A. S. Smith and others. bibliog Am Chem Soc J 86:1139-45 Mr 20 '64

Versatile ketone synthesis; the reduction of α-diketones and α-ketols by hydriodic acid. W. Reusch and R. LeMahieu. bibliog Am Chem Soc J 86:3068-72 Ag 5 '64

HYDROBROMIC acid

Cis-trans isomerization in vinyl radicals; gas phase radical-chain addition of hydrogen bromide to propyne. P S. Skell and R. G. Allen. bibliog Am Chem Soc J 86:1559-60 Ap 20 '64

Cyclobutane compounds; formation of a four-membered ring during the electrophilic addition of hydrogen bromide to allene. K. Griesbaum. bibliog Am Chem Soc J 86:2301-3 Je 5 '64

Determination of vanadyl porphyrins by demetalation with hydrogen bromide-formic acid. J. M. Sugihara and R. G. Garvey. bibliog Anal Chem 36:2374-6 N '64

Mechanism of transalkylation of ethylbenzene with gallium bromide-hydrogen bromide. A. Streitwieser, jr. and L. Reif. bibliog Am Chem Soc J 86:1988-93 My 20 '64

Methods for the determination of cyclopropenoid fatty acids; a stepwise hydrogen bromide titration method for cyclopropenoid and epoxy derivatives. J. A. Harris and others. Am Oil Chem Soc J 40:718-20 D '63

Methods for the determination of cyclopropenoid fatty acids; application of the step-wise HBr titration method to the analysis of refined and crude cottonseed oils. J. A. Harris and others. bibliog Am Oil Chem Soc J 41:309-11 Ap '64

Preparation of anhydrous hydrogen bromide. A. D. B. Sloan. diag Chem & Ind p574 Ap 4 '64

Purification of hydrobromic and hydriodic acids by ion-exchange. H. Irving and P. D. Wilson. Chem & Ind p653-4 Ap 18 '64

HYDROCARBONS

Acidity of hydrocarbons; relative stabilities of triphenylmethyl and bridgehead triptycyl carbanions. A. Streitwieser, jr. and others. Am Chem Soc J 86:3578-9 S 5 '64

Application of Benedict-Webb-Rubin equation of state to hydrogen sulfide-hydrocarbon mixtures. R. Simon and J. E. Briggs. bibliog diag A I Ch E J 10:548-50 Jl '64

Automatic triparametric recording in fluorometry of polynuclear hydrocarbons. M. M. Schachter and E. O. Haenni. bibliog il diags Anal Chem 36:2045-7 S '64

Base-catalysed autoxidation of hydrocarbons in diphenyl sulphoxide. T. J. Wallace and others. bibliog Chem & Ind p 1316-17 Jl 18 '64

Catalytic oxidation of hydrocarbons. R. S. Mann and D. Rouleau. bibliog flow diag Ind & Eng Chem Product Res & Develop 3:94-6 Je '64

Complete up-to-date list of the hydrocarbons isolated from petroleum. B. J. Mair. Oil & Gas J 62:130-4 S 14 '64

Contacting efficiency in hydrocarbon synthesis. H. Grekel and others. diags Chem Eng Prog 60:56-60 Ja '64

Critical opalescence of a fluorocarbonhydrocarbon liquid mixture; normal perfluoroheptane-normal heptane. B. Chu. bibliog Am Chem Soc J 86:3557-61 S 5 '64

Cubane. P. E. Eaton and T. W. Cole, jr. Am Chem Soc J 86:3157-8 Ag 5 '64

Density of wool in hydrocarbons. P. Larose. bibliog Textile Res J 34:80-1 Ja '64

Direct determination of hydrocarbon sulfides in kraft gases by gas-liquid chromatography. E. W. Thomas. bibliog Tappi 47:587-8 S '64

Disposing of halogenated hydrocarbon waste. J. H. S. Haggin. il Ind & Eng Chem 56:10+ Ja '64

Drying liquid hydrocarbons using adsorptive agents. D. E. Eaves and P. R. Sewell. bibliog diag Ind & Eng Chem Proc Design 3:361-5 O '64

Effect of pore size of silica gels on the separation of hydrocarbons. A. V. Kiselev and others. bibliog Anal Chem 36:1526-33 Jl '64

Electron capture processes in the γ-radiation of organic halides in hydrocarbon rigid matrices. E. P. Bertin and W. H. Hamill. bibliog Am Chem Soc J 86:1301-4 Ap 5 '64

Empirical model for nonbonded H-H repulsion energies in hydrocarbons. H. E. Simmons and J. K. Williams. bibliog Am Chem Soc J 86:3222-6 Ag 20 '64

Estimate heat capacity for liquids: nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:115-19 F '64

Fuel cell burns liquid hydrocarbons with air. diag Machine Design 35:12 N 21 '63

Gas chromatographic separation of hydrocarbons (C_1 to C_8) by carbon number using packed capillary columns. W. Schneider and others. bibliog Anal Chem 36:1533-40 Jl '64

Imports of chlorinated hydrocarbons set records. Chem & Eng N 42:37 O 26 '64

Inhibition of carcinogenesis; the effect of polycyclic hydrocarbons and related compounds. H. L. Falk and others. bibliog Archives Environmental Health 9:169-79 Ag '64

Initiation of ionic reactions in liquid hydrocarbons via photoionization with vacuum ultraviolet radiation; the polymerization of isobutylene. E. W. Schlag and J. J. Sparapany. bibliog Am Chem Soc J 86:1875-6 My 5 '64

Injection of liquid hydrocarbons into a chemical shock tube. G. M. Kimber and others. diags Chem & Ind p 1683-4 O 3 '64

Insertion reaction by methyne forms ethylene. A. P. Wolf and G. Stöcklin. il Chem & Eng N 42:46-7 Ja 27 '64

Mechanism of hydrogen formation in the radiolysis of cyclohexane and other hydrocarbons. S. Z. Toma and W. H. Hamill. bibliog Am Chem Soc J 86:1478-83 Ap 20 '64

Multiplicity of mechanisms in the Cope rearrangement. G. S. Hammond and C. D. DeBoer. bibliog diags Am Chem Soc J 86:899-902 Mr 5 '64

New carborane, $B_9C_2H_{11}$, and its derivatives. F. Tebbe and others. bibliog Am Chem Soc J 86:4222-3 O 5 '64

New fuel cell powered by liquid hydrocarbons makes 100 w in initial tests. il Oil & Gas J 62:46-7 N 2 '64

Organic sulfur compounds; oxidative addition of thiol acids to unsaturated hydrocarbons; cooxidation of thiolacetic acid and indene by molecular oxygen. A. A. Oswald and others. bibliog Am Chem Soc J 86:3791-5 S 20 '64

Oxidation of $TiCl_3$ in hydrocarbon and aqueous media. G. P. Belonovskaya and others. bibliog Rubber Chem & Tech 37:128-33 Ja '64

Photoreduction of 2,2-diphenyl-1-picrylhydrazyl (DPPH) in hydrocarbons. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:296-7 Ja 20 '64

Polycyclic hydrocarbons as carcinogens for man H. L. Falk and others. Archives Environmental Health 8:721-30 bibliog(p728-30) My '64

Reaction of CH radicals with ammonia. D. R. Safrany and others. Am Chem Soc J 86:3160 Ag 5 '64

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Selectivity factor in vapor-phase hydrocarbon oxidation catalysis. J. L. Callahan and R. K. Grasselli. bibliog diags A I Ch E J 9:755-60 N '63

Selectivity in hydrocarbon oxidation. M. Spielman. bibliog A I Ch E J 10:496-501 Jl '64

Small ring bicyclic azo compounds and bicyclic hydrocarbons; isomerization of bicyclo[2.1.0]pentane and bicyclo[2.2.0]hexane. C. Steel and others. bibliog Am Chem Soc J 86:679-84 F 20 '64

Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D. I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64

Solutions of alkali metal carboxylate mixtures in hydrocarbons. E. Kissa. bibliog J Colloid Sci 19:279-89 Mr '64

Some hydrocarbons of the gas phase of cigarette smoke. R. J. Philippe and others. bibliog Anal Chem 36:859-65 Ap '64

Soybean unsaponifiables; hydrocarbons from deodorizer condensates. C. D. Evans and others. bibliog flow sheet Am Oil Chem Soc J 41:406-11 Je '64

Strain energies in hydrocarbons from heats of combustion; concerning the possibility of a transannular interaction in 1,8-cyclotetradecadiyne. M. A. Frisch and others. bibliog Am Chem Soc J 86:335-6 F 5 '64

Studies of hydrocarbons on mineral dusts. J. S. Harington and M. Smith. bibliog Archives Environmental Health 8:453-8 Mr '64

Substituted phenylbutyl adipates and hydrocarbons as oxidatively autoinhibitive compounds. H. E. Mertwoy and H. Gisser. bibliog Ind & Eng Chem Product Res & Develop 3:180-6 S '64

System gives useful current densities. G. Sandstede. Chem & Eng N 42:42-3 My 18 '64

System offered to dispose of chlorinated hydrocarbon waste. Chem & Eng N 41:54 D 16 '63

HYDROCARBONS—*Continued*

Thermal decomposition rates of saturated cyclic hydrocarbons. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:248-54 Jl '64

Thermo properties of hydrocarbons (cont). L. N. Canjar and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 Je '64

Triquinacene. R. B. Woodward and others. diags Am Chem Soc J 86:3162-4 Ag 5 '64

Utilisation of hydrocarbons by microorganisms. M. J. Johnson. bibliog Chem & Ind p 1532-7 S 5 '64

Variation in concentration of some tar constituents in coke-oven gas. G. W. Girling and E. G. Ormerod. bibliog diags J Ap Chem 14:36-40 Ja '64

Viscosity correlation for light hydrocarbon systems. A. L. Lee and others. bibliog A I Ch E J 10:694-7 S '64

X-ray structure determination of cubane. E. B. Fleischer. diag Am Chem Soc J 86:3889-90 S 20 '64

See also

Azulene
Butane
Cyclopropane
Decalin
Ethane
Fischer-Tropsch process
Heptane
Isobutane
Olefins
Paraffins
Propane
Propylene
Terpenes

Analysis

Automatic gas chromatograph distillation analyzer. H. J. Maier and others. il diag Instruments & Control Systems 37:75-6 Ag '64

Critical temperatures and pressures of ternary hydrocarbon mixtures; the ethane-propane-n-butane system. R. B. Grieves and G. Thodos. bibliog J Ap Chem 13:466-70 O '63

Determination of 1-butene-3-yne in C_4 hydrocarbons by gas liquid chromatography. S. A. Pollard. bibliog Anal Chem 36:999-1002 My '64

Determination of butyllithium in hydrocarbons by thermometric titration with butanol. W. L. Everson. Anal Chem 36:854-6 Ap '64

Determination of hydrocarbons in crude oil by capillary-column gas chromatography. R. L. Martin and J. C. Winters. bibliog diag Anal Chem 35:1930-3 N '63

Determination of sulphur content of hydrocarbons by bremsstrahlung absorption measurement. T. B. Rowley. bibliog diags Radio & Electronic Eng 26:298-304 O '63

Gas chromatography of aqueous solutions; determination of hydrocarbons and halocarbons. E. S. Jacobs. Anal Chem 35:2035-7 D '63

Hydro-chromagraph, a process-type water analyzer combining chromatographic separation and electrolysis cell detection. C. J. Penther and L. J. Notter. il diags Anal Chem 36:283-6 F '64

Iodimetric determination of milligram amounts of rubber hydrocarbon. K. R. Middleton. bibliog Rubber Chem & Tech 37:733-40 Jl '64

Quantitative gas chromatographic analysis of hydrocarbons with capillary columns and flame ionization detector. H. Bruderreck and others. bibliog Anal Chem 36:461-73 Mr '64

Routine separation and determination of total saturated hydrocarbons in heavy petroleum samples by absorption chromatography. L. R. Snyder and W. F. Roth. bibliog Anal Chem 36:128-32 Ja '64

Simultaneous determination of crude oil boiling range distribution and hydrocarbon-type distribution by gas chromatography. V. F. Gaylor and others. bibliog Anal Chem 36:1606-12 Jl '64

Trace moisture measured continuously. R. E. Voelker and C. N. White. bibliog diags Hydrocarbon Process & Pet Refiner 43:139-42 Jl '64

Manufacture

Coal conversion in an electric arc. P. R. Ammann and others. bibliog il diags Chem Eng Prog 60:52-7 Je '64

Design and operation of a pilot-scale plant for hydrocarbon synthesis in the slurry phase. R. Farley and D. J. Ray. bibliog il diags Inst Pet J 50:27-44; Discussion. 45-6 F '64

Distillate treating; Petrolite corp. Petreco div. flow diag Hydrocarbon Process & Pet Refiner 43:203 S '64

Esso achievement; adsorption process for hydrocarbon purification. il Chem Eng 70:236 N 11 '63

New refinery for Carless, Capel & Leonard ltd. il Chem & Ind p 1235 Jl 4 '64

Synthol process; the M. W. Kellogg co. diag Hydrocarbon Process & Pet Refiner 42:225 N '63

Physiological effect

Identification of nitro-olefins in the combustion products of hydrocarbons. K. F. Lampe and W. B. Deichmann. bibliog diag Ind Med 33:281-3 My '64

Photodynamic bioassay of polycyclic air pollutants. S. S. Epstein and others. bibliog Archives Environmental Health 7:531-7 N '63

Relative hepatotoxicity. Z. T. Wirtschafter and M. W. Cronyn. bibliog Archives Environmental Health 9:180-5 Ag '64

Separation processes

Characterization of the component distribution in the fractionation of multicomponent mixtures. R. M. Butler and I. S. Pasternak. bibliog diag Can J Chem Eng 42:47-53 Ap '64

Developing predictive mathematical models for hydrocarbon separations. J. A. Horn and D. G. Miller. diag Chem Eng 71:117-22 S 28 '64

Dow study enlarges knowledge on glycol-hydrocarbon separation. Oil & Gas J 62:178-9 Je 22 '64

HYDROCARBONS, Aromatic

Absolute configuration of menthyl arenesulfinates. E. B. Fleischer and others. bibliog diag Am Chem Soc J 86:3395-6 Ag 20 '64

Bonding in arene metal complexes clearer. L. F. Dahl and M. F. Bailey. Chem & Eng N 42:50+ S 21 '64

Charge-transfer complexes in solution; spectrophotometric studies of aromatic hydrocarbon-aromatic nitro compounds dissolved in carbon tetrachloride. N. B. Jurinski and P. A. D. de Maine. bibliog Am Chem Soc J 86:3217-22 Ag 20 '64

Chemical markets for C_8-C_9-aromatics. P. W. Sherwood. il Ind Chem 40:25-8 Ja '64

Cumulative influence of conjugated substituents on the π-system properties of aromatic hydrocarbons; the methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 85:3933-6 D 20 '63

Cumulative influence of dimethylamino groups on the π-system properties of aromatic hydrocarbons. A. Zweig and others. bibliog Am Chem Soc J 86:4130-6 O 5 '64

Electrochemical oxidation of acetic acid in the presence of aromatic hydrocarbons. S. D. Ross and others. bibliog Am Chem Soc J 86:4139-43 O 5 '64

Electron paramagnetic resonance study of electron exchange effects in reduced aromatic hydrocarbon polymers. D. H. Eargle, jr. bibliog diag Am Chem Soc J 86:2567-9 Jl 5 '64

Low-voltage sensitivities of aromatic hydrocarbons. H. E. Lumpkin and T. Aczel. Anal Chem 36:181-4 Ja '64

Oxidative dealkylation of alkylaromatic hydrocarbons. C. J. Norton and T. E. Moss. bibliog diag Ind & Eng Chem Proc Design 3:23-32 Ja '64

Petroleum fractions as DDT solvents. A. M. Thomas, jr. bibliog J Agri & Food Chem 12:442-7 S '64

π-system properties of pyromellitonitrile. A. Zweig and others. bibliog Am Chem Soc J 85:3937-9 D 20 '63

Polarization of charge-transfer bands. M. Chowdhury and L. Goodman. bibliog Am Chem Soc J 86:2777-81 Jl 20 '64

Selectivity and solvency in aromatics recovery. C. H. Deal and E. L. Derr. bibliog Ind & Eng Chem Proc Design 3:394-9 O '64

Stimulated emission in aromatic organic compounds. D. L. Stockman and others. bibliog diag IEEE Proc 52:318-19 Mr '64

See also

Benzene
Toluene

Analysis

Analysis of aromatic hydrocarbons from pitch oils by liquid chromatography on gas chromatography analog. C. Karr, jr. and others. Anal Chem 36:2105-8 O '64

HYDROCARBONS, Aromatic—Analysis—*Cont.*

Chromatographic separation of polycyclic aromatic hydrocarbons on columns containing *s*-trinitrobenzene. R. Tye and Z. Bell. Anal Chem 36:1612-15 Jl '64

Detection of traces of polynuclear aromatics in hydrocarbons by gas chromatography. H. J Dawson, jr Anal Chem 36:1852-3 Ag '64

Multidimensional chromatography of arenes produced during combustion. M. Mukai and others. bibliog diag Anal Chem 36:1126-30 My '64

Quantitative analysis of aromatic hydrocarbons by capillary gas chromatography. J. Q. Walker and D. L. Ahlberg. bibliog Anal Chem 35:2022-7 D '63

Rapid method for isolation and identification of sesquiterpene hydrocarbons in cold-pressed grapefruit oil. G. L. K. Hunter and W. B. Brogden, jr. bibliog Anal Chem 36:1122-3 My '64

Routine determination of aromatic hydrocarbon types in catalytically cracked gas oils by linear elution adsorption chromatography. L. R. Snyder. bibliog diag Anal Chem 36:774-81 Ap '64

Manufacture

Alkar; Universal oil products co. diag Hydrocarbon Process & Pet Refiner 42:141 N '63

Aromatic extraction process uses DMSO. il Chem & Eng N 42:50-1 O 5 '64

New solvent for aromatics extraction. G. Cousserans. bibliog diags Hydrocarbon Process & Pet Refiner 43:149-52 Je '64

Second solvent improves extraction. D. G. Hutton. bibliog diag Hydrocarbon Process & Pet Refiner 43:138-40 Ag '64

Selected process flow sheets for petrochemicals; aromatics. Oil & Gas J 62:109 S 7 '64

Sulfolane extraction; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:224 S '64

Upgrading coke oven aromatics. A. K. Logwinuk and others. bibliog flow diag Ind & Eng Chem 56:20-6 Ap '64

HYDROCHLORIC acid

Additive aids well treatment. Oil & Gas J 61:97 N 11 '63

Chemical polishing of silicon with anhydrous hydrogen chloride. G. A. Lang and T. Stavish. il RCA R 24:488-98 D '63

Decomposition of methyl oleate hydroperoxide on the celite/dinitrophenylhydrazine-hydrochloric acid column. M. M. Horikx. bibliog J Ap Chem 14:50-2 Ja '64

Density of gaseous hydrogen chloride; nomograph. A. M. P. Tans. Ind Chem 39: 597 N '63

Effect of cold-work on corrosion of iron and steel in hydrochloric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diag Electrochem Soc J 111:522-8 My '64

Etching of germanium substrates in gaseous hydrogen chloride. J. A. Amick and others. il diags RCA R 24:473-87 D '63

Hydrogen chloride-catalyzed racemization of sulfoxides. K. Mislow and others. bibliog Am Chem Soc J 86:1452-3 Ap 5 '64

Hydrogen chloride electrolysis (Hoechst-Uhde); Hoechst-Uhde corp. diag Hydrocarbon Process & Pet Refiner 42:179 N '63

Mechanism of addition of hydrogen chloride to diene-iron carbonyls. G. F. Emerson and others. Chem & Ind p836-7 My 16 '64

Methods for the determination of cyclopropenoid fatty acids; aqueous hydrochloric acid method. F. C. Magne and others. bibliog Am Oil Chem Soc J 40:716-17 D '63

New chlorine source; byproduct hydrochloric; process flowsheet. F. B. Grosselfinger. il Chem Eng 71:172-4 S 14 '64

New technology of iron and steel; hydrochloric acid pickling. F. C. Price. flow diag Chem Eng 71:191-2 S 14 '64

Process converts HCl directly to chlorine and hydrogen. Chem & Eng N 42:41+ Ag 24 '64

Production of high purity chromium oxide and recovery of chlorine from hydrogen chloride. R. L. Hamilton. bibliog flow diag Ind & Eng Chem Proc Design 3:188-90 Ap '64

Reactions of gallium arsenide with water vapor and hydrogen chloride gas. M. Michelitsch and others. diags Electrochem Soc J 111:1248-53 N '64

Retarded HCl heralded as acidizing breakthrough. Pet Management 35:94 D '63

Sorption of orange II dye acid from mixtures with hydrochloric acid and with trichloroacetic acid. P. Larose and R. Donovan. Soc Dyers & Col J 80:322-6 Je '64

Study of $HCl-H_2$ and $GeCl_4-H_2$ etching of germanium substrates for epitaxial deposition. K. J. Miller and M. J. Grieco. bibliog Electrochem Soc J 111:1099-101 S '64

Analysis

Continuous estimation of acidic gases evolved from polymer systems. B. C. Cox and W. J. Criddle. diags Brit Plastics 37:148-50 Mr '64

HYDROCYANIC acid

Melamine process based on hydrogen cyanide and ammonia involving electrolytic conversion of hydrogen cyanide. R. W. Foreman and J. W. Sprague. bibliog diag Ind & Eng Chem Product Res & Develop 2:303-7 D '63

Ozone, HCN convert olefins to acids. E. K. Fields. Chem & Eng N 42:65 S 14 '64

Manufacture

Hydrogen cyanide (Goodrich process) Girdler corp. diag Hydrocarbon Process & Pet Refiner 42:182 N '63

Hydrogen cyanide (Shawinigan chemicals ltd.); the Lummus co. diag Hydrocarbon Process & Pet Refiner 42:183 N '63

HYDRODESULFURIZATION process. See Petroleum refining—Sulfur removal

HYDRODYNAMICS

Dynamic mechanical properties of poly-γ-benzyl-L-glutamate in a helicogenic solvent N. W. Tschoegl and J. D. Ferry. bibliog Am Chem Soc J 86:1474-7 Ap 20 '64

Eddy formation in film flow down a vertical plate. S. Portalski. bibliog diags Ind & Eng Chem Fundamentals 3:49-53 F '64

Effect of gravity on velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen. J Ap Phys 35:1983 Je '64

Elastohydrodynamics in lubricant testing. diags Engineering 197:334 F 28 '64

Gas-solid reaction in a fluidized bed. P. N. Rowe. bibliog il diags Chem Eng Prog 60: 75-80 Mr '64

High-speed rotor suspension formed by fully floating hydrodynamic radial and thrust bearings. J. Dworski. il diags A S M E Trans ser A 86:149-60 Ap '64

Hydrodynamic analysis for high-head leaf gates. E. Naudascher and others. il diags Am Soc C E Proc 90 [HY 3 no 3904]:155-92 bibliog(p 186-92) My '64; Correction. 90 [HY 5 no 4050]:293-5 S '64

Initial instability of a viscous fluid interface. W. E. Ranz and W. M. Dreier, jr. bibliog il diags Ind & Eng Chem Fundamentals 3:53-60 F '64

Minimization of wave drag on struts, using Mathieu functions. H. S. Bluston. bibliog diag A S M E Trans ser E 31:341-2 Je '64

Reinforced polyester is the natural choice for aero- and hydrodynamic research. il Plastics World 21:16-17 N '63

Shear measurement technique for rough surfaces. L. S. Hwang and E. M. Laursen. bibliog il diags Am Soc C E Proc 89 [HY 2 no 3451]:19-37 Mr '63; Discussion. P. S. Granville. 89 [HY 5 no 3656]:157-9 S '63; Reply. 90 [HY 4 no 3980]:221-2 Jl '64

Solar wind. E. N. Parker. il diags Sci Am 210:66-76 Ap '64

Stability of curved flows. R. C. DiPrima. bibliog A S M E Trans ser E 30:486-92 D '63

Temperature effects on the hydrodynamic compression treatment of spot welds. G. Welter and J. A. Choquet. bibliog il Welding J 43:sup202-8 My '64

Thin-walled specimen container for neutron scattering studies of liquids at high temperatures and pressures. S. J. Cocking and A. R. Ball. diag J Sci Instr 41:376-8 Je '64

Underwater propulsion. S. Barnes. il diags Machine Design 36:140-5 Ag 27 '64

Vertical water-exit and -entry of slender symmetric bodies. J. P. Moran. bibliog AIAA J 2:1480-2 Ag '64

Water tunnel as a research tool. A. F. Lehman and T. E. Peirce. bibliog il diag Astronautics & Aeronautics 2:27-30 My '64

See also

Boundary layer
Bubbles
Cavitation
Compressibilty
Couette flow
Drops
Fluidization
Gas flow
Heat convection
Hydraulic machinery—Cavitation
Hydrofoils
Jets

HYDRODYNAMICS—See also—*Continued*

Ship resistance
Steam
Turbulence
Viscosity
Vortex motion
Waves

HYDROELECTRIC plants

FPC plans hydro-dam inspection. Eng N 173:13 O 29 '64
Form-induced hydraulic forces on three-leaf intake gates. R. A. Elder and J. M. Garrison. diags Am Soc C E Proc 90 [HY 3 no 3905]:215-33 My '64
Hydraulic downpull on ice harbor powerhouse gate. P. M. Smith. il diags Am Soc C E Proc 90 [HY 3 no 3903]:193-213 My '64
$114.5-million job goes begging; Yuba County river project. map diag Eng N 173:19-20 S 24 '64
Power-stations of 1963. il map diag Engineer 217:59-60, 113-14, 151-3 Ja 3-17 '64
Pressure cell observations-Garrison dam project. H. A. Sikso and C. V. Johnson. il plans diags Am Soc C E Proc 90 [SM 5 no 4023]:157-79 S '64
Some overseas schemes. il Engineer 217:supp 12-16 Ap 24 '64

See also

St Lawrence waterway and power project
Water supply for power plants

Combination with steam plants

Method for economic scheduling of a combined pumped hydro and steam generating system. P. J. Bernard and others. IEEE Trans Power Apparatus & Systems p23-30 Ja '64
Thermal power station joins a Canadian hydro complex. H. J. Petersen. il plan Power Eng 68:49-52 F; 56-9+ Ap '64

Construction

Aswan dam; stage two begins. il map plans diag Engineering 197:732-3 My 29 '64
Big powerhouse intake structure floats into place. il Eng N 172:32-3 Ap 30 '64
Design and performance of Mammoth Pool power tunnel. B. R. Laverty and K. R. Ludwig. il maps plans diags Am Soc C E Proc 89 [PO 1 no 3642]:9-43 S '63; Discussion. 90 [PO 1 no 3849]:97-105 Mr; 90 [PO 2 no 3977]:25-8 Jl '64
Manicouagan aux Outardes power project. F. Rousseau. il map Eng J 46:37-40 O '63
Middle Fork American River project progress report. il maps Water & Sewage Works 111:224-8 My '64
Peace River diversion dries the way for huge earthmoving job. il Eng N 171:38-9 N 28 '63
Scotland's big pumped storage scheme at Loch Awe. il map plans Engineering 197:545-8 Ap 17 '64
Tunnels for hydroelectric power in Tasmania. H. H. Thomas and L. S. Whitham. bibliog il diags Am Soc C E Proc 90 [PO 3 no 4065]:11-28 O '64
Two states, utilities join hands to build power project on the Sabine River. map Elec World 161:18 My 25 '64

Control

How microwave coordinates two dams on Mokelumne River. L. B. Hertzberg and M. C. Rea. maps diag Power Eng 68:T23-5 Mr '64
Ready operations center for Colorado River plants. C. A. Kemp and J. K. Cummings. il map Elec World 162:24-5+ Jl 6 '64

Costs

Senator Wash hydro job in California; unit prices. Eng N 172:141 Ap 2 '64
Venezuela's Guri hydro project; unit prices. diag Eng N 171:101+ D 19 '63

Design

Electrical design considerations in pumped storage hydro plants. P. G. Brown and G. W. Otte. il diags Elec Eng 82:654-60 N '63
Landscaping to conserve the countryside. il Engineering 197:613-16 My 1 '64
Sea is the only route to remote hydro project. il map Eng N 173:32-3 Jl 16 '64
Tokke hydro-electric scheme. K. Y. Nilsen. il map Engineer 218:428-30 S 11 '64
Will Cornwall plant scar Hudson landscape? il Elec World 161:20-1 Ap 27 '64

Equipment

Hydro-electric power in central Malaya. il map Engineering 197:460-1 Mr 27 '64
Rock trap experience in unlined tunnels. J. J. Mattimoe and others. il diags Am Soc C E Proc 90 [PO 3 no 4067]:29-45 O '64
Symposium on pumped storage; American pumped storage equipment and operation. F. E. Jaski. Am Soc C E Proc 88 [PO 4 no 3370]:135-42 D '62; Discussion. 89 [PO 1 no 3652]:173-7 S '63; Reply. 90 [PO 1 no 3849]:91-4 Mr '64
Use of T-1 steel for Oahe spiral cases. W. J. Rheingans. il Am Soc C E Proc 88 [PO 4 no 3339]:1-13 D '62; Discussion. 89 [PO 1 no 3652]:147-9 S '63; Reply. 90 [PO 1 no 3849]:77-8 Mr '64

See also

Penstocks
Surge tanks

Government ownership

Federal pumped storage hit by utilities. map Elec World 161:63-4 F 24 '64
Moratorium sets on lower Colorado. il Elec World 162:47 S 7 '64
US, Canada near accord on power pact. Elec World 161:22 Ja 6 '64

Pumped storage

See Hydroelectric plants—Storage type

Storage type

Central packaged air-compressor station for construction of Yards Creek pumped-storage system. il diags Power 108:73 Je '64
Computer smooths pumped-storage intricacies. J. W. Skooglund. diags Elec World 161:90-1 My 18 '64
Electrical design considerations in pumped storage hydro plants. P. G. Brown and G. W. Otte. il diags Elec Eng 82:654-60 N '63
Federal pumped storage hit by utilities. map Elec World 161:63-4 F 24 '64
Method for economic scheduling of a combined pumped hydro and steam generating system. P. J. Bernard and others. IEEE Trans Power Apparatus & Systems p23-30 Ja '64
Middle Fork American River project progress report. il maps Water & Sewage Works 111:224-8 My '64
Peak power provided by the rain; Rheidol hydroelectric scheme. il map diag Engineering 198:21-3 Jl 3 '64
Pumped-storage hydro plant gives small stream large task. il map Eng N 172:32-4+ Je 25 '64
Reservoir, high in mountains, feeds coastal power plant; South Vietnam's Da Nhim dam and powerhouse. il Eng N 172:22 Ja 2 '64
San Luis pumped-storage unit to be among Nation's largest. D. L. Goodman. il map Power Eng 68:42-4 My '64
Scotland's big pumped storage scheme at Loch Awe. il map plans Engineering 197:545-8 Ap 17 '64
Special section on pumped-storage plants. il diags Power Eng 68:26-33 Jl '64
Symposium on pumped storage; American pumped storage equipment and operation. F. E. Jaski. Am Soc C E Proc 88 [PO 4 no 3370]:135-42 D '62; Discussion. 89 [PO 1 no 3652]:173-7 S '63; Reply. 90 [PO 1 no 3849]:91-4 Mr '64
Symposium on pumped storage; development of reversible pump-turbines. M. Braikevitch and others. il diags Am Soc C E Proc 88 [PO 4 no 3368]:83-106 bibliog(p 104-6) D '62; Discussion. 89 [PO 1 no 3652]:163-8 S '63; Reply. 90 [PO 2 no 3977]:17-20 Jl '64
Symposium on pumped storage; run-of-river pumped storage, Smith Mountain project. M. J. Hroncich and J. M. Mullarkey. il plans diags Am Soc C E Proc 88 [PO 2 no 3203]:183-209 Jl '62; Discussion. M. D. Copen and E. L. Schaffer. 89 [PO 1 no 3652]:133-4 S '63; Reply. 90 [PO 1 no 3849]:69-74 Mr '64
300-mw pumped storage plant goes into operation in Wales. il Power Eng 67:60 D '63
US, Canada near accord on power pact. Elec World 161:22 Ja 6 '64
Utilities estimate 4,100-mw peaking potential on river; Connecticut Valley companies. map Elec World 162:19 N 9 '64
Will Cornwall plant scar Hudson landscape? il Elec World 161:20-1 Ap 27 '64
Yards Creek pumped storage power station. il Mech Eng 86:58-9 Mr '64

Alaska

Corps reveals plans for Rampart dam. map Eng N 173:21 O 22 '64

HYDROELECTRIC plants—*Continued*

Australia

Unlined tunnels of the Snowy Mountains hydro-electric authority, Australia. H. E. Dann and others. bibliog il maps diags Am Soc C E Proc 90 [PO 3 no 4071]:47-79 O '64

Austria

Power-stations of 1963; Aschach on the Danube. il Engineer 217:59-60, 113 Ja 3-10 '64

Tyrolean rockfill is highest and steepest in Europe; Gepatsch dam, Austria. il map diag Eng N 172:34-6 Ap 23 '64

British Columbia

Hopes raised for Columbia hydro plan. map Eng N 172:18 Ja 9 '64

Peace River diversion dries the way for huge earthmoving job. il Eng N 171:38-9 N 28 '63

US, Canada near accord on power pact. Elec World 161:22 Ja 6 '64

California

Design and performance of Mammoth Pool power tunnel. B. R. Laverty and K. R. Ludwig. il maps plans diags Am Soc C E Proc 89 [PO 1 no 3642]:9-43 S '63; Discussion. 90 [PO 1 no 3849]:97-105 Mr; [PO 2 no 3977]:25-8 Jl '64

Earth-moving at Oroville dam. il Engineer 218:419 S 11 '64

San Luis pumped-storage unit to be among Nation's largest. D. L. Goodman. il map Power Eng 68:42-4 My '64

Unlined tunnels of the Southern California Edison company. R. W. Spencer and others. il maps plans Am Soc C E Proc 90 [PO 3 no 4087]:105-32 O '64

Yuba River award could be highest single contract. Eng N 173:13 Jl 30 '64

China

Red China builds big hydro plant. il Elec World 160:16 N 11 '63

Colorado

Horrow Point dam is a Bureau of reclamation first. il map Eng N 173:95-6 Ag 6 '64

Ready operations center for Colorado River plants. C. A. Kemp and J. K. Cummings. il map Elec World 162:24-5+ Jl 6 '64

Egypt

Aswan dam; stage two begins. il map plans diag Engineering 197:732-3 My 29 '64

Aswan's first stage completed. il maps diag Eng N 172:55-8 My 21 '64

Finland

Finland reports power plant construction since World war II. IEEE Trans Power Apparatus & Systems 83:sup5A-6A Ag '64

France

Constructors harness the tides of France. W. G. Bowman. il diag Eng N 173:32-3+ S 10 '64

Progress on the Durance. Engineer 218:231 Ag 7 '64

Ghana

Ghana's Akosombo dam has Volta River in harness. il map Eng N 173:26-8 Jl 30 '64

India

Idikki hydroelectric project. Engineer 216:964 D 6 '63

Indonesia

Power tower is actually a thin arch dam. il diag Eng N 171:92-3 N 14 '63

Japan

Kyushu; one dam up, four to go. il Eng N 17:132 D 19 '63

Labrador

Canadian hydro for New York city; Grand Falls project would cost $1 billion. maps Eng N 172:13-14 Ja 16 '64

Hamilton Falls power; which way out? il map Elec World 162:59-60 Jl 27 '64

Louisiana

Texas, Louisiana start Toledo Bend dam. map Eng N 172:19 Ap 30 '64

Malaya

Hydro-electric power in central Malaya. il map Engineering 197:460-1 Mr 27 '64

Manitoba

Some foundation considerations at the Grand Rapids hydro-electric project. J. R. Rettie and F. W. Patterson. il maps diags Eng J 46:32-8 D '63; Discussion. 47:98-9+ O '64

New England

Utilities estimate 4,100-mw peaking potential on river; Connecticut Valley companies. map Elec World 162:19 N 9 '64

New Jersey

Central packaged air-compressor station for construction of Yards Creek pumped-storage system. il diags Power 108:73 Je '64

Pumped-storage hydro plant gives small stream large task. il map Eng N 172:32-4+ Je 25 '64

Yards Creek pumped storage power station. il Mech Eng 86:58-9 Mr '64

New York (state)

Time prompts line plan change; Cornwall station. map Elec World 161:85 My 18 '64

Will Cornwall plant scar Hudson landscape? il Elec World 161:20-1 Ap 27 '64

New Zealand

Sea is the only route to remote hydro project. il map Eng N 173:32-3 Jl 16 '64

Northwestern states

FPC gives the nod to private power in Snake River ruling. map Eng N 172:47 F 13 '64

Investor utility wins Mountain Sheep. il Elec World 161:17-18 F 17 '64

Norway

Tokke hydro-electric scheme. K. Y. Nilsen. il map Engineer 218:428-30 S 11 '64

Ontario

Ontario Hydro taps Far-North power with new plants and 500-kv ehv. il Power Eng 68:60 F '64

Ontario Hydro's ehv line passes the halfway mark. il map Power Eng 68:65-7 Je '64

See also

Ontario—Hydroelectric power commission

Oregon

Round Butte dam fish-handling costs 2.5 per cent of total-project outlay. G. J. Eicher. il diags Elec World 161:36-9 F 10 '64

Pakistan

Mangla dam, biggest contract ever. il maps diags Engineering 197:198-9 Ja 31 '64

World's biggest earthmoving job makes history in Pakistan; Mangla dam project. P. B. Harder. il Roads & Sts 107:64-9+ Ag '64

Quebec (province)

Analyse et solution du problème d'étanchéité au batardeau amont de l'aménagement de Manicouagan 5. C. A. Dagenais and G. Turenne. maps plan diags Eng J 47:19-24; Discussion. 52 Ja '64

Concrete cutoff wall drilled down 250 ft. I. V. Galbiati. il diags Civil Eng 33:59-61 N '63

Manicouagan-aux Outardes power project. F. Rousseau. il map Eng J 46:37-40 O '63

Manicouagan Dam project requires millions of tons of materials. il map Pit & Quarry 57:96-101+ S '64

Rumania

Two-nation Danube project will open the Iron Gate. map Eng N 173:65 S 17 '64

Russia

Russians build plant in sub-zero weather; Bratsk dam and hydroplant. Elec World 161:98 Ja 13 '64

Scotland

Hydro in the Highlands lifts Scotland's economy. W. G. Bowman. il maps diags Eng N 173:62-6+ Jl 2 '64

More hydro-electric power from the Scottish highlands. il Engineering 196:711 D 6 '63

Scotland's big pumped storage scheme at Loch Awe. il map plans Engineering 197:545-8 Ap 17 '64

Spain

Aldeadavila dam ready for dedication. il Eng N 173:31 S 3 '64

HYDROELECTRIC plants—*Continued*

Sudan

Roseires dam half complete. il Engineering 196:549 N 1 '63

Sweden

Sweden; new energy plans take hold. J. J. O'Connor. il map diags Power 108:179-86 F '64 (reprints 25c)

Switzerland

Butterfly valves for hydro station, Mattmark, Switzerland J. F. Petree. il Mech Eng 85:74 N '63

Taiwan

Tippetts-Abbett-McCarthy-Stratton turns over Shihmen dam. il Eng N 173:19 Jl 23 '64

Tasmania

Tasmania expands hydropower. il Eng N 172:158 Je 18 '64

Tunnels for hydroelectric power in Tasmania. H. H. Thomas and L. S. Whitham. bibliog il diags Am Soc C E Proc 90 [PO 3 no 4065]:11-28 O '64

Texas

Texas, Louisiana start Toledo Bend dam. map Eng N 172:19 Ap 30 '64

Thailand

First power due at Bhumiphol. il Eng N 172:29 Ap 9 '64

Thailand dam goes on line. il Elec World 161:60 Je 29 '64

Turkey

Hydro power projects get priority; Keban dam and powerhouse planned for the Firat (Euphrates) River. il map Eng N 173:43-4 Jl 9 '64

Venezuela

Guri project on the Caroni River emphasizes power as key to Venezuelan development program. K. E. Sorensen and D. P. Roberts. il plan Power Eng 68:60-2 Je '64

Venezuela's Guri hydro project; unit prices. diag Eng N 171:101+ D 19 '63

Viet Nam

Reservoir, high in mountains, feeds coastal power plant; South Vietnam's Da Nhim dam and powerhouse. il Eng N 172:22 Ja 2 '64

Virginia

Hydro project to boost area economy. il Elec World 162:17-18 N 9 '64

Symposium on pumped storage; run-of-river pumped storage, Smith Mountain project. M. J. Hroncich and J. M. Mullarkey. il plans diags Am Soc C E Proc 88 [PO 2 no 3203]:183-209 Jl '62; Discussion. M. D. Copen and E. L. Schaffer. 89 [PO 1 no 3652]:133-4 S '63; Reply. 90 [PO 1 no 3849]:69-74 Mr '64

Wales

Peak power provided by the rain; Rheidol hydroelectric scheme. il map diag Engineering 198:21-3 Jl 3 '64

300-mw pumped storage plant goes into operation in Wales. il Power Eng 67:60 D '63

Yugoslavia

Two-nation Danube project will open the Iron Gate. map Eng N 173:65 S 17 '64

HYDROELECTRIC power

Computer application to load-resource analysis. E. N. Freeman and J. S. Clubb. diags IEEE Trans Power Apparatus & Systems 83:336-40 Ap '64

Power in Canada. il Eng J 46:31-5+ O '63

See also

Ontario—Hydroelectric power commission

St Lawrence waterway and power project

Tidal power

also subdivision Power utilization under names of rivers, e.g.

Colorado River

Columbia River

Snake River

Susquehanna River

HYDROELECTRIC power commission. See Ontario—Hydroelectric power commission

HYDROFINING process. See Petroleum refining—Sulfur removal

HYDROFLUORIC acid

Anion exchange study of a number of elements in nitric-hydrofluoric acid mixtures. E. A. Huff. bibliog diags Anal Chem 36:1921-3 S '64

Behavior of esters in liquid hydrogen fluoride. E. J. Hedgley and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:1576-86 Ap 20 '64

Chemical etching of germanium in solutions of HF, HNO_3, H_2O, and $HC_2H_3O_2$. B. Schwartz and H. Robbins. bibliog Electrochem Soc J 111:196-201 F '64

Dissolution behavior of microporous glass. R. J. Charles. il Am Cer Soc J 47:154-5 Mr '64

Electrochemistry of the dissolution of zirconium in aqueous solutions of hydrofluoric acid. R. E. Meyer. bibliog diag Electrochem Soc J 111:147-55 F '64

Electrolysis in anhydrous hydrogen fluoride. H. H. Rogers and others. bibliog diags Electrochem Soc J 111:701-7 Je '64

Etching polished depressions in glass plates. P. W. Kendall. J Sci Instr 41:485 Jl '64

German chemists develop HF glasses. il Chem & Eng N 42:42 Je 29 '64

Hydrofluoric acid prices take a turn upward. Chem & Eng N 42:25-6 Mr 2 '64

New feature in the metallographic etching of niobium. R. S. Eary and R. D. Johnston. bibliog il diags Metallurgia 69:43-9 Ja '64

Passivity of chromium and stainless steel in hydrofluoric acid. C. C. Seastrom. bibliog il Corrosion 20:179-83 Je '64

Pores in tantalum oxide films and their influence on the photoresponse. R. Dreiner and J. Schimmel. bibliog Electrochem Soc J 111:453-6 Ap '64

Properties of HF-H_2O_2 treated germanium surfaces. P. Balk and E. L. Peterson. bibliog Electrochem Soc J 110:1245-52 D '63

HYDROFOILS

Across the channel for 6d per mile. il Engineering 197:662 My 15 '64

Aggie to be built at Puget Sound bridge & dry dock co. Marine Eng/Log 69:16A Ap '64

Assembly-line hydrofoil ferries. il Marine Eng/Log 69:48-9 Ag '64

Big hydrofoil skims across English Channel for first time. il Marine Eng/Log 69:28H+ S '64

Choked flow about vented or cavitating hydrofoils. A. G. Fabula. bibliog diags A S M E Trans ser D 86:561-8 S '64

Commercial hydrofoils. T. M. Buermann and S. F. Hoerner. bibliog il diags Naval Eng J 76:191-202 Ap '64

Comparison of hydrofoils with table rolls on a Fourdrinier machine. J. Lettenberger. bibliog diags Tappi 47:sup 192A-5A O '64

Consideration of size, speed, power in the design of hydrofoil craft. S. F. Hoerner. bibliog diags Naval Eng J 75:915-23 D '63

Electronic controls tame Little Squirt. il diags Machine Design 35:164-5 N 21 '63

Hydrofoil landing vehicle flies, floats, and rolls. il diags Machine Design 36:173 Je 18 '64

Is the hydro being foiled? R. L. Barkley. il diags Naval Eng J 76:85-8 F '64

Navy's 110-ton PCH exceeding 45 knots, is first craft with fully submerged foils. il Marine Eng/Log 69:59-61 F '64

New hydrofoil to be ready in three years for Royal Canadian navy. il Naval Eng J 75:914 D '63

New look in hydrofoils. Automotive Ind 130:334-5 Mr 15 '64

New U.S. marine transportation concept: 40-ton hydrofoil goes into operation next spring, carves new niche between ships and aircraft. il diag Naval Eng J 75:998 D '63

Practical experiences with hydrofoil craft. H. E. Harris, jr. and R. E. Smith. il diag Naval Eng J 76:547-55 Ag '64

Research ship uses exotic fire system. il Safety Maint 128:35-6 Jl '64

Sperry builds first automatic stabilization system for commercial hydrofoil. Marine Eng/Log 69:98+ Ap '64

Supercavitating foils with flaps beneath a free surface. J. Auslaender. bibliog diags A S M E Trans ser D 86:197-204; Discussion. 204-6 Je '64

Theory for supercavitating flow through an arbitrary form hydrofoil. R. Ōba. A S M E Trans ser D 86:285-90 Je '64

Testing

Cavitation tests on hydrofoils designed for accelerating flow cascade. F. Numachi. bibliog diags A S M E Trans ser D 86:543-55 S '64

HYDROGEN

Acid-catalysed hydrogen exchange of pyridine 1-oxides. A. R. Katritsky and others. bibliog Chem & Ind p 1576 S 12 '64

HYDROGEN—*Continued*

Activation energy of deuterium-hydrogen exchange in amides. I. M. Klotz and B. H. Frank. Am Chem Soc J 86:3889 S 20 '64

Base-catalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Brazing in hydrogen by a glow discharge method. B. Brandt. J Sci Instr 40:542 N '63

Calculation of upper limit of hydrogens of an organic formula for analysis of mass spectra. J. Lederberg and M. Wightman. Anal Chem 36:2365 N '64

Compressibility of ammonia and its mixtures with nitrogen and hydrogen. I. M. Lichtblau and others. bibliog diag A I Ch E J 10:486-90 Jl '64

Conformational effects and hydrogen bonding in 1,4-diols. L. P. Kuhn and others. bibliog diags Am Chem Soc J 86:650-8 F 20 '64

Corrosion of iron in an H_2S-CO_2-H_2O system; influence of (single iron) crystal orientation on hydrogen penetration rate. W. F. Brickell and others. il diags Corrosion 20:235-6 Jl '64

Detonation of hydrogen-oxygen at low temperature and high pressure. K. W. Ragland and others. bibliog AIAA J 2:142-4 Ja '64

Deuterium-hydrogen exchange during the catalytic deuteration of methyl oleate. W. K. Rohwedder and others. bibliog Am Oil Chem Soc J 41:33-6 Ja '64

Diffusion and reaction rates in the orthohydrogen conversion. M. R. Rao and others. bibliog flow diag Ind & Eng Chem Fundamentals 3:127-31 My '64

Diffusion flame burner for continuous combustion of hydrogen. D. Gupta and others. bibliog diags Ind & Eng Chem Proc Design 3:70-3 Ja '64

Dissociation of vibrationally excited H_2^+ ions by an electric field. A. W. Ehler. bibliog diags J Ap Phys 35:2858-61 O '64

Effect of hydrogen bonds in the relative retention during gas-liquid chromatography with β-cyanoethyl polyvalent alcohols. J. Ratuský and L. Baštař. bibliog Chem & Ind p579-80 Ap '64

Effect of partition function cutoff upon the thermodynamic properties of atomic hydrogen and helium to 100 000°K. J. C. Hester and K. G. Sewell. bibliog J Ap Phys 35:729-30 Mr '64

Electrochemical behavior of nickel compounds: hydrogen evolution reaction on NiSi, NiAs, NiSb, NiS, $NiTe_2$, and their constituent elements. A. K. M. Shamsul Huq and A. J. Rosenberg. bibliog Electrochem Soc J 111:270-8 Mr '64

Electron pairing and linear H_3^+. J. W. Linnett. bibliog Am Chem Soc J 86:2519-20 Je 20 '64

Exchangeable hydrogen in chlorophyll and the path of hydrogen in photosynthesis. J. J. Katz and others. bibliog Am Chem Soc J 86:4220-1 O 5 '64

Experimental detonation velocities and induction distances in hydrogen-air mixtures. L. E. Bollinger. bibliog AIAA J 2:131-3 Ja '64

First Townsend ionization coefficients in hydrogen and deuterium. S. F. Barna, jr. and others. bibliog J Ap Phys 35:2781-2 S '64

Fluorocarbanions; rates of base-catalyzed hydrogen-deuterium exchange, isotope effects, and acidity of monohydrofluorocarbons. S. Andreades. bibliog Am Chem Soc J 86:2003-10 My 20 '64

Gas chromatographic determination of energy of hydrogen bonds in the adsorbed layers of alcohols on graphitized carbon black. L. D. Belyakova and others. bibliog Anal Chem 36:1517-19 Jl '64

Hydrocracking, an example of modern hydrogen processing. D. D. MacLaren and others. bibliog diags Can J Chem Eng 42:88-94 Ap '64

Hydrogen abstraction by the triplet state of benzophenone. C. Walling and M. J. Gibian. bibliog Am Chem Soc J 86:3902-3 S 20 '64

Hydrogen bond; equilibrium between hydrogen bonded and nonbonded conformation of α,ω-diol monomethyl ethers. L. P. Kuhn and R. A. Wires. bibliog Am Chem Soc J 86:2161-5 Je 5 '64

Hydrogen bonding effects on triplet energy transfer in solution. H. H. Richtol and F. H. Klappmeier. bibliog Am Chem Soc J 86:1255-6 Mr 20 '64

Hydrogen bonding studies; the thermodynamics of hydrogen bonding of phenol to ethers and related compounds. R. West and others. Am Chem Soc J 86:3227-9 Ag 20 '64

Hydrogen carrier technique for the pyrolysis of toluene. J. G. Burr and others. bibliog diag Am Chem Soc J 86:3846-50 S 20 '64

Hydrogen chemical shifts of 3-alkyl and 3-phenyl sydnones. K. D. Lawson and others. Am Chem Soc J 86:463-5 F 5 '64

Hydrogen; cryogenic route has promise. Can Chem Process 48:57 F '64

Hydrogen evolution and surface oxidation of nickel electrodes in alkaline solution. J. L. Weininger and M. W. Breiter. bibliog diag Electrochem Soc J 111:707-12 Je '64

Hydrogen exchange at methine and C-10 positions in chlorophyll. J. J. Katz and others. bibliog Am Chem Soc J 85:4049-50 D 20 '63

Hydrogen exchange of azulenes. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:322-35 F 5 '64

Hydrogen-graphite reaction between 360 and 800°. P. Breisacher and P. C. Marx. bibliog diag Am Chem Soc J 85:3518-19 N 5 '63

Hydrogen induced surface states at a Si-SiO_2 interface. K. H. Zaininger and G. Warfield. IEEE Proc 52:972-3 Ag '64

Hydrogen nuclear magnetic resonance chemical shift correlation charts for organic compounds. M. W. Dietrich and R. E. Keller. bibliog Anal Chem 36:258-9 F '64

Hydrogen pressure regulator with high absorption rate. O. Reifenschweiler. bibliog il diags R Sci Instr 35:456-60 Ap '64

Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64

Influence of hydrogen and hydrophobic bonds on the stability of the carboxylic acid dimers in aqueous solution. E. E. Schrier and others. bibliog Am Chem Soc J 86:3444-9 S 5 '64

Influence of hydrogen crowding on the rates of reactions; the addition of *cis* reagents to the dimethanonaphthalene ring system. J. K. Stille and D. R. Witherell. bibliog Am Chem Soc J 86:2188-92 Je 5 '64

Insulating firebrick developed for 2800-F, 100 per cent dry hydrogen service. Iron & Steel Eng 41:183-4 Je '64

Internal hydrogen targets for heavy liquid bubble chamber. L. Carlino and others. il diags R Sci Instr 35:1274-7 O '64

Kinetics of epitaxial growth of silicon from the trichlorosilane-hydrogen reaction. A. M. Stein. bibliog diag Electrochem Soc J 111:483-4 Ap '64

Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman. bibliog diags A I Ch E J 10:652-5 S '64

Kinetics of hydrogen reduction of iron ore in a batch-fluidized bed. J. Feinman. bibliog diags Ind & Eng Chem Proc Design 3:241-7 Jl '64

Mass spectrometry in structural and stereochemical problems; isotope effect in hydrogen rearrangement processes; the mass spectra of methyl butyrate and its γ-mono-, di-, and trideuterio analogs. D. H. Williams and others. bibliog Am Chem Soc J 86:284-7 Ja 20 '64

Mechanism of hydrogen evolution on iron in acid solution by determination of permeation rates. M. A. V. Devanathan and Z. Stachurski. bibliog diags Electrochem Soc J 111:619-23 My '64

Mechanism of hydrogen formation in the radiolysis of cyclohexane and other hydrocarbons. S. Z. Toma and W. H. Hamill. bibliog Am Chem Soc J 86:1478-83 Ap 20 '64

Mechanism of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:1078-86 S '64

Mechanisms of permanganate oxidation; oxidation of tertiary hydrogen. K. B. Wiberg and A. S. Fox. bibliog Am Chem Soc J 85:3487-91 N 5 '63

Methods of diatomics in molecules; H_3 and H_3^{+1}. F. O. Ellison and others. bibliog Am Chem Soc J 85:3544-7 N 20 '63

Narrow 21-cm emission line from a region of large angular size. S. J. Goldstein, jr. bibliog IEEE Proc 52:1046-7 S '64

New catalysts for the exchange of deuterium between hydrogen gas and liquid ammonia. A. R. Kenyon and D. Pepper. bibliog diag J Ap Chem 14:399-405 S '64

HYDROGEN—*Continued*

New hydrogen-filled diode tube. Franklin Inst J 277:294 Mr '64

New type of cationic intermediate from an intramolecular hydrogen transfer reaction. T. Cohen and J. Lipowitz. bibliog Am Chem Soc J 86:2514-15 Je 20 '64

Nuclear hydrogen-deuterium exchange in resorcinols and related compounds in weakly alkaline solution. E. S. Hand and R. M. Horowitz. bibliog Am Chem Soc J 86:2084-5 My 20 '64

Nuclear magnetic resonance studies of hydrogen bonding; calculation of the shift upon complex formation. P. J. Berkley, jr. and M. W. Hanna. bibliog diag Am Chem Soc J 86:2990-4 Ag 5 '64

Palladium curbs hydrogen waste. il Iron Age 193:86 My 7 '64

Partial molal enthalpies of adsorption of hydrogen and oxygen on platinum and on carbon-supported platinum. J. G. Aston and others. bibliog diag Am Chem Soc J 86:2097-101 Je 5 '64

Photochemistry of riboflavin; the hydrogen transfer process in the anaerobic photobleaching of flavins. W. M. Moore and others. bibliog Am Chem Soc J 85:3367-72 N 5 '63

Polarization characteristics of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:605-9 My '64

Proton magnetic resonance studies of the hydrogen-bonding properties of several hydrazines. J. R. Crook and K. Schug. bibliog Am Chem Soc J 86:4271-6 O 20 '64

Protonolysis of the tin-hydrogen bond; kinetics and mechanism. H. G. Kuivila and P. L. Levins. bibliog Am Chem Soc J 86:23-7 Ja 5 '64

Raman spectra of diamines and diammonium ions; effects of ionization on carbon-hydrogen stretching frequencies. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:559-64 F 20 '64

Rate-controlling step and rate equation for the reduction of haematite with hydrogen in a fluidised bed. G. R. Venkitakrishnan and G. N. Bhat. bibliog J Ap Chem 14:141-7 Ap '64

Reactions between secondary alcohols, ketones, and hydrogen on metallic catalysts. J. Newham and R. L. Burwell, jr. bibliog Am Chem Soc J 86:1179-86 Mr 20 '64

Reactions of acetylenes on noble metal catalysts in the absence of hydrogen. D. Bryce-Smith. Chem & Ind p239 F 8 '64

Reactions of carbon vapor with hydrogen and with methane in a high intensity arc. R. F. Baddour and J. L. Blanchet. bibliog Ind & Eng Chem Proc Design 3:258-66 Jl '64

Reactions of gaseous ions; the system methane-hydrogen. M. S. B. Munson and others. bibliog Am Chem Soc J 85:3584-8 N 20 '63

Safe electrical installations in atmospheres containing hydrogen. R. W. Scott. il diags Chem Eng 71:79-82 Mr 2 '64

Second and third virial coefficients for hydrogen. R. D. Goodwin and others. bibliog J Res Nat Bur Stand 68A:121-6 Ja '64

Separation of H_2 and D_2 by moving-bed adsorption; corroboration of adsorber design equations. D. Basmadjian. bibliog diag Can J Chem Eng 41:269-72 D '63

60mva hydrogen-cooled synchronous compensator. V. Easton. il diag Engineer 217:603-5 Ap 3 '64

Sputtering of metals by hydrogen ions. C. E. KenKnight and G. K. Wehner. bibliog il diag J Ap Phys 35:322-6 F '64

Strong hydrogen bonds; the hydrogen difluoride ion. S. A. Harrell and D. H. McDaniel. Am Chem Soc J 86:4497 O 20 '64

Study of $HCl\text{-}H_2$ and $GeCl_4\text{-}H_2$ etching of germanium substrates for epitaxial deposition. K. J. Miller and M. J. Grieco. bibliog Electrochem Soc J 111:1099-101 S '64

Surface combustion of hydrogen. D. Gidaspow and R. T. Ellington. bibliog diag A I Ch E J 10:707-16 S '64

Technical aspects of ortho-parahydrogen conversion. G. E. Schmauch and A. H. Singleton. bibliog il Ind & Eng Chem 56:20-31 My '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow discharge mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:844-53 Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow recombination mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:858-63 Jl '64

To run a taut oil refinery, keep track of your hydrogen. Chem Eng 70:94 D 9 '63

Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63

Use of $CH_4\text{-}H_2$ mixture for controlled carburization of alpha-iron. D. Driver and P. Barrand. diag Iron & Steel Inst J 202:614-15 Jl '64

See also

Aluminum—Hydrogen content
Hydrogenation
Metals—Hydrogen effect
Steel—Hydrogen content
Steel—Hydrogen effect
Titanium—Hydrogen effect

Analysis

Continuous analyzer monitors hydrogen in gaseous mixes. Chem & Eng N 41:56 N 18 '63

Determination of active hydrogen by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. Anal Chem 36:1721-3 Ag '64

Determination of hydrogen in niobium. R. J. Walter and H. G. Offner. diag Anal Chem 36:1779-81 Ag '64

Determination of hydrogen in sodium by isotopic dilution with tritium. C. Evans and J. Herrington. diags Anal Chem 35:1907-10 N '63

Gas chromatographic analysis of hydrogen-helium gas mixtures. E. H. Baum. Anal Chem 36:438-9 F '64

New analyzer continuously monitors process hydrogen. diag Oil & Gas J 62:142 Ag 17 '64

Quantitative determination of hydrogen and fluorine in organic compounds by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. bibliog diags Anal Chem 36:1713-21 Ag '64

Simple method for the determination of hydrogen in the presence of oxygen and/or nitrogen. U. Sokolov and G. Stein. Anal Chem 36:1882 Ag '64

Spectrophotometric determination of hydrogen content in heavy water. G. Gordon and H. Yamatera. Anal Chem 36:1866-7 Ag '64

Atomic hydrogen

Bunching of a beam of 20-kev neutral hydrogen atoms. P. H. Rose and others. bibliog diags R Sci Instr 35:1286-9 O '64

Deposition of thin metallic coatings by use of surface reduction techniques. T. C. Franklin and N. F. Franklin. bibliog diag Plating 51:890-2 S '64

Formation and reactions of radiation-produced electrons and atomic hydrogen in γ-irradiated ice. L. Kevan and others. bibliog Am Chem Soc J 86:771-6 Mr 5 '64

Formation of dissolved atomic hydrogen by electrochemical polarization. H. H. Uhlig and R. Krutenat. bibliog Electrochem Soc J 111:1303-6 N '64

Mechanisms given for radiolytic reactions in ice, methane. il Chem & Eng N 42:40-2 F 3 '64

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode. G. W. Castellan and others. bibliog diags Electrochem Soc J 111:1273-83 N '64

Industrial applications

How hydrogen will be used to upgrade Athabasca tar to sweet crude oil. A. D. Hoskins. diags Oil & Gas J 62:122-4 My 18 '64; Same. Hydrocarbon Process & Pet Refiner 43:122-4 My '64

Treatment of copper-zinc concentrates by pressure hydrometallurgy. D. J. I. Evans and others. bibliog Can Min & Met Bul 57:857-66 Ag '64

Isotopes

Data on kinetic hydrogen isotope effects aids mechanism studies. G. A. Olah. Chem & Eng N 42:43-4 S 28 '64

HYDROGEN—Isotopes—*Continued*

Improved technique for determination of C^{14} and H^3 by flask combustion. H. P. Baden. il Anal Chem 36:960 Ap '64

See also

Deuterium

Tritium

Manufacture

Better processing, catalysts, equipment further reduce methane-reforming costs. G. T. Lee and others. flow diag diag Oil & Gas J 62:154-6 My 11 '64

Catalytic control of carbon deposition in steam-hydrocarbon reforming. J. M. Fox and J. C. Yarze. il Ind Chem 40:65-9 F '64

Estimates on commerical corona processing of coal. S. J. Lawrence. il diag Chem Eng Prog 60:45-51 Je '64

Get both; hydrogen and high octane. M. H. Dalson and others. flow diag Hydrocarbon Process & Pet Refiner 43:175-8 My '64

How to maximize hydrogen production in catalytic reforming. W. H. Decker and others. diag Oil & Gas J 62:64-9 Je 1 '64

Hydrogen, partial oxidation. flow diag Hydrocarbon Process & Pet Refiner 43:230 S '64

Hydrogen, steam reforming; Girdler corp. flow diag Hydrocarbon Process & Pet Refiner 43:231 S '64

Hypro; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:232 S '64

Low purity hydrogen upgrader; Linde div. of Union Carbide. diag Hydrocarbon Process & Pet Refiner 42:193 N '63

New reforming catalyst cuts carbon laydown in producing hydrogen from refinery feeds. Oil & Gas J 62:88-9 Ja 20 '64

Offgases work overtime at new German refinery. D. H. Stormont. flow diag Oil & Gas J 61:80-2 D 9 '63

Operating costs; hydrogen manufacture. W. L. Nelson. bibliog Oil & Gas J 62:70+ Je 1 '64

Process converts HCl directly to chlorine and hydrogen. Chem & Eng N 42:41+ Ag 24 '64

Purify hydrogen by auto-refrigeration. R. G. Graven and S. G. Greco. diag Hydrocarbon Process & Pet Refiner 43:243-4 S '64

Recent trends in hydrogen plant technology. B. J. Mayland and others. flow diag Am Oil Chem Soc J 41:sup26+ Je '64

Reformer hydrogen purified by novel auto-refrigeration system. R. G. Graven and S. G. Greco. diag Oil & Gas J 62:120 Jl 6 '64

Synthesis gas; Imperial chemical industries, ltd., Selas corp. of America. diag Hydrocarbon Process & Pet Refiner 42:223 N '63

Ultrapure hydrogen in metal processing. G. L. Matlack. flow diag il Metal Prog 85:114-17 Mr '64

What hydrogen from coal costs. S. Katell and J. H. Faber. Hydrocarbon Process & Pet Refiner 43:143-6 Mr '64

When small hydrogen plants pay. E. S. Johanson and others. bibliog Hydrocarbon Process & Pet Refiner 43:119-24 Ja '64

HYDROGEN, Liquid

Centaur program is LH_2 pioneer; abstract. J. J. Gilbeau and D. G. Huber. diag S A E J 72:78-9 F '64

Checking level indicators for liquid hydrogen. il diag Engineering 197:301 F 21 '64

Friction heat; factor in liquid H_2 line design; abstract. K. D. Folkerts and E. H. Hoag. diag S A E J 72:109-10 Ja '64

High-energy rocket engines. il diags Engineer 218:364-6, 415-17 S 4-11 '64; Discussion. 218:510, 763 S 25, N 6 '64

LH_2 level sensors. il Instruments & Control Systems 37:129 My '64

New Critical Path approach to small unit turnaround scheduling. C. L. Newton. diags Hydrocarbon Process & Pet Refiner 43:239-41 S '64

Nucleation characteristics of static liquid nitrogen and liquid hydrogen. J. Hord and others. bibliog il diags A S M E Trans ser A 86:485-94 O '64

Storage

Cryogenics; aluminum advantages in field assembly. il Light Metal Age 22:10 Je '64

HYDROGEN bromide. See Hydrobromic acid

HYDROGEN chloride. See Hydrochloric acid

HYDROGEN cyanide. See Hydrocyanic acid

HYDROGEN fluoride. See Hydrofluoric acid

HYDROGEN halides

See also

Hydrobromic acid

HYDROGEN ion concentration

Absolute differential electrolytic potentiometry as index of poising capacity. E. Bishop and G. D. Short. bibliog Anal Chem 36:730-2 Ap '64

Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64

Application of the Donnan equilibrium to the distribution of dye and inorganic ions between wool and solutions. J. Delmenico and R. H. Peters. bibliog Textile Res J 34:207-19 Mr '64

Beckman markets pH meters with taut-band suspensions. Chem & Eng N 42:45 Ag 3 '64

Brightness of high-yield pulps; the effect of pulping pH on brightness and bleaching. P. Luner and D. W. Ferguson. bibliog Tappi 47:205-10 Ap '64

Chromatographically homogeneous egg lecithin as stabilizer of emulsions for intravenous nutrition. H. J. Zeringue and others. bibliog Am Oil Chem Soc J 41:688-91 O '64

Correlation between apparent pH and acid or base concentration in ASTM medium. O. Popovych. bibliog Anal Chem 36:878-82 Ap '64

Correlation of the pH (pD) dependence and the stepwise mechanism of α-chymotrypsin-catalyzed reactions. M. L. Bender and others. bibliog Am Chem Soc J 86:3680-90 S 20 '64

Dissolution of wood components under different conditions of sulfite pulping. K. Forss and K. E. Fremer. bibliog Tappi 47:485-93 Ag '64

Effect of fabric pH on the wash-wear characteristics of set wool fabrics. L. T. Jones and others. bibliog Am Dyestuff Rep 53:359-60 My 11 '64

Effect of pH adjustment and high-temperature short-time processing on color and pigment retention in spinach purée. S. M. Gupte and F. J. Francis. bibliog Food Tech 18:1645-8 O '64

Effect of pH and salt content of the hypophase on molecular area relationships for monomolecular films of quaternary ammonium stearates. J. L. Pauley and others. bibliog J Colloid Sci 19:602-5 S '64

Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:610-15 My '64

Electrochemical *p*H-stat and its application to corrosion studies. F. A. Posey and others. bibliog diags Electrochem Soc J 110:1183-90 D '63

Electromechanical pH stat providing bidirectional control. C. W. Cotman and D. M. Smith. bibliog diags J Sci Instr 41:561-3 S '64

Fisher expands pH electrode line. il Chem & Eng N 42:51-2 O 12 '64

Formation of lead chloride fluoride at lower pH values for gravimetric purposes. R. A. Bournique and L. H. Dahmer. bibliog Anal Chem 36:1786-9 Ag '64

pH effects on the kinetics of the cystine-cyanide reaction. O. Gawron and others. bibliog Am Chem Soc J 86:2283-6 Je 5 '64

pH messtechnik. K. Schwabe. Review, by E. Wallis. Chem & Ind p 1571-3 S 12 '64

Improved basis for coordinated phosphate-pH control of boiler water. V. M. Marcy and S. L. Halstead. bibliog Combustion 35:45-7 Ja '64

Influence of pH on corrosion and passivation of nickel. D. E. Davies and W. Barker. bibliog diags Corrosion 20:47-53 F '64

Low pH furnace black. H. E. Railsback and others. bibliog Rubber World 150:71-6 Je '64

Mechanism of hydrogen ion buffering in natural waters. W. J. Weber, jr. and W. Stumm. bibliog Am Water Works Assn J 55:1553-78 D '63; Correction. 56:386 Ap '64

Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64

HYDROGEN ion concentration—*Continued*

Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed reactions of N-acetyl-L-tryptophan derivatives at low pH. F. J. Kézdy and others. bibliog Am Chem Soc J 86:3690-6 S 20 '64

Particle interactions in aqueous kaolinite dispersions. A. S. Michaels and J. C. Bolger. bibliog diags Ind & Eng Chem Fundamentals 3:14-20 F '64

Phosphate esters; catalytic hydrolysis of *p*-nitrophenyl dihydrogen phosphate by ceric ion precipitates in the pH range 2-7. F. Millich and E. L. Hayes, jr. bibliog Am Chem Soc J 86:2914-18 Jl 20 '64

Pitting and uniform corrosion of aluminum by *p*H 3.5 citrate buffer solution. E. L. Koehler and S. Evans. bibliog diags Electrochem Soc J 111:17-21 Ja '64

Pulse radiolytic determination of pK for hydroxyl ionic dissociation in water. J. Rabani and M. S. Matheson. Am Chem Soc J 86:3175-6 Ag 5 '64

Retains vegetable green; new pH-control additives for blanching and canning. G. J. Malecki. Food Eng 36:93-4 Je '64

Solid state pH meter. F. R. Zimmerli. il diag I S A J 10:67-8 O '63

HYDROGEN peroxide

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II)-hydrogen peroxide reaction. R. Woods and others. bibliog Am Chem Soc J 86:1698-700 My 5 '64

Bleaching of wool with hydrogen peroxide in presence of different stabilisers. J. Cegarra and others. bibliog Soc Dyers & Col J 80:123-9 Mr '64

Dissolution of calcium tungstate with an acid-hydrogen peroxide mixture. R. H. Curry and J. R. Carter. Anal Chem 36:926-7 Ap '64

Hydrogen peroxide aid in enameling process. Steel 155:59 Jl 6 '64

Oxidation of phenolic wastes; oxidation with hydrogen peroxide and a ferrous salt reagent. H. R. Eisenhauer. bibliog WPCF J

Practical aspects of the bleaching of cellulosic materials. C. Garrett. Soc Dyers & Col J 80:117-23 Mr '64

Properties of HF-H_2O_2 treated germanium surfaces. P. Balk and E. L. Peterson. bibliog Electrochem Soc J 110:1245-52 D '63

Reaction of producing hydrogen peroxide in liquid ammonia. K. E. Mironov and others. bibliog AIAA J 1:2915-16 D '63

Manufacture

Hydrogen peroxide; Inorganic chemicals div., FMC corp. diag Hydrocarbon Process & Pet Refiner 42:184 N '63

HYDROGEN sulfide

Application of Benedict-Webb-Rubin equation of state to hydrogen sulfide-hydrocarbon mixtures. R. Simon and J. E. Briggs. bibliog diag A I Ch E J 10:548-50 Jl '64

Corrosion of iron in an H_2S-CO_2-H_2O system; influence of (single iron) crystal orientation on hydrogen penetration rate. W. F. Brickell and others. il diags Corrosion 20:235-6 Jl '64

Dry corrosion of cobalt, chromium and Co-Cr, Ni-Cr and Fe-Cr alloys in hydrogen sulphide atmospheres; abstract. A. Davin and D. Coutsouradis. Metal Prog 85:174-5 My '64

Hydrogen sulfide in sewers. I. W. Santry, jr. bibliog il diags WPCF J 35:1580-8 D '63

Hydrogen sulfide poisoning of nitrided and carbided iron catalysts in the Fischer-Tropsch synthesis. F. S. Karn and others. bibliog Ind & Eng Chem Product Res & Develop 3:33-8 Mr '64

Metavanadates scrub manufactured gas; process flowsheet. P. Ellwood. Chem Eng 71:128-30 Jl 20 '64

Phase behavior of the n-butane hydrogen sulphide system. D. B. Robinson and others. bibliog diags Can J Chem Eng 42:143-6 Ag '64

Solving odor problems by prechlorination of flow, paced by automatic continuous monitoring of H_2S content of atmosphere. G. Chanin. il Water Works & Wastes Eng 1:42-4+ Ja '64

Stop sulfide corrosion cold with new heat-treating method. W. B. Bleakley. il diag Oil & Gas J 62:130-2 Je 8 '64

Sulfur recovery (Stretford process); the Clayton aniline co. the North Western gas board. diag Hydrocarbon Process & Pet Refiner 42:221 N '63

Time dependent rheology of the tetrahydrofuran-hydrogen sulphide gas hydrate slurry. K. L. Pinder. bibliog il diag Can J Chem Eng 42:132-8 Je '64

See also
Water purification—Hydrogen sulfide removal

Analysis

Better H_2S analysis in natural gas. D. M. Mason. bibliog diag Hydrocarbon Process & Pet Refiner 43:145-50 O '64

Here's how to watch H_2S and SO_2 content. diag Can Chem Process 48:106+ Je '64

Methods of determining hydrogen sulfide and total sulfur content. W. A. Garratt. Gas 40:74-7 Ja '64

Physiological effect

Acute hydrogen sulfide intoxication; an unusual source of exposure. M. Kleinfeld and others. bibliog Ind Med 33:656-60 S '64

HYDROGENATION

Analog computers and kinetics of hydrogenation. R. O. Butterfield and others. diags Am Oil Chem Soc J 41:29-32 Ja '64

Catalysts for selective hydrogenation of soybean oil. C. H. Riesz and H. S. Weber. bibliog flow diag diag Am Oil Chem Soc J 41:380-3, 400-3, 464-8 My-Jl '64

Chemical reactions involved in the catalytic hydrogenation of oils. S. S. Chang and others. diags Am Oil Chem Soc J 40:721-4 D '63

Cyclic powerforming provides high-yield hydrogen high-octane gasoline. W. F. Taylor and A. B. Welty, jr. bibliog diag Oil & Gas J 61:142+ D 2 '63

Determination of nickel in hydrogenated fats by neutron activation analysis. A. G. Souliotis. bibliog Anal Chem 36:1385-6 Je '64

Distillate hydrogenation; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:188 S '64

Gulfinishing; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:190 S '64

Heat of hydrogenation of bicyclo [2.2.2] octa-2,5,7-triene. R. B. Turner. Am Chem Soc J 86:3586-7 S 5 '64

Homogeneous catalytic hydrogenation of sorbic acid with pentacyanocobaltate II. A. F. Mahrouk and others. bibliog Am Oil Chem Soc J 41:153-8 F '64

Homogeneous catalytic hydrogenation of unsaturated fats; iron pentacarbonyl. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:186-91 Mr '64

Homogeneous hydrogenation in the absence of transition-metal catalysts. C. Walling and L. Bollyky. bibliog Am Chem Soc J 86:3750-2 S 20 '64

Hydrocracking grows at rapid pace. G. D. Gould and others. diags Hydrocarbon Process & Pet Refiner 43:117-21 My '64

Hydrogenation of a coker distillate derived from Athabasca bitumen. A. R. Aitken and others. bibliog flow sheet diag Can J Chem Eng 42:234-8 O '64

Hydrogenation of conjugated fatty acids with hydrazine. T. Takagi and B. M. Craig. bibliog Am Oil Chem Soc J 41:660-1 O '64

Hydrogenation of linolenate; comparison of products formed with platinum and nickel catalysts. C. R. Scholfield and others. bibliog Am Oil Chem Soc J 41:615-19 S '64

Hydrogenation with diimide generated from chloroacetylhydrazide. R. Buyle and others. Chem & Ind p839 My 16 '64

Isomerization during hydrogenation; methyl *cis* 6-, *cis* 9-, *cis* 12-octadecenoates. R. R. Allen. Am Oil Chem Soc J 41:521-3 Ag '64

Isomerization of mono ethenoid acids during hydrogenation. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:150-2 F '64

Isotopic effects during catalytic hydrogenation. E. D. Bitner and others. diag Am Oil Chem Soc J 41:1-3 Ja '64

Kinetic and equilibrium studies of benzene hydrogenation in batch recycle reactor. P. F. Korbach and W. E. Stewart. bibliog flow plan Ind & Eng Chem Fundamentals 3:24-7 F '64

New hydrogenation process upgrades byproduct pyrolysis gasolines. D. H. Stormont. il diag Oil & Gas J 61:96-7 D 16 '63

New process for the hydrogenation of pyrolytic gasoline. Franklin Inst J 277:184-5 F '64

Non-steric directive effects in catalytic hydrogenation. T. J. Howard. Chem & Ind p 1899 N 30 '63

HYDROGENATION—*Continued*

Partial hydrogenation and winterization of soybean oil. C. D. Evans and others. bibliog Am Oil Chem Soc J 41:260-3 Ap '64

Platinum metals as selective hydrogenation catalysts; abstract and discussion. P. B. Wells. Chem & Ind p666-7 Ap 18 '64

Raney nickel catalyst of improved stability and reactivity in the hydrogenation of triglycerides. H. V. Tümer and others. bibliog Am Oil Chem Soc J 41:212-14 Mr '64

Recovery of oxygen. C. S. Coe. Chem Eng Prog 60:33-5 F '64

Relative reactivity toward hydrogenation of the oleoyl group in the 2- and 1,3-positions of triglycerides. H. V. Tumer and others. bibliog Am Oil Chem Soc J 41:413-15 Je '64

Selective hydrogenation; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:193 S '64

Semibatch operation of a recirculation reactor for the hydrogenation of ethylene. J. P. Leinroth, jr. and T. K. Sherwood. bibliog diag A I Ch E J 10:524-9 Jl '64

Shell unveils new kerosine hydrogenation process. il Oil & Gas J 62:164 Jl 27 '64

Simple apparatus for accurate microhydrogeneration. I. T. Harrison and S. Harrison. diag Chem & Ind p834 My 16 '64

Simplifies hydrogenation. diag Food Eng 35:120 N '63

Soluble catalysts for the hydrogenation of olefins. M. F. Sloan and others. bibliog Am Chem Soc J 85:4014-18 D 20 '63

Stereochemistry and the mechanism of catalytic hydrogenation of cycloalkenes; isomers of dimethylcyclopentene. S. Siegel and B. Dmuchovsky. bibliog Am Chem Soc J 86:2192-8 Je 5 '64

Vibration-stirred microhydrogenation M. J. D. Low and others diags Am Oil Chem Soc J 41:433-4 Je '64

See also

Coal liquefaction

Dehydrogenation

Fischer-Tropsch process

HYDROGENOLYSIS

Catalysis over supported metals; kinetics of ethane hydrogenolysis over nickel surfaces of known area. D. J. C. Yates and others. bibliog Am Chem Soc J 86:2996-3001 Ag 5 '64

Catalytic hydrogenolysis of δ-lactones to cyclic ethers. J. T. Edward and J. M. Ferland. bibliog Chem & Ind p975 Je 6 '64

Hydrogenolysis of saturated, oleic and ricinoleic acids to the corresponding alcohols. A. J. Pantulu and K. T. Achaya. bibliog Am Oil Chem Soc J 41:511-14 Jl '64

Pipeline gas from oil shale by direct hydrogasification. H. L. Feldkirchner and H. R. Linden. bibliog diag Ind & Eng Chem Proc Design 3:218-26 Jl '64

HYDROGRAPHS

Design hydrographs for small watersheds in Indiana. I. P. Wu. bibliog Am Soc C E Proc 89 [HY 6 no 3694]:35-66 N '63; Discussion. diags 90 [HY 4 no 3980]:297-320 Jl '64

Nonlinear instantaneous unit-hydrograph theory. K. P. Singh. bibliog Am Soc C E Proc 90 [HY 2 no 3852]:313-47 Mr '64; Discussion. diags 90 [HY 5 no 4050]:287-92 S '64

HYDROLOGY

Application of fluorescent tracing techniques to hydrologic studies. R. R. Wright and M. R. Collings. diags Am Water Works Assn J 56:748-54 Je '64

Hydrology of spillway design. H. O. Banks and others. bibliog maps Am Soc C E Proc 90 [HY 3 no 3912]:235-310 My '64

Regulation of the Caspian Sea. O. W. Kabelac. bibliog map diags Am Soc C E Proc 90 [WW 1 no 3794]:103-13 F '64

Three-dimensional type representation of hydrologic data. A. A. Hirsch. il Am Water Works Assn J 56:937 Jl '64

Tables, calculations, etc.

Multivariate technique for synthetic hydrology. M. B. Fiering. bibliog Am Soc C E Proc 90 [HY 5 no 4027]:43-60 S '64

Short cuts in hydrology. A. I. McCutchan. map Am Soc C E Proc 89 [HY 3 no 3522]:203-19 My '63; Discussion. 89 [HY 6 no 3708]:289-93 N '63; 90 [HY 1 no 3783]:299-302 Ja '64; Reply. 90 [HY 4 no 3980]:237-8 Jl '64

Two-dimensional flow over sills in open channels. G. Z. Watters and R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 4 no 3967]:107-40 Jl '64

HYDROLYSIS

Acetaldehyde-2-deoxy-D-ribose 5-phosphate adolase complex; comparison of the product obtained on borohydride reduction and hydrolysis with synthetic N^6-ethyllysine. O. M. Rosen and others. bibliog Am Chem Soc J 86:2092-3 My 20 '64

Acid catalysed hydrolysis of esters. B. Loev. Chem & Ind p 193-4 F 1 '64

Alkaline hydrolysis of polynuclear methyl arylacetates. N. Acton and E. Berliner. bibliog Am Chem Soc J 86:3312-18 Ag 20 '64

Analysis of pentaerythritol tetranitrate and its hydrolysis products by thin layer chromatography and radio scanning. F. J. DiCarlo and others. bibliog il Anal Chem 36:2301-3 N '64

Automatic method for separation, hydrolysis, and detection of peptides. G. N. Catravas. flow diags Anal Chem 36:1146-8 My '64

Base catalysis of imidazole catalysis of ester hydrolysis. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:833-7 Mr 5 '64

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Changes in fibrillate structures of cottons on hydrolysis and oxidation. B. R. Porter and W. R. Goynes, jr. bibliog il Textile Res J 34:467-77 Je '64

Chemistry of cyclopropanols; the hydrolysis of cyclopropyl acetate and the synthesis of cyclopropanol. C. H. DePuy and L. R. Mahoney. bibliog Am Chem Soc J 86:2653-7 Jl 5 '64

Compensation in $\Delta H\ddagger$ and $\Delta S\ddagger$ accompanying the conversion of lower order nucleophilic displacement reactions to higher order catalytic processes; the temperature dependence of the hydrazinolysis and imidazole-catalyzed hydrolysis of substituted phenyl acetates. T. C. Bruice and S. J. Benkovic. bibliog Am Chem Soc J 86:418-26 F 5 '64

Concerning the mechanism of the hydrolysis and aminolysis of Schiff bases. K. Koehler and others. bibliog Am Chem Soc J 86:2413-19 Je 20 '64

Cyclic saturated oxyphosphoranes and their hydrolysis to cyclic phosphate esters; the diastereomeric 2:1 biacetyl-trimethyl phosphite adducts. F. Ramirez and others. bibliog Am Chem Soc J 85:3465-72 N 5 '63

Deoxyribonucleoside-3′,5′ cyclic phosphates; synthesis and acid-catalyzed and enzymic hydrolysis. G. I. Drummond and others. bibliog Am Chem Soc J 86:1626-30 Ap 20 '64

Effect of pressure on the rate of hydrolysis of chloroform; the nature of the transition state. W. J. le Noble and M. Duffy. Am Chem Soc J 86:4512 O 20 '64

Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64

Effects of metal ions on proton magnetic resonance spectra and rates of alkaline hydrolysis of some amino acid esters. R. Mathur and N. C. Li. bibliog Am Chem Soc J 86:1289-92 Ap 5 '64

Effects of substituents at C(5) on the acid hydrolysis of glycosides. T. E. Timell. bibliog Chem & Ind p503-4 Mr 21 '64

Electron affinity residue determination of CIPC, monuron, diuron, and linuron by direct hydrolysis and bromination. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:46-8 Ja '64

Electrophilic catalysis; the hydrolysis of phosphoramidate. W. P. Jencks and M. Gilchrist. bibliog Am Chem Soc J 86:1410-17 Ap 5 '64

Fat splitting and soapmaking go continuous; process flowsheet. H. W. Ladyn. il Chem Eng 71:106-8 Ag 17 '64

Hydrolysis of D(-)-ethyl β-phenyl-β-hydroxypropionate and D(-)-ethyl β-phenyl-β-acetamidopropionate by α-chymotrypsin. S. G. Cohen and S. Y. Weinstein. bibliog Am Chem Soc J 86:725-8 F 20 '64

Hydrolysis of dicarbonium ions; kinetics and mechanism. H. Hart and N. R. Roobol. bibliog Am Chem Soc J 86:1373-5 Ap 5 '64

Hydrolysis of sodium tetrahydroborate; identification of an intermediate. J. A. Gardiner and J. W. Collat. bibliog Am Chem Soc J 86:3165-6 Ag 5 '64

Hydrolysis of xenon hexafluoride and the aqueous solution chemistry of xenon. E. H. Appelman and J. G. Malm. bibliog Am Chem Soc J 86:2141-8 Je 5 '64

Hydrolysis process makes molasses from wood. il Chem Eng 71:40+ Ag 3 '64

HYDROLYSIS—*Continued*

Hydrolytic reactions of 4(5)-hydroxymethylimidazolyl acetate, 1-methyl-5-hydroxymethylimidazolyl acetate, 4(5)-chloromethylimidazole, and 1-methyl-5-chloromethylimidazole. T. C. Bruice and J. L. Herz. bibliog Am Chem Soc J 86:4109-16 O 5 '64

Influence of the state of aggregation on the specific acid-catalyzed hydrolysis of sodium dodecyl sulfate. V. A. Motsavage and H. B. Kostenbauder. bibliog J Colloid Sci 18:603-15 S '63

Infrared spectra of hydrolysis products of cottons reacted with typical nitrogenous crosslinking agents. S. H. Miles and others. Am Dyestuff Rep 53:440-4 Je 8 '64

Intermediates in the hydrolysis of *p*-toluenediazonium ion. E. S. Lewis and J. M. Insole. diags Am Chem Soc J 86:34-8 Ja 5 '64

Kinetic and tracer studies on the alkaline hydrolysis of $Co(NH_3)_5O_2CCF_3^{+2}$. R. B. Jordan and H. Taube. Am Chem Soc J 86:3890-1 S 20 '64

Kinetic evidence for the formation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolyses of specific substrates. B. Zerner and others. bibliog Am Chem Soc J 86:3674-9 S 20 '64

Kinetic studies of the catalytic hydrolysis of 1,3-dicarboxyphenyl 2-phosphate and 1-methoxycarbonyl-3-carboxyphenyl 2-phosphate. Y. Murakami and A. E. Martell. bibliog Am Chem Soc J 86:2119-29 Je 5 '64

Kinetics of hydrolysis of N,N′-diarylformamidines in alkaline dioxane solutions. R. H. DeWolfe. bibliog Am Chem Soc J 86:864-8 Mr 5 '64

Kinetics of hydrolysis of diethyl glutarate and β-substituted diethyl glutarates by α-chymotrypsin. S. G. Cohen and J. Crossley. bibliog Am Chem Soc J 86:1217-20 Mr 20 '64

L-dihydrostreptose; isolation by hydrolysis of methyl *N*-acetyldihydrostreptobiosaminide. I. J. McGilveray and J. B. Stenlake. bibliog Chem & Ind p238 F 8 '64

Neighboring group effects on ester hydrolysis. Y. Shalitin and S. A. Bernard. bibliog Am Chem Soc J 86:2291-2 Je 5 '64

Neighboring group participation in phosphate ester hydrolysis. V. M. Clark and A. J. Kirby. bibliog Am Chem Soc J 85:3705-6 N 20 '63

Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion into dehydroalanine; hydrolytic and oxidative cleavage of dehydroalanine residues. A. Patchornik and M. Sokolovsky. bibliog Am Chem Soc J 86:1206-12 Mr 20 '64

Nonlinear structure-reactivity correlations; the imidazole-catalyzed hydrolysis of esters. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:837-46 Mr 5 '64

Novel example of participation by an *N*-oxide group in nitrile hydrolysis. G. Tennant. Chem & Ind p 1622 S 19 '64

Observation of acyl-enzyme intermediates in the α-chymotrypsin-catalyzed hydrolysis of specific ester substrates at low pH. F. J. Kézdy and M. L. Bender. Am Chem Soc J 86:937-8 Mr 5 '64

Pancreatic lipase hydrolysis of triglycerides by a semimicro technique. F. E. Luddy and others. bibliog Am Oil Chem Soc J 41:693-6 O '64

Phosphate esters; catalytic hydrolysis of *p*-nitrophenyl dihydrogen phosphate by ceric ion precipitates in the pH range 2-7. F. Millich and E. L. Hayes, jr. bibliog Am Chem Soc J 86:2914-18 Jl 20 '64

Possibility of a cyclic mechanism for acid-catalyzed ester hydrolysis. C. A. Lane. bibliog Am Chem Soc J 86:2521-3 Je 20 '64

Reactions of diazonium salts with nucleophiles; a tracer demonstration of the reversible step in diazonium ion hydrolysis. E. S. Lewis and J. M. Insole. bibliog Am Chem Soc J 86:32-4 Ja 5 '64

Resorufin acetate as substrate for determination of hydrolytic enzymes at low enzyme and substrate concentrations. D. N. Kramer and G. G. Guilbault. bibliog Anal Chem 36:1662-3 Jl '64

Reversal of charge of lyophobic colloids by hydrolyzed metal ions; aluminum nitrate. E. Matijević and others. bibliog J Colloid Sci 19:333-46 Ap '64

Some correlations between the hydrolysis of glycylglycine and of wool in sulphuric acid. R. S. Asquith and T. Shaw. bibliog Soc Dyers & Col J 79:524-6 N '63

Spectrophotometric determination of *p*-chloroacetanilide in phenacetin-acid hydrolysis method. W. B. Crummett and others. bibliog Anal Chem 36:1834-7 Ag '64

Stereochemistry of complex inorganic compounds; the Walden inversion in the base hydrolysis of optically active cobalt(III) complexes. L. J. Boucher and others. bibliog diag Am Chem Soc J 86:3656-60 S 20 '64

Studies on improved recovery of protein from rendering-plant raw materials and products; acid and enzyme hydrolysis. L. G. Criswell and others. bibliog Food Tech 18:1493-7 S '64

Studies on the esterase action of carboxypeptidase A; kinetics of the hydrolysis of acetyl-L-mandelate. E. T. Kaiser and F. W. Carson. bibliog Am Chem Soc J 86:2922-6 Jl 20 '64

Tracer experiments on alkaline hydrolysis of some oxalate ammonia cobalt(III) complexes. C. Andrade and H. Taube. bibliog Am Chem Soc J 86:1328-30 Ap 5 '64

Transfer reactions involving boron; dihydroboration of acetylenes; proposed product formation involving participation by neighboring boron during hydrolysis. D. J. Pasto. bibliog Am Chem Soc J 86:3039-47 Ag 5 '64

Wool fabric stabilization by interfacial polymerization; relative rates of hydrolysis of acid chlorides. W. L. Wasley and others. bibliog Textile Res J 33:1029-32 D '63

HYDROMECHANICS

Chemical engineering problems in the pulp and paper industry; fluid mechanics. Tappi 47:sup 141A F '64

Hydromechanical method to increase efficiency of algal photosynthesis. R. L. Miller and others. bibliog il diags Ind & Eng Chem Proc Design 3:134-43 Ap '64

Non-Newtonian fluids; economic impact. W. C. Brasie. bibliog Chem Eng Prog 60:37-9 Ag '64

Random walk study of convective diffusion. G. Bugliarello and E. D. Jackson. bibliog diags Am Soc C E Proc 90 [EM 4 no 4003]: 49-77 Ag '64

Research in non-Newtonian fluid mechanics. D. G. Thomas. bibliog Chem Eng Prog 60:35-6 Ag '64

Two-dimensional fluid motion through a spout composed of four plane walls. G. C. K. Yeh. diags Franklin Inst J 277:256-65 Mr '64

Viscous and boundary effects on virtual mass. N. L. Ackermann and A. Arbhabhirama. diag Am Soc C E Proc 90 [EM 4 no 4014]: 123-30 Ag '64

See also

Hydrodynamics

Hydrostatics

Study and teaching

Laboratory teaching in fluid mechanics. King's college, London. M. J. Kenn. il Engineering 196:596-7 N 8 '63

HYDROMETALLURGY

Automatic process controls are a success at Union Miniere's Luilu copper plant. il diag Eng & Min J 164:88-91 D '63

Carving a career in hydrometallurgy; Sherritt Gordon. il Can Chem Process 48:55-6+ S '64

Hydrometallurgical process for the extraction of iron from low-grade ores. C. P. Gravenor and others. bibliog flow diag map Can Min & Met Bul 57: 421-8 Ap '64

Hydrometallurgy. Engineer 216:842 N 22 '63

Solvent extraction gains in hydrometallurgy. il Chem & Eng N 42:48-50 Ap 6 '64

Treatment of copper-zinc concentrates by pressure hydrometallurgy. D. J. I. Evans and others. bibliog Can Min & Met Bul 57: 857-66 Ag '64

HYDRONICS. See Hot water heating

HYDROPEROXIDES

Decomposition of methyl oleate hydroperoxide on the celite/dinitrophenylhydrazine-hydrochloric acid column. M. M. Horikx. bibliog J Ap Chem 14:50-2 Ja '64

Mechanism of the acid-catalyzed rearrangement of triarylmethyl hydroperoxides. D. E. Bissing and others. bibliog Am Chem Soc J 86:3824-8 S 20 '64

Reaction of *p*-carboxy-α,α-dimethylbenzyl hydroperoxide with alkaline hypochlorite. S. H. Merrill. bibliog Am Chem Soc J 86: 3828-33 S 20 '64

Solvolysis with t-alkyl hydroperoxides of t-alkyl and aryl chlorides and polychlorocompounds activated by aromatic rings. N. A. Milas and others. bibliog Chem & Ind p423-4 Mr 7 '64

HYDROPEROXIDES—*Continued*

Analysis

Application of electron spin resonance to the determination of hydroperoxides. H. Ueda. Anal Chem 35:2213-14 D '63

HYDROPHONE

Amateur scientist; device for listening in on underwater sound. F. Watlington. diags Sci Am 210:131-6 Mr '64

Underwater-sound reminiscences; mostly binaural. R. D. Fay. il diags Sound 2:37-42 N '63

HYDROPLANES

Hydroplanes. il Product Eng 35:49 My 11 '64

HYDROPNEUMATIC control

Floating piston follows curved surface. il diags Hydraulics & Pneumatics 17:28+ Jl '64

Mechanical feedback regulates hydropneumatic speed control. T. Nakamura and Y. Okabe. il diags Hydraulics & Pneumatics 17:61-5 Je '64

Rebuilt mill uses air-oil feed. O. Butler. il diags Hydraulics & Pneumatics 17:90+ Jl '64

Speed control circuit starts and stops welder smoothly. T. V. De Agostino. il diag Hydraulics & Pneumatics 16:100-1 N '63

HYDROQUINONE

Electrode reactions of aromatic compounds in strong acid solutions; chronopotentiometric and spectrometric studies of the *p*-hydroquinone-H_2SO_4 system at platinum electrodes. H. B. Mark, jr. and C. L. Atkin. bibliog Anal Chem 36:514-20 Mr '64

Mechanism of the periodate oxidation of aromatic systems; a kinetic study of the periodate oxidation of hydroquinone and *p*-methoxyphenol in acidic solution. E. T. Kaiser and S. W. Weidman. bibliog Am Chem Soc J 86:4354-8 O 20 '64

HYDROSTATICS

Brittle metals turn ductile in hydrodynamic forming. il diags Iron Age 193:68-70 My 28 '64

Cold extrusion of metals by high pressure liquid; abstract. H. L. D. Pugh. Metal Prog 85:146+ My '64

Design of hydrostatic bearings. H. C. Rippel. bibliog il diags Machine Design 35:108-17 Ag 1; 122-6 Ag 15; 132-8 Ag 29; 170-2 S 12; 182-90 S 26; 201-8 O 10; 185-92 O 24; 189-94 N 7; 199-206 N 21; 158-62 D 5 '63

Effects of boundary conditions on the stability of cylinders subject to lateral and axial pressures. L. H. Sobel. bibliog diags AIAA J 2:1437-40 Ag '64

Elastic instability of relatively thick circular cylindrical shells subjected to hydrostatic pressure. T. M. Barry and L. D. Ballow. bibliog il diags Naval Eng J 76:621-31 Ag '64

Elastic moduli of silicon vs hydrostatic pressure at 25.0°C and —195.8°C. H. J. McSkimin and P. Andreatch, jr. J Ap Phys 35:2161-5 Jl '64

Epr spectrometer for studying crystals under high hydrostatic pressure. A. F. Clark and D. F. Wait. bibliog diags R Sci Instr 35:863-6 Jl '64

Forging against back pressure. R. M. Cogan and G. L. Campbell. il diags Am Mach/Metalworking Manuf 107:105-7 O 14 '63

How to calculate hydrostatic transmission coefficients. W. E. Wilson. Hydraulics & Pneumatics 17:104-6 S '64

Hydrostatic bearing system offers accuracy, less friction. il Mach 70:131 D '63

Hydrostatic extrusion, a technique of promise. Metal Prog 85:87 My '64

Hydrostatic strength and design stresses for thermoplastic pipe. F. W. Reinhart. Mod Plastics 42:162+ S '64

Hydrostatic tractor tows plane. il Hydraulics & Pneumatics 17:26 S '64

Hydrostatic transmissions. W. E. Wilson and C. D. Lemme. Machine Design 36:178-87 Mr 26 '64

New bearing handles heavy loads with precision; abstract. D. D. Fuller. S A E J 71:90-1 D '63

100 lathes a week move off line. il diag Steel 155:84-5 Jl 27 '64

Some considerations of the mechanics of hydrostatic extrusion. A. Rozner and J. H. Faupel. bibliog il diags Franklin Inst J 277:217-36 Mr '64

Thermal and hydrostatic behavior of miniature platinum resistance elements. C. M. Knobler and others. R Sci Instr 34:1437-8 D '63

Turning machine has hydrostatic bearings. il Tool & Manuf Eng 51:119 N '63

Water concentration gradient in suspended fabrics in relation to gravitational field strength. L. Loeb. diags Textile Res J 34:767-72 S '64

HYDROSULFITES. See Dithionites

HYDROTHERMAL alterations. See Metamorphism

HYDROXAMIC acids

Molybdenum(VI) nicotinylhydroxamic acid chelate. R. Rowland and C. E. Meloan. Anal Chem 36:1197-8 S '64

Nicotinylhydroxamic acid chelates of uranium and titanium(IV). R. Rowland and C. E. Meloan. Anal Chem 36:2376 N '64

Reaction of formohydroxamic acid with acyl derivatives in neutral aqueous solution. S. A. Bernhard and others. bibliog Am Chem Soc J 86:4406-14 O 20 '64

HYDROXIDES

Indirect determination of free hydroxide ion in high pressure boiler water. S. Barker. bibliog Chem & Ind p 1617-20 S 19 '64

Reaction of the $B_{20}H_{18}^{-2}$ ion with hydroxide ion. M. F. Hawthorne and others. Am Chem Soc J 85:3704 N 20 '63

See also

Barium hydroxide

Europium hydroxide

HYDROXY acids

Ozone, HCN convert olefins to acids. E. K. Fields. Chem & Eng N 42:65 S 14 '64

Syntheses of (±)-methyl dehydrodeisopropylabietate. T. A. Spencer and others. bibliog Chem & Ind p577-8 Ap 4 '64

HYDROXYAPATITE

Formation and behavior of hydroxyapatite. G. Corsaro and others. bibliog il Am Water Works Assn J 56:347-57 Mr '64

Surface composition of hydroxylapatite derived from solution behavior of aqueous suspensions. V. R. Deitz and others. bibliog J Colloid Sci 19:87-101 Ja '64

HYDROXYBUTANONE

Acetylmethylcarbinol and diacetyl as chemical indexes of microbial quality of apple juice. M. L. Fields. bibliog Food Tech 18:1224-8 Ag '64

HYDROXY compounds

Analysis of alcohols, hydroxy esters, glycerides, and glyceryl ethers as nitrates by thin layer chromatography and infrared spectrometry. D. C. Malins and others. bibliog Anal Chem 36:658-61 Mr '64

Conversion of baikiain to *trans*-5 and *trans*-4-hydroxypipecolic acids by hydroboration. Y. Fujita and others. Am Chem Soc J 86:1844-6 My 5 '64

Derivatives of glyoxal bis(2-hydroxyanil) as direct calcium reagents. F. Lindstrom and C. W. Milligan. bibliog Anal Chem 36:1334-8 Je '64

Effects of the α-hydroxy analogues of isoleucine, lysine, threonine and tryptophan and the α-keto analogue of tryptophan and the level of the corresponding amino acids on growth of rats. W. G. Pond and others. bibliog J Nutrition 83:85-93 Je '64

Hydroxy-1,2,5-thiadiazoles. J. M. Ross and W. C. Smith. bibliog Am Chem Soc J 86:2861-74 Jl 20 '64

Hydroxy unsaturated oils; preparation and characterization of methyl dimorphecolate and methyl lesquerolate from dimorphotheca and lesquerella oils. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41:430-3 Je '64

Kinetics of methyl linoleate emulsion autoxidation in the presence of polyhydroxy compounds. A. F. Mabrouk. bibliog Am Oil Chem Soc J 41:331-4 Ap '64

Preparation of *B*-hydroxyborazoles. R. K. Bartlett and others. Chem & Ind p 1026-7 Je 13 '64

Synthesis and ionization constants of the six hydroxybenzo[*c*]phenanthrenes. M. S. Newman and J. Blum. Am Chem Soc J 86:503-7 F 5 '64

HYDROXYETHYL cellulose

Statistical analysis of the distribution of substituents for soluble and insoluble hydroxyethyl cellulose. J. J. Stratta. bibliog Tappi 46:717-22 D '63

HYDROXYETHYL compounds

Determination of beta-hydroxyethyl-hydrazine in pineapples. M. P. Thomas and H. J. Ackermann. bibliog J Agri & Food Chem 12:432-3 S '64

Determination of hydroxyethyl group in hydroxyethyl starch by pyrolysis; gas chromatography technique. H. Tai and others. diags Anal Chem 36:108-10 Ja '64

HYDROXYMETHYL compounds

Hydrolytic reactions of 4(5)-hydroxymethylimidazolyl acetate, 1-methyl-5-hydroxymethylimidazolyl acetate, 4(5)-chloromethylimidazole, and 1-methyl-5-chloromethylimidazole. T. C. Bruice and J. L. Herz. bibliog Am Chem Soc J 86:4109-16 O 5 '64

HYDROXYPENILLIC acid

Spectrophotometric determination of 8-hydroxypenillic acid. D. A. Hull and others. bibliog Anal Chem 36:599-602 Mr '64

HYDROXYPROLINE

Betaines of 3-hydroxyproline; assignment of configuration and inhibition of acetylcholinesterase. F. Sakiyama and others. bibliog Am Chem Soc J 86:1842-4 My 5 '64

Synthesis of *cis*, and *trans*-3-hydroxy-L-proline, two new amino acids from the antibiotic telomycin. J. C. Sheehan and J. G. Whitney. bibliog Am Chem Soc J 85:3863-5 D 5 '63

Two improved and simplified methods for the spectrophotometric determination of hydroxyproline. I. Bergman and R. Loxley. bibliog Anal Chem 35:1961-5 N '63

Analysis

Factors affecting the determination of hydroxyproline. J. Blomfield and J. F. Farrar. Anal Chem 36:950-2 Ap '64

HYDROXYQUINOLINE

Estimation of copper-8-quinolinolate in treated material by potentiometric titration of 8-hydroxyquinoline. J. C. Chapin. bibliog Am Dyestuff Rep 53:164-6 Mr 2 '64

HYDROXYSTEARIC acid

Acid-catalyzed conversion of epoxyesters to hydroxyesters. G. Maerker and others. bibliog diags Am Oil Chem Soc J 41:585-8 S '64

HYDROXYTOTAROL

Total synthesis of (+)-16-hydroxytotarol and (+)-macrophyllic acid. A. C. Day. bibliog Chem & Ind p 1760-1 N 2 '63

HYDROXYLAMINE

Chemistry of boranes; amination of $B_{10}H_{10}^{-2}$ and $B_{12}H_{12}^{-2}$ with hydroxylamine-O-sulfonic acid. W. R. Hertler and M. S. Raasch. bibliog diags Am Chem Soc J 86:3661-8 S 20 '64

Focus on chemicals; hydroxylamine and its salts. bibliog Manuf Chem 35:29-32+ Ag '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

O- vs. N-attack of hydroxylamine on *n*-butyl thiolacetate and the establishment that N-attack passes through a metastable intermediate. T. C. Bruice and L. R. Fedor. bibliog Am Chem Soc J 86:739-40 F 20 '64

Reaction of organoboranes with chloramine and with hydroxylamine-O-sulfonic acid; a convenient synthesis of amines from olefins *via* hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:3565-6 S 5 '64

Reactions of hydroxylamine-O-sulfonic acids with water and with hydriodic acid. P. A. S. Smith and others. bibliog Am Chem Soc J 86:1139-45 Mr 20 '64

Reverse-current chronopotentiometric study of the catalytic reduction of titanium(IV) in the presence of hydroxylamine. J. H. Christie and G. Lauer. bibliog Anal Chem 36:2037-8 S '64

HYDROXYL group

Analysis of mixtures of hydroxyl compounds using differential reaction rates. F. Willeboordse and F. E. Chritchfield. bibliog Anal Chem 36:2270-4 N '64

Conformational analysis; use of the chemical shift of the hydroxyl proton in conformational analysis. R. J. Ouellette. bibliog Am Chem Soc J 86:4378-80 O 20 '64

Equilibrium distribution of acyl groups between primary and secondary hydroxyl positions in partial esters. J. D. Brandner and R. L. Birkmeier. bibliog Am Oil Chem Soc J 41:367-70 My '64

Hydroxyl factor in shale control. W. C. Browning. bibliog il diags J Pet Tech 16:Trans 1177-86 O '64

Hydroxyl group determination in high molecular weight alcohols and complex organic mixtures. D. E. Jordan. bibliog Am Oil Chem Soc J 41:500-2 Jl '64

Infrared hydroxyl-stretching band of bacterial cellulose. R. Jeffries. Tappi 47:296-7 My '64

Neighboring group effects on ester hydrolysis; neighboring hydroxyl groups. Y. Shalitin and S. A. Bernard. Am Chem Soc J 86:2291-2 Je 5 '64

Pulse radiolytic determination of p*K* for hydroxyl ionic dissociation in water. J. Rabani and M. S. Matheson. bibliog Am Chem Soc J 86:3175-6 Ag 5 '64

Relation between *E′* centers and hydroxyl bonds in silica. R. A. Weeks and E. Lell. bibliog diag J Ap Phys 35:1932-8 Je '64

Study of base-catalyzed and salt-catalyzed acetylation of hydroxyl groups. G. H. Schenk and others. bibliog Anal Chem 36:914-19 Ap '64

X-ray investigation of zircon crystals containing OH groups. I. Krstanović. bibliog diag Am Mineralogist 49:1146-8 Jl '64

Analysis

Determination of functional groups in copolymers by infrared spectrometry. F. D. Brako and A. S. Wexler. Anal Chem 35:1944-7 N '63

Determination of organic hydroxyl groups. G. Dryhurst. bibliog Ind Chem 40:41-3, 97-9 Ja-F '64

Infrared determination of hydroxyl content of epoxy resins. M. R. Adams. Anal Chem 36:1688-9 Jl '64

Infrared determination of hydroxyl content of oxidized polyethylene. D. E. Kramm and others. Anal Chem 36:2170-1 O '64

Mild, rapid, hydroxyl determination for primary alcohols. J. A. Floria and others. bibliog Anal Chem 36:2053-5 O '64

HYGIENE

Food hygiene in the United Kingdom. M. Parry. Am J Pub Health 54:1078-91 Jl '64

See also

Air pollution

Executives—Health and hygiene

Sanitation

Temperature—Physiological effect

Water pollution

Water purification

HYGIENE, Industrial

AIHA urged to consider effect of changes in environment on man. Heating-Piping 36:41 Je '64

American industrial hygiene conference, Philadelphia, April 26-30; abstracts of papers. Air Cond Heat & Ven 61:70-1 Je '64

Army's role in occupational health; detection and control of health hazards in research, development, and production. E. J. Dehne. il Ind Med 33:235-9 Ap '64

Chronic toxicity of ethylene oxide. R. E. Joyner. bibliog Archives Environmental Health 8:700-10 My '64

Community health resources for small plants. J. P. Bartlett. Archives Environmental Health 9:117-26 bibliog(p 125-6) Jl '64

Cooperative approach to silicosis prevention in Ontario. E. R. Olson. bibliog Ind Med 33:65-7 F '64

Determination of background levels and health hazards in plant environmental air contamination. J. S. Holtaway. il plan Ind Med 33:230-4 Ap '64

Environmental and clinical investigation of workmen exposed to Diesel exhaust in railroad engine houses. M. C. Battigelli and others. bibliog Ind Med 33:121-4 Mr '64

Environmental toxicology in industry and agriculture. K. Kay. Archives Environmental Health 8:681-99 bibliog(p698-9) My '64

Future of health in industry. A. Meiklejohn. bibliog il Ind Med 33:635-47 S '64

Guide for Medical association committees on occupational health. Archives Environmental Health 8:190-4 Ja '64

Guide for seminars in occupational health. bibliog Archives Environmental Health 9:86-91 Jl '64

Health aspects of wastewater treatment. F. R. Dixon and L. J. McCabe. WPCF J 36:984-9 bibliog(p988-9) Ag '64

Health checklist for small plants. Safety Maint 127:42-4+ F '64

Health control in inorganic lead industries; follow-up of exposed workers. R. E. Lane. Archives Environmental Health 8:243-50 F '64

Health program for radiation workers. W. D. Norwood. bibliog Archives Environmental Health 9:529-35 O '64

History and problems of occupational health in New England. G. F. Wilkins. Archives Environmental Health 8:483-6 Mr '64

Hygiene training; abstract. N. Goldenberg. Chem & Ind p395 Mr 7 '64

Illustration of industrial hygiene. R. A. Kehoe. bibliog Archives Environmental Health 8:378-83 Mr '64

HYGIENE, Industrial—*Continued*

Industrial hygiene and health conservation. M. M. Luckens, ed. Published in monthly numbers of Safety maintenance

Industrial hygiene and medical control procedures; manufacture and handling of organic lead compounds. A. J. Fleming. bibliog Archives Environmental Health 8: 266-70 F '64

Industrial hygiene for the safety specialist. E. D. Salle. il Safety Maint 128:52-7 N; 44-8 D '64

Industrial hygiene foundation. R. T. P. deTreville. bibliog Archives Environmental Health 8:398-403 Mr '64

International congress on occupational health, 14th, Madrid, Sept. 16-21. Ind Med 32:525-31 D '63

Labor interests. A. E. Brown. Archives Environmental Health 8:415-17 Mr '64

Man cooling by a vortex tube device. W. F. Lienhard and others. bibliog il diag Archives Environmental Health 9:377-86 S '64

Management aspects of industrial hygiene. J. L. O'Marra. Archives Environmental Health 8:404-9 Mr '64

Management guide; occupational health programs. bibliog Archives Environmental Health 9:408-13 S '64

Measurement and control of air contaminants in Ontario uranium mines. G. R. Yourt. bibliog Ind Med 33:222-9 Ap '64

Medi-products. il Ind Med 33:254-5, 335-6, 424, 516, 589, 655-7, 749-50 Ap-O '64

New materials and processes create new liabilities for the foundry. G. E. Tubich. bibliog il Ind Med 33:79-85 F '64

Occupational health activities in public health practice. M. H. Merrill. Am J Pub Health 53:1877-82 D '63

Occupational health in the local health department, a status report. H. N. Doyle. Am J Pub Health 53:1883-5 D '63

Occupational health program in Hillsborough County, Fla. J. S. Neill and C. L. Nayfield. Am J Pub Health 53:1886-9 D '63

Occupational health, Public health service. L. L. Terry. Archives Environmental Health 8:410-14 Mr '64

Occupational health, talk or action; editorial. Am J Pub Health 54:519-20 Mr '64

Perspectives in industrial hygiene. T. F. Hatch. Archives Environmental Health 8: 393-7 Mr '64

Study of the higher nervous functions in occupational health. M. Horvath and others. Ind Med 33:136-7 Mr '64

Survey of workers exposed to chlordane. W. I. Fishbein and others. Ind Med 33: 726-7 O '64

Toxicology of industrial chemicals. H. F. Smyth, jr. bibliog Archives Environmental Health 8:384-92 Mr '64

Twenty-six years' experience with dust control in the Vermont granite industry. H. B. Ashe and D. E. Bergstrom. bibliog il Ind Med 33:73-8 F '64

Women at work; health and sociomedical problems related to the employment of women. S. Forssman. bibliog Ind Med 33: 125-9 Mr '64

See also

Air conditioning—Hygienic aspects
Coal miners—Diseases and hygiene
Electric welding. Arc—Hygienic aspects
Fatigue
Industrial hygiene foundation
Lavatories
Lungs—Dust diseases
Medical service, Industrial
Miners—Diseases and hygiene
Noise
Physical examinations
Poisons, Industrial
Safety devices and measures
Skin—Diseases
Temperature—Physiological effect
United States—Public health service—Division of occupational health

Bibliography

Abstracts from current literature (cont). Archives Environmental Health 7:739-40; 8:902-3; 9:139; 275-6 D '63, Je-Ag '64

Books (cont). Archives Environmental Health 7:743-4; 8:197-8, 358, 629-30, 769-70, 908-10; 9:140, 280 D '63-F, Ap-Ag '64

Books (cont). Ind Med 33:38-40, 98, 162-3, 246-7, 329-30, 422, 582-4, 746-7 Ja-Je, Ag, O '64

Standards

Maximum allowable concentrations: international symposium, 2d, Paris. Archives Environmental Health 8:487-91 Mr '64

Noisy storm over hearing standards. bibliog il Safety Maint 126:44-5+ D '63

Threshold limit values for 1963. H. B. Ashe and others. Archives Environmental Health 7:592-9 N '63

Threshold limit values for 1964. Archives Environmental Health 9:545-54 O '64

Study and teaching

Hygiene training for the safety engineer. il Safety Maint 127:48-50 Ap '64

Occupational health for general practitioners. J. S. Felton. bibliog Archives Environmental Health 9:99-103 Jl '64

Great Britain

Trade unionists and occupational health. il Engineering 196:788-9 D 20 '63

HYGIENE, Rural

Environmental toxicology in industry and agriculture. K. Kay. Archives Environmental Health 8:681-99 bibliog(p698-9) My '64

HYGROMETERS

Automatic dewpoint hygrometer. F. M. Gralenski. il diag Instruments & Control Systems 37:124-5 My '64

Hygrometer for use at low temperatures. J Latham and C. D. Stow. diags J Sci Instr 41:324-6 My '64

Liquid mirror hygrometer. il diag Product Eng 35:63 F 17 '64

Moisture and humidity. il Instruments & Control Systems 37:82-5 Ag; 144-7 S; 121-4 O '64

Thermal or ultra-dry bulb hygrometer. J. G. Downes and P. Nordon. bibliog J Sci Instr 40:596-8 D '63

Wet/dry bulb thermistor hygrometer with digital indication. R. M. Atkins. il diag Instruments & Control Systems 37:111-14 Ap '64

HYOSCYAMINE

Incorporation of putrescine into the tropine moiety of hyoscyamine. E. Leete and M. C. L. Louden. Chem & Ind p 1725-6 O 26 '63

HYPERFINE structure. See Spectrum—Fine structure

HYPERGEOMETRIC functions. See Functions, Hypergeometric

HYPERSONIC aerodynamics. See Aerodynamics, Hypersonic

HYPERSONIC airplanes. See Airplanes, Hypersonic

HYPERTENSION. See Blood pressure

HYPNOTICS

See also

Barbiturates

HYPOBROMITES

Coulometric titration of ammonia with hypobromite using direct amperometric end point detection. G. D. Christian and others. Anal Chem 35:2217-19 D '63

Determination of methyl ketones and acetaldehyde by titration with hypobromite using Bordeaux indicator. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 36:384-6 F '64

Direct coulometric titrations with hypobromite ion. A. F. Krivis and others. Anal Chem 35:2216-17 D '63

Stability of hypobromite and hypoiodite reagents. M. H. Hashmi and others. bibliog Anal Chem 36:1379-82 Je '64

HYPOCHLORITES

Production of hypochlorite by direct electrolysis of sea water; electrode materials and design of cells for the process. A. F. Adamson and others. J Ap Chem 13:483-95 N '63

Reaction of *p*-carboxy-α,α-dimethylbenzyl hydroperoxide with alkaline hypochlorite. S. H. Merrill. bibliog Am Chem Soc J 86: 3828-33 S 20 '64

See also

Sodium hypochlorite

Analysis

Determination of chloride, hypochlorite, chlorite, chlorate, perchlorate, and chlorine dioxide in composite mixtures. L. A. Prince. bibliog Anal Chem 36:613-16 Mr '64

HYPODERMIC needles

Machine inspects hypodermic needles. il Automation 11:75 Ja '64

HYPOGLYCEMIA. See Blood—Sugar

HYPOID gearing. See Gearing, Hypoid

HYPOIODITES

Stability of hypobromite and hypoiodite reagents. M. H. Hashmi and others. bibliog Anal Chem 36:1379-82 Je '64

HYPOPHOSPHITE

Mechanism for the autocatalytic reduction of nickel by hypophosphite ion. R. M. Lukes. bibliog Plating 51:969-71 O '64

Synthesis of hypophosphite esters from orthocarbonyl compounds. S. J. Fitch. Am Chem Soc J 86:61-4 Ja 5 '64

Volumetric determination of hypophosphite in electroless nickel plating solutions. J. P. McCloskey. Plating 51:689-92 Jl '64

HYSTERESIS

Analysis of the hysteresis motor. M. A. Copeland and G. R. Slemon. diags IEEE Trans Power Apparatus & Systems p34-42 Ap '63; 83:619-25 Je '64; Discussion. 83:652-3 Je '64

Behavior of rectangular hysteresis loop cores in every application. L. Gilli and A. R. Meo. bibliog diags IEEE Proc 51:1578-84 N '63

Breakdown and hysteresis in forward biased p-n GaAs luminescent junctions. R. C. C. Leite and A. Yariv. IEEE Proc 52:191-2 F '64

Effects of constant dc fields on the hysteresis loops of ferroelectric $Bi_4Ti_3O_{12}$ crystals. S. E. Cummins. bibliog il J Ap Phys 35:3045-6 O '64

Grain size effects in silicon steels upon the ac core loss components. R. E. Lenhart. J Ap Phys 35:861-2 pt 2 Mr '64

Hysteresis motor flutter. N. A. Miller. diags Electro-Tech 74:123-7 Jl '64

Magnetic hysteresis damping. il diags Bell Lab Rec 41:370-1 O '63

Relationship of the measured a-c permeability at low inductions to the dynamic hysteresis loop geometry. H. L. Schenk and F. J. Young. diags IEEE Trans Com & Electronics p593-7 N '63

Rotational hysteresis in tungsten steel and in hysteresis motors. J. M. Lommel. bibliog J Ap Phys 35:970-1 pt 2 Mr '64

Rotational hysteresis loss in single-crystal silicon-iron. C. R. Boon and J. E. Thompson. bibliog il diags Inst E E Proc 111:605-9 Mr '64

Square-loop properties of materials in the system $NiFe_2O_4$-Fe_3O_4-$MnFe_2O_4$. H. B. Im and D. G. Wickham. bibliog diag J Ap Phys 36:1442-5 My '64

Steady-state B-H hysteresigraph for thin ferromagnetic films using a torque magnetometer. E. J. Torok and others. il diags R Sci Instr 35:1039-40 Ag '64

Torque and rotational hysteresis in fcc single-crystal cobalt films. W. D. Doyle. bibliog J Ap Phys 35:929-30 pt 2 Mr '64

HYSTERESIS (mechanics)

Earthquake response of systems with bilinear hysteresis. S. S. Thomaides. bibliog diags Am Soc C E Proc 90 [ST 4 no 4009]:123-43 Ag '64

Indenter hysteresimeter for testing dynamic properties. G. Tangorra. il diags Rubber Chem & Tech 36:1107-18 O '63

Kind of hysteretic damping. E. Rosenblueth and I. Herrera. bibliog diags Am Soc C E Proc [EM 4 no 3999]:37-48 Ag '64

I

IAEI. See International association of electrical inspectors

IES. See Illuminating engineering society

ILAFA. See Latin American iron and steel institute

ISA. See Instrument society of America

IBOGA. See Tabernanthe iboga

ICE

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Catalysis in water and ice; the reaction of thiolactones with morpholine in frozen systems. T. C. Bruice and A. R. Butler. bibliog Am Chem Soc J 86:4104-8 O 5 '64

Formation and reactions of radiation-produced electrons and atomic hydrogen in γ-irradiated ice. L. Kevan and others. bibliog Am Chem Soc J 86:771-6 Mr 5 '64

Ice interface morphology and texture developed during freezing. J. D. Harrison and W. A. Tiller. bibliog il diags J Ap Phys 34:3349-55 N '63

Index of refraction of ice. G. W. Horton. Am J Phys 32:320 Ap '64

Large ice storage systems for process water. W. J. Davis. diag ASHRAE J 6:66-9+ F '64

Mechanisms given for radiolytic reactions in ice, methane. il Chem & Eng N 42:40-2 F 3 '64

Wrong de-icers harm concrete. Safety Maint 127:61-2 Mr '64

See also

Electric lines—Ice problem

Icebergs

Antarctic regions

Deformation of the Ross Ice Shelf, Antarctica. R. O. Kehle. map diags Geol Soc Bul 75:259-86, pl 1 bibliog(p285-6) Ap '64

Oxygen-isotope ratios in Antarctic snow, firn, and ice. S. Epstein and others. map J Geol 71:698-720 bibliog(p718-20) N '63

ICE age. See Glacial epoch

ICE breaking vessels

Break it up! M. D. Gunderson. il Water & Sewage Works 111:281 Je '64

Distinctive ships; British-built icebreaker Perkun for Polish authorities. il Marine Eng/Log 68:77 D '63

MV Tor; Sweden's semi-automated icebreaker. il Marine Eng/Log 70:52-3 My '64

ICE cream

Fats in relation to ice cream; abstract and discussion. D. A. Walker. Chem & Ind p 1897-8 N 30 '63

ICE cream factories

Equipment

Digit-switch programming monitors batching; Meyenberg milk products co. P. L. Culler and R. L. Brockmeyer. il plan Food Eng 36:39-41 F '64

ICE cream mixes

Digit-switch programming monitors batching: Meyenberg milk products co. P. L. Culler and R. L. Brockmeyer. il plan Food Eng 36:39-41 F '64

ICE cube makers. See Refrigeration and refrigerating machinery

ICE milk. See Desserts, Frozen

ICE on rivers, lakes, etc.

Break it up! M. D. Gunderson. il Water & Sewage Works 111:281 Je '64

Cold-weather problems of surface water plants. J. H. King. Am Water Works Assn J 56:1239-42 S '64

Effect of ice on long range underwater sound propagation. J. D. Macpherson. map Radio & Electronic Eng 26:293-7 O '63

Electrical properties of sea ice at 0.1 to 30 mc/s. F. L. Wentworth and M. Cohn. bibliog il diags J Res Nat Bur Stand 68D:681-91 Je '64

Foundation aspects of the Rainy Lake causeway. M. A. J. Matich and others. bibliog il plans diags Eng J 46:23-31 N '63; Discussion. 46:40 D '63

Operators fight icy tides in Alaska. il map Oil & Gas J 62:52-4 Ja 13 '64

ICEBERGS

Computers on ice patrol. il Electronics 37:27 Ap 6 '64

See also

International ice patrol

ICEBREAKERS. See Ice breaking vessels

IDAHO

See also subdivision Idaho under special subjects, e.g.

Electric utilities

Gas, Natural

Geology

Irrigation

Mines and mineral resources

Petroleum

Petroleum industry and trade

Roads

Silver mines and mining

Soils

IDEAS in business

Getting ideas to management's attention. il Chem Eng Prog 59:23-32 D '63

Putting ideas into action; through better communications. P. R. Heinmiller. Tool & Manuf Eng 52:45-7 Ja '64

See also

Suggestion systems

IDENTIFICATION (marking). See Marking

IGNEOUS rocks. See Rocks, Igneous

IGNITION

Ignition delay of ponderosa pine needles and sphagnum moss. R. W. Mutch. bibliog J Ap Chem 14:271-5 Jl '64

Ignition of burners in industrial furnaces. E. S. Monroe, jr. bibliog diags Combustion 36:44-7 S '64

See also

Automobile engines—Ignition

Flash point

Gas burners—Ignition devices

Gas engines—Ignition devices

Inflammable mixtures

IGNITRON

Silicon controlled rectifier triggers ignitron. L. E. Frenzel, jr. diag Electronics 37:62-3 Je 1 '64

ILLINOIS

See also subdivision Illinois under special subjects, e.g.

Architecture, Domestic

Building laws and regulations

Coal mines and mining

Electric utilities

Gas, Natural

Geology

Mines and mineral resources

Petroleum

Petroleum industry and trade

Rain and rainfall

Roads

ILLITE

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

Petrological significance of illite polymorphism in paleozoic sedimentary rocks. B. Velde and J. Hower. bibliog Am Mineralogist 48:1239-54 N '63

Rapid, quantitative illite determination in polycomponent mixtures. D. M. Lapham and M. G. Jaron. Am Mineralogist 49:272-6 Mr '64

ILLUMINATING engineering research institute

Summary of present goals, recent activities and current research projects. il diag Illum Eng 59:405-10 sec 2 My '64

ILLUMINATING engineering society

Committee personnel, 1963-1964. Illum Eng 58:sup54A+ N '63

Conference, Miami Beach; abstracts of papers. Illum Eng 59:573-626 S '64

General secretary reports. W. P. Lowell, jr. Illum Eng 58:747-8 D '63

National technical conference, Detroit. Illum Eng 58:sup7A-10A N '63

President's report. J. D. Mitchell. Illum Eng 59:563-6 S '64

Report of the president-elect. C. L. Amick. il plan Illum Eng 59:567-72 S '64

South Pacific coast and Pacific Northwest regional conferences, Fresno, Calif. April 30-May 1, Portland, Ore. May 3-5. Elec Constr & Maint 63:179-80 Je '64

Summing up the 1964 regional conferences. Illum Eng 59:sup7A-9A+ Ag '64

Technical committee forum, Columbus, Ohio, Nov. 19. Illum Eng 59:sup5A+ Ja '64

IMAGE converters

New solid-state X-ray image converter. T. Kohashi. il diag IEEE Proc 51:1794-5 D '63

See also

Image intensifiers

IMAGE intensifiers

Brighter image; first use of a two-stage intensifier and television monitor with the microscope. Electronics 37:32+ O 5 '64

Electron microscopes; television attachment increases magnification power to two million times. il Product Eng 35:64 O 12 '64

Field ion microscopy with an external image intensifier. S. B. McLane and others. bibliog il diags R Sci Instr 35:1297-302 O '64

High sensitivity image intensifiers for U.K.A.E.A. il Ind Electronics 2:414 S '64

IMIDAZOLE

Base catalysis of imidazole catalysis of ester hydrolysis. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:833-7 Mr 5 '64

Compensation in $\Delta H\ddagger$ and $\Delta S\ddagger$ accompanying the conversion of lower order nucleophilic displacement reactions to higher order catalytic processes; the temperature dependence of the hydrazinolysis and imidazole-catalyzed hydrolysis of substituted phenyl acetates. T. C. Bruice and S. J. Benkovic. bibliog Am Chem Soc J 86:418-26 F 5 '64

Esterolytic catalysis of poly-4(5)-vinylimidazole and poly-5(6)-vinylbenzimidazole. C. G. Overberger and others. bibliog Am Chem Soc J 85:3513-15 N 5 '63

Hydrolytic reactions of 4(5)-hydroxymethylimidazolyl acetate, 1-methyl-5-hydroxymethylimidazolyl acetate, 4(5)-chloromethylimidazole, and 1-methyl-5-chloromethylimidazole. T. C. Bruice and J. L. Herz. bibliog Am Chem Soc J 86:4109-16 O 5 '64

Kinetic study of the imidazole groups of chymotrypsinogen, chymotrypsin and some derivatives, using the temperature-jump method. A. Yapel and R. Lumry. Am Chem Soc J 86:4499-500 O 20 '64

Kinetics and mechanism of iodination of pyrazole; comparative reactivities of pyrazole and imidazole. J. D. Vaughan and others. bibliog Am Chem Soc J 86:2857-61 Jl 20 '64

Nonlinear structure-reactivity correlations; the imidazole-catalyzed hydrolysis of esters. J. F. Kirsch and W. P. Jencks. bibliog Am Chem Soc J 86:837-46 Mr 5 '64

IMIDES

Exchange of parts between molecules at equilibrium; the new family of poly(fluoroarsenous methylimides). M. D. Rausch and others. bibliog Am Chem Soc J 86:814-19 Mr 5 '64

Formation of phenyl radical by heterolysis of N-phenyl-N′-benzoyldiimide. S. G. Cohen and J. Nicholson. bibliog Am Chem Soc J 86:3892-3 S 20 '64

Hydrogenation with diimide generated from chloroacetylhydrazide. R. Buyle and others. Chem & Ind p839 My 16 '64

Mechanism for the dehydration of asparagine and maleamic acid derivatives by N,N′-dicyclohexylcarbodiimide. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86:741-2 F 20 '64

Mechanism for the N,N′-dicyclohexylcarbodiimide-caused dehydration of asparagine and maleamic acid derivatives. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86:4162-6 O 5 '64

Oxygen-18 study of the dehydration of asparagine amide with N,N′-dicyclohexylcarbodiimide and *p*-toluenesulfonyl chloride. D. V. Kashelikar and C. Ressler. bibliog Am Chem Soc J 86:2467-73 Je 20 '64

Studies on polynucleotides; the stepwise synthesis of specific deoxyribopolynucleotides; further studies on the synthesis of internucleotide bond by the carbodiimide method; the synthesis of suitably protected dinucleotides as intermediates in the synthesis of higher oligonucleotides. H. Schaller and H. G. Khorana. bibliog Am Chem Soc J 85:3828-35 D 5 '63

Three kinds of polymers show thermal stability; polyimides near commercialization; polybenzothiazoles, polyquinoxalines at earlier stage. il Chem & Eng N 42:55-7 Ap 13 '64

See also

Succinimide

IMINES

Imine insertion into the aluminium carbon bond. K. Hoegerle and P. E. Butler. Chem & Ind p933 My 30 '64

Preparation and plasticizing characteristics of piperidides of long chain fatty acids and N-fatty acyl derivatives of other cyclic imines. R. R. Mod and others. bibliog Am Oil Chem Soc J 41:237-40 Mr '64

Reactions of coordinated ligands; metal ion control in the synthesis of planar nickel(II) complexes of α-diketo-bis-mercaptoimines. M. C. Thompson and D. H. Busch. bibliog Am Chem Soc J 86:213-17 Ja 20 '64

Ultraviolet spectra of sulphoximines; *d*-orbital interactions. M. Barash. Chem & Ind p 1261-2 Jl 11 '64

IMMIGRATION and emigration

See also

Refugees

IMMUNITY

Active immunization against tetanus. E. S. Stafford. bibliog Archives Environmental Health 8:742-5 My '64

Current status of tetanus immunization. G. Edsall. Archives Environmental Health 8:731-41 bibliog(p740-1) My '64

Immunologic methods in air pollution research. A. S. Josephson. bibliog il Archives Environmental Health 8:143-6; Discussion. 147-52 Ja '64

Long-term immunity to tetanus; a statistical evaluation and its clinical implications. S. Gottlieb and others. bibliog Am J Pub Health 54:961-71 Je '64

See also

Antigens and antibodies

Vaccination

IMPACT

Analytical approach to hypervelocity impact. S. W. Yuan and A. M. Bloom. bibliog AIAA J 2:1667-9 S '64

Bond dissociation energies and ion energetics in organosilicon compounds by electron impact. G. G. Hess and others. bibliog Am Chem Soc J 86:3174-5 Ag 5 '64

Buckling of thin walled tubes under axial impact. R. G. Redwood. il Roy Aeronautical Soc J 68:418-19 Je '64

Chlorinated polyethylene as impact modifier for rigid PVC. J. L. O'Toole and others. Mod Plastics 41:149-50+ Mr '64

IMPACT—*Continued*

Comparisons of materials; impact strength of metals and plastics; tables. Materials in Design Eng 60:34 Mid-O '64

Deformation and wave structure produced by high-velocity impact. R. F. Rolsten and others. bibliog il J Ap Phys 35:1655-6 My '64

Determination of cratering energy densities for metal targets by means of reflectivity measurements. H. Mark and others. bibliog AIAA J 2:965-6 My '64

Effect of niobium and tantalum on the tensile and impact properties of mild steel. R. Phillips and others. bibliog il Iron & Steel Inst J 202:593-600 Jl '64

Equivalent circuit of solid iron core for impact excitation problems. V. Subba Rao. bibliog diags Inst E E Proc 111:349-57 F '64

Example of hole diameter in thin plates due to hypervelocity impact. R. F. Rolsten and others. bibliog J Ap Phys 35:556-9 Mr '64

Experimental determination of air drag on a textile yarn struck transversely by a high-velocity projectile. J. C. Smith and others. bibliog il J Res Nat Bur Stand 68C:177-81 Jl '64

General solution of the rigid body impact problem. G. G. Herzl. diags AIAA J 2:959-61 My '64

High energy forming of glasses and ceramics. R. L. Hallse. Am Cer Soc Bul 42:711 N '63

Influence of stress history on time-dependent spall in metals. B. M. Butcher and others. il diags AIAA J 2:977-90 bibliog(p989-90) Je '64

Longitudinal impact on viscoplastic rods; linear stress-strain rate law. T. C. T. Ting and P. S. Symonds. bibliog diags A S M E Trans ser E 31:199-207 Je '64

Newton's laws of motion and the 17th century laws of impact. A. B. Arons and A. M. Bork. bibliog Am J Phys 32:313-17 Ap '64

Quick starts simulate crash stops in GM collision research. L. C. Lundstrom and others. il diags S A E J 72:88-93 Je '64

Remark on the eigenvectors of angular momentum operators. H. A. Buchdahl. bibliog Am J Phys 31:829-34 N '63

Repeated impact tests. J. R. Heater and E. M. Lacey. bibliog il diags Mod Plastics 41:123-6+ My '64

Shock dynamics of hypervelocity impact of metals. Y. K. Huang and N. Davids. bibliog diags Franklin Inst J 276:39-50 Jl '63; Same. Naval Eng J 76:577-82 Ag '64

Similarities in the impact behavior of glasses and polycrystalline ceramics. C. J. Phillips and S. DiVita. bibliog Am Cer Soc Bul 42:685-7 N '63

Some observations on explosive metallurgy. H. P. Tardif. bibliog il diags Can Min & Met Bul 57:253-62 Mr '64

Specificity of the electron-impact induced elimination of water from alcohols and related reactions in the mass spectrometer. W. Benz and K. Biemann. bibliog Am Chem Soc J 86:2375-8 Je 20 '64

Stress-strain relationships in yarns subjected to rapid impact loading (cont). J. C. Smith and others. bibliog il Textile Res J 33:919-34 N '63

System for measuring the dynamic properties of materials. L. M. Barker and R. E. Hollenbach. diags R Sci Instr 35:742-6 Je '64

Tektites and impact fragments from the moon. J. A. O'Keefe. il maps diags Sci Am 210:50-7 F '64

Theoretical penetration of hypervelocity projectiles into massive targets. J. K. Wall. bibliog AIAA J 2:1242-6 Jl '64

Viscous model for plug formation in plates. A. Pytel and N. Davids. bibliog il diags Franklin Inst J 276:394-406 N '63

Work done in pulling fibers from the cotton seed under impact conditions in relation to fiber properties and ginning behavior. J. Prakash and R. L. N. Iyengar. bibliog Textile Res J 34:444-55 My '64

See also

Notched bar testing

IMPEDANCE

Characteristic impedance of coaxial lines of circular inner and rectangular outer conductors. E. G. Cristal. diag IEEE Proc 52:1265-6 O '64

Characteristic impedance of two special forms of transmission line. J. B. Izatt. bibliog diags Inst E E Proc 111:1551-5 S '64

Circuit with a twist; cascode follower. R. W. Johnson. diags Electronics 36:69-70 D 6 '63

Computation of inverse impedance by De Morgan's theorem. N. N. Biswas. diags Electronic Eng 36:267 Ap '64

Concept of terminal admittance and impedance matrixes extended to continuous media. K. F. Sander. bibliog diags Inst E E Proc 111:1107-16 Je '64

Constant magnitude, variable phase circuit for low impedance loads. M. D. Daybell. diags R Sci Instr 35:1237-8 S '64

Diffraction of a cylindrical surface wave by a discontinuity in surface reactance. R. W. Breithaupt. bibliog diags IEEE Proc 51:1455-63 N '63

Direct-reading meter gives impedance and phase angle. P. Lund. il diags Electronics 37:57-9 Ja 3 '64

Dispersion and impedance of dielectric-supported ring-and-bar slow-wave circuits. E. A. Ash and others. bibliog diags Inst E E Proc 111:629-41 Ap '64

Effect of losses in varactor-diode impedance measurements. F. J. Hyde and R. B. Smith. bibliog diags Inst E E Proc 111:471-80 Mr '64

Effect of small variations of impedance on the pole and zero locations for a passive linear network. D. J. Storey. Inst E E Proc 110:2181 D '63

Electrical constants and relative capabilities of bundled-conductor transmission lines. A. F. Gabrielle and others. bibliog diags IEEE Trans Power Apparatus & Systems p78-88; Discussion. p89-91; Reply. 91-2 Ja '64

Electron densities from satellite antenna impedance. O. C. Haycock and K. D. Baker. il diags IEEE Trans Com & Electronics 83:458-62 S '64

Experiences with the impedance probe on satellites. O. C. Haycock and others. bibliog il diag IEEE Proc 52:1029-33 S '64

Explicit formulas for Chebŷshev impedance-matching networks, filters and interstages. R. Levy. bibliog diags Inst E E Proc 111:1099-106 Je '64

1500-volt hybrid switch has low on impedance. R. E. Thomas. diag Electronics 37:74-5 Ag 10 '64

Formulas for the terminal impedances and transfer functions of general multimesh ladder networks. S. C. Dutta Roy. bibliog IEEE Proc 52:738-9 Je '64; Discussion. 52:1366-7 N '64

Four-terminal-pair networks as precision admittance and impedance standards. R. D. Cutkosky. diags IEEE Trans Com & Electronics p 19-22 Ja '64

Frequency dependence of the powers and impedances of varactor frequency multipliers. A. I. Grayzel. IEEE Proc 52:1056-7 S '64

Help for the stranded motorist; adapting the impedance measuring techniques. J. Bacon and R. L. Cosgriff. diag Control Eng 11:99+ Ap '64

High current low impedance pulse generator. N. B. Stevens. il diags R Sci Instr 35:167-70 F '64

Impedance between perfect conductors in a finitely conducting medium with application to composite media. R. N. Buchal and J. B. Keller. J Ap Phys 34:3414 N '63

Impedance chart. M. R. Liebowitz. diags Electro-Tech 72:126+ N '63

Impedance measurements by current-null technique. S. B. Williams. il diag Instruments & Control Systems 36:90-1 O '63

Impedance of a cylindrical dipole having a sinusoidal current distribution in a homogeneous anisotropic ionosphere. W. S. Ament and others. bibliog diags J Res Nat Bur Stand 68D:379-405 Ap '64

Impedance of a monopole antenna with a radial-wire ground system on an imperfectly conducting half-space. S. W. Maley and R. J. King. bibliog diags J Res Nat Bur Stand 66D:175-80; 68D:157-63, 297-301 Mr '62, F-Mr '64

Impedance of Leclanché cells and batteries. R. J. Brodd and H. J. DeWane. bibliog Electrochem Soc J 110:1091-7 N '63

Low voltage, high input impedance hybrid amplifier circuits. F. H. Laishley. diags Electronic Eng 36:309-11 My '64

Modified ramp generator develops high d-c input impedance. R. C. Weinberg. il diags Electronics 37:33-5 F 21 '64

Network synthesis using negative-impedance convertors. D. J. Storey and W. J. Cullyer. bibliog diags Inst E E Proc 111:891-906 My '64

New impedance method for determining viscoelastic constants. E. L. Spitznagel, jr. and others. il diags R Sci Instr 35:582-6 My '64

New look at the parallel tuned circuit. D. E. Mertens. diags Electro-Tech 73:58-62 My '64

IMPEDANCE—*Continued*

Operational impedances of turbogenerators with solid rotors. P. Bharali and B. Adkins. bibliog diags Inst E E Proc 110:2185-99 D '63

Phase sequence impedance of pipe-type cables. J. H. Neher. diags IEEE Trans Power Apparatus & Systems 83:795-801; Discussion. 801-4 Ag '64

Power transmitted by a medium of complex wave impedance. H. E. M. Barlow. Inst E E Proc 110:2174-6 D '63

Relationships between different kinds of network parameters, not assuming reciprocity or equality of the waveguide or transmission line characteristic impedances. R. W. Beatty and D. M. Kerns. diags IEEE Proc 52:84 Ja '64

Simple dc-ac negative-impedance converter, offering symmetrical *N*-type and *S*-type negative resistance. H. E. Kallmann. diags IEEE Proc 52:199-200 F '64

Smith-diagram display unit of small reflection coefficients using the vibrating-dummy method. S. Tsuchiya. bibliog il diags IEEE Proc 51:1444-54 N '63

Standards and measurements of attenuation, impedance, and phase shift; period covered, Sept. 1960-Dec. 1962. R. W. Beatty. bibliog J Res Nat Bur Stand 68D:529-33 My '64

Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63

Tables of Chebyshev impedance-transforming networks of low-pass filter form. G. L. Matthaei. diags IEEE Proc 52:939-63 Ag '64

Terminal impedances and transfer functions of ladder networks. S. C. Dutta Roy. bibliog diags Inst E E Proc 111:1653-8 O '64

Theory of the faradaic impedance. D. E. Smith. bibliog Anal Chem 36:962-70 My '64

Thermistor as a circuit element in low frequency systems. K. Kraus. bibliog diags J Sci Instr 41:384-5 Je '64

This transistor voltmeter has high input impedance. D. L. Pippen. il diags Radio-Electronics 35:36-8 N '64

Variable impedance power meter, and adjustable reflection coefficient standard. G. F. Engen. bibliog diags J Res Nat Bur Stand 68C:7-24 Ja '64

V.h.f. antenna facts and fallacies. E. P. Tilton. diags Q S T 48:29-33 Mr '64

Voltage and impedance conditions for the rapid plugging of induction motors including Saturistor control. W. Shepherd. bibliog diags Inst E E Proc 111:1713-28 O '64

IMPELLERS. See Pumps, Centrifugal

IMPORTS

Imports of chlorinated hydrocarbons set records. Chem & Eng N 42:37 O 26 '64

Threat is now a fact; abstract. S. S. Cort. Automation 11:135-6 Ag '64

Will imported drugs undermine the quality of pharmaceutical research? il Drug & Cosmetic Ind 94:825+ Je '64

See also

Petroleum industry and trade—United States—Imports problem

Statistics

Facts and figures for the chemical process industries; exports and imports. V. Kinnard. maps Chem & Eng N 42:86-9 S 7 '64

IMPROVED products. See Products, Improved

INCANDESCENT electric lamps. See Electric lamps, Incandescent

INCENTIVE wages. See Wage payment plans

INCENTIVES in industry

See also

Bonus system

Wage payment plans

INCINERATORS

ASME 1st Incinerator conference and exhibit, New York, May 18-20. Mech Eng 86:98-9 Jl '64

Express concern for air pollution at incinerator conference. H. C. Moore. diag Heating-Piping 36:102-3 Ag '64

Refractories make the difference in incinerator construction. R. A. Cotton. il Plant Eng 17:118-19 N '63

INCINERATORS, Refuse. See Refuse incinerators

INCINERATORS, Sewage. See Sewage incinerators

INCLUSION compounds. See Molecular compounds

INCLUSIONS (mineralogy and petrology)

Impurities in quartz. W. H. Dennen. bibliog diags Geol Soc Bul 75:241-5 Mr '64

Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog(p917-19) Ag '64

INCLUSIONS in steel. See Steel—Inclusions

INCOME tax

Head off employee grumbling about under-withholding of income taxes. H. J. Ashe. Pit & Quarry 57:126 S '64

Worried about income tax filing? perhaps you should be. H. J. Ashe. Pit & Quarry 57:131-2 O '64

Your 1963 income tax return. H. J. Ashe. Pit & Quarry 56:151-4 Ja '64

Retirement credit deduction

Voluntary pension plans for the self-employed. Elec Constr & Maint 63:98 F '64

INCONEL. See Nickel alloys

INCUBATION

Incubation period of infectious mononucleosis. R. J. Hoagland. bibliog Am J Pub Health 54:1699-705 O '64

INDENE

Dimethyl acetylenedicarboxylate, indene adduct; a novel Diels-Alder reaction. K. W. Muir and others. bibliog Chem & Ind p 1581-2 S 12 '64

Electron spin resonance of triplet cyclopentadienylidene and indenylidene. E. Wasserman and others. bibliog Am Chem Soc J 86:2304-5 Je 5 '64

Formation and capture of a reactive intermediate related to dimethylpseudoindene. J. A. Berson and M. Pomerantz. bibliog Am Chem Soc J 86:3896-7 S 20 '64

Organic sulfur compounds; oxidative addition of thiol acids to unsaturated hydrocarbons; cooxidation of thiolacetic acid and indene by molecular oxygen. A. A. Oswald and others. bibliog Am Chem Soc J 86:3791-5 S 20 '64

Preparation and nuclear magnetic resonance spectrum of 1-methyl-indene. A. R. Hawdon and I. J. Lawrenson. bibliog Chem & Ind p 1690-1 O 19 '63

INDENONE. See Indone

INDEPENDENT natural gas association of America

Annual meeting, 19th, New Orleans, Sept. 16-17. Gas Age 130:44-5 N '63

INDEPENDENT petroleum association of America

IPAA asks new approach on gas prices. Oil & Gas J 61:39 N 25 '63

IPAA seeks new reduction in imports. Oil & Gas J 61:90-1 N 4 '63

INDEX of refraction. See Refractive index

INDEXES

Index of patents plus National catalogue of patents in electric field issued. Elec World 160:76 O 21 '63

INDEXING

Chemical Engineering modifies its indexing system. Chem Eng 71:76 Ag 17 '64

Cross-indexing industry and military specifications and standards. Published in monthly numbers of Magazine of standards

How to solve your information problem. W. F. Marsden. diags Tool & Manuf Eng 52:89-92 Je '64

Indexing of tetragonal and hexagonal X-ray powder photographs with the aid of a small computer. R. Lefker. bibliog Anal Chem 36:332-4 F '64

Journal of metals adopts the EJC indexing and abstracting approach. bibliog J Metals 16:680+ S '64

Library indexing of reference material. diag Food Tech 18:51-2 Ja '64

SME's key-word indexing speeds information retrieval. Min Eng 16:47-8 Ja '64

WADEX; word and author index, a new tool in literature retrieving. E. A. Ripperger and others. bibliog flow chart Mech Eng 86:45-50 Mr '64; Same. Naval Eng J 76:685-90 O '64; Discussion. Mech Eng 86:97-8 N '64

INDEXING (machine work)

Add on as you go automation. il Am Mach 108:68-9 Mr 30 '64

Cutting index time to the bone. il Am Mach 108:80 Ap 27 '64

Five-way rotary index machine. il Mach 70:143 Jl '64

Five-way, seven-station index-table machine featuring bushing and pin pressing operations. il Mach 70:174+ D '63

INDEXING (machine work)—*Continued*
Piercing die has automatic index. C. McLaughlin. diag Am Mach/Metalworking Manuf 107:78 D 23 '63
Precise indexing with optics. J. Kotors, jr. il Am Mach/Metalworking Manuf 107:88-9 N 25 '63
Rotary indexers find new slots. R. H. Eshelman. il Iron Age 193:71 Ap 23 '64
Semiautomatic loading of dial index machines. il Mach 70:148-9 Ap '64
Special machines fill many needs. W. R. Opel. il diag Tool & Manuf Eng 53:59-62 O '64
Specials make turbine blades. R. L. Hatschek. il Am Mach 108:84-6 O 12 '64
Toolroom indexing table solves space-age problem. il Tool & Manuf Eng 53:56 S '64

INDIA
See also subdivision India under special subjects, e.g.
Aeronautic research
Atomic power plants
Chemical industries
Clay
Coal mines and mining
Engineering
Hydroelectric plants
Machine tool industry
Mines and mineral resources
Moving picture industry
Nutrition problems
Petroleum industry and trade
Petroleum pipe lines
Petroleum products pipelines
Radio broadcasting
Railroads
Railroads—Electrification
Standards
Steel works
Telephone

Industries and resources

India's industries study standards. il Mag of Stand 34:331-3 N '63

INDIANA
See also subdivision Indiana under special subjects, e.g.
Coal mines and mining
Gas, Natural
Geology
Petroleum industry and trade
Roads

INDIANAPOLIS

Architecture

Building types study; apartments; James Whitcomb Riley center, Indianapolis. G. A. Christie. il plans Arch Rec 135:144-7 Ja '64

INDIANS (of India). See East Indians

INDIANS of North America

Health conditions

Family and genetic studies of rheumatoid arthritis and rheumatoid factor in Blackfeet Indians. T. A. Burch and others. bibliog Am J Pub Health 54:1184-90 Ag '64

INDICATORS. See Liquid level indicators

INDICATORS, Dye. See Dyes as indicators

INDICATORS and test papers
Investigation of *p*-nitrobenzhydrazide as an acid-base indicator. G. J. Papariello and S. Commanday. Anal Chem 36:1028-30 My '64
Reversible internal indicator for sodium nitrite titrations. A. A. Schilt and J. W. Sutherland. bibliog Anal Chem 36:1805-7 Ag '64

INDIUM
Anion exchange separation of gallium, indium, and aluminum. J. Korkisch and I. Hazan. bibliog Anal Chem 36:2308-11 N '64
Elimination of the edge effect in superconducting indium and tin films. I. Ames and H. Seki. bibliog diag J Ap Phys 35:2066-8 Jl '64
Indium encapsulation technique for introducing weighed samples in gas chromatography. A. G. Nerheim. bibliog diags Anal Chem 36:1686-8 Jl '64

Analysis

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64
Glass-electrode titration of indium in the presence of thiocyanate. E. D. Moorhead and G. M. Frame, 2d. bibliog Anal Chem 35:1875-8 N '63

INDIUM alloys
Age-hardening in copper-base indium alloys. D. J. H. Corderoy and R. W. K. Honeycombe. bibliog il Inst Metals J 92:65-9 '63-64
Binary alloys of indium with zinc or cadmium; deposition from sulfamic acid baths. L. Domnikov. bibliog Metal Finishing 62:73-5+ S '64

INDIUM antimonide
Apparatus for obtaining homogeneous ingots. F. Houzvicka and others. diags R Sci Instr 35:276-8 Mr '64
Cross-substitutional alloys of InSb. J. C. Woolley and E. W. Williams. bibliog il Electrochem Soc J 111:210-15 F '64
Damaged layers in abraded [111] surfaces of InSb. E. N. Pugh and L. E. Samuels. bibliog il diag J Ap Phys 35:1966-9 Je '64
Fast InSb PEM detectors for optical maser studies to 7μ. R. N. Zitter. diags R Sci Instr 35:594-6 My '64; Discussion. P. W. Kruse. 35:1728-9 D '64
Grain boundary conductance in InSb. R. K. Mueller and K. N. Maffitt. bibliog J Ap Phys 35:734-5 Mr '64
Impurity content of germanium crystallized from the liquid ternary alloy Ge-In-Sb. K. Lehovec and A. Slobodskoy. bibliog diag Electrochem Soc J 111:65-73 Ja '64
InSb detectors for infrared systems. J. E. Slawek, jr. bibliog diags Electronics 37:49-50 Ja 10 '64
InSb diodes under controlled surface conditions. K. N. Maffitt and R. K. Mueller. bibliog J Ap Phys 35:1563-4 My '64
Low-energy electron-diffraction study of the cleaved (110) surfaces of InSb, InAs, GaAs, and GaSb. A. U. Mac Rae and G. W. Gobeli. bibliog il diags J Ap Phys 35:1629-38 My '64
Magnetic tuning of cw InSb diode laser. R. J. Phelan, jr. and R. H. Rediker. IEEE Proc 52:91-2 Ja '64
Magnetoresistance of InSb at a microwave frequency. S. F. Sun. diags J Ap Phys 35:211-14 Ja '64
Photocontrolled surface conductance in anodized InSb. R. K. Mueller and R. L. Jacobson. bibliog diags J Ap Phys 35:1524-9 My '64
Preparation of InAs-InSb alloys. J. C. Woolley and J. Warner. bibliog il Electrochem Soc J 111:1142-5 O '64
Studies of the InSb crystal-melt interface. N. Albon. bibliog il Electrochem Soc J 111:61-4 Ja '64
Superconductivity in the high-pressure InSb-beta-system. S. D. Nye and others. bibliog J Ap Phys 35:1361-2 Ap '64

INDIUM arsenide
Growth of $(Ga_xIn_{1-x})As$ single crystals by vapor phase reaction. R. Sirrine. il Electrochem Soc J 111:750-1 Je '64
Low-energy electron-diffraction study of the cleaved (110) surfaces of InSb, InAs, GaAs, and GaSb. A. U. Mac Rae and G. W. Gobeli. bibliog il diags J Ap Phys 35:1629-38 My '64
Low-temperature elastic constants of indium arsenide. D. Gerlich. J Ap Phys 35:3062 O '64
Preparation of InAs-InSb alloys. J. C. Woolley and J. Warner. bibliog il Electrochem Soc J 111:1142-5 O '64

INDIUM compounds
Alkyliridium and alkylrhodium dihalocarbonylbis(trialkyl- or triarylphosphines). R. F. Heck. bibliog Am Chem Soc J 86:2796-9 Jl 20 '64
Bis(urea) and thiourea adducts of the tetrachloroindate (III) anion. D. G. Tuck and E. J. Woodhouse. bibliog Chem & Ind p 1363-4 Jl 25 '64
Five-coordinate hydrido-carbonyl complexes of rhodium and iridium and their analogy with $CoH(CO)_4$. S. S. Bath and L. Vaska. bibliog Am Chem Soc J 85:3500-1 N 5 '63

INDIUM oxides
Electrical conductivity and growth of single-crystal indium sesquioxide. J. P. Remeika and E. G. Spencer. J Ap Phys 35:2803 O '64

INDIUM sesquioxide. See Indium oxides

INDIUM telluride
Phase diagram for the pseudo-binary system $CdTe-In_2Te_3$. L. Thomassen and others. bibliog diag Electrochem Soc J 110:1127-31 N '63
Semiconducting properties of $AgIn_5Te_8$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 111:546-9 My '64
Semiconducting properties of peritectic compounds from the pseudo-binary system of $CdTe-In_2Te_3$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 110:1132-6 N '63

INDOLE

Alkaloid studies; the alkaloids of aspidosperma obscurinervium Azembuja; a new class of heptacyclic indole alkaloids. K. S. Brown, jr. and C. Djerassi. bibliog Am Chem Soc J 86:2451-63 Je 20 '64

Concentration dependence of the n.m.r. spectra of indoles. M. G. Reinecke and others. Chem & Ind p 151 Ja 25 '64

Nonsteroidals show antiarthritic action. il Chem & Eng N 42:36-7 Je 29 '64

Novel C-D ring cleavage of dihydrocorynantheine derivatives. L. J. Dolby and S. I. Sakai. bibliog Am Chem Soc J 86:1890-1 My 5 '64

Protonation of indoles; basicity studies; the dependence of acidity functions on indicator structure. R. L. Hinman and J. Lang. bibliog Am Chem Soc J 86:3796-806 S 20 '64

Spectrophotometric determination of 2-phenylindole with *p*-dimethylaminobenzaldehyde. M. V. Gillio-Tos and others. bibliog Anal Chem 36:425-6 F '64

INDOLMYCIN

Chemistry of indolmycin. M. Schach von Wittenau and H. Els. bibliog Am Chem Soc J 85:3425-31 N 5 '63

INDONE

Base-catalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Photochemical and thermal valence tautomerization of 2,3-diphenylindenone oxide. E. F. Ullman and J. E. Milks. bibliog Am Chem Soc J 86:3814-19 S 20 '64

INDONESIA

See also

Hydroelectric plants—Indonesia
Petroleum—Indonesia
Petroleum industry and trade—Indonesia

INDUCED polarization. See Polarization, Dielectric

INDUCTANCE

Computation of self- and mutual-inductance of axially symmetric coils using resistance network simulation. T. Okoshi. diag IEEE Proc 52:1241-2 O '64

Inductance coefficients of rotating machines expressed in terms of winding space harmonics. R. B. Robinson. diag Inst E E Proc 111:769-74 Ap '64

Mutual inductances of synchronous machines with damper windings. V. A. Kinitsky. diag IEEE Trans Power Apparatus & Systems 83:997-1001 O '64

Novel high-Q inductance and tuned oscillator for microminiature circuits. S. C. D. Roy. diag IEEE Proc 52:214-15 F '64

Parametric amplifiers and converters with pumped inductance and capacitance. D. G. Tucker and K. L. Hughes. bibliog diags Radio & Electronic Eng 27:435-9; Discussion. 439-41 Je '64

Power-frequency relations in nonlinear two-poles. J. Kudrewicz. bibliog IEEE Proc 51: 1599-605 N '63

Ryotron, a variable inductance cryogenic device. J. C. Miller and others. il plans diags IEEE Proc 52:1223-33 O '64

INDUCTION (electricity)

Induction measurement of semiconductor and thin-film resistivity. T. O. Poehler and W. Liben. IEEE Proc 52:731-2 Je '64

No hiding place from the law (Lenz's). diags Wireless World 70:147-50 Mr '64

See also

Magnetic induction

INDUCTION coils

Cup-core inductor. il diag Electro-Tech 74:130 Jl '64

Frustrating problem of inductors in integrated circuits. W. E. Newell. bibliog diags Electronics 37:50-2 Mr 13 '64

Inductive-energy storage. S. Levinson. diags Electro-Tech 72:121-2 N '63

Producing step-lap joints in lamination stacks. B. B. Ellis and C. E. Burkhardt. il diags Tool & Manuf Eng 53:63-4 O '64

Supercooled coils promise inductive energy storage. P. R. Wiederhold and D. L. Ameen. il diag Electronics 37:75-6+ Mr 13 '64

Manufacture

Ferrites; can they be deposited as thin films? diags Electronics 37:84+ F 7 '64

INDUCTION generators. See Electric generators, Alternating current

INDUCTION heating, High frequency. See Electric heating, Industrial—High frequency heating

INDUCTION logging. See Petroleum—Well logging

INDUCTION motors. See Electric motors, Induction

INDUCTIVE interference. See Electric lines—Inductive interference

INDUCTOR alternators. See Electric generators, Alternating current

INDUS RIVER

Indus Valley-West Pakistan's life line. A. V. Karpov. maps diags Am Soc C E Proc 90 [HY 1 no 3774]:207-42 Ja '64; Discussion. 90 [HY 4 no 3980]:371-89 Jl; [HY 5 no 4050]: 231-51 S '64

Sediment-transport capability in erodible channels. S. W. Mao and L. Rice. bibliog diag Am Soc C E Proc 89 [HY 4 no 3569]: 69-95 Jl '63; Discussion. 90 [HY 1 no 3783]: 337-47 Ja; [HY 2 no 3853]:367-77 Mr '64; Reply. 90 [HY 4 no 3980]:249-55 Jl '64

INDUSTRIAL accidents. See Accidents, Industrial

INDUSTRIAL arbitration. See Arbitration, Industrial

INDUSTRIAL automobiles. See Automobiles, Industrial

INDUSTRIAL buildings

Brushed-on coating replaces brick veneer. R. B. Gilray. il plan Plant Eng 18:127 Je '64

Industrial buildings; building types study. il plans diags Arch Rec 134:115-34 D '63; 136:163-78 Jl '64

Industrial buildings; staging a comeback. H. C. F. Arnold. Arch Rec 134:18 D '63

Industrialized building for industry. il diags Engineering 198:464-5 O 9 '64

Nervi gives a factory the grace of a bridge. il diags Arch Forum 121:110-13 Jl '64

Planning your new building. J. L. Muscarelle. Rubber Age 94:762 F '64

Saarinen's Deere building opens. il Prog Arch 45:67 Jl '64

See also

Automobile factories
Concrete construction
Department stores
Factories
Office buildings, Industrial
Warehouses

INDUSTRIAL cooling. See Cooling, Industrial

INDUSTRIAL design. See Design

INDUSTRIAL development. See Industrial expansion

INDUSTRIAL diamonds. See Diamonds, Industrial

INDUSTRIAL districts

Grid concept unifies plan for today-tomorrow building; Douglas space systems center. il plan Plant Eng 18:118-19 Jl '64

Humble Oil to develop industrial district. Chem & Eng N 42:24 F 10 '64

INDUSTRIAL education

See also

Apprentices
Employees, Training of
Engineering education
Foremen—Training
Foundry practice—Study and teaching
Printing, Practical—Study and teaching
Supervisory workers—Training
Technical education
Vocational education

INDUSTRIAL efficiency. See Efficiency, Industrial

INDUSTRIAL engineering

Developing a realistic approach to profit improvement. G. C. Lennox. Machine Design 36:82-4 Ja 30 '64

Dynamics of process control. C. A. Dyer. diags Plant Eng 18:147-8+ F '64

Functions of plant engineers; abstract. S. P. Chambers. Engineer 217:440 Mr 6 '64

Industrial engineering; AFS congress; abstracts of papers. Foundry 92:183+ Je '64

Industrial engineering in the mining industry. D. W. Glossbrenner. Min Cong J 50: 90-5 Je '64

Industry is interdisciplinary. R. H. Wilcox. il Mill & Factory 74:60-73 Mr '64

Ingredients for effective manufacturing engineering. J. F. Paulsen. Automation 11:34-9 Ja '64

Let's go after that space technology. F. V. Long. Gas 40:103 F '64

Quality control engineering. B. A. Palmer. Ind Quality Control 20:17-19 My '64

Search for new manufacturing processes. P. Rosenthal and H. T. McAdams. A S M E Trans ser B 86:55-8 F '64; Same cond. Automation 11:121-3 Mr '64

Systems view of producibility. P. Rosenthal and H. T. McAdams. il diags Space/Aeronautics 41:100-7 Ap '64

INDUSTRIAL engineering—*Continued*

To plan handling improvements you need interdisciplinarians. G. J. Berkwitt. il Mill & Factory 74:80-3 Mr '64

Which is for you; big plant or little plant? Product Eng 35:73-80 S 14 '64

See also

Engineering departments

Operations research

Systems engineering

Time study

Study and teaching

Continuing education, your pathway to professional progress. B. G. Davis. Tool & Manuf Eng 51:69-71 N '63

INDUSTRIAL engineers

Group project way into industry. il diag Engineering 196:724-5 D 6 '63

Putting ideas into action; through better communications. P. R. Heinmiller. Tool & Manuf Eng 52:45-7 Ja '64

See also

American institute of plant engineers

Engineering departments

INDUSTRIAL expansion

Business boosts '64 spending plans. Am Mach 108:103 F 17 '64

Business spending plans; four per cent more in '64. Elec World 160:111-13 N 18 '63

Capital spending to jump 12 per cent in '64. Am Mach 108:68 Ap 27 '64

Casting producers step up spending for plants and equipment. Foundry 92:116-18 Ap '64

Depreciation reform: how it affects investment decisions. E. G. Mayers. Chem Eng 71:197-8+ Ap 13 '64

Economic planning in the chemical industry. G. Abrahamson. il Ind Chem 39:651-6 D '63

Profitability analysis. G. N. Rumbaugh, jr. bibliog Mech Eng 86:43-5 Ag '64

Semiannual inventory of new plants and facilities. il Chem Eng 71:151-8 Ap 27; 117-24 O 26 '64

Spin-offs seed scientific complexes. Mech Eng 86:87 O '64

Studied approach to capital expenditures spurs production growth. R. O. Swalm. Automation 11:89-92 S '64

U.S. firms are planning record capital outlays. map Chem Eng 71:80-2 My 25 '64

See also

Factories—Expansion

INDUSTRIAL heating. See Electric heating, Industrial; Heating, Industrial

INDUSTRIAL hydraulics, National conference on. See National conference on industrial hydraulics

INDUSTRIAL hygiene foundation

Annual meeting, 28th, Pittsburgh, Oct. 23-24; papers presented. bibliog Archives Environmental Health 8:361-436 Mr '64; Abstract. Ind Med 33:34-7 Ja '64

INDUSTRIAL lighting. See Lighting, Industrial

INDUSTRIAL locomotives. See Locomotives, Industrial

INDUSTRIAL management

Boost productivity. il Mill & Factory 74:61-72 Je '64

Call out the profit corps. A. C. Daugherty. Pet Management 36:91-4 O '64

Can PERT improve your r&d planning? R. A. Frantz, jr. and L. B. Nothern. bibliog diags Mach 70:117-21 Je '64; Same. Electro-Tech 74:87-91 Ag '64

Can the civil engineer be a manager? H. L. Payne. Civil Eng 34:51-2 Jl '64

Computers and management; abstract. E. Playfair. Engineer 216:636 O 18 '63

Creativity, how to find and nurture it; symposium. Product Eng 35:110-21 Ag 3 '64

Designers and management. H. N. G. Allen. Engineer 217:473 Mr 13 '64

Dilemma of the professional in industry. C. F. Rassweiler. Chem & Eng N 41:98-101 D 9 '63

Earlier payout through tight project scheduling and control. H. M. Betzig. Am Oil Chem Soc J 41:sup58+ Mr '64

Engineer-management relations probed. Pet Management 36:133-4 Ag '64

Engineering management conference, Harriman, N.Y. May 26-29. J Metals 15:798+ O '63

Engineers in management. N. R. Crump. Eng J 47:24-6 Mr '64

Essential interdependence of managers. Engineering 197:181 Ja 31 '64

Evaluating human factors in PERT planning. T. V. Sobczak. bibliog Res/Develop 15:42-4 S '64

For better utilization of manpower. Product Eng 35:49-50 Ag 17 '64

Getting ideas to management's attention. il Chem Eng Prog 59:23-32 D '63

Glacier theory of management engineering employers' conference, Bristol. Engineering 198:448 O 9 '64

How managers use industrial dynamics. K. J. Schlager. diag I S A J 11:59-64 Mr '64

How one president sees it; interview with George E. Beggs, jr. president of Leeds & Northrup. I S A J 11:26-9 Ja '64

How to be a better manager; checklist of problem areas and what to do about them. G. W. Howard. Machine Design 35:112-14 D 5 '63

How to control engineering in new-product development. T. W. Rogerson. Product Eng 35:102-4 Mr 16 '64

How to develop a new product at low cost. M. L. Clevett, jr. Product Eng 35:80-1 Jl 6 '64

How to research industrial markets. diag Engineering 197:722-3 My 29 '64

How to set up a reliability control program. N. Gellman. Machine Design 36:146-50 Mr 26 '64

How to succeed in business with a personal assistant. A. J. M. Sykes. Engineering 197:347 Mr 6 '64

Keeping an eye on development costs. il diags Engineering 198:224-5 Ag 21 '64

Key to competition is management. L. C. Megginson. Pet Management 36:91-5 Ja '64

Let your customers look over your shoulder; reporting system for Atols Tool & Mold. il diag Mill & Factory 73:54-5 D '63

Making supervisory decisions. H. K. Brown. Machine Design 35:103-4 D 19 '63

Making the most of meetings. E. Raudsepp. Machine Design 36:152-6 My 21 '64

Management and automation. C. B. Randall. Automation 11:122-4+ Ap '64

Management and the design engineer. General electric co. E. H. Freiburghouse. diags Mech Eng 86:26-8 Ap '64

Management as a process control problem. S. Ramo. Automation 11:125-6 My '64

Management aspects of industrial hygiene. J. L. O'Marra. Archives Environmental Health 8:404-9 Mr '64

Management for engineers. E. J. Tangerman. Product Eng 35:116 My 25; 79 Je 8; 122 Je 22; 79 Jl 6; 79 Jl 20; 83 Ag 3; 74 Ag 17; 67 Ag 31; 112 S 14; 90 S 28; 102 O 12; 116 O 26; 79 N 9; 94 N 23 '64

Management knowhow lags technology. W. A. Davis. Steel 154:80+ My 11 '64

Managerial lag. D. J. Smalter. flow sheet diag Chem Eng Prog 60:25-7 Je '64

Managing in a changing world; Towne lecture. L. E. Newman. Mech Eng 86:112-15 Ap '64

Men and machines can mean better jobs. J. N. Gorringe. Automation 11:144-6+ Ap '64

New answer to an old problem; what makes a leader? E. S. Barber. Product Eng 35:95 Jl 20 '64

New-product decision making. E. D. Wang. bibliog Machine Design 36:112-15 Ag 13 '64

New-product manager; filter or innovator? P. Marvin. Machine Design 36:108-11 Ap 9 '64

Outside activities: how many should you have? N. N. Shaulis. Hydrocarbon Process & Pet Refiner 43:143-4 F '64

Planning products for a sound economy. Engineering 196:610 N 15 '63

Planning succession in a specialist field. Engineering 197:3 Ja 3 '64

Professional manager. L. A. Appley. Mech Eng 86:38-9 Mr '64

Profile of a profitable project. H. K. Eckert and G. A. Cain. flow diag il Chem Eng Prog 60:81-92 Mr '64

Race for tomorrow's leaders. W. B. Morehouse. Tappi 47:sup 146A-8A Mr '64

Relationships with management. Machine Design 36:132-5 S 24; 140-3 O 8; 164-6 O 22 '64

Role of maintenance in plant policies. C. J. Vlahos. il Mill & Factory 75:78-80 Ag '64

Safety belongs in your standard operating procedures. G. S. Ennis. Safety Maint 128:8-9 S '64

Sensible controls for new-product development. C. Juhola. flow charts il diag Machine Design 36:118-23 Jl 16 '64

Stressing handling to management; where to put the blue chips. S. W. Earle and E. D. Ayers. il Mod Materials Handling 19:36-8 Jl '64

3M uses inventory system to find managers. Chem & Eng N 42:32-3 F 24 '64

Tool engineering management and exploding technology. T. F. Vajda. Automation 10:124-5 D '63

INDUSTRIAL management—*Continued*
Top managers getting with automation. diags Engineering 196:802-3 D 27 '63
Total management-information system; how it is achieved. Can Chem Process 48:80 O '64
What does it take to make a leader? R. Crook. Hydrocarbon Process & Pet Refiner 43:145-6 F '64
What integrated data processing means to a small manufacturer. il Mill & Factory 74: 78-9 Mr '64
What makes the managing director tick? Engineering 198:309 S 4 '64
What's different in managing research? il Engineering 198:162-3 Ag 7 '64
Which kind of manager are you? A. Uris. Textile World 114:61-3 Mr '64
Why Charlie can't leave. W. Ruchti. il Chem Eng 70:250+ N 11 '63
Work study from the top. R. Currie. Engineering 197:346 Mr 6 '64
See also
Bonus system
Communication in management
Efficiency, Industrial
Employment management
Engineering departments
Factory management
Foundry management
Industrial engineering
Industrial engineers
Inspection
International management congress
Inventories
Labor productivity
Linear programming
Machine shop management
Machinery, Replacement of
Mine management
Office management
Operations research
Organization in industry
Planning
Public relations
Purchasing
Routing systems
Specialization in industry
Standardization
Suggestion systems
also subdivision Management under special subjects, e.g.
Airplane factories
Automobile factories
Chemical plants
Coal mines and mining
Flour mills
Gas companies
Oil companies
Packing houses
Petroleum refineries
Printing offices
Rock products plants
Welding shops
Woolen and worsted mills

Study and teaching

City of Liverpool college of technology regional college; Department of industrial administration and liberal studies. M. E. Cleasby. Chem & Ind p 1000-1 Ja 13 '64
Combined operation on senior managers. Engineering 197:160 Ja 24 '64
Crisis point in management education. J. Kelly and J. M. Livingstone. Engineering 196:575-6 N 1 '63
Effective management training; General Mills' Sperry operations. I. C. Miller. Food Eng 36:72-3 Ap '64
Management education crystallises out; Lord Franks' report. Engineering 196:708 D 6 '63
Management studies in sandwich form; Brunel college. il Engineering 198:256-7 Ag 28 '64
Management, the Imperial college way. Engineering 198:520-1 O 23 '64
Monsanto engineers and managers return to classrooms. il Chem & Eng N 42:34-5 Ap 27 '64
Open door management training. il Engineering 197:760 Je 5 '64

INDUSTRIAL market
Why race for space? space program affects the world market. E. Rechtin. Am Gas Assn Mo 45:27-8 N '63

INDUSTRIAL medicine. See Medical service, Industrial

INDUSTRIAL medicine and surgery (periodical)
First annual awards dinner; with souvenir program. Ind Med 33:362-71, supp Je '64

INDUSTRIAL mobilization
See also
Stockpiling

INDUSTRIAL motor trucks. See Motor trucks, Industrial

INDUSTRIAL museums
Drake Well Park revamped; birthplace of the oil industry. E. C. Miller. il Pet Management 36:106 Jl '64
Space and sonics; Polytechnical museum presents the state of the art in capital goods and in moon rockets. il Product Eng 35:81-3 F 17 '64

INDUSTRIAL painting. See Painting, Industrial

INDUSTRIAL photography. See Photography—Industrial applications

INDUSTRIAL plants. See Factories

INDUSTRIAL poisons. See Poisons, Industrial

INDUSTRIAL psychiatry. See Psychiatry, Industrial

INDUSTRIAL relations
Consol employee relations and community relations. il Coal Age 69:222-4 O '64
Criticism; how to take it. Mod Materials Handling 19:103 S '64
Engineers and other people. J. J. Dougherty. Naval Eng J 76:605-10 Ag '64
Human factors and plant innovations. L. Lindquist and J. Ganschow. Chem Eng 71: 156+ Je 22 '64
Industrial relations round table (cont). W. T. Simmons, ed. Am Gas Assn Mo 46:14+ F; 14 Ap; 19+ Je; 16 S '64
Unused capacity of people high. E. C. Lindsey. Pet Management 36:143+ O '64
Use depth perception in employe relations. A. N. Smith. Hydrocarbon Process & Pet Refiner 43:171-2+ Jl '64
Why not tell your story with the organization tree? C. B. Lepak and M. E. Lynch. bibliog diag Hydrocarbon Process & Pet Refiner 43:112-16 Ag '64
See also
Arbitration, Industrial
Building trades—Labor conditions
Collective bargaining
Employment management
Industrial management
Labor disputes
Psychology, Industrial
Safety devices and measures
Trade unions
Unemployment

INDUSTRIAL research
Allen Clark research centre; Plessey group extensions opened. il Metallurgia 69:218-22 My '64
Aspects of research; interview with Sir Owen Wansbrough-Jones. Chem & Ind p 1200-3 Jl 4 '64
Bethlehem adding facilities for raw materials research. il Iron & Steel Eng 41:129 Ja '64
Between r & d, a welcome division? Engineering 197:2 Ja 3 '64
Centralization streamlines research services. W. P. Metzner. il Anal Chem 36:sup29A-32A+ Mr '64
Contracted r&d begets benefits. F. L. Bonem. il diags Res/Develop 15:24-7 Ap '64
Contribution of a research laboratory to prime mover development. H. G. Edmunds. il diags Inst Mech Eng Proc 177 no 38: 1033-45, pl 1-4; Discussion. 1085-94 '63
Crisis in industrial research in Canada. D. M. Myers and F. Noakes. Eng J 47:37-40 Je '64; Discussion. P. H. Jones. 47:64+ O '64
Definition of development. G. A. Webb. Ind & Eng Chem 56:12+ My '64
Discovery of the anaesthetic halothane, an example of industrial research. J. Ferguson. bibliog Chem & Ind p818-24 My 16 '64
Division of textile industry of the Commonwealth scientific and industrial research organisation, Geelong, Australia. M. Lipson. il Chem & Ind p208-14 F 8 '64
Du Pont research program source of major earnings. Food Tech 18:1040+ Jl '64
Economic evaluation of r&d projects. A. J. Weinberger. bibliog Chem Eng 70:123-6 O 28; 113-18 N 25; 81-6 D 23 '63; 71:141-4 Ja 20; 91-4 Mr 30; 165-6+ Ap 27 '64
Expansion of Merck research facilities nears completion. Food Tech 18:1026+ Jl '64
Growth and dispersion of industrial research manpower. J. B. Parrish. maps Res/Develop 15:32-6 My '64
Industrial research in the U.S.S.R. Engineer 217:455 Mr 6 '64
International conference on production engineering research, Pittsburgh; abstracts of papers. Metal Prog 84:146+ D '63
Little known aspect of industrial research. Chem & Ind p403 Mr 7 '64
Machine tool research; here and abroad. A. O. Schmidt and others. il Mech Eng 86:25-30 Je '64
Master plan guides new products to moneymaking maturity. J. E. Sandford. il Iron Age 193:51-3 Ap 2 '64

INDUSTRIAL research—*Continued*
Measurement of research performance. F. C. Theile. Am Perfumer 78:33-7 N '63
New billion dollar industries will boost metalworking sales. Steel 155:96+ Ag 10 '64
Nonsense talked about research. Engineering 197:179 Ja 31 '64
Organizing r&d for the smaller company. H. J. Strauss. il Res/Develop 15:20-2 Jl; 22-5 Ag; 30-3 S '64
Plan steps up r&d pace and payoff; Anaconda American brass co. C. E. Woodward. il Iron Age 193:38-9 Ja 9 '64
Production research abroad, a threat to U.S. industry? il Tool & Manuf Eng 51:65-8 D '63
Productivity in research; symposium abstracts. Chem & Ind p 140-5 Ja 25 '64
℞ for industrial laboratory productivity. M. Abrahamson. Res/Develop 15:18-21 Ag '64
Research and development evaluation important in acquisitions; abstract. R. F Messing. Chem & Eng N 42:28 Ap 20 '64
Research and development pathway to progress. H. Herman. il Automation 11:64-6+ Ap '64
Research and productivity. J. Convey and V. A. Haw. Can Min & Met Bul 57:45-8 Ja '64
Research development production exhibition and conference, London, May 4-9. Engineering 197:617 My 1 '64; Chem & Ind p 1059-60 Je 20 '64
Research for industry, 1963. Engineer 218:249 Ag 14 '64
Research-poor areas must help themselves; federal funds can supplement local efforts to improve r&d capability. J. H. Hollomon. Chem & Eng N 42:38 My 25 '64
Research productivity lagging. F. W. Hammesfahr. Chem Eng Prog 60:20-2 Je '64
Road to new profits; marketing + r&d = success. J. W. Bradley. il Chem Eng Prog 60:24-6 My '64
Saga of a proposal. A. J. Strassman. Res/Develop 15:23 Jl '64
Soviet industrial research. Chem & Ind p 1910-17 D 7 '63
Spending for r&d to double in decade. Chem Eng 71:90 Jl 20 '64
Still trying to nail down r&d program. il Elec World 162:53-4 Ag 10 '64
Technical research on consumer products. S. J. Strianse. il Drug & Cosmetic Ind 95:504-6, 640+ O '64
Winds of change in industrial chemical research. D. M. Kiefer. il Chem & Eng N 42:88-109 Mr 23 '64 (reprints $1.25)

See also
Agricultural research
Automobile research
Cement research
Ceramic research
Chemical research
Coal research
Coke research
Concrete research
Dye research
Electric research
Food research
Foundry research
Gas research
Glass research
Laboratories
Lubrication research
Metallurgical research
Operations research
Paper research
Petroleum research
Plastics research
Printing research
Products, New
Refrigeration research
Research departments
Rubber research
Scientific research
Textile research
Welding research
Wood research
Wool research

Finance

Scientific and industrial research. Engineer 218:107 Jl 17 '64

INDUSTRIAL tractors. See Tractors, Industrial

INDUSTRIAL trusts. See Trusts, Industrial

INDUSTRIALIZATION
Look at the future; special report. il diags Mill & Factory 75:70-118 N '64

INDUSTRY
See also
Chemical industries
Electric industries
Gas industry
Iron industry and trade
Location in industry
Petroleum industry and trade
Photography in industry
Specialization in industry
Steel industry and trade
Textile industry

INDUSTRY and education. See Education and industry

INDUSTRY and state
See also
Government ownership
Labor laws and regulations

Great Britain

Hopes and fears for growth in the north; government's plans for promoting industrial growth in central Scotland and north east England. maps Engineering 196:642-3 N 22 '63
Objectives and control in nationalized industry. R. Edwards. Inst Mech Eng Proc 177:1173-80 '63

Japan

Strange relationship, government and industry. il diag Product Eng 35:60-2 Ja 20 '64

United States

How to approach your Congressman. F. N. Ikard. Pet Management 35:35-6 N '63
Jackson details government plan to serve as mining partner. il Eng & Min J 165:70-1 Ja '64

INERT arc welding. See Electric welding, Arc—Inert gas shielding

INERTIA (mechanics)
Application of integral equations to the flexural vibration of a wedge with rotary inertia and shear. H. C. Lee and K. E. Bisshopp. Franklin Inst J 277:327-36 Ap '64
Centrifugal hypersonic wind tunnel facility for investigating effects of inertia on ablating bodies. J. S. Ford, 2d and W. H. Horton. bibliog flow diag il diags Roy Aeronautical Soc J 67:745-53 D '63
Effect of rotatory inertia and shear in beam vibration. W. C. Hurty and M. F. Rubinstein. diag Franklin Inst J 278:124-32 Ag '64
Galileo and the law of inertia. S. Drake. Am J Phys 32:601-8 Ag '64
Gravitational exploration and the principle of equivalence. S. Thyssen-Bornemisza. bibliog Geophysics 29:301-3 Ap '64
Inertia switches. E. S. Charkey. il diags Machine Design 36:174-80 Je 18 '64

INERTIA, Moments of. See Moments of inertia

INERTIAL guidance systems
Apollo guidance and navigation nears production. il Control Eng 10:23-4 N '63
Electric vacuum gyro; pinpoint for Polaris launching. H. W. Knoebel. il diags Control Eng 11:70-3 F '64
Error propagation in astro-inertial guidance systems for low-thrust missions. H. M. Dusek. bibliog diags AIAA J 2:879-84 My '64
Guidance and control. R. C. Langford. il diags Astronautics & Aerospace Eng 1:114-17 N '63
Gyro torquing signals at an arbitrary azimuth on an ellipsoidal earth. M. Kayton. diags AIAA J 1:2866-7 D '63
Help for the pilot; Sperry inertial navigation system. il diags Product Eng 35:41 Ag 31 '64
High-accuracy marine navigation with the bottled star. P. V. H. Weems and C. W. Benfield. bibliog il diags Naval Eng J 76:569-76 Ag '64
Inertial guidance and navigation. W. G. Wing. Space/Aeronautics 42 no 4:64-6 '64-65
Inertial navigation. A. R. M. Murray. il diags Ind Electronics 2:313-15 Jl '64
Inertial navigation for civil aircraft. il Engineer 218:249 Ag 14 '64
Ships inertial navigation system. il diag Engineer 216:996-7 D 13 '63
Total environment monitor. S. V. Preskitt and J. E. Fix. il Instruments & Control Systems 36:77-8 D '63
Unconventional inertial sensors. J. T. LaVan. il diags Space/Aeronautics 40:73-83 D '63

Testing

Compensating gyro drifts. H. L. Kreitzburg, jr. diags Control Eng 10:113-16 N '63

INERTIAL guidance systems—Testing—*Cont.*

Determination of dominant error sources in an inertial navigation system by iterative weighted least squares. W. Eisner and A. F. Goodman. bibliog diag AIAA J 2:722-7 Ap '64

Leak tests star trackers under high vacuum. il Res/Develop 14:56-7 N '63

INFANT mortality

Statistics

Death and disease in infants and toddlers of preindustrial countries. M. Béhar. Am J Pub Health 54:1100-5 Jl '64

INFANTS

Nutrition

Essential fatty acid requirement of infants and the assessment of their dietary intake of linoleate by serum fatty acid analysis. R. T. Holman and others. bibliog Am J Clinical Nutrition 14:70-5 F '64

Evaluation of infant diets. H. A. Guthrie. bibliog Am J Clinical Nutrition 14:202-4 Ap '64

Infants feeding patterns and oral habits of overweight and underweight children. R. W. Hillman. bibliog Am J Clinical Nutrition 13:326-30 N '63

Product Engineering fifth annual master design awards; hospital infant feeding system. il diags Product Eng 35:116 Ap 27 '64

Serum lipids in breast-fed infants and in infants fed evaporated milk. C. W. Woodruff and others. bibliog Am J Clinical Nutrition 14:83-90 F '64

Studies in infantile malnutrition. G. G. Graham and others. bibliog J Nutrition 79: 479-87; 81:249-54; 84:71-6 Ap, N '63, S '64

INFANTS, Newborn

Congenital neonatal narcotics addiction; a natural history. T. Rosenthal and others. bibliog Am J Pub Health 54:1252-62 Ag '64

Influence of diet on blood serum lipids in pregnant women and newborn infants. A. E. Hansen and others. bibliog Am J Clinical Nutrition 15:11-19 Jl '64

INFANTS, Premature

Significant bacteriuria and duration of pregnancy. M. Henderson. bibliog Archives Environmental Health 8:527-30 Ap '64

INFANTS food

Infant food in liquid form by Wyeth. il diag Manuf Chem 35:54-5 Ja '64

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

INFANTS supplies

Baby kit design. il Plastics World 22:40 Jl '64

High-performance plastics for the nursery. il Mod Plastics 42:105+ O '64

INFECTION

Experimental mixed infections in mice; staphylococcus aureus and candida albicans. M. H. Lepper and others. bibliog il Archives Environmental Health 8:570-83 Ap '64

Sickle cell trait in relation to infection. W. Weiss. bibliog Archives Environmental Health 8:480-2 Mr '64

INFECTION carriers. See Carriers of infection

INFECTIOUS diseases

Airborne infection; how important for public health? bibliog il Am J Pub Health 54: 1666-88 O '64

Criteria for design of a microbiological research laboratory. A. G. Wedum and G. B. Phillips. bibliog il ASHRAE J 6:46-52+ F '64

Emetine for infection; abstract. P. Synek and V. Synek. Drug & Cosmetic Ind 95:119 Jl '64

Evaluation of a streptococcal control program. S. Johnson and others. bibliog Am J Pub Health 54:487-500 Mr '64

Health aspects of wastewater treatment. F. R. Dixon and L. J. McCabe. WPCF J 36: 984-9 bibliog(p988-9) Ag '64

Institute on occupational diseases acquired from animals; texts of papers. Ind Med 33:284-326 My '64

Symposium on applied virology, Boca Raton, Florida, Nov. 30-Dec. 2; with program and abstracts of papers. Ind Med 33:701-18 O '64

Waterborne-disease outbreaks, 1946-60. S. R. Weibel and others. bibliog Am Water Works Assn J 56:947-58 Ag '64

See also

Bacteria, Pathogenic
Carriers of infection
Influenza
Leishmaniasis
Malaria
Mononucleosis, Infectious
Newcastle disease
Plague
Poliomyelitis
Q fever
Rickettsia
Tuberculosis
Venereal diseases

INFECTIOUS diseases in animals

Comparative Q fever investigations. D. H. Ferris and others. bibliog map Am J Pub Health 54:1282-92 Ag '64

Ecology and diagnostic problems of fungal zoonoses. L. K. Georg. Ind Med 33:308-10 My '64

Evolution of the problems of occupational diseases acquired from animals. K. F. Meyer. Ind Med 33:286-95 My '64

Role of the general practitioner in zoonoses. S. P. Leinbach. Ind Med 33:322-5 My '64

Viral zoonoses; abstract. F. Abinanti. Ind Med 33:714 O '64

See also

Q fever

INFECTIOUS hepatitis. See Jaundice

INFECTIOUS mononucleosis. See Mononucleosis, Infectious

INFILTRATION galleries. See Water, Underground

INFLAMMABLE liquids

Electric circuits for hazardous spaces. J. M. Dorsey. il Marine Eng/Log 69:56-7 Ag '64

Flammable liquids travel the safe way: through pipe. D. L. Cooper. il Plant Eng 18:132-3 My '64

How to handle flammable liquid spills. Safety Maint 127:45-6 Mr '64

Read directions; may save life. Pet Management 36:189 Mr '64

Safety in metal cleaning with flammable solvents. il Safety Maint 127:35-6 Ja '64

See also

Gasoline
Petroleum

INFLAMMABLE materials

See also

Textile fabrics—Inflammability

INFLAMMABLE mixtures

Effect of radiation on upper limits of inflammability. B. A. Abbadi and R. S. Tankin. diags AIAA J 2:758-9 Ap '64

How hazardous are hot metal surfaces? H. W. Husa and E. Runes. il Oil & Gas J 61: 180+ N 11 '63

Safety of oil base insecticides. G. W. Fiero. bibliog il Soap & Chem Spec 40:94-5+ Ja '64

See also

Detonation
Dust explosions
Flash point

INFLAMMATION

Synthesis and structure of steroidal pregn-4-eno- and 5α-pregnano[3,2-c]pyrazoles; a novel class of potent anti-inflammatory steroids. R. Hirschmann and others. bibliog Am Chem Soc J 86:1520-7 Ap 20 '64

INFLATION (finance)

Our ten-cent dollars. Textile Ind 127:27+ N '63

INFLUENZA

Treating influenza; abstract. H. A. Wendell. Drug & Cosmetic Ind 95:119 Jl '64

Vaccines

Epidemiological basis for the control of influenza. A. D. Langmuir and others. bibliog Am J Pub Health 54:563-71 Ap '64

INFORMATION

See also

Communication
Reports

INFORMATION, Technical. See Technical information

INFORMATION, Theory of. See Communication, Theory of

INFORMATION centers

How to keep informed today. W. L. Fleischmann. Metal Prog 84:122-3+ N '63

Information for the asking; sources of help for the smaller company. J. R. Clew. bibliog Manuf Chem 35:85-6+ S '64

National referral center for science and technology. J. F. Stearns Res/Develop 15:22-5 My '64

INFORMATION service

American standard reference data system. plans Engineering 196:671-2 N 22 '63

How and where to find out: a guide to quick information sources for the smaller firm. J. R. Clew. bibliog Manuf Chem 35:70+ Ja; 62-4 F '64

Information in depth. bibliog Res/Develop 15:20-33 Ja '64

INFORMATION service—*Continued*

Research materials information center. Ind & Eng Chem 56:12+ N '64

Technical information sources. Electronics 37: R 19-23 Jl 25 '64

See also

Scientific information

Technical information

INFORMATION service, Government

Information in depth; information, knowledge and national power. J. H. Holloman. Res/Develop 15:20-2 Ja '64

INFORMATION storage and retrieval systems

Adaptive mechanism in digital concept processing. M. Kochen. bibliog IEEE Trans Applications & Ind 83:305-14 S '64

Analysis of the relative information rates in digital systems using case coding. P. T. Bason. bibliog diags Inst E E Proc 111:685-92 Ap '64; Discussion. 111:1421 Ag '64

Army seeks optical readers. R. J. Ward. diag Electronics 37:14-15 Ja 10 '64

Associative document retrieval techniques using bibliographic information. G. Salton. bibliog diags Assn for Computing Mach J 10:440-57 O '63

Automated approach to technical information retrieval. J. J. Nicolaus. bibliog diags Naval Eng J 76:715-27 O '64

Automation; researching the future; Diebold research program. il Mech Eng 86:53 Ja '64

Challenge to engineering. G. L. Haller. Automation 11:46+ O '64

CAS and Du Pont to collaborate; will test new method to identify chemical compounds for computer storage and search. Chem & Eng N 42:66 Jl 20 '64

Classifying 250,000 drawings by the Brisch system. W. J. Hallett. diags Machine Design 36:140-4 F 13 '64

Computer in design engineering. C. F. Smith. bibliog il Mech Eng 86:29-35 Ap '64

Content addressable distributed logic memory with applications to information retrieval. C. Y. Lee and M. C. Paull. bibliog diags IEEE Proc 51:924-32 Je '63; Discussion. 52:74,83-4 Ja '64

Correlation of chemical, physical and biological properties of substances by mechanised programmes; abstract. G. M. Dyson. Chem & Ind p433 Mr 14 '64

Digital audio-conversion systems. H. Grunstein and H. Van Gelder. diags Electro-Tech 73:108-9 F '64

Electro-optical tape storage tubes. Engineering 197:399 Mr 13 '64

Fact retrieval and deductive question-answering information retrieval systems. W. S. Cooper. bibliog Assn for Computing Mach J 11:117-37 Ap '64

FDA revamping its scientific data system. Chem & Eng N 42:32-4 S 14 '64

Getting information retrieval to work for you. H. I. Abramson. bibliog il Chem Eng Prog 60:88-94 Ag '64

Graphic arts information needs to be centralized. R. D. Kast. Inland Ptr/Am Lithogr 153:62-3 My; 91 Jl '64

How do you measure quality control? P. B. Crosby. Ind Quality Control 20:8-10 Ja '64

How to solve your information problem. W. F. Marsden. diags Tool & Manuf Eng 52:89-92 Je '64

Information flow is the first step in organizing your quality control. M. R. Monashkin. flow chart diags Am Mach/Metalworking Manuf 107:69-72 D 23 '63

Information needs of the technical organization. G. A. Whittington. Res/Develop 15: 18-21 My '64

Information resources for tomorrow's engineer. W. M. Carlson. Mech Eng 85:34-7 S '63: Same. Naval Eng J 75:941-4 D '63

Information storage for Apollo. il Product Eng 35:57 S 28 '64

Instant information for Army missile command. il diag Product Eng 35:43-4 Ja 6 '64

Interaction between magnetic film storage elements P. I. Bonyhard. J Ap Phys 35: 764-5 pt 2 Mr '64

Journal of metals adopts the EJC indexing and abstracting approach. bibliog J Metals 16:680+ S '64

Keyword index; abstracts. bibliog Can Min & Met Bul 57:4-5+ Ja '64

Largest well-data system shaping up. map Oil & Gas J 62:82-3 My 11 '64

Locating engineering literature; EJC's Thesaurus of engineering terms. R. A. Jacobson. Machine Design 36:152-8 Je 18 '64

Machine design's reader service computerized! il Machine Design 36:14-15+ Ag 13 '64

Materials Research & Standards now publishing key words and abstracts. diags Materials Res & Stand 4:34-5 Ja '64

Mechanised information retrieval at ICI Pharmaceuticals div. F. Grady and E. Hyde. il diags Manuf Chem 35:50-1+ O '64

Microfilm and video speed customer information. A. N. Brown. il Elec World 162:64-6 Jl 27 '64

Modern look in graphic data processing. il Automation 11:22-3 Jl '64

Modern systems of information storage and retrieval. A. Leider. Am Water Works Assn J 56:569-74 My '64

Nation climbing out from under a deluge of data. il diag S A E J 71:30-5 D '63

New system identifies and stores formulas. Chem & Eng N 41:35-6 D 9 '63

Optimization of magnetic parameters in thin films DRO storage elements. R. J. Petschauer and others. J Ap Phys 35:766-7 pt 2 Mr '64

Pitt attacks information retrieval problem. Chem & Eng N 42:46+ Je 8 '64

Planning a management information system. J. Moss. il Automation 11:58-63 Ag '64

RCA unveils new retrieval system. Steel 154: 66+ F 17 '64

Research information retrieval system for water supply and pollution control. H. A. Faber and K. Taylor. diags Am Water Works Assn J 55:1477-84 D '63

SME's key-word indexing speeds information retrieval. Min Eng 16:47-8 Ja '64

Science library system gets mixed reaction. Chem & Eng N 42:21-2 Je 15 '64

Some new concepts in library service. W. K Lowry. il Bell Lab Rec 42:2-7 Ja '64

Storage and retrieval of instrumental analytical data. W. C. Kenyon. bibliog il Anal Chem 35:sup27A-39A N '63

Systems for information retrieval in small laboratories. P. Khan and J. Rosen. bibliog il diag Food Tech 18:846-9 Je '64

Tape searching techniques. R. L. Baber. Assn for Computing Mach J 10:478-86 O '63

Technical information retrieval. P. E. Nethercut. il Tappi 46:sup 108A-9A N '63

Technology spreads its gains; problem of bettering information retrieval becomes more urgent. il Chem Eng 71:119-20 Ja 20 '64

To ascertain the shape of the future. J. Diebold and others. Automation 11:22-3 O '64

Transaction-oriented information handling systems. D. B. Thompson. diags Control Eng 11:87-94 Ja; 91-5 F; 73-6 Jl; 89-91 Ag '64

Translations in the No. one electronic switching system. W. Ulrich and H. M. Vellenzer. diags Bell System Tech J 43:2533-73 pt 2 S '64

Tunnel diode storage system with nondestructive read-out. D. B. G. Edwards and M. J. Lanigan. bibliog diags Radio & Electronic Eng 26:359-72 N '63

Ultrasonic approach to data storage. J. W. Gratian and R. W. Freytag. il diags Electronics 37:67-72 My 4 '64

WADEX; word and author index, a new tool in literature retrieving. E. A. Ripperger and others. bibliog flow chart Mech Eng 86:45-50 Mr '64; Same. Naval Eng J 76: 685-90 O '64; Discussion. Mech Eng 86:97-8 N '64

What's happening in information retrieval? Chem Eng Prog 60:29-30 S '64

See also

Electronic data processing

INFRARED heating. See Heating, Infrared

INFRARED photography. See Photography, Infrared

INFRARED rays

Quantum efficiency of a new GaAs spontaneous infrared source. W. N. Carr and G. E. Pittman. diag IEEE Proc 52:204-5 F '64

Semiclassical theory of infrared divergence. J. G. Belinfante. Am J Phys 32:655-6 S '64

See also

Spectrum, Infrared

Absorption

See Absorption of rays

Apparatus

Direct indicating infra-red radiation meter. D. C. Belsey and W. P. Gabriel. diags J Sci Instr 40:526-8 N '63

Fast thermal scanner assists medical research. M. Swiss. il diag Ind Electronics 2: 215-16 My '64

Fiber optics infrared tracker. il diag Electronics 36:63-4 N 15 '63

InSb detectors for infrared systems. J. E. Slawek, jr. bibliog diags Electronics 37: 49-50 Ja 10 '64

INFRARED rays—Apparatus—*Continued*

Infrared detector. il Mech Eng 86:52 Ja '64

Infrared detectors. F. Schwarz. bibliog il diags Electro-Tech 72:116-19 N '63

Infrared detectors, taking the temperature of electronic components to detect internal ailments. Product Eng 35:73-4 O 26 '64

Infrared method of controlling carburizing gases to promote quality in roller bearings; abstract. O. W. McMullan. Metal Prog 86: 240+ O '64

Infrared radiometer improves wire and cable production. L. C. Whitney. il diag Wire & Wire Prod 39:1619+ O '64

Molecular-electronic radar and infrared tracking systems. il Westinghouse Eng 24:152 S '64

New infrared wide-angle detector. Franklin Inst J 277:93-4 Ja '64

Use of infrared analyzer for total carbon determination. C. E. Van Hall and V. A. Stenger. il Water & Sewage Works 111:266-70 Je '64

Industrial applications

Controlling the case hardening of precision parts. N. P. Milano. il diag Metal Prog 84:78-81 N '63

Determination of cure of epoxy resins by infrared analysis. S. M. Lee and S. Brelant. bibliog Mod Plastics 41:150-1 D '63

Failure-prone perfect resistors caught by new infrared technique. Machine Design 36:10 O 8 '64

Hot targets flash flaw patterns; infrared test systems handle in-process inspection chores. W. N. Redstreake. il diag Iron Age 193: 65-7 Mr 5 '64

℞ for old pavements; infrared. il Eng N 173: 53 Ag 27 '64

Speeds product freezing. C. A. Mills. il Food Eng 36:sup82B+ Ja '64

Testing using infrared. L. E. Florant. bibliog il diags I S A J 11:61-4 Jl '64

Industrial heating

Concentrated radiant energy as a manufacturing tool. B. J. Costello. Automation 11: 148-52 O '64

Dynamics of a radiant dryer with countercurrent air flow. M. E. Findley and M. W. Maloney. diags Ind & Eng Chem Proc Design 3:89-96 Ap '64

Electric infrared oven effected savings. il Ind Finishing 40:34 Ag '64

Faster finishing with infrared drying. Ind Finishing 40:99-100 Ja '64

Fishing gear finished, dried by infrared. il Ind Finishing 40:39 Ja '64

Furniture finishes dry fast in infrared oven. in Ind Finishing 40:34-5 D '63

Gas-fired or infrared ovens; why; question and answer. Ind Finishing 40:96 Ag '64

Grained cabinet finish dried in infrared oven. P. Evans. il Ind Finishing 40:56+ N '63

Near-infrared Thermosol systems installed at several mills. il Am Dyestuff Rep 53:942 O 26 '64

New infrared oven dries decorations on plastics. il Ind Finishing 40:91+ Jl '64

Shrink fitting with flameless heat. il Am Mach/Metalworking Manuf 107:114 O 14 '63

Versatile oven bakes enamel. W. L. Thomson. il Am Mach 108:84-5 S 28 '64

Lamps

Design requirements for infrared snow melting systems. J. P. Frier. bibliog il diags Illum Eng 59:686-93 O '64; Discussion. 59: 814-15 D '64

Fixture angles and placement pinpoint infrared heating. R. L. Boyd. il diags Plant Eng 18:110-15 O '64

Infrared lamps solve paint-drying problem. il Ind Finishing 40:39 Jl '64

Measurement uses

Infrared measurements and techniques. R. Saul. diags Electro-Tech 74:112+ O '64

Infrared temperature measurement and its application to textile finishing operations. R. H. Kennedy. bibliog il diags Am Dyestuff Rep 53:56-63 Ja 20 '64

Measurement of the resistivity of epitaxial vapor grown films of silicon by infrared technique. T. G. R. Rawlins. bibliog diags Electrochem Soc J 111:810-14 Jl '64

Military applications

Electro-optics; modern war game munitions. J. A. Houston. il diags Electronics 37:27-31 Mr 6 '64

Infrared aims laser, locks radar on evading aircraft. il Machine Design 36:12 Je 18 '63

Infrared tracker. il diag Product Eng 35:41 Jl 6 '64

INFRARED spectrum. See Spectrum, Infrared

INGOTS

Coatings prevent oxide scale. il Iron Age 193: 54-5 Ja 23 '64

INGOTS, Aluminum. See Aluminum ingots

INGOTS, Steel. See Steel ingots

INHIBITORS

Direct determination of inhibitors in polymers by luminescence techniques. H. V. Drushel and A. L. Sommers. bibliog Anal Chem 36:836-40 Ap '64

Kinetics of the copper-ferric chloride reaction and the effects of certain inhibitors. W. H. Burrows and others. bibliog diag Ind & Eng Chem Proc Design 3:149-59 Ap '64

INJECTIONS, Intravenous

Chromatographically homogeneous egg lecithin as stabilizer of emulsions for intravenous nutrition. H. J. Zeringue and others. bibliog Am Oil Chem Soc J 41:688-91 O '64

Long-term tolerance study of two fat emulsions for intravenous nutrition in dogs. B. Edgren and others. bibliog il Am J Clinical Nutrition 14:28-36 Ja '64

INJURIES. See Trauma

INJURIES from electricity. See Electricity, Injuries from

INK

Considerations of the spectral characteristics of papers and inks for use with optical character recognition units. R. W. Detrick and D. J. Lasky. bibliog Tappi 46:sup 175A-8A D '63

High speed rotating disc dot dash coding apparatus for application of vinyl ink marks on PVC insulated conductors. H. L. Woellner. il diags Wire & Wire Prod 39:1026-8+ Jl '64

Ink paper interrelationships. J. M. Gess. bibliog Tappi 47:sup 167A-9A Mr '64

Inks for instrumentation. Gas 40:101+ F: 121+ Mr '64

INLETS

Transitions for canals and culverts. W. P. Simmons. il diags Am Soc C E Proc 90 [HY 3 no 3918]:115-53 My '64

INMAN, George E.

G. E. Inman 1964 gold medalist. por Illum Eng 59:sup7A S '64

INORGANIC chemistry. See Chemistry, Inorganic

INOSINATE

Flavor-modifying properties of disodium inosinate. C. H. Kurtzman and L. B. Sjöström. Food Tech 18:1467-9 S '64

Home-use test by consumers of the flavor effects of disodium inosinate in dried soup. J. F. Caul and S. A. Raymond. Food Tech 18:353-7 Mr '64

INOSITOL

Cyclic polyhydroxy ketones; *xylo*-trihydroxycyclohexenediolic acid and keto-inositols. A. J. Fatiadi and H. S. Isbell. bibliog J Res Nat Bur Stand 68A:287-99 My '64

INPUT-output equipment. See Calculating machines—Input-output equipment

INSECT baits

Insect attractants. M. Jacobson and M. Beroza. il diags Sci Am 211:20-7 Ag '64

Tert-butyl and *tert*-pentyl esters of 6-methyl-3-cyclohexene-1-carboxylic acid as attractants for the Mediterranean fruit fly. M. Beroza and others. J Agri & Food Chem 12: 258-9 My '64

INSECT repellents

Nicandrenone, a new compound with insecticidal properties, isolated from nicandra physalodes. O. Nalbandov and others. bibliog J Agri & Food Chem 12:55-9 Ja '64

See also

Fly sprays and repellents

INSECTICIDES

Aerosol review, 1964; insecticides for flying pests. Manuf Chem 35:114-15 Mr '64

DDVP insecticide sprays. L. F. Sekula. Soap & Chem Spec 40:82+ F '64

Effect of temperature on water solubility of phorate and disulfoton. K. A. Lord and P. E. Burt. bibliog Chem & Ind p 1262-3 Jl 11 '64

Metabolism of phthalimidomethyl-*O,O*-dimethylphosphorodithioate (Imidan) in cotton plants. J. J. Menn and J. B. McBain. bibliog il J Agri & Food Chem 12:162-6 Mr '64

Naturally occurring insecticides in cruciferous crops. E. P. Lichtenstein and others. bibliog J Agri & Food Chem 12:158-61 Mr '64

Nonpoisonous insecticide kills by evaporation. il Plant Eng 18:130-1 Ag '64

INSECTICIDES—*Continued*

Para-substituted meta-xylenyl diethyl phosphates and *N*-methylcarbamates as anticholinesterases and insecticides. R. L. Metcalf and others. bibliog J Agri & Food Chem 12:231-6 My '64

ρ-σ-π analysis: a method for the correlation of biological activity and chemical structure. C. Hansch and T. Fujita. bibliog Am Chem Soc J 86:1616-26 Ap 20 '64

Simple technique for tritiation of aromatic insecticides. B. D. Hilton and R. D. O'Brien. bibliog diag J Agri & Food Chem 12:236-8 My '64

Vamidothion, a new systemic insecticide; abstract and discussion. B. J. Heywood and J. Metivier. Chem & Ind p406-7 Mr 7 '64

See also

DDT
Fly sprays and repellents
Heptachlor
Insects, Injurious and beneficial—Resistance to control
Parathion
Pyrethrum

Analysis

CSMA chemical analysis test methods; latest revisions. diags Soap & Chem Spec Blue Book p237-71 '64

New spray reagents for the detection of thiophosphate insecticides on paper chromatograms. M. C. Dutt and P. H. Seow. bibliog J Agri & Food Chem 11:467 N '63

Spectrophotometric microdetermination of Lebaycid, *O,O*-dimethyl-*O*-[4-(methylthio)-*m*-tolyl]-phosphorothioate. Y. Hirano and T. Tamura. bibliog Anal Chem 36:800-2 Ap '64

Carriers

See Insecticides—Diluents

Diluents

Comparison of some granular carriers for chlordan and heptachlor against the imported fire ant. W. F. Barthel and C. S. Lofgren. J Agri & Food Chem 12:339-42 Jl '64

Filler's approach to water-based insecticides. H. C. Cook. Soap & Chem Spec 40:125-6+ Jl '64

Packaging in metal containers of water base insecticides. A. S. Glessner. Soap & Chem Spec 40:83-6+ Ag '64

Petroleum fractions as DDT solvents. A. M. Thomas, jr. bibliog J Agri & Food Chem 12:442-7 S '64

Pressurized water based space sprays. J. B. Moore and G. J. Baker. Soap & Chem Spec 40:75-8+ Jl '64

Valves for water based insecticides. J. Pizzurro. Soap & Chem Spec 40:163-4 O '64

Water base insecticides. J. B. Moore and G. J. Baker. Manuf Chem 35:112+ S '64

Physiological effect

Allergic contact sensitivity to malathion. T. H. Milby and W. L. Epstein. bibliog Archives Environmental Health 9:434-7 O '64

Decay of anticholinesterase activity of organic phosphorus insecticides on storage in waters of different pH; abstract. C. M. Weiss and J. H. Gakstatter. WPCF J 36:274-5 Mr '64

Dermal exposure of human volunteers to parathion. G. R. Hayes, jr. and others. bibliog Archives Environmental Health 8:829-33 Je '64

Exposure to Guthion during spraying and formulating. Z. Jegier. bibliog Archives Environmental Health 8:565-9 Ap '64

Hazards of equipment contaminated with parathion. R. S. Ganelin and others. bibliog Archives Environmental Health 8:826-8 Je '64

Health hazards in insecticide spraying of crops. Z. Jegier bibliog Archives Environmental Health 8:670-4 My '64

Oral occupational parathion poisoning treated with 2-PAM iodine (2-pyridine aldoxime methiodide). Ind Med 33:243-4 Ap '64

Organophosphorus insecticides in Colorado. J. H. Holmes. bibliog Archives Environmental Health 9:445-53 O '64

Relation between basicity and selectivity in organophosphates. R. D. O'Brien and B. D. Hilton. bibliog J Agri & Food Chem 12:53-5 Ja '64

Respiratory exposure of volunteers to parathion. W. V. Hartwell and others. bibliog Archives Environmental Health 8:820-5 Je '64

Survey of workers exposed to chlordane. W. I. Fishbein and others. Ind Med 33:726-7 O '64

Toxicology of insecticides. W. J. Hayes, jr. bibliog Soap & Chem Spec 40:86-7+ Mr '64

Urinary excretion of paranitrophenol by volunteers following dermal exposure to parathion at different ambient temperatures. A. J. Funckes and others. J Agri & Food Chem 11:455-7 N '63

Residues

Colorimetric determination of *o*-isopropoxyphenyl-N-methylcarbamate. P. Bracha. bibliog J Agri & Food Chem 12:461-3 S '64

DDT persistence and its effect on aquatic insects and fish after an aerial application. E. B. Welch and J. C. Spindler. bibliog map WPCF J 36:1285-92 O '64

Dilan residue determination by microcoulometric gas chromatography. H. Beckman and A. Bevenue. bibliog J Agri & Food Chem 12:245-7 My '64

Forced volatilization cleanup of butterfat for gas chromatographic evaluation of organochlorine insecticide residues. D. E. Ott and F. A. Gunther. bibliog diags J Agri & Food Chem 12:239-43 My '64

Gas chromatographic and colorimetric measurement of dimethoate residues. C. H. Van Middelem and R. E. Waites. bibliog J Agri & Food Chem 12:178-82 Mr '64

Gas chromatographic determination of organophosphorus insecticides using the Zeisel alkoxyl reaction. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:470-1 N '63

Identification of metabolites of Zectran insecticide in broccoli. E. Williams and others. bibliog J Agri & Food Chem 12:453-7 S '64

Identification of metabolites of Zectran insecticide in dog urine. E. Williams and others. bibliog J Agri & Food Chem 12:457-61 S '64

Insecticide residues in peppermint and their distillation with peppermint oil. H. Starr and others. bibliog J Agri & Food Chem 11:482-6 N '63

Metabolism of dimethoate in cotton leaves. J. Hacskaylo and D. L. Bull. bibliog J Agri & Food Chem 11:464-6 N '63

Metabolism of 3-hydroxy-*N,N*-dimethylcrotonamide dimethyl phosphate by cotton plants, insects, and rats. D. L. Bull and D. A. Lindquist. bibliog J Agri & Food Chem 12:310-17 Jl '64

Metabolism of *O*-phenyl-*O'*-(4-nitrophenyl) methylphosphonothionate (Colep) in plants and animals. G. J. Marco and E. G. Jaworski. bibliog J Agri & Food Chem 12:305-10 Jl '64

Nature of certain carbamate metabolites of the insecticide Sevin. H. W. Dorough and J. E. Casida. bibliog il diags J Agri & Food Chem 12:294-304 Jl '64

Rapid cleanup of dairy products for analysis of chlorinated insecticide residue by electron capture gas chromatography. B. E. Langlois and others. bibliog J Agri & Food Chem 12:243-5 My '64

Residue analysis of ethion by cholinesterase inhibition after oxidation. T. E. Archer and others. bibliog diag J Agri & Food Chem 11:471-4 N '63

Synthesis of alpha-methylbenzyl 3-(dimethoxyphosphinyloxy)-crotonate labeled with phosphorus-32 and carbon-14. J. C. Potter and W. B. Burton. bibliog J Agri & Food Chem 12:439-42 S '64

See also

Spray residues on fruits and vegetables

Testing

Aerosol and pressurized space spray insecticide test method for flying insects: official method of CSMA. Soap & Chem Spec Blue Book p226-8+ '64

Cholinesterase variation as a factor in organophosphate selectivity in insects. W. C. Dauterman and R. D. O'Brien. bibliog J Agri & Food Chem 12:318-19 Jl '64

Cockroach aerosol test method: tentative official method of the CSMA; latest revision. il Soap & Chem Spec Blue book p229-30+ '64

Cockroach spray method: evaluating liquid household insecticides against crawling insect pests, latest revision. Soap & Chem Spec Blue Book p231-2 '64

Colorimetric determination of o-isopropoxyphenyl-N-methylcarbamate. P. Bracha. bibliog J Agri & Food Chem 12:461-3 S '64

DDVP in aerosol insecticides. J. H. Fales and others. Soap & Chem Spec 40:99+ Je '64

INSECTICIDES—Testing—*Continued*
Insecticidal properties of some diethyl nitronaphthyl phosphates. T. R. Fukuto and others. bibliog J Agri & Food Chem 12: 228-31 My '64
Pest-Grady method for evaluating liquid household insecticides, latest revision. Soap & Chem Spec Blue Book p223-6 '64
Safety of oil base insecticides. G. W. Fiero. bibliog il Soap & Chem Spec 40:94-5+ Ja '64

INSECTS
Angels, insects, and weather. A. H. LaGrone and others. bibliog il J Res Nat Bur Stand 68D:895-901 Ag '64
See also
Flies
Mosquitoes

Migration

Aerial migration of insects. C. G. Johnson. il maps diags Sci Am 209:132-8 D '63

INSECTS, Habits and behavior of
Sound communication in honeybees. A. M. Wenner. il diags Sci Am 210:116-22+ Ap '64

INSECTS, Injurious and beneficial
Colorimetric analysis of chromic oxide used to study food utilization by phytophagous insects. A. J. McGinnis and R. Kasting. bibliog J Agri & Food Chem 12:259-62 My '64
Insects in relation to plant disease. W. Carter. Review, by J. C. Felton. Chem & Ind p 1678-9 O 3 '64
See also
Carpet beetles
Cockroaches
Mosquitoes
Moths
Spiders

Control

Biology of tsetse flies in relation to control methods. A. B. Hadaway. Roy Aeronautical Soc J 68:544-6 Ag '64
Cocoa yield increase by control of capsids (miridae). A. J. Vernon. Chem & Ind p320-1 F 22 '64
DDVP in aerosol insecticides. J. H. Fales and others. Soap & Chem Spec 40:99+ Je '64
Electric insect control could help assure noisy spring. Elec World 160:14 N 11 '63
Eliminating pests from a pool facility. il Pub Works 95:132 O '64
Insect attractants. M. Jacobson and M. Beroza. il diags Sci Am 211:20-7 Ag '64
Protection of food from insect damage during long-term storage. H. Laudani. bibliog Food Tech 17:1522-5 D '63
Triphenyl tin compounds in insect control. Soap & Chem Spec 40:223 O '64

Resistance to control

DDT aerosols containing WARF anti-resistant. J. H. Fales and O. F. Bedenstein. Soap & Chem Spec 40:96-7 Ap '64
Enzymatic degradation of parathion in organophosphate-susceptible and -resistant houseflies. F. Matsumura and C. J. Hogendijk. bibliog J Agri & Food Chem 12: 447-53 S '64
Enzymatic in vitro degradation of DDT by susceptible and DDT-resistant body lice. A. S. Perry and others. bibliog J Agri & Food Chem 11:457-62 N '63
Insect cross resistance phenomena; their practical and fundamental implications. F. P. W. Winteringham and P. S. Hewlett. bibliog Chem & Ind p 1512-18 Ag 29 '64

INSPECTION
Advances in automotive production techniques. il Mach 70:123-7 D '63
Automatic high-speed measuring systems for complex products and shapes. J. A. Sargrove. bibliog il diags Radio & Electronic Eng 27:337-48 My '64
Boiler inspection camera. il Engineer 216: 819 N 15 '63
Boredom-proof inspectors. E. V. Cordes, jr. il diags Electronics 37:79-86 My 4 '64
Collection of inspection data through the use of computers. W. N. Moore. il Ind Quality Control 20:10-13 Je '64
Common language of quality; new international standard for inspection by attributes. W. R. Pabst, jr. Mag of Stand 35: 41-4 F '64
Comparison of process inspection schemes. E. S. Page. bibliog Ind Quality Control 21:245-9 N '64
Computer schedules instrument inspection. K. L. Alvey and W. F. Parker. il Plant Eng 18:146-7 Jl '64
Cumulative-results plan for small-sample inspection. A. F. Cone and H. F. Dodge. bibliog Ind Quality Control 21:4-9 Jl '64
Good men and proved methods make for good inspection. A. G. Barkow diag Oil & Gas J 62:120-1+ My 11 '64
Government and the inspector. R. W. Smiley. Ind Quality Control 20:4-7 Ap '64
Hot targets flash flaw patterns; infrared test systems handle in-process inspection chores. W. N. Redstreake. il diag Iron Age 193:65-7 Mr 5 '64
Injector nozzle inspection aid. il Engineer 217:409 F 28 '64
Inspecting surfaces from a distance. R. A. Betz. il Metal Prog 85:91-4 Ja '64
Lighting for special purposes. J. Schachner. il diags Mill & Factory 75:46-50 Jl '64
Management methods of inspection control. H. J. Jacobson. il Ind Quality Control 21: 24-8 Jl '64
Need for careful site inspection. B. Tomson and N. Coplan. Prog Arch 45:168 F '64
Optimal periodic inspection programs for randomly failing equipment. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:223-8 O '63
Prevention of pipe failures. H. Thielsch. bibliog il diags Heating-Piping 36:129-35 Jl '64
Probes and mirrors designed for heavy-duty inspection. il Naval Eng J 75:984 D '63
Product Engineering fifth annual master design awards; fiber optics inspection tool. il diag Product Eng 35:110 Ap 27 '64
Putting new teeth in inspection. W. N. Redstreake. il Iron Age 193:69-76 F 27 '64
Surface plate inspection platforms slide on air. il Product Eng 35:65 Mr 30 '64
Surveillance: theory and practice. J. Mandelson. Ind Quality Control 20:20-2+ Je '64
Tricky inspection problem solved. il Illum Eng 59:523 Ag '64
Ultrasonic contour gaging inspects sheet at 3200 fpm. diag Steel 154:29 Je 29 '64
Verifying the installation of products. R. L. Finch. Westinghouse Eng 24:118-19 Jl '64
Witchcraft in the inspection of steel. W. C. Harmon. il diags Iron & Steel Eng 41:91-7 Ja '64
See also
Concrete construction—Inspection
Gages
Highway inspection
Magnetic testing
Motor vehicles—Inspection
Safety inspection

INSPECTION cars. See Cars, Inspection

INSTALMENT plan
Engineering law; Hire purchase, 1964. E. Mitchell. Engineer 217:231-2 Ja 31 '64

INSTITUTE of aeronautics and astronautics, American. See American institute of aeronautics and astronautics

INSTITUTE of British foundrymen
Annual meetings, 61st. Blackpool, June 10-12; with abstracts of papers. Foundry 92:139+ O; 216+ N '64

INSTITUTE of ceramic engineers, National. See National institute of ceramic engineers

INSTITUTE of electrical and electronics engineers
Annual meeting, New York; with abstracts of papers. Elec World 161:22 My 11 '64
Annual rubber and plastics conference, 16th, Akron, Ohio, April 6-7; with abstracts of papers. Rubber Age 95:285 My '64
Award winners, 1964. Electronics 37:58-9 Mr 13 '64
Inauguration of PTG-P discussed at open forum during winter power meeting, Feb. 3 IEEE Trans Power Apparatus & Systems 83:sup2A-3A Mr '64
IEEE winter meeting launches Professional technical group for power. diags Elec World 161:73-8+ F 24 '64
ISA-IEEE conference on engineering in medicine and biology, Baltimore, Nov. 18-20; program. I S A J 10:39-41 O '63
International convention, New York, March 23-26; program and abstracts of papers. Electronic Ind 23:38-9+ Mr '64
International meeting, 2d, New York; preview. Electronics 37:35-41 Mr 13 '64
Power group; opportunities for members, constitution, bylaws. IEEE Trans Power Apparatus & Systems 83:sup 1A-16A Jl '64
Power meeting, 1st, Feb. 3-7; with abstracts of papers. Power Eng 68:44-6 Ap '64
Technical conference and exposition on underground residential distribution, 1st, St Louis, April 21-23. IEEE Trans Power Apparatus & Systems 83:sup 1A-3A Je '64

INSTITUTE of food technologists

Annual meeting, 24th, Washington, May 24-28; with program. Food Tech 18:449-53+, 962+ Ap, Jl '64

Directory to industrial and technical exhibit, Washington, May 24-27. il plan diag Food Tech 18:475-8+ Ap '64

First quarter century. C. T. Townsend. map Food Tech 18:975-81 Jl '64

IFT achievement recipients announced. Food Tech 18:824-6 Je '64

1962 membership salary survey. Food Tech 18:20-5 Ja '64

1963-64 committees named. Food Tech 17:1363-4+ N '63

Role of a technical society in the food field. J. M. Jackson. Food Tech 17:1396-8 N '63

United Kingdom section hosts President's night dinner in London. Food Tech 18:1525-7 O '64

INSTITUTE of metals, London

Presidential address. N. P. Inglis. Inst Metals J 92:345-50 '63-64

INSTITUTE of petroleum

Annual general meeting, 51st, London, May 12. Inst Pet J 50:193-6 Ag '64

Annual report. Inst Pet J 50:180-92 Ag '64

INSTITUTION of civil engineers

Presidential address. H. J. B. Harding. Engineer 216:759-60 N 8 '63

INSTITUTION of mechanical engineers

Conference on the practice of and education for engineering design; proceedings. Inst Mech Eng Proc 178 pt 3B:6-64 '63-64

Elections and transfers of members. Inst Mech Eng Proc 177 no 39:1095-123 '63

Mechanical engineers' view of Robbins. Engineering 197:148-9 Ja 24 '64

INSTITUTIONS, Nonprofit

Nonprofit groups face tax on ad revenue. Chem & Eng N 42:25-6 S 14 '64

INSTRUCTION manuals

Engine installation manual, by the Internal combustion engine institute. Heating-Piping 36:114 Ag '64

How to manage small water systems; plant operating manual. A. D. Henderson. diag Water Works & Wastes Eng 1:64-5 Ap; 73-4 Je; 57 Jl '64

Make your own service manuals. R. K. Re. Radio-Electronics 35:37 O '64

1963 editions of fire safety standards issued by the National fire protection association. Safety Maint 127:34 Ja '64

Something new in inspector's handbooks; Pennsylvania department of highways. Roads & Sts 106:58 D '63

INSTRUCTIONS

See also

Safety instructions and training

INSTRUMENT dials. See Dials, Instrument

INSTRUMENT panels

Display systems design. J. L. Seminara and S. O. Parsons. il diags Machine Design 35:165-76 N 7 '63

Portable test control panel expands horizons for process studies. E. J. Kuhlmann. il diags Eng & Min J 165:84-7+ Jl '64

Study of coding with multiple-anode glow discharge tubes. H. E. Seifert. il diags Radio & Electronic Eng 28:201-6 S '64

What the designer should know about indicators. J. H. Anderson and J. D. McElwain. il Electronic Ind 23:77-82 Ag '64

INSTRUMENT society of America

Analysis instrumentation symposium, 9th, San Francisco. I S A J 11:25-6 Jl '64

Annual conference and exhibit, 18th, Chicago; new control devices in steam power field. il Combustion 35:50-4 N '63

Annual conference and exhibit, 19th, New York, Oct. 12-15; program, floor plans, list of exhibitors. I S A J 11:102-9+ O '64

Annual meeting, 18th, Chicago. I S A J 10:20+ O '63

Conference and exhibit, Chicago. Control Eng 10:20-1 N '63

Education; an ISA section activity. R. L. Moore. bibliog il I S A J 11:75-7 F '64

ISA-IEEE conference on engineering in medicine and biology, Baltimore, Nov. 18-20; program. I S A J 10:39-41 O '63

National power instrumentation symposium, 7th, Denver, May 18-20; abstracts of papers. Combustion 36:29-34 Jl '64

President's annual report. N. Cohn. I S A J 10:38+ N '63

Society's publications program. J. G. Truxal. I S A J 11:61-2 Ag '64

Treasurer's report for 1963. I S A J 11:88-9 F '64

INSTRUMENTS

Air cargo opportunities abroad. J. C. Cook. il I S A J 11:63-6 Je '64

Annual equipment specification digest; controls and instruments. il diags Air Cond Heat & Ven 61:95-6+ Ja '64

Calibration of density-measuring instruments. F. R. Gilmer and C. M. Drummond. I S A J 11:91-3 My '64

Canadian instruments win export sales. il Can Chem Process 48:49-50 Mr '64

Cryogenics demands top-quality items. Can Chem Process 48:63-4 F '64

Current status of instrumentation in milk and food research. R. B. Read, jr. bibliog diags Am J Pub Health 53:1579-86 O '63

Instrument industry is big spender for r&d. I S A J 11:28-9 Ag '64

Instrument sales soar, profits, too. I S A J 11:25 S '64

Instrumentation. R. H. Müller. Published in monthly numbers of Analytical chemistry

Instrumentation in the '60's; the big shift has started. W. C. Schall. il I S A J 11:61-8 O '64

Instruments for clinical chemistry labs. il Chem & Eng N 41:112-24+ D 9; 112-26 D 16 '63 (reprints $1.25)

Instruments for education. il I S A J 11:26+ Ap '64

International measurement conference, 2d, Budapest; with abstracts of papers. Engineer 216:1076-7 D 27 '63

Modern instrumentation in science and industry; symposium abstracts. Chem & Ind p432-4 Mr 14 '64

New instruments. Published in monthly numbers of Instruments and control systems

New instruments. Published in monthly numbers of Review of scientific instruments

New instruments, materials and tools. Published in monthly numbers of Journal of scientific instruments

New materials and components. Published in monthly numbers of Review of scientific instruments

New plant and instrumentation. Published in monthly numbers of Industrial chemist

Precision gears for instrumentation. Engineering 197:491 Ap 3 '64

Products. Published in monthly numbers of ISA journal

Progress in process instrumentation. Published in monthly numbers of Industrial chemist

Review of fundamental developments in analysis; instrumentation. R. H. Müller. bibliog Anal Chem 36 [no5:140R-1R Ap '64

Review of fundamental developments in analysis; magnetic susceptibility; trends in instrumentation, research, and applications. L. N. Mulay and I. L. Mulay. il diags Anal Chem 36 [no5]:404R-19R bibliog(p418R-19R) Ap '64

Selecting precision instrument gears; reference sheet. H. V. Christensen. Tool & Manuf Eng 51:95-6 D '63

Sensitive force generator. E. L. Thompson. diag J Sci Instr 41:397 Je '64

Some reflections on profits and research in the instrument industry. P. A. Sprague. I S A J 11:79-84 My '64

Temperature control of a space vehicle instrument unit. F. Huneidi. diag ASHRAE J 6:80-2 My '64

Vacuum instrumentation; with tabular listing of manufacturers and instruments. il diags Instruments & Control Systems 37:110-14 S; 113-18 O '64

What the next decade holds for the instrument industry. A. E. Lee. I S A J 11:69-72 O '64

What's new? B. A. Sussman, ed. Published in monthly numbers of Industrial quality control

See also

Aeronautic instruments
Astronomical instruments
Balances
Control equipment
Dynamometers
Electric instruments
Magnetic instruments
Measuring instruments
Medical apparatus and instruments
Meteorological instruments
Pneumatic instruments
Radio instruments
Recording instruments
Scientific apparatus and instruments
Stroboscopic instruments

Bearings

Anisoelasticity in gas lubricated support systems. G. B. Speen and R. C. Turnblade. diags Lub Eng 19:449-55; Discussion. 455-6 N '63

INSTRUMENTS—Bearings—*Continued*

Hoffmann miniature precision bearings. il Engineering 197:450-2 Mr 27 '64

Bibliography

Book reviews. J Sci Instr 41:57, 193-5, 525-6, 579-80, 650-1 Ja, Mr, Ag, S-O '64

Books. Published in monthly numbers of Instruments and control systems

New books. Published in monthly numbers of Control engineering

New books. Published in monthly numbers of Review of scientific instruments

Costs

Estimating instrument costs. J. S. Page. Instruments & Control Systems 36:105-7 D '63

Directories

Annual specifying and buying directory of products for instruments and controls, 1963-64. Air Cond Heat & Ven 60:107-28 D '63

Instruments and control systems 1965 buyers' guide. Instruments & Control Systems 37:1-266 pt 2 O '64

Exhibitions

Annual instrument-automation conference and exhibition, 19th, New York. Iron Age 194:27 O 22 '64

Annual ISA instrument-automation exhibit, New York. Product Eng 35:72-3 O 26 '64

East show, West show. D. Barlow. il map Control Eng 11:102-4 S '64

Instrument society of America exhibit, New York, Oct. 12-15; control products preview. il Control Eng 11:123-30+ S '64

Failure

How to improve dimensional stability in precision metal parts. D. O'Boyle. il diags Machine Design 36:113-17 Ja 30 '64

Maintenance and repair

Computer schedules instrument inspection. K. L. Alvey and W. F. Parker. il Plant Eng 18:146-7 Jl '64

How instrument mechanics obtain information and guidance. Chem Eng 71:116+ F 3 '64

How to maintain industrial instruments profitably. J. A. Baker. il Mill & Factory 74:78-82 Ja '64

Instrument maintenance via contract. H. W. Vance. il Chem Eng Prog 60:23-4 Jl '64

Training programs for instrument technicians. R. Tobi. Instruments & Control Systems 37:137-40 F '64

Manufacture

Building by buying; diversification by acquisition was the way Singer co. entered the instruments industry; interview with K. M. Miller. I S A J 117:22+ O '64

Pressure casting slashes instrument cost 80 percent. il Mod Plastics 41:94-6+ Ap '64

Smiths new plant for metal finishing. il Engineering 197:476-7 Ap 3 '64

Mounting

Counterbalance system for dynamic testing of equipment designed to operate in a zero-g field. J. C. Nicklas. diags A S M E Trans ser D 86:91-6 Mr '64

Tube forming instrument cases. L. Rubin. diags Am Mach 108:51 Ag 3 '64

Study and teaching

Here is ISA's continuing education program. I S A J 11:32+ Jl '64

Skilled instrument technicians are needed. R. H. Müller. Anal Chem 35:sup 111A-12A N '63

Summertime learning; automatic control and instrumentation-oriented courses for 1964. I S A J 11:87-90 My '64

Vibration

Vibration-proof indicator for severe environments. diags Space/Aeronautics 42:77+ S '64

INSTRUMENTS, Musical. See Musical instruments

INSTRUMENTS, Optical. See Optical instruments

INSTRUMENTS, Surveying. See Surveying instruments

INSULATING bushings. See Bushings, Insulating

INSULATING materials

Frictional electrification of belts of insulating materials. R. G. Cunningham. il J Ap Phys 35:2332-7 Ag '64

Hermetic compressors in modern applications. R. T. Divers and W. West. bibliog diags ASHRAE J 6:55-61 Ap '64

Hot spot foaming of plastic for wire insulation. il Product Eng 34:82 D 9 '63

New insulations push out electrical limits. il Materials in Design Eng 58:148+ D '63

Resins, ceramics improve electrical components. Materials in Design Eng 58:176+ N '63

See also

Glass—Electric properties

Insulating tape

Mica

Paper, Insulating

Plastics—Electric properties

Porcelain, Insulating

Resinous products—Insulating materials

Rubber, Artificial—Electric properties

Testing

Voltage endurance tests of insulating materials under corona conditions. G. W. Hewitt and T. W. Dakin. bibliog il diags IEEE Trans Power Apparatus & Systems p 1033-8; Discussion. 1038-9 D '63

Voltage stress as a factor in thermal evaluation program for insulation systems in distribution transformers. M. F. Beavers and G. F. Lipsey. bibliog il IEEE Trans Power Apparatus & Systems 83:902-8; Discussion. 908-9 S '64

See also

Insulating oil—Testing

INSULATING materials, Thermal. See Insulation (heat)

INSULATING oil

British oil-filled submarine cable. il Engineer 218:335 Ag 28 '64

Truck stores transformer oil in rubber tank. il Elec World 162:76 Ag 10 '64

Testing

Electric breakdown of long gaps in transformer oil. A. M. Sletten and T. W. Dakin. diags IEEE Trans Power Apparatus & Systems 83:457-9 My '64

Test insulating oil regularly. L. McWilliams. il Power Eng 68:62-3 Ag '64

INSULATING porcelain. See Porcelain, Insulating

INSULATING tape

New insulating tape. Franklin Inst J 277:97 Ja '64

INSULATING varnish. See Varnish, Insulating

INSULATION (electric)

Application of new concepts to 500-kv system insulation co-ordination. E. H. Gehrig and others. bibliog diags IEEE Trans Power Apparatus & Systems p41-7; Discussion. 47-8 Ja '64

Bubbling technique improves cell structure of insulating foam. il Machine Design 36:14 O 22 '64

Dielectric and insulating materials. bibliog Engineer 217:753-4 Ap 24 '64

Dielectrics in 1963; phenomena/materials/devices. A. E. Javitz. diags Electro-Tech 73:97-105+ F '64

Ethylene-propylene rubber for wire and cable insulation. W. C. Smith and others. bibliog il Rubber World 149:54-65 Mr '64

Experimental determination of the shape of metal-insulator-metal potential barriers. D. V. Geppert. J Ap Phys 35:2151 Jl '64

Ehv nesting-cone insulators announced. il Elec World 162:138 S 21 '64

Ehv places new demands on power circuit breaker insulation levels. R. E. Bednarek and others. Elec World 161:79-2 Je 29 '64

Fabrication of epoxy electrical lead insulation for pressure vessels. J. A. Corll. diag R Sci Instr 35:243-4 F '64

Fluorocarbon gas used as transformer insulation. C. S. Collier. il Elec World 162:59+ O 5 '64

Growth of discharges on polluted insulation. L. L. Alston and S. Zoledziowski. bibliog diag Inst E E Proc 110:1260-6 Jl '63; Discussion. 111:1589-92 S '64

High-temperature insulation in ac motors. R. F. Woll. Westinghouse Eng 24:50-3 Mr '64

Insulated conductor sessions feature cable; winter meeting of IEEE. Elec World 161:78+ F 24 '64

Insulating power tools and appliances with plastics. J. E. Hauck. il diags Materials in Design Eng 60:100-3 O '64

Insulation for 11-kv 280-kg pulsed magnet. J. D. Milne and others. il R Sci Instr 35:1229-30 S '64

INSULATION (electric)—*Continued*

Insulation levels for Virginia electric and power co. 500-kv substation equipment. C. L. Wagner and others. diags IEEE Trans Power Apparatus & Systems 83:236-41 Mr '64; Discussion. 83:427 Ap '64

Killing the parasitics; isolated integrated circuits. diags Electronics 37:29-30 Ap 6 '64

METIFOR, a statistical method for insulation design of ehv lines. J. G. Anderson and L. O. Barthold. bibliog flow chart diags IEEE Trans Power Apparatus & Systems 83:271-80 Mr '64; Discussion. 83:437-40; Reply. 440-1 Ap '64

Multiple-conductor supports designed to take mechanical line disturbances. R. W. Harmon. il Elec World 161:62-3 Je 1 '64

New glass-ceramics for insulator seals. P. W. McMillan and B. P. Hodgson. il diags Materials in Design Eng 59:85-6 Ja '64

New super-strength insulator. A. D. Lantz. diag Elec World 161:70 Ja 13 '64

New technique for foaming polymers based on hot spot theory. il Bell Lab Rec 41:434-5 D '63

New transformers have solid-cast insulation. il Elec World 161:116 Je 15 '64

Nylon insulators; plastics material replaces paper in parts for auto alternator. il Plastics World 22:17 Ja '64

Oscillatory tunneling current through thin-film insulating barriers in a magnetic field. N. Goldberg and S. R. Pollack. bibliog J Ap Phys 34:3556-8 D '63

Polymer insulator for high-voltage transmission lines. F. C. Vose and F. S. Nichols. il Elec Eng 82:684-8 N '63

Radio noise due to insulator corona. A. Zaazou and others. bibliog il diag Inst E E Proc 111:959-66 My '64

Relationship between the Schottky emission mechanism and the energy bands of thin-film metal-insulator-metal configuration. M. Hacskaylo. bibliog diag J Ap Phys 35:2943-7 O '64

Vacuum insulation of high voltages utilizing dielectric coated electrodes. L. Jedynak. bibliog diag J Ap Phys 35:1727-33 Je '64

What BIL's for 500-kv substations? C. L. Wagner and others. diags Elec World 162:67-9+ Jl 27 '64

See also

Dielectrics
Electric resistance
Electric wiring
Insulating materials
Insulating oil
Paper, Insulating
Porcelain, Insulating

also subdivision Protection under special subjects, e.g.

Electric cables
Electric switchgear
Electric transformers
Electric wire
Telephone cables

Failure

Arc-safe components. diag Mech Eng 86:132 Ap '64

Degradation of insulation materials by electrical discharges. R. J. Meats and A. W. Stannett. bibliog diag IEEE Trans Power Apparatus & Systems p49-54 Ja '64

Flashover mechanism of polluted insulation. B. F. Hampton. diags Inst E E Proc 111:985-90 My '64; Discussion. 111:1589-92 S '64

Photoionization as the secondary mechanism in a Townsend breakdown. G. W. Penney and others. IEEE Trans Com & Electronics p203-8 Mr '64

Studies of the surge response on a transmission line tower. M. Kawai. il diags IEEE Trans Power Apparatus & Systems p30-4 Ja '64

Transition effect in insulation failure. J. A. Foerster. diags Electro-Tech 73:13-14 Ja '64

Voltage endurance tests of insulating materials under corona conditions. G. W. Hewitt and T. W. Dakin. bibliog il diags IEEE Trans Power Apparatus & Systems p 1033-8; Discussion. 1038-9 D '63

Testing

Artificial-pollution test for high-voltage outdoor insulators. C. H. A. Ely and P. J. Lambeth. bibliog diags Inst E E Proc 111:991-8 My '64; Discussion. 111:1589-93 S '64

Assessment of tests for the evaluation of thermal endurance of varnished fabrics. A. G. Day. bibliog il Inst E E Proc 110:2248-56 D '63

Characteristics of ehv station post insulators. S. C. Killian and J. H. Moran. bibliog il diags IEEE Trans Power Apparatus & Systems 83:280-5 Mr '64; Discussion. 83:441-2 Ap '64

Conductors for close quarters; thin-insulation wiring. A. G. Schuh. il diags Product Eng 34:63-70 N 25 '63

Corona detector checks insulation quality. C. E. Mercier. il diags Elec World 162:72-3 Jl 13 '64

Determination of switching surge withstand voltages for ehv insulation systems. J. B. Owens. il IEEE Trans Power Apparatus & Systems 83:263-6 Mr '64; Discussion. 83:430-5 Ap '64

Effect of humidity on flashover of air-gaps and insulators under alternating (50 c/s) and impulse (1/50 μs) voltages. W. G. Standring and others. diags Inst E E Proc 110:1077-81 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64

Factors affecting the results of 50 c/s wet flashover tests. W. G. Standring and others. il diag Inst E E Proc 110:1072-6 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64

5kv insulation tester. il Engineer 218:109 Jl 17 '64

Full scale surge testing of Virginia electric and power co. 500-kv line insulation. J. A. Rawls and others. bibliog il diags IEEE Trans Power Apparatus & Systems 83:245-50 Mr '64

High-voltage laboratory for testing insulators. il Engineer 216:745-6 N 1 '63

How the switching-surge family affects line insulation. J. W. Kalb. bibliog il diags IEEE Trans Power Apparatus & Systems p 1024-31; Discussion. 1031-3 D '63

Impulse flashover of air-gaps and insulators in the voltage range 1-2·5mv. W. G. Standring and others. bibliog diags Inst E E Proc 110:1082-8 Je '63; Discussion. 110:2016-22; 111:1879-80 N '63, N '64

Insulation requirements, corona losses, and corona radio interference for high-voltage d-c lines. N. Hyltén-Cavallius and others. bibliog il IEEE Trans Power Apparatus & Systems 83:500-8 My '64; Discussion. 83:646-7; Reply. 647-8 Je '64

Insulation resistance of polyethylenes on wire; effect of heat, water and electrical stress. C. A. Liddicoat and B. F. Brown. il Wire & Wire Prod 38:1874-7 D '63

Insulation testers. il Engineer 217:582 Mr 27 '64

Insulation tests reduce electrical equipment outages. J. S. Johnson and W. G. Craig. diags Plant Eng 18:128-31 Je '64

Rainfall resistivities: IEEE committee report. map IEEE Trans Power Apparatus & Systems 83:520-3 My '64

Relationships of corona to life and reliability of polyethylene insulated cable; new test methods for cable. W. T. Starr and J. P. Agrios. il IEEE Trans Com & Electronics p88-97; Discussion. 97-8 Ja '64

Sparkover characteristics of large gap spaces and long insulation springs. T. Udo. il diags IEEE Trans Power Apparatus & Systems 83:471-83 My '64

Ultrasonic testing of compression moulded insulators. Electronic Eng 35:825 D '63

Utilities buy polymer insulators for tests. il Elec World 160:105 N 18 '63

X-rays check thickness. il Product Eng 35:52 Jl 20 '64

INSULATION (heat)

Aluminized steel protects insulation. H. H. Lawson. il Chem Eng 71:94+ Ag 31 '64

Backside temperatures of an internal insulator in a solid-propellant motor. J. W. Kordig. diag AIAA J 2:1475-6 Ag '64

Challenge of heat. Product Eng 35:42-3 Ag 31 '64

Combatting excessive heat undergound at Bralorne. W. E. Field. il map diags Min Eng 15:76-7 D '63

Cooling foods in-transit. Food Eng 36:92 Jl '64

Crumbling insulation cuts ingot handling. il Iron Age 192:169 N 14 '63

For insulation, a new kind of mica. il Chem Eng 70:110+ D 9 '63

Guaranteed performance marks advance in insulated trailers. G. Chieger and K. W. Tantlinger. S A E J 72:65 Je '64

Heat conservation in the electrically-heated house. E. R. Ambrose. Arch Rec 135:7+ Mid-My '64

How heat gains affect fuel bills. C. C. Thomas. Air Cond Heat & Ven 60:61-6 N '63

INSULATION (heat)—*Continued*

Inorganic fibers. J. A. Goodrich and R. Matchett. il Product Eng 35:96-100 Ag 3; 63-6 Ag 31 '64

Inorganic mica mat insulation takes 1400 F. il Materials in Design Eng 59:115 Ja '64

Inside-out design developed for low-temperature buildings. C. S. Meyer. il diags ASHRAE J 6:50-2+ Ap '64

Insulated tanks for peak shaving. M. B. Clapp. diag Gas Age 131:34-7 Je '64

Insulating blanket levels brazing temperature. Steel 154:66 My 18 '64

Insulation exhibition and convention, London, Feb. 25-28. Chem & Ind p570 Ap 4 '64

Insulation for submarine pressure hull. I. Resnick. diag Materials in Design Eng 59:136-7 Ap '64

Insulation requirements for long-time low-heat rate environments. D. M. Tellep and T. D. Sheppard. AIAA J 1:1670-1, 2872 Jl, D '63

Introduction to cryogenics. R. W. Vance. bibliog flow diag il diags Machine Design 36:169-92 O 8 '64

Keeping the warmth in. il diag Engineering 197:816 Je 12 '64

Lightweight thermal insulation for furnaces; Refrasil. il Chem Eng 71:56 Mr 30 '64

Oily insulation can cause plant fires. J. J. Petkus. Hydrocarbon Process & Pet Refiner 42:251 N '63

Optimizing thermal insulation for electric heating. G. Burdick. bibliog ASHRAE J 5:57-64+ D '63

Passive insulations for reentry vehicles. M. L. Minges. Space/Aeronautics 42:78+ Jl '64

Prefabricated windows in roof insulation. H. E. B. Anderson. il Plant Eng 17:88 N '63

Preformed pipe insulation to 27½-in. dia meets startup deadline. il Elec World 162:90-1 O 5 '64

Rigid foamed polyurethane insulation for oil refinery storage tanks. D. B. Bruce. il Brit Plastics 37:129-31 Mr '64

Sprayed-on urethane foam tested for heated-fuel-oil-tanks insulation. D. H. Stormont. il Oil & Gas J 62:90-1 Mr 9 '64

Thermal insulation; special report. S. Elonka. il diags Power 108:sup 1-24 Mr '64 (reprints 75c)

Thermal insulations for manned spacecraft. J. O. Collins and E. F. Briggs. Space/Aeronautics 41:95 F '64

Two new insulations for rocket motors developed. il Steel 153:33 D 16 '63

Urethane foam insulates building columns. il Chem Eng Prog 60:121 O '64

Urethane foam insulation keeps heavy oil flowing. il Mod Plastics 41:123 Je '64

Vermiculite insulating concrete; pumped and sprayed. C. T. Grimm. il Civil Eng 33:67-9 N '63

See also
Asbestos
Mineral wool
Pipe coverings
Textile fabrics—Heat transmission

Tables, calculations, etc.

How to estimate costs of hot and cold insulation for piping. T. N. Dinning. Heating-Piping 35:133-7 Je; 119-21 Jl; 102+ N '63

Testing

Heat and air transfer in cold storage insulation. W. A. Lotz. ASHRAE J 6:53 Ap '64

Heat flow through cryogenic insulation. il diag Engineering 197:164 Ja 24 '64

INSULIN

Carbohydrate and fat metabolism and response to insulin in vitamin B6-deficient rats. A. M. Huber and others. bibliog J Nutrition 82:371-8 Mr '64

Insulin peptides; a synthetic heptadecapeptide derivative corresponding to the C-terminal sequence or the B-chain of insulin. P. G. Katsoyannis and M. Tilak. bibliog Am Chem Soc J 85:4028-31 D 20 '63

Insulin peptides; the synthesis of the B-chain of insulin and its combination with natural or synthetic A-chain to generate insulin activity. P. G. Katsoyannis and others. bibliog Am Chem Soc J 86:930-2 Mr 5 '64

Synthetic insulin. Sci Am 209:72 D '63

INSURANCE

See also
Contractors—Insurance requirements
Gas companies—Insurance requirements

INSURANCE, Fire

Rates

Total-electric home insurance rates reduced. il Elec World 161:98 My 4 '64

INSURANCE, Group. See Insurance, Health—Employees insurance

INSURANCE, Health

Changes in rates of visiting nurse services in the health insurance plan. S. Shapiro and M. M. Einhorn. Am J Pub Health 54:417-30 Mr '64

Health insurance coverage of patients under public health nursing supervision. M. E. Parker and H. C. Chase. Am J Pub Health 54:108-14 Ja '64

Employees insurance

Group health programs. J. H. Sterner. Archives Environmental Health 8:418-21 Mr '64

INSURANCE, Liability

As a contractor, do you carry adequate insurance? J. Midwinter. il Civil Eng 34:64-6 Ag '64

Litigious gas explosions. S. Hammon. Gas 40:84-6 Je '64

INTAKES

Big powerhouse intake structure floats into place. il Eng N 172:32-3 Ap 30 '64

Electric fish screens. A. E. Hanson. Am Water Works Assn J 56:938 Jl '64

Form-induced hydraulic forces on three-leaf intake gates. R. A. Elder and J. M. Garrison. diags Am Soc C E Proc 90 [HY 3 no 3905]:215-33 My '64

Intake with a future for crib with a past. P. J. Russo. il Water Works & Wastes Eng 1:35 Ja '64

River intakes. A. D. Henderson. plan diag Water Works & Wastes Eng 1:62-4 O '64

Special double intake header. il diag Civil Eng 34:59-60 My '64

INTEGRAL equations

Analysis of piecewise linear systems by the method of integral equations. C. N. Shen and H. Wang. diags A S M E Trans ser D 86:139-44 Mr '64

Application of integral equations to the flexural vibration of a wedge with rotary inertia and shear. H. C. Lee and K. E. Bisshopp. Franklin Inst J 277:327-36 Ap '64

Certain singular integral equation. D. S. Jones. diag J Math & Phys 43:27-33, 263-73 Mr, S '64

Concept of terminal admittance and impedance matrixes extended to continuous media. K. F. Sander. bibliog diags Inst E E Proc 111:1107-16 Je '64

Existence of eigenvalues of a class of integral equations arising in laser theory. D. J. Newman and S. P. Morgan. Bell System Tech J 43:113-26 Ja '64

Integral equations for viscous hypersonic nozzle flow. M. Sichel. bibliog diags AIAA J 2:148-50 Ja '64

Potential operator in quasi-static electromagnetic theory. M. R. Harris. bibliog diags Inst E E Proc 110:2093-101 N '63; Discussion. 111:1371-2 Jl '64

Reactance of a symmetrical pair of strips in rectangular waveguide. L. Lewin. diag Inst E E Proc 111:1382-4 Ag '64

Solution of highly curvilinear gravity flows. T. S. Strelkoff. bibliog diags Am Soc C E Proc 90 [EM 3 no 3950]:195-221 Je '64; Discussion. H. Rouse. 90 [EM 5 no 4093]:467-70 O '64

Theory of stationary electrode polarography; single scan and cyclic methods applied to reversible, irreversible, and kinetic systems. R. S. Nicholson and I. Shain. bibliog Anal Chem 36:706-23 Ap '64

INTEGRALS

Asymptotic expansion for the multivariate normal distribution and Mills' ratio. H. Ruben. bibliog J Res Nat Bur Stand 68B:3-11 Ja '64

Certain integrals. K. S. Nagaraja. J Math & Phys 43:55-9 Mr '64

Chebyschev expansion of the sine and cosine integrals. R. Barakat and A. Houston. J Math & Phys 42:331-3 D '63

Expansion of the generalized exponential integral in terms of Bessel functions. A. S. Meligy and E. M. El Gazzy. bibliog J Math & Phys 43:60-4 Mr '64

Gaussian wave functions for polyatomic molecules; integral formulas. M. Krauss. bibliog J Res Nat Bur Stand 68B:35-41 Ja '64

INTEGRALS—*Continued*

Generalized elliptic integral. G. H. Weiss. J Res Nat Bur Stand 68B:1-2 Ja '64

Integral $\int_0^1 s^{c}(1 - s)^{e} \mid \sin xs \mid ds$ with an application to Schlomilch series. M. L. Glasser. bibliog J Math & Phys 43:158-62 Je '64

Integral $\int_0^\infty v^{n} \exp[-(v-u)^2-x/v]dv$. M. T. Cahine and R. Narasimha. bibliog J Math & Phys 43:163-8 Je '64

Nth order solutions to certain thrust integrals. E. E. Markson. AIAA J 2:381-2 F '64

Reduction of an integral of the joint Rayleigh probability density to tabulated functions. W. D. Mark. bibliog IEEE Proc 52:741-2 Je '64

Representation of a function by its line integrals, with some radiological applications. A. M. Cormack. bibliog diag J Ap Phys 34:2722-7; 35:2908-13 S '63, O '64

INTEGRATION

Analysis of MHD channel entrance flows using the momentum integral method. W. C. Moffatt. bibliog diags AIAA J 2:1495-7 Ag '64

Integration of discontinuous expressions arising in beam theory. J. T. Weissenburger. bibliog diags AIAA J 2:106-8 Ja '64

Monte Carlo integration of rate equations. L. J. Schaad. flow chart Am Chem Soc J 85:3588-92 N 20 '63

Nonequilibrium blunt-body flow using the method of integral relations. W. C. L. Shih and J. R. Baron. bibliog AIAA J 2:1062-71 Je '64

Numerical approach to the solution of radio diffraction problems. J. K. Hargreaves and S. Hargreaves. bibliog diags J Res Nat Bur Stand 67D:685-98 N '63

Numerical integration employing overdifferentiation; some simple experiments. H. E. Salzer. bibliog J Math & Phys 42:307-22 D '63

Numerical integration of non-analytic functions. P. C. Waterman and others. bibliog diag J Math & Phys 43:45-50 Mr '64

Numerical integration of rate equations. I. D. Gay. Am Chem Soc J 86:2747-8 Jl 5 '64

Numerical method for structural shock response. G. J. O'Hara and P. F. Cunniff. diags Am Soc C E Proc 90 [EM 2 no 3866]:51-82 Ap '64

Obreschkoff-type integration and interpolation formulas for periodic functions. H. E. Salzer. J Math & Phys 43:241-50 S '64

Tables for the step-by-step integration of ordinary differential equations of the first order. W. F. Pickard. Assn for Computing Mach J 11:229-33 Ap '64

Wilf stability criterion for numerical integration. G. Emanuel. Assn for Computing Mach J 10:557-61 O '63

INTEGRATORS

Digital readout device for analog integrators. E. C. Toren, jr. and C. P. Driscoll. bibliog diag Anal Chem 35:1809-10 N '63

Electronic integrator for use with a differential calorimeter. J. J. Eichholz and J. B. Darby, jr. diag R Sci Instr 34:1274-5 N '63

Integrators for field orifice meters. C. B. Nolte. il diag Instruments & Control Systems 37:137-8 O '64

Magnetic core integrator. D. W. Zehner and I. I. Kaplan. il diags IEEE Trans Com & Electronics 83:253-60 My '64

Portable photointegrating meter for use in crops. J. A. Irvine and P. Harper. diags J Sci Instr 41:231-3 Ap '64

Shared-time integrator. E. Wiegmann. il diag Instruments & Control Systems 37:111 O '64

INTELLECTUAL property

Protection

See also

Trade secrets

INTERCOMMUNICATING systems

Communications in a steel mill. Electronic Eng 36:553 Ag '64

Intercommunication system. il Engineer 218:287 Ag 21 '64

Nufon office intercom. il Engineering 198:425 O 2 '64

Optimum locations of switching centers and the absolute centers and medians of a graph. S. L. Hakimi. bibliog diags Op Res 12:450-9 My '64

Super communications network for your home. A. Schlang. il diags Radio-Electronics 35:36-9 S '64

See also

Radio telephone in factories

INTERCONNECTION of power systems. See Electric plants—Interconnection

INTERFACES

Application of the source theory to the solution of problems involving phase change; transient interface heat and mass transfer in multicomponent liquid-vapor system. W. J. Yang and J. A. Clark. bibliog diag A S M E Trans ser C 86:443-8 Ag '64

Contribution of interfacial resistance to band broadening in chromatography. G. J. Krige and V. Pretorius. bibliog Anal Chem 35:2009-15 D '63

Controlling the liquid-vapor interface under weightlessness. D. A. Petrash and E. W. Otto. diags Astronautics & Aeronautics 2:56-9+ Mr '64

Convective diffusion as an intruder in kinetic studies of surface catalyzed reactions. D. E. Rosner. diags AIAA J 2:593-610 bibliog(p608-10) Ap '64

Correlation of the coefficient of adhesion with various physical and mechanical properties of metals; abstract. M. E. Sikorski. Metal Prog 85:175-7 My '64

Crystal interfaces. N. H. Fletcher. bibliog J Ap Phys 35:234-40 Ja '64

Diffusion through the liquid-liquid interface. W. J. Ward and J. A. Quinn. bibliog flow diag diags A I Ch E J 10:155-9 Mr '64

Evidence for oxidation growth at the oxide-silicon interface from controlled etch studies. W. A. Pliskin and R. P. Gnall. Electrochem Soc J 111:872-3 Jl '64

Flotation with insoluble reagents; effects of surface-active reagents on the spreading of oil at coal-water interfaces. A. R. Burkin and J. V. Bramley. J Ap Chem 13:417-22 O '63

Hydrogen induced surface states at a Si-SiO_2 interface. K. H. Zaininger and G. Warfield. IEEE Proc 52:972-3 Ag '64

Ice interface morphology and texture developed during freezing. J. D. Harrison and W. A. Tiller. bibliog il diags J Ap Phys 34:3349-55 N '63

Initial instability of a viscous fluid interface. W. E. Ranz and W. M. Dreier, jr. bibliog il diags Ind & Eng Chem Fundamentals 3:53-60 F '64

Interaction between particles and a solid-liquid interface. D. R. Uhlmann and others. bibliog il diags J Ap Phys 35:2986-93 O '64

Measurement of pointwise juncture condition of temperature at the interface of two bodies in sliding contact. F. F. Ling and T. E. Simkins. bibliog il diags A S M E Trans ser D 85:481-5; Discussion. 486-7 D '63

Mechanism of peritectic reactions. J. A. Sartell and D. J. Mack. il Inst Metals J 93:19-24 '64-65

Method for compressing monomolecular films at oil-water interfaces. D. B. Zilversmit. diag J Colloid Sci 18:794-8 O '63

Moving interface in coastal aquifers. J. Bear and G. Dagan. il diags Am Soc C E Proc 90 [HY 4 no 3988]:193-216 Jl '64

Relation between the rubbing interface temperature distribution and dynamic thermocouple temperature. H. H. H. Shu and others. bibliog diags A S M E Trans ser D 86:417-22 S '64

Separate determinations of the surface excesses of surface-active ions and of gegenions at the air-solution interface. K. Shinoda and H. Nakayama. bibliog J Colloid Sci 18:705-12 O '63; Discussion. E. H. Lucassen-Reynders. 19:584-5 Ag '64

Some effects of interfacial diffusion on the gravity coalescence of liquid drops. G. D. M. MacKay and S. G. Mason. bibliog diags J Colloid Sci 18:674-83 S '63

Some observations on the interfacial topographies of aluminum and its amorphous oxide. J. J. Randall, jr. and W. J. Bernard. bibliog il diags J Ap Phys 35:1317-22 Ap '64

Stability of a planar interface during solidification of a dilute binary alloy. W. W. Mullins and R. F. Sekerka. bibliog diags J Ap Phys 35:444-51 F '64

Studies of the InSb crystal-melt interface. N. Albon. bibliog il Electrochem Soc J 111:61-4 Ja '64

Study of the Clapeyron equation as applied to interfacial phase transitions. A. E. Alexander and F. C. Goodrich. diag J Colloid Sci 19:473-6 Je '64

Sulfates in the passive iron layer. O. L. Riggs, jr. bibliog il diags Corrosion 20:275-81 S '64

INTERFACES—*Continued*

Technical conference on solid-solid interfaces, electronic properties, preparation, and applications, Boston, Aug. 31-Sept. 2; program. J Metals 16:549-50 Jl '64

Thermodynamics and interfacial tension of multicomponent liquid-liquid interfaces. S. A. Shain and J. M. Prausnitz. bibliog diag A I Ch E J 10:766-73 S '64

Transition from plane to cellular interface in solidifying tin-lead-antimony alloys. G. S. Cole and W. C. Winegard. bibliog il diag Inst Metals J 92:322-6 '63-64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

See also

Electric double layer

INTERFACIAL tension

Effect of abrupt concentration changes on the motion of free drops. R. S. Valentine and W. J. Heideger. il Can J Chem Eng 42:43-4 F '64

Nonionic surface active compounds; interfacial tensions of solutions of nonionic surface-active agents. P. Becher. bibliog diag J Colloid Sci 18:665-73 S '63

Thermodynamics and interfacial tension of multicomponent liquid-liquid interfaces. S. A. Shain and J. M. Prausnitz. bibliog diag A I Ch E J 10:766-73 S '64

Use of hydrophobic rings for the measurement of interfacial tensions. J. A. Krynitsky and W. D. Garrett. bibliog J Colloid Sci 18:893-6 D '63

Use of surface active agents in chemical processes. C. D. Moore and R. B. Hardwick. bibliog Ind Chem 40:145-7 Mr '64

INTERFERENCE (light)

Analysis of stress-wave propagation by photoviscoelastic techniques. C. W. Ferguson. bibliog il diags SMPTE J 73:782-7 S '64

Diffusion studies of bovine plasma albumin at 25° with the help of Jamin interference optics. A. Chatterjee. bibliog Am Chem Soc J 86:3640-2 S 20 '64

Fringe pattern of an oscillating Fabry-Perot interferometer. K. D. Mielenz. il J Res Nat Bur Stand 68C:73-81 Ap '64

Interference fringes produced by laser optics. C. L. Rudder. il IEEE Proc 52:719 Je '64

Method for the precise evaluation of interferograms. G. D. Dew. il diag J Sci Instr 41:160-2 Mr '64

Michelson-Morley experiment. R. S. Shankland. bibliog diags Am J Phys 32:16-35 Ja '64

Moiré fringe interpolator of high resolution. A. H. McIlraith. bibliog diags J Sci Instr 41:34-7 Ja '64

Moiré patterns of isopachics. P. S. Theocaris. bibliog il diags J Sci Instr 41:133-8 Mr '64

Moiré phenomenon. M. Stecher. bibliog il diag Am J Phys 32:247-57 Ap '64

Near-field interference fringes from laser mirrors. C. L. Rudder and others. bibliog il diag IEEE Proc 52:740-1 Je '64

Optical systems for observing surface topography by frustrated total internal reflection and by interference. C. W. McCutchen. bibliog il diags R Sci Instr 35:1340-5 O '64

Scientific uses of Ferranti moiré fringe system. Engineering 196:735 D 6 '63

Use of gratings producing moiré patterns for measuring refractive index gradients. C. J. van Oss. bibliog il diag J Sci Instr 41:227-8 Ap '64

INTERFERENCE, Inductive. See Electric lines—Inductive interference

INTERFERENCE, Radio. See Radio communication—Interference

INTERFERENCE, Television. See Television transmission—Interference

INTERFEROMETERS

Alinement interferometer. J. B. Saunders. diags J Res Nat Bur Stand 67C:307-9 O '63

Amateur scientist; how to make a series interferometer to observe various subtle phenomena. C. L. Stong. diags Sci Am 210:122-4+ Je '64

Angle measuring interferometer. J. G. Marzolf. bibliog diags R Sci Instr 35:1212-15 S '64

Fringe pattern of an oscillating Fabry-Perot interferometer. K. D. Mielenz. il J Res Nat Bur Stand 68C:73-81 Ap '64

Hilger and Watts interferometer for measuring sphericity. il Engineer 217:836 My 8 '64

Interferometer analyzes microwave transmitter. R. Robertson. il diag Electronics 37:58-60 Je 29 '64

Interferometer for electrochemical investigations. R. N. O'Brien. bibliog il diags R Sci Instr 35:803-6 Jl '64

Interferometer for testing extended surfaces such as surface plates and precision ways. J. B. Saunders and J. V. McDermott. il diag J Res Nat Bur Stand 68C:83-4 Ap '64

Laser comes to the shop; interferometer with a laser as a light source makes ultra-precise measurements. il diag Am Mach 108:75 S 28 '64

Laser feedback interferometer. D. M. Clunie and N. H. Rock. bibliog il diag J Sci Instr 41:489-92 Ag '64

Laser interferometer; application to plasma diagnostics. J. B. Gerardo and J. T. Verdeyen. bibliog il diags IEEE Proc 52:690-7 Je '64

Laser measures length to a hundred-thousandth. il Control Eng 11:28 O '64

Measurement of earth tides and continental drift with laser interferometer. V. Vali and W. Vali. diag IEEE Proc 52:857-8 Jl '64

Mode selection in an aperture-limited concentric maser interferometer. T. Li. bibliog diags Bell System Tech J 42:2609-20 N '63

Modulated reflection plasma interferometer. L. C. Robinson. il diag R Sci Instr 35:1239-40 S '64

Motor drive for a student interferometer. G. Friedmann and R. Vidal. diags Am J Phys 32:318 Ap '64

Stage interferometer for microinterferometry. C. H. Klute and E. R. Fajardo. il diag R Sci Instr 35:1080-1 Ag '64

Technique for measuring small optical loss using an oscillating spherical mirror interferometer. A. J. Rack and M. R. Biazzo. bibliog il diags Bell System Tech J 43:1563-79 pt 2 Jl '64

Two-wavelength interferometer for the study of heat and mass transfer. M. M. El-Wakil and C. L. Jaeck. il diag A S M E Trans ser C 86:464-6 Ag '64

Wave front shearing interferometer. Franklin Inst J 278:158-9 Ag '64

Wave front shearing prism interferometer. J. B. Saunders. bibliog il diags J Res Nat Bur Stand 68C:155-71 Jl '64

See also

Radio interferometers

INTERFEROMETRY

Broadband radio-star scintillations. D. G. Singleton. bibliog il maps diags J Res Nat Bur Stand 68D:867-79, 1095-108 Ag, O '64

Exhaust gas pictures. il Electronics 37:51-2 Mr 6 '64

Interferometric determination of the refractive indices and birefringence of mohair wool fibers. N. Barakat and A. M. Hindeleh. bibliog il diags Textile Res J 34:357-62 Ap '64

Interferometric observation of flat surfaces and multiple-beam Edser-Butler bands. D. B. Keck and C. D. Hause. il diags Am J Phys 32:707-11 S '64

Principles of absolute interferometry and absolute densimetry. V. T. Pillon. diag Anal Chem 36:907-12 Ap '64

Specimen holder for film thickness measurement. P. A. Gould and U. Pick. diags J Sci Instr 41:474 Jl '64

Testing large lenses by interferometry. il Engineering 198:186 Ag 7 '64

Use of the motion picture camera in interferometric electrochemical investigations. R. N. O'Brien. il diag Electrochem Soc J 111:1300-2 N '64

INTERIOR decoration

Designer Bergson; she shows how to turn an office into a testing lab. il plans Arch Forum 120:108-11 F '64

Six offices from New York's Pan Am building. il plans Arch Forum 120:102-9 Ja '64

See also

Paneling

Wall coverings, Plastic

INTERIOR walls. See Walls, Interior

INTERLOCKING devices

Geographic relay system for railroad interlocked routing. W. Schmitz. bibliog il diags Elec Com 39 no 3:383-402 '64

INTERMETALLIC compounds

High temperature oxidation resistance of the beryllides. R. M. Paine and others. Corrosion 20:307-13 O '64

Influence of milling upon the magnetic properties of the intermetallic compound MnAlGe. W. A. J. J. Velge and K. J. de Vos. bibliog J Ap Phys 34:3568-71 D '63

Intermetallic compounds and their mechanical behavior. P. Stark. bibliog J Metals 16:252-7 Mr '64

INTERMETALLIC compounds—*Continued*

Magnetic properties of Fe_2MnTm and some related intermetallic compounds. H. J Williams and others. J Ap Phys 35:1032-3 pt 2 Mr '64

Nature and particle size of intermetallics in two types of aluminium alloy. P. M. Slate and M. Whitaker. bibliog il diag Inst Metals J 92:70-7 '63-64

Oxidation kinetics of $ZrBe_{13}$ and $NbBe_{12}$. G. Ervin, jr. and M. M. Nakata. bibliog il diags Electrochem Soc J 110:1103-10 N '63

Preparation of peritectic-type intermetallic compounds by a modified Czochralski method. D. J. Barber. bibliog il diag J Ap Phys 35:398-401 F '64

Properties of the intermetallic phases in the system Au-Sn. M. B. McNeil. bibliog Electrochem Soc J 110:1169-70 N '63

Temperature dependence of the magneto-optic effect and resonance phenomena in oriented MnBi films. D. Chen and Y. Gondō. bibliog J Ap Phys 35:1024-5 pt 2 Mr '64

Tensile behaviour of the intermetallic compound AgMg at low temperatures. J. C. Terry and R. E. Smallman. bibliog Inst Metals J 92:334-6 '63-64

See also

Niobium stannide

INTERNAL combustion engines

Contactless piston seal for internal combustion engines. L. Strach. il diag Engineer 217:969-70 My 29 '64

Dyna-Star design shrinks piston-engine size. W. G. Lundquist. il diags S A E J 72:66-71 Mr '64

Engine installation manual, by the Internal combustion engine institute. Heating-Piping 36:114 Ag '64

Heat transfer in the cylinders of reciprocating internal combustion engines. W. J. D. Annand. bibliog Inst Mech Eng Proc 177 no 36:973-90; Discussion. 991-5; Reply. 995-6 '63

High performance rotary engine. il Engineering 196:816 D 27 '63

Industrial engine developments. C. A. Weinert. il diags Automotive Ind 129:78-81+ N 15 '63

NSU-Wankel engine. W. Froede. il diags Automobile Eng 53:302-12 Jl '63; Discussion. G. Czike and S. Czike. 54:48-50 F '64

Rotary combustion engines. R. F. Ansdale. il diags Automobile Eng 53:518-24; 54:20-7, 52-6 D '63-F '64

Some epitrochoidal engine developments. il diags Engineer 216:846-7 N 22 '63

Two lightweight petrol engines. il Engineer 216:1071 D 27 '63

Ultra lightweight two-stroke petrol engine. il Engineering 196:751 D 13 '63

See also

Automobile engines
Diesel engines
Gas engines
Gas turbines
Motor boat engines, Outboard
Motor cars (railroad)
Motor truck engines

Air supply

Designing vent systems for internal-combustion engine room. J. P. Callaghan. il Power 108:80-3 S '64

Combustion research

Controlled weather for dynamometer engine tests. il diag Automotive Ind 131:62-3 Ag 1 '64

Internal combustion engine research; Ricardo and co. Engineer 218:52-3 Jl 10 '64

Interrelation of fuel quality and petrol engine performance; present position and future prospects. D. Downs. diags Inst Pet J 49:361-70 D '63

Prospects of improving efficiency of gasoline engines; the stratified charge engine. J. Baudry. il diags Inst Pet J 50:169-71 Jl '64

Cooling

Oil cooling medium must fit application. H. D. Huggins and others. diags S A E J 71:62-5 D '63

Prevention of corrosion by engine coolants. T. H. Turner. Engineer 216:948-9 D 6 '63

Deposits

Control of gasoline quality in relation to inlet system deposits. S. R. Hills and M. J. van der Zijden. bibliog il Inst Pet J 50:105-18; Discussion. diag 118-22 My '64

Design

Four cylinders but only four bearings. R. M. Alexander. il diags Engineering 198:107 Jl 24 '64

New rotary piston engine. W. C. Dean, 2d. diags Mech Eng 86:44-6 O '64

Exhaust

Engine exhaust gas boosts heavy oil recovery. N. J. Clark and others. diag Pet Management 36:83-4+ Ag '64

Measurement of transient exhaust temperatures in internal combustion engines. R. S. Benson. diag Engineer 217:377-83 F 28 '64

Two musts for blowby measurements; abstract. D. R. Olson. diag S A E J 72:103 Ja '64

Fuel

Ammonia substitutes as fuel in internal combustion engine. Chem & Eng N 42:54 S 28 '64

See also

Gasoline
Internal combustion engines—Combustion research

Fuel feeding

Petrol engine charge stratification. diags Automobile Eng 53:536-8 D '63

See also

Automobile engines—Fuel feeding
Motor truck engines—Fuel feeding

History

Centenary of the birth of Herbert Akroyd Stuart. il Engineer 217:170-1 Ja 24 '64

Ignition devices

High temperatures trigger preignition; abstract. B. Brewster and R. V. Kerley. S A E J 71:86-7 D '63

Lubrication

Gasoline, Diesel-engine lubes. Oil & Gas J 61:141 D 2 '63

Large internal combustion engine lubricating oil. W. T. Dupler. il Power 108:55-7 Jl; 68-70 Ag '64

Maintenance and repair

Electronic analyzer aids in spotting engine ills. il diags Oil & Gas J 62:96-8 F 24 '64

Manufacture

Dual pressure hydraulic system insures product quality. A. Pennanen. il diag Hydraulics & Pneumatics 16:113 N '63

Mufflers

Muffler makers aid army r&d in military standards program; abstract. I. J. Schumacher and others. diag S A E J 72:106 Ja '64

Painting and finishing

Painting Tecumseh engines. C. Bethke. il Ind Finishing 40:40-2+ Mr '64

Scavenging

Three-quarters of a century of scavenging and pressure charging. Engineer 217:606 Ap 3 '64

Specifications

Gasoline engine specifications, 1964: tables. Automotive Ind 130:186-95, 206-7 Mr 15 '64

How Chevrolet 283 cubic in. engines were adapted to meet military specifications. il Automotive Ind 129:52-3 D 1 '63

Military standard engine program means huge savings for armed forces. W. E. Schulz. Automotive Ind 129:36-7+ D 1 '63

Starting

New starter system eliminates panting when cranking two-stroke lawnmower engines; abstract. G. J. Shaw. diags S A E J 72:77 F '64

Superchargers

Developing a high output turbocharger. il diags Engineering 197:694-5 My 22 '64

Three-quarters of a century of scavenging and pressure charging. Engineer 217:606 Ap 3 '64

Turbocharging boat engine raises speed 40 per cent; abstract. S. Sarra. S A E J 72:133 F '64

Testing

Army compatibility tests important in selecting best type of lubricant. il Automotive Ind 130:307-8+ Mr 15 '64

Computing the performance of gasoline engines. G. Walker. bibliog Engineer 217:562-8 Mr 27 '64

INTERNAL combustion engines—Testing—*Continued*

Dynamometers. il diag Product Eng 34:80 N 11 '63

Looking inside reciprocating engines in service F. V. Long. bibliog il diags Gas 40:109-12 Mr '64

Measurement of transient exhaust temperatures in internal combustion engines. R. S. Benson. diag Engineer 217:377-83 F 28 '64

INTERNAL combustion engines, Marine

Car engines ride the waves. H. R. Fortgang. S A E J 72:85 Ag '64

Engines for small craft. il Engineer 217:177 Ja 24 '64

Metamorphosis of a powerplant; from passenger car to pleasure boat. il diags S A E J 72:40-3 Ja '64

Passenger-car engine goes to sea. N. A. Newman. il diags S A E J 72:82-6 My '64

Turbocharging boat engine raises speed 40 per cent; abstract. S. Sarra. S A E J 72:133 F '64

Gearing

Compact hydraulic marine gearbox. il diag Engineering 197:192 Ja 31 '64

INTERNAL friction. See Friction, Internal

INTERNATIONAL association for the exchange of students for technical experience

Wider international student exchange. Engineering 196:812 D 27 '63

INTERNATIONAL association of electrical inspectors

Eastern section annual meeting, 39th, Atlantic City, N.J. Sept. 23-25. Elec Constr & Maint 62:195-6 N '63

Eastern section Empire chapter meeting, Syracuse, N.Y. April 11. Elec Constr & Maint 63:191-2+ My '64

Southern section annual meeting, 35th, Norfolk, Va. Oct. 14-16. Elec Constr & Maint 62:128 D '63

Southwestern section annual meeting, 40th, Tucson, Ariz., Sept. 16-19. Elec Constr & Maint 62:192+ N '63

Western section annual meeting, 59th, Omaha, Neb. Sept. 30-Oct 2. Elec Constr & Maint 62:126+ D '63

INTERNATIONAL association of printing house craftsmen

Annual convention, 45th, Boston, Aug. 9-12. Inland Ptr/Am Lithogr 153:118+ S '64

INTERNATIONAL astronautical congress

Congress, 14th, Paris, Sept. 25-Oct. 1. Astronautics & Aerospace Eng 1:126-30 N '63

Congress, 15th, Warsaw. Machine Design 36:14-15 S 24 '64

INTERNATIONAL chemical workers union

Two chemical unions call off plan to merge. Chem & Eng N 42:24-5 Jl 20 '64

INTERNATIONAL conference on large high tension electric systems

Bi-annual meeting, 20th, Paris, June 1-10; abstracts of papers. Engineer 217:1065-7 Je 19 '64; Engineering 197:798-9; 198:24-5 Je 12, Jl 3 '64

CIGRE meeting, Paris; with abstracts of papers. Elec World 162:62-5 Jl 13 '64

INTERNATIONAL conference on materials

Conference, 2d, Philadelphia, Feb. 3-6. Materials Res & Stand 4:178-80 Ap '64

INTERNATIONAL conference on peaceful uses of atomic energy

Conference, 3d, Geneva, Aug. 31-Sept. 9. Engineering 198:324 S 11 '64

Conference, 3d, Geneva, Aug. 31-Sept. 9; list of papers. Nucleonics 22:94+ Jl '64

Conference, 3d, Geneva, Aug. 31-Sept. 9; with abstracts of papers. Engineer 218:398-401 S 11 '64

UN meeting, 3d, Geneva; nuclear progress reports. Elec World 162:48-9 O 5 '64

INTERNATIONAL congress of refrigeration

Congress, 11th, Munich, Aug. 27-Sept. 4. ASHRAE J 5:50 N '63

Congress, 11th, Munich, Aug. 27-Sept. 4; abstracts of papers. Heating-Piping 35:132-3 N '63

INTERNATIONAL congress on large dams

Congress, 8th, Edinburgh, May 4-8 Engineer 217:supp9-20 Ap 24 '64

Congress, 8th, Edinburgh; with abstracts of papers. Engineer 217:818-19, 860-1, 890-1 My 8-22 '64

INTERNATIONAL congress on occupational health

Congress, 14th, Madrid, Sept. 16-21; texts and abstracts of papers. Ind Med 33:117-50 Mr '64

INTERNATIONAL cooperation

Changing role of scientists in international affairs. B. L. Johnson. Am Scientist 52:sup 138A+ Je '64

International co-operation for scientific research. Chem & Ind p268 F 15 '64

Together to the moon? D. W. Cox. Astronautics & Aeronautics 2:50-3 Mr '64

Toward international cooperation in space. F. Fiorio. il Astronautics & Aeronautics 2:47-9 Mr '64

See also

Food and agriculture organization of the United Nations

Standards, International

INTERNATIONAL council of the aeronautical sciences

Biennial congress, 4th, Paris, August 24-28; with abstracts of papers. Astronautics & Aeronautics 2:50-2 O '64

INTERNATIONAL electrotechnical commission

General meeting, 29th, Aix-les-Bains, France, May 19-30. Mag of Stand 35:227-32 Ag '64

INTERNATIONAL federation of societies of cosmetic chemists

Congress, 3d, New York, June 22-26; abstracts of papers. Drug & Cosmetic Ind 94:596+, 95:166-9+ Ap, Ag '64; Soap & Chem Spec 40:47-50, 95 Jl; 60+ Ag '64

Congress, 3d, New York, June 22-26; with list of committees and registrants, program and abstracts of papers. Am Perfumer 79:55-7 Ap; 35-46 Je '64

History of the Federation. S. J. Strianse. Am Perfumer 79:47-50 Je '64

INTERNATIONAL foundry congress

Congress, 30th, Prague, Sept. 1-6; with abstracts of papers. Foundry 91:147-8+ N; 164+ D '63; 92:168-9+ Ja '64

INTERNATIONAL geophysical year

Something new under the quiet sun. M. A. Pomerantz. bibliog il map Phys Today 17:19-22+ O '64

INTERNATIONAL ice patrol

Computers on ice patrol. il Electronics 37:27 Ap 6 '64

INTERNATIONAL institute of synthetic rubber

Annual meeting, 4th, Tokyo, May 13-14. Rubber World 150:58-60 Jl '64

INTERNATIONAL management congress

Meeting, 13th, New York, Sept. 16-20. Mech Eng 85:81-2 Jl; 96-7 N '63

INTERNATIONAL mineral processing congress

Congress, 7th, and SME fall meeting, New York, Sept. 20-25; program and abstracts of papers. Min Eng 16:64-5 Mr; 81-3 Je; 128-128B Jl; 60-1 Ag '64

Congress, 7th, New York, Sept. 20-24; abstracts of papers. Eng & Min J 165:102-6 O '64

INTERNATIONAL organization for standardization

ISO advises consumer organizations. Mag of Stand 35:269-70 S '64

Technical committee 61(plastics) plenary meeting, 13th, London, Sept. 9-14. Brit Plastics 36:643-4 N '63

INTERNATIONAL relations

See also

Communism and democracy

Disarmament

INTERNATIONAL rubber study group

Meeting, 17th, Tokyo, May 18-22. Rubber World 150:61-2 Jl '64

Meeting, 17th, Tokyo, May 18-22; abstracts of papers. Rubber Age 95:606-9 Jl '64

INTERNATIONAL scientific film association

Annual congress, Athens. Engineer 218:589 O 9 '64

INTERNATIONAL scientific radio union

URSI; International scientific radio union. R. L. Smith-Rose. IEEE Proc 51:1406-7 N '63

INTERNATIONAL standards. See Standards, International

INTERNATIONAL telecommunication union

Plenary assembly of the CCIR, 10th, Geneva, Jan. 16-Feb. 15. Inst E E Proc 110:2132-8 D '63

INTERPLANETARY flight. See Space flight

INTERPOLATION

Aitken-Hermite interpolation. M. Gershinsky and D. A. Levine. bibliog Assn for Computing Mach J 11:352-6 Jl '64

Convergence of multipoint iterative methods. L. Tornheim. bibliog Assn for Computing Mach J 11:210-20 Ap '64

Digital linear interpolation and the binary rate multiplier. W. Arnstein and others. diags Control Eng 11:79-83 Je '64; Discussion. 11:12-13 S '64

Interpolating multipliers and related interpolators. A. Nathan. diags IEEE Proc 51:1549-54 N '63

Multivariable curve interpolation. J. Ferguson. il diags Assn for Computing Mach J 11:221-8 Ap '64

Numerical analysis. S. Kravitz. Product Eng 35:105-7 My 11 '64

Obreschkoff-type integration and interpolation formulas for periodic functions. H. E. Salzer. J Math & Phys 43:241-50 S '64

INTERRUPTERS, Electric. See Electric circuit breakers

INTERSTATE oil compact commission
Compact will complete study next year. Oil & Gas J 61:48-9 D 16 '63
IOCC chairman says states enthusiastic about reviewing controls, and conservation laws; abstract. M. E. Welsh. Oil & Gas J 61:123 N 18 '63
Job for IOCC; reform oil statistics. L. J. O'Connor, jr. Oil & Gas J 61:50 D 16 '63

INTERSTELLAR matter. See Matter, Interstellar

INTESTINES
In vivo intestinal transport of calcium and water from solutions recycled through healed gut loops in dogs. C. F. Cramer. bibliog J Nutrition 84:118-24 O '64
Lactose and calcium transport in gut sacs. Y. O. Chang and D. M. Hegsted. bibliog J Nutrition 82:297-300 Mr '64
Overcoming the inhibition of intestinal proteolytic activity caused by raw soybean in chicks of different ages. Z. Nitsan and E. Alumot. bibliog J Nutrition 84:179-84 O '64

Bacteriology

Effects of coprophagy prevention on intestinal microflora in rats. R. J. Fitzgerald and others. J Nutrition 84:155-60 O '64

INTRAVENOUS injections. See Injections, Intravenous

INTRUSIVE rocks. See Rocks, Igneous

INVAR
How to weld Invar. M. D. Bellware. il diags Welding Eng 49:41-3 N '64

INVENTIONS
François Dallegret inventions. diags Arch Forum 120:109-14 My '64
Invention; vital third dimension of science; editorial. W. J. Sparks. Ind & Eng Chem Product Res & Develop 3:1-2 Mr '64; Chem & Ind p690-2 Ap 25 '64
Inventions profit in byproducts. Product Eng 35:35 Mr 2 '64
Military seeks designs. Product Eng 35:41 Mr 2 '64
NASA designs that merit reward. il Product Eng 35:44-5 Jl 6 '64
Realistic look at invention records. N. L. Wilson. Res/Develop 15:25-6 Jl '64
Role of invention in organized society. E. H. Land. Product Eng 35:60-2 Mr 2 '64
Where are our Edisons (or for that matter, our Marconis and daVincis)? F. V. Long. Gas 40:123+ Mr; 83+ Ap '64
See also
Patents

INVENTIONS, Employees
Equity and employment contracts. A. S. Davis, jr. Chem Eng 71:148+ Je 22 '64

INVENTORIES
Application of the excess distribution to an inventory study. M. A. Geisler. Op Res 12:620-3 Jl '64
Communications cuts inventory levels. il diags Mod Materials Handling 19:77 N '64
Computer controls chemical inventory; Celanese chemical co. il Chem & Eng N 41:37 D 9 '63
Cost savings by better inventory control in wire production. P. W. Sherwood. Wire & Wire Prod 39:738+ My '64
Elements of gage control. E. G. Schilling and J. R. Lampus, jr. bibliog il Ind Quality Control 21:131-6 S '64
Elements of inventory simulation. W. H. Lawson. Automation 11:65-7 Ja '64
Inventory index proposed for testing apparatus. M. D. Morris. Civil Eng 34:52-3 Jl '64
Inventory-production balance. R. F. Ward. Textile Ind 128:125-6+ O '64 (to be cont)
Linear programming approach to the cutting stock problem. P. C. Gilmore and R. E. Gomory. bibliog Op Res 9:849-59; 11:863-88 N '61, N '63
Modern inventory management. N. L. Enrick. Textile World 114:51-5 F; 83-5 Mr; 67-71 Ap; 62-5 Je '64 (reprints $1)
New, the limit technique; it's easy to pick the right lot sizes. J. A. Eaton. il Mod Materials Handling 19:38-43 F '64
Random-sample audit verifies stores. il Elec World 162:109 S 21 '64
Time dependent solutions to the (*s*,S) inventory problem. H. Greenberg. bibliog diag Op Res 12:725-35 S '64
See also
Records
Stores systems

INVENTORS
Inventor's code of conduct. Coal Age 69:122+ F '64

Proper word isn't creativity; it's innovation we want. D. E. Safford. Product Eng 34:112-13 D 9 '63
We have others, so why not a creative specialist? R. Paulson. Product Eng 34:80-1 N 25 '63

INVERT sugar. See Sugar, Invert

INVERTEBRATES, Fossil
Dynamic and kinematic analysis of deformed crinoid stems in a quartz graywacke. H.-U. Nissen. bibliog diags J Geol 72:346-60, pl 1-3 My '64
Paleozoic rocks of Mérida Andes, Venezuela. bibliog maps diag Am Assn Pet Geologists Bul 48:70-84 Ja '64; Discussion. 48:727-9 My '64
Stratigraphic and structural significance of cretaceous fossils from Tiglukpuk formation, northern Alaska. D. L. Jones and A. Grantz. bibliog il maps Am Assn Pet Geologists Bul 48:1462-74 S '64

INVERTERS, Electric. See Electric inverters

INVESTMENT casting. See Lost wax process

INVESTMENT casting institute
Annual meeting, 11th, Chicago, Nov. 7-8. Foundry 92:149+ Ja '64

INVESTMENTS
Financial concepts for economic studies. P. H. Jeynes and C. J. Baldwin. Westinghouse Eng 24:8-14 Ja '64
How a safety program can protect your investment. J. V. Otter. il Roads & Sts 107:90+ Je '64
How process companies evaluate capital investments. W. R. Earley. bibliog Chem Eng 71:111-12+ Mr 30 '64
Incremental return on investment gives economic optimization. A. W. Gessner. Chem Eng 71:150 My 25 '64
Interest on capital invested in construction. J. F. Muir and E. Ruus. Am Soc C E Proc 89 [PO 1 no 3622]:1-8 S '63; Discussion. R. H. Griffin. 90 [PO 2 no 3977]:21-3; Reply. 23-4 Jl '64
Management pitfall; decisions by the rate of return method. M. Klein. Chem Eng Prog 60:64-9 S '64
Methods of economic comparisons. P. H. Jeynes and C. J. Baldwin. flow chart Westinghouse Eng 24:122-8 Jl '64
New tool is shortcut in investment analysis. il Oil & Gas J 62:107 Jl 6 '64
Yardsticks for rate of return; evaluating equipment proposals. K. Dornish, jr. diags Automation 11:71-3 Ag '64

INVESTMENTS, Foreign
Evaluating plant investment strategies. M. T. Tayyabkhan and T. C. Richardson. il map diag Chem Eng Prog 60:58-63 S '64
Investment abroad keeps luring U.S. capital. il Chem Eng 71:90-1 S 14 '64
Investment capital and mineral development. L. C. Raymond. Min Eng 16:39-43 Ag '64

United States

Role of United States capital in Latin America. G. Vollmer. il Min Cong J 50:39-41+ Ja '64

INVESTMENTS, Foreign (in Canada)
Japan, key to British Columbia's mining resurgence. H. Minagawa. il Min Eng 15:58-62 D '63

INVESTMENTS, Foreign (in Latin America)
Latin Americans seek foreign capital. Oil & Gas J 61:56-7 D 9 '63
Role of United States capital in Latin America. G. Vollmer. il Min Cong J 50:39-41+ Ja '64

INVESTMENTS, Foreign (in United States)
U.S. chemical industry alluring target for foreign investment. E. V. Anderson. il Chem & Eng N 42:82-92 F 24 '64 (reprints 75c)

IODIDES
Behavior of the iodide-iodine couple at platinum electrodes. R. A. Osteryoung and F. C. Anson. bibliog Anal Chem 36:975-80 My '64
Effect of metal iodide additives on high-pressure mercury lamps; abstract. D. A. Larson and others. Illum Eng 59:596-7 S '64
Improvement in spectrophotometric determination of palladium with excess iodide. J. J. Morrow and J. J. Markham. Anal Chem 36:1159 My '64
Mechanisms of elimination reactions; sulfur isotope effects in some reactions of *t*-butyldimethylsulfonium iodide. W. H. Saunders, jr. and S. E. Zimmerman. Am Chem Soc J 86:3789-91 S 20 '64
Novel method for preparing organic iodides. G. F. Freeguard and L. H. Long. Chem & Ind p 1582-3 S 12 '64

IODIDES—*Continued*

Nutrition of salmonoid fishes; iodide requirements of chinook salmon. A. N. Woodall and G. LaRoche. bibliog il J Nutrition 82:475-82 Ap '64

Polarography in acetonitrile of titanium tetrachloride and tetraiodide in various supporting electrolytes. I. M. Kolthoff and F. G. Thomas. bibliog Electrochem Soc J 111:1065-74 S '64

Short-pulse techniques; kinetics of the triiodide/iodide reaction on a platinum electrode in neutral solution. S. Schuldiner and C. H. Presbrey, jr. bibliog il diags Electrochem Soc J 111:457-65 Ap '64

Si epitaxial growth by iodide transport between piled-up pellets. R. M. A. Lieth and A. G. M. Eggels. il diags J Ap Phys 35:3015-16 O '64

Structure of vinyl fluoride-trifluoromethyl iodide telomers. T. J. Dougherty. bibliog Am Chem Soc J 86:460-3 F 5 '64

See also

Calcium iodide
Cesium iodide
Lead iodide
Lithium iodide
Silver iodides
Sodium iodide

Analysis

Use of iodine cyanide in the determination of iodide ion. D. G. Herries and F. M. Richards. Anal Chem 36:1155-6 My '64

IODINATION

Direct iodination of the sugar moiety in nucleosides. J. P. H. Verheyden and J. G. Moffatt. bibliog Am Chem Soc J 86:2093-5 My 20 '64

Kinetics and mechanism of iodination of pyrazole; comparative reactivities of pyrazole and imidazole J. D. Vaughan and others. bibliog Am Chem Soc J 86:2857-61 Jl 20 '64

IODINE

Analysis of mixtures of antimony and bismuth tellurides containing selenium and iodine. K. L. Cheng and B. L. Goydish. bibliog Anal Chem 35:1965-7 N '63

Behavior of the iodide-iodine couple at platinum electrodes. R A. Osteryoung and F. C. Anson. bibliog Anal Chem 36:975-80 My '64

Chemical equilibrium in the germanium-iodine and germanium-bromine systems by weight-loss measurements. F. Jona and others. bibliog diag Electrochem Soc J 111:413-17 Ap '64

Convenient method for the removal of iodine from aqueous solutions of hydriodic acid. C. M. Davidson and R. F. Jameson. Chem & Ind p 1686-7 O 19 '63

Determination of organic peroxides by iodine liberation procedures. R. D. Mair and A. J. Graupner. bibliog il diag Anal Chem 36:194-204 Ja '64

Gas phase equilibria in the system GaAs-I_2. D. Richman. bibliog RCA R 24:596-602 D '63

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Lean brines become prime iodine source. il diag Chem Eng 71:98+ Je 8 '64

Mechanism of exchange between iodoacetone and elementary iodine. S. W. Wong and R. M. Noyes. bibliog Am Chem Soc J 86:3787-9 S 20 '64

Molecular addition compounds of amines and iodine; evidence for the existence of a 2:1 triethylamine-iodine complex. C. D. Schmulbach and D. M. Hart. bibliog Am Chem Soc J 86:2347-51 Je 20 '64

Molecular complexes and their spectra; complexes of anthracene and phenanthrene with iodine. J. Peters and W. B. Person. bibliog Am Chem Soc J 86:10-14 Ja 5 '64

Molecular complexes and their spectra; the iodine and the chloranil complexes with thianthrene analogs. A. Kuboyama. bibliog diag Am Chem Soc J 86:164-7 Ja 20 '64

Spectrophotometric study of the system $I_2 + Br^-$. E. Eyal and A. Treinin. bibliog Am Chem Soc J 86:4287-90 O 20 '64

Stereospecific *trans* photoaddition of elementary iodine to aliphatic olefins; bridged iodoalkyl radicals. P. S. Skell and R. R. Pavlis. Am Chem Soc J 86:2956 Jl 20 '64

Thermodynamics of the dehydrogenation of propane by iodine vapor. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2770-3 Jl 20 '64

Tritium-labeled compounds; determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-*l-t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

Analysis

Absolute determination of I^{125} in clinical applications. J. S. Eldridge and P. Crowther. Nucleonics 22:56-9 Je '64

Large volume activation analysis organically bound iodine using isotopic neutron sources. R. Grunewald and others. bibliog diags Anal Chem 36:1138-40 My '64

Thresholds shown by the iodine-starch and iodide-iodate-starch calibration lines. R. E. A. Drey. bibliog Anal Chem 36:2200 O '64

Ultramicrodetermination of iodine by a rapid automatic reaction-rate method. H. V. Malmstadt and T. P. Hadjiioannou. bibliog Anal Chem 35:2157-61 D '63

Isotopes

Absolute determination of I^{125} in clinical applications. J. S. Eldridge and P. Crowther. Nucleonics 22:56-9 Je '64

Determination of long-lived iodine-129 in irradiated graphite fuel systems. G. Buzzelli. Anal Chem 36:1973-5 S '64

Factors affecting Sr-85 and I-131 removal by runoff water. E. R. Graham. Water & Sewage Works 110:407-10 N '63

Iodine-131 in bovine thyroid glands from 1957 through 1961. C. Blincoe and others. bibliog J Agri & Food Chem 12:414-19 S '64

Method for the radioactive labelling of silicone oils with ^{131}I. J. A. Moss. Chem & Ind p 1952-3 D 14 '63

Radioactive fallout. M. Sonenberg. Archives Environmental Health 7:712-14 D '63

Removal of radioactive iodine from hospital sewage; abstract. T. A. Berezina and V. Y. Golikov. Pub Works 94:152-3 N '63

Selectivity effects in recoil labeling of methyl iodide by fission-produced iodine. Y. Paiss and S. Amiel. Am Chem Soc J 86:2332 Je 20 '64

IODINE chloride

Electrophilic attack of iodine monochloride on hexamethyl- and hexaethylbenzene in carbon tetrachloride. L. J. Andrews and R. W. Keefer. Am Chem Soc J 86:4158-61 O 5 '64

IODINE compounds

Acidic solvolytic transformations of an iodinated nucleoside, the antiviral 5-iodo-2′-deoxyuridine. E. R. Garrett and others. bibliog Am Chem Soc J 86:4460-8 O 20 '64

IODINE cyanide

Use of iodine cyanide in the determination of iodide ion. D. G. Herries and F. M. Richards. Anal Chem 36:1155-6 My '64

IODINE in the body

Dietary sources of iodine. R. L. Vought and W. T London. bibliog Am J Clinical Nutrition 14:186-92 Ap '64

Iodine intake and excretion in healthy nonhospitalized subjects. R. L. Vought and others. bibliog Am J Clinical Nutrition 15:124-32 S '64

Nutrition of salmonoid fishes; iodide requirements of chinook salmon. A. N. Woodall and G. LaRoche. bibliog il J Nutrition 82:475-82 Ap '64

Patterns of urinary iodine excretion in goitrous and nongoitrous areas. R. H. Follis, jr. bibliog Am J Clinical Nutrition 14:253-68 My '64

Possible reconciliation of the iodine-lack and infection hypotheses. I. Greenwald. bibliog Am J Clinical Nutrition 13:393-4 D '63

Reproduction and lactation in rats fed excessive iodine. C. B. Ammerman and others. bibliog J Nutrition 84:107-12 O '64

IODINE number

Relation between iodine value and linoleic acid percentage in cottonseed oil. T. Vanden Driessche. Am Oil Chem Soc J 41:248 Mr '64

IODIZED salt. See Salt, Iodized

IODOACETONE

Mechanism of exchange between iodoacetone and elementary iodine. S. W. Wong and R. M. Noyes. bibliog Am Chem Soc J 86:3787-9 S 20 '64

IODOBENZENE

Ester, ether, and carbonyl functions as *ortho* participants in the dissociation of iodobenzene dichloride. L. J. Andrews and others. bibliog Am Chem Soc J 86:687-90 F 20 '64

F^{19} magnetic resonance determination of σ-constants for the $-ICl_2$ functional group. G. E. Maciel. Am Chem Soc J 86:1269-70 Mr 20 '64

IODOETHANE

Spectrophotometric determination of tin(IV) by extraction of stannic iodide into ethyl iodide. A. D. Paul and J. A. Gibson, jr. bibliog Anal Chem 36:2321-4 N '64

IODOMETHANE

Selectivity effects in recoil labeling of methyl iodide by fission-produced iodine. Y. Paiss and S. Amiel. Am Chem Soc J 86:2332 Je 20 '64

IODOMETRY

Iodimetric determination of milligram amounts of rubber hydrocarbon. K. R. Middleton. bibliog Rubber Chem & Tech 37:733-40 Jl '64

Microdetermination of arsenic in organic compounds by iodometry. C. DiPietro and W. A. Sassaman. bibliog Anal Chem 36:2213-14 O '64

Thermometric determination of copper by iodometry. E. J. Billingham, jr. and A. H. Reed. Anal Chem 36:1148-9 My '64

ION exchange

Acid-catalysed hydrogen exchange of pyridine 1-oxides. A. R. Katritzky and others. bibliog Chem & Ind p 1576 S 12 '64

Adsorption of the elements on inorganic ion exchangers from nitrate media. W. J. Maeck and others. Anal Chem 35:2086-90 D '63

Adsorption properties of naturally occurring erionite and its cationic-exchanged forms. P. E. Eberly, jr. bibliog il Am Mineralogist 49:30-40 Ja '64

Anion exchange behavior of alkali and alkaline earth elements in dioxane-mineral acid media. R. R. Ruch and others. bibliog Anal Chem 36:2311-15 N '64

Anion exchange characteristics of elements in nitric acid medium. J. P. Faris and R. F. Buchanan. bibliog Anal Chem 36:1157-8 My '64

Anion exchange separation of calcium and strontium. J. S. Fritz and others. bibliog Anal Chem 36:900-3 Ap '64

Anion exchange separation of gallium, indium, and aluminum. J. Korkisch and I. Hazan. bibliog Anal Chem 36:2308-11 N '64

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Anion exchange study of a number of elements in nitric-hydrofluoric acid mixtures. E. A. Huff. bibliog diags Anal Chem 36:1921-3 S '64

Base-catalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Cation-exchange between molten salts and a special porcelain of high sodium content. R. J. Labrie. bibliog Electrochem Soc J 111:473-6 Ap '64

Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64

Comparison of protein structure in the crystal and in solution using tritium-hydrogen exchange. M. Praissman and J. A. Rupley. bibliog Am Chem Soc J 86:3584-5 S 5 '64

Current trends in condensate treatment. F. N. Kemmer. bibliog il Power 108:76-9 My '64

Determination of serum creatinine by ion exchange chromatography and ultraviolet spectrophotometry. W. S. Adams and others. bibliog diags Anal Chem 36:2209-11 O '64

Efficiency of isotopic substitution by exchange. W. O. George. Chem & Ind p481-2 Mr 21 '64

Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64

Film diffusion-controlled kinetics in binary ion exchange. T. G. Smith and J. S. Dranoff. bibliog diag Ind & Eng Chem Fundamentals 3:195-200 Ag '64

Glauconites; cation exchange capacities and infrared spectra. M. H. Manghnani and J. Hower. bibliog Am Mineralogist 49:586-98 My '64

Hydrogen exchange of azulenes. J. Schulze and F. A. Long. bibliog Am Chem Soc J 86:322-35 F 5 '64

Improved determination of strontium-90 in milk by an ion exchanged method. C. R. Porter and B. Kahn. bibliog Anal Chem 36:676-8 Mr '64

Inorganic ion exchange separation of cesium from Purex-type high-level radioactive wastes. J. L. Nelson and others. bibliog flow sheet Ind & Eng Chem Proc Design 3:143-8 Ap '64

Intramolecular ligand exchange in seven-coordinate structures. E. L. Muetterties and K. J. Packer. bibliog Am Chem Soc J 86:293-4 Ja 20 '64

Ion exchange; annual review. R. Kunin and F. X. McGarvey. bibliog Ind & Eng Chem 56:53-6 O '64

Ion exchange chromatography of amino acids: single column, high resolving, fully automatic procedure. P. B. Hamilton. bibliog diags Anal Chem 35:2055-64 D '63

Ion exchange column for remote operation in a radiochemical separations plant. V. P. Caracciolo. bibliog il diags Ind & Eng Chem Proc Design 3:322-7 O '64

Ion-exchange equilibrium data in the design of a cyclic sea water softening process. G. Klein and others. bibliog Ind & Eng Chem Proc Design 3:280-7 Jl '64

Ion exchange in chemical synthesis. R. Kunin. Ind & Eng Chem 56:35-9 Ja '64

Ion exchange membrane properties; their effect on the development of the dual membrane fuel cells. R. M. Lurie and others. bibliog diags Electrochem Soc J 110:1173-6 D '63

Ion-exchange method for determination of fluoride in potable waters. F. S. Kelso and others. bibliog Anal Chem 36:577-9 Mr '64

Ion exchange on single-crystal silver and zinc. C. V. King and others. bibliog Electrochem Soc J 110:1261-4 D '63

Ion exchange process for the recovery of Pu^{238} from irradiated Np^{237}. G. A. Burney. bibliog Ind & Eng Chem Proc Design 3:328-32 O '64

Ion exchange properties of a crystalline hydrated silica. R. K. Iler. bibliog J Colloid Sci 19:648-57 S '64

Ion exchange resin catalysis of sucrose inversion in fixed beds. E. W. Reed and J. S. Dranoff. bibliog Ind & Eng Chem Fundamentals 3:304-7 N '64

Ion exchange separation and determination of silicon in silver-infiltrated tungsten. C. H. Toy and R. T. Van Santen. bibliog diag Anal Chem 36:151-3 Ja '64

Ion exchange separation of acetamide from ammonium acetate and its determination. P. King and J. R. Simmler. bibliog Anal Chem 36:1837-8 Ag '64

Ion exchange separation of microgram quantities of osmium from large amounts of base metals. J. C. Van Loon and F. E. Beamish. Anal Chem 36:1771-3 Ag '64

Isolation, concentration, separation, and identification of amino acids in potatoes by ion exchange and paper chromatography. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:112-14 Mr '64

Liquid ion-exchange membranes of extreme selectivity and high permeability for anions. K. Sollner and G. M. Shean. bibliog Am Chem Soc J 86:1901-2 My 5 '64

Mass tranfer coefficients across ion-exchange membranes. A. S. Tombalakian and others. bibliog Can J Chem Eng 42:61-4 Ap '64

Np^{237} and Pu^{238} separation at the Savannah River plant. W. L. Poe and others. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:314-22 O '64

New neptunium purification facility at the Hanford Purex plant. J. P. Duckworth and J. R. Lariviere. diags Ind & Eng Chem Proc Design 3:306-8 O '64

Nuclear hydrogen-deuterium exchange in resorcinols and related compounds in weakly alkaline solution. E. S. Hand and R. M. Horowitz. bibliog Am Chem Soc J 86:2084-5 My 20 '64

Peclet numbers and retardation factors for ion exchange columns. I. Hashimoto and others. Ind & Eng Chem Fundamentals 3:213-18 Ag '64

Proton magnetic resonance, anion-exchange, and polarographic studies of the cobalt-glycylglycine-oxygen complex. P. Tang and N. C. Li bibliog Am Chem Soc J 86:1293-6 Ap 5 '64

Purification of hydrobromic and hydriodic acids by ion-exchange. H. Irving and P. D. Wilson. Chem & Ind p653-4 Ap 18 '64

Quantitative chromatographic determination of cysteic acid in amino acid mixtures on ion exchange papers. J. Hartel and A. J. G. Pleumeekers. bibliog il Anal Chem 36:1021-2 My '64

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

ION exchange—*Continued*

Rapid method for the quantitative separation without alteration of ether-soluble acidic and neutral materials. D. F. Zinkel and J W. Rowe. Anal Chem 36:1160-1 My '64

Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64

Rate of acid removal by liquid ion exchangers. J. L. Wert and others. bibliog A I Ch E J 9:857-8+ N '63

Rates of rapid ligand exchange reactions by nuclear magnetic resonance line broadening studies. R. G. Pearson and R. D. Lanier. bibliog Am Chem Soc J 86:765-71 Mr 5 '64

Reciprocating flow fixed bed contactor; development, ion exchange. I. H. Spinner and R. F. Hunter. bibliog diags Can J Chem Eng 42:28-34 F '64

Relation of proton exchange to tautomerism in unsaturated sulfoxides. D. E. O'Connor and C. D. Broaddus. bibliog Am Chem Soc J 86:2267-70 Je 5 '64

Review of fundamental developments in analysis. R. Kunin and F. X. McGarvey. bibliog Anal Chem 36 [no 5]:142R-4R Ap '64

Review of fundamental developments in analysis; ion exchange chromatography. H. F. Walton. Anal Chem 36 [no 5]:51R-5R bibliog(p54R-5R) Ap '64

Science for electroplaters: chromium-ion exchange. L. Serota. diags Metal Finishing 62:72-5 Ap '64

Semiautomatic machine for group separation of radioelements by cation exchange. W. G. Mathers and C. W. K. Hoelke. diags Anal Chem 35:2064-8 D '63

Separation, identification, and spectra of the anionic chromium(III)-thiocyanate complexes. S. Kaufman and L. S. Keyes. Anal Chem 36:1777-8 Ag '64

Separation of calcium and strontium by liquid ion exchange; determination of total radiostrontium in milk. F. E. Butler. bibliog Anal Chem 35:2069-71 D '63

Separation of certain cations from mixtures of various cations on ion-exchange papers; arsenic, barium, cadmium, tin, and zinc. J. Sherma. Anal Chem 36:690-1 Mr '64

Separation of lead by anion exchange. J. Korkisch and F. Feik. Anal Chem 36:1793-6 Ag '64

Separation of rare earths from other metal ions by anion exchange. J. S Fritz and R. G. Greene. Anal Chem 36:1095-7 My '64

Separation of scandium from yttrium, lanthanum, and the rare earths by cation exchange chromatography. F. W. E. Strelow and C. J. C. Bothma. bibliog Anal Chem 36:1217-20 Je '64

Separation of scandium from yttrium, rare earths, thorium, zirconium, uranium, and other elements by anion exchange chromatography in ammonium sulfate media. H. Hamaguchi and others. bibliog Anal Chem 36:2304-6 N '64

Separation of uranium, thorium, and the rare earth elements by anion exchange. J. Korkisch and G. Arrhenius. bibliog Anal Chem 36:850-4 Ap '64

Single-particle studies of ion exchange in packed beds; cupric ion-sodium ion system. M. Gopala Rao and M. M. David. bibliog A I Ch E J 10:213-19 Mr '64

Some zeolite equilibria with alkali metal cations. L. L. Ames, jr. Am Mineralogist 49:127-45 bibliog(p 144-5) Ja '64

Spectrophotometric determination of trace amounts of zirconium, titanium, and molybdenum in tungsten using anion exchange separations. K. F. Sugawara. Anal Chem 36:1373-4 Je '64

Strengthening by ion exchange. M. E. Nordberg and others. bibliog il diag Am Cer Soc J 47:215-19 My '64

Strengthening of glass by ion exchange. O. K. Botvinkin and O. N. Denisenko. Glass Ind 45:483 S '64

Treatment of nickel-chromium effluents. R. W. Crain. il diags Metal Finishing 62:50-3 Ap '64

Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63

Water transport through ion exchange membranes by hydraulic pressure. P. H. Seaman. bibliog diags J Ap Chem 14:229-35 Je '64

Zeolite studies; Na-P zeolites and the ion-exchanged derivatives of tetragonal Na-P. A. M. Taylor and R. Roy. Am Mineralogist 49:656-82 bibliog(p681-2) My '64

See also

Resinous products—Ion exchange

ION microscope

Accurate determination of crystal orientation from field ion micrographs. D. G. Brandon. il diags J Sci Instr 41:373-5 Je '64

Bombardment of tungsten with 20-keV helium atoms in a field ion microscope. M. K. Sinha and E. W. Müller. bibliog il diags J Ap Phys 35:1256-61 Ap '64

Field ion microscopy with an external image intensifier. S. B. McLane and others. bibliog il diags R Sci Instr 35:1297-302 O '64

Metallography at the atomic level. A. H. Cottrell. bibliog il diags Inst Metals J 90:449-56 '61-62; Abstract. Metal Prog 85:170+ F '64

Operation of the field ion microscope with neon. O. Nishikawa and E. W. Müller. bibliog il diags J Ap Phys 35:2806-12 O '64

ION propulsion. See Rocket propulsion

ION pumps. See Vacuum pumps

ION rocket engine. See Rocket engines

IONIUM (thorium-230). See Thorium—Isotopes

IONIZATION, Electrolytic

Ionization and appearance potentials of selected ions from decaborane-16, B_5H_8I and B_5H_8Br. L. H. Hall and others. bibliog Am Chem Soc J 86:3969-73 O 5 '64

Ionization and proton exchange of amines in acetic acid. E. Grunwald and E. Price. bibliog Am Chem Soc J 86:2965-77 Ag 5 '64

Ionization constants of 3,5-dimethyl 4-substituted benzoic acids. J. P. Schaefer and T. J. Miraglia. bibliog Am Chem Soc J 86:64-7 Ja 5 '64

Ionization constants of the six dichloroanilines and the six dichlorophenols in aqueous solution at 25°C. R. A. Robinson. bibliog J Res Nat Bur Stand 68A:159-64 Mr '64

Ionization of monolayers of fatty acids from C_{14} to C_{18}. J. A. Spink. bibliog J Colloid Sci 18:512-25 Ag '63

Ionization of nitroalkanes by substituted pyridines. E. S. Lewis and J. D. Allen. bibliog Am Chem Soc J 86:2022-4 My 20 '64

Ionization of substituted phenols in aqueous solution. H. C. Ko and others. bibliog Am Chem Soc J 86:1003-4 Mr 20 '64

Ionization potentials of substituted benzenes and their charge-transfer spectra with tetracyanoethylene. E. M. Voigt and C. Reid. bibliog diags Am Chem Soc J 86:3930-4 O 5 '64

K_D/K_H for base ionization of mono- and dimethylamine. W. Van der Linde and R. E. Robertson. Am Chem Soc J 86:4505-6 O 20 '64

Large salt effects and mechanism in acetone and ether. S. Winstein and others. Am Chem Soc J 86:305-7 Ja 20 '64

Study of free energy relationships in hindered phenols; linear dependence for solvation effects in ionization. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3397-402 N 5 '63

Synthesis and ionization constants of the six aminobenzo[*c*]phenanthrenes. M. S. Newman and J. Blum. bibliog Am Chem Soc J 86:1835-9 My 5 '64

Synthesis and ionization constants of the six hydroxybenzo[*c*]phenanthrenes. M. S. Newman and J. Blum. bibliog Am Chem Soc J 86:503-7 F 5 '64

See also

Electric conductivity

IONIZATION, Gaseous

Air ionization in the hypersonic laminar wake of sharp cones. F. L. Fernandez and E. S. Levinsky. bibliog AIAA J 2:1829-32 O '64

Analysis of pre-breakdown current pulses in gas discharge gaps. D. T. A. Blair and others. bibliog diags Inst E E Proc 110:2073-81 N '63

Analytical approximations of thermodynamic functions of air. V. V. Mikhailov. bibliog AIAA J 1:2692-6 N '63

Approximate nonequilibrium air ionization in hypersonic flows over sharp cones. E. S. Levinsky and F. L. Fernandez. diags AIAA J 2:565-8 Mr '64

Broadside radar echoes from ionized trails. H. Weil. bibliog AIAA J 2:429-32 Mr '64

Crystal lattice energies and the electrostatic self energies of gaseous ions. R. H. Stokes. bibliog diags Am Chem Soc J 86:982-6 Mr 20 '64

IONIZATION, Gaseous—*Continued*

Dimensions and energies of alkali metal crystals in relation to those of their gaseous ions. R. H. Stokes. bibliog Am Chem Soc J 86:2333-6 Je 20 '64

Effect of microwave radiation on the ionized gas behind a strong normal shock wave. K. T. Yen. bibliog AIAA J 2:71-5 Ja '64

Far-flow approximations for precursor ionization profiles. L. Wetzel. bibliog AIAA J 2:1208-14 Jl '64

First Townsend ionization coefficient measurements in deuterium. G. D. Rork and L. M. Chanin. bibliog J Ap Phys 35:2801-2 O '64

First Townsend ionization coefficients in hydrogen and deuterium. S. F. Barna, jr. and others. bibliog J Ap Phys 35:2781-2 S '64

Focused microwave technique for measurement of the ionization rate and collision frequency. W. Scharfman and T. Morita. bibliog il diag J Ap Phys 35:2016-20 Jl '64

Gases for tracers and ionization control in gas-filled cables. T. A. Balaska and others. bibliog il IEEE Trans Power Apparatus & Systems 83:774-80; Discussion. 780-3 Ag '64

General theory for the flow of weakly ionized gases. S. H. Lam. bibliog diags AIAA J 2:256-62 F '64

Heat transfer from nonequilibrium ionized argon gas. C. Park. bibliog AIAA J 2:169-71 Ja '64

Investigation of the physical properties of gases at high temperatures. K. C. Lapworth. bibliog il diags Roy Aeronautical Soc J 68:189-97 Mr '64

Ionization mechanism and electron temperature in cesium arcs. J. R. Fendley, jr. and K. G. Hernqvist. bibliog IEEE Proc 52:964 Ag '64

Ionization method of measuring contact potential differences. K. W. Bewig. bibliog diags R Sci Instr 35:1160-2 S '64

Large differences in surface ionization efficiencies between K and its halides on the contaminated surface of a Pt alloy (8 per cent W) wire. T. R. Touw and J. W. Trischka. J Ap Phys 34:3635-6 D '63

Magnetoplasmadynamic generator shown by the Nuclear division of Martin co. il Chem & Eng N 42:30+ Ja 6 '64

Mass spectrometric study of photoionization; apparatus and initial observations on acetylene, acetylene-d_2, benzene, and benzene-d_6. V. H. Dibeler and R. M. Reese. bibliog il diag J Res Nat Bur Stand 68A:409-17 Jl '64

Measurements of shock tube ionization phenomena by a new microwave method. R. A. Brandewie and E. M. Williams. bibliog il diags J Ap Phys 35:2299-308 Ag '64

Nonequilibrium, nonsimilar solutions of the laminar boundary-layer equations. A. J. Pallone and others. bibliog AIAA J 2:1706-13 O '64

Nonequilibrium sodium ionization in laminar boundary layers. J. J. Kane. AIAA J 2:1651-3 S '64

Onset of breakdown at voltages below ionization potential in high-pressure thermionic diodes. R. Forman. bibliog diags J Ap Phys 35:261-4 F '64

Oxygen-electron attachment in hypersonic wakes. S. L. Zeiberg. bibliog AIAA J 2:1151-2 Je '64

Particle orbit theory for an ionized gas. P. Mallozzi. diags Am J Phys 32:556-8 Jl '64

Performance of argon detectors in the field-intensified current region. J. Z. Knapp and A. S. Meyer. bibliog diag Anal Chem 36:1430-41 Jl '64

Photoionization as the secondary mechanism in a Towsend breakdown. G. W. Penney and others. IEEE Trans Com & Electronics p203-8 Mr '64

Reactions of gaseous ions. F. H. Field and others. bibliog Am Chem Soc J 85:3575-88 N 20 '63

Simple flame ionization detector cell. L. L. T. Bradley and W. E. Falconer. diag J Sci Instr 40:606 D '63

Solar corpuscular activity and ionization density in the *F*2 layer of the ionosphere. C. Lal. bibliog IEEE Proc 51:1471-4 N '63

Sources of ionisation in high-pressure gases above 2000°K. D. W. George. bibliog il diag Inst E E Proc 111:1619-23 S '64

Stagnation-point heat-transfer measurements in partially ionized air. P. H. Rose and J. O. Stankevics. il AIAA J 1:2752-63 bibliog(p2762-3) D '63

Theory of stagnation-point heat transfer in a partially ionized diatomic gas. J. A. Fay and N. H. Kemp. bibliog AIAA J 1:2741-51 D '63

Thermal choking of partially ionized gases. K. T. Yen. AIAA J 1:2171-2 S '63; Discussion. 2:1866-8 O '64

Thermal ionization behind strong shock waves. R. W. Truitt. AIAA J 1:2175-6 S '63; Discussion. K. N. C. Bray. 2:1161-2; Reply. 1162 Je '64

Time-of-flight mass spectrometer adapted for studying charge transfer, ion dissociation, and photoionization. W. W. Hunt, jr. and others. bibliog diags R Sci Instr 35:88-95 Ja '64

van der Waals radii of gaseous ions of the noble gas structure in relation to hydration energies. R. H. Stokes. bibliog Am Chem Soc J 86:979-82 Mr 20 '64

Ventilatory function after exposure to ionized air. N. Lefcoe. bibliog diags Archives Environmental Health 7:664-7 D '63

Viscosity of partially ionized gaseous cesium. C. A. Robinson and I. R. McNab. bibliog J Ap Phys 35:1742-5 Je '64

See also

Plasma (physics)

IONIZATION chambers

Analysis by ion current. R. A. Morris and others. il diags Instruments & Control Systems 36:108-10 N '63

Application of specific response factors in the gas chromatographic analysis of methyl esters of fatty acids with flame ionization detectors. R. G. Ackman and J. C. Sipos. bibliog Am Oil Chem Soc J 41:377-8 My '64

Determination of atmospheric pollutants in the part-per-billion range by gas chromatography; simple trapping system for use with flame ionization detectors. T. A. Bellar and others. diags Anal Chem 35:1924-7 N '63

Improved gas-tight micro cross-section ionization detector. K. Abel. diags Anal Chem 36:954-5 Ap '64

Improved ionization cross-section detectors. J. E. Lovelock and others. diags Anal Chem 36:1410-15 Jl '64

Ionization chambers for the vacuum ultraviolet. J. H. Carver and P. Mitchell. bibliog diags J Sci Instr 41:555-7 S '64

Nonsaturating ionization chamber for high intensity external proton beam. C. E. Swartz and others. diags R Sci Instr 34:1398-9 D '63

Preliminary study of characteristics of photoionization detector for gas chromatography. J. F. Roesler. bibliog diags Anal Chem 36:1900-3 S '64

Response of parallel-plate ion chambers to radiation pulses. F. M. Livingston. J Ap Phys 35:2341-8 Ag '64

Specific detection of halogens and phosphorus by flame ionization. A. Karmen. bibliog il diags Anal Chem 36:1416-21 Jl '64

IONIZATION gages

Anomalous residual currents in the ultrahigh vacuum use of Bayard-Alpert ionization gauges. T. E. Hartman. bibliog diags R Sci Instr 34:1190-5 N '63

New ionization gauge with crossed electric and magnetic fields. G. Kantorowicz. il diags R Sci Instr 35:126-7 Ja '64

Orbitron ionization gauge. W. G. Mourad and others. diags R Sci Instr 35:661-5 Je '64

Simple comparison method for determining the coefficient of secondary electron emission by positive ions. R. F. Hall and G. F. Weston. bibliog diag J Sci Instr 40:573-5 D '63

See also

Vacuum gages

IONOMERS. See Thermoplastics

IONOSPHERE. See Atmosphere, Upper

IONS

Alkali ion doping of silicon. J. O. McCaldin and A. E. Widmer. bibliog IEEE Proc 52:301-2 Mr '64

Anelastic effects of alkali ions in crystalline quartz. D. B. Fraser. bibliog diag J Ap Phys 35:2913-18 O '64

Assignment of individual ionic contributions to properties of aqueous ions. R. M. Noyes. bibliog Am Chem Soc J 86:971-9 Mr 20 '64

Association constants of methylmercuric and mercuric ions with nucleosides. R. B. Simpson. bibliog Am Chem Soc J 86:2059-65 My 20 '64

Carbonium ions; the direct observation of saturated and unsaturated acyl cations and their equilibria with protonated acids. N. C. Deno and others. bibliog Am Chem Soc J 86:4370-2 O 20 '64

Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63

IONS—*Continued*

Complexions of an assembly of quasi-independent localized systems. D. H. Trevena. Am J Phys 32:790-2 O '64

Consecutive ion-molecule reactions in ethylene. S. Wexler and R. Marshall. bibliog diag Am Chem Soc J 86:781-7 Mr 5 '64

Continuous ion source for a time-of-flight mass spectrometer. M. H. Studier. il diags R Sci Instr 34:1367-70 D '63

Correlation of *I-V* characteristic with noise for ion drifted p-i-n junction particle detectors. L. K. Monteith. bibliog diags R Sci Instr 35:388-92 Mr '64

Differing results obtained in the doping of semiconductors by energetic ions. J. O. McCaldin and A. E. Widmer. bibliog J Ap Phys 35:1985-6 Je '64

Discharge gauge for transient density measurements. M. E. Levy. bibliog diags R Sci Instr 35:1232-3 S '64

Dissociated ions and ion pairs in acetolysis of *threo*-3-anisyl-2-butyl *p*-bromobenzenesulfonate. S. Winstein and others. Am Chem Soc J 86:2072-3 My 20 '64

Dissociation of vibrationally excited H_2+ ions by an electric field. A. W. Ehler. bibliog diags J Ap Phys 35:2858-61 O '64

Effect of extended fringing fields on ion-focusing properties of deflecting magnets. H. A. Enge. bibliog diags R Sci Instr 35:278-87 Mr '64

Effect of ion motion on plasma oscillations. G. F. Freire. IEEE Proc 51:1790-1 D '63

Effect of metal ions on nuclear hyperfine coupling constants in epr spectra. T. Kitagawa and others. Anal Chem 36:925-6 Ap '64

Effects of charged particles on the motion of an earth satellite. C. L. Brundin. bibliog AIAA J 1:2529-38 N '63

Effects of metal ions on proton magnetic resonance spectra and rates of alkaline hydrolysis of some amino acid esters. R. Mathur and N. C. Li. bibliog Am Chem Soc J 86:1289-92 Ap 5 '64

Effects of nonpolar solvents on an ionic reaction; the ionic decomposition of *tert*-butylperoxy formate. R. E. Pincock. bibliog Am Chem Soc J 86:1820-6 My 5 '64

Electrophilic displacement reactions; metal ion catalysis in the protodeboronation of areneboronic acids. H. G. Kuivila and others. bibliog Am Chem Soc J 86:2666-70 Jl 5 '64

Energy distribution of ions formed in the rf spark source. J. R. Woolston and R. E. Honig. bibliog il diags R Sci Instr 35:69-74 Ja '64

Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64

Exchange coupling of neighboring Mn^{++} ions in Mn^{++}:ZnS crystals. W. H. Brumage and others. bibliog J Ap Phys 35:994-5 pt 2 Mr '64

Gas phase reactions between carbon tetrachloride and mass analyzed ions of nitrogen between three and 200 e.v. E. R. Weiner and others. bibliog diags Am Chem Soc J 86:788-93 Mr 5 '64

Group theoretical consideration for the intersection of crystal-ion Zeeman terms. S. A. Marshall and others. bibliog Am J Phys 31:847-53 N '63

High molecular weight boron sulfides; identification, relative intensities, appearance potentials, and origins of the ions. F. T. Greene and P. W. Gilles. bibliog Am Chem Soc J 86:3964-9 O 5 '64

Importance of intrasublattice magnetic interactions and of substitutional ion type in the behavior of substituted yttrium iron garnets. S. Geller and others. diags Bell System Tech J 43:565-623 bibliog(p622-3) Mr '64

Indirect determination of free hydroxide ion in high pressure boiler water. S. Barker. bibliog Chem & Ind p 1617-20 S 19 '64

Influence of ionic strength on polarographic half-wave potentials; aqueous systems involving reversible electrode reactions and amalgamation of the reduced species in uni-univalent inert electrolytes. D. E. Sellers and N. E. Vanderborgh. Am Chem Soc J 86:1934-8 My 20 '64

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

Ion acoustic oscillations in plasma thermionic energy converters. J. S. Chivian. bibliog diags J Ap Phys 35:302-8 F '64

Ion association in polyvalent symmetrical electrolytes; the conductance of manganese(II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64

Ion distributions in a pulsed Townsend discharge. D. Edelson and others. bibliog J Ap Phys 35:1682-90 Je '64

Ion optics of fields with rotational symmetry and circular main orbit. A. J. H. Boerboom. diag J Ap Phys 35:1691-7 Je '64

Ion pairs and dissociated ions from trityl benzoate in moist acetone. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2720-1 Jl 5 '64

Ion wave resonance and plasma instability in a cesium discharge. J. A. Decker, jr. bibliog il diag J Ap Phys 35:497-501 Mr '64

Ionic conductivity in LiF grain boundaries. R. L. Moment and R. B. Gordon. bibliog diag J Ap Phys 35:2489-92 Ag '64

Ionic penetration theory for mass transfer with chemical reaction. P. L. T. Brian and others. bibliog A I Ch E J 10:727-33 S '64

Ionization and appearance potentials of selected ions from decaborane-16, B_5H_8I and B_5H_8Br. L. H. Hall and others. bibliog Am Chem Soc J 86:3969-73 O 5 '64

Isolation and characterization of $B_{20}H_{19}^{-3}$ and $B_{20}H_{18}^{-4}$ ions. M. F. Hawthorne and others. Am Chem Soc J 85:3704-5 N 20 '63

Low-density plasma for molecular ion dissociation. W. L. Stirling and others. bibliog diags J Ap Phys 34:3466-9 D '63

New complexes of guanidinium ion with tetraphosphate ion. J. I. Watters and S. Matsumoto. bibliog Am Chem Soc J 86:3961-4 O 5 '64

Observation and identification of ion dissociation processes occurring in the drift tubes of a time-of-flight mass spectrometer. W. W. Hunt, jr. and others. diags R Sci Instr 35:82-7 Ja '64

Organic ions in the gas phase; cycloheptatriene-7-*d*; decomposition of $C_7H_8^+$ and $C_7H_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63

Organic ions in the gas phase; loss of water from primary alcohols under electron impact. S. Meyerson and L. C. Leitch. bibliog Am Chem Soc J 86:2555-8 Jl 5 '64

Oxygen ion diffusion in single-crystal and polycrystalline yttrium iron garnet. A. E. Paladino and others. bibliog il diag Am Cer Soc J 47:280-2 Je '64

Partial ionic character of diatomic molecules. R. P. Iczkowski. bibliog Am Chem Soc J 86:2329-32 Je 20 '64

Penetration of krypton ions into molybdenum in a glow discharge. C. Y. Bartholomew and A. R. LaPadula. J Ap Phys 35:2570-2 S '64

Phenonium ions as discrete intermediates in certain Wagner-Meerwein rearrangements. D. J. Cram. bibliog Am Chem Soc J 86:3767-72 S 20 '64

Raman spectra of diamines and diammonium ions; effects of ionization on carbon-hydrogen stretching frequencies. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:559-64 F 20 '64

Rare gas ion reactions with ammonia. G. R. Hertel and W. S. Koski. bibliog Am Chem Soc J 86:1683-5 My 5 '64

Reactions of coordinated ligands; metal ion control in the synthesis of chelate compounds containing pentadentate and sexadentate macrocyclic ligands. J. D. Curry and D. H. Busch. bibliog Am Chem Soc J 86:592-4 F 20 '64

Reduction of multiple bonds by low-valent transition metal ions; the homogeneous reduction of acetylenes by chromous sulfate. C. E. Castro and R. D. Stephens. bibliog Am Chem Soc J 86:4358-63 O 20 '64

Reversal of charge of lyophobic colloids by hydrolyzed metal ions; aluminum nitrate. E. Matijević and others. bibliog J Colloid Sci 19:333-46 Ap '64

Scheme for increasing the effectiveness of space-charge neutralization in electron-ion systems. R. P. Wadhwa. diags IEEE Proc 52:728-9 Je '64

Separate determinations of the surface excesses of surface-active ions and of gegenions at the air-solution interface. K. Shinoda and H. Nakayama. bibliog J Colloid Sci 18:705-12 O '63; Discussion. E. H. Lucassen-Reynders. 19:584-5 Ag '64

IONS—*Continued*

Ag ion migration in α quartz. E. L. Milne and P. Gibbs. bibliog J Ap Phys 35:2364-7 Ag '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

Solvation of chromium(III) ion in acidic water-methanol mixed solvents. J. C. Jayne and E. L. King. bibliog Am Chem Soc J 86:3989-94 O 5 '64

Some aspects of the splitting of ionic energy levels in crystals. H. E. Band. bibliog Am J Phys 32:529-42 Jl '64

Sorption of nonionic solutes on ion exchange resins bearing amphiphilic counter ions. H. Small and D. N. Bremer. bibliog diag Ind & Eng Chem Fundamentals 3:361-7 N '64

Space-charge equations with negative ion emission in collisionless diodes. C. H. Skeen. bibliog J Ap Phys 35:2262-3 Jl '64

Specific interactions of optically active ions as studied by conductance. L. J. Parkhurst and R. W. Kunze. Am Chem Soc J 86:300-1 Ja 20 '64

Sputtering ion sources for solids. H. J. Liebl and R. F. K. Herzog. bibliog diag J Ap Phys 34:2893-6 S '63; Discussion. H. P. Smith, jr. 35:3067 O '64

Sputtering yields of single crystals bombarded by one- to ten-kev Ar^+ ions. G. D. Magnuson and C. E. Carlston. bibliog diags J Ap Phys 34:3267-7? N '63

Structure of the decavanadate ion. H. T. Evans, jr. and others. il Am Chem Soc J 86:4209-10 O 5 '64

Syngenesis of sulfide ores: desorption of adsorbed metal ions and their precipitation as sulfides. K. L. Temple and N. W. Le Roux. bibliog il diags Econ Geol 59:647-55 Je '64

Triphenyl (bipyridyl) siliconium ion. J. Y. Corey and R. West. bibliog Am Chem Soc J 85:4034-5 D 20 '63

See also

Anions
Cations
Counters (electrons, ions, etc.)
Dissociation
Electrons
Hydrogen ion concentration
Ionization, Electrolytic
Ionization, Gaseous
Micelles
Solution (chemistry)

Beams

Computer experiments on ion-beam neutralization with initially cold electrons. D. A. Dunn and I. T. Ho. bibliog diags AIAA J 1:2770-7 D '63

Description of a device used to measure ion beam emittance. P. H. Rose and others. diags R Sci Instr 35:1283-5 O '64

Electrochemical and ion bombardment etching of pyrolytic graphite. A. Tarpinian. bibliog il Am Cer Soc J 47:532-3 O '64

Fields excited by periodic beam currents in a cavity-loaded tube. F. J. Kriegler and others. diag J Ap Phys 35:1721-6 Je '64

Formation of ion beams from plasma sources. J. Hyman, jr. and others. bibliog il diags AIAA J 2:1739-48 O '64 (to be cont)

International conference on electron and ion beam science ad technoloy, Toronto, May 4-7; program and abstracts of papers. J Metals 16:329-35, 659-61 Ap, Ag '64

Method of imaging cesium ion beams. T. C. Sanders. il R Sci Instr 35:1082-3 Ag '64

Nanosecond pulsing for Van de Graaff accelerators. C. D. Moak and others. bibliog il diags R Sci Instr 35:672-9 Je '64

Nitriding, sintering and brazing by glow discharge. C. K. Jones and S. W. Martin. il diag Metal Prog 85:94-8 F '64

Orientation determinations of crystals using ejection patterns resulting from ion bombardment. R. L. Cunningham and J. Ng-Yelim. bibliog il diags J Ap Phys 35:2185-8 Jl '64

Production of low divergence positive ion beams of high intensity. N. B. Brooks and others. bibliog diags R Sci Instr 35:894-901 Jl '64

Production of particulate beams. W. K. Murphy and G. W. Sears. il diag J Ap Phys 35:1986-7 Je '64

Relativistic equations and tables for ion energy determination by the crossover technique. R. Smythe. diag R Sci Instr 35:1197-200 S '64

Synthesis method of electrostatic gun design. D. S. Colburn and others. diags AIAA J 2:322-7 F '64

Emission from metals

Secondary positive ion emission from a tantalum surface. J. A. McHugh and J. C. Sheffield. bibliog diag J Ap Phys 35:512-15 Mr '64

Pairs

Determination of dissociation constants of ion pairs from kinetic data of biomolecular nucleophilic substitutions; the importance of solvation and ion pairing on the nucleophilic reactivity of the halide anions. W. M. Weaver and J. D. Hutchison. biblog Am Chem Soc J 86:261-5 Ja 20 '64

Distribution of ion pairs between immiscible nonaqueous solvents. G. W. Latimer, jr. Anal Chem 35:1983 N '63

Effect of solvent cage around cations on their mobilities depends on anion size. D. F. Evans and others. il Chem & Eng N 42:50-1 S 7 '64

Ion pairs and dissociated ions from trityl benzoate in moist acetone. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2720-1 Jl 5 '64

Ion pairs in acetolysis of *p*-chlorobenzhydryl acetate. A. F. Diaz and S. Winstein. Am Chem Soc J 86:4484-5 O 20 '64

Ion pairs in reactions of trityl benzoate. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2718-20 Jl 5 '64

Isoracemization of trialkylammonium carbanide ion pairs. D. J. Cram and L. Gosser. Am Chem Soc J 86:2950-2 Jl 20 '64

Nature of on-pair intermediates involved in the solvolysis of *p*-chlorobenzhydryl *p*-nitrobenzoate. H. L. Goering and J. F. Levy. Am Chem Soc J 86:120-1 Ja 5 '64

Separation of some pairs of inorganic ions by column electrophoresis. T. B. Pierce and P. F. Peck. diag Chem & Ind p 1202-3 Jl 20 '63; Discussion. p 1724 O 26 '63

Solvent effect on the electronic spectra of ion pairs; ketyls in ethers. J. F. Garst and others. bibliog diag Am Chem Soc J 86:412-18 F 5 '64

Specifically solvated ion-pair intermediates in nitrous acid deamination of an axial amine. T. Cohen and E. Jankowski. bibliog Am Chem Soc J 86:4217-18 O 5 '64

Stereochemical consequences of ion-pair formation involving carbanions. D. J. Cram and L. Gosser. Am Chem Soc J 85:3890-1 D 5 '63

Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64

Recombination

Kinetics of recombination of Frenkel defects in anodic oxide films on tantalum. L. Young. bibliog Electrochem Soc J 111:1289-92 N '64

Use of Langmuir probes to study ion- electron recombination. C. B. Kretschmer and H. L. Petersen. bibliog diag J Ap Phys 34:3209-17 N '63

Scattering

Relativistic equations and tables for ion energy determination by the crossover technique. R. Smythe. diag R Sci Instr 35:1197-200 S '64

IOWA

See also

Architecture, Domestic—Iowa
Electric utilities—Iowa
Petroleum—Iowa
Petroleum industry and trade—Iowa

IRAN

See also

Petroleum—Iran
Petroleum industry and trade—Iran
Petroleum pipe lines—Iran

IRELAND

See also

Electric plants (central stations)—Ireland

Industries and resources

Irish go in for industrial planning. il Engineering 197:841 Je 19 '64

IRIDIUM

Mixed potentials observed in the iridium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:988-92 Ag '64

Reference tables for thermocouples of iridium-rhodium alloys versus iridium. G. F. Blackburn and F. R. Caldwell. bibliog J Res Nat Bur Stand 68C:41-59 Ja '64

IRIDIUM—*Continued*

Study of kinetics of iridium(III)-chlorate reaction by steady-state controlled-potential coulometry. G. A. Rechnitz and J. E. McClure. bibliog Anal Chem 36:2265-70 N '64

Analysis

New fire assay method for iridium. G. H. Faye and others. bibliog Anal Chem 36: 366-8 F '64

IRIDIUM alloys

Reference tables for thermocouples of iridium-rhodium alloys versus iridium. G. F. Blackburn and F. R. Caldwell. bibliog J Res Nat Bur Stand 68C:41-59 Ja '64

IRIDIUM compounds

New synthesis of metal, metal bonds. R. S. Nyholm and K. Vrieze. Chem & Ind p318-19 F 22 '64

IRIGINITE

Iriginite from South Dakota. D. A. Stephenson. bibliog Am Mineralogist 49:408-14 Mr '64

IRON

Adsorption of inhibitive anions on iron surfaces: abstract and discussion. J. G. N. Thomas. Chem & Ind p332 F 22 '64

Anodic potentiostatic polarization of iron in sulfuric acid; effect of chloride ions. K. Nobe and R. F. Tobias. bibliog diag Corrosion 20:263-6 Ag '64

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II)-hydrogen peroxide reaction. R. Woods and others. bibliog Am Chem Soc J 86:1698-700 My 5 '64

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II) persulfate reaction and the photoreduction of iron(III); presence of oxygen. R. Woods and others. bibliog Am Chem Soc J 85:3334-7 N 5 '63

Critical magnetic scattering of neutrons in iron. L. Passell and others. bibliog J Ap Phys 35:933-4 pt 2 Mr '64

Crystallinity and the solubility of cellulose in iron-sodium tartrate solution. R. E. Glegg and others. Tappi 47:574-9 S '64

Disintegration of iron and steel while dissolving in acids. M. E. Straumanis and others. bibliog il Electrochem Soc J 111: 1292-3 N '64

Distribution of magnesium and iron between orthopyroxene and calcic pyroxene in natural mineral assemblages. R. Kretz. bibliog J Geol 71:773-85 N '63

Eddy-current losses in finite sections of solid iron under saturation. V. Subba Rao. bibliog diags Inst E E Proc 111:343-8 F '64

Effect of chloride ions on the kinetics of the oxidation of chromium(II) by iron(III). G. Dulz and N. Sutin. bibliog Am Chem Soc J 86:829-32 Mr 5 '64

Electrochemical behavior and corrosion of iron crystals in ammonium nitrate solutions. J. Flis and others. bibliog il diags Corrosion 20:184-8 Je '64

Electrodeposition of iron from aqueous solutions onto an aluminum alloy. E. H. Cook and F. L. McGeary. il Corrosion 20:111-14 Ap '64

Electron diffraction study of thin oxide films on iron single crystals. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:508-12 My '64

Extraction of iron(III) from concentrated phosphoric acid. N. Haberman. Anal Chem 36:1876-7 Ag '64

Ferromagnetic-paramagnetic transition in iron. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:2424-6 Ag '64

Geochemistry of iron-rich ground water of southern Maryland. I. Barnes and W. Back. bibliog map diag J Geol 72:435-47 Jl '64

Hydrogen sulfide poisoning of nitrided and carbided iron catalysts in the Fischer-Tropsch synthesis. F. S. Karn and others. bibliog Ind & Eng Chem Product Res & Develop 3:33-8 Mr '64

Hypothesis for the change in potential of iron on uncoupling from tin in citric acid solution. W. R. Buck. 3d and others. il Electrochem Soc J 111:386-92 Ap '64

Improvement of iron bleaching in clays through potentiometric control of sodium dithionite addition. R. F. Conley and others. bibliog Ind & Eng Chem Proc Design 3:183-8 Ap '64

Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49: 353-8 Je '62, N '63

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

Internal fields at iron in FePd alloys. G. Bemski and X. A. da Silva. bibliog J Ap Phys 35:1081-2 pt 2 Mr '64

Iron activated ZnS phosphors. P. M. Jaffe and E. Banks. bibliog il diags Electrochem Soc J 111:52-61 Ja '64

Iron and its dilute solid solutions. C. W. Spencer and F. E. Werner, eds. Review, by W. E. Duckworth. Chem & Ind p 146-8 Ja 25 '64

Iron-rich hard spots formed by silicon and boron in brasses. D. A. Hudson. bibliog il diag Inst Metals J 92:280-8 '63-64

Iron-rich serpentine and chamosite from Ely, Minn. A. P. Ruotsala and others. bibliog il map diag Am Mineralogist 49:993-1001 Jl '64

Irradiation of iron and 5-79 Mo permalloy with 2-mev electrons. D. I. Gordon and R. S. Sery. bibliog J Ap Phys 35:879-80 pt 2 Mr '64

Kinetics and mechanisms of reactions of chromium(VI) and iron(II) species in acidic solution. J. H. Espenson and E. L. King. bibliog Am Chem Soc J 85:3328-33 N 5 '63

Kinetics of anodic oxidation of iron in neutral solution. N. Sato and M. Cohen. bibliog Electrochem Soc J 111:512-22 My '64

Kinetics of the aging of anodic oxide films on iron. N. Sato and M. Cohen. Electrochem Soc J 111:624-5 My '64

Lorentz microscopy of magnetic domains of single-crystal films. H. Sato and others. bibliog il J Ap Phys 35:822-3 pt 2 Mr '64

Magnetic and structural properties of metastable Fe-Cu solid solutions. E. F. Kneller. J Ap Phys 35:2210-11 Jl '64

Magnetoelastic damping in zone-melted iron. R. E. Maringer. diag J Ap Phys 35:2375-81 Ag '64

Mechanism of hydrogen evolution on iron in acid solutions by determination of permeation rates. M. A. V. Devanathan and Z. Stachurski. bibliog diags Electrochem Soc J 111:619-23 My '64

Ordering of Fe and Cr in chrysoberyl. R. Newnham and others. bibliog Am Mineralogist 49:427-30 Mr '64

Oxidation of iron(II) by cobalt(III) in the presence of chloride ions. T. J. Conocchioli and others. Am Chem Soc J 86:1453-4 Ap 5 '64

Oxidation of iron single crystals around 200°C. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:501-8 My '64

Oxidation-reduction equilibria in iron-containing glass. W. D. Johnston. bibliog Am Cer Soc J 47:198-201 Ap '64

Polarographic determination of lead in aluminium alloys containing molybdenum or up to 5 per cent of iron (iron hardeners). W. Stross and J. Clark. Metallurgia 68:191-2 O '63

Precipitation of copper on iron. F. M. Monninger. il Min Cong J 49:48-51 O '63

Primary damage state in neutron-irradiated iron. J. R. Beeler, jr. bibliog J Ap Phys 35:2226-36 Jl '64

Reaction at the iron alkaline electrode. A. J. Salkind and others. bibliog Electrochem Soc J 11:493-5 My '64

Reduction of iron(II), equilibrium, and rate of isomerization in the *cis-trans*-$Co(NH_3)_4(OH_2)N_3^{+2}$ system. A. Haim. bibliog Am Chem Soc J 86:2352-6 Je 20 '64

Room-temperature resistivity of Mo-Nb and Mo-Re alloys containing one percent iron. M. P. Sarachik. J Ap Phys 35:1094-5 pt 2 Mr '64

Sulfates in the passive iron layer. O. L. Riggs, jr. bibliog il diags Corrosion 20:275-81 S '64

See also

Cast iron
Water purification—Iron removal
Wrought iron

Analysis

Anion exchange separations of iron(II) and iron(III) in tartrate medium. G. P. Morie and T. R. Sweet. bibliog Anal Chem 36: 140-2 Ja '64

Carbon determination in ferrous metals by gas chromatography. J. M. Walker and C. W. Kuo. bibliog diag Anal Chem 35:2017-19 D '63

Colorimetric determination of large amounts of iron. H. L. Watts. Anal Chem 36:364-6 F '64

IRON—Analysis—*Continued*

Column extraction-spectrophotometric determination of iron. M. A. Wade and S. S. Yamamura. Anal Chem 36:1861-2 Ag '64
Combustion-gas chromatographic method for the simultaneous determination of carbon and sulfur in ferrous metals. W. K. Stuckey and J. M. Walker. diag Anal Chem 35:2015-17 D '63
Determination of iron(III) by (ethylenedinitrilo)tetraacetic acid replacement titrimetry following selective separation by column extraction. S. S. Yamamura. Anal Chem 36:1858-61 Ag '64
Determination of iron with diethylacetic acid by isotope dilution analysis. I. Mencis and T. R. Sweet. Anal Chem 35:1904-7 N '63
Determination of some heavy metal ions by complexometric titration with sodium azide indicator. F. G. Sherif and B. I. Raafat. bibliog Anal Chem 35:2116-17 D '63
Modified isotope dilution technique for the determination of oxygen in iron and steel. J. P. Burden and C. R. Masson. bibliog diag Iron & Steel Inst J 202:28-31 Ja '64
Separation and determination of iron(II) and iron(III) with anthranilic acid using solvent extraction and spectrophotometry. D. L. Dinsel and T. R. Sweet. bibliog Anal Chem 35:2077-81 D '63
Spectrophotometric determination of copper and iron in red phosphorus. G. Norwitz and others. Anal Chem 36:142-4 Ja '64
Spectrophotometric determination of iron and aluminum in silicone polymers. S. Fujiwara and H. Narasaki. bibliog Anal Chem 36:206-7 Ja '64
Spectrophotometric determination of iron in ethylene amines with phenyl-2-pyridyl ketoxime. R. Chernin and E. R. Simonsen. Anal Chem 36:1093-5 My '64
Spectrophotometric determination of tungsten in iron and steel. C. L. Luke. Anal Chem 36:1327-9 Je '64
Volumetric determination of titanium and iron in titaniferrous material. J. P. R. Fonseka and N. R. de Silva. bibliog Anal Chem 36:437-8 F '64
X-ray fluorescence determination of cobalt, zinc, and iron in organic matrices. S. A. Bartkiewicz and E. A. Hammatt. bibliog Anal Chem 36:833-6 Ap '64

Bibliography

Abstracts of current literature and book notices. Published in monthly numbers of the Journal of the Iron and steel institute

Desulfurization

See Iron—Sulfur content

Graphitization

See Iron—Metallography

Isotopes

Determination of iron with diethylacetic acid by isotope dilution analysis. I. Mencis and T. R. Sweet. Anal Chem 35:1904-7 N '63
Half-lives of tin-119, iron-57 prolonged; Westinghouse scientists use physical means to imprison radiation. diag Chem & Eng N 42:43-4 Je 22 '64
Measuring filter-paper performance faster with a radioiron technique. I. J. Gruverman. diags Nucleonics 21:70+ D '63

Metallography

Cause of exaggerated grain growth in extra-low carbon enameling iron; abstract. J. L. Walter. Metal Prog 85:158+ Je '64
Changes in morphology of graphite in bismuth-treated cast irons. J. Pelleg. bibliog il Iron & Steel Inst J 202:739-45 S '64
Dissolution of iron whiskers. R. M. Shemenski and others. bibliog Corrosion 20:203-4 Je '64
Effect of low-temperature precompression on the ductility of iron. A. W. Sleeswyk and others. bibliog il Iron & Steel Inst J 202:330-4 Ap '64
Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450°C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64
Effects of test bar diameter on the kinetics of first-stage graphitization of white cast iron. J. Piaskowski. bibliog il Iron & Steel Inst J 202:22-7 Ja '64
Formation of sulphides at grain boundaries in some pure iron alloys. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 202:335-42 Ap '64
Fracture of cold-worked iron. N. P. Allen and others. bibliog il diag Iron & Steel Inst J 202:808-17 O '64
Graphitizing effect of titanium. A. De Sy. il diag Foundry 92:43-7 F '64
Guidelines for ductile iron stress structure control. il Iron Age 193:96-8 My 14 '64
Influence of ageing processes on the fatigue limit of a body-centred-cubic iron. P. O. Kettunen. bibliog il diags Iron & Steel Inst J 202:209-15 Mr '64
Manufacture of mediaeval damascened knives. J. Piaskowski. bibliog il diags Iron & Steel Inst J 202:561-8 Jl '64
Martensitic transformation in pure iron. M. J. Bibby and J. G. Parr. bibliog il diag Iron & Steel Inst J 202:100-4 F '64
Metallography of an iron-21 per cent chromium alloy subjected to 475° C embrittlement. M. J. Blackburn and J. Nutting. bibliog il Iron & Steel Inst J 202:610-13 Jl '64
Nodular iron microstructures in constructional castings. J. G. Frantzreb and others. il Foundry 92:54-7 F '64
Oxide structures produced on iron-chromium alloys by a dissociative mechanism. C. T. Fujii and R. A. Meussner. bibliog il Electrochem Soc J 110:1195-204 D '63
Processing is key to ductile iron quality. C. R. Loper, jr. and others. il Foundry 92:65-9 O '64
Roman bloom from Cranbrook, Kent. G. T. Brown. bibliog il Iron & Steel Inst J 202:502-4 Je '64
Solidification of iron-carbon alloys of nearly eutectic composition. G. Koves and L. F. Mondolfo. il Iron & Steel Inst J 202:424-6 My '64
Some observations on explosive metallurgy. H. P. Tardif. bibliog il diags Can Min & Met Bul 57:253-62 Mr '64
Sounding out cast structures. il Iron Age 193:146 My 21 '64
Tin additions improve cast iron. J. B. Long. bibliog il Foundry 92:42-5 Ag '64

Nitrogen content

Injected bubbles lighten ironmaking. diags Iron Age 194:81 N 5 '64

Oxygen content

Modified isotope dilution technique for the determination of oxygen in iron and steel. J. P. Burden and C. R. Masson. bibliog diag Iron & Steel Inst J 202:28-31 Ja '64

Phosphorus content

Process makes low-phosphorus iron directly from ore. Chem & Eng N 41:47 N 11 '63

Protection

Aluminum hot dip coating protects ferrous parts. il Steel 155:103-4 Ag 10 '64

Spectra

Study of the gas-stabilized arc as an emission source for the measurement of oscillator strengths; determination of some relative *gf*-values for Fe I. M. Margoshes and B. F. Scribner. bibliog diag J Res Nat Bur Stand 67A:561-8 N '63

Sulfur content

Controlling the sulphur content of iron. V. Giedroyc and others. bibliog Iron & Steel Inst J 202:11-21 Ja '64
Sulfur content in iron is halved in minutes. il Steel 154:110 Mr 16 '64

IRON, Molten

Activity of silicon in liquid iron solutions. G. Smith and J. Taylor. bibliog Iron & Steel Inst J 202:577-80 Jl '64
Equilibrium between FeO-MnO-MgO-SiO_2 slags and molten iron at 1550°C. H. B. Bell. bibliog Iron & Steel Inst J 201:116-21 F '63; Discussion. 202:221-4 Mr '64
Pyrometer reads molten iron temperatures continuously. diags Foundry 91:86 N '63

IRON, Powdered

High velocity compaction of iron powder. E. M. Stein and others. il Metal Prog 85:83-7 Ap '64
Hints on heat treating parts of powdered iron. V. Pryer. il Metal Prog 85:91-3 Ap '64
Iron powder parts, their processing and evaluation. C. R. Weymueller. il Metal Prog 85:156+ F '64

IRON alloys

Abrasion-resistant alloys. W. W. Fraser. il Can Min & Met Bul 57:867-9 Ag '64
Compositional and thickness dependence of the ferromagnetic anisotropy in resistance of iron-nickel films. E. N. Mitchell and others. bibliog J Ap Phys 35:2604-8 S '64
Corrosion resistance of iron-zinc coated steel. Engineering 197:280 F 21 '64

IRON alloys—*Continued*

Deposition temperature and compositional dependence of negative anistropy in nickel-iron films. G. P. Weiss and D. O. Smith. bibliog J Ap Phys 35:818-20 pt 2 Mr '64

Domain structure of narrow thin films of Ni-Fe. K. Kuwahara and others. J Ap Phys 35:820-1 pt 2 Mr '64

Ductile irons and alloy irons. W. E. Gheen. il Iron & Steel Eng 41:110-14 F '64

Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450°C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64

Elastic constants of a (73.8 per cent Ni-26.2 per cent Fe) ferromagnetic alloy. N. G. Einspruch and L. T. Claiborne. bibliog J Ap Phys 35:175 Ja '64

Electron-bombardment evaporation source for nickel-iron alloys. J. C. Brice and U. Pick. bibliog diag J Sci Instr 41:633-5 O '64

Exchange inversion in ternary modifications of iron rhodium. P. H. L. Walter. bibliog J Ap Phys 35:938-9 pt 2 Mr '64

Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H. Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64

Formation of sulphides at grain boundaries in some pure iron alloys. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 202:335-42 Ap '64

Hardenability of alloy cast irons containing copper. T. R. Baruch and I. B. Elman. Foundry 91:106-8 D '63

Induced magnetic anisotropy and ordering in Ni-Fe single crystals. M. Takahashi and others. bibliog J Ap Phys 35:869-70 pt 2 Mr '64

Inhomogeneity in the magnitude of the anisotropy field in thin nickel-iron films. H. N. Oredson and E. J. Torok. J Ap Phys 35: 810-11 pt 2 Mr '64

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

Internal fields at iron in FePd alloys. G. Bemski and X. A. da Silva. bibliog J Ap Phys 35:1081-2 pt 2 Mr '64

Iron-base resistance materials have higher operating temperatures. P. O. Johannsson. Electro-Tech 73:122+ Je '64

Liquidus⇌solidus relations in iron alloys; ideal solutions. W. Hume-Rothery and R. A. Buckley. Iron & Steel Inst J 202:531-3 Je '64

Magnetic properties of an iron-nickel single crystal ordered by neutron bombardment. L. Néel and others. J Ap Phys 35:873-6 pt 2 Mr '64

Magnetic properties of Ni-Fe-Cr films. M. S. Cohen. J Ap Phys 35:834-5 pt 2 Mr '64

Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64

New ductile magnetic alloy has highest known remanence; Remendur. Bell Lab Rec 42:102 Mr '64

Nickel-cobalt-iron ternary alloy deposition from the pyrophosphate bath. D. V. Subrahmanyam and T. L. Rama Char. Chem & Ind p2010-11 D 28 '63

Order-disorder change in Fe—Ga alloys. C. Dasarathy. Iron & Steel Inst J 202:51 Ja '64

Role of alloys in engineering gray iron castings. F. G. Sefing. bibliog Foundry 92:84-8 S '64

Stainless steel and other ferrous alloys; annual review. W. A. Luce and J. H. Peacock. bibliog Ind & Eng Chem 56:51-4 Ag '64

Structural and magnetic properties of sputtered NiFe films grown in a dc discharge environment. E. Kay. bibliog il J Ap Phys 35:2936-42 O '64

Temperature dependence of domain wall creep in thin Ni-Fe magnetic film. M. E. Sweet. J Ap Phys 35:814-15 pt 2 Mr '64

Variation of the internal fields and isomer shifts at the Fe sites in the FeAl series. M. B. Stearns. J Ap Phys 35:1095-6 pt 2 Mr '64

Welding nickel-iron alloys of the Invar type. C. E. Witherell. bibliog il Welding J 43: sup 161-9 Ap '64

See also
Steel alloys

Aluminum alloys

Iron-aluminum alloys; a new group appears. J. J. Mueller. il Metal Prog 86:158+ S '64

Sendust sheet-processing techniques and magnetic properties. H. H. Helms, jr. and E. Adams. J Ap Phys 35:871-2 pt 2 Mr '64

Carbon alloys

Determining carbon equivalence of ductile cast iron. J. Pelleg. Foundry 92:60-2 Mr '64

Effect of carbon equivalence and section size on tensile strengths of gray irons. J. F. Wallace. bibliog il diags Foundry 91: 40-4 D '63

Solidification of iron-carbon alloys of nearly eutectic composition. G. Koves and L. F. Mondolfo. il Iron & Steel Inst J 202:424-6 My '64

Chromium alloys

Kinetics of the Fe^{+++}/Fe^{++} reaction on Fe-Cr alloys. A. C. Makrides. bibliog Electrochem Soc J 111:400-7 Ap '64

Mechanism of the high-temperature oxidation of iron-chromium alloys in water vapor. C. T. Fujii and R. A. Meussner. bibliog il diag Electrochem Soc J 111:1215-21 N '64

Metallography of an iron-21 per cent chromium alloy subjected to 475° C embrittlement. M. J. Blackburn and J. Nutting. bibliog il Iron & Steel Inst J 202:610-13 Jl '64

Oxide structures produced on iron-chromium alloys by a dissociative mechanism. C. T. Fujii and R. A. Meussner. bibliog il Electrochem Soc J 110:1195-204 D '63

Chromium nickel alloys

Iron-nickel chromium baths: deposition of stainless steel. L. Domnikov. bibliog Metal Finishing 62:61-5 Mr '64

Properties of materials; iron-base superalloys (Cr-Ni); wrought; tables. Materials in Design Eng 60:89-91 Mid-O '64

Cobalt alloys

Electrodeposition of iron-cobalt alloys from the sulfamate bath. S. S. Misra and T. L. Rama Char. bibliog il Plating 51:423-8 My '64

Manganese alloys

Liquidus⇌solidus relations in the system iron-manganese. W. Hume-Rothery and R. A. Buckley. Iron & Steel Inst J 202:534 Je '64

Molybdenum alloys

Molybdenum-bearing nodular irons. J. W. Goth. il Foundry 92:66-71 My '64

Nickel alloys

Effect of irradiation on magnetic properties of Fe-Ni alloys. A. I. Schindler and others. bibliog J Ap Phys 35:2640-6 S '64

Native nickel-iron alloy, its mode of occurrence, distribution and origin. J. S. R. Krishnarao. bibliog il Econ Geol 59:443-8 My '64

Transformations in iron-nickel alloys. W. D. Swanson and J. G. Parr. bibliog il Iron & Steel Inst J 202:104-6 F '64

Welding 3½ and 9 per cent nickel steels and 36 per cent nickel-iron alloy for cryogenic service. J. W. Flannery and C. E. Witherell. bibliog diags Materials Res & Stand 4:533-9 O '64

See also
Invar

Silicon alloys

Double-oriented silicon iron makes better cores. N. Pavlik. Materials in Design Eng 58:151-2 N '63

Recent developments in silicon-iron. Engineer 217:760 Ap 24 '64

Requirements for developing cube-on-edge texture in 4-mil-thick silicon-iron; abstract. H. C. Fiedler. J Ap Phys 35:881 pt 2 Mr '64

Rotational hysteresis loss in single-crystal silicon-iron. C. R. Boon and J. E. Thompson. bibliog il diags Inst E E Proc 111:605-9 Mr '64

Sendust sheet-processing techniques and magnetic properties. H. H. Helms, jr. and E. Adams. J Ap Phys 35:871-2 pt 2 Mr '64

Silicon-iron and transformer noise. Engineering 197:601 My 1 '64

Thin tapes of high-purity silicon-iron for magnetic amplifiers. J. L. Walter. bibliog diag IEEE Trans Com & Electronics 83: 274-81 My '64

See also
Silicon steel

Tin alloys

Factors affecting the morphology and growth of $FeSn_2$. C. Luner and M. V. Murray. bibliog il diag Electrochem Soc J 111:407-10 Ap '64

IRON alloys—*Continued*

Titanium alloys

Graphitizing effect of titanium. A. De Sy. il diag Foundry 92:43-7 F '64

Zinc alloys

Iron-zinc alloy offers good surface protection. Steel 154:58+ F 24 '64

IRON and steel institute

Annual general meeting, 95th, London, May 6. Iron & Steel Inst J 202:641-6 Ag '64

Annual meeting, Sheffield, July 6-10. Engineer 218:130-1 Jl 24 '64

Autumn general meeting, London, Nov. 26-27. Iron & Steel Inst J 202:97-9 F '64

Report of council for 1963. Iron & Steel Inst J 202:489-501 Je '64

IRON and steel institute, American. See American iron and steel institute

IRON bacteria

New miners; acid-loving bacteria. il Can Chem Process 48:55-7 Jl '64

IRON bromides

Metamagnetism and exchange in ferrous bromide. I. S. Jacobs and P. E. Lawrence. bibliog J Ap Phys 35:996-7 pt 2 Mr '64

IRON carbides

Role of cementite in the acidic corrosion of steel. D. N. Staicopolus. diag Electrochem Soc J 110:1121-4 N '63

Structure and metallurgical significance of the iron-molybdenum carbide Fe_2MoC (M_aC_b). D. J. Dyson and K. W. Andrews. bibliog il diags Iron & Steel Inst J 202:325-9 Ap '64

IRON carbonates

Synthetic solid solutions in the systems $MgCO_3$-$FeCO_3$ and $MnCO_3$-$FeCO_3$. P. E. Rosenberg. Am Mineralogist 48:1396-400 N '63

See also

Siderite

IRON carbonyls

Characterization of a methyl linoleate-iron carbonyl complex. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:392 My '64

Determination of nickel and iron carbonyls in town gas. A. B. Densham and others. bibliog J Ap Chem 13:576-80 D '63

Homogeneous catalytic hydrogenation of unsaturated fats; iron pentacarbonyl. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:186-91 Mr '64

Iron tricarbonyl adducts of dihydroanisoles; an adduct of a tautomer of phenol. A. J. Birch and others. Chem & Ind p838 My 16 '64

Mechanism of addition of hydrogen chloride to diene-iron carbonyls. G. F. Emerson and others. Chem & Ind p836-7 My 16 '64

Organometallic complexes of the type triene-$Fe_2(CO)_6$. G. F. Emerson and others. bibliog Am Chem Soc J 86:3590-1 S 5 '64

Tropylium-iron tricarbonyl cation. J. E. Mahler and others. bibliog Am Chem Soc J 86:3589-90 S 5 '64

IRON chlorides

Aromatic substitution; ferric chloride and aluminum chloride catalyzed chlorination of benzene, alkylbenzenes, and halobenzenes. G. A. Olah and others. bibliog Am Chem Soc J 86:1055-60 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of benzene and alkylbenzenes with bromine in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-44 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of halobenzenes in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1044-6 Mr 20 '64

Estimation of pyridine nucleotides in a crude tissue extract by color reaction of nucleotide ribose with orcinol and ferric chloride. A. Devi and U. Srivastava. bibliog Anal Chem 36:882-4 Ap '64

Kinetics of the copper-ferric chloride reaction and the effects of certain inhibitors. W. H. Burrows and others. bibliog diag Ind & Eng Chem Proc Design 3:149-59 Ap '64

Pitting of 18-8 stainless steel in ferric chloride inhibited by nitrates. H. H. Uhlig and J. R. Gilman. bibliog Corrosion 20:289-92 S '64

X-ray diffraction on whiskers grown from ferrous chloride in an argon atmosphere. W. Rambauske and R. R. Gruenzel. il J Ap Phys 35:408 F '64

IRON compounds

π-Allyliron carbonyl complexes. R. F. Heck and C. R. Boss. bibliog Am Chem Soc J 86:2580-3 Jl 5 '64

Analysis of the nuclear magnetic resonance spectra of substituted ferrocenes. M. I. Levenberg and J. H. Richards. bibliog Am Chem Soc J 86:2634-7 Jl 5 '64

Bisarylation of ferrocene. W. F. Little and others. bibliog Chem & Ind p 195-7 F 1 '64

Chronopotentiometric studies of ferrocene derivatives. W. F. Little and others. bibliog Am Chem Soc J 86:1376-86 Ap 5 '64

Decomposition of tris(1,10-phenanthroline iron(III) salts in concentrated sulphuric acid. A. F. Richards and others. Chem & Ind p 1726 O 26 '63

Electronic and steric effects in monosubstituted ferrocenes as determined by relative site reactivities and desilylation. R. A. Benkeser and others. bibliog Am Chem Soc J 86:3742-6 S 20 '64

Factors governing orientation in metalation reactions; the metalation of alkylferrocenes. R. A. Benkeser and J. L. Bach. bibliog Am Chem Soc J 86:890-5 Mr 5 '64

Free-radical phenylation of ferricenium ion. A. L. J. Beckwith and R. J. Leydon. bibliog Am Chem Soc J 86:952-3 Mr 5 '64

as-Indacenyl dianion and bis(*as*-indacenyl-iron). T. J. Katz and J. Schulman. Am Chem Soc J 86:3169-70 Ag 5 '64

Iron disilicide as a thermoelectric generator material. R. M. Ware and D. J. McNeill. bibliog il Inst E E Proc 111:178-82 Ja '64; Discussion. 111:1369-70 Jl '64

Kinetics of the oxidation of bis-(2,3-dimercapto-1-propanolato)-iron(II) by cystine in alkaline solutions. D. L. Leussing and J. P. Mislan. bibliog Am Chem Soc J 86:349-53 F 5 '64

List of ferrocene-type polymers growing. D. S. Trifan and E. W. Neuse. diag Chem & Eng N 42:46-7 S 7 '64

Magnetic properties of Fe_3MnTm and some related intermetallic compounds. H. J. Williams and others. J Ap Phys 35:1032-3 pt 2 Mr '64

Methods of determining controid X-ray wavelengths; Cu$K\alpha$ and Fe$K\alpha$. M. Mack and others. bibliog J Ap Phys 35:1118-27 Ap '64

Organo-iron complexes. J. E. Mahler and others. bibliog Am Chem Soc J 85:3955-63 D 20 '63

Polarography of nitroferrocene. A. M. Hartley and R. E. Visco. bibliog Anal Chem 35:1871-4 N '63

Rapid oxidation of iron(II) porphyrins by alkyl halides; a possible mode of intoxication of organisms by alkyl halides. C. E. Castro. bibliog Am Chem Soc J 86:2310-11 Je 5 '64

Stereochemistry of the 1,2-diaminocyclohexane-N,N′-tetraacetatoaquoferrate(III) ion, $Fe(OH_2)Z^-$. G. H. Cohen and J. L. Hoard. diag Am Chem Soc J 86:2749-50 Jl 5 '64

Variation with temperature of the magnetocrystalline anisotropy of several nickel iron ferrites. F. W. Chapman and others. bibliog J Ap Phys 35:1063-4 pt 2 Mr '64

IRON founding

Ductile irons and alloy irons. W. E. Gheen. il Iron & Steel Eng 41:110-14 F '64

Gray iron founders society design contest. il Product Eng 34:77 N 11 '63

Harder, stronger gray iron castings; customer rejects reduced to ½ of one per cent. il Automotive Ind 130:320+ Mr 15 '64

New plant features brass and iron foundries. N. F. Wood. il Foundry 92:130+ Mr '64

Shell molding and coring. C. F. Walton. il Product Eng 34:100-3 N 11 '63

See also

Cast iron
Cupola furnaces
Electric furnaces. Iron founding
Furnaces. Iron founding
Malleable founders society

IRON in the body

Effect of iron supplementation of sow rations on the prevention of baby pig anemia. C. H. Chaney and C. E. Barnhart. bibliog J Nutrition 81:187-92 N '63

Iron deficiency studies in chicks. P. N. Davis and others. J Nutrition 84:93-4 S '64

Iron in medicine. il Manuf Chem 35:44-6 Ap '64

Iron overload in Bantu subjects. T. H. Bothwell and others. bibliog Am J Clinical Nutrition 14:47-51 Ja '64

Placental transfer and fetal tissue iron utilization in sheep. F. H. Hoskins and S. L. Hansard. bibliog J Nutrition 83:10-14 My '64

IRON in the body—*Continued*

Serum iron and iron-binding capacity in adolescents. C. C. Seltzer and others. bibliog Am J Clinical Nutrition 13:343-61 D '63

IRON industry and trade

Developments in the iron and steel industry during 1963. I. E. Madsen. il diag Iron & Steel Eng 41:supD 1-60 Ja '64

Duluth mining meeting and symposium. maps Eng & Min J 165:156-7+ F '64

Economics of process selection in the iron and steel industry. M. D. J. Brisby and others. bibliog flow diags diags Iron & Steel Inst J 202:721-9; Discussion. 729-34 S '64

New technology of iron and steel. F. C. Price. flow diag il diags Chem Eng 71:179-94, cover S 14 '64 (reprints 75c)

See also

Steel industry and trade

History

Ironmaking at Ashland; dawn until yesterday. J. T. Dryden and D. E. Rist. il J Metals 16:627-9 Ag '64

Manufacture of mediaeval damascened knives. J. Piaskowski. bibliog il diags Iron & Steel Inst J 202:561-8 Jl '64

Canada

Bentonite, challenge for Canadian industry. J. S. Ross. il Can Min & Met Bul 57:648-52 Je '64

Czechoslovakia

Czechoslovakia's iron and steel industry. J. Krejci. il map J Metals 16:576-81 Jl '64

Japan

Computer control in the Japanese ironmaking industry. diag J Metals 16:285-6 Ap '64

Sweden

Ironmaking in the Stora rotary furnace. E. Bengtsson and others. diags J Metals 16:337-9 Ap '64

Swedish iron and steel in 1963. Metallurgia 70:123 S '64

IRON metallurgy

Beneficiation of iron ore gets modernized tryout; process flowsheet. J. Beaubaire. il Chem Eng 71:156-8 Je 8 '64

Bentonite, challenge for Canadian industry. J. S. Ross. il Can Min & Met Bul 57:648-52 Je '64

Bentonite travels in air stream. il Iron Age 194:80-1 Ag 13 '64

Centralized control and instrumentation systems at Iron ore co. of Canada's beneficiation plant. W. Taciuk. flow sheet il Can Min & Met Bul 57:751-8 Jl '64

Economics of primary iron and steel production on the West Coast from local iron ores via the H-Iron direct reduction process. W. J. Dyck and others. bibliog flow diags diags Can Min & Met Bul 56:888-94 D '63

Empire mine is dedicated; production exceeds 1,200,000 tons of pellets. il diag Iron & Steel Eng 41:179-80 Je '64

Expert reviews current procedures for high intensity magnetic separation. K. Neumann. diags Eng & Min J 165:88-91 Jl '64

Flotation of iron ores. N. B. Melcher and D. W. Frommer. bibliog il Min Cong J 49:29-33 D '63

Grate-kiln pelletizing plant. il diag Mech Eng 86:59 Ag '64

Groveland plant features huge pelletizing machine. flow diag il Min Eng 16:62-3 Ap '64

Groveland's huge furnace working well. il diag Eng & Min J 165:85 Mr '64

Hanna starts new pelletizing plant. il diag Iron & Steel Eng 41:169-72 Ap '64

High-grade feed from low-grade iron ore. diag Chem & Eng N 42:49 O 5 '64

How Inco recovers 68 per cent iron ore pellets. il Eng & Min J 165:71 Jl '64

Hydrometallurgical process for the extraction of iron from low-grade ores. C. P. Gravenor and others. bibliog flow diag map Can Min & Met Bul 57:421-8 Ap '64

Injected bubbles lighten ironmaking. diags Iron Age 194:81 N 5 '64

Iron ore beneficiation at Eagle Mountain. J. Stetler. il diags Min Cong J 50:17-22 My '64

Iron ore: captive ownership takes over. Steel 155:117+ Ag 10 '64

Iron ore reduction by the Echeverria process. C. F. Jeffries. flow sheet il plan diag J Metals 16:805-8 O '64

Ironmaking conference, 23d, Pittsburgh, April 13-15; program. J Metals 16:223-5 Mr '64

Kaiser's Eagle Mountain pelletizing plant. il Min Eng 16:44 Ag '64

Kaiser's Eagle Mountain pelletizing plant. F. W. Starratt. il J Metals 16:551 Jl '64

Largest commercial direct-reduction plant attracts interest of world metallurgists. M. Eigo. il diag Eng & Min J 164:94-6 N '63

Latest developments of the H-iron process. P. C. Keith and others. Iron & Steel Eng 40:95-8; Discussion. 98-100 N '63

Low grade ore enriched on site. il Iron Age 193:77-8 F 27 '64

Meramec iron ore project starts production at Pea Ridge. flow sheets il plans diags Eng & Min J 165:93-108 Ap '64

Minerals beneficiation in 1963; pyrolysis and agglomeration. T. L. Myron. bibliog il Min Eng 16:112-15 F '64

National open hearth and basic oxygen steel conference, 47th and 23d iron-making conference, Pittsburgh, April 13-15, combined program, list of officers and local section reports. J Metals 16:297-317 Ap '64

New line makes pellets from upgraded ore. il Steel 154:54+ Mr 2 '64

Ore-scrap magnetic roasting; a new basis for the beneficiation of iron ore. M. M. Fine and N. B. Melcher. bibliog diags J Metals 16:709-14 S '64

Pellet boom precipitates heavy equipment spending fallout. T. M. Rohan. il Iron Age 193:31-3 Ap 16 '64

Pelletizing process of Kawasaki steel corp. S. Harada. flow sheet il Min Cong J 50:106-10 Ap '64

Predicts rebirth of U.S. ore industry. Steel 155:157-8 O 12 '64

Process can ease shortage of high grade iron ore. Steel 155:31 S 28 '64

Process upgrades magnetic iron ores. il Chem & Eng N 42:60-1 Ap 27 '64

Production of pellets now in full-swing at Groveland. il Eng & Min J 164:77 D '63

Rapid determination of percent reduction of iron ore. E. Price. Eng & Min J 165:118-20 Je '64

Rapid production of high purity iron. Metallurgia 68:298 D '63

Raw materials for Ashland. J. L. Brady and others. il J Metals 16:635-6 Ag '64

Recent advances in ferrous metallurgy; symposium series abstracts. Chem Eng Prog 60:88+ My '64

Reducibility measurement of blast furnace burdens. T. B. Beeton. bibliog diag Iron & Steel Inst J 201:913-22 N '63

Reduction of iron ore by the flame-smelting process. T. W. Johnson and J. Davison. bibliog flow sheet diags Iron & Steel Inst J 202:406-19 My '64

Republic mine's hot flotation technique now handling two million tons of iron ore annually. C. Bjorne and J. Keeley. il Min Eng 16:65-9 Je '64

Richer iron ore to be pelletized. Engineering 198:126 Jl 24 '64

Rotary furnace for smelting iron. Engineer 216:921 N 29 '63

Rotating furnace produces pig iron. Comp Air Mag 68:19-20 D '63

Safety program for processing plants; Reserve mining co. E. M. Furness and L. J. Hall. il Min Cong J 50:52-5 S '64

USBM tests on selective iron ore flotation point way to greater recoveries. D. W. Frommer. bibliog flow sheet Min Eng 16:67-71+ Ap '64

Use of the similarity principle in predicting the optimum performance of iron reduction kilns. N. J. Themelis and others. bibliog diags Can Min & Met Bul 57:434-42 Ap '64

Why the swing to richer pellets? T. M. Rohan. il Iron Age 192:134 N 14 '63

See also

Blast furnaces
Cast iron
Foundry practice
Iron founding
Sintering
Wrought iron

Electrometallurgy

Deoxidation techniques for vacuum-induction melting. W. F. Moore. il diag J Metals 15:918-21 D '63

Large electric loads handled efficiently and economically at Interlake iron corp's Beverly, Ohio, plant. N. Peach. il diag Power 108:67-9 Je '64

IRON mines and mining

Australia

Australian iron ore prospects budding. il map Min Eng 16:95-101 O '64

IRON mines and mining—*Continued*

California

Iron ore beneficiation at Eagle Mountain. J. Stetler. il diags Min Cong J 50:17-22 My '64

Canada

Blast hole production with the air-fuel jet burner. D. R. Boynton. il diags Can Min & Met Bul 57:927-31 S '64

Centralized control and instrumentation systems at Iron ore co. of Canada's beneficiation plant. W. Taciuk. flow sheet il Can Min & Met Bul 57:751-8 Jl '64

Chile

After 1¾-million tons of iron ore, long belt shows hardly any wear. A. T. Yu. il diags Eng & Min J 165:96-7 Mr '64

Liberia

Lamco iron ore project swings into full production. C. Danielsson. il maps diags Eng & Min J 165:91-7 My '64

Mexico

Largest commercial direct-reduction plant attracts interest of world metallurgists. M. Eigo. il diag Eng & Min J 164:94-6 N '63

Michigan

Empire and White Pine mines visited by Director Ankeny of the U.S. Bureau of mines. il Min Cong J 50:39+ Jl '64

Empire mine dedicated. il Min Cong J 50:54-5 My '64

Empire's pellet plant triggers comeback for Upper Peninsula iron operations. il diags Eng & Min J 165:102-4 My '64

Production of pellets now in full-swing at Groveland. il Eng & Min J 164:77 D '63

Missouri

Meramec iron ore project starts production at Pea Ridge. flow sheets il plans diags Eng & Min J 165:93-108 Ap '64

Pea Ridge iron mine processing Missouri ore. il Iron & Steel Eng 41:157-8 My '64

Pea Ridge mine dedicated. il Min Cong J 50:24-5 My '64

Use of Koepe hoists and Swedish type of car dumps at Meramec mine. B. L. Beal, jr. il Min Cong J 49:80-3 O '63

Nevada

Standard slag co. taps Nevada iron, upgrades magnetite ore for export. J. Huttl. flow sheet il Eng & Min J 164:84-7 D '63

Ontario

Pre-planning for cold weather operation. R. W. Braund and R. E. Durocher. plan diags Min Cong J 49:18-21 N '63

Peru

Marcona downhill conveyor system. J. R. Miller. il maps diag Min Cong J 50:30-5 Ja '64

Marcona Mining adopts point system job evaluation scheme. V. R. Cabrera. Min Eng 16:124-7 Jl '64

Quebec (province)

Quebec Cartier iron ore project. flow sheet il maps plans diags Eng & Min J 165:75-93 S '64

Utah

Iron mining; healthy Utah industry. D. P. Bellum and L. Nugent. il map Min Eng 15:34-8 N '63

Wyoming

Excavating the West's toughest taconite; Atlantic City ore mine. R. Day. il Min Cong J 50:76-9 Je '64

IRON niobate

Ixiolite and other polymorphic types of $FeNbO_4$. R. S. Roth and J. L. Waring. bibliog Am Mineralogist 49:242-6 Mr '64

IRON ores

Beneficiation of iron ore gets modernized tryout; process flowsheet. J. Beaubaire. il Chem Eng 71:156-8 Je 8 '64

Foundation behavior of iron ore storage yards. R. B. Peck and T. Raamot. bibliog diags Am Soc C E Proc 90 [SM 3 no 3902]: 85-122 My '64

High-grade feed from low-grade iron ore. diag Chem & Eng N 42:49 O 5 '64

Iron ore and steel, 1963. A. W. Knoerr. Eng & Min J 165:108-10 F '64

Iron ore; captive ownership takes over. Steel 155:117+ Ag 10 '64

Iron ore; current appraisal. J. Sherwin. il Min Cong J 50:39-44 S '64

Iron ore industry, 1963. W. A. Marting. il Min Cong J 50:87-8+ F '64

Kinetics of hydrogen reduction of iron ore in a batch-fluidized bed. J. Feinman. bibliog diags Ind & Eng Chem Proc Design 3:241-7 Jl '64

Low-grade iron ore, scrap get a boost. il Iron Age 193:57 Mr 19 '64

New technology of iron and steel; ore preparation. F. C. Price. il diags Chem Eng 71:180-2 S 14 '64

Ore-scrap magnetic roasting; a new basis for the beneficiation of iron ore. M. M. Fine and N. B. Melcher. bibliog diags J Metals 16:709-14 S '64

Process can ease shortage of high grade iron ore. Steel 155:31 S 28 '64

River of iron ore. T. M. Rohan. il Iron Age 192:117 D 5 '63

Turnings, borings strengthen sintered ore. il Steel 154:54+ Mr 23 '64

See also
Hematite
Iron industry and trade
Iron metallurgy
Magnetite
Pyrrhotite
Siderite

Transportation

Marcona downhill conveyor system. J. R. Miller. il maps diag Min Cong J 50:30-5 Ja '64

Canada

Origin of Precambrian iron formations. H. Lepp and S. S. Goldich. map Econ Geol 59:1025-60 bibliog(p 1057-60) S '64

Chile

Chile's Coquimbo port installs mobile loading facilities. A. T. Yu. il Min Eng 16:84-5 My '64

Labrador

Open pit ores fight to survive. il Iron Age 194:30 Ag 20 '64

Liberia

Lamco joint venture; new source of high-grade iron ore. il J Metals 16:8 Ja '64

Port and railroad unlock Liberia's iron ore deposits. il map Eng N 172:34-6 My 7 '64

Michigan

Vulcan iron formation at the Groveland mine, Iron Mountain, Mich. J. T. Cumberlidge and J. G. Stone. bibliog il maps diags Econ Geol 59:1094-106 S '64

Minnesota

Bright future is forecast for Minnesota iron ore industry. map Eng & Min J 165:118+ S '64

Nevada

Geology and mineralogy of the Buena Vista iron ores, Churchill County, Nevada. A. S. Radtke. bibliog maps diags Econ Geol 59:279-90 Mr '64

Ontario

Geochemical studies at the Helen iron range. A. M. Goodwin. bibliog il maps diags Econ Geol 59:684-718 Je '64

Quebec (province)

Mineralogy and beneficiation of Quebec iron ores. G. A. Gross. bibliog il map Can Min & Met Bul 57:245-52 Mr '64

Open pit ores fight to survive. il Iron Age 194:30 Ag 20 '64

Saskatchewan

Geology of the Choiceland iron deposit, Saskatchewan. R. L. Cheesman. maps Can Min & Met Bul 57:715-18 Jl '64

Venezuela

Iron ores of Cerro Bolivar, Venezuela. J. C. Ruckmick. bibliog il map diags Econ Geol 58:218-36 Mr '63; Discussion. N. C. Nandy and A. Dutt. 59:330-2 Mr '64; Reply. 59:1397 N '64

Western states

Iron ore outlook unlimited. M. F. Williams and H. Evans. il Chem Eng Prog 60:36-8 O '64

IRON oxides

Gas cleaner also recovers byproduct iron oxide. il Chem Eng 71:68+ F 17 '64

Interaction of water with iron and titanium oxide surfaces; goethite, hematite, and anatase. J. J. Jurinak. bibliog J Colloid Sci 19:477-87 Je '64

IRON oxides—*Continued*

Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman. bibliog diags A I Ch E J 10:652-5 S '64

Negative resistance in copper-doped ferric oxide ceramic. S. F. Lo. il IEEE Proc 52: 609-10 My '64

Phase equilibria in the spinel region of the system $FeO\text{-}Fe_2O_3\text{-}Al_2O_3$. B. D. Roiter. bibliog Am Cer Soc J 47:509-11 O '64

Phase equilibria in the system $FeO\text{-}Fe_2O_3\text{-}TiO_2$ at 1300° C. R. W. Taylor. bibliog diags Am Mineralogist 49:1016-30 Jl '64

Precise oxide spray coats computer memory disc. G. Close. il Mach 70:112-14 N '63

Preparation and thermal analysis of mixed magnesium-manganese-iron oxalates and hydrated oxides. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 47:434-7 S '64

Review of the problem of fine-particle interactions with special reference to magnetic recording. E. P. Wohlfarth. bibliog il diags J Ap Phys 35:783-90 pt 2 Mr '64

Role of multivalent metal oxides in limnological transformations as exemplified by iron and manganese; abstract. J. J. Morgan and W. Stumm. WPCF J 36:276-7 Mr '64

Room temperature oxidation of iron at low pressures. J. Kruger and H. T. Yolken. bibliog il diag Corrosion 20:29-33 Ja '64

Stable mineral assemblages of anhydrous copper and iron oxides. R. A. Yund and G. Kullerud. bibliog Am Mineralogist 49: 689-96 My '64

See also
Ferrates
Hematite
Wüstite

Analysis

Determination of ferrous oxide in ferrites. K. L. Cheng. Anal Chem 36:1666-7 Jl '64

IRON phosphates

Leucophosphite, a new occurrence in the Quadrilátero Ferrífero, Minas Gerais, Brazil.. G. C. Simmons. il Am Mineralogist 49:377-86 Mr '64

IRON plating

Electrodeposition of iron-zinc alloys; production from sulfamate baths. S. S. Misra and T. L. Rama Char. bibliog il Metal Finishing 62:88-93 Je '64

IRON powder. See Iron, Powdered

IRON research

Ductile iron research builds a better trap for elusive magnesium. P. K. Trojan and R. A. Flinn. S A E J 72:60-1 Ap '64

Iron and steel research. F. H. Saniter. Metallurgia 69:252+ Je '64

USBM tests on selective iron ore flotation point way to greater recoveries. D. W. Frommer. bibliog flow sheet Min Eng 16: 67-71+ Ap '64

IRON silicates

See also
Olivine

IRON sulfates

Effects of polyelectrolyte coagulant aids on removal of Missouri River turbidity with ferric sulfate. K. C. Mueller and N. C. Burbank, jr. il Am Water Works Assn J 56:333-46 Mr '64

Electrophoretic studies of turbidity removal with ferric sulfate. A. P. Black and J. V. Walters. bibliog Am Water Works Assn J 56:99-110 Ja '64

Iron(II) sulphate in rust. A. G. Tanner. Chem & Ind p 1027-8 Je 13 '64

Stoichiometry of the coagulation of color-causing organic compounds with ferric sulfate. A. P. Black and others. bibliog Am Water Works Assn J 55:1347-66 O '63; Abstract. Pub Works 95:130 Ja '64

IRON sulfides

Greigite, the thio-spinel of iron; a new mineral. B. J. Skinner and others. bibliog Am Mineralogist 49:543-55 My '64

Iron sulfides formed from aqueous solution at low temperatures and atmospheric pressure. R. A. Berner. J Geol 72:293-306, pl 1-2 bibliog(p305-6) My '64

Lattice parameters and expansion coefficients of FeS_2 (natural and synthetic), and of CoS_2. M. E. Straumanis and others. bibliog Am Mineralogist 49:206-12 Ja '64

Metastable solid solution relations in the system $FeS_2\text{-}CoS_2\text{-}NiS_2$. G. Springer and others. bibliog il diags Econ Geol 59:475-91 My '64

Range in solid solution and structure of naturally occurring troilite and pyrrhotite. R. H. Carpenter and G. A. Desborough. bibliog diags Am Mineralogist 49:1350-65 S '64

See also
Bornite
Pyrite
Pyrrhotite

IRON work

See also
Forging

IRON works

See also
Foundries

Equipment

Hanna starts new pelletizing plant. il diag Iron & Steel Eng 41:169-72 Ap '64

Process upgrades magnetic iron ores. il Chem & Eng N 42:60-1 Ap 27 '64

IRONS, Electric. See Electric irons

IRRADIATED food. See Food, Irradiated

IRRADIATED plastics. See Plastics, Irradiated

IRRADIATION

Calculation of concentration response to intermittent irradiation. F. B. Hill. bibliog diags A I Ch E J 10:166-73 Mr '64

Cobalt-60 irradiator for extracorporeal blood irradiation. O. A. Kuhl and others. diags Nucleonics 22:79-80+ Ap '64

Color center zonation in quartz. C. J. Ritter and W. H. Dennen. bibliog Geol Soc Bul 75:915-16 S '64

Comparison of self-irradiation effects in alpha plutonium enriched and unenriched in ^{238}Pu. R. O. Elliott and C. E. Olsen. bibliog J Ap Phys 35:1925-31 Je '64

Computer program to optimize times of irradiation and decay in activation analysis. T. L. Isenhour and G. H. Morrison. flow diags Anal Chem 36:1089-92 My '64

Crystallographic implications of epr in neutron-irradiated diamond. R. M. Denning and E. H. Poindexter. bibliog Am Mineralogist 49:277-85 Mr '64

Differences in electron spin resonance spectra and annealing characteristics of radicals produced in polycrystalline and glassy alkyl iodides by γ-radiolysis. H. W. Fenrick and others. bibliog Am Chem Soc J 85:3731-2 D 5 '63

Effect of Co-60 gamma irradiation on surface energy of KCl. T. K. Bhattacharya and others. J Ap Phys 35:1352-3 Ap '64

Effect of radiation on ammonium perchlorate propellants. T. Acker and others. AIAA J 2:1165 Je '64

Effects of gamma radiation on the chemical properties of methyl cellulose. F. A. Blouin and others. bibliog Textile Res J 34:153-8 F '64

Effects of ionizing radiations on fats; accumulation of peroxides and other chemical changes. J. R. Chipault and G. R. Mizuno. bibliog Am Oil Chem Soc J 41:468-73 Jl '64

Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K. Ijichi and others. bibliog Food Tech 18:1628-32 O '64

Electron spin resonance in irradiated glycine crystals. J. R. Morton. bibliog Am Chem Soc J 86:2325-9 Je 20 '64

Electron spin resonance study of free radicals in ultraviolet-irradiated ethanol at 77°K. P. J. Sullivan and W. S. Koski. bibliog Am Chem Soc J 86:159-61 Ja 20 '64

Electron spin resonance study X-irradiated fumaric acid-urea crystals. O. H. Griffith and A. L. Kwiram. bibliog diags Am Chem Soc J 86:3937-41 O 5 '64

Energy dependence of proton irradiation damage in silicon. W. Rosenzweig and others. bibliog J Ap Phys 35:2707-11 S '64

Equipment and techniques for low temperature electron irradiations. L. F. Lowe and others. diags R Sci Instr 34:1348-50 D '63

Fabrication of targets for neutron irradiation of neptunium dioxide. R. E. Myrick and R. L. Folger. bibliog il diag Ind & Eng Chem Proc Design 3:309-13 O '64

Formation and reactions of radiation-produced electrons and atomic hydrogen in γ-irradiated ice. L. Kevan and others. bibliog Am Chem Soc J 86:771-6 Mr 5 '64

Free radical yields in *n*-alcohols resulting from gamma irradiation. I. Zwiebel and R. H. Bretton. bibliog A I Ch E J 10:339-44 My '64

Gamma irradiation effects in ruby. V. R. Johnson and R. W. Grow. IEEE Proc 52: 185-6 F '64

IRRADIATION—*Continued*

Gamma irradiation of silicon; levels in *n*-type float-zone material. E. Sonder and L. C. Templeton. bibliog J Ap Phys 34:3295-301 N '63

γ-ray decomposition of pure liquid sulfur dioxide. W. G. Rothschild. bibliog Am Chem Soc J 86:1307-9 Ap 5 '64

Ideas from space research; radiation. F. G. Sawyer. Hydrocarbon Process & Pet Refiner 43:131-2 O '64

Investigations of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64

Irradiation behavior of plutonium fuels. V. W. Storhok. bibliog Nucleonics 22:86 Ap '64

Irradiation cross linking of polyethylene; the temperature dependence of cross linking in the crystalline and amorphous states. R. Kitamaru and L. Mandelkern. bibliog Am Chem Soc J 86:3529-34 S 5 '64

Irradiation of iron and 5-79 Mo permalloy with 2-mev electrons. D. I. Gordon and R. S. Sery. bibliog J Ap Phys 35:879-80 pt 2 Mr '64

Observations connected with the radiation induced grafting of polymers onto cellulose. H. A. Krässig. bibliog Tappi 46:654-6 N '63

Paramagnetic resonance absorption of γ-irradiated synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:757-61 Mr 5 '64

Peacetime atom blasts away at metalworking barriers. W. N. Redstreake. il Iron Age 193:87-90 My 14 '64

Photoionization and γ-induced oxidation of aromatic amines in rigid organic glasses. M. Kondo and others. bibliog Am Chem Soc J 86:1297-300 Ap 5 '64

Photon emission from irradiated dielectric slabs. J. C. Ashley and R. H. Ritchie. diags J Ap Phys 35:2313-21 Ag '64

Polarization of dielectrics by nuclear radiation; gamma-ray induced polarization. P. V. Murphy and B. Gross. bibliog J Ap Phys 35:171-4 Ja '64

Post-irradiation stability of some properties of cotton cellulose. J. C. Arthur, jr. and F. A. Blouin. bibliog Textile Res J 34:733-4 Ag '64

Radiation curing of finishes a possibility; editorial. G. Evans. Ind Finishing 40:72-3 O '64

Radiation grafting yields new properties. il Can Chem Process 47:73-4+ D '63

Radiation-induced graft polymers of cotton cellulose and styrene. J. C. Arthur, jr. and D. J. Daigle. Textile Res J 34:653-4 Jl '64

Radiation-induced stress relaxation in quartz and vitreous silica. W. Primak. bibliog diags J Ap Phys 35:1342-7 Ap '64

Radiation-sensitive paint verifies product irradiation. J. J. Farrell and R. L. Vale. bibliog Nucleonics 21:78-80+ N '63

Radiation stabilities of arylmethylsiloxanes. A. A. Miller. bibliog Ind & Eng Chem Product Res & Develop 3:252-6 S '64

Relation between *E′* centers and hydroxyl bonds in silica. R. A. Weeks and E. Lell. bibliog diag J Ap Phys 35:1932-8 Je '64

Relative reactivities of positions on biphenyl in the generation of reactive species by electron irradiation and in subsequent ring substitution. W. M. Hutchinson and others. bibliog Am Chem Soc J 85:3358-62 N 5 '63

Room-temperature dielectric properties of fast-neutron-irradiated fused silica and α alumina. J. B. MacChesney and G. E. Johnson. bibliog J Ap Phys 35:2784-5 S '64

Scavenging action in γ-irradiated aqueous cysteine solutions. A. El Samahy and others. bibliog Am Chem Soc J 86:3177-8 Ag 5 '64

Selected properties of neutron irradiated diamond. R. M. Denning. il diags Am Mineralogist 49:72-105 bibliog(p 103-5) Ja '64

Sulfochlorination of cyclohexane induced by gamma radiation. A. Schneider and J. C. Chu. bibliog il diags Ind & Eng Chem Proc Design 3:164-9 Ap '64

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

Thermal stress behavior of radiation-induced graft polymers of cotton. J. C. Arthur, jr. and others. Textile Res J 33:896-9 N '63

3M improves strontium-90 irradiator. T. N. Lahr and J. J. Keers. il Chem & Eng N 42:158 S 7 '64

Ultraviolet-induced dimerization of free and metal-complexed orotic acid. A. Haug. Am Chem Soc J 86:3381-4 Ag 20 '64

Use of the interaction of thermal and ultrasonic waves to study radiation-induced defects in quartz. T. M. Fitzgerald and others. bibliog J Ap Phys 35:1639-40 My '64

See also

Food, Irradiated
Plastics, Irradiated

IRREVERSIBLE processes

Gas absorption accompanied by an irreversible reaction of general order. P. L. T. Brian. bibliog A I Ch E J 10:5-10 Ja '64

Reciprocity theorems and irreversible processes. H. B. G. Casimir. bibliog IEEE Proc 51:1570-3 N '63

IRRIGATION

Design of tile drainage for arid regions. H. Y. Hammad. bibliog diag Am Soc C E Proc 90 [IR 3 no 4036]:1-15 S '64

Effective rainfall and irrigation water requirements. D. M. Hershfield. bibliog maps Am Soc C E Proc 90 [IR 2 no 3920]:33-47 Je '64

Lost River system, a water quality management study. G. T. Orlob and P. C. Woods. bibliog flow diags map plan Am Soc C E Proc 90 [HY 2 no 3815]:1-22 Mr '64

Nonuniformity and sprinkler application efficiency. D. T. Howell. bibliog diags Am Soc C E Proc 90 [IR 3 no 4052]:41-53 S '64

Plastic surgery on irrigation arteries. K. S. Ehrman. il diags Am Soc C E Proc 90 [CO 1 no 3837]:47-57 Mr '64

Sprinkler nonuniformity characteristics and yield. D. T. Howell. diag Am Soc C E Proc 90 [IR 3 no 4053]:55-67 S '64

Subsurface water distribution in surface irrigation. E. T. Smerdon. bibliog Am Soc C E Proc 89 [IR 1 no 3445]:1-15 Mr '63; Discussion. J. R. Davis. 89 [IR 3 no 3655]:91-5 S '63; Reply. 90 [IR 1 no 3848]:117-18 Mr '64

Unique consumptive use curve related to irrigation practice. V. E. Hansen. bibliog Am Soc C E Proc 89 [IR 1 no 3449]:43-50 Mr '63; Discussion. 89 [IR 3 no 3655]:97-105 S; [IR 4 no 3746]:47-51 D '63; Reply. 90 [IR 2 no 3941]:51-2 Je '64

See also

Sewage irrigation
Soil moisture
Trade waste irrigation

Australia

Development of Australia's water resources with particular reference to irrigation. W. Hudson. maps Engineer 217:1114-16 Je 26 '64

Great Britain

Finding more water for the farmer. il maps diags Engineering 198:529-32 O 23 '64

Idaho

Gas brings life to the desert. il Gas Age 131:25-7 Jl '64

Natural-gas irrigation project. il Mech Eng 86:67 Mr '64

Kansas

Irrigation development in a subhumid area. A. D. Soderberg. il map Am Soc C E Proc 90 [IR 2 no 3922]:1-19 Je '64

Mexico

Mexico City drains storm water to where farmers can use it. il Eng N 173:28-9 O 22 '64

Nebraska

Irrigation development in a subhumid area. A. D. Soderberg. il map Am Soc C E Proc 90 [IR 2 no 3922]:1-19 Je '64

South Africa

Josini dam will water Zululand. il map Eng N 173:36+ N 5 '64

Texas

Irrigation water requirements in Texas. C. B. Thompson. bibliog maps Am Soc C E Proc 90 [IR 3 no 4040]:17-40 S '64

IRRIGATION water

Study of municipal and irrigation water shortages. C. B. Thompson. Am Soc C E Proc 89 [IR 4 no 3714]:7-13 D '63; Discussion. K. Özal and F. M. Warnick. 90 [IR 3 no 4028]:77-8 S '64

ISATOGEN

Novel ring expansion and carbon insertion reactions of isatogens. W. E. Noland and R. F. Modler. bibliog Am Chem Soc J 86:2086-7 My 20 '64

ISATOIC anhydride

Preparation and some properties of the anthranilate of cotton. R. H. Wade and W. A. Reeves. bibliog Textile Res J 34:836-9 O '64

ISLANDS, Artificial

Two tunnels and four islands; Chesapeake Bay bridge-tunnel project. J. Peraino. il Civil Eng 33:47-9 D '63

ISOAMYLENE. See Methyl butene

ISOBENZOFURAN

Isobenzofuran, a transient intermediate. L. F. Fieser and M. J. Haddadin. bibliog Am Chem Soc J 86:2081-2 My 20 '64

ISOBUTANE

Adsorption of alkanes on cracking catalysts; a study of the exchange between isobutane and its adsorbed radioactive analog. J. G. Larson and W. K. Hall. bibliog Am Chem Soc J 85:3570-5 N 20 '63

Compressibilities of *n*-butane, *iso*-butane, and 1,3-butadiene: nomographs. A. M. P. Tans. Ind Chem 40:196 Ap '64

Manufacture

Butamer; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:172 S '64

Butomerate; Pure oil co. flow diag Hydrocarbon Process & Pet Refiner 43:173 S '64

Catalytic isomerization; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:174 S '64

Liquid-phase isomerization; Shell development co. flow diag Hydrocarbon Process & Pet Refiner 43:178 S '64

ISOBUTYL chloride

Electron diffraction determination of the molecular structure of the butyl halides: the structure and conformational analysis of isobutyl chloride. G. H. Pauli and others. bibliog Am Chem Soc J 86:1286-8 Ap 5 '64

ISOBUTYLENE

Ammoxidation of isobutylene in a coated tube. W. F. Brill and J. H. Finley. bibliog Ind & Eng Chem Product Res & Develop 3:89-93 Je '64

Aromatic substitution; Friedel-Crafts *t*-butylation of benzene and methylbenzenes with *t*-butyl bromide and isobutylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1060-4 Mr 20 '64

Incorporation of isobutylene-isoprene copolymer latex in polyvinylidene chloride systems for paper. J. R. Condon and R. E. Nash. il Tappi 47:sup 141A-3A+ Jl '64

Initiation of ionic reactions in liquid hydrocarbons via photoionization with vacuum ultraviolet radiation; the polymerization of isobutylene. E. W. Schlag and J. J. Sparapany. bibliog Am Chem Soc J 86:1875-6 My 5 '64

Sonic degradation of polyisobutylene in solution. R. S. Porter and others. bibliog J Ap Phys 35:15-18 Ja '64

Thermomechanical study of polyisobutylene by stretching and indentation. B. A. Fomenko and others. bibliog Rubber Chem & Tech 37:365-9 Ap '64

Vulcanization of polyisobutylene. P. Viohl and others. bibliog Rubber Age 94:594-7 Ja '64

Manufacture

Isobutylene (CFR); the Badger co. diag Hydrocarbon Process & Pet Refiner 42:186 N '63

ISOBUTYRATE

Catalytic dehydrogenation of methyl isobutyrate to methyl methacrylate over alumina catalysts. E. L. McDaniel and H. S. Young. bibliog diag Ind & Eng Chem Product Res & Develop 2:287-92 D '63

ISOBUTYRIC acid

Resolution of *dl*-2,3-dichloro-2-methylpropionic acid. C. E. Glassick and W. E. Adcock. bibliog Ind & Eng Chem Product Res & Develop 3:14-15 Mr '64

ISOCARYOPHYLLENE

Total synthesis of ***d.l***-caryophyllene and ***d.l***-isocaryophyllene. E. J. Corey and others. bibliog Am Chem Soc J 86:485-92 F 5 '64

ISOCYANATES

Addition of silylamines and silazanes to isocyanates. J. F. Klebe and others. bibliog Am Chem Soc J 86:4400-6 O 20 '64

Curing environment and homogeneity of diisocyanate-linked elastomers. A. J. Havlik. bibliog il diag Materials Res & Stand 4:358-63 Jl '64

Cycloadditions; the reactions of Δ^2-1,2,3-triazolines with phenyl isocyanate and phenyl isothiocyanate. J. E. Baldwin and others. Am Chem Soc J 86:4509-10 O 20 '64

Urea derivatives of aminophosphonitriles. G. Tesi and others. Chem & Ind p623 Ap 11 '64

Vinyl isocyanate gives ladder polymers. C. G. Overberger and others. Chem & Eng N 41:33-4 D 30 '63

Physiological effect

Methane diisocyanate; a respiratory hazard? E. O. Longley. Archives Environmental Health 8:898 Je '64

ISOCYANIDES

Formation of an isocyanide and a ketone from an α-haloamide. J. C. Sheehan and I. Lengyel. Am Chem Soc J 86:746-7 F 20 '64

Studies with a single-pulse shock tube; the thermal isomerization of methyl isocyanide. A. Lifshitz and others. Am Chem Soc J 86:1488-91 Ap 20 '64

ISOCYANURIC acid

Formulating with dichloroisocyanurates. J. S. Thompson. il Soap & Chem Spec 40:45-8+ Je '64

ISOFENCHONE

Stereochemistry and bromo-isofenchone. P. P. Williams. diag Chem & Ind p 1583 S 12 '64

ISOFLAVANONE

Total synthesis of nepseudin. K. Fukui and M. Nakayama. Chem & Ind p 1843 N 16 '63

ISOINDOLE

1-Arylisoindoles. D. F. Veber and W. Lwowski. bibliog Am Chem Soc J 86:4152-8 O 5 '64

ISOLEUCINE

Analogs of oxytocin containing glycine in place of tyrosine, isoleucine, or glutamine. S. Drabarek. bibliog Am Chem Soc J 86:4477-81 O 20 '64

Effects of the α-hydroxy analogues of isoleucine, lysine, threonine and tryptophan and the α-keto analogue of tryptophan and the level of the corresponding amino acids on growth of rats. W. G. Pond and others. bibliog J Nutrition 83:85-93 Je '64

Liver lipid accumulation in isoleucine-deficient rats. R. L. Lyman and others. bibliog J Nutrition 82:432-8 Ap '64

Nutrition of salmonoid fishes; isoleucine, leucine, valine and phenylalanine requirements of chinook salmon and interrelations between isoleucine and leucine for growth. R. E. Chance and others. bibliog J Nutrition 83:177-85 Jl '64

ISOMAX process. See Gasoline—Manufacture

ISOMERATE process. See Gasoline—Manufacture

ISOMERISM

Regulation of structural isomerism in simple Diels-Alder adducts. E. F. Lutz and G. M. Bailey. bibliog Am Chem Soc J 86:3899-901 S 20 '64

Synthesis of dihydrooxadiazinones and study of geometrical isomerism in α-ketol carbethoxyhydrazones. M. Rosenblum and others. bibliog Am Chem Soc J 85:3874-8 D 5 '63

ISOMERIZATION

Butomerate; Pure oil co. flow diag Hydrocarbon Process & Pet Refiner 43:173 S '64

Catalytic isomerization; Phillips petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:174 S '64

Cis-trans isomerization in vinyl radicals; gas phase radical-chain addition of hydrogen bromide to propyne. P. S. Skell and R. G. Allen. bibliog Am Chem Soc J 86:1559-60 Ap 20 '64

Cyclopropylcarbinyllithium is isolated. P. T. Lansbury and others. Chem & Eng N 42:46-7 Ap 27 '64

Dihydroazepinone chemistry; the photoisomerization of 1,3-dihydro-3,5,7-trimethyl-2H-azepin-2-one. L. A. Paquette. bibliog Am Chem Soc J 86:500-3 F 5 '64

Effect of oxygen and other factors in selenium catalyzed isomerization of unsaturated fatty acid esters. V. V. R. Subrahmanyam and F. W. Quackenbush. bibliog Am Oil Chem Soc J 41:275-9 Ap '64

Inverse secondary intermolecular isotope effects in the low pressure thermal isomerization of cyclopropane. B. S. Rabinovitch and others. bibliog Am Chem Soc J 86:2994-6 Ag 5 '64

Investigation of maleate-fumarate isomerization in unsaturated polyesters by nuclear magnetic resonance. L. G. Curtis and others. bibliog Ind & Eng Chem Product Res & Develop 3:218-21 S '64

ISOMERIZATION—*Continued*
Isomerate; Pure oil co. flow diag Hydrocarbon Process & Pet Refiner 43:175 S '64
Isomerization; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:176 S '64
Isomerization during hydrogenation; methyl *cis* 6-, *cis* 9-, *cis* 12-octadecenoates. R. R. Allen. Am Oil Chem Soc J 41:521-3 Ag '64
Isomerization of cyclononatrienes. J. W. H. Watthey and S. Winstein. Am Chem Soc J 85:3715-16 N 20 '63
Isomerization of 1,3-cyclooctadiene to 1,5-cyclooctadiene via the rhodium(I) π-complex. R. E. Rinehart and J. S. Lasky. bibliog Am Chem Soc J 86:2516-18 Je 20 '64
Isomerisation of iso-type diterpene alkaloid salts to normal-type salts. S. W. Pelletier and K. Kawazu. bibliog Chem & Ind p 1879-80 N 23 '63
Isomerisation of keto-ethers to spiroketals; synthesis of 26-alkyl steroidal sapogenins. R. D. Youssefyeh and others. bibliog Chem & Ind p421-3 Mr 7 '64
Isomerization of mono ethenoid acids during hydrogenation. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:150-2 F '64
Kinetics of the thermal isomerization of bicyclo[2.1.1]hexane. R. Srinivasan and A. A. Levi. Am Chem Soc J 85:3363-5 N 5 '63
Light naphtha isomerization; Standard oil co. (Indiana). flow diag Hydrocarbon Process & Pet Refiner 43:177 S '64
Liquid-phase isomerization; Shell development co. flow diag Hydrocarbon Process & Pet Refiner 43:178 S '64
Mechanism of the acid-catalyzed isomerization of *cis*-stilbene. D. S. Noyce and others. Am Chem Soc J 86:3583-4 S 5 '64
Mechanisms of photochemical reactions in solution; photochemical *cis-trans* isomerization. G. S. Hammond and others. bibliog Am Chem Soc J 86:3197-217 Ag 20 '64
Microcatalytic tracer studies of the isomerization of cyclopropane over silica-alumina catalysts. W. K. Hall and others. Am Chem Soc J 85:3711-12 N 20 '63
Novel photoisomerization reaction of cyclic ketones. S. Cremer and R. Srinivasan. Am Chem Soc J 86:4197-8 O 5 '64
Penex; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:179 S '64
Pentafining; Atlantic refining co. flow diag Hydrocarbon Process & Pet Refiner 43:180 S '64
Photochemical isomerization of B-nor-1-dehydrotestosterone acetate in dioxane solution. G. Bozzato and others. Am Chem Soc J 86:2073-5 My 20 '64
Photochemical isomerization of di-*t*-butylbenzenes. A. W. Burgstahler and P. L. Chien. bibliog Am Chem Soc J 86:2940-1 Jl 20 '64
Photoisomerization of 1-aza-3,5,7-trimethylcyclohepta-4,6-dien-2-one. O. L. Chapman and E. D. Hoganson. bibliog Am Chem Soc J 86:498-500 F 5 '64
Photoisomerization of azomethane. R. F. Hutton and C. Steel. bibliog Am Chem Soc J 86:745-6 F 20 '64
Photoisomerization of 1,3,5-cyclooctatriene. O. L. Chapman and others. bibliog Am Chem Soc J 86:2660-3 Jl 5 '64
Photoisomerization of diazirine. M. J. Amrich and J. A. Bell. Am Chem Soc J 86:292-3 Ja 20 '64
Photoisomerization of pyrazolenines and formation of 7,7-dimethylbicyclo[4.1.0]heptene-Δ-1,6. G. L. Closs and W. A. Böll. Am Chem Soc J 85:3904-5 D 5 '63
Photosensitized isomerization involving saturated centers. G. S. Hammond and others. Am Chem Soc J 86:2532-3 Je 20 '64
Rate of isomerization of cyclopropane in a flow reactor. B. R. Davis and D. S. Scott. bibliog diag Ind & Eng Chem Fundamentals 3:20-3 F '64
Reduction by iron(II), equilibrium, and rate of isomerization in the *cis-trans*-$Co(NH_3)_4(OH_2)N_3^{+2}$ system. A. Haim. bibliog Am Chem Soc J 86:2352-6 Je 20 '64
Small ring bicyclic azo compounds and bicyclic hydrocarbons; isomerization of bicyclo[2.1.0]pentane and bicyclo[2.2.0]hexane. C. Steel and others. bibliog Am Chem Soc J 86:679-84 F 20 '64
Studies with a single-pulse shock tube; the thermal isomerization of methyl isocyanide. A. Lifshitz and others. Am Chem Soc J 86:1488-91 Ap 20 '64
Thermal unimolecular geometric and structural isomerization of 1,2-dideuterio-3-methylcyclopropane. D. W. Setser and B. S. Rabinovitch. bibliog Am Chem Soc J 86:564-9 F 20 '64
See also
Stereochemistry

ISOMERS
Assignment of *cis-trans* configuration to mono-olefin pairs by gas chromatography. R. A. Hively. bibliog Anal Chem 35:1921-4 N '63
Cycloaddition; evidence of a biradical intermediate in the thermal addition of 1,1-dichloro-2,2-difluoroethylene to the geometrical isomers of 2,4-hexadiene. L. K. Montgomery and others. bibliog Am Chem Soc J 86:622-8 F 20 '64
Determination of isomer distribution ratio in mixtures of the monoisobutyrates of 2,2,4-trimethyl-1,3-pentanediol by nuclear magnetic resonance. H. F. White and others. Anal Chem 36:1659-61 Jl '64
Determination of polychloroprene isomers by high resolution infrared spectrometry. R. C. Ferguson. Anal Chem 36:2204-5 O '64
Gas chromatographic determination of isomers of phenylenediamine. W. H. Bryan. Anal Chem 36:2025-6 S '64
Gas chromatographic determination of the carbonyl forms of sugars. E. Bayer and R. Widder. bibliog Anal Chem 36:1452-5 Jl '64
Gas chromatography of *cis-trans* fatty acid isomers on nitrile silicone capillary columns. C. Litchfield and others. bibliog Am Oil Chem Soc J 41:52-5 Ja '64
Generalized correlation of the constants of the Benedict-Webb-Rubin-Friend equation for paraffinic isomers. H. H. Beyer and R. G. Griskey. bibliog A I Ch E J 10:764-6 S '64
Isolation of a natural isomer of linoleic acid from a seed oil. C. Y. Hopkins and M. J. Chisholm. bibliog Am Oil Chem Soc J 41:42-4 Ja '64
Mass and microwave spectra, structures, and dipole moments of the isomers of sulfur monofluoride. R. L. Kuczkowski. bibliog diags Am Chem Soc J 86:3617-21 S 20 '64
Mossbauer effect in *cis-trans* isomers. R. H. Herber and R. G. Hayter. bibliog Am Chem Soc J 86:301-2 Ja 20 '64
Natural diastereoisomeric flavan-3,4-diols related to (+)-mollisacacidin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1799-800 O 24 '64
Photoisomerization depends on concentration; abstract. C. M. Orlando and others. Chem & Eng N 42:43 Ap 20 '64
Preparation of 9,15-octadecadienoate isomers. R. O. Butterfield and others. bibliog Am Oil Chem Soc J 41:397-400 Je '64
Separation of isotopic position isomers of tritium-labeled olefins by gas chromatography. E. K. C. Lee and F. S. Rowland. bibliog Anal Chem 36:2181-3 O '64
Separation of stereoisomers by column fractional precipitation. W. W. Schulz and W. C. Purdy. bibliog Anal Chem 35:2044-8 D '63
Structural identification of a geometric isomer of tetrameric phenylphosphonitrilic chloride. B. Grushkin and others. bibliog Am Chem Soc J 86:4204-5 O 5 '64
Studies on the metabolism of linoelaidic acid in the essential fatty acid-deficient rat. O. S. Privett and M. L. Blank. bibliog il diag Am Oil Chem Soc J 41:292-7 Ap '64
Syntheses of the three isomeric diethyl- and dineopentyltetramethylbenzenes. M. S. Newman and others. bibliog Am Chem Soc J 86:868-72 Mr 5 '64
Variation of the internal fields and isomer shifts at the Fe sites in the FeAl series. M. B. Stearns. J Ap Phys 35:1095-6 pt 2 Mr '64

ISONIAZID. See Isonicotinic acid

ISONICOTINIC acid
Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64
Effects of isoniazid, chlortetracycline, and copper upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 83:79-84 My '64

ISOOCTANE. See Trimethyl pentane

ISOPENTANE. See Methyl butane

ISOPHTHALIC acid
Demand spurs diphenyl isophthalate growth. Chem & Eng N 42:53-4 Ap 6 '64

ISOPHTHALIC acid—*Continued*

Kinetics and mechanism of the rearrangement of potassium isophthalate to terephthalate. Y. Ogata and K. Sakamoto. bibliog Chem & Ind p749-50 My 2 '64

Analysis

Polarographic determination of isophthalic acid in the presence of terephthalic acid in polyester fibers. L. Beníšek. bibliog il Textile Res J 32:539-48; 34:456-7 Jl '62, My '64

ISOPRENE

Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63

Buffalo rubber group fall meeting, Oct. 8. Rubber Age 94:302 N '63; Rubber World 149:98 N '63

Comparison of the vulcanization characteristics of natural and synthetic cis-1,4-polyisoprene. G. R. Himes and R. D. Sullivan. bibliog Rubber Age 95:65-70 Ap '64

Copolymerization of butadiene and isoprene through use of complex organometallic catalysts. L. S. Bresler and others. bibliog Rubber Chem & Tech 37:121-7 Ja '64

Incorporation of isobutylene-isoprene copolymer latex in polyvinylidene chloride systems for paper. J. R. Condon and R. E. Nash. il Tappi 47:sup 141A-3A+ Jl '64

Intrinsic viscosity-molecular weight relationship for *cis*-1,4-polyisoprene. W. H. Beattie and C. Booth. bibliog Rubber Chem & Tech 36:1035-41 O '63

Plasticization of PVC by polyisoprene SKN-40. V. A. Byl'ev and V. A. Voskresenskii. bibliog Rubber Chem & Tech 37:770-3 Jl '64

Preformed aluminum triisobutyl-titanium tetrachloride catalysts for isoprene polymerization. E. Schoenberg and others. bibliog Rubber Chem & Tech 37:103-20 Ja '64

Reaction of chloral with 1,4-polyisoprene. C. Pinazzi and others. Rubber Chem & Tech 36:1056-8 O '63

Reaction products of chloral with *cis*-1,4-polyisoprene. C. Pinazzi and others. bibliog Rubber Chem & Tech 36:1054-5 O '63

Reactions between peroxide and polydiolefins. B. M. E. van der Hoff. bibliog Ind & Eng Chem Product Res & Develop 2:273-8 D '63

Shell expands polyisoprene latex capacity. il Chem & Eng N 42:37-8 Ap 13 '64

Synthesis of isoprene; abstract. M. De Malde. Ind Chem 39:607-8 N '63

Manufacture

Isoprene; Institut français du petrole. diag Hydrocarbon Process & Pet Refiner 42:187 N '63

Isoprene; the Goodyear tire & rubber co. and Scientific design co. diag Hydrocarbon Process & Pet Refiner 42:188 N '63

New SNAM process for isoprene. M. De Malde and others. diag Hydrocarbon Process & Pet Refiner 43:149-52 Jl '64

Unusual reactants highlight new isoprene process. il diag Chem Eng 71:78-80 S 28 '64

ISOPRENE rubber. See **Rubber, Artificial**

ISOPROPYL alcohol

Activity coefficients at infinite dilution; 2-propanol-water system. E. W. Slocum and B. F. Dodge. bibliog diag A I Ch E J 10:364-8 My '64

Experimental determination of the vapour-liquid equilibrium data for the system acetone-methanol-*iso*propanol. P. Allen and K. A. Pike. bibliog diag Ind Chem 40:260-6 My '64

Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64

Radiolysis of deaerated aqueous solutions of 2-propanol containing nitrous oxide. J. T. Allan and C. M. Beck. bibliog Am Chem Soc J 86:1483-8 Ap 20 '64

Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diags Can J Chem Eng 42:82-4 Ap '64

Analysis

Determination of microgram amounts of isopropyl alcohol in aqueous solutions. M. Mantel and M. Anbar. Anal Chem 36:936-7 Ap '64

Manufacture

Isopropyl alcohol (Distillers co. process); Stone & Webster engineering corp. diag Hydrocarbon Process & Pet Refiner 42:189 N '63

ISOPROPYL benzene. See **Cumene**

ISOPROPYL bromide

Aromatic substitution; Friedel-Crafts isopropylation of benzene and methylbenzenes with isopropyl bromide and propylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1046-54 Mr 20 '64

ISOPROPYL ether

Destroying peroxides of isopropyl ether. A. C. Hamstead. bibliog Ind & Eng Chem 56:37-42 Je '64

ISOPROPYL group

Conformation studies; *p*-methane-2,5-diols and the relative size of the isopropyl group. R. D. Stolow. bibliog Am Chem Soc J 86:2170-3 Je 5 '64

Diisopropyl peroxydicarbonate offers new route to phenols. P. Kovacic and S. T. Morneweck. Chem & Eng N 42:42-3 S 28 '64

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64

Optical rotatory dispersion studies; the octant rule and the isopropyl group synthesis of steroidal isopropyl ketones. C. Djerassi and others. bibliog Am Chem Soc J 86:85-90 Ja 5 '64

Stereospecificity in the anionic polymerization of isopropyl acrylate. C. Schuerch and others. bibliog Am Chem Soc J 86:4481-2 O 20 '64

Syntheses of (+)-methyl dehydrodeisopropylabietate. T. A. Spencer and others. bibliog Chem & Ind p577-8 Ap 4 '64

ISOPROPYLIDENEDIPHENOL. See **Dihydroxydiphenyl dimethylmethane**

ISOPROPYLIDENE group

1,2:4,5-di-*O*-isopropylidene-ribitol. K. W. Buck and others. Chem & Ind p 1623-4 S 19 '64

Mass spectra of O-isopropylidene derivatives of pentoses and hexoses. D. C. De Jongh and K. Biemann. bibliog Am Chem Soc J 86:67-74 Ja 5 '64

ISOQUINOLINE

Aporphine and isoquinolinedienone alkaloids of ocotea glaziovii. B. Gilbert and others. bibliog Am Chem Soc J 86:694-6 F 20 '64

Catalytic vapour-phase transformation of isoquinoline to phthalimide. S. K. Ray and others. J Ap Chem 14:129-31 Mr '64

Chemical microscopy of the platinum metals; reactions with 4-bromoisoquinoline and 4-(*p*-nitrobenzyl) pyridine. H. F. Schaeffer. il Anal Chem 36:169-72 Ja '64

Kinetics of nitration of pyridine 1-oxide and isoquinoline 2-oxide. R. B. Moodie and others. Chem & Ind p 1577 S 12 '64

ISOQUINUCLIDINE. See **Azabicyclooctane**

ISOSTEVIOL

Partial synthesis of monogynol from isosteviol. J. R. Hanson. bibliog Chem & Ind p 1579-80 S 12 '64

ISOTHIOCYANATES

Cycloadditions; the reactions of Δ^2-1,2,3-triazolines with phenyl isocyanate and phenyl isothiocyanate. J. E. Baldwin and others. Am Chem Soc J 86:4509-10 O 20 '64

Naturally occurring insecticides in cruciferous crops. E. P. Lichtenstein and others. bibliog J Agri & Food Chem 12:158-61 Mr '64

Oxazolidinethiones and volatile isothiocyanates in enzyme-treated seed meals from 65 species of cruciferae. M. E. Daxenbichler and others. bibliog J Agri & Food Chem 12:127-30 Mr '64

ISOTOPES

Applications of isotopic exchange in gas chromatography. J. Tadmor. bibliog diag Anal Chem 36:1565-73 Jl '64

Atomic beam magnetic resonance apparatus for short-lived isotopes. G. K. Rochester and K. F. Smith. diags J Sci Instr 41:629-32 O '64

Conformational kinetic isotope effects in the racemization of 9,10-dihydro-4,5-dimethylphenanthrene. K. Mislow and others. bibliog Am Chem Soc J 86:1733-41 My 5 '64

Determination of carbon in sodium by isotope dilution mass spectrometry. K. Y. Eng and others. diag Anal Chem 36:1832-4 Ag '64

Inverse secondary intermolecular isotope effects in the low pressure thermal isomerization of cyclopropane. B. S. Rabinovitch and others. bibliog Am Chem Soc J 86:2994-6 Ag 5 '64

ISOTOPES—*Continued*

Isotopic effects during catalytic hydrogenation. E. D. Bitner and others. diag Am Oil Chem Soc J 41:1-3 Ja '64

Isotopic exchange of oxygen between alumina and organic compounds. D. Samuel and I. Wasserman. bibliog Chem & Ind p891-2 My 23 '64

Liquid scintillation counting of doubly-labeled samples. E. T. Bush. bibliog Anal Chem 36:1082-9 My '64

Mass spectrometry in structural and stereochemical problems; isotope effect in hydrogen rearrangement processes; the mass spectra of methyl butyrate and its γ-mono-, di-, and trideuterio analogs. D. H. Williams and others. bibliog Am Chem Soc J 86:284-7 Ja 20 '64

Medical radiography with radioisotope. il Safety Maint 128:47-8 Ag '64

Nuclear chemistry, isotopes and radioactivity. G. T. Austin and H. F. Austin. bibliog Chem Eng 71:129-32 O 26 '64

One million volts from radioisotopes. Engineering 198:251 Ag 21 '64

Portable fluorescent X-ray instrument utilizing radioisotope sources. J. O. Karttunen and others. bibliog il diags Anal Chem 36:1277-82 Je '64

Radioisotopes for on-stream analysis. J. W. Haffner. bibliog il diags I S A J 11:78-82 Ap; 75-8 My '64

Re-examination of isotopic relationships in Colorado Front Range uranium ores. P. O. Banks and L. T. Silver. bibliog Geol Soc Bul 75:469-76 My '64

Selective determination of mercury by isotopic exchange with mercuric di-*n*-butyl phosphorothioate in an extraction system. T. H. Handley. Anal Chem 36:153-6 Ja '64

Semiautomatic machine for group separation of radioelements by cation exchange. W. G. Mathers and C. W. K. Hoelke. diags Anal Chem 35:2064-8 D '63

Simultaneous determination of radioisotope pairs by the decay constant differentiation principle. E. Inselberg. bibliog Anal Chem 36:568-75 Mr '64

Squibb opens radiopharmaceutical plant. il Chem & Eng N 42:27 Je 15 '64

Statistical aspects of double isotope liquid scintillation counting by internal standard technique. R. J. Herberg. Anal Chem 36:1079-82 My '64

Steric isotope effects; the isotope effect on the racemization of 2,2′-dibromo-4,4′-dicarboxybiphenyl. L. Melander and R. E. Carter. Am Chem Soc J 86:295-6 Ja 20 '64

Steric origin of some secondary isotope effects of deuterium. V. F. Raaen and others. bibliog Am Chem Soc J 85:3497-9 N 5 '63

Techniques for the use of radioisoptopes in analysis. D. A. Lambie. Review, by J. Haslam. Chem & Ind p693-4 Ap 25 '64

Total flow rates in an isotope separation system. A. Apelblat and G. Pery. bibliog diag Ind & Eng Chem Fundamentals 3:83-5 F '64

Tritium-labeled compounds; determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-*l-t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

Uptake and release of radio-nuclides by stream sediments; abstract. T. D. Reynolds and E. F. Gloyna. WPCF J 36:279-80 Mr '64

See also
Deuterium
also subdivision Isotopes under special subjects, e.g.
Americium
Argon
Carbon
Cesium
Cobalt
Curium
Helium
Iodine
Iron
Lead
Manganese
Plutonium
Potassium
Promethium
Protoactinium
Selenium
Strontium
Tin
Uranium
Zinc

Analysis

Chemical analysis of radioactive materials in water. T. F. Craft and others. Am Water Works Assn J 56:1357-68 O '64

Industrial applications

Analysis of tower flooding. A. I. Snow and W. S. Dickinson. diags Chem Eng Prog 60:64-6 O '64

Fluid travel log. T. Walker and others. diags J Pet Tech 16:851-8 Ag '64

Gamma rays check varied parts. il Iron Age 194:65 O 15 '64

Man who turns cobalt into money. il diag Can Chem Process 48:58-62 My '64

Modified isotope dilution technique for the determination of oxygen in iron and steel. J. P. Burden and C. R. Masson. bibliog diag Iron & Steel Inst J 202:28-31 Ja '64

Motor vehicle research centre; Vauxhall motors ltd. il Engineer 218:211-12 Ag 7 '64

Nebraska ready to sell commercial radiation. Chem & Eng N 42:27 F 3 '64

Nuclear gage guides material flow. Eng N 173:52 Ag 20 '64

Radioactive static eliminators. D. Taylor. il diags Ind Electronics 1:717-19 N '63

Radioisotope gauging in the mining industry. B. W. Smith. bibliog flow diag il diags Can Min & Met Bul 57:37-44 Ja '64

Radioisotopes as industrial tools in Canada. L. J. O'Riley. bibliog il diag Eng J 47:44-7 My '64

Radioisotopes speed measurement of precious metal plating thickness. G. A. Goethner. il Plating 51:429-32 My '64

Radioisotopes used to automatically weigh wood chips. il Paper Ind 46:473 S '64

Safety in industrial use of radioactive sources. J. W. Kuhn. il diags Chem Eng Prog 60:41-4 Ap '64

Slurry measurement and control. H. L. Cook. diags I S A J 11:59-62 Je '64

Testing requirements for radioactive gauges. Engineering 197:165 Ja 24 '64

ISOVITEXIN

Structure of vitexin and isovitexin. R. M. Horowitz and B. Gentili. bibliog Chem & Ind p498-9 Mr 21 '64

ISRAEL

See also subdivision Israel under special subjects, e.g.
Ceramic industries
Chemical industries
Cosmetic industry and trade
Electronics industry
Geology
Nutrition problems
Petroleum industry and trade
Public health
Water, Underground
Water supply

ISTANBUL

St Sophia's structure; a new assessment of the half-domes. R. L. Van Nice. il plan diags Arch Forum 121:45-9 Ag-S '64

ITACONIC acid

Cathodic action of the uranyl-itaconate complex at the dropping mercury electrode. T. T. Lai and B. C. Wang. bibliog Anal Chem 36:26-8 Ja '64

ITALY

See also subdivision Italy under special subjects, e.g.
Airplane industry and trade
Architecture
Atomic power plants
Automobile industry and trade
Chemical industries
Cosmetic industry and trade
Electricity supply
Engineering
Floods
Gasoline industry
Mines and mineral resources
Petroleum industry and trade
Photographic supplies industry
Plastics industries
Roads
Steel industry and trade
Warships

Antiquities

Ancient Cumae. R. V. Schoder. il maps Sci Am 209:108-21 D '63

ITERATION (mathematics)

Absolute iteration and the solution of transcendental equations. S. T. Kowel. Franklin Inst J 278:210-18 S '64

Accelerated convergence, divergence, iteration, extrapolation, and curve fitting. J. R. MacDonald. bibliog J Ap Phys 35:3034-41 O '64

Conjecture concerning the smallest bound on the iterations in linear programming. T. L. Saaty. Op Res 11:151-3 Ja '63; Discussion. 12:159-65 Ja '64

Convergence of multipoint iterative methods. L. Tornheim. bibliog Assn for Computing Mach J 11:210-20 Ap '64

ITERATION (mathematics)—*Continued*

Determination of dominant error sources in an inertial navigation system by iterative weighted least squares. W. Eisner and A. F. Goodman. bibliog diag AIAA J 2:722-7 Ap '64

Digital computer iterative method for simulating switching surge responses of power transmission networks. A. Arismunandar and others. bibliog diags IEEE Trans Power Apparatus & Systems 83:356-68; Discussion. 444-5; Reply. 445-6 Ap '64

Extension of iteration method for determining strain distributions to the uniformly stressed plate with a hole. E. A. Davis. A S M E Trans ser E 30:210-14 Je '63; Discussion. 31:362-4 Je '64

Factoring polynomials by iteration. Y. L. Luke. bibliog Electro-Tech 74:30-7 Ag '64

Iterative and power series solutions for the large deflection of an annular membrane. A. B. Pifko and M. A. Goldberg. AIAA J 2:1340-2 Jl '64

Iterative method for the displacement analysis of spatial mechanisms. J. J. Uicker, jr. and others. bibliog diags A S M E Trans ser E 31:309-14 Je '64

Iterative unfolding procedure. R. P. Uhlig. bibliog J Res Nat Bur Stand 68A:401-7 Jl '64

Numerical solution of systems of nonlinear equations. F. Freudenstein and B. Roth. bibliog Assn for Computing Mach J 10:550-6 O '63

Scheduling of vehicles from a central depot to a number of delivery points. G. Clarke and J. W. Wright. diags Op Res 12:568-81 Jl '64

Two new classes of algorithms for finding the eigenvalues and eigenvectors of real symmetric matrices. C. D. La Budde. Assn for Computing Mach J 11:53-8 Ja '64

J

JACKS

Climbing jacks raise heavy loads. il Eng N 172:160 Je 18 '64

Jack poles lift concrete roof. il Eng N 173:41 Ag 27 '64

Raise lab to build basements under it. il Eng N 172:25 Ap 23 '64

JACKS, Hydraulic. See Hydraulic jacks

JACKSON, Ralph Semmes

Memorial. por Geophysics 29:129-30 F '64

JACKSON, Mississippi

Water supply

Reservoir key to area's growth. E. Thomas. il map Eng N 173:40+ Ag 20 '64

JACKSONVILLE BEACH, Florida

See also

Electricity supply—Jacksonville Beach, Florida

JAM. See Jelly, jam, etc.

JAMAICA

See also

Mines and mineral resources—Jamaica

JAMES, William Stubbs

Obituary. por S A E J 72:102-3 Ap '64

JANITORS

Employment qualifications for custodial personnel. A. DePastino. Safety Maint 127:54-6 Je '64

Safety in building maintenance. J. Pagano. il Safety Maint 127:58-61 Mr '64

JAPAN

See also subdivision Japan under special subjects, e.g.

Air pollution
Architecture
Atomic power plants
Cement industry and trade
Chemical industries
Colleges and universities
Cosmetic industry and trade
Earthquakes
Electric apparatus industry
Electronics industry
Engineering
Engineers
Gas, Natural
Hydroelectric plants
Industry and state
Iron industry and trade
Machine tool industry
Mines and mineral resources
Petroleum industry and trade
Plastics industries
Railroads
Rubber industry and trade
Shipbuilding
Steel works
Television apparatus industry
Traffic regulations

Commerce

Japan; export market for western Canadian bituminous coal. T. G. Ewart. Can Min & Met Bul 57:537-9 My '64

Industries and resources

Cooperation in quality control work between countries with different culture; successful example. K. Koyanagi. Ind Quality Control 21:60-3 Ag '64

Japan, a quiet explosion. il Product Eng 35:57-9 Ja 20 '64

Japan, key to British Columbia's mining resurgence. H. Minagawa. il Min Eng 15:58-62 D '63

Japanese industry takes to the water. il Engineering 197:854 Je 26 '64

JAPANESE bathtubs. See Bathtubs

JAPANESE cookery. See Cookery, Japanese

JAPANESE language

Spoken digit recognizer for the Japanese language. K. Nagata and others. bibliog il diags Audio Eng Soc J 12:336+ O '64

JAUNDICE

Efficacy of varied doses of gamma globulin during an epidemic of infectious hepatitis, Hoonah, Alaska, 1961. R. D. Aach and others. bibliog Am J Pub Health 53:1623-9 O '63

Elusive etiologic agents of viral hepatitis. R. W. McCollum. bibliog Am J Pub Health 53:1630-4 O '63

Epidemiologic studies of a large urban outbreak of infectious hepatitis. W. H. Mosley and others. bibliog maps Am J Pub Health 53:1603-17 O '63

Physician related outbreak of hepatitis. W. J. Dougherty and R. Altman. Am J Pub Health 53:1618-22 O '63

Study of the role of tissue-penetrations in the transmission of viral hepatitis. H. A. Sultz. bibliog Am J Pub Health 54:1263-9 Ag '64

JAZZ music

Jazz and all that. B. Stanleigh. Published in monthly numbers of Audio

School proposed to advance American jazz. il diag Prog Arch 45:81 Je '64

JEANNERET, Pierre

Recent work. U. E. Chowdhury. por Prog Arch 45:148-53 F '64

JEGER, Oskar

Fritzsche award. por Chem & Eng N 42:74 Ap 6 '64

JELLY, jam, etc.

Portion-packs jam in foil. il Food Eng 36:54-5 Ag '64

JENKINS, Harry M.

General American's Jenkins. por Mod Plastics 41:50 D '63

JET engines. See Airplane engines—Jet engines

JET fuel. See Gas turbines, Aircraft—Fuel

JET propulsion

See also

Airplanes, Jet propelled
Motor boats, Jet propelled
Rocket propulsion

JETS

Boundary of underexpanded axisymmetric jets issuing into still air. A. F. Charwat. AIAA J 2:161-3 Ja '64

Combined analytical and experimental approach to the development of fluid-jet amplifiers. F. T. Brown. bibliog diags A S M E Trans ser D 86:175-82; Discussion. 183-4 Je '64

Disintegration of a turbulent water jet. T. F. Chen and J. R. Davis. il diags Am Soc C E Proc 90 [HY 1 no 3772]:175-206 bibliog(p204-6) Ja '64; Correction. 90 [HY 6 no 4130]: 273 N '64

Jet-driven resonance tube. P. A. Thompson. bibliog il diag AIAA J 2:1230-3 Jl '64

Jet thinning device for preparation of Al_2O_3 electron microscope specimens. N. J. Tighe il diags R Sci Instr 35:520-1 Ap '64

Modern fluid energy mill. F. E. Albus. il Chem Eng Prog 60:102-6 Je '64

Profile relaxation in Newtonian jets. S. Middleman. bibliog Ind & Eng Chem Fundamentals 3:118-22 My '64

Sudden expansion of a bounded jet at a high pressure ratio. E. J. Barakauskas. AIAA J 2:1644-5 S '64

JETS—*Continued*

Thickness distribution in a sheet formed by impinging jets. D. Hasson and R. E. Peck. bibliog diags A I Ch E J 10:752-4 S '64

Transformation for wake analyses. R. H. Page and R. J. Dixon. AIAA J 2:1464-5 Ag '64

Turbulent mixing of coaxial jets. L. J. Alpinieri. bibliog diags AIAA J 2:1560-7 S '64

Two-dimensional jet and cavity flows. R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 2 no 3831]:141-61 Mr '64

Velocity distributions in two-dimensional laminar liquid-into-liquid jets in power-law fluids. C. Gutfinger and R. Shinnar. bibliog diags A I Ch E J 10:631-9 S '64

Viscous jets from nonnarrow orifices. A. Pozzi. bibliog AIAA J 2:949-51 My '64

Water jet pump. N. H. G. Mueller. bibliog diags Am Soc C E Proc 90 [HY 3 no 3908]: 83-113 My '64

See also

Air jets

Steam jets

JEWEL bearings. See Bearings, Jewel

JEWELRY stores

Lighting

Lighting showmanship boosts jewelry sales. il Illum Eng 59:530-1 Ag '64

JIGS

Aligning method insures proper boiler tube window positioning; magnetic jig. H. O. Werner. il Combustion 36:32-3 S '64

Arcspot takes minutes out of jigmaking. il Steel 153:117+ D 9 '63

Fixed optical tooling dock cuts tooling time. R. E. Gariss. il Mach 70:94-6 Jl '64

Jig micrometer determines extruder screw diameters. J. Moziek. il diags Chem Eng 17:160 Ja 20 '64

Jigs, fixtures aid cylinder truck production. L. J. Hendrich. il Welding Eng 49:40-1 Ag '64

See also

Drilling and boring machinery

JIGS (mining)

Defeating deleterious material. il Rock Prod 67:84-5 Je '64

Jigs clean up dirty gravel. il Rock Prod 67: 88-9 Ap '64

JOB analysis

Marcona Mining adopts point system job evaluation scheme. V. R. Cabrera. Min Eng 16:124-7 Jl '64

JOB satisfaction

Modern manufacturing environment is creating new work concepts. J. A. Bekker. bibliog Automation 11:58-62 O '64

JOB work

Application of symbolic logic to a selection problem. J. G. Root. bibliog Op Res 12: 519-26 Jl '64

Automated job shop; the computer lends a hand. D. B. Dallas. il Tool & Manuf Eng 52:77-80 Mr '64

Evaluation system boosts job shop's bidding average. W. T. Stark. Steel 155:46-7 S 21 '64

Job-lot precision finishing. G. Shaver, jr. il diags Am Mach 108:73-4 S 28 '64

Job-lot rolling of splines and threads on mass-production equipment. D. Clark. il diag Mach 70:119-21 Mr '64

Job shop finds pores in castings with low cost leak testing. il Iron Age 193:76-7 Mr 5 '64

Job shop pinpoints costs via simple data system. il Steel 154:48-9 Ja 20 '64

Job shop takes the tough jobs. R. H. Eshelman. il Iron Age 194:67 Jl 16 '64

Lindberg story; blueprint for job shop growth. il Steel 154:42-6 Mr 23 '64

Logic, a new partner for forging. il Iron Age 193:117-20 F 20 '64

New hope for the job shop: an end to in-process mess! J. A. Eaton. il plan Mod Materials Handling 19:47-51 Jl '64

New, the limit technique; it's easy to pick the right lot sizes. J. A. Eaton. il Mod Materials Handling 19:38-43 F '64

Nc as a job shop tool. E. V. Hulen. il Am Mach 108:sup21-4 O 26 '64

N/c tackles shorter work runs. il Iron Age 193:97 Ja 30 '64

Plant plastic shop moonlights. G. DeGroat. il Am Mach 108:60-1 F 3 '64

Pneumatic n/c machine tools put job shop in the chips. W. N. Redstreake. il Iron Age 193:62-3 Ap 16 '64

Two-axis tracing on short runs. G. DeGroat. il diags Am Mach 108:103-6 Ja 20 '64

Wolverine die cast corp; an automated job shop. J. C. Miske. il Foundry 92:136-9 N '64

JOBBERS

Distributor and the third market; equipment modernization or upgrading. il Mill & Factory 74:85-100 My '64

Tip to jobbers; be efficient or die. W. H. Miller. Oil & Gas J 62:116 Ja 27 '64

JOHNSON, Alfred W.

Obituary. por Naval Eng J 76:155 F '64

JOHNSON COUNTY, Kansas

See also

Sewerage—Johnson County, Kansas

JOINTS

Adhesive bonding aluminum mast. il diag Light Metal Age 22:11 Je '64

Adhesive bonding light metals. F. L. Church. flow diag il diags Mod Metals 19:34+ O; 46+ D '63; 20:68-9+ F; 41-2+ Ap; 76+ Jl; 56+ S '64

Adhesive joins guard railings. il Iron Age 194:86 Jl 16 '64

Adhesives set up new products. A. W. Young. il diags Iron Age 193:127-34 Ap 30 '64

Bonded metal assembly. D. K. Rider. il diags Product Eng 35:85-98 My 25; 75-8 Je 8 '64 (reprints 50c)

Bonding of layers in two-dimensional seismic modeling. M. N. Toksöz and F. Schwab. bibliog Geophysics 29:405-13 Je '64

Bonding process joins honeycomb. il diags Iron Age 192:154-5 D 5 '63

Brazing rings perform to rigid specifications. il Welding J 43:692-3 Ag '64

Cadmium solder preforms join manifold tubes. il Materials in Design Eng 60:146 O '64

Chemically stable joint sealer; asphalt-impregnated polyurethane foam. il diag Plastics World 21:98-9 N '63

Choosing the best structural fastener. H. J. Stetina. il diags Civil Eng 33:50-3 N '63

Cold flow replaces soldering. il diags Am Mach 108:74-5 Mr 2 '64

Concept of tubular-joint design. J. G. Bouwkamp. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3864]:77-101 Ap '64

Construction joints for elastomeric sealants. W. F. Koppes. diags Prog Arch 45:163-7 Mr '64

Correlation of some thermal properties of epoxy adhesives and shear strength of steel bonds. G. J. Barenholtz and others. Ind & Eng Chem Product Res & Develop 2:270-2 D '63

Design criteria for sealing gasketed joints. E. M. Smoley. diag Machine Design 35:174-7 N 21 '63

Determining preload in a bolted joint. T. C. Baumgartner and F. R. Kull. bibliog il diags Machine Design 36:180-5 F 13 '64

Development of butt brazing techniques for joining copper conductors. A. Madura. il diags Welding J 43:sup320-8 Jl '64

Diffusion across dissimilar metal joints. J. F. Eckel. bibliog il diags Welding J 43: sup 170-8 Ap '64

Diffusion bonding advances reviewed. Steel 155:58+ O 26 '64

Dip brazing of aluminum. M. Sinclaire. il diag Metal Prog 86:84-7 S '64

Effect of high humidity environments on the strength of adhesive joints. D. J. Falconer and others. Chem & Ind p 1230-1 Jl 4 '64

Exo-Flux welding of stainless steel type alloys. R. A. Long and others. flow sheet il Welding J 43:sup259-64 Je '64

Fiber metal for joining. J. F. Rudy. il Welding J 42:sup529-34 D '63

For better looking sheetmetal joints; drawings. F. W. Wood. Product Eng 35:80-1 Je 8 '64

Fusion process bonds carbide to steel. il Iron Age 193:92 Mr 19 '64

Gas plating, an introduction. C. E. MacNeill. bibliog diags Metal Finishing 61:40-4+ Jl '63; Abstract. Metal Prog 86:200+ S '64

Gas tight joint on stator casings of large turbo-generators. V. Easton. il diags Engineer 217:477-9 Mr 13 '64

Guide to joint sealants. R. C. Scott. il Product Eng 35:73-84 Mr 16 '64

How to prepare surfaces for adhesive bonding. il Materials in Design Eng 58:100-1 N '63

Joining and fastening. Materials in Design Eng 60:529-43 Mid-O '64

Joining neoprene strip fastener. il Product Eng 34:51 N 25 '63

Joints made leaktight via eutectic bonding. il Steel 154:61-2 F 3 '64

Laser techniques for metals joining. W. N. Platte and J. F. Smith. bibliog il diags Welding J 42:sup481-9 N '63

Low temperature diffusion bonding of aluminum alloys. I. M. Barta. il diag Welding J 43:sup241-7 Je '64

JOINTS—*Continued*

Measuring texture and contact area of endwood surfaces. C. W. Maxey. diags Materials Res & Stand 4:279-85 Je '64

Metallurgical bonding of dissimilar metals by co-extrusion. P. Lowenstein and W. B. Tuffin. diags Machine Design 36:227-8+ My 21 '64

Modern diffusion bonding meets space-age needs. A. G. Metcalf. il diags S A E J 72:53-7 Ap '64

New techniques for metals joining in the space age. R. Bakish and others. bibliog il diags J Metals 16:238-45 Mr '64

North American Aviation offers tips on bimetallic joining. L. F. Gatzek. il Steel 155: 160+ S 14 '64

One-part epoxy does singular joining job. il diag Materials in Design Eng 59:146+ Mr '64

Producing step-lap joints in lamination stacks. B. B. Ellis and C. E. Burkhardt. il diags Tool & Manuf Eng 53:63-4 O '64

Quality joints, clean parts a result of atmosphere brazing. il Welding Eng 48:38-9 D '63

Regalvanizing joints damaged in welding. M. J. Clark. il Welding J 43:311 Ap '64

Sealed-for-life ball joints. il diags Automobile Eng 54:14-17 Ja '64

Soft solder joins tube to plate. il Iron Age 193:103 Je 18 '64

Soldering of beryllium metal. E. E. Weismantel and K. C. Taber. il Welding J 43: sup57-62 F '64

Solid state bonding. M. J. Albom. bibliog il Welding J 43:491-4+ Je '64

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Structural adhesives economize joining. il diag Materials in Design Eng 59:152+ F '64

Structural adhesives, some types designed for metal-to-metal bonding; with engineering data sheet. C. I. House. il diags Welding Eng 49:40-3 S '64 (reprints 50c)

Structural adhesives; will they replace other forms of metal joining? il Welding Eng 49: 35-7 S '64 (reprints 50c)

Unusual joining techniques; seminar abstracts. il Metal Prog 84:152+ N '63

Water-leakage test for window sections. H. R. Trechsel. diags Materials Res & Stand 4:483-5 S '64

Welded connections for space frame joints. R. H. Goldsmith. il plans diags Am Soc C E Proc 90 [ST 5 no 4100]:63-84 O '64

Welded transition joints call for transitional design. G. H. Lynn and others. il Welding Eng 49:42-4 Jl '64

Welding of 60 chromium-40 nickel alloy to low carbon and stainless steels. H. J. Lander and others. bibliog il diags Welding J 43:sup 198-201 My '64

Working with refractory metals; joining. R. C. Bertossa. il Metal Prog 85:130+ Ap '64

You can cut joining costs as much as 50 per cent. il Steel 154:43-51 Ap 27 '64

See also

Brackets
Concrete construction—Joints
Couplings
Electric cables—Joints
Electric wire—Joints
Flanges
Gaskets
Glass—Joining to metal
Packing
Pipe joints
Riveted joints
Screws
Solder and soldering
Welding

Testing

Long bolted joints. R. A. Bendigo and others. bibliog il diags Am Soc C E Proc 89 [ST 6 no 3727]:187-213 D '63; Discussion. 90 [ST 3 no 3940]:417-19 Je; [ST 4 no 4001]:311-15 Ag '64

Measuring fracture toughness of adhesive joints. E. J. Ripling and others. bibliog il diags Materials Res & Stand 4:129-34 Mr '64

Response of timber joints with metal fasteners to lateral impact loads. C. A. Jordan. il Materials Res & Stand 3:368-76 My '63; Discussion. 3:914 N '63

Simple joint tests predict performance of structures. il Steel 153:109 N 25 '63

JOINTS (geology)

Microjointing in basement, middle Rocky Mountains of Montana and Wyoming. D. U. Wise. bibliog maps diags Geol Soc Bul 75: 287-305, pl 1-4 Ap '64

Tidal strain as a possible cause of microseisms and rock jointing. C. D. Holmes. bibliog Geol Soc Bul 74:1411-12 N '63

JOINTS, Universal

Design criteria for integral web and universal angle buses. R. M. Milton and others. bibliog il diags IEEE Trans Power Apparatus & Systems p928-37; Discussion. 937-40; Reply. 940-1 D '63

How to predict drive-train vibration caused by Hooke's joints. R. B. Bossler, jr. and W. G. Flannelly. diags Machine Design 36: 194-8 Je 18 '64

Rubber spring boosts driveline flexibility; abstract. W. Trisler. diag S A E J 71:88-9 D '63

U-joint specialists fill a vital gap. il Diesel Equip Supt 42:46-7 O '64

JONES, Joseph H.

J. H. Jones to be 6th recipient of Harold C Chapin award. por Am Dyestuff Rep 53: 776 Ag 31 '64

JORDAN

See also

Water supply—Jordan

JORDAN RIVER

Jordan River water system. M. D. Morris. il map Water Works & Wastes Eng 1:114-15+ S '64

JOULE-THOMSON effect

Joule-Thomson effects for nitrogen-ethane mixtures. A. L. Stockett and L. A. Wenzel. bibliog diags A I Ch E J 10:557-61 Jl '64

JOURNAL bearings. See Bearings

JOURNALISTIC photography. See Photography, Journalistic

JUNCTION transistor. See Transistors

JUNGLE

Jungle sounds. il Electronics 37:32 S 21 '64

Measurement of the attenuation of radio signals by jungles. J. W. Herbstreit and W. K. Q. Crichlow. bibliog J Res Nat Bur Stand 68D:903-6 Ag '64

JUPITER (planet)

Radio waves from Jupiter. K. L. Franklin. il diags Sci Am 211:34-42 Jl '64

JURASSIC period. See Geology, Stratigraphic —Jurassic

JUTE

Chemical constituents and molecular weights of cellulose in different parts of jute fiber. M. Bashiruzzaman and others. bibliog Textile Res J 34:910-11 O '64

Effect of skewness of distribution on the range method of determining the coefficient of weight variation of jute yarn pieces. S. K. Mukhopadhyay and S. B. Bandyopadhyay. Textile Res J 34:906-8 O '64

Electricity in the processing of jute. K. J. McConnell. Inst E E Proc 111:585 Mr '64

JUVENILE workers. See Youth—Employment

K

KEL-F. See Chlorotrifluoroethylene

KAHN, Louis

Light, form, and power; new work of Louis Kahn. V. Scully. Arch Forum 121:162-70 Ag-S '64

KALDO process. See Steel metallurgy—Oxygen processes

KANSAS

See also

Gas, Natural—Kansas
Geology—Kansas
Irrigation—Kansas
Mines and mineral resources—Kansas
Petroleum—Kansas
Roads—Kansas

KANSAS CITY, Missouri

Architecture

Powerful grid for a prairie tower; new BMA office building. il plans Arch Forum 121:86-91 Jl '64

Sewerage

Pollution abatement program helped by abandoned water line. L. W. Weller. il Pub Works 95:112-14 Je '64

That attractive house may be a pumping station. L. W. Weller. il map Pub Works 95:86-8 Ap '64

Streets

Street maintenance by contract. S. C. Palmer. il Pub Works 94:104-6 N '63

KAOLIN

Kaolin. R. F. Conley and A. Torok. bibliog il Am Perfumer 79:57-9 O '64

KAOLIN—*Continued*

Low-temperature syntheses of kaolin minerals. C. DeKimpe and others. bibliog il Am Mineralogist 49:1-16 Ja '64

Polymorphism of the kaolin minerals. S. W. Bailey. bibliog diags Am Mineralogist 48: 1196-209 N '63

Quantitative mineral analysis of kaolin-bearing rocks by X-ray diffraction. E. Niskanen. bibliog Anal Chem 36:1268-71 Je '64

Reduction of orientation effects in the quantitative *X*-ray diffraction analysis of kaolin minerals. E. Niskanen. bibliog diag Am Mineralogist 49:705-14 My '64

KAOLINITE

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

Distinction between kaolinite and chlorite in recent sediments by *X*-ray diffraction. P. E. Biscaye. Am Mineralogist 49:1281-9 bibliog(p 1288-9) S '64

Effect of temperature on the charge on kaolinite particles in water. D. D. Button and W. G. Lawrence. bibliog il diags Am Cer Soc J 47:503-9 O '64

Formation of pellet-like flocs of kaolinite by polymer chains. M. Yusa and A. M. Gaudin. bibliog il Am Cer Soc Bul 43:402-6 My '64

Interaction of water with a Li kaolinite surface. R. A. Kohl and others. bibliog J Colloid Sci 19:699-707 O '64

Neutron activation method for soil removal measurements; a comparison of the reflectance method and the neutron activation method. D. A. Netzel and others. bibliog il Am Oil Chem Soc J 41:678-83 O '64

New class of materials formed by bonding clays to polymers. P. G. Nahin. Chem & Eng N 42:70+ O 26 '64

Particle interactions in aqueous kaolinite dispersions. A. S. Michaels and J. C. Bolger. bibliog Ind & Eng Chem Fundamentals 3:14-20 F '64

Quantitative determination of kaolinite and halloysite by NH_4Cl retention measurement. K. Wada. bibliog diag Am Mineralogist 48: 1286-99 N '63

Sodium tri(poly)phosphate in the kaolinite-water system. J. W. Lyons. bibliog J Colloid Sci 19:399-412 Je '64

Surface properties and flow behavior of kaolinite. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:820-62 D '63

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

KARACHI, Pakistan

Sewerage

Karachi gets sewage treatment. il Water Works & Wastes Eng 1:57 Je '64

KARL FISCHER reagent. See Fischer reagent

KATZ, Donald L.

Donald L. Katz receives 1964 John Franklin Carll award. por J Pet Tech 16:1019 S '64

KAYAN, Carl F.

Professor C. F. Kayan receives E. K. Campbell award of merit. por Heating-Piping 36:44 Ap '64

KELLY, Charles Ignatius

Obituary. Inst Pet J 50:206-7 Ag '64

KENNEDY, John F.

John F. Kennedy; some recollections by Glenn T. Seaborg. pors Nucleonics 22:41-4 Ja '64

KENTUCKY

See also subdivision Kentucky under special subjects, e.g.

Coal mines and mining
Gas, Natural
Geology
Mines and mineral resources
Oil shales
Petroleum
Petroleum industry and trade
Roads

KENYA

See also

Architecture—Kenya

KEPLER, Johann

Computer versus Kepler. O. Gingerich. bibliog il diags Am Scientist 52:218-26 Je '64

KEPLER equation. See Mechanics, Celestial

KERATIN

Action of cuprammonium hydroxide (Schweitzer reagent) on keratin. L. J. Wolfram. Soc Dyers & Col J 80:68-71 F '64

Mechanical properties of permanently set and cystine reduced wool fibers at various relative humidities and the structure of wool. M. Feughelman. bibliog diags Textile Res J 33:1013-22 D '63

Post-yield region and the structure of keratin. M. Feughelman. bibliog diags Textile Res J 34:539-45 Je '64

Setting properties of keratin fibres. A. D. Jenkins and L. J. Wolfram. bibliog il Soc Dyers & Col J 80:65-8 F '64

Variation of electrical resistance with strain of keratin fibers with constant water content. J. E. Algie. Textile Res J 34:273-4 Mr '64

KEROSINE

Hydrodesulfurization; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:191 S '64

Kerosene contamination of river supply at Atlanta. P. Weir. Am Water Works Assn J 56:1323-5 O '64

Shell unveils new kerosine hydrogenation process. il Oil & Gas J 62:164 Jl 27 '64

KERR cell

High voltage pulse generator for a Kerr cell shutter. A. Hrisoho and B. Souček. diags J Sci Instr 41:482-3 Jl '64

Kerr cell measuring system for high voltage pulses. D. C. Wunsch and A. Erteza. bibliog diags R Sci Instr 35:816-20 Jl '64

KERR effect

Longitudinal Kerr effect signal-to-noise ratio. D. B. Dove. bibliog diag J Ap Phys 35:1991-2 Je '64

KETALS. See Acetals

KETENE

Reactivity of diketene and its supposed acidity. J. M. Briody and D. P. N. Satchell. Chem & Ind p893 My 23 '64

KETOLS

Stereochemical assignments for β-ketols formed by aldol addition of three simple ketones to *p*-nitrobenzaldehyde. M. Stiles and others. bibliog diags Am Chem Soc J 86:3337-42 Ag 20 '64

Synthesis of dihydrooxadiazinones and study of geometrical isomerism in α-ketol carbethoxyhydrazones. M. Rosenblum and others. bibliog Am Chem Soc J 85:3874-8 D 5 '63

Versatile ketone synthesis; the reduction of α-diketones and α-ketols by hydriodic acid. W. Reusch and R. LeMahieu. bibliog Am Chem Soc J 86:3068-72 Ag 5 '64

KETONES

Aroylation at the terminal methyl group of a 1,3,5-triketone to form a 1,3,5,7-tetraketone. M. L. Miles and others. Am Chem Soc J 85:3884-5 D 5 '63

Chemistry of conjugate anions and enols; the kinetically controlled enolization of α,β-unsaturated ketones and the nature of the transition state. S. K. Malhotra and H. J. Ringold. bibliog Am Chem Soc J 86: 1997-2003 My 20 '64

Clemmensen reduction of 1,3-diketones. N. J. Cusack and B. R. Davis. Chem & Ind p 1426-7 Ag 8 '64

Concerning the structure of the Grignard reagent; in diethyl ether; relevance of Grignard composition to the mechanism of addition to ketones. E. C. Ashby and M. B. Smith. bibliog Am Chem Soc J 86:4363-70 O 20 '64

Cotton effects and conformational equilibria in aliphatic aldehydes and ketones. M. J. T. Robinson. bibliog Chem & Ind p932-3 My 30 '64

Cyclic polyhydroxy ketones; *xylo*-trihydroxycyclohexenediolic acid and keto-inositols. A. J. Fatiadi and H. S. Isbell. bibliog J Res Nat Bur Stand 68A:287-99 My '64

Detection and lifetime of enol-acetone in the photolysis of 2-pentanone vapor. G. R. McMillan and others. bibliog Am Chem Soc J 86:3602-5 S 20 '64

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

Dialkyl peroxide-induced reductions of aromatic ketones. E. S. Huyser and D. C. Neckers. bibliog Am Chem Soc J 85:3641-4 N 20 '63

Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15: 85-9 Ag '64

KETONES—*Continued*

Elimination reactions of α-halogenated ketones; carbon-halogen and carbon-hydrogen bond strengths as orientation and rate-determining factors; deuterium isotope effects in dehydrobromination of 2-bromo-2-benzyl-1-indanone. D. N. Kevill and others. bibliog Am Chem Soc J 86:1553-7 Ap 20 '64

Formation of an isocyanide and a ketone from an α-haloamide. J. C. Sheehan and I. Lengyel. Am Chem Soc J 86:746-7 F 20 '64

Formation of the stable 1,3-dihydroxy-2,4-diphenylcyclobutadiene dication by ionization of an α-bromoketone. D. G. Farnum and B. Webster. bibliog Am Chem Soc J 85:3502-4 N 5 '63

General theory of photochemical reactions; mechanisms of epoxy ketone reactions. H. E. Zimmerman and others. bibliog Am Chem Soc J 86:947-8 Mr 5 '64

Influence of unsaturation and of fluorine substitution on ketone-alcohol equilibrium constants; a measure of α,β-unsaturated ketone resonance energy and of halogen destabilization. H. J. Ringold and others. bibliog Am Chem Soc J 86:4510-12 O 20 '64

Infrared study of the C=N stretching vibration in azine derivatives of aldehydes and ketones. L. D. Frederickson, jr. bibliog Anal Chem 36:1349-55 Je '64

Ketones cleaved at room temperature; abstract. P. G. Gassman and F. V. Zalar. Chem & Eng N 42:44 Ap 20 '64

Kinetics of the addition of Grignard reagents to ketones. S. G. Smith and G. Su. bibliog Am Chem Soc J 86:2750-1 Jl 5 '64

Kinetics of the reaction of cyclohexyl aryl ketones and nitrous acid in sulfuric acid. Y. Ogata and others. Am Chem Soc J 85:3649-50 N 20 '63

Lewis acid induced rapid allylic rearrangements of 2-halo-3-hydroxy-2,4-dimethylcyclobutenones; an unusually reactive α-haloketone. D. G. Farnum and others. bibliog Am Chem Soc J 86:673-9 F 20 '64

New method for the reduction of aldehydes and ketones to CH_2 under mild conditions. L. Caglioti and P. Grasselli. Chem & Ind p 153 Ja 25 '64

New synthesis of cyclohexenones; the double Michael addition of vinyl ethynyl ketones to active methylene compounds; application to the total synthesis of *dl*-griseofulvin. G. Stork and M. Tomasz. bibliog Am Chem Soc J 86:471-8 F 5 '64

New synthesis of ketones. E J. Corey and M. Chaykovsky. bibliog Am Chem Soc J 86:1639-40 Ap 20 '64

New synthesis of 1,4- and 1,5-diketones. G. Stork and R. Borch. bibliog Am Chem Soc J 86:935-6 Mr 5 '64

Nicandrenone, a new compound with insecticidal properties, isolated from nicandra physalodes. O. Nalbandov and others. bibliog J Agri & Food Chem 12:55-9 Ja '64

Novel photoisomerization reaction of cyclic ketones. S. Cremer and R. Srinivasan. Am Chem Soc J 86:4197-8 O 5 '64

Optical rotatory dispersion studies; effect of ring size in some bicyclic ketones. C. Djerassi and J. E. Gurst. bibliog Am Chem Soc J 86:1755-61 My 5 '64

Optical rotatory dispersion studies; the octant rule and the isopropyl group synthesis of steroidal isopropyl ketones. C. Djerassi and others. bibliog Am Chem Soc J 86:85-90 Ja 5 '64

Optical rotatory dispersion studies; the octant rule and the *t*-butyl group; synthesis of steroidal *t*-butyl ketones. C. Djerassi and others. bibliog Am Chem Soc J 86:78-85 Ja 5 '64

Optical rotatory dispersion studies; the use of low-temperature circular dichroism measurements for fingerprinting of steroidal ketones. K. M. Wellman and others. bibliog Am Chem Soc J 86:492-8 F 5 '64

Photochemical and thermal rearrangement of α,β-epoxyketones. C. K. Johnson and others. Am Chem Soc J 85:3894-6 D 5 '63

Photochemical properties of a 2-methyl-1,4-dien-3-one. P. J. Kropp. bibliog Am Chem Soc J 86:4053-61 O 5 '64

Photolysis and pyrolysis of 4-methyl-4-methoxy-2-pentanone. D. J. Coyle and others. bibliog Am Chem Soc J 86:3850-4 S 20 '64

Polarographic reduction of some aryl diketones. R. H. Philip, jr. and others. bibliog diags Electrochem Soc J 111:328-34 Mr '64

Rates of oxidation-reduction reactions between ketyls and ketones. N. Hirota and S. I. Weissman. bibliog Am Chem Soc J 86:2537-8 Jl 5 '64

Reactions between secondary alcohols, ketones, and hydrogen on metallic catalysts. J. Newham and R. L. Burwell, jr. bibliog Am Chem Soc J 86:1179-86 Mr 20 '64

Stereochemical assignments for β-ketols formed by aldol addition of three simple ketones to *p*-nitrobenzaldehyde. M. Stiles and others. bibliog diags Am Chem Soc J 86:3337-42 Ag 20 '64

Stereochemistry of the lithium-ammonium reduction of α,β-unsaturated ketones. G. Stork and S. D. Darling. bibliog Am Chem Soc J 86:1761-8 My 5 '64

Synthesis of *cis*-jasmone. G. Stork and R. Borch. Am Chem Soc J 86:936-7 Mr 5 '64

Synthesis of flavan-3-ols. P. N. Verma and M. M. Bokadia. bibliog Chem & Ind p807-8 My 9 '64

Tetracyclo[3.3.0.0.^{4,6}0^{2,8}]octan-3-one; a novel dicyclopropyl ketone. N. A. LeBel and others. Am Chem Soc J 86:1876-7 My 5 '64

Versatile ketone synthesis; the reduction of α-diketones and α-ketols by hydriodic acid. W. Reusch and R. LeMahieu. bibliog Am Chem Soc J 86:3068-72 Ag 5 '64

Analysis

Determination of methyl ketones and acetaldehyde by titration with hypobromite using Bordeaux indicator. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 36:384-6 F '64

Manufacture

Ketones; Institut français du petrole. diag Hydrocarbon Process & Pet Refiner 42:191 N '63

KETOSES

Infrared spectra of some 2-ketoses. L. M. J. Verstraeten. bibliog Anal Chem 36:1040-4 My '64

KETYLS

Electronic interaction in ketyl radicals. N. Hirota and S. I. Weissman. diags Am Chem Soc J 86:2538-45 Jl 5 '64

Rates of oxidation-reduction reactions between ketyls and ketones. N. Hirota and S. I. Weissman. bibliog Am Chem Soc J 86:2537-8 Jl 5 '64

KEY WEST, Florida

See also

Electricity supply—Key West, Florida

KEYS and keyways (machinery)

Designing the flexspline with plastics for harmonic drive system. D. V. Tinder and W. R. Carey. il diags Mech Eng 86:50-3 Jl '64

One-stroke splining paces line. il diag Iron Age 194:58-9 S 3 '64

Reclamation by hard surfacing cuts keyed shaft costs 60 per cent. il Welding J 43:691-2 Ag '64

Spline standard aids designers and manufacturers. L. N. DeVos. Mag of Stand 35:79 Mr '64

Manufacture

Job-lot rolling of splines and threads on mass-production equipment. D. Clark. il diag Mach 70:119-21 Mr '64

Versatility of keyseating. C. H. Wick. il diags Mach 70:138-40 Ap '64

KEYS and locks. See Locks and keys

KIDNEYS

Studies of rat liver and kidney enzymes. J. H. Hutchinson and others. bibliog Am J Clinical Nutrition 14:291-309 My '64

KIEV, Russia

Bridges

Precast units make up multiple-arch Russian bridge. il Eng N 173:36-7 Ag 13 '64

KIKER, John E. Jr

Sketch. por Pub Works 95:18 Mr '64

KIKUTAKE, Kiyonori

1963 Pan Pacific citation awarded to Japan's Kikutake. por Arch Rec 135:14-15 Mr '64

KILIMANJARO

Glaciations of Mount Kilimanjaro, northeast Tanganyika. C. Downie. bibliog diags Geol Soc Bul 75:1-16, pl 1-3 Ja '64

KILNS

Kiln dust; properties and handling. J. M. Wolfe. flow sheets Pit & Quarry 56:136-7+ Mr '64

Roller-hearth kiln speeds firing, cuts costs. il diags Cer Ind 83:44-7+ Ag '64

Rotary kiln care results in extended service life. Pit & Quarry 57:26 S '64

Silicone-ceramic adds vigor to Marquette Cement. il Rock Prod 66:96+ D '63

See also

Cement kilns

Lime kilns

KINASES
Effect of dietary carbohydrate on glucokinase and mannokinase activities of various rat tissues. S. Abraham and others. bibliog J Nutrition 83:273-88 Jl '64

KINDERGARTEN
Electric heat warms kindergarten floors in Chicago schools. il diag Heating-Piping 35:102-4 D '63

KINETIC theory of gases. See Gases, Kinetic theory of

KIPPING, F. S.
F. S. Kipping (1863-1949); his life and work. F. Challenger. Chem & Ind p697-9; Discussion. 700 Ap 25 '64

KIRBY, Maurice E.
Memorial. R. A. Bishop and A. R. Erickson. Am Assn Pet Geologists Bul 48:1600-1 S '64

KIRCHHOFF laws of networks
Application of Kirchhoff's laws to communication nets. J. Ziv and I. Cedarbaum. IEEE Proc 51:1661 N '63

KITCHEN utensils
Colorcast frying pan. il Engineering 197:677 My 15 '64
New stud-weld improves pan-handle design. il Metallurgia 69:32 Ja '64
Standards for cooking utensils. G. Corfield. Gas 40:15 F '64

KITCHENS
Kitchen planning. G. T. Warren. il plans Arch Rec 135:25+ Mid-My '64
Ready made kitchens. il diag Engineering 197:368 Mr 6 '64

Equipment

Aluminum marks time in booming housewares industry. il Mod Metals 20:60+ Mr '64
Design in the kitchen. il Engineering 197:752 My 29 '64
See also
Sinks

Lighting

Party kitchen. il Illum Eng 59:446-7 Je '64

Ventilation

Design and application of grease filters. R. M. Pasch. bibliog il diag ASHRAE J 6:64-71 My '64
Direct-fired makeup air heater provides kitchen's ventilation. R. E. Strand. il Heating-Piping 36:111-12 O '64; Discussion. G. M. Hama. 36:89 D '64
Finishing Kich-N-Vent ventilating equipment. J. E. Stalker. il Ind Finishing 40:24-8 Ap '64

KJELDAHL method. See Nitrogen—Analysis

KLYSTRON
Automatic frequency control for klystrons and a calibrator for microwave spectrometers. E. A. Faulkner. diag J Sci Instr 41:347-8 My '64
Efficiency improvement by voltage stepping in klystrons. J. E. Rowe. diag IEEE Proc 52:328-9 Mr '64
High-power reflex klystrons for millimetre wavelengths. T. M. Jackson and others. bibliog il diags Elec Com 39 no 3:403-12 '64
Low-noise c-w klystron oscillators meet Doppler radar requirements. J. J. Hamilton. il Electronics 36:85-8 D 6 '63
Multiple beam klystron pushes back microwave frontiers. E. Leslie. il diags Radio-Electronics 35:40-2, cover Jl '64
New method for focusing klystrons. A. J. Prommer. bibliog il diags Electronic Ind 23:152-3+ Je '64
Protecting klystrons from failure. diag Engineering 197:783 Je 5 '64
Simple automatic frequency control system for reflex klystrons. R. K. Waring, jr. diags R Sci Instr 34:1228-9 N '63
Variable-drift biased-gap klystron. I. Hefni. diag IEEE Proc 52:102 Ja '64
Wireless power. Electronics 37:24 Je 1 '64

KNEE
Protective patches prevent knee injuries. T. N. Karlen. il Safety Maint 127:12-14+ Mr '64

KNIT goods
Bet your life on tricot. O. Engelhard. il diag Textile Ind 128:74-7 Ap '64
Finishing and stabilization of knit goods. B. Blagman. bibliog Am Dyestuff Rep 53:895-9 O 12 '64
Knitting and finishing double knit fabrics. J. Blum. Mod Textiles Mag 45:68-71 S '64
Machine washable knitted wool garments; engineering the structure of fabric to meet specific requirements. L. R. Gan. Textile Res J 33:961-2 N '63
New knitting yarns; a fiber producer's view. F. Van Horn. Mod Textiles Mag 45:71-4+ S '64
Novelty tricot fabrics. I. Teplitz. il Textile Ind 128:91+ Jl '64
Nylon today, a galaxy of successful end uses. G. L. Solomon. il Mod Textiles Mag 45:47-8+ Ja '64
Processing of nylon knit and stretch fabrics. K. Stump. Am Dyestuff Rep 53:100-4 F 3 '64
Spantrique: tricot with the all-way stretch. il Textile Ind 128:127-31+ My '64
Surface interest in circular knitted constructions. V. J. Lombardi. Mod Textiles Mag 45:66-8 S '64
Tricot finishing the modern way. il Textile Ind 128:110-11+ Je '64
See also
Dyes and dyeing—Knit goods
Underwear

Testing

Three methods for measuring elastic recovery of knit fabrics. H. M. Fletcher and S. H. Roberts. il diags Textile Res J 34:649-52 Jl '64

KNIT goods industry
Domestic outerwear mill goes abroad for business. il Textile Ind 128:67-9 Ap '64
Good name in the market; Steinfeld Fabrics. Mod Textiles Mag 45:14-15+ Ag '64
Knitting outlook. M. Speizman. il Textile Ind 128:61+ Ap '64

KNITTING
Core-spun Lycra in weft knitting. T. G. Barna. Mod Textiles Mag 45:30+ O '64
Fact file 1964. Textile World 114:92 Jl '64
For jacquard knits, a new way to find stitch-repeat length. il Textile World 114:49-51 Ag '64
What's new in circular knitting; review. Mod Textiles Mag 45:66-74+ S '64
See also
Hosiery—Manufacture
Knit goods

KNITTING machines
Double-knitters with a punch. il Textile Ind 127:150-1 N '63
Hanover textile exhibition; significance for warp knitters. il Textile Ind 127:103-5+ D '63
Rocket-age knitting at Valfor hosiery mills, inc. il Textile Ind 128:149+ S '64
Stop = more go. A. C. Clifton. il Textile Ind 128:114-15+ Je '64
Thinking of double-knits? Challenger II machine. il Textile Ind 128:91-2 F '64

Lubrication

Oil away the parts man. il Textile Ind 127:159+ N '63

Maintenance and repair

Back-saving back shaft puller. K. O. Metz. il Textile Ind 128:95+ F '64
Planned maintenance; key to good interlock knitting. W. Shewmake. il Textile Ind 128:95+ Mr '64

Numerical control

Numerical control knits tailored clothes. M. Browning. il diags Control Eng 11:101-4 My '64

KNITTING mills
Building a modern knit-fabric mill. il Textile World 114:58-61 S '64
See also
Hosiery mills

Equipment

Conveyors all over, miles of them; Standard knitting mills inc. il Textile World 114:44-8 Ag '64
Rocket-age knitting at Valfor hosiery mills, inc. il Textile Ind 128:149+ S '64
Tricot finishing the modern way. il Textile Ind 128:110-11+ Je '64

Management

Edward O'Hara of Norwich mills. il Mod Textiles Mag 45:19-21 My '64
One tag system controls it all. il Textile World 114:80-2 S '64

Quality control

Troubleshooting quality in tricot dyeing-finishing. I. Teplitz. il Textile Ind 128:105-6+ Mr; 127+ Ap '64

KNIVES
Manufacture of mediaeval damascened knives. J. Piaskowski. bibliog il diags Iron & Steel Inst J 202:561-8 Jl '64

KNIVES, Chipper
Learn your angles, projections and clearances. W. P. Hollis. diags Paper Ind 46:413-14 Ag '64

KNOTS and splices
Proper wire splicing, key to prolonged life. il Safety Maint 127:56-7 Ja '64

KNOWLEDGE, Theory of
See also
Perception

KNURLING
Lathe setup does precision knurling. H. Koslow. diag Am Mach/Metalworking Manuf 107:108 D 9 '63

KODACHROME. See Photography—Films

KODACOLOR. See Photography—Films

KOLDWELD process. See Welding—Cold welding

KOLTHOFF, Izaak M.
Kolthoff wins Gibbs medal. por Chem & Eng N 42:88 My 25 '64

KOREA
See also
Mines and mineral resources—Korea
Standards—Korea
Tungsten mines and mining—Korea

KOYANAGI, Kenichi
Kenichi Koyanagi ASQC Edwards medalist for 1963. por Ind Quality Control 21:60 Ag '64

KRAFT pulp. See Paper making—Sulfate process

KRAMER, William Baltser, 3d
Memorial. G. R. V. Griffith por Am Assn Pet Geologists Bul 48:505 Ap '64

KREBS citric acid cycle. See Metabolism

KRYPTON
Laser action in singly ionized krypton and xenon. W. B. Bridges. IEEE Proc 52:843-4 Jl '64
Penetration of krypton ions into molybdenum in a glow discharge. C. Y. Bartholomew and A. R. LaPadula. J Ap Phys 35:2570-2 S '64

Isotopes

Improved techniques for routinely counting low levels of tritium and krypton-85. M. L. Curtis and H. L. Rook. diags Anal Chem 36:2047-8 S '64

KRYPTON fluorides
Crystallographic studies of krypton difluoride. S. Siegel and E. Gebert. Am Chem Soc J 86:3896 S 20 '64
Krypton difluoride-antimony pentafluoride complex. H. Selig and R. D. Peacock. Am Chem Soc J 86:3895 S 20 '64

KUWAIT
See also
Gas, Natural—Kuwait
Petroleum industry and trade—Kuwait

KWASHIORKOR
Assessment of nutritive value of fish flour in the treatment of convalescent kwashiorkor patients. P. J. Pretorius and A. S. Wehmeyer. bibliog Am J Clinical Nutrition 14:147-55 Mr '64
Magnesium balance studies in South African Bantu children with kwashiorkor. P. J. Pretorius and others. bibliog Am J Clinical Nutrition 13:331-9 N '63
Peanut protein and milk protein blends in the treatment of kwashiorkor. J. K. G. Webb and others. bibliog Am J Clinical Nutrition 14:331-41 Je '64
Plasma free fatty acids in kwashiorkor and the pathogenesis of the fatty liver. B. Lewis and others. bibliog Am J Clinical Nutrition 15:161-8 S '64
Serum amino acids in kwashiorkor. R. G. Whitehead and R. F. A. Dean. bibliog Am J Clinical Nutrition 14:313-30 Je '64
World-wide importance of protein malnutrition and progress toward its prevention. N. S. Scrimshaw. bibliog Am J Pub Health 53:1781-8 N '63

KYANITE
Estimate of free energy of formation of kyanite. R. W. Haskell and R. C. DeVries. bibliog Am Cer Soc J 47:202-3 Ap '64
Geochemistry of some kyanites from Brazil. N. Herz and C. V. Dutra. bibliog il Am Mineralogist 49:1290-305 S '64

KYNAR. See Thermoplastics

L

LACT (lease automatic custody transfer). See Petroleum—Measurement

LD process. See Steel metallurgy—Oxygen processes

LOX. See Oxygen, Liquid

LABELING machines
Automatic labelers at Simoniz. il Soap & Chem Spec 40:177+ Je '64

LABELS
Ceramic labels; a designers view. W. Joachim. Glass Ind 45:20-3 Ja '64
How to pick a label. A. R. Gardner. il Product Eng 35:70-5 Ag 31 '64
Self-adhesive labels provide versatility. il Food Eng 36:71-2 Mr '64
See also
Safety labels
Tags

Laws and regulations

Pressure packs and the law. L. J. Schuddeboom. Manuf Chem 35:82+ Jl '64

Printing

Machine prints labels individually. il Engineering 197:235 F 7 '64
New developments open pressure-sensitive field to small printers. Inland Ptr/Am Lithogr 152:52-3 Mr '64

LABIATAE
See also
Horehound

LABOR and laboring classes
See also
Bonus system
Building trades—Labor conditions
Efficiency, Industrial
Employees
Employment management
Farm labor
Foundries—Employees
Government employees
Industrial management
Labor disputes
Labor laws and regulations
Research workers
Safety devices and measures
Textile workers
Trade unions
Wages

LABOR contracts
Do you need an employment contract? R. A. Labine. Chem Eng 71:214+ S 14 '64
New bituminous coal contract signed. Coal Age 69:26 My '64

LABOR disputes
How to prevent labor trouble in the paper industry. M. Goodfellow. Paper Ind 46:192-3 Je '64

LABOR laws and regulations
Trends in labor legislation. J. W. Whittlesey. Chem Eng 71:225-8 N 9 '64
See also
Discrimination in employment
Employers liability
Labor contracts
Workmens compensation

United States

Check points on employer-employee law. G. T. Medlock and R. D. Stevens. Pit & Quarry 56:106-8 N '63

LABOR productivity
Disappearance of the obvious. W. F. De Loache. Tappi 46:sup34A+ D '63
Firm hikes riveting output 320 per cent. il Steel 154:44-5 Je 1 '64
Know what workers can do. H. J. Duel. Mill & Factory 75:85-7 O '64
Where productivity can gain in the future. E. R. Forman. Chem Eng 71:202-3 O 12 '64
See also
Efficiency, Industrial

LABOR recruiting
See also
Employment systems—Advertising aids

LABOR saving devices
See also
Calculating machines
Machinery, Automatic
Mechanical handling
Punched card system

LABOR supply
Another look at manpower. Chem Eng Prog 60:24-5 S '64
Chemical process industries manpower; the dynamic trends and what they mean. Chem Eng 71:189-204 O 12; 225-8 N 9 '64
How best to utilize scientists and engineers? il Chem Eng Prog 60:20-3 S '64
Look at the future; people; symposium. il Mill & Factory 75:70-80 N '64
New demand study changes line-up but not the number. I S A J 11:22+ Mr '64
Putting a premium on engineering manpower. Chem Eng 71:86 Ag 17 '64
Shrinking job mart hits older engineers hardest. I S A J 11:20 Ag '64

LABOR supply—*Continued*

Trouble around the rigs; a study of manpower. J. Scott. il Pet Management 36:95-6+ O '64

See also

Employment

Labor turnover

Unemployment

Great Britain

Manpower planning's crystal ball. Engineering 198:332 S 11 '64

United States

Facts needed on scientific manpower. Chem & Eng N 42:47-8 Jl 13 '64

Manpower shortage easing. Chem Eng Prog 60:11-13 Ag '64

LABOR turnover

Why do engineers quit their jobs? B. Schauerte. Hydrocarbon Process & Pet Refiner 43:191-4+ O '64

LABOR unions. See Trade unions

LABORATORIES

Bethlehem adding facilities for raw materials research. il Iron & Steel Eng 41:129 Ja '64

Campus plan for a mountain-top research complex. il plans diags Arch Rec 134:121-5 D '63

Creating a productive laboratory. P. Kirk. il Res/Develop 14:36-9 N '63

Odor testing laboratory. R. A. Baker. bibliog il plan diag WPCF J 35:1396-402 N '63

One school's applied science lab. il Engineering 198:136 Jl 31 '64

Plumbing utilities for a science laboratory. M. R. Perozzi. diags Air Cond Heat & Ven 61:87-9 My '64

Standards laboratory; a unique structural design problem. J. C. O'Neal. bibliog il I S A J 10:66-70 N '63

See also

Aeronautic laboratories

Atomic research laboratories

Automobile laboratories

Chemical laboratories

Dye laboratories

Electric laboratories

Engineering laboratories

Food laboratories

Gas laboratories

Highway departments—**Laboratories**

Hydraulic laboratories

Industrial research

Medical laboratories

Metallurgical laboratories

Moving picture laboratories

Petroleum laboratories

Pharmaceutical laboratories

Photographic laboratories

Physical laboratories

Plastics laboratories

Rubber laboratories

Scientific research

Sound laboratories

Telephone laboratories

Testing laboratories

Underwriters laboratories, inc

Air conditioning

Air conditioning a nuclear rocket engine testing facility. A. R. Jahelka and N. Zamuner. flow diags il diags Air Cond Heat & Ven 60:81-90 N '63

Air-conditioning design guides for laboratory facilities. A. Greenberg. diags Arch Rec 135:197-201 My '64

Air conditioning of research and test facilities: contamination control. J. Peterson. bibliog ASHRAE J 6:53-6 S '64

Air conditioning of research and test facilities: load characteristics. H. E. Twietmeyer. ASHRAE J 6:50-3 S '64

Air conditioning research and test facilities: symposium at ASHRAE annual meeting in Cleveland. Air Cond Heat & Ven 61:58-61 Ag '64; Heating-Piping 36:126-7 S '64

Controlled atmospheres; their use in research laboratory operations. L. M. Taylor and H. Wolp. diags Res/Develop 15:41-4 N '64

Design criteria for laboratory air-conditioning systems. L. Economides. ASHRAE J 6:48-50 S '64

Space age challenge: nearly constant room temperatures. H. M. Olbur. il diags Heating-Piping 36:137-41 My '64

Costs

Controlled environment cost. C D. Koop. I S A J 11:83-4 Ap '64

Design

Designing a modern metrology laboratory. J. A. Lyell. il plan I S A J 11:45-50 Je '64

Safety highlights design of Animal disease laboratory. R. M. D'Jerf. il plans Heating-Piping 36:110-13 Jl '64

Using industry know-how in planning your lab. S. Fiance. il Res/Develop 15:25-7 Mr '64

What the r&d man needs in scientific furniture and why. E. X. Hallenberg. il Res/Develop 15:32-6 Mr '64

Equipment

Atmosphere chamber creates wide range of temperatures, humidities. il Res/Develop 14:40 N '63

Design of a filing machine for the production of fine metallic particles. H. D. Trapp. diags R Sci Instr 35:636-7 My '64

Dust-free cabinet upgrades quality control programs. il Res/Develop 15:29 My '64

Electromagnetic shielding for laboratories. il Engineering 198:283 Ag 28 '64

Finishing library and laboratory furniture. R. O. Siren. il Ind Finishing 40:58-60+ Ag '64

Lab tip, an automatic vacuum release. A. E. Sparr. diag Water & Sewage Works 111:105 F '64

New products. Published in monthly numbers of Research/development

Planning the dynamic research and development facility. il plans Res/Develop 15:22-52 Mr '64

Simple, continuous-flow, low and variable rate pump; M.I.T. electrolysis pump. J. M. Symons. diags WPCF J 35:1480-5 N '63

Water for cooling laboratory apparatus. C. Yost. diags Air Cond Heat & Ven 61:83-6 My '64

Heating and ventilation

Controlled atmospheres; their use in research laboratory operations. L. M. Taylor and H. Wolp. diags Res/Develop 15:41-4 N '64

Layout

Lipton builds for progress; pacesetting laboratory and administrative building. F. K. Lawler. il plan Food Eng 36:54-8 S '64

Role of the architect-engineer in planning and building research facilities. J. W. Beyvl. il plans Res/Develop 15:28-31 Mr '64

Lighting

How to light a rubber lab. L. C. Ridgway. il Rubber Age 94:454-5 D '63

Lighting for tire testing. il Illum Eng 59:551-2 Ag '64

Safety measures

Safety equipment in the lab. W. A. S. Denham. il Res/Develop 15:24-8 S '64

LABORATORIES, Chemical. See Chemical laboratories

LABORATORIES, Medical. See Medical laboratories

LABORATORIES, Testing. See Testing laboratories

LABORATORIES, Traveling

See also

Electric laboratories, Traveling

LABORATORY of the government chemist. See Great Britain—Scientific and industrial research, Department of

LABRADOR

See also

Electricity supply—Labrador

Geology—Labrador

Hydroelectric plants—Labrador

Iron ores—Labrador

LACQUER and lacquering

Disc brake pads spray lacquered. il Engineering 197:390 Mr 13 '64

Lacquer marring by plasticizer migration from PVC. J. B. De Coste. diag Mod Plastics 42:169+ S '64

Lacquer or enamel, which finish to use. K. Schreiber. Ind Finishing 40:52-4 S '64

New lacquer preserves copper. Engineering 197:280 F 21 '64

Performance of clear lacquers on aluminum surfaces; abstract. R. D. Guminski and F. M. P. Meredith. Metal Prog 86:196 S '64

LACRIMAL organs

Tears and the lacrimal gland. S. Y. Botelho. il diags Sci Am 211:78-84+ O '64

LACTAMS

Synthesis and reactions of an α-lactam, 1-t-butyl-3,3-dimethylaziridinone. J. C. Sheehan and I. Lengyel. bibliog Am Chem Soc J 86:1356-9 Ap 5 '64

Synthesis of an unsaturated β-lactam. K. R. Henery-Logan and J. V. Rodricks. Am Chem Soc J 85:3524-5 N 5 '63

LACTATION
Alterations in serum proteins during pregnancy and lactation in urban and rural populations in Guatemala. G. H. Beaton and others. bibliog il Am J Clinical Nutrition 14:269-79 My '64
Lactation and menstrual function as related to cancer of the breast. M. L. Levin and others. bibliog Am J Pub Health 54:580-7 Ap '64
Reproduction and lactation in rats fed excessive iodine. C. B. Ammerman and others. bibliog J Nutrition 84:107-12 O '64

LACTIC acid
First U.S. synthetic lactic acid unit goes on stream. il Oil & Gas J 62:94 F 3 '64
Lactic acid as a chemical intermediate. M. H. M. Arnold. Manuf Chem 35:58-9 S '64
Monsanto starts new lactic acid plant. il Chem & Eng N 41:44-6 D 9 '63
Synthesis process brightens lactic acid picture. il Chem Eng 17:82+ Ja 20 '64
Synthetic lactic acid. il Ind & Eng Chem 56:55 F '64

Analysis

Determination of lactic acid in shortening containing lactylated glycerides, by liquid-liquid partition chromatography. R. J. Buswell. Am Oil Chem Soc J 41:457-9 Jl '64

LACTOGLOBULIN. See Globulins

LACTONES
Addition of acylcobalt carbonyls to acetylenes; π-(2,4)-(alkeno-4-lactonyl)cobalt tricarbonyl derivatives and their conversion to 2,4-pentadieno-4-lactones. R. F. Heck. bibliog Am Chem Soc J 86:2819-24 Jl 20 '64
Aromatin and aromaticin, new sesquiterpene lactones isolated from Helenium aromaticum. J. Romo and others. Chem & Ind p 1839 N 16 '63
Catalytic hydrogenolysis of δ-lactones to cyclic ethers. J. T. Edward and J. M. Ferland. bibliog Chem & Ind p975 Je 6 '64
Direct determination of the crystal structure of *p*-bromobenzoate-glaucarubin. G. Kartha and D. J. Haas. bibliog diags Am Chem Soc J 86:3630-4 S 20 '64
Isocardanolides. G. R. Pettit and others. bibliog Chem & Ind p 1265-6 Jl 11 '64
Isolation and structure of a methyltriacetic lactone from penicillium stipitatum. P. E. Brenneisen and others. bibliog Am Chem Soc J 86:1264-5 Mr 20 '64
Lactone of neochlorogenic acid. E. A. Rûveda and others. Chem & Ind p239-40 F 8 '64
Lactones. Drug & Cosmetic Ind 95:108 Jl '64
Neighboring group reactions; a trapped tetrahedral intermediate from the reaction of a bromolactone with ammonia H. E. Zaugg and others. bibliog Am Chem Soc J 86:1399-402 Ap 5 '64
Photochemical rearrangement of N-chloroimides to 4-chloroimides; a new synthesis of γ-lactones. R. C. Petterson and A. Wambsgans. bibliog Am Chem Soc J 86:1648-9 Ap 20 '64
Reduction of acylated aldono-γ-lactones to aldofuranose derivatives; a new synthetic pathway to nucleosides. P. Kohn and others. bibliog Am Chem Soc J 86:1457-8 Ap 5 '64
See also
Butyrolactone
Gluconolactone
Propiolactone

LACTOSE
Lactase (beta-D-galactosidase). Y. Pomeranz. bibliog il Food Tech 18:682-7, 690-7 My '64
Lactose and calcium transport in gut sacs. Y. O. Chang and D. M. Hegsted. bibliog J Nutrition 82:297-300 Mr '64

LADDERS
Fire fighting ladder's quick, firm base. il Engineering 198:166 Ag 7 '64

LADDERS, Plastic
200 psi + intensifier + linkage = 100 tons for molding fiberglass ladders. H. Hopfeld. il diags Hydraulics & Pneumatics 17:86 Mr '64

LADLES, Foundry. See Foundry ladles

LAGOONS, Manure
Treatment of Long Island duck farm wastes. C. D. Gates. bibliog il WPCF J 35:1569-79 D '63

LAGOONS, Sewage. See Sewage lagoons

LAGRANGE equations
Dynamic programming and Lagrangian multipliers. S. M. Roberts. Ind & Eng Chem Fundamentals 2:224-8 Ap '63; Discussion. 2:323-5; 3:183-4 N '63, My '64
Lagrange multipliers and the optimal allocation of defense resources. G. E. Pugh. Op Res 12:543-67 Jl '64
Limit analysis of circular orthotropic plates. T. Mura and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4109]:375-95 O '64
Variational principle and Lagrange equations in studies of gasdynamic lubrication. L. N. Tao. bibliog A S M E Trans ser E 31:43-6 Mr '64

LAKES
Interior department report lists all principal lakes in United States. Water & Sewage Works 110:394 N '63
Lake's response to its environment. R. O. Sylvester and G. C. Anderson. bibliog maps Am Soc C E Proc 90 [SA 1 no 3786]:1-22 F '64
Oriented lakes and lineaments of northeastern Bolivia. G. Plafker. maps diags Geol Soc Bul 75:503-22, pl 1-3 bibliog(p521-2) Je '64
Origin of the lakes in the Chuska Mountains, northwestern New Mexico. H. E. Wright, jr. bibliog maps Geol Soc Bul 75:589-97, pl 1-3 Jl '64
Phillipsite of saline lakes and soils. R. L. Hay. bibliog map diags Am Mineralogist 49:1366-87 S '64
Quake lake gains respectability. diag Eng N 173:84-5 O 8 '64
Relationship of recreational use to bacterial densities of Forrest Lake. D. A. Rosebery. bibliog il Am Water Works Assn J 56:43-59 Ja '64
See also
Erie, Lake
Glacial lakes
Great Lakes
Limnology
Ontario, Lake
Pyramid Lake, Nevada
Winnemucca Lake, Nevada

LAMB (meat)
Effects of feeding and implanting diethylstilbestrol on characteristics of the meat from lamb carcasses. J. L. Hall and others. bibliog Food Tech 18:886-8 Je '64

LAMINAR boundary layer. See Boundary layer

LAMINAR flow of fluids. See Fluids

LAMINATED construction
Adhesive bonds honeycomb sandwich structures. il Mod Metals 20:95 S '64
Adhesive cold bonds steel to paper honeycomb core. R. H. Lindbloom. il Iron Age 193:84-5 Mr 19 '64
Aluminum-plastic laminate can be drawn, welded. il Mod Metals 20:78-9 Ap '64
Aluminium/polyethylene sheet laminate. il Engineering 197:517 Ap 10 '64
Aluminum sandwiches for instant airfields. il Steel 153:78-80 D 16 '63
Aluminum skins make skis top performers. il Mod Metals 20:56 Je '64
Analysis of a symmetrically loaded sandwich cylinder. E. H. Baker. diags AIAA J 2:108-9 Ja '64
Bonding process joins honeycomb. il diags Iron Age 192:154-5 D 5 '63
Brazing of columbium D36 honeycomb structures. A. H. Freedman and E. B. Mikus. bibliog il diag Welding J 43:sup385-92 S '64
Composite materials; honyecomb sandwich structures. Materials in Design Eng 60:432-3 Mid-O '64
Constructing composite material. P. M. Goodwin. diags Mech Eng 85:25-30 D '63
Dry film adhesive strengthens honeycombs. il Steel 154:52 Mr 23 '64
Effect of mass loss on the transient response of a shallow spherical sandwich shell. J. Tasi. bibliog diag AIAA J 2:58-63 Ja '64
Effective shear modulus of honeycomb cellular structure. J. Penzien and T. Didriksson. il diags AIAA J 2:531-5 Mr '64; Discussion. R. A. Gellatly. 2:1518; Reply. 1519 Ag '64
Electron beam joins brazed refractory metals. P. Jacobson and M. Schwartz. il diags Welding Eng 49:48-50 Ap '64
Exo-Flux welding of stainless steel type alloys. R. A. Long and others. flow sheet il Welding J 43:sup259-64 Je '64
Fabrication of aluminum balsa. il Light Metal Age 21:5 D '63
Haystack can find needle in sky. il Mod Metals 20:66+ S '64
Heated epoxy mold. il Plastics World 22:62 Je '64
Honeycomb core; dielectric curing of glue lines. il Plastics World 22:34 F '64
Honeycomb in plastic tooling. A. C. Marshall. il diags Tool & Manuf Eng 52:75-7 Ja '64
Honeycomb tailpipe saves weight in C-141; abstract. W. P. Gray and D. L. Linderman. il S A E J 71:83 D '63

LAMINATED construction—*Continued*
How Martin makes honeycomb contours; fill it with wax, then blast it. il diags Steel 154:52-3 F 17 '64
How to design foam core sandwich laminates. R. Darvas. diags Mod Plastics 41:125-7+ Je '64
Large deflection of sandwich plates with orthotropic cores. A. M. Alwan. bibliog diags AIAA J 2:1820-2 O '64
Mold making. il Plastics World 22:50 F '64
New aluminum-plastic laminate superior industrial material. il Automation 11:28 My '64
New flexible honeycomb structure with multiple pleats can bend to fit compound curves. diags Welding Eng 49:68 Ag '64
New techniques speed metal bonding. C. L. Sullivan. il Mach 70:107-9 Jl '64
Plastic-aluminum sandwich makes strong structures. il Materials in Design Eng 59:125-6 Je '64
Plastics institute Reinforced plastics group conference on sandwich construction, London, Nov. 28; abstracts of papers. Brit Plastics 37:25-6 Ja '64
Sandwich; balsa on aluminum. il Mech Eng 86:57 My '64
Sandwich builders eye roll bonding. il diag Steel 155:46-7 Ag 24 '64
Sandwich construction keeps reefer truck cool. il Materials in Design Eng 60:133+ S '64
Sandwich cylinder construction for underwater pressure vessels. N. O. Brink. diag Materials Res & Stand 4:162-4 Ap '64
Sandwich shells of arbitrary shape. R. Schmidt. diag A S M E Trans ser E 31:239-44 Je '64
Sandwich structure. il Plastics World 22:17 F '64
Sandwich structure brazed by new technique. P. W. Warren. il diags S A E J 72:57-9 F '64
Special line turns out lightweight airfield matting. il diag Automation 11:64-5 My '64
Stresses in sandwich cylinders; data sheet. R. A. Gellatly and R. H. Gallagher. diags Machine Design 36:197-201 Mr 26 '64
Strong light inexpensive laminate; can be shaped by deep drawing. il Metallurgia 69:207-8 My '64
Urethane foam-steel panels produced at 40 to 50 per cent savings; Sherer-Gillett co. il Mod Plastics 41:108 F '64
Vacuum brazing of honeycomb panel structures. C. M. Marshall and N. R. Williams. il diag Mach 71:158-61 O '64

LAMINATED glass. See Glass, Laminated

LAMINATED metals. See Metals, Laminated

LAMINATED paper. See Paper, Laminated

LAMINATED plastics. See Plastics, Laminated

LAMINATED products
Aluminum-polyethylene laminate developed. il Chem & Eng N 42:46-7 Mr 23 '64
Analysis of slightly anisotropic shells. R. G. Dong and S. B. Dong. bibliog AIAA J 1:2565-9 N '63
Composite materials; metal-wood laminates. Materials in Design Eng 60:430 Mid-O '64
Composite materials; plastics-metal laminates. Materials in Design Eng 60:429 Mid-O '64
Composites; materials of the future. W. R. Hibbard, jr. bibliog il diags Chem Eng 70:203-8+ N 11 '63
Dee draw laminate: polyethylene-aluminum sheet. il Plastics World 22:29 My '64
Electric curing process facilitates assembly of aluminum honeycomb. diag Light Metal Age 21:6 O '63
Hot punch shapes new laminate. il Iron Age 193:64 Ap 2 '64
Lateral stability of glued laminated beams. R. F. Hooley and B. Madsen. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3948]:201-18 Je '64
Membrane stresses in laminated anisotropic shells. S. B. Dong. bibliog Am Soc C E Proc 90 [EM 3 no 3931]:53-69 Je '64; Discussion. G. Wempner. 90 [EM 4 no 4093]:463 O '64
New structural laminate; polyethylene core, aluminum skins. K. H. Pohl and A. T. Spencer. bibliog il diags Mod Plastics 41:119-24 Mr '64
New type of high-strength laminate developed. il Bell Lab Rec 42:164-5 My '64
New versatility in fluorocarbon-metal laminates. il Mod Plastics 41:79+ N '63
Quality control in wood chipboard production. M. E. Critchley. il Brit Plastics 37:202-4 Ap '64
Suggestions for riveting vinyl-metal laminates. il Steel 153:81 D 16 '63
TFE-metal laminate in coils. S. Mulay. il Materials in Design Eng 58:104-5 D '63

Testing

Automatic Vicat-type heat-distortion and softening-range apparatus. G. F. L. Ehlers and W. M. Powers. il diag Materials Res & Stand 4:298-300 Je '64
Thermographic methods for special applications. N. L. Carroll. il diag Metal Prog 84:117-19 D '63

LAMINATED textile fabrics. See Textile fabrics, Laminated

LAMINATED wood. See Wood, Laminated

LAMPS, Electric. See Electric lamps

LAND
See also
Eminent domain

Valuation

See Land values

LAND reclamation. See Reclamation of land

LAND subsidence. See Subsidences (earth movements)

LAND utilization
Drainage and best use of urban land. L. H. Antoine, jr. il Pub Works 95:88-90 F '64
New ways to see land use and transportation. J. D. Carroll, jr. Civil Eng 34:62-3 Ag '64
Trends in land tenure and ownership. E. S. Dobb. bibliog Roy Aeronautical Soc J 68:539-43 Ag '64
See also
Reclamation of land

LAND values
Rod, not acre, urged as base for buying right-of-way. H. N. Dold. Oil & Gas J 61:151-3 N 4 '63

LANDFILLS. See Refuse disposal

LANDING craft
Hydrokeel landing craft slides over the water. il Machine Design 36:6 Jl 30 '64
Role of the GEM in amphibious support operations. P. G. Fielding. diags Naval Eng J 76:117-29 F '64
Trojan sea-horse, the 17-knot LSL. il Marine Eng/Log 69:40B+ Je 15 '64

LANDING gear. See Airplanes—Landing gear

LANDING mats. See Aviation landing stations—Landing mats

LANDSCAPE architecture. See Landscape gardening

LANDSCAPE gardening
Landscaping to conserve the countryside. il Engineering 197:613-16 My 1 '64
Maintaining industry's landscaping. il plan Plant Eng 18:106-9 Ap '64

LANDSLIDES
Before and after at Vaiont dam; illustrations with text. Eng N 171:27 D 5 '63
Engineers adopt slide-built dam. Eng N 171:24 D 12 '63
Quick clay. P. F. Kerr. il maps diags Sci Am 209:132-8+ N '63
Russians blast through landslide dam. map Eng N 172:24 My 7 '64
Slide-blocked river flows again; Russia's Zeravshan River. il Eng N 172:28 My 14 '64
Vaiont reservoir disaster; geologic causes of tremendous landslide and flood wave. G. A. Kiersch. bibliog il map diags Civil Eng 34:32-9 Mr '64
See also
Subsidences (earth movements)

LANGUAGE and languages
Linguistic problems in extraterrestrial communication. R. F. W. Smith. Audio Eng Soc J 12:154+ Ap '64
Prisoners of jargon. I. D. J. Bross. bibliog Am J Pub Health 54:918-27 Je '64
See also
Japanese language

Study and teaching

Furniture for a language laboratory. N. Green. il diags Engineer 218:584-6 O 9 '64
Language laboratory given to college. il Engineering 197:21 Ja 3 '64
Language laboratory system. il Engineer 216:706 O 25 '63
Technical college language laboratories. il Engineering 197:819 Je 19 '64

LANOLIN. See Wool fat

LANTHANUM
Barium zirconate modified with lanthanum, a high-temperature capacitor dielectric. J. Koenig and B. Jaffe. bibliog Am Cer Soc J 47:87-9 F '64

LANTHANUM—*Continued*
High-temperature oxidation of lanthanum. W. L. Phillips. bibliog Electrochem Soc J 111:1184-5 O '64

LANTHANUM fluorides
Czochralski growth of doped single-crystal lanthanum trifluoride (LaF$_3$) for lasers. M. A. Hiller and O. M. Stafsudd. bibliog il diag J Ap Phys 35:693-5 Mr '64
Single-crystal growth of LaF$_3$. P. F. Weller and J. A. Kucza. bibliog diag J Ap Phys 35:1945-6 Je '64

LANTHANUM oxide
Surface contamination of La$_2$O$_3$ and Nd$_2$O$_3$ by B$_2$O$_3$; a source of error in X-ray diffractometry. S. Stecura and W. J. Campbell. Am Cer Soc J 47:468 S '64
Thermal expansion of polycrystalline lanthanum and neodymium sesquioxides. R. E. Mistler and others. Am Cer Soc J 46:561-2 N '63

LANTHANUM sesquioxides. See Lanthanum oxides

LANZA, Anthony J.
Tribute. D. H. Goldstein. por Archives Environmental Health 9:271-4 Ag '64

LAPIS lazuli
Lazurite, talc and chlorite in the Green River formation of Wyoming. W. H. Bradley. Am Mineralogist 49:778-81 My '64

LAPLACE equation
Some new geometries for which Laplace's equation in three dimensions is soluble. R. Ball and others. diags J Math & Phys 43:144-57 Je '64

LAPLACE transformation
Accelerated motion of a sphere in a viscous fluid. L. M. Brush, jr. and others. bibliog Am Soc C E Proc 90 [HY 1 no 3764]: 149-60 Ja '64; Discussion. 90 [HY 4 no 3980]:365-9 Jl '64
Coefficients of partial fractions. V. R. Riggins. diags Electro-Tech 74:44-7 S '64
Contribution to the transform calculus used in the synthesis of control systems. N. N. Puri and C. N. Weygandt. bibliog Franklin Inst J 277:337-48 Ap '64
Dynamic response functions. B. S. Berger. Am Soc C E Proc 90 [EM 4 no 4017]:131-48 Ag '64
Laplace operator. H. F. Davis. Am J Phys 32:318-19 Ap '64
Laplace transform of the sectionally-continuous derivative of a sectionally-continuous function. B. Rasof. Franklin Inst J 277:119-27 F '64
Laplace transform solution of linear differential equations with variable coefficients. R. E. Vowels. bibliog diags IEEE Trans Com & Electronics p573-9 N '63
Two-server bulk-service queuing process. K. L. Arora. bibliog Op Res 12:286-94 Mr '64

LAPPING
See also
Honing

LAPPING machines
Plastic fixtures for little parts. C. A. Eaves and others. il Am Mach 108:76-7 Mr 2 '64

LARD
Ranco method for determining rancidity in rendered pork fat. C. B. Ramsey and others. bibliog Food Tech 18:105-8 Ja '64

LARVAE
Cutaneous larva migrans. P. C. Beaver. bibliog il Ind Med 33:319-21 My '64

LARYNX
New improvement in Bell Systems artificial larynx. il Bell Lab Rec 42:39 Ja '64

LASER. See Light amplifiers

LATCHES
New look for latches. il diag Mod Plastics 41:103 Ap '64

LATENT heat of vaporization. See Vaporization, Heat of

LATERITE
Nickeliferous laterites in southwestern Oregon and northwestern California. P. E. Hotz. map Econ Geol 59:355-96 bibliog(p394-6) My '64
Nickeliferous serpentines, chlorites, and related minerals found in two lateritic ores. J. W. Montoya and G. S. Baur. bibliog Am Mineralogist 48:1227-38 N '63

LATEX
Determination of latex particle size by light scattering. S. H. Maron and others. bibliog J Colloid Sci 18:733-43; 19:591-601 O '63, S '64
Determination of residual monomers in latex by gas chromatography. L. B. Wilkinson and others. bibliog Anal Chem 36:1759-62 Ag '64
Incorporation of isobutylene-isoprene copolymer latex in polyvinylidene chloride systems for paper. J. R. Condon and R. E. Nash. il Tappi 47:sup 141A-3A+ Jl '64
Multiple scattering effects in polystyrene latex dispersions. D. H. Napper and R. H. Ottewill. bibliog J Colloid Sci 19:72-80 Ja '64
Particle size determination of film-forming latices by electron microscopy. E. Vanzo and others. il J Colloid Sci 19:579-83 Ag '64
Sedimentation of monodisperse polystyrene latex spheres in water. D. H. Woodward. J Colloid Sci 19:238-44 Mr '64
Viscosity of small particle, electrolyte-and soap-deficient synthetic latex gels. C. F. Fryling. bibliog J Colloid Sci 18:713-32 O '63
Viscosity of synthetic latex gels. J. G. Brodnyan and E. L. Kelley. J Colloid Sci 19:488-90 Je '64
See also
Rubber, Artificial—Latex
Rubber latex

LATHES
Fixture adapts old nine-foot-bed lathe for deep hole drilling. J. Waller. diag Am Mach 108:146 My 11 '64
Fixture simplifies backing-off on lathe. F. Rush. diag Am Mach 108:100 Ap 27 '64
Giant-size metal-spinning lathe. il Mach 70:148 Mr '64
Heron heavy-duty production lathe. il Mach 70:172 Jl '64
High-speed precision lathe. il Engineer 217:485 Mr 13 '64
Lathe center is adjustable. J. Waller. diags Am Mach 108:105 S 28 '64
Lathe replaces mill for cutting flats. J. Waller. diags Am Mach 108:117 Je 8 '64
Lathe setup does precision knurling. H. Koslow. diag Am Mach/Metalworking Manuf 107:108 D 9 '63
Lathes; illustrations with text. Engineer 217:1087 Je 19 '64
Lodge & Shipley king-sized Magna-Turn lathe. il Mach 70:156 My '64
Man-Au-Cycle single point threading lathe features copying attachment. il Am Mach 108:98 F 3 '64
Modernizing the hydraulic circuit on a pipe lathe. J. Yonk and S. G. Tansey. il diag Hydraulics & Pneumatics 17:94-5 Mr '64
Monarch dual-spindle lathe. il Mach 70:140 Jl '64
Railway wheel lathe. il Engineer 217:532 Mr 20 '64
Revolution in tooling; preset and quick-change tooling for lathes. B. C. Brosheer. il diags Am Mach 108:165-80 Ap 13; 77-92 Jl 20 '64
Rockford completely restyled engine lathe. il Mach 70:177 Mr '64
Rotary forming machine. il diag Engineer 217:128-9 Ja 17 '64
SEM commutator lathe. il Engineering 196:818-19 D 27 '63
Sheldon large-spindle capacity lathe. il Mach 70:137-8 Ag '64
Standard lathe makes spherical part. il Tool & Manuf Eng 52:76 My '64
T type heavy production tracer lathe. il Mach 71:215-16 O '64
Tool locator plug simplifies turret lathe setup. R. Isetts. diags Mach 71:152 S '64
See also
Chucking machines
Machine shop practice
Screw machines
Turning

Control

High-speed turning eliminates need for grinding. il Mach 70:114 D '63
Manual input preferred for turret lathe. il Engineering 197:711 My 22 '64
Monarch model EC lathe. il Mach 70:162-3 Je '64
One tracer lathe replaces three; tracing to ten thousandths. C. Emerson. il Am Mach 108:102-3 My 11 '64
Putting the modern sliding headstock automatic to work. H. Hubli. il diags Mach 71:130-6 O; 125-30 N '64
Saving tools with antijump circuits. D. D. Wright. diags Hydraulics & Pneumatics 17:124+ My '64
Turret tracer contours internal profile. R. W. Olds. il diags Mach 70:141-3 Ap '64

Manufacture

Flow-line assembly of lathes. il Engineer 217:1068-9 Je 19 '64
Lathes float along assembly flowline. il diag Engineering 197:804-5 Je 12 '64
100 lathes a week move off flow line. il diag Steel 155:84-5 Jl 27 '64

LATHES—*Continued*

Numerical control

Automatic turret lathe tailored to short runs. il Steel 154:181-2 Mr 30 '64

Computer cuts corners in turning. il Iron Age 193:108-9 Mr 26 '64

General Electric introduces low-cost numerical contouring control. il Mach 70:146 Mr '64

LeBlond low-cost n/c contouring lathe with General Electric control. il Mach 70:132-3 Ag '64

Nickols automatic capstan conversion. il Engineering 198:354-5 S 18 '64

Numerical contouring system for horizontal turret lathes. il Mach 70:144 D '63

N/c system makes lathe its own inspector. T. E. Shipley, jr. il Steel 155:52-3 Ag 3 '64

Numerically controlled lathe cuts cost of producing turbosupercharger components. F. W. Heurlin. il Mach 70:84-5 Ag '64

Product Engineering fifth annual master design awards; automatic turret lathe. il Product Eng 35:112 Ap 27 '64

Semi-automatic second operation lathe. il Engineer 217:249 Ja 31 '64

Tape-controlled lathe machines five-ft diameter cast-steel rolls. A. R. Kommel. il Iron & Steel Eng 41:147-8 Ag '64

Torque-controlled drive evaluated for turning operations. il Mach 70:113-15 Jl '64

Turret copy lathe with programme control. il Engineer 218:525 S 25 '64

LATIN AMERICA

See also

Investments, Foreign (in Latin America) *also* subdivision Latin America under special subjects, e.g.

Chemical industries

Engineering education

Food industry and trade

Mining industry and finance

Petroleum industry and trade

Petroleum pipe lines

Public health

Radio broadcasting

Scientific education

Television broadcasting

LATIN AMERICAN iron and steel institute

Congreso Latinoamericano de siderurgia, 3d, Macuto, Venezuela; with abstracts of papers. J Metals 15:781-6 O '63

LATTICES. See Crystals—Lattices

LAUNCHING

Graving dock becomes launch way. il diags Eng N 173:161 S 17 '64

Graving dock converted into launchingway. il diags Marine Eng/Log 69:46A-46B O '64

Shipyard uses jet rockets to slow a launching. il Marine Eng/Log 68:32A D '63

See also

Guided missiles—Launching

Satellites, Artificial—Launching

LAUNDRIES

Equipment

Compressed air in a nuclear laundry. F. Kutnewsky. il Comp Air Mag 68:24 D '63

Machines for shops and supermarkets. il Engineering 197:627 My 8 '64

LAUNDRIES, Self service

New detergents for coin-ops. il Soap & Chem Spec 40:71-2 S '64

LAUNDRY

See also

Cotton fabrics—Washability

LAUNDRY equipment, Domestic

Longer lasting laundry equipment. il Mod Plastics 41:92-3+ Ap '64

Pine oil effective laundry disinfectant. Soap & Chem Spec 40:191 Ja '64

LAVA

Potassium-argon ages from lavas of the Hawaiian Islands. I. McDougall. map Geol Soc Bul 75:107-27 bibliog(p 123-4) F '64

LAVATORIES

New prison lavatory: reference data. R. Steffens. il diags Air Cond Heat & Ven 61:90-4 My '64

Order of the bath. il plans diags Dom Eng 20:sup OB A-X O '64

Portrait of a big spender; the public washroom market. il plans Dom Eng 204:75-81 O '64

Vitreous china water closets; detail sheets. diags Air Cond Heat & Ven 61:99-102 O '64

LAW

Engineering law. E. Mitchell. Engineer 216: 87-8, 152, 262-3, 299-301, 429-30, 980-1; 217: 231-2, 302-3; 218:178, 214 Jl 19-26, Ag 16-23, S 13, D 13 '63, Ja 31, F 14, Jl 31-Ag 7 '64

Engineering registration; legal opinion. M. F. Lunch. Mech Eng 86:23-4 My '64

Partial agreement on corporate practice, but no approval for model law this year. Eng N 173:26 Ag 27 '64

See also

Architects—Law

Copyright

Criminal law

Labor laws and regulations

Liability

Mining law

Patent laws and regulations

LAW enforcement

See also

Police

LAWN mowers

New starter system eliminates panting when cranking two-stroke lawnmower engines; abstract. G. J. Shaw. diags S A E J 72:77 F '64

Painting and finishing

Painting Homko power mowers. C. D. McCann. il Ind Finishing 40:66-8+ Ag '64

LAWN sprinklers. See Sprinklers

LAWRENCEBURG, Indiana

Sewerage

Lawrenceburg, Indiana, replaces WPA-built plant with modern facilities. il Water Works & Wastes Eng 1:71 F '64

LAWYERS

See also

Patent lawyers

LAYOUT. See subdivision Layout under special subjects, e.g. Factories; Foundries; Machine shops; Machine works; Rolling mills; Steel works; Woolen and worsted mills

LAZURITE. See Lapis lazuli

LEACHING

Effect of water flow on leaching rates of antifouling paints; considerations of mechanism and preliminary results of laboratory tests. E. T. Wilkie and A. C. Edwards. bibliog il J Ap Chem 14:155-64 Ap '64

Extraction of potassium from adularia shale. D. A. Everest and others. Chem & Ind p 1684-5 O 3 '64

Leaching burnt pyrite ore is new way to recover cobalt; process flowsheet. E. C. Dominguez and L. H. Windsor. Chem Eng 71:78-80 Ag 3 '64

New miners; acid-loving bacteria. il Can Chem Process 48:55-7 Jl '64

Refinery features ammonia and acid pressure leaching and hydrogen reduction; process flowsheet. Can Chem Process 48:57-8 S '64

See also

Extraction processes

Hydrometallurgy

LEAD

Compact lead-bismuth annealing plant. W. N. Jenkins; D. W. Games. bibliog il diags Iron & Steel Eng 41:106-14; Discussion. 114-16 Jl '64

Dispersion strengthened lead; a new structural material. D. J. I. Evans and others. il Materials in Design Eng 59:105-7 Ap '64

Don't overlook lead in corrosion service. il Can Chem Process 48:103-5 Ap '64

Effect of stress on the dihedral angle in leaded nickel. C. A. Stickels and E. E. Hucke. bibliog diag Inst Metals J 92:234-7 '63-64

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49:353-8 Je '62, N '63

Lead for batteries. T H. Turner. Engineer 217:612-13 Ap 3 '64

Lead sheath quickly repaired. C. W. Smith, jr. il diag Elec World 160:117 O 21 '63

Lead sheet formed from melt on cooled roll. il Steel 154:144+ Ja 6 '64

Lead shielding at Trawsfynydd. il Engineering 197:439 Mr 27 '64

Low temperature passivation of silicon devices using evaporated lead film. T. Tokuyama. IEEE Proc 52:723-4 Je '64

Low-temperature properties of evaporated lead films. H. L. Caswell and others. bibliog il diag J Ap Phys 34:3261-6 N '63

Properties of materials; lead and its alloys; cast, wrought; tables. Materials in Design Eng 60:156-7 Mid-O '64

Self-diffusion in Pb at 300°C by an absorption tracer technique. W. N. Lawless. bibliog J Ap Phys 35:3024-6 O '64

Separation of lead by anion exchange. J. Korkisch and F. Feik. Anal Chem 36:1793-6 Ag '64

LEAD—*Continued*

Symposium on lead. bibliog il diags Archives Environmental Health 8:202-348 F '64

Tin plating of lead by immersion. F. A. Lowenheim. Plating 51:551-3 Je '64

Use of lead as a shielding material at Trawsfynydd nuclear power station. il Metallurgia 69:209-12 My '64

See also

Lead metallurgy

Steel—Lead content

Analysis

Analytical methods for determination of lead. J. Cholak. bibliog diags Archives Environmental Health 8:222-31 F '64

Automatic X-ray determination of lead and zinc in the tailings of an ore dressing plant. G. J. Sundkvist and others. diags Anal Chem 36:2091-4 O '64

Emission spectrographic determination of lead in powder samples with spark excitation. D. C. Hargis and G. W. Smith. bibliog Anal Chem 36:824-6 Ap '64

Polarographic determination of lead in aluminium alloys containing molybdenum or up to 5 per cent of iron (iron hardeners). W. Stross and J. Clark. Metallurgia 68:191-2 O '63

Rapid spectrophotometric method for the determination of lead in bone ash. F. H. Ilcewicz and others. bibliog Anal Chem 36:1132-5 My '64

Corrosion

Corrosion of lead by alternating current. C. E. Galimberti. bibliog il diags Corrosion 20:150-7 My '64

Isotopes

Faster analysis for Pb^{210} in biological specimens. A. L. Aronson and P. B. Hammond. bibliog Nucleonics 22:90+ F '64

Uranium-lead isotopic variations in zircons; a case study. L. T. Silver and S. Deutsch. bibliog maps diags J Geol 17:721-58, pl 1-2 N '63

LEAD alloys

Dendrite spacing in tin-lead alloys. J. A. E. Bell and W. C. Winegard. bibliog il diags Inst Metals J 92:357-9 '63-64

Plating of lead-tin-antimony ternary alloys. D. L. Cox. Plating 51:976-7 O '64

Properties of materials; lead and its alloys; cast, wrought; tables. Materials in Design Eng 60:156-7 Mid-O '64

Role of antimony in positive plate behavior in the lead-acid cell. J. Burbank. bibliog il Electrochem Soc J 111:1112-16 O '64

Transition from plane to cellular interface in solidifying tin-lead-antimony alloys. G. S. Cole and W. C. Winegard. bibliog il diag Inst Metals J 92:322-6 '63-64

LEAD azides

Neutron diffraction study of α-lead azide. G. L. Glen. Am Chem Soc J 85:3892-4 D 5 '63

LEAD borate

High-temperature energy relations in borates; alkaline-earth and lead borate compounds and their glasses. D. R. Stewart and G. E. Rindone. bibliog Am Cer Soc J 46:593-6 D '63

LEAD carbonate

Phase relations in the system $PbO-CO_2$ and the decomposition of cerussite. D. A. Grisafe and W. B. White. bibliog Am Mineralogist 49:1184-98 S '64

LEAD chloride

Formation of lead chloride fluoride at lower pH values for gravimetric purposes. R. A. Bournique and L. H. Dahmer. bibliog Anal Chem 36:1786-9 Ag '64

LEAD clad steel. See Steel. Lead clad

LEAD compounds

Determination of lead alkyls by gas chromatography with electron capture detector. E. J. Bonelli and H. Hartmann. Anal Chem 35:1980-1 N '63

Nature of lead in automobile exhaust gas. D. A. Hirschler and L. F. Gilbert. il Archives Environmental Health 8:297-313 F '64

See also

Tetraethyl lead

Tetramethyl lead

LEAD fluorides

Formation of lead chloride fluoride at lower pH values for gravimetric purposes. R. A. Bournique and L. H. Dahmer. bibliog Anal Chem 36:1786-9 Ag '64

Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64

Synthesis of thorianite crystals from bismuth oxide-lead fluoride melts. A. B. Chase and J. A. Osmer. il Am Mineralogist 49:1469-71 S '64

LEAD hafnate

Solid solutions in antiferroelectric region of the system $PbHfO_3-PbTiO_3-PbSnO_3-PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

LEAD in soils. See Soils—Lead content

LEAD in the body

Chromium, lead, cadmium, nickel and titanium in mice; effect on mortality, tumors and tissue levels. H. A. Schroeder and others. bibliog J Nutrition 83:239-50 Jl '64

Mathematical analysis of lead burdens. T. D. Sterling and others. diags Archives Environmental Health 8:44-51; Discussion. 110-14 Ja '64

Metabolism of lead under abnormal conditions. R. A. Kehoe. bibliog Archives Environmental Health 8:235-43 F '64

Normal metabolism of lead. R. A. Kehoe. Archives Environmental Health 8:232-5 F '64

LEAD industry and trade

Importance and uses of lead. R. L. Ziegfeld. Archives Environmental Health 8:202-12 F '64

Lead, 1963. R. L. Ziegfeld. Eng & Min J 165:103-5 F '64

Lead-zinc, 1963. R. A. Young. il Min Cong J 50:89-94 F '64

LEAD iodide

Image recording in lead iodide. A. J. Forty and others. J Sci Instr 41:274-6 My '64

LEAD metallurgy

Lead blast furnace feeding at Cominco. E. A. Mitchell and S. G. Smillie. diags Can Min & Met Bul 56:895-9 D '63

Lead blast furnaces continuously tapped. J. T. Roy and J. R. Stone. il diags J Metals 15:827-9 N '63

Lead debismuthizing by the Jollivet-Penarroya process. L. Jollivet and P. Guichard. flow sheet il J Metals 16:235-7 Mr '64

Mount Isa pilots new methods, pushes expansion. il plan diags Min Eng 16:82-9 O '64

Port Pirie leads way in lead smelting. il Min Eng 16:76-8 O '64

St Joseph lead company's Viburnum operations. M. E. Lane. flow sheet il plan diag Can Min & Met Bul 57:729-39 Jl '64

LEAD mines and mining

Argentina

Progress in South America; Cia. minera Aguilar S.A. il plan Eng & Min J 165:115-17 Ap '64

Australia

Broken Hill; living legend. il plan diags Min Eng 16:70-5 O '64

Mount Isa pilots new methods, pushes expansion. il plan diags Min Eng 16:82-9 O '64

Port Pirie leads way in lead smelting. il Min Eng 16:76-8 O '64

Missouri

After a century of successful operation, St Joseph lead co. plans for the next. il map Eng & Min J 165:87-92 Ap '64

First century of research by St Joseph lead co. L. W. Casteel. il Min Eng 16:111-111D Jl '64

St Joseph lead company's Viburnum operations. M. E. Lane. flow sheet il plan diag Can Min & Met Bul 57:729-39 Jl '64

Peru

Arch-back stoping at the Cerro de Pasco mine. R. S. Bemis and H. A. Toelle. diags Min Cong J 50:31-3 Mr '64

Western states

Lead and zinc hope for brighter days. M. P. Romney. Chem Eng Prog 60:38-9 O '64

LEAD molybdate

Crystallization characteristics of lead molybdate in low-temperature enamels. R. B. Amin and R. L. Cook. il Am Cer Soc Bul 42:703-7 N '63

LEAD niobates

Conduction properties of $Cd_2Nb_2O_7$ and $Pb_{1.5}Nb_2O_{6.5}$. R. Mazelsky and W. E. Kramer. diag Electrochem Soc J 111:528-33 My '64

Solid solutions in antiferroelectric region of the system $PbHfO_3-PbTiO_3-PbSnO_3-PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

LEAD ores

Enargite in the zinc-lead deposits of the upper Mississippi Valley district. A. V. Heyl. diags Am Mineralogist 49:1458-61 S '64

LEAD ores—*Continued*

Geology of the Zawar lead-zinc mine, Rajasthan, India. A. Mookherjee. il maps Econ Geol 59:656-77 bibliog(p675-7) Je '64; Discussion. J. Pereira. 59:1603-4 D '64

Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog(p917-19) Ag '64

See also

Galena

LEAD oxides

Introduction of particle-size distribution into kinetics of solid-state reaction. H. Sasaki. bibliog diag Am Cer Soc J 47:512-16 O '64

Morphology of PbO_2 in the positive plates of lead acid cells. J. Burbank. bibliog il Electrochem Soc J 111:765-8 Je '64

Phase relations in the system $PbO-CO_2$ and the decomposition of cerussite. D. A. Grisafe and W. B. White. bibliog Am Mineralogist 49:1184-98 S '64

Phase relations in the system lead-oxygen. W. B. White and R. Roy. bibliog Am Cer Soc J 47:242-9 My '64

Plumbicon; camera tube with a photoconductive lead oxide layer. E. F. De Haan and A. G. Van Doorn. il diags SMPTE J 73:473-6 Je '64

LEAD poisoning

Clinical inorganic lead intoxication. R. T. Johnstone. Archives Environmental Health 8:250-5 F '64

Epidemiology of disease associated with lead. T. D. Sterling. bibliog Archives Environmental Health 8:333-48 F '64

Pediatric lead poisoning. H. D. Smith. bibliog Archives Environmental Health 8:256-61 F '64

Problems in recognition of lead intoxication. M. R. Zavon. Archives Environmental Health 8:262-5 F '64

Studies on lead poisoning in Argentina. A. Singerman. bibliog Archives Environmental Health 9:464-72 O '64

Tetraethyllead and tetramethyllead; comparative experimental pathology. G. W. H. Schepers. Archives Environmental Health 8:277-95 F '64

Tetraethyllead intoxication. L. W. Sanders. Archives Environmental Health 8:270-7 F '64

Three-year study of lead poisoning in Chicago. J. R. Christian and others. map Am J Pub Health 54:1241-51 Ag '64

LEAD screws. See Leadscrews

LEAD selenide

Binary system PbS-PbSe. D. R. Simpson. bibliog Econ Geol 59:150-3 Ja '64

Chemical deposition of thin films of lead selenide. R. A. Zingaro and D. O. Skovlin. bibliog Electrochem Soc J 111:42-7 Ja '64

Diffused junction diodes of PbSe and PbTe. J. F. Butler. bibliog diag Electrochem Soc J 111:1150-4 O '64

See also

Clausthalite

LEAD silicates

New data on barysilite. F. P. Glasser. Am Mineralogist 49:1485-8 S '64

LEAD soaps. See Soap, Metallic

LEAD stannate

Hot-pressed lead zirconate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63

Solid solutions in antiferroelectric region of the system $PbHfO_3-PbTiO_3-PbSnO_3-PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

LEAD sulfide

Binary system PbS-PbSe. D. R. Simpson. bibliog Econ Geol 59:150-3 Ja '64

Electron probe analyses of copper in meneghinite. K. Fredriksson and C. A. Andersen. il Am Mineralogist 49:1467-9 S '64

New gasoline-sweetening role for lead sulfide. il diag Chem Eng 71:42+ F 3 '64

Preparation of single-crystal films of PbS. R. B. Schoolar and J. N. Zemel. bibliog il diag J Ap Phys 35:1848-51 Je '64

See also

Galena

LEAD telluride

Diffused junction diodes of PbSe and PbTe. J. F. Butler. bibliog diag Electrochem Soc J 111:1150-4 O '64

LEAD tetraacetate

Cleavage of cyclopropanes by lead tetraacetate. R. J. Ouellette and D. L. Shaw. Am Chem Soc J 86:1651-2 Ap 20 '64

LEAD titanate

Dielectric constant of lead titanate zirconate ceramics at high frequency. R. Gerson and others. bibliog diags J Ap Phys 34:3242-5 N '63

Hot-pressed lead zirconate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63

Solid solutions in antiferroelectric region of the system $PbHfO_3-PbTiO_3-PbSnO_3-PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

LEAD zirconate

Dielectric constant of lead titanate zirconate ceramics at high frequency. R. Gerson and others. bibliog diags J Ap Phys 34:3242-5 N '63

Hot-pressed lead zirconate-titanate-stannate ceramics. G. H. Haertling. bibliog il Am Cer Soc Bul 42:679-84 N '63

LEADERSHIP

Expression; leadership's major test. W. Wiesman. Hydrocarbon Process & Pet Refiner 43:102-4 Ag '64

Good manager manages men. T. H. Lawrence. Pet Management 36:102-5 S '64

New answer to old problem; what makes a leader? E. S. Barber. Product Eng 35:95 Jl 20 '64

One-week industrial leadership course organized by the Roman Catholic church. J. J. Henderson. Engineering 196:511-12 O 18 '63

Professional manager. L. A. Appley. Mech Eng 86:38-9 Mr '64

Race for tomorrow's leaders. W. B. Morehouse. Tappi 47:sup 146A-8A Mr '64

What does it take to make a leader? R. Crook. Hydrocarbon Process & Pet Refiner 43:145-6 F '64

LEADSCREWS

Cam compensator for jig borer lead screws. F. Zagar. il Mach 70:128 N '63

LEAK detectors

Absolute leak. B. R. Sundheim. diag R Sci Instr 35:228-9 F '64

Dense soapsuds find and plug leaks in our condensers. L. G. Smith. il diag Power 108:212-13 Je '64

Gas leakage in sealed systems. J. W. Graham. il Chem Eng 71:169-72+ My 11 '64

Leak detection using a mass spectrometer leak detector. D. E. Michel and G. C. Smith. diags I S A J 10:55-60 N '63

Leak detector for vacuum equipment. il Engineering 196:831 D 27 '63

Leaks found by mass spectrometry. il Engineering 198:342 S 11 '64

Quick detect feedwater heater leaks. K. Lehner. il diags Elec World 161:96+ Ap 6 '64

Self-extracting search gas probe for the location of leaks in vacuum apparatus. D. J. Pacey. diag J Sci Instr 41:398 Je '64

Sonic method pinpoints pipeline leaks. H. C. Bozeman. il diag Oil & Gas J 62:126-7 Ap 27 '64

Stuffing-box leak sensor shuts down pumping unit. diag Oil & Gas J 62:71 Je 15 '64

Tidewater uses ultrasonics to detect leaks. il Oil & Gas J 62:14 Jl 13 '64

Today we quickly find tiny leaks with an ultrasonic device. J. T. Evans. il Power 108:162 My '64

Ultrasonic detector is versatile testing tool. il Elec World 162:106+ O 5 '64

Ultrasonic instrument locates leaky valves. il Hydraulics & Pneumatics 17:24 O '64

Ultrasonic method detects leaks in pressure and vacuum systems. il Safety Maint 128:55-6 Ag '64

Ultrasonics hunt oxygen leaks. il Safety Maint 127:45-6 My '64

Underground water loss. R. A. Tolomei. il Water & Sewage Works 111:217-21 My '64; Excerpts. Pub Works 95:136 Jl '64

Versatile total-count method helps operations. D. E. Hull. bibliog il Hydrocarbon Process & Pet Refiner 43:151-6 O '64

See also

Gas detectors

LEAKAGE of gas. See Gas leakage

LEARNING, Psychology of

Some current problems in discrete models of learning. F. Restle. bibliog IEEE Trans Applications & Ind 83:277-84 S '64

Stochastic learning and a quantal model of signal detection. D. A. Norman. bibliog IEEE Trans Applications & Ind 83:292-6 S '64

See also

Problem solving

LEARNING curves

Learning curve. W. B. Hirschmann. bibliog Chem Eng 71:95-100 Mr 30 '64

Using learning curves in petroleum refining. W. B. Hirschmann. bibliog Pet Management 36:84-91 S '64

LEASE automatic custody transfer. See Petroleum—Measurement

LEASING. See Motor trucks—Leasing

LEAST squares

Application of least squares method to the solution of the inverse problem of heat conduction. I. Frank. A S M E Trans ser C 85:378-9 N '63

Calculating system linearity. H. Y. Wong. diag Electronic Ind 23:111-12 Mr '64

Determination of dominant error sources in an inertial navigation system by iterative weighted least squares. W. Eisner and A. F. Goodman. bibliog diag AIAA J 2: 722-7 Ap '64

Errors in least-squares inverse filtering. J. F. Claerbout and E. A. Robinson. Geophysics 29:118-20 F '64

Improving the convergence of least-squares fits to multichannel analyzer spectra. R. K. Hobbie and L. Pinsonneault. R. Sci Instr 34:1445-6 D '63

Least-squares approach to unsteady kernel function aerodynamics. J. A. Fromme. bibliog AIAA J 2:1349-50 Jl '64

Least-squares method for computing balance corrections. T. P. Goodman. diags A S M E Trans ser B 86:273-7; Discussion. 278-9 Ag '64

Matching of initial behavior in time domain approximation. B. Liu. bibliog diags Franklin Inst J 277:107-8 F '64

Mathematical method for blending aggregates. D. L. Neumann. bibliog Am Soc C E Proc 90 [CO 2 no 4026]:1-13 S '64

N-segment least-squares approximation. R. Aris and M. M. Denn. diag AIAA J 2:1516 Ag '64

Smoothing and differentiation of data by simplified least squares procedures. A. Savitzky and M. J. E. Golay. bibliog Anal Chem 36:1627-39 Jl '64

Three-dimensional filtering with an array of seismometers. J. P. Burg. diags Geophysics 29:693-713 O '64

LEATHER

Developments in polymer evaluation procedures. G. M. Kline. il diag Mod Plastics 41:182+ Ja '64

Finishing and decorating leather tops for furniture. R. L. Westwood. il Ind Finishing 40:36-8+ Ap '64

Leather for vehicle trim. il Automobile Eng 53:498-503 N '63

What's wrong with our leather inspecting lighting system? answers. il Power 108:136-7 Jl '64

LEATHER, Artificial

Du Pont achievement; new type of sheet synthetic material for the shoe-uppers. il Chem Eng 70:235 N 11 '63

LEAVES

Flavone glycosides of pyrus species. A. H. Williams. Chem & Ind p 1318 Jl 18 '64

Further studies on the isolation of glucosides from the barks and leaves of populus tremuloides and populus grandidentata. I. A. Pearl and S. F. Darling. bibliog Tappi 47:377-80 Je '64

Modified catch basin cleaner makes an effective leaf loader. J. A. Lee. il Pub Works 95:121 Ap '64

LEBANON, Pennsylvania

Sewerage

Instrumentation in Lebanon wastewater treatment plant. G. G. Brinckerhoff, jr. il Water Works & Wastes Eng 1:77-8+ S '64

LECITHIN

Chromatographically homogeneous egg lecithin as stabilizer of emulsions for intravenous nutrition. H. J. Zeringue and others. bibliog Am Oil Chem Soc J 41:688-91 O '64

LECLANCHÉ cells. See Electric batteries

LEGAL photography. See Photography. Legal

LEGENDRE functions

Roots of Legendre functions of variable index. P. C. Waterman. bibliog J Math & Phys 42:323-8 D '63

LEGRANDITE. See Zinc arsenates

LEGUMES

Stability studies with cooked legume powders. M. M. Boggs and others. Food Tech 18:1618-21 O '64

LEGUMINOSAE

See also

Desmodium

LE HAVRE, France

Harbor

Port of Le Havre; illustrations with text. Engineer 218:566 O 2 '64

LEIGHTON, Henry

Memorial; with bibliography of his publications. O. D. von Engeln and J. W. Wells. por Geol Soc Bul 75:sup7-9 Ja '64

LEIPZIG fair. See Machinery—Exhibitions

LEISHMANIASIS

American leishmaniasis. C. M. Johnson. Ind Med 33:315-18 My '64

LEISURE

Psychologic challenge in automation. A. P. Solomon. bibliog Archives Environmental Health 9:72-81 Jl '64

See also

Retirement

LEMON oil

Isolation, identification, and gas chromatographic estimation of some esters and alcohols of lemon oil. R. M. Ikeda and E. M. Spitler. bibliog J Agri & Food Chem 12:114-17 Mr '64

LENGTH measurement

Digital counters used in length measurement. G. Cooper. il diags Ind Electronics 2:369-72 Ag '64

LENSES

Alternating-gradient focusing and related properties of conventional convergent lens focusing. S. E. Miller. diags Bell System Tech J 43:1741-58 pt 2 Jl '64

Coplanar aperture lens. H. Heil and W. G. Wagner. diag R Sci Instr 35:981-3 Ag '64

Instability of light beam due to lens-displacements in a beam waveguide. J. Hirano. diag IEEE Proc 52:872-3 Jl '64

Lenses for meters? B. Sherman and H. Keppler. diags Mod Phot 28:75 Jl '64

Mode-conversion loss in a sequential confocal lens system. C. C. Eaglesfield. bibliog Inst E E Proc 111:610-15 Mr '64

Propagation of light rays through lens-waveguide with curved axis. D. Marcuse. diags Bell System Tech J 43:741-53 Mr '64

See also

Glass, Optical

Standards

Do you wear eyeglasses? standards for ophthalmic lenses. G. A. Fry. il diag Mag of Stand 35:259-61 S '64

Testing

Testing large lenses by interferometry. il Engineering 198:186 Ag 7 '64

LENSES, Magnetic. See Magnetic lenses

LENSES, Photographic

Aperture calibration of motion-picture lenses; American standard PH22.90-1964. diag SMPTE J 73:496-9 Je '64

Are mirror telephotos practical for you? D. L. Miller and B. Sherman. il diags Mod Phot 28:82-5 Ag '64

Automatic lens design; further notes for optical engineers. B. Brixner. bibliog diags SMPTE J 73:314-20 Ap '64

Automatic lens design illustrated by a 600mm *f*/2.0, 24° field lens. B. Brixner. bibliog diags SMPTE J 73:654-7 Ag '64

Complete SLR guide. D. L. Miller. il Mod Phot 28:85-100 Jl '64

Fantastic needle sharp super tele for single-lens reflexes. H. Keppler. il Mod Phot 28: 58-61+ Mr '64

1500mm telephoto for $15. E. Meyers. il diag Mod Phot 28:86-7+ Ag '64

Has the zoom lens laid an optical egg? B. Sherman and H. Keppler. il Mod Phot 28: 72-3+ Mr '64

How do single-lens reflex cameras differ? E. Meyers. diags Mod Phot 28:64-5 S '64

How good, how sharp are tele converters? H. Keppler. il diags Mod Phot 28:66-9+ Ag '64

Lens faults; illustrations with text. E. Meyers and B. Sherman. Mod Phot 28:80-1 Mr '64

1964 interchangeable lens guide. D. L. Miller, comp. Mod Phot 28:99+ O '64

1000mm and more monocular. H. Keppler. il Mod Phot 28:90-1+ My '64

Optically compensated lens; 1000X zooming and never out of focus. il Machine Design 36:10 Ap 23 '64

Put together a complete single-lens reflex outfit for under $100; illustrations with text. E. Meyers. Mod Phot 28:84-5 Mr '64

Russia prepares two superlight mirror optic tele lenses for single-lens reflexes. il Mod Phot 28:33-4 Ja '64

Single-lens reflex. H. Keppler. Published in monthly numbers of Modern photography

Single-lens reflex impact! illustrations with text. P. Caulfield. Mod Phot 28:62-71 Mr '64

Super telephoto outfit for $30? yup, it's true. H. Keppler and D. L. Miller. il Mod Phot 28:13+ Ag '64

Superachromat lenses. B. Sherman. diags Mod Phot 28:24-5+ My '64

LENSES, Photographic—*Continued*

Tele close-ups from a distance. P. Caulfield and L. Solmssen. il Mod Phot 28:80-1 Ag '64

Tele? illustrations with text. P. Caulfield. Mod Phot 28:58-65 Ag '64

Think telephoto for tighter movie scenes. M. A. Matzkin. il Mod Phot 28:92-3 Ag '64

Which filters for telephotography? B. Sherman. diags Mod Phot 28:72-3 Ag '64

With single-lens reflex only; control! illustrations with text. Mod Phot 28:56-7 Mr '64

Zoom focal length. M. A. Matzkin. Mod Phot 28:104+ Je '64

Testing

Test your lenses. D. L. Miller. diags Mod Phot 28:78-9 S '64

LENSES, Plastic

Allyl ester lenses. il Plastics World 22:14-15 S '64

Men of vision. il Plastics World 22:56 Ja '64

Testing

New lens material undergoes tests. il Safety Maint 128:11-13 S '64

LENZ law. See Induction (electricity)

LEPIDOPTERA

Cream in the gooseberry fool. G. E. Hutchinson. bibliog il Am Scientist 51:446-53 D '63

LEUCINE

Effects of large doses of L-leucine in animals and man. L. G. McArthur and others. bibliog Am J Clinical Nutrition 13:285-90 N '63

Nutrition of salmonoid fishes; isoleucine, leucine, valine and phenylalanine requirements of chinook salmon and interrelations between isoleucine and leucine for growth. R. E. Chance and others. bibliog J Nutrition 83:177-85 Jl '64

See also

Isoleucine

LEUCITE

Experimental study on the leucite-pseudoleucite problem. Y. Seki and G. C. Kennedy. Am Mineralogist 49:1267-80 bibliog(p 1278-80) S '64

LEUCOPHOSPHITE. See Iron phosphates

LEUKEMIA

Leukemia. E. Frei, 3d and E. J. Freireich. il Sci Am 210:88-96 My '64

Virus-like particles offer new leads to studies of leukemia. il Chem & Eng N 42:40-2 O 19 '64

LEVEES

Costs

Five bids obtained on Illinois levee raising job; unit prices. Eng N 172:146 Je 18 '64

LEVEL control, Liquid. See Liquid level control

LEVEL indicators

Membrane valve serves as simple level controller. W. G. B. Mandersloot. diag Chem Eng 71:208 Ap 13 '64

Nuclear and capacitance techniques for level measurement. L. S. Siegel. il diags Instruments & Control Systems 37:129-31 Jl '64

LEVEL indicators, Liquid. See Liquid level indicators

LEVOPIMARIC acid

Photochemical transformations; the structure of photolevopimaric acid. W. G. Dauben and R. M. Coates. bibliog Am Chem Soc J 86:2490-6 Je 20 '64

LEWIS, Samuel R.

Obituary. por Heating-Piping 36:105 Ap '64

LEWIS acids. See Acids

LIABILITY

Company sued in state where it has no offices, does no business. R. A. Brown. Heating-Piping 35:124 D '63

Contractor conveys assets to wife to escape payment of debts. Heating-Piping 35:142 N '63

Court decisions; cold wave solution injury. H. N. Morse. Drug & Cosmetic Ind 95:67 Jl '64

Court decisions; druggist's remedy causes discoloration. H. N. Morse. Drug & Cosmetic Ind 94:137 Ap '64

Law on contractor's liability. E. Mitchell. Engineer 216:980-1 D 13 '63

Law requires you to be an expert. R. A. Brown. Heating-Piping 36:156 My '64

Legal liabilities arising out of crop spraying operations. J. L. Brooks. Roy Aeronautical Soc J 68:553-9 Ag '64

Legal liability for ice and water on the highway; abstract. H. C. Rockey. Pub Works 94:124 N '63

Responsibility for safety of working conditions. B. Tomson and N. Coplan. Prog Arch 45:170 Ag '64

See also

Damages

Negligence

LIABILITY insurance. See Insurance, Liability

LIBERAL education

City of Liverpool college of technology regional college; Department of industrial administration and liberal studies. M. E. Cleasby. Chem & Ind p 1000-1 Je 13 '64

LIBERIA

See also

Iron mines and mining—Liberia

Iron ores—Liberia

Railroads—Liberia

LIBERTY of speech

Freedom of speech, sound trucks and the constitution. A. W. Gray. Audio 48:32+ Ap '64

LIBRARIES

See also

College libraries

LIBRARIES, Special

See also

Engineering libraries

LIBRARIES, Technical. See Technical libraries

LIBRARY buildings

Buildings for books; are they obsolete? il plans diags Arch Forum 120:80-97 My '64

Concrete solutions for three libraries. il plans diags Prog Arch 45:154-71 S '64

Rare book library at Yale dedicated. il diag Arch Rec 134:12-13 N '63

Second program of library awards cites three for top honors. il Arch Rec 135:12 Ap '64

Air conditioning

Library air-conditioning design. A. Greenberg. plans Arch Rec 135:173-4 F '64

Stringent air conditioning control for library's rare works. E. A. Kaplun. il diag Heating-Piping 36:103-5 F '64

Heating and ventilation

Stringent air conditioning control for library's rare works. E. A. Kaplun. il diag Heating-Piping 36:103-5 F '64

Lighting

Lighting a library; lighting data sheet. C. Gershanick and others. il Illum Eng 59:213-14 Mr '64

Lighting a library; lighting data sheet. J. F. Parsons. Illum Eng 59:685 O '64

Simple solution for public libraries. il Illum Eng 59:149 Mr '64

Special lighting for library stacks. il Elec Constr & Maint 63:107-8+ Ap '64

LIBRARY furniture and equipment

Compact book storage in libraries. F. F. Leimkuhler and J. G. Cox. diags Op Res 12:419-27 My '64

Finishing library and laboratory furniture. R. O. Siren. il Ind Finishing 40:58-60+ Ag '64

LIBRARY shelving. See Shelving (for books)

LIBRATION of artificial satellites. See Satellites, Artificial—Libration

LIBYA

See also subdivision Libya under special subjects, e.g.

Gas, Natural

Harbors

Petroleum

Petroleum industry and trade

Petroleum pipe lines

LICE

Enzymatic in vitro degradation of DDT by susceptible and DDT-resistant body lice. A. S. Perry and others. bibliog J Agri & Food Chem 11:457-62 N '63

Separation and purification of DDT-degrading enzymes from the human body louse. S. Miller and A. S. Perry. bibliog J Agri & Food Chem 12:167-9 Mr '64

LICENSE plates. See Automobiles—License plates

LICENSES

See also

Automobile drivers—Licenses

Engineers—Registration

LICORICE. See Glycyrrhiza

LIENS

See also

Mechanics liens

LIFE (biology)

Atom to Adam. M. Calvin and G. J. Calvin. il diags Am Scientist 52:163-86 bibliog(p184-6) Je '64

LIFE boats. See Lifeboats

LIFE on other planets

Interstellar communication. A. G. W. Cameron, ed. Review. by J. R. Newman. Sci Am 210:141-6 F '64; Discussion. F. J. Dyson. 210:8+ Ap '64

Is there life beyond the blue? S. M. Siegel. il S A E J 72:66-7 O '64

Is there life on Mars? J. A. Strasser. il diags Electronics 37:71+ Ja 3 '64

Search for life; instrument that will collect and analyze a few grams of Martian soil or dust for signs of microbial life. il diag Product Eng 35:41-2 Je 8 '64

Showdown nears on search for life on Mars. il Chem & Eng N 42:24-8 Ap 27 '64

LIFE preservers

Buoyant textiles and body armor; symposium. Mod Textiles Mag 45:60-6+ O '64

LIFE rafts

Large blow moulding for dropping life-raft. il Engineering 198:156 Jl 31 '64

Portable life-raft radio. Engineer 218:69 Jl 10 '64

Rubber goes to sea. il Rubber World 151:111 O '64

LIFEBOATS

Design and construction of the United States coast guard 44-foot motor lifeboat. R. W. Witter. il plans diags Naval Eng J 76:93-100 F '64

See also

Life rafts

Design

Lifeboat trials. Engineer 217:1039 Je 12 '64

US lifeboat design to be tested by RNLI. il Engineering 197:831 Je 19 '64

LIFT trucks. See Electric trucks, Industrial; Motor trucks, Industrial

LIFTING

Training lifting operators; what's that load weigh? il diags Mod Materials Handling 19: 38-9 Ag '64

See also

Hoisting

LIFTING magnets

Improved procedures for computing rectangular plate-lifting electromagnets. J. F. H. Douglas. diags IEEE Trans Applications & Ind p334-9 N '63

Magnets speed press loading. il Am Mach 108:72 Ja 6 '64

LIFTS. See Elevators

LIGHT

Direct demodulation and frequency conversion of microwave-modulated light in a CdSe bulk photoconductor. M. DiDomenico, jr. bibliog diags J Ap Phys 35:1353-4 Ap '64

Dual light source for a large field diffused-light polariscope. R. Mark. diags R Sci Instr 35:521-2 Ap '64

Electro-optic light beam deflector. V. J. Fowler and others. diag IEEE Proc 52: 193-4 F '64

Fast intensity rise light source. F. J. Wymer. il diags R Sci Instr 34:1433-4 D '63

Interaction of light with light. J. A. Giordmaine. il diags Sci Am 210:38-49 Ap '64

Light-activated switch expands uses of silicon-controlled rectifiers. E. K. Howell. il diags Electronics 37:53-61 My 4 '64

Light isolates amplifier stages. L. D. Shergalis. diags Electronics 36:43-5 N 1 '63

Light-modulated scattering technique for diffraction field measurements. A. M. Vural and D. K. Cheng. bibliog diags J Res Nat Bur Stand 68D:355-62 Ap '64

Light waves mixing in nonlinear anisotropic media. D. Solimini. bibliog diags IEEE Proc 51:1408-11 N '63

Nonmechanical scanning of light using acoustic waves. R. Lipnick and others. diag IEEE Proc 52:853-4 Jl '64

Optical heterodyne detection of microwave-modulated light. R. Targ. bibliog diag IEEE Proc 52:303-4 Mr '64

P-n junctions as radiation sources. M. F. Lamorte and R. B. Liebert. bibliog diags Electronics 37:61-5 Jl 13 '64

Resonant detection of light pressure by a torsion pendulum in air; experiment for underclass laboratories. R. E. Pollock. Am J Phys 31:901-4 D '63

Spectrum of optical waves propagated through the atmosphere. D. C. Hogg. Bell System Tech J 42:2967-9 N '63

Tube amplifies light 500,000 times. il diag Electronics 37:80+ Mr 13 '64

See also

Aberration (optics)
Absorption of rays
Brightness
Color
Daylight
Daylight, Artificial
Glare
Interference (light)
Lighting
Photochemistry
Photoelasticity
Photoelectric effect
Photometry
Photophoresis
Phototaxis
Plants, Effect of light on
Plastics, Effect of light on
Polarization (light)
Radiation
Reflection (optics)
Refraction
Refractive index
Shadows
Spectrum analysis
Textile fibers, Effect of light on
Ultraviolet rays

Physiological effect

See also

Photoperiodism

Velocity

Experiment to demonstrate the finite velocity of light (educational exhibit). J. M. Osborne. il diag J Sci Instr 41:279-80 My '64

Improvements in measurement of the speed of light. L. T. Dillman. Am J Phys 32:567 Jl '64

Michelson-Morley experiment. R. S. Shankland. bibliog diags Am J Phys 32:16-35 Ja '64

Precise measurements of distance and of the velocity of light using lasers. P. L. Bender. bibliog J Res Nat Bur Stand 68D:540-1 My '64

LIGHT, Colored

New high-efficiency color for PAR lamps using multilayer interference coatings. E. M. Beesley. il diag Illum Eng 59:208-11; Discussion. 211-12 Mr '64

LIGHT, Scattering of

Absolute light scattering photometer: direct determination of scattered light from solutions. D. McIntyre. bibliog diags J Res Nat Bur Stand 68A:87-96 Ja '64

Aerosol studies by light scattering. M. Kerker and others. bibliog diags J Colloid Sci 19: 213-37 Mr '64

Determination of latex particle size by light scattering. S. H. Maron and others. bibliog J Colloid Sci 18:733-43; 19:591-601 O '63, S '64

Determination of particle size by the minima and maxima in the angular dependence of the scattered light; range of validity of the method. M. Kerker and others. bibliog J Colloid Sci 19:193-200 Mr '64

Determination of particle structure from light scattering. R. W. Hart and E. P. Gray. bibliog diag J Ap Phys 35:1408-15 My '64

Light scattering and the structure of pure water. K. J. Mysels. bibliog Am Chem Soc J 86:3503-5 S 5 '64

Light scattering by soap films. A. Vrij. bibliog diags J Colloid Sci 19:1-27 Ja '64

Light scattering from oriented polymer films. R. S. Stein and T. Hotta. bibliog diags J Ap Phys 35:2237-42 Jl '64

Light scattering measurements near the lower critical solution temperature of the 2,6-dimethylpyridine-water system. R. Pancirov and H. Brumberger. bibliog Am Chem Soc J 86:3562-3 S 5 '64

Light scattering measurements on solutions of some quaternary ammonium salts. S. P. Wasik and W. D. Hubbard. bibliog J Res Nat Bur Stand 68A:359-65 Jl '64

Light scattering study of sodium 2,6-di-*n*-alkylnaphthalene-1-sulfonates. I. J. Heilweil. bibliog J Colloid Sci 19:105-12 F '64

Measurement of droplet size for wide range particle distributions. J. H. Roberts and M. J. Webb. AIAA J 2:583-5 Mr '64

Multiple scattering effects in polystyrene latex dispersions. D. H. Napper and R. H. Ottewill. bibliog J Colloid Sci 19:72-80 Ja '64

Near-ultraviolet light scattering for the determination of molecular dimensions. W. R. Krigbaum and others. bibliog J Ap Phys 34:3218-20 N '63

LIGHT, Scattering of—*Continued*

Review of fundamental development in analysis; light scattering. J. P. Kratohvil. Anal Chem 36 [no 5]:458R-72R bibliog(p468R-72R) Ap '64

Scattering of optical harmonics by macromolecules. R. Bersohn. bibliog Am Chem Soc J 86:3505-7 S 5 '64

Temperature dependence of light scattering in some alkali halides. C. A. Plint and M. L. Breig. bibliog J Ap Phys 35:2745-9 S '64

Validity of the Einstein-Smoluchowski theory of light scattering. R. Zwanzig. bibliog Am Chem Soc J 86:3489-93 S 5 '64

Versatile light scattering photometers. B. Chu. bibliog il diags R Sci Instr 35:1201-5 S '64

See also

Tyndall effect

LIGHT airplanes. See Airplanes, Light

LIGHT amplification by stimulated emission of radiation. See Light amplifiers

LIGHT amplifiers

Absorption data of laser-type GaAs at 300° and 77°K. W. J. Turner and W. E. Reese. bibliog diag J Ap Phys 35:350-2 F '64

Acoustic waves from a laser beam. Sci Am 211:40 Ag '64

Acoustical generation by optical masers. V. A. Suprynowicz. IEEE Proc 52:849 Jl '64

Active laser tracker begins moving-target tests. J. F. Mason. il diag Electronics 37:10-11 Ja 10 '64

Amateur scientist; build a gas laser in the home. C. L. Stong. diags Sci Am 211:227-8+ S '64

Ammonia maser with separated oscillating fields. S. G. Kukolich. bibliog IEEE Proc 52:211 F '64

Amplifiers laser beam at low input levels. il diags Res/Develop 15:19 F '64

Analysis of a tubular gas lens. D. Marcuse and S. E. Miller. bibliog diags Bell System Tech J 43:1759-82 pt 2 Jl '64

Anomalous absorption in ruby. F. A. Brand and others. il diag IEEE Proc 52:417 Ap '64

Attenuation of laser light and efficiency of optical diffraction gratings. G. W. Stroke. bibliog IEEE Proc 52:862-3 Jl '64

Attenuation of laser light by a diffraction grating. R. Gerharz. diags IEEE Proc 52:438 Ap '64

Blue gas laser using Hg^{2+}. H. J. Gerritsen and P. V. Goedertier. bibliog il J Ap Phys 35:3060-1 O '64

Calcium niobate Ca(NbO$_3$)$_2$; new laser host crystal. A. A. Ballman and others. bibliog J Ap Phys 34:3155-6 N '63

Calculated divergence of laser beam from generalized spherical mirror cavities. N. Karube. diag IEEE Proc 52:327-8 Mr '64

Calibrators; laser in the machine shop. il diag Product Eng 35:44 S 28 '64

Capillary quartz cell for liquid laser research. E. J. Schimitschek and E. R. Schumacher. diag R Sci Instr 35:521 Ap '64

Characteristics of a continuous high-power GaAs junction laser. W. E. Engeler and M. Garfinkel. bibliog il diag J Ap Phys 35:1734-41 Je '64

Chemically pumped lasers. Electronics 37:29 My 18 '64

Commercial laser welding will first be applied to teeny-tiny parts. M. D. Weisinger. S A E J 72:82-4 Ap '64

Competition between internal and external modes of a ruby laser. A. Korpel and J. Free. il diag IEEE Proc 52:619-20 My '64

Conference on lasers and their applications, London. Engineer 218:554-5 O 2 '64

Continuous wave laser tracking system. il Product Eng 35:94-5 Ap 27 '64

Cw operation of GaAs injection lasers. M. F. Lamorte and others. bibliog IEEE Proc 52:1257-8 O '64

Cw optical maser action up to 133μ(0.133 mm) in neon discharges. C. K. N. Patel and others. bibliog IEEE Proc 52:713 Je '64

Cooperative effect in GaAs lasers. A. B. Fowler. bibliog J Ap Phys 35:2275-6 Jl '64

Coupled-mode laser oscillation. J. A. Fleck, jr. and R. E. Kidder. bibliog J Ap Phys 35:2825-31 O '64

Criterion for continuous amplitude oscillations of optical masers. J. I. Kaplan. J Ap Phys 34:3411-12 N '63

Crystals route laser beam. il Electronics 37:67 F 7 '64

Čzochralski growth of doped single-crystal lanthanum trifluoride (LaF$_3$) for lasers. M. A. Hiller and O. M. Stafsudd. bibliog il diag J Ap Phys 35:693-5 Mr '64

Demodulation of phase-modulated optical maser beam by autocorrelation technique. S. Saito and T. Kimura. IEEE Proc 52:1048 S '64

Dependence of the optical-maser threshold on neodymium concentration in sodium-compensated calcium tungstate. A. E. Paladino and others. J Ap Phys 35:249-50 Ja '64

Detection of the transverse Doppler effect with laser light. R. Gerharz. IEEE Proc 52:218 F '64

Determination of R_1 linewidths in ruby using a pulsed ruby laser. R. L. Aagard. bibliog J Ap Phys 34:3631-2 D '63

Diffused junctions in GaAs injection lasers. J. C. Marinace. il diag Electrochem Soc J 110:1153-9 N '63

Direct observation of axial mode beating in Q-switched ruby lasers. L. Waszak. il diag IEEE Proc 52:428 Ap '64

Directional control of laser beams. Engineering 197:496 Ap 3 '64

Distribution of the emission from a rectangular laser rod (ruby). H. Hora and others. il diag IEEE Proc 52:611-12 My '64

Effect of diffraction on the output beam of a ruby laser. M. Birnbaum and others. bibliog il IEEE Proc 52:746-7 Je '64

Effect of mode degeneracy on output of gaseous optical masers. G. O. Harding and T. Li. bibliog il diags J Ap Phys 35:475-8 Mr '64

Effects of scatter and diffraction on the spiking period of a ruby laser. C. K. Campbell and J. P. Van Nest. IEEE Proc 52:210-11 F '64

Efficiency measurements on GaAs electroluminescent diodes. S. V. Galginaitis. bibliog diag J Ap Phys 35:295-8 F '64

Efficiency of a *P-N* diode laser. A. C. Scott. diags IEEE Proc 52:325-6 Mr '64

Electron-pumped laser. Electronics 37:28 O 19 '64

Electronic devices making strides in metal-working. S. B. Ruth. il diag Electronic Ind 23:62-5 Ja '64

Elliptical head for liquid laser research. E. J. Schimitschek and A. L. Lewis. diag R Sci Instr 35:911-12 Jl '64

Energy and power considerations in injection and optically pumped lasers. A. Yariv. bibliog diags IEEE Proc 51:1723-31 D '63

Enhancement of second harmonic power generated by a dielectric crystal inside a laser cavity. J. K. Wright. diags IEEE Proc 51:1663 N '63

Epitaxial growth from the liquid state and its application to the fabrication of tunnel and laser diodes. H. Nelson. il diag RCA R 24:603-15 D '63

Evaluating light demodulators. D. E. Caddes and B. J. McMurtry. bibliog il diags Electronics 37:54-61 Ap 6 '64

Evaporation coefficients from exposure of a solid to laser radiation. S. S. Penner. diag AIAA J 2:1664-6 S '64

Exhaust gas pictures. il Electronics 37:51-2 Mr 6 '64

Existence of eigenvalues of a class of integral equations arising in laser theory D. J. Newman and S. P. Morgan. Bell System Tech J 43:113-26 Ja '64

Exotic materials need exotic metal-removal. R. L. Rod and others. il diags S A E J 72:46-53 Mr '64

Experiment on quasi-fundamental mode oscillation of ruby laser. Y. Suematsu and K. Iga. il IEEE Proc 52:87-8 Ja '64

Fabry-Perot spectrometer for high-resolution spectroscopy and laser work. K. D. Mielenz and others. bibliog il diags J Res Nat Bur Stand 68C:1-6 Ja '64

Fast InSb PEM detectors for optical maser studies at 7μ. R. N. Zitter. il diags R Sci Instr 35:594-6 My '64; Discussion. P. W Kruse. 35:1728-9 D '64

Feedback boosts laser beam. diags Electronics 36:42-3 D 13 '63

56 materials produce laser action. S A E J 72:64-5 F '64

First commercial laser rangefinder. il Engineering 197:796 Je 12 '64

Fluctuations in a laser beam over 9- and 90-mile paths. W. R. Hinchman and A. L. Buck. IEEE Proc 52:305-6 Mr '64

Frequency changing of laser radiation. E. L. Thomas and J. K. Wright. diags J Sci Instr 41:277-9 My '64

Gain and reflection characteristics of active interference filter laser amplifier. K. Tomiyasu. IEEE Proc 52:856-7 Jl '64

Gas-filled tube focuses and bends laser beam. il Machine Design 36:10 Ag 13 '64

LIGHT amplifiers—*Continued*

Gas laser radar. Electronics 37:30+ Ap 20 '64

Gas lens using unlike, counter-flowing gases. D. W. Berreman. diags Bell System Tech J 43:1476-9 Jl '64

Gas lenses show promise for long distance laser communication. il diags Bell Lab Rec 42:294-5 S '64

Gas mixture lens measurements. A. C. Beck. il diag Bell System Tech J 43:1821-5 pt 2 Jl '64

Gas pumping in continuously operated ion lasers. E. I. Gordon and E. F. Labuda. il Bell System Tech J 43:1827-9 pt 2 Jl '64

Gaseous optical maser with external mirrors. T. G. Polanyi and W. R. Watson. bibliog il diags J Ap Phys 34:553-60 Mr '63; Discussion. 34:3412-13 N '63

Giant pulse laser operation by a passive, reversibly bleachable absorber. B. H. Soffer. il J Ap Phys 35:2551 Ag '64

Harmonic generation in injection lasers. A. W. Smith and others. J Ap Phys 35:733-4 Mr '64

High repetition rate laser system. W. T. Haswell, 3d and others. il IEEE Proc 52:93 Ja '64

Hollow metallic and dielectric wave-guides for long distance optical transmission and lasers. E. A. J. Marcatili and R. A. Schmeltzer. bibliog diags Bell System Tech J 43:1783-809 pt 2 Jl '64

How rare earth chelate lasers work. M. Metlay. bibliog Electronics 36:67-9 N 15 '63

Impurity states in semiconducting masers. H. J. Zeiger. bibliog J Ap Phys 35:1657-67 Je '64

Increased power output of the 6328 A gas maser. A. D. White. IEEE Proc 51:1669 N '63

Influence of optical quality on ruby laser oscillators and amplifiers. D. P. Bortfeld and others. il J Ap Phys 35:2267-9 Jl '64

Infrared aims laser, locks radar on evading aircraft. il Machine Design 36:12 Je 18 '63

Injection lasers. M. I. Nathan and others. bibliog il diags Electronics 36:61-5 D 6; 34-9 D 13 '63

Injection-luminescence pumping of a CaF_2: Dy^{2+} laser. S. A. Ochs and J. I. Pankove. diags IEEE Proc 52:713-14 Je '64

Interaction of light with light. J. A. Giordmaine. il diags Sci Am 210:38-49 Ap '64

Interference fringes produced by laser optics. C. L. Rudder. il IEEE Proc 52:719 Je '64

Internal second-harmonic generation in gallium arsenide lasers. L. D. Malmstrom and others. bibliog J Ap Phys 35:248-9 Ja '64

Investigation of relaxation oscillations in the output from a ruby laser. D. D. Bhawalkar and others. bibliog il diag Radio & Electronic Eng 27:285-91 Ap '64

Large-amplitude solutions of the rate equations for the ruby laser. W. W. Clendenin. bibliog J Ap Phys 35:2277-8 Ag '64

Laser; a new dimension in lighting. J. W. Currie and others. il diags Illum Eng 59:663-70 O '64

Laser, a new tool. il Chem Eng Prog 60:111-12 My '64

Laser action in a flux-grown ruby. D. F. Nelson and J. P. Remeika. bibliog il diag J Ap Phys 35:522-9 Mr '64

Laser action in europium dibenzoylmethide. E. J. Schimitschek and R. B. Nehrich, jr. bibliog il J Ap Phys 35:2786-7 S '64

Laser action in mercury-rare gas mixtures. H. G. Heard and others. IEEE Proc 52:414, 1049-50 Ap, S '64

Laser action in singly ionized krypton and xenon. W. B. Bridges. IEEE Proc 52:843-4 Jl '64

Laser action in Xe in two distinct current regions of ac and dc discharges. G. E. Courville and others. il J Ap Phys 35:2547-8 Ag '64

Laser beam fusion welding. R. H. Fairbanks and C. M. Adams, jr. il Welding J 43:sup97-102 Mr '64

Laser beam trims resistors. il Electronics 37:46-7 F 21 '64

Laser beams do kill cancer. P. E. McGuff. Electronics 36:17 N 8 '63

Laser beams drill holes. Franklin Inst J 277:96-7 Ja '64

Laser calibrator for the shop. il Steel 155:97 S 28 '64

Laser camera takes bright picture. il diag Electronics 37:44-5, cover F 28 '64

Laser comes to the shop; interferometer with a laser as a light source makes ultra-precise measurements. il diag Am Mach 108:75 S 28 '64

Laser communications. J. A. Fusca. bibliog il diags Space/Aeronautics 41:58-77 My '64

Laser diode boosts small laser signal 1000 times. Space/Aeronautics 41:131 Ap '64

Laser emission from a moving ruby rod. J. Free and A. Korpel. il IEEE Proc 52:90 Ja '64

Laser emits radiation at 133 microns. Franklin Inst J 278:159 Ag '64

Laser equipment performs precise linear measurements. il diag Automation 11:36+ O '64

Laser excited by nuclear heat. F. M. Johnson. bibliog diags Nucleonics 22:57-69 Ap '64

Laser experiments involving in-cavity modulation with electro-optic crystals. A. D. Rugari and P. E. Nordborg. diag IEEE Proc 52:852 Jl '64

Laser feedback interferometer. D. M. Clunie and N. H. Rock. bibliog il diag J Sci Instr 41:489-92 Ag '64

Laser field; where we stand today. T. H. Maiman. il Electronic Ind 23:68-72 F '64

Laser-formed apertures for electron beam instruments. J. F. Norton and J. G. McMullen. il diag J Ap Phys 34:3640-1 D '63

Laser frequency translation by means of electro-optic coupling control. R. Targ and others. diags IEEE Proc 52:1247-8 O '64

Laser-heated cathode. G. C. Dalman and T. S. Wen. il diags IEEE Proc 52:200-1 F '64

Laser in refractories research. il Glass Ind 45:556+ O '64

Laser interferometer; application to plasma diagnostics. J. B. Gerardo and J. T. Verdeyen. bibliog il diags IEEE Proc 52:690-7 Je '64

Laser lighthouses for satellites and space vehicles in outer space. Electronics 37:28+ Ag 24 '64

Laser measures length to a hundred-thousandth. il Control Eng 11:28 O '64

Laser; new competitor for drilling tiny holes? D. L. Williams. il S A E J 72:60-4 My '64

Laser oscillations at 0.918, 1.057, and 1.401 microns in Nd^{3+}-doped borate glasses. A. D. Pearson and others. il diag J Ap Phys 35:1704-6 Je '64

Laser probe traces contaminants in plastics materials. il Plastics World 22:23-4 My '64

Laser provides accurate linear measuring instrument. il diag Iron & Steel Eng 41:177-8+ O '64

Laser rangefinder. il Electronic Eng 36:482 Jl '64

Laser state-of-the-art. Electronic Ind 23:8 Mr '64

Laser techniques for metals joining. W. N. Platte and J. F. Smith. bibliog il diags Welding J 42:sup481-9 N '63

Laser used in atomic absorption spectroscopy. Franklin Inst J 277:288 Mr '64

Laser welder makes continuous bead. il Electronics 37:11 Ja 10 '64

Laser welders; out of the lab and into the factory. G. Sideris. il Electronics 37:96+ O 19 '64

Laser welding of semiconductor. T. E. Price. diags Ind Electronics 2:478-9 O '64

Laser welding; set for action. il Iron Age 193:64 Ja 23 '64

Laser with a multihole diaphragm. T. Morokuma. bibliog il diags J Res Nat Bur Stand 68C:25-34 Ja '64

Lasers and coherent light. A. L. Schawlow. bibliog il diags Phys Today 17:28-33 Ja '64

Lasers and you. Electronics 37:28 Ag 24 '64

Lasers as messengers; four new techniques for modulating the light beam. diags Electronics 37:86+ N 2 '64

Lasers as production tools. T. M. Comella. bibliog il diags Automation 11:68-77 Jl '64

Lasers check alignment of linear accelerator. il diag Product Eng 35:53 Ag 17 '64

Lasers for manufacturing; where they stand today. il Tool & Manuf Eng 52:109-12 Ap '64

Lasers; gases will guide light without absorbing or reflecting it. il diag Product Eng 35:74 Ag 3 '64

Lasers in aerospace systems. A. W. Eichmann. Space/Aeronautics 42 no 4:78-80 '64-65

Lasers on the beam in new applications. il Iron Age 194:29 Ag 6 '64

Lasers; on the ground, in the air. il Product Eng 35:66-7 Mr 16 '64

Lens or light guide using convectively distorted thermal gradients in gases. D. W. Berreman. il diags Bell System Tech J 43:1469-75 Jl '64

LIGHT amplifiers—*Continued*

Lensless optical system uses laser. L. H. Dulberger and C. Wixom. il Electronics 36:44 D 27 '63
Lifetime of helium-neon lasers. R. Turner and others. bibliog diags R Sci Instr 35: 996-1001 Ag '64
Limitations on lasers for deep space communication. L. R. Bittman. diags IEEE Trans Com & Electronics p 170-3 Mr '64
Liquid dyes improve laser Q-spoiling action. Chem & Eng N 42:48 Je 1 '64
Long-time stabilization of laser light to precision of one part in a billion. Bell Lab Rec 42:325 O '64
Long tunnel. il Electronics 37:28 Je 15 '64
Maser rate equations and spiking. D. A. Kleinman. bibliog Bell System Tech J 43: 1505-32 pt 2 Jl '64
Matching of optical modes. H. Kogelnik. bibliog il diag Bell System Tech J 43:334-7 Ja '64
Measurement of continental drift and earth movement with lasers. W. Honig. diag IEEE Proc 52:430 Ap '64
Measurement of Fresnel drag with the ring laser. W. M. Macek and others. bibliog diags J Ap Phys 35:2556-7 Ag '64
Measurement of microwave shot-noise reduction factor by laser light induced photoemission. S. Saito and Y. Fujii. diag IEEE Proc 52:980 Ag '64
Mechanical analogue of electron spin inversion and maser action; with a simple description of maser operation. A. E. Karbowiak. bibliog il diags Inst E E Proc 110: 2241-7 D '63
Metallic scattering centers in $CaWO_4$ laser crystals. J. R. Shappirio and others. il J Ap Phys 34:3643-4 D '63
Method for determining the threshold of laser materials. A. Lempicki and R. L. Martin. IEEE Proc 51:1778-9 D '63
Microwave modulation of a GaAs injection laser. B. S. Goldstein and J. D. Welch. il diags IEEE Proc 52:715 Je '64
Miniature gas laser. il Engineer 216:1042 D 20 '63
Mode selection in an aperture-limited concentric maser interferometer. T. Li. bibliog diags Bell System Tech J 42:2609-20 N '63
Mode selection properties of segmented rod lasers. M. Birnbaum and T. L. Stocker. il J Ap Phys 34:3414-15 N '63
Modification of the near-field pattern of a GaAs laser by a magnetic field. A. B. Fowler and E. J. Walker. bibliog il J Ap Phys 35:727 Mr '64
Modification of the threshold current and near-field emission pattern of a GaAs laser by an adsorbed dielectric layer. E. J. Walker and A. E. Michel. il diag J Ap Phys 35: 2285-9 Ag '64
Modulation of gallium arsenide lasers. Franklin Inst J 276:576 D '63
Monitoring radar by neon-helium gas laser system. diag Electronics 37:27-8 O 19 '64
Multimode oscillations in solid-state masers. H. Statz and C. L. Tang. il diags J Ap Phys 35:1377-83 My '64
Multimoding in lasers. R. H. Pantell. bibliog diags J Ap Phys 35:1404-8 My '64
Multiple probe measurements in high-frequency plasma lasers. S. Aisenberg. bibliog diags J Ap Phys 35:130-4 Ja '64
Near-field interference fringes from laser mirrors. C. L. Rudder and others. bibliog il diag IEEE Proc 52:740-1 Je '64
Near infrared lasering in Ne-Cl_2 and He-Cl_2. R. A. Paananen and F. A. Horrigan. bibliog diag IEEE Proc 52:1261-2 O '64
Nelas gas laser. il Ind Electronics 1:738 N '63
Neon gas maser lines at 68.329μ and 85.047μ. R. A. McFarlane and others. IEEE Proc 52:318 Mr '64
New developments in laser weapons. J. De Ment. bibliog il diags Electronic Ind 22: 78-82 N '63
New dual-cavity laser. Franklin Inst J 277: 184 F '64
New helium-neon gas laser. Franklin Inst J 277:621 Je '64
New junction laser resonant structures. M. Garfinkel and others. il diags J Ap Phys 35:2321-3 Ag '64
New laser amplifier. Franklin Inst J 277:370-1 Ap '64
New laser emits photons and generates phonons in crystal. L. F. Johnson and others. Bell Lab Rec 41:431 D '63; Same. Franklin Inst J 277:92-3 Ja '64
New laser lever increases power output. Franklin Inst J 277:511 My '64
New lasers chemically pumped. il diags Electronics 37:48+. cover Ja 17 '64
New rare earth garnets. il Bell Lab Rec 42: 280 S '64
New rare earth garnets. Franklin Inst J 278: 156-7 Ag '64
New techniques for metals joining in the space age; by lasers. C. J. Bahun and R. D. Engquist. il J Metals 16:242-3 Mr '64
New triode laser. Franklin Inst J 277:291 Mr '64
Novel laser *Q*-switching mechanism. J. L. Wentz. diags IEEE Proc 52:716-17 Je '64
Optical circuit controls laser beam; illustrations with text. Electronics 36:80 D 6 '63
Optical giant pulses from a *Q*-switched laser. C. C. Wang. IEEE Proc 51:1767 D '63
Optical heterodyning using point contact germanium diodes. C. K. N. Patel and W. M. Sharpless. il diag IEEE Proc 52:107-8 Ja '64
Optical maser action in the negative glow region of a cold cathode glow discharge. J. Smith. J Ap Phys 35:723-4 Mr '64
Optoelectronics at work. I. Wunderman. il diags Electronics 37:58-67 Jl 27 '64
Organic dye replaces Kerr cell as laser control device. Chem & Eng N 42:60 My 11 '64
Oscillatory character of $CaWO_4$:Nd^{3+} laser output. E. Bernal and others. bibliog IEEE Proc 52:710-11 Je '64
Output power from GaAs lasers at room temperature. C. C. Gallagher and others. il diag IEEE Proc 52:717-19 Je '64
Oxygen laser aging characteristics. G. B. Jacobs. IEEE Proc 52:1259-60 O '64
Painless photocoagulation by laser. il Engineering 197:591 Ap 24 '64
Parallel theta-pinch pumping of a laser oscillator-amplifier. J. S. Hitt and J. M. Feldman. il diag IEEE Proc 52:616-17 My '64
Performance of a multiple pulse, multiprism laser *Q* switch. J. P. Chernoch and K. F. Tittel. bibliog il IEEE Proc 52:859-60 Jl '64
Photoconductive mixing in CdSe single crystals. O. Svelto and others. bibliog diags J Ap Phys 34:3182-6 N '63
Photography without lenses; here's what it's all about. B. Sherman. diags Mod Phot 28: 36+ S '64
Photolytic and reduction coloring of $CaWO_4$: Nd. D. C. Cronemeyer and M. W. Beaubien. bibliog diag J Ap Phys 35:1779-85 Je '64
Photon avalanches from a population inversion. L. Tonks. diags J Ap Phys 35:1134-41 Ap '64
Photosensitive liquid used as a nondestructive passive Q-switch in a ruby laser. P. Kafalas and others. bibliog J Ap Phys 35: 2349-50 Ag '64
Plasma pinch excitation of a ruby laser. R. A. Brandewie and others. il J Ap Phys 34: 3415-16 N '63
Polarization induced in a dielectric medium by an intense laser beam. A. Bramley and J. E. Rosenthal. IEEE Proc 52:205-6 F '64
Population inversion between bound and repulsive molecular electronic states by two-temperature equilibrium. D. A. Leonard and others. bibliog IEEE Proc 51:1785-6 D '63
P-n junction lasers. G. Burns and M. I. Nathan. il diags IEEE Proc 52:770-94 bibliog(p791-4) Jl '64
Power-dependent splitting of axial modes in ruby lasers. W. Heinlein and D. Roess. il IEEE Proc 51:1667-8 N '63
Power output of the 6328 A helium-neon maser as a function of the resonant cavity length. S. S. Alpert and A. D. White. IEEE Proc 51:1665-6 N '63
Precise measurements of distance and of the velocity of light using lasers. P. L. Bender. bibliog J Res Nat Bur Stand 68D:540-1 My '64
Present use, future hopes for plasma, electron beam, laser. il diags Welding Eng 49:35-40; Discussion. 40-2 Ja '64
Properties of cooled, uncoated ruby laser oscillators. F. A. Brand and others. il IEEE Proc 52:1255-6 O '64
Proposal for a two-stage semiconductor laser through tunneling and injection. S. Wang. bibliog diags J Ap Phys 34:3443-50 D '63
Proposal for multiple excitation of gaseous lasers. G. Makhov and H. G. Heard. diags IEEE Proc 52:410-11 Ap '64
Proposal for obtaining laser beat frequency radiation in the far infrared by the Smith-Purcell effect. A. J. Fox and N. W. W. Smith. diags IEEE Proc 52:429-30 Ap '64
Proposed class of heterojunction injection lasers. H. Kroemer. bibliog diag IEEE Proc 51:1782-3 D '63; Discussion. 52:426-7 Ap '64

LIGHT amplifiers—*Continued*

Proposed geometry for obtaining a more highly collimated light beam of greater intensity from GaAs lasers. F. Harper. diags IEEE Proc 52:92-3 Ja '64

Pulse power supply design for laser pumping. S. J. Grabowski. il diags Electronics 36:33-5 D 20 '63

Pulse propagation in a laser amplifier. J. P. Wittke and P. J. Warter. bibliog J Ap Phys 35:1668-72 Je '64

Pulse sharpening and gain saturation in traveling-wave masers. E. O. Schulz-Dubois. bibliog Bell System Tech J 43:625-58 Mr '64

Putting Zeeman to work to modulate laser beams. Product Eng 35:54-5 S 28 '64

Q-switched $CaWO_4$:Nd^{3+} laser. D. Karlsons and T. Falvey. il J Ap Phys 34:3407 N '63

Quantum statistics and lasers. J. P. Gordon. bibliog J Res Nat Bur Stand 68D:1031-3 S '64

Radiofrequency beats between components of split axial modes in ruby lasers. D. Roess. il diags IEEE Proc 51:1668-9 N '63

Raman maser study of optical difference frequency production. L. W. Davis and others. J Ap Phys 35:2289-90 Ag '64

Rapid neutron activation method for determining chromium in ruby maser and laser crystals. J. R. Weiner and others. bibliog il Electrochem Soc J 110:1160-2 N '63

Regular and irregular spiking in a multimode spherical ruby laser. M. Katzman and J. W. Strozyk. il diag J Ap Phys 35:725-7 Mr '64

Resonator influence on temporal character of laser output. M. Katzman and J. W. Strozyk. bibliog diag IEEE Proc 52:433-4 Ap '64

Resource letter MOP-1 on masers (microwave through optical) and on optical pumping. H. W. Moos. Am J Phys 32:589-95 Ag '64

Rigid low-loss polarizing device for giant pulse lasers using Brewster angle polarization. G. Weiser. diag IEEE Proc 52:966 Ag '64

Ruby-laser-induced photocurrents and luminescence in ZnO. D. R. Hotchkiss. bibliog J Ap Phys 35:2455-7 Ag '64

Ruby laser with mode-selective etalon reflector. D. Roess. bibliog IEEE Proc 52:196-7 F '64

Ruby laser with piezoelectrically excited vibrating reflector. E. A. Gerber and E. R. Ahlstrom. il J Ap Phys 35:2546-7 Ag '64

Ruby superradiation. D. Roess. il diag IEEE Proc 52:853 Jl '64

Semiconductor-cooled laser achieves first all-solid-state laser system. Franklin Inst J 278:154 Ag '64

Signal detection with a laser amplifier. H. A. Steinberg. diag IEEE Proc 52:28-32 Ja '64

Silicon carbide diode laser. R. N. Hall. bibliog IEEE Proc 52:91 Ja '64

Simultaneous laser oscillation on the neon doublet at 1.1523 μ. W. R. Bennett, jr. and J. W. Knutson, jr. bibliog IEEE Proc 52:861-2 Jl '64

Single frequency gas lasers at 6328 A. E. I. Gordon and A. D. White. bibliog il IEEE Proc 52:206-7 F '64

Single-frequency laser breakthrough in production metrology. il Mach 71:153 S '64

Size-dependent spontaneous energy loss in lasers due to self-stimulated emission. T. Waite. J Ap Phys 35:1680-2 Je '64

Small-signal analysis of internal (coupling-type) modulation of lasers. M. DiDomenico, jr. bibliog diags J Ap Phys 35:2870-6 O '64

Some demonstration experiments in optics using a gas laser. D. Dutton and others. il diags Am J Phys 32:355-61 My '64

Some photographic studies of optical masers. T. J. Pavliscak. bibliog il diags SMPTE J 73:206-12 Mr '64

Spatial distribution of radiation from GaAs lasers. G. E. Fenner and J. D. Kingsley. bibliog il diags J Ap Phys 34:3204-8 N '63

Spectral characteristics for a neodymium laser liquid filter system. K. F. Tittel. bibliog R Sci Instr 35:522-4 Ap '64

Spectral output of semiconductor lasers. H. Statz and others. diags J Ap Phys 35:2581-5 S '64

Spectrometer for laser analysis. diag Electro-Tech 73:13 Mr '64

Spectrometer for laser analysis. Franklin Inst J 277:372-3 Ap '64

Spectrometer for laser analysis. il diag Glass Ind 45:473+ S '64

Spectrophotometer uses gas laser as exciter. il Chem & Eng N 42:43 Ag 10 '64

Spectrum of a signal produced by harmonic generation. R. H. Pantell. IEEE Proc 52:607-8 My '64

Spectrum properties of pulse modulated lasers. S. Karp. diag IEEE Proc 52:1264-5 O '64

Spreading of laser beams due to diffraction. T. Waite and others. il IEEE Proc 52:624 My '64

Status of gas lasers. W. R. Bennett, jr. bibliog J Res Nat Bur Stand 68D:667-9 My '64

Steady-state output power of a laser as a function of the single-pass gain. I. Tobias. bibliog J Ap Phys 34:3200-4 N '63

Stimulated emission in aromatic organic compounds. D. L. Stockman and others. bibliog diag IEEE Proc 52:318-19 Mr '64

Stimulated emission in CaF_2:Er^{3+}. S. A. Pollack. il diag IEEE Proc 51:1793-4 D '63

Stimulated emission of 100μ radiation from Bi-Sb *p-n* junctions. R. Sehr. bibliog IEEE Proc 52:725-6 Je '64

Straight-through pump amplifies weak laser beam. il diag Machine Design 36:10 Ja 16 '64

Streak camera for laser emission studies. J. L. Helfrich and G. F. Blizard, jr. il diags R Sci Instr 34:1229-32 N '63

Sun-pumped laser. il Electronics 37:33 S 21 '64

Super-radiant yellow and orange laser transitions in pure neon. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

Technique for measuring small optical loss using an oscillating spherical mirror interferometer. A. J. Rack and M. R. Biazzo. bibliog il diags Bell System Tech J 43:1563-79 pt 2 Jl '64

Temperature limitation on continuous operation of GaAs lasers. S. Mayburg. bibliog diag J Ap Phys 34:3417-18 N '63

Theory of direct transitions in semiconductors. R. H. Pantell and others. bibliog Bell System Tech J 43:805-16 Mr '64

Thermal gas lens measurements. A. C. Beck. diag Bell System Tech J 43:1818-20 pt 2 Jl '64

Three lasers in tandem promise practical optical radar. il Machine Design 36:14 Mr 26 '64

Three-prism design for laser Q-switch. il Electronics 37:121 Ag 10 '64

Time dependence of ruby laser emission at 78°K. A. Szabo. bibliog il J Ap Phys 35:2263-4 Jl '64

Triangular injection lasers. J. C. Marinace and others. diags IEEE Proc 52:722-3 Je '64

Triode gas laser used in studying light amplification. P. K. Tien and others. il Bell Lab Rec 42:67 F '64

2s-2p and *3p-2s* transitions of neon in a laser ten meters long. R. N. Zitter. bibliog J Ap Phys 35:3070-1 O '64

Use of dielectric etalon as a reflector for *Q*-switched laser operation. H. Pawel and others. IEEE Proc 52:1048-9 S '64

Use of time resolution in identifying laser transitions in a mercury-rare gas discharge. W. M. Doyle. J Ap Phys 35:1348-9 Ap '64

Uses laser beam for thin-film evaporation at 2°K. F. L. Bonem. il diag Res/Develop 15:50-2 Je '64

Versatile laser equipment. il Ind Electronics 2:322 Jl '64

Visible laser transitions in ionized oxygen, nitrogen, and carbon monoxide. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

Wanted; engineering uses for lasers. il diags Engineering 198:60-1 Jl 10 '64

Welders look at three new processes. R. G. Dermott. Metal Prog 85:122-3 Ap '64

Where lasers are headed. Steel 155:85 Jl 27 '64

Will the laser make the grade as a proven welding process? R. R. Irving. il Iron Age 193:85-8 Ap 23 '64

Zeeman effect and ruby laser polarization. A. S. Badger and T. A. Rabson. diag IEEE Proc 52:1047-8 S '64

Control

Control of laser radiation with birefringent crystals: the microwave circuit viewpoint. M. R. Wohlers and K. G. Leib. diags J Ap Phys 35:2311-12 Ag '64

Crystal switch deflects the beam. il Machine Design 36:14 F 13 '64

Modulator crystals for lasers. L. A. Murray. diags Electronic Ind 23:83-5 F '64

Design

Design considerations for laser pulse amplifiers. A. E. Siegman. J Ap Phys 35:460 F '64

LIGHT amplifiers—Design—*Continued*

Designing lasers with pump-power charts. R. A. Kaplan. bibliog il Electronics 36:23-8 D 27 '63

Sun-powered laser generates meaningful signals at room temperature. il diag Machine Design 36:10 S 10 '64

Medical applications

Another step closer. Electronics 37:27 Ap 20 '64

Product Engineering fifth annual master design awards; laser photocoagulator for retinal surgery. il diag Product Eng 35:108 Ap 27 '64

Miniaturization

Laser goes miniature. D. A. Buddenhagen. il diags S A E J 72:40-5 Mr '64

Miniature gas laser emits single frequency. il Bell Lab Rec 41:424 D '63

New miniature gas laser. Franklin Inst J 277:178 F '64

Noise

Considerations of noise and schemes for its reduction in laser amplifiers. H. Kogelnik and A. Yariv. bibliog diags IEEE Proc 52:165-72 F '64

Noise in masers. H. A. Haus. bibliog J Res Nat Bur Stand 68D:669-70 My '64

Optical maser oscillators and noise. E. I. Gordon. bibliog diags Bell System Tech J 43:507-39 pt 2 Ja '64

Testing

Spectrometer for light beam analysis. il diag Engineering 197:398 Mr 13 '64

Tuning

Magnetic field tuning of gaseous laser oscillators. R. L. Fork and C. K. N. Patel. bibliog IEEE Proc 52:208-9 F '64

Magnetic tuning of cw InSb diode laser. R. J. Phelan, jr. and R. H. Rediker. IEEE Proc 52:91-2 Ja '64

LIGHT communication systems

Analysis of a tubular gas lens. D. Marcuse and S. E. Miller. bibliog diags Bell System Tech J 43:1759-82 pt 2 Jl '64

Application of semiconductor optical radiators to space communication. B. S. Goldstein and J. D. Welch. bibliog diags IEEE Trans Com & Electronics 83:470-3 S '64

Cross modulation of optical, rf, and microwave signals with optical pumping. B. W. Harned and others. diag IEEE Proc 52:632 My '64

Directional control in light-wave guidance. S. E. Miller. bibliog diags Bell System Tech J 43:1727-39 pt 2 Jl '64

Enetron, a new light source. diag Electronic Ind 23:79 Ap '64

Evaluating light demodulators. D. E. Caddes and B. J. McMurtry. bibliog il diags Electronics 37:54-61 Ap 6 '64

Gas-filled tube focuses and bends laser beam. il Machine Design 36:10 Ag 13 '64

Gas lens using unlike, counter-flowing gases. D. W. Berreman. diags Bell System Tech J 43:1476-9 Jl '64

Gas lenses show promise for long distance laser communication. il diags Bell Lab Rec 42:294-5 S '64

High efficiency light generator; Enetron. W. H. Long. il diags Electronic Ind 23:73-4 F '64

Hollow metallic and dielectric wave-guides for long distance optical transmission and lasers. E. A. J. Marcatili and R. A. Schmeltzer. bibliog diags Bell System Tech J 43:1783-809 pt 2 Jl '64

Instability of light beam due to lens-displacements in a beam waveguide. J. Hirano. diag IEEE Proc 52:872-3 Jl '64

Laser communications. J. A. Fusca. bibliog il diags Space/Aeronautics 41:58-77 My '64

Lasers as messengers; four new techniques for modulating the light beam. diags Electronics 37:86+ N 2 '64

Lasers; gases will guide light without absorbing or reflecting it. il diag Product Eng 35:74 Ag 3 '64

Lens or light guide using convectively distorted thermal gradients in gases. D. W. Berreman. il diags Bell System Tech J 43:1469-75 Jl '64

Limitations on lasers for deep space communication. L. R. Bittman. diags IEEE Trans Com & Electronics p 170-3 Mr '64

Low power light beam carries vocal messages; Retrometer. diag Steel 154:124+ My 4 '64

New optical Doppler radar system. Franklin Inst J 277:624-5 Je '64

Optical receiving devices. M. Ross. bibliog diags Electro-Tech 73:93-100 Ap '64

Propagation of light rays through lens-waveguide with curved axis. D. Marcuse. diags Bell System Tech J 43:741-53 Mr '64

Sun-powered laser generates meaningful signals at room temperature. il diag Machine Design 36:10 S 10 '64

LIGHT filters

Development of filters for a thermoelectric colorimeter. S. H. Emara and R. P. Teele. bibliog diags J Res Nat Bur Stand 67C:319-25 O '63

Do-it-yourself filter set. Res/Develop 15:24 Jl '64

Efficiency of a ^{85}Rb filter in optical pumping of ^{87}Rb. P. Davidovits and N. Knable. diags R Sci Instr 35:857-8 Jl '64

Filters facilitate color measurements. Franklin Inst J 278:70-1 Jl '64

How to choose the best filter in both color and black-and-white photography. A. Feininger. Mod Phot 28:52+ O '64

Instant color correction. C. S. McCamy. Mod Phot 28:66-7 Ja '64

Light filter for reduction of background in liquid scintillation counting. H. A. Swartz. bibliog diag Anal Chem 36:2080-3 O '64

Neutral filters in photo-optics. J. H. Waddell. Res/Develop 15:33-4 Ag '64

New high-efficiency color for PAR lamps using multilayer interference coatings. E. M. Beesley. il diag Illum Eng 59:208-11; Discussion. 211-12 Mr '64

Optical network and filter synthesis using the theory of distributions. G. W. Stroke. bibliog IEEE Proc 52:855 Jl '64

Recalibration of the NBS glass standards of spectral transmittance. H. J. Keegan and others. bibliog J Res Nat Bur Stand 67A:577-84 N '63

Spectral characteristics for a neodymium laser liquid filter system. K. F. Tittel. bibliog R Sci Instr 35:522-4 Ap '64

Which filters for tele-photography? B. Sherman. diags Mod Phot 28:72-3 Ag '64

LIGHT meters. See Photometers

LIGHT modulators. See Modulators, Light

LIGHT projection

Capitol lighting. Sacramento's 200-ft-wide capitol mall. il diags Elec Constr & Maint 62:68-9 D '63

Choose the right protective lighting arrangement. V. R. Bishop. il Plant Eng 18:132-3 O '64

Dramatic lighting of towers of the George Washington bridge. H. Wenson and H. Lewis. il plan diags Elec Constr & Maint 63:88-93 Je '64

Five luminaires light five acres at Utah's State fairgrounds. il Elec Constr & Maint 63:121 Jl '64

Floodlighting a golf course. J. F. McPartland. il diag Elec Constr & Maint 62:85-8 N '63

Floodlighting for sports at Syracuse university. R. H. Goodman. il plan Elec Constr & Maint 63:96-8 Mr '64

Floodlighting progress at the National geographic building. il Illum Eng 59:484-5 Jl '64

Floodlighting system brightens up bank. il Elec World 162:163 Ag 10 '64

Improved high-tower floodlight. il Engineer 216:1001 D 13 '63

Newest thing in sports resorts: floodlighted golf and ski center. il Illum Eng 59:486-8 Jl '64

Paint your plant with floodlights. J. P. Heck. il Food Eng 36:101-2 S '64

Quartz units light church interior. il Elec Constr & Maint 62:77 D '63

Solid crystal modulates light beams. E. Lindberg. il diag Electronics 36:58+ D 20 '63

Used car dealers put sparkle into sales. J. A. Banton. il Elec World 161:87 Ja 13 '64

See also
Buildings—Exterior lighting

LIGHT ships. See Lightships

LIGHT signals

See also
Searchlights

LIGHTHOUSES

Stone-Chance marine lighting. il diags Engineering 197:386-8 Mr 13 '64

LIGHTING

Flexible light; called Panelescent Tape-Lite. il Plastics World 22:12 Je '64

Flexible light source developed by Sylvania. il Elec World 161:167+ My 18 '64

Lighting progress, 1963. il diags Illum Eng 59:1-20 Ja '64

LIGHTING—*Continued*
Polarized light; discussion. il diag Illum Eng 59:sup 13A Ap; sup 10A-11A sec 2 My; sup28A-9A Ag '64
See also
Christmas lighting
Daylight
Daylight, Artificial
Electric lamps
Gas lighting
Glare
House lighting
Light projection
Office lighting
Photometry
Searchlights
Street lighting
Tunnel lighting
also subdivision Lighting under special subjects, e.g.
Aeronautic instruments
Airplanes
Airport buildings
Airports
Auditoriums
Automobile sales buildings
Bakers and bakeries
Bank buildings
Bridges
Canal
Capitols
Chemical plants
Churches
College buildings
Courthouses
Dairies
Dentists offices
Department stores
Dining rooms
Electric plants (central stations)
Entrances
Exhibition buildings
Exhibition grounds
Factories
Fountains
Gardens
Golf links
Golf links, Miniature
Gymnasiums
Hangars
Heliports
Hospitals
Hotels
Jewelry stores
Kitchens
Laboratories
Library buildings
Mens stores
Moving picture photography
Museums
Paper and pulp mills
Photography
Printing offices
Race tracks
Restaurants
Roads
School buildings
Shoe stores
Shopping centers
Show windows
Showrooms
Sidewalks
Stadiums
Supermarkets
Swimming pools
Tennis courts, Indoor
Textile mills
Theaters
Underpasses
Warehouses
Womens apparel shops

Control

Timer circuit for indoor/outdoor home lighting. diag Elec Constr & Maint 63:121-2 Jl '64

Costs

Lower cooling, lighting costs foreseen; Building research institute meeting, Washington. Eng N 172:21 Ap 30 '64

Heating aspects

All-electric environmental control system integrates lighting-heating-cooling. il Air Cond Heat & Ven 61:100-1 My '64
Application and economics of advanced electrical space conditioning. G. W. Dunn and others. bibliog il diags Illum Eng 59:43-8 Ja '64; Discussion. 59:48-51 Ja; sup20A Je '64
Computer plant installs heat-of-light system. il diag Elec World 162:177+ S 21 '64
Designing industrial plants to heat with light. C. J. Troy. bibliog diags Illum Eng 59:150-5 Mr '64
Economic effects of lighting and air conditioning on building costs. T. L. Ballman and others. diag IEEE Trans Applications & Ind 83:206-8 Jl '64
Engineered climate in a windowless building. il Illum Eng 59:536-7 Ag '64
Heat from lights re-used for economy. R. B. Darling. flow diag il Arch Rec 136:211-12 O '64
Heat of light integrated system. il diag Product Eng 35:48-9 S 28 '64
Heating and lighting integrated. Engineering 197:429 Mr 20 '64
Heating by light. W. J. McGuinness. Prog Arch 45:194 My '64
Illuminating engineering aspects of Detroit's gas building. J. H. McDonald. il Illum Eng 58:654-7 N '63
Installation and operation of integrated all-electric total energy environmental systems; abstract. T. N. Humphreville and others. Illum Eng 59:624-5 S '64
Lighting approach for air-conditioned schools. C. Whitehead, jr. il diags Illum Eng 59:417-19 Je '64
Lighting heat used to conserve energy. il Air Cond Heat & Ven 61:110 O '64
New perspectives with unified ceilings. R. F. Coyne. il diags Air Cond Heat & Ven 61:79-82 My '64
Self-contained lighting and cooling for higher illumination. L. C. Ridgway. il diags Illum Eng 59:268-73 Ap '64
Some factors affecting heat transfer in luminaires; abstract. W. S. Fisher and others. Illum Eng 59:613-14 S '64

Standards

Candela adopted as name of unit of luminous intensity. Franklin Inst J 277:289-90 Mr '64
Color matching. N. Macbeth, jr. and W. B. Reese. bibliog il Illum Eng 59:461-71 Je '64
Development of a new American standard practice for roadway lighting. W. H. Edman. il diags Illum Eng 58:687-94 N '63; Discussion. 58:742-4 D '63
New roadway lighting standard recommends higher footcandles. Elec World 161:152 Ap 6 '64

Terminology

Candela adopted as name of unit of luminous intensity. Franklin Inst J 277:289-90 Mr '64
International lighting vocabulary. L. E. Barbrow. SMPTE J 73:331-2 Ap '64
Steps to a new international lighting vocabulary. Illum Eng 59:228-9 Ap '64

Testing

Evaluation of capabilities and limitations of various luminance measuring instruments; abstract. G. A. Horton. il Illum Eng 59:610-11 S '64
Further validation studies of visual task evaluation and other elements of an earlier illumination specification system. H. R. Blackwell. bibliog Illum Eng 59:627-39; Discussion. 639-41 S '64

LIGHTING, Architectural
Architectural lighting for a college theater. il Illum Eng 59:382-3 sec 2 My '64
Displaying building materials. H. E. Rodman. il Illum Eng 59:425-6 Je '64
Influence of the building module on illumination; abstract. R. S. Wissoker. Illum Eng 59:612-13 S '64
Originality in emphasis lighting. I. Passman and H. W. Stentz. il Illum Eng 59:32-3 Ja '64
TWA's lighting technique. il Illum Eng 59:422-4 Je '64

LIGHTING, Decorative
See also
Christmas lighting
Fountains—Lighting

LIGHTING, Industrial
Cost and comfort factors for selecting fluorescent industrial lighting; abstract. C. L. Amick and G. Gilleard. diags Illum Eng 59:614-15 S '64
Designing industrial plants to heat with light. C. J. Troy. bibliog diags Illum Eng 59:150-5 Mr '64
High-frequency operation of fluorescent lighting systems from gas-driven turbines. G. Gilleard. il diags Illum Eng 59:163-9 Mr '64
Industrial uplighting, a proven production tool. G. J. Taylor. diag Plant Eng 18:118-19 Ag '64
Lighting for special purposes. J. Schachner. il diags Mill & Factory 75:46-50 Jl '64
Self-contained lighting and cooling for higher illumination. L. C. Ridgway. il diags Illum Eng 59:268-73 Ap '64
See also
Factories—Lighting

LIGHTING, Industrial—*Continued*

Heating aspects

See Lighting—Heating aspects

LIGHTING engineering

Analysis of reflected glare and visual effect from windows. J. W. Griffith. bibliog diags Illum Eng 59:184-6; Discussion. 186-8 Mr '64

Big Ben's big brother. W. C. Kuhnke. il Illum Eng 59:420-1 Je '64

Comprehensive study of lighting economics for an office building; abstract. W. S. Fisher and others. Illum Eng 59:618-19 S '64

Constructing electrical systems; luminaires and lighting equipment. il diags Elec Constr & Maint 63:131-8+ My '64

Contrast determination with the Pritchard telephotometer; abstract. A. A. Eastman. diags Illum Eng 59:605-6 S '64

Effects of lighting system geometry, distribution and polarization on typical pencil tasks. F. K. Sampson and B. F. Jones. bibliog il diags Illum Eng 59:170-7; Discussion. 177-81; Reply. 181-2 Mr '64

Lighting ideas using acrylic plastic. J. H. Crate. diags Machine Design 36:118-20 Ja 2 '64

Numerical analysis for lighting design; abstract. P. F. O'Brien. Illum Eng 59:603-5 S '64

Recommended levels; do they pay? il Illum Eng 59:215-27 Ap '64

Specification of interior illumination levels required in installations differing in layout and lighting materials; abstract. H. R. Blackwell. Illum Eng 59:621-2 S '64

Tensors in illuminating engineering. D. E. Spencer. bibliog diags Illum Eng 59:345-54; Discussion. 354-6 My '64

See also

Calculating machines—Lighting engineering applications

Tables, calculations, etc.

Interreflections in mirrored rooms. P. F. O'Brien and R. P. Bobco. bibliog il diags Illum Eng 59:337-44 My '64

Simplified approach for deriving room cavity ratios. R. E. Gaysunas. Illum Eng 59:553-4 Ag '64

Three-surface analog computer an aid in point-by-point calculations in interiors. J. R. Jones. bibliog il diag Illum Eng 59:357-62; Discussion. 362-4 My '64

Uniform method for computing the probability of comfort response in a visual field. R. D. Bradley and H. L. Logan. bibliog plans diags Illum Eng 59:189-200; Discussion. 200-4; Reply. 204-6 Mr '64

Using the zonal-cavity system in lighting calculations. J. R. Jones and B. F. Jones. diag Illum Eng 59:413-15, 448-50, 501-3, 556-61 sec 2 My-Ag '64

Visibility and illumination variables in roadway visual tasks. H. R. Blackwell and others. bibliog il diags Illum Eng 59:277-308 My '64

Zonal-cavity method of calculating and using coefficients of utilization. bibliog Illum Eng 59:309-28 My '64

LIGHTING engineers

See also

Illuminating engineering society

LIGHTING fixtures

Applied lighting competition 1963; three entries, winners all. il diags Illum Eng 58:649-63 N '63

Ceiling fixtures; State capitol credit union; selected detail. diags Prog Arch 45:139 Jl '64

Design of slim luminous panels; abstract. D. E. Spencer and H. G. Garavanian. diags Illum Eng 59:623-4 S '64

Dichroic and reflective polarizers in lighting applications; abstract. A. S. Makas and G. R. Bird. Illum Eng 59:625-6 S '64

Engineered period lighting in the United States Capitol; east front extension. S. W. Bruun. il plan diags Illum Eng 58:665-73 N '63

Getting welding out of the dark. il Welding Eng 49:50 S '64

Giant luminaire lights acre of parking space. il plan diag Elec Constr & Maint 63:87+ Ja '64

High intensity lighting fixture has built-in air conditioner. il Arch Rec 135:181 F '64

Light, an architectural element. R. Grenald. il Illum Eng 58:707-11 D '63

Lighting a load dispatch room; installation at Illinois power co.; lighting data sheet. W. Babcock. il plan Illum Eng 58:729-30 D '63

Lighting fixture and welding head win 1963 Alcoa industrial design awards. il Mod Metals 19:72 D '63

Lighting progress, 1963. il diags Illum Eng 59:1-20 Ja '64

Mobile lighting demonstrator. il Elec Constr & Maint 63:120+ Ag '64

Relationship of scissors curve criteria to design and application of fluorescent luminaires; abstract. D. C. Thomas. Illum Eng 59:617-18 S '64

Some electrical developments at home. il Engineering 198:540 O 23 '64

Structural lighting. R. Haskell. il Illum Eng 58:718-21 D '63

Three lighting systems serve gymnasium. il plan Elec Constr & Maint 62:77-8 D '63

Tunnel with indirect lighting. il diags Elec Constr & Maint 62:104-7 N '63

Wiring solution for a long club room. il Illum Eng 59:544 Ag '64

See also

Reflectors

Street lighting fixtures

Installation

Bank lighting features semi-indirect system. W. Miller. diag Elec Constr & Maint 63:109 S '64

Constructing electrical systems; luminaires and lighting equipment. il diags Elec Constr & Maint 63:131-8+ My '64

Testing

Independent photometric laboratory. il Engineer 216:685-7 O 25 '63

New test laboratory to improve lighting. il Engineering 196:508-9 O 18 '63

LIGHTING fixtures, Plastic

Lighting fittings today. il Brit Plastics 37:108-13 Mr '64

More ideas for a lighting man's file; idea for a budget installation at Smarty-Party shop, Scranton, Pa. il Illum Eng 59:475-6 Jl '64

Plastics and electronics for sea lights. il Engineering 197:589 Ap 24 '64

LIGHTING maintenance contractors, National association of. See National association of lighting maintenance contractors

LIGHTING research

Measurement, specification and prediction of transient states of adaptation. G. A. Fry. bibliog diag Illum Eng 59:453-60 Je '64

Street lighting experimental station. il Engineer 217:676 Ap 10 '64

LIGHTNING

Ball lightning, stellar rotation and radio galaxies. C. E. R. Bruce. Engineer 216:1047-8 D 27 '63

Electronic storm finder. T. P. Leary. diags Q S T 48:23-6 Je '64

How often does lightning strike? H. Linck. il diag Power Eng 67:58-9 D '63

Leader and junction processes in the lightning discharge as a source of vlf atmospherics. H. R. Arnold and E. T. Pierce. bibliog diags J Res Nat Bur Stand 68D:771-6 Jl '64

Lightning flashovers on the British grid. R. Davis. bibliog diag Inst E E Proc 110:969-74 My '63; Discussion. 110:2027-30 N '63

Lightning prestrike theory. S. B. Griscom. bibliog diags Westinghouse Eng 23:172-8 N '63

Lightning strokes and occupations; editorial. Ind Med 32:532-3 D '63

Man-made lightning. Franklin Inst J 276:574 D '63

Return stroke of the lightning flash to earth as a source of vlf atmospherics. A. S. Dennis and E. T. Pierce. bibliog J Res Nat Bur Stand 68D:777-94 Jl '64

Transistorized radiation-field-actuated lightning flash counter. B. S. Sonde. bibliog il diags IEEE Proc 51:1501-6 N '63

See also

Thunderstorms

LIGHTNING arresters

Build reduced-BIL 20/34.5-kv line. C. L. Rudasill. il Elec World 161:28 Mr 30 '64

Lightning protection for hams, swl's and cb'ers. G. P. Oberto. il diags Radio-Electronics 35:60 Ap '64

Public service co. of Indiana trying pipe gap arresters on 230 kv. T. G. Burton. il diags Power Eng 68:41-2 Ap '64

678-kv arrester tested for Hydro-Quebec. il Elec World 161:36 Ja 20 '64

Spacer cable safe from lightning; abstracts of papers. Elec World 161:82 Je 29 '64

33-kv reliability improved by arresters. R. H. Oerthel. il diag Elec World 162:50-1 Ag 24 '64

LIGHTNING arresters—*Continued*
Transformer protected three BIL-steps down. A. R. Koerber. il Elec World 160:60+ O 21 '63

LIGHTNING protection
Lightning-failure study program soon to begin. il diags Elec World 161:52-3 Je 1 '64
Lightning protection for whiskey warehouse. R. E. Ward. il plan Elec Constr & Maint 63:94-5 Je '64
Lightning protection of microwave relay stations. D. W. Bodle. il diags IEEE Trans Com & Electronics 83:462-6 S '64
Protection against lightning. W. W. Lewis. il Mag of Stand 35:76-7 Mr '64
Shielding of overhead lines against lightning; discussion. Inst E E Proc 110:2237-8 D '63

LIGHTSHIPS
Lightship radio beacons. il Engineer 217:146 Ja 17 '64

LIGNIN
Biochemistry of lignin. F. F. Nord. bibliog Tappi 47:624-8 O '64
Century-old puzzle; lignin chemistry. I. A. Pearl. bibliog il Chem & Eng N 42:80-93 Jl 6 '64
Chemical structure of lignin sulfonates. D. W. Glennie and J. S. Mothershead. bibliog Tappi 47:356-60, 519-24 Je, Ag '64
Chemicals from trees. W. M. Hearon. bibliog il Chem Eng Prog 60:91-6 S '64
Chemistry of some sulfur compounds derived from lignin. D. W. Goheen. bibliog Tappi 47:sup 14A+ Je '64
Lignin. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1186-202 Mr 20 '64
Lignin precursors; the role of quinic acid. O. Goldschmid and G. R. Qimby. bibliog il Tappi 47:528-33 S '64
Molecular weight of kraft lignin. J. Marton and T. Marton. bibliog Tappi 47:471-6 Ag '64
Nature of the free-radical moiety in lignin. C. Steelink and others. bibliog Am Chem Soc J 85:4048-9 D 20 '63
Reactions of lignin during sulfate cooking. J. Gierer and others. bibliog Tappi 47:233-9 Ap '64
Spectrophotometric determination of the dissolution of lignin during sulfite cooking. E. Sjöstrom and P. Haglund. Tappi 47:286-91 My '64
Thermal coalescence of the lignin phase in wood. T. N. Kleinert and L. M. Marraccini. bibliog Tappi 47:605-9 O '64
See also
Lignosulfonates

Analysis

Nonaqueous titration of acidic groups of lignins; titration in pyridine using potassium methoxide as titrant. S. O. Thompson and G. Chesters. bibliog Anal Chem 36:655-7 Mr '64

LIGNIN sulfonates. See Lignosulfonates

LIGNITE
Lignite, coal make synthesis gas. Oil & Gas J 61:101 O 21 '63
Lignite mining in East Germany. il Engineer 216:830-1 N 15 '63
Lowering the boom on lignite; Stewart sand & material co. R. J. Mitchell. il Rock Prod 67:128-31 My '64
See also
Coal

LIGNOSULFONATES
Characterization of lignosulfonates by ultraviolet spectrometry. A. S. Wexler. bibliog Anal Chem 36:213-21 Ja '64
Chemical structure of lignin sulfonates. D. W. Glennie and J. S. Mothershead. bibliog Tappi 47:356-60, 519-24 Je, Ag '64
Dissolution of wood components under different conditions of sulfite pulping. K. Forss and K. E. Kremer. bibliog Tappi 47:485-93 Ag '64
How lignosulfonate muds behave at high temperatures. J. Kelly, jr. Oil & Gas J 62:112-19 O 5 '64
Measurement of molecular weight of lignosulfonic acids and related materials by diffusion. J. Benko. Tappi 47:508-14 Ag '64
Reaction of lignosulfonate with dichromate. A. N. James and P. A. Tice. bibliog Tappi 47:43-7 Ja '64
Separation of lignin sulfonates from hemicelluloses by electrophoresis-convection. W. Q. Yean and D. A. I. Goring. bibliog il diags Tappi 47:16-19 Ja '64

LIMA, Ohio

Water supply

Lima water softening plant. L. G. Williams. il plan diag Water & Sewage Works 111:46-9 Ja '64

LIMA beans
Aseptic canning of foods; strained lima beans. B. S. Luh and others. bibliog Food Tech 18:363-6 Mr '64
Use of the automatic recording shear press in cooking studies of large dry lima beans (phaseolus lunatus) L. J. Binder and L. B. Rockland. bibliog Food Tech 18:1071-4 Jl '64

LIMBS, Artificial
Muscle substitutes and myo-electric control. A. Bottomley and others. bibliog il diags Radio & Electronic Eng 26:439-48 D '63
Myo-electric control of hand hook. il Engineer 217:793-4 My 1 '64
Walking aid for legless people. Engineer 217:180 Ja 24 '64

LIME
Anion substitution and structure of $12CaO{\cdot}7Al_2O_3$. J. Jeevaratnam and others. bibliog Am Cer Soc J 47:105-6 F '64
Characterization of limestone and lime. R. P. Mayer and R. A. Stowe. il diags Pit & Quarry 56:125-6 My '64
Effect of starting materials on phase relations in the system $CaO\text{-}Al_2O_3\text{-}H_2O$. M. S. Crowley. bibliog Am Cer Soc J 47:144-8 Mr '64
Effects of synthetic detergents on lime-soda ash treatment. J. F. Malina, jr. and S. Tiyaporn. bibliog Am Water Works Assn J 56:727-38 Je '64
Epr of exchange-coupled pairs of Eu^{2+} in CaO and SrO. B. A. Calhoun and J. Overmeyer. J Ap Phys 35:989-90 pt 2 Mr '64
Fabrication of high-density calcium oxide ceramics. M. A. Hepworth and J. Rutherford. Am Cer Soc Bul 43:18 Ja '64
First fluidized solids lime mud recovery system in a paper mill; S. D. Warren co. H. J. Hotz and others. il diag Pit & Quarry 56:116-19+ My '64
Heat curing of sand, lime, fly ash mixtures. M. Mateos. Materials Res & Stand 4:212-17 My '64
High-temperature electrical conductivity in the systems $CaO\text{-}ZrO_2$ and $CaO\text{-}HfO_2$. H. A. Johansen and J. G. Cleary. bibliog Electrochem Soc J 111:100-3 Ja '64
High-temperature phase equilibria for the partial system $3CaO.MgO.2SiO_2\text{-}MgO.Al_2O_3\text{-}2CaO.Al_2O_3.SiO_2$ in the quaternary system $CaO\text{-}SiO_2\text{-}Al_2O_3\text{-}MgO$. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64
Hydrated lime stabilizes a clay fill in Florida. il Eng N 172:40-2 My 14 '64
Hydrothermal preparation of a gehlenite hydrate. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:449-52 S '64
Ionic conductivity of cubic solid solutions in the system $CaO\text{-}Y_2O_3\text{-}ZrO_2$. D. W. Strickler and W. G. Carlson. bibliog Am Cer Soc J 47:122-7 Mr '64
1964 forecast. Rock Prod 67:65 Ja '64
Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64
Reactivity of lime and related oxides. D. R. Glasson. bibliog J Ap Chem 13:111-27; 14:121-5 Mr '63, Mr '64
Soil lime research at Iowa state university. M. Mateos. Am Soc C E Proc 90 [SM 2 no 3847]:127-53 bibliog(p 151-3) Mr '64
Sulfate resistance of asbestos-cement pipe. P. W. Manson and L. R. Blair. bibliog il diag Materials Res & Stand 2:828-35 O '62; Discussion. 3:918-21 N '63
Three jobs show lime's versatility. il diag Roads & Sts 107:52-4+ Ap '64
Waste problem whipped at acetylene plants; Airco Chemical. B. C. Herod. il diag Pit & Quarry 56:98-9+ My '64
See also
Water purification—Lime treatment

Manufacture

Fluidization, dominant trend in today's European lime industry. R. Ironman. il diags Rock Prod 67:95-6+ Mr '64
Fluidized solids lime process. M. W. Brandt and others. bibliog flow sheets il diag Tappi 47:sup 137A-41A My '64
Improved fluid bed calcination hikes lime production; process flowsheet. C. R. Havighorst. il Chem Eng 71:104-6 O 26 '64
Kennecott Copper operates own lime-burning facility. H. F. Utley. il Pit & Quarry 56:136-8+ My '64
U.S. Gypsum calcines Lake Ponchartrain clam shells. il plan Rock Prod 67:72-4 Jl '64
See also
Lime kilns

LIME—*Continued*

Transportation

Delivery time, inventory and costs cut with self-unloading bulk trailers. il Water Works Eng 116:962 D '63

LIME as fertilizer

Agstone spreading a major activity of diversified Tennessee contractor. il Pit & Quarry 56:111-12 My '64
Compatibility of lime and fertilizer. L. F. Farison. diags Pit & Quarry 56:120-2+ My '64
Craighead Limestone's Tennessee agstone plant. W. E. Trauffer. il Pit & Quarry 56:115-18 Mr '64
Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63
Road contractor adds crushed stone plant, then agstone and pulverizing setup; Hodges and co. W. E. Trauffer. il Pit & Quarry 56:145-7 My '64
Steps taken to boost industry at Wisconsin aglime producers association convention. Rock Prod 67:122+ F '64
Western Alabama producer provides soil treatment package plus conservation services. W. E. Trauffer. il Pit & Quarry 57:109-10+ Ag '64

Advertising

Big sell moves excess aglime. A. B. Kennerly. il Rock Prod 67:134-6 My '64
How's your unique marginal difference? J. Eakin. il Pit & Quarry 56:113+ My '64

LIME association, National. See National lime association

LIME handling

Chemical conveyors cut waste treatment costs. flow diag il Pub Works 95:102-3 Ap '64
Self-unloading trailers expedite lime stabilization. il Roads & Sts 107:55 My '64
Use and handling of lime in water and waste treatment. W S. Mahlie. bibliog Pub Works 94:96-8 N '63

LIME industry

Lime makers look to expanding business. il Chem & Eng N 42:27-8 O 5 '64

Statistics

13,800,000-ton output report for lime industry in 1962. Pit & Quarry 56:42 Ja '64

Europe

Fluidization, dominant trend in today's European lime industry. R. Ironman. il diags Rock Prod 67:95-6+ Mr '64

Puerto Rico

Puerto Rico's first modern lime plant features novel kiln-feed system. R. Stelling and B. Sonesson. flow diag il Pit & Quarry 56:126-8+ Je '64

LIME kilns

Ash Grove moves into Northwest. il diag Rock Prod 67:82-3 Je '64
Flash-drying system for lime mud. P. J. Hannan. Tappi 47:sup 162A-3A F '64
Highway construction becomes largest market of new rotary-kiln lime plant in South Dakota; Pete Lien & sons. J. R. Simpson. flow sheet il Pit & Quarry 56:92-7 My '64
Hot cyclone development improves lime yield. M. Shafer. flow sheet il diags Chem Eng Prog 59:95-9 N '63
Kennecott Copper operates own lime-burning facility. H. F. Utley. il Pit & Quarry 56:136-8+ My '64
Lime industry gets boost from new kiln design. il Chem Eng 71:88-9 Je 8 '64
Lime industry pacesetter takes another impressive step forward; Ash Grove lime and portland cement co. B. C. Herod. il diags Pit & Quarry 56:88-92+ N '63
Lime kiln design; grate-kiln system. F. I. Kohanowski. il diags Chem Eng Prog 60:80-4 Ja '64
New approach to the vertical shaft kiln. M. F. Parsons. diag Pit & Quarry 57:124-5+ Ag '64
Pfizer gives details on new lime kiln. diag Chem & Eng N 42:40 Ag 24 '64
Puerto Rico's first modern lime plant features novel kiln-feed system. R. Stelling and B. Sonesson. flow diag il Pit & Quarry 56:126-8+ Je '64
Recovering carbonate water softening sludge with kraft causticizing mud. M. M. Schirtzinger and H. A. Smith. flow diag Tappi 47:sup 184A-6A Ja '64
Super rotary kiln. V. J. Azbe. diags Rock Prod 67:56-63 Jl; 96-8+ Ag '64
Unique calciner breaks all the rules; Ash Grove lime & portland cement co. S. Levine. il diag Rock Prod 66:50-3 D '63

Firing

Generator gas firing for lime plants. R. Ironman. il Rock Prod 67:106+ F '64

LIME plants

Pfizer competes for West Coast lime markets. il Rock Prod 67:67 S '64

Equipment

Ash Grove grows with Pacific Northwest. il diag Pit & Quarry 56:138-41 Je '64
Generator gas firing for lime plants. R. Ironman. il Rock Prod 67:106+ F '64
Highway construction becomes largest market of new rotary-kiln lime plant in South Dakota; Pete Lien & sons. J. R. Simpson. flow sheet il Pit & Quarry 56:92-7 My '64
Keeping up with the market requires expansion at Texas Lime. S. Levine. il Rock Prod 67:81-4 Jl '64
Lime industry pacesetter takes another impressive step forward; Ash Grove lime and portland cement co. B. C. Herod. il diags Pit & Quarry 56:88-92+ N '63
Puerto Rico's first modern lime plant features novel kiln-feed system. R. Stelling and B. Sonesson. flow diag il Pit & Quarry 56:126-8+ Je '64
Texas Lime's operation. W. E. Trauffer. il Pit & Quarry 57:84-8 Jl '64
200-tpd fluo-solids lime plant nears completion in California. H. F. Utley. il Pit & Quarry 57:116-18 S '64
U.S. Gypsum calcines Lake Ponchartrain clam shells. il plan Rock Prod 67:72-4 Jl '64
Western Alabama producer provides soil treatment package plus conservation services. W. E. Trauffer. il Pit & Quarry 57:109-10+ Ag '64

LIMESTONE

Algal limestones of the Marble Falls formation (lower Pennsylvanian), central Texas. T. Freeman. bibliog map diag Geol Soc Bul 75:669-75, pl 1-3 Jl '64
Application of statistical time-series analysis of a limestone-shale sequence. W. Schwarzacher. bibliog J Geol 72:195-213, pl 1 Mr '64
Burchards member, Chipman formation, west-central Vermont; comments. C. W. Welby. map Geol Soc Bul 75:781-3 Ag '64
Characterization of limestone and lime. R. P. Mayer and R. A. Stowe. il diags Pit & Quarry 56:125-6 My '64
Craighead Limestone's Tennessee agstone plant. W. E. Trauffer. il Pit & Quarry 56:115-18 Mr '64
Crushed stone plant increases facilities to meet stringent specifications; Dolese bros. Oklahoma plant. S. Levine. il Rock Prod 67:92-5 S '64
Experimental study of crater formation in limestone at elevated pressures. N. E. Garner and others. bibliog il diags J Pet Tech 15:Trans 1356-64 D '63
Exploiting the bones of our ancestors. N. C. Rockwood. Rock Prod 67:21+ F '64
Floating limestone at Permanente. J. C. Kleiber and G. M. Meisel. flow sheet il Min Eng 16:39-44 Mr '64; Same. Pit & Quarry 57:158-60+ Jl '64
For a national museum of limestones. N. C. Rockwood. Rock Prod 67:20+ Ja '64
Galloway limestone co. B. C. Herod. il Pit & Quarry 56:131-3 My '64
Gas producing zones of Greenbrier (Mississippian) limestone, southern West Virginia and eastern Kentucky. A. C. Youse. bibliog maps diags Am Assn Pet Geologists Bul 48:465-86 Ap '64
Georgia marble company's new Adams, Mass., plant. W. E. Trauffer. il Pit & Quarry 57:106-8+ O '64
Going underground for limestone; Warner co. R. J. Mitchell. il diags Rock Prod 67:77-80 Ap '64
High-pressure drilling; Campbell limestone co. R. C. Alfred. il Pit & Quarry 56:122-4+ Ap '64
How to begin a study of limestones. N. C. Rockwood. Rock Prod 67:25 O '64
Iowa limestone producers association annual meeting, 19th, Des Moines, March 4-5; with abstracts of papers. Pit & Quarry 56:151-3 My '64
New photocell sorting device piloted at limestone quarry. J. R. Slotemaker. il diag Min Eng 16:41-3 Ja '64
New plant of Acton limestone quarries, ltd. of Toronto. W. E. Trauffer. il plan Pit & Quarry 56:76-84+ N '63

LIMESTONE—*Continued*

Origin of the limestone-shale rhythm in the Blue Lias of England; a composite theory. A. Hallam. bibliog diags J Geol 72:157-69 Mr '64

Petrology of the Jeffersonville limestone (middle Devonian) of southeastern Indiana. R. D. Perkins. bibliog maps Geol Soc Bul 74:1335-54, pl 1-5 N '63

Plowing up profits in Florida's soft rock valley. A. J. Kent. il Rock Prod 67:97+ Ap '64

Relation of temperature distribution to ground-water movement in carbonate rocks of central Israel. R. Schneider. bibliog map diag Geol Soc Bul 75:209-15 Mr '64

St Eustache quarries ltd., operates outstanding crushed stone plant. W. E. Trauffer. il Pit & Quarry 57:123-5+ S '64

Turn waste into sales. il Rock Prod 67:121-2 My '64

Underground operations supply cement mill stone; Marquette's West Virginia mine. B. C. Herod. il Pit & Quarry 56:106-10+ Mr '64

Unique stone plant designed around conveyors and surge piles. il diag Roads & Sts 107:48-53 Ag '64

Variations in the O^{18}/O^{16} and C^{13}/C^{12} ratios of diagenetically altered limestones in the Bermuda Islands. M. G. Gross. map diag J Geol 72:170-94 bibliog(p 193-4) Mr '64

Varied markets readily served by expanded carbon limestone operations. B. C. Herod. il Pit & Quarry 57:76-81 Jl '64

Wyandot Dolomite turns on the heat to beat a screen blinding problem. il Rock Prod 67: 90-1 Je '64

See also
Dolomite
Marble
Rocks

LIMESTONE institute, National. See National limestone institute

LIMIT switches. See Electric switchgear

LIMITERS, Electric current. See Electric current limiters

LIMNOLOGY

Lacustrine microcosm reconsidered. G. E. Hutchinson. bibliog Am Scientist 52:334-41 S '64

Role of multivalent metal oxides in limnological transformations as exemplified by iron and manganese; abstract. J. J. Morgan and W. Stumm. WPCF J 36:276-7 Mr '64

LINCOLN tunnel. See New York (city)—Tunnels

LINDEBERG, Jafet

J. Lindeberg, an interview by Henry Carlisle. por Min Eng 16:112-113 Jl '64

LINEAR accelerators

Effect of iris spacing on the performance of electron linear accelerators. G. Saxon and I. White. bibliog diag Inst E E Proc 111: 465-70 Mr '64

Gas stripper for a heavy-ion linear accelerator. R. Beringer. R Sci Instr 35:245-6 F '64

Investigations of traveling-wave separators for the Stanford two-mile linear accelerator. O. H. Altenmueller and others. bibliog il diags R Sci Instr 35:438-42 Ap '64

Laser check aligment of linear accelerator. il diag Product Eng 35:53 Ag 17 '64

Long tunnel. il Electronics 37:28 Je 15 '64

Opening of the Rutherford laboratory and inauguration of Nimrod. Chem & Ind p763 My 2 '64

Pulse radiolysis apparatus. J. P. Keene. bibliog il diags J Sci Instr 41:493-6 Ag '64

Stanford builds atom smasher two-miles-long. R. R. Kay. il Iron Age 193:72 My 14 '64

Two-mile Stanford linac passes half-completed mark. il Nucleonics 22:24-5 My '64

LINEAR equations. See Equations, Linear

LINEAR programming

Characterization of multiple variable linear systems from random inputs. R. M. Angus and L. Lapidus. bibliog diags A I Ch E J 9: 810-20 N '63

Check your refinery with stream evaluation. P. N. Malherbe. flow plans diag Oil & Gas J 61:82-6 O 21 '63

Comparison of approaches to the optimization of industrial processes. A. E. Beecher. Tappi 47:sup 188A-91A Ap '64

Conjecture concerning the smallest bound on the iterations in linear programming. T. L. Saaty. Op Res 11:151-3 Ja '63; Discussion. 12:159-65 Ja '64

Critical Path analyses via chance constrained and stochastic programming. A. Charnes and others. bibliog diags Op Res 12:460-70 My '64

Designing sampled-data control systems by linear programming. K. A. Fegley. bibliog diags IEEE Trans Applications & Ind 83: 198-200 My '64

Economic power generation using linear programming. S. Fanshel and E. S. Lynes. bibliog diags IEEE Trans Power Apparatus & Systems 83:347-56 Ap '64

How to calculate best product mix. R. L. Martino. Can Chem Process 48:76+ O '64

Improve your profit picture. N. L. Enrick. il Textile Ind 128:111-15+ Ap '64

Incorporation of step functions and ramp functions into a linear programming model. B. A. Schoomer. bibliog Op Res 12:773-7 S '64

Left-turn penalties in traffic assignment models. J. A. Wattleworth and P. W. Shuldiner. diags Am Soc C E Proc 89 [EM 6 no 3729]:97-126 D '63

Linear programming approach to the cutting stock problem. P. C. Gilmore and R. E. Gomory. bibliog Op Res 9:849-59; 11:863-88 N '61, N '63

Linear programming for life support optimization. N. W. O'Rourke. AIAA J 1:2852-3 D '63

Multiple choice programming. W. C. Healy, jr. Op Res 12:122-38 Ja '64

Optimization of discrete control systems through linear programming. H. C. Torng. diag Franklin Inst J 278:28-44 Jl '64

Planning a grading operation for least total cost. L. R. Shaffer. diags Am Soc C E Proc 89 [EM 6 no 3734]:47-66 D '63

Primal-dual method for bounded variables. K. Eisemann. diags Op Res 12:110-21 Ja '64

Sequential approach to the feed-mix problem. L. W. Swanson and J. G. Woodruff. Op Res 12:89-109 Ja '64

Shakedown analyses of some typical one-story bents. E. P. Popov and E. Becker. bibliog diags Am Soc C E Proc 90 [ST 5 no 4069]: 1-9 O '64

Systems analysis for arterial street operation. C. Pinnell and G. T. Satterly, jr. diags Am Soc C E Proc 89 [EM 6 no 3728]:67-95 D '63

Take the guesswork out of blending with linear programming. V. B. Ram and others. il Textile Ind 128:75-7 F '64

LINEMEN

Sampling in the field evaluates safety program. V. R. Wietzke. il Elec World 161: 106-7 Ap 6 '64

Team concept needed for line work. G. P. Darden and W. W. Faust. il Elec World 162:88-9 Jl 13 '64

Training

Aerial bucket training part of larger program. il Elec World 162:108-9 Ag 10 '64

Ehv lineman shortage draws near. il Elec World 161:17-19 Mr 16 '64

Show-how training for linemen. il Safety Maint 126:12-15+ D '63

Training stresses safe, effective use of aerial buckets. E. J. Vander Veen. il Elec World 162:94 Jl 13 '64

LINEMENS equipment

Aerial bucket training part of larger program. il Elec World 162:108-9 Ag 10 '64

Basket safety requires continuous, conscious effort. A. L. Dowden. il Elec World 161:113-15 Je 1 '64

Buckets trigger changes in crew size, vehicle upkeep. M. L. Frick, jr. il Elec World 162: 85-6 Jl 13 '64

85-ft platform-lift for high problems. il Elec World 162:97-8 Ag 10 '64

French turn to barehand technique. il Elec World 162:96 Jl 13 '64

Impact toll makers efficient line-tap in minutes. V. P. Armour and J. E. McLaughlin. il Elec World 161:92-3 Je 1 '64

Plastic workboard increases safety. A. R. Marsee. il Elec World 161:75 Je 1 '64

Safety cable protects tower climber. il Elec World 162:83 O 5 '64

Should you test linemen's gloves with ac or dc? M. R. Gavin and W. H. Meade. il Safety Maint 127:22-5+ F '64

Some do's and don'ts on safety belts and straps. il Elec World 160:130-2+ O 21 '63

Three-hp hydraulic tool for baskets. il Elec World 162:99 Ag 10 '64

LINKS and link motion

Application of dual-number quaternion algebra to the analysis of spatial mechanisms. A. T. Yang and F. Freudenstein. bibliog diags A S M E Trans ser E 31:300-8 Je '64

Balancing loaded linkages. D. C. Tao. diags Machine Design 36:151-6 Ap 9 '64

LINKS and link motion—*Continued*
Constant pivot linkages replace ball bearings. P. W. Jensen. diags Mach 70:157 Je '64
Contribution to Gruebler's theory in the number synthesis of plane mechanisms. F. R. E. Crossley. bibliog diags A S M E Trans ser B 86:1-5; Discussion. 5-8 F '64
Displacement and velocity in four-bar linkages. D. C. Tao. bibliog diags Machine Design 36:190-6 Mr 26 '64
Equations and layout techniques for Peaucellier mechanisms. R. L. Archer. il diags Product Eng 35:75-81 Ag 17 '64
Four graphical methods for designing double-lever mechanisms. D. C. Tao. diags Machine Design 36:159-66 Mr 12 '64
How to design four-bar linkages for straight-line motion. R. A. Kraus. diags Machine Design 36:186-90 F 13 '64
Iterative method for the displacement analysis of spatial mechanisms. J. J. Uicker, jr. and others. bibliog diags A S M E Trans ser E 31:309-14 Je '64
Space crank mechanisms to transmit angular motion between two skewed shafts. L. Harrisberger. diags Machine Design 36:170-5 S 10 '64

LINOLEATES
Autoxidation of the lead soaps of the linseed oil fatty acids. J. E. O. Mayne and E. H. Ramshaw. bibliog diag J Ap Chem 13:553-60 D '63
Estimation of linoleate intake of men from serum lipid analysis. R. T. Holman and others. Am J Clinical Nutrition 14:193-6 Ap '64

LINOLEIC acid
Determination of the component glycerides of seed oils containing saturated oleic and linoleic acids. F. D. Gunstone and others. Chem & Ind p483 Mr 21 '64
Effect of linoleic acid on nutritional muscular dystrophy in the chick. C. C. Calvert and others. bibliog J Nutrition 83:307-13 Ag '64
Effect of linoleic upon the metabolism of linolenic acid. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:15-19 S '64
Effect of oleic and linoleic acids on the absorpton of saturated fatty acids in the chick. R. J. Young and R. L. Garrett. bibliog J Nutrition 81:321-9 D '63
Essential fatty acid requirement of infants and the assessment of their dietary intake of linoleate by serum fatty acid analysis. R. T. Holman and others. bibliog Am J Clinical Nutrition 14:70-5 F '64
Isolation of a natural isomer of linoleic acid from a seed oil. C. Y. Hopkins and M. J. Chisholm. bibliog Am Oil Chem Soc J 41:42-4 Ja '64
Nutritional studies with the guinea pig; determination of the linoleic acid requirement. M. E. Reid and others. bibliog il J Nutrition 82:401-8 Ap '64
Relation between iodine value and linoleic acid percentage in cottonseed oil. T. Vanden Driessche. Am Oil Chem Soc J 41:248 Mr '64
Serum and aortic lipids in rabbits fed cholesterol and linoleic acid stereoisomers. B. I. Weigensberg and G. C. McMillan. bibliog J Nutrition 83:314-24 Ag '64
Studies on the metabolism of linoelaidic acid in the essential fatty acid-deficient rat. O. S. Privett and M. L. Blank. bibliog il diag Am Oil Chem Soc J 41:292-7 Ap '64

LINOLENATE
Autoxidation of the lead soaps of the linseed oil fatty acids. J. E. O. Mayne and E. H. Ramshaw. bibliog diag J Ap Chem 13:553-60 D '63
Hydrogenation of linolenate; comparison of products formed with platinum and nickel catalysts. C. R. Scholfield and others. bibliog Am Oil Chem Soc J 41:615-19 S '64

LINOLENIC acid
Cyclic fatty acids from linolenic acid. R. A. Eisenhauer and others. flow sheet Am Oil Chem Soc J 41:60-3 Ja '64
Effect of linoleic acid upon the metabolism of linolenic acid. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:15-19 S '64

LINOTYPE
Your slugcasting machine problems. L. Brewington. Inland Ptr/Am Lithogr 150:111 O '62; 151:64 Jl; 82 Ag; 158 S; 152:144 D '63; 154:138 O; 130 N '64

LINSEED oil
Effect of linseed oil coatings on resistance of concrete to scaling. W. E. Grieb and R. Appleton. il Pub Roads 33:1-4 Ap '64
Linseed oil tested for concrete treatment. Chem & Eng N 42:41 Ja 20 '64
Water emulsified linseed oil stops bleeding. V. W. Sharrar. il Plant Eng 18:114 My '64

LINT
Evaluation of the SRRL non-lint tester for determining the trash content of lint cotton. R. A. Rusca and others. il Textile Res J 34:61-8 Ja '64

LIPASE
Activation and specificity of crambe abyssinica seed lipase. H. L. Tookey and I. A. Wolff. bibliog diag Am Oil Chem Soc J 41:602-4 S '64
Lipolysis of trivernolin by pancreatic lipase. J. Sampugna and others. bibliog Am Oil Chem Soc J 41:132-3 F '64
Pancreatic lipase hydrolysis of triglycerides by a semimicro technique. F. E. Luddy and others. bibliog Am Oil Chem Soc J 41:693-6 O '64

LIPIDES
Adrenal lipids of cholesterol-fed guinea pigs and rats. R. Ostwald and others. J Nutrition 82:443-51 bibliog(p450-1) Ap '64
Bacterial lipids, structure and biological activity. E. Lederer. Chem & Ind p936-7 My 30 '64
Binding of lipids by proteins; symposium. Am Oil Chem Soc J 41:481-94 Jl '64
Blood lipid responses to feedings of a polyunsaturated fat nutritional preparation and milk-cream mixture. D. Berkowitz. bibliog Am J Clinical Nutrition 15:218-22 O '64
Complex formation between oxidized lipids and egg albumin. K. A. Narayan and others. bibliog Am Oil Chem Soc J 41:254-9 Ap '64
Degradation of monocarbonyls from autoxidizing lipids. D. A. Lillard and E. A. Day. bibliog Am Oil Chem Soc J 41:549-52 Ag '64
Drugs in lipid metabolism; symposium. bibliog Am Oil Chem Soc J 41:697-716 O '64
Effect of fasting on the incorporation in vitro of palmitate-C^{14} into glycerolipids of mitochondria. A. Chareonchai and R. M. Johnson. bibliog J Nutrition 81:387-91 D '63
Effect of polyunsaturated fat diet on serum lipids of hypercholesteremic patients with peptic ulcer. G. McHardy and others. bibliog Am J Clinical Nutrition 15:229-34 O '64
Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15:85-9 Ag '64
Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64
Endosperm lipids of three Canadian wheats. M. E. McKillican and R. P. A. Sims. bibliog Am Oil Chem Soc J 41:340-4 My '64
Estimation of linoleate intake of men from serum lipid analysis. R. T. Holman and others. Am J Clinical Nutrition 14:193-6 Ap '64
Fatty acid composition of oils from 21 species of marine fish, freshwater fish and shellfish. E. H. Gruger, jr. and others. bibliog Am Oil Chem Soc J 41:662-7 O '64
Fatty acid composition of plasma and liver lipid components as influenced by diet in the growing chick. G. A. Leveille and others. bibliog J Nutrition 81:357-62 D '63
Fatty acid composition of rice lipids by gas-liquid chromatography. J. C. Lugay and B. O. Juliano. bibliog Am Oil Chem Soc J 41:273-5 Ap '64
Influence of diet on blood serum lipids in pregnant women and newborn infants. A. E. Hansen and others. bibliog Am J Clinical Nutrition 15:11-19 Jl '64
Influences of dietary carbohydrate-fat combinations on various functions associated with glycolysis and lipogenesis in rats. C. Carroll. bibliog J Nutrition 79:93-100; 82:163-72 Ja '63, F '64
Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63
Lipid, cholesterol and triglyceride levels in obese women. S. H. Waxler and L. S. Craig. bibliog Am J Clinical Nutrition 14:128-32 Mr '64
Lipids of dehydrated alfalfa (medicago sativa). J. W. Van Der Veen and H. S. Olcott. bibliog J Agri & Food Chem 12:287-9 My '64
Plant sulfolipid; sulfosugar syntheses from methyl hexoseenides. J. Lehmann and A. A. Benson. bibliog Am Chem Soc J 86:4469-72 O 20 '64

LIPIDES—*Continued*
Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64
Serum and aortic lipids in rabbits fed cholesterol and linoleic acid stereoisomers. B. I. Weigensberg and G. C. McMillan. bibliog J Nutrition 83:314-24 Ag '64
Serum lipids in breast-fed infants and in infants fed evaporated milk. C. W. Woodruff and others. bibliog Am J Clinical Nutrition 14:83-90 F '64
Skin lipid composition. Drug & Cosmetic Ind 94:605 Ap '64
Studies of the phospholipids, glycolipids and sterols of wheat endosperm. M. E. McKillican. bibliog Am Oil Chem Soc J 41:554-7 Ag '64
Symposium on quantitative methodology in lipid research, University Park, Pa. Aug. 3-7; abstracts of papers. Am Oil Chem Soc J 41:sup8+ S '64
Symposium on Structure and function of lipid-containing systems, Birmingham, Eng., April 20-21. Chem & Ind p 1012-13 Je 13 '64

Analysis

Applications of mass spectroscopy in fatty acid and lipid chemistry. R. T. O'Connor. Am Oil Chem Soc J 41:sup4+ Je '64
Determination of carbohydrates in glycolipides and gangliosides by gas chromatography. C. C. Sweeley and B. Walker. bibliog Anal Chem 36:1461-6 Jl '64
Quantitative analysis of lipids by thin-layer chromatography. M. L. Blank and others. bibliog il Am Oil Chem Soc J 41:371-6 My '64
Spectrophotometric determination of tocopherol in milk and milk lipides. D. R. Erickson and W. L. Dunkley. bibliog Anal Chem 36:1055-8 My '64

LIPSTICKS
Colouring matter in lipsticks. Manuf Chem 35:66 Je '64
Determination of lipstick dyes by thin layer chromatography. T. P. Cotsis and J. C. Garey. bibliog il Drug & Cosmetic Ind 95:172-5+ Ag '64
New ideas in lipsticks. G. A. Novak and G. Holzner. Am Perfumer 79:41-5 O '64

LIQUEFIED gases. See Gases, Liquefied

LIQUEFIED petroleum gas
Calcium chloride dries their LPG. A. L. Salusinszky. bibliog diags Hydrocarbon Process & Pet Refiner 43:157-60 O '64
Central LP system serves three towns in Rockies. il Gas Age 131:27 Je '64
Evaluating LPG plants in demand areas. L. L. Raiford and W. W. Chew. bibliog Hydrocarbon Process & Pet Refiner 43:101-6 F '64
Expansion adds LP-gas to Kaneb's product slate. H. C. Bozeman. il map Oil & Gas J 62:142+ My 25 '64
Fight for LP-gas markets brews. Oil & Gas J 61:45-6 O 28 '63
Fuel-saver for LP-gas; pressure-injection carburetion system. il diag Mod Materials Handling 19:43 N '64
Improve antiknock rating of LP-gas. A. E. Felt and R. V. Kerley. bibliog Hydrocarbon Process & Pet Refiner 43:157-64 Ap '64
LP-gas can compete with gasoline as a motor fuel. Oil & Gas J 62:62-3 O 26 '64
LP-gas engine-fuel sales pick up. il Oil & Gas J 62:88-9 S 14 '64
L.P.G.-fuelled tractor. Engineer 218:519 S 25 '64
LPG-gas injection recovery process Burkett unit, Greenwood County, Kansas. R. F. Wiemer. plans diag J Pet Tech 15:1067-72 O '63
LP-gas processors add to oversupply. map Oil & Gas J 62:116 Jl 27 '64
Rapid color test for mercaptan odorant in liquefied petroleum gas. P. V. Peurifoy and M. J. O'Neal, jr. diags Anal Chem 36:1853-5 Ag '64
Sales of LPG increase almost six per cent in 1963. Chem & Eng N 42:15 Ja 6 '64
Taxis, trucks boosting Japan's LP-gas demand. Oil & Gas J 62:65 Je 15 '64
Why not trade LP-gas futures? H. R. Thomas. Oil & Gas J 62:92-3 S 21 '64
See also
Gas, Natural—Liquefaction
Propane

Safety measures

Safe handling of LP-gas. R. R. Wellington. Am Oil Chem Soc J 41:sup28+ Ap '64

Statistics

Chemical outlets are still the sparkplug for LPG. Chem Eng 71:36-7 Mr 2 '64
LP-gas sales cross 11 billion gallon mark. G. R. Benz and others. map Am Gas Assn Mo 46:8-11 Ja '64
LP-gas sales top billion gallon mark. map Gas Age 131:28-31 F '64
New look at LP-gas stocks shows unavailables when storage is full. K. W. Brooks. Oil & Gas J 62:32-3 Ja 6 '64
Record year for LP-gas is reported in new Phillips study. il Oil & Gas J 61:22-3 D 23 '63

Storage

New caverns boost liquefied-gas storage capacity 10½ per cent. R. B. Bizal. il map Oil & Gas J 61:104-6+ O 21 '63 (reprints $1)
New fractionator is gas-liquids-complex hub; Cities service oil co. K. Brooks. il map diags Oil & Gas J 61:80-3 D 16 '63
Rigid foamed polyurethane insulation for oil refinery storage tanks. D. B. Bruce. il Brit Plastics 37:129-31 Mr '64
See also
Propane—Storage

Transportation

Chemicals gain as volume rail rates spread. il Chem & Eng N 42:25-6 S 28 '64
Liquefied petroleum gas carrier Paul Endacott. il Engineer 218:259-61 Ag 14 '64
LP-gas now available to every major market. C. F. Montgomery. Oil & Gas J 62:111-12 Mr 16 '64
LPG ship carries split cargo. il Marine Eng/Log 69:45-7 Ag '64
Liquid petroleum gas carrier; the Abbas. il Engineering 197:288 F 21 '64
Overseas LP-gas markets lure Phillips. il Oil & Gas J 61:40-1 N 25 '63
Overseas transportation of liquefied gas. P. Amalric. il Comp Air Mag 68:16-19 N '63
What it costs to transport LP-gas. H. Thomas. map Oil & Gas J 62:138-42 My 11; 126-7+ My 18 '64

LIQUID carbon dioxide. See Carbon dioxide, Liquid

LIQUID crystals
Liquid crystals. J. L. Fergason. il diags Sci Am 211:76-82+, cover Ag '64
Liquid crystals' spectra show fine structure. A. Saupe and others. il Chem & Eng N 42:42-4+ Mr 16 '64

LIQUID fuel
Technique for studying the combustion of small single drops of liquid fuel. M. T. Monaghan. bibliog il diags J Sci Instr 41:206-9 Ap '64
See also
Fischer-Tropsch process
Gasoline
Liquefied petroleum gas
Oil fuel

LIQUID helium. See Helium, Liquid

LIQUID hydrogen. See Hydrogen, Liquid

LIQUID level control
Do you specify liquid-level control mechanisms. P. P. Van Blarcom. diags Power Eng 68:56-9 Je '64
Metal level is controlled automatically in continuous casting machine. il Iron & Steel Eng 41:168 O '64
Perfectly constant level liquid nitrogen glass trap for ultrahigh vacuum application. J. R. Woodyard and C. B. Cooper. diag R Sci Instr 35:753-4 Je '64
Proportional level controller. W. A. Cannon, jr. il diag Instruments & Control Systems 37:109-10 Ap '64
Two magnets actuate level control. il diag Product Eng 35:102 S 15 '64
Water tower level control. W. M. Newman. diag I S A J 10:71-2 N '63
Wire-in-tube type liquid level controller. J. Madill. diag I S A J 11:57-8 Ag '64

LIQUID level indicators
Analysis of tower flooding. A. I. Snow and W. S. Dickinson. diags Chem Eng Prog 60:64-6 O '64
Another liquid helium level indicator. R. Ries and C. B. Satterthwaite. R Sci Instr 35:762-3 Je '64
Checking level indicators for liquid hydrogen. il diag Engineering 197:301 F 21 '64
Cryogenic liquid level detector employing thermistors. J. D. Lewin. diag J Sci Instr 40:359-40 N '63
LH_2 level sensors. il Instruments & Control Systems 37:129 My '64
Redesigned one-piece cover saves $4000/year. il Mod Plastics 42:96-7+ S '64
Remote level indicators for CO_2 storage tanks. W. A. Huss. diags Chem Eng 71:182+ My 11 '64

LIQUID level indicators—*Continued*

Superconducting level gauges; vanadium and tinned constantan. B. F. Figgins and others. J Sci Instr 41:520 Ag '64

Tank level telemetering. H. Dickinson. il diags Instruments & Control Systems 37: 105-7 Ap '64

Ultrasonic level measurement. il Engineer 218:340 Ag 28 '64

See also

Water level indicators

LIQUID metals. See Mercury; Metals, Molten

LIQUID meters

Low-flow liquid meter. J. A. Castelli and R. L. Booth. diag Am Water Works Assn J 56:1243-4 S '64

Solve measuring problems in piping liquefied NH_3. C. A. Lee. diags Heating-Piping 36: 102-5 Je '64

LIQUID methane. See Methane, Liquid

LIQUID nitrogen. See Nitrogen, Liquid

LIQUID oxygen. See Oxygen, Liquid

LIQUID propane. See Propane, Liquid

LIQUID scintillators. See Counters (electrons, ions, etc.)

LIQUID sulfur dioxide. See Sulfur dioxide, Liquid

LIQUIDS

Absorption of dipole liquids in the visible. K. F. Herzfeld. bibliog Am Chem Soc J 86:3468-9 S 5 '64

Adiabatic single and two-phase flow in small bore tubes. E. P. Mikol. bibliog il diags ASHRAE J 5:75-86 N '63

Apparatus for X-ray diffraction studies of confined fluids. W. I. Honeywell and others. diags R Sci Instr 35:1216-19 S '64

Approximate solution to flux concentration by hydromagnetic flow. J. M. Baker. bibliog diag AIAA J 2:112-13 Ja '64

Automatic measurement of the electric strength of liquid dielectrics. J. E. Brignell. diags J Sci Instr 40:576-8 D '63

Axial diffusion and pressure drop of liquids in porous media. E. P. Stahel and C. J. Geankoplis. bibliog flow diag diag A I Ch E J 10:174-9 Mr '64

Breathing vibrations of a partially filled cylindrical tank, linear theory. W. H. Chu. bibliog diags A S M E Trans ser E 30:532-6 D '63

Characteristics of single- and multiple-hole orifice plates for gas-liquid reactions. D. M. Ottmers and H. F. Rase. bibliog flow diag diags Ind & Eng Chem Fundamentals 3: 106-10 My '64

Controlling the liquid-vapor interface under weightlessness. D. A. Petrash and E. W. Otto. diags Astronautics & Aeronautics 2: 56-9+ Mr '64

Design considerations for pumping viscous liquids. D. Meier. diags Heating-Piping 35: 134-9 N; 108-13 D '63

Diffusion and glass transition in simple liquids. J. Naghizadeh. bibliog J Ap Phys 35:1162-5 Ap '64

Diffusion through the liquid-liquid interface. W. J. Ward and J. A. Quinn. bibliog flow diag diags A I Ch E J 10:155-9 Mr '64

Dry liquid concentrates. Rubber World 150: 30 Ag '64

Dry-liquids concept; Micro-Cel E. il Chem Eng Prog 60:119 Ag '64

Drying liquid hydrocarbons using adsorptive agents. D. E. Eaves and P. R. Sewell. bibliog diag Ind & Eng Chem Proc Design 3: 361-5 O '64

Effect of liquid viscosity in two-phase vertical flow. A. R. Hagedorn and K. E. Brown. bibliog diags J Pet Tech 16:Trans203-10 F '64

Enthalpy values for hypothetical fluids from vapor-liquid equilibrium data. J. R. Welker and others. bibliog A I Ch E J 10:380-2 My '64

Epitaxial growth from the liquid state and its application to the fabrication of tunnel and laser diodes. H. Nelson. il diag RCA R 24:603-15 D '63

Equation of state of oligomer and polymer liquids. R. Simha and A. J. Havlik. bibliog Am Chem Soc J 86:197-204 Ja 20 '64

Equivalence of pulse and step residence time measurements in a trickle-phase bed. L. B. Rothfeld and J. L. Ralph. diag A I Ch E J 9:852-3+ N '63

Estimate physical properties accurately; thermal conductivity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:127-8 Ag '64

Estimate physical properties accurately; viscosity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:146-8 Jl '64

Factors influencing electrically sprayed liquids. J. J. Hogan and others. AIAA J 2: 1460-1 Ag '64

Floating drops and liquid boules. K. C. D. Hickman. bibliog il diags Ind & Eng Chem 56:18-31 Je '64

For hydraulic systems, drives, dashpots, what's hot in fluids? H. M. Schiefer. il Product Eng 35:101-9 Ag 3 '64

Gas absorption accompanied by a large heat effect and volume change of the liquid phase. S. H. Chiang and H. L. Toor. bibliog diag A I Ch E J 10:398-402 My '64

High resolution resistivity probe for determination of local void properties in gas-liquid flow. L. G. Neal and S. G. Bankoff. bibliog diags A I Ch E J 9:490-4 Jl '63; Discussion. T. T. Anderson. 10:776+; Reply. 776+ S '64

Hysteresis in liquid mixing systems. F. S. Chapman and others. A I Ch E J 10:274-5 Mr '64

Immersion liquids of relatively strong dispersion in the low refractive index range (1.46 to 1.52). R. E. Wilcox. bibliog Am Mineralogist 49:683-8 My '64

Incipient vortex formation in baffled agitated vessels. M. W. Clark and T. Vermeulen. bibliog diag A I Ch E J 10:420-2 My '64

Incomplete liquid mixing in crystal growth from the melt. W. R. Wilcox. bibliog diags J Ap Phys 35:636-43 Mr '64

Influence of channel curvature on flow, pressure distribution, and power requirements of screw pumps and melt extruders. M. L. Booy. bibliog diags A S M E Trans ser B 86:22-30 F '64

Instrument measuring the decay of height differences in the surface of a layer of viscous liquid. U. Zorll. il diags J Sci Instr 41:290-4 My '64

Interaction between particles and a solid-liquid interface. D. R. Uhlmann and others. bibliog il diags J Ap Phys 35:2986-93 O '64

Laminar-flow pressure drop; nomograph; data sheet. F. Caplan. Power 108:86 F '64

Liquid film controlled mass transfer in agitated vessels. D. N. Miller. bibliog Ind & Eng Chem 56:18-27 O '64

Liquid ion-exchange membranes of extreme selectivity and high permeability for anions. K. Sollner and G. M. Shean. bibliog Am Chem Soc J 86:1901-2 My 5 '64

Measurement of mass transfer coefficients in liquid-liquid mixing. J. H. Rushton and others. bibliog A I Ch E J 10:298-302 My '64

Mechanism of liquid-phase resistance to gas absorption in a packed column. J. E. Vivian and C. J. King. bibliog flow diag diag A I Ch E J 10:221-7 Mr '64

Meter amplifier for conductivity measurements in low-conductivity liquids. I. Wilmanns. diag J Sci Instr 41:400 Je '64

Method of determining saturated liquid and saturated vapor entropy. M. A. Walker. AIAA J 1:2636-8 N '63

Methods for determining liquid thermal conductivities. R. W. F. Tait and B. A. Hills. bibliog Ind & Eng Chem 56:29-35 Jl '64

Microwave absorption and molecular structure in liquids. A. A. Antony and others. bibliog Am Chem Soc J 86:152-8, 3474-7 Ja 20, S 5 '64

Molecular distillation of thermally supersensitive liquids. W. A. Frank and H. D. Kutsche. il diag Anal Chem 36:2167-70 O '64

Natural convection flows in parallel-channel systems. J. C. Chato. diags A S M E Trans ser C 85:339-45 N '63

Non-Newtonian gravity flow along inclined plane surfaces. G. Astarita and others. bibliog diags Ind & Eng Chem Fundamentals 3:333-9 N '64

Oxygen absorption in low-frequency vertically vibrating liquid columns. R. H. Buchanan and others. bibliog diag Ind & Eng Chem Proc Design 2:173-7 Jl '63; Discussion. 3: 191-2 Ap '64

Phase-volume relationship at the point of phase inversion in liquid dispersions. G. C. Yeh and others. bibliog diag A I Ch E J 10:260-5 Mr '64

Photosensitive liquid used as a nondestructive passive Q-switch in a ruby laser. P. Kafalas and others. bibliog J Ap Phys 35:2349-50 Ag '64

Pressure drop and liquid film thickness of two-phase annular and annular-mist flows. S. F. Chien and W. Ibele. bibliog il diags A S M E Trans ser C 86:89-96 F '64

LIQUIDS—*Continued*

Protects temperature-sensitive liquids: thermos insulated tank car. il Food Eng 36:130 Mr '64

Redistribution of solute during phase transformations. W. A. Tiller and R. F. Sekerka. J Ap Phys 35:2726-9 S '64

Reflection and refraction of mechanical waves at solid-liquid boundaries. W. G. Mayer. J Ap Phys 34:3286-8 N '63

Shape of a thread of liquid undergoing breakup. S. L. Goren. diag J Colloid Sci 19:81-6 Ja '64

Significance of the term zone length and the ratio of density of solid to liquid in the mathematics of zone melting. W. G. Pfann. bibliog J Ap Phys 35:258-9 Ja '64

Simple device for measuring the thermal conductivity of liquids with moderate accuracy. D. T. Jamieson and J. S. Tudhope. bibliog diags Inst Pet J 50:150-3 Je '64

Statistical surface thermodynamics of simple liquid mixtures. C. A. Eckert and J. M. Prausnitz. bibliog A I Ch E J 10:677-83 S '64

Statistical thermodynamics of chain molecule liquids. P. J. Flory and others. bibliog Am Chem Soc J 86:3507-20 S 5 '64

Surface activity and preferential ablation. B. Steverding. bibliog AIAA J 2:549-51 Mr '64

Temperatures generated by the flow of liquids in pipes. I. J. Gruntfest and others. bibliog J Ap Phys 35:18-22 Ja '64

Testing the consistency of vapor-liquid equilibrium data. L. C. Tao. bibliog flow chart Ind & Eng Chem 56:36-41 F '64

Thermal conductivity of nonpolar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:26-30 Ja '64

Thermodynamics and interfacial tension of multicomponent liquid-liquid interfaces. S. A. Shain and J. M. Prausnitz. bibliog diag A I Ch E J 10:766-73 S '64

Thin-walled specimen container for neutron scattering studies of liquids at high temperatures and pressures. S. J. Cocking and A. R. Ball. diag J Sci Instr 41:376-8 Je '64

Treatment of rate data for complex reactions in liquid phase. H. S. N. Setty and others. bibliog Ind & Eng Chem Fundamentals 3:294-9 N '64

Truth about liquids under pressure. A. T. J. Hayward. il diags Engineering 198:314-15 S 4 '64

Turbine impellers as gas-liquid contacting devices. G. Hamer and N. Blakebrough. bibliog diags J Ap Chem 13:517-24 N '63

Two-phase gas-liquid convection heat transfer. E. J. Davis and M. M. David. bibliog Ind & Eng Chem Fundamentals 3:111-18 My '64

Vapor-liquid equilibrium. G. Scatchard and others. bibliog diags Am Chem Soc J 86:125-37 Ja 20 '64

Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diags Can J Chem Eng 42:82-4 Ap '64

Vapor-liquid equilibrium determination by a new apparatus. S. Yerazunis and others. bibliog diags A I Ch E J 10:660-5 S '64

Velocity distribution in two-dimensional laminar liquid-into-liquid jets in power-law fluids. C. Gutfinger and R. Shinnar. bibliog diags A I Ch E J 10:631-9 S '64

Viscosity of polar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:275-7 Mr '64

See also

Atomizers
Brownian movements
Drops
Emulsions
Evaporation
Films
Hydraulics
Hydrodynamics
Inflammable liquids
Interfacial tension
Jets
Nitrogen, Liquid
Solution (chemistry)
Surface tension
Vapor pressure
Viscosity
Volume
Water

LIQUIDS, Inflammable. See Inflammable liquids

LIQUOR industry

See also

Wine

LIQUORS

See also

Whiskey
Wine

LITERATURE and science

Literature and science. A. Huxley. Review. by M. Black. Sci Am 210:141-2+ Mr '64

Two voices; science and literature. M. H. Nicolson. Am Scientist 51:454-62 D '63

LITERATURE searching

Modern approach to literature searching. W. J. Smith. Materials Res & Stand 4:262-3 My '64

See also

Calculating machines—Bibliographic applications

LITHIUM

Direct observation of lithium precipitation at dislocations in GaAs. T. B. Light and K. B. Wolfstirn. il J Ap Phys 35:1649-51 My '64

Effect of lithium ion on the mechanism of the polarographic reduction of benzil in dimethylformamide. R. H. Philp, jr. and others. Electrochem Soc J 111:1189-90 O '64

Electric-field-enhanced precipitation of Li in Ge. J. Blanc and M. S. Abrahams. il J Ap Phys 34:3638-9 D '63

Germanium diodes are doped with lithium. Chem & Eng N 42:91 Ap 13 '64

Hall effect investigation on lithium-diffused gallium arsenide. C. S. Fuller and H. W. Allison. bibliog J Ap Phys 35:1227-32 Ap '64

Interaction of water with a Li kaolinite surface. R. A. Kohl and others. bibliog J Colloid Sci 19:699-707 O '64

Lithium-doped gallium arsenide tunnel diodes. A. S. Epstein and J. F. Caldwell. bibliog il J Ap Phys 35:3050-1 O '64

Lithium, 1963. R. A. Pendergast. Eng & Min J 165:133-4 F '64

Role of dissolved lithium in the reaction between triethylsilane and ethylamine. A. Viste and H. Taube. bibliog Am Chem Soc J 86:1691-3 My 5 '64

Stereochemistry of the lithium-ammonia reduction of α,β-unsaturated ketones. G. Stork and S. D. Darling. bibliog Am Chem Soc J 86:1761-8 My 5 '64

Structure-reactivity relationship of olefin reductions with lithium in ethylamine; a comparison of the ethylamine and ammonia systems. A. P. Krapcho and M. E. Nadel. bibliog Am Chem Soc J 86:1096-100 Mr 20 '64

Tin-tantalum-lithium pegmatites of the São João Del Rei district, Minas Gerais, Brazil. E. W. Heinrich. bibliog il maps Econ Geol 59:982-1002 S '64

Visible absorption spectra of lithium, sodium, and potassium in molten lithium chloride-potassium chloride. J. Greenberg and I. Warshawsky. diag Am Chem Soc J 86:3572-4 S 5 '64

Analysis

Removal of radioactive actinides and calcium fluoride prior to flame photometric determination of lithium. H. P. Holcomb. Anal Chem 36:2360-1 N '64

LITHIUM alloys

Magnesium-lithium alloy tests are reported. Steel 154:68 Je 22 '64

Proposed structure of the transition phase and stability in Mg-Li-Al-Zn alloys. J. V. Rinnovatore and M. Schwartz. bibliog il Inst Metals J 92:188-9 '63-64

Welding characteristics of LA141XA magnesium-lithium alloy sheet. A. T. D'Annesa and E. Willner. bibliog il diag Welding J 43:sup 1-9 Ja '64

LITHIUM aluminum hydride

Explosion of diglyme and lithium aluminium hydride. H. R. Watson. Chem & Ind p665 Ap 18 '64

Selective reductions; further studies of the reaction of alcohols with lithium aluminum hydride as a route to the lithium alkoxyaluminohydrides. H. C. Brown and C. J. Shoaf. bibliog Am Chem Soc J 86:1079-85 Mr 20 '64

LITHIUM bromide

Lithium chromate; corrosion inhibitor for lithium bromide absorption refrigeration systems. R. H. Krueger and others. il ASHRAE J 6:40-4 F '64

LITHIUM chloride

Chemical dehumidification system solves processing problems involving humidity. W. R. Jeep. il Paper Ind 46:118-19 My '64

Direct current measurement of fused salt conductivity; KCl-LiCl. F. R. Duke and L. Bissell. bibliog diag Electrochem Soc J 111:717-19 Je '64

How chemical dehumidification serves a pharmaceutical plant. T. M. Shea. il Heating-Piping 36:166-8 Ja '64

LITHIUM compounds

Allyl lithium in research. Manuf Chem 35:107 Ja '64

Carbenoid formation of arylcyclopropanes from olefins, benzal bromides, and organolithium compounds and from photolysis of aryldiazomethanes. G. L. Closs and R. A. Moss. bibliog diags Am Chem Soc J 86:4042-53 O 5 '64

Complexes of organolithium compounds with vacant orbital acceptors; determination of electron-density changes by proton magnetic resonance. R. Waack and M. A. Doran. bibliog Am Chem Soc J 85:4042-4 D 20 '63

Cyclopropanes; the optical stability of 1-methyl-2,2-diphenylcyclopropyllithium. H. M. Walborsky and others. bibliog diags Am Chem Soc J 86:3283-8 Ag 20 '64

Effects of lithium halides on the reactivity of organolithium compounds. R. Waack and M. A. Doran. Chem & Ind p496-7 Mr 21 '64

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

High frequency titrimetric determination of the electron deficiency in lithium alkyls. F. A. Settle and others. bibliog Am Chem Soc J 86:2076-7 My 20 '64

Interaction of alkyllithium compounds with base; complex formation between ethyllithium and triethylamine in benzene. T. L. Brown and others. bibliog diags Am Chem Soc J 86:2135-41 Je 5 '64

Lithium chromate; corrosion inhibitor for lithium bromide absorption refrigeration systems. R. H. Krueger and others. il ASHRAE J 6:40-4 F '64

Lithium tetraborate hydrates. G. S. Perry. Chem & Ind p 1025-6 Je 13 '64

Metalation of triphenylmethane by organolithium compounds. R. Waack and P. West. bibliog Am Chem Soc J 86:4494-6 O 20 '64

Phase transitions in $LiAl_5O_8$. R. K. Datta and R. Roy. bibliog diag Am Cer Soc J 46:388-90 Ag '63; Discussion. 47:362-3 Jl '64

Preparation and properties of cyclopropylcarbinyllithium. P. T. Lansbury and others. bibliog Am Chem Soc J 86:2247-51 Je 5 '64

Preparation of organolithium compounds by the transmetalation reaction; *cis-* and *trans*-propenyllithium; the stereochemistry of the transmetalation reaction; isopropenyllithium. D. Seyferth and L. G. Vaughan. bibliog Am Chem Soc J 86:883-90 Mr 5 '64

Reaction of triphenylphosphine oxide with alkyllithium and Grignard reagents. D. Seyferth and others. bibliog Am Chem Soc J 86:1100-5 Mr 20 '64

Reactions of organolithium compounds and diphenylacetylene. J. E. Mulvaney and others. Am Chem Soc J 85:3897-8 D 5 '63

Steric difference between the substitution reaction products of lithium alkyls and Grignard reagents with α-aminonitriles; an asymmetric reproduction. J. Yoshimura and others. bibliog Am Chem Soc J 86:3858-62 S 20 '63

Trichloromethyllithium, an electrophilic reagent. W. T. Miller, jr. and D. M. Whalen. bibliog Am Chem Soc J 86:2089-90 My 20 '64

See also

Butyllithium

LITHIUM ferrates

Magnetoacoustic resonance in lithium ferrite. R. L. Comstock and J. P. Remeika. bibliog J Ap Phys 35:1018-19 pt 2 Mr '64

Order-disorder effects on ferromagnetic resonance. E. G. Spencer and R. T. Denton. bibliog J Ap Phys 35:2633-5 S '64

Sublattice magnetizations in lithium ferrite as a function of temperature; abstract. E. Prince. J Ap Phys 35:993 pt 2 Mr '64

X-band coincidence ferrimagnetic limiter using lithium ferrite. R. L. Comstock and M. Loewy. bibliog IEEE Proc 51:1769-70 D '63

LITHIUM fluoride

Fission-fragment tracks and directional effects in the surface of LiF crystals. T. G. Knorr. bibliog il diag J Ap Phys 35:2753-60 S '64

Flow stresses on the {100} and {110} planes in LiF, and the plasticity of polycrystals. D. W. Budworth and J. A. Pask. bibliog Am Cer Soc J 46:560-1 N '63

Grain-boundary migration in LiF bicrystals. M. P. Davis and N. M. Tallan. bibliog il Am Cer Soc J 47:175-8 Ap '64

Imperfections associated with dielectric breakdown in LiF. J. W. Davisson and others. bibliog il diag J Ap Phys 35:3017-23 O '64

Ionic conductivity in LiF grain boundaries. R. L. Moment and R. B. Gordon. bibliog diag J Ap Phys 35:2489-92 Ag '64

Phosphate; halide systems: constitution of glasses in the system $NaPO_3$-LiF. A. E. R. Westman and M. K. Murthy. Am Cer Soc J 47:375-8 Ag '64

Relation between dislocation density and catalytic activity and effects of physical treatment. J. W. Hall and H. F. Rase. bibliog diags Ind & Eng Chem Fundamentals 3:158-67 My '64

LITHIUM germanate

Thermal expansion properties of lithium orthogermanate and orthosilicate. N. Soga. Am Cer Soc J 47:469 S '64

LITHIUM halides

Effects of lithium halides on the reactivity of organolithium compounds. R. Waack and M. A. Doran. Chem & Ind p496-7 Mr 21 '64

LITHIUM iodide

Determination of europium(II) and total europium in europium-activated lithium iodide scintillation crystals. D. A. Constanzo. bibliog Anal Chem 36:2042-4 S '64

LITHIUM nitrate

Electric conductivity of fused $LiNO_3$-$NaNO_3$-KNO_3 eutectic. L. A. King and others. Electrochem Soc J 111:720-1 Je '64

LITHIUM ores

Safety and production; Foote mineral co. il Min Cong J 50:65-7 Je '64

LITHIUM oxides

Studies in germanium oxide systems; phase equilibria in the system Li_2O-GeO_2. M. K. Murthy and J. Ip. bibliog Am Cer Soc J 47:328-31 Jl '64

LITHIUM silicates

Surface nucleation and crystal orientation in lithium silicate glass fibers. C. L. Booth and G. E. Rindone. bibliog il diag Am Cer Soc J 47:25-9 Ja '64

Thermal expansion properties of lithium orthogermanate and orthosilicate. N. Soga. Am Cer Soc J 47:469 S '64

LITHOGRAPHY

How to lithograph aluminum foil. V. J. Shaw. Inland Ptr/Am Lithogr 153:56 Ag '64

Maximum blanket value when lithographing on paperboard. il Inland Ptr/Am Lithogr 152:62-3 Ja '64

Michigan artist revives ancient litho stone process. il Inland Ptr/Am Lithogr 153:79 Ap '64

See also

Photolithography

Printing, Offset

LITTER baskets. See Refuse receptacles

LITTLE FALLS, Minnesota

Sewerage

Waste treatment plant designed for odor control. R. L. Smith and L. Lammer. il plan Pub Works 95:116-17 F '64

LIVER

Antithyrotoxic assay based upon the response of rat liver α-glycerophosphate dehydrogenase. D. A. Richert and others. bibliog J Nutrition 83:332-42 Ag '64

Effect of protein intake on the ribonucleic acid of liver cell sap. H. N. Munro and others. bibliog J Nutrition 83:186-92 Jl '64

Effect of vitamin A and vitamin A acid on cerebrospinal fluid pressure and blood and liver vitamin A concentrations in the pig. E. C. Nelson and others. bibliog J Nutrition 82:263-8 F '64

Fatty livers produced in albino rats by excess niacin in high fat diets. L. L. Rikans and others. bibliog J Nutrition 82:83-7 Ja '64

Influence of dietary phytol, isophytol, and squalene on the tocopherol content of liver tissue. W. J. Pudelkiewicz and others. J Nutrition 83:111-14 Je '64

Liver lipid accumulation in isoleucine-deficient rats. R. L. Lyman and others. bibliog J Nutrition 82:432-8 Ap '64

Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of clinical symptoms and starvation to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:422-6 Ap '64

Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of dietary protein to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:427-31 Ap '64

LIVER—*Continued*

Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64

Protein-energy relationship in adult rats: qualitative and quantitative variations in dietary nitrogen and effects on deposition of hepatic fat and on nitrogen utilization. P. A. Garcia and C. E. Roderuck. bibliog J Nutrition 82:231-6 F '64

Rat liver storage of vitamin A from fortified nonfat dried milk. R. A. Ramussen and others. bibliog J Agri & Food Chem 12:413-14 S '64

Relative hepatotoxicity. Z. T. Wirtschafter and M. W. Cronyn. bibliog Archives Environmental Health 9:180-5 Ag '64

Response of the liver to prolonged protein depletion; protein of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

Selection of liver profile tests for use in dogs. M. T. Johnson and others. bibliog Archives Environmental Health 8:675-80 My '64

Some biochemical lesions associated with liver fat accumulation in threonine-deficient rats. D. Arata and others. bibliog J Nutrition 82:150-6 Ja '64

Studies of rat liver and kidney enzymes. J. H. Hutchinson and others. bibliog Am J Clinical Nutrition 14:291-309 My '64

Diseases

CCl_4-induced liver damage. G. L. Plaa and R. E. Larson. Archives Environmental Health 9:536-43 bibliog(p542-3) O '64

CCl_4 toxicity; hepato-structural and enzymatic change. B. D. Dinman and others. il Archives Environmental Health 7:630-6 bibliog(p645-6) D '63

Effect of hepatic disease on liver B-complex vitamin titers. H. Baker and others. bibliog diags Am J Clinical Nutrition 14:1-6 Ja '64

Factors influencing the induction of fatty liver by orotic acid. H. Sidransky and others. bibliog J Nutrition 81:348-56 D '63

Plasma free fatty acids in kwashiorkor and the pathogenesis of the fatty liver. B. Lewis and others. bibliog Am J Clinical Nutrition 15:161-8 S '64

LIVESTOCK

Livestock environments. T. E. Hazen and G. L. Hahn. bibliog ASHRAE J 6:64-7 Jl '64

LLOYDS register of shipping

Lloyd's annual report. Engineer 217:702 Ap 17 '64

Lloyd's Register reports on world shipbuilding. Marine Eng/Log 69:16H Je '64

Recent amendments to Lloyd's rules are announced. Marine Eng/Log 69:16J Ag '64

LOAD (electric plants). See Electric plants (central stations)—Load

LOAD (mechanics)

Aluminum angles in tension S. C. Redshaw. il diags Mod Metals 19:60+ N '63

Analysis of a symmetrically loaded sandwich cylinder. E. H. Baker. diags AIAA J 2:108-9 Ja '64

Analysis of laterally loaded gridworks. T. Wah. Am Soc C E Proc 90 [EM 2 no 3865]: 83-106 Ap '64

Analysis of pile groups with flexural resistance. A. J. Francis. bibliog diags Am Soc C E Proc 90 [SM 3 no 3887]:1-32 My '64

Approximate analysis of shear walls subject to lateral loads. R. Rosman. diags Am Concrete Inst J 61:717-33 Je '64

Asymmetrical buckling of spherical caps under uniform pressure. G. A. Thurston. bibliog AIAA J 2:1832-3 O '64

Bearing capacity of piles in cohesionless soils. R. L. Norlund. bibliog diags Am Soc C E Proc 89 [SM 3 no 3506]:1-35 My '63; Discussion. 89 [SM 6 no 3701]:125-6 N '63; 90 [SM 1 no 3781]:127-31 Ja '64; Reply. 90 [SM 4 no 3979]:139-43 Jl '64

Behavior of hybrid beams subjected to static loads. R. W. Frost and C. G. Schilling. bibliog il diags Am Soc C E Proc 90 [ST 3 no 3928]:55-88 Je '64; Discussion. M. G. Lay. 90 [ST 5 no 4066]:245-6 O '64

Behavior of reinforced concrete frames subjected to repeated reversible loads. V. V. Bertero and G. McClure. bibliog il diags Am Concrete Inst J 61:1305-30 O '64

Behavior of restrained reinforced concrete columns. E. O. Pfrang and C. P. Siess. bibliog diags Am Soc C E Proc 90 [ST 5 no 4111]:113-36 O '64

Biaxial eccentricities in ultimate load design. A. Aas-Jakobsen. bibliog diags Am Concrete Inst J 61:293-315 Mr '64

Biaxial flexure of columns by analog computers. S. P. Prawel, jr. and G. C. Lee. bibliog diags Am Soc C E Proc 90 [EM 1 no 3805]:83-111 F '64; Discussion. 90 [EM 4 no 4000]:185-7 Ag '64

Blast loading of small buried arches. J. R. Allgood. bibliog diags Am Soc C E Proc 90 [ST 5 no 4095]:39-61 O '64

Buckling loads for stepped columns. J. W. Harvey. bibliog diags Am Soc C E Proc 90 [ST 2 no 3873]:201-22 Ap '64; Discussion. 90 [ST 5 no 4066]:231-40 O '64

Buckling of bars of variable rigidity with varying axial load. K. T. Sundara Raja Iyengar and S. Anantharamu. bibliog diags Roy Aeronautical Soc J 67:734-6 N '63

Buckling of cylindrical shells under dynamic loads. J. D. Wood and L. R. Koval. bibliog il diags AIAA J 1:2576-82 N '63

Buckling of steel columns under arbitrary end loads. S. L. Lee and G. F. Hauck. bibliog diags Am Soc C E Proc 90 [ST 2 no 3872]: 179-200 Ap '64

Cable movements under two-dimensional loads. W. T. O'Brien and A. J. Francis. diags Am Soc C E Proc 90 [ST 3 no 3929]: 89-123 Je '64

Circular ring plates under partial arc loading. Ö. Tuncel. diag A S M E Trans ser E 30: 340-1 Je '64

Circularly curved beams transversely loaded. P. J. Spyropoulos. diags Am Concrete Inst J 60:1457-70 O '64; Discussion. 61:2045-52 pt 2 Je '64

Collapse loads of orthotropic cylindrical shells under radial pressures. B. Venkatraman and R. Sankaranarayanan. diags Franklin Inst J 278:183-94 S '64

Collapse of arches under repeated loading. V. Franciosi and others. bibliog diags Am Soc C E Proc 90 [ST 1 no 3803]:165-201 F '64; Discussion. 90 [ST 5 no 4066]:219-20 O '64

Concentrated forces on compressed plates and related problems for moving loads. A. Jahanshahi and J. Dundurs. diags A S M E Trans ser E 31:83-7 Mr '64

Construction loads on slabs with shored formwork in multistory buildings. P. Grundy and A. Kabaila. Am Concrete Inst J 60: 1729-38 D '63; Discussion. 61:2081-3; Reply. 2084 pt 2 Je '64

Crack extension in plates under plane loading and transverse shear. F. Erdogan and G. C. Sih. bibliog il diags A S M E Trans ser D 85:519-25; Discussion. F. A. McClintock. 525-7; Reply. 527 D '63

Cryostat for measurement of heat conduction under mechanical loads. S. D. Probert and others. bibliog diags J Sci Instr 41:88-91 F '64

Deflection of rectangular orthotropic plates under lateral loads. N. R. Rajappa. Roy Aeronautical Soc J 68:483-4 Jl '64

Design of flexible steel pipe under external loads. W. H. Cates. bibliog Am Soc C E Proc 90 [PL 1 no 3767]:21-31 Ja '64

Determination of elastic critical loads. L. K. Stevens and L. C. Schmidt. bibliog diags Am Soc C E Proc 89 [ST 6 no 3723]:137-58 D '63; Correction. 90 [ST 4 no 4001]:309-10 Ag '64

Determining preload in a bolted joint. T. C. Baumgartner and F. R. Kull. bibliog il diags Machine Design 36:180-5 F 13 '64

Determining the capacity of bent piles. S. M. Johnson. bibliog diags Am Soc C E Proc 88 [SM 6 no 3349]:65-79 D '62; Discussion. 89 [SM 3 no 3528]:177-80 My; [SM 4 no 3578]:213-16 Jl '63; Reply. 90 [SM 1 no 3781]:101-2 Ja '64

Earth loads on steel pipe; discussion. M. G. Spangler. Am Water Works Assn J 56:519-20 Ap '64

Effect of cyclic loading on the temperature in viscoelastic media with variable properties. R. A. Schapery. bibliog diags AIAA J 2:827-35 My '64

Effects of boundary conditions on the stability of cylinders subject to lateral and axial pressures. L. H. Sobel. bibliog diags AIAA J 2:1437-40 Ag '64

Elastic cylindrical shell under nearly uniform radial impulse. J. N. Goodier and I. K. McIvor. bibliog diags A S M E Trans ser E 31:259-66 Je '64

Elastic stability of conical shells under axisymmetric pressure band loadings. J. C. Serpico. diag AIAA J 2:389-91 F '64

Energy absorption of structures under cyclic loading. K. Medearis and D. H. Young. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3791]:61-91 F '64; Discussion. 90 [ST 5 no 4066]:207-11 O '64

LOAD (mechanics)—*Continued*

Energy solution for simply supported oval shells. W. P. Vafakos and others. bibliog diag AIAA J 2:555-7 Mr '64

Energy storage in an axially and laterally loaded filament. G. D. Moskowitz and E. W. Suppiger. diags Textile Res J 34:34-9 Ja '64; Discussion. 34:805-6 S '64

Experimental and theoretical investigation of the plastic deformation of cantilever beams subjected to impulsive loading. S. R. Bodner and P. S. Symonds. bibliog il diags A S M E Trans ser E 29:719-28 D '62; Discussion. 30:637-8 D '63

Experiments on stability on spherical caps. T. C. Loo and R. M. Evan-Iwanowski. bibliog diags Am Soc C E Proc 90 [EM 3 no 3956]:255-70 Je '64

Expression for bed-load transportation. M. S. Yalin. bibliog Am Soc C E Proc 89 [HY 3 no 3525]:221-50 My '63; Discussion. C. F. Nordin, jr. and J. P. Beverage. 90 [HY 1 no 3783]:303-13 Ja '64; Reply. 90 [HY 3 no 3911]:331-2 My '64

Foundation behavior of iron ore storage yards. R. B. Peck and T. Raamot. bibliog diags Am Soc C E Proc 90 [SM 3 no 3902]: 85-122 My '64

Frame-grid mechanical design. T. Harrett. diag Inst E E Proc 111:1119-22 Je '64

Geometrical effects in strain cycled aluminum. M. H. Raymond and L. F. Coffin. bibliog il diags A S M E Trans ser D 85:548-54 D '63

Ground displacements from air-blast loading. S. D. Wilson and E. A. Sibley. bibliog diags Am Soc C E Proc 88 [SM 6 no 3346]:1-31 D '62; Discussion. 89 [SM 4 no 3578]:207-10 Jl '63; Reply. 90 [SM 1 no 3781]:99-100 Ja '64

Impulsive loading theorems for rigid-plastic continua. J. B. Martin. bibliog diags Am Soc C E Proc 90 [EM 5 no 4072]:27-42 O '64

Investigation of multiple-panel reinforced concrete floor slabs. M. A. Sozen and C. P. Siess. il diags Am Concrete Inst J 60:999-1028 bibliog(p 1025-7) Ag '63; Discussion. 61:1965-77; Reply. 1978-9 Mr '64

Iterative limit load analysis for tall frames. N. C. Lind. bibliog diags Am Soc C E Proc 90 [ST 2 no 3867]:103-29 Ap '64; Discussion. M. G. Lay. 90 [ST 4 no 4001]:337-9 Ag '64

Kind of hysteretic damping. E. Rosenblueth and I. Herrera. bibliog diags Am Soc C E Proc 90 [EM 4 no 3999]:37-48 Ag '64

Lamella beams and grids. D. L. Dean. bibliog diags Am Soc C E Proc 90 [EM 2 no 3869]:107-29 Ap '64

Lateral resistance of piles in cohesionless soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 3 no 3909]:123-56 My '64

Lateral resistance of piles in cohesive soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 2 no 3825]:27-63 Mr '64

Limit analysis of grid frameworks. F. S. Shaw. diags Am Soc C E Proc 89 [ST 5 no 3658]:1-14 O '63; Discussion. S. S. Tezcan. 90 [ST 2 no 3886]:383-6 Ap '64

Linear bending theory of laminated cylindrical shells under axisymmetric load. B. Paul. diags A S M E Trans ser E 30:98-102 Mr '63; Discussion. 31:155-7 Mr '64

Load-balancing method for design and analysis of prestressed concrete structures. T. Y. Lin. bibliog diags Am Concrete Inst J 60:719-42 Je '63; Discussion. 60:1843-78; Reply. 1878-81 D '63

Load-carrying capacities of simply supported rectangular plates. H. E. Shull and L. W. Hu. diags A S M E Trans ser E 30:617-21 D '63; Discussion. 31:733-4 D '64

Load-moment-curvature characteristics of reinforced concrete cross sections. E. O. Pfrang and others. diags Am Concrete Inst J 61:763-78 Jl '64

Load-torque analysis is basis for legal stop ability design. G. P. Mathews. diag S A E J 72:60-5 Ja '64

Load transfer in a step-taper pile. E. D'Appolonia and J. A. Hribar. bibliog diags Am Soc C E Proc 89 [SM 6 no 3700]:57-77 N '63; Discussion. K. V. Swaminathan. 90 [SM 4 no 3979]:199-202 Jl '64

Load transfer in end-bearing steel H-piles. E. D'Appolonia and J. P. Romualdi. bibliog il diags Am Soc C E Proc 89 [SM 2 no 3450]:1-25 Mr '63; Discussion. 89 [SM 5 no 3654]:127-32 S; [SM 6 no 3701]:97-100 N '63; Reply. 90 [SM 3 no 3907]:163-4 My '64

Method for determining deflections in beams of variable stiffness. K. T. Krishnaswamy. diags Am Concrete Inst J 60:157-60 Ja '63; Discussion. V. Petcu. 61:239-43 F '64

Minimum weight plastic design of continuous frames. D. A. Sawyer and L. E. Grinter. bibliog diags Am Soc C E Proc 90 [EM 3 no 3927]:39-52 Je '64; Discussion. J. Heyman and W. Prager. 90 [EM 5 no 4093]: 459-61 O '64

New design formulas for varying section rings. T. H. Lee. diags Product Eng 35: 74-8 Jl 6 '64

Noncircular rings under radial load. F. Romano and D. Ranlet. bibliog diags Franklin Inst J 277:444-63 My '64

Nonlinear behavior of structural plane frames. S. A. Saafan. bibliog flow diag diags Am Soc C E Proc 89 [ST 4 no 3615]: 557-79 Ag '63; Discussion. 90 [ST 2 no 3886]:381-2 Ap; [ST 4 no 4001]:277-8 Ag '64

Numerical method for structural shock response. G. J. O'Hara and P. F. Cunniff. diags Am Soc C E Proc 90 [EM 2 no 3866]: 51-82 Ap '64

Optimum design of prestressed plates. G. I. N. Rozvany and A. J. K. Hampson. diags Am Concrete Inst J 60:1065-82 Ag '63; Discussion. 61:2009-11 Mr '64

Orthotropic pressure vessels with axial constraint. C. R. Steele. bibliog diags AIAA J 2:703-9 Ap '64

Pipeline crossings under railroads and highways. M. G. Spangler. bibliog il diags Am Water Works Assn J 56:1029-46 Ag '64; Abstract. Pub Works 95:182 O '64

Plastic deformation of a cantilever beam with strain-rate sensitivity under impulsive loading. T. C. T. Ting. bibliog diags A S M E Trans ser E 31:38-42 Mr '64

Probability of structural failure under random loading. M. Shinozuka. bibliog Am Soc C E Proc 90 [EM 5 no 4088]:147-70 O '64

Rate of loading effect on moment-curvature relation in prestressed concrete beams. I. O. Oladapo. il diags Am Concrete Inst J 61: 871-87 Jl '64

Residual analysis for circular cylindrical shells under segmental line-load. J. Sheng and J. Kempner. bibliog diags AIAA J 1: 2558-64 N '63; Correction. 2:784 Ap '64

Response of cylindrical shells to moving loads. J. P. Jones and P. G. Bhuta. bibliog diag A S M E Trans ser E 31:105-11 Mr '64

Response of singly reinforced beams to cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:1021-38 Ag '64

Response of structures to triangular pulse loading. T. Huang. bibliog diags Am Soc C E Proc 90 [ST 2 no 3862]:55-76 Ap '64

Response of timber joints with metal fasteners to lateral impact loads. C. A. Jordan. il Materials Res & Stand 3:368-76 My '63; Discussion. 3:914 N '63

Scatter of observed buckling loads of pressurized shells. F. W. Niedenfuhr. bibliog diags AIAA J 1:1923-5 Ag '63; Discussion. 2:1165-6 Je '64

Short-time relaxation test for spring materials. C. L. Carlson. il diags Materials in Design Eng 59:110-11 Je '64

Solution for the thin elastic shell with surface loads. C. R. Steele. bibliog diags A S M E Trans ser E 31:91-6 Mr '64

Stress-strain relations for concrete under cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:195-211 F '64

Thick-walled cylinders subjected to axisymmetric tangential loads. C. W. Lee. diags A S M E Trans ser E 31:146-8 Mr '64

Tough spec for a floor; 90,000-lb shear load, no reinforcing, for transformer testing. C. G. Robinson il diags Plant Eng 17:129-30 N '63

Ultimate load of H-columns under biaxial bending. C. Birnstiel and J. Michalos. bibliog diags Am Soc C E Proc 89 [ST 2 no 3503]:161-97 Ap '63; Discussion. 89 [ST 5 no 3688]:363-6 O '63; Reply. 90 [ST 2 no 3886]:361-3 Ap '64

Zero sidesway axis of rigid frames. A. J. Celis and P. Glockner. Am Soc C E Proc 89 [ST 5 no 3662]:65-89 O '63; Discussion. 90 [ST 1 no 3812]:271-80 F; [ST 2 no 3886]: 389-91 Ap '64; Reply. 90 [ST 4 no 4001]:281-3 Ag '64

See also
Guided missiles—Load
Space vehicles—Load
Strains and stresses

LOAD cells. See Scales, Electronic

LOAD dispatching. See Electric plants (central stations)—Load dispatching

LOAD factor

Application of static inverters for essential loads. J. L. Fink and others. il diags IEEE Trans Power Apparatus & Systems p 1068-72 D '63

LOAD factor—*Continued*

Electrical load control system. diag Engineer 217:628 Ap 3 '64

Load capability of bare ACSR and all-aluminum conductors based on long-time outdoor temperature rise tests. J. C. Gorub and E. F. Wolf. il IEEE Trans Power Apparatus & Systems p852-7 D '63

Recording transient load angle of synchronous machines. J. H. Bundell and A. J. Ellison. J Sci Instr 41:511-13 Ag '64

Secondary system distribution planning for load growth. R. M. Webler and others. bibliog flow diag diags IEEE Trans Power Apparatus & Systems p908-23; Discussion. 923-7 D '63

Transient stability of an isolated radial power network with varied load division. B. J. Gevay and W. H. Schippel. bibliog diags IEEE Trans Power Apparatus & Systems 83:964-9; Discussion. 969-70 S '64

Voltage effects of capacitive load on the synchronous generator. J. L. Dineley and K. J. Glover. bibliog diags Inst E E Proc 111:789-95 Ap '64; Discussion. 111:1452-3 Ag '64

See also

Electric transformers—Load

LOADING and unloading

See also

Coal handling
Conveying machinery
Dumping appliances
Mechanical handling
Ramps

Airplanes

Air cargo rolls faster. J. L. McLellan and J. J. Healy. il S A E J 72:78-81 S '64

Airliners weigh in. il Electronics 37:26 N 2 '64

Ground handling and maintenance; Hawker Siddeley Trident. il diags Aircraft Eng 36:194-5 Je '64

Barges

Barge unloading at Ferrybridge. il Engineering 198:139 Jl 31 '64

Continuous barge-unloader. il Mech Eng 86:54-5 S '64

Continuous bucket unloader speeds up coal handling. il Power 108:71 Ag '64

Digger clears barge in two passes. il diags Machine Design 36:122-3 Ag 13 '64

Elevator unloads ton of coal in seconds. il Elec World 162:68 Ag 24 '64

Handling chlorine; barge and pipeline safety. H. P. Nelson. il diag Chem Eng Prog 60:88-9 S '64

New machine speeds barge unloading. il Min Cong J 50:84 Jl '64

Oregon Portland develops unusual barge-unloading system. il Pit & Quarry 56:119-20+ Mr '64

Problem of ups and downs; getting bulk off a barge. il Mod Materials Handling 19:52-3 Jl '64

Tippler for coal barges. il Engineer 218:28 Jl 3 '64

Cars

ACF adds pressure-loading car to covered hopper line. Chem & Eng N 42:64-5 My 25 '64

Automated railroad car loading: Freeman coal mining corp. G. R. Swanson. il Min Cong J 50:27-9 Ja '64

Convertible loads pay off. il Mod Materials Handling 19:65 O '64

Heavy powder in short haul. il Chem Eng 71:102 N 9 '64

How Buick's special grabs ease bulky-shape handling. il Mod Materials Handling 19:46-7 N '64

How Tunnelton designed for unit-train shipment. il Coal Age 69:78-83+ Ap '64

Lina Loda is designed to handle large containers between railway vehicles and lorries. il Engineer 216:782 N 8 '63

Loads must arrive intact. W. H. Gribble. il Mod Materials Handling 19:52-9 Ja '64

Pneumatic unloading of purchased chips. J. H. Ross. flow sheet il diag Tappi 47:sup 153A-6A Jl '64

Portable loading pocket cuts hoisting time, cost. R. M. Kleine. diags Eng & Min J 165:119 O '64

Unloading fixture transfers loads to pallets. il Mod Materials Handling 19:98 Ja '64

See also

Car dumpers

Mine cars

Coded command signals control; crewless railway system. il diags Automation 10:43+ D '63

Modern bulk rockdust handling. il Coal Age 69:106-8+ F '64

Motor trucks

Adjustable dockboards pave way for automated warehouse. il Safety Maint 128:19+ S '64

Bulk loading of ammonium nitrate blasting agents. J. H. Wilson. il Min Cong J 49:60-3 D '63

Loads must arrive intact. W. H. Gribble. il Mod Materials Handling 19:52-9 Ja '64

Safety measures

Bulk loading of ammonium nitrate blasting agents. J. H. Wilson. il Min Cong J 49:60-3 D '63

Reduce static hazards by minimizing the human element. P. N. Malherbe. diags Oil & Gas J 62:108 F 17 '64

Ships

Bulk system is fast for unloading salt. il Mod Materials Handling 18:59 N '63

Cargo is easy to get at aboard Koudekerk. il diags Marine Eng/Log 69:56-8 O '64

Chile's Coquimbo port installs mobile loading facilities. A. T. Yu. il Min Eng 16:84-5 My '64

For ships' cargo; quick deck cranes. il Engineering 198:238 Ag 21 '64

Handling cargoes on and off ships. J. H. Jellett. il diag Engineering 198:405-7 S 25 '64

Loading calculator for cargo ships. il Engineering 196:683 N 29 '63

Moving cargo directly from ship to shore. il Engineering 198:538 O 23 '64

New for ships; a roll away loading system. il diag Mod Materials Handling 19:50-1 S '64

Newest coal-handling facility can load 20,000 tons per hour, Norfolk and Western's coal pier 6. il Power Eng 67:52-3 D '63

Power for a salt jetslinger. il diag Elec Constr & Maint 63:98-101 Je '64

Side loading cars faster without damage. il Engineering 197:664 My 15 '64

Tv keeps safety eye on operations; Great Lakes storage & contracting co. il Safety Maint 128:21 Ag '64

United Kingdom committee of the International cargo handling co-ordination assn. conference, Newcastle upon Tyne, Sept. 17-18; abstracts of papers. Engineer 218:588-9 O 9 '64

See also

Cargo handling
Coal docks

Tank ships

Automated cargo-oil handling system. il Marine Eng/Log 69:16F Je '64

Floating tanker terminal is boon for mammoth tankers. il Marine Eng/Log 69:62 Je '64

Götaverken's load distribution system. Marine Eng/Log 69:22D-22E Ja '64

Idd-el-Shargi oilfield and storage tank moorings. il plan diag Engineer 218:456-7 S 18 '64

Loading arm for tankers; 65-ft tidal changes no problem. Marine Eng/Log 69:102 O '64

Pumping cargo oil. diags Engineer 217:727-8 Ap 24 '64

Remote-control valve system on modern oil tankers. il Mech Eng 86:70 Jl '64

Tank trucks

Delivery time, inventory and costs cut with self-unloading bulk trailers. il Water Works Eng 116:962 D '63

Inerting system safeguards against loading-rack explosions. diags Oil & Gas J 62:121 S 14 '64

LOADING machines

Are your loaders carrying their full load? il Plant Eng 18:117 Mr '64

Articulated unit loads 30,000 lb. il Eng N 173:109 Ag 6 '64

Four-wheel drive bucket loader. il diag Engineer 218:29 Jl 3 '64

Front end loader turns in 77 inches. il Eng N 172:47 My 28 '64

Handling-upending system palletizes roll goods. il diag Automation 11:68 Je '64

High-discharge side dump loader. il Engineer 218:462 S 18 '64

Hough makes center-pivot loader. il Eng N 172:45 Mr 12 '64

Hydraulically-operated slew-loader. il Engineer 217:1099 Je 19 '64

Large loader can save you money; big savings for Becker County Sand & Gravel. il Rock Prod 67:106-7 O '64

Loader handles lumber, moves cars, too. il Mod Materials Handling 19:53 Ag '64

Loading shovel. il Engineer 218:256 Ag 14 '64

LOADING machines—*Continued*

Modified loaders switch railcars. il Mod Materials Handling 19:83 N '64

New larger loader brings changes to plant operation; Becker county sand & gravel co. il Roads & Sts 107:52-5 My '64

Newest in scrap handlers looks good for other jobs, too. il Mod Materials Handling 19:48-9 F '64

1964 materials handling and packaging directory; outdoor-indoor mobile equipment. il Mod Materials Handling 19:195-214 My '64

Redesign, CO_2-Mig cut bucket cost 49 per cent. N. G. Steinmann. diags Welding Eng 49:54+ S '64

This loader is our all-purpose tool. J. F. Martin. il Pub Works 95:102 F '64

Tractor hoes have low profile. Eng N 172:39 Ja 9 '64

Triple-threat loader keeps plant working. il Mod Materials Handling 18:64 N '63

Versatile loader doubles as snow plow on town road work. il Pub Works 95:114 Ja '64

See also

Coal loading machines

Control

Closed circuit releases valve detents. O. Rice. il diags Hydraulics & Pneumatics 17:55-6 Ag '64

Static-switching control system for a pallet loading machine. G. Cooper and F. Shaw. il diag Ind Electronics 2:421-4 S '64

LOANS

Long-term financing for small business firms. R. H. Butz. Pit & Quarry 56:97 F '64

LOANS, Bank

Financing improvements with bank loans. P. R. Geisinger. Foundry 92:110-11 Ap '64

LOBELINE

Dr. Quitsmake, or how I stopped smoking and learned to love lobeline. R. Goldman. bibliog Drug & Cosmetic Ind 94:497-8+ Ap '64

Shortage may develop in smoking deterrent compound. Chem & Eng N 42:29 F 3 '64

LOBLOLLY pine. See Pine

LOCATION in industry

Humble Oil to develop industrial district. Chem & Eng N 42:24 F 10 '64

See also

Chemical plants—Location

Factories—Location

Steam plants—Location

LOCKING devices

Design and production with retaining rings. L. Branzburg. il diags Mach 70:122-7+ Je '64

How to evaluate and inspect retaining rings. A. Brooks. il Tool & Manuf Eng 52:89-93 Mr '64

How to get the most out of locking devices. D. T. Lipari. il diags Steel 154:50-2 Je 29 '64

Locked threaded fastener. H. G. Dacey. il Materials in Design Eng 59:120-1 Ap '64

Mechanical arms that entend; drawings with text. I. N. Schuster. Product Eng 35:72-3 Ag 17 '64

Retainer keeps high speed bearings cool. il Steel 155:51 Ag 31 '64

Retaining rings. diags Product Eng 34:139 D 9 '63

Stitcher eliminates a bottleneck. il Am Mach 108:55 Ag 3 '64

LOCKS (hydraulic engineering)

Engineering measurements for Port Allen lock. R. I. Kaufman and W. C. Sherman, jr. diags Am Soc C E Proc 90 [SM 5 no 4020]:221-47 S '64

Lifting canal traffic by inclined plane. il Engineering 197:18-19 Ja 3 '64

Navigation locks: end filling and emptying systems for locks. F. R. Brown. il diags Am Soc C E Proc 90 [WW 1 no 3792]:61-77 F '64

Navigation locks: filling and emptying systems for locks. M. E. Nelson and H. J. Johnson. diags Am Soc C E Proc 90 [WW 1 no 3789:47-59 F '64

Navigation locks: navigation lock gates and valves. G. C. Richardson. bibliog il diags Am Soc C E Proc 90 [WW 1 no 3799]:79-102 F '64

Navigation locks; TVA's multiport lock filling and emptying system. R. A. Elder and others. diags Am Soc C E Proc 90 [WW 1 no 3789]:47-59 F '64

Pneumatic reduction of salt intrusion through locks. G. Abraham and P. v. d. Burgh. il diags Am Soc C E Proc 90 [HY 1 no 3759]: 83-119 Ja '64; Discussion. D. I. H. Barr. 90 [HY 5 no 4050]:197-9 S '64

Maintenance and repair

Emergency repair of dock gate anchorage. il Engineer 218:379 S 4 '64

LOCKS and keys

Dial plate updates combination lock. il diags Machine Design 36:212-13 Ap 23 '64

High-performance plastics make new lock concept possible. il Mod Plastics 41:118 Je '64

Insuring entrance door lock security. E. F. Toepfer. Arch Rec 135:221-2 Ap '64

Locks and keys; sentinels of plant security. G. M. Betz and E. A. Eder. il Plant Eng 18:118-20 Je '64

Luminous finish on keys? answers. Ind Finishing 40:88-90 Jl '64

New door lock for open cars. diags Automobile Eng 54:362-3 Ag '64

Nix-Pik lock for vending and coin-operated machines. il diags Product Eng 35:81 Je 22 '64

Manufacture

Mechanized part feed and tubular riveting quadruple sash lock output. il Mach 70:131 My '64

LOCOMOTIVE engineers

Training

Simulating driving electric locomotives. il Engineering 197:71 Ja 17 '64

LOCOMOTIVES

1964 prospects for all engineerings: railway engineering. il Engineering 197:18-20 Ja 17 '64

Progress in railway mechanical engineering, 1962-1963. bibliog il diags A S M E Trans ser B 86:175-82 My '64; Excerpts. Mech Eng 86:36-7 My '64

Ultimate steam locomotive. W. A. Tuplin. diags Engineer 218:330-4 Ag 28 '64

See also

Electric locomotives

Motor cars (railroad)

Railroads—Rolling stock

History

Locomotives of 1913. E. C. Poultney. il diags Engineer 216:981-4; 217:278 D 13 '63, F 7 '64

LOCOMOTIVES, Diesel

Diesel engine on rail. E. S. Cox. Inst Mech Eng Proc 177 no 38:1025-32; Discussion. 1085-94 '63

LOCOMOTIVES, Diesel-electric

Brush 2,750 hp Diesel-electric locomotive. il Engineering 198:398-400 S 25 '64

Diesel traction progress in India. Engineer 218:73 Jl 10 '64

Diesels on British railways. R. C. Bond. Engineer 216:734-6 N 1 '63

Foreign railways in 1963; illustrations with text. Engineer 217:38-9 Ja 3 '64

French high-power Diesel-electric locomotive. il plan diag Engineer 218:601-2 O 9 '64

Locomotives for East Africa. Engineer 217:664 Ap 10 '64

Railway Diesels in production. Engineer 216:778-9 N 8 '63

Control

Diesel-electric locomotive control. il diags Engineer 217:452-3 Mr 6 '64

Power system eases unit-train movement. il Coal Age 69:26 O '64

Maintenance and repair

Diesel depot at March marks end of steam. il Engineering 197:175-6 Ja 24 '64

Diesel locomotive maintenance depot. il Engineer 218:508 S 25 '64

LOCOMOTIVES, Diesel-hydraulic

Diesel-hydraulic locomotive. il Mech Eng 86:70 F '64

Diesel-hydraulic locomotives. il diag Engineer 218:207-8 Ag 7 '64

French heavy Diesel-hydraulic locomotive. il diag Engineer 217:1009-11 Je 5 '64

Industrial Diesel locomotive. il Engineer 217:406 F 28 '64

Railway Diesels in production. Engineer 216:778-9 N 8 '63

LOCOMOTIVES, Electric. See Electric locomotives

LOCOMOTIVES, Gas turbine

Gas turbine's tractive attraction. Engineering 198:222 Ag 21 '64

LOCOMOTIVES, Industrial

Air filter eliminates locomotive breathing problems. il Iron & Steel Eng 41:156 Mr '64

Industrial Diesel locomotive. il Engineer 217:406 F 28 '64

LOCOMOTIVES, Mine

See also

Electric locomotives, Mine

LOCTITE. See Sealing compositions

LOCUST bean gum

Some properties of galactomannans. P. A. Hui and H. Neukom. bibliog Tappi 47:39-42 Ja '64

LOGARITHMS

Alignment of a logarithmic amplifier-detector. R. E. Richardson. diags R Sci Instr 34:1446-7 D '63

Charged particle orbits in a logarithmic potential. R. H. Hooverman. diags J Ap Phys 34:3505-8 D '63

Handy log scales. T. Jaski. Radio-Electronics 34:46 D '63

Logarithmic time-base. R. N. Alcock. diags Electronic Eng 36:404-6 Je '64

Multiplication and logarithmic conversion by operational amplified-transistor circuits. W. L. Paterson. bibliog diags R Sci Instr 34: 1311-16 D '63

Statistical accuracy of the logarithmic counting-rate meter: discussion. Inst E E Proc 110:2310-12 D '63

LOGGING. See Lumbering

LOGIC, Symbolical and mathematical

Application of ternary algebra to the study of static hazards. M. Yoeli and S. Rinon. bibliog diags Assn for Computing Mach J 11:84-97 Ja '64

Case for magnetic logic. J. Rogers and J. King. il diags Electronics 37:40-7 Je 1 '64

Charge storage diode as a logic element. W. D. Ryan and H. B. Williams. bibliog diags Radio & Electronic Eng 27:293-9 Ap '64

Content addressable distributed logic memory with applications to information retrieval. C. Y. Lee and M. C. Paull. bibliog diags IEEE Proc 51:924-32 Je '63; Discussion. R. P. Edwards. 52:83-4 Ja '64

Designing logic circuits. il Engineer 217:1139 Je 26 '64

Digital counter logic. H. F. Najjar. bibliog diags Electro-Tech 74:26-36 Jl '64

Digital shaft position indicator. S. G. Smith and C. J. U. Roberts. diags Electronic Eng 36:72-9 F '64

Display systems design. J. J. Seminara and S. O. Parsons. il diags Machine Design 35: 165-76 N 7 '63

Ensuring the reliability of transistors used in logic circuits. H. Brändle. Naval Eng J 76:377-86 Je '64

Fact retrieval and deductive question-answering information retrieval systems. W. S. Cooper. bibliog Assn for Computing Mach J 11:117-37 Ap '64

Fluid amplifiers; capabilities and applications. W. E. Gray and H. Stern. bibliog il diags Control Eng 11:57-64 F '64

GE computer spurns arithmetic for logic. il plan diag Electronics 37:87-9 O 5 '64

Generalized tree circuit; basic building block of an extended decomposition theory. H. A. Curtis. bibliog diags Assn for Computing Mach J 10:562-81 O '63

How to achieve majority and threshold logic with semiconductors. W. A. Sauer. bibliog diags Electronics 36:23-5 N 29 '63

How to use turbulence amplifiers for control logic. R. N. Auger. il diags Control Eng 11:89-93 Je '64

Interwoven redundant logic. W. H. Pierce. bibliog diags Franklin Inst J 277:55-85 Ja '64

Logicon building-block system. R. E. Young. il Ind Electronics 2:161-2 Ap '64

Low speed single supply NOR logic system. G. Flanagan and L. Molyneux. bibliog diags Electronic Eng 36:460-3 Jl '64

Mechanical engineer discovers building-block logic; Morgan the NORman. E. L. Rudisill. il diags Product Eng 35:80-6 Ag 31 '64

Memory and logic system for an electronic private branch exchange. E. A. Irland and J. H. Vogelsong. bibliog diags IEEE Trans Com & Electronics 83:332-8 Jl '64

New gas-filled trigger tube for logical functions. G. Kerr. diags Radio & Electronic Eng 28:207-15 S '64

Nonlinearly separable logic circuit. J. Miro and others. diags IEEE Proc 52:1081-2 S '64

NOR/NAND logic the easy way. C. F. Hill. diags Control Eng 11:81-3 My '64

No. one electronic switching system logic circuits and their application to the design of the central control. W. B. Cagle and others. il diags Bell System Tech J 43: 2055-95 S '64

Organization of No. one electronic switching system central processor. J. A. Harr and others. bibliog diags Bell System Tech J 43:1845-922 S '64

Play tic-tac-toe against pneumatic logic. D. E. Gauthier. il diags Hydraulics & Pneumatics 17:73-5 Mr '64

Pneumatic logic circuits (cont). E. L. Holbrook. diags Hydraulics & Pneumatics 16: 92-3 D '63; 17:84 Ap; 120-1 My; 76 Je '64

Proposed optoelectronic method of achieving very fast digital logic. E. H. Cooke-Yarborough and others. bibliog diags Inst E E Proc 111:1641-52 O '64

Quotients of context-free languages. S. Ginsburg and E. H. Spanier. bibliog Assn for Computing Mach J 10:487-92 O '63

Sequential switching logic. M. D. Wilt. diags Electro-Tech 72:50-4 D '63

Solid statement of the control facts; Morgan the logical. E. L. Rudisill diags Product Eng 35:114-21 Je 22 '64

Square-loop ferrites for logic application. D. L. Fresh and R. G. West. bibliog Am Cer Soc J 47:395-7 Ag '64

Survey of digital-logic training devices. S. B. Gray. il Electronics 37:71-83 Ag 24 '64

Trends in logic circuit design. A. Lambert. bibliog il diags Electronics 36:38-45 D 6 '63

Truth table logic speeds binary-coded-decimal, binary conversions. D. Cohen. diags Control Eng 11:78-81 Mr '64

Use of threshold logic in character recognition. S. B. Akers, jr. and B. H. Rutter. bibliog il diags IEEE Proc 52:931-8 Ag '64

Why multiaperture core logic? W. B. Buehrle. diags Power Eng 68:T27 Mr '64

See also

Algebra, Boolean

LOGISTICS

Moving up to logistic flexibility. E. W. Sawyer. il Automotive Ind 129:43-5 D 1 '63

Planning by resource allocation methods; illustrated by military applications. J. L. Taylor and J. E. Walsh. Op Res 12:693-706 S '64

Queuing approach to logistics systems. N. M. Mirasol. bibliog diags Op Res 12:707-24 S '64

Role of the GEM in amphibious support operations. P. G. Fielding. diags Naval Eng J 76:117-29 F '64

True story of the Big Lift. H. W. Barclay. il map Automotive Ind 129:19-26 D 1 '63

LOGS

Long log chipping operations. E. K. Murphy. il Tappi 47:sup 170A-2A Je '64

Nomograph for weights of pulpwood logs. D. S. Davis. Paper Ind 45:662 Mr '64

LONDON

Study the behaviour of bored piles in London clay. Engineering 197:428 Mr 20 '64

See also

Airports—London

Electricity supply—London

Bridges

Better approaches for bridge. plan Engineering 196:822 D 27 '63

Office buildings planned for Thames River bridge. il Eng N 171:135 D 19 '63

Rapid transit

Buses for London Transport. plan diag Engineer 218:64 Jl 10 '64

London girds for traffic surge. Eng N 173: 84-5 O 8 '64

Travel in London. Engineer 218:180 Jl 31 '64

Sewerage

Century old site has new plant. il Eng N 173:50 Ag 20 '64

London county council's Southern outfall works at Crossness; illustrations with text. Engineer 217:93 Ja 10 '64

More automatic sewage pumps. il diag Engineering 197:292 F 21 '64

New works help to keep Thames clean. il Engineering 197:874 Je 26 '64

Sewer overflowing will cost £2½ million to cure. plan Engineering 196:741 D 13 '63

Streets

Comparison of cars and buses in urban areas. R. J. Smeed and J. G. Wardrop. Engineer 217:124-5 Ja 17 '64; Discussion. 217:166 Ja 24 '64

Replanning Piccadilly Circus; abstract. C. Buchanan. Engineer 217:77 Ja 10 '64

Transportation engineering group of the Institution of civil engineers meeting, April 23. Engineer 217:861 My 15 '64

Subways

Auxiliary equipment of electric trains. Engineer 217:351-2 F 21 '64

Gravel fouls London subway job. Eng N 173: 24 O 22 '64

Progress of the Victoria line. Engineer 217: 780 My 1 '64

Victoria subway sparks new tunnel making methods. il plan Eng N 172:26-9 Ap 30 '64

LONDON—*Continued*

Water supply

Re-modelled pumping stations at Staines and Walton. il Engineer 218:543-4 O 2 '64

Reservoirs for the Metropolitan water board. Engineer 217:441, 482 Mr 6-13 '64

LONG distance telephone. See Telephones—Long distance

LONG ISLAND, New York

See also
Architecture, Domestic—Long Island, New York

LONGEVITY

See also
Mortality

LONGIFOLENE

Total synthesis of longifolene. E. J. Corey and others. bibliog Am Chem Soc J 86: 478-85 F 5 '64

LONGWALL stoping. See Coal mines and mining—Longwall system

LOOMS

Automatic protection for textile looms. V. F. Sepavich. il diag Electro-Tech 73:110+ F '64

Biggest loom you ever saw. A. Zimmerman. il Textile World 114:70-1 Ag '64

Giant loom weaves metal structures for space. il Machine Design 36:10 Je 18 '64

Happy weaving song; worlds' largest battery of draper shutteless looms at Cannon mills. il Textile Ind 128:134-5+ S '64

Lanett gets gold-plated loom winder. il Mod Textiles Mag 45:43 Je '64

Nadeau's portable hand loom. il Mod Textiles Mag 45:27 Ag '64

New looms add versatility and speed in weaving fancy fabrics at Schwarzenbach Huber co. il Textile World 114:48-50 F '64

Stop motion for loom cloth roll lap-up. diags Textile Ind 127:133+ D '63

Weaveroom quality control today; installing new equipment at Bemis bro. bag co. R. B. Pressley. il Textile World 113:51-3 D '63

Weaving. il Textile Ind 127:71-3 D '63

LORAN system

Digital Loran-C receiver uses microcircuits. R. L. Frank and A. H. Phillips. il diags Electronics 37:23-7 Ja 31 '64

Spotting the big ones with Loran-C. W. N. Dean. il Product Eng 34:79 N 11 '63

Third generation Loran. il map Naval Eng J 76:296-8 Ap '64

LORENTZ contraction. See Fitzgerald-Lorentz contraction

LORENTZ transformation

Decomposition of the Lorentz transformation. W. R. Davis and others. Am J Phys 32:167-9 F '64

Derivation of the Lorentz-transformation equations without a linearity assumption. R. Weinstock. bibliog Am J Phys 32:260-4 Ap '64

Geometric representations of the Lorentz transformation. R. W. Brehme. diags Am J Phys 32:233 Mr '64

Lorentz transformation in the undergraduate curriculum. J. E. Romain. Am J Phys 31: 870-1 N '63

Relation between generalized Foldy-Wouthuysen and Lorentz transformations. J. Sesma and others. bibliog Am J Phys 32:559-62 Jl '64

LOS ANGELES

Air pollution

Control of air pollution. A. J. Haagen-Smit. il map diags Sci Am 210:24-31 Ja '64

Los Angeles air pollution and respiratory disease. T. Oelsner and others. Archives Environmental Health 8:182-3; Discussion. 188-9 Ja '64

Architecture

Balconies organized as facade pattern; Sunset Heights. il plan Arch Rec 136:114-15 Ag '64

Harbor

Los Angeles plans to lease harbor. C. J. Lawrence. map Oil & Gas J 61:123 D 9 '63

Health, Department of

Health department role in the reservoir failure. C. L. Senn. il Pub Works 95:116-17 Ap '64

Metropolitan district

Truck travel in the metropolitan area. L. A. Hoel. Traffic Q 18:535-53 O '64

Public health

Tuberculosis contact follow-up in the Los Angeles city health department. J. B. Swayne and L. Tepper. Am J Pub Health 54:1270-81 Ag '64

Sewerage

Aftermath of an emergency; restoration of sewer service. N. B. Hume. il Pub Works 95:106-7 My '64

Pollution study of a future tidal estuary; Dominguez Channel, Los Angeles. C. A. Rambow. bibliog map diag WPCF J 36: 520-8 Ap '64

Settling tank maintenance at Hyperion. G. W. Thwaytes. WPCF J 34:1235-43; 35: 1486-8 D '62, N '63

Streets

More freeways for a freeway town. il map Eng N 172:58-60+ F 13 '64

Water supply

Recharge wells keep salt water out of underground reservoir. il map Eng N 172:32-4 Je 4 '64

LOS ANGELES COUNTY, California

See also
Sewerage—Los Angeles County, California

LOST wax process

Better investment castings. J. Hockin. il Machine Design 36:162-3 O 8 '64

Castability ratings for investment-casting alloys; reference book sheets. K. G. Boynton. diags Am Mach 108:95+ Jl 20 '64

Castings as art. A. Duca. il Materials in Design Eng 58:85-7 D '63

Control is key to investment casting quality. C. Porter and J. Hockin. il Foundry 91:48-53 D '63

Die casting and precision metal moulding exhibition, London, Jan. 20-23. Engineering 197:74 Ja 17 '64

Electric-discharge machining outdoes a cat's whisker. J. H. Cadieux and J. Frei. il Iron Age 194:56-7 Ag 20 '64

Evaluating investment castings of maraging steel. R. J. Wilcox. il Metal Prog 85:87-90 Ja '64

Hitchiner casts copper high in conductivity. il Steel 154:68 Ap 27 '64

Investment casting cuts cost of intricate magnesium parts 75 per cent. il Mod Metals 20:70 My '64

Investment casting; new techniques widen its scope. E. C. Chapman. il Tool & Manuf Eng 51:101-4 N '63

Investment casting proves best for magnet arms. il Mod Metals 20:84 S '64

Planar process; improved investment casting. il Light Metal Age 22:9 F '64

Plaster or investment casting; when to use each method? G. H. Binns. il Iron Age 193: 68-70 Je 4 '64

Polystyrene patterns for investment casting. H. Hamel. il Plastics World 22:42-3 S '64

Restoring carbon in investment castings of steel. J. Hockin. il Metal Prog 85:79-82 Ap '64

LOUD speaking apparatus

Basic course in commercial sound. N. H. Crowhurst. diags Audio 48:33-6 Ap; 41-4 My; 33-6 Je; 28-31+ Jl; 19-22+ Ag; 35-7 S; 75-8 O; 43-4+ N '64

Class-D for efficiency. P. A. Stark. il diags Audio 48:23-7+ Je; 24-7+ Jl; 23-7+ Ag '64

Column speakers solve public address problems. G. A. Briggs. il diags Radio-Electronics 35:28-31 My '64

Dynamic limiting with a photoresistor. diag Radio-Electronics 35:57 S '64

Equipment profile. Published in monthly numbers of Audio

Fisher XP-10 consolette speaker system. il Audio 48:54+ Mr '64

Freedom of speech, sound trucks and the constitution. A. W. Gray. Audio 48:32+ Ap '64

Fm stereo tuner and a speaker system. J. Marshall. il Radio-Electronics 35:60+ F '64

Hook up your recorder to an external speaker system for instant better sound. H. A. Manooglan. Mod Phot 28:54+ My '64

Intermodulation distortion: pros, cons, and hows. M. Horowitz. diags Audio 48:38+ Ja '64

Loudspeaker for silent world. il Electronics 37:45-6 Ja 24 '64

Loudspeaker polarity. A. M. Wooller and others. Wireless World 70:297 Je '64; Discussion. 70:399-400, 523-4 Ag, O '64

Master of ceremonies public address. L. A. Wortman. il diags Radio-Electronics 35:26-7 F '64

New products. Published in monthly numbers of Audio

New triode amplifier. R. M. Voss and R. Ellis. il diags Audio 48:22-3+ Jl '64

N.Y. world's fair street lighting piped for hi-fi sound system. il Elec World 160:20-1 D 23 '63

LOUD speaking apparatus—*Continued*

Open baffle parallel-series array. R. S. Oakley, jr. diags Audio 47:30+ D '63

Product preview section; loudspeaker mechanisms. il Audio 48:45-8+ Ag '64

Quiet, please; transistor preamp. D. V. R. Drenner. il diags Radio-Electronics 35:30-1 Mr '64

Single-ended wide-range electrostatic tweeters with high efficiency and improved dynamic range. K. O. Johnson. il diags Audio Eng Soc J 12:204-9 Jl '64

Speakers; subsonic rumbles. E. T. Canby. Audio 48:10+ F '64

Take-along transistor amplifier. il diag Radio-Electronics 35:32-4 Ap '64

Telstar-shaped electrostatic speaker. R. J. Matthys. bibliog il diags Audio 48:19-24 My; 28-30+ Je '64

Ton-and-a-quarter of sound. W. Wysoczanski. il(cover) diags Audio 48:19-23+ Ja '64

Transient performance of loudspeaker dividing networks. R. M. Mitchell. diags Audio 48:24+ Ja '64

Trends in loudspeaker magnet structures. R. J. Parker. diags Audio Eng Soc J 12:236-9 Jl '64

Unitized stereophonic loudspeaker with acoustically augmented separation of the sound sources. H. F. Olson. diags Audio Eng Soc J 12:40-4 Ja '64

University Tri-Planar speaker system. N. Crowhurst. il diag Radio-Electronics 35:60+ O '64

Cabinets

Auditioneer. J. Whitacre. il diags Audio 47:24+ D '63

Corner speaker fits your home. G. A. Briggs. il diags Radio-Electronics 34:58-60 D '63

Design your own speaker enclosure. G. L. Augspurger. il diags Radio-Electronics 35:44-7 Ag '64

Electro-voice speaker system, model six. il Audio 48:42+ Ap '64

Engineer looks at exponential horns. W. A. Dodge. diags Audio 48:30+ N '64

Control

Automatic speaker connector. R. L. Ives. diags Audio 48:19-21 S '64

Design

Central-versus-distributed loudspeaker systems. D. L. Klepper. diags Audio 48:19-22+ Je '64

Interrelation of speaker and amplifier design. V. Brochiner and D. R. von Recklinghausen. diags Audio Eng Soc J 12:124-8 Ap '64

Power supply

Automatic speaker connector. R. L. Ives. diags Audio 48:19-21 S '64

LOUISIANA

See also subdivision Louisiana under special subjects, e.g.
Architecture, Domestic
Bridges
Electric utilities
Gas, Natural
Gas, Natural—Pipe lines
Geology
Hydroelectric plants
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Petroleum pipe lines
Waterways

LOUISVILLE, Kentucky

Sewerage

Louisville launches sewerage plan. map Eng N 173:36 S 24 '64

LOUNGES (rooms)

Dramatics with simple sources. il Illum Eng 59:433-5 Je '64

LOUVERS

Sun louvers cut 20 tons of air conditioning load. J. Molnar. il diags Heating-Piping 36:109-12 F '64

Tropical climate control techniques. B. Polk. il plan diags Arch Rec 135:208-10 Ap '64

LOW temperature. See Temperature, Low

LUBRICATING greases

Crystallization theory applied to greases. J. Panzer. Chem & Eng N 42:56+ Ap 20 '64

Grease lubricants and their potential in aerospace applications. H. Schwenker. bibliog Lub Eng 20:260-4 Jl '64

Inorganic thickened greases in the steel industry. A. G. Brewer and P. C. Jarvis. il Iron & Steel Eng 41:144-9 Mr '64

Oversize drums; broaden bulk grease handling. D. W. Twomey. il diag Iron & Steel Eng 41:105-8 Je '64

Submicron size boron nitride as a grease thickener. R. D. Allen and others. il diag Lub Eng 20:339-44 S '64

Analysis

X-ray analyses of fuels and lubricants. R. F. Haycock. il Engineer 218:179 Jl 31 '64

Manufacture

Grease manufacturing; Stratford engineering corp. flow diag Hydrocarbon Process & Pet Refiner 43:229 S '64

Testing

Transformations in solid lubricants effected by shear, pressure and temperature. E. N. Klemgard. bibliog Lub Eng 20:184-8 My '64

LUBRICATING oils

Development of marine Diesel cylinder lubricants. H. Pouderoyen and others. diags Naval Eng J 75:977-83 D '63

Gasoline, Diesel-engine lubes. Oil & Gas J 61:141 D 2 '63

How to use silicones for lube oil antifoams; abstract. R. W. Awe. S A E J 72:110 Ja '64

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49:353-8 Je '62, N '63

Large internal combustion engine lubricating oil. W. T. Dupler. il Power 108:55-7 Jl; 68-70 Ag '64

Lifetime motor oil? not yet. Oil & Gas J 62:79 My 18 '64

Long-life lubes are big help in positive-crankcase-ventilation systems. Oil & Gas J 62:52-3 S 28 '64

Motor oil packages. il Plastics World 22:9 Ag '64

Motorists not sold on long-life oils. Oil & Gas J 62:44-6 F 3 '64

New synthetic oils stand tougher service. Oil & Gas J 62:138 O 5 '64

Polymeric thickeners are o.k. in aircraft piston-engine oils. C. K. Bransford and H. A. Poitz. S A E J 72:84 Ap '64

Viscosity-temperature-pressure relationship of lubricating oils and its correlation with chemical constitution. C. J. A. Roelands and others. bibliog A S M E Trans ser D 85:601-7; Discussion. 607-8; Reply. 608-10 D '63

What's ahead for 5W-30? D. H. Stormont. Oil & Gas J 62:95-6 F 3 '64

Analysis

Automatic Dumas nitrogen analyses of lubricating oils and additives. L. L. Farley and others. Anal Chem 36:1061-3 My '64

Computer routines for neutron activation analysis of lubricating oils. D. E. Hull and J. T. Gilmore. bibliog Anal Chem 36:2072-7 O '64

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

Distillation of lubricating oils using a single-stage centrifugal molecular still. W. L. Thomas. bibliog Anal Chem 36:1047-54; Discussion. 1151-2 My '64

On-the-spot lubricant analyses. il Pet Management 36:136+ S '64

System contamination and cleanup. E. F. Wojtkowski. il ASHRAE J 6:49-52 Je '64

X-ray analyses of fuels and lubricants. R. F. Haycock. il Engineer 218:179 Jl 31 '64

Blending

Air-blending quality oils. R. L. Moxey. il Comp Air Mag 69:8-10 O '64

Graph estimates physical properties of lubricating oil blends. L. W. Okon. diags S A E J 72:94-7 Ja '64

Manufacture

Continuous contact filtration; Filtrol corp. flow diag Hydrocarbon Process & Pet Refiner 43:201 S '64

Duo-Sol; Milwhite co. flow diag Hydrocarbon Process & Pet Refiner 43:215 S '64

Easy way to characterize lube stocks. R. A. Woodle. Hydrocarbon Process & Pet Refiner 43:149-52 Ag '64

Electrical distillate treating; Howe-Baker engineers, inc. flow diag Hydrocarbon Process & Pet Refiner 43:205 S '64

Ferrofining; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:187 S '64

Furfural refining; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:217 S '64

LUBRICATING oils—Manufacture—*Continued*

German unit gives dewaxing data. N. Schneider. il diag Hydrocarbon Process & Pet Refiner 42:104-6 D '63
Gulfinishing; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:190 S '64
Percolation filtration; Minerals & chemicals Philipp corp. flow diag Hydrocarbon Process & Pet Refiner 43:212 S '64
Phenol extraction; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:218 S '64
Propane dewaxing; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:220 S '64
Propane extraction; Foster Wheeler corp. flow diag Hydrocarbon Process & Pet Refiner 43:221 S '64
Solvent dewaxing; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:223 S '64
Thermofor continuous percolation; Socony mobil oil co. flow diag Hydrocarbon Process & Pet Refiner 43:214 S '64

Testing

Army compatibility tests important in selecting best type of lubricant. il Automotive Ind 130:307-8+ Mr 15 '64
Ashless detergent oils give year's service without drain. Oil & Gas J 62:87-8 Je 1 '64
Careful lubricating oil maintenance boosts performance of large internal combustion engines. W. T. Dupler. il Power 108:68-70 Ag '64
High temperature oil evaluation in full-scale bearing fatigue tests. J. H. Gustafson. diag Lub Eng 20:65-8 F '64
Laboratory engine testing of marine Diesel cylinder lubricants. A. J. S. Baker and R. T. Davies. il diags Inst Pet J 50:83-91; Discussion. 92-5 Ap '64
Machine tests oils for roller bearings. il Engineering 197:813 Je 12 '64
New tests evaluate modern lubricating oils. C. A. Dalton and D. D. Schnack. il Plant Eng 18:106-10 My '64
Oxidation stability of steam turbine oils. A. C. M. Wilson. diag Inst Pet J 50:47-57 F '64
Progress report on vehicle tests to determine the effect on both engine and crankcase oil of extending oil drain periods. J. Heritage and C. D. Brewer. il diag Inst Pet J 49:371-82 D '63
Spectrophotometric method for studying the oxidation of lubricating oils. J. R. Barceló and C. Otero. Inst Pet J 50:15-21 Ja '64

Viscosity index

At last! a viscosity system for industrial lubricants. J. Boyd. diags Lub Eng 20:142-4 Ap '64
Effect of lubricant viscosity on rear axle gear and pinion bearing operation. R. McClintock and R. E. Osborne. il diag Lub Eng 20:387-92 O '64
Engine-cranking viscosity of lubes. H. V. Lowther and G. H. Shea. bibliog Oil & Gas J 62:77-8+ Mr 30 '64
Hydrotreating to produce high viscosity index lubricating oils. H. Beuther and others. bibliog flow diag Ind & Eng Chem Product Res & Develop 3:174-80 S '64
New viscosity system for industrial fluid lubricants. Plant Eng 18:141-2 Je '64
Trends in liquid lubricants. E. E. Klaus. bibliog Mech Eng 85:42-5 O '63; Same. Naval Eng J 76:701-5 O '64

LUBRICATION and lubricants

Adherent dry-film lubricant coatings; preparation, application and testing. T. C. Henderson. Metal Finishing 62:74-5 O '64
Advanced lubricants and lubrication techniques. R. L. Adamczak and others. bibliog il diag Ind & Eng Chem 56:40-7 Ja '64
American standard letter symbols for lubrication problems. Lub Eng 19:445-6 N '63
Approximate methods for time-dependent gas-film lubrication problems. W. A. Michael. bibliog A S M E Trans ser E 30:509-17 D '63
Aromatic polyimide compositions for solid lubrication. bibliog il diags Lub Eng 20: 225-30 Je '64
Beneficial wear; tests of polyphenyl ether as lubricant. Product Eng 34:48 N 25 '63
Dry fluorocarbon requires no added resin as a bonding agent. Product Eng 35:49 Ja 20 '64
Friction and wear characteristics of dry lubricants; data sheet. P. H. Bowen. Machine Design 35:195-9 N 7 '63
How to lubricate single seals. diag Oil & Gas J 61:160 N 11 '63
Is contract lubrication practical? Plant Eng 18:114-17 Je '64
Lube survey racks up big savings. il Rock Prod 67:86+ O '64
Lubricant brightens up finishes; Cindol. Iron Age 194:60-1 S 3 '64
Lubricant/coating for high temperature use. Materials in Design Eng 60:128+ N '64
Lubricants for aluminum cut friction, stop galling. Materials in Design Eng 60:130+ N '64
Lubricants; water does the trick. il diag Product Eng 35:34 Mr 2 '64
Lubrication; management's problem. il Steel 154:80-4 My 25 '64
Lubrication of air brake equipment on railroad freight cars. J. B. Driver. bibliog il diags Lub Eng 20:16-24 Ja '64
Magnetohydrodynamics as high temperature lubricant. diag Product Eng 35:55-6 Ap 13 '64
Maintenance of gear-type couplings. T. W. Chase and J. J. Kimmel. il diags Iron & Steel Eng 41:72-80; Discussion. 80-4 O '64
Mechanism of the vapor lubrication of graphite. P. Cannon. bibliog J Ap Phys 35: 2928-9 O '64
Molybdenum disulfide: modern lubricant for modern ships. il Marine Eng/Log 69:90 Ag '64
Mould lubrication and continuous casting. Engineering 197:91 Ja 17 '64
Multifunctional friction-modifying agents. D. W. Dinsmore and A. H. Smith. diags Lub Eng 20:352-7 S '64
New lubricants. R. L. Adamczak and others. diags Space/Aeronautics 41:104-8 Je '64
New methods devised to evaluate effectiveness of boundary lubricants; abstract. E. Rabinowicz and R. G. Foster. S A E J 72: 89 F '64
New synthetics have jet lube properties. P. M. Kerschner. il Chem & Eng N 42:80 S 14 '64
Powder metal + solid lubrication = a new bearing material. J. W. Van Wyk. il Metal Prog 86:101-3 S '64
Role of atmospheric components in friction and boundary lubrication. W. E. Campbell. Machine Design 36:186+ Ag 27 '64
Seven steps lead to efficient plant lubrication. B. Carson. Plant Eng 18:118-20 S '64
Severe operating conditions and their effect on lubricants. S. L. McDoniel. WPCF J 35: 1474-9 N '63
Solid lubricants; wide industry use on way. V. Hopkins. Steel 155:95 Ag 10 '64
Solving lubrication problems at a sewage treatment plant. il Pub Works 95:103-4 Jl '64
Tin plating wins a fresh outlet in oil. il Chem Eng 70:96+ D 9 '63
Trends in liquid lubricants. E. E. Klaus. bibliog Mech Eng 85:42-5 O '63; Same. Naval Eng J 76:701-5 O '64
Wear considerations in design; surface films, lubricants, abrasion. C. Lipson. bibliog Machine Design 35:177-85 N 7 '63
What automated diecasting involves in the machine, the die, die lubrication. J. J. Kux and others. il Foundry 92:130-2+ N '64
What's new in plant lubrication. R. L. Hatschek. il Mill & Factory 74:83-6 Ja '64
When planning a plant lubrication program, keep it simple for best results. R. E. Marks. il Plant Eng 18:125-7 Ja '64

See also
Friction
Graphite
Lubricating greases
Molybdenum sulfides
Oil films
Oil mists
Oil reclamation
Oil seals
also subdivision Lubrication under special subjects, e.g.
Air compressors
Airplane engines
Automobile engines
Automobiles
Bearings
Bearings, Ball
Bearings, Roller
Compressors
Construction equipment
Diesel engines
Gas engines
Gearing
Internal combustion engines
Knitting machines
Machine tools
Mining machinery
Motor truck engines
Motor trucks

LUBRICATION and lubricants—See also—*Cont.*
Pumps, Centrifugal
Pumps, Feed water
Refrigeration and refrigerating machinery
Rolling mills
Steam turbines
Wire rope

Bibliography

Lubrication abstracts. R. A. Burton, ed. Lub Eng 20:69, 106-7, 157-8, 201-2, 240-1, 317-18, 393-4 F-Je, Ag, O '64

Lubrication review; developments in bearings and lubricants; digest of literature, 1961-1962. R. P. Shevchenko and G. S. Reichenbach, eds. A S M E Trans ser D 86:367-86 bibliog(p380-6) Je '64

Patents

Patent abstracts. A. Burchick, comp. Lub Eng 20:109, 394 Mr, O '64

Specifications

Specifications for metal working lubricants. M. Petronio. il Mag of Stand 35:295-8 O '64

Standards

At last! a viscosity system for industrial lubricants. J. Boyd. diags Lub Eng 20:142-4 Ap '64

Standard code for lubrication symbols. Engineer 217:872 My 15 '64

Testing

Critical aspects in bearing fatigue testing. J. F. Moult. Lub Eng 19:503-9; Discussion. 509-11 D '63

Determination of molybdenum and sulfur in solid lubricants. I. L. Kalnin. bibliog Anal Chem 36:886-8 Ap '64

Effect of conventional lubricants upon resin-bonded solid film lubricants. R. L. Young. Lub Eng 20:222-4 Je '64

Elastohydrodynamics in lubricant testing. diags Engineering 197:334 F 28 '64

Friction variation of PTFE and MoS_2 during thermal vacuum exposure. W. D. Craig, jr. bibliog il diags Lub Eng 20:273-6; Discussion. 276-7 Jl '64

Investigation of binders for solid lubricants at elevated temperatures. B. C. Stupp and J. W. Wright. il Lub Eng 19:463-8; Discussion. 469 N '63

New approach to realistic wear testing. R. M. Voitik. il diags Lub Eng 19:490-4 D '63

Precise measurement and prediction of bulk-modulus values for fluids and lubricants. E. E. Klaus and J. A. O'Brien. bibliog A S M E Trans ser D 86:469-74 S '64

Review of techniques for investigation of friction and wear in aerospace ball and roller bearings. L. C. Lipp and E. N. Klemgard. bibliog il Lub Eng 19:495-502 D '63

Transition temperatures in the four-ball wear tester. V. Hopkins and D. R. Wilson. bibliog diags Lub Eng 20:305-9; Discussion. 309-10 Ag '64

LUBRICATION and lubricants (cutting and grinding)

Boeing mills titanium at 500 sfpm. il Steel 154:63-4 Je 22 '64

Cutting fluids. C. A. Sluhan. il diag Metal Prog 85:166-8+ My '64

Dry ice speeds milling cuts. il Iron Age 192:84 N 28 '63

Gravity works when the chips are down. R. H. Eshelman. il Iron Age 194:137 S 24 '64

Grinding coolant sheds waste. il diag Iron Age 193:95-6 Ja 30 '64

High-pressure MEGAflo coolant system for gun drilling. il Mach 70:163 Je '64

Metallic lubricant aids cutting. il Iron Age 194:63 Jl 2 '64

Metals lose drag with new oil. il Iron Age 194:62-3 Ag 20 '64

New abrasive technique cuts production barrier. R. H. Eshelman. il Iron Age 194:52 O 22 '64

Production man's guide to cutting fluids. J. J. Dwyer, jr. diags Am Mach 108:105-20 Mr 16 '64 (reprints 50c)

Review of metal processing literature, 1962; metalworking fluids. bibliog A S M E Trans ser B 86:65-7 F '64

Cleaning

Eliminate sludge, not profits. il diag Mach 70:134-5 My '64

Gravity reclaims coolant, aids sludge removal. flow diag il Plant Eng 18:111-12 F '64

Magnetic separator reduces coolant problems. il Safety Maint 128:49 Jl '64

One gallon of soluble oil does the work of two. L. W. Collins, jr. il Mach 71:118-21 S '64

LUBRICATION and lubricants (metal drawing)

Experimental evaluations of cold rolling lubricants for strip steel. R. C. Williams and R. K. Brandt. il diag Lub Eng 20:52-6 F '64

Hard alloys drawn without scoring. il Iron Age 193:130 F 20 '64

Importance of drawing and fracture loads in the Swift cup drawing test; abstract. R. D. Butler and others. Metal Prog 85:138+ Je '64

Laboratory evaluation of solid fluorocarbon materials as wire drawing lubricants. A. F. Gerds and C. B. Ogle. il Wire & Wire Prod 38:1696-700 N '63

Lubrication tips for better drawing. J. E. White. il Steel 155:45-7 Jl 6 '64

Use of organic polymers as lubricants in deep-drawing; abstract. D. R. Mear and others. Metal Prog 85:178+ Je '64

LUBRICATION and lubricants (sheet metal work)

Coolant debris goes into tailspin. il Iron Age 194:136-7 O 29 '64

Experimental evaluations of cold rolling lubricants for strip steel. R. C. Williams and R. K. Brandt. il diag Lub Eng 20:52-6 F '64

Fighting friction's drag on motion. J. J. Obrzut. il Iron Age 193:133-4+ My 21 '64

Laboratory evaluation of lubricants used in the cold rolling of steel strip. S. N. Vojnovic and others. bibliog il diags Iron & Steel Eng 41:95-100; Discussion. 100-1 My '64

New lubricants solve aluminum fabrication problems; Cindol. il Mod Metals 20:32+ S '64

Process for the reclamation of cold strip mill rolling oils for reuse. B. W. Funk and R. C. Allen. bibliog Iron & Steel Eng 41: 87-91; Discussion. il 91-3 F '64

Size and speed effects from lubricant breakdown in plastic compression. G. W. Pearsall and W. A. Backofen. bibliog il A S M E Trans ser B 85:329-34 N '63

Specifications for metal working lubricants. M. Petronio. il Mag of Stand 35:295-8 O '64

LUBRICATION and lubricants (textile fibers). See Textile oils

LUBRICATION engineers, American society of. See American society of lubrication engineers

LUBRICATION research

Developments in elasto-hydrodynamic lubrication. A. W. Crook. bibliog il diags Inst Pet J 49:295-304; Discussion. 304-7 O '63

New laboratories for lubricants. il Engineer 218:185 Jl 31 '64

LUBRICATORS

Air lubricators; fluid power component selection charts. Hydraulics & Pneumatics 17:78 Ja '64

Air/Oil valve monitors lube oil flow. il diags Hydraulics & Pneumatics 17:18 Ap '64

Automatic lubrication system. il Engineer 218:192 Jl 31 '64

Centralized lubrication systems. J. J. Huey. il Min Cong J 50:36-8 Ja '64

Heavy duty telelube lubricator. il Engineering 198:104 Jl 24 '64

Lubricating the tough jobs. il diag Hydraulics & Pneumatics 17:16 Ap '64

Mileage controlled chassis lubricator. il diag Engineering 197:864 Je 26 '64

Monitored centralized system eliminates by chance lubrication. J. J. Callahan. il diags Plant Eng 18:141-5 O '64

Telelube HD lubrication. diags Automobile Eng 54:385 S '64

What's new in plant lubrication. R. L. Hatschek. il Mill & Factory 74:83-6 Ja '64

LUGGAGE

Electrostatic finishing at Samsonite plant. D. Sandburg. il Ind Finishing 40:46-8+ O '64

LUMBER

See also
Lumbering

Standards

Commerce rejects softwood revision. Eng N 173:62 Ag 6 '64

Feuds stall new lumber standards. Eng N 172:19-20 F 20 '64

Lumber-size vote. Eng N 173:28 Jl 9 '64

Lumber standard mired deeper. Eng N 173:29 S 10 '64

Mechanical fasteners in the National design specification. J. G. Shope. Wire & Wire Prod 39:891-3+ Je '64

Transportation

Lumber ship Tiha. P. C. Dahan. il plans diag Marine Eng/Log 69:33-9 Ja '64

LUMBER handling

Convertible loads pay off. il Mod Materials Handling 19:65 O '64

Handling system sorts sawed lumber. il diags Automation 11:58 Ja '64

Loader handles lumber, moves cars, too. il Mod Materials Handling 19:53 Ag '64

Operation skyhook, a new method of logging timber. il Paper Ind 46:579-80 O '64

Potential of increased pulpwood earnings through efficient use of equipment. T. Walbridge. bibliog diags Paper Ind 46:603-8 O '64

Vee-balloons for transporting logs over mountainous terrain. il Product Eng 35:57 O 12 '64

LUMBER mills

Equipment

Interconnected air cylinders cut lumber to size. N. B. Peterson. il diags Hydraulics & Pneumatics 17:62-3 Ag '64

Long log chipping operations. E. K. Murphy. il Tappi 47:sup 170A-2A Je '64

LUMBERING

Mechanised logging system. il Engineer 217: 631 Ap 3 '64

LUMINAIRES. See Lighting fixtures

LUMINANCE. See Luminosity

LUMINESCENCE

Antireflection films on GaAs electroluminescent diodes. O. A. Weinreich. bibliog diags Electrochem Soc J 110:1124-6 N '63

Application to thermoluminescence to geothermometry. R. A. MacDiarmid. bibliog Econ Geol 58:1218-28 D '63

Breakdown and hysteresis in forward biased p-n GaAs luminescent junctions. R. C. C. Leite and A. Yariv. IEEE Proc 52:191-2 F '64

Cadmium halophosphate phosphors. R. C. Ropp. Electrochem Soc J 111:1901-3 S '64

Carrier transport across electroluminescent *p-n* junctions in GaAs. J. I. Pankove. bibliog diag J Ap Phys 35:1890-2 Je '64

Cathodoluminescence of Mn^{2+}- and Fe^{3+}-activated magnesium aluminate spinel. F. A. Hummel and J. F. Sarver. Electrochem Soc J 111:252-3 F '64

Cathodoluminescence of ruby. A. K. Kamal and others. bibliog IEEE Proc 52:329 Mr '64

Chemiluminescence of luminol and related hydrazides; the light emission step. E. H. White and M. M. Bursey. bibliog Am Chem Soc J 86:941-2 Mr 5 '64

Chemiluminescence of luminol; the chemical reaction. E. H. White and others. bibliog Am Chem Soc J 86:940-1 Mr 5 '64

Common occurrence of artifacts or ghost peaks in semiconductor injection electroluminescence spectra. W. N. Carr and J. R. Biard. bibliog diag J Ap Phys 35:2776-7 S '64

Copper-activated alkaline-earth phosphate phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:538-41 My '64

Copper-activated thorium phosphate phosphors. W. F. Schmid and R. W. Mooney. bibliog Electrochem Soc J 111:668-73 Je '64

Correction of luminescence spectra and calculation of quantum efficiencies using computer techniques. H. V. Drushel and others. bibliog Anal Chem 35:2166-72 D '63

Direct determination of inhibitors in polymers by luminescence techniques. H. V. Drushel and A. L. Sommers. bibliog Anal Chem 36:836-40 Ap '64

Effects of quenching on the structural, photo, and electroluminescent properties of ZnS: Cu phosphors. M. J. Presland and others. bibliog Electrochem Soc J 111:168-74 F '64

Efficiency measurements on GaAs electroluminescent diodes. S. V. Galginaitis. bibliog diag J Ap Phys 35:295-8 F '64

Electroluminescence; appraisal of its short-term potential. K. H. Weber. bibliog diags Illum Eng 59:329-36 My '64

Electroluminescence in oxide phosphors. S. Jones. bibliog Electrochem Soc J 111:307-11 Mr '64

Electroluminescent gallium arsenide diodes with negative resistance. K. Weiser and R. S. Levitt. bibliog il diag J Ap Phys 35: 2431-8 Ag '64

Flexible light; called Panelescent Tape-Lite. il Plastics World 22:12 Je '64

Flexible light source developed by Sylvania. il Elec World 161:167+ My 18 '64

Fluorescent rare earths in semiconducting thiospinels. L. Suchow and N. R. Stemple. bibliog Electrochem Soc J 111:191-5 F '64

High-energy light emission from junctions in $GaAs_xP_{1-x}$ diodes. N. Ainslie and others. bibliog il J Ap Phys 35:105-7 Ja '64

Hot ideas for cold light; electroluminescent (EL) lamp. il diag Mill & Factory 75:80-1 S '64

Influence of copper on structural transformations in ZnS:Cu,Cl. J. Nickerson and others. bibliog Electrochem Soc J 110:1228-30 D '63

Injection electroluminescence in ZnS and ZnSe. M. Aven and D. A. Cusano. bibliog diags J Ap Phys 35:606-11 Mr '64

International conference on luminescence, Torun, Poland, Sept. 25. Phys Today 17:40-2 Je '64

Iron activated ZnS phosphors. P. M. Jaffe and E. Banks. bibliog il diags Electrochem Soc J 111:52-61 Ja '64

Kinetics of electroluminescent deterioration in some ZnS phosphors. L. A. Rogers. Electrochem Soc J 111:411-12 Ap '64

Light-emitting, formed-point-contact gallium arsenide and gallium arsenide-phosphide diodes. L. U. Kibler and others. IEEE Proc 52:850-1 Jl '64

Luminescence during the anodic oxidation of silicon. W. Waring and E. A. Benjamini. bibliog il Electrochem Soc J 111:1256-9 N '64

Luminescence of GaAs grown in oxygen. W. J. Turner and others. diag J Ap Phys 34:3274-6 N '63

Luminescent behavior of the rare earths in yttrium oxide and related hosts. K. A. Wickersheim and R. A. Lefever. bibliog diag Electrochem Soc J 111:47-51 Ja '64

Luminescent components induced in materials by 20-mev electrons. W. C. Dickinson and A. F. Lauzon. diag Nucleonics 21:60+ S '63

Luminescent disc warns of hauling hazards. il diag Elec World 160:138+ O 21 '63

Luminescent moon? Sci Am 210:56-7 Mr '64

Method of mounting powdered phosphors for low temperature optical studies. D. I. Promish. R Sci Instr 35:1356 O '64

New chemiluminescent reaction is general. E. A. Chandross and F. I. Sonntag. il Chem & Eng N 42:32+ Ag 31 '64

New mercury-hydrogen lamp developed. J. T. D'Alessio and others. il Chem & Eng N 42:35-6 Ag 10 '64

Normalization of the thermoluminescence data. W. L. Medlin. bibliog Am Mineralogist 49:53-60 Ja '64

Novel chemiluminescent electron-transfer reaction. E. A. Chandross and F. I. Sonntag. bibliog Am Chem Soc J 86:3179-80 Ag 5 '64

Optical coupling; optoelectronic switch. Electronics 37:23-4 Je 1 '64

Optical generation spectrum for the electron thermal-injection mechanism in GaAs diodes. W. N. Carr and J. R. Biard. bibliog J Ap Phys 35:2777-9 S '64

Phase equilibria and manganese-activated luminescence in portions of the system $Zn(PO_3)_2$-$Cd(PO_3)_2$-$Mg(PO_3)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111: 660-5 Je '64

Phase equilibria and manganese-activated luminescence in the system $Zn_3(PO_4)_2$-$Cd_3(PO_4)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 110:1218-23 D '63

Phase equilibria and manganese-activated luminescence in the systems CdO-P_2O_5 and $Zn_2P_2O_7$-$Cd_2P_2O_7$; summary for the system ZnO-CdO-P_2O_5. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64

Photoluminescence and polytypism in boron doped silicon carbide. A. Addamiano. Electrochem Soc J 111:1294 N '64

Quantum efficiency of a new GaAs spontaneous infrared source. W. N. Carr and G. E. Pittman. diag IEEE Proc 52:204-5 F '64

Quantum efficiency of the green and red electroluminescence of GaP. A. Pfahnl. bibliog il Bell System Tech J 43:333-4 Ja '64

Role of calcium manganese orthophosphate in halophosphate phosphors. J. G. Rabatin and G. R. Gillooly. bibliog Electrochem Soc J 111:542-6 My '64

Ruby-laser-induced photocurrents and luminescence in ZnO. D. R. Hotchkiss. bibliog J Ap Phys 35:2455-7 Ag '64

Self-activated luminescence of M^{2+} niobates and tantalates. A. Wachtel. bibliog Electrochem Soc J 111:534-8 My '64

Separated rare earth finds commercial use. Chem & Eng N 42:67 N 9 '64

Shaped electroluminescent GaAs diodes. A. R. Franklin and R. Newman. bibliog diags J Ap Phys 35:1153-5 Ap '64

Short-term initial lumen depreciation in fluorescent lamps. L. E. Vrenken and others. bibliog diags Illum Eng 59:59-66 Ja '64

LUMINESCENCE—*Continued*
Simple experiment on electroluminescence. H. L. Armstrong and J. Hancock. Am J Phys 32:384-5 My '64
Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64
Studies concerning the piezoelectric control of an electroluminescent display. Y. Yamamoto and J. Frost. diags IEEE Proc 52: 77-8 Ja '64
Technique for examining the luminous activity of individual phosphor particles in a functioning electroluminescent lamp. J. I. Gedney. bibliog il diag Electrochem Soc J 111:1093-6 S '64
Thermal glow tests as a guide to ore deposits. G. Zeschke. bibliog diags Econ Geol 58:800-3 Ag '63; Discussion. D. J. McDougall. 59:326-7 Mr '64
Thin film tunnel luminescence. R. M. Hill. IEEE Proc 51:1664 N '63
Tube amplifies light 500,000 times. il diag Electronics 37:80+ Mr 13 '64
Use of electrochemiluminescence in the measurement of mass transfer rates. G. S. Springer. bibliog diags R Sci Instr 35:1277-80 O '64
Yellow and red emitting ZnS: Cu phosphors. M. J. Presland and others. Electrochem Soc J 111:628 My '64
See also
Fluorescence

LUMINOL
Chemiluminescence of luminol and related hydrazides; the light emission step. E. H. White and M. M. Bursey. bibliog Am Chem Soc J 86:941-2 Mr 5 '64
Chemiluminescence of luminol; the chemical reaction. E. H. White and others. bibliog Am Chem Soc J 86:940-1 Mr 5 '64

LUMINOSITY
Extinction of gas-shock luminosity against transparent surfaces. R. A. Plauson and H. D. Mallory. bibliog il diag J Ap Phys 35:502-7 Mr '64
Extraction of luminance from the SECAM composite signal. G. Melchior and J. P. Doury. diags Electronic Eng 36:464-5 Jl '64
Microwave absorption and density variation in moving striations. S. F. Paik and others. bibliog il diags J Ap Phys 35:2573-7 S '64
Moon's photometric properties matched by man-made material. W. I. Dobar. il Space/Aeronautics 42:76-7 Jl '64
Visibility of small luminance perturbations in television displays. G. F. Newell and W. K. E. Geddes. bibliog il Inst E E Proc 110:1979-84 N '63

LUNAR bases
Lockheed to study moon building. Eng N 173: 24 Ag 13 '64
Lunar bases. I. Stambler. il diags Space/Aeronautics 40:60-7 D '63
Rocket propellants from the moon. D. M. Cole and R. Segal. bibliog diags Astronautics & Aeronautics 2:56-60+ O '64
Toward a reusable earth-moon transportation system. H. H. Koelle and C. H. Rutland. bibliog diags Astronautics & Aeronautics 2:14-17 Ja '64

LUNAR flights. See Space flight—Lunar flights

LUNCHROOMS and cafeterias, Employees
Cafeteria designed with tomorrow in mind. il plan Plant Eng 18:140-2 S '64

LUNGS
Aging of the lung; perspectives; symposium abstracts. Archives Environmental Health 9:255-65 Ag '64
Biochemistry of lungs in relation to silicosis; effect of quartz dust on the protein amino acids of guinea pig lung tissue. P. Baily and others. bibliog Archives Environmental Health 8:547-54 Ap '64
Respiratory symptoms, lung function, and smoking habits in an adult population. M. Payne and M. Kjelsberg. bibliog Am J Pub Health 54:261-77 F '64
Spirometric measurements in welders. T. N. Hunnicutt, jr. and others. bibliog Archives Environmental Health 8:661-9 My '64
Statistical analysis of lung trace element levels. I. H. Tipton and J. J. Shafer. bibliog Archives Environmental Health 8:58-67; Discussion. 110-14 Ja '64

Diseases

Antibodies to lung in pulmonary disease of man. O. J. Balchum and J. Van Dyke. bibliog Archives Environmental Health 8: 139-42; Discussion. 147-52 Ja '64
Carbon as a carrier mechanism for irritant gases. H. G. Boren. bibliog il(p 115-16) Archives Environmental Health 8:119-24; Discussion. 129-31 Ja '64
Comparative pulmonary function studies; coal miner's silicosis vs nonsilicotic emphysema and fibrosis. H. L. Motley. bibliog Archives Environmental Health 8:850-65 Je '64
New tools for lung cancer; editorial. J. Wolf. bibliog Archives Environmental Health 9: 141-2 Ag '64
Sarcoidosis and other masqueraders. H. S. Van Ordstrand. il Ind Med 33:209-12 Ap '64
Silicosis and other industrial pulmonary diseases; McIntyre research foundation conference, 12th, Toronto. Ind Med 33:43-97 F '64
See also
Emphysema

Dust diseases

Biological action of beryllium; reaction of the monkey to inhaled aerosols. G. W. H. Schepers. bibliog il Ind Med 33:1-16 Ja '64
Cor pulmonale pathogenesis in coal workers in Wales. J. Gough. bibliog Archives Environmental Health 8:886-8 Je '64
Deposition and disposal of inhaled dust; influence of pre-existing pneumoconiosis. A. G. Heppleston. bibliog il Archives Environmental Health 7:548-55 N '63
Dust inhalation; influence on the bronchopulmonary system. G. Worth and others. bibliog Archives Environmental Health 7:556-67 N '63
Dust research in West Germany. T. S. Cochrane. il diags Can Min & Met Bul 57:719-28 bibliog(p727-8) Jl '64
Industrial pulmonary disease in India. P. K. Ghosh. bibliog il map Ind Med 33:732-7 O '64
Lung function disturbances caused by industrial lung disease. W. T. Ulmer. bibliog il diags Ind Med 33:44-51 F '64
Relations of pneumoconiosis and pulmonary tuberculosis. R. P. O'Neill and E. D. Robin. bibliog Archives Environmental Health 8: 873-81 Je '64
Socioeconomic aspects of the pneumoconioses. V. M. Trasko. bibliog Archives Environmental Health 9:521-8 O '64
Studies of hydrocarbons on mineral dusts. J. S. Harington and M. Smith. bibliog Archives Environmental Health 8:453-8 Mr '64
See also
Silicosis

LUPUS erythematosus
Epidemiology of systemic lupus erythematosus; time trend and racial differences. M. Siegel and others. bibliog Am J Pub Health 54:33-43 Ja '64

LURGI process. See Gas manufacture—Complete gasification processes

LUSTER
See also
Mercerizing

LUTIDINE
Ni(II) salts and lutidines give NiL_4X_2 complexes. S. Buffagni and others. Chem & Eng N 41:42+ D 2 '63

LYCOPODIUM
Synthesis of lycopodium alkaloids; a synthetic proof for the structure of lyconnotine. Z. Valenta and others. Am Chem Soc J 86:2533-4 Je 20 '64

LYCRA spandex fiber. See Elastic fabrics

LYE peeling. See Peeling

LYNEN, Feodor
Cholesterol work cited in Nobel award; biochemist in U.S. and chemist in West Germany share $52,700 prize in medicine. por Chem & Eng N 42:34 O 26 '64

LYSINE
Chemical interactions between lysine and dehydroalanine in modified bovine pancreatic ribonuclease. A. Patchornik and M. Sokolovsky. bibliog Am Chem Soc J 86:1860-1 My 5 '64
Degradation of synthetic polypeptides; degradation of poly-α,L-lysine by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86:3918-22 O 5 '64
Effect of added lysine in swine diets on lean cuts and enzyme activity in the heart and liver. R. L. Shirley and others. bibliog J Agri & Food Chem 11:530-1 N '63
Effect of certain factors on nitrogen retention and lysine requirements of adult human subjects. H. E. Clark and others. bibliog J Nutrition 78:173-8; 79:131-9; 81:223-9 O '62, F, N '63

LYSINE—*Continued*

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Effect of lysine on calcium metabolism in man. H. Spencer and J. Samachson. bibliog J Nutrition 81:301-6 D '63

Effects of the α-hydroxy analogues of isoleucine, lysine, threonine and tryptophan and the α-keto analogue of tryptophan and the level of the corresponding amino acids on growth of rats. W. G. Pond and others. bibliog J Nutrition 83:85-93 Je '64

Free and total gossypol, epsilon-amino lysine, and biological evaluation of cottonseed meals and flours in Central America. R. Bressani and others. bibliog J Agri & Food Chem 12:278-82 My '64

Process for the production of lysine by chemical and microbiological synthesis. B. S. Gorton and others. bibliog Ind & Eng Chem Product Res & Develop 2:308-14 D '63

Protein and lysine as factors in the cariogenicity of a cereal diet. M. L. Dodds. bibliog J Nutrition 82:217-23 F '64

Studies of the nutritive loss of supplemental lysine in baking. G. R. Jansen and others. bibliog Food Tech 18:367-75 Mr '64

Analysis

Determination of available lysine in oilseed meal proteins. S. Raghavendar Rao and others. bibliog Anal Chem 35:1927-30 N '63

M

MER/29. See Triparanol

MHD. See Magnetohydrodynamics

MACARONI

Extrusion challenges you. J. V. Ziemba. il diags Food Eng 36:57-61 Ag '64

MCCABE, Thomas B.

Presentation of the Vermilye medal and acceptance speech. Franklin Inst J 277:162-72 F '64

MACDONALD, Ronald Gordon

TAPPI medal award; presentation address and acceptance address. V. F. Waters. pors Tappi 47:sup 12A+, 24A+ Ap '64

MCGEHEE, Julius Rex

Memorial. W. C. Finch. por Am Assn Pet Geologists Bul 48:1204 Jl '64

MACHINABILITY. See Metal cutting

MACHINE design. See Machinery—Design

MACHINE parts

Big savings for the short pieces. R. Marx. il diags Mod Plastics 41:98-9 Ap '64

Booming technology, boon to diecasting user. il Steel 155:55-70 Jl 13 '64 (reprints 50c)

Designers trim production costs by clarifying blueprints. P. D. Prudden. diags Iron Age 193:74-6 Ja 16 '64

Diecastings have great potential for defense applications. G. F. Hodgson. il Foundry 92:135-8 S '64

Efficient parts handling; key to lower costs. P. Fitzpatrick. il diag Tool & Manuf Eng 52:67-70 My '64

Expanding-plug dial-indicating gages speed in-process inspection. A. E. Atkins. il Mach 70:123-5 Ag '64

Fluidized beds; heat treatment as well? il diag Engineering 198:177-8 Ag 7 '64

Four-slide forming for speed and economy. I. J. Doell and E. A. Connell. il Tool & Manuf Eng 52:51-2 Ja '64

Get to the root of fatigue failures. D. L. Weigel. diags Tool & Manuf Eng 53:71-2 N '64

Grinding boron carbide. F. M. Giordano. il Tool & Manuf Eng 53:57-9 Jl '64

High velocity compaction of iron powder. E. M. Stein and others. il Metal Prog 85:83-7 Ap '64

How to produce complex powder parts economically. il diags Metal Prog 85:118-20 My '64

Industrial laminates. il Brit Plastics 37:484-7 S '64

Iron powder parts, their processing and evaluation. C. R. Weymueller. il Metal Prog 85:156+ F '64

Larger powder parts for structural applications. H. A. Wormet. il Metal Prog 86:216-18 O '64

Machining center for giant workpieces. il Tool & Manuf Eng 53:68-70 S '64

New parts and materials. Published in bi-weekly numbers of Machine design

Parts gain controlled finish in continuous vibrator. R. H. Eshelman. il Iron Age 193:86-7 Je 25 '64

Plastic impregnation of powder metal parts. N. B. Newcomb. il Metal Prog 85:88-90 Ap '64

Polyimide plastics withstand high temperatures. N. W. Todd and F. A. Wolff. il Materials in Design Eng 60:86-91 Ag '64

Powder metallurgy; a way to make almost any part. il Steel 153:49-64 D 2 '63

Powder metallurgy parts. P. K. Johnson. bibliog il Product Eng 35:70-4 Ap 13 '64

Precision forgings or die castings? J. Szinyei. il Materials in Design Eng 60:81-3 Jl '64

Program for the automatic issue and revision of illustrated parts catalogs. W. H. Maurer and M. L. Reynolds. diags IEEE Trans Applications & Ind 83:137-42 My '64

Reinforced plastics slats; glass-reinforced epoxy braces lower machinery maintenance costs. il Plastics World 22:46 Jl '64

Roll-formed ring replaces 13 parts. il Am Mach 108:62 Ja 6 '64

Should you bid on plastic jobs? Am Mach/Metalworking Manuf 108:96 Je 22 '64

When to design for filament winding. J. S. Howard, jr. il Product Eng 35:102-7 O 26 '64

Wide range of parts from new elastomer family. il Materials in Design Eng 58:135-6+ D '63

See also

Bolts and nuts

Cams

MACHINE pins. See Pins, Machinery

MACHINE shop management

N/c makes giants of small manufacturers. C. J. Vlahos. il Mill & Factory 74:58-62 F '64

One man, many machines. N. H. Winters. bibliog il diags Engineering 196:566-7 N 1 '63

Smart handling slashes workplace waiting time. il Mod Materials Handling 19:56-7 S '64

Tool presetting cuts idle time. R. J. Klubertanz. il diag Am Mach 108:99-101 My 11 '64

What's going on in the tool room? W. C. Cooling. flow chart diags Mill & Factory 73:44-9 D '63

See also

Industrial management

Inspection

Machine shop practice

Machine shops—Layout

Machine shops—Records

Machinery, Replacement of

Mechanical handling

Tool engineering

MACHINE shop practice

Blade changing time cut to five minute maximum. il Steel 155:30 Ag 24 '64

Calibrators; laser in the machine shop. il diag Product Eng 35:44 S 28 '64

Cutting fins on atomic fuel cans. il Engineering 198:127-8 Jl 24 '64

Gadgets. Published in monthly numbers of Tool and manufacturing engineer

In shops around the country; illustrations with text. Mach 70:130-1 Mr; 136-7 My '64

Innovations in machining break gun-boring records. L. W. Collins, jr. il diags Mach 70:100-3 Ag '64

Look at the future; manufacturing. C. J. Vlahos. il Mill & Factory 75:80-90 N '64

Manufacturing/maintenance engineers' know-how handbook; manufacturing. Published in monthly numbers of Mill & Factory

New hope for the job shop; an end to in-process mess! J. A. Eaton. il plan Mod Materials Handling 19:47-51 Jl '64

Nc as a job shop tool. E. V. Hulen. il Am Mach 108:sup21-4 O 26 '64

Optical tooling for profit. L. Hurtt. diags Naval Eng J 76:461-5 Je '64

Practical ideas. Published in bi-weekly numbers of American machinist

Scissors roll crankshaft radii. il diags Am Mach 108:76-8 Jl 6 '64

Separate tool shop pays off; United-Carr fastener corp. V. R. Herterick. il Am Mach 108:66-7 Jl 6 '64

Shop shots; illustrations with text. Am Mach 108:78 Mr 2; 92-3 Je 22; 60 Ag 31; 116 O 26 '64

MACHINE shop practice—*Continued*
Small metal-cleaning setup increases machine shop versatility. G. C. Close. il Mach 70: 92 Ag '64
See also
Arbors and mandrels
Assembling methods
Bending
Broaching
Centering (machine work)
Chucks
Dies
Drafting room practice
Drilling and boring (metal working, etc.)
Forging
Foundry practice
Gages
Gear cutting
Grinding
Grinding machines
Grooving
Hard facing
Indexing (machine work)
Inspection
Lathes
Machine tools
Machinery
Metal cutting
Milling
Pattern making
Riveting
Sheet metal work
Stamping
Thread cutting
Tolerance
Turning
Welding
also subdivision Manufacture under special subjects, e.g.
Automobile engines
Bearings
Bearings, Roller
Cams
Crankshafts
Cylinders (engines, etc.)
Diesel engines
Electric motors
Gas turbines, Aircraft
Gearing
Guided missiles
Guns (ordnance)
Keys and keyways (machinery)
Motor trucks
Pistons
Rockets
Rolls (rolling mills)
Shafts
Space vehicles

MACHINE shops
Model shop accuracy at production line speeds; International business machines corp. R. F. Boedecker and A. C. Turits. il Am Mach 108:91-3 Mr 16 '64
See also
Machine shop practice

Costs

Economics of multitool lathe operations. E. M. McCullough. A S M E Trans ser B 85:402-4 N '63

Employees

Training programs are first step in getting the most from today's tools. J. S. Randall. Am Mach 108:71 Je 8 '64

Equipment

Laser comes to the shop; interferometer with a laser as a light source makes ultraprecise measurements. il diag Am Mach 108:75 S 28 '64
Manufacturing/maintenance engineers' know-how handbook; manufacturing. Published in monthly numbers of Mill & Factory
New developments in shop equipment. F. C. Duston. Published in monthly numbers of Machinery
New shop equipment. Published in bi-weekly numbers of American machinist
Remove chips automatically. il diag Safety Maint 127:58-9 F '64
Who's afraid of machine shop automation? Engineering 197:146 Ja 24 '64
See also
Holding devices
Holding devices (machine work)
Machine tools

Layout

Combining new layout, new methods and better handling doubles capacity. il diag Mod Materials Handling 19:50-1 F '64

Power

See also
Electric driving

Records

Job shop pinpoints costs via simple data system. il Steel 154:48-9 Ja 20 '64

Safety measures

Beryllium machining made easy. A. Waigandt. il Am Mach/Metalworking Manuf 107:108-9 O 14 '63
Control for the oil mist hazard. il Safety Maint 127:44-5 Je '64
Industrial safety increased by machine guards. Welding Eng 49:70+ N '64
Keeping up with guards and guarding developments. il diag Safety Maint 127:25-8 Ja '64
Safety in metal cleaning with flammable solvents. Safety Maint 127:35-6 Ja '64
Two approaches to exhausting toxic particles. M. Birken. il diags Plant Eng 18:126-9 Ap '64

MACHINE tool builders association, National. See National machine tool builders association

MACHINE tool distributors association, American. See American machine tool distributors association

MACHINE tool industry
Builders gain in Walsh-Healey fight. Am Mach 108:55 F 3 '64
Forecasts; Rx for feast or famine? Am Mach 108:71 Mr 30 '64
Here's where we need assistance. R. M. Rodger. Steel 153:44 N 25 '63
Machine tools production systems in transition. J. C. Keebler. Automation 11:48-56 F '64
Make the builder project manager. C. Emerson. il diag Am Mach 108:63-5 Jl 20 '64
Nc builds a wide product mix; Miehle-Goss-Dexter pioneered the use of nc. J. W. Coultrap. il Am Mach 108:sup 17-20 O 26 '64
Service company scouts for supplier of tools. il Steel 154:76 Ap 6 '64
Tool builders turn to mergers as profit squeeze tightens. J. D. Baxter. Iron Age 192:134-7 D 5 '63
Tool buyers shoot for instant production. R. H. Eshelman. il Iron Age 194:54-7 N 5 '64
Toolmakers need capacity buying wave for $1 billion year in '64. R. H. Eshelman. Iron Age 192:43-4 N 28 '63
Versatility is star of press showroom; Niagara machine & tool works. R. H. Eshelman. il Iron Age 193:79 Je 18 '64
See also
National machine tool builders association

Directories

Nc selector guide '64. A. L. Hatschek, comp. Am Mach 108:sup25-48 O 26 '64

Statistics

US takes census of n/c machine tools. Am Mach/Metalworking Manuf 107:90-1 D 9 '63

Austria

Aggressive little Austria; design of machine tools. E. J. Tangerman. il Product Eng 35:62-5 Je 8 '64

Czechoslovakia

Czechoslovakia today; research in machine tools. E. J. Tangerman. il Product Eng 35:69-71 Mr 30 '64
Czechs launch press building drive; report on the 1963 Brno fair. D. Scott. il Am Mach/Metalworking Manuf 107:125-6 O 14 '63
Czechs push standardization. F. Baer. il Am Mach 108:117-18 O 26 '64

Europe

Western Europe paces free world gains in machine tool production. Am Mach/Metalworking Manuf 107:90-1 D 9 '63

France

Machine tool outlook in France. J. Cyssau. Mach 70:87 F '64
World of design; machine tools. R. M. Koff. il diag Product Eng 35:90-1 O 12 '64

Germany

Leipzig fair. il Product Eng 35:60-1 Mr 30 '64

Great Britain

Who's avoiding the machine tool makers? Engineering 197:210 F 7 '64

India

Pinjore machine tool plant. Engineer 217: 192 Ja 24 '64

MACHINE tool industry—*Continued*

Japan

Japanese machine tool builders ready new push on U.S. market. S. Miyazaki. il Steel 155:49-51 O 5 '64

Russia

Key to industrial progress. USSR machine tools. il Product Eng 35:76-80 F 17 '64
Russian machine tools use concrete. il Engineering 197:396-7 Mr 13 '64
Russians leapfrog over western designs. il Product Eng 35:37-8 Jl 6 '64
Simplified head for Russian transfer machine. D. Scott. il Automotive Ind 130:45-6 Je 1 '64

MACHINE tools

Application criteria for evaluating ball screw drive mechanisms. J. A. Hope. il Automation 11:49-54 Ja '64
Five-station dial machine equipped for processing eater pump housings. il Mach 70:190 Jl '64
How to price specials. R. R. Putnam. Am Mach 108:69-72 Ap 27 '64
International machine tool and research conference, 5th, Birmingham; with abstracts of papers. Engineering 198:437-8 O 2 '64
Investigation of stick-slip in simulated slideways. W. G. Voorhes. bibliog diag Lub Eng 19:457-62 N '63
Le Maire four-way and double-end machines. il Mach 71:202+ S '64
Machine tool hydraulics conference, 6th, Chicago. Automation 11:15 Jl '64; Mach 70:134-5 Jl '64
Machine tools; illustrations with text. Engineer 217:42-3 Ja 3 '64
Micro tool lightens machining load. R. R. Irving. il Iron Age 194:66-7 O 22 '64
New production and plant equipment. C. J. Kelly. Published in semi-monthly numbers of Automotive industries
1964 production preview; forming. Am Mach 108:134-6 Ja 20 '64
Productivity; how do your machines rate? Am Mach/Metalworking Manuf 107:111-42 N 11 '63 (reprints 60c)
Revolution in tooling; preset and quick-change tooling (cont). B. C. Brosheer. il diags Am Mach/Metalworking Manuf 106:131-42 N 12 '62 [cont as] Am Mach 108:165-80 Ap 13; 77-92 Jl 20 '64 (to be cont)
Seven-station trunnion machines for processing steering control arms. il Mach 70:182 F '64
Special center column machine designed for processing intake manifolds. il diag Mach 70:189 Mr '64
Tool engineering ideas. Published in monthly numbers of Machinery
Tools at work. Published in monthly numbers of Tool and manufacturing engineer
Tools of today. Published in monthly numbers of Tool and manufacturing engineer
Vickers machine tool hydraulic conference, 6th, Chicago; with abstracts of papers. Automotive Ind 131:56-7 Ag 1 '64; Hydraulics & Pneumatics 17:20+ Ag '64
Westinghouse machine tool electrification forum, 28th, Buffalo. Mach 70:137-9 Jl '64; Iron Age 193:35 Je 4 '64
Wickman introduces Hurth line of machine tools. il Mach 70:164-5 Je '64
World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on machine tools and machinability. Tool & Manuf Eng 53:77-9 Ag '64

See also

Arbors and mandrels
Broaching machines
Chucking machines
Cutting machines
Cutting tools
Drilling and boring machinery
Gear cutting machines
Grinding machines
Hobs
Honing machines
Lapping machines
Lathes
Machine shop practice
Metal cutting
Metal work
Milling cutters
Milling machines
Planing machines
Pneumatic tools
Polishing machines
Presses
Punching machinery
Reamers
Saws, Metal working
Screw machines
Shears (machines)
Spindles (machine tools)
Tapping machines
Threading machines
Tool engineering
Tool steel
Tools
Tools, Plastic

Bearings

Brown & Sharpe spherical turning machine equipped with hydrostatic bearings to achieve high precision. il Mach 70:132 Ja '64
Turning machine has hydrostatic bearings. il Tool & Manuf Eng 51:119 N '63

Control

Add on as you go automation. il Am Mach 108:68-9 Mr 30 '64
Automatic machine produces airplane access doors. L. K. Geertsen. il Mach 70:147-9 My '64
Gear-box accuracy claimed for electronic transmission. diag Machine Design 36:12 O 22 '64
Machine tool behavior; control systems. J. Tlusty. diags Am Mach 108:90-4 Mr 2 '64
Pneumatic control valves for machine tools. Engineer 216:706 O 25 '63

See also

Drilling and boring machinery—Control
Grinding machines—Control

Costs

Economics of multitool lathe operations. E. M. McCullough. A S M E Trans ser B 85:402-4 N '63
Where do you find the money? Am Mach/Metalworking Manuf 107:141-2 N 11 '63

Design

Aggressive little Austria; design of machine tools. E. J. Tangerman. il Product Eng 35:62-5 Je 8 '64
Can computer cut out debugging period? R. H. Eshelman. il Iron Age 193:53 F 6 '64
Challenges in heavy manufacturing. W. W. Kuyper. Automation 11:124 Mr '64
Compacts score in machine tool field. R. H. Eshelman. il Iron Age 194:71 S 17 '64
Czechoslovakia today; design in machine tools; illustrations with text. E. J. Tangerman. Product Eng 35:72-4 Mr 30 '64
Design for maintenance; the user challenges the machine tool builder. N. M. Hoffmann. il Lub Eng 20:231-8 Je '64
Ideas should hit a peak when production is in a valley. T. M. Rohan. il Iron Age 194:40-2 S 3 '64
Machine tool design and research conference, 5th, Birmingham, England, Sept. 14-18. Engineer 218:582 O 9 '64
Machine tool firm's r & d, and products; Charles Churchill companies. il Engineering 198:30-1 Jl 3 '64
Machine tool research; here and abroad. A. O. Schmidt and others. il Mech Eng 86:25-30 Je '64
Russian machine tools use concrete. il Engineering 197:396-7 Mr 13 '64
Why of machine tool behavior; special report. J. Tlusty. diags Am Mach 108:79-94 Mr 2 '64 (reprints 50c)

See also

Transfer mechanisms

Electric driving

Machine tool behavior; main drives. J. Tlusty. diag Am Mach 108:89-90 Mr 2 '64
Packaged drive for machine tools. il Engineer 218:423 S 11 '64
Scr drives for machine tool applications. C. E. Graf. diags Machine Design 36:154+ Je 4 '64; Excerpts. Automation 11:120-1 Jl '64
Thyristor variable-speed drives for machine tools. il Engineer 218:262-4 Ag 14 '64

Exhibitions

ASTME conference and exposition, Detroit, April 20-24; products on display. Mach 70:151-75 Ap '64
Biennial machine tool show, Milan, Oct. 4-12. il Am Mach 108:112-13 O 26 '64
Czechs launch press building drive; report on the 1963 Brno fair. D. Scott. il Am Mach/Metalworking Manuf 107:125-6 O 14 '63
East German machine tools predominate at Leipzig fair. R. E. Green. il Mach 70:151-5 Je '64
European machine tool exhibition. il Automobile Eng 53:543-5; 54:34-8, 68-73 D '63-F '64
German machine tool exhibition, Hanover. il Engineering 198:471-3 O 9 '64
German machine tool show, Hanover, Sept. 20-29; numerical control featured. Am Mach 108:93-4 O 12 '64

MACHINE tools—Exhibitions—*Continued*

International machine tool exhibition, London, June 25-July 9. il Engineer 217:1080-91, 1144-55; 218:16-21, 54-9 Je 19-Jl 10 '64; Engineering 197:826-9, 871-2; 198:10-11, 42-3 Je 19-Jl 10 '64

International machine tool exhibition, 10th, London. il diags Automobile Eng 54:364-74 Ag '64

International machine tool show, London, June 25-July 9. il Am Mach 108:75-6 Jl 20 '64; Mach 70:128-31 Ag '64

Japan international machine tool fair, 2d, Tokyo, Nov. 9-20. il Mach 71:142-6+ O '64

Leipzig fair. il Product Eng 35:60-1 Mr 30 '64

Mecca or Babel? European machine tool exhibition, 8th, Milan, Oct. 4-13. il diags Engineering 196:532-3 O 25 '63; Mach 70: 128A-128B N '63; Product Eng 34:75-6 N 11 '63

Swiss sample fair, 48th, Basle, April 11-21. il diag Engineer 217:802-4 My 1 '64

Tool exposition and engineering conference, Detroit, April 20-24; with list of exhibitions, equipment on display. Automotive Ind 130:66-8 Ap 1 '64; plan Am Mach 108: 181-91+ Ap 13 '64

Tool show report; ASTME conference and exposition, Detroit. il Am Mach 108:106-9 My 11 '64

U.S. exhibit set for Brussels. Iron Age 192: 59 N 28 '63

Fixtures

Automatic tool change in five seconds; Series E Milwaukee-Matic. il Am Mach 108:101 Mr 16 '64

Automatic tool changer; can it pay for itself? il Steel 154:88-9 My 25 '64

Cut tooling costs with master standard fixtures. W. S. Payne. il Tool & Manuf Eng 52:63-4 Ja '64

Fixed optical tooling dock cuts tooling time. R. E. Gariss. il Mach 70:94-6 Jl '64

Fixture adapts old nine-foot-bed lathe for deep hole drilling. J. Waller. diag Am Mach 108:146 My 11 '64

Fixture aligns castings for machining; disregards shifted cores. il diag Tool & Manuf Eng 53:58 O '64

Fixture simplifies backing-off on lathe. F. Rush. diag Am Mach 108:100 Ap 27 '64

Fixture speeds up fastener job. il Iron Age 193:107 Mr 26 '64

Googolth machine; metalworking in the billionths range. J. Cupler. il(cover) Steel 155:41-2 Ag 31 '64

In-process gaging brings out machine capability. F. Giordano. il diags Tool & Manuf Eng 52:65-7 Je '64

Nine-in-one tool saves time. il Iron Age 193:72 Ap 16 '64

Novel fixture installs thread inserts quickly. il Mach 70:138-9 F '64

Novel fixturing eliminates change-over down time. il diags Mach 70:124-5 Ja '64

Pre-set tools cut downtime. R. H. Eshelman. il Iron Age 193:113 Ap 30 '64

Railway type disc brakes control uncoiler tension. il Steel 155:86+ S 28 '64

Setup times on chuckers cut 90 per cent with quick-change turret plates. J. Peterson. il diags Am Mach 108:94-5 Mr 16 '64

Space age machining breaks size barrier. R. H. Eshelman. il Iron Age 194:103 Ag 27 '64

Stage for the Saturn; the tooling story. J. R. Franks. il Tool & Manuf Eng 53:51-2 Jl '64

Steerable fixture speeds riveting. il Am Mach 108:78 Jl 6 '64

Tool presetting cuts idle time. R. J. Klubertanz. il diag Am Mach 108:99-101 My 11 '64

Universal modular tooling; short-run opportunities for n/c. E. G. Wright. il Tool & Manuf Eng 51:99-100 N '63

Work-fixture for multiple variety of operations. R. Isetts. diag Mach 70:134-5 D '63

See also
Arbors and mandrels
Chucks
Holding devices (machine work)
Milling machines—Fixtures

Length of service

What about old vs new machines? Am Mach/Metalworking Manuf 107:135-8 N 11 '63

Lubrication

Preventive maintenance and controlled lubrication systems. G. Capel and E. Nozewski. Lub Eng 20:265-71; Discussion. 272 Jl '64

Maintenance and repair

How close records cut n/c downtime. B. P. Polak. Steel 155:103-5 N 2 '64

Maintenance of ball bearing machine tool spindles. S. V. Swanson, jr. il Mill & Factory 74:104-7 My '64

Manufacture

Machine tool builder takes new marketing tack. W. K. Mathias. il Steel 155:40-4 S 21 '64

Make the builder project manager. C. Emerson. il diag Am Mach 108:63-5 Jl 20 '64

New way to finish precision ways. R. H. Eshelman. il Iron Age 194:63 Ag 13 '64

Steel weldments replace castings to help build low cost into machines. C. Hammon and J. F. Steele. il diag Am Mach 108:146-8 Ap 13 '64

Welding speeds construction of special machine. T. F. Vajda. il Tool & Manuf Eng 53:51 N '64

Numerical control

American nc aims at low-cost contouring. Engineering 197:390 Mr 13 '64

Automated programmed tracer control systems; abstract. P. J. Weaver. Automation 10:140-2 N '63

Automatic tool changer; can it pay for itself? il Steel 154:88-9 My 25 '64

Basic considerations in numerical control of metal working machines. J. R. Jowett. diags Light Metal Age 22:12-14+ Ag '64

Bendix universal DynaPath numerical control. il Mach 71:175 O '64

Biennial machine tool show, Milan, Oct. 4-12. il Am Mach 108:112-13 O 26 '64

Boredom-proof inspectors. E. V. Cordes, jr. il diags Electronics 37:79-86 My 4 '64

Can n/c benefit subcontractors? R. H. Eshelman. il Iron Age 192:41 D 26 '63

Continuously controlled machine tool. J. N. Muir. il diags Ind Electronics 1:733-8 N '63

Controls for machine tools. diags Product Eng 35:52-3 Ap 13 '64

Data processing for numerical control of machine tools. D. F. Walker. il diags Radio & Electronic Eng 26:501-15 D '63

Definitions for numerically controlled machine tools; data sheets. Mach 70:177-8 Ap; 161-2 My '64

Design ideas from a numerically controlled machine tool. R. K. Sedgwick. il diags Hydraulics & Pneumatics 17:41-5 F '64

Developments in the control of machine tools. R. Tilsley. il diags Engineer 217: 1111-14 Je 26 '64

Digital linear interpolation and the binary rate multiplier. W. Arnstein and others. diags Control Eng 11:79-83 Je '64; Discussion. 11:12-13 S '64

Direct read-out measuring equipment for machine tools. il Engineer 217:246 Ja 31 '64

East German machine tools predominate at Leipzig fair. R. E. Green. il Mach 70:151-5 Je '64

Economy series E Milwaukee-Matic combines productivity and speed. il Mach 70:202 Ap '64

Eight numerical control motions do it all. il Am Mach 108:56-7 Ag 3 '64

Electronic machine tool control for Concord project. Electronic Eng 36:611 S '64

Feed drives for automatically-controlled machine tools. M. Monk. il Ind Electronics 2:3-7 Ja '64

Fewer tools do more work when mated with n/c. A. W. Young. il Iron Age 194:55-7 S 3 '64

Figuring where n/c pays off. W. P. Knauss, jr. and C. T. Edgar. il Am Mach 108:76-7 Je 8 '64

GE numerical control system priced to fit smaller machine shop budget. il Am Mach 108:169 Ja 20 '64

GE offers low-cost n/c unit. il Iron Age 193: 37 Ja 23 '64

German machine tool show, Hanover, Sept. 20-29. Am Mach 108:93-4 O 12 '64

Giant numerically controlled machining center for producing completely machined turbine-generator frames. il Product Eng 35: 48-9 Ag 17 '64

Giddings & Lewis Numeridrill features automatic tool changer. il Mach 70:187-8 My '64

Helping the small shop. il Product Eng 35:57-8 Mr 16 '64

Hitting the numbers pays off. H. F. Jones. Iron Age 193:102-3 Ap 30 '64

How close records cut n/c downtime. B. P. Polak. Steel 155:103-5 N 2 '64

How IBM profits from numerical control. J. Montaudouin. il Mach 70:106-9 Mr '64

How to design low-cost digital controls. R. M. Centner. diags Control Eng 11:75-80 F '64

Huge n/c unit machines 160 ton frames. il Steel 155:59-60 Ag 3 '64

MACHINE tools—Numerical control—*Continued*
Independent plugboard control applies to practically every type of machine tool. il Engineering 196:728 D 6 '63
International machine tool exhibition, London. il Mach 70:128-31 Ag '64
Kearney & Trecker has announced a new numerically-controlled machining center. C. A. Weinert. il Automotive Ind 130:64+ Ap 1 '64
Large-scale modernization program at Fenn. il Mach 70:128-9 D '63
Low-cost magnetic tape control system for machine tools. P. H. G. Burgess and R. L. Duthie. il diags Radio & Electronic Eng 27:301-10; Discussion. 310-11 Ap '64
Machine tool control systems. il Engineer 216:947 D 6 '63
Machine tools; Germany flirts with n/c. il diag Product Eng 35:63 O 12 '64
Machining centre for large turbo-generator frames; Farrel corp. il Engineer 218:349-52 Ag 28 '64
Making n/c work harder. R. T. Berg. il Am Mach/Metalworking Manuf 108:83-6 Je 22 '64
Metal industries step up automation trend. R. H. Eshelman. il Iron Age 193:119 My 21 '64
New sequence control system. il Ind Electronics 2:61 F '64
1964 production preview; numerical control. Am Mach 108:132-4 Ja 20 '64
N/c and people. A. N. Wecksler. Mill & Factory 74:63-6 F '64
N/c boomed for job shop runs. il Iron Age 193:117 Mr 12 '64
N/c course for builders, buyers. il Iron Age 193:51 Ja 16 '64
Numerical control cuts production costs. H. B. Randall, jr. il diag Automation 11:55-7 Jl '64
N/c, electronic metalworking may reshape your company's future. Steel 155:60-2 Ag 17 '64
N/c is ready to open new doors. R. H. Eshelman. il Iron Age 194:45 Ag 20 '64
N/c makes giants of small manufacturers. C. J. Vlahos. il Mill & Factory 74:58-62 F '64
N/c makes machining predictable. il Iron Age 194:138-9 S 10 '64
Numerical control of machine tools. Engineer 217:437 Mr 6 '64
Numerical control on Concord. il Engineering 198:91 Jl 17 '64
N/c on parade at conference and exhibit of the American society of tool and manufacturing engineers. il Product Eng 35:56-7 My 11 '64
Numerical control pays off in short-run production. D. Rockenfelder. il Tool & Manuf Eng 53:71-2 O '64
Nc right from the computer. H. E. Head. il Am Mach 108:92-3 S 28 '64
Numerical control: simple or advanced? il Engineering 197:362-4 Mr 6 '64
Numerical control: state of the art; future developments. T. W. Black. il Tool & Manuf Eng 52:53-9 Ja '64
N/c system handles any tool with brains plus brawn. il Iron Age 194:150-1 S 24 '64
Numerical control systems for machine tools. il diags Aircraft Eng 36:238-44 Ag '64
N/c tackles shorter work runs. il Iron Age 193:97 Ja 30 '64
Numerical control; the second decade. il Am Mach 108:sup 1-48 O 26 '64 (reprints 50c)
N/c tooling demand takes off; new survey traces high growth rate of last five years. R. W. Crosby. Iron Age 192:48 N 21 '63
Numerical control upgrades machine tools. Am Mach 108:69 Mr 2 '64
Numerical control; yes, but the cost? il Engineering 198:92 Jl 17 '64
Planning and programming n/c. J. C. Keebler. il diag Automation 11:58-67 S '64
Production man's guide to APT-ADAPT. R. A. Kelley. diags Am Mach/Metalworking Manuf 108:97-112 Je 22 '64 (reprints 50c)
Putting five-axis n/c to work. R. Taipale. il diag Am Mach 108:75-7 Ag 17 '64
Road to adaptive control. E. Snyder. Automation 11:118-20 Jl '64
Simpler numerical control catches on. il Engineering 197:163 Ja 24 '64
Solid-state numerical control. il Mach 70:145 Jl '64
Special report: numerical control. il diag Steel 154:99-112 My 4 '64 (reprints $1)
Speedy n/c machines process, wrap wire. il Steel 155:48-9 Ag 31 '64
Tape machining of steel beams. G. DeGroat. il Am Mach 108:66-7 Ja 6 '64
Tape turning of complex grooves. il diags Am Mach/Metalworking Manuf 107:74-5 N 25 '63
Tips for making n/c more effective. il Automation 11:36 Jl '64
$2-million machine tools turbine frames. il Elec World 162:139 Ag 10 '64
US takes census of n/c machine tools. Am Mach/Metalworking Manuf 107:92 D 9 '63
Universal modular tooling; short-run opportunities for n/c. E. G. Wright. il Tool & Manuf Eng 51:99-100 N '63
Universal tooling for n/c. R. J. Klubertanz. il diags Am Mach 108:111-14 F 17 '64
Users report on numerical control. diags Engineering 197:389 Mr 13 '64
Westinghouse annual machine tool electrification forum, 28th, Buffalo. Am Mach 108:74 Je 8 '64
Which method for diesinking? P. A. Ropp and others. li diags Am Mach 108:67-70 Je 8 '64
Who's afraid of machine shop automation? Engineering 197:146 Ja 24 '64

Reconstruction

Missile maker modifies tools to get on stream fast. il Iron Age 192:170-1 N 14 '63

Standards

Machine tool standards; user's needs. Engineering 197:307 F 28 '64

Testing

Tool buyers shoot for instant production. R. H. Eshelman. il Iron Age 194:54-7 N 5 '64

Unit construction

Building-block machines; the pros and cons. C. Emerson. Am Mach 108:140 Ap 13 '64
Czechs push standardization. F. Baer. il Am Mach 108:117-18 O 26 '64
Modular-design machine bends tubes accurately. E. M. Wishing. il Tool & Manuf Eng 53:63-4 Jl '64
Modular grinder is tailored to its tasks. R. H. Eshelman. il Iron Age 193:127 Je 11 '64
Transfer line created from modular units. F. M. O'Neil. il diags Automation 10:80-1 D '63

MACHINE tools, Used
Used machine tool sales take off. il Steel 155:25-7 S 7 '64

MACHINE translation. See Translating machines

MACHINE work
See also
Automobiles—Manufacture
Broaching
Centering (machine work)
Grinding
Holding devices (machine work)
Honing
Indexing (machine work)
Machine shop practice
Plastics—Cutting
Reaming
Time study (of machinery)
Tolerance
Turning

Copying processes

Automated programmed tracer control systems; abstract. P. J. Weaver. Automation 10:140-2 N '63
Cutting huge segmental gears in Italy. V. Negri. il diags Mach 70:126-30 My '64
Dynatrace 180-degree dual motor tracing system. il Mach 70:145 D '63
GE machines nozzles via tracer control. il Steel 154:57 Ja 20 '64
Man-Au-Cycle single point threading lathe features copying attachment. il Am Mach 108:98 F 3 '64
Milling pre-shapes metal strip. A. W. Young. il diags Iron Age 194:58-9 Ag 20 '64
Milling with an eye of light. il diags Iron Age 193:70-1 Mr 5 '64
One tracer lathe replaces three; tracing to ten thousandths. C. Emerson. il Am Mach 108:102-3 My 11 '64
Production man's guide to contour tracing. G. DeGroat. il diags Am Mach 108:81-104 Je 8 '64 (reprints 50c)
Tracer diesinking gets a lift. il Am Mach 108:79-80 Ap 27 '64
Tracer mill-EDM teamwork puts diemaking in economy groove. il Steel 154:46-7 Ja 20 '64
Tracer milling of changing curves. G. J. Kick. il diags Am Mach/Metalworking Manuf 107:95-6 D 9 '63

MACHINE work—Copying processes—*Cont.*

Tracer triples nozzle output. il Iron Age 193:61 Ja 23 '64

Turret copy lathe with programme control. il Engineer 218:525 S 25 '64

Turret tracer contours internal profile. R. W. Olds. il diags Mach 70:141-3 Ap '64

Two-axis tracing on short runs. G. DeGroat. il diags Am Mach 108:103-6 Ja 20 '64

Which method for diesinking? P. A. Ropp and others. il diags Am Mach 108:67-70 Je 8 '64

MACHINE works

Machine factory with a woodland setting. il plan Arch Rec 134:126-7 D '63

Equipment

Extended shops of a rolling mill maker. il Engineering 197:778-9 Je 5 '64

Extensions at packaged boiler works; John Thompson (Wilson boilers) ltd. il Engineer 218:453-4 S 18 '64

High volume methods for low volume production; Tate, inc. W. Opel. il Automotive Ind 130:43-5 Mr 1 '64

Modernisation of a pump factory; British LaBour pump co. il Engineer 217:474-5 Mr 13 '64

New ideas for heavy generating plant. il Engineering 197:744 My 29 '64

Power plant works at Netherton. il Engineer 217:906 My 22 '64

Robertson and co.'s heavy precision engineering shop. il Engineer 217:988-9 Je 5 '64

Layout

Torrington Manufacturing keys new plant to flexible production. plan Am Mach/Metalworking Manuf 107:242 N 11 '63

Quality control

Quality-control aid in turbine blade production. il diags Ind Electronics 2:395-6 Ag '64

MACHINERY

Buying new and used machines. W. Rosenberg. Mill & Factory 74:86-8 Ap '64

New plant and equipment. Published in weekly numbers of Engineering

See also

Agricultural machinery
Balancing of machinery
Bearings
Belting
Bolts and nuts
Brakes
Bricklaying machines
Broaching machines
Bushings
Calculating machines
Calenders
Casting machines
Clamps
Cleaning machinery
Clutches
Coal mining machinery
Conveying machinery
Couplings
Cranes, derricks, etc.
Crankcases
Crankshafts
Crushing machinery
Cutting machines
Cutting off machines
Die casting machines
Disks
Dyeing machines
Electric machinery
Electric welding machinery
Engineering
Escapement mechanism
Excavating machinery
Fans, Mechanical
Filling machines
Fits (machinery)
Food machinery
Forging machinery
Foundry machinery
Friction
Gear cutting machines
Glass machinery
Governors (machinery)
Hoisting machinery
Hydraulic machinery
Hydraulic presses
Internal combustion engines
Inventions
Jacks
Jigs
Keys and keyways (machinery)
Knitting machines
Labeling machines
Lathes
Looms
Lubrication and lubricants
Machine shop practice
Machine tools
Marking machines
Mechanical engineering
Mechanical handling
Metal working machinery
Milling machines
Mining machinery
Molding machines
Packaging machinery
Packing
Paper cutting machines
Paper making machinery
Pattern making
Paving machines
Photography of machinery
Pins, Machinery
Planing machines
Plating machinery
Pneumatic hammers
Pneumatic machinery
Polishing machines
Power transmission
Presses
Printing machinery
Printing presses
Pulleys
Pumping machinery
Pumps
Refrigeration and refrigerating machinery
Road making machinery
Rollers
Rolls
Screw machines
Screwdriving machines
Shafting
Shafts
Shoveling machines
Spinning machinery
Springs (mechanism)
Steam turbines
Tamping machines
Testing machines
Textile machinery
Threading machines
Time study (of machinery)
Tools
Trenching machinery
Turbines
Typesetting machines
Valves
Washers (machinery)
Welding machines
Winding machines
Wire forming machines
Woodworking machinery

Alinements

See Alinement of machinery

Balancing

See Balancing of machinery

Bedplates

Russian machine tools use concrete. il Engineering 197:396-7 Mr 13 '64

Cleaning

Pneumatic agitator improves parts cleaning. F. Rider. il Plant Eng 18:131 S '64

See also

Road making machinery—Cleaning

Control

Air-pilot circuit plugs into machine controls. W. H. Lucas. diags Hydraulics & Pneumatics 17:100-1 S '64

See also subdivision Control under special subjects, e.g.

Drilling and boring machinery
Grinding machines
Plastics machinery
Textile machinery

Design

Adapting designs for different sizes. P. W. Agnew. il diag Engineering 197:478-9 Ap 3 '64

ASME student design contest. diags Mech Eng 86:127-9 Ap '64

Arc of intercept of a pitch circle; with nomograph. D. G. Peterson. Product Eng 35:94 Mr 2 '64

Arc welding produces machine prototype. L. P. Gajda. diag Tool & Manuf Eng 52:77 Je '64

Deformation of nonuniform sections and natural frequencies of shafts. S. Kravitz. diags Product Eng 35:141-4 F 3 '64

Design and application of metallic flexures for equipment with specific life requirements. N. B. Rothfuss and others. il diags Machine Design 36:218+ S 10 '64

Design for value! H. E. Trucks. Tool & Manuf Eng 53:65-8 Ag '64

MACHINERY—Design—*Continued*

Design guide to value. H. L. G. Leslie; H. Frick. diags Product Eng 34:80-9 O 28 '63; 35:45-53 Mr 2 '64
Design of spring washers; with nomographs. E. Loeffel. il diags Mach 70:115-25 N '63; 107-19 Ja '64
Determining instrument bearing torque. P. A. Christopher. diags Machine Design 36:197-9 O 22 '64
Eliminate cost of metal removal; design for instant parts. J. Proctor. il Product Eng 35:75-90 My 11 '64 (reprints 50c)
Flaws no key to casting failures. diags Materials in Design Eng 58:88-9 N '63
Free-wheel transmission. P. Tout-Kowsky. il diags Engineer 216:924-5 N 29 '63
How soft balls can simplify design; drawings. R. O. Parmley. Product Eng 35:102-3 Je 22 '64
How the tool designer can cut die-maintenance costs. F. Strasser. diags Mach 70:105-11 F '64
How to design four-bar linkages for straight-line motion. R. A. Kraus. diags Machine Design 36:186-90 F 13 '64
Institution of mechanical engineers conference on the practice of and education for engineering design; proceedings. Inst Mech Eng Proc 178 pt 3B:6-64 '63-64
Machinery mechanisms from foreign sources. P. W. Jensen. diags Product Eng 35:66-74 Je 8; 108-15 O 26 '64
Mechanical, fluid, and gas vibrations; their generation, transmission, and suppression. R. E. W. Harrison. il diags Naval Eng J 75:1023-34 D '63
Mechanical network analysis. H. Jewusiak and W. J. Bigley. diags Machine Design 36:180-3 O 22; 182-6 N 5 '64 (to be cont)
Natural frequencies of clamped ring segments; data sheet. I. U. Ojalvo and M. Newman. diags Machine Design 36:219-22 My 21 '64
O-rings solve design problems; drawings with text. R. O. Parmley. Product Eng 35:68-9 My 11; 104-5 My 25 '64
Practical maxims of mechanical design. Engineering 198:138 Jl 31 '64
Redesign to all-welded frame improves corn cutter, cuts costs. W. E. Witt. il Welding Eng 49:74-6 Ag '64
Redesign to welded fabrication calls for new concepts. J. Mikulak. il diags Welding Eng 49:76+ Je '64
Reflections on shock and vibration technology. C. T. Morrow. Machine Design 36:208+ Je 18 '64
Technique automates design engineering. Steel 154:29 Ja 20 '64
Traction drives. C. E. Kraus. diags Machine Design 36:106-12 Jl 2; 147-52 Jl 16 '64
See also
Cams
Design engineering conference
Drafting room practice
Fits (machinery)
Friction
Gearing—Design
Keys and keyways (machinery)
Machine tools—Design

Exhibitions

Belgrade technical fair. il Product Eng 35:82-3 Je 22 '64
British trade fair, Barcelona, April 1-12. Engineering 197:443 Mr 27 '64; Engineer 217:672 Ap 10 '64
Brno engineering fair. il Product Eng 35:74-5 O 26 '64
Budapest international fair. il Product Eng 35:36-7 Jl 6 '64
Economics to be dramatized at New York world's fair. il Mach 70:145 Mr '64
Enterprise Scotland '64 exhibition, Glasgow, Sept. 3-19. il Engineering 198:262-4 Ag 28 '64
Hanover fair, 1964. il diag Engineer 217:766-8, 839-41, 878-9, 916-19 Ap 24, My 8-22 '64; Engineering 197:572-6, 638-9 Ap 24, My 8 '64
International trade fair, Brno, Czechoslovakia, Sept. 6-20. il Engineer 218:523-4, 563-5, 603-5 S 25-O 9 '64
Leipzig spring fair, March 1-10. il Engineer 217:673-6, 711-15 Ap 10-17 '64
Research development production exhibition, London. il diags Engineer 217:858-9 My 15 '64
Technical fortnight, 2d, Paris, May 16-June 2. il Engineer 217:1048-52 Je 12 '64

Foundations

Foundation bolts for heavy drives. C. A. Lee. diags Am Concrete Inst J 61:189-93 F '64; Discussion. P. Fischer. 61:1203-6 S '64
Vibration controlled by chemical grouting. G. P. Tschebotarioff. plan diags Civil Eng 34:34-5 My '64

Installation

Verifying the installation of products. R. L. Finch. Westinghouse Eng 24:118-19 Jl '64

Leasing

Equipment leasing in the drug and cosmetic industry. il Drug & Cosmetic Ind 94:672-4 My '64
Look at a new financing method; equipment leasing. D. H. Kinnan. Foundry 92:112-15 Ap '64
Where do you find the money? Am Mach/Metalworking Manuf 107:141-2 N 11 '63

Maintenance and repair

Huge hammer base repair welded. il Welding Eng 48:52+ D '63
Monitored centralized system eliminates by chance lubrication. J. J. Callahan. il diags Plant Eng 18:141-5 O '64
Prolonging the life of your equipment. E. W. Fair. Rock Prod 67:138+ My '64

Manufacture

Extended shops of a rolling mill maker. il Engineering 197:778-9 Je 5 '64
Hand tool route to automation; Gardner-Denver co. il Steel 153:56-7 N 11 '63
Robertson and co.'s heavy precision engineering shop. il Engineer 217:988-9 Je 5 '64
See also
Cylinders (engines, etc.)—Manufacture
Machine parts
Machine works

Models

Industrial models; a 3-D approach puts problems in perspective. G. J. McManus. il Iron Age 193:75-7 Je 25 '64

Mounting

Fastening precision gear-plates; drawings with text. F. W. Wood, jr. Product Eng 35:72-3 Jl 6 '64
No shake, rattle, and roar at Woodside's new Beattie plant, thanks to fibrous base pads under the machinery. il Textile Ind 128:117 O '64
Rubber air mounts smooth shaky machines. il Materials in Design Eng 60:149-52 O '64
See also
Airplane engines—Mounting
Machinery—Vibration

Moving

Trailers reduce 400-hour machinery move to 50 hours. J. G. Lancello and B. F. Reinhart. il Plant Eng 18:122-3 My '64

Noise

Acoustic enclosures; how researchers quiet noisy machinery. A. Oppenheim and S. Wasserman. il Res/Develop 15:26-8 My '64
For confined areas, here's how to design for noise control. R. D'Agostino. diag Product Eng 35:84-6 Ag 17 '64
No shake, rattle, and roar at Woodside's new Beattie plant, thanks to fibrous base pads under the machinery. il Textile Ind 128:117 O '64
Noise; its effect and control in mining operations. A. Walker. bibliog diags Can Min & Met Bul 56:820-34 N '63; Discussion. P. Moon. 57:98 F '64
Setting standards for machine noise. A. J. King. Engineering 198:93-5 Jl 17 '64
Underground noise control; abstract. O. Lundquist. Safety Maint 127:52+ Ap '64

Patents

Noteworthy patents. Published in bi-weekly numbers of Machine design

Reconstruction

Improved machine coating; rebuild of no 10 paper machine. E. Norris. il diags Tappi 46:sup203A-7A D '63
Modernizing the hydraulic circuit on a pipe lathe. J. Yonk and S. G. Tansey. il diag Hydraulics & Pneumatics 17:94-5 Mr '64

Replacement

See Machinery, Replacement of

Safety devices

How to cut accidents on guillotine shears. il Safety Maint 128:18-20 N '64
Industrial safety increased by machine guards. Welding Eng 49:70+ N '64
Keeping up with guards and guarding developments. il diag Safety Maint 127:25-8 Ja '64

MACHINERY—*Continued*

Speed

Measurement of instantaneous speed stability of instrumentation-type magnetic-tape transport systems. D. Balducci. Audio Eng Soc J 12:226-30 Jl '64

Standards

How safety standards help manufacturers of equipment. J. C. Arndt. il Mag of Stand 35:304-5 O '64

Spline standard aids designers and manufacturers. L. N. DeVos. Mag of Stand 35: 79 Mr '64

See also

Fits (machinery)

Testing

For dynamic measurements, use oscillograph recorders. R. J. Horak. il diags Product Eng 35:82-8 Jl 6 '64

Optical inspection of heavy machined components. B. Stanley. il diags Engineer 218:503-4 S 25 '64

Transportation

See also

Construction equipment—Transportation

Vibration

Adjustable flywheel overcomes vibration. il diag Tool & Manuf Eng 52:62 Ja '64

Chatter in the workshops. Engineering 197: 366 Mr 6 '64

Controlled vibration; aid to metalworking? il Tool & Manuf Eng 51:64 D '63

Critical frequency of vertical shafts. G. Strazzabosco and A. Primak. diags Machine Design 35:122-8 D 19 '63

Critical speeds of torsional oscillation of geared-shaft systems due to the presence of displacement excitation. B. Porter. bibliog diags A S M E Trans ser E 31:25-8 Mr '64

Deflection tests on a thrust block for a prototype set of marine propulsion machinery of 22 000 s.h.p. H. E. C. Hims. plans diags Engineer 217:1128-31 Je 26 '64

Dynamics of synchronous-processing turborotors with particular reference to balancing. T. M. Tang and P. R. Trumpler. diags A S M E Trans ser E 31:115-22 Mr '64

Effect of the 150-degree partial bearing on rotor-unbalance vibration. P. C. Warner and R. J. Thoman. A S M E Trans ser D 86:337-45; Discussion. 345-7 Je '64

How to predict drive-train vibration caused by Hooke's joints. R. B. Bossler, jr. and W. G. Flannelly. diags Machine Design 36: 194-8 Je 18 '64

Machine tool behavior; forced vibrations and self-excited vibrations. J. Tlusty. diags Am Mach 108:83-6 Mr 2 '64

Machine tool chatter. P. Hall and D. E. Newland. Metallurgia 70:150 S '64

New vibration standards for maintenance. M. P. Blake. Hydrocarbon Process & Pet Refiner 43:111-14 Ja '64

Pulsation and vibration, causes and cures. W. S. Everett. diags Instruments & Control Systems 37:161-4 S '64

Random-vibration analysis. E. A. Meeder, jr. il diags Machine Design 36:179-84 S 10 '64

Shaft whirl induced by rotor internal damping. F. F. Ehrich. diags A S M E Trans ser E 31:279-82 Je '64

Vibration analysis can keep your plant humming. R. H. Nittinger. diags Chem Eng 71: 152+ Ag 17 '64

Vibration of a thick ring in its own plane. B. S. Seidel and E. A. Erdelyi. bibliog diags A S M E Trans ser B 86:240-4 Ag '64

Why did the motor vibrate? I. E. Church. diag Power 107:57 N '63

See also

Airplanes—Vibration
Balancing of machinery
Helicopters—Vibration
Machinery—Foundations
Space vehicles—Vibration
Steam turbines—Vibration

MACHINERY, Automatic

Applying mechanized handling to standard machines. J. F. Oldani. il diag Automation 11:80-6 My '64

Automatic assembly of passenger-car bodies at VW. C. A. Weinert. il diags Automotive Ind 130:77-80 Ap 15; 54-6 My 1 '64

Automatic high-speed measuring systems for complex products and shapes. J. A. Sargrove. bibliog il diags Radio & Electronic Eng 27:337-48 My '64

Automating ceramic wall tile production. F. S. Carpenter. il diags Automation 11:50-4 Jl '64

Automation in action; illustrations with text (cont). Automation 11:80-1 F; 78-9 Mr; 86-7 Je; 74-5 Ag; 80-1 S '64

Compressing and strapping wire coils. il Automation 11:60 F '64

Controls for machine tools. diags Product Eng 35:52-3 Ap 13 '64

Development of high-speed automatic loading mechanisms for heavy anti-aircraft artillery. D. H. Chaddock. il diags Inst Mech Eng Proc 177 no 21:571-94; Discussion. 595-600; Reply. 600-1 '63

Experiences with transistorized static control. E. A. Albert and R. E. Johnson. Automation 11:136+ Ag '64

Fixed-price development is no answer; try a research approach. R. G. Dexter. il Automation 10:64-6 D '63

Fully automatic hydraulic hob sharpener. il Mach 70:140 N '63

New equipment. Published in monthly numbers of Automation

New slant to automatic order picking. il diag Mod Materials Handling 19:46-8 Je '64

Putting the modern sliding headstock automatic to work. H. Hubli. il diags Mach 71:130-6 O; 125-30 N '64

See also

Assembling machines
Assembling methods
Automation
Automatons
Screw machines
Transfer mechanisms
Vending machines

Maintenance and repair

Maintenance for integrated systems. A. R. Wood. il Automation 11:69-71 Je '64

Maintenance is different with automation. C. J. Vlahos. il Mill & Factory 74:68-71 Ap '64

Update your thinking on procedures for servicing automatic equipment. A. R. Wood. il Plant Eng 18:114-17 Ja '64

MACHINERY, Kinematics of

See also

Cams
Links and link motion
Mechanical movements

MACHINERY, Reconstruction of. See Machinery—Reconstruction

MACHINERY, Replacement of

Distributor and the third market; equipment modernization or upgrading. il Mill & Factory 74:85-100 My '64

Keys to successful automation. H. H. Bixler. Automation 11:76-80 Ag '64

Machine productivity renewed when too good to retire, yet too obsolete to be productive. W. C. Leone. il Mach 70:116-18 F '64

Replacement enlivens a shop. C. Emerson. il Am Mach 108:56-9 Ja 6 '64

What about old vs new machines? Am Mach/Metalworking Manuf 107:135-8 N 11 '63

See also

Obsolescence

MACHINERY, Used

Buying new and used machines. W. Rosenberg. Mill & Factory 74:86-8 Ap '64

MACHINERY in industry

See also

Machinery—Reconstruction
Machinery, Replacement of

MACHINERY industry

See also

Machine tool industry
Machinery—Leasing

Directories

Annual specifying and buying directory of products for prime movers and power transmission, 1963-64. Air Cond Heat & Ven 60:129-38 D '63

Fluid power book issue product directory. Machine Design 35:150-390 D 12 '63

Seals; reference issue handbook; product directory. Machine Design 36:119-242 Je 11 '64

Tool and manufacturing engineer suppliers directory. Tool & Manuf Eng 53:125-486 Ag '64

Great Britain

1964 prospects for all engineerings. il Engineering 197:95-144 Ja 17 '64

MACLEOD, Willis S.

Williams and MacLeod receive Standards awards; with acceptance speeches. por Mag of Stand 35:3-5 Ja '64

MCLEOD gage

Mechanical McLeod gauge for accurate measurement of pressures in the 5 to 500μ range. J. T. Park. diag R Sci Instr 35:242-3 F '64

MACROPHYLLIC acid

Total synthesis of (+)-16-hydroxytotarol and (+)-macrophyllic acid. A. C. Day. bibliog Chem & Ind p 1760-1 N 2 '63

MACUSINE B. See Alkaloids

MACY, R. H. and company

Macy's park-and-shop, Elmhurst, N.Y. branch. il plan Arch Forum 120:37 Ap '64

MADRAS (city), India

Streets

Traffic improvements. R. Thillainayagam. il maps diags Traffic Q 18:449-56 Jl '64

MAGELLANIC clouds

Large Cloud of Magellan. B. J. Bok. il maps Sci Am 210:32-41 Ja '64

MAGMA. See Rocks, Igneous

MAGNA, Utah

Sewerage

Modernization and expansion; from septic tanks to primary, to secondary treatment in 24 years. H. A. Linke, jr. il diag Water Works & Wastes Eng 1:98-101 My '64

MAGNESIA

Chromium-5 per cent magnesia for high temperature service. W. C. O'Neal. il Metal Prog 85:96-100 Mr '64

Chromium-magnesia composites. G. C. Reed and W. L. Schalliol. il J Metals 16:175-9 F '64

Cleavage surface energy of {100} magnesium oxide. A. R. C. Westwood and D. L. Goldheim. bibliog il diags J Ap Phys 34:3335-9 N '63

Creep of polycrystalline magnesia. T. Vasilos and others. bibliog il Am Cer Soc J 47:203-4 Ap '64

Creep-rupture behavior of MgO bicrystals. G. T. Murray and others. Am Cer Soc J 47:531 O '64

Dense slip cast magnesia-magnesium titanate ware. R. S. Rosenfels. Am Cer Soc Bul 43:566 Ag '64

Fabrication and plastic behavior of single-crystal MgO-NiO and MgO-MnO solid-solution alloys. T. S. Liu and others. bibliog il Am Cer Soc J 47:276-9 Je '64

Fatigue deformation of magnesium oxide. K. N. Subramanian and J. Washburn. bibliog il diags J Ap Phys 34:3394-7 N '63

Grain-boundary diffusion in MgO. B. J. Wuensch and T. Vasilos. bibliog diags Am Cer Soc J 47:63-8 F '64

Grain growth in fully dense magnesia. R. M. Spriggs and others. bibliog il Am Cer Soc J 47:417-18 Ag '64

High-magnesia cement that passes autoclave test; discussion. Rock Prod 67:25+ S '64

High-temperature phase equilibria for the partial system $3CaO.MgO.2SiO_2-MgO.Al_2O_3-2CaO.Al_2O_3.SiO_2$ in the quaternary system $CaO-SiO_2-Al_2O_3-MgO$. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64

How much magnesia in portland cement? discussion. N. C. Rockwood. Rock Prod 67:21+ Mr '64

Inverse segregation of MgO and $MgAl_2O_4$ in fusion-cast bodies. P. H. Ribbe and A. M. Alper. bibliog il Am Cer Soc J 47:162-7 Ap '64

Kinetics of vapor-phase hydration of magnesium oxide. G. K. Layden and G. W. Brindley. bibliog il diag Am Cer Soc J 46:518-22 N '63

Magnesium oxides in elastomers. W. H. Deis and L. F. Heneghan. Rubber World 150:64-73 S '64

Mechanical behavior of hot-pressed MgO containing a dispersed phase. R. D. Carnahan. bibliog il Am Cer Soc J 47:305-6 Je '64

Mechanical behavior of magnesium oxide at high temperatures. R. B. Day and R. J. Stokes. bibliog il diags Am Cer Soc J 47:493-503 O '64

Phase equilibria in the system $MgO-MgCr_2O_4$. A. M. Alper and others. bibliog il Am Cer Soc J 47:30-3 Ja '64

Preparation and thermal analysis of mixed magnesium-manganese-iron oxalates and hydrated oxides. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 47:434-7 S '64

Relation of single-crystal elastic constants to polycrystalline isotropic elastic moduli of MgO. D. H. Chung and others. bibliog diag Am Cer Soc J 46:452-7; 47:448-55 S '63, S '64; Discussion. R. L. Colombo. 47:255 My '64

Slurry spray for black liquor boilers. R. E. Chappell and J. W. Tester. diags Tappi 47:193-6 Ap '64

Surface charge of alumina and magnesia in aqueous media. M. Robinson and others. bibliog diag Am Cer Soc J 47:516-20 O '64

Technique for preparing thin foils from small bulk specimens of nonmetallic solids. D. J. Sauve and R. J. Stokes. il diag R Sci Instr 35:1363-4 O '64

Technique for producing a stable polycrystalline MgO reflecting coating. M. S. Cook. R Sci Instr 35:920-1 Jl '64

Thermal expansion of yttrium oxide and of magnesium oxide with yttrium oxide. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:256 My '64

See also

Periclase

MAGNESIUM

Cheaper dies for medium runs. R. Le Grand. il diags Am Mach 108:51-5 Ja 6 '64

Difference effect on magnesium dissolving in acids. W. J. James and others. bibliog Electrochem Soc J 110:1117-20 N '63

Distribution of magnesium and iron between orthopyroxene and calcic pyroxene in natural mineral assemblages. R. Kretz. bibliog J Geol 71:773-85 N '63

Ductile iron is made with magnesium-impregnated coke. W. E. Snow. Foundry 92:99-100+ N '64

Ductile iron research builds a better trap for elusive magnesium. P. K. Trojan and R. A. Flinn. S A E J 72:60-1 Ap '64

Effect of magnesium, fluoride, and ascorbic acid on metabolism of connective tissue. D. J. Thompson and others. bibliog J Nutrition 84:27-30 S '64

Effect of magnesium on properties of variant 356-T6 aluminum alloys. W. A. Bailey. bibliog il diags Foundry 92:54-60 My '64

Interaction of magnesium with deoxyribonucleic acid. J. W. Lyons and L. Kotin. bibliog Am Chem Soc J 86:3634-40 S 20 '64

Magnesium as a passive metal. P. F. King. Electrochem Soc J 110:1113-16 N '63

Rising demand for magnesium and magnesium compounds. N. C. Rockwood. Rock Prod 67:26+ Jl '64

Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72:477-83 Jl '64

Analysis

Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64

Direct spectrophotometric microdetermination of high-level magnesium in silicate minerals; a Clayton yellow procedure. R. Meyrowitz. Am Mineralogist 49:769-77 My '64

Method for simultaneous determination of calcium and magnesium. H. Katz and R. Navone. Am Water Works Assn J 56:121-3 Ja '64

Simultaneous spectrophotometric determination of calcium and magnesium with chlorophosphonazo III. J. W. Ferguson and others. bibliog Anal Chem 36:796-9 Ap '64

Volumetric determination of magnesium in aluminium alloys. A. Smart. Metallurgia 69:245-7 My '64

Metallography

Effect of substructure on the nucleation of grain-boundary cavities in magnesium. A. E. B. Presland and R. I. Hutchinson. bibliog il diags Inst Metals J 92:264-9 '63-64

Welding characteristics of LA141XA magnesium-lithium alloy sheet. A. T. D'Annesa and E. Willner. bibliog il diag Welding J 43:sup 1-9 Ja '64

Protection

Chemical and electrochemical treatments for magnesium alloys; data sheet. Mach 70:147-8 Jl '64

Magnesium spinel coating electrochemically formed on magnesium; HAE (modified). H. W. Huggins. Plating 51:317-23 Ap '64

Surface preparation increases corrosion resistance of magnesium castings. W. A. Bailey. il Foundry 92:68-9 Mr '64

Trouble plating magnesium? J. W. Natwick. il diag Am Mach 108:104-6 F 17 '64

MAGNESIUM—*Continued*

Uses

Magnesium gun mountings. il Mod Metals 20:50 Mr '64

Market opportunities for magnesium cast parts. H. J. Millward. il Foundry 92:120-2 F '64

Why VW likes magnesium. O. Hoehne and D. Korff. plan S A E J 72:76-8 Ap '64

Welding

Gas metal-arc spot welding of magnesium. R. D. Koeplinger and L. F. Lockwood. il diags Welding J 43:195-201 Mr '64

MAGNESIUM alloys

Attack-polishing technique for the metallographic preparation of magnesium and its dilute alloys. V. J. Haddrell. Inst Metals J 92:121 '63-64

Cast magnesium components for nuclear reactors. R. W. Eade. il diag Mod Metals 20:32+ Mr '64

Chemical resistance of refractories to Al and Al-Mg alloys. J. G. Lindsay and others. bibliog il Am Cer Soc J 47:90-4 F '64

Densities of cadmium-rich cadmium-magnesium solid solutions. N. Ridley. bibliog Inst Metals J 93:46-7 '64-65

Development and application of magnesium-lithium alloy LA141A-T7 in the aerospace industry; abstract. E. Willner. Metal Prog 86:254+ O '64

High speed deep drawing magnesium alloy sheet. M. A. Molnar. il diags Mod Metals 19:66+ D '63

Influence of small additions of silver on the ageing of aluminium alloys; further observations on Al-Zn-Mg alloys. J. T. Vietz and others. bibliog il Inst Metals J 92:327-33 '63-64

Investigation of the magnesium-zirconium system. Inst Metals J 92:383-4 '63-64

Mg alloy use cuts aircraft wheel cost, weight. H. C. Buckelew. S A E J 72:90-4 Ap '64

Magnesium-lithium alloy tests are reported. Steel 154:68 Je 22 '64

Metal selector; magnesium. Steel 155:sup S 18 O 12 '64

Production of magnesium and its alloys in the USSR. J Metals 16:556-7 Jl '64

Properties of materials; magnesium alloys; wrought and cast; tables. Materials in Design Eng 60:158-62 Mid-O '64

Proposed structure of the transition phase and stability in Mg-Li-Al-Zn alloys. J. V. Rinnovatore and M. Schwartz. bibliog il Inst Metals J 92:188-9 '63-64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Tensile behaviour of the intermetallic compound AgMg at low temperatures. J. C. Terry and R. E. Smallman. bibliog Inst Metals J 92:334-6 '63-64

Welding characteristics of LA141XA magnesium-lithium alloy sheet. A. T. D'Annesa and E. Willner. bibliog il diag Welding J 43:sup 1-9 Ja '64

Yield points in age-hardening magnesium alloys. K. G. Kent and A. Kelly. Inst Metals J 92:190-1 '63-64

Zirconium-hydride formation in homogenized magnesium-zirconium alloy. J. E. Harris and P. G. Partridge. bibliog il Inst Metals J 93:15-18 '64-65

MAGNESIUM aluminate

Cathodoluminescence of Mn^{2+}- and Fe^{3+}-activated magnesium aluminate spinel. F. A. Hummel and J. F. Sarver. Electrochem Soc J 111:252-3 F '64

Inverse segregation of MgO and $MgAl_2O_4$ in fusion-cast bodies. P. H. Ribbe and A. M. Alper. bibliog il Am Cer Soc J 47:162-7 Ap '64

MAGNESIUM carbonate

Synthetic solid solutions in the systems $MgCO_3$-$FeCO_3$ and $MnCO_3$-$FeCO_3$. P. E. Rosenberg. Am Mineralogist 48:1396-400 N '63

See also
Dolomite

MAGNESIUM chloride

Magnesium chloride from naturally occurring brines and evaporites. A. F. Nylander and J. H. Jensen. bibliog flow sheets J Metals 16:718-20 S '64

MAGNESIUM chromates

Phase equilibria in the system MgO-$MgCr_2O_4$. A. M. Alper and others. bibliog il Am Cer Soc J 47:30-3 Ja '64

MAGNESIUM compounds

Liquor-making eased for magnesia-base pulp mills. flow diag il Chem Eng 71:80-1 Jl 20 '64

Thermodynamics of formation of $ThMg_2$. D. B. Novotny and J. F. Smith. bibliog Inst Metals J 92:122 '63-64

MAGNESIUM fluoride

Magnesium fluoride polarizing prism for the vacuum ultraviolet. W. C. Johnson, jr. bibliog il R Sci Instr 35:1375-6 O '64

Vapor pressure of magnesium fluoride. R. R. Hammer and J. A. Pask. bibliog diags Am Cer Soc J 47:264-7 Je '64

MAGNESIUM founding

German automakers offer magnesium die-casting tips. Steel 154:52 Ja 13 '64

Investment casting cuts cost of intricate magnesium parts 75 per cent. il Mod Metals 20:70 My '64

Light metals; AFS congress; abstracts of papers. il Foundry 92:175+ Je '64

Magnesium gains momentum in die casting. J. G. Mezoff. il Mod Metals 20:26+ Ap '64

Market opportunities for magnesium cast parts. H. J. Millward. il Foundry 92:120-2 F '64

New specification for high-strength magnesium castings. K. E. Nelson. il Foundry 91:58-61 D '63

Nuclear reactors use magnesium castings. R. W. Eade. il Foundry 92:152+ Je '64

Surface preparation increases corrosion resistance of magnesium castings. W. A. Bailey. il Foundry 92:68-9 Mr '64

Volkswagen; world's largest magnesium user reveals cost-cutting techniques. il diags Mod Metals 20:42+ Ag '64

MAGNESIUM germanide

Photothresholds in Mg_2Ge. C. A. Mead. bibliog J Ap Phys 35:2460-2 Ag '64

MAGNESIUM in the body

Effect of dietary fluoride upon the magnesium calcinosis syndrome. Y. Chiemchaisri and P. H. Phillips. bibliog J Nutrition 81:307-11 D '63

Effect of magnesium and sulfur upon cellulose digestion of purified rations by cattle and sheep. J. E. Martin and others. bibliog J Nutrition 83:60-4 My '64

Effects of dietary cholesterol on skin lesions of rats with subacute magnesium deficiencies. E. J. Olson and H. E. Parker. bibliog J Nutrition 83:73-8 My '64

Effects of dietary magnesium and fluoride on the magnesium content of tissues from growing chicks. F. D. Griffith and others. bibliog diags J Nutrition 83:15-19 My '64

Experimental human magnesium depletion. M. E. Shils. Am J Clinical Nutrition 15:133-43 bibliog(p 142-3) S '64

Magnesium balance studies in South African Bantu children with kwashiorkor. P. J. Pretorius and others. bibliog Am J Clinical Nutrition 13:331-9 N '63

Magnesium metabolism in alcoholism. J. F. Sullivan and others. bibliog Am J Clinical Nutrition 13:297-303 N '63

Mineral utilization in the rat; restoration of normal tissue levels of magnesium and calcium following magnesium deficiency. R. M. Forbes. bibliog J Nutrition 83:44-8 My '64

Phosphorus, calcium and magnesium relationships in ovine urolithiasis. L. V. Packett and J. P. Hauschild. bibliog J Nutrition 84:185-90 O '64

Physiological aspects of aging; calcium and magnesium metabolism in senescent mice. H. H. Draper. bibliog J Nutrition 83:65-72 My '64

Requirement of magnesium by the normal adult; summary and analysis of published data. M. S. Seelig. Am J Clinical Nutrition 14:342-90 bibliog(p384-90) Je '64

MAGNESIUM industry and trade

Is magnesium's future limited? Steel 154:46-7 Mr 9 '64

Magnesium, 1963. W. J. Rave. Eng & Min J 165:125-6 F '64

New magnesium makers may change market. il Chem & Eng N 41:21-2 D 2 '63

World magnesium congress, Montreal, Oct. 15-17; abstracts of papers. Light Metal Age 21:11-23 O '63

Russia

Production of magnesium and its alloys in the USSR. J Metals 16:556-7 Jl '64

MAGNESIUM metallurgy

Evaluation of thermic production methods for magnesium. K. C. Dean and others. flowsheet J Metals 16:564-8 Jl '64

MAGNESIUM metallurgy—*Continued*

Magnesium by the magnetherm process. C. Faure and J. Marchal. il diag J Metals 16:721-3 S '64

Present status and future trends in the production of magnesium. J. D. Hanawalt. bibliog il J Metals 16:559-63 Jl '64

MAGNESIUM oxide. See Magnesia

MAGNESIUM phosphates

Phase equilibria and manganese-activated luminescence in portions of the system Zn(PO$_3$)$_2$-Cd(PO$_3$)$_2$Mg(PO$_3$)$_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111:660-5 Je '64

MAGNESIUM silicates

See also

Forsterite

MAGNESIUM stearate

Multilayer membrane electrodes; activity of magnesium and strontium salts in mixed electrolytes. H. P. Gregor and others. bibliog Am Chem Soc J 85:3926-8 D 20 '63

MAGNESIUM sulfate

Equilibrium solubility of calcium sulphate hemihydrate in sodium chloride-magnesium sulphate solutions at elevated temperatures. J. B. Clampett and R. T. Fowler. bibliog diags J Ap Chem 14:81-6 F '64

MAGNESIUM titanates

Dense slip cast magnesia-magnesium titanate ware. R. S. Rosenfels. Am Cer Soc Bul 43:566 Ag '64

MAGNESIUM uranates

Studies in the system MgUO$_3$-MgUO$_4$. R. M. Haag and C. R. Muncy. bibliog diag Am Cer Soc J 47:34-6 Ja '64

MAGNETIC amplifiers. See Amplifiers

MAGNETIC brakes. See Brakes, Magnetic

MAGNETIC clutches. See Clutches, Magnetic

MAGNETIC control

Accurate resetting of dry reed proximity switch. G. W. Heumann. diag Control Eng 11:104 F '64

Magnet control initiates zero-speed alarm, North Western pulp & power ltd. J. Steingrube. diags Elec Constr & Maint 63:120-1+ S '64

Magnetic control of satellite attitude. G. E. Lynn and others. bibliog diags IEEE Trans Com & Electronics 83:570-5 S '64

Magnetic reed switches. R. T. Armantrout. il diags Machine Design 35:118-21 D 19 '63

Mechanical/magnetic control of gauge in hot rolling. il Engineer 216:918 N 29 '63

Nondestructive readout drive circuit for transfluxors. K. A. Harriger. diags IEEE Trans Com & Electronics 83:589-92 S '64

Performance of the core-equivalent of the transfluxor shift register. G. W. Dick. bibliog diags IEEE Trans Com & Electronics 83:566-70 S '64

Richard Thomas and Baldwin's mechanical-magnetic gauge control. Engineering 196:764 D 13 '63

Static relaying devices using magnetic cores and silicon-controlled rectifiers. G. R. Slemon and S. D. T. Robertson. bibliog diags IEEE Trans Com & Electronics 83:553-7 S '64

MAGNETIC couplings. See Couplings, Magnetic

MAGNETIC dipole. See Magnetic moment

MAGNETIC field

Application of the Garrett method to calculation of coil geometries for generating homogeneous magnetic fields in superconducting solenoids. H. L. Marshall and H. E. Weaver. diags J Ap Phys 34:3175-8 N '63

Automatic magnetic field calibrator. L. Niemelä. diag J Sci Instr 41:646 O '64

Behavior of electron beams under magnetic compression. O. P. Gandhi and N. C. Vaidya. IEEE Proc 52:1052-3 S '64

Calculation of the current and field distribution and the magnetization curves for high-field, superconducting materials in the form of sheet. H. Riemersma. bibliog diags J Ap Phys 35:1802-6 Je '64

Calculation of the field of a magnetic recording head. L. E. Fay, 3d. bibliog diag IEEE Proc 52:623 4 My '64

Changes in magnetization of single-crystal dysprosium, erbium, and holmium in high magnetic fields. R. B. Flippen. bibliog J Ap Phys 35:1047-8 pt 2 Mr '64

Compensated reversed field focusing of electron beams. P. F. C. Burke. bibliog diags IEEE Proc 51:1653-9 N '63

Compression of magnetic field between two semi-infinite slabs of constant conductivity. A Paton and W. Millar. J Ap Phys 35:1141-6 Ap '64

Consolidating metal powders magnetically. D. J. Sandstrom. il diag Metal Prog 86:91-4 S '64

Design and construction of high magnetic field traveling wave lines. L. M. Lidsky and D. J. Rose. il diags R Sci Instr 34:1223-7 N '63

Dipole resonances of a plasma in a magnetic field. F. W. Crawford and others. bibliog diags J Ap Phys 34:3168-75 N '63

Distance detector manometer for measurement and control of liquid helium temperatures in magnetic fields. E. W. Hornung and G. E. Brodale. bibliog diag R Sci Instr 35:499-502 Ap '64

Effect of extended fringing fields on ion-focusing properties of deflecting magnets. H. A. Enge. bibliog diags R Sci Instr 35:278-87 Mr '64

Effect of rotor eccentricity on the magnetic field in the air-gap of a non-salient-pole machine. S. A. Swann. diags Inst E E Proc 110:903-15 My '63; Discussion. 110:2030-1 N '63

Electric and magnetic fields. A. Glaser. bibliog diags Electro-Tech 72:83-104b N '63 (reprints $1)

Experiments on an X-band garnet delay line. J. H. Collins and others. il diags Electronic Eng 36:627-9 S '64

Explosive-driven high-field system for physics applications. R. S. Caird and others. diag J Ap Phys 35:781-2 pt 2 Mr '64

Ferromagnetic Hall effect at optical frequencies and inner effective magnetic field of ferromagnetic metals. G. S. Krinchik. bibliog J Ap Phys 35:1089-92 pt 2 Mr '64

Flux distribution in multiaperture ferrite cores. P. D. Cooper and B. Kostyshyn. bibliog il diags IEEE Trans Com & Electronics 83:575-8 S '64

Flux jumping in Nb+25 per cent Zr wire. M. S Lubell and others. bibliog J Ap Phys 35:956-8 pt 2 Mr '64

Galactic magnetism. Sci Am 211:46 Jl '64

Gamma-ray circular polarization analyzer using a rapidly alternating magnetic field. R. E. Pechacek and others. il diags R Sci Instr 35:58-63 Ja '64

Generating high magnetic fields. il Electronics 37:83-4 Je 29 '64

Generation of spin waves in nonuniform dc magnetic fields; calculation of the coupling length. E. Schlömann and R. I. Joseph. J Ap Phys 35:167-70 Ja '64

Generation of spin waves in nonuniform magnetic fields; conversion of electromagnetic power into spin-wave power and vice versa. E. Schlömann. bibliog diag J Ap Phys 35:159-66 Ja '64

Generation of spin waves in nonuniform magnetic fields; magnetoelastic interaction. E. Schlömann and R. I. Joseph. bibliog J Ap Phys 35:2382-90 Ag '64

Group theoretical consideration for the intersection of crystal-ion Zeeman terms. S. A. Marshall and others. bibliog Am J Phys 31:847-53 N '63

Hall-effect reinforcement of high-frequency fields in semiconductors. H. E. M. Barlow. diags Inst E E Proc 111:231-4 F '64

High-field superconductors. Engineer 217:783 My 1 '64

High magnetic field achieved in electric power research. Franklin Inst J 277:296 Mr '64

How and why of strong magnetic fields. N. Kurti. bibliog il diags Inst Metals J 93:1-10 '64-65

Internal fields at iron in FePd alloys. G. Bemski and X. A. da Silva. bibliog J Ap Phys 35:1081-2 pt 2 Mr '64

Ion optics of fields with rotational symmetry and circular main orbit. A. J. H. Boerboom. diag J Ap Phys 35:1691-7 Je '64

Life testing of ac heated tungsten filaments in strong magnetic fields. G. Martin. bibliog R Sci Instr 35:649-1 My '64

Limiting-current densities in the presence of a magnetic field. E. A. Ash. bibliog diags J Ap Phys 35:298-301 F '64

Magnetic field improves lube qualities of liquid metal. Chem & Eng N 42:49 Mr 23 '64

Magnetic field measurement of high-amperage aluminum cells. W. E. Capitaine and W. H. Schmidt-Hatting. il diags J Metals 16:42-5 Ja '64

Magnetic field penetration into niobium-stannide discs. K. G. Petzinger and J. J. Hanak. il diag RCA R 25:542-50 S '64

Magnetic field problem with axial symmetry and its solution in terms of Fourier-Bessel expansions. D. Midgley and S. W. Smethurst. diags Inst E E Proc 110:1465-72 Ag '63; Discussion. 111:1149-50 Je '64

MAGNETIC field—*Continued*
Magnetic field quenching of the Suhl-Nakamura width in antiferromagnets. P. Pincus. J Ap Phys 35:839-40 pt 2 Mr '64
Magnetic-field spectrum analyzer. L. J. Greenstein and others. il diag R Sci Instr 35:1307-10 O '64
Magnetic field tuning of gaseous laser oscillators. R. L. Fork and C. K. N. Patel. bibliog IEEE Proc 52:208-9 F '64
Magnetization of niobium-stannide films in transverse fields. J. J. Hanak. bibliog il diags RCA R 25:551-69 S '64
Magnetoresistance of the Corbino disk at microwave frequencies. C. B. Burckhardt and others. bibliog diags IEEE Proc 52:277-83 Mr '64
Magnetostatic field of electric currents. G. B. Walker. bibliog Inst E E Proc 111:1068-74 My '64
Measurement and control of the magnetic field in a beta spectrometer. A. A. Bartlett and others. R Sci Instr 35:1072 Ag '64
Microwave propagation in a waveguide containing a semiconductor to which is applied a steady transverse magnetic field. H. E. M. Barlow and R. Koike. bibliog diags Inst E E Proc 110:2177-81 D '63
Modification of the near-field pattern of a GaAs laser by a magnetic field. A. B. Fowler and E. J. Walker bibliog il J Ap Phys 35:727 Mr '64
New type of flux meter for the measurement of high magnetic fields at low temperatures. J. R. Houck and R. Bowers. bibliog diags R Sci Instr 35:1170-2 S '64
Oscillatory tunneling current through thin-film insulating barriers in a magnetic field. N. Goldberg and S. R. Pollack. bibliog J Ap Phys 34:3556-8 D '63
Production of very high magnetic fields by flux compression. J. D. Lewin and P. F. Smith. bibliog diag R Sci Instr 35:541-8 My '64
Propagation of plasma waves in a spoke-wheel magnetic field. R. L. Liboff. bibliog diag J Res Nat Bur Stand 68D:325-31 Mr '64
Square-loop polycrystalline garnets with and without magnetic field heat treatment. E. A. Nesbitt and others. J Ap Phys 35:2934-5 O '64
Static magnetic field associated with a thin film ferromagnetic slab. C. A. Combs, jr. and J. H. Wujek, jr. diags Franklin Inst J 277:305-12 Ap '64
Strip conductors for magnetic field generation. T. H. Beeforth. diags Ind Electronics 1:744-6 N '63
Stronger fields from new superconductor. il Materials in Design Eng 59:130+ F '64
Superconducting magnet has uniform field. Chem & Eng N 42:55-6 Je 8 '64
Superconducting penetration depth of niobium stannide. G. D. Cody. bibliog diags RCA R 25:414-32 S '64
Superconductive columbium-tin wire. L. C. Shaheen. Electro-Tech 72:11-12 N '63
Superposition of semi-infinite solenoids for calculating magnetic fields of thick solenoids. G. V. Brown and L. Flax. diags J Ap Phys 35:1764-7 Je '64
Surge-magnetic-field and pulse-current effects in niobium stannide. W. H. Cherry. bibliog il diags RCA R 25:510-32 S '64
Trapping of a charged particle in a static magnetic field. D. A. Baker. bibliog diag Am J Phys 32:347-54 My '64
Variation of the internal fields and isomer shifts at the Fe sites in the FeAl series. M. B. Stearns. J Ap Phys 35:1095-6 pt 2 Mr '64
Weinreich relation in the presence of dc electric and magnetic fields. H. N. Spector. J Ap Phys 34:3628 D '63
Wide range magnetic field measurements at 4.2°K. M. S. Lubell and B. S. Chandrasekhar. bibliog R Sci Instr 35:906-8 Jl '64
See also
Cyclotron
Electromagnetic field
Electromagnetism
Faraday effect
Hall effect
Magnetic shielding
Magnetohydrodynamics
Zeeman effect

MAGNETIC films. See Films, Metallic

MAGNETIC induction
Field strengths for prebreakdown magnetic induction discharge. R. C. Jones and F. E. Nagel. IEEE Proc 52:625 My '64
Inductive behavior of superconducting magnets. C. F. Hempstead and others. bibliog diags J Ap Phys 34:3226-36 N '63
See also
Electromagnets
Hysteresis

MAGNETIC instruments
Automatic magnetic field calibrator. L. Niemelä. diag J Sci Instr 41:646 O '64
Broad-band tapered field resoance isolator J. H. Collins and T. M. Heng. diags Electronic Eng 36:250-2 Ap '64
Diamagnetic gaussmeter. L. I. Mendelsohn. diags R Sci Instr 35:198-200 F '64
Field unit for ferreting. il Engineering 197:303 F 21 '64
Hexagonal ferrite isolators. D. R. Taft. diags J Ap Phys 35:776-8 pt 2 Mr '64
High frequency properties of peaking strip probes. H. J. Huber and K. C. Rogers. diag R Sci Instr 35:801-2 Jl '64
Magnetic heat engine. H. S. Wolff. il J Sci Instr 41:281 My '64
Magnetic sensor; abstract. H. Yamamoto. Electronics 37:159-60 My 18 '64
Magneto elastic load cell squeezes into tight spaces. A. L. Mozina. il diags Control Eng 10:69-70 D '63
Optimization of the magnetic triode-type thermionic converter. M. Zgorzelski. diag J Ap Phys 35:197-201 Ja '64
Performance of an all-magnetic shift register. D. J. Morris. bibliog diags Inst E E Proc 111:291-302 F '64
Rotating coil gaussmeters. M. J. Lush. il diags Instruments & Control Systems 37:111-13 My '64
Second-harmonic magnetic modulator using ferrite core materials. R. C. Foss. bibliog diags IEEE Trans Com & Electronics 83:561-6 S '64
Toe-in indication equipment. F. R. Towner. il diags Ind Electronics 2:453-6 O '64
Torque measurement by magnetic pickups. R. P. Benedict and V. Donato. Electro-Tech 74:118-20 Ag '64
X-band coincidence ferrimagnetic limiter using lithium ferrite. R. L. Comstock and M. Loewy. bibliog IEEE Proc 51:1769-70 D '63
See also
Fluxmeters
Magnetometers
Permeameters

MAGNETIC lenses
Achromatic translation system for charged particle beams. D. A. Swenson. diags R Sci Instr 35:608-12 My '64

MAGNETIC materials
A-c flux penetration into magnetic materials with saturation. H. Poritsky and J. M. Butler. bibliog diags IEEE Trans Com & Electronics p99-110; Discussion. 110-11 Ja '64
Analysis of high-power effects in ferrimagnetics from the point of view of energy transfer; first-order instabilities. G. Kemanis and S. Wang. bibliog diags J Ap Phys 35:1465-70 My '64
Applications of superconducting materials; symposium. diags Inst E E Proc 111:407-13; Discussion. 413-20 F '64
Compositional and thickness dependence of the ferromagnetic anisotropy in resistance of iron-nickel films. E. N. Mitchell and others. bibliog J Ap Phys 35:2604-8 S '64
Effects of charged particles and neutrons on magnetic materials. D. I. Gordon and R. S. Sery. bibliog IEEE Trans Com & Electronics 83:357-61 Jl '64
Experimental determination of permeability-stress relationships. L. I. Mendelsohn and others diags J Ap Phys 35:863-5 pt 2 Mr '64
Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64
Magnetic tape recording materials. C. D. Mee. bibliog diags IEEE Trans Com & Electronics 83:399-408 Jl '64
Magnetics: its applications in electronics. bibliog il diags Electronics 37:61-84 Je 29 '64
Magnetics research turns up new designs, applications. S. B. Ruth. il Electronic Ind 23:30-4+ F '64
Magnetizable vinyl. il Mod Plastics 41:102-3 F '64
Matteucci effect: its interpretation and its use for the study of ferromagnetic matter. R. Skórski. bibliog il diags J Ap Phys 35:1213-16 Ap '64
Modified ferromagnetic chromium dioxide. B. Kubota and others. bibliog il Am Cer Soc J 46:550-6 N '63

MAGNETIC materials—*Continued*

New ductile magnetic alloy has highest known remanence. Franklin Inst J 277:370 Ap '64

New ductile magnetic alloy has highest known remanence; Remendur. Bell Lab Rec 42:102 Mr '64

New magnetic alloy has highest known remanence. Electronics 37:66+ F 14 '64

Parallel pumping of magnetoelastic waves in ferromagnets. R. L. Comstock. bibliog J Ap Phys 35:2427-31 Ag '64

Power spectrum of the Barkhausen noise of various magnetic materials. P. Mazzetti and G. Montalenti. bibliog diag J Ap Phys 34:3223-5 N '63

Resistivity of ferromagnetic alloys. J. M. Sivertsen. bibliog J Ap Phys 35:2407-12 Ag '64

Spectrum of Barkhausen noise for periodic magnetisation of ferromagnetic materials in bulk. K. G. Warren and K. B. Reed. bibliog diags Inst E E Proc 111:387-92 F '64

Static magnetic field associated with a thin film ferromagnetic slab. C. A. Combs, jr. and J. H. Wujek, jr. diags Franklin Inst J 277:305-12 Ap '64

Technique for the determination of the magnetic history of local regions in cubic ferromagnets. W. D. Nix and R. A. Huggins. diags J Ap Phys 35:3057-8 O '64

See also

Silicon steel

Testing

Eddy-current losses in thin magnetic sheet. B. E. Mulhall. bibliog diag Inst E E Proc 111:183-92 Ja '64

Losses of general purpose magnetic materials. F. R. Richardson. IEEE Trans Power Apparatus & Systems p941-4 D '63

MAGNETIC measurements

Dispersion in thin magnetic films. J. M. Daughton and A. V. Pohm. bibliog diags IEEE Trans Com & Electronics 83:247-50 My '64

Eddy-current losses in thin magnetic sheet. B. E. Mulhall. bibliog diag Inst E E Proc 111:183-92 Ja '64

Efficiency of cylindrical coil systems in magnetic susceptibility measurements. C. Scheringer. R Sci Instr 35:515-16 Ap '64

Electromagnetic measurement. H. W. Lance. Space/Aeronautics 42 no 4:199-202 '64-65

Fermi surface of nickel from galvanomagnetic measurements. W. A. Reed and E. Fawcett. bibliog diag J Ap Phys 35:754-9 pt 2 Mr '64

Measurement of magnetic thin film rotational properties and uniformity. D. M. Ellis and C. J. Bader. diags R Sci Instr 34:1188-90 N '63

Measurements of skew, dispersion, and creep in plated wires. H. S. Belson. il diags IEEE Trans Com & Electronics 83:317-20 My '64

Method for measuring small permanent magnetic moments of irregularly shaped bodies. A. G. L. M. Weijts and others bibliog J Sci Instr 41:117 F '64

New NBS permeameters. diag Electro-Tech 74:122+ O '64

Technique for measuring the electrical conductivity of wakes of projectiles at hypersonic speeds. H. E. Koritz and J. C. Keck. bibliog il diags R Sci Instr 35:201-8 F '64

Using a Rawson type 727 gaussmeter for the measurement of weak fields. T. C. Penn and F. G. West. diag R Sci Instr 35:1361-2 O '64

Wide range magnetic field measurements at 4.2°K. M. S. Lubell and B. S. Chandrasekhar. bibliog R Sci Instr 35:906-8 Jl '64

See also

Magnetic permeability

Magnetic susceptibility

MAGNETIC memory (calculating machines)

Airborne tape memory system. il diags Product Eng 35:60-1 O 12 '64

Annual conference on magnetism and magnetic materials, 9th, Atlantic City; abstracts of papers. Electronics 36:44 N 22 '63

Balanced bipolar circuits improve magnetic shift-register performance. E. E. Newhall. bibliog il diags Electronics 37:54-9 O 5 '64

Behavior of thin-film coupled ultrasonic delay lines. J. E. Lovell and A. Yelon. bibliog diags IEEE Trans Com & Electronics 83:524-8 S '64

Cards form biggest memory. il Electronics 37:52 F 14 '64

Case for magnetic logic. J. Rogers and J. King. il diags Electronics 37:40-7 Je 1 '64

CIRRUS coincident current core storage unit. I. R. Butcher. bibliog il diags Electronic Eng 36:534-9 Ag '64

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Computer mass memory system. il Electronic Ind 23:83 Ap '64

Computer memory system. C. Wentworth and others. diags Materials in Design Eng 59:134 Ap '64

Computers; rod with a memory. il Product Eng 35:73 Ag 3 '64

Conductive memory points to new displays. M. F. Wolff. il diags Electronics 36:10-11 N 8 '63

Core memory device. Franklin Inst J 277:294 Mr '64

Coupled biaxial films. H. Chang. diags J Ap Phys 35:770-1 pt 2 Mr '64

Disc file memories. M. G. Schaar and I. D. Biondo. il diags Instruments & Control Systems 37:85-8 Jl '64

Effect of a deposited coupling loop on the high-speed switching properties of a magnetic thin film. B. C. Reardon. bibliog diags IEEE Trans Com & Electronics 83:549-53 S '64

Engineering flux-switching models for toroidal and multipath cores. D. Nitzan. bibliog diags IEEE Trans Com & Electronics 83:309-14 My '64

Expanding internal memory in a real-time system. R. B. Scott. diags Control Eng 11:118-21 O '64

Extremely sensitive solid-state image storer. S. C. Requa and J. M. N. Hanlet. diags Space-Aeronautics 42:87+ Ag '64

Ferrite memory. L. L. Marlow. il Instruments & Control Systems 37:127-8 O '64

Flute memory. il diag Electro-Tech 74:108 S '64

Future developments in large magnetic film memories. J. I. Raffel. il diags J Ap Phys 35:748-53 pt 2 Mr '64

High-speed ferrite-core storage system. D. B. G. Edwards and others. bibliog il plan diags Inst E E Proc 111:1501-10 S '64

Improved union of digit-select lines and sense lines in word-select ferrite-core memory systems. R Laupheimer. diags IEEE Proc 52:432-3 Ap '64

Interactions between adjacent cells in magnetic-film storage matrixes. P. Mossman. bibliog diags Inst E E Proc 111:1411-16 Ag '64

Laminated ferrite memory. R. Shahbender and others. bibliog il diags RCA R 24:705-29 D '63

Littlest Biax; magnetic memory configurations. Electronics 37:29 Jl 27 '64

Low-current, high-speed magnetic memory array utilizing evaporated matrix wiring. T. J. Matcovich and others. il diag J Ap Phys 35:760-1 pt 2 Mr '64

Low-power thin-film memory. C. J. Kriessman and others. bibliog il diags IEEE Trans Com & Electronics 83:519-24 S '64

Machine design's reader service computerized! il Machine Design 36:14-15+ Ag 13 '64

Magnetic memory elements with biaxial anisotropy. E. W. Pugh. diags IEEE Trans Com & Electronics 83:544-8 S '64

Magnetics research turns up new designs, applications. S. B. Ruth. il Electronic Ind 23:30-4+ F '64

Mass storage with magnetic cards. il Electro-Tech 74:112+ S '64

Memory and logic system for an electronic private exchange. E. A. Irland and J. H. Vogelsong. bibliog diags IEEE Trans Com & Electronics 83:332-8 Jl '64

Molded memory array; abstract. R. F. Elfant and others. Electronics 37:110 Je 1 '64

Molded parts miniaturize electronic package, cut costs, too. il Mod Plastics 42:95-7+ O '64

Multilayer dielectric- and magnetic-film memory cell designed for optical read out. D. O. Smith. bibliog diag J Ap Phys 35:772-3 pt 2 Mr '64

New computer mass memory system. Franklin Inst J 277:377-8 Ap '64

NDRO magnetic film memory mode using creep and boundary displacement switching. J. H. Hoper. diag J Ap Phys 35:762-3 pt 2 Mr '64

Nondestructive read-out in thin magnetic film memories. W. Jutzi. IEEE Proc 52:875 Jl '64

Nondestructive readout memories. diag Electronic Ind 23:56 Ag '64

No. one electronic switching system call store; a 0.2-megabit ferrite sheet memory. R. M. Genke and others. il diags Bell System Tech J 43:2147-91 S '64

MAGNETIC memory (calculating machines) *—Continued*

No. one electronic switching system program store. C. F. Ault and others. il diags Bell System Tech J 43:2097-146 S '64

Optimization of magnetic parameters in thin films DRO storage elements. R. J. Petschauer and others J Ap Phys 35:766-7 pt 2 Mr '64

Other magnetics move in on the standard ferrite core. diags Electronics 37:64-9 Je 29 '64

Plated holes simplify memory design. J. S. Sallo. bibliog il diags Electronics 36:34-6 N 1 '63

Pulse-width temperature-compensated megacycle core memory. M. S. Leifer. il diags IEEE Trans Com & Electronics 83:281-8 My '64

Read-write nondestructive read-out memory. D. L. Wiley and R. D. Pierce. il diags IEEE Trans Com & Electronics 83:378-82 Jl '64

Recognizing patterns with threaded cores. R. Roy. diags Electronic Ind 23:86-7 Ag '64

Sequential access ferrite store with stepping switch addressing. M. D. A. B. Rackowe. diags Electronic Eng 36:612-15 S '64

Shape and performance of multi-aperture magnetic devices. D. J. Morris. bibliog diags Electronic Eng 36:440-7 Jl '64

Signal switching with magnetic elements. H. D. Crane and W. K. English. bibliog il diags IEEE Trans Com & Electronics 83:486-94 S '64

Size and speed capabilities of destructive read-out film memories. A. V. Pohm and others. bibliog diags IEEE Trans Com & Electronics 83:267-74 My '64

System for displaying thin-film plated wire switching characteristics under disturbed conditions. B. A. Kaufman. il diags R Sci Instr 35:1163-6 S '64

Thick-film memory has high output. il diag Electronics 36:40 N 1 '63

Thin-film first; 315(rod memory computer). il Electronics 37:30 Jl 27 '64

Time compression disk. R. E. Morley. il diag Instruments & Control Systems 37:108 Jl '64

Wide-temperature-range ferrite cores for computer memories. H. P. Lemaire and others. bibliog diags RCA R 25:308-18 Je '64

Wire memories; abstract. H. Maeda and A. Matsushita. Electronics 37:110-11 Je 1 '64

Manufacture

Electrons work tiny ferrites. R. A. Shahbender. il diags Electronics 36:72+ N 15 '63

Memory making process. il Electronic Ind 23:56 Ja '64

Precise oxide spray coats computer memory disc. G. Close. il Mach 70:112-14 N '63

Protection

Protecting computer memories against power failures. S. M. Bowers and A. E. Conley. diags Electronic Ind 23:114-15 Ja '64

MAGNETIC moment

Method for determination of magnetic moment in small spinning rotors. J. D. Nixon and D. J. Kenney. diags R Sci Instr 35:1365-6 O '64

Method for measuring small permanent magnetic moments of irregularly shaped bodies. A. G. L. M. Weijts and others. bibliog J Sci Instr 41:117 F '64

Nickel(II) in a weak tetragonal field. S. L. Holt, jr. and others. bibliog Am Chem Soc J 86:519-20 F 5 '64

Radiation field of a magnetic dipole antenna in a conical sheath. D. C. Pridmore-Brown. diags J Math & Phys 43:199-217 S '64

Spin-wave excitation in cubic rare-earth compounds. N. Tsuya and Y. Ebina. bibliog J Ap Phys 35:800-1 pt 2 Mr '64

Spiral structure and moments in Gd-Dy alloys. R. M. Bozorth and J. C. Suits. bibliog J Ap Phys 35:1039-40 pt 2 Mr '64

MAGNETIC permeability

Alternating-current properties of a copper conductor clad in a magnetic sheath. N. F. Astbury. diag Inst E E Proc 110:2055-62 N '63

Experimental determination of permeability-stress relationships L. I. Mendelsohn and others. diags J Ap Phys 35:863-5 pt 2 Mr '64

High-permeability manganese-zinc ferrite reduced in vacuum. Y. Shichijō and others. il J Ap Phys 35:1646-7 My '64

Natural spectrum polycrystalline YIG as a function of density. J. D. Holm and A. H. Morrish. bibliog il J Ap Phys 35:894-5 pt 2 Mr '64

Recent developments in the manufacture of permalloy powder cores; abstract. A. J. Harendza-Harinxma. Electro-Tech 74:122+ Ag '64

Relationship of the measured a-c permeability at low inductions to the dynamic hysteresis loop geometry. H. L. Schenk and F. J. Young. diags IEEE Trans Com & Electronics p593-7 N '63

MAGNETIC properties

Cathode ray tube displays metals' defects. A. Kovacs. diags Control Eng 11:95 Ag '64

Coercive force of angle of incidence films. W. J. Schuele. il J Ap Phys 35:2558-9 Ag '64

Coexistence of magnetic and electric ordering in crystals. G. A. Smolenskii and V. A. Bokov. bibliog il J Ap Phys 35:915-18 pt 2 Mr '64

Control of properties of magnetic thin films for shifting registers. A. C. Tickle J Ap Phys 35:768-9 pt 2 Mr '64

Critical currents and Lorentz-force model in niobium stannide. G. D. Cody and G. W. Cullen. bibliog RCA R 25:466-78 S '64

Deposition temperature and compositional dependence of negative anisotropy in nickel-iron films. G. P. Weiss and D. O. Smith. bibliog J Ap Phys 35:818-20 pt 2 Mr '64

Description of magnetic switching in disperse anisotropy films. R. L. Coren. bibliog diags J Ap Phys 35:201-5 Ja '64

Double-oriented silicon iron makes better cores. N. Pavlik. Materials in Design Eng 58:151-2 N '63

Effect of irradiation on magnetic properties of Fe-Ni alloys. A. I. Schindler and others. bibliog J Ap Phys 35:2640-6 S '64

Exchange inversion in ternary modifications of iron rhodium. P. H. L. Walter. bibliog J Ap Phys 35:938-9 pt 2 Mr '64

Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64

Field dependence of anisotropy in ytterbium-doped yttrium iron garnet. R. F. Pearson and K. Tweedale. J Ap Phys 35:1061-2 pt 2 Mr '64

Fine-grained ferrites; $Ni_{1x}Co_xFe_2O_4$; high-power microwave and rf properties. W. W. Malinofsky and R. W. Babbitt. J Ap Phys 35:1012-14 pt 2 Mr '64

Galvanomagnetic properties of ferromagnetic uranium monosulfide; abstract. M. A. Kanter and C. W. Kazmierowicz. J Ap Phys 35:1053 pt 2 Mr '64

High frequency properties of peaking strip probes. H. J. Huber and K. C. Rogers. diag R Sci Instr 35:801-2 Jl '64

Induced anisotropy in YIG with Si and Mn additions. E. M. Gyorgy and F. J. Schnettler. J Ap Phys 35:1067-8 pt 2 Mr '64

Induced magnetic anisotropy and ordering in Ni-Fe single crystals. M. Takahashi and others. bibliog J Ap Phys 35:869-70 pt 2 Mr '64

Induced magnetic anisotropy in ferrite single crystals. E. M. Gyorgy and F. J. Schnettler. bibliog J Ap Phys 35:1648-9 My '64

Influence of milling upon the magnetic properties of the intermetallic compound MnAlGe. W. A. J. J. Velge and K. J. de Vos. bibliog J Ap Phys 34:3568-71 D '63

Inhomogeneity in the magnitude of the anisotropy field in thin nickel-iron films. H. N. Oredson and E. J. Torok. J Ap Phys 35:810-11 pt 2 Mr '64

Internal magnetoelastic coupling constant of nickel ferrite. N. Goldberg and W McCann. bibliog diags J Ap Phys 35:1026-7 pt 2 Mr '64

Investigations of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64

Low-temperature properties of a Heisenberg antiferromagnet. A. B. Harris. bibliog J Ap Phys 35:798-9 pt 2 Mr '64

Low-temperature properties of dilute ferromagnets in copper. M. W. Klein. bibliog J Ap Phys 35:944-5 pt 2 Mr '64

Lower critical field of niobium stannide. R. Hecht. bibliog diag RCA R 25:453-65 S '64

Magnetic and structural properties of metastable Fe-Cu solid solutions. E. F. Kneller. J Ap Phys 35:2210-11 Jl '64

Magnetic behavior of high-field superconductors; abstract. C. P. Bean. bibliog J Ap Phys 35:759 pt 2 Mr '64

Magnetic exchange anisotropy in mixtures of barium, strontium, or lead ferrite with potassium ferrite. W. L. Roth and F. E. Luborsky. J Ap Phys 35:966-7 pt 2 Mr '64

MAGNETIC properties—*Continued*

Magnetic properties of an iron-nickel single crystal ordered by neutron bombardment. L. Néel and others. J Ap Phys 35:873-6 pt 2 Mr '64

Magnetic properties of chromium chrysoberyl. R. P. Santoro and R. E. Newnham. bibliog diag Am Cer Soc J 47:491-2 O '64

Magnetic properties of cube-textured 6-81.3 Mo-permalloy. Y. Odani. J Ap Phys 35:865-6 pt 2 Mr '64

Magnetic properties of cupron wire at low temperatures. E. Lerner and others. R Sci Instr 35:117 Ja '64

Magnetic properties of Eu; abstract. G. P. Arnold and others. J Ap Phys 35:1031 pt 2 Mr '64

Magnetic properties of Fe_3MnTm and some related intermetallic compounds. H. J. Williams and others. J Ap Phys 35:1032-3 pt 2 Mr '64

Magnetic properties of Ni-Fe-Cr films. M. S. Cohen. J Ap Phys 35:834-5 pt 2 Mr '64

Magnetic structure of neodymium. R. M. Moon and others. bibliog J Ap Phys 35:1041-2 pt 2 Mr '64

Magnetoelastic damping in zone-melted iron. R. E. Maringer. diag J Ap Phys 35:2375-81 Ag '64

Neutron diffraction investigation of the magnetic structure of $TbMn_2$. L. M. Corliss and J. M. Hastings. diag J Ap Phys 35:1051-3 pt 2 Mr '64

New devices from magnetic effects. il diags Electronics 37:78-83 Je 29 '64

Origin of biaxial anisotropy in polycrystalline films. R. J. Prosen and others. diags J Ap Phys 35:826-7 pt 2 Mr '64

Origin of the induced magnetic anisotropy in nickel ferrite. F. J. Schnettler and E. M. Gyorgy. bibliog J Ap Phys 35:330-4 F '64

Properties of molybdenum-permalloy films. K. Y. Ahn and W. R. Beam. J Ap Phys 35:832-3 pt 2 Mr '64

Quantitative calculation of the magnetic ripple of uniaxial thin permalloy films. H. Hoffmann. bibliog diag J Ap Phys 35:1790-8 Je '64

Quasistatic properties of RIS films of oxidized permalloy. C. H. Wilts. il J Ap Phys 35:2097-101 Jl '64

Selected glass substrates and the magnetic parameters of thin films. J. S. Lemke. bibliog il IEEE Trans Com & Electronics 83:245-7 My '64

Sendust sheet-processing techniques and magnetic properties. H. H. Helms, jr. and E. Adams. J Ap Phys 35:871-2 pt 2 Mr '64

Some magnetostatic and micromagnetic properties of the infinite rectangular bar. W. F. Brown, jr. bibliog J Ap Phys 35:2102-6 Jl '64

Some structure-property relationships in thin magnetic films. K. Y. Ahn and others. il J Ap Phys 35:1187-90 Ap '64; Discussion. 35:3051-2 O '64

Spin-wave anisotropy effects in parallel pumping in YIG. J. C. Sethares and others. J Ap Phys 35:898-9 pt 2 Mr '64

Stress effects in evaporated permalloy films. H. L. Pinch and A. A. Pinto. J Ap Phys 35:828-9 pt 2 Mr '64

Structural and magnetic properties of sputtered NiFe films grown in a dc discharge environment. E. Kay. bibliog il J Ap Phys 35:2936-42 O '64

Testing laboratory measures magnetic properties of alloys. il Tool & Manuf Eng 52:120 Ap '64

Theory of radiation from sources immersed in anisotropic media. J. R. Wait. J Res Nat Bur Stand 68B:119-36 Jl '64

Uniaxial anisotropy due to magnetoelastic energy in constrained polycrystalline films. F. G. West. bibliog J Ap Phys 35:1827-40 Je '64

Variation with temperature of the magnetocrystalline anisotropy of several nickel iron ferrites. F. W. Chapman and others. bibliog J Ap Phys 35:1063-4 pt 2 Mr '64

See also

Magnetic susceptibility

MAGNETIC prospecting. See Prospecting—Geophysical methods

MAGNETIC recording. See Magnetic tape recording; Sound—Recording and reproducing—Magnetic recording

MAGNETIC resonance

Analog computer study of unstable spin waves. F. R. Morgenthaler. J Ap Phys 35:900-1 pt 2 Mr '64

Analysis of ethylene polymers and copolymers by high resolution nuclear magnetic resonance. R. S. Porter and others. diag Anal Chem 35:1948-50 N '63

Analysis of stagger-tuned pulse receiver systems with special reference to n.m.r. relaxation-time measurements. H. Pursey. bibliog il diag Radio & Electronic Eng 28:17-24 Jl '64

Analysis of the nuclear magnetic resonance spectra of norbornene derivatives. P. Laszlo and P. V. Schleyer. bibliog Am Chem Soc J 86:1171-9 Mr 20 '64

Analysis of the nuclear magnetic resonance spectra of substituted ferrocenes. M. I. Levenberg and J. H. Richards. bibliog Am Chem Soc J 86:2634-7 Jl 5 '64

Antiferromagnetic resonance in CoF_2, NiF_2, and $MnCO_3$. P. L. Richards. bibliog J Ap Phys 35:850-1 pt 2 Mr '64

Antiferromagnetic resonance linewidth in MnF_2 near the transition temperature. J. C. Burgiel and M. W. P. Strandberg. bibliog J Ap Phys 35:852-3 pt 2 Mr '64

Application of electron spin resonance to the determination of hydroperoxides. H. Ueda. Anal Chem 35:2213-14 D '63

Applications of instrumental techniques in structural monosaccharide chemistry. R. J. Ferrier and N. R. Williams. Chem & Ind p 1696-707 bibliog(p 1706-7) O 10 '64

Applications of nuclear magnetic resonance spectroscopy in the fat and oil industry. J. W. Harlap. il Am Oil Chem Soc J 41:sup4+ S '64

Applying magnetic resonance to continuous process analysis. F. A. Nelson diags I S A J 11:55-9 Ja '64

Atomic beam magnetic resonance apparatus for short-lived isotopes. G. K. Rochester and K. F. Smith. diags J Sci Instr 41:629-32 O '64

Boron-11 nuclear magnetic resonance spectra (32.1 mc.) of alkylated derivatives of dicarbahexaborane(8) and 1-iododecaborane(14). R. E. Williams and T. P. Onak. bibliog diags Am Chem Soc J 86:3159-60 Ag 5 '64

Boron-11 nuclear magnetic resonance spectrum of $B_{20}H_{18}^{-2}$ at 60 mc./sec. R. L. Pilling and others. bibliog Am Chem Soc J 86:3568-9 S 5 '64

Broad-band tapered field resonance isolator. J. H. Collins and T. M. Heng. diags Electronic Eng 36:250-2 Ap '64

Calabash curare alkaloids; specific deuterium labeling and nuclear magnetic resonance studies. M. Grdinic and others. bibliog diags Am Chem Soc J 86:3357-63 Ag 20 '64

Calculation of the higher order dipole-dipole effect in paramagnetic crystals. P. H. E. Meijer. J Res Nat Bur Stand 68A:113-19 Ja '64

Calibration of nuclear magnetic resonance chemical shift scale. J. L. Jungnickel. Anal Chem 35:1985-6 N '63

C^{13} and H^1 nuclear magnetic resonance spectra of cycloalkanes. J. J. Burke and P. C. Lauterbur. bibliog Am Chem Soc J 86:1870-1 My 5 '64

Carbon-13 magnetic resonance. E. G. Paul and D. M. Grant. bibliog Am Chem Soc J 86:2977-90 Ag 5 '64

Carbonium ions in solution. N. C. Deno. diags Chem & Eng N 42:88-94+ O 5 '64

Chemical shifts and long range shielding effects in the nuclear magnetic resonance spectra of phenyldimethyl, diphenyl, triphenyl, and related carbonium ions. D. G. Farnum. bibliog Am Chem Soc J 86:934-5 Mr 5 '64

Chemical shifts of methyl protons in polymethylnaphthalenes. F. F. Yew and others. bibliog Anal Chem 36:843-5 Ap '64

Cis and *trans* configurations of the peptide bond in N-monosubstituted amides by nuclear magnetic resonance. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 86:337-41 F 5 '64

cis-azoxybenzenes; synthesis and structure. D. L. Webb and H. H. Jaffé. bibliog Am Chem Soc J 86:2419-21 Je 20 '64

Classification of alcohols by nuclear magnetic resonance spectroscopy. O. L. Chapman and R. W. King. Am Chem Soc J 86:1256-8 Mr 20 '64

Complexes of organolithium compounds with vacant orbital acceptors; determination of electron-density changes by proton magnetic resonance. R. Waack and M. A. Doran. bibliog Am Chem Soc J 85:4042-4 D 20 '63

Computer calculation of stoichiometry and errors in scrambling reactions. L. C. D. Groenweghe and others. bibliog Anal Chem 36:303-7 F '64

Computer study of transient spin-wave buildup in ferrites. K. J. Harker and H. J. Shaw. J Ap Phys 35:902-3 pt 2 Mr '64

MAGNETIC resonance—*Continued*

Concentration dependence of the n.m.r. spectra of indoles. M. G. Reinecke and others. Chem & Ind p 151 Ja 25 '64

Configurations in unsymmetrically N,N-disubstituted amides. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 85: 3728-30 D 5 '63

Confirmation of the anomeric configuration of 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranosyl cyanide by proton magnetic resonance. B. Coxon and H. G. Fletcher, jr. bibliog Chem & Ind p662-3 Ap 18 '64

Conformations; conformational analysis of 2-bromocyclohexanone by nuclear magnetic resonance spectroscopy. E. W. Garbisch, jr. bibliog Am Chem Soc J 86:1780-2 My 5 '64

Corrections to the moments of modulation broadened magnetic resonance line shapes. G. V. H. Wilson. J Sci Instr 41:98-9 F '64

Correlation of nuclear spin resonance line widths with formation constants of weak complexes. G. A. Rechnitz and S. B. Zamochnick. Am Chem Soc J 86:2953-4 Jl 20 '64

Crystallographic implications of epr in neutron-irradiated diamond. R. M. Denning and E. H. Poindexter. bibliog Am Mineralogist 49:277-85 Mr '64

Detailed analysis of the 7-norbornadienyl carbonium ion nuclear magnetic resonance spectrum. P. R. Story and others. bibliog diags Am Chem Soc J 85:3630-4 N 20 '63

Determination of active hydrogen by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. Anal Chem 36: 1721-3 Ag '64

Determination of isomer distribution ratio in mixtures of the monoisobutyrates of 2,2,4-trimethyl-1,3-pentanediol by nuclear magnetic resonance. H. F. White and others. Anal Chem 36:1659-61 Jl '64

Determination of 3-(p-chlorophenoxy)-1,2-propanediol 2-carbamate in 3-(p-chlorophenoxy)-1,2-propanediol 1-carbamate by nuclear magnetic resonance. G Slomp and others. Anal Chem 36:375-80 F '64

Determining structure of paraffinic chains by nmr. K. W. Bartz and N. F. Chamberlain. Anal Chem 36:2151-8 O '64

Dielectric, dynamic mechanical and nuclear resonance properties of polyethylene oxide as a function of molecular weight. T. M. Connor and others. bibliog J Ap Chem 14: 74-81 F '64

Differences in electron spin resonance spectra and annealing characteristics of radicals produced in polycrystalline and glassy alkyl iodides by γ-radiolysis. H. W. Fenrick and others. bibliog Am Chem Soc J 85:3731-2 D 5 '63

Differential nuclear magnetic resonance magnetometer. D. E. P. Silver. bibliog diags Electronic Eng 36:374-7 Je '64

Direct Mn^{55} nmr absorption in antiferromagnetic KMnF$_3$. A. Nakamura and others. bibliog J Ap Phys 35:842-3 pt 2 Mr '64

Effect of distant atoms in a molecule on nuclear magnetic resonance chemical shifts. J. R. Van Wazer and D. Grant. bibliog Am Chem Soc J 86:1450-1 Ap 5 '64

Effect of metal ions on nuclear hyperfine coupling constants in epr spectra. T. Kitagawa and others. Anal Chem 36:925-6 Ap '64

Effect of nonuniform magnetization on the spinwave spectrum in thin ferromagnetic films. J. T. Davies. bibliog J Ap Phys 35: 804-5 pt 2 Mr '64

Effect of rare-earth impurities on the ferrimagnetic resonance and nuclear relaxation in yttrium iron garnet. F. Hartmann-Boutron. bibliog J Ap Phys 35:889-91 pt 2 Mr '64

Effect of the perfluoroalkyl group on the nuclear magnetic resonance spectra, conformational equilibria, and *cis-trans* equilibria of 1-iodo-2-(perfluoroalkyl)-cyclohexanes. N. O. Brace. bibliog Am Chem Soc J 86:665-73 F 20 '64

Effects of metal ions on proton magnetic resonance spectra and rates of alkaline hydrolysis of some amino acid esters. R. Mathur and N. C. Li. bibliog Am Chem Soc J 86:1289-92 Ap 5 '64

Epr of exchange-coupled pairs of Eu^{2+} in CaO and SrO. B. A. Calhoun and J. Overmeyer. J Ap Phys 35:989-90 pt 2 Mr '64

Epr spectrometer for studying crystals under high hydrostatic pressure. A. F. Clark and D. F. Wait. bibliog diags R Sci Instr 35: 863-6 Jl '64

Electron paramagnetic resonance spectrum of some tris-complexes of copper(II). H. C. Allen, jr. and others. bibliog Am Chem Soc J 86:1023-5 Mr 20 '64

Electron paramagnetic resonance study of electron exchange effects in reduced aromatic hydrocarbon polymers. D. H. Eargle, jr. bibliog diag Am Chem Soc J 86:2567-9 Jl 5 '64

Electron spin resonance follows electron transfer reactions. G. A. Russell and others. Chem & Eng N 42:49-50 Ap 20 '64

Electron spin resonance in irradiated glycine crystals. J. R. Morton. bibliog Am Chem Soc J 86:2325-9 Je 20 '64

Electron spin resonance of alkyl nitrenes. E. Wasserman and others. Am Chem Soc J 86: 3166-7 Ag 5 '64

Electron spin resonance of molecules adsorbed on synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:749-57 Mr 5 '64

Electron spin resonance of triplet cyclopentadienylidene and indenylidene. E. Wasserman and others. bibliog Am Chem Soc J 86:2304-5 Je 5 '64

Electron spin resonance of triplets from benzene 1,4-diazooxides. E. Wasserman and R. W. Murray. bibliog Am Chem Soc J 86:4203-4 O 5 '64

Electron spin resonance spectra of different solvates of *m*-nitrophenol negative ion in a mixed solvent. C. Corvaja and G. Giacometti. Am Chem Soc J 86:2736 Jl 5 '64

Electron spin resonance spectra of organic oxy radicals. K. U. Ingold and J. R. Morton. Am Chem Soc J 86:3400-2 Ag 20 '64

Electron spin resonance studies of aromatic polynitro compounds. I. Bernal and G. K. Fraenkel. bibliog diags Am Chem Soc J 86:1671-5 My 5 '64

Electron spin resonance study of free radicals in ultraviolet-irradiated ethanol at 77°K. P. J. Sullivan and W. S. Koski. bibliog Am Chem Soc J 86:159-61 Ja 20 '64

Electron spin resonance study of iminoxy free radicals. J. R. Thomas. bibliog Am Chem Soc J 86:1446-7 Ap 5 '64

Electron spin resonance study of X-irradiated fumaric acid-urea crystals. O. H. Griffith and A. L. Kwiram. bibliog diags Am Chem Soc J 86:3937-41 O 5 '64

End-group analysis and number-average molecular weight determination of some polyalkylene glycols and glycol polyesters using nuclear magnetic resonance spectroscopy. T. F. Page, jr. and W. E. Bresler. bibliog Anal Chem 36:1981-5 S '64

Errors in the evaluation of moments of a paramagnetic resonance line. H. S. Judeikis. J Ap Phys 35:2615-17 S '64

Experimental assignment of the proton magnetic resonance spectrum of purine. M. P. Schweizer and others. bibliog Am Chem Soc J 86:696-700 F 20 '64

Experimental studies of standing spinwave modes in ferromagnetic films. M. Nisenoff and R. W. Terhune. J Ap Phys 35:806-7 pt 2 Mr '64

Ferrimagnetic resonance in polycrystalline ferrite and garnet disks at L-band frequencies. W. E. Case and others. bibliog diag J Res Nat Bur Stand 68C:85-9 Ap '64

Ferrimagnetic resonance of rare-earth-doped iron garnets. J. H. Van Vleck. bibliog J Ap Phys 35:882-8 pt 2 Mr '64

Ferrimagnetic resonance relaxation in rare-earth iron garnets; abstract. P. E. Seiden. J Ap Phys 35:891 pt 2 Mr '64

Ferromagnetic resonance in multidomain thin films. T. E. Hasty. bibliog diags J Ap Phys 35:1434-41 My '64

Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H. Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64

Ferromagnetic resonance linewidths of nickel ferrite. A. J. Pointon and others. bibliog diags Inst E E Proc 110:2267-70 D '63

Ferromagnetic resonance of single-crystal gadolinium; abstract. T. W. Moore and D. S. Rodbell. J Ap Phys 35:906 pt 2 Mr '64

Ferromagnetic resonance relaxation, wide spin-wave coverage by ellipsoids. A. S. Risley and H. E. Bussey. J Ap Phys 35: 896-7 pt 2 Mr '64

Ferroresonant effect caused by nonlinear capacitors. A. Korpel and V. Ramaswamy. IEEE Proc 52:82 Ja '64

F^{19} magnetic resonance determination of σ-constants of the -ICl$_2$ functional group. G. E. Maciel. Am Chem Soc J 86:1269-70 Mr 20 '64

MAGNETIC resonance—*Continued*

Formation of alicyclic semiquinones; conformational analysis by electron spin resonance. G. A. Russell and E. T. Strom. Am Chem Soc J 86:744-5 F 20 '64

Frequency-stable nuclear-magnetic-resonance absorption circuit for small filling factors. A. Timur and others. bibliog il R Sci Instr 35:1224-5 S '64

Frequency swept nuclear magnetic resonance absorption circuit. G. V. H. Wilson. diags J Sci Instr 41:436-9 Jl '64

Graphic representation of proton chemical shifts; general consideration and methyl and methylene groups. K. Nukada and others. bibliog Anal Chem 35:1892-8 N '63

Hexagonal ferrites for millimeter resonance isolators. D. R. Taft and others. bibliog Electro-Tech 73:85-8 Ja '64

High resolution nuclear magnetic resonance analysis of vinyl acetate copolymers. M. W. Dietrich and R. H. Keller. bibliog Anal Chem 36:2174-7 O '64

Hydrogen nuclear magnetic resonance chemical shift correlation charts for organic compounds. M. W. Dietrich and R. E. Keller. bibliog Anal Chem 36:258-9 F '64

Hyperselective limiter. D. R. Jackson and R. W. Orth. IEEE Proc 52:1245 O '64

Identification of peroxy radicals by electron paramagnetic resonance. M. Bersohn and J. R. Thomas. Am Chem Soc J 86:959 Mr 5 '64

Identification of polyester resins by nuclear magnetic resonance. D. F. Percival and M. P. Stevens. Anal Chem 36:1574-6 Jl '64

Improvement of the ferromagnetic resonance linewidth of single-crystal ZnY ($Ba_2Zn_2Fe_{12}O_{22}$) by a new growth technique. A. Tauber and others. J Ap Phys 35:1008-9 pt 2 Mr '64

Influence of spin waves upon harmonic generation in ferrites. P. M. Richards and H. J. Shaw. bibliog J Ap Phys 35:187-96 Ja '64

Influence of unsaturation and of fluorine substitution on ketone-alcohol equilibrium constants; a measure of α,β-unsaturated ketone resonance energy and of halogen destabilization. H. J. Ringold and others. bibliog Am Chem Soc J 86:4510-12 O 20 '64

Interaction and association of bases and nucleosides in aqueous solutions; a nuclear magnetic resonance study of the self-association of purine and 6-methylpurine. S. I. Chan and others. bibliog Am Chem Soc J 86:4182-8 O 5 '64

Internal resonances of a discharge column. F. W. Crawford. bibliog diags J Ap Phys 35:1365-9 My '64

Intramolecular ligand exchange in seven-coordinate structures. E. L. Muetterties and K. J. Packer. bibliog Am Chem Soc J 86:293-4 Ja 20 '64

Intrinsic ferromagnetic resonance linewidth in metal single crystals. Z. Frait and B. Heinrich. bibliog J Ap Phys 35:904-5 pt 2 Mr '64

Investigation of maleate-fumarate isomerization in unsaturated polyesters by nuclear magnetic resonance. L. G. Curtis and others. bibliog Ind & Eng Chem Product Res & Develop 3:218-21 S '64

Investigation of trace impurities in solids by electron paramagnetic resonance; distribution of manganese in calcium carbonate S. Fujiwara. bibliog Anal Chem 36:2259-61 N '64

Isotropic proton magnetic resonance shifts in π-bonding ligands coordinated to paramagnetic nickel(II) and cobalt(II) acetylacetonates. W. D. Horrocks, jr. and others. bibliog Am Chem Soc J 86:3031-8 Ag 5 '64

Keto-enol tautomerism in β-dicarbonyls studied by nuclear magnetic resonance spectroscopy; proton chemical shifts and equilibrium constants of pure compounds. J. L. Burdett and M. T. Rogers. bibliog Am Chem Soc J 86:2105-9 Je 5 '64

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in acetylated lignins. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1196-202 Mr 20 '64

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in compounds related to lignin. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1186-96 Mr 20 '64

Line width alternation in the electron spin resonance spectrum of the alkali radical-ion complex of pyracene. E. de Boer and E. L. Mackor. bibliog Am Chem Soc J 86:1513-16 Ap 20 '64

Linewidths in ferromagnetic thin films; abstract. P. E. Wigen and M. R. Shanabarger. J Ap Phys 35:804 pt 2 Mr '64

Liquid crystals' spectra show fine structure. A. Saupe and others. il Chem & Eng N 42:42-4+ Mr 16 '64

Long-range effect of an asymmetric grouping on the magnetic equivalence of methylene group protons. J. C. Randall and others. bibliog Am Chem Soc J 86:3229-32 Ag 20 '64

Low frequency ferromagnetic resonance spectrometer. P. V. Lenzo. diags R Sci Instr 34:1374-6 D '63

Low frequency superregenerative oscillator design for the detection of broad-line nuclear magnetic resonances. A. Narath and others. bibliog diags R Sci Instr 35:476-80 Ap '64

Magnetic field quenching of the Suhl-Nakamura width in antiferromagnets. P. Pincus. J Ap Phys 35:839-40 pt 2 Mr '64

Magnetic resonance experiment for the undergraduate laboratory. P. J. Limon and R. H. Webb. bibliog il Am J Phys 32:361-4 My '64

Magnetoacoustic resonance in lithium ferrite. R. L. Comstock and J. P. Remeika. bibliog J Ap Phys 35:1018-19 pt 2 Mr '64

Mn^{55} nuclear magnetic resonance in antiferromagnetic $RbMnF_3$. A. J. Heeger and D. T. Teaney. bibliog J Ap Phys 35:846-7 pt 2 Mr '64

Measurement of ferromagnetic resonance of thin permalloy films at low bias field. D. T. Ngo. diag J Ap Phys 34:3626 D '63

Measurement of solids in triglycerides using nuclear magnetic resonance spectroscopy. J. R. Taylor and others. Am Oil Chem Soc J 41:177-80 Mr '64

Mechanical analogue of electron spin inversion and maser action; with a simple description of maser operation. A. E. Karbowiak. bibliog il diags Inst E E Proc 110:2241-7 D '63

Mercury-photosensitized decomposition and collision broadening of resonance line. K. Yang. bibliog Am Chem Soc J 86:3941-8 O 5 '64

Methylene proton splitting in the nuclear magnetic resonance spectra of sulphinic esters. J. W. Wilt and W. J. Wagner. bibliog Chem & Ind p 1389-90 Ag 1 '64

Microwave resonance and relaxation of manganese iron ferrites. B. H. Clarke and R. W. Teale. bibliog J Ap Phys 35:892-3 pt 2 Mr '64

Modified shape factor nmr method for measuring magnetic susceptibility. L. N. Mulay and M. Haverbusch. bibliog diag R Sci Instr 35:756-7 Je '64

Modulation broadening of nmr and esr line shapes. G. V. H. Wilson. bibliog J Ap Phys 34:3276-85 N '63

Modulation effects in magnetic resonance; widths and amplitudes for Lorentzian and Gaussian lines. G. W. Smith. bibliog J Ap Phys 35:1217-21 Ap '64

New method for constructing epr cavities. A. R. Cook and others. bibliog il R Sci Instr 35:114-15 Ja '64

Nitrogen-14 nuclear magnetic resonance in nitro compounds. M. Witanowski and others. bibliog Am Chem Soc J 86:2569-70 Jl 5 '64

Novel insert for the Varian V-4331A nmr probe. W. C. Lawrence. diags R Sci Instr 35:752-3 Je '64

Novel millimetre wave magnetic resonance spectrometer. P. R. Elliston and others. diags J Sci Instr 40:586-8 D '63

Nuclear and ferromagnetic relaxation in $MnFe_2O_4$. A. J. Heeger and others. J Ap Phys 35:840-1 pt 2 Mr '64

Nuclear antiferromagnetic double resonance in $MnCO_3$. D. Shaltiel and H. J. Fink. bibliog J Ap Phys 35:848-9 pt 2 Mr '64

Nmr and epr. il diags Instruments & Control Systems 36:97-102 N '63

Nuclear magnetic resonance in poly(normal α-olefins). W. P. Slichter and D. D. Davis. bibliog J Ap Phys 35:10-14 Ja '64

Nuclear magnetic resonance in the examination of the thermal decomposition of *O,O*-dimethyl *O*-[4-(methylthio)-3-tolyl] phosphorothioate. T. R. Fukuto and others. bibliog J Agri & Food Chem 12:169-71 Mr '64

Nuclear magnetic resonance spectra and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, pheophytins, and methyl pheophorbides. G. L. Closs and others. bibliog Am Chem Soc J 85:3809-21 D 5 '63

MAGNETIC resonance—*Continued*
N.m.r. spectra of polyoxymethylenes in solution. G. Allen and others. Chem & Ind p623-4 Ap 11 '64
Nuclear magnetic resonance spectra of some norbornadienes and norbornenes. E. I. Snyder and B. Franzus. bibliog Am Chem Soc J 86:1166-71 Mr 20 '64
Nuclear magnetic resonance spectra of substituted ethanes; *meso*- and *dl*-2,5-diphenylhexanediol-2,5. D. Jung and A. A. Bothner-By. bibliog Am Chem Soc J 86:4025-7 O 5 '64
Nuclear magnetic resonance spectra of the angular proton in benzo[*a*]- and indolo[*a*] quinolizidines. M. Uskoković and others. bibliog diags Am Chem Soc J 86:3364-7 Ag 20 '64
Nuclear magnetic resonance-spectra of three-membered ring compounds; substituent effects on monosubstituted 1,1-dichlorocyclopropanes and epoxides. K. L. Williamson and others. bibliog Am Chem Soc J 86:762-5 Mr 5 '64
Nuclear magnetic resonance spectra-structure correlation for chlorinated propanes. H. F. White. Anal Chem 36:1291-4 Je '64
Nuclear magnetic resonance spectroscopy and (p→d) π-bonding in silicon compounds. E. A. V. Ebsworth and S. G. Frankiss. bibliog Am Chem Soc J 85:3516-17 N 5 '63
Nuclear magnetic resonance spectroscopy; the effect of structure on magnetic nonequivalence due to molecular asymmetry. G. M. Whitesides and others. bibliog Am Chem Soc J 86:2628-34 Jl 5 '64
Nuclear magnetic resonance studies in antiferromagnetic $CrCl_3$. A. Narath. J Ap Phys 35:838 pt 2 Mr '64
Nuclear magnetic resonance studies of hydrogen bonding; calculation of the shift upon complex formation. P. J. Berkeley, jr. and M. W. Hanna. bibliog diag Am Chem Soc J 86:2990-4 Ag 5 '64
Nuclear magnetic resonance studies of metal aminopolycarboxylate complexes. R. J. Day and C. N. Reilley. bibliog Anal Chem 36:1073-6 My '64
Nuclear magnetic resonance studies of protonation of polyamine and aminocarboxylate compounds in aqueous solution. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1698-706 Ag '64
Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64
Nuclear magnetic resonance study of aqueous pyruvate-glycinate-zinc(II) and related systems. D. Leussing and C. K. Stanfield. bibliog Am Chem Soc J 86:2805-10 Jl 20 '64
Nuclear magnetic resonance study of structures of cobalt(II)-histidine complexes. C. C. McDonald and W. D. Phillips. bibliog Am Chem Soc J 85:3736-42 D 5 '63
Nuclear magnetic resonance study of the products from an unusual reaction of norbornadiene; the ionic addition of N-chlorodiethylamine in sulfuric acid-acetic acid. R. S. Neale and E. B. Whipple. bibliog Am Chem Soc J 86:3130-7 Ag 5 '64
Nuclear-resonance sensing of mechanical noise. R. Zito, jr. bibliog diags Electro-Tech 73:43-51 Je '64
100-mc. nuclear magnetic resonance and nuclear magnetic double resonance study of puromycin. L. F. Johnson and N. S. Bhacca. Am Chem Soc J 85:3700-1 N 20 '63
Orbital degeneracy and the electron spin resonance spectrum of the benzene-1-*d* negative ion. R. G. Lawler and others. bibliog Am Chem Soc J 86:520-1 F 5 '64
Order-disorder effects on ferromagnetic resonance. E. G. Spencer and R. T. Denton. bibliog J Ap Phys 35:2633-5 S '64
Organogallium compounds; exact analysis of the nuclear magnetic resonance spectra of trivinyl- and tripropenylgallium-trimethylamine adducts. D. Moy and others. bibliog Am Chem Soc J 86:371-7 F 5 '64
Paramagnetic resonance absorption of γ-irradiated synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:757-61 Mr 5 '64
Plasma resonances excited by antennas. H. Schmitt. il diag IEEE Proc 52:622-3 My '64
Polymer conformation based on configuration. M. Goodman and others. Chem & Eng N 42:38+ Jl 20 '64
Polymerization in the crystalline state; electron spin resonance study of the propagating species in a polymerizing single crystal of barium methacrylate dihydrate. J. H. O'Donnell and others. bibliog Am Chem Soc J 86:2322-5 Je 20 '64
Precise ferromagnetic resonance magnetometers for differential measurements in fields characterized by large gradients. C. F. Hempstead and others. il diags R Sci Instr 35:785-9 Jl '64
Preparation and nuclear magnetic resonance spectrum of 1-methyl-indene. A. R. Hawdon and I. J. Lawrenson. bibliog Chem & Ind p 1690-1 O 19 '63
Pressure dependence of the ^{59}Co nuclear magnetic resonance in hexagonal cobalt. D. H. Anderson and G. A. Samara. bibliog J Ap Phys 35:3043-4 O '64
Principles and utility of nuclear magnetic resonance in structure determination of surfactant chemicals. M. M. Crutchfield and R. R. Irani. bibliog Am Oil Chem Soc J 40:691-4 N '63
Probes for high temperature nuclear magnetic resonance. S. Hafner and N. H. Nachtrieb. diags R Sci Instr 35:680-2 Je '64
Proton magnetic resonance, anion-exchange, and polarographic studies of the cobalt-glycylglycine-oxygen complex. P. Tang and N. C. Li. bibliog Am Chem Soc J 86:1293-6 Ap 5 '64
Proton magnetic resonance in natural rubber; comparison with dielectric measurements. H. Kusumoto and H. S. Gutowsky. bibliog Rubber Chem & Tech 37:268-84 Ja '64
Proton magnetic resonance spectra and rotational barriers of 4,4′-disubstituted biphenyls. R. J. Kurland and W. B. Wise. bibliog Am Chem Soc J 86:1877-9 My 5 '64
Proton magnetic resonance spectra and structures of ethylenediaminetetraacetic acid, methyliminodiacetic acid, and nitrilotriacetic acid chelates of molybdenum(VI). S. I. Chan and others. bibliog Am Chem Soc J 86:377-9 F 5 '64
Proton magnetic resonance spectra of sydnones. F. H. C. Stewart and N. Danieli. bibliog Chem & Ind p 1926-7 D 7 '63
Proton magnetic resonance spectra of three fulvenes. W. B. Smith and B. A. Shoulders. bibliog Am Chem Soc J 86:3118-22 Ag 5 '64
Proton magnetic resonance studies of the hydrogen-bonding properties of several hydrazines. J. R. Crook and K. Schug. bibliog Am Chem Soc J 86:4271-6 O 20 '64
Proton magnetic resonance study nitroalkanes. W. Hofman and others. bibliog Am Chem Soc J 86:554-8 F 20 '64
Proton resonance spectra of the methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 85:3940-2 D 20 '63
Proton resonance study of the magnetic structure of antiferromagnetic $CoCl_2 \cdot 6H_2O$, $CoBr_2 \cdot 6H_2O$, $NiCl_2 \cdot 6H_2O$, and $NiBr_2 \cdot 6H_2O$. R. D. Spence and others. diags J Ap Phys 35:854-5 pt 2 Mr '64
Pulsed nuclear resonance apparatus. W. G. Clark. bibliog diags R Sci Instr 35:316-33 Mr '64
Quantitative applications of high-resolution proton magnetic resonance measurements in the characterization of detergent chemicals. M. M. Crutchfield and others. bibliog Am Oil Chem Soc J 41:129-32 F '64
Quantitative determination of hydrogen and fluorine in organic compounds by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. bibliog diags Anal Chem 36:1713-21 Ag '64
Quantitative determination of vinyl acetate content of ethylene-vinyl acetate copolymers by high-resolution nuclear magnetic resonance. H. Y. Chen and M. E. Lewis. Anal Chem 36:1394-6 Je '64
Quantitative scale of acceptor strengths from fluorine nuclear magnetic resonance shielding. R. W. Taft and J. W. Carten. Am Chem Soc J 86:4199-200 O 5 '64
Rates of rapid ligand exchange reactions by nuclear magnetic resonance line broadening studies. R. G. Pearson and R. D. Lanier. bibliog Am Chem Soc J 86:765-71 Mr 5 '64
Reaction of trialkyl phosphites with aliphatic aldehydes; P^{31} and H^{1} nuclear magnetic resonance spectra of tetraoxyalkyl phosphoranes. F. Ramirez and others. Am Chem Soc J 86:514-16 F 5 '64
Recorder recentering circuit for magnetic resonance. D. R. Torgeson and W. A. Rhinehart. diag R Sci Instr 34:1447-8 D '63
Review of fundamental developments in analysis; magnetic resonance spectrometry. H. Foster. Anal Chem 36 [no 5]:266R-78R bibliog(p276R-8R) Ap '64
Signal enhancement of the Varian A-60 nmr spectrometer. R. E. Mayo and J. H. Goldstein. il diag R Sci Instr 35:1231-2 S '64
Simple glass ^{3}He cryostat for esr and nmr. J. A. Cowen and others. diag R Sci Instr 35:914-15 Jl '64

MAGNETIC resonance—*Continued*

Spectra and stereochemistry; a nuclear magnetic resonance spectral study of some 16-substituted pregnenes and 17α-pregnenes. A. D. Cross and P. Crabbé. bibliog Am Chem Soc J 86:1221-4 Mr 20 '64

Spin decoupler for nmr. J. J. Noggle. diags R Sci Instr 35:1166-9 S '64

Spin densities in tetrahedral cobalt complexes by nuclear magnetic resonance contact shifts; evidence for a pseudo contact interaction. W. D. Horrocks, jr. and G. N. La Mar. bibliog Am Chem Soc J 85:3512-13 N 5 '63

Spin-wave excitation in cubic rare-earth compounds. N. Tsuya and Y. Ebina. bibliog J Ap Phys 35:800-1 pt 2 Mr '64

Spin-wave resonance in magnetic films on the basis of the surface-spin-pinning model and the volume inhomogeneity model. C. F. Kooi and others. bibliog J Ap Phys 35:791-7 pt 2 Mr '64

Stable carbonium ions; nuclear magnetic resonance investigation of the diphenylcarbonium, diphenylmethylcarbonium, and phenyldimethylcarbonium ions. G. A. Olah. bibliog Am Chem Soc J 86:932-4 Mr 5 '64

Stable carbonium ions; nuclear magnetic resonance investigation of the triphenyl-C^{13}-carbonium ion. G. A. Olah and others. Am Chem Soc J 86:1265 Mr 20 '64

Steric effect on deshielding of the aromatic C_4-proton by a C_5-proton in an octahydrophenanthrene series. W. Nagata and others. bibliog Am Chem Soc J 86:3746-9 S 20 '64

Structural studies by nuclear magnetic resonance; configurations and conformations of N-nitrosamines. G. J. Karabatsos and R. A. Taller. bibliog Am Chem Soc J 86:4373-8 O 20 '64

Structural studies by nuclear magnetic resonance; phenylhydrazones. G. J. Karabatsos and R. A. Taller. bibliog Am Chem Soc J 85:3624-9 N 20 '63

Structural studies by nuclear magnetic resonance; ring-substituted phenylhydrazones, semicarbazones, and thiosemicarbazones. G. J. Karabatsos and others. Am Chem Soc J 86:3351-7 Ag 20 '64

Structural studies by nuclear magnetic resonance; the stereospecificity of coupling between protons separated by five bonds and conformations of some aromatic aldehydes. G. J. Karabatsos and F. M. Vane. bibliog Am Chem Soc J 85:3886-8 D 5 '63

Studies of boron-nitrogen compounds; nuclear magnetic resonance studies of some μ-aminodiboranes and amine boranes. D. F. Gaines and R. Schaeffer. bibliog Am Chem Soc J 86:1505-7 Ap 20 '64

Studies on nickel(II) complexes; a nuclear resonance investigation of mixed ligand complexes. A. Chakravorty and R. H. Holm. bibliog Am Chem Soc J 86:3999-4004 O 5 '64

Studies on nickel(II) complexes; a nuclear resonance study of conformational equilibria. R. H. Holm and others. bibliog Am Chem Soc J 86:379-87 F 5 '64

Study of aromatic amine inhibitors by nuclear magnetic resonance. P. F. Cox and others. bibliog Corrosion 20:299-302 S '64

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

Substituent effects on nuclear magnetic resonance chemical shifts in *para*-substituted phenylhexachlorobicyclo[2.2.1]heptenes and ethylbenzenes. K. L. Williamson and others. bibliog Am Chem Soc J 86:4021-5 O 5 '64

Superconducting magnet has uniform field. Chem & Eng N 42:55-6 Je 8 '64

Synthesis, nuclear magnetic resonance spectrum, resolution, and rate of racemization of 1-fluoro-12-methylbenzo[*c*]phenanthrene. M. S. Newman and others. bibliog Am Chem Soc J 85:4018-20 D 20 '63

Synthetic and electron spin resonance studies of six-coordinate complexes related by electron-transfer reactions. A. Davison and others. bibliog Am Chem Soc J 86:2799-805 Jl 20 '64

Ten pi electron system is aromatic. E. Vogel. Chem & Eng N 42:40-1 O 5 '64

Theory of antiferromagnetic resonance absorption in CoF_2. H. Kamimura. bibliog J Ap Phys 35:844-6 pt 2 Mr '64

Theory of line widths in electron spin resonance spectra; motion of methyl groups. J. H. Freed and G. K. Fraenkel. bibliog Am Chem Soc J 86:3477-84 S 5 '64

Time-averaging units make nmr and epr systems more sensitive. Chem & Eng N 42:48 Mr 23 '64

Tritium nuclear magnetic resonance spectroscopy; observation of high-resolution signals from the methyl and methylene groups of ethylbenzene; the nonradiochemical use of tritium as a tracer. G. V. D. Tiers and others. bibliog Am Chem Soc J 86:2526-7 Je 20 '64

Ultra-sensitive angular transducer using ferromagnetic film resonance. T. E. Hasty and T. C. Penn. diags IEEE Trans Com & Electronics 83:558-61 S '64

Wideband feedback coherence control for superregenerative NQR spectrometers. G. E. Peterson and P. M. Bridenbaugh. diags R Sci Instr 35:698-700 Je '64

Zeeman effect of nuclear quadrupole resonance in single crystals of sodium bromate and *p*-dibromobenzene. P. Bucci and others. bibliog Am Chem Soc J 86:2513-14 Je 20 '64

MAGNETIC separation of ores

Expert reviews current procedures for high intensity magnetic separation. K. Neumann. diags Eng & Min J 165:88-91 Jl '64

How Inco recovers 68 per cent iron ore pellets. il Eng & Min J 165:71 Jl '64

How to select wet magnetic separators for heavy media plants. W. J. Bronkala. il diags Eng & Min J 164:98-102 D '63

Ore pebble regrind of sulphide concentrates in the Hardy concentrator, Falconbridge. S. McQuitty and L. S. Rivett. il diags Can Min & Met Bul 57:397-400 Ap '64

Standard slag co. taps Nevada iron, upgrades magnetite ore for export. J. Huttl. flow sheet il Eng & Min J 164:84-7 D '63

MAGNETIC separators

Clean FCCU catalyst magnetically. R. L. Curfman. il diag Hydrocarbon Process & Pet Refiner 43:260 S '64

Magnetic separator reduces coolant problems. il Safety Maint 128:49 Jl '64

RT magnetic filters. diag Automobile Eng 54:108 Mr '64

MAGNETIC shielding

Demagnetization of magnetic shield in the presence of the earth's field. W. B. Herrmannsfeldt and B. L. Salsburg. diag R Sci Instr 35:906 Jl '64

MAGNETIC storage (calculating machines). See Magnetic memory (calculating machines)

MAGNETIC surveying

Basement depths from widely spaced aeromagnetic profiles in Kansas and Nebraska. J. S. Watkins. map diags Geophysics 29:80-6 F '64

Calculations of total-intensity magnetic anomalies for certain bodies by digital computer. J. T. Hughson. maps diags Geophysics 29:54-66 F '64

Discovery and exploration of the Poirier ore deposit. J. B. Boniwell and R. A. Dujardin. maps diags Can Min & Met Bul 57:945-52 S '64

Expression of east-west fractures in magnetic surveys in parts of the U.S.A. M. D. Fuller. bibliog il maps diags Geophysics 29:602-22 Ag '64

Low-amplitude aeromagnetic anomalies in southeastern Missouri. J. W. Allingham. bibliog maps diags Geophysics 29:537-52 Ag '64

Magnetic and tectonic regionalization on Texada Island, B.C. D. H. Hall. bibliog il maps diags Geophysics 29:565-81 Ag '64

Magnetic anomalies due to prism-shaped bodies with arbitrary polarization. B. K. Bhattacharyya. diags Geophysics 29:517-31 Ag '64

Self-oscillating rubidium vapour magnetometer for geomagnetic measurements. M. J. Usher and others. bibliog diags J Sci Instr 41:544-7 S '64

Statistical analysis of some aeromagnetic maps from the northwestern Canadian shield. C. W. Horton and others. bibliog maps diags Geophysics 29:582-601 Ag '64

Upward continuation of an aeromagnetic anomaly in Washington. N. C. Steenland and W. D. Gibbons. diags Geophysics 29:109-17 F '64

MAGNETIC susceptibility

Comparison of the optical Faraday rotation and magnetic susceptibility of cerous phosphate glass. S. B. Berger and C. B. Rubinstein. bibliog J Ap Phys 35:1798-801 Je '64

Complex magnetic susceptibility of maser rubies at microwave frequencies. H. Kiemle and H. Rothe. IEEE Proc 52:1243 O '64

Crystal growth and magnetic susceptibilities of some rare-earth sodium molybdenum scheelites. M. Schieber and L. Holmes. diag J Ap Phys 35:1004-5 pt 2 Mr '64

MAGNETIC susceptibility—*Continued*

Efficiency of cylindrical coil systems in magnetic susceptibility measurements. C. Scheringer. R Sci Instr 35:515-16 Ap '64

Exchange coupling of neighboring Mn^{++} ions in Mn^{++}:ZnS crystals. W. H. Brumage and others. bibliog J Ap Phys 35:994-5 pt 2 Mr '64

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

Magnetic fabrics of certain rocks. M. D. Fuller. bibliog map diags J Geol 72:368-76 My '64

Magnetic study of cobalt molybdenum oxide catalysts. J. T. Richardson. bibliog Ind & Eng Chem Fundamentals 3:154-8 My '64

Magnetic susceptibilities of Mo-Tc binary alloys. D. J. Lam and others. bibliog J Ap Phys 35:976-7 pt 2 Mr '64

Magnetic susceptibilities of several salts at liquid-He^3 temperatures. S. A. Friedberg and J. T. Schriempf. bibliog J Ap Phys 35:1000-1 pt 2 Mr '64

Modified shape factor nmr method for measuring magnetic susceptibility. L. N. Mulay and M. Haverbusch. bibliog diag R Sci Instr 35:756-7 Je '64

Paramagnetic susceptibility, electrical resistivity, and lattice parameters of nickel-rich nickel-tantalum alloys. H. Chessin and others. bibliog J Ap Phys 35:2419-23 Ag '64

Paramagnetic susceptibility of Eu_2O_3 from 300° to 1300°K. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:1181-3 Ap '64

Review of fundamental developments in analysis; magnetic susceptibility; trends in instrumentation, research, and applications. L. N. Mulay and I. L. Mulay. il diags Anal Chem 36 [no 5]:404R-19R bibliog(p418R-19R) Ap '64

Spring microbalance for magnetic susceptibility, adsorption, and thermogravimetric studies. L. N. Mulay and L. K. Keys. bibliog diags Anal Chem 36:2383-4 N '64

Susceptibility thermometer for use at very low temperatures. D. S. Betts and others. bibliog J Sci Instr 41:515-16 Ag '64

Validity conditions for the Kramers-Kronig relations. M. Sharnoff. bibliog diag Am J Phys 32:40-4 Ja '64

See also

Curie point

MAGNETIC switches. See Magnetic control

MAGNETIC tape

Airborne tape memory system. il diags Product Eng 35:60-1 O 12 '64

Computer tapes safeguarded from fire. il Safety Maint 126:30-2 D '63

Digital magnetic tape; will it win bulk of n/c market? il Steel 155:62-3 Jl 20 '64

Effect of cold rolling on magnetization reversal of high-purity nickel tapes. A. A. Hirsch. J Ap Phys 35:909-10 pt 2 Mr '64

Fluid-clutched capstan gives computer tape split-second starts and stops. il diags Machine Design 36:102-3 Jl 2 '64

For better tape performance handle with care. Automation 11:25 Ag '64

High-stability magnetic tape for data-processing systems. A. Rusch and others. il Electro-Tech 72:91-5 D '63

Low-cost magnetic tape control system for machine tools. P. H. G. Burgess and R. L. Duthie. il diags Radio & Electronic Eng 27:301-10; Discussion. 310-11 Ap '64

Magnetic tape and random access devices for 16 more medium to large computers. Control Eng 11:115-20 My '64

Magnetic tape recording materials. C. D. Mee. bibliog diags IEEE Trans Com & Electronics 83:399-408 Jl '64

Mechanical damping in tape transports. J. G. McKnight. bibliog il diags Audio Eng Soc J 12:140-6 Ap '64

New magnetic tape with greater dynamic range. A. H. Moris. Audio Eng Soc J 12:36-9 Ja '64

Sensing and control of tape slack level. B. D. Jimersen. diags Electronic Ind 22:65-6 D '63

Successful re-slitter for magnetic tape. J. H. Prout. il diags Audio Eng Soc J 12:258+ Jl '64

Tape searching techniques. R. L. Baber. Assn for Computing Mach J 10:478-86 O '63

Which tape is best? H. Fantel. il Radio-Electronics 35:27-9 Mr '64

See also

Numerical control

Noise

D-c and modulation noise in magnetic tape. D. F. Eldridge. il IEEE Trans Com & Electronics 83:585-8 S '64

Standards

Dimensions of 2-in. video magnetic tape; American standard C98.1-1963. diag SMPTE J 72:954 D '63

Monochrome video magnetic tape leader; American standard specifications C98.2-1963. diags SMPTE J 72:955 D '63

Speed of 2-in. video magnetic tape; American standard C98.4-1963. SMPTE J 72:956 D '63

Testing

Standard properties and tests for magnetic tapes. Electronic Eng 35:721 N '63

MAGNETIC tape recording

Audio records for 2-in. video magnetic tape recordings; American standard specifications C98.3-1963. SMPTE J 72:956 D '63

Design of second-harmonic detector heads and their application to the reading of digital information and the measurement of low speeds of rotation. D. B. G. Edwards and others. bibliog il diags Radio & Electronic Eng 27:99-116 F '64

Design parameters for a portable broadcast television tape recorder. D. A. Horstkorta. diag SMPTE J 73:476-8 Je '64

Design principles of the magnetic tape system for the Atlas computer. D. B. G. Edwards and others. bibliog diags Radio & Electronic Eng 27:65-73 Ja '64

E.c.g. recorder for active subjects. H. Hirschberg. diags Electronic Eng 36:38-9 Ja '64

Field test magnetic-tape demand meter. il Elec World 162:61 S 7 '64

Flux-responsive magnetic-tape playback. R. F. Brown, jr. and J. McElwain. il diags Electro-Tech 74:120+ Ag '64

Four-truck recorder monitors substation loads. C. Morrison. il Elec World 162:111 O 19 '64

Home tv tape recorder; it really works. A. A. McKenzie and D. Smith. il Electronics 36:10-11 D 27 '63

Incremental magnetic tape recorders. R. A. Curtis, jr.; J. T. Boag. il diags Control Eng 11:51-7 Jl '64

International conference on magnetic recording, London, July 6-10; abstracts of papers. Wireless World 70:413-14 Ag '64

Interpretation of magnetic tape recorder specifications. A. L. Ispas. bibliog il diags Instruments & Control Systems 37:97-106 Jl '64

Long-term magnetic tape recording. J. McElwain. il diags Instruments & Control Systems 37:111-12 Jl '64

Low cost digital tape store. C. C. Rockwood and G. A. McGinnis. diags R Sci Instr 35:751-2 Je '64

Magazine-loaded tape recorder stores instant phone numbers. il diag Machine Design 36:130-1 F 27 '64

Magnetic-tape recording meters improve load survey accuracy. F. G. Hammer and J. W. Crawford. Elec World 160:98-100 N 4 '63

Magnetic tape state of the art. E. Schmidt. il Instruments & Control Systems 37:121-2 Je '64

Magnetic tape typewriter. il Engineer 218:143 Jl 24 '64

Measurement of instantaneous speed stability of instrumentation-type magnetic-tape transport systems. D. Balducci. Audio Eng Soc J 12:226-30 Jl '64

Meter reading with the Metercorder. il Gas Age 131:36 My '64

Moving-film system for recording high rate-of-rise signals. R. E. Dietrich and S. Bortniak. il diags Elec Eng 82:733-7 D '63

New aid for the typist; magnetic tape. il Engineering 198:196 Ag 14 '64

New method of transverse-stroke recording of electrical signals on magnetic tape. V. M. Sasin. diags SMPTE J 72:958-9 D '63

Novel multivibrators test tape transports. C. J. Dakin. il diags Electronics 37:40-3 F 14 '64

Peak-shift study in high-density magnetic tape recording. H. S. Templeton and G. Bate. diag IEEE Trans Com & Electronics 83:429-32 Jl '64

Personal tape recorders. il Engineering 198:348 S 11 '64

Portable tape recorder speeds digital data gathering. W. Rogers. il Control Eng 11:104 F '64

Reciprocity principle in the theory of magnetic recording. J. A. Geurst. bibliog diags IEEE Proc 51:1573-7 N '63; Discussion. 52:626-7 My '64

Review of the problem of fine-particle interactions with special reference to magnetic recording. E. P. Wohlfarth. bibliog il diags J Ap Phys 35:783-90 pt 2 Mr '64

MAGNETIC tape recording—*Continued*

Six days on tape recorders. A. Margolis. il diags Radio-Electronics 35:55-6+ O '64
Space-borne recorder triples packing density. A. S. Katz. il diags Electronics 37:84-8 Ag 24 '64
Tape recording errors. G. H. Schulze. diags bibliog I S A J 11:61-6 My '64
Tape speed matches data rate in stepping tape recorder. diag Space/Aeronautics 42:85 Jl '64
Typing on tape. il Engineer 218:250 Ag 14 '64
Universal tape-play preamp. R. Williamson. il diags Radio-Electronics 35:35-7 O '64
Use tuned heads for spectrum analysis. J. L. Douce and P. J. Parr. diags Control Eng 11:63-5 Ag '64
Waveform compression in NRZI magnetic recording. M. Berkoff. IEEE Proc 52:1271-2 O '64
We want better tape recording, NASA experts say. il Electronics 37:40-1 F 21 '64

See also

Television broadcasting—Program recording

MAGNETIC testing

Hardness gaged as strip flies by. H. J. Hansen, jr. il Iron Age 192:73-5 N 21 '63
Magnetic testing of quenching media. il Mach 70:118-19 D '63
Non-destructive testing with magnetic and eddy current measurements. il Engineer 217:292 F 7 '64
Quantitative magnetic technique for determining the martensite content of metastable stainless steels. J. L. Christian and J. F. Watson. bibliog il Welding J 43: sup39-42 Ja '64
Sonics unite with magnetic glow for automatic billet testing. il Iron Age 194:55-7 O 15 '64
To build combination billet test system. Iron & Steel Eng 40:168+ N '63

MAGNETISM

Band theory of ferromagnetism, antiferromagnetism, and spin waves. D. C. Mattis. bibliog J Ap Phys 35:1085-6 pt 2 Mr '64
Challenge of magnetics. il diag Electronics 37:62-4 Je 29 '64
Contribution of line defects to the parasitic paramagnetism in the approach to magnetic saturation. A. Aharoni. J Ap Phys 35: 913-14 pt 2 Mr '64
Diffusion-damped domain-wall motion. J. F. Janak. bibliog J Ap Phys 34:3356-62 N '63
Domain structure of hcp and fcc cobalt above room temperature. P. J. Grundy and R. S. Tebble. il J Ap Phys 35:923-4 pt 2 Mr '64
Domain structure of narrow thin films of Ni-Fe. K. Kuwaharan and others. J Ap Phys 35:820-1 pt 2 Mr '64
Eddy-current losses in finite sections of solid iron under saturation. V. Subba Rao. bibliog diags Inst E E Proc 111:343-8 F '64
Effects of tensile stress on the domain structure in grain-oriented 3.25 per cent silicon steel. J. J. Gniewek. bibliog il J Ap Phys 34:3618-22 D '63
Equivalent circuit of solid iron core for impact excitation problems. V. Subba Rao. bibliog diags Inst E E Proc 111:349-57 F '64
Explanation for the effect of ferromagnetism upon atomic diffusion. R. J. Borg. bibliog J Ap Phys 35:567-9 Mr '64
Ferromagnetic europium compounds. T. R. McGuire and M. W. Shafer. bibliog J Ap Phys 35:984-8 pt 2 Mr '64
Ferromagnetism and incipient superconductivity in a CeRu$_2$+7.3 per cent GdRu$_2$ alloy. J. J. Drautman and others. bibliog J Ap Phys 35:974-5 pt 2 Mr '64
Ferromagnetism in rare-earth group VA and VIA compounds with Th$_3$P$_4$ structure. F. Holtzberg and others. bibliog diags J Ap Phys 35:1033-8 pt 2 Mr '64
First- and second-order magnetic optics matrix equations for the midplane of uniform-field wedge magnets. K. L. Brown and others. diags R Sci Instr 35:481-5 Ap '64
Importance of intrasublattice magnetic interactions and of substitutional ion type in the behavior of substituted yttrium iron garnets. S. Geller and others. diags Bell System Tech J 43:565-623 bibliog(p622-3) Mr '64
Improvement in the floating wire method. P. Bounin and B. Milman. diag R Sci Instr 34:1448-9 D '63
Lorentz microscopy of magnetic domains of single-crystal films. H. Sato and others. bibliog il J Ap Phys 35:822-3 pt 2 Mr '64
Magnetic aging of spinodal alloys. J. W. Cahn. bibliog il J Ap Phys 34:3581-6 D '63
Magnetic structure in FeCr$_2$S$_4$ and FeCr$_2$O$_4$. G. Shirane and others. bibliog J Ap Phys 35:954-5 pt 2 Mr '64
Magnetic structure investigations at the nuclear center. E. F. Bertaut and others. bibliog J Ap Phys 35:952-3 pt 2 Mr '64
Magnetic symmetry and forbidden effects. R. R. Birss. bibliog diags Am J Phys 32:142-52 F '64
Magnetism in one-dimensional systems; Heisenberg model for infinite spin. M. E. Fisher. Am J Phys 32:343-6 My '64
Magnetoelastic waves in yttrium iron garnet. W. Strauss. bibliog J Ap Phys 35: 1022-3 pt 2 Mr '64
Metamagnetism and exchange in ferrous bromide. I. S. Jacobs and P. E. Lawrence. bibliog J Ap Phys 35:996-7 pt 2 Mr '64
Metamagnetism of some rare-earth copper compounds with CeCu$_5$ structure. R. C. Sherwood and others. bibliog J Ap Phys 35:1049-50 pt 2 Mr '64
Microwave properties of fine-grain nickel ferrite. J. J. Green and others. J Ap Phys 35:1006-7 pt 2 Mr '64
Minimum-field magnetic bottles. diag Nucleonics 22:93 F '64
Nonsymmetrical property of magnetic monopoles. N. Strax. bibliog Am J Phys 32:615-17 Ag '64
Nucleation and growth of ferroelectric domains in BaTiO$_3$ at fields from 2 to 450 kv/cm. H. L. Stadler and P. J. Zachmanidis. bibliog il diag J Ap Phys 34:3255-60 N '63
Observation of antiferromagnetic domains in cobaltous oxide by means of the electron microscope. G. Remaut and others. bibliog il J Ap Phys 35:1351-2 Ap '64
Oguchi transformation. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35: 948-9 pt 2 Mr '64
Origin of domain-wall creeping in magnetic films. A. Green and others. diag J Ap Phys 35:812-13 pt 2 Mr '64
Piezomagnetism of biased ferrites. A. P. Greifer. bibliog J Ap Phys 35:1065-6 pt 2 Mr '64
Recent developments in permanent magnetism. M. McCaig. bibliog diags J Ap Phys 35:958-65 pt 2 Mr '64
Relation between *E'* centers and hydroxyl bonds in silica. R. A. Weeks and E. Lell. bibliog diag J Ap Phys 35:1932-8 Je '64
Self-consistent correlation method (S.C.C.M.) applied to ideal Ising and Heisenberg magnetic systems; abstract. P. C. Clapp. J Ap Phys 35:947 pt 2 Mr '64
Some considerations on the magnetic carriers in ferromagnetic transition metals. T. Izuyama and R. Kubo. bibliog diags J Ap Phys 35:1074-81 pt 2 Mr '64
Superparamagnetism in magnetically dilute systems. Y. Ishikawa. bibliog diag J Ap Phys 35:1054-9 pt 2 Mr '64
Temperature dependence of domain wall creep in thin Ni-Fe magnetic film. M. E. Sweet. J Ap Phys 35:814-15 pt 2 Mr '64
Theory of a ferromagnetic heat engine. F. Brailsford. diags Inst E E Proc 111:1602-6 S '64

See also

Curie point
Electricity
Electromagnetic theory
Electromagnets
Hall effect
Hysteresis
Magnetization
Magneto-optics
Magnetostriction
Thermomagnetism

MAGNETISM, Terrestrial

Approximation of residual total-magnetic-intensity anomalies. A. L. Kontis and G. A. Young. bibliog diag Geophysics 29:623-7 Ag '64
Energetic particles in the magnetosphere. J. R. Winckler and R. L. Arnoldy. bibliog J Res Nat Bur Stand 68D:619-29 My '64
Example of the influence of remanent magnetization on magnetic intensity measurements. W. W. Hays and L. Scharon. bibliog map diags Geophysics 28:1037-48 D '63
Geomagnetic effects of explosions in the lower atmosphere. K. G. Ivanov. bibliog AIAA J 1:2703-8 N '63
Geomagnetism and the ionosphere. S. A. Bowhill. bibliog J Res Nat Bur Stand 68D: 572-3 My '64
Geomagnetism and the magnetosphere. A. J. Dessler. bibliog diag J Res Nat Bur Stand 68D:603-6 My '64
Interaction between the solar plasma wind and the geomagnetic cavity. L. Lees. bibliog diags AIAA J 2:1576-82 S '64
Magnetic fabrics of certain rocks. M. D. Fuller. bibliog map diags J Geol 72:368-76 My '64

MAGNETISM, Terrestrial—*Continued*

Numerical calculation of the formula of reduction to the magnetic pole. V. Baranov and H. Naudy. diags Geophysics 29:67-79 F '64

Paleomagnetic correlation of units within Chugwater (Triassic) formation, west-central, Wyoming. M. D. Picard. bibliog il map diags Am Assn Pet Geologists Bul 48: 269-91 Mr '64

Paleomagnetic results from Precambrian sedimentary rocks in the western United States. S. K. Runcorn. bibliog maps Geol Soc Bul 75:687-704 Ag '64

Relationship between simultaneous geomagnetic and ionospheric oscillations. H. Rishbeth and O. K. Garriott. bibliog J Res Nat Bur Stand 68D:339-43 Mr '64

Rock magnetism and dike classification. D. W. Strangway. bibliog maps J Geol 72: 648-63 S '64

Theory of radio and hydromagnetic wave propagation in the magnetosphere. H. G. Booker. bibliog J Res Nat Bur Stand 68D: 607-8 My '64

See also

Magnetic surveying

MAGNETITE

Dissociation pressures of iron-nickel oxides. G. A. Roeder and W. W. Smeltzer. bibliog il diag Electrochem Soc J 111:1074-8 S '64

Magnetization of a rock containing magnetite and hemoilmenite. C. M. Carmichael. bibliog il diags Geophysics 29:87-92 F '64

Origin of certain magnetite-bearing pegmatites in the eastern part of the Bushveld Complex, South Africa. E. N. Cameron and G. A. Desborough. bibliog il maps diags Econ Geol 59:197-225 Mr '64

Standard slag co. taps Nevada iron, upgrades magnetite ore for export. J. Huttl. flow sheet il Eng & Min J 164:84-7 D '63

MAGNETIZATION

Analysis of high-power effects in ferrimagnetics from the point of view of energy transfer; first-order instabilities. G. Kemanis and S. Wang. bibliog diags J Ap Phys 35:1465-70 My '64

Anisotropic behavior in superparamagnetic systems. I. Yasumori and others. bibliog diag J Ap Phys 34:3544-9 D '63

Antiferromagnetic transition in γ-phase Mn alloys. J .E. Zimmerman and others. bibliog J Ap Phys 35:942-3 pt 2 Mr '64

Approximation of residual total-magnetic-intensity anomalies. A. L. Kontis and G. A. Young. bibliog diag Geophysics 29:623-7 Ag '64

Calculation of the current and field distribution and the magnetization curves for high-field, superconducting materials in the form of sheet. H. Riemersma. bibliog diags J Ap Phys 35:1802-6 Je '64

Changes in magnetization of single-crystal dysprosium, erbium, and holmium in high magnetic fields. R. B. Flippen. bibliog J Ap Phys 35:1047-8 pt 2 Mr '64

Contribution of line defects to the parasitic paramagnetism in the approach to magnetic saturation. A. Aharoni. J Ap Phys 35:913-14 pt 2 Mr '64

Critical magnetic scattering of neutrons in iron. L. Passell and others. bibliog J Ap Phys 35:933-4 pt 2 Mr '64

Critical-state phenomena and flux jumping in niobium stannide. J. P. McEvoy. bibliog diags RCA R 25:533-41 S '64

Demagnetization of magnetic shield in the presence of the earth's field. W. B. Herrmannsfeldt and B. L. Salsburg. diag R Sci Instr 35:906 Jl '64

Direct Mn^{55} nmr absorption in antiferromagnetic $KMnF_3$. A. Nakamura and others. bibliog J Ap Phys 35:842-3 pt 2 Mr '64

Eddy-current losses in saturated cylinders. B. Béland and J. Robert. bibliog il diags IEEE Trans Com & Electronics p 191-8 Mr '64

Effect of cold rolling on magnetization revearsal of high-purity nickel tapes. A. A. Hirsch. J Ap Phys 35:909-10 pt 2 Mr '64

Effect of crystallite size and orientation on the magnetization ripple in permalloy films. A. Baltz and W. D. Doyle. bibliog il J Ap Phys 35:1814-18 Je '64

Effect of lattice defects on the magnetization curve of ferromagnets. A. Seeger and others. bibliog il diags J Ap Phys 35:740-8 pt 2 Mr '64

Effect of nonuniform magnetization on the spin-wave spectrum in thin ferromagnetic films. J. T. Davies. bibliog J Ap Phys 35:804-5 pt 2 Mr '64

Example of the influence of remanent magnetization on magnetic intensity measurements. W. W. Hays and L. Scharon. bibliog map diags Geophysics 28:1037-48 D '63

Ferrimagnetic garnets containing pentavalent vanadium. S. Geller and others. bibliog J Ap Phys 35:570-2 Mr '64

Ferromagnetic-paramagnetic transition in iron. S. Arajs and R. V. Colvin. bibliog J Ap Phys 35:2424-6 Ag '64

First approximation to magnetization curling in a chain of spheres. A. Aharoni. bibliog J Ap Phys 35:347-9 F '64

Flux reversal at low temperatures. F. B. Humphrey. bibliog J Ap Phys 35:911-12 pt 2 Mr '64

Flux reversal in rare-earth-substituted yttrium iron garnets; abstract. W. Palmer. J Ap Phys 35:918 pt 2 Mr '64

High-power effects in flame-sprayed and hot-pressed nickel-aluminum-gallium spinels. J. E. Zneimer and others. diags J Ap Phys 35:1020-2 pt 2 Mr '64

Importance of intrasublattice magnetic interactions and of substitutional ion type in the behavior of substituted yttrium iron garnets. S. Geller and others. diags Bell System Tech J 43:565-623 bibliog(p622-3) Mr '64

Influence of the thermal and mechanical history on the squareness characteristics of 4-79 molybdenum permalloy. G. Y. Chin and others. diags J Ap Phys 35:867-9 pt 2 Mr '64

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

Interactions between Ni and NiO. A. E. Berkowitz and J. H. Greiner. bibliog J Ap Phys 35:925-6 pt 2 Mr '64

Magnetic anomalies due to prism-shaped bodies with arbitrary polarization. B. K. Bhattacharyya. diags Geophysics 29:517-31 Ag '64

Magnetic anomalies over thin sheets. M. S. Reford. bibliog diags Geophysics 29:532-6 Ag '64

Magnetic field penetration into niobium-stannide discs. K. G. Petzinger and J. J. Hanak. il diag RCA R 25:542-50 S '64

Magnetic transition layer spin configuration. R. F. Soohoo. J Ap Phys 35:927-8 pt 2 Mr '64

Magnetic transitions in dysprosium aluminum garnet. M. Ball and others. bibliog J Ap Phys 35:937-8 pt 2 Mr '64

Magnetization and a superconducting solenoid. P. R. Aron. bibliog diags R Sci Instr 35:33-9 Ja '64

Magnetization curling in tapered edge films. R. M. Hornreich. il diag J Ap Phys 35: 816-17 pt 2 Mr '64

Magnetization of a rock containing magnetite and hemoilmenite. C. M. Carmichael. bibliog il diags Geophysics 29:87-92 F '64

Magnetization of gadolinium near its Curie temperature. F. J. Darnell and W. H. Cloud. bibliog J Ap Phys 35:935-6 pt 2 Mr '64

Magnetization of niobium-stannide films in transverse fields. J. J. Hanak. bibliog il diags RCA R 25:551-69 S '64

Magnetization of permalloy at low temperatures. B. E. Argyle and S. H. Charap. J Ap Phys 35:802-3 pt 2 Mr '64

Magnetization of superconducting niobium-zirconium alloys. J. P. McEvoy, jr. and R. F. Decell. J Ap Phys 35:982-3 pt 2 Mr '64

Magnetization reversal in weak ferromagnets. R. J. Joenk. J Ap Phys 35:919-20 pt 2 Mr '64

Magnetization reversal of almost perfect whiskers. F. E. Luborsky and C. R. Morelock. bibliog il J Ap Phys 35:2055-66 Jl '64

Magnetoacoustic resonance in lithium ferrite. R. L. Comstock and J. P. Remeika. bibliog J Ap Phys 35:1018-19 pt 2 Mr '64

Measurement of magnetic thin film rotational properties and uniformity. D. M. Ellis and C. J. Bader. diags R Sci Instr 34:1188-90 N '63

Mechanism of ripple formation in thin films. R. J. Spain and I. B. Puchalska. il J Ap Phys 35:824-5 pt 2 Mr '64

Observations of the ordering process in a Mg-Fe ferrite. C. Heck and G. Vaccari. bibliog J Ap Phys 35:907-9 pt 2 Mr '64

Parametric excitation of acoustic wave instabilities in ferromagnets. R. E. Tokheim and others. diag J Ap Phys 35:1010-11 pt 2 Mr '64

Power spectrum of the Barkhausen noise of various magnetic materials. P. Mazzetti and G. Montalenti. bibliog diag J Ap Phys 34:3223-5 N '63

Pressure dependence of the magnetization of cobalt. J. S. Kouvel and C. C. Hartelius. bibliog J Ap Phys 35:940-1 pt 2 Mr '64

MAGNETIZATION—*Continued*

Proton resonance study of the magnetic structure of antiferromagnetic $CoCl_2 \cdot 6H_2O$, $CoBr_2 \cdot 6H_2O$, $NiCl_2 \cdot 6H_2O$ and $NiBr_2 \cdot O6H_2O$. R. D. Spence and others. bibliog J Ap Phys 35:854-5 pt 2 Mr '64

Quantitative calculation of the magnetic ripple of uniaxial thin permalloy films. H. Hoffmann. bibliog diag J Ap Phys 35:1790-8 Je '64

Static magnetization reversal in thin films of Co-Ni-P. G. Bate and others. J Ap Phys 35:972-3 pt 2 Mr '64

Study of standing spin waves in thin permalloy films at radio and ultrahigh frequencies. T. E. Hasty. bibliog il diags J Ap Phys 35:1486-93 My '64

Sublattice magnetization and lattice distortions in MnO and NiO. D. S. Rodbell and J. Owen. bibliog diag J Ap Phys 35:1002-3 pt 2 Mr '64

Sublattice magnetizations in lithium ferrite as a function of temperature; abstract. E. Prince. J Ap Phys 35:993 pt 2 Mr '64

Technique for the determination of the magnetic history of local regions in cubic ferromagnets. W. D. Nix and R. A. Huggins. diags J Ap Phys 35:3057-8 O '64

Temperature dependence of the sublattice magnetization in ferrimagnetic $MnFe_2O_4$. A. J. Heeger and T. Houston. J Ap Phys 35:836-7 pt 2 Mr '64

Wall motion by reverse Néel walls in thin films. C. E. Patton, 3d and F. B. Humphrey. bibliog J Ap Phys 35:921-2 pt 2 Mr '64

See also

Barkhausen effect

MAGNETOHYDRODYNAMICS

Advance in M.P.D. generation of electricity. Engineer 217:617 Ap 3 '64

Analysis of MHD channel entrance flows using the momentum integral method. W. C. Moffatt. bibliog diag AIAA J 2:1495-7 Ag '64

Analytical solution for constant enthalpy MHD accelerator. H. Mirels. diag AIAA J 2:145-6 Ja '64

Boundary-layer problem associated with magnetogasdynamic channel flow. F. E. C. Culick. bibliog AIAA J 1:2666-8 N '63

Channel-flow of conducting fluids under an applied transverse magnetic field. A. E. Germeles. bibliog diags A S M E Trans ser E 31:165-9 Je '64

Chaplygin's transformation applied to magnetogasdynamics. E. V. Laitone. bibliog AIAA J 2:1856-7 O '64

Charged aerosol energy converter. A. Marks and others. bibliog diags AIAA J 2:45-51 Ja '64

Class of linear magnetohydrodynamic flows. M. R. El-Saden. AIAA J 1:236-8 Ja '63; Discussion. T. P. Anderson. 2:588-90 Mr '64

Closed circuit MPD: the Dragon's friend? il Engineering 197:527-8 Ap 10 '64

Closed-cycle M.P.D. generation experiment; open-cycle M.P.D. experiment. il Engineer 217:646-8 Ap 10 '64

Colloidal electrohydrodynamic energy converter. A. L. Cox. bibliog il diags AIAA J 1:2491-7 N '63

Continuous power from MPD generator. il diag Engineering 197:207-8 Ja 31 '64

Convective model of Hartmann flow. L. T. Fan and others. bibliog AIAA J 2:1859-60 O '64

Copper alloy meets rigid specs for MHD application. il Steel 154:72 Je 15 '64

Decay of a magnetohydrodynamic shock wave produced by a piston. R. M. Gundersen. bibliog AIAA J 1:2844-5 D '63

Effect of wall electrical conductance on magnetohydrodynamic heat transfer in a channel. J. T. Yen. bibliog A S M E Trans ser C 85:371-7 N '63

Electrogasdynamic power generation. B. Kahn and M. C. Gourdine. bibliog il diags AIAA J 2:1423-7 Ag '64

Electromagnetic wave propagation in inhomogeneous plasmas and/or magnetoplasmas. W. C. Hoffman. J Res Nat Bur Stand 68D:486-9 bibliog(p488-9) Ap '64

Finite magnetohydrodynamic journal bearing. D. C. Kuzma. bibliog diags A S M E Trans ser D 86:445-8 S '64

First MHD motor pushes plasma around a circle. il Machine Design 36:8 Jl 30 '64

Fluid-metal MHD/steam binary cycle developed. L. Prem. diag Elec World 162:110-11 O 19 '64

Fuel containment in the gaseous-core nuclear rocket by MHD-driven vortices. J. B. Romero. bibliog diags AIAA J 2:1092-9 Je '64

Gap between MHD and nuclear closing. Elec World 161:132+ My 18 '64

Gas, magnetic, and MHD bearings filling new needs. J. W. Beams and others. il diags S A E J 72:72-5 Mr '64

Gaseous nuclear rocket with MHD vortex fuel containment. K. O. Kessey and R. A. Gross. AIAA J 2:1461-4 Ag '64

Graphite heater for MHD studies. J. Klepeis. diags R Sci Instr 35:846-7 Jl '64

Hall current and inlet disturbances in constant area channel flows. G. C. Oates. bibliog diags AIAA J 1:2785-92 D '63

Heat transfer due to hydromagnetic channel flow with conducting walls. K. Jagadeesan. AIAA J 2:756-8 Ap '64

Hydromagnetic flow between two rotating cylinders. P. K. Muhuri. bibliog AIAA J 2:1328-9 Jl '64

Hydromagnetics of a spherical conductor. G. S. S. Ludford and M. P. Singh. AIAA J 1:2660 N '63

Induced forces in annular magneto-fluid dynamic traveling wave devices. J. L. Neuringer. bibliog diag AIAA J 2:267-74 F '64

Influence of finite-wall conductance on load capacity of the magnetohydrodynamic slider bearing. W. T. Snyder. bibliog diag A S M E Trans ser D 86:436-40 S '64

Insulator boundary layers in magnetohydrodynamic channels. F. J. Hale and J. L. Kerrebrock. bibliog AIAA J 2:461-9 Mr '64

Interaction of an oscillating magnetic field with fluid in Couette flow. F. H. Shair. AIAA J 2:1510-11 Ag '64

International symposium on magnetohydrodynamics. 2d, Paris. Elec World 162:19 S 14 '64; Engineering 198:100-1 Jl 24 '64

Investigation of Hall propulsor characteristics. H. E. Brandmaier and others. bibliog diags AIAA J 2:674-81 Ap '64

Is coal the fuel for MHD power? D. Bienstock and others. bibliog flow diag diags Mech Eng 85:38-41 O '63; Discussion. 86: 155-7 Ap '64

Liquid-metal Faraday-type MHD generators. W. D. Jackson. bibliog diags IEEE Trans Power Apparatus & Systems p904-7 D '63

MGD space propulsion system for lunar missions. F. Spindler and K. Wang. AIAA J 2:152-3 Ja '64

Magnetic field improves lube qualities of liquid metal. Chem & Eng N 42:49 Mr 23 '64

Magnetocaloric power. E. L. Resler, jr. and R. E. Rosensweig. diags AIAA J 2:1418-22 Ag '64

Magnetohydrodynamic bearings. D. C. Kuzma. bibliog il diags Machine Design 36: 206-10 Ap 23 '64

MHD generator magnet contract. il Engineering 198:535 O 23 '64

Magnetohydrodynamic generator operates continuously at a realistic temperature. il diag Machine Design 36:12 Ja 16 '64

MHD generator produces 11 million watts; prototype at Avco-Everett research laboratory's Haverhill, Mass., facility. il IEEE Trans Power Apparatus & Systems 83:sup 6A-7A Ag '64

MHD generator tunes up for 35-megawatt bursts. diag Machine Design 36:14 Jl 16 '64

Magnetohydrodynamic hypersonic viscous flow past a blunt body. M. C. Smith and C. S. Wu. diags AIAA J 2:963-5 My '64

Magnetohydrodynamic nozzle. F. N. Khabeta. AIAA J 1:2699-700 N '63

MHD power generation. S. Way. bibliog diags Combustion 36:34-41 S '64

MHD powerplant generates fertilizer along with electricity. diag Machine Design 36:12 My 7 '64

MHD space research. il Mech Eng 86:51 O '64

Magnetohydrodynamic species separation in a gaseous nuclear rocket. R. A. Gross and K. O. Kessey. bibliog diags AIAA J 2:295-301 F '64

Magnetohydrodynamic squeeze films. D. C. Kuzma. bibliog diags A S M E Trans ser D 86:441-4 S '64

MHD with liquid metal. H. E. Weber and C. H. Marston. bibliog diags Mech Eng 86: 34-7 Ag '64

Magnetohydrodynamics as high temperature lubricant. diag Product Eng 35:55-6 Ap 13 '64

Magnetohydrodynamics at lower temperature. diag Product Eng 35:53-4 My 11 '64

Magnetoplasmadynamic direct generation of electricity. Electronic Eng 36:299 My '64

Magnetoplasmadynamic generation of electricity. il Metallurgia 69:216-17 My '64

Magnetoplasmadynamic generation warms up. Engineering 197:559 Ap 17 '64

MAGNETOHYDRODYNAMICS—*Continued*

Magnetoplasmadynamic generator. diag Mech Eng 86:63 F '64

Magnetoplasmadynamic generator shown by the Nuclear division of Martin co. il Chem & Eng N 42:30+ Ja 6 '64

Magnetoplasmadynamics. Product Eng 35:59 F 3 '64

Martin halves temperatures in MPD power generator. flow chart Steel 154:49+ Ja 6 '64

Minimum-length MHD accelerator with constant enthalpy and magnetic field. H. Mirels and others. AIAA J 2:1141-3 Je '64

Momentum integral approximation for compressible magnetogasdynamic boundary-layer flow. J. J. Kauzlarich and A. B. Cambel. bibliog diag A S M E Trans ser E 30:269-74 Je '63; Discussion. 31:358-9 Je '64

Nonequilibrium ionization due to electron heating. J. L. Kerrebrock and M. A. Hoffman. bibliog diags AIAA J 2:1072-87 Je '64

Plasma physics. Engineer 217:649 Ap 10 '64

Plasmadynamics. D. Bershader. bibliog il diag Astronautics & Aerospace Eng 1:94-7 N '63

Radial collector wells adjacent to the river bank. M. Milojevic. bibliog diags Am Soc C E Proc 89 [HY 6 no 3704]:133-51 N '63; 90 [HY 4 no 3980]:329 Jl '64

Recent results of studies of the traveling wave pump. E. E. Covert and others. bibliog diag AIAA J 2:1040-6 Je '64

Rotating electrically conducting fluids in a long cylinder. K. O. Kessey. bibliog diags AIAA J 2:864-71 My '64

Superconducting coils. R. H. Levy and Z. J. J. Stekly. bibliog il Astronautics & Aeronautics 2:30-8 F '64

Theory of thin airfoils in magnetoaerodynamics. L. Dragos. bibliog AIAA J 2:1223-9 Jl '64

Thermoelectric-hydromagnetic pump. J. F. Osterle and S. W. Angrist. diags A S M E Trans ser C 86:166-8 My '64

Unconventional methods of electric power generation. L. G. Sanders. bibliog diags Ind Chem 40:92-6, 137-43 F-Mr '64

Zero thrust velocity vector control for interstellar probes; Lorentz force navigation and circling. R. L. Forward. bibliog diag AIAA J 2:885-9 My '64

MAGNETOMETERS

Aeromagnetics. M. S. Reford and J. S. Sumner. il maps diags Geophysics 29:482-516 bibliog(p515-16) Ag '64

Calibration of a spinner magnetometer with a wire loop. H. C. Noltimier. J Sci Instr 41:55 Ja '64

Differential nuclear magnetic resonance magnetometer. D. E. P. Silver. bibliog diags Electronic Eng 36:374-7 Je '64

Magnetic investigations of a ring dike, Buell Park, Ariz. R. L. Dubois and W. W. Carey. bibliog maps diags Geophysics 29:553-64 Ag '64

New torque meter or torque magnetometer. R. R. Birss and P. M. Wallis. bibliog plan diags J Sci Instr 40:551-6 D '63

Optically pumped nuclear magnetometer. L. D. Schearer and others. bibliog diag R Sci Instr 34:1363-6 D '63; Discussion. 35:767-8 Je '64

Precise ferromagnetic resonance magnetometers for differential measurements in fields characterized by large gradients. C. F. Hempstead and others. il diags R Sci Instr 35:785-9 Jl '64

Self-oscillating rubidium vapour magnetometer for geomagnetic measurements. M. J. Usher and others. bibliog diags J Sci Instr 41:544-7 S '64

Steady-state B-H hysteresigraph for thin ferromagnetic films using a torque magnetometer. E. J. Torok and others. il diags R Sci Instr 35:1039-40 Ag '64

Three-axis fluxgate controls magnetic environment. N. Wolff. il diag Control Eng 11:127 My '64

MAGNETO-OPTICS

Magneto-optical properties of rare earth (III) aluminum garnets. C. B. Rubinstein and others. J Ap Phys 35:3069-70 O '64

Results of magneto-optical investigation of rare-earth iron garnets. G. S. Krinchik and G. K. Tjutneva. bibliog J Ap Phys 35:1041-17 pt 2 Mr '64

Temperature dependence of the magneto-optic effect and resonance phenomena in oriented MnBi films. D. Chen and Y. Gondō. bibliog J Ap Phys 35:1024-5 pt 2 Mr '64

See also

Faraday effect

MAGNETORESISTANCE. See Electric resistance

MAGNETOSTATICS. See Magnetic field

MAGNETOSTRICTION

How to specify magnetostrictive filters. C. W. Carruthers. il diag Electronic Ind 22:57-61 D '63

Magnetostriction of single-crystal dysprosium, gadolinium iron garnet, and dysprosium iron garnet. A. E. Clark and others. J Ap Phys 35:1028-9 pt 2 Mr '64

Monitoring the magnetostriction of thin films during vacuum deposition. C. H. Tolman and others. il diags R Sci Instr 35:738-41 Je '64

Physicists probe magnetic effect in metals. Elec Eng 82:693-4 N '63

Saturation magnetostriction constants of gadolinium. J. Alstad and S. Legvold. bibliog J Ap Phys 35:1752-3 Je '64

Square-loop polychystalline garnets with and without magnetic field heat treatment. E. A. Nesbitt and others. J Ap Phys 35:2934-5 O '64

Synthesis of matched filters for signal recognition using magnetostrictive delay lines. F. C. Monds and A. M. Rosie. bibliog il diags Inst E E Proc 111:1630-6 O '64

MAGNETRON

Enhanced harmonic generation in magnetrons. W. Strauss and N. Kroll. diag IEEE Proc 52:884-93 Ag '64

Inexpensive pulse generator for single-shot operation of magnetrons. J. A. Green and J. Guttridge. diag J Sci Instr 40:541-2 N '63

Instability in the magnetron gauge. F. T. Worrell. R Sci Instr 34:1384-5 D '63

New magnetron shifts frequency fast. R. E. Edwards. il diags Electronics 37:76-81 Ap 6 '64

Noise in magnetron injection guns. R. P. Wadhwa. diag IEEE Proc 52:79 Ja '64

Twenty-kilowatt 890 mc/s continuous-wave magnetron. J. R. C. Twistleton. bibliog il diags Inst E E Proc 111:51-6 Ja '64

MAGNETS

Achromatic translation system for charged particle beams. D. A. Swenson. diags R Sci Instr 35:608-12 My '64

Aligning method insures proper boiler tube window positioning; magnetic jig. H. O. Werner. il Combustion 36:32-3 S '64

Better materials make permanent magnet stronger. Materials in Design Eng 59:135+ Mr '64

Effect of extended fringing fields on ion-focusing properties of deflecting magnets. H. A. Enge. bibliog diags R Sci Instr 35:278-87 Mr '64

Effect of lattice defects on the magnetization curve of ferromagnets. A. Seeger and others. bibliog il diags J Ap Phys 35:740-8 pt 2 Mr '64

First- and second-order magnetic optics matrix equations for the midplane of uniform-field wedge magnets. K. L. Brown and others. diags R Sci Instr 35:481-5 Ap '64

Handling parts magnetically. A. F. Israelson. il Automation 11:72-7 Mr '64

High-temperature heat capacity of ferromagnets having first- and second-neighbor exchange; application to EuS. P. J. Wojtowicz. J Ap Phys 35:991-3 pt 2 Mr '64

Low-temperature properties of a Heisenberg antiferromagnet. A. B. Harris. bibliog J Ap Phys 35:798-9 pt 2 Mr '64

Low-temperature properties of dilute ferromagnets in copper. M. W. Klein. bibliog J Ap Phys 35:944-5 pt 2 Mr '64

Magnet detents air valve. il diags Product Eng 35:98 Ag 17 '64

Magnet excitation for a proton accelerator. G. O. Calabrese. diags IEEE Trans Com & Electronics 83:302-9 My '64

Magnetic bearings. J. W. Beams. diags Machine Design 36:204+ Mr 12 '64

Magnetic field quenching of the Suhl-Nakamura width in antiferromagnets. P. Pincus. J Ap Phys 35:839-40 pt 2 Mr '64

Magnetization reversal in weak ferromagnets. R. J. Joenk. J Ap Phys 35:919-20 pt 2 Mr '64

Magnets reduce iron content of alumina. il Mod Materials Handling 19:76 Mr '64

Magnets speed sheet stacking. il diag Iron Age 192:150-1 D 5 '63

Miniature magnet travels through body. il Electronics 37:44+ Ja 10 '64

New powerful superconductive magnet. Franklin Inst J 278:157-8 Ag '64

Parametric excitation of acoustic wave instabilities in ferromagnets. R. E. Tokheim and others. diag J Ap Phys 35:1010-11 pt 2 Mr '64

MAGNETS—*Continued*

Permanent-magnet synchronous motor. D. P. M. Cahill and B. Adkins. bibliog diags Inst E E Proc 109 pt A:483-91 D '62; Discussion. 110:2032 N '63

Solenoid plunger magnet with nearly constant force. J. F. H. Douglas. diags IEEE Trans Applications & Ind p331-4 N '63

Specific heat and longitudinal correlation function for the Heisenberg ferromagnet. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35:946-7 pt 2 Mr '64

Superconducting magnets. M. Tanenbaum. diags Machine Design 36:203+ Mr 26 '64

Superconducting magnets and hard superconductivity. Y. B. Kim. il diags Phys Today 17:21-30 S '64

Superconducting magnets and the L.1000 cryomagnetic system. M. Wood. diag J Sci Instr 41:269-70 My '64

Superconducting magnets now become working tools. il Elec Eng 82:696 N '63

Trends in loudspeaker magnet structures. R. J. Parker. diags Audio Eng Soc J 12:236-9 Jl '64

Two magnets actuate level control. il diag Product Eng 35:102 S 15 '64

World's most powerful superconducting magnet. G. Corfield. Gas 40:15 O '64

See also

Electromagnets

Lifting magnets

Design

Rubber-bonded permanent magnets. diags Electro-Tech 74:99-102 Ag '64

Manufacturing

Adhesives assemble giant magnet. il Am Mach 108:80 Je 8 '64

MAGNETS, Lifting. See Lifting magnets

MAGNUS effect

Supersonic Magnus effect on a finned missile. E. R. Benton. bibilog diags AIAA J 2:153-5 Ja '64

MAIL advertising. See Advertising, Mail

MAIL boxes. See Mailboxes

MAIL handling

Character readers for mail sorting pushed by Post Office. il Control Eng 11:19-20 F '64

Linear motors give gentle sorting action. il diag Mod Materials Handling 19:59 Mr '64

Post Office gets builders to spend to speed mail. Eng N 173:24 O 22 '64

Solving the mail count problem. il Automation 11:39 Jl '64

MAILBOXES

Mail box/lamp standard. il diag Elec Constr & Maint 62:78+ D '63

MAINE

See also

Copper mines and mining—Maine

Zinc mines and mining—Maine

MAINTENANCE contracts

Close look at contract maintenance. Pet Management 36:152+ O '64

Contract maintenance aids production reliability. R. J. Lawrie. il Elec Constr & Maint 62:100-3 N '63

Factory maintenance; will you or an in-plant crew get the job? Dom Eng 203:104-5+ My '64

Floor resurfacing by contract. W. Wadl and L. Preston. il Plant Eng 18:117-18 Ap '64

How to solicit and evaluate contract maintenance bids. H. D. Dobe. Hydrocarbon Process & Pet Refiner 43:92-6 Ja '64

Instrument maintenance via contract. H. W. Vance. il Chem Eng Prog 60:23-4 Jl '64

Is contract lubrication practical? Plant Eng 18:114-17 Je '64

Maintenance by contract, how it can help you. C. C. Calmes. Textile World 114:54-5 Ja '64

Merit of maintainability (a light discussion on why it must prosper). R. L. Hess. Naval Eng J 76:63-6 F '64

Planning, scheduling and execution of contract maintenance in Japan today. S. Nojiri. flow chart Hydrocarbon Process & Pet Refiner 43:97-102 Ja '64

Street maintenance by contract. S. C. Palmer. il Pub Works 94:104-6 N '63

Unique contracting service solves underwater maintenance and repair and surveying problems. G. C. Wiswell, jr. il diags Elec World 160:54-5+ D 16 '63

What advantages in contract maintenance? Paper Ind 45:492-3 D '63

What contract maintenance can do. W. Cosinuke. il Chem Eng Prog 60:19-22 Jl '64

MAINTENANCE departments

Avoid maintenance pitfalls in plant startup. D. G. Poppe. Plant Eng 18:144-6 S '64

Build this semiconductor checker. K. Sueker. il diags Plant Eng 18:109-11 Mr '64

Building design meets vehicle, mechanic needs; abstract. W. F. Eaton. S A E J 72:86 F '64

Communications between maintenance, design and production. J. W. Tracht. Chem Eng 71:174+ Ap 27 '64

Consol maintenance backstopping production advances. il plan diags Coal Age 69:182-95 O '64

Critical path method tracks profitable maintenance overhaul. W. F. Ashley. diags Mill & Factory 74:70-3 Ja '64

Evaluating your maintenance. Textile World 114:55 Ap '64

Even-Steven work schedule is good 365 days a year. R. G. Crosby. diag Power 108:166 F '64

Here's how central work assignment control center helps us keep maintenance costs in line. J. E. George and J. A. McHollan. flow diags il Power 108:68-71 My '64

Keeping tried-and-true maintenance up to date: program at big cotton mill. il diag Textile World 114:48-52 Ja '64

Large steam plants are equipped to handle all maintenance and repairs. il Power Eng 68:41 O '64

Maintainability index verification. E. P. O'Connell. bibliog Ind Quality Control 20:14-17 Ap '64

Maintenance is different with automation. C. J. Vlahos. il Mill & Factory 74:68-71 Ap '64

Major guide rail galvanizing program. J. A. Robertson. il Pub Works 95:114-17 O '64

Measuring maintenance performance. J. H. Kiracofe. Pub Works 95:80-2 Jl '64

Organization and training for effective maintenance. A. Hyslop, jr. il Min Cong J 50:34-6+ Mr '64

Organization sparks bleachery maintenance. il Textile World 114:74-6 Ja '64

Planned preventive electrical maintenance of rolling mills. J. F. Trenner. il Iron & Steel Eng 41:106-11; Discussion. 111-12 S '64

Special materials for cutting coal plant maintenance. P. Levin. Min Eng 16:85-7 Je '64

Tested yardsticks for measuring maintenance. il Mill & Factory 74:114-17 My '64

Two ways to control maintenance. Textile World 114:61 Ap '64

We switched to area maintenance supervision and like it! M. D. O'Hern. il diags Plant Eng 18:110-12 Ap '64

What should it be; maintenance specialists, or multicraftsmen? C. J. Vlahos. il Mill & Factory 75:51-3 Jl '64

See also

Factories—Maintenance and repair

Employees

In-service training for maintenance supervisors. B. C. Parker. Pub Works 95:142-4 Ag '64

Training maintenance manpower, a big problem. Power Eng 68:T22 Mr '64

Records

Automatic data processing takes firm control of plant maintenance costs. G. M. Hall. il Power 108:80-2 F '64

Craft scheduling program boosts maintenance efficiency to 90 per cent. M. D. O'Hern. Plant Eng 18:111-13 My '64

Critical Path or bar chart; which is better for maintenance control? B. Carson. Plant Eng 18:129-31 O '64

Critical planning pays off. W. F. Boone. il Chem Eng Prog 60:25-7 Jl '64

Good record keeping key to Mashuda's machine care. il Roads & Sts 107:48-51 F '64

Improved crane maintenance through the aid of repair records. R. C. Cadmus. Iron & Steel Eng 41:113-17; Discussion. 117-19 S '64

Maintenance records; special feature. Diesel Equip Supt 42:32-8 S '64

Maintenance shop scheduling at Lukens steel co. K. E. Buffington. Iron & Steel Eng 41:126-31 S '64

Managing maintenance. W. E. Chandler. il Chem Eng Prog 60:28-9 Jl '64

Planned maintenance program at Lukens Steel. W. J. Metcalf. il Iron & Steel Eng 41:120-5 S '64

Planned maintenance simplified. D. L. Torlay. diags Iron & Steel Eng 41:132-8 S '64

Preventive maintenance and controlled lubrication systems. G. Capel and E. Nozewski. Lub Eng 20:265-71; Discussion. 272 Jl '64

Reports keep watchful eye on maintenance costs. N. G. Harris and S. Fuchs. diags Plant Eng 18:114-17 Ag '64

MAINTENANCE departments—Records—*Cont.*
What's required in maintenance reports to management. K. A. Anderson. Hydrocarbon Process & Pet Refiner 43:103-6 Ja '64

MAINTENANCE of way. See Railroads—Track

MALARIA
Quinine may soon be in short supply. il Chem & Eng N 42:35-6 Ag 17 '64

MALAYA
See also
Hydroelectric plants—Malaya
Mines and mineral resources—Malaya

MALEAMIC acid
Mechanism for the N,N′-dicyclohexylcarbodiimide-caused dehydration of asparagine and maleamic acid derivatives. R. Paul and A. S. Kende. bibliog Am Chem Soc J 86:4162-6 O 5 '64

MALEIC acid
Investigation of maleate-fumarate isomerization in unsaturated polyesters by nuclear magnetic resonance. L. G. Curtis and others. bibliog Ind & Eng Chem Product Res & Develop 3:218-21 S '64
Monsanto raises maleic and fumaric prices. Chem & Eng N 41:28 N 18 '63

MALEIC anhydride
Maleic anhydride and tertiary amines form dangerous mix. W. R. Davie. Chem & Eng N 42:41 F 24 '64
Mass spectral mechanisms; homoallylic participation in fragmentation of butadiene-maleic anhydride adduct. S. J. Weininger and others. bibliog Am Chem Soc J 86:3732-5 S 20 '64
Mechanism of the base-catalyzed addition of thiols to maleic anhydride. B. Dmuchovsky and others. bibliog Am Chem Soc J 86:2874-7 Jl 20 '64
Synthetic resins; the backbone of modern finishes; maleic resins. H. P. Preuss. bibliog Metal Finishing 62:43-7 Jl '64

Analysis

Quantitative determination of maleic anhydride, benzoic acid, naphthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

MALEIC hydrazide. See Dihydropyridazinedione

MALFORMATIONS. See Deformities

MALIC acid
Cathodic action of the uranyl-malate complexes at the dropping mercury electrode. T. T. Lai and S. J. Wey. bibliog Electrochem Soc J 111:1283-6 N '64

MALLEABLE founders society
Annual meeting, 30th, Hot Springs, Virginia, May 20-22; with abstracts of papers. Foundry 92:115+ Jl '64
Market development conference, 14th, Dearborn, Nov. 6-7; abstracts of papers. Foundry 92:111-12+ Ja '64
Semiannual meeting, Cleveland, Dec. 6. Foundry 92:166 Ja '64
Technical and operating conference, 9th, Cleveland, March 11-12; abstracts of papers. Foundry 92:157-8+ My '64
Winners of the annual design contest. il Product Eng 34:34 D 23 '63

MALNUTRITION. See Nutrition

MALONIC acid
Reaction of dimethyl acetylenedicarboxylate with malonic acid derivatives. P. Bamfield and others. Chem & Ind p 1313-14 Jl 18 '64

MALONITRILE
Synthesis and decomposition of 3-diazo-6-dicyanomethylene-1,4-cyclohexadiene; arylmalononitriles. H. D. Hartzler. bibliog Am Chem Soc J 86:2174-7 Je 5 '64

MALT
Sterilization of barley malt with gamma radiation. L. L. Kempe and others. bibliog J Agri & Food Chem 12:98-100 Ja '64

MAMMALS
See also
Whales

MAN
Man and hunger; the perspectives of history. A. J. Toynbee. Food Tech 18:990-3 Jl '64

Origin and antiquity

Human revolution. C. F. Hockett and R. Ascher. Am Scientist 52:70-92 Mr '64
See also
Evolution

MAN, Prehistoric
Early relatives of man. E. L. Simons. il map diags Sci Am 211:50-62 Jl '64
See also
Stone age

MANAGEMENT
Value of management in the construction industry. H. C. Turner, jr. Civil Eng 34:59-60 F '64
See also
Business management
Electric utilities—Management
Executives
Factory management
Hospitals—Management
Industrial management
International management congress
Organization in industry
Paper board mills—Management
Pert management system

Study and teaching

Training for civil engineer managers; abstract. A. J. Hill. Engineering 197:372 Mr 13 '64

MANCHESTER, England
Manchester. il plan Chem & Ind p 1078-94 Je 27 '64

Water supply

Manchester's fight for more water. maps Engineering 197:326-7 F 28 '64
Manchester's future water supplies. map Engineer 217:348 F 21 '64

MANDRELS. See Arbors and mandrels

MANGANESE
Catalysis of the decarboxylation of dimethyloxaloacetate by manganese(II), nickel(II), and their complexes. J. V. Rund and R. A. Plane. bibliog Am Chem Soc J 86:367-71 F 5 '64
Effect of calcium phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64
Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450°C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64
Exchange coupling of neighboring Mn^{++} ions in Mn:ZnS crystals. W. H. Brumage and others. bibliog J Ap Phys 35:994-5 pt 2 Mr '64
Induced anisotropy in YIG with Si and Mn additions. E. M. Gyorgy and F. J. Schnettler. J Ap Phys 35:1067-8 pt 2 Mr '64
Investigation of trace impurities in solids by electron paramagnetic resonance; distribution of manganese in calcium carbonate. S. Fujiwara. bibliog Anal Chem 36:2259-61 N '64
Manganese in the chlorine dioxide bleaching of kraft pulp. R. E. Press. J Ap Chem 14:240-4 Je '64
Manganese, 1963. J. M. Warde. Eng & Min J 165:138-9 F '64
An organometal complex containing a copper manganese bond. A. S. Kasenally and others. Am Chem Soc J 86:1884 My 5 '64
Phase equilibria and manganese-activated luminescence in portions of the system $Zn(PO_3)_2$-$Cd(PO_3)_2$-$Mg(PO_3)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111:660-5 Je '64
Phase equilibria and manganese-activated luminescence in the system $Zn_3(PO_4)_2$-$Cd_3(PO_4)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 110:1218-23 D '63
Phase equilibria and manganese-activated luminescence in the systems CdO-P_2O_5 and $Zn_2P_2O_7$-$Cd_2P_2O_7$; summary for the system ZnO-CdO-P_2O_5. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64
Role of calcium manganese orthophosphate in halophosphate phosphors. J. G. Rabatin and G. R. Gillooly. bibliog Electrochem Soc J 111:542-6 My '64
Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72:477-83 Jl '64
See also
Water purification—Manganese removal

Analysis

Determination of manganese by potentiometric titration. il diag Metallurgia 69:99-102 F '64
Determination of manganese in maganese-rich steelmaking alloys by automatic titrimetry. P. H. Scholes and D. V. Smith. Metallurgia 69:147-50 Mr '64
Determination of small amounts of manganese by oxidation of 8-aminoquinoline, extraction, and spectrophotometry. V. L. Gustin and T. R. Sweet. bibliog Anal Chem 36:1674-6 Jl '64

MANGANESE—*Continued*

Isotopes

Direct Mn^{55} nmr absorption in antiferromagnetic $KMnF_3$. A. Nakamura and others. bibliog J Ap Phys 35:842-3 pt 2 Mr '64

Mn^{55} nuclear magnetic resonance in antiferromagnetic $RbMnF_3$. A. J. Heeger and D. T. Teaney. bibliog J Ap Phys 35:846-7 pt 2 Mr '64

Spectra

First spectrum of manganese, Mn I. M. A. Catalán and others. bibliog J Res Nat Bur Stand 68A:9-59 Ja '64

MANGANESE, Powdered

Manganese powder as a pigment in the preparation of protective paints. V. M. Kelkar and S. V. Puntambekar. Chem & Ind p 1315 Jl 18 '64

MANGANESE alloys

Antiferromagnetic transition in γ-phase Mn alloys. J. E. Zimmerman and others. bibliog J Ap Phys 35:942-3 pt 2 Mr '64

Relationship between grain size and intergranular cavitation in an aluminium-1¼ per cent manganese alloy and 70:30 α-brass. D. M. R. Taplin and V. N. Whittaker. bibliog il Inst Metals J 92:426-8 '63-64

See also

Iron alloys—Manganese alloys
Manganin

MANGANESE carbonate

Antiferromagnetic resonance in CoF_2,NiF_2, and $MnCO_3$. P. L. Richards. bibliog J Ap Phys 35:850-1 pt 2 Mr '64

Nuclear antiferromagnetic double resonance in $MnCO_3$. D. Shaltiel and H. J. Fink. bibliog J Ap Phys 35:848-9 pt 2 Mr '64

Synthetic solid solutions in the systems $MgCO_3$-$FeCO_3$ and $MnCO_3$-$FeCO_3$. P. E. Rosenberg. Am Mineralogist 48:1396-400 N '63

MANGANESE compounds

Geometry of manganese pentacarbonyl hydride, an X-ray diffraction study. S. J. LaPlaca and others. bibliog Am Chem Soc J 86:2288-9 Je 5 '64

Mn, Ni, Co, and UO_2 perchlorate complexes made. D. K. Straub and Y. M. Yung. Chem & Eng N 42:53-5 S 21 '64

Neutron diffraction investigation of the magnetic structure of $TbMn_2$. L. M. Corliss and J. M. Hastings. diag J Ap Phys 35:1051-3 pt 2 Mr '64

Temperature dependence of the magneto-optic effect and resonance phenomena in oriented MnBi films. D. Chen and Y. Gondō. bibliog J Ap Phys 35:1024-5 pt 2 Mr '64

MANGANESE dioxide. See Manganese oxides

MANGANESE ferrates

Effect of powder parameters on grain growth in manganese-zinc ferrite. T. Yamaguchi. bibliog il Am Cer Soc J 47:131-3 Mr '64

High-permeability manganese-zinc ferrite reduced in vacuum. Y. Shichijō and others. il J Ap Phys 35:1646-7 My '64

Microwave resonance and relaxation of manganese iron ferrites. B. H. Clarke and R. W. Teale. bibliog J Ap Phys 35:892-3 pt 2 Mr '64

Nuclear and ferromagnetic relaxation in $MnFe_2O_4$. A. J. Heeger and others. J Ap Phys 35:840-1 pt 2 Mr '64

Observations of the ordering process in a Mg-Fe ferrite. C. Heck and G. Vaccari. bibliog J Ap Phys 35:907-9 pt 2 Mr '64

Square-loop properties of materials in the system $NiFe_2O_4$-Fe_3O_4-$MnFe_2O_4$. H. B. Im and D. G. Wickham. bibliog diag J Ap Phys 35:1442-5 My '64

Temperature dependence of the sublattice magnetization in ferrimagnetic $MnFe_2O_4$. A. J. Heeger and T. Houston. J Ap Phys 35:836-7 pt 2 Mr '64

MANGANESE fluorides

Antiferromagnetic resonance linewidth in MnF_2 near the transition temperature. J. C. Burgiel and M. W. P. Strandberg. bibliog J Ap Phys 35:852-3 pt 2 Mr '64

Measurement of spin-wave dispersion in MnF_2 at 4.2°K. G. G. Low and others. bibliog J Ap Phys 35:998-9 pt 2 Mr '64

MANGANESE ores

Geology and mineralogy of certain manganese oxide deposits. L. T. Larson. bibliog il maps diags Econ Geol 59:54-78 Ja '64

Microscopic examination of manganese ores of Srikakulam and Visakhapatnam (Vizagapatam) districts, Andhra Pradesh, India. J. S. R. Krishna Rao. bibliog il Econ Geol 58:434-40 My '63; Discussion. S. Roy. 59:154-7 Ja '64

Production of manganese (II) sulphate from low-grade manganese ores. R. I. Razouk and others. bibliog J Ap Chem 14:105-8 Mr '64

Stratigraphy and mineralogy of the manganese sedimentary deposits of Coquimbo Province, Chile. L. Aguirre and S. Mehech. il maps diag Econ Geol 59:428-42 My '64

MANGANESE oxides

Cathodic reduction of manganese dioxide in alkaline electrolyte. G. S. Bell and R. Huber. bibliog Electrochem Soc J 111:1-6 Ja '64

Colloid-chemical properties of manganese dioxide. J. J. Morgan and W. Stumm. bibliog J Colloid Sci 19:347-59 Ap '64

Electrical resistivity of pyrolytic beta MnO_2. J. S. Wiley and H. T. Knight. bibliog Electrochem Soc J 111:656-60 Je '64

Equilibrium pressures of oxygen over Mn_2O_3-Mn_3O_4 at various temperatures. E. M. Otto. bibliog diag Electrochem Soc J 111:88-92 Ja '64

Fabrication and plastic behavior of single-crystal MgO-NiO and MgO-MnO solid-solution alloys. T. S. Liu and others. bibliog il Am Cer Soc J 47:276-9 Je '64

Geology and mineralogy of certain manganese oxide deposits. L. T. Larson. bibliog il maps diags Econ Geol 59:54-78 Ja '64

Investigation of manganese dioxides. A. Tvarusko and R. F. Amlie. bibliog Electrochem Soc J 111:125-31, 496-501 F, My '64

Preparation and thermal analysis of mixed magnesium-manganese-iron oxalates and hydrated oxides. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 47:434-7 S '64

Role of multivalent metal oxides in limnological transformations as exemplified by iron and manganese; abstract. J. J. Morgan and W. Stumm. WPCF J 36:276-7 Mr '64

Sublattice magnetization and lattice distortions in MnO and NiO. D. S. Rodbell and J. Owen. bibliog diag J Ap Phys 35:1002-3 pt 2 Mr '64

System manganese oxide-Cr_2O_3 in air. D. H. Speidel and A. Muan. bibliog Am Cer Soc J 46:577-8 D '63

MANGANESE phosphate

Lithian hureaulite from the Black Hills. D. J. Fisher. bibliog diag Am Mineralogist 49:398-406 Mr '64

MANGANESE silicates

Morphological analysis of hodgkinsonite. L. A. Hardie and others. bibliog diag Am Mineralogist 49:415-20 Mr '64

X-ray study of sursassite from New Brunswick. R. L. Freed. bibliog Am Mineralogist 49:168+ Ja '64

MANGANESE steel

Determination of manganese in manganese-rich steelmaking alloys by automatic titrimetry. P. H. Scholes and D. V. Smith. Metallurgia 69:147-50 Mr '64

Manganese fade control in open hearth rimmed steel. P. E. Dempsey and L. W. Fleming. il J Metals 16:232-4 Mr '64

Welding the newer grades PH alloys and manganese stainless steels. R. H. Espy. Metal Prog 86:130+ Ag '64

MANGANESE sulfate

Ion association in polyvalent symmetrical electrolytes; the conductance of manganese (II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64

Production of manganese (II) sulphate from low-grade manganese ores. R. I. Razouk and others. bibliog J Ap Chem 14:105-8 Mr '64

MANGANESE sulfide

Intergranular brittleness of cast chromium-nickel steels. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 200:1060-7 D '62; Discussion. 202:225-35 Mr '64

MANGANIN

Determining corrections for manganin resistors. R. M. Shaw. I S A J 10:69-70 O '63

High pressure manganin gauge with multiple integral calibrants. G. A. Samara and A. A. Giardini. bibliog diag R Sci Instr 35:989-92 Ag '64

Piezoresistivity of manganin. D. Bernstein and D. D. Keough. bibliog il diag J Ap Phys 35:1471-4 My '64

MANGOES

Constitution of the glucan from mango (mangifera indica Linn). A. Das and C. V. N. Rao. bibliog Tappi 47:339-43 Je '64

MANHOLES, Concrete

Moisture barrier pre-cast manholes aid in providing 345-kv splicing environment. il Elec World 161:86+ F 10 '64

Precast outside drop manholes use rubber gasket joints. D. F. Hanley. il diag Pub Works 95:93 Jl '64

MANIFOLDS

Air takes a trolley to work. il Iron Age 193:143 My 21 '64

High-temperature inlet manifold for coupling a gas chromatograph to the time-of-flight mass spectrometer. D. O. Miller. il diag Anal Chem 35:2033-5 D '63

Manifold pressures. S. E. Bonamy. bibliog Automobile Eng 54:397-401 S '64

Vacuum manifold. E. J. Trueblood. diags Water & Sewage Works 111:366-7 Ag '64

What you can get in manifolds. il Hydraulics & Pneumatics 16:88-9 N '63

MANIPULATORS

Electronically controlled forging. il Ind Electronics 2:239-40 My '64

High speed forging manipulator. il Metallurgia 69:229-30 My '64

Industrial manipulators. R. S. Mosher. il diags Sci Am 211:88-94+ O '64

Influence of hydraulic equipment design on mobile forging manipulator equipment. S. W. Taylor. il Engineer 218:155-8 Jl 31 '64

Integrated forging press and manipulator. il Engineer 217:723-4 Ap 24 '64

Mobile remote manipulator units (M R M U); in case of radioactive trouble. D. G. Jones. il diags Mech Eng 86:28-31 My '64

Simple micropipette or microneedle manipulator. C. Horwitz and S. Wood. diag J Sci Instr 41:518 Ag '64

Three-eyed maintenance man. il Mech Eng 86:58 F '64

Unique manipulators perform handling operations in automated cigar warehouse. flow diag il Automation 11:63-5 O '64

MANITOBA

See also

Geology—Manitoba

Hydroelectric plants—Manitoba

Mines and mineral resources—Manitoba

MANNANS

See also

Galactomannan

MANNICH reaction

Attachment of compounds to aminized cotton fabric by the Mannich reaction. J. D. Guthrie and others. Am Dyestuff Rep 53:626-8 Jl 20 '64

MANOMETERS

Automated BOD respirometer. R. M. Arthur. bibliog il Water Works & Wastes Eng 1:35-8+ O '64

Biological oxidation in self-operating, continuously recording manometers; abstract. M. X. V. Snaddon and S. H. Jenkins. WPCF J 36:305-6 Mr '64

Differential mercury manometers. H. J. M. Hanley. diag J Sci Instr 41:486 Jl '64

Direct indicating velocity head manometer. J. Parker. diags Tappi 47:111-14 F '64

Distance detector manometer for measurement and control of liquid helium temperatures in magnetic fields. E. W. Hornung and G. E. Brodale. bibliog diag R Sci Instr 35:499-502 Ap '64

Float manometer indicates small pressure differences. R. Kumar and N. R. Kuloor. diags Chem Eng 71:92-3 Ag 31 '64

Micromanometer. E. S. Burka. il diag Instruments & Control Systems 37:139-40 S '64

Numerical and experimental study of damped oscillating manometers. J. C. Biery. bibliog diags A I Ch E J 9:606-14; 10:551-7 S '63; Jl '64

Simple micromanometer. J. D. E. Beynon and R. B. Cairns. diag J Sci Instr 41:111-12 F '64

MANPOWER. See Labor supply

MANUFACTURERS

See also

Trade names

MANUFACTURERS liability. See Products liability

MANUFACTURERS literature. See Advertising literature

MANUFACTURES

See also

Automobiles—Manufacture

Inspection

Metal work

Patents

Products, New

MANUFACTURING engineering. See Industrial engineering

MANUFACTURING engineers. See Industrial engineers

MANURES

Equipment for disposal of agricultural effluents. C. Culpin. Chem & Ind p350-3 F 29 '64

Management of wastes in the food producing and food processing industries. S. A. Hart and P. H. McGauhey. bibliog il Food Tech 18:432-8 Ap '64

Pollution prevention in relation to agricultural effluents. H. Fish. Chem & Ind p354-6 F 29 '64

Treatment of farm effluents. A. B. Wheatland and B. J. Borne. bibliog Chem & Ind p357-62 F 29 '64

MANUSCRIPTS

Conservation and restoration

Stringent air conditioning control for library's rare works. E. A. Kaplun. il diag Heating-Piping 36:103-5 F '64

MAPLE sirup

Carbohydrate browns maple sirup. E. E. Stinson. il Chem & Eng N 42:66 S 14 '64

Research modernizes the maple-sirup industry. J. C. Underwood and C. O. Willits. bibliog il Food Tech 17:1380-2+ N '63

MAPPING

Countrol traverses and their adjustment. E. D. Morse. bibliog maps diag Am Soc C E Proc 89 [SU 2 no 3546]:39-53 Je '63; Discussion. 89 [SU 3 no 3684]:225-8 O '63; 90 [SU 1 no 3885]:81-4 Ap '64

Plane coordinate systems and map projections. E. Schmid. Am Soc C E Proc 90 [SU 2 no 3962]:17-25 Jl '64

Professional practice of surveying and mapping within civil engineering. Civil Eng 33:56-8 N '63

Surveying and mapping for water-resource planning. K. W. Bauer. maps Am Soc C E Proc 90 [SU 1 no 3855]:1-15 Ap '64; Excerpts. Pub Works 95:120-2 My '64

See also

Topographical maps

MAPPING, Aerial

Mapping the world with the Air photographic and charting service. H. W. Hunt. il diags Civil Eng 34:36-9 F '64

Statistical analysis of some aeromagnetic maps from the northwestern Canadian shield. C. W. Horton and others. bibliog maps diags Geophysics 29:582-601 Ag '64

See also

Surveying, Aerial

MAPS

Basic distribution map. A. D. Henderson. map Water Works & Wastes Eng 1:64-5 F '64

Distribution map variations; valve, transmission main and service connection records. A. D. Henderson. plan diag Water Works & Wastes Eng 1:64-5 Mr '64

Drafting technique cuts map production time one-third. il Pub Works 94:154 N '63

Extended pictorial map display system. il diag Engineering 196:813 D 27 '63

Heavy duty mounting for maps. A. A. Hirsch. il diag Water & Sewage Works 111:117 Mr '64

Highway plans from photogrammetrically-compiled maps. L. E. Parker. Am Soc C E Proc 90 [SU 1 no 3859]:31-8 Ap '64

Texaco displays world's largest map at the World's fair. il Pet Management 36:118 Jl '64

See also

Globes

Petroleum pipe lines—Maps

Topographical maps

MAPS, Geological. See Geological maps

MARBLE

Georgia marble company's new Adams, Mass., plant. W. E. Trauffer. il Pit & Quarry 57:106-8+ O '64

Marble strips distinguish precast concrete facades. il Arch Rec 135:184 Je '64

MARGARINE

Essential fatty acid contents of various fats: interpretations of values by physico-chemical tests. R. B. Alfin-Slater and D. Melnick. bibliog Am Oil Chem Soc J 41:145-50 F '64

Some aspects of the edible fat industry in the United Kingdom. A. A. McKerrigan. Am Oil Chem Soc J 41:sup56+ Ap '64

MARGAROSANITE

New data on margarosanite. R. L. Armstrong. Am Mineralogist 48:698-703 My '63; Discussion. 49:781-2 My '64

MARIHUANA

Isolation, structure, and partial synthesis of an active constituent of hashish. Y. Gaoni and R. Mechoulam. bibliog Am Chem Soc J 86:1646-7 Ap 20 '64

MARINAS

Big draglines carve out Cape Coral canals and marinas. il Eng N 172:45-6 F 27 '64

Designing a public marina. P. M. Wilson. bibliog il Pub Works 95:111-13 Mr '64

Managing a public marina. P. M. Wilson. bibliog il Pub Works 95:118-20 Ap '64

Modernizing docking facilities for small boats. A. N. Gilbert. il plan diag Pub Works 95:109-11 O '64

Planning a public marina. P. M. Wilson. bibliog il Pub Works 95:109-11 F '64

Small-craft harbor problems. C. E. Lee. plans Am Soc C E Proc 90 [WW 3 no 4015]:1-9 Ag '64

Small craft harbors development; progress report. il plans diags Am Soc C E Proc 90 [WW 3 no 4016]:11-114 Ag '64

MARINE biology

See also

Fresh water biology

Plankton

MARINE boilers. See Boilers, Marine

MARINE borers

Marine borers, an annotated bibliography. W. F. Clapp and R. Kenk. Review, by F. J. Griffin. Chem & Ind p916-17 My 30 '64

MARINE deposits

Atlantic sediments, erosion rates, and the evolution of the continental shelf; some speculations. J. Gilluly. bibliog maps Geol Soc Bul 75:483-92 Je '64

Distinction between kaolinite and chlorite in recent sediments by *X*-ray diffraction. P. E. Biscaye. Am Mineralogist 49:1281-9 bibliog(p 1288-9) S '64

Exploration for phosphorite in Turkey; a case history. R. P. Sheldon. maps diag Econ Geol 59:1159-75 bibliog(p 1174-5) S '64

Facies trends, San Pedro Bay, Calif. O. L. Bandy and others. bibliog maps Geol Soc Bul 75:403-23 My '64

Molluscan biofacies in calcareous sediments, Gulf of Batabano, Cuba. C. W. Hoskins. bibliog il maps Am Assn Pet Geologists Bul 48:1680-704 O '64

Neptunist concepts in ore genesis. K. C. Dunham. maps Econ Geol 59:1-21 bibliog(p 19-21) Ja '64

Paleotemperature analysis of the Caribbean cores A254-BR-C and CP-28. C. Emiliani. map Geol Soc Bul 75:129-43 bibliog(p 141-3) F '64

Sediment distribution in the oceans: the Mid-Atlantic Ridge. M. Ewing and others. bibliog maps diags Geol Soc Bul 75:17-35, pl 1-6 Ja '64

Turbidites and topography of north end of San Diego Trough, Calif. B. M. Hand and K. O. Emery. bibliog maps J Geol 72:526-42, pl 1-5 S '64

Variations in the oxygen and carbon isotope ratios of Florida Bay mollusks and their environmental significance. R. M. Lloyd. bibliog maps J Geol 72:84-111 Ja '64

MARINE engineering

Engineering opportunities: go navy. Naval Eng J 75:891-6 D '63

1964 prospects of all engineerings; shipbuilding. il Engineering 197:121-3 Ja 17 '64

Promise of reliability engineering. R. L. Harrington and R. P. Riddick. diag Marine Eng/Log 69:34-7 Je '64

Questions and answers for marine engineers and deck department. Published in monthly numbers of Marine engineering/log

Shipbuilding and marine engineering in 1963. il Engineer 217:9-12, 69-72 Ja 3-10 '64

Technical progress in marine engineering during 1963. bibliog flow diag diag Naval Eng J 76:639-45 Ag '64

Use of scale models in predicting the behavior of complex structures. J. C. Braithwaite and R. Williams. Naval Eng J 75:937-40 D '63

See also

Boilers, Marine

Propellers

Ship propulsion

Ship propulsion, Electric

Ship resistance

Shipbuilding

Society of naval architects and marine engineers

Steam turbines, Marine

Steering gear

Bibliography

Book reviews. Published in monthly numbers of Marine engineering/log

Study and teaching

City of Liverpool college of technology regional college; Department of mechanical, marine and production engineering. R. F. McMahon. il Chem & Ind p 1001-2 Je 13 '64

MARINE engineers

Navy's most promising asset; man. K. E. Belieu. Naval Eng J 76:343-6 Je '64

MARINE engines

Marine engines for 1964. C. A. Weinert. il diags Automotive Ind 130:79-83+ Ja 15; 51-5 F 1; 73-8+ F 15; 54-8 Mr 1 '64

See also

Diesel engines, Marine

Gas turbines, Marine

Internal combustion engines, Marine

Motor boat engines, Outboard

Steam turbines, Marine

MARINE fauna

Accumulation of mixed fission products by marine organisms; abstract. T. R. Rice and others. WPCF J 36:326 Mr '64

Biological and chemical features of tidal estuaries. H. F. Frolander. bibliog map diags WPCF J 36:1037-48 Ag '64

Facies trends, San Pedro Bay, Calif. O. L. Bandy and others. bibliog maps Geol Soc Bul 75:403-23 My '64

Marine life; friend and foe of the fleet. S. R. Galler. Naval Eng J 76:635-8 Ag '64

Variations in the oxygen and carbon isotope ratios of Florida Bay mollusks and their environmental significance. R. M. Lloyd. bibliog maps J Geol 72:84-111 Ja '64

See also

Barnacles

Plankton

Shellfish

MARINE flora

See also

Plankton

MARINE gas turbines. See Gas turbines, Marine

MARINE oils. See Fish oil

MARINE steam turbines. See Steam turbines, Marine

MARINE structures

Bow mooring for berthing tankers. L. E. Van Houten and G. A. McCammon. il Civil Eng 34:60-2 Mr '64

Effects of ocean on construction materials tested. il Civil Eng 34:80 My '64

How to handle a huge foaming job. il Mod Plastics 42:92-4+ O '64

Slender tower handles undersea drilling. il diag Eng N 172:92 Ap 2 '64

To salvage a Texas tower. il Plastics World 22:22-3 O '64

Toppling a Texts tower. il Comp Air Mag 69:4-7 O '64

Unique contracting service solves underwater maintenance and repair and surveying problems. G. C. Wiswell, jr. il diags Elec World 160:54-5+ D 16 '63

Unit locates logs automatically il Eng N 172:49 F 20 '64

See also

Breakwaters

Docks

Intakes

Petroleum—Offshore drilling structures

Piers

MARINE terminals. See Terminals

MARKELIUS, Sven

Architecture in a social context; the work of S. Markelius. il plans Arch Rec 135:153-64 Ap '64

MARKET research

Analysts seek new sources of market data; abstract. R. M. Kossoff and J. F. Dash. Chem & Eng N 42:44 Ap 13 '64

Engineering market research theory and practice. L. A. Williams and R. J. Finlayson. Inst Mech Eng Proc 177 no 32:877-91; Discussion. 892-4; Reply. 895 '63

Ethical drug market research. R. L. Hull. Drug & Cosmetic Ind 93:615-17+ N '63

How to research industrial markets. diag Engineering 197:722-3 My 29 '64

Market research in current sales planning. A. M. McBurney. Paper Ind 45:428+ N '63

Me-too-ism in chemical marketing. J. L. Johnson. Chem Eng Prog 60:22-3 Ap '64

Pursuit of perfection. B. Cooke. Ind Quality Control 21:16-20 Jl '64

Road to new profits; techno-economic evaluation needed. J. A. Kanehann. il Chem Eng Prog 60:21-4 My '64

Role of marketing research in cosmetic distribution. N. A. Campbell. Am Perfumer 79:31-3 Ag '64

See also

Consumer surveys

MARKETING

Advertising must relate to marketing plan; abstract. T. F. Casey. Chem & Eng N 42:30 Ap 20 '64

Ceramic labels; a designers view. W. Joachim. Glass Ind 45:20-3 Ja '64

MARKETING—*Continued*

Chemical technology reaches into the market; with special section summarizing all the new chemicals and materials. il Ind & Eng Chem 56:60-3+ S '64
Consol marketing; philosophy and technique. il Coal Age 69:216-21 O '64
Coordinating food research with marketing. L. E. Klinger. bibliog diags Food Tech 17:1368-72 N '63
Court bans some marketing policies. Oil & Gas J 62:84-5 Ap 27 '64
Distillate competition; paradox in marketing. G. T. Kinney. Oil & Gas J 62:42-3 S 28 '64
How Lirelle is being marketed. C. F. Walden. Mod Textiles Mag 45:118-19 Ja '64
How to commercialize specialties. F. W. Hammesfahr. il Chem Eng Prog 60:19-21 Ap '64
How to revitalize old products. M. Rubin. Drug & Cosmetic Ind 94:174-5+ F '64
Impact of technology on surface active agents market. H. E. Bramston-Cook. diags Soap & Chem Spec 40:67-70+ S '64
Is marketing a good career? Chem Eng Prog 60:16-17 Ag '64
Lone Star builds market ahead of plant. il plan Oil & Gas J 62:96-7 O 5 '64
Machine tool builder takes new marketing tack. W. K. Mathias. il Steel 155:40-4 S 21 '64
Makeup market. il Drug & Cosmetic Ind 94:353-6+ Mr '64
Market orientation strengthens sales setup. R. C. Tower. Chem & Eng N 42:38-9 Ag 17 '64
Market-oriented sales gain momentum. Chem & Eng N 42:30-1 Ja 20 '64
Marketing lawn. garden products. R. M. Staples. Soap & Chem Spec 40:83-4 Ap '64
Marketing management. G. B. Giles. Review. by R. G. Booth. Chem & Ind p 1722-4 O 10 '64
Marketing needs shortsighted leaders. H. Moir. Oil & Gas J 62:42-3 Je 1 '64
Marketing pharmaceutical in Canada. H. Barnet. Drug & Cosmetic Ind 94:504+ Ap '64
Marketing textile chemical specialties in the United States and in Europe. P. J. Scott. Am Dyestuff Rep 53:529-32 Je 22 '64
Mathematical modeling; an engineering approach to marketing. R. A. Labine. bibliog Chem Eng 71:193-6 Ap 13 '64
Micro-Tek starts marketing to dealers. Chem & Eng N 42:35 Mr 2 '64
Mint oil marketing. J. E. Landing. bibliog il Drug & Cosmetic Ind 94:34-5+ Ja '64
New directions in marketing packaged products. Soap & Chem Spec 40:53-4+ Mr '64
New insight into technology-market interplay. il Chem Eng 71:28 Ag 31 '64
Picking the right marketing strategy. J. L. Campbell. Foundry 92:52-5 Jl '64
Plastics 1963. Mod Plastics 41:84-107+ Ja '64
Pressing need for better marketing data. S. Feldman. il Electronic Ind 23:42-3+ Ja '64
Professors briefed on chemical marketing; seminar produces ideas on encouraging careers in marketing. Chem & Eng N 42:53 Jl 13 '64
Relationship between marketing and technical research. N. G. Foss. Tappi 47:sup 136A My '64
Road to new profits; marketing + r&d = success. J. W. Bradley. il Chem Eng Prog 60:24-6 My '64
Story of Contac. P. Godfrey. Drug & Cosmetic Ind 95:41-2+ Jl '64
Tenneco tries unusual marketing plan. il Oil & Gas J 62:50 F 3 '64
Tulsa survey turns up marketing faults. Oil & Gas J 62:100 Ja 27 '64

See also
Distribution (economics)
Industrial market
Jobbers
Private brands
Supermarkets

MARKETS, New

Standardization + modernization boosts sales 50 per cent. W. J. Davidson. il Mach 71:129-32 S '64
World markets; key to future of Canada's potash industry. W. G. Scott. Can Min & Met Bul 57:849-55 Ag '64

MARKING

Cable tracer ends guesswork in conductor identification. diags Plant Eng 17:131-3 N '63
Circuit identification code promotes safety. il Elec Constr & Maint 63:110+ Ap '64
Designing identification codes for business systems integration. J. W. Fulton. Automation 11:89-92 O '64
Optical marking-out equipment. Engineer 217:365 F 21 '64

MARKING machines

Marking unit. Iron & Steel Eng 41:206 F '64
Penetration differentials; reference sheet. Tool & Manuf Eng 53:72 Jl '64

MARRUBIUM vulgare. See Horehound

MARS (planet)

Computer versus Kepler. O. Gingerich. bibliog il diags Am Scientist 52:218-26 Je '64
Equilibrium electron density on Mars. E. D. Shane. AIAA J 2:1497-9 Ag '64
Experimental study of radiative transport from hot gases simulating in composition the atmospheres of Mars and Venus. C. S. James. bibliog il diag AIAA J 2:470-5 Mr '64
Hypersonic flow field around a hemisphere in a CO_2-N_2-A gas mixture. J. H. Klaimon. bibliog AIAA J 2:953-4 My '64
Is there life on Mars? J. A. Strasser. il diags Electronics 37:71+ Ja 3 '64
Metals burning nitrogen: atmosphere of the planet Mars should be considered for propulsion purposes. J. Q. Weber and K. H. Mueller. Chem Eng Prog 60:40-1 F '64
Planet Mars. S. Tilson. bibliog il diags Space/Aeronautics 42:46-53 Jl '64
Search for life; instrument that will collect and analyze a few grams of Martian soil or dust for signs of microbial life. il diag Product Eng 35:41-2 Je 8 '64
Showdown nears on search for life on Mars. il Chem & Eng N 42:24-8 Ap 27 '64

MARSHES

Barge rig digs faster on land than water. il Eng N 173:32-3 S 24 '64
Big tires lick swamp problems. il Oil & Gas J 62:190-2 Ag 17 '64
Two pollen diagrams from southeastern Minnesota; problems in the regional late-glacial and postglacial vegetational history. H. E. Wright, jr. and others. map diags Geol Soc Bul 74:1371-95, pl 1-3 bibliog (p 1392-5) N '63

MARSHMALLOWS

Marshmallows. P. J. Tiemstra. bibliog il diags Food Tech 18:915-27, 1084-96 Je-Jl '64

MARTENSITE

Internal friction effects in martensite. R. Ward and J. M. Capus. bibliog Iron & Steel Inst J 201:1038-43 D '63; Discussion. J. McGrath and R. Rawlings. 202:454; Reply. 454-6 My '64
Stress-corrosion cracking of martensitic stainless steels. J. E. Truman and others. bibliog il diags Iron & Steel Inst J 202:745-56 S '64

MARTI, Ernest John

Memorial. W. A. Sax. por Geophysics 29:868-9 O '64

MARTIN, Albert C. and associates, architects and engineers

Albert C. Martin and associates reports; reference data. flow diag il plan diags Air Cond Heat & Ven 61:59-94 My '64

MARVEL, Carl S.

American chemical society award in polymer chemistry. por Chem & Eng N 42:70 Mr 30 '64

MARYLAND

See also
Architecture, Domestic—Maryland
Roads—Maryland
Transportation—Maryland
Water, Underground—Maryland

MASER. See Amplifiers

MASKING

Simple masking technique for the electrolytic treatment of metals and semiconductors. J. G. Gibson. diag J Sci Instr 41:395 Je '64

MASKS (for the face)

Keeping up with respiratory protection developments. il Safety Maint 128:22 Ag '64
Light spray masks for spray operators. B. C. O'Keefe. Ind Finishing 40:105 S '64
Masking the man with the average face. W. Reach. il Safety Maint 127:12-16+ Je '64
New supplied-air masks now approved. Safety Maint 128:14-15 Jl '64

MASONRY

Stresses in point supported composite walls. S. Rosenhaupt. bibliog diags Am Concrete Inst J 61:795-810 Jl '64

MASS

Consequences of neutron-proton mass difference in the kinematics of neutron-proton scattering. A. K. Ghatak. diag Am J Phys 32:163-6 F '64

MASS—*Continued*

Electron effective mass in ZnSe. D. T. F. Marple. bibliog J Ap Phys 35:1879-82 Je '64

General exact solutions for the diffusion equations of momentum, heat, and mass in spiral viscous flows. W. J. Yang. bibliog J Ap Phys 35:1749-51 Je '64

MASS spectra

Calculation of upper limit hydrogens of an organic formula for analysis of mass spectra. J. Lederberg and M. Wightman. Anal Chem 36:2365 N '64

Correlations and anomalies in mass spectra; acetals. W. H. McFadden and others. bibliog Anal Chem 36:1031-7 My '64

Element maps depict complete mass spectra. K. Biemann and others. Chem & Eng N 42:42-4 Jl 6 '64

High-resolution mass spectra of compounds emerging from a gas chromatograph. J. T. Watson and K. Biemann. bibliog diag Anal Chem 36:1135-7 My '64

High resolution mass spectra of natural products: vinblastine and derivatives. P. Bommer and others. bibliog Am Chem Soc J 86:1439-40 Ap 5 '64

Mass and microwave spectra, structures, and dipole moments of the isomers of sulfur monofluoride. R. L. Kuczkowski. bibliog diags Am Chem Soc J 86:3617-21 S 20 '64

Mass spectra of diaryl sulfones. S. Meyerson and others. bibliog Anal Chem 36:1294-300 Je '64

Mass spectra of dipeptides. H. J. Svec and G. A. Junk. bibliog Am Chem Soc J 86:2278-82 Je 5 '64

Mass spectra of ethyl *N*-phenylcarbamate and ethyl *N*-ethylcarbamate. C. P. Lewis. bibliog Anal Chem 36:176-80 Ja '64

Mass spectra of *N*-substituted ethyl carbamates. C. P. Lewis. Anal Chem 36:1582-8 Jl '64

Mass spectra of O-isopropylidene derivatives of pentoses and hexoses. D. C. De Jongh and K. Biemann. bibliog Am Chem Soc J 86:67-74 Ja 5 '64

Mass spectra of three acetyl derivatives of 3,4-dideoxyaldopentose. M. Venugopalan and C. B. Anderson. Chem & Ind p370-1 F 29 '64

Mass spectral mechanisms: homoallylic participation in fragmentation of butadiene-maleic anhydride adduct. S. J. Weininger and others. bibliog Am Chem Soc J 86:3732-5 S 20 '64

Mass spectral studies; fragmentation of aromatic amides. K. G. Das and others. Am Chem Soc J 86:3729-32 S 20 '64

Mass spectral studies; molecular rearrangement under electron impact. P. Funke and others. bibliog Am Chem Soc J 86:2527-8 Je 20 '64

Mass spectrometry in structural and stereo chemical problems; isotope effect in hydrogen rearrangement processes; the mass spectra of methyl butyrate and its γ-mono-, di-, and trideuterio analogs. D. H. Williams and others. bibliog Am Chem Soc J 86:284-7 Ja 20 '64

Mass spectrometry in structural and stereochemical problems; mass spectrometric fragmentation of isohexyl bromide and five deuterated derivatives. D. H. Williams and others. bibliog Am Chem Soc J 86:877-9 Mr 5 '64

Mass spectrometry in structural and stereochemical problems; pentacyclic triterpenes. H. Budzikiewicz and others. bibliog Am Chem Soc J 85:3688-99 N 20 '63

Simple device which simultaneously measures and normalizes peak heights on a trace recorded mass spectrum. E. Clayton and H. C. Hill. diag J Sci Instr 41:513 Ag '64

MASS spectrometers

Automatic mass scanner for a time-of-flight mass spectrometer. M. V. McDowell and others. diags Anal Chem 36:959-60 Ap '64

Continuous ion source for a time-of-flight mass spectrometer. M. H. Studier. il diags R Sci Instr 34:1367-70 D '63

High-temperature inlet manfold for coupling a gas chromatograph to the time-of-flight mass spectrometer. D. O. Miller. il diag Anal Chem 35:2033-5 D '63

Improvements to an M.S.2 type mass spectrometer. J. Cuthbert and others. diags J Sci Instr 41:431-5 Jl '64

Leak detection using a mass spectrometer leak detector. D. E. Michel and G. C. Smith. diags I S A J 10:55-60 N '63

Logarithmic pen recording of mass peaks for an AEI type MS2H mass spectrometer. J. J. Wijnbergen and others. diag J Sci Instr 41:574-5 S '64

Mass spectrometer checks welds. il Iron Age 193:98-9 Ja 30 '64

Mass spectrometer detector using two semiconductor magnetic electron multipliers. N. C. Fenner and R. G. Ridley. diags J Sci Instr 41:157-9 Mr '64

Mass spectrometer measures partial and total pressure. Chem & Eng N 42:52 O 12 '64

Method of increasnig the production of uranium ions in a mass spectrometer source. N. C. Fenner. J Sci Instr 41:48-9 Ja '64

New radiofrequency mass spectrometer having high duty cycle. R. M. Mills. bibliog il diags J Res Nat Bur Stand 67C:283-90 O '63

Observation and identification of ion dissociation processes occuring in the drift tube of a time-of-flight mass spectrometer. W. W. Hunt, Jr. and others. diags R Sci Instr 35:82-7 Ja '64

Optimum conditions for steelmaking determined by mass spectrometer. il Iron & Steel Eng 41:209-10 Jl '64

Poor man's mass spectrometer. J. W. Dewdney. il diags Am J Phys 31:932-7 D '63

Pulse generator system for fast-reaction experiments using a time-of-flight mass spectrometer. J. S. Riney and W. C. Gardiner, jr. diags R Sci Instr 35:384-7 Mr '64

Simple partial pressure gauge. L. Goldstone. bibliog il diags R Sci Instr 35:1265-7 O '64

Solid state digitizer for mass spectrometers. E. M. Thomason. il diags Anal Chem 35:2155-7 D '63

Solid-state electric field generator for the monopole gas analyzer. S. J. Lins and M. C. Paul. diags R Sci Instr 35:1084-5 Ag '64

Specificity of the electron-impact induced elimination of water from alcohols and related reactions in the mass spectrometer. W. Benz and K. Biemann. bibliog Am Chem Soc J 86:2375-8 Je 20 '64

Storage system in measuring problems. M. De Rossi. diag R Sci Instr 35:764-5 Je '64

System for vaporizing samples directly in ion source of a mass spectrometer. G. L. Kearns. bibliog diags Anal Chem 36:1402-3 Je '64

Time-of-flight mass spectrometer adapted for studying charge transfer, ion dissociation, and photoionization. W. W. Hunt, jr. and others. bibliog diags R Sci Instr 35:88-95 Ja '64

Trouble shooting vacuum systems with a mass spectrometer. R. P. Ellman. il Res/Develop 15:45-7 Jl '64

Two versions of a sliding bar vacuum lock. A. J. H. Boerboom and others. il diags R Sci Instr 35:301-2 Mr '64

Use of a mass spectrometer as a detector and analyzer for effluents emerging from high temperature gas liquid chromatography columns. R. Ryhage. bibliog diag Anal Chem 36:759-64 Ap '64

MASS spectrometric analysis

Applications of mass spectroscopy in fatty acid and lipid chemistry. R. T. O'Connor. Am Oil Chem Soc J 41:sup4+ Je '64

Capillary column efficiencies in gas chromatography; mass spectral analyses. R. Teranishi and others. bibliog Anal Chem 36:1509-12 Jl '64

Determination of carbon in sodium by isotope dilution mass spectrometry. K. Y. Eng and others. diag Anal Chem 36:1832-4 Ag '64

Determination of nitrogen in silicon by solid source mass spectrometry. P. R. Kennicott. il Electrochem Soc J 111:1101-2 S '64

Direct detection of the borane molecule and the boryl radical by mass spectrometry. T. P. Fehlner and W. S. Koski. bibliog Am Chem Soc J 86:2733-4 Jl 5 '64

Expanded analytical horizons through mass spectrometry. F. W. McLafferty and R. S. Gohlke. diags Chem & Eng N 42:96-106+ My 18 '64

Gallium-glass heated inlet valve for mass spectrometry. C. P. Lewis and H. D. Hoberecht. diag Anal Chem 35:1991 N '63

Identification of ions in high resolution mass spectrometry by use of doublet mass differences. W. K. Reid and others. Anal Chem 36:1140-2 My '64

Identification of polymers by mass spectrometric examination of both volatile and nonvolatile pyrolysis products. G. P. Happ and D. P. Maier. bibliog diag Anal Chem 36:1678-9 Jl '64

Increased photographic sensitivity for time-resolved mass spectrometer data recording. R. T. Meyer. il R Sci Instr 35:1064-5 Ag '64

MASS spectrometric analysis—*Continued*

Ion resonance mass spectroscopy using magnetic scanning. I. Brodie. R Sci Instr 34: 1271-2 N '63

Leaks found by mass spectrometry. il Engineering 198:342 S 11 '64

Low-voltage sensitivities of aromatic hydrocarbons. H. E. Lumpkin and T. Aczel. Anal Chem 36:181-4 Ja '64

Mass scale based on CH_2=14.0000 for high resolution mass spectrometry of organic compounds. E. Kendrick. bibliog diags Anal Chem 35:2146-54 D '63

Mass spectrometric identification of decomposition products of polytetrafluoroethylene and polyfluoroethylenepropylene. R. E. Kupel and others. bibliog diag Anal Chem 36:386-9 F '64

Mass spectrometric investigation of the thermal decomposition of cyclobutane at low pressures. R. W. Vreeland and D. F. Swinehart. bibliog Am Chem Soc J 85:3349-53 N 5 '63

Mass spectrometric study of neutral particles sputtered from Cu by 0- to 100-eV Ar ions. J. R. Woodyard and C. B. Cooper. bibliog diags J Ap Phys 35:1107-17 Ap '64

Mass spectrometric study of photoionization; apparatus and initial observations on acetylene, acetylene-d_2, benzene, and benzene-d_6. V. H. Dibeler and R. M. Reese. bibliog il diag J Res Nat Bur Stand 68A:409-17 Jl '64

Mass spectrometry in carbohydrate chemistry; diethyl dithioacetal and dithioketal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:3149-54 Ag 5 '64

Mass spectrometry in carbohydrate chemistry: ethylene dithioacetal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86: 4027-30 O 5 '64

Mass spectrometry in structural and stereochemical problems. C. Beard and others. bibliog Am Chem Soc J 86:269-87, 1386-9, 2620-8, 2825-45, 3722-9 Ja 20, Ap 5, Jl 5-20, S 20 '64

Mass spectrometry of naturally occurring alkenyl phenols and their derivatives. J. L. Occolowitz. bibliog diags Anal Chem 36: 2177-81 O '64

New class of boron sulfides detected. Chem & Eng N 42:38-9 O 12 '64

Optimum counting times for *m* peaks and background in mass spectrometry. J. L. Jaech. Anal Chem 36:2196-7 O '64

Optimum counting times for two sources and background in mass spectrometry. J. L. Jaech. Anal Chem 36:1164-5 My '64

Reactions of gaseous ions; high pressure mass spectrometric study of methane. F. H. Field and others. bibliog Am Chem Soc J 85:3575-83 N 20 '63

Review of fundamental developments in analysis; mass spectrometry. R. M. Reese and F. N. Harllee. Anal Chem 36 [no 5]: 278R-95R bibliog(p290R-5R) Ap '64

Scan rate considerations in combined gas chromatography-mass spectrometry. W. H. McFadden and E. A. Day. bibliog Anal Chem 36:2362-3 N '64

Spark source mass spectrometry use extended. il Chem & Eng N 42:79+ Jl 13 '64

Ultra-high vacuum mass spectrometry. D. Lichtman. bibliog il diags Res/Develop 15: 52-6 F '64

MASS transfer. See Diffusion

MASSACHUSETTS

See also
Architecture, Domestic—Massachusetts
Cape Cod
Electricity supply—Massachusetts
Geology—Massachusetts

MASSACHUSETTS institute of technology

First tower; Earth sciences building, designed by alumnus I. M. Pei. il Arch Rec 136:135-8 O '64

How to spark civil engineering: new enthusiasm at M.I.T. C. L. Miller. Eng N 172:54-6 F 13 '64

M.I.T. alumni center in UEC, New York. Mech Eng 85:98 N '63

Settlement of buildings on the MIT campus. H. M. Horn and T. W. Lambe. plans diags Am Soc C E Proc 90 [SM 5 no 4038]:181-95 bibliog(p 192-5) S '64

MASSILLON, Ohio

Sewerage

Massillon, Ohio, sewage treatment plant. J. L. Smith. il Water & Sewage Works 110:459-61 D '63

MASTS and rigging

Sparlight extruded aluminium masts. il diags Engineering 196:626-7 N 15 '63

MATERIAL control

See also
Inventories
Stores systems

MATERIAL handling

Bulk handling scores again; Mother's cake & cookie co. H. M. Lauritzen and G. Beal. il diag Food Eng 36:98 Ap '64

Cement plants of the 60's. J. H. Bergstrom. il Rock Prod 67:80 My '64

Design your bins for free flow. A. W. Jenike. il diags Mod Materials Handling 19:48-51 N '64

Do-it-yourself equipment solves special material handling problems. G. Berkwitt. il Mill & Factory 74:80-3 Je '64

Eight units for better handling; New York material handling exhibit; illustrations with text. Food Eng 36:112-13 Jl '64

Electronic queueing control for materials handling. G. Clark. diags Radio & Electronic Eng 26:347-56 O '63

Glassworks materials handling plant. il Engineer 216:762-4 N 8 '63

Handling and storage of flexible packaging materials. D. L. McCready. il Plastics World 22:24-5 Je '64

Handling and storage of process materials; symposium. Chem & Ind p400-2 Mr 7 '64

Handling system moves dusty materials without dust; Goodyear tire & rubber co. J. R. Borgerding. il diag Plant Eng 18: 114-17 Jl '64

How to select size of tow tractors. R. L. Brown, jr. Iron & Steel Eng 41:201-2+ O '64

Improving materials handling. Engineering 197:366 Mr 6 '64

Information must move with flow of materials. F. G. Withington. il diags Mod Materials Handling 19:60-7 Ja '64

Material handling; last frontier for big savings. il diag Steel 155:41-5 O 26 '64

Materials handling system. il Plastics World 22:49 O '64

New materials handling ideas pay off fast. R. R. Kay. Iron Age 194:52 O 1 '64

New products; materials handling and packaging equipment. Published in monthly numbers of Modern materials handling

New system at Nekoosa-Edwards mill for handling purchased chips from sawmills. il Paper Ind 45:490-1 D '63

Nuclear gage guides material flow. Eng N 173:52 Ag 20 '64

Push-button system for hard-to-handle clay. il Mod Materials Handling 19:84 N '64

Simplifies filter-aid handling; Corn products co. develops bulk handling system for diatomite filter aid. C. A. Cocks. il diag Food Eng 35:79-80 D '63

Solids feeders. C. A. Lee. il diags Chem Eng 71:119-34 F 17 '64 (reprints 50c)

Stressing handling to management; where to put the blue chips. S. W. Earle and E. D. Ayers. il Mod Materials Handling 19:36-8 Jl '64

Technology spreads its gains; integrated handling of materials peps up industry's circulation. il Chem Eng 71:125-6 Ja 20 '64

Ups handling efficiency; aluminum bulk container. il Food Eng 36:105 Ap '64

Vibratory feeders and conveyors. A. Musschoot. il diags Mech Eng 86:51-3 S '64

What's new in reusable containers? il Mill & Factory 75:88-91 O '64

Why bins don't flow. A. W. Jenike. il diags Mech Eng 86:40-3 My '64

See also
Factory transportation
Food handling
Hydraulic conveying
Mechanical handling
Pallets
Pneumatic conveying

MATERIALS

Advances in materials; symposium abstracts. Chem & Ind p 1209-13 Jl 4 '64

Composites; materials of the future. W. R. Hibbard, jr. bibliog il diags Chem Eng 70:203-8+ N 11 '63

Composition and structure of inorganic nonmetallic solids. T. C. MacAvoy. diags Glass Ind 44:618-24+, 676-8 N-D '63

Condensed review of some recently developed materials; arranged alphabetically by trade names. Mach 71:147-55 O '64

Constructing composite material. P. M. Goodwin. diags Mech Eng 85:27-30 D '63

Effect of anvil material on the generation of high pressures. J. H. King. bibliog diags J Sci Instr 41:102-4 F '64

Engineering materials and design exhibition and conference, 3d, London, Nov. 11-16. Chem & Ind p 1950-1 D 14 '63

MATERIALS—*Continued*

56 materials produce laser action. S A E J 72:64-5 F '64

Frequency-phase method for measuring material damping. G. M. Smith and H. D. Berns diags Materials Res & Stand 4:225-7 My '64

Glass, plastics, metals take a plunge in the sea. il Materials in Design Eng 60:134+ N '64

Graph finds space needed for piled bulk materials J. D. Constance. Chem Eng 71:148 O 26 '64

Guide to optical materials. J. E. Hauck. bibliog il diags Materials in Design Eng 60: 91-5 O '64

Impact of new materials on manufacturing; round table discussion. Metal Prog 85:72-9 Je '64

Look at the future. R. H. Wilcox. il diags Mill & Factory 75:113-18 N '64

Match material, process to assure performance il Steel 154:100+ Ap 20 '64

Materials engineer looks at plastics. L. J. Lamberg. Metal Prog 85:73-4 Ap '64

Materials for 2000-C thermionic emitters. D. M. Scruggs. Electro-Tech 72:12-13 D '63

Materials in end-face mechanical seals. K. Schoenherr. diags Machine Design 36:130+ Ja 2 '64

Materials of construction; annual reviews. bibliog Ind & Eng Chem 56:35-64 Ag '64

Materials of construction, 21st biennial report, with directory of manufacturers and inventory of literature. bibliog il Chem Eng 71:169-220 N 9 '64

Materials research can optimize design. M. A. Steinberg. diag Steel 155:45-7 Ag 31 '64

Materials sciences. R. I. Jaffee. Materials Res & Stand 4:41, 81, 386 Ja-F, Jl '64

Materials selector issue. Materials in Design Eng 60:1-614 Mid-O '64

Matrix reinforced thermal protective system. S. Rovin and others. bibliog il diags Welding J 43:sup329-36 Jl '64

New class of structural materials; Airmat, three-dimensional fabrics. il Product Eng 35:54-5 Je 8 '64

New materials. P. B. Schubert. Published in monthly numbers of Machinery

New materials. Published in bi-monthly numbers of American machinist

New materials in the offing. il Product Eng 35:69 S 14 '64

1964 production preview; materials. Am Mach 108:139-40 Ja 20 '64

1964 prospects for all engineerings; metals and materials. il Engineering 197:101-5 Ja 17 '64

Nonmetallic gaskets. E. M. Smoley and E. C. Frazier. il diags Machine Design 36:75-89 Je 11 '64

Selecting materials for minimum weight. Materials in Design Eng 59:75-86 Mr '64 (reprints 35c)

Significance of materials science. C. Herring. Electro-Tech 72:11-13 D '63

16 winning entries in M/DE's 8th annual annual awards competition. il diags Materials in Design Eng 59:115-38 Ap '64 (reprints 50c)

Special materials for cutting coal plant maintenance. P. Levin. Min Eng 16:85-7 Je '64

Symposium on the analytical characterization of materials, Princeton, Jan. 20-21. il diags Phys Today 17:24-6+ Jl '64

Technology spreads its gains; available construction materials meet increasingly severe tasks. il Chem Eng 71:122-3 Ja 20 '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on material forming. Tool & Manuf Eng 52:81-3 My '64

See also

Ceramic materials
Packaging materials
Raw materials
Stores systems

also subdivision Materials under special subjects, e.g.

Airplanes
Automobiles
Electric industries
Guided missiles
Motor vehicles
Nuclear reactors
Rockets
Shipbuilding

Bibliography

Bookshelf. Published in monthly numbers of Materials research & standards

Materials of construction. 21st biennial report; inventory of current literature. Chem Eng 71:211-20 N 9 '64

Materials reviews (cont). Materials Res & Stand 3:1046+; 4:49-50, 99, 146-7, 198-9, 344, 394, 462, 520, 577, 634+ D '63-Ap, Je-N '64

New ASTM publications. Published in monthly numbers of Materials research & standards

Suppliers' literature, books, reports. Published in monthly numbers of Materials in design engineering

Prices

Comparisons of materials; comparative prices of common engineering materials; tables. Materials in Design Eng 60:42 Mid-O '64

Look beyond raw material price for cost of materials. A. V. Gunn. Product Eng 35: 92-3 Mr 16 '64

Radiation effect

Comparisons of materials; effect of radiation on materials; tables. Materials in Design Eng 60:38-40 Mid-O '64

Effects of γ-radiation on the surface properties of silica as studied by the infrared spectra of adsorbed molecules. D. J. C. Yates and P. J. Lucchesi. bibliog Am Chem Soc J 86:4258-65 O 20 '64

Fission-fragment tracks and directional effects in the surface of LiF crystals. T. G. Knorr. bibliog il diag J Ap Phys 35:2753-60 S '64

Origin of anomalous etch pits in minerals. R. L. Fleischer and others. bibliog il Am Mineralogist 49:794-800 My '64

Radiation effects on organic materials. R. O. Bolt and J. G. Carroll, eds. Review, by C. E. H. Bawn. Chem & Ind p273-4 F 15 '64

Radiation-induced cavities and exfoliation. W. Primak. bibliog J Ap Phys 34:3630-1 D '63

Vibration method for the elastic constants of small plates. C. D. Bopp. diags R Sci Instr 35:703-7 Je '64

Testing

Determination of thermal radiation properties of materials. il Engineer 216:656-8 O 18 '63

High-speed photography in bristle materials research. G. L. Jones. il Res/Develop 14:19-21 D '63

Inspecting with filtered and electrified particles. E. T. Hughes and D. R. Powers. il diags Metal Prog 84:85-9 N '63

Materials, testing and analysis. T. Mulvey. bibliog J Sci Instr 41:248-50 My '64

Measuring and controlling property variability. C. H. Hastings. Materials in Design Eng 60:84-5+ Jl '64

Measuring materials' elastic properties. il diag Engineering 196:765 D 13 '63

Quality, a multibillion dollar opportunity. il diags Steel 155:74-81 S 28 '64

System for measuring the dynamic properties of materials. L. M. Barker and R. E. Hollenbach. diags R Sci Instr 35:742-6 Je '64

Wear

Adaptation of Simons' staining technique to the quantitative assessment of wear in cotton fabric. L. Loeb and others. bibliog il Textile Res J 34:611-16 Jl '64

Chemical mechanisms contributing to wear of single-crystal sapphire on steel. W. R. Brown and others. bibliog il diags Am Cer Soc J 47:157-62 Ap '64

Friction and wear characteristics of dry lubricants; data sheet. P. H. Bowen. Machine Design 35:195-9 N 7 '63

Investigation of the mechanism of the friction and wear of carbon. J. W. Midgley and D. G. Teer. bibliog il diags A S M E Trans ser D 85:488-93; Discussion. 493-4 D '63

New approach to realistic wear testing. R. M. Voitik. il diags Lub Eng 19:490-4 D '63

Wear of graphite sliding on a steel surface and the influence of an electric current on the rate of wear. J. E. Thompson and M. J. B. Turner. bibliog diags Inst E E Proc 109 pt A:235-42 Je '62; Discussion. 111:149-50 Ja '64

See also

Metals—Wear

MATERIALS, Strength of. See Strength of materials

MATERNAL and infant welfare

Bibliography

Bookshelf on maternal and child health. W. M. Schmidt and I. Valadian. Am J Pub Health 54:551-62 Ap '64

MATHEMATICAL economics. See Economics, Mathematical

MATHEMATICAL instruments
See also
Calculating machines

MATHEMATICAL logic. See Logic, Symbolical and mathematical

MATHEMATICAL models
Analysis and control of a continuous annealing line. E. Y. Kung. bibliog diags IEEE Trans Com & Electronics p 121-8 Ja '64
Analysis of contained plastic flow in plane solids. A. H. S. Ang and G. N. Harper. bibliog flow diag diags Am Soc C E Proc 90 [EM 5 no 4113]:397-418 O '64
Analysis of primary and secondary consolidation. H. E. Wahls. bibliog diags Am Soc C E Proc 88 [SM 6 no 3373]:207-31 D '62; Discussion. 89 [SM 3 no 3528]:193-201 My; [SM 4 no 3578]:233-6 Jl; [SM 6 no 3701]:95-6 N '63; Reply. 90 [SM 6 no 4122]: 161-4 N '64
Animal farm; a mathematical model for the discussion of social standards for control of the environment. H. A. Thomas, jr. Am Water Works Assn J 56:1087-91 S '64
Building a mathematical model for catalyst regeneration in fixed beds. B. L. Schulman. il diags Ind & Eng Chem 55:44-9 D '63
Comparison of large signal models for junction transistors. D. J. Hamilton and others. bibliog diags IEEE Proc 52:239-48 Mr '64
Computer points the way to more profits. R. N. Sauer and others. flow diag Hydrocarbon Process & Pet Refiner 43:84-92 F '64
Computers open new horizons in casting technology; abstract. J. Zotos. Metal Prog 86: 196+ S '64
Control model formulation for the pulp and paper industry. T. K. McMahon. bibliog flow diag Tappi 47:84-8 F '64
Developing predictive mathematical models for hydrocarbon separations. J. A. Horn and D. G. Miller. diag Chem Eng 71:117-22 S 28 '64
Dynamic models; new working tool for top management. D. B. McDevitt. Oil & Gas J 62:53-8 Ja 6 '64
Dynamic optimisation of a boiler. H. Nicholson. bibliog flow diag diags Inst E E Proc 111:1479-99 Ag '64
Elastic behaviour in cold strip rolling at the onset of plasticity. F. J. Loss and others. bibliog diags Inst Metals J 92:104-10 '63-64
Engineering flux-switching models for toroidal and multipath cores. D. Nitzan. bibliog diags IEEE Trans Com & Electronics 83:309-14 My '64
Estimation of net phosphorus utilization by the slope method. S. Hurwitz. bibliog J Nutrition 84:83-92 S '64
Evaluating plant investment strategies. M. T. Tayyabkhan and T. C. Richardson. il map diag Chem Eng Prog 60:58-63 S '64
Frequency response analysis of a wetted wall adiabatic humidifier. D. F. Bruley and J. W. Prados. bibliog diags A I Ch E J 10:612-16 S '64
Geometrical model of electromagnetic fields. E. C. Lowry. bibliog diags Am J Phys 31:871-82 N '63
Graphical models aid distillation. G. H. Weekley, jr. diag Hydrocarbon Process & Pet Refiner 43:115-18 Mr '64
Ground-water management for the Nation's future; computer simulation of ground-water basins. H. N. Tyson, jr. and E. M. Weber. bibliog flow chart map diags Am Soc C E Proc 90 [HY 4 no 3973]:59-77 Jl '64
Growth kinetics of discontinuous thermal oxide films; aluminum. R. W. Bartlett. bibliog Electrochem Soc J 111:903-8 Ag '64
Imperfections in active transmission lines. H. E. Rowe. diags Bell System Tech J 43: 261-92 Ja '64
Investigation of the minimum length of cotton fiber effective in single yarn tenacity. J. D. Tallant and others. bibliog Textile Res J 33:1005-12 D '63
Is smoking a process. W. D. Mohr. diags Control Eng 11:83-5 Ap '64
Long-term immunity to tetanus; a statistical evaluation and its clinical implications. S. Gottlieb and others. bibliog Am J Pub Health 54:961-71 Je '64
Math model guides strip rolling. diag Iron Age 193:64-5 Je 4 '64
Mathematical analysis of shrinkage stresses in a model of hardened concrete. T. T. C. Hsu. bibliog il diags Am Concrete Inst J 60:371-90 Mr '63; Discussion. 60:1787-824 D '63
Mathematical and graphical interpretation of the log-normal law for particle size distribution analysis. J. E. Smith and M. L. Jordan. bibliog J Colloid Sci 19:549-59 Ag '64
Mathematical aspects of cotton fiber length distribution under various breakage models. H. N. Shapiro and others. Textile Res J 34:303-7 Ap '64
Mathematical formulation of salt-dome dynamics. Z. F. Daneš. bibliog diags Geophysics 29:414-24 Je '64
Mathematical model devised on origin of solar winds. Franklin Inst J 277:621-2 Je '64
Mathematical model for dissolved oxygen. R. V. Thomann. bibliog diags Am Soc C E Proc 89 [SA 5 no 3680]:1-30 O '63; Discussion. A. N. Diachishin. 90 [SA 3 no 3935]: 137-43 Je '64
Mathematical model for strategic movement. S. D. Stearns. diags Op Res 12:237-54 Mr '64; Discussion. W. I. Zangwill. 12:634-6 Jl '64
Mathematical model for transient river flow. E. Kindingstad. bibliog diags Am Soc C E Proc 90 [HY 3 no 3899]:23-38 My '64
Mathematical model of coagulation. G. M. Fair and R. S. Gemmell. bibliog J Colloid Sci 19:360-72 Ap '64
Mathematical modeling; an engineering approach to marketing. R. A. Labine. bibliog Chem Eng 71:193-6 Ap 13 '64
Mathematical models aid equipment managers. il Eng N 171:106-7 N 14 '63
Mathematical models for control systems. R. Feit. diags Electro-Tech 73:71-90 Mr '64 (reprint $1)
Mathematical models help automate Iowa power pool planning. C. E. Parks and H. E. Lokay. flow diag Power Eng 67:71-2 N '63
Mathematical solution for the condensation of vapors from noncondensing gases in laminar flow inside vertical cylinders. W. D. Baasel and J. C. Smith. bibliog A I Ch E J 9:826-30 N '63
Mathematics as an educational discipline for the engineer. P. L. Taylor. diags Inst E E Proc 110:775-84 Ap '63; Discussion. 110: 2300-4 D '63
Mathematics in the biological sciences. E. F. Moore. diags Sci Am 211:148-54+ S '64
Mechanism of surface waves generated by a vibrating table roll. K. I. Beitinjaneh. Tappi 47:263-5 My '64
Model for crack propagation in steel. G. T. Hahn and others. bibliog il diags Iron & Steel Inst J 202:677-84 Ag '64
Model for current reversal chronopotentiometry with second-order kinetic complications. S. W. Feldberg and C. Auerbach. bibliog Anal Chem 36:505-9 Mr '64
Model for relating coupled power equations to coupled amplitude equations. D. T. Young. Bell System Tech J 42:2761-4 N '63
Model for the control of arms. T. L. Saaty. bibliog diag Op Res 12:586-609 Jl '64
Model for the electrical behavior of a microplasma. R. H. Haitz. bibliog diags J Ap Phys 35:1370-6 My '64
Model for wave motions in axi-symmetric solids. A. H. -S. Ang and J. H. Rainer. bibliog diags Am Soc C E Proc 90 [EM 2 no 3878]:195-223 Ap '64
Models for scheduling a papermaking machine. M. H. Gotterer and D. Zaniker. bibliog Tappi 47:435-9 Jl '64
Multiphase flow in pipelines; model can predict behavior. A. E. McDonald and O. Baker. bibliog Oil & Gas J 62:171-5 Je 22 '64
Multiphase flow in pipelines; spheres up capacity 30 to 70 per cent. A. E. McDonald and O. Baker. bibliog diags Oil & Gas J 62:68-71 Je 15 '64
Multivariate technique for synthetic hydrology. M. B. Fiering. bibliog Am Soc C E Proc 90 [HY 5 no 4027]:43-60 S '64
Optimal periodic inspection programs for randomly failing equipment. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:223-8 O '63
Plane stress analysis. C. W. McCormick. bibliog diags Am Soc C E Proc 89 [ST 4 no 3581]:37-54 Ag '63; Discussion. 90 [ST 1 no 3812]:243-5 F; [ST 2 no 3886]:365-6 Ap '64; Reply. 90 [ST 4 no 4001]:257-8 Ag '64
Planning by resource allocation methods; illustrated by military applications. J. L. Taylor and J. E. Walsh. Op Res 12:693-706 S '64

MATHEMATICAL models—*Continued*

Possible mechanism for concentration of brines in subsurface formations. J. D. Bredehoeft and others. bibliog diags Am Assn Pet Geologists Bul 47:257-69 F '63; Discussion. 48:234-6; Reply. 236-8 F '64

Precise power control utilizing a new actuator concept embodying all-mechanical power flow. J. L. Harned and others. il diags A S M E Trans ser D 86:121-31 Mr '64

Predicting structural behavior analytically. E. O. Pfrang and C. P. Siess. diags Am Soc C E Proc 90 [ST 5 no 4110]:99-111 O '64

Prediction of pile capacity by the wave equation. P. W. Forehand and J. L. Reese, jr. bibliog Am Soc C E Proc 90 [SM 2 no 3820]:1-25 Mr '64

Predictive techniques for water quality inorganics. J. O. Ledbetter and E. F. Gloyna. bibliog Am Soc C E Proc 90 [SA 1 no 3810]: 127-51 F '64; Discussion. 90 [SA 5 no 4097]: 63-4 O '64

Present state of the Lanchester theory of combat. L. Dolanský. diags Op Res 12:344-58 bibliog(p356-8) Mr '64

Process-response models in geology. E. H. T. Whitten. Geol Soc Bul 75:455-63, bibliog (p462-3) My '64

Profile relaxation in Newtonian jets. S. Middleman. bibliog Ind & Eng Chem Fundamentals 3:118-22 My '64

Reflection of vlf radio waves from an inhomogeneous ionosphere; exponential model with hyperbolic transition. J. R. Wait and L. C. Walters. J Res Nat Bur Stand 67D: 747-52 N '63

Replenishment of aquifers intersected by streams. R. J. M. De Wiest. bibliog map diags Am Soc C E Proc 89 [HY 6 no 3706]: 165-91 N '63; 90 [HY 5 no 4050]:161-8 S '64

Risk criteria. L. E. Borgman. bibliog Am Soc C E Proc 89 [WW 3 no 3607]:1-35 Ag '63; Discussion. C. A. Cornell. 90 [WW 1 no 3814]:167-70 F '64

Simplification of the mathematical description of boundary and initial value problems. J. D. Hellums and S. W. Churchill. bibliog A I Ch E J 10:110-14 Ja '64

Simplified design model for an ion exclusion column. H. A. Johnson and T. D. Wheelock. bibliog il diags Ind & Eng Chem Fundamentals 3:201-6 Ag '64

Simulation; good way to cut risks in management decisions. F. C. Wilson. bibliog Textile World 114:60-3 Ag '64

Simultaneous determination of radioisotope pairs by the decay constant differentiation principle. E. Inselberg. bibliog Anal Chem 36:568-75 Mr '64

Simultaneous relative orientation of multiple cameras. H. M. Karara and A. A. Elassal. bibliog diag Am Soc C E Proc 90 [SU 2 no 3982]:109-16 Jl '64

Stage development of wastewater treatment works. W. R. Lynn. bibliog WPCF J 36: 722-51 Je '64

Study of forward combustion in a radial system bounded by permeable media. G. W. Thomas. bibliog J Pet Tech 15:Trans 1145-9 O '63; Discussion. 15:Trans 1370-1 D '63

System reliability when failure depends on a parameter that ages. F. R. Van Wagner. diags Ind Quality Control 21:253-8 N '64

Systems of one-port linear components containing through-across type drivers. W. A. Blackwell and L. L. Grigsby. Franklin Inst J 278:237-47 O '64

Theory of the diffusion of traffic platoons. M. J. Grace and R. B. Potts. bibliog diags Op Res 12:255-75 Mr '64

Two-dimensional analysis of a radial heat wave. C. Chu. bibliog il(cover) diag J Pet Tech 15:Trans 1137-44 O '63

Use of Lanchester's theory for prediction. R. L. Helmbold. Op Res 12:778-81 S '64

Vibration of towers as related to wind pulses. A. N. L. Chiu and others. bibliog diags Am Soc C E Proc 90 [ST 5 no 4114]:137-60 O '64

Waste disposal in tidal waters. A. N. Diachishin. Am Soc C E Proc 89 [SA 4 no 3602]:23-43 Ag '63; Discussion. J. S. Gladwell. 90 [SA 1 no 3813]:167-72 F '64; Reply. 90 [SA 5 no 4097]:39-45 O '64

Yield studies in packed tubular reactors; mathematical model for design and analysis. H. S. Mickley and R. W. M. Letts. bibliog Can J Chem Eng 41:273-9 D '63

See also

Calculating machines—Programming

MATHEMATICAL physics

Laboratory linear analog for lattice dynamics. R. B. Runk and others. bibliog diags Am J Phys 31:915-21 D '63

Mathematics in the physical sciences. F. J. Dyson. il diags Sci Am 211:128-34+ S '64

William Rowan Hamilton, Michael Faraday, and the revival of Boscovichean atomism. R. Kargon. bibliog Am J Phys 32:792-5 O '64

See also

Approximate computation
Boundary value problems
Differential equations
Elasticity
Equation of motion
Equation of state
Hydrodynamics
Statistical mechanics
Tensors
Thermodynamics

Bibliography

Selected abstracts of publications of National bureau of standards (cont). bibliog J Res Nat Bur Stand 67B:257-63; 68B:43-8, 93-7, 137-41 O '63-Jl '64

MATHEMATICAL recreations

Mathematical games. M. Gardner. Published in monthly numbers of Scientific American

MATHEMATICAL statistics

See also

Frequency distribution (statistics)
Statistical methods

MATHEMATICS

Financial mathematics for economic studies. P. H. Jeynes and C. J. Baldwin. Westinghouse Eng 24:41-7 Mr '64

Foundations of mathematics. W. V. Quine. diags Sci Am 211:112-16+ S '64

Linguistic problems in extraterrestrial communication. R. F. W. Smith. Audio Eng Soc J 12:154+ Ap '64

Mathematics and the engineer. R. B. McTernan. Engineer 218:374-5 S 4 '64

Mathematics as an educational discipline for the engineer. P. L. Taylor. diags Inst E E Proc 110:775-84 Ap '63; Discussion. 110: 2300-4 D '63

Mathematics in chemical engineering; annual review. R. F. Sweeny and others. Ind & Eng Chem 56:57-61 bibliog(p60-1) N '64

Mathematics in the modern world. R. Courant. diags Sci Am 211:40-9 S '64

Numerical analysis of unsymmetrical bending of shells of revolution. B. Budiansky and P. P. Radkowski. diags AIAA J 1:1833-42 Ag '63; Discussion. G. A. Greenbaum. 2:590-2 Mr '64

Role of mathematics in science. R. H. Müller. Anal Chem 36:sup103A N '64

See also

Algorithm
Bessel functions
Calculus
Coordinates
Correlation (statistics)
Differential equations
Differentiation (mathematics)
Dynamics
Economics, Mathematical
Ellipse
Equations
Equations, Linear
Expansion (mathematics)
Fourier series
Functions
Geometry
Graphic methods
Green function
Groups, Theory of
Harmonic analysis
Integrals
Integration
Interpolation
Iteration (mathematics)
Legendre functions
Logarithms
Matrices
Mechanics, Celestial
Metric system
Numbers, Theory of
Numeration
Polynomials
Probabilities
Series (mathematics)
Statistical methods
Topology
Transformations (mathematics)
Vector analysis

Bibliography

Selected abstracts of publications of the National bureau of standards (cont). bibliog J Res Nat Bur Stand 67B:257-63; 68B:43-8, 93-7, 137-41 O '63-Jl '64

Study and teaching

City of Liverpool college of technology regional college; Department of physics and mathematics. R. Thorburn. Chem & Ind p 1005-6 Je 13 '64

MATHEMATICS—Study and teaching—*Cont.*
Computers used as tool to teach mathematics. flow chart il Chem & Eng N 41:50-1 N 18 '63
Mathematics by teaching machine. Engineer 217:662 Ap 10 '64
Remedial programs. H. R. Crane. diags Am J Phys 32:465-73 Je '64
What use is block release? J. Doyle. Engineering 197:281 F 21 '64

MATHER, Bryant
Mather is ACI president. pors Eng N 172:51-2 Mr 5 '64

MATHER, Cotton
C. Mather, 1663-1728. W. K. Frankel. por Ind Med 32:521-4 D '63

MATRICES
Analysis of networks with complex autotransformers; impedance matrices. H. H. Happ. diags IEEE Trans Power Apparatus & Systems p75-81, 958-65 Ap, D '63
Analytic classification and quadriplanar charting of analyses with nine or more components. J. B. Mertie, jr. bibliog diags Am Mineralogist 46:613-28 My '61; Discussion. J. J. Pieterse and G. D. de Kock. 49:808-12 My '64
Application of matrix methods to the solution of travelling-wave phenomena in polyphase systems. L. M. Wedepohl. bibliog diags Inst E E Proc 110:2200-12 D '63
Basis for derivation of matrices for the direct stiffness method. R. J. Melosh. bibliog diags AIAA J 1:1631-7 Jl '63; Discussion. 2:403-4, 1161 F, Je '64
Calculation of transient voltages in a transformer connected to a transmission line. V. Lovass-Nagy and C. Szendy. bibliog diag Inst E E Proc 111:1133-6 Je '64
Comparison of error transfer matrices for circular orbits. A. H. Greene and W. F. Jaros, jr. diag AIAA J 1:2623-5 N '63
Computer systems for matrix operations. H. Rothman and P. Reilly. Am Soc C E Proc 90 [ST 3 no 3933]:125-46 Je '64
Concept of terminal admittance and impedance matrixes extended to continuous media. K. F. Sander. bibliog diags Inst E E Proc 111:1107-16 Je '64
Covariance matrix approximation. L. B. Schlegel. AIAA J 1:2672-3 N '63
Derivation of element stiffness matrices. T. H. H. Pian. AIAA J 2:576-7, 1333-6 Mr, Jl '64; Discussion. B. Irons and K. Draper. 2:1677-8 S '64
Development of equivalent pi and T matrix circuits for long untransposed transmission lines. W. I. Bowman and J. M. McNamee. bibliog diags IEEE Trans Power Apparatus & Systems 83:625-32; Discussion. 653-6: Reply. 656-7 Je '64
Draw bench tools size square tubes. A. A. Denst. il diags Am Mach 108:58-9 F 3 '64
Dynamic analysis of inelastic multi-degree systems. A. C. Heidebrecht and others. bibliog diags Am Soc C E Proc 89 [EM 6 no 3730]:193-215 D '63
Dynamic stability of a uniform straight column excited by a pulsating load. L. A. Pipes. bibliog diags Franklin Inst J 277:534-51 Je '64
Eigen-matrix method for beams and plates. B. Tanimoto. bibliog diags Am Soc C E Proc 89 [ST 5 no 3681]:173-215 O '63; Discussion. K. T. Sundara Raja Iyengar. 90 [ST 2 no 3886]:401 Ap '64; Reply. 90 [ST 6 no 4157]:309-14 D '64
Elimination method for computing the generalized inverse of an arbitrary complex matrix. A. Ben-Israel and S. J. Wersan. bibliog Assn for Computing Mach J 10:532-7 O '63
Finite element solution for axisymmetrical shells. E. P. Popov and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4085]:119-45 O '64
First- and second-order magnetic optics matrix equations for the midplane of uniform-field wedge magnets. K. L. Brown and others. diags R Sci Instr 35:481-5 Ap '64
Flexibility method of coupling redundant complex structures. C. J. Meissner and R. S. Levy. bibliog diags Am Soc C E Proc 89 [ST 6 no 3742]:325-64 D '63; Correction. 90 [ST 4 no 4001]:333-5 Ag '64
Flutter analysis using influence matrices and steady-state aerodynamics. J. B. Herreshoff. bibliog diags AIAA J 1:2853-5 D '63
Frequency analysis of beams by flexibility method. J. W. Gillespie and B. D. Liaw. bibliog diags Am Soc C E Proc 90 [EM 1 no 3798]:23-46 F '64; Discussion. 90 [EM 4 no 4000]:181-4 Ag; [EM 5 no 4093]:423-8 O '64
Graphs of finite idempotent Boolean relation matrices. D. Rosenblatt. bibliog J Res Nat Bur Stand 67B:249-56 O '63
How to check linear systems stability. C. H. Hoffman. diags Control Eng 11:75-80 Ag '64
Incoming waves in final states in matrix elements for scattering problems. I. Adawi. bibliog Am J Phys 32:211-15 Mr '64
Iterative method for the displacement analysis of spatial mechanisms. J. J. Uicker, jr. and others. bibliog diags A S M E Trans ser E 31:309-14 Je '64
Liapunov functions of high order nonlinear systems. Y. H. Ku and N. N. Puri. Franklin Inst J 276:349-64 bibliog(p363-4) N '63
Linear time-varying circuits; matrix manipulations, power relations, and some bounds on stability. S. Darlington. bibliog diags Bell System Tech J 42:2575-608 N '63
Lumping of mass in calculating vibration response. V. H. Neubert. bibliog Am Soc C E Proc 90 [EM 1 no 3801]:47-67 F '64; Discussion. D. H. Merkle. 90 [EM 5 no 4093]:429-31 O '64
Matrices for basic two-port networks. E. H. Kopp. bibliog diags Electro-Tech 73:34-9 Mr '64
Matrices of spin-orbit interaction in the electron configurations $np^2\ n'\ p$ and $np^4\ n'\ p$. J. L. Tech. J Res Nat Bur Stand 67A:555-9 N '63
Matrix analysis of semi-rigidly connected frames. G. R. Monforton and T. S. Wu. bibliog flow chart diags Am Soc C E Proc 89 [ST 6 no 3713]:13-42 D '63; Discussion. 90 [ST 2 no 3886]:407-13 Ap; [ST 3 no 3940]:407-9 Je; [ST 4 no 4001]:287-90 Ag '64
Matrix analysis of the Colpitts' oscillator. G. Zelinger. bibliog diags Electronic Eng 36:394-8 Je '64
Matrix calculation of multicomponent mass transfer in isothermal systems. W. E. Stewart and R. Prober. bibliog Ind & Eng Chem Fundamentals 3:224-35 Ag '64
Matrix computation methods. P. C. Constant, jr. Electro-Tech 72:68-73 N '63
Matrix division. G. Kostro. Am Soc C E Proc 89 [EM 3 no 3538]:9-20 Je '63; Discussion. 89 [EM 5 no 3687]:107-8 O; [EM 6 no 3774]:267-9 D '63; Reply. 90 [EM 2 no 3882]:235-9 Ap '64
Matrix isolation in free radical studies. Ind & Eng Chem 56:14 Jl '64
Matrix methods in the calculation and analysis of orbits. J. M. A. Danby. AIAA J 2:13-16 Ja '64
Matrix proof of the theorem of Rodrigues and Hamilton. S. P. Doughty, jr. and E. F. Infante. diags Am J Phys 32:712 S '64
Matrix representation of Gaussian optics. K. Halbach. diags Am J Phys 32:90-108 F '64; Discussion. P. I. Richards. 32:890 N '64
Matrix solution of force relaxation method. C. C. Feng. diags Am Soc C E Proc 89 [ST 3 no 3532]:1-19 Je '63; Discussion. S. Shore. 90 [ST 1 no 3812]:229-30 F '64; Reply. 90 [ST 3 no 3940]:377 Je '64
Multiple-loop feedback circuits. S. S. Hakim. bibliog diags Inst E E Proc 110:1955-9 N '63
Numerical and algebraic generation of mesh-impedance matrices by set-theoretical intersection on a digital computer. H. Edelmann. bibliog diags IEEE Trans Power Apparatus & Systems 83:397-402 Ap '64
Optimum locations of switching centers and the absolute centers and medians of a graph. S. L. Hakimi. bibliog diags Op Res 12:450-9 My '64
Orthonormal equations for surveying adjustment. H. L. Su. bibliog diag Am Soc C E Proc 89 [SU 1 no 3438]:77-90 F '63; Discussion. 89 [SU 3 no 3684]:201-12 O '63; Reply. 90 [SU 2 no 3978]:171-3 Jl '64
Paramount matrices and realization of resistive three-port networks. I. Cederbaum. bibliog diags Inst E E Proc 110:1960-4 N '63
Plane stress analysis. C. W. McCormick. bibliog diags Am Soc C E Proc 89 [ST 4 no 3581]:37-54 Ag '63; Discussion. 90 [ST 1 no 3812]:243-5 F; [ST 2 no 3886]:365-6 Ap '64; Reply. 90 [ST 4 no 4001]:257-8 Ag '64
Powerful tool, matrix algebra. G. T. Westbrook. bibliog diags Hydrocarbon Process & Pet Refiner 42:173-80 Je; 177-82 Jl; 179-84 S; 129-32 D '63
Radio-frequency propagation on polyphase lines: matrix methods. L. O. Barthold. bibliog diags IEEE Trans Power Apparatus & Systems 83:665-71; Discussion. 745-7 Jl '64
Random vibrations of a Myklestad beam. Y. K. Lin. diags AIAA J 2:1448-51 Ag '64
Relationship between the cut-tree and the fundamental cut-set of multi-terminal flow networks. S. A. Elmaghraby. diags Franklin Inst J 278:262-6 O '64

MATRICES—*Continued*
Second method of Liapunov and Routh's canonical form. N. N. Puri and C. N. Weygandt. bibliog diags Franklin Inst J 276:365-84 N '63
Simplified formulation of stiffness matrices. P. M. Wright. diags Am Soc C E Proc 89 [ST 2 no 3478]:33-48 Ap '63; Discussion. S. S. Tezcan. 89 [ST 6 no 3743]:445-9 D '63
Solution of the linearized equations of multicomponent mass transfer; matrix methods. H. L. Toor. A I Ch E J 10:460-5 Jl '64
Some transformations of the nodal admittance matrix of a network with application to a difference amplifier. K. G. Nichols. bibliog diags Electronic Eng 36:617-21 S '64
Spectral matrix for analysis of time-varying networks. C. Kurth. bibliog diags Elec Com 39 no 2:277-92 '64
Techniques for exploiting the sparsity of the network admittance matrix. N. Sato and W. F. Tinney. bibliog IEEE Trans Power Apparatus & Systems p944-9; Discussion. 949-50 D '63
Tetrahedron elements in the matrix force method of structural analysis. J. S. Przemieniecki. diags AIAA J 2:1152-4 Je '64
Time-domain matrix analysis of nonlinear hybrid control systems. R. E. King and D. Williamson. bibliog diags Inst E E Proc 111:1607-14 S '64
Time-to-frequency-domain matrix formulation. W. D. Stanley. IEEE Proc 52:874-5 Jl '64
Time-varying sequential machines. A. Gill. bibliog diags Franklin Inst J 276:519-39 D '63
Transmission matrices for vibration and their relation to admittance and impedance. S. Rubin. bibliog A S M E Trans ser B 86:9-21 F '64
Two new classes of algorithms for finding the eigenvalues and eigenvectors of real symmetric matrices. C. D. La Budde. Assn for Computing Mach J 11:53-8 Ja '64
See also
Linear programming

MATTER
See also
Atoms
Compressibility
Dynamics
Glassy state
Hardness
Physics
Solids

MATTER, Interstellar
Dynamical model for Kordylewski cloud satellites. F. V. Pohle. bibliog diags AIAA J 2:1818-20 O '64

MATTRESSES
Shipboard sleeping comfort. S. R. Heller, jr. Naval Eng J 76:729-32 O '64

MATTRESSES (hydraulic engineering)
Mattress maker modernized for deep river beds. diag Marine Eng/Log 69:58 Jl '64

MAXIMUM principle. See Principle of the maximum

MEAD corporation
Fourth Combustion industrial power plant award. A. W. Hendenlang. flow diag il diags Combustion 36:17-25 Ag '64

MEASUREMENT
Analog transducers for dimensional metrology. R. H. Cerni. diags Machine Design 35:210+ N 21 '63
Answer to the measurements pinch. C. M. Whitt. il Mag of Stand 35:238-9 Ag '64
Balance and reference measurement techniques. P. K. Stein. diags Instruments & Control Systems 37:126-7 Jl '64
Determinations based on duplication of readings. J. A. Speckman. J Res Nat Bur Stand 68B:49-53 Ap '64
General application of Youden's rank sum test for outliers and tables of one-sided percentage points. T. A. Willke. J Res Nat Bur Stand 68B:55-8 Ap '64
International measurement conference, 2d, Budapest; with abstracts of papers. Engineer 216:1076-7 D 27 '63
Measurement and technological progress. A. V. Astin. IEEE Proc 52:227 Mr '64
Measurement experts report on Soviet visit. Mag of Stand 35:45-7 F '64
Measurement question. D. E. Wendeln. il diags Mech Eng 86:35-7 Je '64; Same. Naval Eng J 76:697-700 O '64
Measurements gap. L. B. Wilson and H. W. Martin. il Space/Aeronautics 41:84-90 Mr '64
Measurements of slip velocity in two-phase mercury flows. C. R. Smith and others. bibliog diag A I Ch E J 10:586-9 Jl '64
NBS and measurement standards. il Electro-Tech 74:91-9 O '64
Nonsimultaneous measurement of the coordinates used to obtain the length of a uniformly moving body. K. A. Durbin. diags Am J Phys 32:639-41 Ag '64
Problem of measurement. P. A. Moldauer. bibliog Am J Phys 32:172 F '64
Remarks on the theory of measurement. M. M. Yanase. bibliog Am J Phys 32:208-11 Mr '64
Strain gage readings; measurement engineering. P. K. Stein. il diags Instruments & Control Systems 37:133-7 Ap '64
Uncertainties in measurement. R. P. Benedict. Electro-Tech 74:51-3 O '64
See also
Area measurement
Calorimeters and calorimetry
Electric measurements
Frequency measurement
Gages
Gas measurement
Length measurement
Magnetic measurements
Mensuration
Oil measurement
Optical measurements
Photometry
Pitot tubes
Pressure measurement
Radio measurements
Thickness measurement
Time measurement
Transistors—Measurement uses
Volume
Weighing
Weights and measures
Wood measurement
also subdivision Measurement under special subjects, e.g.
Beta rays
Cotton fibers
Distances
Gamma rays
Gearing
Neutrons
Petroleum
Porosity
Radiation
Radioactivity
Wool

MEASURING instruments
Errors in noise measurements due to the finite amplitude range of the measuring instrument. C. E. Cohn. R Sci Instr 35:701-3 Je '64
Evaluation of capabilities and limitations of various luminance measuring instruments; abstract. G. A. Horton. il Illum Eng 59:610-11 S '64
Instrument for measuring long narrow holes. il Engineer 217:405 F 28 '64
Instrumentation for continuous water quality measurement. A. K. Keyser. il diag Chem Eng Prog 60:53-6 Ap '64
Laser provides accurate linear measuring instrument. il diag Iron & Steel Eng 41:177-8+ O '64
Measurement experts report on Soviet visit. Mag of Stand 35:45-7 F '64
Measurement for control. il diags Instruments & Control Systems 37:103-12 Ag '64
Measurement question. D. E. Wendeln. il diags Mech Eng 86:35-7 Je '64; Same. Naval Eng J 76:697-700 O '64
Measuring low torque. W. W. Williams. il diags Instruments & Control Systems 37:94-7 F '64
Measuring the air consumption of pneumatically actuated mechanisms. diags Product Eng 35:50 Ap 13 '64
New measuring tool in works at GD/Astro. Steel 154:28 Ap 27 '64
Pocket thickness gauge. il Engineer 217:488 Mr 13 '64
Points and surfaces checked by probes. il Iron Age 192:172 N 14 '63
Probes down the hole. il Product Eng 35:70-1 Mr 16 '64
Selecting instruments for monitoring shock. E. S. Charkey. il diags Machine Design 36:136-41 Jl 16 '64
Simple device which simultaneously measures and normalizes peak heights on a trace recorded mass spectrum. E. Clayton and H. C. Hill. diag J Sci Instr 41:513 Ag '64
Some properties of physical measurements with application to system identification. J. L. Hammond, jr. bibliog Franklin Inst J 278:173-82 S '64
Symposium on cure rate of rubber by various continuous devices; abstracts of papers. Rubber Age 95:772-6 Ag '64

MEASURING instruments—*Continued*
Torque measuring equipment. il diag Instruments & Control Systems 37:90-2 F '64
Where accuracy is a fetish; measuring machines guaranteed to 35 millionths are end products of new concepts in linear standards and gages. R. Le Grand. il Am Mach 108:88-91 S 28 '64
See also
Comparators
Dilatometers
Electric instruments
Gages
Goniometers
Meters
Micrometers
Pressure gages
Surface plates
Temperature—Measurement
Thickness measurement
Timing devices
Verniers
Vibration—Measurement

Numerical control

Numerically controlled measuring machine speeds complex inspections. W. H. Conkling. il Mach 70:110-12 Jl '64

MEASURING instruments, Electric
Advances in telemetry open new roads to testing. O. E. Kienow. il diag S A E J 72:54-5 Jl '64
Charge analyzer for aerosols and sprays. T. G. Owe Berg and others. il diags R Sci Instr 35:719-23 Je '64
Digital capacitance system for mass, volume, and level measurements of liquid propellants. R. L. Blanchard and A. E. Sherburne. il diags AIAA J 1:2590-6 N '63
New instrument measures cross-sectional areas. il Mod Metals 20:90 Je '64
Potter coordinate measuring machine. il Mach 70:177-8 D '63
Potter instrument co's coordinate measuring machine. il Product Eng 34:79-80 N 11 '63
Potter instrument coordinate measuring unit provides sharp productivity increase. il Am Mach/Metalworking Manuf 107:115 N 25 '63
Three-dimensional measuring machine. il Ind Electronics 1:716 N '63
Total environment monitor. S. V. Preskitt and J. E. Fix. il Instruments & Control Systems 36:77-8 D '63
See also
Gages, Electric

MEASURING instruments, Optical
Advanced optics solve quality-control problems. il Mach 70:132-3 Mr '64
Bausch & Lomb contour projector features digital optical read-out. il Mach 70:198+ Je '64
Beam of light is the pickup for Fotonic Sensor. il Product Eng 35:51-2 Jl 20 '64
Fixed optical tooling dock cuts tooling time. R. E. Gariss. il Mach 70:94-6 Jl '64
Gage reads width of hot strip. diag Iron Age 193:61 Ap 2 '64
Measuring inside from outside. S. I. Burack. il Am Mach 108:112 My 11 '64
New techniques for very accurate measurement. E. H. Koenig. il diags Civil Eng 34:41-3 Ag '64
Optical comparator for on-the-machine inspection and assembly work. il Mach 71:161-2 S '64
Optical inspection of heavy machined components. B. Stanley. il diags Engineer 218:503-4 S 25 '64
Optical pickup for measuring machine. il Mach 70:191 Je '64
Optical thickness gauge for transparent material. il Engineering 196:683 N 29 '63
Position measuring systems compared. il Engineering 198:408 S 25 '64
Precise indexing with optics. J. Kotors, jr. il Am Mach/Metalworking Manuf 107:88-9 N 25 '63
Pulse radiolysis apparatus. J. P. Keene. bibliog il diags J Sci Instr 41:493-6 Ag '64
Rod profile gauge. B. Quartermain and J. A. Harrison. il diags Iron & Steel Inst J 202:527-30 Je '64
Single-frequency laser breakthrough in production metrology. il Mach 71:153 S '64
Starrett's Webber gage division announces master linear measuring machine. il Mach 70:207-8 Je '64
Suspended solids level recorder. il Engineering 197:192 Ja 31 '64
Zeiss universal measuring microscope. il Mach 70:136 Ag '64
See also
Collimators
Interferometers
Stroboscopic instruments

MEAT
Meat powder: new African food. Food Eng 31:108 Je '64
See also
Beef
Ham
Lamb (meat)

Analysis

Interrelationships of gross chemical components of pork muscle. R. G. Kauffman and others. bibliog J Agri & Food Chem 12:102-5 Mr '64
Vitamin content and amino acid composition of some African game animals. I. Mann. bibliog J Agri & Food Chem 12:374-6 Jl '64

Color

Color and pigment stability of packaged refrigerated beef. A. A. El-Badawi and others. bibliog Food Tech 18:753-7 My '64
Pigment changes in anaerobically packaged ground beef. A. J. Cutaia and Z. J. Ordal. bibliog Food Tech 18:757-60 My '64

Moisture content

Effect of phosphate treatment and cooking method on moisture losses of poultry meat. J. A. Monk and others. bibliog Food Tech 18:226-9 F '64

Prepackaging

Color and pigment stability of packaged refrigerated beef. A. A. El-Badawi and others. bibliog Food Tech 18:753-7 My '64
New concept in self-service packaging; Slotkowski sausage co. L. P. Slotkowski. il Food Eng 36:86-8 Mr '64
New PE film bids for meat-wrap market. il Plastics Tech 10:13 My '64
Pigment changes in anaerobically packaged ground beef. A. J. Cutaia and Z. J. Ordal. bibliog Food Tech 18:757-60 My '64
Sausage sold in aluminum zip-top can. il Mod Metals 20:78 My '64

Preservation

Assessing gain in the lean of hams. L. Kamm and others. bibliog Food Tech 18:1648-52 O '64
Effect of internal temperature, pumping, and antibiotics on spoilage of hams given a dry salt cure. R. F. Kelly. bibliog Food Tech 18:1607-11 O '64
Manufactured and processed meats; abstract. S. Vahlun. Chem & Ind p 1292; Discussion. 1292-3 Jl 18 '64
Oxidative changes in cured and uncured frozen cooked pork. M. W. Zipser and others. bibliog J Agri & Food Chem 12:105-9 Mr '64
Preliminary studies on the significance of tissue moisture in determining the control of sodium chloride in processed meats. E. Karmas and J. E. Thompson. bibliog il Food Tech 18:571-3 Ap '63
See also
Canned meat

Spoilage

Beef microbial quality determined by extract-release volume (ERV). J. M. Jay. Food Tech 18:1637-41 O '64
Effect of internal temperature, pumping, and antibiotics on spoilage of hams given a dry salt cure. R. F. Kelly. bibliog Food Tech 18:1607-11 O '64
Oxidative changes in cured and uncured frozen cooked pork. M. W. Zipser and others. bibliog J Agri & Food Chem 12:105-9 Mr '64

Storage

Determination of oxidative changes in raw meats by the 2-thiobarbituric acid method. A. Keskinel and others. bibliog Food Tech 18:223-6 F '64
Edible corn-carbohydrate food coatings; evaluation on fresh meat products. L. Allen and others. bibliog Food Tech 17:1442-6 N '63

Tenderness

Characterization of the eating quality of four beef muscles from animals of different ages by panel scores, shear-force values, extensibility of muscle fibers, and collagen content. S. J. Ritchey and R. L. Hostetler. bibliog Food Tech 18:1067-70 Jl '64
Effect of cooking temperature and time on the tenderness of beef. J. M. Tuomy and others. bibliog Food Tech 17:1457-60 N '63
Effect of cooking temperature and time on the tenderness of pork. J. M. Tuomy and R. J. Lechnir. bibliog Food Tech 18:219-22 F '64
See also
Poultry as food—Tenderness

MEAT—*Continued*

Thiobarbituric acid test

Determination of oxidative changes in raw meats by the 2-thiobarbituric acid method. A. Keskinel and others. bibliog Food Tech 18:223-6 F '64

MEAT, Canned. See Canned meat

MEAT, Frozen

Influence of low freezer temperatures on rate of temperature change in beef. W. J. Costello and R. L. Henrickson. bibliog Food Tech 18:209-11 F '64

Oxidative changes in cured and uncured frozen cooked pork. M. W. Zipser and others. bibliog J Agri & Food Chem 12:105-9 Mr '64

See also

Poultry, Frozen

Storage

Effect of three years of freezer storage on the thiamine, riboflavin, and niacin content of ripened and unripened beef. B. Meyer and others. bibliog J Agri & Food Chem 11:525-7 N '63

Use of a transparent hot-melt coating material for prolonging storage life of frozen pork chops. J. C. Ayres. bibliog Food Tech 18:1621-4 O '64

MEAT, Smoked

Meat smoking process; a review. H. N. Draudt. bibliog il(cover) Food Tech 17:1557-62 D '63

MEAT industry and trade

Changing patterns in the beef industry. H. E. Drews. Food Tech 18:442+ Ap '64

MEAT products

Manufactured and processed meats; abstract. S. Vahlun. Chem & Ind p 1292; Discussion. 1292-3 Jl 18 '64

MEAT research

New research facilities added to Danish meat research institute. il plan Food Tech 18:853-4 Je '64

Unprocessed meats; abstract. R. A. Lawrie. Chem & Ind p 1291-2; Discussion. 1292-3 Jl 18 '64

MECHANICAL contractors association of America

Anniversary convention, 75th. Heating-Piping 36:114-15 Jl '64

MECHANICAL draft

Large mechanical draft towers show many recent improvements. J. B. Dickey, jr. il Power Eng 68:30-3 Ja '64

MECHANICAL drive. See Power transmission

MECHANICAL engineering

ASME technical digest; substance in brief of papers presented at ASME meetings. Published in monthly numbers of Mechanical engineering

Mechanical engineering's little Needy; National economic development council. R. Shone. Engineering 196:739 D 13 '63

See also

Aeronautic engineering
American society of mechanical engineers
Boilers
Calculating machines—Mechanical engineering applications
Fuel
Lubrication and lubricants
Machine shop practice
Machinery
Mechanical handling
Mechanical movements
Motor trucks
Packing
Power transmission
Pumping
Steam engineering
Steam plants

Bibliography

ASME winter annual meeting, 1963; technical papers available. Mech Eng 86:96-102 Ja '64

ASME 85th winter annual meeting; advance list of available papers. Mech Eng 86:97-110 O '64

Notes on books received in Engineering societies library. Published in monthly numbers of Mechanical engineering

Study and teaching

City of Liverpool college of technology regional college: Department of mechanical, marine and production engineering. R. F. McMahon. il Chem & Ind p 1001-2 Je 13 '64

Rocket motor for engineering schools. il diag Engineering 196:628 N 15 '63

Universal mechanical testing machine for teaching purposes. A. Beaumont and others. il diag Engineer 217:299-300 F 14 '64

Tables, calculations, etc.

Equations give quick estimates of friction temperatures. E. Rabinowicz. il diags Product Eng 35:97-9 Mr 30 '64

New design formulas for long-shoe centrifugal clutches. M. F. Spotts. diags Product Eng 35:89-93 F 17 '64

Noncircular shafts in torsion; data sheet. L. W. Singleton. Machine Design 36:183-6 S 24 '64

Torsion of nonhomogeneous bars. Y. Chen. Franklin Inst J 277:50-4 Ja '64

Use these statistical tools for random vibrations. P. H. Wirsching. diags Product Eng 35:104-9 Je 22 '64

See also

Vibration—Measurement

MECHANICAL engineers

Engineer's contribution to the development of metal-working processes. H. Ford. bibliog il diags Inst Metals J 91:353-60 '62-63; Same. Naval Eng J 75:1013-21 D '63

MECHANICAL engineers, American society of. See American society of mechanical engineers

MECHANICAL engineers, Institution of. See Institution of mechanical engineers

MECHANICAL equipment of buildings

Design for low-cost maintenance. G. F. Connell. diags Air Cond Heat & Ven 61:71-3 O '64

Expanding universe of the mechanical contractor; H. Sand & co. il Dom Eng 204:75-81+ Ag '64

Medical facilities. W. J. McGuinness. Prog Arch 45:224 S '64

New office building by SOM has unusual site plan, and a well integrated structural and mechanical system. il plans diags Arch Rec 136:139-43 Ag '64

Outside piping and duct systems to serve building's perimeter zones.. il Heating-Piping 36:46 O '64

Projecting mechanical demands. W. J. McGuinness. Prog Arch 45:206 Je '64

Specification standards and their value. E. P. Rossman. Air Cond Heat & Ven 61:79-81 O '64

Structure delivers air and controls light; Cummins engine company. il plans diags Arch Rec 136:180-4 Jl '64

See also

Air conditioning equipment
Heating equipment
Plumbing
Steam pipes

MECHANICAL fans. See Fans, Mechanical

MECHANICAL handling

Automated handling: does it pay? G. Berkwitt. il Mill & Factory 74:64-7 Ap '64

Automated system handles unitized warehouse loads. Chem & Eng N 42:92 Ap 13 '64

Automatic storage uses 80 per cent less space. G. Phillips. il Steel 154:96+ My 25 '64

Automating ceramic wall tile production. F. S. Carpenter. il diags Automation 11:50-4 Jl '64

Boost material handling productivity. il Mill & Factory 74:66-8 Je '64

Bulk starch handling and automatic mixing. F. W. Velguth. il diags Tappi 47:sup 148A-52A Ap '64

Combining new layout, new methods and better handling doubles capacity. il diag Mod Materials Handling 19:50-1 F '64

Efficient parts handling: key to lower costs. P. Fitzpatrick. il diag Tool & Manuf Eng 52:67-70 My '64

Extrusion handling system cuts costs and waste. il Mod Metals 20:62+ F '64

Getting orders out; a systems focus on service; Louis Zahn drug co. J. A. Eaton. il plan diag Mod Materials Handling 19:40-5 Ap '64

Goods must be handle-able. J. P. O'Hanlon. il Mod Materials Handling 19:46-51 Ja '64

Handling parts magnetically. A. F. Israelson. il Automation 11:72-7 Mr '64

Handling's vital role in steel's economic survival; special report. il diags Mod Materials Handling 19:39-64 O '64

How Buick's special grabs ease bulky-shape handling. il Mod Materials Handling 19:46-7 N '64

How Sara Lee tackled computerized handling. G. C. Thomas. diag Mod Materials Handling 19:34-7 Ag '64

Internal vacuum eases handling. il Food Eng 36:105 Je '64

MECHANICAL handling—*Continued*
Look at the future; material handling. G. J. Berkwitt. il diags Mill & Factory 75:90-100 N '64
Look beyond machine specs; Golden grain macaroni co. V. DeDomenico. il Food Eng 36:78+ Ap '64
Manufacturing/maintenance engineers' know-how handbook; material handling. Published in monthly numbers of Mill & Factory
Mechanical handling at the Halewood plant; Ford motor co. il Engineer 217:175-6 Ja 24 '64
Mechanized and automated warehousing. H. A. Zollinger. il diags Westinghouse Eng 24: 24-9 Ja '64
Millions of cigars shipped daily from giant mechanized humidor. il Mill & Factory 75: 58-60 Jl '64
New clamp-truck study presented to aid food warehousemen. il Mod Materials Handling 19:7 S '64
New products; materials handling and packaging equipment. Published in monthly numbers of Modern materials handling
1964 buyer's guide issue; materials handling and packaging. Mod Materials Handling 19: 1-316 My '64
1964 production preview; materials handling. Am Mach 108:147-8 Ja 20 '64
Pallet and skidstack loader in one. il Engineering 196:665 N 22 '63
Puerto Rico studies handling; abundance for mañana. il Mod Materials Handling 19:44-5 N '64
Pushbuttons bundle copper tubes. il Iron Age 194:87 S 17 '64
Steel strapping cuts handling costs. il Foundry 92:173-4 Ag '64
Stressing handling to management; where to put the blue chips. S. W. Earle and E. D. Ayers. il Mod Materials Handling 19:36-8 Jl '64
Symposium on remote control of material handling equipment. J. W. Bauer, jr.; W. A. Robinson. il Iron & Steel Eng 41:93-7 Je '64
To plan handling improvements you need interdisciplinarians. G. J. Berkwitt. il Mill & Factory 74:80-3 Mr '64
Today's new challenge, breaking the bonds on handling thought. G. C. Thomas. il Mod Materials Handling 18:38-41 N '63
Twin plants story; handling material the up-to-date way. R. B. Pressley and W. G. Ashmore. il Textile World 113:48-52 N '63
Unit-load shipping can end distribution's dark ages; interview with L. G. Smiley. Mod Materials Handling 18:38-42 D '63
See also
Assembling methods
Blast furnaces—Charging
Car dumpers
Cargo handling
Carts
Cement handling
Charging machines
Coal handling
Concrete handling
Conveying machinery
Cranes, derricks, etc.
Electric trucks, Industrial
Glass handling
Guided missile handling
Hoisting
Hoisting machinery
Lifting magnets
Lime handling
Loading and unloading
Loading machines
Lumber handling
Mail handling
Manipulators
Milk handling
Mine haulage
Mine hoisting
Monorail conveyors
Motor trucks
Ore handling
Paper handling
Pneumatic conveying
Positioning equipment
Racks
Scrap metal handling
Sheet metal handling
Steel handling
Trucks
Winches
Wire handling

Bibliography

Special catalog section; your guide to receiving-dock equipment. Mod Materials Handling 19:108-10+ Ja '64

Costs

First bench-mark figures; what a pallet pool can save. W. H. Sardo, jr. Mod Materials Handling 19:36-9 Ap '64

Exhibitions

Automation lifts handling sales; Material handling institute Eastern states show, New York. il Iron Age 193:64-5 My 14 '64
Material handling institute Eastern states show, New York, May 5-7; list of exhibitors and products guide. Mod Materials Handling 19:supA 1-18 Ap '64
Material handling institute's Eastern States show, New York. Mod Materials Handling 19:54-5+ Jl '64
Mechanical handling exhibition, London, May 5-15. il diag Engineer 217:778-9, 813-15, 862-4 My 1-15 '64; Engineering 197:604-5 My 1 '64; Chem & Ind p 1021-2 Je 13 '64

MECHANICAL movements
Geared five-bar motion. F. Freudenstein and E. J. F. Primrose. bibliog diags A S M E Trans ser E 30:161-75 Je '63; Discussion. 31:360-2 Je '64
Ingenious mechanisms. Published in monthly numbers of Machinery
Machinery mechanisms from foreign sources. P. W. Jensen. diags Product Eng 35:66-74 Je 8; 108-15 O 26 '64
Springs, shuttle-gear, gliding-ball in novel one-way drives. R. H. Meier. diags Product Eng 35:96-7 O 12 '64
Winners of Machinery's ingenious mechanisms competition. Mach 70:124 Jl '64
See also
Cams
Escapement mechanism
Gearing
Links and link motion
Ratchet mechanism
Springs (mechanism)
Stop mechanism

MECHANICAL research
See also
Steam research

MECHANICAL rubber goods. See Rubber goods, Mechanical

MECHANICS
Experimental experiments in the elementary physics laboratory. H. M. Landis. il diags Am J Phys 32:704-6 S '64
Identical motion in quantum and classical mechanics. N. Rosen. Am J Phys 32:377-9 My '64
See also
Deformation (mechanics)
Dynamics
Engineering
Fluids
Force and energy
Friction
Hydrodynamics
Hydromechanics
Hydrostatics
Hysteresis (mechanics)
Inertia (mechanics)
Liquids
Load (mechanics)
Machinery
Mathematical physics
Mechanical movements
Moments of inertia
Motion
Pendulum
Power transmission
Pressure
Stability of systems
Statics
Strains and stresses
Strength of materials
Structures, Theory of
Thermodynamics
Torsion
Vibration

Electric analogies

Analytical mechanics and the analysis of linear, time-varying networks. R. A. Rohrer. bibliog diags Franklin Inst J 278:84-107 Ag '64

MECHANICS, Applied
International congress of applied mechanics, 11th, Munich, Aug. 30-Sept. 5. Engineering 198:396 S 25 '64
See also
Balancing of machinery

MECHANICS, Celestial
Elliptic elements in terms of small increments of position and velocity components. J. P. de Vries. AIAA J 1:2626-9 N '63
Impulsive force required to effectuate a new orbit through a given point in space. D. G. Magiros. diags Franklin Inst J 276:475-89 D '63

MECHANICS, Celestial—*Continued*
Influence of the earth's orbital motion on radar measurements of range and velocity in space. V. M. Vakhnin. diags AIAA J 1:2700-3 N '63
Lunar librations. I. Michelson. AIAA J 1:2629-30 N '63
Matrizant of Keplerian motion. J. M. A. Danby. bibliog AIAA J 2:16-19 Ja '64
Modifications in method of improving the orbits of artificial earth satellites. A. S. Sochilina. bibliog AIAA J 1:2909-11 D '63
Orbital motion in the theory of general relativity. J. D. Anderson and J. Lorell. bibliog AIAA J 1:1372-4 Je '63; Discussion. 2:1869-70 O '64
Planetary position-velocity ephemerides obtained by special perturbations. P. R. Peabody and N. Block. bibliog AIAA J 1:2812-15 D '63
See also
Orbits

MECHANICS, Household
See also
Workshops, Home

MECHANICS, Statistical. See Statistical mechanics

MECHANICS, Wave. See Wave mechanics

MECHANICS lien
Lien law and the non-owner client. B. Tomson and N. Coplan. Prog Arch 45:210 Je '64

MEDALS
Citation of the Arthur L. Day medalist; with acceptance address. K. B. Krauskopf. Geol Soc Bul 74:sup 159-62 D '63
Citation of William Walden Rubey for the 34th Penrose medal; with acceptance address. J. Rodgers. Geol Soc Bul 74:sup 155-9 D '63
Compton medal; presentation to H. A. Barton and response. Phys Today 17:54-6 Mr '64
Doan to receive chemical industry medal for 1964. Chem & Eng N 42:35-6 S 21 '64
Edgar Wesley Owen, Sidney Powers memorial medalist; with response. W. J. Hilseweck. Am Assn Pet Geologists Bul 48:1437-9 Ag '64
E. L. Dougherty selected as 1964 Cedric K. Ferguson medalist. il J Pet Tech 16:1021 S '64
George E. Inman 1964 gold medalist. Illum Eng 59:sup7A S '64
IES gold medal award to Gertrude Rand Ferree; acceptance address. Illum Eng 58: sup 10A-11A N '63
Jersey Standard's Rathbone wins Palladium medal. Chem & Eng N 42:24 Mr 9 '64
John Novotny receives Richard H. Morris medal. il Plant Eng 18:136-7 Mr '64
Medal of the Society of dyers and colourists; list of recipients. il Soc Dyers & Col J 80:5-6 Ja '64
1964 gold medal of the American institute of architects to Pier Luigi Nervi. Arch Forum 120:78-9 My '64
1963 ASNE medal award to Eli Thomas Reich, and acceptance speech. Naval Eng J 76:338-41 Je '64
Peter R. Swann named for Hardy gold medal. J Metals 16:190 F '64
Pier Luigi Nervi awarded A.I.A. gold medal. Arch Rec 135:10 Mr '64
Ralph D. Wyckoff named 1965 Anthony F. Lucas medalist. il J Pet Tech 16:1131 O '64
Roger Adams, AIC gold medalist. Chem & Eng N 42:90 My 18 '64
TAPPI medal award to Ronald Gordon Macdonald; presentation address and acceptance address. V. F. Waters. Tappi 47:sup 12A+, 24A+ Ap '64
Walter Christian Michels; Oersted medalist for 1963; presentation and acceptance speech. F. Verbrugge. Am J Phys 32:497-503 Je '64
Williams and MacLeod receive Standards awards; with acceptance speeches. Mag of Stand 35:3-5 Ja '64
Worshipful company of dyers research medal; list of recipients. il Soc Dyers & Col J 80:6-8 Ja '64
See also
Gibbs, Willard, medal
Messel medal
Nichols medal
Olney medal
Perkin medal
Priestley medal
Rewards, prizes, etc.
Roebling medal
Schoellkopf medal
Vermilye medal

MEDICAL apparatus and instruments
Advanced techniques in medical electronics. A. H. Urmer. il diags Electronic Ind 23: 42-3+ Jl '64
Artificial heart keeps calf alive for more than 20 hours. il Product Eng 34:32 D 23 '63
Cobalt-60 irradiator for extracorporeal blood irradiation. O. A. Kuhl and others. diags Nucleonics 22:79-80+ Ap '64
FDA is now seeking the same regulatory power over medical devices that it now has over drugs. Product Eng 34:53 N 25 '63
Hypodermic microscope. il Mech Eng 86:65 Mr '64
Internal cardiac pacemaker. il diags Engineering 197:598-9 My 1 '64
Medi-products. il Ind Med 33:254-5, 335-6, 424, 516, 589, 665-7, 749-50 Ap-Ag, O '64
Nuclear instrumentation for medicine and biology; special report. bibliog il diags Nucleonics 21:45-68 O '63
Patient check-out; a physiological monitoring system. il Product Eng 34:49 N 25 '63
Soviet academy of medical sciences conference, 18th, Moscow. Product Eng 34:83-5 D 9 '63
See also
Biomedical engineering
Hypodermic needles

MEDICAL buildings
Medical facilities. W. J. McGuinness. Prog Arch 45:224 S '64
Medical facilities; building types study. il plans Arch Rec 135:183-206 Ap '64
See also
Clinics

MEDICAL centers
Hospital in the city; N.Y.U's giant medical center. il plans Arch Forum 120:92-5 Ap '64

MEDICAL colleges
Development of the medical school as a community resource. W. R. Willard. Am J Pub Health 54:1041-8 Jl '64

Great Britain

Royal free hospital school of medicine (preclinical departments). A. Lawson. il Chem & Ind p 1204-8 Jl 4 '64

MEDICAL education
Concept of predisposition. G. V. Mann. Archives Environmental Health 8:840-5 Je '64
Medical care, medical education, and hotel workers. J. N. Muller. Archives Environmental Health 7:705-8 D '63
Medical education; comments on our confusion. H. A. Dickie. Archives Environmental Health 9:398-402 S '64
Programed instruction and its usefulness for the health professions. S. Shindell. bibliog Am J Pub Health 54:982-90 Je '64
Royal free hospital school of medicine (preclinical departments). A. Lawson. il Chem & Ind p 1204-8 Jl 4 '64
See also
Hygiene, Industrial—Study and teaching
Public health—Study and teaching

MEDICAL geography
Geographic and climatic aspects of multiple sclerosis; review of current hypotheses. L. T. Kurland and D. Reed. bibliog map Am J Pub Health 54:588-97 Ap '64

MEDICAL laboratories
ACS comments on lab licensing bill. Chem & Eng N 42:30 Mr 16 '64
Criteria for design of a microbiological research laboratory. A. G. Wedum and G. B. Phillips. bibliog il ASHRAE J 6:46-52+ F '64
New York passes clinical lab bill. Chem & Eng N 42:38 Ap 13 '64
See also
Pharmaceutical laboratories

Air conditioning

Design uses analog to predict transient refrigeration load in medical research facilities. G. H. Green. il plan diag Heating-Piping 36:106-11 Je '64

Equipment

Instruments for clinical chemistry labs. il Chem & Eng N 41:112-24+ D 9; 112-26 D 16 '63 (reprints $1.25)

MEDICAL photography. See Photography, Medical

MEDICAL research
Activation analysis finds its place in the life sciences. R. E. Wainerdi. diag Nucleonics 22:57-60 F '64
Annual air pollution medical research conference, 6th, San Francisco, Jan. 28-29; with texts of papers. Archives Environmental Health 8:1-194 Ja '64

MEDICAL research—*Continued*

Conference on research, graduate education, and postdoctoral training in departments of preventive medicine, Saratoga Springs, N.Y. June 10-14. Archives Environmental Health 7:509-23 N '63

Medical research with high-energy heavy particles. G. J. D'Angio and J. H. Lawrence. bibliog il Nucleonics 21:56-61 N '63

Scintillation scanning in clinical medicine. M. B. Glos. il Nucleonics 22:72-5 Ap '64

Why the National society for medical research? editorial. H. E. Essex. Am J Clinical Nutrition 13:341-2 D '63

See also

Cancer research
Medical centers
Nutrition research
Pharmaceutical research

MEDICAL service

Development of community health service centers; present and future. bibliog Am J Pub Health 54:140-6 Ja '64

Development of medical care programs in Alabama under the Kerr-Mills bill. H. C. Wylie. Am J Pub Health 54:1293-301 Ag '64

Gouverneur ambulatory care unit; a new approach to ambulatory care. H. J. Brown and R. S. Alexander. Am J Pub Health 54:1661-5 O '64

Hospital as the center of community medical care; fact and fiction. G. Baehr. bibliog Am J Pub Health 54:1653-60 O '64

Organization of medical care and the health of the Nation. Am J Pub Health 54:147-52 Ja '64

Organized hospital based home care program. A. F. Elconin and others. Am J Pub Health 54:1106-17 Jl '64

Periodic evaluation of outpatients. J. C. Lashof and I. R. Turner. bibliog Archives Environmental Health 8:531-8 Ap '64

Principles and criteria for determining medical indigency; report of the committee for the project of the National council on the aging. bibliog Am J Pub Health 54:1745-65 O '64

Significance of welfare status in the care of indigent patients. M. Olendzki and others. Am J Pub Health 53:1676-84 O '63

Some basic assumptions in community mental health. H. R. Brickman. bibliog Am J Pub Health 54:890-9 Je '64

Specialization and the community; challenge of two cultures. F. Mayes. Archives Environmental Health 8:503-9 Ap '64

Voluntary organizations in medical care planning. bibliog Am J Pub Health 54:447-60 Mr '64

See also

United States—Public health service

Group and prepayment plan

General practitioner in prepaid group practice plans. I. S. Neiman. bibliog Am J Pub Health 53:1635-43 O '63

Group health programs. J. H. Sterner. Archives Environmental Health 8:418-21 Mr '64

Patients' perceptions of group medical care. E. R. Weinerman. bibliog Am J Pub Health 54:880-9 Je '64

Voluntary organizations in medical care planning; the role of group practice. C. B. Esselstyn. Am J Pub Health 54:451-4 Mr '64

MEDICAL service, Industrial

A.A.O.M. 16th annual meeting, Hartford, Feb. 5-7; with texts of papers. Archives Environmental Health 9:285-374 S '64

Anatomy and physiology of the industrial physician; 18th Ramazzini oration, Monterey, Calif. F. Princi. bibliog Ind Med 32:508-14 D '63

Community health resources for small plants. J. P. Bartlett. Archives Environmental Health 9:117-26 bibliog(p 125-6) Jl '64

Development and present tendencies of occupational medicine throughout the world. L. Parmeggiani. Ind Med 33:130-1 Mr '64

Does your plant need a medical program? D. H. Robinson. Rubber Age 94:611-12 Ja '64

Evaluation of employability after psychiatric illness; panel discussion. Ind Med 33:405-13 Je '64

Events in Dallas and industrial medicine. Ind Med 33:42 Ja '64

Future of health in industry. W. P. Shepard. bibliog Ind Med 33:375-80 Je '64

Hand disability due to tenosynovitis. A. P. Kelly, jr. and H. S. Jacobson. bibliog il Ind Med 33:570-4 Ag '64

How to set up a health program. D. H. Robinson. Rubber Age 95:262-3 My '64

In-plant physician. J. Ryan. Archives Environmental Health 9:252-4 Ag '64

Influence of industrialization on the practice of medicine. J. H. Sterner. Archives Environmental Health 9:266-70 Ag '64

Inter-American conference on toxicology and occupational medicine. 4th, Miami, August 24-27; with abstracts of papers. Ind Med 33:451-513 Jl '64

Management of critical and chronic hypertension. A. A. Mozan and P. Mastrapa. bibliog Ind Med 33:556-9 Ag '64

Mass casualties. H. J. Bennett. plan diag Ind Med 33:728-31 O '64

Medical care, medical education, and hotel workers. J. N. Muller. Archives Environmental Health 7:705-8 D '63

Medical-safety team. J. P. Ferguson. Safety Maint 128:40-2 S '64

Modern medical program for the small plant. R. A. Sutter. Ind Med 33:560-3 Ag '64

Personnel director. A. V. Engel. Archives Environmental Health 9:243-6 Ag '64

Small plant medical services; will-o'-the-wisp? R. F. Buchan. Archives Environmental Health 9:111-16 Jl '64

Teamwork for safety; the industrial nurse. L. Roche. Safety Maint 128:44-6+ O '64

See also

Hygiene, Industrial
Medical service
Physical examinations
Psychiatry, Industrial
Trade unions—Health service

Bibliography

Books (cont). Ind Med 33:38-40, 98, 162-3, 246-7, 329-30, 422, 582-4, 746-7 Ja-Je, Ag, O '64

Records

Guide to the development of an industrial medical records system. Archives Environmental Health 2:705-13; 4:110-14; 6:678-82; 7:726-36 Je '61, Ja '62, My, D '63

Study and teaching

Teaching of occupational medicine; symposium abstracts. Ind Med 33:507-13 Jl '64

Finland

Institute of occupational health, Helsinki, Finland. L. Noro. il Ind Med 33:400-4 Je '64

Germany

West German health officials tour United States. Ind Med 33:240-2 Ap '64

Great Britain

Environmental exposure of British coal miners. J. W. J. Fay and J. R. Ashford. bibliog Archives Environmental Health 9:144-59 Ag '64

MEDICAL service, Rural

Social work in the southern Appalachians. T. J. Herlihy. bibliog Am J Pub Health 53:1770-9 N '63

MEDICAL statistics

Dilution effect of misclassification. P. Buell and J. E. Dunn, jr. bibliog Am J Pub Health 54:598-602 Ap '64

Long-term immunity to tetanus; a statistical evaluation and its clinical implications. S. Gottlieb and others. bibliog Am J Pub Health 54:961-71 Je '64

See also

Diseases—Statistics
Mortality—Statistics

MEDICINE

See also

Biomedical engineering
Medical service
Pharmacopoeias
Veterinary medicine

Practice

Hospital as the center of community medical care; fact and fiction. G. Baehr. bibliog Am J Pub Health 54:1653-60 O '64

Influence of industrialization on the practice of medicine. J. H. Sterner. Archives Environmental Health 9:266-70 Ag '64

Study and teaching

Conference on research, graduate education, and postdoctoral training in departments of preventive medicine, Saratoga Springs, N.Y. June 10-14. Archives Environmental Health 7:509-23 N '63

Teaching of preventive medicine in the United States; a résumé. W. P. Shepard and others. bibliog Am J Pub Health 54:1474-81 S '64

See also

Medical education

MEDICINE, Military

See also

United States—Army—Medical and sanitary affairs

MEDICINE, Preventive

Annual meeting, 20th, Association of teachers of preventive medicine, Kansas City, Nov. 10; with text of papers. Archives Environmental Health 8:495-538 Ap '64

Concept of predisposition. G. V. Mann. Archives Environmental Health 8:840-5 Je '64

Conference on research, graduate education, and postdoctoral training in departments of preventive medicine, Saratoga Springs, N.Y. June 10-14. Archives Environmental Health 7:509-23 N '63

Teaching of preventive medicine in the United States; a résumé. W. P. Shepard and others. bibliog Am J Pub Health 54:1474-81 S '64

MEDICINE, Veterinary. See Veterinary medicine

MEDICINES, Proprietary

Future proprietary drugs. M. L. Tainter. Drug & Cosmetic Ind 95:334-6+ S '64

Story of Contac. P. Godfrey. Drug & Cosmetic Ind 95:41-2+ Jl '64

MEDINA COUNTY, Ohio

See also

Sewerage—Medina County, Ohio

MEETINGS

Calendar of meetings and events. Chem & Eng N 42:102-10 F 3; 69-74 Jl 6 '64

Company technical meetings promote sales. il Chem & Eng N 42:32-3 N 2 '64

How to run better meetings. W. G. Shepherd. Textile World 114:87-8 Mr '64

Making the most of meetings. E. Raudsepp. Machine Design 36:152-6 My 21 '64

See also

Business conferences

Conferences

MELAMINE

Melamine process based on hydrogen cyanide and ammonia involving electrolytic conversion of hydrogen cyanide. R. W. Foreman and J. W. Sprague. bibliog diags Ind & Eng Chem Product Res & Develop 2:303-7 D '63

Melamine sales recover after dip. il Chem Eng 70:128+ N 11 '63

Properties of materials; melamines; molded; tables. Materials in Design Eng 60:220-1 Mid-O '64

Thermal degradation of melamine-formaldehyde resins. W. R. Moore and E. Donnelly. bibliog J Ap Chem 13:537-43 D '63

Urea and melamine. Mod Plastics 41:102+ Ja '64

MELANOIDINS

Non-enzymatic browning; routes to the production of melanoidins from aldoses and amino-compounds. H. S Burton and D. J. McWeeny. bibliog Chem & Ind p462-3 Mr 14 '64

MELBOURNE

Bridges

Failure of King's bridge in Melbourne. il diags Engineer 217:520-2 Mr 20 '64

Report of Royal commission into the failure of Kings bridge, State of Victoria; review. J. L. Duncan. il Engineering 197:610-11 My 1 '64

MELTING

Crystallization and melting behavior of polyethylene oxide copolymers. F. T. Simon and J. M. Rutherford, jr. bibliog diags J Ap Phys 35:82-6 Ja '64

Invariant form for the fusion equation. L. Knopoff. diag J Geol 72:376-7 My '64

Maximum and minimum bounds on freezing-melting rates with time-dependent boundary conditions. T. D. Hamill and S. G. Bankoff. diag A I Ch E J 9:741-4 N '63

Melting behavior in the system UO_2-PuO_2. T. D. Chikalla. bibliog il Am Cer Soc J 46:323-8 Jl '63; Discussion. 47:308-9 Je '64

Similarity solutions of the plane melting problem with temperature-dependent thermal properties. T. D. Hamill and S. G. Bankoff. Ind & Eng Chem Fundamentals 3:177-9 My '64

Variational analysis of ablation for variable properties. M. A. Biot and H. C. Agrawal. bibliog diags A S M E Trans ser C 86:437-42 Ag '64

MELTING points

Comparisons of materials; melting points of metals and ceramics; tables. Materials in Design Eng 60:22 Mid-O '64

Improved high temperature cryoscopic technique. H. B. Bell and C. R. Masson. diag J Sci Instr 41:389 Je '64

Intermolecular forces and chain flexibilities; internal pressures of polyethylene glycol in the region of its melting point. G. Allen and D. Sims. Rubber Chem & Tech 36:1000-2 O '63

Liquidus⇌solidus relations in iron alloys; ideal solutions. W. Hume-Rothery and R. A. Buckley. Iron & Steel Inst J 202:531-3 Je '64

Melting points of linear-chain homologs; the normal paraffin hydrocarbons. P. J. Flory and A. Vrij. bibliog Am Chem Soc J 85:3548-53 N 20 '63

Method for accurate melting point determination at high temperatures. B. Riley. il diag J Sci Instr 41:504-5 Ag '64

See also

Eutectics

Softening points

MEMBRANE filter. See Filters and filtration (bacteriology)

MEMBRANES

Determination of an upper bound of the lowest natural frequency of a star shaped membrane. P. A. Laura. Roy Aeronautical Soc J 68:703 O '64

Determination of the natural frequency of a star-shaped membrane. P. A. Laura. diag Roy Aeronautical Soc J 68:274-5 Ap '64

Electrodialytic demineralization using permselective membranes. W. G. B. Mandersloot. bibliog flow diag diags Electrochem Soc J 111:838-44 Jl '64

Films, permeable and selective; silicone polymers. il diags Product Eng 35:58-9 O 12 '64

Fuel cell research grooms new membranes. Chem Eng 71:102 O 12 '64

Gas separations with permeable membranes. il Ind & Eng Chem 56:11 N '64

Ion exchange membrane properties; their effect on the development of the dual membrane fuel cells. R. M. Lurie and others. bibliog diags Electrochem Soc J 110:1173-6 D '63

Iterative and power series solutions for the large deflection of an annular membrane. A. B. Pifko and M. A. Goldberg. AIAA J 2:1340-2 Jl '64

Membrane stresses in laminated anisotropic shells. S. B. Dong. bibliog Am Soc C E Proc 90 [EM 3 no 3931]:53-69 Je '64; Discussion. G. Wempner. 90 [EM 5 no 4093]: 463 O '64

Multilayer membrane electrodes; biionic potentials across nonpressurized membranes. J. Bagg and H. P. Gregor. Am Chem Soc J 86:3626-9 S 20 '64

New dialysis membrane. Y. Oda and others. bibliog Ind & Eng Chem Product Res & Develop 3:244-9 S '64

Reverse osmosis enters desalination picture. il diag Chem & Eng N 42:48+ Jl 20 '64

Salt transport across cell membranes. S. B. Hendricks. il diags Am Scientist 52:306-33 bibliog(p332-3) S '64

Semi-permeability of bentonite membranes to brines. I. H. Milne and others. bibliog diags Am Assn Pet Geologists Bul 48:103-5 Ja '64

Semipermeable membrane and the Gibbs paradox. P. Fong. Am J Phys 32:170-1 F '64

Separation of some inorganic salts in aqueous solution by flow, under pressure, through porous cellulose acetate membranes. S. Sourirajan. bibliog diags Ind & Eng Chem Fundamentals 3:206-10 Ag '64

Vibrating membrane electrometer wtih high conversion gain. J. Dimeff and J. W. Lane. il diags R Sci Instr 35:666-8 Je '64

Water transport through ion exchange membranes by hydraulic pressure. P. H. Seaman. bibliog diags J Ap Chem 14:229-35 Je '64

MEMORIALS

Air condition 115-yr-old building to serve as soldier's memorial. D. L. Gusler. il plans diags Heating-Piping 36:132-4 Je '64

FDR memorial in trouble again. il Prog Arch 45:59 Ag '64

Japanese Canadian cultural centre opens. il Prog Arch 45:63 Ag '64

Revised FDR design gets fine arts approval. il Arch Rec 136:26 Ag '64

MEMORY

Forgetting. B. J. Underwood. diags Sci Am 210:91-4+ Mr '64

Yes, you can remember. W. G. Shepherd. Textile World 114:83-4 Ap '64

MEMORY devices (calculating machines)

Analysis of sneak paths and sense-line distortion in an improved capacitor read-only memory. D. M. Taub. bibliog diags IEEE Proc 51:1554-69 N '63

Computer's high-speed memory is wire matrix. il Electronics 37:67-8 F 7 '64

MEMORY devices (calculating machines)—*Cont.*

Cryoelectric memories. L. L. Burns. bibliog il diags IEEE Proc 52:1164-76 O '64

Cryogenic memory system. H. H. Doemland and W. D. McCaa. il diag IEEE Proc 51:1767-8 D '63

Derivation of a waiting-time factor for a multiple-bank memory. I. Flores. Assn for Computing Mach J 11:265-82 Jl '64

Electrodeposition of nickel-iron-phosphorus thin films for computer memory use. W. O. Freitag and others. Electrochem Soc J 111:35-9 Ja '64

How shift registers control sequential operations. E. C. Fensholt and M. Damjanovich. il diags Automation 11:70-5 S '64

How to quiz a whole memory at once. G. T. Tuttle. il diags Electronics 36:43-6 N 15 '63

Input data source limitations for real-time operation of digital computers. R. Schroeder. Assn for Computing Mach J 11:152-8 Ap '64

New brain has big memory; IBM system/360. W. N. Redstreake. il Iron Age 193:35 Ap 16 '64

Operation of the cryogenic continuous film memory cell. J. D. Barnard and others. bibliog il diags IEEE Proc 52:1177-81 O '64

Permanent optical memories for compact systems. F. P. DeNegri. bibliog il diags Electronics 37:64-71 Ap 20 '64

Ultrasonic delay lines used to store digital data. A. H. Meitzler. diags Bell Lab Rec 42:315-19 O '64

What's new in computer memories. M. F. Wolff. bibliog il diags Electronics 36:35-9 N 8 '63

See also

Magnetic memory (calculating machines)

MENS stores

Lighting

Lighting a men's shop; lighting data sheet. R. F. Flood and G. T. Anderson, jr. il Illum Eng 59:183 Mr '64

MENSTRUATION

Lactation and menstrual function as related to cancer of the breast. M. L. Levin and others. bibliog Am J Pub Health 54:580-7 Ap '64

MENSURATION

Designing a modern metrology laboratory. J. A. Lyell. il plan I S A J 11:45-50 Je '64

Original standard system offers decimalized measurement. T. Watkin. il diags Product Eng 35:82-5 Jl 20 '64

Soviet metrology on par with ours, team reports. Steel 153:112+ N 25 '63

See also

Metric system

MENTAL diseases

Characteristics of psychiatric patients who utilize public health nursing services. F. C. Austin and others. bibliog Am J Pub Health 54:226-38 F '64

Epidemiology of psychiatric emergencies in an urban health district. M. Fisch and others. Am J Pub Health 54:572-9 Ap '64

Evaluation of employability after psychiatric illness; panel discussion. Ind Med 33:405-13 Je '64

Socioeconomic and family characteristics of patients admitted to psychiatric services. E. S. Pollack and others. bibliog Am J Pub Health 54:506-18 Mr '64

Teacher ratings in psychiatric case-finding. A. Goldfarb. bibliog Am J Pub Health 53:1919-27 D '63

Vital balance; the life process in mental health and illness. K. Menninger and others. Review, by E. G. Boring. Sci Am 210:145-6+ Ap '64

See also

Hospitals, Psychiatric

Schizophrenia

MENTAL hygiene

Adolescent looks at his health and medical care. R. W. Deisher and C. A. Mills. Am J Pub Health 53:1928-36 D '63

Analysis of the service relationships between state mental hospitals and one local mental health program. R. S. McInnes and others. Am J Pub Health 54:60-8 Ja '64

Factors to be considered in delineating Arctic and Antarctic in terms of health problems and services. K. Evang. bibliog Am J Pub Health 53:1565-78 O '63

Health department's responsibility in mental health. P. R. Ensign. Am J Pub Health 53:1829-34 N '63

Mental health workers and the American public health association. B. Pasamanick. Am J Pub Health 54:1603-4 S '64

Model continuum for a community-based program for the prevention and treatment of narcotic addiction. A. M. Freedman and others. Am J Pub Health 54:791-802 My '64

New clinic design for mental health needs beyond the metropolis. P. A. Kirkpatrick. Am J Pub Health 54:239-43 F '64

Some basic assumptions in community mental health. H. R. Brickman. bibliog Am J Pub Health 54:890-9 Je '64

Staff response to innovation in a mental health service. R. H. Blum and J. J. Downing. bibliog Am J Pub Health 54:1230-40 Ag '64

MENTAL hygiene, Industrial

See also

Psychiatry, Industrial

MENTALLY retarded

Facilities for the mentally retarded; integrated or separate but equal. L. B. Klebanoff. bibliog Am J Pub Health 54:244-8 F '64

MENTALLY retarded children. See Children, Backward

MENTHANEDIOL

Conformational studies; *p*-menthane-2,5-diols and the relative size of the isopropyl group. R. D. Stolow. bibliog Am Chem Soc J 86:2170-3 Je 5 '64

MENTHANOL

Absolute configurations of the carvomenthols. E. E. Royals and J. C. Leffingwell. bibliog Am Chem Soc J 86:2067-8 My 20 '64

Configuration of isocarvomenthylamine and the carvyl- and carvotanacetylamines. S. Schroeter and E. L. Eliel. bibliog Am Chem Soc J 86:2066-7 My 20 '64

MENTHOL

Menthol hypersensitivity. Drug & Cosmetic Ind 95:439 S '64

Racemic menthol from dipentene by a two-step reaction. F. Ascoli and others. bibliog Chem & Ind p1579 S 12 '64

MERCAPTALS

Mass spectrometry in carbohydrate chemistry; diethyl dithioacetal and dithioketal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:3149-54 Ag 5 '64

MERCAPTANS

Addition of mercaptans to methyl sterculate and sterculene; an hypothesis concerning the nature of the biological activity exhibited by cyclopropene derivatives. H. W. Kircher. bibliog Am Oil Chem J 41:4-8 Ja '64

Asymmetric reduction of sulphoxides with optically active thiols. K. Balenović and N. Bregant. bibliog Chem & Ind p 1577-8 S 12 '64

Base-catalyzed oxidation of mercaptans in the presence of inorganic transition metal complexes. T. J. Wallace and others. bibliog diag Ind & Eng Chem Proc Design 3:237-41 Jl '64

Elaidinization of methyl oleate with mercaptans. H. W. Kircher. bibliog Am Oil Chem Soc J 41:351-4 My '64

α-Halosulfones; a facile conversion of mercaptans to homologous terminal olefins. L. A. Paquette. bibliog Am Chem Soc J 86:4383-5 O 20 '64

High temperature mercaptan corrosion of steels. A. S. Couper. bibliog Corrosion 19:396-401 N '63

How to remove mercaptans from natural gas. W. W. Williams. diag Hydrocarbon Process & Pet Refiner 43:121-4 Jl '64

Inhibition of light-induced reactions by mercaptans and disulfides: benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64

Kinetic demonstration of a metastable intermediate in a nucleophilic displacement at a thiol-ester bond. T. C. Bruice and L. R. Fedor. Am Chem Soc J 86:738-9 F 20 '64

Mechanism of the base-catalyzed addition of thiols to maleic anhydride. B. Dmuchovsky and others. bibliog Am Chem Soc J 86:2874-7 Jl 20 '64

Organic sulfur compounds; free-radical addition of thiols to phenylacetylene. A. A. Oswald and others. bibliog Am Chem Soc J 86:2877-84 Jl 20 '64

Reaction of methyl 2,3-anhydro-β-D-lyxofuranoside with sodium benzyl mercaptide. G. Casini and L. Goodman. bibliog Am Chem Soc J 86:1427-31 Ap 5 '64

Reactions of thiols with sulfoxides; kinetics and mechanistic implications. T. J. Wallace and J. J. Mahon. bibliog Am Chem Soc J 86:4099-103 O 5 '64

Reactions of thiols with sulfoxides; scope of the reaction and synthetic applications. T. J. Wallace. bibliog Am Chem Soc J 86:2018-21 My 20 '64

MERCAPTANS—*Continued*

S-vinyl-O-*t*-butyl thiolcarbonate; a new route to polymercaptans. C. G. Overberger and W. H. Daly. bibliog Am Chem Soc J 86:3402-3 Ag 20 '64

Some radical reactions of trivalent phosphorus derivatives with mercaptans, peroxides, and olefins; a new radical cyclization. C. Walling and M. S. Pearson. bibliog Am Chem Soc J 86:2262-6 Je 5 '64

Spontaneous reaction of aromatic thiols with sulphoxides. T. J. Wallace. Chem & Ind p501-2 Mr 21 '64

Study of two crystalline forms of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and R. J. Robinson. Anal Chem 36:2195-6 O '64

Synthesis of mercaptans; abstract. P. Bapseres. Ind Chem 40:215-16 Ap '64

Thiol interactions in sugar-amine systems. D. L. Ingles. bibliog Chem & Ind p 1901-2 N 30 '63

X-ray fluorescence spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and others. bibliog Anal Chem 36:1098-100 My '64

Analysis

Determination of mercaptans in sour natural gases by gas liquid chromatography and microcoulometric titration. E. M. Fredericks and G. A. Harlow. bibliog diags Anal Chem 36:263-6 F '64

Rapid color test for mercaptan odorant in liquefied petroleum gas. P. V. Peurifoy and M. J. O'Neal, jr. diags Anal Chem 36:1853-5 Ag '64

MERCAPTOACETAMIDE

Rate study of mercury(II)-thioacetamide reaction. D. C. Taylor and others. bibliog diag Anal Chem 36:1924-30 S '64

MERCAPTOACETATES

Compositions for treatment of the hair. C. Zviak. bibliog Am Perfumer 79:45 Jl '64

Presentation of the medical aspects of guanidine salts. A. Shansky. bibliog Am Perfumer 78:29-30 D '63

MERCAPTOACETIC acid

6-*S*-acetyl-5-deoxy-1,2-*O*-isopropylidene-6-thio-α-D-zylo-hexofuranose; photocatalysed addition of thiolacetic acid to an unsaturated sugar. D. Horton and W. N. Turner. bibliog Chem & Ind p76 Ja 11 '64

Thioglycolic acid in hair. Drug & Cosmetic Ind 94:915 Je '64

MERCAPTO compounds

Catalysis in water and ice; the reaction of thiolactones with morpholine in frozen systems. T. C. Bruice and A. R. Butler. bibliog Am Chem Soc J 86:4104-8 O 5 '64

Determination of mercaptosilanes by perchloric acid-catalyzed acetylation and with mercuric acetate. A. Berger and J. A. Magnuson. Anal Chem 36:1156-7 My '64

Facile dethiation of mercapto- and methylthio-pyrimidines. H. N. Schlein and others. bibliog Chem & Ind p418-19 Mr 7 '64

Kinetics of the oxidation of bis-(2,3-dimercapto-1-propanolato)-iron(II) by cystine in alkaline solutions. D. L. Leussing and J. P. Mislan. bibliog Am Chem Soc J 86:349-53 F 5 '64

Nucleophilic displacement reactions at the thiolester bond; hydrazinolysis and morpholinolysis in aqueous solution. L. R. Fedor and T. C. Bruice. bibliog Am Chem Soc J 86:4117-23 O 5 '64

Skin sulfhydryl; abstract. R. Ogura and J. Knox. Drug & Cosmetic Ind 95:122-3 Jl '64

MERCAPTO group

Effect of methylmercapto, methylsulfinyl, and methylsulfonyl groups on the equilibrium in three-carbon prototropic systems. D. E. O'Connor and W. I. Lyness. bibliog Am Chem Soc J 86:3840-6 S 20 '64

Reactions of coordinated ligands; the reactions of alkyl halides with mercapto groups in transition metal complexes of mercaptoamines. D. H. Busch and others. bibliog Am Chem Soc J 86:3642-50 S 20 '64

Role of thiol groups in the setting of wool. J. B. Caldwell and others. bibliog Textile Res J 34:627-34 Jl '64

Supercontraction in 9 *M* LiCl at 94°C of chemically modified wool fibers. H. D. Weigmann and L. Rebenfeld. bibliog il Textile Res J 33:985-92 D '63

Torsional properties of single wool fibers; disulfide reduced and permanently set wool fibers. M. Feughelman and T. Mitchell. diag Textile Res J 34:593-7 Jl '64

MERCERIZING

Case for chainless mercerizing. il diags Textile Ind 128:58-60 S '64

Changes in fibrillate structures of cottons on hydrolysis and oxidation. B. R. Porter and W. R. Goynes, jr. bibliog il Textile Res J 34:467-77 Je '64

Effect of mercerization and tension on properties of wash-wear cotton. J. D. Reid and others. bibliog Am Dyestuff Rep 52:946-8 N 25 '63

Keep these pointers in mind when mercerizing cotton-synthetic blends. S. M. Edelstein. Mod Textiles Mag 45:26+ Ap '64

Properties of one-way and two-way stretch cotton fabrics. W. G. Sloan and others. bibliog Am Dyestuff Rep 53:885-8 O 12 '64

MERCHANDISING

See also

Gas industry—Merchandising

Supermarkets

MERCHANT marine

Russia

Soviet seapower. F. A. Nemec. il Marine Eng/Log 70:41-4 My '64

United States

American owned fleets; tables. Marine Eng/Log 69:185+ Je 15 '64

Automation and the regulations. A. G. Stirling. Naval Eng J 76:795-801 O '64

U.S. interests buy 55 ships in Europe, Far East. il Marine Eng/Log 69:151-2+ Je 15 '64

MERCK and company

Expansion of Merck research facilities nears completion. Food Tech 18:1026+ Jl '64

MERCURATION

Mercuration of aniline in acidic solution; mercury(II) complexes with mercurated aniline derivatives. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4318-22 O 20 '64

Studies of the chemistry of mercury in aqueous solution; the equilibrium quotient of aromatic mercuration for benzene and *p*-methoxyanisole. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4322-5 O 20 '64

MERCURY

Basic theory of the mercury cathode spot. A. W. Hull. bibliog diags J Ap Phys 35:490-6 Mr '64

Blue gas laser using Hg^{2+}. H. J. Gerritsen and P. V. Goedertier. bibliog il J Ap Phys 35:3060-1 O '64

Carbene insertion into the carbon-mercury bond; formation of stable dichlorocarbene insertion products which undergo an unusual thermal breakdown. J. A. Landgrebe and R. D. Mathis. bibliog Am Chem Soc J 86:524-5 F 5 '64

Effect of mercury surface curvature on chronopotentiometric transition time constants. S. Bruckenstein and T. O. Rouse. diag Anal Chem 36:2039-40 S '64

Hazards with ammonia and mercury. G. Thodos. A I Ch E J 10:274 Mr '64

Heat transfer by natural convection of mercury in enclosed spaces when heated from below and rotated. D. Dropkin and G. Gelb. bibliog diags A S M E Trans ser C 86:203-6 My '64

Heat transfer to mercury flowing in-line through a bundle of circular rods. M. W. Maresca and O. E. Dwyer. bibliog flow sheet diags A S M E Trans ser C 86:180-6 My '64

Laser action in mercury rare gas mixtures. H. G. Heard and others. IEEE Proc 52:414 Ap '64

Magnetic field improves lube qualities of liquid metal. Chem & Eng N 42:49 Mr 23 '64

Measurements of slip velocity in two-phase mercury flows. C. R. Smith and others. bibliog diag A I Ch E J 10:586-9 Jl '64

Mercury and silver interrelationships with copper. C. H. Hill and others. J Nutrition 83:107-10 Je '64

Mercury freezing-point cell. C. O. Dengler. bibliog il diags Instruments & Control Systems 36:119-21 D '63

Mercury, 1963. R. H. Lesemann. Eng & Min J 165:126-8 F '64

Mercury-photosensitized decomposition and collision broadening of resonance line. K. Yang. bibliog Am Chem Soc J 86:3941-8 O 5 '64

Mercury-photosensitized decomposition of propane at temperature above 300°. R. A. Back and S. Takamuku. bibliog diag Am Chem Soc J 86:2558-62 Jl 5 '64

Mercury $6(^3P_1)$ photosensitized decomposition of propane and 2,2-dideuteriopropane. J. P. Chesick. bibliog Am Chem Soc J 86:3597-601 S 20 '64

MERCURY—*Continued*

Production of metastable Hg atoms by charge exchange. R. W. Rostron. bibliog diags J Ap Phys 35:2291-9 Ag '64

Reaction of mercury(II) with nucleosides. G. L. Eichhorn and P. Clark. bibliog Am Chem Soc J 85:4020-4 D 20 '63

Rising demand strains mercury supplies. Chem & Eng N 42:25 Je 22 '64

Studies of the chemistry of mercury in aqueous solution. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4314-18, 4322-5 O 20 '64

Use of time resolution in identifying laser transitions in a mercury-rare gas discharge. W. M. Doyle. J Ap Phys 35:1348-9 Ap '64

Analysis

Determination of zinc, cadmium, and mercury by atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. Anal Chem 36:165-8 Ja '64

Fast paper chromatography of different valence states of mercury and antimony. M. Qureshi and M. A. Khan. Anal Chem 35:2050-2 D '63

Mercury halo method of exploration. S. H. Willston. Eng & Min J 165:98-101 My '64

Photometric method for trace mercury determination using a Beckman DU spectrophotometer. R. E. Mansell and E. J. Hunemorder. diag Anal Chem 35:1981 N '63

Rate study of mercury (II)-thioacetamide reaction. D. C. Taylor and others. bibliog diag Anal Chem 36:1924-30 S '64

Selective determination of mercury by isotopic exchange with mercuric di-*n*-butyl phosphorothioate in an extraction system. T. H. Handley. Anal Chem 36:153-6 Ja '64

Simultaneous determination of mercury and arsenic in biological and organic materials by activation analysis. B. Sjöstrand. bibliog diag Anal Chem 36:814-19 Ap '64

MERCURY acetates

Determination of mercaptosilanes by perchloric acid-catalyzed acetylation and with mercuric acetate. A. Berger and J. A. Magnuson. Anal Chem 36:1156-7 My '64

MERCURY arc rectifiers. See Electric rectifiers

MERCURY compounds

Allyl alcohol as a sensitive and specific reagent for the detection of mercurous ions. M. Qureshi and others. bibliog Anal Chem 36:2040-1 S '64

Association constants of methylmercuric and mercuric ions with nucleosides. R. B. Simpson. bibliog Am Chem Soc J 86:2059-65 My 20 '64

CH_2 transfer from halomethylmercury compounds to olefins. D. Seyferth and others. bibliog Am Chem Soc J 86:121-2 Ja 5 '64

Concerning the mechanism of the reaction of phenyl(trihalomethyl)mercurials with olefins. D. Seyferth and J. M. Burlitch. bibliog Am Chem Soc J 86:2730-1 Jl 5 '64

Degradation of organomercury fungicides in soil. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:253-7 My '64

Dihalomethylenation of protonic acids with phenyl(trihalomethyl)mercury compounds. D. Seyferth and others. bibliog Am Chem Soc J 86:2961-3 Jl 20 '64

Homogeneously catalyzed hydration of acetylenes by mercuric perchlorate-perchloric acid; evidence for a bis-(acetylene)-mercuric ion complex as an intermediate. W. L. Budde and R. E. Dessy. bibliog diag Am Chem Soc J 85:3964-70 D 20 '63

Mercuration of aniline in acidic solution; mercury(II) complexes with mercurated aniline derivatives. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4318-22 O 20 '64

Mercury(II) complexes of guanidine and ammonia, and a general discussion of the complexing of mercury(II) by nitrogen bases. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4325-9 O 20 '64

Reaction of dibenzylmercury with nitrosobenzene. K. C. Bass. Chem & Ind p 1712-13 O 10 '64

Reaction of methyl radicals with dimethylmercury. R. E. Rebbert and P. Ausloos. Am Chem Soc J 86:2068-9 My 20 '64

Reaction of vinylmercuric iodide with nonhalogen acid. M. M. Kreevoy and R. A. Kretchmer. bibliog Am Chem Soc J 86:2435-40 Je 20 '64

X-ray fluorescence spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and others. bibliog Anal Chem 36:1098-100 My '64

MERCURY electrodes. See Polarography

MERCURY halides

New synthesis of metal, metal bonds. R. S. Nyholm and K. Vrieze. Chem & Ind p318-19 F 22 '64

MERCURY in the body

Absorption and excretion of mercury in man. L. J. Goldwater and others. bibliog Archives Environmental Health 5:537-41; 6:480-3, 634-7; 7:568-73; 9:43-52, 454-63 D '62, Ap-My, N '63, Jl, O '64

MERCURY iodides

Very rapid oxidation of aluminum at room temperature when in contact with mercuric iodide. D. A. Jackson, jr. and H. Leidheiser, jr. bibliog diag Electrochem Soc J 111:652-6 Je '64

MERCURY switches. See Electric switchgear

MERCURY vapor electric lamps. See Electric lamps, Mercury vapor

MERGERS. See Business consolidations

MESITYLENE

Alkylbenzenes; Friedel-Crafts alkylations of *p*-xylene and mesitylene with propyl halides; concurrent rearrangements and reorientations. R. M. Roberts and D. Shiengthong. bibliog Am Chem Soc J 86:2851-7 Jl 20 '64

MESONS

Introduction to dispersion relations. C. H. Holbrow and W. C. Davidon. bibliog diags Am J Phys 32:762-74 O '64

Mu meson lifetime. diags Am J Phys 32:sup 15 O '64

Time reversibility in doubt. diag Phys Today 17:82-3 O '64

Beams

External beam cross section distribution display. J. G. Cottingham. il diag R Sci Instr 35:517-18 Ap '64

MESSEL medal

Baron Boël; 1964 Messel medallist. Chem & Ind p 1095 Je 27 '64

METABOLISM

Action of vitamin A on liver homogenate oxidation of tricarboxylic acid cycle intermediates. H. F. DeLuca and others. bibliog J Nutrition 81:383-6 D '63

Caloric expenditure at two types of factory work. H. A. Bliss and J. S. Graettinger. bibliog Archives Environmental Health 9:201-5 Ag '64

Carbohydrate and fat metabolism and response to insulin in vitamin B_6-deficient rats. A. M. Huber and others. bibliog J Nutrition 82:371-8 Mr '64

Copper metabolism in normal subjects. G. E. Cartwright and M. M. Wintrobe. diag Am J Clinical Nutrition 14:224-32 bibliog(p231-2) Ap '64

Dietary protein level and the turnover rate of tissue proteins in rats. K. Muramatsu and others. bibliog J Nutrition 81:427-33 D '63

Drugs in lipid metabolism; symposium. bibliog Am Oil Chem Soc J 41:697-716 O '64

Dynamic aspects of cholesterol ester metabolism in rabbits with atherosclerosis. L. Swell and others. bibliog J Nutrition 81:263-70 N '63

Effect of arsenic on selenium metabolism in rats. O. E. Olson and others. bibliog J Agri & Food Chem 11:531-4 N '63

Effect of dietary α-tocopherol on protein metabolism in vitamin A-deficient rats. O. A. Roels and others. bibliog J Nutrition 84:161-6 O '64

Effect of egg white diets on calcium metabolism in the rat. G. W. Engstrom and H. F. DeLuca. bibliog J Nutrition 81:218-22 N '63

Effect of linoleic acid upon the metabolism of linolenic acid. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:15-19 S '64

Effect of magnesium, fluoride, and ascorbic acid on metabolism of connective tissue. D. J. Thompson and others. bibliog J Nutrition 84:27-30 S '64

Effect of protein level of diet on nitrogen excretion in fowls. I. Tasaki and J. Okumura. bibliog J Nutrition 83:34-8 My '64

Effect of stress from high protein diets on vitamin A metabolism in chicks. G. S. Stoewsand and M. L. Scott. bibliog il J Nutrition 82:188-96 F '64

Effect of water intake on nitrogen metabolism in dogs. R. Bressani and J. E. Braham. bibliog J Nutrition 82:469-74 Ap '64

Effect of zinc toxicity on calcium, phosphorus and magnesium metabolism of young rats. A. K. Stewart and A. C. Magee. bibliog J Nutrition 82:287-95 F '64

METABOLISM—*Continued*

Effects of high dietary calcium and phosphorus on calcium, phosphorus, nitrogen and fat metabolism in children. L. Lutwak and others. bibliog Am J Clinical Nutrition 14:76-82 F '64
Energy utilization by sheep as influenced by the physical form, composition and level of intake of diet. O. L. Paladines and others. bibliog J Nutrition 83:49-59 My '64
Fecal dye markers in metabolic balance studies. L. Lutwak and B. T. Burton. bibliog Am J Clinical Nutrition 14:109-11 F '64
Glycerol metabolism in choline-deficient rats. W. J. Longmore and A. B. Hastings. bibliog J Nutrition 83:103-6 Je '64
Identification of metabolites of Zectran insecticide in dog urine. E. Williams and others. bibliog J Agri & Food Chem 12:457-61 S '64
Identification of the methyl esters of the stable Krebs cycle acids by gas liquid chromatography. H. H. Luke and others. bibliog Anal Chem 35:1916-18 N '63
Influence of amount and type of fat on metabolic efficiency of energy utilization by the chick. L. B. Carew, jr. and others. bibliog J Nutrition 83:300-6 Ag '64
Influence of dried-grass silage and silage fractions on the basal metabolic rate of rats. G. A. McLaren and others. J Nutrition 83:218-24 Jl '64
Influence of high protein diets on vitamin A metabolism and adrenal hypertrophy in the chick. G. S. Stoewsand and M. L. Scott. bibliog J Nutrition 82:139-44 Ja '64
Influence of low, intermediate and high levels of dietary protein on heat production of rats. E. W. Hartsook and T. V. Hershberger. J Nutrition 81:209-17 bibliog(p216-17) N '63
Influence of nicotinic, picolinic and pyridine-3-sulfonic acids on cholesterol metabolism in the rat. D. Kritchevsky and S. A. Tepper. bibliog J Nutrition 82:157-61 Ja '64
Long-term excretion of Co^{57}-vitamin B$_{12}$ and turnover within the plasma. C. A. Hall and J. G. Hegeman. bibliog Am J Clinical Nutrition 14:156-62 Mr '64
Magnesium metabolism in alcoholism. J. F. Sullivan and others. bibliog Am J Clinical Nutrition 13:297-303 N '63
Metabolic aspects of urea utilization by ruminant animals. W. Chalupa and others. bibliog J Nutrition 84:77-82 S '64
Metabolic fate of foreign compounds and toxicity. R. T. Williams. bibliog Archives Environmental Health 7:612-20 N '63
Metabolic studies of an amino acid imbalance in cold-exposed rats. G. J. Klain and R. L. Winders. bibliog J Nutrition 82:333-7 Mr '64
Metabolism of 3-amino-1,2,4-triazole-5-C^{14} by rats. S. C. Fang and others. bibliog J Agri & Food Chem 12:219-23 My '64
Metabolism of carcinogen shows sex-linked differences. il Chem & Eng N 42:43-4 Je 8 '64
Metabolism of dimethoate by vertebrate tissues. T. Uchida and others. bibliog J Agri & Food Chem 12:48-52 Ja '64
Metabolism of dimethoate in cotton leaves. J. Hacskaylo and D. L. Bull. bibliog J Agri & Food Chem 11:464-6 N '63
Metabolism of 4,7,10,13,16-docosapentaenoic acid in the essential fatty acid-deficient rat. B. Verdino and others. bibliog J Nutrition 83:234-8 Jl '64
Metabolism of 3-hydroxy-*N,N*-dimethylcrotonamide dimethyl phosphate by cotton plants, insects, and rats. D. L. Bull and D. A. Lindquist. bibliog J Agri & Food Chem 12:310-17 Jl '64
Metabolism of N,N′-di (acetoacetyl)-*o*-tolidine. H. M. L. Dieteren. bibliog Archives Environmental Health 9:167-8 Ag '64
Metabolism of *O*-phenyl-*O′*-(4-nitrophenyl) methylphosphonothionate (Colep) in plants and animals. G. J. Macro and E. G. Jaworski. bibliog J Agri & Food Chem 12:305-10 Jl '64
Metabolism of S-propyl-1-C^{14} n-butylethylthiocarbamate (Tillam-C^{14}) in rats. S. C. Fang and others. J Agri & Food Chem 12:37-40 Ja '64
Muscular dystrophy; a problem in polyunsaturated fatty acid metabolism? A. J. Siedler and others. Am J Clinical Nutrition 15:187-8 S '64
Nature of certain carbamate metabolites of the insecticide Sevin. H. W. Dorough and J. E. Casida. bibliog il diags J Agri & Food Chem 12:294-304 Jl '64
Physiological aspects of aging: calcium and magnesium metabolism in senescent mice. H. H. Draper. bibliog J Nutrition 83:65-72 My '64
Recommendations for standardization of the tryptophan load test. D. B. Coursin. Am J Clinical Nutrition 14:56-61 bibliog(p60-1) Ja '64
Relationship between tryptophan; niacin metabolism and changes in nitrogen balance. V. M. Vivian. bibliog J Nutrition 82:395-400 Mr '64
Selenium-75 metabolism in the gestating ewe and fetal lamb: effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64
Serum lipid levels, fat, nitrogen, and mineral metabolism of young men associated with kind of dietary carbohydrate. M. I. Irwin and others. bibliog J Nutrition 82:338-42 Mr '64
Studies of the metabolism of polyunsaturated acids by short-term experiments. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:149-54 O '64
Studies of thiamine metabolism in the rat. R. A. Neal and W. N. Pearson. bibliog J Nutrition 83:343-57 Ag '64
Studies on the metabolism of linoelaidic acid in the essential fatty acid-deficient rat. O. S. Privett and M. L. Blank. bibliog il diag Am Oil Chem Soc J 41:292-7 Ap '64
Tissue distribution of α-aminoisobutyric acid and nitrogen metabolism in the rat; effects of environmental temperature and dietary imbalance. L. A. Bavetta and M. E. Nimni. J Nutrition 82:379-84 Mr '64
See also
Bacteria—Metabolism
Plants—Metabolism

METAL bars

Approximate method for the study of heat conduction in bars of arbitrary cross section. P. A. Laura and M. Chi. A S M E Trans ser C 86:466-7 Ag '64
Buckling load of bars with variable stiffness; simple numerical method. A. V. Srinivasan. AIAA J 2:139-40 Ja '64
Some magnetostatic and micromagnetic properties of the infinite rectangular bar. W. F. Brown, jr. bibliog J Ap Phys 35:2102-6 Jl '64
See also
Steel bars

METAL cladding. See Metals, Clad

METAL cleaning

Automated precision dry blast unit. il Mach 70:148-9 Mr '64
Before you plasma spray. P. Jackman. il Am Mach 108:56-7
Chemical cleaner aids epoxy-aluminum bond. il Materials in Design Eng 60:165-6 N '64
Chemical cleans steel while it coats; Chem-Grip. il Iron Age 194:68 O 15 '64
Cleaning-phosphatizing; is it really efficient? Ind Finishing 40:105-6 F '64
Drive for scale-free surfaces. C. L. Kobrin. il Iron Age 194:113-20 O 8 '64
Electronic monitor calls shots in metal pretreatment line. J. S. Raven. il Iron Age 192:158-9 D 5 '63
Michigan firm installs unusual cleaning system. il Steel 153:31 D 16 '63
Molten salt bath strips excess enamel from fixtures. J. Dykstra. il Plant Eng 17:143 N '63
1964 production preview; cleaning and finishing. Am Mach 108:143-5 Ja 20 '64
Preparation and evaluation of clean metal surfaces. H. B. Linford. bibliog il Corrosion 20:213-17 Jl '64
Preparation of metal for painting. S. Spring. bibliog il Metal Finishing 61:74-6 S; 84-6 O; 74-6+ N; 66-7+ D '63; 62:57-9 Ja '64
Pressure blast cleans mixed metal parts. Ind Finishing 40:110-11 F '64
Reliable heat-scale removal starts with good cleaning. il Mach 70:141-2 My '64
Safety in metal cleaning with flammable solvents. il Safety Maint 127:35-6 Ja '64
Small metal-cleaning setup increases machine shop versatility. G. C. Close. il Mach 70:92 Ag '64
Three-stage cleaning and phosphatizing. P. C. Bardin. Ind Finishing 40:69 Mr '64
Unit combines metal cleaning, machining. il Steel 154:79 My 11 '64
See also
Castings—Cleaning
Cleaning compositions
Degreasing
Grit blasting
Sand blast

METAL cleaning—See also—*Continued*
Shot blasting
Steel—Cleaning
Ultrasonic cleaning
Washing machines (for metal parts)

METAL cleaning, Electrolytic
Electrocleaning. S. Spring. Metal Finishing 62:54-6 F '64

METAL coating
Abradable coatings resist heat. il diag Iron Age 193:137 Ap 30 '64
All that glitters may not be gold but metallized plastics. il Plastics World 22:16 F '64
Before you plasma spray. P. Jackman. il Am Mach 108:56-7 F 3 '64
Broader horizons for vacuum metallizing. A. Weiss. il diag Plastics World 22:22-3 Jl '64
Chemical vapor deposition; a rediscovered tool for molecular forming; abstract. J. M. Blocher, jr. Metal Prog 84:180-1 N '63
Coating methods juggle plastics-metals fortunes. F. Arne. il Chem Eng 71:76-8 Ja 20 '64
Deposition of thin metallic coatings by use of surface reduction techniques. T. C. Franklin and N. F. Franklin. bibliog diag Plating 51:890-2 S '64
Electrophoretic deposition; a versatile coating method. C. P. Gutierrez and others. bibliog diag Electrochem Soc J 109:923-7 O '62; Abstract. Metal Prog 84:173-5 D '63
Flame sprayed nickel aluminide coatings; how and where to use them. D. H. Sitzer. il Metal Prog 86:128+ S '64
Gas plating, an introduction. C. E. MacNeill. bibliog diags Metal Finishing 61:40-4+ Jl '63; Abstract. Metal Prog 86:200+ S '64
Gas plating; equipment. C. E. MacNeill. bibliog il diags Metal Finishing 62:47-53+ F '64
How to electroplate plastic parts. J. B. McNamara. flow chart il Metal Prog 86:112-15 Jl '64
How you can get 20 times more life out of a plug gage. il Welding J 43:127 F '64
Metal coated fibres and fibre reinforced metals. R. G. C. Arridge and others. bibliog diags J Sci Instr 41:259-61 My '64
Metallurgical bonding of plasma sprayed tungsten on hot molybdenum substrates. W. A. Spitzig and S. J. Grisaffe. il Welding J 43:sup425-7 S '64
New coatings impart high degree of wear-resistance to surfaces. H. V. Mosby. il Wire & Wire Prod 39:248-9+ F '64
Plated plastics ride design wave. il Iron Age 193:88 Je 25 '64
Plating with a metal mist. D. J. Levy. il diag Iron Age 194:59-61 O 22 '64
Preparation and properties of vapor-deposited niobium stannide. J. J. Hanak and others. bibliog il diags RCA R 25:342-65 S '64
Properties of materials; diffusion coatings; tables. Materials in Design Eng 60:392 Mid-O '64
Properties of materials; hot dip coatings; tables. Materials in Design Eng 60:390 Mid-O '64
Properties of materials; immersion coatings; tables. Materials in Design Eng 60:391 Mid-O '64
Properties of materials; sprayed metal coatings; tables. Materials in Design Eng 60:383-403 Mid-O '64
Properties of materials; vapor deposited coatings; tables. Materials in Design Eng 60:393 Mid-O '64
Some physical and chemical properties of sprayed silver alloy catalysts. G. L. Osberg and others. bibliog il Can J Chem Eng 41:260-4 D '63
Sprayed metal/paint systems give best corrosion resistance. A. P. Shepard. il Welding Eng 49:66+ Ap '64
This shop grew on spray hardfacing; Brooks flame spray inc. il Welding Eng 49:67 Jl '64
Vacuum metallizing of plastics. il diags Brit Plastics 37:166-71 Ap '64
Vacuum metallizing plant for motor cars. il Engineering 196:632 N 15 '63
See also
Alloys, Hard facing
Aluminum coating
Electroplating
Galvanizing
Gold coating
Metals, Laminated
Plasma jet
Silver coating
Tin coating
Tungsten carbide coating
Zinc coating

METAL coloring
See also
Aluminum—Coloring

METAL compounds
Carbonyl-stretching absorptions in the pentacarbonyl hydrides of manganese, technetium, and rhenium. D. K. Huggins and H. D. Kaesz. bibliog Am Chem Soc J 86:2734-6 Jl 5 '64
Characterization of selected heavy-metal salts as adsorbents for gas chromatography. A. G. Altenau and L. B. Rogers. bibliog Anal Chem 36:1726-35 Ag '64
Conductivity and thermoelectric potential measurements on perylene; metal halide complexes. M. S. Frant and R. Eiss. bibliog diags Electrochem Soc J 110:769-72 Jl '63; Discussion. 111:755-6 Je '64
Far-infrared spectra of some tetrahalo metal complexes. A. Sabatini and L. Sacconi. bibliog Am Chem Soc J 86:17-20 Ja 5 '64
Far infrared study of metal-pyridine complexes. R. J. H. Clark and C. S. Williams. Chem & Ind p 1317-18 Jl 18 '64
Homogeneous catalysis; double bond migration in *n*-olefins, catalyzed by group VIII metal complexes. J. F. Harrod and A. J. Chalk. bibliog Am Chem Soc J 86:1776-9 My 5 '64
Importance of steric factors in substitution reactions of metal complexes; a pseudo-octahedral complex. W. H. Baddley and F. Basolo. il Am Chem Soc J 86:2075-6 My 20 '64
Metal complexes of alizarin. E. G. Kiel and P. M. Heertjes. bibliog Soc Dyers & Col J 79:21-7, 61-4, 186-8, 363-7 Ja-F, My, Ag '63; Discussion. 79:526-7 N '63
Possible role of volatile metal compounds in ore genesis. K. B. Krauskopf. bibliog Econ Geol 59:22-45 Ja '64
Preparation and properties of some duroquinone π-complexes of cobalt, rhodium, and iridium. G. N. Schrauzer and K. C. Dewhirst. diags Am Chem Soc J 86:3265-70 Ag 20 '64
Some transition metal complexes of substituted thioureas; nickel(II). S. L. Holt, jr. and R. L. Carlin. bibliog Am Chem Soc J 86:3017-24 Ag 5 '64
See also
Organometallic compounds

METAL containers. See Containers, Metal

METAL corrosion. See Corrosion and anticorrosives

METAL cutting
Advances in automotive production techniques; machining. il diag Mach 70:103-14 D '63
Carborundum grinds out new abrasive methods. R. H. Eshelman. il Iron Age 194:47 O 15 '64
Ceramics make hogging cuts. J. Binns. il Am Mach 108:141-4 Ap 13 '64
Comparisons of materials; machinability of metals; tables. Materials in Design Eng 60:41 Mid-O '64
Controlled energy machining; new thinking at the tool tip. R. F. Rieger and R. M. Campbell. il diags Steel 155:54-9 Ag 17 '64
Cutting steel and iron with cemented carbide tools. E. M. Trent. bibliog il diags Iron & Steel Inst J 201:847-55, 923-32, 1001-15 O-D '63
Cutting the space age metals down to size. C. J. Vlahos. il Mill & Factory 75:75-8 O '64
Dry cryogenics aids machining of exotics. Mach 70:143 Ap '64
Energy density; a new concept for efficient metal removal. diags Iron Age 193:74-5 My 28 '64
Exotic materials need exotic metal-removal. R. L. Rod and others. il diags S A E J 72:46-53 Mr '64
Fabricating and coating molybdenum alloy parts. G. Michaelson. il Metal Prog 85:88-91 Mr '64
Get ready to lick new machining problems. N. Zlatin and L. A. Nienaber. S A E J 72:74-5 Jl '64
High speed shape cutting with plasma. G. R. Spies and C. R. Felmley. il diag Welding J 43:187-94 Mr '64; Same. Naval Eng J 76:557-62 Ag '64
Hot machining. I. A. Dickter. il diags Mech Eng 86:37-41 Ja '64
Hybrid gas cuts cutting costs; MAPP gas. il Iron Age 193:153 Je 11 '64
Influence of physical properties on machinability. A. Henkin and J. Datsko. bibliog il A S M E Trans ser B 85:321-8 N '63
Internal grinder cuts slots with spin-slide motion. il diags Iron Age 194:64-5 Jl 9 '64
Laser goes miniature. D. A. Buddenhagen. il diags S A E J 72:40-5 Mr '64
Lathe replaces mill for cutting flats. J. Waller. diags Am Mach 108:117 Je 8 '64

METAL cutting—*Continued*

Machinability of nodular cast irons. I. Ham and others. bibliog il A S M E Trans ser B 83:142-54; 84:282-8; 86:141-9 My '61, My '62, My '64

Machine tool chatter. P. Hall and D. E. Newland. Metallurgia 70:150 S '64

Machining center for giant workpieces. il Tool & Manuf Eng 53:68-70 S '64

Machining difficult materials; René 41. M. Field and others. Metal Prog 85:80-4 Je '64

Machining parts by families. J. R. Mikton. il diags Am Mach 108:107-11 Ja 20 '64

Machining René 41 in the shop. J. R. Ewell. il Metal Prog 85:85-6 Je '64

Machining shear-spun parts. T. K. Kelley. il Am Mach 108:64-5 Mr 30 '64

Machining to tool room specs. il Iron Age 193:82 F 27 '64

Machining under in use stresses. F. A. Schick. il Am Mach 108:49 Ag 31 '64

Metal peeling; Flo-Peeling. il diag Product Eng 35:61 Ag 3 '64

Metallic lubricant aids cutting. il Iron Age 194:63 Jl 2 '64

Microscopic study of chip formation. J. Datsko and M. F. DeVries. bibliog il A S M E Trans ser B 86:82-4 F '64

More machinable steels, copper and aluminum alloys; round table discussion. Metal Prog 86:108-17 O '64

New cost cutting frontiers. il diags Steel 154:80-9 Ap 13 '64

New developments in plasma arc cutting. R. L. O'Brien and R. J. Wickham. il diags Welding J 42:107-11 F '63; Abstract. Metal Prog 84:180-1 D '63

New metal-removal process peels-off chips. C. A. Weinert. il Automotive Ind 131:61 O 1 '64

1964 production preview; cutting. Am Mach 108:131 Ja 20 '64

One pneumatic operation replaces three. D. C. Chwalisz. il diags Hydraulics & Pneumatics 17:108-9 S '64

Precise machining tightens up in controlled pre-fab room. R. H. Eshelman. il Iron Age 192:76-7 N 21 '63

Process peels metal at superspeeds; Flo-Peeling. il diags Steel 154:61-3 My 11 '64

Shape cutting with the plasma arc torch in steel service center operations. J. D. Wait and S. H. Resh. il diags Welding J 43:415-20 My '64

Skate tool machines massive forming die. T. W. Black. il Tool & Manuf Eng 52:113-15 Ap '64

Tool life in Ni-Cr alloys. C. B. Haeberle. Am Mach 108:66-8 Jl 20 '64

Tooling guidelines put superalloys in line for smoother cuts. il Iron Age 192:96-8 D 12 '63

Unit combines metal cleaning, machining. il Steel 154:79 My 11 '64

Vibrating nylon finishes gears. Steel 154:120 Ja 27 '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on machine tools and machinability. Tool & Manuf Eng 53:77-9 Ag '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on material removal. Tool & Manuf Eng 52:99-105 Mr '64

See also

Aluminum cutting
Broaching
Cutting machines
Cutting off machines
Cutting tools
Cutting tools, Carbide
Cutting tools, Ceramic
Drilling and boring (metal working, etc.)
Electric cutting
Electrochemical cutting
Gear cutting
Grooving
Lubrication and lubricants (cutting and grinding)
Machine tools
Milling
Milling cutters
Oxyacetylene cutting
Saws, Metal working
Screw machines
Shears (machines)
Steel cutting
Taps
Thread cutting

Bibliography

Review of metal processing literature, 1962; metal-cutting analysis. bibliog A S M E Trans ser B 86:59-61 F '64

Tables, calculations, etc.

Chip formation in high-speed cutting of copper and aluminum. K. J. Trigger and B. F. von Turkovich. il diag A S M E Trans ser B 85:365-73 N '63

Energy approach to the mechanics of discontinuous chip formation. W. K. Luk and R. C. Brewer. bibliog diags A S M E Trans ser B 86:157-62 My '64

Investigations on the nature of surface finish and its variation with cutting speed. K. L. Chandiramani and N. H. Cook. bibliog il diags A S M E Trans ser B 86:134-40 My '64

Mechanics of metal cutting for a material of variable flow stress. P. L. B. Oxley. bibliog diags A S M E Trans ser B 85:339-45 N '63

Mechanism of chip curl and its importance in metal cutting. N. H. Cook and others. diags A S M E Trans ser B 85:374-80 N '63

Predicting machining speeds of metals. Materials in Design Eng 58:186+ N '63

Rate of strain effect in metal cutting. P. L. B. Oxley. diags A S M E Trans ser B 85:335-8 N '63

Temperatures in orthogonal metal cutting. G. Boothroyd. bibliog il diags Inst Mech Eng Proc 177 no 29:789-802; Discussion. 803-9; Reply. 809-10 '63

Theoretical aspects of high-speed shear in face centered cubic metals. B. F. von Turkovich and K. J. Trigger. bibliog diags A S M E Trans ser B 85:357-64 N '63

Use of chip tension to obtain a stress-strain curve from metal cutting tests. I. Finnie and J. Wolak. bibliog diags A S M E Trans ser B 85:351-6 N '63

METAL detection. See Metals—Detection

METAL drawing

Deep drawn steel saves steps. il Steel 154:45 Mr 9 '64

Draw bench tools size square tubes. A. A. Denst. il diags Am Mach 108:58-9 F 3 '64

Drawability of type 301 stainless. C. E. Divers. il Metal Prog 86:115-18 Ag '64

Drawing an octagon-shaped shell. M. J. Goldstein. il diags Mach 70:126-7 Ja '64

Equipment innovations, improved layout speed copper tube drawing. il Steel 154:46-50 F 24 '64

Formability of sheet metals for product design; deep drawing. W. W. Wood. diags Materials in Design Eng 59:101-2 Je '64

High speed deep drawing magnesium alloy sheet. M. A. Molnar. il diags Mod Metals 19:66+ D '63

How do you test a deep drawing steel? G. Pomey. il diags Metal Prog 85:95-8 My '64

Hydraulic draw bench cuts cylinder repacking. il Steel 155:31 S 21 '64

Importance of drawing and fracture loads in the Swift cup drawing test; abstract. R. D. Butler and others. Metal Prog 85:138+ Je '64

New draw bench has dual-draw cylinders. il Iron & Steel Eng 41:193-4 O '64

Quick-change dies for drawing. il Iron Age 193:75 Mr 5 '64

Tellurium helps bars shed chips. Iron Age 193:104 Ap 9 '64

Tube drawing through straight-tapered and curved dies. T. Z. Blazynski. diags Engineer 217:222-4 Ja 31 '64

What it takes to draw and pierce stainless. Am Mach 108:86-7 S 28 '64

See also

Lubrication and lubricants (metal drawing)
Wire drawing

METAL exposition, National. See National metal exposition

METAL fibers

Effects of the West Ford belt on astronomical observations. D. C. MacLellan and others. bibliog IEEE Proc 52:564-70 My '64

Fiber metal for joining. J. F. Rudy. il Welding J 42:sup529-34 D '63

Fiber metal provides controllable properties. J. I. Fisher. il Materials in Design Eng 60:96-9 O '64

Fibrous composite materials for extreme environment seals. L. L. Smith. diags Lub Eng 20:99-105 Mr '64

Giant loom weaves metal structures for space. il Machine Design 36:10 Je 18 '64

Lincoln laboratory West Ford program; an historical perspective. C. F. J. Overhage and W. H. Radford. bibliog IEEE Proc 52:452-4 My '64

Orbital properties of the West Ford dipole belt. I. I. Shapiro and others. bibliog il diags IEEE Proc 52:469-518 My '64; Correction. 52:911 Ag '64

METAL fibers—*Continued*

West Ford and the scientists. J. W. Findlay. bibliog IEEE Proc 52:455-60 My '64
West Ford payload. P. Waldron and others. il IEEE Proc 52:571-6 My '64

METAL finishing

Aluminum castings keep strength after chem-milling. J. R. Bodkin. il Materials in Design Eng 59:112 Je '64
Art of roller burnishing. R. Le Grand. diags Am Mach 108:81-8 Ap 27 '64 (reprints 50c)
Belts grind out shiny finish. il Iron Age 194:101 Jl 23 '64
Brush finishing finds its niche. il Iron Age 194:135-6 S 10 '64
Chamfering and deburring machine. il Engineer 217:590 Mr 27 '64
Chemical milling, electrochemical machining, and electric discharge machining. C. L. Faust. il Machine Design 36:163+ Ag 13 '64
Cincinnati Elektrokem milling machines designed for efficient electrochemical machining. il Mach 70:142-3 Jl '64
Corrosion and metal finishing exhibition, Leeds, Oct. 15-18. Engineer 216:806-7 N 15 '63
Developments; new equipment, processes and materials. Published in monthly numbers of Metal finishing
Effect of surface preparation on cracking and structure of chromium deposits. D. W. Hardesty. bibliog il diags Electrochem Soc J 111:912-19 Ag '64
Electrified gas coats metals. J. E. Sandford. il diag Iron Age 194:75-7 Jl 16 '64
Electrolytic deburring. il Engineer 217:537-8 Mr 20 '64
Electrolytic grinding finishes micro-miniature parts. L. L. Trott. il Tool & Manuf Eng 52:81-2 Ja '64
Fabricating and coating molybdenum alloy parts. G. Michaelson. il Metal Prog 85:88-91 Mr '64
Finishing gets a new tool; free abrasive machining. il Iron Age 193:88-9 F 13 '64
Hand-held stylus erases metal. il Iron Age 193:90 F 13 '64
Hot chlorine gas deburrs, machines. il Materials in Design Eng 59:111+ Ja '64
Improved barrel de-burring process. il Engineering 196:748-9 D 13 '63
Industrial finishing exposition, 6th, St Louis, June 16-18; list of exhibitors, floor plan, products featured. Metal Finishing 62:40B-40H My '64; Plating 51:438-45 My '64
International metal finishnig conference, 6th, London, May 25-29; with abstracts of papers. Metal Finishing 62:36-42+ Jl '64
Job-lot precision finishing. G. Shaver, jr. il diags Am Mach 108:73-4 S 28 '64
Lubricant brightens up finishes; Cindol. il Iron Age 194:60-1 S 3 '64
Method of applying a jewelry finish on titanium. Light Metal Age 22:15 Je '64
Modular concept can justify automation. G. E. Huenerfauth. il Steel 154:48 Mr 2 '64
New look at vibratory finishing. W. E. Brandt. il Metal Prog 84:96-100+ N '63
1964 production preview; cleaning and finishing. Am Mach 108:143-5 Ja 20 '64
Optics for precise machining. A. Waigandt. il Am Mach 108:70-1 Jl 20 '64
Parts gain controlled finish in continuous vibrator. R. H. Eshelman. il Iron Age 193:86-7 Je 25 '64
Shop problems. Published in monthly numbers of Metal finishing
Six jobs for vertical grinders. F. Kellner. il diags Am Mach 108:68-70 Jl 6 '64
Small straight-line finishing machine. il Mach 70:147 F '64
Surface finish machine deburs punched and stamped panels. il Ind Finishing 40:109-10 Jl '64
Surface preparation; where systems concept is really taking hold. il diags Steel 154:41-7 Mr 2 '64
Two-way spin speeds deburring. J. E. Sandford. il diag Iron Age 194:55-7 Jl 9 '64
Vibratory deburring improves product reliability. il Mach 70:138-40 My '64
Vibratory finishing goes automatic. T. W. Black. il diags Tool & Manuf Eng 53:53-6 Jl; 72-6 Ag '64
World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on surface finishes. Tool & Manuf Eng 53:65-8 Jl '64

See also

Abrasive belts
Aluminum—Finishing
Grinding
Grit blasting
Honing
Lacquer and lacquering
Polishing
Polishing, Electrolytic
Shot blasting
Shot peening
Steel—Finishing
Steel cutting
Surfaces
Tumbling barrels

Bibliography

New books. Published in monthly numbers of Metal finishing
Review of metal processing literature, 1962. bibliog A S M E Trans ser B 86:59-69 F '64
Technical developments of 1963. N. Hall. il Metal Finishing 62:48B-48L bibliog(p48J-48L) Ja '64

Patents

Patent abstracts. D. G. Foulke. Published in monthly numbers of Plating
Patents. Published in monthly numbers of Metal finishing
Technical developments of 1963. N. Hall. il Metal Finishing 62:48B-48L bibliog(p48J-48L) Ja '64

METAL foils

Characteristics of sheet windings in transformers. E. A. Goodman. diags Elec Eng 82:673-6 N '63
Composites catch on in booming can market; foil and paper combinations. il diag Steel 153:78+ N 18 '63
Continuous coating of coiled metal foil. P. C. Bardin. il Ind Finishing 40:54+ O '64
Determination of metal foil thickness and orientation in electron microscopy. M. von Heimendahl. il diags J Ap Phys 35:457-8 F '64
EDM electrode cuts tiny foil disks. S. V. Smith. diag Am Mach/Metalworking Manuf 107:87 N 25 '63
Photoforming parts from foil. il Am Mach 108:66-8 My 25 '64
Thin foil gets heat treatment in feed-through furnace. A. W. Young. li Iron Age 193:80-1 Je 25 '64

See also

Aluminum foil
Copper foil
Gold leaf
Steel foil

METAL furniture. See Furniture, Metal

METAL powders

Apparatus to measure the thermal conductivity of powders in vacuum from 120 to 350°K. K. Watson and C. A. Bauman. diags R Sci Instr 34:1235-8 N '63
Ceramic-metal adhesive combinations. J. F. Benzel. il diags Am Cer Soc Bul 42:748-51 D '63
Coated metal powders; composites to watch. Steel 154:47 Je 8 '64
Consolidating metal powders magnetically. D. J. Sandstrom. il diag Metal Prog 86:91-4 S '64
Effects of pressing on metal powders. M. J. Donachie, jr. and M. F. Burr. bibliog il J Metals 15:849-54 N '63
Electrical and thermal properties of electron-bombarded silver selenide powders. A. S. Epstein. J Ap Phys 34:3641-2 D '63
Electrodeposited dispersion-hardened alloys, key to high-temperature strength. C. R. Smith. J Metals 15:740-1 O '63
Exotic metals challenge to heat treaters. il Steel 153:115 D 9 '63
Fabrication of targets for neutron irradiation of neptunium dioxide. R. E. Myrick and R. L. Folger. bibliog il diag Ind & Eng Chem Proc Design 3:309-13 O '64
Ford sees big surge in powder metal usage. il Steel 153:109-10 D 2 '63
How to produce complex powder parts economically. il diags Metal Prog 85:118-20 My '64
Improve powder metallurgy parts by repressing. G. E. Brown. il diag Materials in Design Eng 59:113-14 Ap '64
Increasing use of powdered metals. G. Corfield. Gas 39:15 D '63
Influence of certain composition and fabrication variables on the stress rupture properties of a cobalt base alloy consolidated by powder metallurgy; abstract. P. A. Clarkin and others. Metal Prog 84:158-60 N '63
Isostatic pressing extends horizon of powder metallurgy. H. C. Jackson. il diags Mach 70:126-9 Ap '64
Larger powder parts for structural applications. H. A. Wormet. il Metal Prog 86:216-18 O '64
Magnetic tape recording materials. C. D. Mee. bibliog diags IEEE Trans Com & Electronics 83:399-408 Jl '64

METAL powders—*Continued*

Metal powders in welding electrodes. D. Harvey and P. V. Chapman. il Welding J 43:686-9 Ag '64

Plastic impregnation of powder metal parts. N. B. Newcomb. il Metal Prog 85:88-90 Ap '64

Powder compacting presses made by Cincinnati Shaper. il diag Mach 70:160 My '64

Powder metal + solid lubrication = a new bearing material. J. W. Van Wyk. il Metal Prog 86:101-3 S '64

Powder metallurgy; a way to make almost any part. il Steel 153:49-64 D 2 '63

Powder metallurgy gets rolling. C. L. Kobrin. il Iron Age 193:89-91 Ap 23 '64

Powder metallurgy parts. P. K. Johnson. bibliog il Product Eng 35:70-4 Ap 13 '64

Powder plus extrusion equals duplex electrode. il diags Steel 153:82+ D 16 '63

Preferred dimensional specifications for powder metallurgy oil-impregnated bearings; data sheet. Mach 70:167-8 Je '64

Pressure and position controls for a compacting press. F. W. Dorenbos. diags Hydraulics & Pneumatics 17:61-3 F '64

Sintering and savings can be synonymous. L. Alexander. il diags S A E J 72:56-9 S '64

Some characteristics of arc vaporized submicron particulates. J. D. Holmgren and others. il Electrochem Soc J 111:362-9 Mr '64

Spark erosion in liquid argon. I. A. Bucklow and L. E. Drain. diag J Sci Instr 41:614-17 O '64

Thermoelectric figure of merit in silver selenide powders. A. S. Epstein. bibliog diag J Ap Phys 34:3587-90 D '63

Transport of powdered metals. H. L. Burge and others. il diag Chem Eng Prog 60:45-6 F '64

See also
Aluminum, Powdered
Cermets
Iron, Powdered
Nickel, Powdered
Steel, Powdered
Tungsten, Powdered

METAL protection

Adherent dry-film lubricant coatings; preparation, application and testing. T. C. Henderson. Metal Finishing 62:74-5 O '64

Aero-engine finishes. C. Butler and F. Cork. il Aircraft Eng 36:281-5 S '64

Anodic hydrocoating paints metal surfaces. R. L. Koch, 2d. il Ind Finishing 40:40-2+ S '64

Blast cleaned surfaces sometimes fool you. Ind Finishing 40:101-2 Je '64

Carbide takes the vapor route for coating metal tools. il Iron Age 194:82-3 S 17 '64

Catalyzed coating can be used on metal without primer; X-15. Chem & Eng N 42:54+ Mr 16 '64

Ceramic-coated metals resist heat, corrosion. R. E. Smith. il Materials in Design Eng 58:85-7 N '63

Chemical cleans steel while it coats; Chem-Grip. il Iron Age 194:68 O 15 '64

Chromate conversion coatings. Materials in Design Eng 59:105-8 My '64 (reprints 35c)

Coating of bolts to prevent seizure. P. E. White. bibliog il Chem & Ind p 1486-90 Ag 22 '64

Coating small metal parts in a custom shop. H. A. Kafarski. il Ind Finishing 40:24-6+ S '64

Coating small parts made of metal. P. C. Bardin. Ind Finishing 40:111-12 D '63

Coatings go on fast, evenly with electrophoresis. il Iron Age 193:80-2 My 7 '64

Coatings protect refractory metals against oxidation above 2000 F. B. S. Payne, jr. il Res/Develop 15:28-31 Ap '64

CEM; new process developed for water-proofing cylinder bores; abstract. A. K. Wood. S A E J 72:92 F '64

Continuous coating of coiled metal foil. P. C. Bardin. il Ind Finishing 40:54+ O '64

Continuous strip coated before forming. il diag Engineering 197:224 F 7 '64

Controlling concentration and contamination in metal-preparation systems. H. J. McVey. il diag Mach 70:123-5 My '64

Custom finishing of sheet metal products. E. V. Lindstrom. il plan Ind Finishing 40:64-6+ D '63

Electronic monitor calls shots in metal pretreatment line. J. S. Raven. il Iron Age 192:158-9 D 5 '63

Evaluation of fatty vinyl ether polymers and styrenated polymers for metal coatings. B. G. Brand and others. Am Oil Chem Soc J 41:597-9 S '64

Expanded metal; how it's finished. P. Cathey. il Ind Finishing 40:28-31 Jl '64

Finishing car licenses for Michigan. H. F. Reves. il Metal Finishing 62:68-72 S '64

Fluidized-bed coatings. Ind Finishing 40:87 Je '64

Four coating processes for refractory hardware. Materials in Design Eng 58:155+ D '63

Gas plating, an introduction. C. E. MacNeill. bibliog diags Metal Finishing 61:40-4+ Jl '63; Abstract. Metal Prog 86:200+ S '64

Hard to reach areas protected from corrosion. il Steel 154:66+ Je 22 '64

High-temperature alloys need overcoats. E. S. Nichols and others. il S A E J 72:72-3 O '64

How coatings can prevent corrosion. W. B. Maass. il Ind Finishing 40:34+ Jl '64

How to select a prepainted metal. Y. E. Chin and R. J. Fabian. il Materials in Design Eng 58:106-8 D '63

Industry's parade of new coatings. J. E. Sandford. il Iron Age 194:93-100 Jl 23 '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of cathodic processes on insulated metals in electrolytes. N. D. Tomashov and others. bibliog diag Corrosion 20:218-21 Jl '64

Mechanism of electrochemical corrosion of metals under insulating coatings; kinetics of deterioration of insulating coatings on metals in electrolytes. N. D. Tomashov and others. bibliog diags Corrosion 20:125-8 Ap '64

Mechanism of metal protection by volatile inhibitors. I. L. Rosenfeld and others. bibliog Corrosion 20:222-34 Jl '64

NASA research finds plasma spraying creates real diffusion bonding. il Steel 154:60 F 24 '64

New England regional conference on metallic surfaces, their behavior properties, and protection, Schenectady, May 14-15; abstracts of papers. J Metals 16:735-6 S '64

New protective coating aids Budd Automotive. il Steel 154:44 Mr 9 '64

One-coat resistant finish for metals. B. O'Keefe. Ind Finishing 40:103-4 Je '64

Painting by electrodeposition; recent developments in England. il diags Ind Finishing 40:40-2+ Ag '64

Painting diversified metal products. J. McNeff. il diags Ind Finishing 40:62-4+ Jl '64

Plastisol coatings testing; formulation. C. J. Berg. Ind Finishing 40:28-34+ Ja '64

Polyvinyl butyral resins in metal finishing. M. D. Kellert. il Metal Finishing 62:61-2+ Ag '64

Pre-coated metals. il diags Plastics World 22:34 O '64

Pre-coated metals gain momentum. K. W. Bennett. il Iron Age 194:28-9 S 3 '64

Product protection opens new routes to profits. il Steel 155:43-51 Ag 3 '64

Properties of coated refractory metals; abstract. W. A. Gibeaut and E. S. Bartlett. Metal Prog 86:199-200 S '64

Properties of materials; ceramic, cermet and refractory coatings; tables. Materials in Design Eng 60:389 Mid-O '64

Properties of materials; chemical conversion coatings; tables. Materials in Design Eng 60:402 Mid-O '64

Protect complex metal parts with the fluidized-bed process. F. J. Nagel. bibliog il Product Eng 35:84-91 Ag 3 '64

Protective coating for strain gages. R. J. Whitehead. bibliog I S A J 11:71-3 Mr '64

Protective coatings for tungsten. C. D. Dickinson and others. bibliog il J Metals 15:787-92 O '63

Recent developments in electrophoretic coatings. M. Ortner. bibliog il Plating 51:885-9 S '64

Refractory coatings. N. A. Tiner. il Chem Eng Prog 60:56-8 F '64

Refractory metals for thermal-protection systems. E. E. Mathauser. bibliog il Astronautics & Aeronautics 2:66-9 Jl '64

Strip coating on the West Coast. il diag Metal Finishing 62:54-5+ Mr '64

Surface preparation; where systems concept is really taking hold. il diags Steel 154:41-7 Mr 2 '64

Thermal emittance of materials for spacecraft radiator coatings. R. J. Hayes and W. H. Atkinson. il Am Cer Soc Bul 43:616-21 S '64

Tin plating of lead by immersion. F. A. Lowenheim. Plating 51:551-3 Je '64

TiC coating boosts press tooling life. Am Mach 108:57 Ag 31 '64

METAL protection—*Continued*

To wrinkle, the finish must have thickness. K. Schreiber. Ind Finishing 40:90-2 Je '64

Wear considerations in design; surface treatment for wear resistance C. Lipson. bibliog Machine Design 36:167-73 Ja 16 '64

Writing metal finishing process specifications. W. B. Harding. bibliog Plating 51:125-8 F '64

See also

Alloys, Hard facing
Aluminum coating
Chromizing
Electroplating
Enamel and enameling
Galvanizing
Metal coating
Paint, Protective
Painting, Industrial
Phosphate coating
Plastic coating
Zinc coating

also subdivision Protection under special subjects, e.g.

Aluminum
Copper
Magnesium
Steel
Uranium

Anodic protection

Anodic protection against corrosion. J. D. Sudbury and C. E. Locke. diag Chem Eng 70:268+ N 11 '63

Discussion of potentiostatic methods for evaluation of inhibitors. R. D. Weed. bibliog diags Corrosion 20:321-8 O '64

Fundamental studies on anodic protection; alloy 20 in sulfuric acid. Z. A. Foroulis. bibliog Ind & Eng Chem Proc Design 3:84-8 Ja '64

Impressed currents to curb corrosion. E. L. Littauer. bibliog diags Chem Eng 71:156+ S 28 '64

Minimizing corrosion in uranium extraction solutions by application of anodic protection. F. P. A. Robinson and L. Golante. bibliog diag Corrosion 20:239-44 Ag '64

Now anodic control of corrosion is practical for field applications. J. D. Sudbury and C. E. Locke. diag Oil & Gas J 61:111-13 O 28 '63

Cathodic protection

Cathodic protection has many applications in the power field. E. H. Thalmann. il Power Eng 68:40-3 Ja '64

Economics of cathodic protection on ships' hulls. diag Naval Eng J 76:190 Ap '64

Hull protection by impressed current. il plan Marine Eng/Log 69:58-9 Ag '64

Impressed currents to curb corrosion. E. L. Littauer. bibliog diags Chem Eng 71:156+ S 28 '64

See also

Gas pipes—Cathodic protection
Pipe lines—Cathodic protection
Steel—Cathodic protection

METAL spinning

Formability of sheet metals for product design; spinning. W. W. Wood. diags Materials in Design Eng 59:99-100 Je '64

How to design for spinning. il diags Iron Age 194:60-2 Jl 2 '64

Machining shear-spun parts. T. K. Kelley. il Am Mach 108:64-5 Mr 30 '64

Maximum reduction in power spinning of tubes. S. Kalpakcioglu. bibliog il diags A S M E Trans ser B 86:49-54 F '64

Mechanics of conventional spinning of cones. H. C. Sortais and others. bibliog il diags A S M E Trans ser B 85:346-50 N '63

New machine shear spins long missile fuel tubes. il Steel 153:47+ D 9 '63

Precision machining combined with shear forming. C. H. Wick. il Mach 70:122-5 Ap '64

Rolls shear-form giant tubes. il Iron Age 192:89-91 D 12 '63

Stainless tubes 100 feet long. il Am Mach/Metalworking Manuf 107:88-9 D 9 '63

METAL spraying. See Metal coating

METAL trade

Metals industry eyes stockpile surplus. Chem & Eng N 42:31 Je 29 '64

See also

Aluminum industry and trade
Copper industry and trade
Iron industry and trade
Lead industry and trade
Magnesium industry and trade
Metal working industries
Metals—Prices
Metals, Non-ferrous
Nickel industry and trade
Steel industry and trade
Tin industry and trade
Titanium industry and trade
Zinc industry and trade

Canada

Canadian production of minerals and metals. R. B. Toombs. J Metals 16:569-75 My '64; Same. Min Eng 16:53-9 Ag '64

1963 review/64 preview; metals; more sales but less production. il Can Chem Process 48:50 Ja '64

Europe

European metals industry and its literature. K. Boodson. bibliog Metallurgia 68:169-74, 221-6 O-N '63

Great Britain

Ash and Lacy move to new premises; centenary of business celebrated. il Metallurgia 69:223-4 My '64

METAL waste

Chip disposal at new ball bearing plant. il Mech Eng 85:63 N '63

Gravity works when the chips are down. R. H. Eshelman. il Iron Age 194:137 S 24 '64

See also

Scrap metal
Slag
Steel waste
Tailings

METAL work

Adhesive bonding light metals. F. L. Church. flow diag il diags Mod Metals 19:34+ O; 46+ D '63; 20:68-9+ F; 41-2+ Ap; 76+ Jl; 56+ S '64

Adhesives set up new products. A. W. Young. il diags Iron Age 193:127-34 Ap 30 '64

Advances in automotive production techniques; forming. il Mach 70:92-103 D '63

Application of some principles to plastic deformation. O. Kienzle. diags Machine Design 35:200+ N 7 '63

Applied aspects of refractory metals; AIME sponsored conference. Metal Prog 85:138+ Mr '64

Automotive metalworking illustrated. C. J. Kelly. il Automotive Ind 130:80-1 F 15 '64

Bonded metal assembly. D. K. Rider. il diags Product Eng 35:85-98 My 25; 75-8 Je 8 '64 (reprints 50c)

Brittle metals turn ductile in hydrodynamic forming. il diags Iron Age 193:68-70 My 28 '64

Challenge; ways to work metals in rigors of outer space. R. H. Eshelman. il diags Iron Age 193:79-81 Mr 19 '64

Cheaper dies for medium runs. R. Le Grand. il diags Am Mach 108:51-5 Ja 6 '64

Electro metalworking state of the art; symposium. Light Metal Age 22:6-8 Ag '64

Electronic devices making strides in metalworking. S. B. Ruth. il diag Electronic Ind 23:62-5 Ja '64

Engineer's contribution to the development of metal-working processes. H. Ford. bibliog il diags Inst Metals J 91:353-60 '62-63; Same. Naval Eng J 75:1013-21 D '63

Forging against back pressure. R. M. Cogan and G. L. Campbell. il diags Am Mach/Metalworking Manuf 107:105-7 O 14 '63

Forms and shapes of materials. Materials in Design Eng 60:449-71 Mid-O '64

High-pressure rollers peel exotic-metal billets. il Machine Design 36:14 Jl 30 '64

Impact of new materials on manufacturing; round table discussion. Metal Prog 85:72-9 Je '64

Lasers as production tools. T. M. Comella. bibliog il diags Automation 11:68-77 Jl '64

Lasers on the beam in new applications. il Iron Age 194:29 Ag 6 '64

Look at the future; manufacturing. C. J. Vlahos. il Mill & Factory 75:80-90 N '64

Low energy rate forming cuts die costs. R. L. Ballard. il diag Hydraulics & Pneumatics 17:96-7 Jl '64

Magnetic forming; shaping by electricity. Product Eng 35:43-4 S 28 '64

Metal shaped by shock waves. Naval Eng J 76:295 Ap '64

1964 automotive metalworking improvement planning section. C. A. Weinert. il diags Automotive Ind 131:68-116+ S 1 '64

1964 production preview; forming. Am Mach 108:134-6 Ja 20 '64

Peacetime atom blasts away at metalworking barriers. W. N. Redstreake. il Iron Age 193:87-90 My 14 '64

Plasma flame blazes new trails. R. R. Irving. il diag Iron Age 193:135-8 Mr 12 '64

Pushed and pulled around. L. D. Miller. il Automation 10:41+ N '63

METAL work—*Continued*

Shear-forming of thin-wall seamless tubes up to 26.5-inch diameter by 100 feet long. il Mach 70:120-1 Ja '64

Springboard to the space age; better ways to fabricate new materials; Golden Gate metals conference, San Francisco; reports. Metal Prog 85:9-10 Mr '64

Structural adhesives, some types designed for metal-to-metal bonding; with engineering data sheet. C. I. House. il diags Welding Eng 49:40-3 S '64

Structural adhesives; will they replace other forms of metal joining? il Welding Eng 49:35-7 S '64 (reprints 50c)

Study of energy requirements for electric discharge metal forming. R. L. Kegg. bibliog diags A S M E Trans ser B 86:127-32; Discussion. 132-3 My '64

Upper-bound solutions of axisymmetric forming problems. S. Kobayashi. bibliog diags A S M E Trans ser B 86:122-6 My '64

Village blacksmith not so obsolete. il Gas 39:94 D '63

See also

Aluminum work
Beryllium work
Brass work
Brazing
Dies
Electroplating
Extrusion process
Flanges
Forging
Foundry practice
Heat treatment
Machine tools
Metal drawing
Metal spinning
Pickling (metals)
Plating
Punching
Punching machinery
Rolling (metal work)
Sheet metal work
Shells (metal work)
Shot peening
Solder and soldering
Stamping
Steel work
Swaging
Titanium work
Tool engineering
Tubes, Steel—Manufacture
Turning
Welding

Bibliography

Book reviews. Published in monthly numbers of Iron and steel engineer

Books. Published in monthly numbers of Journal of metals

New literature. Published in monthly numbers of Metal progress

Review of metal processing literature, 1962. bibliog A S M E Trans ser B 86:59-69 F '64

METAL workers

See also

Foundries—Employees

Diseases and hygiene

Effect of arsenic trioxide exposure on mortality. S. S. Pinto and B. M. Bennett. bibliog Archives Environmental Health 7:583-91 N '63

METAL working industries

Can n/c benefit subcontractors? R. H. Eshelman. il Iron Age 192:41 D 26 '63

Capital spending to jump 12 per cent in '64. Am Mach 108:68 Ap 27 '64

Coated coil business booming. Mod Metals 20:27-8+ Je '64

How we'll manufacture tomorrow. il diags Steel 154:120-8 Ja 6 '64

Metal industry gains from gas explosion. R. R. Kay. il Iron Age 194:72 S 17 '64

Metalworking in 1980. F. Lynn. plan Am Mach/Metalworking Manuf 107:81-5 D 9 '63

New billion dollar industries will boost metalworking sales. Steel 155:96+ Ag 10 '64

New industrial fuel gas speeds cutting, handling. Steel 154:51 Ap 13 '64

1964 production preview. Am Mach 108:117-48 Ja 20 '64 (reprints 50c)

N/c, electronic metalworking may reshape your company's future. Steel 155:60-2 Ag 17 '64

Procedures in exporting light metal products. H. Goldstein. Light Metal Age 22:15-16 Ag '64

Quickening transition in technologies. il diags Steel 154:133-42 Ja 6 '64 (reprints $1)

Technology forecast '64. Metal Prog 85:67-82 Ja '64

Statistics

Metalworking facts and figures; 16th annual edition. Steel 154:supS1-S48 Mr 30 '64 (reprints $1)

1964 production preview; economic outlook. Am Mach 108:117-30 Ja 20 '64

What metalworking managers expect in 1964. il Steel 153:86-91 N 25 '63

Taxation

What about taxes? Am Mach/Metalworking Manuf 107:139-40 N 11 '63

Argentina

Development of the electroplating industry in the Argentine Republic. P. A. Weinberg. il Metal Finishing 62:80-3 My '64

Great Britain

Avery's new fabrication shop. il Metallurgia 69:231-2 My '64

Unique £3m. finishing plant; Coventry Radiator & Presswork development. il Metallurgia 68:273-8 D '63

Middle western states

Industry weathers flood damage. il Iron Age 193:54-5 Mr 19 '64

Russia

Fact and fancy about Russian foundry practice. T. E. Barlow. il Foundry 92:102-5 S '64

Russia's new metalworking beef-up. D. Winston. il Am Mach 108:62-4 Jl 6 '64

Welding; its present and future; a Russian viewpoint. B. Paton. Welding Eng 49:43 Ja '64

METAL working machinery

Automatic bar machine cuts production costs 32 per cent. E. Karie. il diags Mach 70:109-11 N '63

Basic considerations in numerical control of metal working machines. J. R. Jowett. diags Light Metal Age 22:12-14+ Ag '64

Cold heading machines. il Engineer 217:666 Ap 10 '64

Developments are coming fast in ultrasonic metalworking. L. Balamuth. il diag Am Mach 108:136-8 Ap 13 '64

Electro hydraulic metal forming machine developed in Britain. Light Metal Age 22:18 Ap '64

High energy rate forming by internal combustion. il Engineering 198:438 O 2 '64

Large-scale modernization program at Fenn. il Mach 70:128-9 D '63

Machine cuts layout, inspection time 50 per cent. il Am Mach 108:106 Ja 20 '64

New cost cutting frontiers. il diags Steel 154:80-9 Ap 13 '64

Replacement enlivens a shop. C. Emerson. il Am Mach 108:56-9 Ja 6 '64

Roll forming machine. il Engineer 217:607 Ap 3 '64

Welding plays production role in custom-designed lines. R. R. Irving. il diags Iron Age 192:147-9 D 5 '63

See also

Cutting off machines
Forging machinery
Foundry machinery
Lathes
Machine tools
Presses
Saws, Metal working
Sheet metal working machinery
Stamping
Straightening machines
Stretching machines

METAL working plants

Developments; new equipment, processes and materials. Published in monthly numbers of Metal finishing

Industrial diversification by a shipbuilder; Thornycroft and co. il Engineer 217:129 Ja 17 '64

See also

Aluminum works
Brass works
Rolling mills

Atmosphere control

Precise machining tightens up in controlled pre-fab room. R. H. Eshelman. il Iron Age 192:76-7 N 21 '63

Control equipment

Computers in metalworking, today and tomorrow. C. R. Weymueller. il Metal Prog 85:109-13+ F '64

Equipment

Automation; a tough taskmaster bears down on instrumentation. il Iron Age 194:60-2 Jl 30 '64

METAL working plants—Equipment—*Cont.*

Caloric has installed two air hoists for the pickling of range components. L. Nickert. il Comp Air Mag 69:4-5 Jl '64

Electronic monitor calls shots in metal pretreatment line. J. S. Raven. il Iron Age 192:158-9 D 5 '63

Flexible drives suppress heat; new power shafts ease grinding and milling chores. W. N. Redstreake. il Iron Age 193:62-3 Ap 2 '64

Large boiler and pressure vessel fabrication; Babcock and Wilcox ltd. il Engineer 218: 401-5 S 11 '64

Machining center for giant workpieces. il Tool & Manuf Eng 53:68-70 S '64

Machining parts by families. J. R. Mikton. il diags Am Mach 108:107-11 Ja 20 '64

Metalworking automation today. Tool & Manuf Eng 51:57-60 D '63

Modular concept can justify automation. G. E. Huenerfauth. il Steel 154:48 Mr 2 '64

New Beaird Shreveport plant geared for heavy fabrication. il Welding Eng 49:68 Je '64

New products. Published in monthly numbers of Metal progress

New shop equipment. Published in bi-weekly numbers of American machinist

Presswork and finishing plant; Coventry radiator and presswork co. il Engineer 216: 697 O 25 '63

Recent developments; materials, processes, equipment. Published in monthly numbers of Metallurgia

Unique £3m. finishing plant; Coventry Radiator & Presswork development. il Metallurgia 68:273-8 D '63

See also

Aluminum works—Equipment

Machine tools

Experimental plants

Pilot tests doublecheck long runs. il Am Mach 108:107 F 17 '64

Management

1964 production preview; manufacturing control. Am Mach 108:142-3 Ja 20 '64

Quality control

Coded form puts zip in handling; system for processing rejects saves time and materials. G. J. Gunderman. il diag Iron Age 193:91-2 My 14 '64

Innovation in inspection and control: nondestructive metallography and microfractography. P. A. Jacquet. il Metal Prog 85:114-16+ F '64

1964 production preview; inspection and testing. Am Mach 108:145-7 Ja 20 '64

Pipes of light find holes in strip. il Iron Age 194:66 S 3 '64

Putting new teeth in inspection. W. N. Redstreake. il Iron Age 193:69-76 F 27 '64

Quality, a multibillion dollar opportunity. il diags Steel 155:74-81 S 28 '64

Quality control and service performance. H. Thielsch. il diags A S M E Trans ser A 86: 451-64 O '64

Quality sights raised to meet new demands. V. Betko. il Iron Age 193:116-18 Ap 30 '64

Spray-on plastics pinpoint flaws. il Iron Age 193:56-7 Ap 2 '64

Safety measures

Less than a 100 per cent program is unsafe to eyes. W. A. Barnes. il Safety Maint 127:16-19 F '64

Waste

Comparative study of recovery of zinc and nickel by ion exchange media and chemical precipitation. D. Kantawala and H. D. Tomlinson. bibliog diag Water & Sewage Works 111:192-7 Ap '64

Gravity reclaims coolant, aids sludge removal. flow diag il Plant Eng 18:111-12 F '64

Treatment of nickel-chromium effluents. R. W. Crain. il diags Metal Finishing 62:50-3 Ap '64

METAL working saws. See Saws, Metal working

METALATION

Factors governing orientation in metalation reactions; the metalation of alkylferrocenes. R. A. Benkeser and J. L. Bach. bibliog Am Chem Soc J 86:890-5 Mr 5 '64

Factors governing orientation in metalation reactions; the metalation of isopropylbenzene with *n*-amylsodium and *n*-amylpotassium. R. A. Benkeser and others. bibliog Am Chem Soc J 85:3984-9 D 20 '63

METALLIC films. See Films, Metallic

METALLIZING. See Metal coating

METALLOGRAPHIC specimens

Apparatus for chemical polishing of silver. C. B. Gilpin and F. J. Worzala. il diags R Sci Instr 35:229-30 F '64

Attack-polishing technique for the metallographic preparation of magnesium and its dilute alloys. V. J. Haddrell. Inst Metals J 92:121 '63-64

Design of a filing machine for the production of fine metallic particles. H. D. Trapp. diags R Sci Instr 35:636-7 My '64

Effect of cross-sectional shape on fatigue strength of steel. M. R. Raghavan. bibliog il diags Materials Res & Stand 4:290-5 Je '64

Electropolishing unit for rapid thinning of metallic specimens for transmission electron microscopy. R. C. Glenn and R. D. Schoone. il diag R Sci Instr 35:1223-4 S '64

Metallographic preparation of sintered CeO_2. C. E. Williams and others. il Am Cer Soc J 47:538 O '64

Metallurgical bonding of plasma sprayed tungsten on hot molybdenum substrates. W. A. Spitzig and S. J. Grisaffe. il Welding J 43:sup425-7 S '64

Microscopic study of chip formation. J. Datsko and M. F. DeVries. bibliog il A S M E Trans ser B 86:82-4 F '64

Preparation of beryllium specimens for transmission electron microscopy by the Knuth system of electropolishing. F. J. Wilhelm. bibliog diag J Sci Instr 41:343-4 My '64

Preparing bismuth and antimony for metallographic examination. W. C. Coons. il Metal Prog 84:120-3 D '63

Preparing infiltrated tungsten for examination. R. E. Matt and I. Yoshioka. il Metal Prog 85:95-6 Ap '64

Self-supporting specimens for transmission electron microscopy. M. Solow. bibliog il R Sci Instr 35:512-14 Ap '64

Ultrasonic specimen holder with two degrees of freedom. J. B. Ketterson and Y. Eckstein. bibliog diags R Sci Instr 35:1368-9 O '64

Vibration polishing. Metallurgia 69:250 My '64

Wafering of bulk specimens for transmission electron microscopy. B. Mastel and H. E. Kissinger. il J Sci Instr 41:510-11 Ag '64

Mounting

Polyvinyl chloride as a metallographic mounting resin. C. W. Weaver. bibliog il Metallurgia 69:195-6 Ap '64

Preparation of a microscopic mount for measuring thickness of gold plate. P. C. Baldwin. il diag Plating 50:1006-8 N '63

METALLOGRAPHY

Accuracy of lineal analysis in metallographic investigations. T. Gladman. bibliog il Iron & Steel Inst J 201:1044-9 D '63

Antiphase domains in ordered Au_3Cu alloys. R. S. Toth and H. Sato. bibliog il J Ap Phys 35:698-703 Mr '64

Appearance of columnar grains in a uranium-chromium alloy. A. Bar-Or and P. Wynblatt. bibliog il Inst Metals J 92:183-4 '63-64

Basic metallurgy for welders. Welding Eng 49:60+ My '64

Crystal structure and cryogenic properties. R. G. Broadwell and R. A. Wood. il Materials Res & Stand 4:523-4 O '64

Damaged layers in abraded {111} surfaces of InSb. E. N. Pugh and L. E. Samuels. bibliog il diag J Ap Phys 35:1966-9 Je '64

Diffusion across dissimilar metal joints. J. F. Eckel. bibliog il diags Welding J 43: sup 170-8 Ap '64

Diffusion in the β phase of the copper-aluminium system. M. K. Asundi and D. R. F. West. il Inst Metals J 92:428-30 '63-64

Dislocation substructure vs transgranular stress corrosion susceptibility of single phase alloys. P. R. Swann. il Corrosion 19: 102-12 Mr '63; Discussion. 19:427-8 D '63

Dislocations; their origin and multiplication. G. Thomas. bibliog il diag J Metals 16: 365-9 Ap '64

Ductile materials. R. I. Jaffee. bibliog il diags Chem Eng 71:91-8 Ja 6 '64

Electron metallography of chemical attack upon some alloys susceptible to stress corrosion cracking. H. W. Pickering and P. R. Swann. bibliog il diags Corrosion 19:373-89 N '63

Electronic techniques for study of metals. il Engineer 218:24 Jl 3 '64

Estimating grain size by the intercept method; with data sheet. J. E. Hilliard. Metal Prog 85:99-100+ My '64

METALLOGRAPHY—*Continued*

Factors affecting the modification of the aluminium-silicon eutectic. V. D. Davies and J. M. West. bibliog il diags Inst Metals J 92:175-80 '63-64

Formation of diamond-shaped prismatic loops in quenched fcc metals. A. Eikum and G. Thomas. bibliog il diags J Ap Phys 34:3363-7 N '63

From micrograph to grain-size distribution with ultrasonic applications. E. P. Papadakis. bibliog diags J Ap Phys 35:1586-94 My '64

Fundamentals of modification in the aluminium-silicon system. C. B. Kim and R. W. Heine. bibliog il Inst Metals J 92:367-76 '63-64

High-temperature phase equilibrium and superconductivity in the system niobium-tin. L. J. Vieland. bibliog il RCA R 25:366-78 S '64

High-temperature, u.h.v. thermionic electron emission microscope records critical problems pictorially. il Res/Develop 15:64-5 N '64

High-temperature X-ray-diffractometer study of the zinc-aluminium system in the region 40-75 wt.-per cent zinc. G. R. Goldak and J. G. Parr. bibliog Inst Metals J 92:230-3 '63-64

How failures occur; topography of fracture surfaces. F. R. Larson and F. L. Carr. il Metal Prog 85:74-8 F '64

Implication of the multiplicative hardenability concept. J. H. Gittus. Iron & Steel Inst J 202:856 O '64

Innovation in inspection and control; nondestructive metallography and microfractography. P. A. Jacquet. il Metal Prog 85:114-16+ F '64

Iron-aluminum alloys; a new group appears. J. J. Mueller. il Metal Prog 86:158+ S '64

Laser techniques for metals joining. W. N. Platte and J. F. Smith. bibliog il diags Welding J 42:sup481-9 N '63

Literature review of the physical metallurgy of electric resistance welding. W. F. Savage and others. bibliog Welding J 43:sup 140-4 Mr '64

Mechanism of peritectic reactions. J. A. Sartell and D. J. Mack. il Inst Metals J 93:19-24 '64-65

Mechanisms of crystallization in binary eutectic systems. V. D. Davies. bibliog il diag Inst Metals J 93:10-14 '64-65

Metal fracture; how and why? electron microscope may allow scientists to solve old puzzle. il diags Iron Age 193:66-8 Ap 16 '64

Metallic lattices considered as electron concentration phases; abstract. N. Engel. Metal Prog 86:256+ O '64

Metallography at the atomic level. A. H. Cottrell. bibliog il diags Inst Metals J 90:449-56 '61-62; Abstract. Metal Prog 85:170+ F '64

Metallography 1963: review. C. S. Smith. Iron & Steel Inst J 202:857-8 O '64

Metallurgical microanalysis with the electron probe. J. R. Cuthill and others. bibliog il diags J Metals 15:763-8 O '63

Metals; electron theory of crystal structure. Product Eng 35:63-4 Jl 20 '64

Microscope televises nonmetallic flaws. diag Iron Age 193:93 My 14 '64

Microstructural factors governing the yield strength of a mild steel weld metal deposited by the metal arc process; abstract. J. M. Wheatley and R. G. Baker. Metal Prog 85:184+ F '64

Microstructure study in a welded superalloy. W. A. Owczarski and C. P. Sullivan. bibliog il Welding J 43:sup393-9 S '64

Modern views on the electron theory of metals and alloys. E. R. Petty. bibliog diags Metallurgia 70:12-17 Jl '64

Nitriding problems and their solutions. D. A. Dashfield. il Metal Prog 85:88-93 F '64

Nuclear fuel element: an exercise in metallurgy. H. M. Finniston. il diags Inst Metals J 92:385-97 '63-64

Orientation determinations of crystals using ejection patterns resulting from ion bombardment. R. L. Cunningham and J. Ng-Yelim. bibliog il diags J Ap Phys 35:2185-8 Jl '64

Origin of rod-like eutectic. A. S. Yue. bibliog il Inst Metals J 92:248-9 '63-64

Oxidation of $Ni\text{-}2ThO_2$ between 900° and 1400°C. F. S. Pettit and E. J. Felten. bibliog il Electrochem Soc J 111:135-9 F '64

Plating on semiconductor and electronic devices. E. F. Duffek. bibliog il diags Plating 51:877-83 S '64

Point defects: an evaluation. H. B. Huntington. bibliog diags Am J Phys 32:775-86 O '64

Relation of partial (110) pole figures to thickness and microstructure of electrodeposited copper. F. Ogburn and C. Newton. il Electrochem Soc J 110:1148-50 N '63

Residual stresses in metals. Engineering 196:569 N 1 '63

Scanning electron-probe microanalysis in the metals industry. B. R. Banerjee and others. bibliog il diag J Metals 15:769-73 O '63

Solid state bonding. M. J. Albom. bibliog il Welding J 43:491-4+ Je '64

Some advances in metallurgical practice introduced for nuclear engineering. L. Rotherham. il Inst Metals J 92:257-64 '63-64

Stacking fault probabilities of some internoble metal alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3402-4 N '63

Structure of anodic layers on the (100) face of aluminum. J. C. Grosskreutz and G. G. Shaw. bibliog il J Ap Phys 35:2195-7 Jl '64

Structure of eutectics. B. E. Sundquist and others. bibliog il Inst Metals J 91:204-8 '62-63; Abstract. Metal Prog 85:178-9 F '64

Structure, properties, and applications of UMCo-50 alloy. M. Urbain and others. bibliog il J Metals 16:837-42 O '64

Television microscope mechanizes measuring. Steel 153:90 D 16 '63

Thermally activated deformation of metals. H. Conrad. bibliog il diags J Metals 16:582-8 Jl '64

Transition from plane to cellular interface in solidifying tin-lead-antimony alloys. G. S. Cole and W. C. Winegard. bibliog il diag Inst Metals J 92:322-6 '63-64

Weld heat-affected zone of 18 per cent nickel maraging steel. W. A. Petersen. bibliog il Welding J 43:sup428-32 S '64

Why metals fail. C. F. Lewis. il diags Chem Eng 71:214+ Ap 13; 188+ My 11 '64

Work of the Sulzer metallurgical laboratory. T. Geiger. il Metallurgia 68:239-46 N '63

Zirconium-hydride formation in homogenized magnesium-zirconium alloy. J. E. Harris and P. G. Partridge. bibliog il Inst Metals J 93:15-18 '64-65

See also

Crystals—Dislocations

Etching (metals)

Metallographic specimens

Metals—X ray inspection

also subdivision **Metallography** under special subjects, e.g.

Aluminum

Beryllium

Brass

Copper

Iron

Magnesium

Nickel

Steel

Tantalum

Tungsten

METALLURGICAL analysis

See also

Assaying

Copper—Analysis

Slag—Analysis

Steel—Analysis

METALLURGICAL apparatus

Apparatus for obtaining homogeneous ingots. F. Houzvicka and others. diags R Sci Instr 35:276-8 Mr '64

Continuous zone-refining apparatus. J. K. Kennedy. bibliog diags R Sci Instr 35:25-8 Ja '64

Evaluation of the Cambridge hydrogen in steel analyser. E. W. Gill. il diags Iron & Steel Inst J 201:960-4 N '63

See also

Crushing machinery

Furnaces, Metallurgical

METALLURGICAL education

Evaluation of college curricula and continuing education for metallurgists. M. Teig. J Metals 16:662-4 Ag '64

How to apply basic knowledge; symposium. J Metals 16:443 My '64

Metallurgy, an ancient art or a new profession? W. D. Robertson. J Metals 16:49-51 D '63

Metals science and technology; an integrated program. H. J. McQueen. J Metals 16:431-2 My '64

Senior class metallurgy and metallurgical engineering. J. P. Nielsen. J Metals 16:52-5 Ja '64

METALLURGICAL laboratories

Laboratory gets outfitted to study refractory metals. il Chem Eng 71:78 Ag 17 '64

New research laboratories at Steel, Peech & Tozer. il Metallurgia 69:296-300 Je '64

METALLURGICAL laboratories—*Continued*
Research and development in steel. F. H. Saniter. il Iron & Steel Inst J 202:481-8 Je '64
Work of the Sulzer metallurgical laboratory. T. Geiger. il Metallurgia 58:239-46 N '63
Youngstown sheet and tube co. dedicates new research laboratories. il Iron & Steel Eng 41:126-8 Ag '64
Youngstown Sheet and Tube's new research center. il J Metals 16:554-5 Jl '64

Equipment

At Ashland, metallurgical control means quality. R. H. Gelder. il J Metals 16:650-3 Ag '64
Laboratory extrusion press for copper alloys. N. A. Ratcliff. il diag Metallurgia 68:193-4 O '63
Metals research developments; exhibition of latest products at Cambridge. il diag Metallurgia 68:295-7 D '63
Plane-strain cam plastometer for use in metal-working studies. J. A. Bailey and A. R. E. Singer. il diag Inst Metals J 92:288-9 '63-64

METALLURGICAL patents
International patent calendar. Published in monthly numbers of Light metal age
Today's patents. Eng & Min J 165:110+ Ja '64

METALLURGICAL plants
Developments in metal melting and rolling; Imperial metal industries (Kynoch) ltd. il Engineer 216:840-2 N 22 '63
New areas, new commodities highlight this year's E&MJ operations survey. il diags Eng & Min J 165:58-65 Ja '64
See also
Aluminum works
Blast furnaces
Metallurgical laboratories

By-products

See also
Slag

Control equipment

Anaconda's Butte concentrator; background and design objectives. W. Wraith, jr. and T. G. Fulmor. flow sheets il plan Min Eng 16:54-73 My '64
Analog computers find application in control of flotation circuits. T. M. Morris and R. M. Edwards. diags Min Eng 16:67-9 Ag '64
Automatic process controls are a success at Union Miniere's Luilu copper plant. il diag Eng & Min J 164:88-91 D '63
Centralized control and instrumentation systems at Iron ore co. of Canada's beneficiation plant. W. Taciuk. flow sheet il Can Min & Met Bul 57:751-8 Jl '64
Continuous control of particle size. W. Lodding. bibliog flow sheet diags Eng & Min J 165:82-4 Jl '64
Instrumentation in the Mission mill; American smelting and refining co. J. D. Vincent. il Min Cong J 50:42-6 Ag '64
Portable test control panel expands horizons for process studies. E. J. Kuhlmann. il diags Eng & Min J 165:84-7+ Jl '64
Process innovators concentrate on copper ore. il diag Chem Eng 71:46+ Ag 3 '64
Radioisotope gauging in the mining industry. B. W. Smith. bibliog flow diag il diags Can Min & Met Bul 57:37-44 Ja '64

Design

When going from test data to mill design. R. H. Ross. bibliog diag Min Eng 16:56-60 Mr '64

Electric equipment

Modern dc power supply system for an electrochemical zinc refinery. A. Ludbrook. il diags Eng J 47:19-21 Ag '64

Equipment

Byproduct molybdenum recovery at Silver Bell. R. Salter and C. K. Chase. flow sheet Min Eng 16:116-116B+ Jl '64
Fundamentals of fluid bed roasting of sulphides. J. L. Stollery. bibliog flow sheet il diag Eng & Min J 165:96-101 O '64
Groveland plant features huge pelletizing machine. flow diag il Min Eng 16:62-3 Ap '64
Hoisting by conveyor at Gaspe copper mines, ltd. R. L. Coleman. flow sheet il diag Can Min & Met Bul 57:837-41 Ag '64
Iron ore beneficiation at Eagle Mountain. J. Stetler. il diags Min Cong J 50:17-22 My '64
Kaiser's Eagle Mountain pelletizing plant. il Min Eng 16:44 Ag '64
Meramec iron ore project starts production at Pea Ridge. flow sheets il plans diags Eng & Min J 165:93-108 Ap '64
Minerals beneficiation in 1963. bibliog il diag Min Eng 16:106-20 F '64
Progress in the new metals at I.M.I. il diags Metallurgia 68:249-55 D '63
Quebec Cartier iron ore project. flow sheet il maps plans diags Eng & Min J 165:75-93 S '64
Recent developments; materials, processes, equipment. Published in monthly numbers of Metallurgia
Recent trends in autogenous grinding. B. S. Crocker. bibliog il Can Min & Met Bul 56:790-6 O '63; Discussion. T. Heikkinen. flow sheet 57:156-7 F '64
Republic mine's hot flotation technique now handling two million tons of iron ore annually. C. Bjorne and J. Keeley. il Min Eng 16:65-9 Je '64
Review of air classification. P. J. Vandenhoeck. diags Min Cong J 50:43-6 Mr '64
St Joseph lead company's Viburnum operations. M. E. Lane. flow sheet il plan diag Can Min & Met Bul 57:729-39 Jl '64
Semi-automatic monitor of cyanide solution strength for gold ore dissolution. G. G. Eichholz and C. A. Josling. il diags Can Min & Met Bul 57:287-91 Mr '64
See also
Smelting works—Equipment

Maintenance and repair

Chemical metallurgical plant maintenance at Sherritt Gordon mines, Fort Saskatchewan. C. R. Crook. bibliog flow sheets il Can Min & Met Bul 57:530-6 My '64

Power

Dc power for tungsten plant. il diag Elec Constr & Maint 63:94-5 Mr '64

Quality control

Quality control at the Copper Rand mill. C. W. Eggert. Eng & Min J 165:186-8 Je '64

Safety measures

Safety program for processing plants; Reserve mining co. E. M. Furness and L. J. Hall. il Min Cong J 50:52-5 S '64

METALLURGICAL research
Advanced physical techniques for the study of metals. il diag Metallurgia 70:49-52 Jl '64
Furnaces of the future; Birlec research and development department's activities. il diag Metallurgia 70:71-6 Ag '64
Look at some promising chemical techniques for metals winning. C. J. Lewis and J. L. Drobnick. Min Eng 15:43-5 N '63
Mainly metallurgy (cont). T. H. Turner. Engineer 216:738-9, 948-9; 217:49-50, 274-5, 430-1, 612-13, 782-3, 994-6; 218:10-11, 376-8, 549 N 1, D 6 '63, Ja 3, F 7, Mr 6, Ap 3, My 1, Je 5, Jl 3, S 4, O 2 '64
Non-ferrous metals; quality and quantity. il Engineering 197:814 Je 12 '64
Nuclear fuel element; an exercise in metallurgy. H. M. Finniston. il diags Inst Metals J 92:385-97 '63-64
Research in the wire industry. B. W. Gonser. bibliog il diag Wire & Wire Prod 39:57-60+ Ja '64
Tin research institute. E. S. Hedges. il Chem & Ind p252-8 F 15 '64
See also
Corrosion research
Foundry research
Iron research
Metallurgical laboratories
Steel research

METALLURGICAL society. See American institute of mining, metallurgical and petroleum engineers—Metallurgical society

METALLURGISTS
Essential partnership between the engineer and the metallurgist. N. P. Inglis. diag Engineer 217:994-6 Je 5 '64

METALLURGY
Changing relationships? S. A. Gregory. bibliog diags Ind Chem 40:79-85 F '64
Conversion of metallic oxide mineral surfaces to sulphides. R. G. Bautista and others. bibliog il Eng & Min J 163:81-3 N '62; 165:122-4 Je '64
Hundred years of metallurgy. W. H. Dennis. Review, by W. B. H. Lord. Chem & Ind p880-2 My 23 '64
Metallurgy; an ancient art or a new profession? W. D. Robertson. J Metals 16:49-51 Ja '64

METALLURGY—*Continued*

Metallurgy of pipeline transmission systems; symposium. bibliog Can Min & Met Bul 57:119-38 F '64

Minerals beneficiation in 1963. bibliog il diag Min Eng 16:106-20 F '64

Recovery of platinum metals still challenges engineers; process flowsheet. A. F. S. Gouldsmith and B. Wilson. il Chem Eng 70:90-2 N 25 '63

Semiannual inventory of new plants and facilities; metals. Chem Eng 71:153-4 Ap 27; 120 O 26 '64

Some advances in metallurgical practice introduced for nuclear engineering. L. Rotherham. il Inst Metals J 92:257-64 '63-64

See also

Aluminum metallurgy
Beryllium metallurgy
Blast furnaces
Canadian institute of mining and metallurgy
Cesium metallurgy
Cobalt metallurgy
Copper metallurgy
Electrodeposition of metals
Electrometallurgy
Flotation process
Furnaces, Metallurgical
Gold metallurgy
Hydrometallurgy
International mineral processing congress
Iron metallurgy
Lead metallurgy
Metallography
Metallurgical laboratories
Metallurgical plants
Metallurgical research
Metals
Molybdenum metallurgy
Nickel metallurgy
Ore treatment
Pickling (metals)
Silver metallurgy
Sintering
Smelting
Steel metallurgy
Tailings
Tempering
Tin metallurgy
Titanium metallurgy
Uranium metallurgy
Zinc metallurgy

Bibliography

Book reviews. Published in monthly numbers of Iron and steel engineer

Current literature. Published in monthly numbers of Metallurgia

New books. Published in monthly numbers of Engineering and mining journal

History

Sorby centennial symposium on the history of metallurgy. il J Metals 16:46-8 Ja '64

Study and teaching

Metallurgy with a new look; an interdisciplinary first degree. F. D. Richardson. il J Metals 16:185-8 F '64

Modern trends in the teaching of metallurgical and mineral analysis. D. A. Pantony. bibliog Metallurgia 68:264-6 D '63

Zone refining

Apparatus for obtaining homogeneous ingots. F. Houzvicka and others. diags R Sci Instr 35:276-8 Mr '64

Effect of cold-work on corrosion of iron and steel in hydrochloric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diag Electrochem Soc J 111:522-8 My '64

Electron beam floating zone melting; an improved beam deflection cage. R. Brownsword and J. P. G. Farr. diags J Sci Instr 41:350-1 My '64

Magnetoelastic damping in zone-melted iron. R. E. Maringer. diag J Ap Phys 35:2375-81 Ag '64

Modes of operation of an electron beam floating zone melting furnace; growth of single crystals of metals and alloys. H. G. Sell and W. M. Grimes. il diag R Sci Instr 35: 64-8 Ja '64

Preparation of peritectic-type intermetallic compounds by a modified Czochralski method. D. J. Barber. bibliog il diag J Ap Phys 35:398-401 F '64

China

Conference on physical chemistry and metallurgy. Shanghai, Dec. 7-13, 1962. J Metals 16:215-16 Mr '64

METALS

Absorption contrast effect in bcc metals. S. E. Bronisz and D. L. Douglass. bibliog il J Ap Phys 34:713-14 Ap '63; Discussion. B. Hudson. 35:724-5 Mr '64

AIME Southwest metals and minerals conference. Los Angeles. May 13-15; program. J Metals 16:327-8 Ap '64

Catalysis over supported metals. D. J. C. Yates and others. bibliog Am Chem Soc J 86:2996-3001 Ag 5 '64

Comparisons of materials; hardness of metals; tables. Materials in Design Eng 60:32 Mid-O '64

Comparisons of materials; melting points of metals and ceramics; tables. Materials in Design Eng 60:22 Mid-O '64

Correlation of the coefficient of adhesion with various physical and mechanical properties of metals; abstract. M. E. Sikorski. Metal Prog 85:175-7 My '64

Electric field penetration into metals. J. R. MacDonald. bibliog J Ap Phys 35:3053-4 O '64

Electrical resistivity of metals due to plastic deformation. P. Feltham. bibliog diags Metallurgia 70:55-8 Ag '64

Electromagnetic mixing of metals and alloys. J. J. Schott. diag R Sci Instr 35:411-12 Mr '64

Ferromagnetic Hall effect at optical frequencies and inner effective magnetic field of ferromagnetic metals. G. S. Krinchik. bibliog J Ap Phys 35:1089-92 pt 2 Mr '64

Formation of diamond-shaped prismatic loops in quenched fcc metals. A. Eikum and G. Thomas. bibliog il diags J Ap Phys 34: 3363-7 N '63

Growth of single-crystal gallium arsenide layers on germanium and metallic substrates. J. A. Amick. bibliog il diag RCA R 24:555-73 D '63

Hall effect in concentrated metal-ammonia solutions. D. S. Kyser and J. C. Thompson. Am Chem Soc J 86:4509 O 20 '64

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

Intrinsic ferromagnetic resonance linewidth in metal single crystals. Z. Frait and B. Heinrich. bibliog J Ap Phys 35:904-5 pt 2 Mr '64

Low-index flats on spherical crystals with untouched surfaces. E. Menzel. il J Ap Phys 35:721-2 Mr '64

Mathematical treatment of competitive surface and volume diffusion processes. H. Amar and J. B. Drew. diags J Ap Phys 35: 533-5 Mr '64

Mechanism of high-power-density electron beam penetration in metal. H. Schwarz. bibliog il diags J Ap Phys 35:2020-9 Jl '64

Metal impregnation of porous glasses. W. G. Schmidt and R. J. Charles. il diag J Ap Phys 35:2552-3 Ag '64

Metal selector, 1964. Steel 155:97-8, sup S 1-40 O 12 '64 (reprints $1)

Metals aid in making foams. R. H. Hansen and W. M. Martin. il Chem & Eng N 42: 154-5 S 7 '64

New materials. Published in bi-weekly numbers of American machinist

1964 prospects for all engineerings; metals and materials. il Engineering 197:101-5 Ja 17 '64

Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64

Physicists probe magnetic effect in metals. Elec Eng 82:693-4 N '63

Plansee seminar on metals for the space age. 5th. Product Eng 35:65 Jl 20 '64

Plasmas in solids. R. Bowers. diags Sci Am 209:46-53 N '63

Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64

Pressure-induced growth of metal whiskers. C. H. Pitt and R. G. Henning. J Ap Phys 35:459-60 F '64

Relative influence of various factors on the stick-slip of metals. G. Niemann and K. Ehrlenspiel. diags Lub Eng 29:84-6 Mr '64

Role of displaced metal in the sliding of flat metal surfaces. M. Cocks. bibliog il diags J Ap Phys 35:1807-14 Je '64

Shock dynamics of hypervelocity impact of metals. Y. K. Huang and N. Davids. bibliog diags Franklin Inst J 276:39-50 Jl '63; Same. Naval Eng J 76:577-82 Ag '64

Some reactions of o-chloro-iodo-benzene with metals; abstract and discussion. H. Heaney. Chem & Ind p271 F 15 '64

Sputtering of metals by hydrogen ions. C. E. KenKnight and G. K. Wehner. bibliog il diag J Ap Phys 35:322-6 F '64

METALS—*Continued*

Theory of electrical resistivity of ferromagnetic metals. S. H. Liu. bibliog J Ap Phys 35:1087-8 pt 2 Mr '64

Theory of the interaction of vacancies with stress fields in metals: derivation of basic equations. L. A. Girifalco and D. Kuhlman-Wilsdorf. bibliog J Ap Phys 35:438-43 F '64

Today's prosthetic metals; are they satisfactory for surgical use? D. C. Ludwigson. J Metals 16:226-9; Discussion. bibliog 229-31 Mr '64

Ultrapure metals and alloys. H. G. Sell. il diag Westinghouse Eng 24:94-6 My '64

Use of carbon-14 in the study of metal-carbon dioxide reactions; abstract and discussion. W. B. Jepson. Chem & Ind p332 F 22 '64

Zero-charge potentials of solid metals. T. N. Andersen and others. Am Chem Soc J 86:4496 O 20 '64

See also

Alloys
Aluminum
Antimony
Bearing metals
Bismuth
Brass
Bronze
Cadmium
Cast iron
Ceramic materials—Joining to metal
Chromium
Cobalt
Copper
Corrosion and anti-corrosives
Deformation (mechanics)
Electrodeposition of metals
Electrometallurgy
Electrons—Emission from metals
Etching (metals)
Fatigue in metals
Films, Metallic
Gallium
Geology
Germanium
Glass—Joining to metal
Gold
Hardness
Heat treatment
Intermetallic compounds
Ions—Emission from metals
Iron
Lead
Lithium
Manganese
Metallography
Mineralogy
Mines and mineral resources
Nickel
Niobium
Palladium
Passivity
Pickling (metals)
Plastics—Joining to metal
Platinum
Precious metals
Printing on metal
Rare earth metals
Rhodium
Sheet metal
Silver
Soap, Metallic
Sodium
Solder and soldering
Steel
Strength of materials
Tantalum
Thorium
Tin
Titanium
Tungsten
Uranium
Vanadium
Welding
Zinc
Zirconium

Aging

Age-hardening in copper-base indium alloys. D. J. H. Corderoy and R. W. K. Honeycombe. bibliog il Inst Metals J 92:65-9 '63-64

Implications of the stress aging yield phenomenon with regard to stress corrosion cracking. P. R. Swann and H. W. Pickering. bibliog diags Corrosion 19:369-72 N '63

Influence of small additions of silver on the ageing of aluminium alloys; further observations on Al-Zn-Mg alloys. J. T. Vietz and others. bibliog il Inst Metals J 92:327-33 '63-64

Magnetic aging of spinodal alloys. J. W. Cahn. bibliog il J Ap Phys 34:3581-6 D '63

New nickel alloy is age hardenable. Steel 153:62 N 11 '63

Proposed structure of the transition phase and stability in Mg-Li-Al-Zn alloys. J. V. Rinnovatore and M. Schwartz. bibliog il Inst Metals J 92:188-9 '63-64

Quench-aging makes headway with 6061 aluminum. O. R. Singleton, jr. Iron Age 192:94-5 D 12 '63

Some observations on the kinetics of ageing reactions during creep of aluminium alloys. V. B. Nileshwar. bibliog il diags Inst Metal J 92:241-5 '63-64

Analysis

Activities of silicon in metals and alloys. P. J. Bowles and others. bibliog diags Iron & Steel Inst J 202:113-21 F '64

Controlled potential coulometry of metals in fused lithium chloride-potassium chloride eutectic. R. D. Caton, jr. and H. Freund. bibliog diags Anal Chem 36:15-19 Ja '64

Identification of metals in dyed and printed protein and cellulose textiles. B. C. Burdett. bibliog Soc Dyers & Col J 80:370-4 Jl '64

Modern trends in the teaching of metallurgical and mineral analysis. D. A. Pantony. bibliog Metallurgia 68:264-6 D '63

Potentiometric titration of metal ions using a silver electrode. J. S. Fritz and B. B. Garralda. Anal Chem 36:737-41 Ap '64

Ultratrace analysis of metals with a curved crystal X-ray milliprobe. C. L. Luke. Anal Chem 36:318-22 F '64

X ray unit speeds scrap analysis. M. S. Plant. il Iron Age 193:59 Ap 23 '63

See also

Copper—Analysis

Bibliography

European metals industry and its literature. K. Boodson. bibliog Metallurgia 68:169-74, 221-6 O-N '63

Brittleness

See Brittleness

Cleaning

See Metal cleaning

Corrosion

See Corrosion and anti-corrosives

Detection

Electrical swarf detectors. il Engineer 218:253 Ag 14 '64

Electronic witch takes guesswork out of pipe finding. J. W. Still. il diags Pub Works 95:101-2 Jl '64

See also

Magnetic separators

Erosion

See Erosion of metals

Exhibitions

See also

National metal exposition

Expansion

See Expansion (heat)

Failure

Acoustic detection of crack initiation in sharply notched specimens. M. H. Jones and W. F. Brown, jr. bibliog il diags Materials Res & Stand 4:120-7; Discussion. 127-9 Mr '64

Assault on fracture pays off. A. Q. Mowbray. il Materials Res & Stand 4:103-6 Mr '64; Same. Naval Eng J 76:632-4 Ag '64

Crack-toughness testing of strain-rate sensitive materials. G. R. Irwin. bibliog diag A S M E Trans ser A 86:444-50 O '64

Critical analysis of crack propagation laws. P. Paris and F. Erdogan. bibliog diags A S M E Trans ser D 85:528-33; Discussion. 533-4 D '63

Cut gas-compression equipment failure. E. H. Borgman. il Oil & Gas J 61:169-70+ N 11 '63

Electron beam produces crack-free refractory welds. S. M. Robelotto. il diag S A E J 72:54-6 F '64

Fatigue strength of members containing cracks. W. J. O'Donnell and C. M. Purdy. bibliog diags A S M E Trans ser B 86:205-12; Discussion. 213 My '64

Get to the root of fatigue failures. D. L. Weigel. diags Tool & Manuf Eng 53:71-2 N '64

How failures occur; experiences in the field. F. R. Larson and F. L. Carr. il Metal Prog 85:109-13 Mr '64

How failures occur, topography of fracture surfaces. F. R. Larson and F. L. Carr. il Metal Prog 85:74-8 F '64

METALS—Failure—*Continued*

Interpretive report on cumulative fatigue damage in the low cycle range. S. S. Manson. bibliog diags Welding J 43:sup344-52 Ag '64

Metal fracture; how and why? electron microscope may allow scientists to solve old puzzle. il diags Iron Age 193:66-8 Ap 16 '64

Nature of moving cracks. B. Cotterell. bibliog A S M E Trans ser E 31:12-16 Mr '64

Observing crack growth with the field emission microscope. S. A. Hoenig and D. L. Creighton. bibliog il diag Materials Res & Stand 3:899-901 N '63

Preventing sigma phase embrittlement in nickel base superalloys. W. J. Boesch and J. S. Slaney. il Metal Prog 86:109-11 Jl '64

Prevention of cyclic thermal-stress cracking in steam-turbine rotors. W. R. Berry and I. Johnsson. bibliog diags A S M E Trans ser A 86:361-7; Discussion. 367-8 Jl '64

Progress in measuring fracture toughness and using fracture mechanics: fifth report of a special ASTM committee. bibliog il diags Materials Res & Stand 4:107-19 Mr '64

Why metals fail. C. F. Lewis. il diags Chem Eng 71:214+ Ap 13; 188+ My 11 '64

See also
Aluminum—Failure
Fatigue in metals
Sheet metal—Failure
Steel—Failure

Fiber reinforcement

Metal coated fibres and fibre reinforced metals. R. G. C. Arridge and others. bibliog diags J Sci Instr 41:259-61 My '64

New aluminum-ceramic composite. R. R. Palmisano and J. Drager. il Metal Prog 85:113-15 Je '64

Tensile strength of a silica fibre reinforced aluminium alloy. D. Cratchley and A. A. Baker. bibliog il diags Metallurgia 69:153-9 Ap '64

Hard facing

See Hard facing

Hydrogen effect

Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64

National power conference Hydrogen damage symposium, Cincinnati, Sept. 22-25. A S M E Trans ser A 86:299-352 Jl '64

Oxygen content

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

Prices

Metal prices: annual averages, 1900-1963; weekly averages, 1963; charts and tables. Eng & Min J 165:85-8 F '64

Protection

See Metal protection

Radiation effect

Effect of irradiation on magnetic properties of Fe-Ni alloys. A. I. Schindler and others. bibliog J Ap Phys 35:2640-6 S '64

Effect of neutron-induced defects on the current-carrying behavior of niobium stannide. G. W. Cullen and others. bibliog RCA R 25:479-90 S '64

Effect of stress on the radiation stability of ASTM A 302 grade B pressure-vessel steel. M. B. Reynolds. diag Materials Res & Stand 3:644-5 Ag '63; Same. Naval Eng J 75:965-6 D '63

Effects of charged particles and neutrons on magnetic materials. D. I. Gordon and R. S. Sery. bibliog IEEE Trans Com & Electronics 83:357-61 Jl '64

Effects of neutron irradiation at 250° on the tensile and impact properties of a one per cent Cr-0.5 per cent Mo pressure vessel steel. D. R. Harries and others. bibliog il diags Iron & Steel Inst J 202:448-53 My '64

How irradiation at 1,100-1,800°F affects niobium-uranium alloys. J. A. De Mastry and others. il Nucleonics 21:86+ O '63

Life estimation radiation effects nomograph. R. L. Peters. Wire & Wire Prod 39:1339+ S '64

Liquid nitrogen cryostat to facilitate isothermal annealing studies on metals after heavy-particle bombardment. F. Dworschak and others. diags R Sci Instr 35:46-8 Ja '64

Microstrain yield stress in neutron-irradiated copper single crystals. T. J. Koppenaal. bibliog J Ap Phys 35:2750-3 S '64

Radiation effects in GaAs. L. W. Aukerman and others. bibliog J Ap Phys 34:3590-9 D '63

Radiation hardening in mild and low-alloy steels. D. R. Harries and others. bibliog Iron & Steel Inst J 202:518-22 Je '64

Shrinkage

See Shrinkage of metals

Standards

New and revised British standards. Metallurgia 68:227-8; 69:74, 283-4; 70:120-2 N '63, F, Je, S '64

Temperature effect

Cast irons and steels: temperature. J. F. Wallace and L. Leonard. il Machine Design 36:190-3 Mr 12 '64

Cryothermal treatment stabilizes aluminum forgings. A. Incardona and H. Poett. il Tool & Manuf Eng 53:66-7 S '64

Cutting-tool temperature-predicting equation by response-surface methodology. S. M. Wu and R. N. Meyer. bibliog diags A S M E Trans ser B 86:150-6 My '64

Determination of the coefficient of friction at elevated temperatures using a plane-strain compression test. J. A. Bailey and A. R. E. Singer. bibliog Inst Metals J 92:378-80 '63-64

Effect of strain rate and temperature on the resistance to deformation of aluminium, two aluminium alloys, and lead. J. A. Bailey and A. R. E. Singer. Inst Metals J 92:404-8 '63-64

Effect of temperature and heating rate on the secondary recrystallization of doped tungsten wires. M. Mannerkoski. bibliog il Inst Metals J 92:149-50 '63-64

High temperature oxidation resistance of the beryllides. R. M. Paine and others. Corrosion 20:307-13 O '64

Hot machining by electric current; abstract. M. Okoshi and K. Uyehara. Metal Prog 85:196+ Je '64

How clearances vary with temperature. W. J. Quinn. diag Tool & Manuf Eng 52:125-6 Ap '64

How temperature variations affect accuracy when machining aluminum. D. Weisman. Tool & Manuf Eng 52:91-6 F '64

How to select low temperature steels. C. M. Parker and J. W. W. Sullivan. il Machine Design 36:100-11 Ja 2 '64

Low temperature metals. A. Hurlich. bibliog il Chem Eng 70:104-12 N 25 '63

Some metallurgical factors influencing the thermal-fatigue resistance of wrought nickel-chromium-base high-temperature alloys. A. W. Franklin and others. bibliog il diags Inst Metals J 92:313-22 '63-64

Temperature-dependence of yield and brittle-fracture stresses in polycrystalline molybdenum. A. Wronski. bibliog Inst Metals J 92:376-7 '63-64

Which metals for cryogenic applications? H. Hamilton and M. Katcher. il Materials in Design Eng 59:83-6 My '64

See also
Creep of metals
Expansion (heat)
Steel—Testing—Temperature effect
Strains and stresses—Thermal stresses

Testing

Acoustic detection of crack initiation in sharply notched specimens. M. H. Jones and W. F. Brown, jr. bibliog il diags Materials Res & Stand 4:120-7; Discussion. 127-9 Mr '64

Angled sound waves find flaws. il diag Iron Age 193:87 F 13 '64

Apparatus for the measurement of Young's modulus and internal friction of metals. S. S. Lanting and H. A. Waterman. il diags J Sci Instr 41:605-8 O '64

Bend test for measuring the strain limit of surfaces. A. F. Mohrnheim. bibliog diags Plating 50:1094-9 D '63

Cathode ray tube displays metals' defects. A. Kovacs. diags Control Eng 11:95 Ag '64

Determination of the coefficient of friction at elevated temperatures using a plane-strain compression test. J. A. Bailey and A. R. E. Singer. bibliog Inst Metals J 92:378-80 '63-64

METALS—Testing—*Continued*

Development of testing techniques for evaluating high temperature coatings systems. J. C. Wurst. bibliog il Plating 51: 978-83 O '64

Eddy current unit cuts test time on precious metal products. il Wire & Wire Prod 39: 1322+ S '64

Effect of abrasion on the specific surface area of metals and glass. R. J. Adams and others. bibliog il Electrochem Soc J 111: 774-80 Jl '64

Fatigue of metals: engineering and design aspects. R. E. Peterson. il diags Materials Res & Stand 3:122-39 bibliog(p 138-9) F '63; Discussion. 4:80 F '64

High-strain-fatigue in metals. T. H. Turner. Engineer 217:782-3 My 1 '64; Discussion. F. J. Beer. 218:274 Ag 21 '64

Hot targets flash flaw patterns; infrared test systems handle in-process inspection chores. W. N. Redstreake. il diag Iron Age 193:65-7 Mr 5 '64

Impact testing with an instrumented machine. H. P. Tardif and H. Marquis. il diag Metal Prog 85:79-82 F '64

Importance of drawing and facture loads in the Swift cup drawing test; abstract. R. D. Butler and others. Metal Prog 85:138+ Je '64

Inspecting surfaces from a distance. R. A. Betz. il Metal Prog 85:91-4 Ja '64

Mapping metal surfaces with scotch tape. il Product Eng 35:48-9 Ja 6 '64

Measurement of smooth surface finishes. H. E. Bennett. bibliog il diags Ind Quality Control 20:18-23 F '64

Metals research developments; exhibition of latest products at Cambridge. il diag Metallurgia 68:295-7 D '63

Method for the determination of the coefficient of friction of metals under condition of bulk plastic deformation. A. T. Male and M. G. Cockcroft. bibliog il diag Inst Metals J 93: 38-46 '64-65

1964 production preview: inspection and testing. Am Mach 108:145-7 Ja 20 '64

Non-destructive testing with magnetic and eddy current measurements. il Engineer 217:292 F 7 '64

Non-ferrous metals: quality and quantity. il Engineering 197:814 Je 12 '64

Progress in measuring fracture toughness and using fracture mechanics; fifth report of a special ASTM committee. Materials Res & Stand 4:107-19 Mr '64

Repeated impact tests. J. R. Heater and E. M. Lacey. bibliog il diags Mod Plastics 41:123-6+ My '64

SAE discusses fatigue; meeting, Detroit. Automotive Ind 130:27-8 My 1 '64

See also
Corrosion research
Hardness—Testing
Magnetic testing

Wear

Abrasion-resistant alloys. W. W. Fraser. il Can Min & Met Bul 57:867-9 Ag '64

Accelerated wear tests on hydraulic pumps. J. A. Edwards. il diags Automobile Eng 54:350-2 Ag '64

Accelerated wear tests on power steering pumps. J. A. Edwards. il Automotive Ind 130:42 F 1 '64

Cassel Sulfinuz process. J. C. Gregory. il Automobile Eng 53:539-42 D '63

Cast irons and steels; wear. J. F. Wallace and L. Leonard. il Machine Design 36:187-9 Mr 12 '64

Effect of angle between direction of sliding and line of contact on friction and wear of a roller. F. Hirano and others. bibliog diags Lub Eng 20:57-64 F '64

Effect of surface energy on the wear process. E. Rabinowicz and R. G. Foster. bibliog diags A S M E Trans ser D 86:306-10; Discussion. 310-12 Je '64

Fighting friction's drag on motion. J. J. Obrzut. il Iron Age 193:133-4+ My 21 '64

Influence of stress history on time-dependent spall in metals. B. M. Butcher and others. il diags AIAA J 2:977-90 bibliog(p989-90) Je '64

Lab equipment and tests help predict metal consumption in crushing and grinding units. F. C. Bond. bibliog il diag Eng & Min J 165:169-75 Je '64

Metal wear in crushing and grinding. F. C. Bond. il diags Chem Eng Prog 60:90-3 F '64

New coatings impart high degree of wear-resistance to surfaces. H. V. Mosby. il Wire & Wire Prod 39:248-9+ F '64

Predictions of roll spalling in four-high mills based on fatigue strength of roll materials and wear pattern of rolls. K. N. Tong and M. K. Chakko. bibliog il diags Iron & Steel Eng 41:143-72; Discussion. 172-3 Jl '64

Role of atmospheric components in friction and boundary lubrication. W. E. Campbell. Machine Design 36:186+ Ag 27 '64

Wear consideration in design. C. Lipson. bibliog diags Machine Design 35:156-64 O 24; 177-85 N 7; 182-91 N 21; 142-7 D 5; 140-4 D 19 '63; 36:121-4 Ja 2; 167-73 Ja 16 '64

See also
Cylinders (engines, etc.)—Wear

X ray inspection

Arsenal double checks X-ray with ultrasonics. il Steel 155:100 S 28 '64

Double check for steel. il Electronics 37:32 Ag 24 '64

Image amplifier for industrial use. il Engineer 217:622 Ap 3 '64

Making sense of welding and casting radiographs. B. Pecora. diags Mill & Factory 75: 77-9 S '64

Medical X-ray image amplifier used on blades. il Engineering 197:455 Mr 27 '64

X-ray unit made pocket size. il Iron Age 193:60-1 Ja 9 '64

See also
Welding—X ray inspection

METALS, Clad

Composite materials; clad metals. Materials in Design Eng 60:434-5 Mid-O '64

Composites; materials of the future. W. R. Hibbard, jr. bibliog il diags Chem Eng 70:203-8+ N 11 '63

See also
Aluminum, Clad
Aluminum, Stainless clad
Steel, Lead clad
Steel, Stainless clad

METALS, Cold treatment of

See also
Aluminum, Cold treatment of

METALS, Cold working of

Cold forming advanced by double-action. il diags Engineering 197:522-3 Ap 10 '64

Cold heading as related to wire quality. J. Stalter. il Wire & Wire Prod 39:1009-10+ Jl '64

Cold heading machines. il Engineer 217:666 Ap 10 '64

Cold shear forming of large tubes in Michigan. il Engineer 217:456-8 Mr 6 '64

Combination cold extrusion press. il diag Engineer 217:690 Ap 17 '64

Effect of cold-work on corrosion of iron and steel in hydrochloric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diag Electrochem Soc J 111:522-8 My '64

Fracture of cold-worked iron. N. P. Allen and others. bibliog il diag Iron & Steel Inst J 202:808-17 O '64

Freezing metals speeds cutting rate 20 times. il Steel 153:31 N 11 '63

Industry warms up to cold-forming. R. H. Eshelman. il Iron Age 192:143 N 14 '63

Press extrudes, upsets, pierces. il diags Iron Age 193:144-5 My 21 '64

Pressure vessels formed at cryogenic temperatures. il Metal Prog 85:124 Ap '64

Pure molybdenum can now be cold worked. Electronics 36:76+ N 8 '63

Recent trends in metal forming. H. A. J. Dennison. il diags Wire & Wire Prod 39:92-3+ Ja '64

Rolls contour tough alloys. il Iron Age 193: 94-5 Ap 23 '64

Shop-built icebox aids subzero machining. il diags Plant Eng 18:112-13 Ag '64

Titanium formed cold with epoxy tooling. il Steel 154:85 My 25 '64

Unique hydraulic press for cold extrusion. il Metallurgia 69:225-7 My '64

What about cold extrusion? R. W. Perry. il diags Am Mach 108:61-5 Ag 3 '64

Wire for cold forming precision products. F. C. Boyd. il diags Wire & Wire Prod 38: 1704-5+ N '63

See also
Steel, Cold working of

METALS, Creep of. See Creep of metals

METALS, Effect of temperature on. See Metals—Temperature effect

METALS, Heat resisting

Applied aspects of refractory metals; AIME sponsored conference. Metal Prog 85:138+ Mr '64

Cementation coatings for refractory metals. B. S. Payne, jr. il Am Cer Soc Bul 43:567-71 Ag '64

Coatings protect refractory metals against oxidation above 2000 F. B. S. Payne, jr. il Res/Develop 15:28-31 Ap '64

METALS, Heat resisting—*Continued*

Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63

Corrosion resistant metals. L. W. Gleekman. il Chem Eng 70:217-24 N 11 '63

Could you use the exotic metals? Welding Eng 49:64+ Ag '64

Development of testing techniques for evaluating high temperature coatings systems. J. C. Wurst. bibliog il Plating 51: 978-83 O '64

Developments in metal melting and rolling; Imperial metal industries (Kynoch) ltd. il Engineer 216:840-2 N 22 '63

Electroforming of refractory metals. G. W. Mellors and S. Senderoff. bibliog il Plating 51:972-5 O '64

Electron beam joins brazed refractory metals. P. Jacobson and M. Schwartz. il diags Welding Eng 49:48-50 Ap '64

Electron beam produces crack-free refractory welds. S. M. Robelotto. il diag S A E J 72: 54-6 F '64

Extruding refractory metals. I. Perlmutter and V. DePierre. il diags Metal Prog 84: 90-5+ N '63

Foamed aluminum refractory takes 3500 F. Materials in Design Eng 60:113 Jl '64

Four coating processes for refractory hardware. Materials in Design Eng 58:155+ D '63

High temperature metals. E. W. Ross and H. T. McHenry. il Chem Eng 70:97-103 N 25 '63

IMI are now melting refractory metals. il diag Engineering 196:678-9 N 29 '63

Laboratory gets outfitted to study refractory metals. il Chem Eng 71:78 Ag 17 '64

Less common metals for process equipment; annual review. E. M. Sherwood. Ind & Eng Chem 56:59-64 bibliog(p61-4) Ag '64

Matrix reinforced thermal protective system. S. Rovin and others. bibliog il diags Welding J 43:sup329-36 Jl '64

Metal selector; refractory metals. Steel 155: sup S5-7 O 12 '64

New developments in refractory metals. il Materials in Design Eng 59:186+ Ap '64

New furnace for the difficult metals. il diag Engineering 198:246-7 Ag 21 '64

Precision mill rolls formable refractories. il Materials in Design Eng 58:168+ N '63

Progress in high temperature technology; newer materials; symposium abstracts. Metal Prog 86:212+ Ag '64

Properties of coated refractory metals; abstract. W. A. Gibeaut and E. S. Bartlett. Metal Prog 86:199-200 S '64

Refractory metals. S. I. Bocarsly. Chem Eng Prog 60:58-60 F '64

Refractory metals fast becoming commonplace exotics. J. H. Keeler. il Machine Design 36:96-101 Jl 2 '64

Refractory metals for high-temperature heating elements. E. S. Bartlett. il diag Wire & Wire Prod 39:722-6+ My '64

Refractory metals supplied in many shapes. il Materials in Design Eng 60:125-6+ N '64

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Summary of the seventh meeting of the refractory composites working group; abstract. W. A. Gibeaut and H. R. Ogden. Metal Prog 85:190+ Ap '64

Technical conference on applied aspects of refractory metals, Los Angeles, Dec. 9-10; with program and abstracts of papers. J Metals 15:793-6; 16:410-15 O '63, My '64

Theory and technology of refractory coatings. S. W. Bradstreet. bibliog Chem Eng 70:77-80 D 23 '63

Thermocouple for the measurement of gas temperatures up to 2000°C. R. J. Bertodo. bibliog il diag Inst Mech Eng Proc 177 no 22:603-14; Discussion. 615-16 '63

Where ten defense metals will be by '70. Steel 155:140+ O 12 '64

Which electrical conductor for 2500+F? M. Gimpl and N. Fuschillo. Materials in Design Eng 59:84-5 F '64

Wire mill rolls refractory metals. il Steel 154: 54+ F 3 '64

Working with refractory metals; joining. R. C. Bertossa. il Metal Prog 85:130+ Ap '64

See also

Alloys, Heat resisting

Steel, Heat resisting

METALS, Laminated

Composite steel shaft design. il Mech Eng 85:57 D '63

Linear bending theory of laminated cylindrical shells under axisymmetric load. B. Paul. diags A S M E Trans ser E 30:98-102 Mr '63; Discussion. 31:155-7 Mr '64

New techniques speed metal bonding. C. L. Sullivan. il Mach 70:107-9 Jl '64

METALS, Liquid. See Mercury; Metals, Molten

METALS, Molten

Discharge method for surface-tension measurements. V. de L. Davies and J. M. West. bibliog diags Inst Metals J 92:246-7 '63-64

Electromagnetic pump for liquid metals. R. S. Baker. diags Mech Eng 86:54-6 Jl '64

Liquid-metal Faraday-type MHD generators. W. D. Jackson. bibliog diags IEEE Trans Power Apparatus & Systems p904-7 D '63

Liquid metal system heats fluidizing-bed waste process. Chem & Eng N 42:40-1 Ag 24 '64

MHD with liquid metal. H. E. Weber and C. H. Marston. bibliog diags Mech Eng 86:34-7 Ag '64

Metal particles used as nucleators in foaming polymers. il Bell Lab Rec 42:326 O '64

Plasma property of liquid metals. C. P. Flynn. bibliog J Ap Phys 35:1641 My '64

Preventing corrosion by liquid metals. C. Willhelm. diags Materials in Design Eng 58:97-9 N '63

Thermally regenerative liquid-metal cell. B. Agruss. bibliog diags Electrochem Soc J 110:1097-103 N '63

Thermodynamic studies of ternary liquid metallic systems containing miscibility gaps. T. C. Wilder and J. F. Elliott. bibliog diags Electrochem Soc J 11:352-62 Mr '64

See also

Aluminum, Molten

Bismuth, Molten

Copper, Molten

Iron, Molten

Steel, Molten

METALS, Non-ferrous

Analysis of nonferrous foundry problems. J. S. Campbell and N. J. Rao. Foundry 92:44 Ja '64

Extruding nonferrous metal tubes. il Automation 11:70 My '64

Light metals. M. A. Steinberg. Space/Aeronautics 42 no 4:150-3 '64-65

Non-ferrous metal progress. D. Boxall. bibliog il Naval Eng J 76:706-14 O '64

Non-ferrous metals; quality and quantity. il Engineering 197:814 Je 12 '64

Properties of materials; nonferrous metals; tables. Materials in Design Eng 60:123-81 Mid-O '64

See also

Aluminum

Brass

British non-ferrous metals research association

Bronze

Cobalt

Copper

Furnaces, Non-ferrous melting

Lead

Magnesium

Nickel

METALS, Precious. See Precious metals

METALS, Strip

Comparing pyrometer methods for hot strip applications. W. Mikelson. il diag I S A J 11:61-4 S '64

Continuous coating of coiled metal foil. P. C. Bardin. il Ind Finishing 40:54+ O '64

Continuous strip coated before forming. il diag Engineering 197:224 F 7 '64

Forms and shapes of materials; metal mill forms; tables. Materials in Design Eng 60: 460-1 Mid-O '64

Material specifications tailored to strip processes. il Automation 11:75 My '64

Milling pre-shapes metal strip. A. W. Young. il diags Iron Age 194:58-9 Ag 20 '64

Pipes of light find holes in strip. il Iron Age 194:66 S 3 '64

Pre-coated metals gain momentum. K. W. Bennett. il Iron Age 194:28-9 S 3 '64

Shearwelder speeds up processing of coils. il Steel 154:31+ Je 15 '64

Upper-bound approach to cold-strip rolling. B. Avitzur. bibliog diags A S M E Trans ser B 86:31-45; Discussion. 46-7; Reply. 47-8 F '64

METALS in the body. See Minerals in the body

METAMORPHIC rocks. See Rocks, Crystalline and metamorphic

METAMORPHISM

Alteration of Chinle siltstone and uranium emplacement, Arizona and Utah. A. M. Abdel-Gawad and P. F. Kerr. maps diags Geol Soc Bul 74:23-46, pl 1-2 bibliog(p44-6) Ja '63; Discussion. H. S. Johnson, jr. 75: 775-6; Reply. 777-80 Ag '64

METAMORPHISM—*Continued*

Chemical aspects of hydrothermal alteration with emphasis on hydrogen metasomatism. J. J. Hemley and W. R. Jones. Econ Geol 59:538-69 bibliog(p567-9) Je '64

Contact metamorphism in relation to manner of emplacement of the granites of Donegal, Ireland. W. S. Pitcher and H. H. Read. bibliog maps diags J Geol 71:261-96 My '63; Discussion. M. J. Rickard. 72:682-4; Reply. 685 S '64

Facies and types of hydrothermal alteration. C. W. Burnham. bibliog diags Econ Geol 57:768-84 Ag '62; Discussion. J. J. Hemley and P. B. Hostetler. 58:808-11 Ag '63; Reply. 59:332-4 Mr '64

Garnet isograd in pelitic rocks and its relation to metamorphic facies. M. P. Atherton. maps diags Am Mineralogist 49:1331-49 bibliog(p 1348-9) S '64

Iron-rich serpentine and chamosite from Ely, Minn. A. P. Ruotsala and others. bibliog il map diag Am Mineralogist 49:993-1001 Jl '64

Kinetics of a replacement reaction. L. L. Ames, jr. bibliog diags Econ Geol 58:1229-36 D '63

Metamorphosed Silurian brachiopods from New Hampshire. A. J. Boucot and J. B. Thompson, jr. bibliog maps Geol Soc Bul 74:1313-33, pl 1-10 N '63

Microscopic examination of manganese ores of Srikakulam and Visakhapatnam (Vizagapatam) districts, Andhra Pradesh, India. J. S. R. Krishna Rao. bibliog il Econ Geol 58:434-40 My '63; Discussion. S. Roy. 59:154-7 Ja '64

Petrological characteristics of barakar coal, metamorphosed by lamprophyre sill, in Jharia coalfield, India. H. S. Pareek. bibliog Econ Geol 59:926-9 Ag '64

Re-examination of some suggested mechanisms for remobilization of sulfide orebodies. A. H. Sorensen. Econ Geol 58:1071-88 bibliog(p 1087-8) N '63; Discussion. A. W. Smith. 59:930-5 Ag '64

Thermal metamorphism of the sulfide minerals at Zawar mines, Rajasthan, India. A. Mookherjee. Econ Geol 59:498-500 My '64

Variations in the O^{18}/O^{16} and C^{13}/C^{12} ratios of diagenetically altered limestones in the Bermuda Islands. M. G. Gross. map diag J Geol 72:170-94 bibliog (p 193-4) Mr '64

Wall-rock alteration in the Goldfield district, Nevada. R. D. Harvey and C. J. Vitaliano. bibliog map J Geol 72:564-79, pl 1 S '64

See also

Rocks, Crystalline and metamorphic

METAMORPHOSIS

Chemistry of amphibian metamorphosis. E. Frieden. il diags Sci Am 209:110-18 N '63

METASEQUOIA

Metasequoia, a living fossil. H. L. Li. bibliog il map Am Scientist 52:93-109 Mr '64

METASTABILITY

Metastable ferroelectric sodium niobate. R. H. Dungan and R. D. Golding. bibliog diags Am Cer Soc J 47:73-6 F '64

METEORITE craters

Sudbury structure as an astrobleme. R. S. Dietz. bibliog maps diags J Geol 72:412-34, pl 1-2 Jl '64

METEORITES

Interaction of micrometeorites with gaseous targets. J. C. Slattery and others. diag AIAA J 2:543-8 Mr '64

Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64

METEOROIDS. See Meteors

METEOROLOGICAL balloons. See Balloons, Meteorological

METEOROLOGICAL instruments

New electronic weather vane. Franklin Inst J 277:373 Ap '64

New instrument checks the weather. Electronics 37:28+ N 2 '64

See also

Altimeters
Anemometers
Barometers
Hygrometers
Radio meteorographs

METEOROLOGICAL research

Meteorological focusing of acoustic energy. R. N. Tedrick. bibliog diags Sound 2:24-7 N '63

Meteorological office; its history and activities. G. Sutton. il Chem & Ind p296-305 F 22 '64

See also

Radio meteorographs

METEOROLOGICAL stations

AEC sees wide use of remote data stations. Electronics 37:60 Mr 13 '64

Weather forecast; sensors will take climate data. S. Payne. il Control Eng 11:19-20 S '64

METEOROLOGY

Atmospheric physics; Irving Langmuir laboratory. il Phys Today 17:62-3 S '64

Micrometeorology. G. Sutton. il diags Sci Am 211:62-70+ O '64

Weather by wire. Electronics 37:36 Ag 10 '64

See also

Calculating machines—Meteorological applications
Climatology
Clouds
Floods
Magnetism, Terrestrial
Radar—Meteorological use
Rain and rainfall
Rockets—Meteorological use
Sunspots
Thunderstorms
Weather
Weather control
Weather forecasting
Winds

METEOROLOGY, Aeronautic

Picture processing in the TIROS project. il diag Product Eng 35:54-5 Ja 20 '64

Statistical data on atmospheric design properties to 30 km. M. Diamond and O. M. Essenwanger. Astronautics & Aerospace Eng 1:68-9 D '63

METEORS

Analytical study of meteor entry. J. A. Fay and others. bibliog AIAA J 2:845-54 My '64

Determination of cratering energy densities for metal targets by means of reflectivity measurements. H. Mark and others. bibliog AIAA J 2:965-6 My '64

Dust wall helps shield spacecraft from meteoroids. Franklin Inst J 276:575 D '63

Experimental determination of meteoric line densities and attachment rates. L. A. Manning. bibliog J Res Nat Bur Stand 68D:1079-93 O '64

First meteoroid-penetration data for SNAP designers. C. T. D'Aiutolo. bibliog il diags Nucleonics 21:51-5 N '63

Foaming bulkheads may plug punctures in spacecraft. il Machine Design 36:14 Jl 30 '64

Meteoroid detection satellite uses capacitor panels. Electro-Tech 73:11 My '64

Probability of meteoroidal penetration. F. B. Shaffer. bibliog AIAA J 2:738-42 Ap '64

Radio propagation by reflection from meteor trails. G. R. Sugar. map diags IEEE Proc 52:116-36 bibliog(p 135-6) F '64

Sensors for detecting micro-meteoroids. il diag Product Eng 35:51 Ag 17 '64

Theoretical heights and durations of echoes from large meteors. L. A. Manning. J Res Nat Bur Stand 68D:1067-78 O '64

METER readers

Meter men sport uniforms. R. C. Anderson. il Water Works & Wastes Eng 1:61 Ap '64

METER reading

Could your company use remote meter reading? J. E. Ramsey. diags Power Eng 68:T30-2 Mr '64

Electronic meter reading. G. Ruger. il Gas Age 131:28-9 S '64

Encoder reads meters for edp billing. D. R. Stuettig. il Elec World 160:45-6 D 30 '63

Meter reading with the Metercorder. il Gas Age 131:36 My '64

New encoder kit simplifies automatic meter reading. J. Chapsky. il diag Power Eng 68:39 My '64

Probe and receptacle read meters. A. A. Russell, jr. il Elec World 161:76 Je 29 '64

Remote meter reading trial termed success. il Elec World 162:36 S 28 '64

Remote metering; some try it, others look on. Elec World 161:110 Ap 20 '64

Remote reading of large volume customers; Milwaukee Gas Light. L. R. Weber. il diag Gas Age 130:22-5 N '63

METERS

Bulk process welding. R. F. Arnoldy. il diags Welding J 42:885-91 N '63

Meter factor variations and factors affecting the accuracy of positive displacement meters. M. C. Rhoades. J Pet Tech 16:841-4 Ag '64

Meters redesigned. il diag Product Eng 35:56-7 Ag 17 '64

METERS—*Continued*

Where are the errors in metering residual fuel for truck shipments? H. R. Stover. diags Oil & Gas J 62:76-7 S 28 '64

See also

Accelerometers
Electric meters
Flow meters
Frequency meters
Gas meters
Liquid meters
Orifice meters
Steam meters
Tachometers
Vibration—Measurement
Viscosimeters
Water meters

Testing

Phantom load tests thermal meters. H. E. Siebert. il diag Elec World 162:54 Ag 24 '64

METHACRYLATES

Catalytic dehydrogenation of methyl isobutyrate to methyl methacrylate over alumina catalysts. E. L. McDaniel and H. S. Young. bibliog diag Ind & Eng Chem Product Res & Develop 2:287-92 D '63

Catalytic synthesis of methyl acrylate from acetylene, carbon monoxide and methanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog J Ap Chem 13:498-505 N '63

Lube oil additive useful in semiflexible urethane foam. P. G. Gemeinhardt. Chem & Eng N 42:54 S 28 '64

Mechanism of the anionic polymerization of methyl methacrylate; effects of solvents upon stereoregularity and rates in fluorenyllithium-initiated polymerizations. D. L. Glusker and others. bibliog Am Chem Soc J 86:187-96 Ja 20 '64

Methyl and ethyl acrylate monomer: Rohm & Haas co. diag Hydrocarbon Process & Pet Refiner 42:200 N '63

Polymer association; solution behavior and rheology of neutralized styrene-methacrylic acid copolymers. N. Z. Erdi and H. Morawetz. bibliog J Colloid Sci 19:708-21 O '64

Polymerization in the crystalline state; electron spin resonance study of the propagating species in a polymerizing single crystal of barium methacrylate dihydrate. J. H. O'Donnell and others. bibliog Am Chem Soc J 86:2322-5 Je 20 '64

See also

Plastics, Transparent

METHANE

Adsorption of nitrogen-methane on molecular sieves. P. B. Lederman and B. Williams. bibliog flow diag diag A I Ch E J 10:30-4 Ja '64

Better processing, catalysts, equipment further reduce methane-reforming costs. G. T. Lee and others. flow diag diag Oil & Gas J 62:154-6 My 11 '64

Calculation of thermal diffusion factors for the methane-n-butane system in the critical and liquid regions. W. M. Rutherford. bibliog A I Ch E J 9:841-3 N '63

Catalyzed copper-copper oxide flame reactions of selected organohalogens in the presence of methane and air. E. A. Eads. Anal Chem 36:2373 N '64

Crystal structure of bis-(*m*-chlorobenzoyl)-methane. G. R. Engebretson and R. E. Rundle. bibliog diags Am Chem Soc J 86:574-81 F 20 '64

Development of catalysts and reactor systems for methanation. J. H. Field and others. bibliog il diags Ind & Eng Chem Product Res & Develop 3:150-3 Je '64

Effects of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64

Einstein viscosity-concentration relationship; application to true solutions of the large spherical molecule tetrakis (trimethylsilyl)methane. R. L. Merker and M. J. Scott. bibliog J Colloid Sci 19:245-51 Mr '64

^{3}He-Ne-CH_4 mixtures in a proportional counter for thermal neutrons. V. E. Krohn, jr. il diags R Sci Instr 35:853-4 Jl '64

Hydrates at high pressures; application of statistical mechanics to the study of the hydrates of methane, argon, and nitrogen. S. Saito and others. bibliog A I Ch E J 10:734-40 S '64

Hydrates at high pressures; methane-water, argon-water, and nitrogen-water systems. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5 Mr '64

Hydrates of methane and sulphur hexafluoride. L. D. Sortland and D. B. Robinson. bibliog diag Can J Chem Eng 42:38-42 F '64

Mechanisms given for radiolytic reactions in ice, methane. il Chem & Eng N 42:40-2 F 3 '64

Methane pipeline across the Thames. Engineer 216:702 O 25 '63

Modified combustion pipette to analyse explosive mixtures of methane with air in Haldane mine-air analysis apparatus. A. K. Ghosh and B. Mitra. diags Chem & Ind p269-70 F 15 '64

Reactions of carbon vapor with hydrogen and with methane in a high intensity arc. R. F. Baddour and J. L. Blanchet. bibliog Ind & Eng Chem Proc Design 3:258-66 Jl '64

Reactions of gaseous ions; high pressure mass spectrometric study of methane. F. H. Field and others. bibliog Am Chem Soc J 85:3575-83 N 20 '63

Reactions of gaseous ions; the system methane-hydrogen. M. S. B. Munson and others. bibliog Am Chem Soc J 85:3584-8 N 20 '63

Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64

Retarding effects of polyarylmethanes in autoxidation reactions. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2371-4 Je 20 '64

Thermal radiation of methane gas. R. H. C. Lee and J. Happel. bibliog diag Ind & Eng Chem Fundamentals 3:167-76 My '64

U.K. pushing gas-from-petroleum process. il Chem & Eng N 42:60-1 O 19 '64

Use of CH_4-H_2 mixture for controlled carburization of alpha-iron. D. Driver and P. Barrand. diag Iron & Steel Inst J 202:614-15 Jl '64

Virial coefficients for argon, methane, nitrogen, and xenon. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:621-5 S '64

Xenon-radiosensitized deuterium-methane exchange; recombination rate constant for deuterium atoms and methyl radicals. A. Maschke and F. W. Lampe. bibliog Am Chem Soc J 86:569-74 F 20 '64

Zs of methane and ethane at low pressure. C. B. Wallace, jr. and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 O '64

See also

Diazomethane

METHANE, Liquid

Cost cutting is limited for LMG operator. Oil & Gas J 61:140 D 2 '63

Four large pumps for liquid methane. diag Engineering 196:804-5 D 27 '63

Liquefaction plant to use new method. diag Oil & Gas J 62:26-7 Je 29 '64

Storage

Aluminium for liquid methane project. il Engineering 196:792 D 20 '63

Insulated tanks for peak shaving. M. B. Clapp. diag Gas Age 131:34-7 Je '64

LNG growth prospects look better. diag Oil & Gas J 61:51-2 D 16 '63

Liquid methane's metal; nine per cent nickel steel. R. E. Petsinger. bibliog diags Gas 40:65-73 O '64

Nine per cent nickel steel used in French LNG project reviewed. Gas 40:166 O '64

Storing liquid methane at low temperatures. il Engineering 197:54 Ja 10 '64

Transportation

Biggest liquid methane project. Metallurgia 70:34 Jl '64

British gas network awaits African methane. J. Trotter. il map Chem Eng 71:96-8 O 12 '64

Britain will soon have methane for town gas. il Chem & Eng N 41:20 D 30 '63

LNG nears debut in England. il Gas 40:72-4 F '64

LNG tankers; still a good investment? Oil & Gas J 62:81-2 F 24 '64

Methane tanker nears finish. il Oil & Gas J 62:92 F 3 '64

METHANESULFONIC acid

Methanesulfonic acid-catalyzed additions; additions to methyl linoleate. A. Eisner and others. bibliog Am Oil Chem Soc J 41:557-8 Ag '64

METHANETHIOL

Manufacture

Methyl mercaptan: Standard oil co. (Indiana). diag Hydrocarbon Process & Pet Refiner 42:202 N '63

METHANOL

Association of tetrabutylammonium bromide in methanol-nitrobenzene mixtures. R. L. Kay and D. F. Evans. bibliog Am Chem Soc J 86:2748-9 Jl 5 '64

Catalytic synthesis of methyl acrylate from acetylene, carbon monoxide and methanol under pressure. S. K. Bhattacharyya and A. K. Sen. bibliog J Ap Chem 13:498-505 N '63

Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64

Experimental determination of the vapour-liquid equilibrium data for the system acetone-methanol-*iso*propanol. P. Allen and K. A. Pike. bibliog diag Ind Chem 40:260-6 My '64

Interpretation of potentiometric titrations of weak acids in methanol-water solvents. K. C. Ong and others. bibliog Anal Chem 36: 1971-2 S '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

Medium effects on the dissociation of weak acids in methanol-water solvents. E. E. Sager and others. bibliog J Res Nat Bur Stand 68A:305-12 My '64

Methanol fuel cell with an invariant alkaline electrolyte. E. J. Cairns and D. C. Bartosik. bibliog il diag Electrochem Soc J 111:1205-10 N '64

Radiolysis of methanol and methanolic solutions: comparison of radiolysis by Co^{60} γ-rays and by $B^{10}(n,\alpha)Li^{7}$ recoils. M. Imamura and others. bibliog Am Chem Soc J 85:3565-70 N 20 '63

Radiolysis of methanol and methanolic solutions; the effect of oxygen on the radiolysis of liquid methanol by ^{60}Co γ-rays and by $^{10}B(n,\alpha)^{7}Li$ recoils. S. U. Choi and N. N. Lichtin. bibliog Am Chem Soc J 86: 3948-53 O 5 '64

Rapid semi-micro method for preparation of methyl esters from triglycerides using chloroform, methanol, sulphuric acid. K. V. Peisker. Am Oil Chem Soc J 41:87-8 Ja '64

Salt effects and medium effects on indicator acid-base equilibria in a methanol-water solvent. D. Rosenthal and others. bibliog Am Chem Soc J 86:549-54 F 20 '64

Solvation of chromium(III) ion in acidic water-methanol mixed solvents. J. C. Jayne and E. L. King. bibliog Am Chem Soc J 86: 3989-94 O 5 '64

Study of solid support and partition liquid interactions in gas chromatographic separation of ethanol-methanol mixtures. E. D. Smith and others. Anal Chem 36:1750-3 Ag '64

U.S. exports of methanol set record this year. Chem & Eng N 42:25-6 O 19 '64

Manufacture

Methanol: Chemical construction corp. diag Hydrocarbon Process & Pet Refiner 42: 195 N '63

Methanol: Foster Wheeler corp. diag Hydrocarbon Process & Pet Refiner 42:196 N '63

Methanol (Inverta-Vulcan): Vulcan-Cincinnati, inc. diag Hydrocarbon Process & Pet Refiner 42:198 N '63

Methanol (Uhde): Arthur G. McKee and co. diag Hydrocarbon Process & Pet Refiner 42:197 N '63

Will NH_3CH_3OH synthesis work here? diag Can Chem Process 47:70-2 D '63

METHANOLYSIS

Methanolysis of 2,4-dinitrophenyl acetate. W. R. Ali and others. Chem & Ind p809 My 9 '64

METHEMOGLOBIN

Chemical cyanosis-anemia syndrome. R. L. Wuertz and others. Archives Environmental Health 9:478-91 bibliog(p490-1) O '64

Relation of ascorbic acid to nitrate content of turnip greens and to methemoglobin formation. L. Kilgore and others. bibliog Am J Clinical Nutrition 14:52-5 Ja '64

METHINE. See Methylidyne group

METHIONINE

Effect of soybean trypsin inhibitor on methionine and cystine utilization. E. Kwong and R. H. Barnes. bibliog J Nutrition 81:392-8 D '63

Glutathione and the antithyrotoxic effect of methionine. L. W. Charkey and D. F. Hougham. bibliog J Nutrition 81:255-62 N '63

Response of the liver to prolonged protein depletion; protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

Role of the methionine-13 sulfur in pancreatic ribonuclease. J. M. Parks and others. bibliog Am Chem Soc J 85:3519-21 N 5 '63

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

METHODOLOGY

Cutting-tool temperature-predicting equation by response-surface methodology. S. M. Wu and R. N. Meyer. bibliog diags A S M E Trans ser B 86:150-6 My '64

Tool-life testing by response surface methodology. S. M. Wu. bibliog diags A S M E Trans ser B 86:105-16 My '64

METHOXYBENZENES. See Anisole

METHOXY compounds

Synthesis of 1-methyl-1,2,3,4-tetrahydro-2-carboline and of its 6-methoxy-derivative. B. Meek and others. Chem & Ind p622 Ap 11 '64

METHOXY group

Formation of *cis*- and *trans*-perhydrobenzofurans from 2-(2-methoxycyclohexyl)ethanol derivatives; reactions proceeding through methoxyl participation. S. E. Cantor and D. S. Tarbell. bibliog Am Chem Soc J 86: 2902-9 Jl 20 '64

METHOXYL group. See Methoxy group

METHYL acetamide

Electrode reactions and mechanism of silicon anodization in N-methylacetamide. E. F. Duffek and others. bibliog il diag Electrochem Soc J 111:1042-6 S '64

METHYLACETYLENE. See Propyne

METHYL acrylate. See Methacrylates

METHYLAMINE

Ionization and proton exchange of amines in acetic acid; kinetic and equilibrium properties for solutions of methylamine. E. Grunwald and E. Price. bibliog Am Chem Soc J 86:2965-70 Ag 5 '64

K_D/K_H for base ionization of mono- and dimethylamine. W. Van der Linde and R. E. Robertson. Am Chem Soc J 86:4505-6 O 20 '64

Methylamines market is growing smartly. Chem & Eng N 42:32-3 Mr 23 '64

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

Manufacture

Methylamines: Rohm & Haas co. diag Hydrocarbon Process & Pet Refiner 42:199 N '63

METHYL benzenes. See Toluene

METHYL butene

Isopentane bond for low temperature ultrasonics. R. Stern and others. R Sci Instr 35: 1077-8 Ag '64

Light naphtha isomerization: Standard oil co. (Indiana). flow diag Hydrocarbon Process & Pet Refiner 43:177 S '64

Manufacture

Isoamylene (Sinclair process): Stratford engineering corp. diag Hydrocarbon Process & Pet Refiner 42:185 N '63

METHYL butyrate

Mass spectrometry in structural and stereochemical problems; isotope effect in hydrogen rearrangement processes; the mass spectra of methyl butyrate and its γ-mono-, di-, and trideuterio analogs. D. H. Williams and others. bibliog Am Chem Soc J 86:284-7 Ja 20 '64

METHYL cellulose

Effects of gamma radiation on the chemical properties of methyl cellulose. F. A. Blouin and others. bibliog Textile Res J 34:153-8 F '64

See also

Carboxymethyl cellulose

METHYL chloride. See Chloromethane

METHYL compounds

Copolymerization of methyl esters of unsaturated C_{18} fatty acids. F. R. Mayo and C. W. Gould. bibliog Am Oil Chem Soc J 41:25-9 Ja '64

METHYL compounds—*Continued*

Fatty acids, fatty alcohols, wax esters, and methyl esters from crambe abyssinica and lunaria annua seed oils. T. K. Miwa and I. A. Wolff. bibliog Am Chem Soc J 40:742-4 D '63

Gas chromatographic analysis of amino acids as *N*-trifluoroacetylamino acid methyl esters. P. A. Cruickshank and J. C. Sheehan. bibliog Anal Chem 36:1191-7 Je '64

Identification of the methyl esters of the stable Krebs cycle acids by gas liquid chromatography. H. H. Luke and others. bibliog Anal Chem 35:1916-18 N '63

Molecular structure of the methyl ester of o-nitrobenzenesulfenic acid. W. C. Hamilton and S. J. LaPlaca. bibliog Am Chem Soc J 86:2289-90 Je 5 '64

New synthesis of 2-methyl-1,3-pentadiene. J. K. Haken. bibliog J Ap Chem 14:174-5 Ap '64

Organo-iron complexes; reactions of the *syn*-1-methylpentadienyliron tricarbonyl cation. J. E. Mahler and others. bibliog Am Chem Soc J 85:3959-63 D 20 '63

Structure of 4-arylazo-3-methyl-5-isoxazolones and their methyl derivatives. L. A. Summers and D. J. Shields. bibliog Chem & Ind p 1264-5 Jl 11 '64

Tetramethylcyclobutadiene. P. S. Skell and R. J. Petersen. bibliog Am Chem Soc J 86:2530-1 Je 20 '64

See also

Methyl group

METHYL cyclobutane

Kinetics of the thermal decomposition of methyl cyclobutanecarboxylate. M. Zupan and W. D. Walters. bibliog Am Chem Soc J 86:173-6 Ja 20 '64

METHYL cyclohexane

Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system; measurements accurate to 0.0001°. D. R. Thompson and O. K. Rice. bibliog diags Am Chem Soc J 86:3547-53 S 5 '64

METHYL cyclohexanol

Molecular rotations of methylcyclohexanols in relation to their structures. S. Yamana. bibliog Am Chem Soc J 86:1606-8 Ap 20 '64

METHYL cyclopropane

Thermal unimolecular geometric and structural isomerization of 1,2-dideuterio-3-methylcyclopropane. D. W. Setser and B. S. Rabinovitch. bibliog Am Chem Soc J 86:564-9 F 20 '64

METHYL ethers

Hydrogen bond; equilibrium between hydrogen bonded and nonbonded conformation of α,ω-diol monomethyl ethers. L. P. Kuhn and R. A. Wires. bibliog Am Chem Soc J 86:2161-5 Je 5 '64

METHYL ethyl pyridine

Manufacture

Methyl ethyl pyridine: Petrocarbon developments ltd. diag Hydrocarbon Process & Pet Refiner 42:201 N '63

METHYL glucoside

Synthesis of the methyl glycoside of a derivative of a sulphur-containing analogue of gentiobiose; 6-*S*-β-D-glucopyranosyl-6-thio-α-D-glucopyranoside hepta-acetate. D. H. Hutson. bibliog Chem & Ind p750-1 My 2 '64

Analysis

Polymer-homologous series of methyl β-D-glycosides from cellulose. M. L. Wolfrom and S. Haq. bibliog Tappi 47:183-5 Ap '64

METHYL group

Aroylation at the terminal methyl group of a 1,3,5-triketone to form a 1,3,5,7-tetraketone. M. L. Miles and others. Am Chem Soc J 85:3884-5 D 5 '63

Cage combination and disproportionation of $CH_3 + C_2H_5 \rightarrow$ products; the effect of solvents and temperature. P. S. Dixon and others. Am Chem Soc J 85:3344-6 N 5 '63

Condensations at the methyl groups of N-acetylbenzamide and diacetylimide by means of potassium amide in liquid ammonia. S. D. Work and others. bibliog Am Chem Soc J 86:872-6 Mr 5 '64

Methyl oct-*cis*-2-enoate; its synthesis, GLC behaviour and infrared spectra. O. Mercuri and others. bibliog Am Oil Chem Soc J 41:89-92 F '64

Reaction of methyl radicals with dimethylmercury. R. E. Rebbert and P. Ausloos. Am Chem Soc J 86:2068-9 My 20 '64

Reaction of methyl radicals with nitric oxide. A. Maschke and others. bibliog Am Chem Soc J 86:1929-34 My 20 '64

Theory of line widths in electron spin resonance spectra; motion of methyl groups. J. H. Freed and G. K. Fraenkel. bibliog Am Chem Soc J 86:3477-84 S 5 '64

Thermal demethylation of toluene. C. C. Zimmerman and R. York. bibliog diags Ind & Eng Chem Proc Design 3:254-8 Jl '64

Transition state in methyl radical formation; and α-deuterium effect. A. A. Zavitsas and S. Seltzer. bibliog Am Chem Soc J 86:1265-7 Mr 20 '64

Transition state in methyl radical formation; the secondary α-deuterium isotope effect. A. A. Zavitsas and S. Seltzer. bibliog Am Chem Soc J 86:3836-40 S 20 '64

Xenon-radiosensitized deuterium-methane exchange; recombination rate constant for deuterium atoms and methyl radicals. A. Maschke and F. W. Lampe. bibliog Am Chem Soc J 86:569-74 F 20 '64

METHYL hydrazine

Temperature-entropy diagram of monomethylhydrazine. F. Bizjak and F. F. Stai. bibliog AIAA J 2:954-6 My '64

Analysis

Acid-base method for determining mixtures of either hydrazine-1,1-dimethylhydrazine or monomethylhydrazine-1,1-dimethylhydrazine. H. E. Malone and R. A. Biggers. Anal Chem 36:1037-9 My '64

Manufacture

Monomethyl hydrazine: Olin Mathieson chemical corp. diag Hydrocarbon Process & Pet Refiner 42:203 N '63

METHYL iodide. See Iodomethane

METHYL linoleate

Autoxidation of fatty materials in emulsions; factors affecting the histidine-catalyzed autoxidation of emulsified methyl linoleate. J. E. Coleman and others. bibliog Am Oil Chem Soc J 41:347-51 My '64

Characterization of a methyl linoleate-iron carbonyl complex. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:392 My '64

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

Kinetics of autoxidation of methyl linoleate; effect of added antioxidants and a new method for the evaluation of antioxidants. R. M. Quencer and others. bibliog Am Oil Chem Soc J 41:650-3 O '64

Kinetics of methyl linoleate emulsion autoxidation in the presence of polyhydroxy compounds. A. F. Mabrouk. bibliog Am Oil Chem Soc J 41:331-4 Ap '64

Methanesulfonic acid-catalyzed additions; additions to methyl linoleate. A. Eisner and others. bibliog Am Oil Chem Soc J 41:557-8 Ag '64

METHYL methacrylates. See Methacrylates

METHYL naphthalene

Chemical shifts of methyl protons in polymethylnaphthalenes. F. F. Yew and others. bibliog Anal Chem 36:843-5 Ap '64

METHYL oleate

Decomposition of methyl oleate hydroperoxide on the celite/dinitrophenylhydrazine-hydrochloric acid column. M. M. Horikx. bibliog J Ap Chem 14:50-2 Ja '64

Deuterium-hydrogen exchange during the catalytic deuteration of methyl oleate. W. K. Rohwedder and others. bibliog Am Oil Chem Soc J 41:33-6 Ja '64

Dimer acid structures; the dehydro-dimer from methyl oleate and di-t-butyl peroxide. R. F. Paschke and others. bibliog Am Oil Chem Soc J 41:56-60 Ja '64

Elaidinization of methyl oleate with mercaptans. H. W. Kircher. bibliog Am Oil Chem Soc J 41:351-4 My '64

Isotopic effects during catalytic hydrogenation. E. D. Bitner and others. diag Am Oil Chem Soc J 41:1-3 Ja '64

Methyl azelaaldehydate purification via the bisulfite compound. W. R. Miller and others. Am Oil Chem Soc J 40:720-1 D '63

Studies on the ozonization of methyl oleate. O. S. Privett and E. C. Nickell. bibliog il Am Oil Chem Soc J 41:72-7 Ja '64

METHYLPROPIONIC acid. See Isobutyric acid

METHYL stearate

Double bond migration in methyl eleostearate during gas-liquid chromatographic analysis. K. L. Mikolajczak and M. O. Bagby. Am Oil Chem Soc J 41:391 My '64

METHYL styrene
Synthesis of *ar*-chloromethylstyrene by direct chlorination of *ar*-methylstyrene. D. S. Hoffenberg. bibliog diags Ind & Eng Chem Product Res & Develop 3:113-16 Je '64

METHYL sulfoxide
Aromatic extraction process uses DMSO. il Chem & Eng N 42:50-1 O 5 '64
Chemicals from trees. W. M. Hearon. bibliog il Chem Eng Prog 60:91-6 S '64
Condensation reactions of aromatic aldehydes in dimethyl sulfoxide solution; asymmetric tricarbon condensation involving dimethyl sulfoxide. G. A. Russell and H. D. Becker. bibliog Am Chem Soc J 85:3406-10 N 5 '63
Dimethyl sulfoxide, medicinal and pharmaceutical aspects. L. H. Block. bibliog Drug & Cosmetic Ind 95:342+ S '64
Ketones cleaved at room temperature; abstract. P. G. Gassman and F. V. Zalar. Chem & Eng N 42:44 Ap 20 '64
Mechanism of β-elimination reactions in dimethyl sulfoxide. J. E. Hofmann and others. bibliog Am Chem Soc J 86:1561-3 Ap 20 '64
Proton transfers in dipolar aprotic solvents; transfers to fluorenyl and trityl anions in dimethyl sulfoxide solution. C. D. Ritchie and R. Uschold. bibliog Am Chem Soc J 86:4488-9 O 20 '64
Unexpected conversion of carbohydrate mesyl esters to ethers with retention of configuration by reaction with alkoxides in dimethyl sulfoxide. D. H. Ball and others. bibliog Am Chem Soc J 86:3579-80 S 5 '64

METHYLATION
Constitution of the glucan from mango (mangifera indica Linn). A. Das and C. V. N. Rao. bibliog Tappi 47:339-43 Je '64
Separation and analysis of methylated phenols as their trifluoroacetate ester derivatives. A. T. Shulgin. bibliog Anal Chem 36:920-1 Ap '64

METHYLENE
Cyclopropane synthesis from methylene iodide, zinc-copper couple, and olefins; the methylene-transfer reaction. H. E. Simmons and others. bibliog Am Chem Soc J 86:1347-56 Ap 5 '64
Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64
Methylene proton splitting in the nuclear magnetic resonance spectra of sulphinic esters. J. W. Wilt and W. J. Wagner. bibliog Chem & Ind p 1389-90 Ag 1 '64
Transfer of alkyl-substituted methylenes from sulfonium alkylides to carbonyl groups. E. J. Corey and W. Oppolzer. bibliog Am Chem Soc J 86:1899-900 My 5 '64

METHYLENE blue
Better H_2S analysis in natural gas. D. M. Mason. bibliog diag Hydrocarbon Process & Pet Refiner 43:145-50 O '64
Chemical cyanosis-anemia syndrome. R. L. Wuertz and others. Archives Environmental Health 9:478-91 bibliog(p490-1) O '64
Fading effect in methylene blue staining of wool fiber sections. J. L. Davies. Textile Res J 33:400-2, 1028-9 My, D '63

METHYLENE compounds
Attempts to generate a cyclopropenylidene; an unexpected synthesis of a methylenecyclopropene. W. M. Jones and J. M. Denham. bibliog Am Chem Soc J 86:944-5 Mr 5 '64
New synthesis of cyclohexenones; the double Michael addition of vinyl ethynyl ketones to active methylene compounds; application to the total synthesis of *dl*-griseofulvin. G. Stork and M. Tomasz. bibliog Am Chem Soc J 86:471-8 F 5 '64
Synthesis of methylenecyclopropanes via an α-elimination reaction. H. D. Hartzler. Am Chem Soc J 86:526-7 F 5 '64

METHYLENE cyclopropene
Aliphatic triafulvene. A. S. Kende and P. T. Izzo. bibliog Am Chem Soc J 86:3587-9 S 5 '64
1-Dicyanomethylene-2,3-diphenylcyclopropene ("1,1-dicyano-3,4-diphenyltriafulvene"). E. D. Bergmann and I. Agranat. bibliog Am Chem Soc J 86:3587 S 5 '64
Synthesis of a methylenecyclopropene. M. A. Battiste. bibliog Am Chem Soc J 86:942-4 Mr 5 '64

METHYLENE group
CH_2 transfer from halomethylmercury compounds to olefins. D. Seyferth and others. bibliog Am Chem Soc J 86:121-2 Ja 5 '64
Geminal proton-proton coupling constants in $CH_2{=}N$-systems. B. L. Shapiro and others. bibliog Am Chem Soc J 85:4041-2 D 20 '63
Long-range effect of an asymmetric grouping on the magnetic equivalence of methylene group protons. J. C. Randall and others. bibliog Am Chem Soc J 86:3229-32 Ag 20 '64
Mass scale based on $CH_2{=}14.0000$ for high resolution mass spectrometry of organic compounds. E. Kendrick. bibliog diags Anal Chem 35:2146-54 D '63
New method for the reduction of aldehydes and ketones to CH_2 under mild conditions. L. Caglioti and P. Grasselli. Chem & Ind p 153 Ja 25 '64
Reaction of methylene radicals with acetylene in the gas phase. T. Terao and others. bibliog Am Chem Soc J 85:3919-20 D 20 '63

METHYLENE iodide. See Diiodomethane

METHYLENE tetracycline. See Tetracycline

METHYLENIMINE
Studies on the azidoazomethine-tetrazole equilibrium. C. Temple, jr. and J. A. Montgomery. bibliog Am Chem Soc J 86:2946-8 Jl 20 '64
Ultraviolet absorption of the unconjugated azomethine group. R. Bonnett and others. bibliog Chem & Ind p 1836-7 N 16 '63

METHYLIDYNE group
Hydrogen exchange at methine and C-10 positions in chlorophyll. J. J. Katz and others. bibliog Am Chem Soc J 85:4049-50 D 20 '63

METHYLOL compounds
N-methylol, N-substituted amides as cross-linking reagents for cotton. S. L. Vail and C. M. Moran. bibliog Am Dyestuff Rep 53:282-6 Ap 13 '64
Presensitization of cotton by the deposition of polymers of N-methylol compounds. J. H. Margeson and N. F. Getchell. bibliog Textile Res J 34:247-56 Mr '64

Analysis

Determination of trimethylolpropane in polyesters and polyurethane foams. R. E. Wittendorfer. Anal Chem 36:930-1 Ap '64

Manufacture

Trimethylolpropane; Celanese corp. of America. diag Hydrocarbon Process & Pet Refiner 42:229 N '63

METRIC system
Agencies back metric study. Chem & Eng N 42:26 Ja 20 '64
Ammetrics. Gas 40:101+ N '64
Anguish of metric metabolism. Gas 40:119+ O '64
Contra metric system. E. Roesch. Mech Eng 86:77-8 O '64
International language. Gas 40:91+ S '64
Merging with the metric system. M. Mateos. diags Mech Eng 85:50-1 N '63
Meter vs. inch; cold war continues. Steel 155:94-9 N 2 '64
Metric conversion factors. Automobile Eng 54:267 Je '64
Metric vs. inch at Industrial fasteners institute meeting. Product Eng 35:71-2 Ag 3 '64
Original standard system offers decimalized measurement. T. Watkin. il diags Product Eng 35:82-5 Jl 20 '64
Will Britain go metric? Mag of Stand 35:78 Mr '64
Will NATO battle tank open door to metric system? Steel 154:23-4 Je 1 '64

METROLOGY. See Mensuration

METROPOLITAN districts
Architecture as total community; role of regional policy. A. Mayer and C. Stein. maps Arch Rec 136:197-205 S '64
Architecture as total community; underlying dynamics of social-physical development. A. Mayer and C. Stein. Arch Rec 135:141-6 Je; 136:157-62 Jl '64
See also
Los Angeles—Metropolitan district
New York (city)—Metropolitan district
Winnipeg, Manitoba—Metropolitan district

MEXICO
See also subdivision Mexico under special subjects, e.g.
Architecture
Electricity supply
Gas, Natural
Gas, Natural—Pipe lines
Geology
Iron mines and mining
Irrigation
Mines and mineral resources

MEXICO—See also—*Continued*
Petroleum
Petroleum industry and trade
Petroleum pipe lines
Petroleum products pipe lines
Telephone

MEXICO (city)

Sewerage

Mexico City drains storm water to where farmers can use it. il Eng N 173:28-9 O 22 '64

MEXICO, Gulf of

Heavy mineral reconnaissance Florida west coast. J. D. Bates. bibliog map Econ Geol 58:1237-45 D '63

MICA

Coexistent muscovite and paragonite in pelitic schists. E. A. Zen and A. L. Albee. diags Am Mineralogist 49:904-25 bibliog(p923-5) Jl '64

Correlations between infrared spectrum and chemical composition of mica. W. Vedder. diags Am Mineralogist 49:736-68 bibliog(p766-8) My '64

Dielectric behavior of the film formed on mica cleaved in moist air. S. Ruthberg and L. Frenkel. bibliog diags J Res Nat Bur Stand 68A:173-83 Mr '64

Effect of temperature on the stability of mica standards of capacitance. G. H. Rayner and L. H. Ford. bibliog J Sci Instr 41:149-52 Mr '64

For insulation, a new kind of mica. il Chem Eng 70:110+ D 9 '63

Inorganic mica mat insulation takes 1400 F. il Materials in Design Eng 59:115 Ja '64

Paragonite from Täsch Valley near Zermatt, Switzerland. E. Zen and others. bibliog map Am Mineralogist 49:183-90 Ja '64

Properties of materials; mica; tables. Materials in Design Eng 60:339 Mid-O '64

Significance of phengitic micas from low-grade schists. W. G. Ernst. diags Am Mineralogist 48:1357-73 bibliog(p 1371-3) N '63

Thermal and fast neutron detection by fission-track production in mica. P. R. Prevo and others. il J Ap Phys 35:2636-8 S '64

Thermal behavior of muscovite sheet mica. S. Ruthberg. J Res Nat Bur Stand 67A: 585-90 N '63

Thin mica for electron microscopy. E. L. Fontanella. diags R Sci Instr 35:124 Ja '64

See also
Biotite
Muscovite
Phlogopite

MICE

Fate of Cd^{109} in the mouse. M. Berlin and S. Ullberg. bibliog il Archives Environmental Health 7:686-93 D '63

MICELLES

Detergency; micellar relationships of an anionic-nonionic surfactant mixture. A. M. Mankowich. bibliog Am Oil Chem Soc J 41:449-52 Je '64

Effect of temperature on the critical micelle concentration of dodecylpyridinium bromide. J. E. Adderson and H. Taylor. bibliog J Colloid Sci 19:495-500 Ag '64

Hydration of micelles of association colloidal electrolytes. P. Mukerjee. bibliog J Colloid Sci 19:722-8 O '64

Nonionic surface-active agents; the effect of the alkyl and the polyglycol chain length on the critical micelle concentration of some monoalkyl polyethers. J. E. Carless and others. bibliog J Colloid Sci 19:201-12 Mr '64

Solubilization concepts broaden. S. Kaufman. Chem & Eng N 42:38-9 Je 29 '64

Temperature studies of coacervating cationic soap solutions. I. Cohen and P. Economou. bibliog Am Oil Chem Soc J 41:461-4 Jl '64

MICHAEL reaction

Aromatic ring synthesis via the Michael reaction. C. E. Glassick and others. Chem & Ind p 1711 O 10 '64

Reaction gives heterocyclics, carbocyclics. E. E. Schweizer and others. il Chem & Eng N 42:68-9 Jl 13 '64

MICHELS, Walter Christian

Walter Christian Michels; Oersted medalist for 1963: presentation and acceptance speech. F. Verbrugge. por Am J Phys 32:497-503 Je '64

MICHIGAN

See also subdivision Michigan under special subjects, e.g.
Copper mines and mining
Electricity supply
Gas, Natural
Iron mines and mining
Iron ores
Petroleum
Petroleum industry and trade
Roads

MICROANALYSIS

Adaptation of a galvanic cell for microanalysis of oxygen. H. Lipner and others. bibliog diags Anal Chem 36:204-6 Ja '64

Advanced physical techniques for the study of metals. il diags Metallurgia 70:49-52 Jl '64

Analysis of slag inclusions in plain carbon steels by the electron-probe microanalyser. R. Kiessling and others. bibliog il Iron & Steel Inst J 200:914-21; 201:509-15, 965-7 N '62, Je, N '63

Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

Automatic elemental microanalysis. H. J. Francis, jr. bibliog flow diags il Anal Chem 36:sup31A-42A+ Je '64

Colorimetric procedure for the micodetermination of sulfonamides in animal tissues. R. P. Mooney and N. R. Pasarela. J Agri & Food Chem 12:123-7 Mr '64

Combustion separation of phosphorus in the microdetermination of sulfur. J. M. Corliss and E. J. W. Rhodes. bibliog il diag Anal Chem 36:394-7 F '64

Conference on electron probe microanalysis, Reading, Sept. 26-27; recent advances in the instrumentation and technique of electron probe microanalysis. T. Mulvey. bibliog il diags J Sci Instr 41:61-5 F '64

Detection of submicrogram amounts of fluoride on the ring oven with thorium chloranilate. J. E. Barney, 2d. bibliog diags Anal Chem 36:247-8 Ja '64

Determination of microfluoride content in presence of high chromium(VI) concentrations. V. L. Eggebraaten and J. L. Nugent. Anal Chem 36:1150-1 My '64

Determination of microgram amounts of isopropyl alcohol in aqueous solutions. M. Mantel and M. Anbar. Anal Chem 36:936-7 Ap '64

Determination of microgram quantities of chloride in high purity titanium by X-ray spectrochemical analysis. J. S. Rudolph and R. J. Nadalin. Anal Chem 36:1815-17 Ag '64

Determination of submicrogram amounts of selenium in biological materials. W. H. Allaway and E. E. Cary. bibliog Anal Chem 36:1359-62 Je '64

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

Differential electrolytic potentiometric determination of nanogram quantities of halides at extreme dilution by constant current coulometry. E. Bishop and R. G. Dhaneshwar. bibliog diags Anal Chem 36:726-30 Ap '64

Dilan residue determination by microcoulometric gas chromatography. H. Beckman and A. Bevenue. bibliog J Agri & Food Chem 12:245-7 My '64

Electron-probe microanalysis of a nodular scale growth on an austenitic stainless steel. G. C. Wood and others. bibliog il Iron & Steel Inst J 202:685-95 Ag '64

Empirical method for electron microanalysis. T. O. Ziebold and R. E. Ogilvie. Anal Chem 36:322-7 F '64

Enthalpimetric titration of millimolar solutions feasible; direct injunction enthalpimetry (DIE); abstract. Chem & Eng N 42:76 Ap 20 '64

Extraction of submicrogram amounts of molybdenum with cupferron-chloroform using molybdenum-99. W. B. Healy and W. J. McCabe. Anal Chem 35:2117-19 D '63

Flame photometric microdetermination of boron in organoboron compounds. T. Yoshizaki. Anal Chem 35:2177-9 D '63

Identification of intermetallic layers formed on aluminized steel by means of the electron-probe microanalyser. H. J. Lamb and M. J. Wheeler. il Inst Metals J 92:150-2 '63-64

Iodimetric determination of milligram amounts of rubber hydrocarbon. K. R. Middleton. bibliog Rubber Chem & Tech 37:733-40 Jl '64

Metallurgical microanalysis with the electron probe. J. R. Cuthill and others. bibliog il diags J Metals 15:763-8 O '63

Micro and semimicro differential thermal analysis (μDTA). C. Mazières. bibliog diags Anal Chem 36:602-5 Mr '64

MICROANALYSIS—*Continued*

Microdetermination of arsenic in organic compounds by iodometry. C. DiPietro and W. A. Sassaman. bibliog Anal Chem 36:2213-14 O '64

Microdetermination of polyoxyethylene and polyoxypropylene surface active agents. J. L. Williams and H. D. Graham. bibliog diag Anal Chem 36:1345-9 Je '64

Microdetermination of selenium with 3,3′-diaminobenzidine by the ring oven technique and its application to air pollution studies. P. W. West and C. Cimerman. bibliog Anal Chem 36:2013-16 S '64

Minute areas chemically analysed with new instrument; electron probe microanalyser. il Metallurgia 69:199-200 Ap '64

Modified analytical method for microgram amounts of metaldehyde in plant material. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:249-50 My '64

Paper disk method for the spectrophotometric microestimation of inorganic fluoride. J. G. Aldous and others. bibliog il Anal Chem 36:335-7 F '64

Polarographic determination of submicrogram quantities of molybdenum. A. T. Violanda and W. D. Cooke. bibliog Anal Chem 36:2287-90 N '64

Precise microdetermination of cobalt. R. S. Ondrejcin. Anal Chem 36:937-8 Ap '64

Quantitative infrared microanalysis of high-boiling aliphatic neutral oil fractions. P. A. Estep and C. Karr, jr. bibliog Anal Chem 36:2215-18 O '64

Quantitative isolation and improved nephelometric microdetermination of lupine alkaloids from plant tissues. D. M. Graham and M. Spencer. bibliog Anal Chem 36:210-13 Ja '64

Rapid, accurate microanalysis of the lower fatty acids with particular reference to serial determination. F. A. Vandenheuvel. bibliog il diags Anal Chem 36:1930-6 S '64

Rapid method for the determination of micro amounts of sulfur in selenium. L. Acs and S. Barabas. bibliog diag Anal Chem 36:1825-9 Ag '64

Refining the skill of the steel makers; Tube Investments new research instrument. il diags Engineering 198:6-7 Jl 3 '64

Review of fundamental developments in analysis; inorganic microchemistry. P. W. West. Anal Chem 36 [no 5]:144R-50R bibliog(p 148R-50R) Ap '64

Review of fundamental developments in analysis, organic microchemistry. T. S. Ma and M. Gutterson. Anal Chem 36 [no 5]:150R-63R bibliog(p 159R-63R) Ap '64

Scanning electron-probe microanalysis in the metals industry. B. R. Banerjee and others. bibliog il diag J Metals 15:769-73 O '63

Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64

Specific spot detection of chlorine in inorganic and nonvolatile organic compounds. F. Feigl and others. Anal Chem 36:885-6 Ap '64

Specific spot test for aldehydes. M. H. Hashmi and others. bibliog Anal Chem 36:2029 S '64

Spectrophotometric determination of nanogram amounts of total cholesterol in microgram quantities of tissue or microliter volumes of serum. D. Glick and others. bibliog Anal Chem 36:1119-21 My '64

Spectrophotometric determination of nitrogen in total micro-Kjeldahl digests. L. T. Mann, jr. bibliog Anal Chem 35:2179-82 D '63

Spectrophotometric microdetermination of nitrate with chromotropic acid reagent. J. J. Batten. Anal Chem 36:939-40 Ap '64

Spot test for the detection of vanadium(V). S. G. Tandon and S. C. Bhattacharyya. Anal Chem 36:1378-9 Je '64

Spot tests for aromatic and α,β-unsaturated aldehydes. F. Feigl and E. Libergott. bibliog Anal Chem 36:132-3 Ja '64

Submicroanalysis by radiochromatography. G. A. Welford and others. Anal Chem 36:2350 N '64

Submicrodetermination of oxygen-18-benzophenone by infrared spectrometry. I. Laulicht and S. Pinchas. Anal Chem 36:1980-1 S '64

Submicromicrogram determination of cyanide by a polarographic method. G. W. Miller and others. Anal Chem 36:980-3 My '64

Ultramicrodetermination of iodine by a rapid automatic reaction-rate method. H. V. Malmstadt and T. P. Hadjiioannou. bibliog Anal Chem 35:2157-61 D '63

Use of electron probe microanalysers with gamma-active materials. B. M. Jeffery and G. K. Williamson. diag J Sci Instr 41:172-4 Mr '64

Use of electron probes in the study of recombination radiation. D. B. Wittry and D. F. Kyser. bibliog il J Ap Phys 35:2439-42 Ag '64

MICROBALANCES. See Balances

MICROBIOLOGICAL assay. See Biological assay

MICROBIOLOGY. See Microorganisms

MICRODENSITOMETERS. See Densitometers

MICROFILM records

Blemishes on microfilm linked to storage conditions. il Automation 11:25+ O '64

Microfiche standards adopted. Chem & Eng N 42:54-5 Ag 31 '64

Microfilm and video speed customer information. A. N. Brown. il Elec World 162:64-6 Jl 27 '64

Microrecording. il Ind Phot 13:84-5+ Ja; 80-1 F; 104-5 Mr '64

Modern look in graphic data processing. il Automation 11:22-3 Jl '64

Modern systems of information storage and retrieval. A. Leider. Am Water Works Assn J 56:569-74 My '64

Photocopying; called Photo-Chromic micro image. il Product Eng 35:46-7 S 28 '64

Put your drawings on active microfilm. il Engineering 198:358 S 18 '64

MICROMETERS

Jig micrometer determines extruder screw diameters. J. Moziek. il diags Chem Eng 71:160 Ja 20 '64

Optical mike gages hot wire. diags Iron Age 193:121 F 20 '64

Starrett micrometer heads and internal groove micrometer. il Mach 70:180 Jl '64

MICROORGANISMS

Air filtration of microbial particles. H. M. Decker and others. il diags Am J Pub Health 53:1982-8 D '63

Availability of amino acids to microorganisms. M. J. Horn and H. W. Warren. bibliog J Nutrition 83:267-72 Jl '64

Biochemistry of industrial micro-organisms. C. Rainbow and A. H. Rose, eds. Review, by L. A. Allen. Chem & Ind p877-80 My 23 '64

Control biological growths in open-circulating cooling-water systems. J. S. Beecher and G. A. Trautenberg. Power 108:80-2 Ap '64

Criteria for design of a microbiological research laboratory. A. G. Wedum and G. B. Phillips. bibliog il ASHRAE J 6:46-52+ F '64

Electron flow in the biological fuel cell. A. E. Herner and others. diag Res/Develop 15:27-9 Je '64

Microbial production of sulfides in coastal and estuarine regions; abstract. Y. Hata and others. WPCF J 36:327-8 Mr '64

Microbial synthesis in industry and its relation to microbial physiology. S. J. Pirt. bibliog diags Chem & Ind p 1772-7 O 24 '64

Microbiological and virological aspects of water pollution. L. Coin and others. WPCF J 36:268-9 Mr '64

Outdoor storage of chips and damage by microorganisms. E. Björkman and G. E. Haeger. bibliog Tappi 46:757-66 D '63

Relative toxicity of biostatic agents suggested for use in the pulp and paper industry; 1964 supplement. J. H. Conkey and J. A. Carlson. Tappi 47:sup 139A-40A Jl '64

Two tests for the assessment of microbiological activity on plastics. R. Burgess and A. E. Darby. bibliog il Brit Plastics 37:32-7 Ja '64

Utilisation of hydrocarbons by micro-organisms. M. J. Johnson. bibliog Chem & Ind p 1532-7 S 5 '64

See also

Bacteria
Plankton
Rickettsia
Viruses

MICROPALEONTOLOGY

Foraminiferal facts, fallacies, and frontiers. A. R. Loeblich, jr. and H. Tappan. Geol Soc Bul 75:367-92 bibliog(p389-92) My '64

MICROPHONES

Basic course in commercial sound. N. H. Crowhurst. diags Audio 48:35-7 S; 75-8 O '64

Condenser microphones with electret foil. G. M. Sessler and J. E. West. diag Audio Eng Soc J 12:129-31 Ap '64

New low-noise transistor circuit for electrostatic microphones. P. J. Baxandall. bibliog il diags Wireless World 69:538-42, 593-7 N-D '63

MICROPHONES—*Continued*

PML condenser microphone model EC-61. il Audio 48:56 Mr '64

Parametric amplifiers used in electroacoustics; condenser microphone amplifier with semiconductor elements. E. de Niet. bibliog diags Audio Eng Soc J 12:186-91 Jl '64

Product preview section; microphones. il Audio 48:67-8+ Ag '64

Ribbon microphone for stereo. E. R. Madsen. il diags Audio 48:26+ Ap '64

Shure omnidyne microphone. J. Marshall. il diag Radio-Electronics 35:70 Ja '64

See also

Hydrophone

MICROPHOTOGRAPHY

Cinemicrophotography of blood flow in man. R. E. Wells, jr. and others. bibliog il SMPTE J 73:627-8 Ag '64

Laboratory technique for making multiple microphotographs. R. E. Hampy and others. diag R Sci Instr 35:916-17 Jl '64

Watch the microbe; Ultraphot II camera microscope. il Product Eng 35:47-8 Ja 6 '64

See also

Photomicrography

MICROPHOTOMETERS. See Photometers

MICRORADIOGRAPHY. See Radiography

MICROSCOPE and microscopy

Assembly and performance of a double-beam microscope spectrophotometer from commercial instruments. H. C. Duecker and E. R. Lippincott. bibliog il diag R Sci Instr 35:1108-12 S '64

Cell technique for microscopic observation of selective corrosion. R. Wall and D. I. Roberts. il diags Metallurgia 68:291-4 D '63

Chemical microscopy of the platinum metals; reactions with 4-bromoisoquinoline and 4-(*p*-nitrobenzyl) pyridine. H. F. Schaeffer. il Anal Chem 36:169-72 Ja '64

Controlled atmosphere hot-stage for microscopic observation of glass melting phenomena. A. R. Conroy and others. bibliog il diags Glass Ind 44:76-9+, 139-43+ F-Mr '63; Discussion. L. Penberthy. 44:699-700 D '63; Reply. 45:99 F '64

High pressure microscopy of the silver and cuprous halides. A. Van Valkenburg. bibliog il J Res Nat Bur Stand 68A:97-103 Ja '64

Hot-stage microscope reveals high-temperature behavior. Chem & Eng N 42:60-1 Mr 2 '64

Hypodermic microscope. il Mech Eng 86:65 Mr '64

Identifying colorless transparent particles by microscopy. W. C. McCrone and J. S. Martin il diags Res/Develop 15:28-31 N '64

Instrumental constants in Philips EM 200 microscope. G. K. Rickards and G. K. Williamson. J Sci Instr 41:174-5 Mr '64

Interference microscopy in polymer research. V. G. Peck and W. L. Carter. bibliog il diags Textile Res J 34:40-5, pl 1 Ja '64

Measuring inside from outside. S. I. Burack. il Am Mach 108:112 My 11 '64

Microcracking of plain concrete and the shape of the stress-strain curve. T. T. C. Hsu and others. bibliog il maps diags Am Concrete Inst J 60:209-24 F '63; Discussion. 60:1787-824 D '63

Microfurnace for high temperature microscopy and X-ray analysis up to 2150°C. W. Gutt. bibliog diags J Sci Instr 41: 393-4 Je '64

Microscope televises nonmetallic flaws. diag Iron Age 193:93 My 14 '64

Microscopic chamber for simultaneous measurement of motility and respiration of spermatozoa. R. Rikmenspoel. il diags R Sci Instr 35:49-51 Ja '64

Microscopy of pigment-elastomer systems. W. M. Hess and F. P. Ford. il Rubber Chem & Tech 36:1175-229 bibliog(p 1227-9) D '63

Motorized microscope; from surgery to assembly. il Engineering 198:248 Ag 21 '64

Mounting and polishing mineral grains on a microscopic slide for study with reflected and polarized light. J. E. Sanders and J. H. Kravitz. bibliog il Econ Geol 59:291-8 Mr '64

Preparation of stabilized zirconia for microscopic examination R. M. Slepian. il Am Cer Soc J 47:535-6 O '64

Product Engineering fifth annual master design awards; microscopes for science teaching. il diags Product Eng 35:106-7 Ap 27 '64

Quantitative television microscope. il Engineer 216:918 N 29 '63

Review of fundamental developments in analysis; chemical microscopy. G. G. Cocks. Anal Chem 36 [no 5]:163R-72R bibliog(p 170R-2R) Ap '64

Simple camera for high temperature microscopy. P. Feltham. il diags J Sci Instr 41: 176-7 Mr '64

Simple micropipette or microneedle manipulator. C. Horwitz and S. Wood. diag J Sci Instr 41:518 Ag '64

Study of the hairiness of cotton yarns. K. P. R. Pillay. bibliog diag Textile Res J 34:663-74, 783-91 Ag-S '64

Thermostat control unit for a polarizing microscope. J. N. Hay. il diags J Sci Instr 41:465-7 Jl '64

Zeiss universal measuring microscope. il Mach 70:136 Ag '64

See also

Electron microscope
Ion microscope
Metallography
Microphotography
Microtomes
Photomicrography
Stains and staining (microscopy)
X ray microscope

Technique

Human factor in projection microscope readings of wool fiber diameter. C. C. Kritzinger and others. bibliog Textile Res J 34:518-23 Je '64

Polarized reflected light in microscopic examination of refractories. H. A. Freeman. bibliog il Am Cer Soc Bul 43:448-51 Je '64

See also

Electron microscope—Replica technique

MICROSCOPIC sections

Freeze-fixing of cells and tissues to preserve life. il Res/Develop 15:63 N '64

MICROSEISMS

Microseisms and an attempted application to exploration. M. N. Toksöz. bibliog diags Geophysics 29:154-77 Ap '64

Tidal strain as a possible cause of microseisms and rock jointing. C. D. Holmes. bibliog Geol Soc Bul 4:1411-12 N '63

MICROTOMES

Device for an accurate fluid level adjustment in the trough of a glass knife of the ultra microtome. V. Balashov and G. W. Ripley. diag J Sci Instr 41:571 S '64

Precision ultramicrotome of simplified design. A. P. Murchy and G. McNeil. il diag R Sci Instr 35:132-4 Ja '64

Technique of cinephotomicrography of sequential serial sections. S. N. Postlethwait and others. il SMPTE J 73:629-31 Ag '64

MICROWAVE communication. See Radio communication—Short wave

MICROWAVE spectrum. See Spectrum. Microwave

MIDDLE EAST

See also

Gas. Natural—Middle East
Petroleum industry and trade—Middle East
Petroleum pipe lines—Middle East

MIDDLE WEST

See also subdivision Middle Western states under special subjects, e.g.

Electricity supply
Geology
Mines and mineral resources
Petroleum products pipe lines

MIG welding. See Electric welding. Arc—Inert gas shielding

MIGRATION of insects. See Insects—Migration

MIGRATION of workers

Children of families who follow the crops. a responsibility for public health; editorial. Am J Pub Health 54:520-1 Mr '64

Study of use of health records by 83 California families. J Zusman. Am J Pub Health 54:908-17 Je '64

MILDEW

Mildew is a problem. even in industrial finishes. Ind Finishing 40:69-70 Jl '64

MILITARY aeronautics. See Aeronautics. Military

MILITARY airplanes. See Airplanes. Military

MILITARY art and science

See also

Aeronautics. Military
Atomic bombs
Gunnery
Logistics
Radio communication. Military
Strategy
War games

MILITARY buildings
Defense bill includes hike in construction spending. Eng N 171:20-1 N 21 '63
House oks $1.6-billion military work. Eng N 172:21 Je 4 '64

MILITARY communication. See Radio communication, Military

MILITARY engineering
See also
Radio apparatus—Military use

MILITARY fabrics
Buoyant textiles and body armor; symposium. Mod Textiles Mag 45:60-6+ O '64

MILITARY motor vehicles. See Motor vehicles, Military

MILITARY photography. See Photography, Military

MILITARY reconnaissance
Reconnaissance and surveillance photography. J. S. Goldhammer. il SMPTE J 73:858-62 O '64
Silent war; electronic spying. J. M. Carroll. il diags Electronics 37:74-81 Ap 20 '64

MILITARY research
Gearing military r&d to economic growth. R. A. Solo. Electro-Tech 73:93-8 Je '64
Managing the U.S. investment in military r&d. R. L. Gilpatric. Chem Eng 71:133-6 Ja 20 '64
U.S. army cold regions research and engineering laboratory (USA CREEL). Naval Eng J 76:76 F '64

MILITARY roads. See Roads, Military

MILITARY standards. See Standards, Military

MILITARY supplies
Military demand stays at high level. Oil & Gas J 61:64-5 O 21 '63
Plastics in military equipment. R. M. Ogorkiewicz. il Brit Plastics 36:634-41 N '63
Surveillance; theory and practice. J. Mandelson. Ind Quality Control 20:20-2+ Je '64

MILITARY tanks. See Tanks, Military

MILITARY telephone
Conference arrangement for NORAD. N. Lazo. diags Bell Lab Rec 42:253-7 Jl-Ag '64
New military telephone network for North American air defense. map Bell Lab Rec 42:84-5 Mr '64

MILK
Blood lipid responses to feedings of a polyunsaturated fat nutritional preparation and milk-cream mixture. D. Berkowitz. bibliog Am J Clinical Nutrition 15:218-22 O '64
Current status of instrumentation in milk and food research. R. B. Read, jr. bibliog Am J Pub Health 53:1579-86 O '63
Effect of feeding colostral and milk components on the cessation of intestinal absorption of large molecules (closure) in neonatal pigs. J. G. Lecce and others. bibliog il J Nutrition 84:43-8 S '64
Energy nutrition and milk secretion in the dairy cow. J. A. F. Rook and J. E. Storry. bibliog Chem & Ind p 1778-87 O 24 '64
Exclusion of the exocrine pancreatic secretion; effect on digestibility of soybean and milk protein by baby pigs at various ages. J. C. Pekas and others. bibliog J Nutrition 82:277-86 F '64
Peanut protein and milk protein blends in the treatment of kwashiorkor. J. K. G. Webb and others. bibliog Am J Clinical Nutrition 14:331-41 Je '64
See also
Cream
Dairies
Milk, Reconstituted

Analysis
Determination of furaltadone in milk. P. L. Cox and J. P. Heotis. J Agri & Food Chem 11:499-501 N '63
Determination of trace amounts of nitrofurazone in milk. L. R. Stone. bibliog J Agri & Food Chem 12:121-3 Mr '64
Improved determination of strontium-90 in milk by an ion exchange method. C. R. Porter and B. Kahn. bibliog Anal Chem 36:676-8 Mr '64
Loss of cesium-137 in the ashing of milk samples. R. M. Green and R. J. Finn. Anal Chem 36:692-3 Mr '64
Protection of milk fat tocopherols during saponification with ascorbic acid. V. N. Krukovsky. bibliog J Agri & Food Chem 12:289-92 My '64
Separation of calcium and strontium by liquid ion exchange; determination of total radiostrontium in milk. F. E. Butler. bibliog Anal Chem 35:2069-71 D '63
Spectrographic method for determination of trace elements in milk. J. L. Voth. Anal Chem 35:1957-8 N '63
Spectrophotomertic determination of calcium in milk using 2,2'-(ethanediylidenedinitrilo) diphenol [glyoxal bis(2-hydroxyanil)]. T. A. Nickerson and others. bibliog Anal Chem 36:1676-7 Jl '64
Spectrophotometric determination of tocopherol in milk and milk lipides. D. R. Erickson and W. L. Dunkley. bibliog Anal Chem 36:1055-8 My '64

Bacteriology
Development of clostridium botulinum in experimentally inoculated sterile skim milk held at low temperatures. O. W. Kaufmann and A. R. Brillaud. bibliog Am J Pub Health 54:1514-21 S '64

Fat content
Oxidized-metallic and grassy flavor components of autoxidized milk fat. E. G. Hammond and F. D. Hill. bibliog Am Oil Chem Soc J 41:180-4 Mr '64
Protection of milk fat tocopherols during saponification with ascorbic acid. V. N. Krukovsky. bibliog J Agri & Food Chem 12:289-92 My '64
Structure of high melting glycerides from the milk fat-globule membrane. D. P. Wolf and L. R. Dugan, jr. bibliog Am Oil Chem Soc J 41:139-41 F '64

Homogenization
Operational tests on a clarifixator. R. D. Peterson and W. K. Jordan. Food Tech 18:1457-9 S '64

Sterilization
New process for keeping milk wholesome; uperisation. diag Product Eng 35:62-3 Mr 16 '64

Transportation
Scottish built road tanks enter service for milk collection. il Metallurgia 69:126 Mr '64
See also
Milk tanks

MILK, Condensed
Condensed milks; abstract. P. Borgeaud. Chem & Ind p 1301; Discussion. 1302 Jl 18 '64
Converts surplus milk to concentrates and drys. A. V. Gemmill. il diags Food Eng 36:54-6 Ap '64
Evaporating with economy. O. D. Turner and J. V. Ziemba. il diags Food Eng 36:39-41 Ag '64

MILK, Dried
Converts surplus milk to concentrates and drys. A. V. Gemmill. il diags Food Eng 36:54-6 Ap '64
Dried milk; abstract. H. Torrsell. Chem & Ind p 1301; Discussion. 1302 Jl 18 '64
Mass transfer in the cross-circulation drying of a foam. M. Komanowsky and others. bibliog diags Ind & Eng Chem Proc Design 3:193-7 Jl '64
Rat liver storage of vitamin A from fortified nonfat dried milk. R. A. Rasmussen and others. bibliog J Agri & Food Chem 12:413-14 S '64
Restoration of nonfat dry milk with vitamins A and D. J. C. Bauernfeind and G. K. Parman. Food Tech 18:174-7+ F '64
Studies of the nutritive loss of supplemental lysine in baking; loss in a standard white bread containing four per cent nonfat dry milk. G. R. Jansen and others. bibliog Food Tech 18:367-71 Mr '64
Studies on the nutritive loss of supplemental lysine in baking; loss in water bread and in breads supplemented with moderate amounts of nonfat dry milk. G. R. Jansen and others. bibliog Food Tech 18:372-5 Mr '64

MILK, Evaporated
Serum lipids in breast-fed infants and in infants fed evaporated milk. C. W. Woodruff and others. bibliog Am J Clinical Nutrition 14:83-90 F '64
Two new evaporators go to work. diags Food Eng 36:137-8 My '64

MILK, Reconstituted
Studies to improve the quality of reconstituted milk cheese. I. I. Peters and J. D. Williams. bibliog il Food Tech 18:1615-17 O '64

MILK, Skimmed
Restoration of nonfat dry milk with vitamins A and D. J. C. Bauernfeind and G. K. Parman. Food Tech 18:174-7+ F '64

MILK containers
New process for keeping milk wholesome; uperisation. diag product Eng 35:62-3 Mr 16 '64

MILK handling
Fluid foods go bulk. J. V. Ziemba. il Food Eng 35:46-7 N '63
Liquid milk; abstract. T. R. Ashton and J. G. Davis. Chem & Ind p 1301-2; Discussion. 1302 Jl 18 '64

MILK plants

Equipment

Quick-disconnects help bottle milk. il Hydraulics & Pneumatics 17:26 My '64
Two new evaporators go to work. diags Food Eng 36:137-8 My '64

MILK tanks
Fullwood Champion milk tank. il Engineering 198:292 S 4 '64

MILLER, D. H.
1963 Kelly award winner. por Iron & Steel Eng 41:154 O '64

MILLIAMMETERS. See Ammeters

MILLING
Influence of milling upon the magnetic properties of the intermetallic compound MnAlGe. W. A. J. J. Velge and K. J. de Vos. bibliog J Ap Phys 34:3568-71 D '63
Milling pre-shapes metal strip. A. W. Young. il diags Iron Age 194:58-9 Ag 20 '64
Milling waffle pattern in Saturn tank skins. H. D. Adams. il Mach 70:116-18 Mr '64

MILLING cutters
Boeing mills titanium at 500 sfpm. il Steel 154:63-4 Je 22 '64
Fundamentals of HSS cutting tools. il Am Mach 108:150-1 Ap 13 '64
See also
Boring bars

MILLING machines
Aluminium sheet edge preparation by routing. il Engineering 197:25 Ja 3 '64
Cintimill designed for both horizontal and vertical milling. il Mach 70:161-2 Je '64
Clausing horizontal milling machine. il Mach 71:160 S '64
Deckel universal milling and boring machine. il Mach 70:135 Ag '64
Five-station machine for milling both ends of V-8 and V-6 cylinder heads. il Mach 70:189 F '64
G&L milling machine built for heavy cuts. il Mach 70:152 Mr '64
Gray/King vertical mill is designed to take large boring and turning work. il Am Mach 108:112 Mr 2 '64
Hydraulic extractor for end-mill holders. R. J. Nicholson. il Mach 70:124-5 Mr '64
Machine finishes, mills rolls vertically. il Steel 155:30 O 5 '64
Machining large roll ends. il Engineer 217:835 My 8 '64
Medium-duty milling machines offer unusual versatility. il Mach 71:222D O '64
Milling machines; illustrations with text. Engineer 217:1151 Je 26 '64
Plate edge milling machine. il Engineer 217:624 Ap 3 '64
Redesigned production milling machine. il Engineer 217:1030 Je 12 '64
Rotary milling slashes cost of producing Polaris rings. il diags Mach 70:133-4 Je '64
Special machine for balance-milling connecting-rods. il Mach 71:173 O '64
Tooling to machine spheres. B. C. Brosheer. il Am Mach 108:98-100, cover Mr 16 '64
Tracer mill-EDM teamwork puts diemaking in economy groove. il Steel 154:46-7 Ja 20 '64
Universal milling machine. il Engineer 217:292-3 F 7 '64
What's new in milling? Am Mach/Metalworking Manuf 107:129-30 N 11 '63
Wickman introduces Hurth line of machine tools. il Mach 70:164-5 Je '64
See also
Gear cutting machines

Control

Interchangeable dog bars speed automatic milling of various weldments. C. E. Reeb. il Mach 70:128-9 Mr '64
Pressure control improves keyseater adjustments. il Hydraulics & Pneumatics 17:18 My '64
Rebuilt mill uses air-oil feed. O. Butler. il diags Hydraulics & Pneumatics 17:90+ Jl '64
Tracer milling of changing curves. G. J. Kick. il diags Am Mach/Metalworking Manuf 107:95-6 D 9 '63

Fixtures

Milling with an eye of light. il diags Iron Age 193:70-1 Mr 5 '64

Numerical control

Aluminum waffles milled from the solid by advanced numerical control. L. W. Collins, jr. il diag Mach 70:103-6 Jl '64
Automakers look into n/c die milling. Am Mach 108:101 My 11 '64
British contribution to Concord production in France. il diag Aircraft Eng 36:232-7 Ag '64
Detroit's top secret: numerical milling control. D. MacDonald. il Electronics 37:102+ My 4 '64
Dual-bridge mill is self-contained shop. R. H. Eshelman. il Iron Age 194:85 Jl 23 '64
G-E low-cost positioning control. il Mach 71:216 O '64
G&L jig borer combines precision with heavy production capacity. il Mach 70:160-1 Je '64
Lennox three-axis numerically controlled machine. il Mach 70:133 Ja '64
Numerically controlled miller optimizes own production. R. Sem. diags Control Eng 11:93+ Ag '64
Numerically controlled milling/drilling machine. il Automation 10:93 N '63
Numerically controlled milling pays off for Lockheed-Georgia. L. G. Davis. il Mach 70:85-9 N '63
N/c positioning control is aimed at lower cost. il Engineering 198:303 S 4 '64
Reliability of numerical control proved by ten years of precision machining. E. C. Johnson and R. J. Nymberg. il diags Mach 71:137-41 O '64
Tomorrow's machining already taking shape. R. H. Eshelman. il Iron Age 193:59 Je 25 '64
Versatile line milling control system. il Ind Electronics 2:344 Jl '64

Testing

Dynamic acceptance test results on a milling machine. Engineer 218:289 Ag 21 '64

MILLS, Ball. See Ball mills

MILWAUKEE

Rapid transit

Use of public transportation. J. K. Hadden. Traffic Q 18:219-32 Ap '64

Streets

Milwaukee's parking program. M. E. Bruening and H. J. Wantoch. 3pls Traffic Q 18:30-48 Ja '64

MIND and body
See also
Psychical research

MINE accidents
National safety council compiles 1963 mine injury survey. Eng & Min J 165:116 S '64
See also
Coal mines and mining—Accidents and explosions

MINE air
Heating intake air at Climax. J. Crosby. il diags Min Cong J 50:25-6+ Ja '64
Modified combustion pipette to analyse explosive mixtures of methane with air in Haldane mine-air analysis apparatus. A. K. Ghosh and B. Mitra. diags Chem & Ind p269-70 F 15 '64
See also
Mine dust
Mine ventilation

MINE cages
See also
Mine hoisting

MINE cars
Rationalised mine tub turn-round. il diag Engineer 216:868-9 N 22 '63
See also
Loading and unloading—Mine cars
Mine haulage

MINE construction
Coal Age mining guidebook: deep mining guidebook. il plans diags Coal Age 69:164-7 Jl '64
Rock stresses induced by block caving. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:401-3 Ap '64
See also
Mine shafts
Mine timbering

MINE drainage
Acid mine-drainage control: principles and practices guide: case histories. bibliog il plan diags Coal Age 69:81-4+ My; 72-7 Je '64
Coal Age mining guidebook: deep-mining guidebook: effective mine-drainage methods. il Coal Age 69:198-201 Jl '64
Consol mine dewatering: deep and strip. il Coal Age 69:154-7 O '64
Dewatering through wells before mine development. R. L. Loofbourow and R. L. Brittain. bibliog il diags Min Cong J 50:43-50 Jl '64
Operator looks at acid mine drainage. W. Bellano. bibliog il maps diags Min Cong J 50:66-74 Ag '64

MINE drainage—*Continued*

Pennsylvania acts on mine drainage. WPCF J 36:1320 O '64

Twin tunnels will drain and ventilate flooded Peruvian mine. il diag Eng N 173:24-5 S 3 '64

See also

Mine water

MINE dust

Dust research in West Germany. T. S. Cochrane. il diags Can Min & Met Bul 57:719-28 bibliog(p727-8) Jl '64

See also

Coal dust

Lungs—Dust diseases

MINE equipment

E&MJ's 1964 buying directory. Eng & Min J 165:209-48 Je '64

Mining methods and equipment used at IMC's Esterhazy operations. A. J. Kyle. il plan diag Can Min & Met Bul 57:497-505 My '64

New Cleveland mine of International salt co. was designed for mass recovery of salt. W. C. Bleimeister. flow sheet il diags Eng & Min J 165:86-93 Ag '64

New products digest. Published in monthly numbers of Engineering and mining journal

Operating ideas. Published in monthly numbers of Engineering and mining journal

Underground and laboratory tests of slusher cables. G. Anders. diag Can Min & Met Bul 57:404-8 Ap '64

See also

Coal mines and mining—Equipment

Electricity in mining

Jigs (mining)

Mine cars

Mine hoisting

Mining machinery

Rock drills

Maintenance and repair

ASARCO'S method of keeping its equipment fleet rolling at maximum efficiency. J. J. Sense. il Min Eng 16:35-8 Mr '64

Industrial engineering, inventory control, maintenance at Jamaica's mines. M. Eigo. il Eng & Min J 165:112-14 My '64

Maintenance of mining equipment at Cassiar, B.C. T. L. Horsley. Can Min & Met Bul 57:443-5 Ap '64

MINE explosions

See also

Coal mines and mining—Accidents and explosions

MINE fires

See also

Coal mines and mining—Fires and fire protection

MINE foremen

Foremen's forum. Published in monthly numbers of Coal age

See also

Mine management

MINE gases

See also

Methane

MINE haulage

Coal Age mining guidebook; deep-mining guidebook; haulage and hoisting. il plans diags Coal Age 69:188-93 Jl '64

Consol transportation; rail, rubber, traffic control. il map diags Coal Age 69:110-20 O '64

Deep-trough idlers. diags Min Cong J 49:86-7 O '63

Hauling coal with battery powered tractors and trailers. R. B. Williamson. il diags Min Cong J 50:50-3 My '64

How to boost open-pit productivity; materials handling; productivity measured. B. R. Henderson. il Eng & Min J 164:82-7 N '63

Jeffrey skipway; operation and maintenance. J. M. Fletcher. il Can Min & Met Bul 57:842-8 Ag '64

Main line high speed track haulage; Northern coal mines, Republic steel corp. A. J. Bartlett, jr. il Min Cong J 50:48-51 S '64

Profitable battery-powered face haulage at Amigo smokeless coal co. il plan diag Coal Age 69:60-5 Je '64

See also

Coal mining machinery—Conveyors

Electric locomotives, Mine

Mine cars

Mine hoisting

Motor trucks in mining

Ore handling

Ore transportation

MINE hoisting

Peterson shaft system gears for large tonnage at Mufulira. il diags Eng & Min J 164:72-6 D '63

Use of Keope hoists and Swedish type of car dumps at Meramec mine. B. L. Beal, jr. il Min Cong J 49:80-3 O '63

See also

Mine haulage

MINE hoisting, Electric

Which hoist; drum or friction type? J. K. Irwin and W. G. Trollope. il Can Min & Met Bul 57:627-35 Je '64

MINE inspectors institute of America

Annual convention, 54th, Richmond, Va. June 15-17; with abstracts of papers. Coal Age 69:118-20 Jl '64

MINE lighting

See also

Safety lamps, Electric

MINE management

Industrial engineering, inventory control, maintenance at Jamaica's mines. M. Eigo. il Eng & Min J 165:112-14 My '64

Marcona Mining adopts point system job evaluation scheme. V. R. Cabrera. Min Eng 16:124-7 Jl '64

Mining methods with emphasis on cost records at Getchell mine. C. C. Chamberlain. Min Cong J 49:93-6 O '63

Operations research as applied to mining. M. E. Smith. il Can Min & Met Bul 57:109-14 F '64

Responsibility reporting; International minerals & chemical corp. P. F. Mataich. il Min Cong J 49:102-4 O '63

See also

Coal mines and mining—Management

MINE-mouth plants. See Electric plants (central stations)—Mine-mouth plants

MINE pumps

Dewatering through wells before mine development. R. L. Loofbourow and R. L. Brittain. bibliog il diags Min Cong J 50:43-50 Jl '64

MINE roof bolting

Coal Age mining guidebook; deep-mining guidebook; roof control. il plans Coal Age 69:185-7 Jl '64

Coating halts bolt corrosion. il Eng N 172:109 Ap 2 '64

Consol roof control; conditions, methods, research. il diags Coal Age 69:104-9 O '64

Development and testing of an explosive-anchored rockbolt. E. W. Parsons. il diags Min Cong J 50:28-32 Je '64

Forum on roof bolting by the C.I.M.'s Coal division, annual general meeting, Edmonton, April 2; papers presented. Can Min & Met Bul 56:877-86; Discussion. 887 D '63

Recent developments in roof bolting and roof bolt installation procedure. P. S. Thiel. il diags Can Min & Met Bul 57:1050-62 O '64

Resin compound locks bolts in rock. il Eng N 172:40 Je 4 '64

Roof bolting, 1963, in bituminous coal mines. Min Cong J 50:15 My '64

MINE roofs

Coal Age mining guidebook; deep-mining guidebook; roof control. il plans diags Coal Age 69:182-7 Jl '64

How Scotia designs for long life. il plan diags Coal Age 69:58-68 Ag '64

Hydraulic setting chock. il Engineer 217:874 My 15 '64

International conference on strata control and rock mechanics, 4th, New York; abstracts of papers. Eng & Min J 165:75-9 Jl '64

Roller mining stilt using distortional energy. diags Engineering 197:169 Ja 24 '64

Roof supports: what remains to be done. P. Lingo. il Min Cong J 50:91-3 Ap '64

Use of resins in mine roof support. D. C. McLean. diags Min Eng 16:36-40 Ja '64

Utilization of self-advancing hydraulic support in longwall mining. R. K. Singhal. il diags Min Cong J 50:35-8 Ap '64

See also

Mine timbering

MINE shafts

Drilling large diameter holes for shafts. E. C. Bromley and J. W. Bawcom. bibliog il Min Cong J 50:27-32 Ag '64

Hard rock mole teams up with raise borer to help develop Homer-Wauseca iron mine. R. E. Cannon. il diags Eng & Min J 165:86-9 Mr '64

Swedish firm develops inflatable bladder to close mine shafts. il diag Eng & Min J 165:118 My '64

Trends in shaft design, shaft-sinking methods and equipment. W. Gillingham. il diags Min Cong J 50:45-9 My '64

See also

Mine hoisting

Mine timbering

Shaft sinking

MINE skips

Jeffrey skipway: operation and maintenance. J. M. Fletcher. il Can Min & Met Bul 57:842-8 Ag '64

See also

Mine hoisting

MINE surveying

Gyro-theodolite and its value in modern surveying practice. A. Falter. bibliog il diags Can Min & Met Bul 57:413-20 Ap '64

See also

Dip and strike, Determination of

MINE taxation

Canadian tax amendments. Can Min & Met Bul 57:973-5 S '64

National attitudes; vital key to effective mineral development. R. P. Koenig. Min Eng 16:95-7+ Jl '64

Three T's; taxes, tariffs and trade. V. C. Wansbrough. Can Min & Met Bul 57:834-6 Ag '64

MINE telephone

Some modern communication techniques having application in the mining industry. R. G. Shelley and E. Oldfield. bibliog il diag Can Min & Met Bul 57:292-7 Mr '64

MINE timbering

Coal Age mining guidebook; deep mining guidebook; roof control. il plans diags Coal Age 69:182-5 Jl '64

Timber drop method saves time, money at Continental's underground uranium mine. diag Eng & Min J 165:114 Ag '64

See also

Mine roof bolting

MINE tracks

Main line high speed track haulage; Northern coal mines, Republic steel corp. A. J. Bartlett, jr. il Min Cong J 50:48-51 S '64

MINE transportation

See also

Motor trucks in mining

MINE ventilation

Coal Age mining guidebook; deep-mining guidebook; efficiency in mine ventilation. il plan diag Coal Age 69:194-7 Jl '64

Combatting excessive heat underground at Bralorne. W. E. Field. il map diags Min Eng 15:76-7 D '63

Consol mine ventilation; equipment, methods, control. il plans diags Coal Age 69:121-7 O '64

English develop ventilation analogue system featuring mine plan diagram. R. Kirk. il Min Eng 16:64-6 Ap '64

Heating intake air at Climax. J. Crosby. il diags Min Cong J 50:25-6+ Ja '64

Safety evaluation of underground Diesel equipment. R. F. Love and J. H. Furse. il Min Cong J 50:58-61 Ap '64

Twin tunnels will drain and ventilate flooded Peruvian mine. il diag Eng N 173:24-5 S 3 '64

Ventilating for continuous miners in northern West Virginia. A. E. Belton. il plans Coal Age 69:74-9+ Mr '64

See also

Mine air

MINE waste

See also

Coal mines and mining—Waste disposal

MINE water

Flooding and recovery of the Jefferson City mine. H. W. Miller and D. H. Jolley. il plans diags Min Cong J 50:16-21 Ja '64

New miners; acid-loving bacteria. il Can Chem Process 48:55-7 Jl '64

See also

Mine drainage

MINERAL engineering

See also

Mine surveying

Study and teaching

Engineering education for the mineral industry. R. L. Perrine. Can Min & Met Bul 56:839-41 N '63

Terminology

International dictionary for the mineral processing engineer. Eng & Min J 165:201-4 Je '64

MINERAL engineers

Conference on mining and mineral engineering manpower, Houghton, Mich. Nov. 18-19. Min Cong J 50:15 Ja '64

MINERAL industries

American mining congress declaration of policy. Min Cong J 49:37-43 O '63

Industrial minerals in 1963. R. M. Dreyer. il Min Eng 16:93-105 F '64

Industrial minerals, 1963. I. Campbell. il Min Cong J 50:79-84 F '64

Introduction to statistical methods used in the mineral industries. A. C. Dorenfeld. bibliog diags Eng & Min J 165:179-85 Je '64

Investment capital and mineral development. L. C. Raymond. Min Eng 16:39-43 Ag '64

Mineral obsolescence and substitution. C. W. Merrill. Min Eng 16:55-9 S '64

Other nonmetals; review and forecast. B. C. Herod. il Pit & Quarry 56:116-22 Ja '64

Record year; USBM preliminary report. il Min Eng 16:65-8 F '64

Shifting pattern of mineral demand. C. W. Merrill. Min Eng 16:60-4 F '64

Strategic minerals, 1963. H. M. Dole. il Min Cong J 50:122-5 F '64

See also

Iron industry and trade
Mines and mineral resources
Mining industry and finance
Petroleum industry and trade
Potash

Statistics

Facts and figures for the chemical process industries; basic minerals. G. F. Cazell. Chem & Eng N 42:124-9 S 7 '64

Technical personnel employed in the mineral industry. Can Min & Met Bul 57:932 S '64

Canada

Canada's mineral production in 1963. Can Min & Met Bul 57:28-9 Ja '64

Canadian production of minerals and metals. R. B. Toombs. J Metals 16:569-75 Jl '64; Same. Min Eng 16:53-9 Ag '64

Sand and gravel; a substitute for gold? I. L. Jennings. Can Min & Met Bul 57:759-62 Jl '64

Students graduating in mineral industry courses. Can Min & Met Bul 57:242-4 Mr '64

Nova Scotia

Refining salt products. il diag Automation 10:60-2 N '63

MINERAL lands

See also

Mines and mineral resources
Oil lands
Petroleum laws and regulations

MINERAL oils

High-temperature hydraulic fluids from petroleum. E. E. Klaus and others. bibliog Ind & Eng Chem Product Res & Develop 2:332-8 D '63

New extending oils make headway in plastics. il Chem & Eng N 42:25-6 Mr 9 '64

Quantitative relationship between mineral oil composition and elastomer-extender interaction parameter. M. Bruzzone and G. Modini. Rubber Chem & Tech 37:451-6 Ap '64

Rapid detection and determination of mineral oil on dried fruit by thin layer chromatography. F. Radler and M. V. Grncarevic. bibliog il J Agri & Food Chem 12:266-7 My '64

Viscosity-temperature-pressure relationship of lubricating oils and its correlation with chemical constitution. C. J. A. Roelands and others. bibliog diag A S M E Trans ser D 85:601-7; Discussion. 607-8; Reply. 608-10 D '63

MINERAL processing congress, International. See International mineral processing congress

MINERAL waters

Mechanism of hydrogen ion buffering in natural waters. W. J. Weber, jr. and W. Stumm. bibliog Am Water Works Assn J 55:1553-78 D '63; Correction. 56:386 Ap '64

Mineral waters of Quebec. R. Paquet. Can Min & Met Bul 57:939-44 S '64

Origin and occurrence of carbon dioxide and gaseous mineral waters, Variscian platform, central Europe. J. Vrba. bibliog map Econ Geol 59:874-82 Ag '64

MINERAL wool

Fire, explosions and recovery; Federal no. 1 mine. il plan diags Coal Age 68:78-85+ N '63

MINERALOGICAL analysis

Apparatus for controlled-atmosphere differential thermal analysis of corrosive materials. R. J. Pickering. bibliog il Am Mineralogist 48:1383-8 N '63

Atomic absorption spectrophotometry and the analysis of silicate rocks for copper and zinc. C. B. Belt, jr. bibliog diag Econ Geol 59:240-58 Mr '64

Calciferous brown amphibole in alkalic gabbro of Koraput, Orissa, India. M. K. Bose. bibliog Am Mineralogist 48:1405-9 N '63

Correlations between infrared spectrum and chemical composition of mica. W. Vedder. diags Am Mineralogist 49:736-68 bibliog (p766-8) My '64

MINERALOGICAL analysis—*Continued*

Cummingtonite-grunerite series; a chemical; optical and X-ray study. C. Klein, jr. bibliog Am Mineralogist 49:963-82 Jl '64
Deriving the formula of a mineral from its chemical analysis. G. Donnay. Am Mineralogist 49:1490-1 S '64
Determination of the heavy atom content in chlorite by means of the X-ray diffractometer. W. Petruk. bibliog diag Am Mineralogist 49:61-71 Ja '64
Distribution of minor components during the formation of minerals. K. Nassau. bibliog Am Mineralogist 49:321-4 Mr '64
Empressite and stuetzite redefined. R. M. Honea. bibliog diags Am Mineralogist 49:325-38 Mr '64
Errors of reflectivity measurements and of calculations of refractive index n and absorption coefficient k. H. Piller and K. v. Gehlen. bibliog Am Mineralogist 49:867-82 Jl '64
Glass-bead silica determination for a suite of volcanic rocks from the Owyhee Plateau, Oregon. L. R. Kittleman, jr. bibliog Geol Soc Bul 74:1405-9 N '63
Grooved plate, a simple petrographic aid for size measurements of elongate minerals. K. A. Sargent. bibliog diags Am Mineralogist 48:1403-5 N '63
Impurities in quartz. W. H. Dennen. bibliog diags Geol Soc Bul 75:241-5 Mr '64
Interaction of chemistry and mechanics in magmatism. R. F. Mueller. bibliog J Geol 17:759-72, pl 1 N '63
Lithian hureaulite from the Black Hills. D. J. Fisher. bibliog diag Am Mineralogist 49:398-406 Mr '64
Method of classifying analyses with any number of terms. J. B. Mertie, jr. Am Mineralogist 49:1306-20 S '64
Microprobe technique for the analysis of multiphase microcrystalline powders. E. W. White. Am Mineralogist 49:196-7 Ja '64
Microscopic examination of manganese ores of Srikakulam and Visakhapatnam (Vizagapatam) districts, Andhra Pradesh, India. J. S. R. Krishna Rao. bibliog il Econ Geol 58:434-40 My '63; Discussion. S. Roy. 59:154-7 Ja '64
Modern trends in the teaching of metallurgical and mineral analysis. D. A. Pantony. bibliog Metallurgical 68:264-6 D '63
Modified graphical method of absorption correction for the displacement of lines in a powder photograph. K. Viswanathan. bibliog Am Mineralogist 49:1474-80 S '64
Oxygen determination in rocks, minerals, and water by neutron activation. A. Volborth and H. E. Banta. bibliog Anal Chem 35:2203-5 D '63
Petrochemistry of a Precambrian amphibolite from the Jaraquá area, São Paulo, Brazil. C. D. Gomes and others. bibliog maps diag J Geol 72:664-80 S '64
Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64
Quantitative determination of kaolinite and halloysite by NH_4Cl retention measurement. K. Wada. bibliog diag Am Mineralogist 48:1286-99 N '63
Quantitative mineral analysis of kaolin-bearing rocks by X-ray diffraction. E. Niskanen. bibliog Anal Chem 36:1268-71 Je '64
Radiochemical determination of radium-228 and thorium-228 in biological and mineral samples. H. G. Petrow and others. Anal Chem 36:1600-3 Jl '64
Rapid, quantitative illite determination in polycomponent mixtures. D. M. Lapham and M. G. Jaron. Am Mineralogist 49:272-6 Mr '64
Recalculation of pyroxene analyses. M. G. Bown. Am Mineralogist 49:190-4 Ja '64
Reduction of orientation effects in the quantitative X-ray diffraction analysis of kaolin minerals. E. Niskanen. bibliog diag Am Mineralogist 49:705-14 My '64
Relation of atomic constitution to lattice parameters in some hornblendes from the Black Hills, South Dakota. B. Raychaudhuri. bibliog Am Mineralogist 49:198-206 Ja '64
Sapphirine bearing rock, Val Codera, Italy. F. Barker. bibliog diag Am Mineralogist 49:146-52 Ja '64
Significance of phengitic micas from low-grade schists. W. G. Ernst. diags Am Mineralogist 48:1357-73 bibliog(p 1371-3) N '63
Speed, low costs are major attractions of X-ray analyses. F. W. Shultz. il Min Eng 16:48-9 Ja '64
Stereoscopic radiography in the study of ore textures. W. K. Hamblin and C. A. Salotti. il Am Mineralogist 49:17-29 Ja '64
Thorian intermediate member of the britholite-apatite series; physical and chemical studies. M. R. Hughson and J. G. Sen Gupta. bibliog il Am Mineralogist 49:937-51 Jl '64
Trace element determinations in soils and stream sediments by an internal standard spectrographic procedure. E. F. Cruft. bibliog il Econ Geol 59:458-64 My '64
Univac speeds identification of minerals at University of North Carolina. il Min Eng 16:70-2 Je '64
Use of the angle $A_1\Lambda c$ in optical determination of the composition of augite. N. R. Ruegg. bibliog diags Am Mineralogist 49:599-606 My '64
Variation of some rare earths in allanite. J. W. Frondel. bibliog Am Mineralogist 49:1159-77 S '64
X-ray identification of ordered and disordered ortho-enstatite. S. S. Pollack and W. D. Ruble. il Am Mineralogist 49:983-92 Jl '64
See also
Rocks—Analysis

MINERALOGICAL research

Experimental study on the leucite-pseudoleucite problem. Y. Seki and G. C. Kennedy. Am Mineralogist 49:1267-80 bibliog (p 1278-80) S '64
Externally heated cold-seal pressure vessels for use to 10,000 bars and 750°C. W. C. Luth and O. F. Tuttle. diags Am Mineralogist 48:1401-3 N '63
Incorporation of uranium and silver by hydrothermally synthesized galena. J. J. Hutta and H. D. Wright. bibliog il Econ Geol 59:1003-24 S '64
Proposed working reflectivity standards for opaque ore minerals. G. J. Jansen. bibliog diag Econ Geol 59:1153-8 S '64
Quartz glass pressure vessels for hydrothermal studies. R. Speed and A. Filice. diags Am Mineralogist 49:1114-19 Jl '64
Theoretical solubility of H_2O in silicate melts; quasi-crystalline models. H. R. Shaw. J Geol 72:601-17 bibliog(p617) S '64

MINERALOGICAL society of America

Directory of fellows and members; with geographical list of members. Am Mineralogist 49:490-542 Mr '64

Proceedings of the 44th annual meeting, New York, Nov. 17-20. Am Mineralogist 49:469-86 Mr '64

MINERALOGICAL specimens

Electropolishing of pyrite. E. G. Ehlers and J. D. Birle. il diag Am Mineralogist 49:800-4 My '64

Silicate sample preparation for light-element analyses by X-ray spectrography. E. E. Welday and others. bibliog Am Mineralogist 49:889-903 Jl '64

Mounting

Causes of optical-crystallographic scatter of plagioclase in grain mounts. T. A. Vogel. diag Geol Soc Bul 74:1403-4 N '63

Mounting and polishing mineral grains on a microscopic slide for study with reflected and polarized light. J. E. Sanders and J. H. Kravitz. bibliog il Econ Geol 59:291-8 Mr '64

MINERALOGY

Celadonite; synthesis, thermal stability and occurrence. W. S. Wise and H. P. Eugster. il diags Am Mineralogist 49:1031-83 bibliog (p 1080-3) Jl '64

Clay mineralogy; symposium abstracts. Am Cer Soc Bul 43:341+ Ap '64

Effect of Al_2O_3 on the mineral constitution of self-fluxing sinters. E. Mazanek and S. Jasieńska. bibliog il Iron & Steel Inst J 202:319-24 Ap '64

Experimental study of quartz overgrowths and synthetic quartzites. W. G. Ernst and H. Blatt. bibliog J Geol 72:461-70, pl 1-3 Jl '64

Geology and mineralogy of certain manganese oxide deposits. L. T. Larson. bibliog il maps diags Econ Geol 59:54-78 Ja '64

Geology and mineralogy of the Buena Vista iron ores, Churchill County, Nevada. A. S. Radtke. bibliog maps diags Econ Geol 59:279-90 Mr '64

Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog(p917-19) Ag '64

Mineralogy and ceramic properties of some California talcs. H. Heystek and E. Planz. bibliog Am Cer Soc Bul 43:555-61 Ag '64

MINERALOGY—*Continued*

Mineralogy and origin of the titaniferous deposit at Pluma Hidalgo, Oaxaca, Mex. E. G. Paulson. bibliog il maps Econ Geol 59:753-67 Ag '64

Mineralogy of amphibolite interlayers in the gneiss complex, northwest Adirondack Mountains, New York. A. E. J. Engel and others. map diag J Geol 72:131-56 bibliog (p 155-6) Mr '64

Transformation of trilinear and quadriplanar coordinates to and from cartesian coordinates. J. B. Mertie, jr. bibliog diags Am Mineralogist 49:926-36 Jl '64

See also
Coal
Crystallography
Etching (minerals)
Geology
Inclusions (mineralogy and petrology)
Metals
Mica
Ore deposits
Rocks

Bibliography

Book reviews. Published in bi-monthly numbers of American mineralogist

Ten-year supplement to the bibliographies of Clarence S. Ross and Waldemar T. Schaller. M. Hooker. Am Mineralogist 48: 1410-12 N '63

Study and teaching

Elementary course in a changing mineralogy. C. S. Hurlbut, jr. bibliog Am Mineralogist 49:227-41 Mr '64

MINERALOGY, Determinative

Continuous analysis of low grade ores. Engineering 198:515 O 23 '64

Direct spectrophotometric microdetermination of high-level magnesium in silicate minerals; a Clayton yellow procedure. R. Meyrowitz. Am Mineralogist 49:769-77 My '64

Ores analysed at the push of a button by radioactivation analysis. il Engineering 197:654 My 8 '64

Oxygen analyses of minerals and oxides. T. Sharma and R. N. Clayton. bibliog Anal Chem 36:2001-2 S '64

Rapid chemical analysis of refractory chrome ores and chrome-bearing refractories. C. S. Richards and E. C. Boyman. bibliog Anal Chem 36:1790-3 Ag '64

Rotation properties of certain anisotropic ore minerals. E. N. Cameron and others. bibliog diag Econ Geol 56:569-83; 58:1309-12 My '61, D '63

MINERALS

AIME Southwest metals and minerals conference. Los Angeles, May 13-15; program. J Metals 16:327-8 Ap '64

Decay products of radium in ceramics and their interaction with matter. A. F. Gabrysh and others. bibliog diags Materials Res & Stand 3:902-5 N '63; Discussion. 4: 220-1 My '64

Deriving the formula of a mineral from its chemical analysis. G. Donnay. Am Mineralogist 49:1490-1 S '64

Effectiveness of shearing stresses in accelerating solid phase reactions at low temperatures and high pressures. F. Dachille and R. Roy. bibliog J Geol 72:243-7 Mr '64

Electron optical observations of fine-grained silica minerals. E. A. Monroe. bibliog il Am Mineralogist 49:339-47 Mr '64

Heavy mineral reconnaissance Florida west coast. J. D. Bates. bibliog map Econ Geol 58:1237-45 D '63

Investigations of landesite. P. B. Moore. Am Mineralogist 49:1122-5 Jl '64

Minerals from sea salt. J. A. Tallmadge and others. bibliog il Ind & Eng Chem 56:44-65 Jl '64

Native nickel-iron alloy, its mode of occurrence, distribution and origin. J. S. R. Krishnarao. bibliog il Econ Geol 59:443-8 My '64

Quantitative measurements of reflectivity. P. Ramdohr. bibliog Econ Geol 59:502-9 My '64; Discussion. I. M. Gray and A. P. Millman. 59:1394-5 N '64

Sarcopside from Deering and East Alstead, N.H. D. R. Peacor and D. Garske. Am Mineralogist 49:1149-50 Jl '64

See also
Alexandrite
Apatite
Asbestos
Bentonite
Calcium niobate
Chrysoberyl
Chrysotile
Diamonds
Etching (minerals)
Flotation process (non-metals)
Garnet
Glauconite
Iriginite
Kyanite
Magnetite
Margarosanite
Mica
Mineralogy
Mines and mineral resources
Olivine
Pegmatites
Phlogopite
Phosphate rock
Pollucite
Quartz
Schists
Serpentine
Spinels
Talc
Thaumasite
Thorite
Topaz
Vermiculite
Water supply—Mineral content
Zircons

Age

See Rocks—Age

Nomenclature

New mineral names. M. Fleischer. Published in bi-monthly numbers of American mineralogist

MINERALS in the body

Bone density and skeletal maturation as indexes of mineral status in children. D. E. Williams and others. bibliog Am J Clinical Nutrition 14:91-7 F '64

Effect of dietary fluoride upon the magnesium calcinosis syndrome. Y. Chiemchaisri and P. H. Phillips. bibliog J Nutrition 81:307-11 D '63

Effect of zinc toxicity on calcium, phosphorus and magnesium metabolism of young rats. A. K. Stewart and A. C. Magee. bibliog J Nutrition 82:287-95 F '64

Effects of high dietary calcium and phosphorus on calcium, phosphorus nitrogen and fat metabolism in children. L. Lutwak and others. bibliog Am J Clinical Nutrition 14:76-82 F '64

Mineral balance studies with the baby pig: effects of dietary phosphorus level upon calcium and phosphorus balance. E. R. Miller and others. bibliog J Nutrition 82: 111-14 Ja '64

Mineral utilization in the rat. R. M. Forbes. bibliog J Nutrition 80:321-6; 83:44-8, 225-33 Jl '63, My, Jl '64

Trace metal levels in human serum and blood. E. M. Butt and others. bibliog Archives Environmental Health 8:52-7; Discussion. 110-14 Ja '64

MINERS

See also
Coal miners

Diseases and hygiene

Dust research in West Germany. T. S. Cochrane. il diags Can Min & Met Bul 57:719-29 bibliog(p727-8) Jl '64

Further statistics on silicosis among miners in Ontario. A. H. Sellers and W. C. Wheeler. bibliog Ind Med 33:89-97 F '64

Occupational Raynaud's II. W. F. Ashe and N. Williams. il Archives Environmental Health 9:425-33 O '64

Study of pulmonary disease in certain Ontario miners. A. R. Riddell. Ind Med 33:86-8 F '64

See also
Coal miners—Diseases and hygiene

MINES, Bureau of. See United States—Mines, Bureau of

MINES and mineral resources

Communist activities in the battle for industrial supremacy. C. W. Wright. Min Eng 16:52-4 Ja '64

Mineral maps of the world. Eng & Min J 165:193-200 Je '64

New areas, new commodities highlight this year's E&MJ operations survey. il diags Eng & Min J 165:58-65 Ja '64

Progress in the science of ore-finding 1963. V. E. McKelvey. bibliog map Min Cong J 50:45-9 F '64

See also
Coal
Coal mines and mining
Geochemistry
Gold mines and mining
Metals
Mining engineering

MINES and mineral resources—See also—*Cont.*
Mining industry and finance
Mining law
Mining machinery
Oil shales
Ore deposits
Petroleum
Quarries and quarrying
Shale
Slate

Africa

New rutile mine in Sierra Leone announced; Sherbro minerals ltd. flow diag il Min Eng 16:50-1 Ag '64

Alaska

Cymrite in a copper deposit, Brooks Range, Alaska. D. D. Runnells. bibliog il Am Mineralogist 49:158-65 Ja '64

Argentina

Metallogenetic belts, centers, and epochs in Argentina and Chile. W. C. Stoll. bibliog map Econ Geol 59:126-35 Ja '64

Arizona

Distribution of uranium deposits in the White Canyon-Monument Valley district, Utah-Arizona. R. G. Young. bibliog il maps diags Econ Geol 59:850-73 Ag '64

Australia

Australian rules. map Min Eng 16:63-7 O '64

Clinopyroxenes of a monzonitic complex at Mount Dromedary, New South Wales. R. S. Boesen. il diags Am Mineralogist 49:1435-57 bibliog(p 1456-7) S '64

Bolivia

Bolivian tin mineralization and orogenic evolution. P. Ljunggren. maps Econ Geol 57:978-81 S '62; Discussion. A. Schneider-Scherbina. 58:456-9 My '63; Reply. 58:1348-51 D '63

Brazil

Crystallography of faheyite, Sapucaia pegmatite mine, Minas Gerais, Brazil. M. L. Lindberg. diag Am Mineralogist 49:395-8 Mr '64

Geochemistry of some kyanites from Brazil. N. Herz and C. V. Dutra. bibliog il Am Mineralogist 49:1290-305 S '64

Leucophosphite, a new occurrence in the Quadrilátero Ferrífero, Minas Gerais, Brazil. G. C. Simmons. il Am Mineralogist 49:377-86 Mr '64

Tin-tantalum-lithium pegmatites of the São João Del Rei district, Minas Gerais, Brazil. E. W. Heinrich. bibliog il maps Econ Geol 59:982-1002 S '64

British Columbia

British Columbia mining industry. flow sheets il maps diags Min Eng 15:37-85 D '63

Conductivity spectra of rocks from the Craigmont ore environment. D. C. Fraser and others. bibliog map diag Geophysics 29:832-47 O '64

Maintenance of mining equipment at Cassiar, B.C. T. L. Horsley. Can Min & Met Bul 57:443-5 Ap '64

British Guiana

Bauxite deposits of British Guiana and Surinam in relation to underlying unconsolidated sediments suggesting two-step origin. J. H. Moses and W. D. Michell. il maps diags Econ Geol 58:250-62 Mr '63; Discussion. 58:1002-8, 1160-2; 59:161-2 S-N '63, Ja '64

Geochemical approach to the problem of bauxite genesis in British Guiana. G. Harden and J. H. Bateson. bibliog diag Econ Geol 58:1301-8 D '63

California

Absence of optically positive potash feldspar in the Inyo Mountains, California-Nevada. D. O. Emerson. bibliog Am Mineralogist 49:194-5 Ja '64

Is geologic field work obsolete? C. F. Park, jr. bibliog maps Econ Geol 59:527-37 Je '64

Mineralogical relations in some pelitic hornfelses from the southern Sierra Nevada, Calif. M. G. Best and L. E. Weiss. il maps diags Am Mineralogist 49:1240-66 bibliog(p 1264-6) S '64

Mineralogy and paragenesis of amphiboles from Gibson Peak pluton, northern California. P. W. Lipman. Am Mineralogist 49:1321-30 S '64

Stability relations of carbon mineral assemblages in the southern California batholith. R. F. Mueller and K. C. Condie. bibliog maps J Geol 72:400-11, pl 1-2 Jl '64

Canada

Helicopter exploration costs in northern Canada. C. E. G. Brown. Can Min & Met Bul 57:282-6 Mr '64

Chile

Copper distribution patterns in soils and drainage in central Chile. A. De Grys. Econ Geol 59:636-46 Je '64

Metallogenetic belts, centers, and epochs in Argentina and Chile. W. C. Stoll. bibliog map Econ Geol 59:126-35 Ja '64

Colorado

Process-response models based on heavy-mineral content of the San Isabel Granite, Colo. E. H. T. Whitten and R. E. Boyer. bibliog maps diags Geol Soc Bul 75:841-62 S '64

Re-examination of isotopic relationships in Colorado Front Range uranium ores. P. O. Banks and L. T. Silver. bibliog Geol Soc Bul 75:469-76 My '64

Safety program of the Colorado Bureau of mines. G. A. Franz, jr. il Min Cong J 49:57-60 O '63

Ecuador

Ecuador's new mineral development plan. A. D. Dwin. il maps Eng & Min J 165:109-17 O '64

Europe

Review of coal preparation advances abroad. W. L. Crentz and A. W. Deurbrouck. il diags Min Cong J 49:88-92+ O '63

Finland

Zincian chromite from Outokumpu, Finland. T. P. Thayer and others. bibliog Am Mineralogist 49:1178-83 S '64

Florida

Origin of the silica sand deposits of the Lake Wales Ridge area of Florida. E. C. Pirkle and others. bibliog il maps Econ Geol 59:1107-39 S '64

Great Britain

Metamorphic aureole of the peridotite at the Lizard, Cornwall. D. H. Green. bibliog maps diags J Geol 72:543-63 S '64

Idaho

Improvement of mining practice by standardization; Star mine. W. Dunphy. diags Min Cong J 50:39-43 Ap '64

Silver mineralization in the Mineral district, Washington County, Idaho. A. L. Anderson. bibliog il map Econ Geol 58:1195-217 D '63

Illinois

Barite zoning in the Illinois-Kentucky fluorspar district. E. A. Brecke. maps Econ Geol 59:299-302 Mr '64

India

Calciferous brown amphibole in alkalic gabbro of Koraput, Orissa, India. M. K. Bose. bibliog Am Mineralogist 48:1405-9 N '63

Chrome-nickel pennine from serpentinite, Jambur chromite mines, Mysore State, India. S. Varadarajan. Am Mineralogist 49:420-4 Mr '64

Chromite deposits of the Keonjhar district, Orissa, (India). O. P. Varma. bibliog il maps plan diags Econ Geol 59:799-825 Ag '64

Chromite from Kondapalle, Kristna district, Andhra Pradesh, India. J. S. R. Krishna Rao. il Econ Geol 59:678-83 Je '64

Geology of the Zawar lead-zinc mine, Rajasthan, India. A. Mookherjee. il maps Econ Geol 59:656-77 bibliog(p675-7) Je '64; Discussion. J. Pereira. 59:1603-4 D '64

Microscopic examination of manganese ores of Srikakulam and Visakhapatnam (Vizagapatam) districts, Andhra Pradesh, India. J. S. R. Krishna Rao. bibliog il Econ Geol 58:434-40 My '63; Discussion. S. Roy. 59:154-7 Ja '64

Occurrence of asbestos in Chamoli, U.P., India. D. Prakash and I. K. Dalela. Am Mineralogist 49:424-6 Mr '64

Studies on zircons from some garnetiferous sillimanite gneisses (khondalites) from Orissa and Andhra Pradesh, India. M. V. N. Murthy and H. N. Siddiquie. bibliog map J Geol 72:123-7, pl 1 Ja '64

Thermal metamorphism of the sulfide minerals at Zawar mines, Rajasthan, India. A. Mookherjee. Econ Geol 59:498-500 My '64

Italy

Sapphirine bearing rock, Val Codera, Italy. F. Barker. bibliog diag Am Mineralogist 49:146-52 Ja '64

MINES and mineral resources—*Continued*

Jamaica

Industrial engineering, inventory control, maintenance at Jamaica's mines. M. Eigo. il Eng & Min J 165:112-14 My '64

Jamaica keeps growing: two new projects will boost bauxite shipments. to the U.S. M. Eigo. il maps diags Eng & Min J 165: 50-7 Ja '64

Jamaica; planning for versatile mining. M. Eigo. flow sheet il map diag Eng & Min J 165:78-84 Mr '64

Japan

Clinopyroxenes from alkaline rocks of Japan. K. I. Aoki. diags Am Mineralogist 49:1199-223 bibliog(p 1221-3) S '64

Kansas

Mineral paragenesis in the Tri-State district, Missouri, Kansas, Oklahoma. R. D. Hagni and O. R. Grawe. bibliog Econ Geol 59:449-57 My '64

Kentucky

Barite zoning in the Illinois-Kentucky fluorspar district. E. A. Brecke. maps Econ Geol 59:299-302 Mr '64

Mineral paragenesis and zoning in the central Kentucky mineral district. J. L. Jolly and A. V. Heyl. maps diags Econ Geol 59:596-624 bibliog(p622-4) Je '64

Korea

Geology and origin of Sangdong tungsten mine, Republic of Korea. Y. W. John. bibliog il plan diags Econ Geol 58:1285-300 D '63

Malaya

Critical factors in the genesis, extent, and grade of some residual bauxite deposits. P. L. C. Grubb. bibliog diag Econ Geol 58:1267-77 D '63

Re-examination of struverite from Salek North, Malaya. B. H. Flinter. bibliog il Am Mineralogist 44:620-32; 49:792-4 My '59, My '64

Study of alluvial monazite from Malaya. B. H. Flinter and others. bibliog diags Am Mineralogist 48:1210-26 N '63

Manitoba

Mineral deposits related to major structures in the Pre-Cambrian of Manitoba. J. F. Davies. maps Can Min & Met Bul 57:661-5 Je '64

Mexico

Fresnillo designs cut and fill stopes around mechanical muck handling system. J. Holguin. il diags Eng & Min J 165:72-4 Jl '64

Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog(p917-19) Ag '64

Manto deposits of fluorspar northern Coahuila, Mex. A. K. Temple and R. M. Grogan. bibliog il maps diags Econ Geol 58:1037-53 N '63; Discussion. L. G. Gutiérrez. 59:935-6 Ag '64

Mexicanization law seen as beneficial to mining and smelting companies south of the border. A. I. Rodriguez. Min Eng 16:57 O '64

Mineralogy and origin of the titaniferous deposit at Pluma Hidalgo, Oaxaca, Mex. E. G. Paulson. bibliog il maps Econ Geol 59:753-67 Ag '64

Middle western states

Enargite in the zinc-lead deposits of the upper Mississippi Valley district. A. V. Heyl. diags Am Mineralogist 49:1458-61 S '64

Minnesota

Iron-rich serpentine and chamosite from Ely, Minn. A. P. Ruotsala and others. bibliog il map diag Am Mineralogist 49:993-1001 Jl '64

Missouri

Mineral paragenesis in the Tri-State district, Missouri, Kansas, Oklahoma. R. D. Hagni and O. R. Grawe. bibliog Econ Geol 59:449-57 My '64

Montana

Layered mylonite from Beartooth Mountains, Mont. M. Prinz and A. Poldervaart. bibliog map Geol Soc Bul 75:741-4, pl 1 Ag '64

Statistical case study in geochemical prospecting for copper. B. W. Brown. bibliog Econ Geol 59:492-8 My '64

Western mineral occurrences. E. W. Heinrich. il Am Mineralogist 49:430-5 Mr '64

Nevada

Authigenic mordenite in the Esmeralda formation, Nevada. R. J. Moiola. bibliog Am Mineralogist 49:1472-4 S '64

Nevada deposit yields new type of lightweight aggregate. Pit & Quarry 56:140 Ja '64

New Brunswick

X-ray study of sursassite from New Brunswick. bibliog Am Mineralogist 49:168+ Ja '64

New Mexico

Economic geology of a part of the Hillsboro, New Mexico, mining district. C. C. Reeves, jr. il map Econ Geol 58:1278-84 D '63

Fluorite-bastnaesite deposits of the Gallinas Mountains, New Mexico and bastnaesite paragenesis. R. M. Perhac and E. W. Heinrich. il map Econ Geol 59:226-39 bibliog(p238-9) Mr '64

Goldmanite, a vanadium garnet from Laguna, New Mexico. R. H. Moench and R. Meyrowitz. bibliog maps Am Mineralogist 49: 644-55 My '64

Small mining company reopens New Mexico's Hillsboro district; Fingado mining co. C. C. Reeves, jr. il Eng & Min J 164:92-3 N '63

New York (state)

Mineralogy of amphibolite interlayers in the gneiss complex, northwest Adirondack Mountains, N.Y. A. E. J. Engel and others. map diags J Geol 72:131-56 bibliog(p 155-6) Mr '64

New Zealand

Coexisting albite and oligoclase in some schists from New Zealand. B. W. Evans. bibliog il diag Am Mineralogist 49:173-9 Ja '64

North Carolina

Safety and production; Foote mineral co. il Min Cong J 50:65-7 Je '64

Northwest Territories, Canada

Origin of the gold-quartz deposits, Yellowknife, N.W.T.; discussion. map Econ Geol 57:1137-40; 58:804-7; 59:328-30, 1176-7 N '62, Ag '63, Mr, S '64

Similarities between some Canadian gold deposits and the Homestake deposits of South Dakota. G. W. McConnell. map Econ Geol 59:719-20 Je '64

Norway

Distribution of beryllium in the Oslo region, Norway; a geochemical, stream sediment study. J. W. Brinck and A. Hofmann. bibliog map Econ Geol 59:79-96 Ja '64

Nova Scotia

Mining society of Nova Scotia, 77th annual meeting, Ingonish Beach, June 24-27. Can Min & Met Bul 57:821-5 Ag '64

Oklahoma

Mineral paragenesis in the Tri-State district, Missouri, Kansas, Oklahoma. R. D. Hagni and O. R. Grawe. bibliog Econ Geol 59:449-57 My '64

Oregon

Glass-bead silica determination for a suite of volcanic rocks from the Owyhee Plateau, Oregon. L. R. Kittleman, jr. bibliog Geol Soc Bul 74:1405-9 N '63

Philippine Islands

Philippine economic revolution expected to promote pickup in mining industry. map Eng & Min J 164:89-91 N '63

Quebec (province)

Exploiting a small orebody; Vauze mines ltd. E. P. Graham. Can Min & Met Bul 57:409-12 Ap '64

Molybdenite paragenesis at the Lacorne mine, Quebec. J. R. Renault. Econ Geol 58:1340-4 D '63

Quebec asbestos mining association research testing laboratory and its relation to the asbestos mining industry. J. J. Paré. bibliog Can Min & Met Bul 57:1045-9 O '64

Saskatchewan

Genesis of potash rocks in middle Devonian prairie evaporite formation of Saskatchewan. W. M. Schwerdtner. bibliog diags Am Assn Pet Geologists Bul 48:1108-15 Jl '64

Saudi Arabia

Saudi Arabia undertakes program to develop mineral resources. Eng & Min J 165:97 Ag '64

MINES and mineral resources—*Continued*

Sierra Leone

New rutile source is world's largest; Sherbo minerals ltd. diag Eng & Min J 165:103 Ag '64

U.S. company spearheads an African rutile venture. map Chem Eng 71:84 Ag 17 '64

South Africa

Origin of certain magnetite-bearing pegmatites in the eastern part of the Bushveld Complex, South Africa. E. N. Cameron and G. A. Desborough. bibliog il maps diags Econ Geol 59:197-225 Mr '64

South Dakota

Iriginite from South Dakota. D. A. Stephenson. bibliog Am Mineralogist 49:408-14 Mr '64

Lithian hureaulite from the Black Hills. D. J. Fisher. bibliog diag Am Mineralogist 49:398-406 Mr '64

Similarities between some Canadian gold deposits and the Homestake deposits of South Dakota. G. W. McConnell. map Econ Geol 59:719-20 Je '64

Some Black Hills phosphates. P. B. Moore. Am Mineralogist 49:1119-22 Jl '64

Southeastern states

Exploration program for nickel in the southeastern United States. J. E. Worthington. bibliog map Econ Geol 59:97-109 Ja '64

Surinam

Bauxite deposits of British Guiana and Surinam in relation to underlying unconsolidated sediments suggesting two-step origin. J. H. Moses and W. D. Michell. il maps diags Econ Geol 58:250-62 Mr '63; Discussion. 58:1002-8, 1160-2; 59:161-2 S-N '63, Ja '64

Switzerland

Paragonite from Täsch Valley near Zermatt, Switzerland. E. Zen and others. bibliog map Am Mineralogist 49:183-90 Ja '64

Turkey

Exploration for phosphorite in Turkey; a case history. R. P. Sheldon. maps diag Econ Geol 59:1159-75 bibliog(p 1174-5) S '64

United States

See also

United States—Mines, Bureau of

Utah

Distribution of uranium deposits in the White Canyon-Monument Valley district, Utah-Arizona. R. G. Young. bibliog il maps diags Econ Geol 59:850-73 Ag '64

Occurrence and properties of barnesite; $Na_2V_6O_{16}.3H_2O$, a new hydrated sodium vanadate mineral from Utah. A. D. Weeks and others. bibliog Am Mineralogist 48:1187-95 N '63

Rare alkali and beryllium mineralization in volcanic tuffs, Honey Comb Hills, Juab County, Utah. W. N. McAnulty and A. A. Levinson. map Econ Geol 59:768-74 Ag '64

Venezuela

Alumina content of enstatite in a Venezuelan high-temperature peridotite. D. H. Green. Geol Soc Bul 74:1397-401, pl 1 N '63

Western states

Colorado mining association's annual conference, 67th, Denver. Min Cong J 50:56-7 Mr '64

National western mining conference and exhibit, Denver, Feb. 6-8; with abstracts of papers. Eng & Min J 165:98-100+ Mr '64

Wyoming

Description and origin of uranium deposits in Shirley Basin, Wyo. R. E. Melin. maps diags Econ Geol 59:835-49 Ag '64

Isotopic fractionation of uranium related to roll features in sandstone, Shirley Basin, Wyo. J. N. Rosholt and others. bibliog diags Econ Geol 59:570-85 Je '64

Lazurite, talc and chlorite in the Green River formation of Wyoming. W. H. Bradley. Am Mineralogist 49:778-81 My '64

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Zambia

Review of age determinations from Northern Rhodesia. N. J. Snelling and others. map Econ Geol 59:961-81 bibliog(p980-1) S '64

Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

MINIATURIZATION

Gages shrink with new technology. P. W. Harland. il Iron Age 194:62-4 O 15 '64

Problems of making little things; symposium abstracts. il Metal Prog 85:134+ Je '64

Progressive dies make miniaturized parts. J. H. van der Burgt. diags Tool & Manuf Eng 53:53-5 O '64

See also subdivision Miniaturization under special subjects, e.g.

Calculating machines
Electronic apparatus and instruments
Electronic circuits
Light amplifiers
Radio receiving apparatus
Radio resistors

MINING congress, American. See American mining congress

MINING costs

Helicopter exploration costs in northern Canada. C. E. G. Brown. Can Min & Met Bul 57:282-6 Mr '64

Mining methods with emphasis on cost records at Getchell mine. C. C. Chamberlain. Min Cong J 49:93-6 O '63

Small diameter AN-FO blasting methods cut underground mining costs at Aguilar. M. Rossetti and G. Preisz. il diags Eng & Min J 164:94-7 D '63

See also

Coal mines and mining—Costs

MINING electro-mechanical maintenance association

Annual meeting, 11th, Greensburg, Pa. Sept. 28; with abstracts of papers. Coal Age 68:36-7+ N '63

MINING engineering

Engineering and mining journal mining guidebook and buying directory. bibliog il diags Eng & Min J 165:157-248 Je '64

How to boost open-pit productivity; materials scheduling and engineering. B. R. Henderson. Eng & Min J 164:88 N '63

New mining and milling practices reviewed at AIME convention; reports. diags Eng & Min J 165:104+ Mr '64

See also

Calculating machines—Mining engineering applications
Canadian institute of mining and metallurgy
Coal mines and mining
Hydraulic engineering
Mine construction
Mine drainage
Mine haulage
Mine hoisting
Mine shafts
Mine timbering
Mining engineers
Mining machinery
Mining methods
Prospecting
Rock drills

Bibliography

New books. Published in monthly numbers of Engineering and mining journal

On the library shelves. Can Min & Met Bul 56:71-2, 172+, 265-7, 346-7, 415-16, 592-3, 691-2+ 753-4, 812-13, 861-2; 57:72-3, 165-6, 306-7, 446, 554-5, 779-80, 882-3, 1087 Ja-My Jl-N '63, Ja-My, Jl-Ag, O '64

Power

See also

Coal mines and mining—Power
Electricity in mining

Safety measures

AIME announces award winners. Min Eng 15:86-9 D '63

Bellefonte mine of National gypsum company receives Sentinels of safety awards. il Min Cong J 49:79 O '63

Bethlehem's next step to zero program. J. F. Wildey. il Min Cong J 50:41-4 My '64

Classrooms in the mines. E. W. Stearn. il Rock Prod 67:91-2+ Ap '64

Contributions of Amercan standards to mine safety. L. H. Harrison. il Mag of Stand 35:14-16 Ja '64

John T. Ryan trophies. Can Min & Met Bul 57:386-7 Ap '64

Mine safety; proposal for industry action. J. Boyd. Min Cong J 49:38-41 D '63

New mine safety method uses resins to anchor rock bolts and reinforcing rods in mine roofs. il Safety Maint 128:19 O '64

MINING engineering—Safety measures—*Cont.*
No time lost; Port Inland quarry and Peter Mitchell mine employees receive Sentinels of safety from director of U.S. Bureau of mines. il Min Cong J 50:40-1 Jl '64
Noise; its effect and control in mining operations. A. Walker. bibliog diags Can Min & Met Bul 56:820-34 N '63; Discussion. P. Moon. 57:98 F '64
Safety and production; Foote mineral co. il Min Cong J 50:65-7 Je '64
Safety at the H.B. mine. il map Min Eng 15:84-5 D '63
Safety evaluation of underground Diesel equipment. R. F. Love and J. H. Furse. il Min Cong J 50:58-61 Ap '64
Safety in metal mining, 1963. S. H. Ash. il Min Cong J 50:68-9+ F '64
Safety program of the Colorado Bureau of mines. G. A. Franz, jr. il Min Cong J 49:57-60 O '63
Swedish firm develops inflatable bladder to close mine shafts. il diag Eng & Min J 165:118 My '64
Winners of the 1963 national safety competition. il Min Cong J 50:34-7 My '64
See also
Coal mines and mining—Safety measures

Study and teaching

College of mineral industries, Pennsylvania state university; mining engineering. R. Stefanko; H. L. Lovell. il Min Cong J 50:88-94 Ag '64
Mining engineering curricula. A. V. Corlett. Can Min & Met Bul 56:842 N '63
On-the-job training; management's policy for mineral engineers examined in survey. E. Just. Min Eng 16:74-5 Je '64
Profiles in mineral industry education. il Min Cong J 50:36-40 Je; 68-70 Jl; 88-94 Ag; 78-81 S '64
Work-study program in mining engineering education. D. Piper. Min Cong J 50:60-2 Ag '64

Tables, calculations, etc.

Lab equipment and tests help predict metal consumption in crushing and grinding units. F. C. Bond. bibliog il diag Eng & Min J 165:169-75 Je '64

MINING engineers
Conference on mining and mineral engineering manpower, Houghton, Mich. Nov. 18-19. Min Cong J 50:15 Ja '64
Students graduating in mineral industry courses. Can Min & Met Bul 57:242-4 Mr '64
See also
American institute of mining, metallurgical and petroleum engineers—Society of mining engineers
Northwest mining association

MINING geology
Bauxite deposits of British Guiana and Surinam in relation to underlying unconsolidated sediments suggesting two-step origin. J. H. Moses and W. D. Michell. il maps diags Econ Geol 58:250-62 Mr '63; Discussion. 58:1002-8, 1160-2; 59:161-2 S-N '63, Ja '64
Distribution of uranium deposits in the White Canyon-Monument Valley district, Utah-Arizona. R. G. Young. bibliog il maps diags Econ Geol 59:850-73 Ag '64
Exploration for phosphorite in Turkey; a case history. R. P. Sheldon. maps diag Econ Geol 59:1159-75 bibliog(p 1174-5) S '64
Geochemical studies at the Helen iron range. A. M. Goodwin. bibliog il maps diags Econ Geol 59:684-718 Je '64
Geology and origin of Sangdong tungsten mine, Republic of Korea. Y. W. John. bibliog il plan diags Econ Geol 58:1285-300 D '63
Geology of the Raposos gold mine, Minas Gerais, Brazil. G. E. Tolbert. bibliog il maps diags Econ Geol 59:775-98 Ag '64
Geology of the Zawar lead-zinc mine, Rajasthan, India. A. Mookherjee. il maps Econ Geol 59:656-77 bibliog(p675-7) Je '64; Discussion. J. Pereira. 59:1603-4 D '64
Geothermometric measurements of sulfide minerals, Mosabhoni copper mine, Singbhum district, Bihar. K. K. Rao. Econ Geol 59:136-41 Ja '64
Iron ores of Cerro Bolivar, Venezuela. J. C. Ruckmick. bibliog il map diags Econ Geol 58:218-36 Mr '63; Discussion. N. C. Nandy and A. Dutt. 59:330-2 Mr '64; Reply. 59:1397 N '64
Mattagami Lake mines ltd: some aspects of the geology and ore control. R. H. Hallam. bibliog map diags Can Min & Met Bul 57:389-96 Ap '64
Metallogenetic belts, centers, and epochs in Argentina and Chile. W. C. Stoll. bibliog map Econ Geol 59:126-35 Ja '64
Molybdenite paragenesis at the Lacorne mine, Quebec. J. R. Renault. Econ Geol 58:1340-4 D '63
Ore dilution control increases earnings at White Pine. C. O. Ensign, jr. maps plan diags Min Eng 16:73-80 Ap '64
Origin of Precambrian iron formations. H. Lepp and S. S. Goldich. map Econ Geol 59:1025-60 bibliog(p 1057-60) S '64
Problems in designing stable open-pit mine slopes. A. E. Long. diags Can Min & Met Bul 57:741-6 Jl '64
Structure and mineralization of Campbell Chibougamau mines, Cedar Bay division. J. D. Koene. bibliog maps diags Can Min & Met Bul 57:1063-72 O '64
Techniques used by the geology department, Geco mines limited. R. C. E. Bray. plans diags Can Min & Met Bul 57:269-78 Mr '64
Vulcan iron formation at the Groveland mine, Iron Mountain, Mich. J. T. Cumberlidge and J. G. Stone. bibliog il maps diags Econ Geol 59:1094-106 S '64

MINING industry and finance
Financing domestic mining ventures, 1963. M. H. Wright. il Min Cong J 50:58-60 F '64
National attitudes; vital key to effective mineral development. R. P. Koenig. Min Eng 16:95-7+ Jl '64
Posture of our economy. L. A. Jennings. il Min Cong J 50:63-5 Jl '64
Problems of a contracting mining community. maps Min Eng 16:55-64 Je '64
U.S. lead-zinc quotas, pro and con; E&MJ forum. Eng & Min J 165:95-103 S '64
See also
Mining costs

Australia

Australian rules. map Min Eng 16:63-7 O '64

Canada

Canadian tax amendments. Can Min & Met Bul 57:973-5 S '64
Financing mining ventures; Canadian view. V. C. Wansbrough. il Min Cong J 49:36-7+ N '63
Three T's; taxes, tariffs and trade. V. C. Wansbrough. Can Min & Met Bul 57:834-6 Ag '64

Latin America

Role of United States capital in Latin America. G. Vollmer. il Min Cong J 50:39-41+ Ja '64
Sources of financing and financial aid for mining in Latin America. V. E. Rockhill. il Min Cong J 49:64-7 D '63

MINING law
Guide to practices in acid mine-drainage control; practical application of ORSANCO resolution no. 5-60. Coal Age 69:83-4+ My '64
Land conservation in Pennsylvania open pit mines. W. G. Jones. il Min Cong J 49:52-6 O '63
Mexicanization law seen as beneficial to mining and smelting companies south of the border. A. I. Rodriguez. Min Eng 16:57 O '64
National attitudes; vital key to effective mineral development. R. P. Koenig. Min Eng 16:95-7+ Jl '64
Operator looks at acid mine drainage. W. Bellano. bibliog il maps diags Min Cong J 50:66-74 Ag '64
See also
Mine taxation
Petroleum laws and regulations

MINING machinery
Noise control at the Sullivan mine. J. W. Reynolds. il Can Min & Met Bul 57:115-18 F '64
See also
Coal mining machinery
Electricity in mining
Mine haulage
Rock drills
Shoveling machines

Control

Some modern communication techniques having application in the mining industry. R. G. Shelley and E. Oldfield. bibliog il diag Can Min & Met Bul 57:292-7 Mr '64

Lubrication

Centralized lubrication systems. J. J. Huey. il Min Cong J 50:36-8 Ja '64

Maintenance and repair

Maintenance of open pit equipment. E. M. Peterson. il plan Min Cong J 49:23-5 D '63

MINING machinery—Maintenance and repair—*Continued*

This month's equipment superintendent; Ed Peterson. il Diesel Equip Supt 42:22-5 Mr '64

MINING methods

Arch-back stoping at the Cerro de Pasco mine. R. S. Bemis and H. A. Toelle. diags Min Cong J 50:31-3 Mr '64

Block caving, nuclear style. D. D. Rabb. il diags Min Eng 16:48-52 Mr '64

Development drifting with endloader and extendible belts; White pine copper co. L. A. Garfield and C. S. Lekowski. il Min Cong J 49:27-9 N '63

Engineering and mining journal mining guidebook and buying directory. bibliog il diags Eng & Min J 165:157-248 Je '64

Engineering trends in mining; underground mining; open-pit mining. J. J. Reed. bibliog il Min Eng 16:81-5 F '64

Fresnillo designs cut and fill stopes around mechanical muck handling system. J. Holguin. il diags Eng & Min J 165:72-4 Jl '64

Going underground for limestone; Warner co. R. J. Mitchell. il diags Rock Prod 67:77-80 Ap '64

Lateral driving at the Sunshine mine. H. W. Schulze. il diags Min Cong J 49:34-7 D '63

Mining methods and equipment used at IMC's Esterhazy operations. A. J. Kyle. il plan diag Can Min & Met Bul 57:497-505 My '64

New Cleveland mine of International salt co. was designed for mass recovery of salt. W. C. Bleimeister. flow sheet il diags Eng & Min J 165:86-93 Ag '64

Pillar recovery methods described at Sullivan mine. R. M. Porter. il map diag Min Eng 15:78-80 D '63

Recent trends in the use of explosives in mining. M. D. Saunders. il Can Min & Met Bul 57:933-8 S '64

Rock stresses induced by shrinkage stoping. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:506-8 My '64

Special pillar recovery technique. J. S. Wright and J. C. Horne. il Min Cong J 50:74-7 S '64

Staging-up for pillar drilling at the Jersey mine. J. W. Robinson. il map Min Eng 15:82-3 D '63

Underground mining in 1963. M. K. Hannifan. il Min Cong J 50:32-6 F '64

Underground operations supply cement mill stone; Marquette's West Virginia mine. B. C. Herod. il Pit & Quarry 56:106-10+ Mr '64

See also

Coal mines and mining—Methods

Hydraulic engineering

Stripping operations

Blast hole production with the air-fuel jet burner. D. R. Boynton. il diags Can Min & Met Bul 57:927-31 S '64

Chino completes changeover to trucks. R. Spivey. il Min Eng 16:33-5 Ja '64

Conversion from rail to truck haulage at the Chino pit. R. W. Shilling. il Min Cong J 50:29-32+ Ap '64

Excavating the West's toughest taconite; Atlantic City ore mine. R. Day. il Min Cong J 50:76-9 Je '64

How to boost open-pit productivity. B. R. Henderson. il plans Eng & Min J 164:72-88 N '63

Iron mining: healthy Utah industry. D. P. Bellum and L. Nugent. il map Min Eng 15:34-8 N '63

Maintenance of open pit equipment. E. M. Peterson. il plan Min Cong J 49:23-5 D '63

Open-pit mining. J. J. Reed. il Min Eng 16:83-5 F '64

Place of inclined drilling in open-pit mining. N. O'Brien. bibliog il Pit & Quarry 56:88-94 F '64

Problems in designing stable open-pit mine slopes. A. E. Long. diags Can Min & Met Bul 57:741-6 Jl '64

Pullshovel with hydraulic wrist improves selective mining at Lucky Mc. il diags Eng & Min J 165:158-60 Je '64

Quebec Cartier iron ore project. flow sheet il maps plans diags Eng & Min J 165:75-93 S '64

Standard sprinkler system strips frozen overburden; Ballarat mines ltd. H. H. Schmidt. il Eng & Min J 165:80-1 Jl '64

Stripping overburden with nuclear explosives. P. L. Russell. il Min Eng 16:76-80 Je '64

Successful aluminum slurry blasts paved way for Dows' explosives algebra. C. H. Grant. il diags Eng & Min J 165:98-102 Ag '64

Trends in open pit mining, 1963. J. E. Machamer and J. S. Chisholm. il Min Cong J 50:28-31 F '64

See also

Coal mines and mining—Stripping operations

Subaqueous operations

Diamonds from the sea. A. Dickie. il Comp Air Mag 69:14-16 F '64

Engineering aspects of mineral recovery from the ocean floor. G. S. Lockwood. il diags Min Eng 16:45-9 Ag '64

Under-sea mining; new research aimed at tapping nature's biggest resource. J. Keene. il Eng & Min J 165:114-17 Je '64

MINING research

Energy requirements in size reduction. G. E. Agar and J. H. Brown. bibliog Can Min & Met Bul 57:147-51 F '64

First century of research by St Joseph lead co. L. W. Casteel. il Min Eng 16:111-111D Jl '64

Mining research and recent new developments. R. M. Stewart. Can Min & Met Bul 56:843-7 N '63

Quebec asbestos mining association research testing laboratory and its relation to the asbestos mining industry. J. J. Paré. bibliog Can Min & Met Bul 57:1045-9 O '64

Research vs testing in the mineral industries. R. J. Anderson. il Min Cong J 50:38-40 Mr '64

Role of computers in mining research. I. F. Jackson. bibliog il Min Cong J 50:81-4 Ag '64

See also

United States—Mines, Bureau of

MINKS

Gross and microscopic pathology of tocopherol-deficient mink. H. D. Stowe and C. K. Whitehair. bibliog J Nutrition 81:287-300 D '63

MINNEAPOLIS

Sanitary affairs

Minneapolis-Saint Paul sanitary district incinerates scum. J. C. Sager. il diag Water & Sewage Works 111:393-6 S '64

Sewerage

Instant erosion; Minneapolis storm drain tunnel. R. L. Moxey. il plan diag Comp Air Mag 69:10-15 My '64

Sewer planning for a metropolitan area. G. E. Bodien. map Pub Works 95:87-90 N '64

MINNESOTA

See also subdivision Minnesota under special subjects, e.g.

Architecture

Architecture, Domestic

Atomic power plants

Iron ores

Paleontology

MINNESOTA mining and manufacturing company

Chemicals play bigger role at 3M. il Chem & Eng N 42:32-3 Ap 6 '64

3M buys Italian photoproducts firm. il Chem & Eng N 42:62+ Je 15 '64

MINORS (law). See Children—Law

MIOCENE period. See Geology, Stratigraphic—Miocene

MIRAMAR, Florida

Sewerage

Too much food in the effluent. F. J. Miller. il Water Works & Wastes Eng 1:40-1 Je '64

MIRIDAE

Cocoa yield increase by control of capsids (miridae). A. J. Vernon. Chem & Ind p320-1 F 22 '64

MIRRORS

Are mirror telephotos practical for you? D. L. Miller and B. Sherman. il diags Mod Phot 28:82-5 Ag '64

Polyester mirror. il Plastics World 22:18 O '64

Probes and mirrors designed for heavy-duty inspection. il Naval Eng J 75:984 D '63

Rotating mirror vibration. M. A. Winkler. diag R Sci Instr 35:790-2 Jl '64

Time resolution of streak cameras equipped with rotating mirrors of beryllium. J. K. Landré. il diags R Sci Instr 35:796-801 Jl '64

See also

Automobiles—Mirrors

Telescope—Mirrors

MISSILES, Guided. See Guided missiles

MISSISSIPPI

See also

Petroleum—Mississippi

Roads—Mississippi

MISSISSIPPI RIVER

Public health service plans enlarged program to monitor Mississippi. Chem & Eng N 42:58 Je 8 '64

Quality of Mississippi River water. W. R. Gelston. Am Water Works Assn J 56:528-34 My '64

Delta

Development of clay mineral zones during deltaic migration. G. M. Griffin and B. S. Parrott. maps diags Am Assn Pet Geologists Bul 48:57-69 Ja '64

Late recent rise of sea level. J. M. Coleman and W. G. Smith. bibliog map diag Geol Soc Bul 75:833-40 S '64

MISSISSIPPI VALLEY association

Annual meeting, 45th, New Orleans, Feb. 1-4. Marine Eng/Log 69:47-8 Mr '64

MISSISSIPPIAN period. See Geology. Stratigraphic—Mississippian

MISSOULA, Montana

Sewerage

Treatment plant located on former landfill site. G. Groff and W. A. Taylor. flow diag il Pub Works 95:105-7 Je '64

MISSOURI

See also subdivision Missouri under special subjects, e.g.

Architecture, Domestic
Gas, Natural—Pipe lines
Geology
Iron mines and mining
Lead mines and mining
Mines and mineral resources
Petroleum

MISSOURI RIVER

Identification of chlorinated hydrocarbon pesticides in river water. A. Goodenkauf and J. Erdei. bibliog Am Water Works Assn J 56:600-6 My '64

Municipal and agricultural pollution now and in the future. R. C. Loehr. bibliog map Pub Works 95:94-6+ Je '64

MISTS, Acid

Fiber filters now clean chlorine. J. H. Nichols and J. A. Brink, jr. flow sheet il diag Chem Eng 71:221-2 Je 8 '64

Formation of nitric acid mists. G. G. Goyer. bibliog J Colloid Sci 18:616-24 S '63

MITCHELL, John, Jr.

Fisher award in analytical chemistry. por Chem & Eng N 42:72 Ap 6 '64

MITCHELL, S. Weir

S. W. Mitchell. J. H. Talbott. bibliog Archives Environmental Health 7:718-22 D '63

MITOCHONDRIA

Adenosine triphosphatase and ATP-P_i exchange in mitochondria of essential fatty acid-deficient rats. R. M. Johnson. bibliog J Nutrition 81:411-14 D '63

Effect of fasting on the incorporation in vitro of palmitate-C^{14} into glycerolipids of mitochondria. A. Chareonchai and R. M. Johnson. bibliog J Nutrition 81:387-91 D '63

Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63

Mitochondrion. D. E. Green. il diags Sci Am 210:63-6+ Ja '64; Discussion. 210:10+ Ap '64

MIXERS

Air cylinders sequence feed mixer. W. E. Cavanaugh. il diags Hydraulics & Pneumatics 17:94-5 My '64

Automatic grading equipment from Woolwich. il Engineering 196:825 D 27 '63

Blender uses gravity flow for mixing. diag Chem & Eng N 42:47 Je 1 '64

Blends large batches. il diag Food Eng 36:116 Jl '64

Gravity unit efficiently blends solids. diag Chem Eng 71:98+ Jl 6 '64

High-speed mixer has hydrostatic drive. il Eng N 173:44 N 5 '64

How to select equipment for precision solid/solid blending. J. J. Fischer. il diag Soap & Chem Spec 40:155+ Mr '64

Mixing. N. H. Parker. bibliog il diags Chem Eng 71:165-220 Je 8 '64 (reprints $1.50)

New developments add capability to blenders. il Chem & Eng N 41:58-9 D 16 '63

Pneumatic blender. il diag Plastics World 22:48 Jl '64

Pneumatic blending. diag Chem Eng Prog 60:119 Jl '64

Portable mixer for wet or dry materials. il Engineer 217:1045 Je 12 '64

Precision liquid/solids blending. J. J. Fischer. il diags Soap & Chem Spec 40:243+ My '64

Role of surface diffusion as a mixing mechanism in a barrel-mixer. B. H. Kaye and D. B. Sparrow. bibliog il diags Ind Chem 40:200-5, 246-50 Ap-My '64

Solids blender has gentle mixing action. il diag Chem Eng 71:102+ Je 22 '64

See also

Concrete mixers
Dough mixers
Food mixers
Rubber mixers
Stirrers

MIXING

Axial mixing in a tubular high pressure reactor. D. Carter and W. G. Bir. bibliog diags Chem Eng Prog 58:40-3 Mr '62; Discussion. K. B. Bischoff. A I Ch E J 10:584+ Jl '64

Blendable polymers for polyvinyl acetate adhesives; Daratak. Chem Eng 71:90 Ag 17 '64

Blender uses gravity flow for mixing. diag Chem & Eng N 42:47 Je 1 '64

Blending automatic transmission fluids for proper friction properties; abstract. T. D. Newingham. S A E J 72:63 F '64

Blending by analog computer. E. E. L. Mitchell and G. R. Marr, jr. bibliog diags Control Eng 10:107-10 N '63

Blends of chlorobutyl and nitrile rubbers. L. Evans and E. G. Partridge. bibliog Rubber Age 94:272-81 N '63

Bulk blending of fertilizer material; effect of size, shape, and density on segregation. G. Hoffmeister and others. bibliog diag J Agri & Food Chem 12:64-9 Ja '64

Chamber for continuous mixing of high pressure combustible gases. R. A. Oman and J. Leng. diag R Sci Instr 35:861-2 Jl '64

Continuous pneumatic mixing. A. J. Colli. il diags Chem Eng Prog 60:81-4 O '64

Controlling concentration and contamination in metal-preparation systems. H. J. McVey. il diag Mach 70:123-5 My '64

Crushed granite blending installation in British plant. il Pit & Quarry 56:105+ N '63

Dry bleach blending. il Soap & Chem Spec 40:157-8+ Ag '64

Experimental study of the rate of metal mixing in an open-hearth furnace. J. Szekely. bibliog diags Iron & Steel Inst J 202:505-8 Je '64

Fine weighing keeps glass competitive. il Engineering 196:601 N 8 '63

Glassworks materials handling plant. il Engineer 216:762-4 N 8 '63

Handling of granular materials. J. F. Van Denburg. diags Soap & Chem Spec 40:149+ F '64

Hysteresis in liquid mixing systems. F. S. Chapman and others. A I Ch E J 10:274-5 Mr '64

Idealized theory for turbulent mixing in vessels. R. E. Rosensweig. bibliog diags A I Ch E J 10:91-7 Ja '64

Impact mixing. H. G. Nevitt. Roads & Sts 106:76-7 D '63

Incomplete liquid mixing in crystal growth from the melt. W. R. Wilcox. bibliog diags J Ap Phys 35:636-43 Mr '64

Intensity of segregation as a measure of incomplete mixing. P. LaRosa and F. S. Manning. bibliog diag Can J Chem Eng 42:65-8 Ap '64

Lateral solids mixing in fluidized-packed beds. J. D. Gabor. bibliog diags A I Ch E J 10:345-50 My '64

Longitudinal mixing studies in a pulsed extraction column. G. A. Sehmel and A. L. Babb. bibliog Ind & Eng Chem Proc Design 3:210-14 Jl '64

Mathematical method for blending aggregates. D. L. Neumann. bibliog Am Soc C E Proc 90 [CO 2 no 4026]:1-13 S '64

Measurement of mass transfer coefficients in liquid-liquid mixing. J. H. Rushton and others. bibliog A I Ch E J 10:298-302 My '64

Mixing. N. H. Parker. bibliog il diags Chem Eng 71:165-220 Je 8 '64 (reprints $1.50)

Mixing model for activated sludge. R. B. Grieves and others. bibliog diags WPCF J 36:619-35 My '64

Mixing non-Newtonian fluids. G. E. Alves. bibliog il Chem Eng Prog 60:41-2 Ag '64

Mixing on valve trays and in downcomers of a distillation column. N. E. Welch and others. bibliog diags A I Ch E J 10:373-9 My '64

Mixing two fluids in a closed conduit. A. K. Johnston and D. B. Stewart. il diags Ind & Eng Chem Proc Design 3:5-7 Ja '64

Optimizes continuous mixing. il diags Food Eng 36:102 Ap '64

Pneumatic system mixes solid propellants. A. J. Colli. diags Chem & Eng N 42:48-9 O 5 '64

MIXING—*Continued*

Practical mixing problems. G. T. King. il Ind Chem 40:20-4 Ja '64

Punch-card operation blends wax faster, more accurately. D. H. Stormont. flow plan il diag Oil & Gas J 62:98-100 Mr 23 '64

Resistance probe method for determining local solid particle mixing rates in a batch fluidized bed. T. Hayakawa and others. bibliog diag Can J Chem Eng 42:99-103 Je '64

Role of surface diffusion as a mixing mechanism in a barrel-mixer. B. H. Kaye and D. B. Sparrow. bibliog il diags Ind Chem 40:200-5, 246-50 Ap-My '64

Scale of mixing in a stirred vessel. A. W. Rice and others. bibliog diags A I Ch E J 10:125-9 Ja '64

Segregation studies of dry blended fertilizer. L. J. Pircon and others. diags J Agri & Food Chem 12:357-62 Jl '64

Sequential approach to the feed-mix problem. L. W. Swanson and J. G. Woodruff. Op Res 12:89-109 Ja '64

Soap plant observer; use of ultrasound for blending chemical specialties. W. J. Bench. il Soap & Chem Spec 40:251-2 My '64

Solids blender has gentle mixing action. il diag Chem Eng 71:102+ Je 22 '64

Solids blending. G. M. Kovac and J. V. Ziemba. diag Food Eng 36:45-51 Ap; 69-72 Je '64

Solids blending. M. W. Scott. bibliog Am Perfumer 78:25-7 D '63

Statistical behavior of a turbulent multicomponent mixture with first-order reactions. Y. H. Pao. bibliog diag AIAA J 2:1550-9 S '64

System blends bulk materials by weight. il diag Automation 10:59 D '63

Transformation for wake analyses. R. H. Page and R. J. Dixon. AIAA J 2:1464-5 Ag '64

Turbulent motion and mixing in a pipe. J. Lee and R. S. Brodkey. bibliog diags A I Ch E J 10:187-93 Mr '64

Unsolved research problems in liquid-liquid extraction; effect of axial mixing upon performance of extraction columns. J. A. Gerster. bibliog Chem Eng Prog 59:79 N '63

Vapor condensation in the mixing zone of a jet. G. M. Hidy and S. K. Friedlander. bibliog il diag A I Ch E J 10:115-24 Ja '64

Vapor-liquid equilibrium; a new expression for the excess free energy of mixing. G. M. Wilson. Am Chem Soc J 86:127-30 Ja 20 '64

Wax-blending system installed. diag Oil & Gas J 62:83 Ja 6 '64

See also

Agitation
Agitators
Homogenization
Mixers
Stirrers

MIXTURES

Anion exchange study of a number of elements in nitric-hydrofluoric acid mixtures. E. A. Huff. bibliog diags Anal Chem 36:1921-3 S '64

Calculation of the partial molal enthalpy of vaporization of a component out of multicomponent mixtures. N. G. O'Brien. bibliog Ind & Eng Chem Fundamentals 3:352-4 N '64

Compressibility of ammonia and its mixtures with nitrogen and hydrogen. I. M. Lichtblau and others. bibliog diag A I Ch E J 10:486-90 Jl '64

Condensing from vapor-gas mixtures. F. Votta, jr. bibliog il Chem Eng 71:223-8 Je 8 '64

Critical opalescence of a fluorocarbon-hydrocarbon liquid mixture; normal perfluoroheptane-normal heptane. B. Chu. bibliog Am Chem Soc J 86:3557-61 S 5 '64

Forces on aerosols in gas mixtures. J. R. Brock. bibliog J Colloid Sci 18:489-501 Ag '63

Fractional solidification of eutectic-forming mixtures. W. R. Wilcox. bibliog Ind & Eng Chem Fundamentals 3:235-9 Ag '64

Generalized peak heat flux for dilute binary mixtures. D. M. McEligot. A I Ch E J 10:130-1 Ja '64

Joule-Thomson effects for nitrogen-ethane mixtures. A. L. Stockett and L. A. Wenzel. bibliog diags A I Ch E J 10:557-61 Jl '64

Sensitive probe for measuring concentration profiles in water vapor-gaseous mixtures. M. R. Strunk and others. bibliog diag A I Ch E J 10:418+ My '64

Solutions of alkali metal carboxylate mixtures in hydrocarbons. E. Kissa. bibliog J Colloid Sci 19:279-89 Mr '64

Specific solution in binary solvent mixtures; the solvolysis of *o*-, *m*-, and *p*-methyl and nitrobenzyl chlorides in ethanol-water mixtures. J. B. Hyne and R. Wills. Am Chem Soc J 85:3650-5 N 20 '63

Statistical surface thermodynamics of simple liquid mixtures. C. A. Eckert and J. M. Prausnitz. bibliog A I Ch E J 10:677-83 S '64

Statistical thermodynamics of chain molecule liquids; liquid mixtures of normal paraffin hydrocarbons. P. J. Flory and others. bibliog Am Chem Soc J 86:3515-20 S 5 '64

Studies of the critical heat-flux for some binary mixtures and their components. M. Carne. bibliog il diags Can J Chem Eng 41:235-41 D '63

Study of solid support and partition liquid interactions in gas chromatographic separation of ethanol-methanol mixtures. E. D. Smith and others. Anal Chem 36:1750-3 Ag '64

Thermodynamic properties of nonpolar mixtures of small molecules. P. J. Flory and A. Abe. Am Chem Soc J 86:3563-5 S 5 '64

Transport properties of a gas mixture. E. A. Desloge. Am J Phys 32:742-8 O '64

See also

Hydrocarbons—Separation processes
Inflammable mixtures

Analysis

Accurate multicomponent analyses by gas chromatography. B. D. Smith and W. W. Bowden. Anal Chem 36:87-9 Ja '64

Analysis of mixtures of hydroxyl compounds using differential reaction rates. F. Willeboordse and F. E. Critchfield. bibliog Anal Chem 36:2270-4 N '64

Apparatus for quantitative determination of fluorine in a mixture of oxygen and fluorine. S. W. Comer. diag Anal Chem 36:1693-4 Jl '64

Characterization of the component distribution in the fractionation of multicomponent mixtures. R. M. Butler and I. S. Pasternak. bibliog Can J Chem Eng 42:47-53 Ap '64

Determination of diethyl sulfate, ethyl hydrogen sulfate, and sulfuric acid in mixtures. D. K. Banerjee and others. bibliog Anal Chem 36:2016-20 S '64

Determination of fluorine in fluorine-oxygen mixtures. S. Kaye and J. E. Koency. diag Anal Chem 36:1838-40 Ag '64

Differential kinetic analysis of mixtures using a continuous flow method. J. G. Hanna and S. Siggia. bibliog diag Anal Chem 36:2022-3 S '64

Kinetic method for analysis of mixtures employing enzyme—catalyzed reactions. H. B. Mark, jr. bibliog Anal Chem 36:1668-9 Jl '64

Minimizing time for gas chromatographic analysis of complex mixtures. T. B. Rooney and W. Aznavourian. bibliog Anal Chem 36:2112-15 O '64

Removal of alcohols from complex mixtures during gas chromatography. R. M. Ikeda and others. Anal Chem 36:2188-9 O '64

Simple method for the determination of hydrogen in the presence of oxygen and/or nitrogen. U. Sokolov and G. Stein. Anal Chem 36:1882 Ag '64

Synergistic effects in analyses based on differential reaction rates. S. Siggia and J. G. Hanna. Anal Chem 36:228-30 Ja '64

Use of differential reaction rates to analyze mixtures of organic materials containing the same functional group; application to amides and nitriles. S. Siggia and others. Anal Chem 36:227-8 Ja '64

Wide-range programmed temperature gas chromatography in the separation of very complex mixtures. C. Merritt, jr. and others. Anal Chem 36:1502-8 Jl '64

MOBILE homes. See Automobile trailers

MOBILE substations. See Electric substations, Portable

MODEL houses. See Houses, Model

MODELS

Civil engineering models exhibited. Engineer 217:1137 Je 26 '64

Flow models and scaling laws for flow through porous media. R. A. Greenkorn. bibliog il Ind & Eng Chem 56:32-7 Mr '64

Hot model studies of the basic oxygen process. G. C. Smith and D. A. Dukelow. bibliog il diag J Metals 16:357-61 Ap '64

MODELS—*Continued*

Model for a diffusive magnetothermoelectric generator. A. W. Riddiford and J. A. Krumhansl. bibliog diags J Ap Phys 34:3572-80 D '63

See also

Airplanes—Model testing
Bridges—Model testing
Excavating machinery—Models
Geological models
Hydraulic models
Machinery—Models
Mathematical models
Roads—Models
Rockets—Models
Structural engineering—Model testing

MODELS, Anatomical. See Anatomical models

MODELS, Layout

Incinerator model convinces public. J. L. Hayden. il Pub Works 95:94-5 Jl '64

Industrial models; a 3-D approach puts problems in perspective. G. J. McManus. il Iron Age 193:75-7 Je 25 '64

MODELS, Rubber

Use of rubber models as a stress aid. A. W. Pope. il diag Rubber Chem & Tech 37:199-203 Ja '64

MODERN art. See Art, Modern

MODERNIZATION (planning). See Planning

MODESTO, California

Sewerage

Modesto's pollution explosion. J. O. Cessna. il diags Water Works & Wastes Eng 1:50-2 F '64

MODULAR coordination (architecture)

British home of tomorrow. il Mod Metals 20:38 Ap '64

Components program for California schools. plans diags Arch Rec 135:167-9 Ja '64

Future of urban environment. il plans diags Prog Arch 45:162-222 O '64

Geometry of space in schools. il plans diags Prog Arch 45:134-47 F '64

Influence of the building module on illumination; abstract. R. S. Wissoker. Illum Eng 59:612-13 S '64

Ready made kitchens. il diag Engineering 197:368 Mr 6 '64

School component designs, costs revealed. il diags Arch Rec 135:166-72 F '64

Turreted modules for ultra-fine manufacturing; Westinghouse electric corp. il plan Arch Rec 136:165 Jl '64

MODULAR design. See Modular coordination (architecture)

MODULATORS, Light

Amplitude modulation of light by reverse biased *p-n* junctions. C. A. Renton. IEEE Proc 52:93-4 Ja '64

Broadband electro-optic traveling-wave light modulators. M. DiDomenico, jr. and L. K. Anderson. diags Bell System Tech J 42:2621-78 bibliog(p2677-8) N '63

Demodulation of low-level broad-band optical signals with semiconductors. H. S. Sommers, jr. bibliog diags IEEE Proc 51:140-6; 52:144-53 Ja '63. F '64

Demodulation of phase-modulated light using birefringent crystals. S. E. Harris. bibliog diags IEEE Proc 52:823-31 Jl '64

Digital light deflection. T. J. Nelson. bibliog il diags Bell System Tech J 43:821-45 My '64

Electro-optic frequency modulation in optical resonators. A. Yariv. diags IEEE Proc 52:719-20 Je '64

Electro-optical light intensity modulator. G. K. Ujhelyi and S. T. Ribeiro. diag IEEE Proc 52:845 Jl '64

Gigacycle bandwidth coherent light traveling-wave phase modulator. C. J. Peters. il diags IEEE Proc 51:147-53 Ja '64; Discussion. W. W. Buchman and J. Laikin. 52:1054-5; Reply. 1055-6 S '64

Lossless beam combination for optical heterodyning. A. E. Siegman and B. J. McMurtry. diags IEEE Proc 52:94 Ja '64

Modulator crystals for lasers. L. A. Murray. diags Electronic Ind 23:83-5 F '64

Proposal for microwave modulation of light employing the shift of optical absorption edge with applied electric field. R. C. Eden and P. D. Coleman. bibliog IEEE Proc 51:1776-7 D '63

Single sideband microwave light modulation. C. F. Buhrer. il IEEE Proc 52:969-70 Ag '64

Use of perovskite paraelectrics in beam deflectors and light modulators. F. S. Chen and others. bibliog IEEE Proc 52:1258-9 O '64

Use of Wollaston prisms for a high-capacity digital light deflector. W. J. Tabor. diag Bell System Tech J 43:1153-4 My '64

Wideband optical modulator. C. E. Enderby. il IEEE Proc 52:981-2 Ag '64

MOHAIR

Application of the airflow method to mohair. D. S. Uys. Textile Res J 34:739 Ag '64

MOHOLE project. See Drilling and boring (earth and rocks)

MOIRE fringe. See Interference (light)

MOISTURE

Density and moisture gauges for the inventory of coal in storage. F. F. Rieke and R. A. Semmler. Combustion 35:25-7 Mr '64

Determination of moisture in ion exchange resins by Karl Fischer reagent. F. X. Pollio. Anal Chem 35:2164-5 D '63

Dielectric properties of moist wood. A. Venkateswaran and S. Y. Tiwari. bibliog Tappi 47:25-8 Ja '64

Effect of moisture on bituminous pavements in Rocky Mountain areas. W. L. Eager. bibliog il Pub Roads 33:48-54 Ag '64

Effect of moisture on strength of refractory brick. W. J. Smothers and others. Am Cer Soc J 47:414-15 Ag '64

Effect of moisture on the accumulation of carbonyl-amine browning intermediates in freeze-dried peaches during storage. I. Y. Huang and H. N. Draudt. bibliog Food Tech 18:1234-6 Ag '64

General application of near-infrared moisture analysis to fruit and vegetable materials. H. J. Gold. Food Tech 18:586-7 Ap '64

Moisture absorption in low hydrogen electrode coatings and porosity in welds. B. J. Bradstreet. Welding J 43:sup43-8 Ja '64

Moisture eliminators can reduce icing in fuel, air lines. il diags Diesel Equip Supt 42:34-5 Jl '64

Rates of moisture loss of apples under refrigerated storage conditions. C. P. Lentz and E. A. Rooke. bibliog diags Food Tech 18:1229-31 Ag '64

See also

Cotton fabrics—Moisture absorption
Dampness in buildings
Evaporation
Humidity
Hygrometers
Refrigeration and refrigerating machinery
Soil moisture
Water vapor

also subdivision Moisture content under special subjects, e.g.

Bricks
Clay
Coal
Compressed air
Concrete
Gases
Meat
Paper
Textile fibers

MOISTURE detectors

Continuous measurement of moisture in sinter-plant raw materials. P. M. Berry. bibliog il diag Iron & Steel Inst J 202:569-76 Jl '64

Continuous monitoring of coal possible. R. F. Stewart and others. il Chem & Eng N 42:151-2 S 7 '64

Measuring moisture in gases. F. C. Quinn. diags Instruments & Control Systems 37:141-2 S '64

Microwave moisture meter. il Mech Eng 86:70-1 Mr '64

Moisture analyzer prepares stream sample by chromatograph technique. il Control Eng 11:99 Ag '64

Moisture and humidity. il Instruments & Control Systems 37:82-5 Ag; 144-7 S; 121-4 O '64

Moisture-density check at three mph. Eng N 172:112 My 21 '64

Moisture measurement on flowing wood chips. E. R. Brady. Tappi 47:sup 173A-4A Je '64

New instrument successfully records coal moisture at Jamison preparation plant, Salina, Pa. il diag Coal Age 69:94-6 Je '64

Nuclear gages control slag fill compaction. il Eng N 173:50-1 O 15 '64

Optimization of a neutron scattering water content gauge for soils or concretes. K. Preiss and P. J. Grant. bibliog diags J Sci Instr 41:548-51 S '64

Pneumatic dewpoint meter. W. S. Pappas. il diags Anal Chem 36:1885-8 Ag '64

Trace moisture measured continuously. R. E. Voelker and C. N. White. bibliog diags Hydrocarbon Process & Pet Refiner 43:139-42 Jl '64

MOLASSES

Hydrolysis process makes molasses from wood. il Chem Eng 71:40+ Ag 3 '64

MOLASSES—*Continued*

Utilization of materials derived from treatment of wastes from molasses distilleries; abstract. T. R. Bhaskaran. WPCF J 36:292-3 Mr '64

MOLDED products

Battle for bottles. il Mod Plastics 41:99-103+ Je '64

Blow-molding system makes bottles without side seams. Chem & Eng N 42:56-7 My 18 '64

Case of acetal for watches. il Mod Plastics 42:104+ S '64

Chemically bound pre-preg mats. il Brit Plastics 37:495-7 S '64

Cutting the costs of assembly. il Mod Plastics 42:100-3+ S '64

Decorating powder molded parts. W. Stebnau. il Plastics World 22:35 F '64

Designing for toughness; polyethylene mortar shell casings. il diags Mod Plastics 41:91+ N '63

Display light box; molded of resin fiber. il Plastics World 21:65 N '63

Eight plastics combine to crack a metal market. il Mod Plastics 41:100-2+ Ap '64

Eliminate cost of metal removal; design for instant parts. J. Procter. il Product Eng 35:75-90 My 11 '64

Factors influencing the design of molded plastics parts. R. L. Davis and H. W. Ashley. il diags Plastics World 21:44-5 My; 36-7 Je; 28-31 Jl; 58-60 Ag; 48-9 S; 38-9 O; 46-7 N; 16-18 D '63; 22:34-7 Ja '64

Finishing and decorating molded plastics. R. H. Hollis. il Ind Finishing 40:24-7 Mr '64

Getting the most out of polycarbonate. il Mod Plastics 41:104-7 Ag '64

Here are five practical epoxy casting formulations. R. N. Wood. Plastics Tech 10:37-8 F '64

High-performance plastics for the nursery. il Mod Plastics 42:105+ O '64

Housewares build a new image. il diag Mod Plastics 41:86-90+ Ag '64

How engineering plastics upgrade a product and cut costs. il Mod Plastics 41:96-8 Je '64

How important is engineer-molder liaison? G. W. Burton. il Materials in Design Eng 59:122-3+ Je '64

How to design plastics springs. R. L. Peters. diags Mod Plastics 41:115-19+ Jl '64

How to evaluate fiberglass vs sheet metal. C. L. Ward and M. Martin. il Product Eng 35:84-90 Ja 6 '64

How to increase your output of small epoxy castings. J. E. Goodemote and others. il Plastics Tech 10:60-1 S '64

Impact styrene out-performs metal. il diag Mod Plastics 41:88-9+ D '63

Injection moldings. diags Materials in Design Eng 60:113-24 S '64

Large blow moulding for dropping life-raft. il Engineering 198:156 Jl 31 '64

Liquid vinyl molding compound. il Plastics Tech 10:13 Je '64

Mechanized spray-up system at Brunswick corp. il plan Glass Ind 45:89 F '64

Molded coffee pot. il Plastics World 22:20 Jl '64

Molded parts miniaturize electronic package, cut costs, too. il Mod Plastics 42:95-7+ O '64

Molded plastics product finishing now. il diags Plastics World 22:16-18 Ag '64

Mouldings for new hair drier. il Brit Plastics 37:127 Mr '64

New design concepts in action. il diags Mod Plastics 41:82-8+ Jl '64

New high-performance plastic-metal assemblies. W. J. Ehner. il diags Machine Design 36:189-90+ S 24 '64

Osuro; polypropylene selected for Japanese fixture. il Plastics World 22:38 Jl '64

Parts properties and their relation to end-use performance. R. S. Hagan and J. R. Thomas. Mod Plastics 42:159+ S '64

Phenolics: more versatile than ever. E. F. Borro. il diags Mod Plastics 42:102-4 O '64

Phenoxies play tight game with molding tolerances. il Iron Age 194:64-5 O 1 '64

Plastics mold top growth rate. K. W. Bennett. il Iron Age 192:45-6 N 28 '63

Plastics over the counter. Published in monthly numbers of Plastics world

Polaroid and the Princess: a tale of two concepts. J. Proctor. il Product Eng 35:110-13 Je 22 '64

Polycarbonates for power tools. il Plastics World 22:20-1 Ag '64

PE eliminates maintenance. il Mod Plastics 41:89+ My '64

Polyethylene housing; rotational molding meets appliance needs. il Plastics World 22:39 Jl '64

Polyethylene litter baskets. il Plastics World 22:19 Ag '64

Portable hair dryers; design for function. il Mod Plastics 41:90-2 D '63

Powder molding. il Plastics World 22:13 S '64

Powder molding cracks industrial markets. il Mod Plastics 41:104-5 Ap '64

Pressure casting slashes instrumtnt cost 80 percent. il Mod Plastics 41:94-6+ Ap '64

Progress in moulding. il Brit Plastics 37:21-4, 248-51, 532-5 Ja, My, O '64

Progress in plastic materials for water meter casings. H. F. Barrett. Am Water Works Assn J 56:1149-52 S '64; Abstract. Pub Works 95:136 N '64

Redesigned one-piece cover saves $4000/year. il Mod Plastics 42:96-7+ S '64

Reinforced plastics tractor body. il Plastics World 22:43 Ag '64

Rifle magazine; plastics replace metal. il Plastics World 22:19 Jl '64

Sinclair Mfg. adds blow-molding facilities. Soap & Chem Spec 40:52 Mr '64

Slim clocks. il Plastics World 22:21 Jl '64

Thin-wall rigid vinyl adds new dimension to packaging. il Mod Plastics 41:115 Je '64

Uniform TFE fluorocarbon moldings. Plastics Tech 10:13 Mr '64

Water softener valve. D. Mahlstedt and C. Lyall. il Materials in Design Eng 59:129 Ap '64

When to use plastic rotational molding. il Iron Age 193:100 Ja 30 '64

Winners of the Chicago molded plastic corp. contest. il Product Eng 34:33-4 D 23 '63

See also

Molds (for plastics)

Nylon—Molding

Plastics

Resinous products

Costs

Relative economics of the hand lay-up process and of matched die moulding. G. Ogden. Brit Plastics 37:138-41 Mr '64

Manufacture

For reinforced plastics parts; premix or preform moldings? il diags Materials in Design Eng 58:77-80 D '63

Forming and fabricating plastics. G. Carlyon. Machine Design 36:19-22 S 17 '64

Guide to spray-up equipment for reinforced plastic. R. C. Hosford. il Plastics Tech 10:36-41 Ap '64

Injection molding of thermosets. il Plastics World 21:160-1 N '63

Internal cooling for blow moldings. R. C. Gasmire and A. J. Scalora. diags Mod Plastics 41:130-2 Mr '64

Moulding flexible polyurethane foam. J. C. Parkinson. il Brit Plastics 37:146-7 Mr '64

Need for quality control in the plastics industry. il diag Plastics World 22:32-4 Jl '64

Paintable releases; silicone parting agents render smooth finish to molded plastics products. il Plastics World 21:26 N '63

Successful injection moulding of high density polythenes. E. Overgage and O. P. Phillips. diags Brit Plastics 37:132-7 Mr '64

See also

Molding machines (for plastics)

MOLDED products, Mechanical

Braille typewriter. il Plastics World 22:28 My '64

Designing plastics parts to withstand static loads. S. Levy. diags Plastics World 22:18-21 My; 32-4 Je '64

Designing plastics parts to withstand varying loads. S. Levy. diags Plastics World 22:32-3+ Ag '64

Evolution of thermosets for the navy's ships. H. P. Walker. bibliog il Plastics World 22:30-3 My '64

Fan blades; use of acetal. il Plastics World 22:31 Mr '64

Forming complex shapes from phenolic laminates. il Brit Plastics 37:183 Ap '64

High-price resin brings economies. il Mod Plastics 41:99+ Mr '64

It's go for polyethylene in go/no-go gage. il diag Mod Plastics 41:89+ Jl '64

Long-term service tests determine performance of plastic parts. Plastics Tech 10:61 Ag '64

Look at acetals. il diags Brit Plastics 37:356-61 Jl '64

Moldable polyimide. N. W. Todd and F. A. Wolff. il Machine Design 36:230-2 Ap 23 '64

Molded acetal parts. il Plastics World 22:29 Mr '64

Molded phenoxy frames bring major economies to data processing systems. il Mod Plastics 42:125 S '64

MOLDED products, Mechanical—*Continued*

Molding thermoset plastics. G. DeGroat. il Am Mach 108:66-7 Ag 3 '64

Oscillating polypropylene hinge brings parts reduction. il diag Mod Plastics 42:114-15 S '64

Plastics for industry. il diags Brit Plastics 37:122-3, 180-2, 243-6, 308-9, 372-3, 431-4, 491-4, 546-9 Mr-O '64

Plastics today—how they help you; special report. R. B. Pressley. il Textile World 114:52-9 Je '64

Refractory zirconia fibers for molded aerospace components. il Tool & Manuf Eng 52:88 Mr '64

Repeatable cycles at lower temperatures. il Plastics World 22:46 O '64

Short run plastic parts are injection molded. il Steel 154:124 Mr 30 '64

Transformer components of cast resin. E. R. Hartill. il diag Engineer 218:62-4 Jl 10 '64

Vacuum-injection method molds newest epoxy helicopter part. il Plastics Tech 10:16 O '64

Why plastics' future looks good in plumbing. il Mod Plastics 42:98-101+ O '64

See also

Bearings, Plastic

Gearing, Plastic

MOLDING

Automation in plastics processing. L. L. Scheiner. Plastics Tech 9:27-38 D '63

Blow molding; thermoforming. J. M. Margolis. il Plastics World 22:46-9 Ja '64

Compacts for improved molding, extruding of rigid PVC. il Plastics Tech 10:42-4 Mr '64

Cost comparison of rotational casting with injection moulding and blow moulding. W. C. Johnson. Brit Plastics 37:378-81 Jl '64

Diallyl phthalate moulding materials. A. L. Ashton and J. B. Pratt. bibliog il Brit Plastics 37:310-16 Je '64

Economies of rotation. il Product Eng 35:54 Ja 6 '64

Giant chessmen rotationally moulded in polythene. il Brit Plastics 36:617 N '63

Glass-fibre-reinforced plastics moulding. il Engineer 217:188 Ja 24 '64

How uniformity in molding powder influences processing of phenolics. J. B. McNamara. il diags Mod Plastics 41:135-7 N '63

Molded glass-polyester homes for highways. il Plastics World 21:58-9 N '63

News in thermosetting processing. R. C. Hosford. il Plastics Tech 10:43-54 My '64

One-shot rigid urethane foam molding reduces costs, improves properties. M. Kaplan. il diags Plastics Tech 10:38-41 Ag '64

Painless polycarbonate processing. R. J. Kunze. diag Plastics Tech 10:32-6 F '64

Prepreg from phenolic resin blend for better molding. il Mod Plastics 41:107 F '64

Progress in moulding. il Brit Plastics 37:21-4, 248-51 Ja, My '64

Reinforced thermoplastics molding technology. il Plastics World 22:26 S '64

Thermoforming today. L. L. Scheiner. il diags Plastics Tech 10:45-56 Ag '64

This forming line is different. il diag Mod Plastics 41:96-7 Jl '64

Vacuum forming polyethylene boats. il Plastics World 22:16-17 My '64

See also

Nylon—Molding

MOLDING machines

Automatic machine produces Shaw process molds. il Foundry 92:82 F '64

Taking the bugs out of molding equipment. il Foundry 92:193 S '64

MOLDING machines (for plastics)

Automated transfer molding brings savings of 30 percent. il Mod Plastics 41:116 Je '64

Automation for thermosets. il Plastics World 22:12-13 Ag '64

Blow molding machine for rigid PVC container production. il Mod Plastics 41:54 My '64

Blow molding unit produces a variety of hollow items in a single automatic operation. il Plastics World 21:108-9 N '63

Circuit ideas from a transfer molding machine. M. Brodsky. il diag Hydraulics & Pneumatics 17:88 Mr '64

Dunlop vacuum forming machine. il Brit Plastics 36:704-5 D '63

Four pilot-operated check valves control closing speed of plastic molding press. il diags Hydraulics & Pneumatics 17:82-3 Mr '64

Getting the most out of screw injection molding machines. C. L. Weir. diags Mod Plastics 41:139-42 Mr '64

High-speed thermoforming process. il Plastics Tech 10:11-12 Jl '64

Injection moldings. diags Materials in Design Eng 60:113-24 S '64

Large blow-moulding machine. il Engineer 216:644 O 18 '63

Large capacity blow moulding equipment. il Brit Plastics 36:616 N '63

Large machine for plastic blow moulding. il diags Engineering 196:520 O 25 '63

Machine fabricates plastic parts from molding compounds. G. B. Rheinfrank. il diag Automation 11:79 F '64

Machine molds r-p compounds. il Plastics World 21:103 N '63

Mechanized die core movement in a plastic injection molding machine. I. Hollander. il diags Hydraulics & Pneumatics 17:84 Mr '64

New machinery for PS foam molding. R. C. Hosford. flow chart Plastics Tech 10:28-32 Jl '64

New plastic forming machines developed. il Steel 154:62 Ja 20 '64

Resurgence for thermosets. J. H. Du Bois. il diags Plastics World 22:30-5+ S '64

Runnerless valves for automated multicavity injection. il Plastics World 22:70 Ap '64

Screw injection unit. il diags Plastics World 22:68 Ap '64

Screw plastication, a status report. W. C. Filbert. bibliog diags Mod Plastics 41:123+ Jl '64

Thermosets take shape quickly in injection molding unit. il Iron Age 193:58-9 Ja 9 '64

Transfer moulding improved by two methods. il Engineering 197:711 My 22 '64

Try fibrous-base pads for quieter, smoother molding. il Plastics Tech 10:41 Mr '64

200 psi + intensifier + linking = 100 tons for molding fiberglass ladders. H. Hopfeld. il diags Hydraulics & Pneumatics 17:86 Mr '64

Vacuum-forming thermoplastics. il Engineer 216:1002 D 13 '63

What about flow molding? W. B. Evans. diags Plastics Tech 10:42-3 O '64

See also

Extrusion machines (for plastics)

Control

Programmed speed for blow molder. J. A. Bronsard. il diags Hydraulics & Pneumatics 17:70-1 Je '64

Maintenance and repair

Purging injection cylinders. J. H. Du Bois. il diag Plastics World 22:26-31 Ag '64 (reprints 50c)

MOLDS (botany)

Studies on the utilization of tempeh protein by weanling rats. L. R. Hackler and others. bibliog J Nutrition 82:452-6 Ap '64

Toxin production by moulds; abstracts of four papers. Chem & Ind p 1222-3 Jl 4 '64

See also

Mildew

MOLDS (for casting)

Automatic machine produces Shaw process molds. il Foundry 92:82 F '64

Automatic molding center improves uniformity of cast parts. il Foundry 92:82+ Ja '64

Coatings prevent oxide scale. il Iron Age 193:54-5 Ja 23 '64

Date system guides moldmaking. il Iron Age 193:76 My 28 '64

Full mold casting process uses foamed plastic patterns. A. Wittmoser. bibliog il diags Foundry 92:62-5 Ja '64

How high should you go in high pressure molding? C. A. Sanders. il diag Foundry 92:51-5 Ag '64

Isostatic pressing extends horizon of powder metallurgy. H. C. Jackson. il diags Mach 70:126-9 Ap '64

Jolting and squeezing green sand molds. B. C. Yearley and R. R. Schaaf. diags Foundry 91:62-5 D '63; 92:45-7 Ja '64

Making thin-section malleable iron castings. J. F. Wallace and H. Kunsmann. bibliog il diags Foundry 92:96-101 S '64

Mold aggregates; a comparison of their properties. J. M. Neff. il Foundry 92:198-200+ Ap '64

Mold coating raises quality of as-cast steel finishes. il diag Iron Age 192:80-1 D 19 '63

Mould lubrication for continuous casting of steel. diags Engineer 217:310 F 14 '64

Mould lubrication in continuous casting. Engineering 197:91 Ja 17 '64

Molds harden in own heat; exothermic reaction is key to new moldmaking process. il Iron Age 193:54-5 Ap 2 '64

New frictionless molds spur continuous casting. il Steel 155:31-2 Jl 6 '64

New line improves efficiency of moldmaking and drying. B. Huffman. il diag Foundry 92:162+ Ja '64

MOLDS (for casting)—*Continued*

New moldmaking process shears costs; N-Process. il Steel 154:69 Ja 27 '64

Sand castings gain precision with flaskless molds. diags Iron Age 193:78-9 My 7 '64

Steel sand castings capture aerospace applications. il Foundry 92:72-5 My '64

Taking the bugs out of molding equipment. il Foundry 92:193 S '64

Using catalyzed dextrose binder in dry sand molds. F. H. Hohn. il Foundry 92:186+ O '64

See also

Cores
Sand, Foundry
Steel ingots—Molds

Ceramic molds

Cast forging dies defy wear. il Iron Age 194:64-5 O 22 '64

Room temperature vulcanizing silicone rubber patterns extend Shaw process. D. Giles. il Tool & Manuf Eng 53:69-70 Jl '64

Permanent molds

Diecasting and permanent molding; AFS congress; abstracts of papers. Foundry 92:107-9 Ag '64

Plaster molds

Plaster or investment casting; when to use each method? G. H. Binns. il Iron Age 193:68-70 Je 4 '64

Rubber molds

Electroforming from rtv patterns or molds. il Plating 51:998-9 O '64

MOLDS (for ceramic products)

Paper pulp linings for mold release. D. P. James and L. S. Williams. bibliog il Am Cer Soc Bul 42:712-13 N '63

MOLDS (for concrete)

Strength of concrete test cylinders cast in waxed paper molds. A. R. Cusens. il Am Concrete Inst J 61:287-92 Mr '64; Discussion. 61:1219-21; Reply. 1222-3 S '64

MOLDS (for glass)

Art of swabbing. S. J. Singer, jr. diags Glass Ind 45:173-5+ Ap '64

Copper alloys mold more and better bottles. il Product Eng 35:51-2 My 11 '64

Cutting threads in glassware molds. il Am Mach 108:65 My 25 '64

Glass and ceramic forming methods. M. G. Britton. il diags Glass Ind 45:75-9+ F; 137-8+ Mr '64

Hard-surfaced glass molds resist scoring and oxidation. il Welding J 43:607-8 Jl '64

Profile lathe for glass molds. il Glass Ind 45:374 Jl '64

MOLDS (for plastics)

Blow molding may offer bigger units. il Chem & Eng N 41:26 N 25 '63

Closer look at mold designing. Plastics Tech 10:121 Je '64

Heated epoxy mold. il Plastics World 22:62 Je '64

How important is engineer-molder liaison? G. W. Burton. il Materials in Design Eng 59:122-3+ Je '64

How to increase your output of small epoxy castings. J. E. Goodemote and others. il Plastics Tech 10:60-1 S '64

Polishing of steel molds for the rubber and plastics industries. R. J. Swan. il diag Rubber Age 94:451-3 D '63

PVC compositions for matched die moulds. il Brit Plastics 36:690 D '63

Quality mold making. il Plastics World 22:72-3 O '64

Rubber molds

Electroforming + room temperature vulcanizing silicone rubber = new process for plastics tooling. il Plastics Tech 10:16-17 Ag '64

MOLDS (for rubber)

Getting the most out of transfer molding. D. J. Chovan. il diags Rubber World 150:72-6 My '64

Glass beads for cleaning rubber molds. N. Randolph. il Rubber World 150:54-5 Je '64

Mold release agents in the rubber industry. H. H. Bertram. bibliog Rubber Chem & Tech 36:1148-52 O '63

Polishing of steel molds for the rubber and plastics industries. R. J. Swan. il diag Rubber Age 94:451-3 D '63

Techniques of silicone rubber processing. D. C. Youngs and G. M. Konkle. bibliog il diags Rubber Age 95:736-45 Ag '64

MOLECULAR association

Association constants of methylmercuric and mercuric ions with nucleosides. R. B. Simpson. bibliog Am Chem Soc J 86:2059-65 My 20 '64

Infrared spectra, molecular weights, and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, and pheophytins in various solvents. J. J. Katz and others. bibliog Am Chem Soc J 85:3801-9 D 5 '63

Nuclear magnetic resonance spectra and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, pheophytins, and methyl pheophorbides. G. L. Closs and others. bibliog Am Chem Soc J 85:3809-21 D 5 '63

MOLECULAR beams

High intensity supersonic molecular beam apparatus. R. Campargue. bibliog diag R Sci Instr 35:111-12 Ja '64

Resource letter MB-1 on experiments with molecular beams. J. C. Zorn. Am J Phys 32:721-32 O '64

MOLECULAR compounds

Inclusion compounds containing macromolecules. M. Farina and others. diags Am Chem Soc J 86:516-18 F 5 '64

Intramolecular interactions between nonbonded chromophores; the spectra of some phenylsilanes and siloxanes. J. F. Brown, jr. and P. I. Prescott. bibliog Am Chem Soc J 86:1402-9 Ap 5 '64

Molecular complexes and their spectra; complexes of anthracene and phenanthrene with iodine. J. Peters and W. B. Person. bibliog Am Chem Soc J 86:10-14 Ja 5 '64

Molecular complexes and their spectra; the iodine and the chloranil complexes with thianthrene analogs. A. Kuboyama. bibliog diag Am Chem Soc J 86:164-7 Ja 20 '64

Polarization of charge-transfer bands. M. Chowdhury and L. Goodman. bibliog Am Chem Soc J 86:2777-81 Jl 20 '64

X-ray powder diffraction patterns of nickel cyanide-ammonia complex, nickel cyanide-ammonia-benzene clathrate and nitrogen-quinol clathrate. V. M. Bhatnagar and J. A. R. Cloutier. bibliog il Chem & Ind p707-9 Ap 25 '64

MOLECULAR electronics. See Electronics

MOLECULAR orbitals

Acetylacetonate anion; molecular orbital calculations in the Hückel and self-consistent field approximations. L. S. Forster. bibliog Am Chem Soc J 86:3001-4 Ag 5 '64

Crystal structure of diammonium croconate and molecular orbital calculations on the croconate ion. N. C. Baenziger and J. J. Hegenbarth. bibliog diags Am Chem Soc J 86:3250-7 Ag 20 '64

Kinetics of some outer-sphere electron-transfer reactions. J. F. Endicott and H. Taube. bibliog Am Chem Soc J 86:1686-91 My 5 '64

Molecular orbitals apply to adsorption. G. Blyholder. il Chem & Eng N 42:42-3 Je 22 '64

π-complex interactions; methyl substituted benzenes and naphthalenes with tetracyanoethylene. A. R. Lepley. bibliog diag Am Chem Soc J 86:2545-9 Jl 5 '64

Spin-spin coupling in binuclear complexes. W. E. Hatfield and J. S. Paschal. bibliog Am Chem Soc J 86:3888-9 S 20 '64

Ultraviolet spectra of sulphoximines; *d*-orbital interactions. M. Barash. Chem & Ind p 1261-2 Jl 11 '64

MOLECULAR rearrangements

Acid-catalyzed nitramine rearrangement; the products of rearrangement of N-nitro-N-methylaniline. W. N. White and others. bibliog Am Chem Soc J 86:1517-20 Ap 20 '64

Acid-catalyzed rearrangement of diphenylbicyclo[6.1.0]nona-2,4,6-trien-9-ylcarbinol. K. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:1159-60 Mr 20 '64

Acid-catalyzed rearrangements of medium ring cycloalkene glycols. J. G. Traynham and P. M. Greene. bibliog Am Chem Soc J 86:2657-60 Jl 5 '64

Alkylbenzenes; diphenylalkanes as intermediates in fragmentation, rearrangement, and disproportionation reactions of alkylbenzenes. R. M. Roberts and others. bibliog Am Chem Soc J 86:2846-50 Jl 20 '64

Alkylbenzenes; Friedel-Crafts alkylations of *p*-xylene and mesitylene with propyl halides; concurrent rearrangements and reorientations. R. M. Roberts and D. Shiengthong. bibliog Am Chem Soc J 86:2851-7 Jl 20 '64

Carbonium ion rearrangements; mechanism of the rearrangement of neopentyl compounds. G. J. Karabatsos and others. bibliog Am Chem Soc J 86:1994-7 My 20 '64

MOLECULAR rearrangements—*Continued*
- Claisen rearrangement of 1-substituted 2-naphthyl allyl ethers. J. Green and D. McHale. Chem & Ind p 1801-2 O 24 '64
- Comparison of thermal and photochemical rearrangements of triarylmethyl and related azides. W. H. Saunders, jr. and E. A. Caress. bibliog Am Chem Soc J 86:861-4 Mr 5 '64
- Cumulative effects in small ring cleavage reactions; a novel cyclobutane rearrangement. D. J. Trecker and J. P. Henry. bibliog Am Chem Soc J 86:902-5 Mr 5 '64
- Diazene-hydrazone rearrangement. D. M. Lemal and others. bibliog Am Chem Soc J 86:2395-401 Je 20 '64
- Equilibrium rearrangement of perchlorocarbon compounds. N. E. Aubrey and J. R. Van Wazer. bibliog Am Chem Soc J 86:4380-3 O 20 '64
- Formation and photochemical rearrangement of β′-ketosulfoxonium ylides. E. J. Corey and M. Chaykovsky. bibliog Am Chem Soc J 86:1640-1 Ap 20 '64
- Formation of 2,4-dimethoxy-6-methylphenylacetone from 3,5-dimethoxybenzyl isopropenyl ether; a new variant of the Claisen rearrangement. W. J. le Noble and P. J. Crean. Am Chem Soc J 86:1649-50 Ap 20 '64
- *Gem*-dihalides from α-haloamides; rearrangement of N-bromo-α-haloamides utilizing bromide-82 tracer. C. L. Stevens and others. bibliog Am Chem Soc J 85:3390-4 N 5 '63
- *Gem*-dihalides from α-haloamides; rearrangement of optically active α-chlorohydrocinnamamides. C. L. Stevens and others. Am Chem Soc J 85:3394-6 N 5 '63
- α-Halosulfones; the Ramberg-Bäcklund rearrangement of α,α-dichlorosulfones; the solvolytic fate of α-chloroepisulfones. L. A. Paquette. bibliog Am Chem Soc J 86:4089-92 O 5 '64
- Influence of basicity of benzylic carbanion on the *ortho*-substitution rearrangement of certain α-carbonyl benzyltrimethylammonium compounds. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1108-10 Mr 20 '64
- Intermediate in the acid-catalysed Wallach rearrangement. E. Buncel and B. T. Lawton. bibliog Chem & Ind p 1835-6 N 16 '63
- Isolation of intermediate alkali salt in *ortho*-substitution rearrangement of benzyltrimethylammonium ion as benzophenone adduct. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1105-7 Mr 20 '64
- Kinetics and mechanism of the rearrangement of potassium isophthalate to terephthalate. Y. Ogata and K. Sakamoto. bibliog Chem & Ind p749-50 My 2 '64
- Lewis acid induced rapid allylic rearrangements of 2-halo-3-hydroxy-2,4-dimethylcyclobutenones; an unusually reactive α-haloketone. D. G. Farnum and others. bibliog Am Chem Soc J 86:673-9 F 20 '64
- Mass spectral studies; molecular rearrangement under electron impact. P. Funke and others. bibliog Am Chem Soc J 86:2527-8 Je 20 '64
- Mechanism of the acid-catalyzed rearrangement of triarylmethyl hydroperoxides. D. E. Bissing and others. bibliog Am Chem Soc J 86:3824-8 S 20 '64
- Mechanism of the rearrangement of *p*-quinamines to 4-aminodiphenyl ethers. B. Miller. bibliog il Am Chem Soc J 86:1127-35 Mr 20 '64
- Mechanistic fate of the anilino moiety in the rearrangement of α-anilinoketones. K. L. Nelson and others. bibliog Am Chem Soc J 86:684-7 F 20 '64
- Metal ion induced rearrangements of bis-benzthiazolines to Schiff-base chelates. H. Jadamus and others. bibliog Am Chem Soc J 86:3056-9 Ag 5 '64
- Molecular rearrangements; chlorine migration in the epoxide-carbonyl rearrangement. R. N. McDonald and P. A. Schwab. bibliog Am Chem Soc J 85:4004-9 D 20 '63
- Multiplicity of mechanisms in the Cope rearrangement. G. S. Hammond and C. D. DeBoer. bibliog diags Am Chem Soc J 86:899-902 Mr 5 '64
- Nitrous acid deamination of the norbornylamines; carbon and nitrogen rearrangements of norbornyl cations. J. A. Berson and A. Remanick. bibliog Am Chem Soc J 86:1749-55 My 5 '64
- Organic peroxides; the mechanism of the thermal decomposition of 6-heptenoyl peroxide in toluene; the rearrangements of the 5-hexenyl radical. R. C. Lamb and others. bibliog Am Chem Soc J 85:3483-6 N 5 '63
- *Ortho*-substitution rearrangement and other reactions of α-substituted benzyltrimethylammonium ion-alcohols with potassium amide in liquid ammonia. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1394-8 Ap 5 '64
- Phenonium ions as discrete intermediates in certain Wagner-Meerwein rearrangements. D. J. Cram. bibliog Am Chem Soc J 86:3767-72 S 20 '64
- Photochemical rearrangement of N-chloroimides to 4-chloroimides; a new synthesis of γ-lactones. R. C. Petterson and A. Wambsgans. bibliog Am Chem Soc J 86:1648-9 Ap 20 '64
- Photochemical rearrangements of cross-conjugated cyclohexadienones; an example of steric control. P. J. Kropp. bibliog Am Chem Soc J 85:3779-82 D 5 '63
- Preparation and Pummerer rearrangement of β-ketosulfoxides. H. D. Becker and others. bibliog Am Chem Soc J 85:3410-14 N 5 '63
- Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vestola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64
- Rearrangement of aromatic N-oxides; rates and mechanism for the reaction of acridine N-oxide with acetic anhydride. J. H. Markgraf and M. K. Ahn. bibliog Am Chem Soc J 86:2699-702 Jl 5 '64
- Rearrangements of 1-(1,2,3-triphenylcyclopropenyl)-3-diazopropan-2-one. A. Small. bibliog Am Chem Soc J 86:2091-2 My 20 '64
- Re-examination of some reported rearrangements of quinamines. B. Miller. Am Chem Soc J 86:1135-8 Mr 20 '64
- Ring expansion route to bicyclic carbonium ions; the multiple rearrangement of the *endo*-2-norbornylcarbinyl system. J. A. Berson and P. R. Warnhoff. bibliog diags Am Chem Soc J 86:595-609 F 20 '64
- Ring expansion route to bicyclic carbonium ions; the multiple rearrangement of the *exo*-2-norbornylcarbinyl system. J. A. Berson and D. Willner. bibliog diags Am Chem Soc J 86:609-16 F 20 '64
- Solvent-sensitive rearrangement of 7-substituted norbornadienes to cycloheptatriene using complex hydrides. B. Franzus and E. I. Snyder. bibliog Am Chem Soc J 85:3902-3 D 5 '63
- Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64
- Steroids containing ring A aromatic; mechanism of dienone-phenol rearrangement. E. Caspi and others. bibliog Am Chem Soc J 86:2463-7 Je 20 '64
- Tertiary amine oxide rearrangements; the mechanism of the demethylation of nicotine. J. C. Craig and others. bibliog Am Chem Soc J 86:3866-9 S 20 '64
- Thermal and photochemical rearrangement of substituted dibenzo [*a,e*]cyclooctatetraenes. M. Stiles and U. Burckhardt. Am Chem Soc J 86:3396-7 Ag 20 '64
- Thermal and photochemical valence tautomerism of bicyclo[6,1,0]-nona-2,4,6-triene derivatives. G. J. Fonken and W. Moran. bibliog Chem & Ind p 1841-2 N 16 '63
- Thermal decomposition of *t*-butyl 3,3,3-triarylperpropionates; evidence for the intramolecular rearrangement and cyclization of aliphatic acyloxy radicals. W. H. Starnes, jr. bibliog Am Chem Soc J 85:3708-9 N 20 '63
- Thermal rearrangement of 9-ethoxycarbonylbicyclo[6.1.0]nona-2,4,6-triene. K. F. Bangert and V. Boekelheide. bibliog Am Chem Soc J 86:905-8 Mr 5 '64
- Thermal rearrangements of the 7-carbomethoxy-Δ^2-norcarenes. J. A. Berson and E. S. Hand. bibliog Am Chem Soc J 86:1978-88 My 20 '64

MOLECULAR sieves. See Adsorbents

MOLECULAR still. See Distillation apparatus

MOLECULAR weights
- Automatic osmometer for determination of number average molecular weights of polymers. F. B. Rolfson and H. Coll. bibliog il diags Anal Chem 36:888-94 Ap '64
- Batch polymerization narrowing molecular weight distribution. R. F. Hoffman and others. bibliog flow diag Ind & Eng Chem 56:51-7 My '64
- Bracket method for molecular weight determination of pyrolysis products using gas chromatography with a gas density detector. J. S. Parsons. diag Anal Chem 36:1849-52 Ag '64

MOLECULAR weights—*Continued*

Chemical constituents and molecular weights of cellulose in different parts of jute fiber. M. Bashiruzzaman and others. bibliog Textile Res J 34:910-11 O '64

Determination of molecular weights of polynuclear zirconium and thorium chelates by nonequilibrium ultracentrifugation. R. L. Gustafson and A. E. Martell. bibliog Am Chem Soc J 86:344-9 F 5 '64

Determination of molecular weights of proteins by gel filtration on Sephadex. J. R. Whitaker. bibliog Anal Chem 35:1950-3 N '63

Determination of the molecular weight of SKI-2 rubber. I. N. Burak. Rubber Chem & Tech 36:1042 O '63

Dielectric, dynamic mechanical and nuclear resonance properties of polyethylene oxide as a function of molecular weight. T. M. Connor and others. bibliog J Ap Chem 14:74-81 F '64

Effect of reaction path and initial distribution on molecular weight distribution of irreversible condensation polymers. H. Kilkson. bibliog diag Ind & Eng Chem Fundamentals 3:281-93 N '64

End-group analysis and number-average molecular weight determination of some polyalkylene glycols and glycol polyesters using nuclear magnetic resonance spectroscopy. T. F. Page, jr. and W. E. Bresler. bibliog Anal Chem 36:1981-5 S '64

Extractability of selected metal ions with high molecular weight amines. B. E. McClellan and V. M. Benson. bibliog Anal Chem 36:1985-7 S '64

High molecular weight boron sulfides; identification, relative intensities, appearance potentials, and origins of the ions. F. T. Greene and P. W. Gilles. bibliog Am Chem Soc J 86:3964-9 O 5 '64

Hydroxyl group determination in high molecular weight alcohols and complex organic mixtures. D. E. Jordan. bibliog Am Oil Chem Soc J 41:500-2 Jl '64

Influence of resin on plastisol fusion. A. J. Heinrichs. bibliog Mod Plastics 41:164+ Ap '64

Infrared spectra, molecular weights, and molecular association of chlorophylls *a* and *b*, methyl chlorophyllides, and pheophytins in various solvents. J. J. Katz and others. bibliog Am Chem Soc J 85:3801-9 D 5 '63

Intrinsic viscosity-molecular weight relationship for *cis*-1,4-polyisoprene. W. H. Beattie and C. Booth. bibliog Rubber Chem & Tech 36:1035-41 O '63

Measurement of molecular weight of lignosulfonic acids and related materials by diffusion. J. Benko. Tappi 47:508-14 Ag '64

Molecular jumping aids polymer handling. il Chem & Eng N 42:66-7 N 9 '64

Molecular structure of polyethylene; comparison of number-average molecular weights by various methods. F. W. Billmeyer, jr. and V. Kokle. bibliog Am Chem Soc J 86:3544-6 S 5 '64

Molecular weight distribution of nonionic surfactants: foam, wetting, detergency, emulsification and solubility properties of normal distribution and homogeneous p,t-octylphenoxyethoxyethanols. E. H. Crook and others. bibliog Am Oil Chem Soc J 41:231-7 Mr '64

Molecular weight of kraft lignin. J. Marton and T. Marton. bibliog Tappi 47:471-6 Ag '64

Relationship between molecular weight, radial-growth rate, and the width of the extinction bands in polyethylene spherulites. P. H. Lindenmeyer and V. F. Holland. bibliog il J Ap Phys 35:55-8 Ja '64

Simple cryoscope for molecular weight determinations using a thermal detector and phenyl ether as solvent. R. H. Campbell and others. diag Anal Chem 35:1989-90 N '63

Thermomechanical characterization of the molecular weight of linear polymers exemplified by natural rubber. B. Y. Teitelbaum and E. F. Gubanov. Rubber Chem & Tech 37:99-102 Ja '64

True molecular weight of sulfonate soaps. G. Metzger. bibliog Am Oil Chem Soc J 41:495-6 Jl '64

Two meters in series monitor molecular weight of gases. S. Prahacs and J. J. O. Gravel. diag Chem Eng 71:238+ Je 8 '64

MOLECULES

Aspects of molecular dissymmetry; symposium abstracts. Chem & Ind p736-7 My 2 '64

Calculation of upper limit hydrogens of an organic formula for analysis of mass spectra. J. Lederberg and M. Wightman. Anal Chem 36:2365 N '64

Consecutive ion-molecule reactions in ethylene. S. Wexler and R. Marshall. bibliog diag Am Chem Soc J 86:781-7 Mr 5 '64

Continuity of bond force constants between normal molecules and Lennard-Jones pairs. H. S. Johnston. Am Chem Soc J 86:1643-5 Ap 20 '64

Crystal and molecular structure of bis(pentacarbonylmanganese)diphenyltin. B. T. Kilbourn and H. M. Powell. bibliog Chem & Ind p 1578 S 12 '64

Crystal and molecular structure of metal ion-aromatic complexes; the cuprous ion-benzene complex, $C_6H_6 \cdot CuAlCl_4$. R. W. Turner and E. L. Amma. bibliog Am Chem Soc J 85:4046-7 D 20 '63

Effect of distant atoms in a molecule on nuclear magnetic resonance chemical shifts. J. R. Van Wazer and D. Grant. bibliog Am Chem Soc J 86:1450-1 Ap 5 '64

Effect of feeding colostral and milk components on the cessation of intestinal absorption of large molecules (closure) in neonatal pigs. J. G. Lecce and others. bibliog il J Nutrition 84:43-8 S '64

Effect of rougher-than-rough surfaces on molecular flow through short ducts. D. H. Davis and others. bibliog diags J Ap Phys 35:529-32 Mr '64

Effect of thermal accommodation on cylinder and sphere drag in free molecule flow. G. S. Springer and S. W. Tsai. bibliog AIAA J 2:126-8 Ja '64

Effects of γ-radiation on the surface properties of silica as studied by the infrared spectra of adsorbed molecules. D. J. C. Yates and P. J. Lucchesi. bibliog Am Chem Soc J 86:4258-65 O 20 '64

Electron spin resonance of molecules adsorbed on synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:749-57 Mr 5 '64

Exchange of parts between molecules at equilibrium. K. Moedritzer and others. bibliog Am Chem Soc J 86:802-19, 3012-17 Mr 5, Ag 5 '64

Excitons in molecular physics. A. Suna and J. J. Hopfield. Phys Today 17:51+ Mr '64

Franck-Condon factors to high vibrational quantum numbers: CN. R. W. Nicholls. bibliog diags J Res Nat Bur Stand 68A:75-8 Ja '64

Fundamental physical characteristics of polymers in relation to their behaviour. G. Allen. bibliog J Ap Chem 14:1-12 Ja '64

Gaussian wave functions for polyatomic molecules; integral formulas. M. Krauss. bibliog J Res Nat Bur Stand 68B:35-41 Ja '64

General theory of symmetry coordinates. R. E. Wilde. bibliog Am J Phys 32:45-52 Ja '64

Heat transfer and forces for free-molecule flow on a concave cylindrical surface. E. M. Sparrow and others. bibliog diags A S M E Trans ser C 86:1-9; Discussion. 9-11 F '64

Hydrogen nuclear magnetic resonance chemical shift correlation charts for organic compounds. M. W. Dietrich and R. E. Keller. bibliog Anal Chem 36:258-9 F '64

Interaction of macromolecules with silver bromide sols. S. Kratohvil and others. bibliog J Colloid Sci 19:373-83 Ap '64

Introduction to the molecular viscoelastic theory of polymers and its applications. W. L. Peticolas. bibliog diags Rubber Chem & Tech 36:1422-58 D '63

Liquid crystals' spectra show fine structure. A. Saupe and others. il Chem & Eng N 42:42-4+ Mr 16 '64

Low-density plasma for molecular ion dissociation. W. L. Stirling and others. bibliog diags J Ap Phys 34:3466-9 D '63

Low-frequency electrical response of flexible chain molecules. W. H. Stockmayer and M. E. Baur. bibliog Am Chem Soc J 86:3485-9 S 5 '64

Method of diatomics in molecules. F. O. Ellison and others. bibliog Am Chem Soc J 85:3540-7; 86:2115-19 N 20 '63, Je 5 '64

Molecular and crystal structure of the di-*p*-bromobenzoate of the methyl ester of gibberellic acid. J. A. Hartsuck and W. N. Lipscomb. bibliog diags Am Chem Soc J 85:3414-19 N 5 '63

Molecular structure and properties of polybutadiene rubbers. H. Blümel. bibliog il diags Rubber Chem & Tech 37:408-33 Ap '64

Molecular structure of a carborane (1,2-dicarbaclovododecaborane) derivative $B_{10}Cl_8H_2C_2H_2$. J. A. Potenza and W. N. Lipscomb. bibliog Am Chem Soc J 86:1874 My 5 '64

MOLECULES—*Continued*

Molecular theory for the tensile strength of gum elastomers. F. Bueche and J. C. Halpin. bibliog J Ap Phys 35:36-41 Ja '64

New organoborane compounds are stable; carboranes. M. S. Cohen and others. il diags Chem & Eng N 41:62-70 D 9 '63

New semiempirical approach to the quantum theoretical study of unsaturated molecules. M. K. Orloff and D. D. Fitts. bibliog Am Chem Soc J 85:3721-7 D 5 '63

Oxygen molecules dimerize. L. N. Mulay. Chem & Eng N 42:42 S 7 '64

Partial ionic character of diatomic molecules. R. P. Iczkowski. bibliog Am Chem Soc J 86:2329-32 Je 20 '64

Photoresponsive systems; photochromic macromolecules. R. Lovrien and J. C. B. Waddington. bibliog Am Chem Soc J 86:2315-22 Je 20 '64

Protein structure-function correlation aided. D. E. Koshland, jr. and M. Burr. il diags Chem & Eng N 42:42-3 N 2 '64

Radiolysis in the adsorbed state. J. G. Rabe and others. bibliog Am Chem Soc J 86:3887-8 S 20 '64

Rheology of paper in terms of its molecular structure. D. H. Page. bibliog Tappi 46:750-6 D '63

Rydberg states of molecules. R. S. Milliken. bibliog Am Chem Soc J 86:3183-97 Ag 20 '64

Scattering of optical harmonics by macromolecules. R. Bersohn. bibliog Am Chem Soc J 86:3505-7 S 5 '64

Semiempirical treatment of molecular structures; electronegativity and atomic terms. G. Klopman. bibliog Am Chem Soc J 86:1463-9 Ap 20 '64

Survey of modern chemistry; chemical bonds explain formation of molecules. G. T. Austin and H. F. Austin. diags Chem Eng 70:119-22 N 25 '63

Thermodynamic properties of nonpolar mixtures of small molecules. P. J. Flory and A. Abe. Am Chem Soc J 86:3563-5 S 5 '64

Tracer diffusion coefficients of aromatic organic molecules. T. A. Miller and others. bibliog Anal Chem 36:418-20 F '64

X-ray diffraction studies of the conformation of polymer molecules in solution; *p*-iodopolystyrene. G. W. Brady and R. Salovey. bibliog Am Chem Soc J 86:3499-503 S 5 '64

X-ray structure determination of cubane. E. B. Fleischer. diag Am Chem Soc J 86:3889-90 S 20 '64

Zeeman effect in molecules. C. R. Quade. bibliog Am J Phys 32:634-8 Ag '64

See also
Chemical chains
Coordination (chemistry)
Molecular weights
Polymers

Rotation

Computer experiments in chemistry. D. L. Bunker. il diags Sci Am 211:100-8 Jl '64

Internal rotation and conformation of linear high polymers. S. I. Mizushima and T. Shimanouchi. diags Am Chem Soc J 86:3521-4 S 5 '64

Molecular rotations of methylcyclohexanols in relation to their structures. S. Yamana. bibliog Am Chem Soc J 86:1606-8 Ap 20 '64

Shape

Stereochemical theory of odor. J. E. Amoore and others. il diags Sci Am 210:42-9 F '64

Size

Dimensions of polymer molecules in concentrated solutions. M. Fixman and J. M. Peterson. bibliog Am Chem Soc J 86:3524-9 S 5 '64

Near-ultraviolet light scattering for the determination of molecular dimensions. W. R. Krigbaum and others. bibliog J Ap Phys 34:3218-20 N '63

Vibration

Computer experiments in chemistry. D. L. Bunker. il diags Sci Am 211:100-8 Jl '64

OH stretching vibration of pyromellitic dianhydride-hydroxynaphthalene complexes. H. H. Richtol. Anal Chem 36:927 Ap '64

Vibrational relaxation in air. D. R. White and R. C. Millikan. bibliog il AIAA J 2:1844-6 O '64

MOLINA, Edward C.

Obituary. por Ind Quality Control 21:96 Ag '64

MOLLIER, Richard

Richard Mollier 100th anniversary. L. M. K. Boelter and E. L. Knuth. Mech Eng 85:38-9 D '63

MOLLIER diagrams

Mollier chart for nitrogen. G. S. Lin. il Chem Eng Prog 59:70-1 N '63

MOLLUSKS

See also
Clams

MOLLUSKS, Fossil

Dynamic interpretation of calcite twin lamellae in a naturally deformed fossil. M. Friedman and F. B. Conger. bbiliog diags J Geol 72:361-8, pl 1 My '64

Molluscan biofacies in calcareous sediments, Gulf of Batabano, Cuba. C. W. Hoskins. bibliog il maps Am Assn Pet Geologists Bul 48:1680-704 O '64

MOLTEN aluminum. See Aluminum, Molten

MOLTEN iron. See Iron, Molten

MOLTEN metals. See Metals, Molten

MOLTEN salts. See Salts, Molten

MOLYBDATES

Molybdates move into paints for consumer and industry. Chem & Eng N 42:54 O 19 '64

Rate of the tris-(2,2′-dipyridine)-osmium(II)-octacyanomolybdate(V) electron-transfer reaction. R. Campion and others. Am Chem Soc J 85:3528-9 N 5 '63

Study of isopolymolybdates in aqueous solution with the aid of the quinhydrone electrode. J. P. Schwing. bibliog Am Chem Soc J 86:1879-80 My 5 '64

See also
Iriginite
Lead molybdate

MOLYBDENITE

Molybdenite paragenesis at the Lacorne mine, Quebec. J. R. Renault. Econ Geol 58:1340-4 D '63

MOLYBDENUM

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Desorption of fluorine from molybdenum. C. H. Skeen. bibliog J Ap Phys 35:463-4 F '64

Dislocation channeling in neutron-irradiated molybdenum. B. Mastel and others. il J Ap Phys 34:3637-8 D '63

Influence of nickel and molybdenum on the mechanical properties of cast Stellite cobalt base alloys. H. Griffiths and R. E. Phelps. il Metallurgia 69:203-5 My '64

Metallurgical bonding of plasma sprayed tungsten on hot molybdenum substrates. W. A. Spitzig and S. J. Grisaffe. il Welding J 43:sup425-7 S '64

Molybdenum mon amour; new use in transistors. Product Eng 35:43 Ja 6 '64

Molybdenum, 1963. J. Z. Briggs. il Min Cong J 50:126-7 F '64

Molybdenum, 1963. W. Macgregor. Eng & Min J 165:135-6 F '64

Molybdenum resists corrosion at high temperatures. F. B. Nair, jr. Materials in Design Eng 60:104-5 O '64

Molybdenum species in acid solution. I. L. Jenkins and A. G. Wain. bibliog J Ap Chem 13:561-4 D '63

Oxidation of molybdenum 550° to 1700°C. E. A. Gulbransen and others. bibliog il diag Electrochem Soc J 110:952-9 S '63; Discussion. 111:757-62 Je '64

Penetration of krypton ions into molybdenum in a glow discharge. C. Y. Bartholomew and A. R. LaPadula. J Ap Phys 35:2570-2 S '64

Polarographic determination of lead in aluminium alloys containing molybdenum or up to 5 per cent of iron (iron hardeners). W. Stross and J. Clark. Metallurgia 68:191-2 O '63

Properties of materials; tantalum, tungsten, molybdenum; wrought; tables. Materials in Design Eng 60:137 Mid-O '64

Properties of molybdenum-permalloy films. K. Y. Ahn and W. R. Beam. J Ap Phys 35:832-3 pt 2 Mr '64

Pure molybdenum can now be cold worked. Electronics 36:76+ N 8 '63

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Temperature-dependence of yield and brittle-fracture stresses in polycrystalline molybdenum. A. Wronski. bibliog Inst Metals J 92:376-7 '63-64

Thermionic emmission of vapor-deposited molybdenum cathodes. M. N. Huberman and R. A. Holzl. il diag J Ap Phys 35:1357-8 Ap '64

Analysis

Determination of molybdenum and sulfur in solid lubricants. I. L. Kalnin. bibliog Anal Chem 36:886-8 Ap '64

MOLYBDENUM—Analysis—*Continued*

Extraction and spectrophotometric determination of molybdenum and tungsten with 2-thenoyltrifluoroacetone; application to alloy steels. A. K. De and M. S. Rahaman. bibliog Anal Chem 36:685-7 Mr '64

Polarographic determination of submicrogram quantities of molybdenum. A. T. Violanda and W. D. Cooke. bibliog Anal Chem 36: 2287-90 N '64

Rapid determination of molybdenum in geochemical samples using dithiol. N. J. Marshall. bibliog Econ Geol 59:142-8 Ja '64

Separation of molybdenum in steels by reversed-phase chromatography. J. S. Fritz and C. E. Hedrick. bibliog Anal Chem 36: 1324-6 Je '64

Spectrophotometric method for molybdenum determination. L. Balabanoff K. Eng & Min J 165:120-1 Je '64

X-ray fluorescence spectrometric determination of zirconium and molybdenum in the presence of uranium. E. A. Hakkila and others. Anal Chem 36:2094-6 O '64

Isotopes

Extraction of submicrogram amounts of molybdenum with cupferron-chloroform using molybdenum-99. W. B. Healy and W. J. McCabe. Anal Chem 35:2117-19 D '63

Metallography

Cleavage fracture in cast molybdenum of high purity. H. R. Limb. bibliog il Inst Metals J 92:423-6 '63-64

Testing

Cleavage fracture in cast molybdenum of high purity. H. R. Limb. bibliog il Inst Metals J 92:423-6 '63-64

How strong is molybdenum sheet? A. K. Hegedus. il Metal Prog 85:115-17 My '64

MOLYBDENUM alloys

Alloy exhibits good strength at high heat. Steel 155:33 O 26 '64

Determination of rhenium in tungsten and molybdenum alloys. T. M. Cotton and A. A. Woolf. Anal Chem 36:248-9 Ja '64

Electrodeposition of nickel-molybdenum alloys; plating from concentrated ammonia solutions. L. Domnikov. bibliog Metal Finishing 62:57-60 Ag '64

Everyday uses for molybdenum. R. R. Freeman. il Metal Prog 86:161-2+ O '64

Fabricating and coating molybdenum alloy parts. G. Michaelson. il Metal Prog 85:88-91 Mr '64

Influence of the thermal and mechanical history on the squareness characteristics of 4-79 molybdenum permalloy. G. Y. Chin and others. diags J Ap Phys 35:867-9 pt 2 Mr '64

Irradiation of iron and 5-79 Mo permalloy with 2-mev electrons. D. I. Gordon and R. S. Sery. bibliog J Ap Phys 35:879-80 pt 2 Mr '64

Magnetic properties of cube-textured 6-81.3 Mo-permalloy. Y. Odani. J Ap Phys 35: 865.6 pt 2 Mr '64

Magnetic susceptibilities of Mo-Tc binary alloys. D. J. Lam and others. bibliog J Ap Phys 35:976-7 pt 2 Mr '64

Room-temperature resistivity of Mo-Nb and Mo-Re alloys containing one percent iron. M. P. Sarachik. J Ap Phys 35:1094-5 pt 2 Mr '64

Uranium-molybdenum-carbon equilibrium diagram. F. G. Streets and J. J. Stobo. bibliog il Inst Metals J 92:171-4 '63-64

MOLYBDENUM carbide

Structure and metallurgical significance of the iron-molybdenum carbide Fe_2MoC (M_aC_b). D. J. Dyson and K. W. Andrews. bibliog il diags Iron & Steel Inst J 202: 325-9 Ap '64

MOLYBDENUM compounds

Crystal, molecular, and electronic structures of a binuclear oxomolybdenum(V) xanthate complex. A. B. Blake and others. bibliog diags Am Chem Soc J 86:3024-31 Ag 5 '64

Electrical properties of the $MoTe_2$-WTe_2 and $MoSe_2$-WSe_2 systems. E. Revolinsky and D. Beerntsen. bibliog J Ap Phys 35:2086-9 Jl '64

Molybdenum(VI) nicotinylhydroxamic acid chelate. R. Rowland and C. E. Meloan. Anal Chem 36:1197-8 S '64

Proton magnetic resonance spectra and structures of ethylenediaminetetraacetic acid, methyliminodiacetic acid, and nitrilotriacetic acid chelates of molybdenum(VI). S. I. Chan and others. bibliog Am Chem Soc J 86:377-9 F 5 '64

MOLYBDENUM disulfide. See Molybdenum sulfides

MOLYBDENUM in the body

Effect of the copper status of the rat on the copper-molybdenum-sulfate interaction. L. F. Gray and L. J. Daniel. bibliog J Nutrition 84:31-7 S '64

Possible mechanisms for dietary molybdenum toxicity in the rat. H. L. Johnson and R. F. Miller. bibliog J Nutrition 81:271-8 N '63

Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog J Nutrition 81:312-20 D '63

MOLYBDENUM metallurgy

Byproduct molybdenum recovery at Silver Bell. R. Salter and C. K. Chase. flow sheet Min Eng 16:116-116B+ Jl '64

Expert compares Soviet bloc and western copper-molybdenum recovery practices. E. H. Crabtree. flow sheets Eng & Min J 164:81-3 D '63

Molybdenum from oxide ores possible with Climax process. Chem & Eng N 42:55 Mr 2 '64

MOLYBDENUM oxides

Magnetic study of cobalt molybdenum oxide catalysts. J. T. Richardson. bibliog Ind & Eng Chem Fundamentals 3:154-8 My '64

MOLYBDENUM silicides

High-temperature behavior of $MoSi_2$ and Mo_5Si_3. G. B. Cherniack and A. G. Elliot. bibliog il Am Cer Soc J 47:136-41 Mr '64

MOLYBDENUM steel

Effect of molybdenum on the continuous cooling transformation of a 0.40 per cent carbon steel; abstract. R. V. Fostini and M. Semchyshen. Metal Prog 86:294+ O '64

MOLYBDENUM sulfides

Bearing steel extrudes before molybdenum disulfide breaks down. il Machine Design 36:8 S 10 '64

Friction variation of PTFE and MoS_2 during thermal vacuum exposure. W. D. Craig, jr. bibliog il diags Lub Eng 20:273-6; Discussion. 276-7 Jl '64

Molybdenum disulfide; modern lubricant for modern ships. il Marine Eng/Log 69:90 Ag '64

MoS_2 solid lubricant extends ball bearing lifetime. il Bell Lab Rec 42:296-7 S '64

MoS_2 stretches ball bearing life. il Iron Age 194:66 Ag 6 '64

Silicone lube. il Plastics World 22:38 Mr '64

See also
Molybdenite

MOLYBDENUM tubes. See Tubes, Molybdenum

MOMENTS of inertia

Accurate values of moments of inertia. T. S. White diag Product Eng 35:161-2 Mr 16 '64

Design of haunched beams by fixed points. S. E. Huey. Am Soc C E Proc 90 [ST 2 no 3858]:13-29 Ap '64

Euler's moment equations for a variable-mass unsymmetrical top. V. Punga. AIAA J 2:937-8 My '64

Flexibility analysis of three-dimensional pipeline networks. J. Michalos and B. Grossfield. bibliog diags A S M E Trans ser A 86:369-85 Jl '64

Flow graph of moment distribution. C. C. Feng and R. D. Benton. bibliog diags Am Soc C E Proc 90 [ST 2 no 3870]:153-77 Ap '64

Here's your compendium of rigid frame formulas. W. Griffel. diags Product Eng 35: 59-65 Ap 13 '64

Moment coefficients for fame analysis. F. P. Wiesinger and others. diags Am Soc C E Proc 89 [ST 6 no 3712]:1-12 D '63; Discussion. A. E. Crenshaw. 90 [ST 2 no 3886]: 403-5 Ap '64

Moment equations for computer analysis of frames. S. S. Tezcan. bibliog flow chart diags Am Soc C E Proc 90 [ST 3 no 3926]: 35-53 Je '64

Moment of inertia and radius of gyration. K. Beach. Product Eng 35:97-8 Ag 31 '64

Representation of products of inertia, and an extension of that concept. H. L. Armstrong. bibliog Am J Phys 32:644 Ag '64

Transfer of moment of inertia. M. F. Spotts. diags Product Eng 35:109-12 Ja 6 '64

MONAZITE

Study of alluvial monazite from Malaya. B. H. Flinter and others. bibliog diags Am Mineralogist 48:1210-26 N '63

MONEY

See also
Coinage
Coins
Gold as money
Silver as money

MONKEYS
Biological action of beryllium; reaction of the monkey to inhaled aerosols. G. W. H. Schepers. bibliog il Ind Med 33:1-16 Ja '64
See also
Chimpanzees

MONOCHROMATORS
Electron monochromator utilizing the scattering resonance in helium. J. A. Simpson and others. R Sci Instr 34:1454-5 D '63
Simple diffracted beam monochromator. R. G. Davies. diag R Sci Instr 35:1074-5 Ag '64
Use of bent-crystal monochromators for isolation of α_1 or α_2. R. E. Scott. R Sci Instr 35:118-19 Ja '64

MONOETHANOLAMINE. See Ethanolamine

MONOGLYCERIDES. See Glycerides

MONONUCLEOSIS, Infectious
Incubation period of infectious mononucleosis. R. J. Hoagland. bibliog Am J Pub Health 54:1699-705 O '64

MONOPOLIES
What's wrong with natural monopoly? J. T. Moore. Elec World 161:83-6 Ja 13 '64

MONORAIL conveyors
Conveyor arrangement avoids turn-around. Ind Finishing 40:117-18 N '63
Electric-train monorail; a new flexibility in routing. il diags Mod Materials Handling 19:44-7 F '64
Flexible finishing system provides more consistent quality and greater safety. H. J. Warwick. il diag Mach 70:96-9 Ag '64
Handling equipment for wheel and tyre plant. il Engineer 216:1032 D 20 '63
Lead blast furnace feeding at Cominco. E. A. Mitchell and S. G. Smillie. diags Can Min & Met Bul 56:895-9 D '63
1964 materials handling and packaging directory; overhead equipment. il Mod Materials Handling 19:215-40 My '64
Overhead handling in mechanised foundry. il plan Metallurgia 68:159-60 O '63

MONORAIL transportation system
See also
Railroads, Single rail

MONOSACCHARIDES. See Saccharides

MONOTROPEIN. See Glycosides

MONTANA
See also subdivision Montana under special subjects, e.g.
Copper mines and mining
Floods
Gas, Natural
Geology
Mines and mineral resources
Petroleum
Petroleum industry and trade

MONTE CARLO method
Combination of the Monte Carlo method with the method of steepest descents for the solution of certain extremal problems. L. S. Gurin and V. P. Lobac. AIAA J 1:2708-10 N '63
Monte Carlo range calculations for a Thomas-Fermi potential. O. S. Oen and M. T. Robinson. bibliog J Ap Phys 35:2515-21 Ag '64
Monte Carlo solution of radiant heat transfer in a nongrey nonisothermal gas with temperature dependent properties. J. R. Howell and M. Perlmutter. bibliog flow chart diag A I Ch E J 10:562-7 Jl '64
Monte Carlo solution of thermal transfer through radiant media between gray walls. J. R. Howell and M. Perlmutter. bibliog flow charts diags A S M E Trans ser C 86:116-22 F '64
Predicting test-program failures. R. H. Carlson. il Machine Design 36:134-7 Ja 16 '64
Radiant transfer through a gray gas between concentric cylinders using Monte Carlo. M. Perlmutter and J. R. Howell. bibliog flow chart diags A S M E Trans ser C 86:169-79 My '64
Relative field gradient at the edge of an electrode in a four-electrode system. P. D. Agarwal. bibliog flow chart diags IEEE Trans Com & Electronics 83:502-9 S '64

MONTGOMERY COUNTY, Pennsylvania
See also
Water supply—Montgomery County, Pennsylvania

MONTMORILLONITE
Adsorption of polyvinyl alcohols by montmorillonite. D. J. Greenland. bibliog J Colloid Sci 18:647-64 S '63
Complexes of Ca-montmorillonite with primary monohydric alcohols (clay-organic studies). G. W. Brindley and S. Ray. bibliog Am Mineralogist 49:106-15 Ja '64
Heating-oscillating X-ray diffraction studies of some organo-montmorillonites. J. L. McAtee, jr. and J. M. Hawthorne. bibliog Am Mineralogist 49:247-57 Mr '64
Mechanism of phenol adsorption by organo-clay derivatives. A. L. Roberts and others. bibliog J Ap Chem 14:261-5 Je '64

MONTREAL

Architecture

Montreal builds 38-story hotel. il Eng N 173:49 O 22 '64
Trade center to advance Montreal downtown. il plan Prog Arch 45:60 My '64

Subways

Subway goes under St Lawrence River; unit prices. map plan diag Eng N 173:125 S 17 '64
Two Canadian cities go separate ways in building their subways. il maps Eng N 173:86-90 Ag 6 '64

MONUMENTS
Confederate heroes ride despite probe. il diag Eng N 173:21 Jl 23 '64
See also
Memorials

MONZONITE. See Pyroxenes

MOODY, Clarence Lemuel
Memorial. F. R. Clark. por Am Assn Pet Geologists Bul 48:1205-7 Jl '64

MOODY, James Drummond
J. D. Moody; recipient of Matson award. por Am Assn Pet Geologists Bul 48:1442 Ag '64

MOON
Back-scattering properties of moon and earth at *X* band. H. Safran. AIAA J 2:100-1 Ja '64
Chemical engineering on the moon. S. Atallah. bibliog il Chem Eng 71:143-5 Jl 6 '64
Clean collector will gather dust with open arms. il diags Machine Design 36:14 Jl 2 '64
Lively moon. Sci Am 210:67-8 F '64
Luminescent moon? Sci Am 210:56-7 Mr '64
Lunar librations. I. Michelson. AIAA J 1:2629-30 N '63
Lunar semi-diurnal tides in *h'F* and their influence on transequatorial radio propagation. J. A. Thomas. bibliog J Res Nat Bur Stand 68D:419-27 Ap '64
The moon; we look before we leap. J. A. Strasser. il diag Electronics 37:14-15 Ja 24 '64
Sky temperature behind the moon. C. R. Somerlock. Q S T 48:38-9 O '64
Space probe that tried and tried. il Electronics 37:29-30 Ag 10 '64
Tektites and impact fragments from the moon. J. A. O'Keefe. il maps diags Sci Am 210:50-7 F '64
Valve aids in simulating conditions on moon. Steel 153:69 N 11 '63
See also
Space flight—Lunar flights

Surface

Bearing capacity of simulated lunar surfaces in vacuum. E. C. Bernett and others. flow diag diag AIAA J 2:93-8 Ja '64
Current lunar soil research. J. K. Mitchell. bibliog il plan diags Am Soc C E Proc 90 [SM 3 no 3898]:53-83 My '64
Load-sinkage equation for lunar soils. D. L. Dewhirst. bibliog AIAA J 2:761-2 Ap '64
Moon looks okay for buildings. il Eng N 173:61 Ag 6 '64
Moon microscopy. il Sci Am 211:80-1 S '64
Moon photos; interpretations differ. il Product Eng 35:66 S 14 '64
Moon pictures don't upset Apollo. il I S A J 11:26+ S '64
Moon's photometric properties matched by man-made material. W. I. Dobar. il Space/Aeronautics 42:76-7 Jl '64
Radar determination of lunar surface dielectric properties. H. S. Hayre. bibliog AIAA J 1:2655-6 N '63
Rocket propellants from the moon. D. M. Cole and R. Segal. bibliog diags Astronautics & Aeronautics 2:56-60+ O '64
Statistical radar estimate of the lunar surface roughness. H. S. Hayre. bibliog Franklin Inst J 277:197-205 Mr '64
Surface of the moon. S. Tilson. il maps Space/Aeronautics 41:62-9 Mr '64
Water recovery from fuel cells and lunar minerals. F. J. Hendel. bibliog diags Ind & Eng Chem 56:29-31 Mr '64
Water recovery in lunar environment. R. N. Rickles. diags Space/Aeronautics 41:103+ Mr '64

MOON vehicles. See Vehicles, Extraterrestrial

MOORE, Stanford

ACS award in chromatography and electrophoresis. por Chem & Eng N 42:80 F 10 '64

MOORE, William

William Moore assumes presidency of Consulting engineers council. pors Eng N 172:42-4 Je 4 '64

MOORING of ships. See Anchorage

MORALE

How's your employee morale? E. J. Benge. il Textile Ind 128:61-5 Mr '64

MORDENITE. See Zeolites

MORIMOTO, Nobuo

Presentation of the 1963 Mineralogical society of America award and acceptance speech. J. D. H. Donnay. por Am Mineralogist 49:459-63 Mr '64

MOROCCO

See also

Petroleum industry and trade—Morocco

MORPHOLINE

Catalysis in water and ice; the reaction of thiolactones with morpholine in frozen systems. T. C. Bruice and A. R. Butler. bibliog Am Chem Soc J 86:4104-8 O 5 '64

MORPHOLOGY

Copolymer with lamellar morphology. R. K. Eby. bibliog il J Res Nat Bur Stand 68A:269-72 My '64

Factors affecting the morphology and growth of FeSn$_2$. C. Luner and M. V. Murray. bibliog il diag Electrochem Soc J 111:407-10 Ap '64

Investigation of the morphology associated with the dissolution process of polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:59-63 Ja '64

Morphology of isothermally bulk-crystallized linear polyethylene. F. R. Anderson. bibliog il diags J Ap Phys 35:64-70 Ja '64

Morphology of PbO$_2$ in the positive plates of lead acid cells. J. Burbank. bibliog il Electrochem Soc J 111:765-8 Jl '64

MORSE, William Clifford

Memorial. F. E. Vestal. por Am Assn Pet Geologists Bul 48:1207-10 Jl '64

MORTALITY

Correlations between water hardness and cardiovascular deaths in Oklahoma counties. R. D. Lindeman and J. R. Assenzo. bibliog map Am J Pub Health 54:1071-7 Jl '64

Mortality from heart disease at high altitude. W. E. Morton and others. bibliog Archives Environmental Health 9:21-4 Jl '64

Statistics

Effect of adjusting for competing mortality risks. F. Ederer. bibliog Am J Pub Health 54:1129-33 Jl '64

Mortality rates among coal miners. P. E. Enterline. bibliog Am J Pub Health 54:758-68 My '64

Racial differences in hip fracture mortalities. L. Adelson and R. Oseasohn. Archives Environmental Health 9:206-8 Ag '64

Uses and significance of multiple cause tabulations for mortality statistics. H. F. Dorn and I. M. Moriyama. Am J Pub Health 54:400-6 Mr '64

See also

Infant mortality—Statistics

MORTAR

Behavior of mortar filled steel tubes in compression. H. J. Salani and J. R. Sims. bibliog Am Concrete Inst J 61:1271-83 O '64

Cement mortars modified by SB latexes with variable bound styrene. Y. Ōhama and others. bibliog Rubber Chem & Tech 37:758-69 Jl '64

Shear bond strength between coarse aggregate and cement paste or mortar. M. A. Taylor and B. B. Broms. il diags Am Concrete Inst J 61:939-57 bibliog(p955-6) Ag '64

Sprayed mortar forms joints. il Eng N 173:45 S 24 '64

Tensile bond strength between aggregate and cement paste or mortar. T. T. C. Hsu and F. O. Slate. bibliog diags Am Concrete Inst J 60:465-86 Ap '63; Discussion. 60:1787-824 D '63

Testing

Consistency of cement-lime mortars. R. Shalon and I. Soroka. Materials Res & Stand 4:465-71 S '64

Effect of restraining forces on the expansion of masonry mortars. T. Ritchie. diags Materials Res & Stand 4:15-19 Ja '64

MORTGAGES

Foreclosure rate stirs unrest. Eng N 173:19-20 O 22 '64

MOSCOW

See also

Electricity supply—Moscow

MOSELLE canal. See Canals—Europe

MOSES, Robert

The man who gets things done. pors Eng N 172:49-50+ Ap 23 '64

MOSQUITOES

Antimetabolites in the nutrition of aedes aegypti L. larvae; thiamine, riboflavin, and pantothenic acid antagonists. S. Akov and K. Guggenheim. bibliog J Nutrition 81:419-26 D '63

Extermination

Houston continues spraying to control encephalitis epidemic. Chem & Eng N 42:30 S 7 '64

MÖSSBAUER effect

Differential thermal analysis and Mössbauer studies in rare-earth orthoferrites. M. Eibschütz and others. bibliog J Ap Phys 35:1071-2 pt 2 Mr '64

Inexpensive automatic recording Mössbauer spectrometer. J. Lipkin and others. diags R Sci Instr 35:1336-9 O '64

Low velocity drive for Mössbauer experiments. V. Vali and T. W. Nybakken. diags R Sci Instr 35:1085-6 Ag '64

Mössbauer-effect apparatus for an advanced undergraduate teaching laboratory. A. J. Bearden and others. bibliog diags Am J Phys 32:109-19 F '64

Mössbauer effect in *cis-trans* isomers. R. H. Herber and R. G. Hayter. bibliog Am Chem Soc J 86:301-2 Ja 20 '64

Mössbauer effect; International conference, 3d, Ithaca, Sept. 4-7. Phys Today 16:46-8 D '63

Mössbauer spectra give new structural data. R. H. Herber and H. A. Stöckler. Chem & Eng N 42:66-7 Jl 13 '64

Velocity servo drive for a high precision Mössbauer spectrometer. P. A. Flinn. bibliog diags R Sci Instr 34:1422-6 D '63

Velocity spectrometer for Mössbauer experiments. E. Kankeleit. diags R Sci Instr 35:194-7 F '64

MOSSES

Ignition delay of ponderosa pine needles and sphagnum moss. R. W. Mutch. bibliog J Ap Chem 14:271-5 Jl '64

MOTELS

Modular motel. il Mod Plastics 41:99-101 F '64

Prefabricated reinforced plastic construction. il Plastics World 22:46 Ap '64

Heating and ventilation

Modern motor inn uses modern fuel. il Gas Age 131:28-9 Je '64

Why doesn't zoning hookup work in motel? answer. il diags Dom Eng 203:88-9 My '64

MOTHPROOFING preparations

Aerosol review, 1964; mothproofers. Manuf Chem 35:114 Mr '64

Studies in mothproofing. Z. Kuwana and others. bibliog Textile Res J 33:489-500, 649-60, 745-52 Jl-S '63; Discussion. il 34:367-8 Ap '64

Testing

Insect resistance test methods. D. J. Ott. Am Dyestuff Rep 52:1068-72 D 23 '63

MOTHS

Textile resistance test; Chemical specialties manufacturers association; latest revision. bibliog Soap & Chem Spec Blue Book p233-6 '64

See also

Lepidoptera

MOTION

Drag and oscillatory motion of freely falling cylindrical particles. E. K. Marchildon and others. bibliog diags Can J Chem Eng 42:178-82 Ag '64

Effect of abrupt concentration changes on the motion of free drops. R. S. Valentine and W. J. Heideger. il Can J Chem Eng 42:43-4 F '64

Identical motion in quantum and classical mechanics. N. Rosen. Am J Phys 32:377-9 My '64

Motion of a spinner rocket inside a smoothbore launcher. W. J. Harrington and R. C. Bullock. bibliog diag Franklin Inst J 277:552-65 Je '64

Motion product seismograms. J. E. White. il diags Geophysics 29:288-98 Ap '64

Newton's laws of motion and the 17th century laws of impact. A. B. Arons and A. M. Bork. bibliog Am J Phys 32:313-17 Ap '64

MOTION—*Continued*
Nonsimultaneous measurement of the coordinates used to obtain the length of a uniformly moving body. K. A. Durbin. diags Am J Phys 32:639-41 Ag '64
Novel derivation of the formula for the period of simple harmonic motion. L. C. Baird. diag Am J Phys 32:233-4 Mr '64
Spring-mass correction in uniform circular motion. R. Weinstock. Am J Phys 32:370-6 My '64
Undergraduate laboratory experiment for studying the motion of coupled mechanical systems. F. Bueche and C. Pavelka. diags Am J Phys 32:226-8 Mr '64
See also
Acceleration
Fitzgerald-Lorentz contraction
Mechanical movements
Rotation
Stability of systems
Velocity
Vibration
Vortex motion
Wave motion, Theory of

MOTION, Equation of. See Equation of motion

MOTION picture and television engineers, Society of. See Society of motion picture and television engineers

MOTION sickness
Motion sickness on railroads. I. Kaplan. bibliog Ind Med 33:648-51 S '64

MOTIVATION (psychology)
Engineering motivation. Machine Design 36:114-16 F 27; 132-4 Mr 12; 151-2 Mr 26; 112-14 Ap 9 '64
Reemphasize the human element in fire prevention. A. B. Kelly. il Safety Maint 128: 32-5+ O '64
Unused capacity of people high. E. C. Lindsey. Pet Management 36:143+ O '64
Zero defects plan declares war on error; Lockheed Georgia co. P. J. Cathey. Iron Age 194:116-18 O 29 '64
See also
Buying motives

MOTOR boat engines, Outboard
Chambered crankcase improves outboard motor efficiency. il diags Machine Design 36:90-1 Jl 30 '64
Marine engines for 1964; outboard motors. C. A. Weinert. il diag Automotive Ind 130:79-83+ Ja 15; 51-5 F 1 '64

Exhaust

Pollutional effects of outboard motor exhaust; laboratory studies. J. N. English and others. bibliog WPCF J 35:923-31 Jl '63; Correction. 35:1413 N '63

Specifications

Outboard motor specifications, 1964; tables. Automotive Ind 130:208-9 Mr 15 '64

MOTOR boats
For the boat. il Engineering 197:592 Ap 24 '64
High-speed aluminum crew boat. il Marine Eng/Log 69:46 Mr '64
No more messing about for small boats. il Engineering 197:36-7 Ja 10 '64
Recreational boating at all-time high in 1963. C. A. Weinert. il Automotive Ind 130:76-8 Ja 15 '64

Exhibitions

National motor boat show at the New York Coliseum. il diag Product Eng 35:58 F 3 '64

MOTOR boats, Jet propelled
Electronic controls tame Little Squirt. il diags Machine Design 35:164-5 N 21 '63
Water jets make less noise. H. W. Schab. il Naval Eng J 76:132-4 F '64

MOTOR bus brakes. See Brakes, Motor bus

MOTOR bus drivers
Occupational carbon monoxide hazard of commercial vehicle drivers. W. A. Cook. bibliog Ind Med 33:118-20 Mr '64

MOTOR bus lines

Employees

See also
Motor bus drivers

MOTOR bus lines, School
Improved school bus efficiency. il Diesel Equip Supt 41:20-1 D '63

MOTOR buses
New motorway coach. il Engineer 218:554 O 2 '64

Air conditioning

Fresh air without draughts in buses il Engineering 197:644 My 15 '64

Chassis

Front wheels in tandem from England; twin-steer passenger chassis. il Mech Eng 86:58-9 O '64

Design

Buses for London Transport. plan diag Engineer 218:64 Jl 10 '64
Move the engine and help the driver. il diags Engineering 197:218-19 F 7 '64

Electric equipment

Recent developments in automatic transmission control. il diag Engineer 217:819-20 My 8 '64

Exhibitions

Commercial vehicle exhibition, London, Sept. 25-Oct. 3. il Engineer 218:537-41 O 2 '64
International exhibition of commercial vehicles, 47th, Amsterdam, Feb. 9-15. il Engineer 217:326-7, 360-2 F 14-21 '64

Heating and ventilation

Clayton Dewandre bus heating and ventilation. Automobile Eng 54:392 S '64

Maintenance and repair

How Madison Bus uses dynamometer for fleet maintenance inspection; abstract. F. J. Wessel. il S A E J 72:93-4 Ja '64

Specifications

City and intercity integral bus specifications, 1964; tables. Automotive Ind 130:160 Mr 15 '64

Steering gear

ZF power steering gear. il diags Automobile Eng 54:272-6 Je '64

Transmission

Controlling transmission by transistors. il Engineering 197:686 My 15 '64
Recent developments in automatic transmission control. il diag Engineer 217:819-20 My 8 '64

MOTOR cars (railroad)
French railways a.c. motorcoaches. il Engineer 217:291-2 F 7 '64
History of the steam-driven railcar, 1903-48. R. A. S. Abbott. il Engineer 216:147-52, 188-91, 221-6, 1050 Jl 26-Ag 9, D 27 '63

Diesel-electric

Railcar transmissions for Argentina. il Engineer 217:315 F 14 '64

MOTOR cycles
Motorcycle built for boondocks. il Eng N 172:186 Je 18 '64

Exhibitions

Paris motor, motor cycle and cycle show, 51st, Oct. 1-10. il diag Engineer 218:598-600, 642-4 O 9-16 '64

MOTOR scooters
Polyethylene sheet for better scooter parts. il Mod Plastics 42:109+ S '64

MOTOR ships
Canadian motorship has many firsts. il Marine Eng/Log 69:16B+ Je '64
Danish ship for English travellers, MV England. il Engineering 197:830 Je 19 '64
Distinctive ships; Markhov, first motorship for Brocklebank line. il Marine Eng/Log 68:72 D '63
Distinctive ships; motor tanker Sinclair Venezuela. il Marine Eng/Log 68:78-9+ D '63
New Finnish flagship; Mv Ilmatar. Marine Eng/Log 69:28F+ O '64
Seagoing ferryboat joins Alaska's fleet. il Marine Eng/Log 69:60-1 O '64
32,500-hp Fiat Diesel in big motortanker launched at Monfalcone. il Marine Eng/Log 69:58-9 Ap '64
Trojan sea-horse, the 17-knot LSL. il Marine Eng/Log 69:40B+ Je 15 '64

MOTOR starters. See Electric motors—Starting

MOTOR truck brakes. See Brakes, Motor truck

MOTOR truck drivers
Function and value of an automotive safety program. O. W. Summers. Am Water Works Assn J 55:1407-13 N '63
How to select and train truck drivers. il Rock Prod 67:94-6 O '64
Occupational carbon monoxide hazard of commercial vehicle drivers. W. A. Cook. bibliog Ind Med 33:118-20 Mr '64

MOTOR truck engines
Caterpillar tractor co. enters p&d engine field. il Diesel Equip Supt 41:43 N '63

MOTOR truck engines—*Continued*

Diesels for stop n' go users report. il Diesel Equip Supt 42:36-41 O '64

Ford trucks have new engines. Eng N 173:49 S 24 '64

GMC's new D351 engine. il Diesel Equip Supt 42:42-3 S '64

New Dodge Diesels for '64; illustrations with text. Diesel Equip Supt 41:46 N '63

New GMC V6 Diesels feature four-stroke design. J. Geschelin. il Automotive Ind 130:63-5 F 15 '64

1965 Ford trucks use new engines. il diag Automotive Ind 131:56-9 O 1 '64

Parts remanufacture; service to customers, good business for distributor. il Diesel Equip Supt 42:36-9 F '64

Rock Transport picks new Cat engine. il Diesel Equip Supt 42:40 Mr '64

Three Ford truck engines. il Automotive Ind 130:29 F 1 '64

Toro-Flow 478; GMC's V-6 Diesel. il diag Diesel Equip Supt 42:27-9+ Ja '64

Versatile production lines for GMC engines. J. Geschelin. il Automotive Ind 131:57-60 Jl 15 '64

Control

Differential Diesel engine for trucks. il diag Mech Eng 86:60-1 Jl '64

Cooling

GMC's Posi-Temp cooling system. diag Diesel Equip Supt 42:30-1 Ag '64

Wood co.'s Temp-Gard insures full radiators, reduces hot spots due to trapped air. il diag Diesel Equip Supt 41:45 N '63

Fuel

LP-gas engine-fuel sales pick up. il Oil & Gas J 62:88-9 S 14 '64

New flurries over fuels and tires. Diesel Equip Supt 42:32-3 Ag '64

Fuel feeding

Tecalemit-Jackson petrol injection. il diags Automobile Eng 54:307-13 Jl '64

Lubrication

Grain hauler finds way to reduce cold sludge and oil consumption. il Diesel Equip Supt 42:50 O '64

Maintenance and repair

This month's equipment superintendent, Jack Riesing, Pacific Intermountain Express. il Diesel Equip Supt 42:26-9 O '64

This month's equipment superintendent; Walter Chanda, Continental baking co. il Diesel Equip Supt 42:16-19 My '64

Manufacture

Better ID gaging boosts engine quality. il Am Mach 108:54-5 Ag 31 '64

Mufflers

Chromium impregnated steel; a new muffler material. B. Trock and G. W. Myrick. il Metal Prog 85:115-17 Ap '64

MOTOR truck parts

Forging Chevrolet parts. J. Dunne. il Automotive Ind 130:41-2 Mr 1 '64

Heat treating truck parts in a modern plant. R. A. Grayson. il Metal Prog 86:74-9 Jl '64

High volume methods for low volume production; Tata, inc. W. Opel. il Automotive Ind 130:43-5 Mr 1 '64

MOTOR truck tires. See Tires, Motor truck

MOTOR trucks

Bigger off-highway rigs boost efficiency. il Automotive Ind 130:82-4 Je 15 '64

Chevrolet trucks add 131 models. il Automotive Ind 131:100-1 S 15 '64

Chevrolet trucks grow to 327 models. il Eng N 173:55 S 10 '64

Dodge's compact trucks. il Automotive Ind 130:28 F 1 '64

Fast-travel lorry-mounted cranes. il diag Engineer 216:944-5 D 6 '63

For taking the rough with the smooth; Farmobil. il Engineering 198:410 S 25 '64

Ford's bet on truck of the 1970s. il Steel 155:81-2 O 26 '64

45 Dodge truck models. il Automotive Ind 131:31 O 1 '64

GMC's Handi-Van. il Automotive Ind 130:28 F 1 '64

Kenworth gains in East. il Diesel Equip Supt 42:37 Mr '64

New Chevy van. Automotive Ind 130:117 Ja 15 '64

New hauler has 50-50 weight distribution. il Diesel Equip Supt 42:58 Je '64

1965 Ford truck use new engines. il diag Automotive Ind 131:56-9 O 1 '64

Pick the right truck for the job and save dollars and headaches. J. H. Humpton, jr. il S A E J 72:76-81 Ag '64

Refuse collection train improves service. C. B. Tyson. il Pub Works 95:99-100 Ja '64

Turbine truck unveiled. il diags Machine Design 36:168-73 O 22 '64

23-ton dumptruck. il Engineer 218:142 Jl 24 '64

Underbody blades redesigned for high speed snow removal. R. W. Kress. il Pub Works 95:114 Ag '64

See also

Electric trucks
Fire apparatus, Motor
Loading and unloading—Motor trucks
Radio telephone on motor trucks
Refrigeration on cars, trucks, etc.
Tank trucks
Tractors
Trailers

Axles

Characteristics of induction hardened axles. R. K. Wuerfel. il Metal Prog 84:93-5 D '63

Improved tractive effort device. il Engineer 217:241 Ja 31 '64

Line copes with varied parts, low production rate. diag Welding Eng 48:39-40 D '63

Negative camber produces positive results. A. F. Weber and others. il diags S A E J 72:82-3 Mr '64

Bodies

Aluminum dump trucks bring operating economies. il Mod Metals 20:82 S '64

Aluminum in heavy duty truck bodies. il Light Metal Age 22:9-10 Je '64

Aluminum truck bodies in mining operations. R. A. Esmonde. il map diag Can Min & Met Bul 57:263-8 Mr '64

Aluminum truck bodies; light answer to a weighty problem. R. A. Esmonde. il diag Rock Prod 67:64-7+ O '64

Aluminum truck body use in mining industry to increase rapidly. il diags Welding Eng 49:46-7 Jl '64

Low loader with twin wheels. il Engineering 198:420 O 2 '64

Molded glass-truck body is treated. il Elec World 162:82-3 Ag 10 '64

Strengthened thermoplastics bid for body applications. T. P. Murphy and others. il S A E J 72:83-7 Je '64

Three-way tipping truck body. il Engineer 218:518 S 25 '64

Van that expands when it stops. il Engineering 197:541 Ap 17 '64

Brakes

See Brakes, Motor truck

Chassis

CO_2 welding cuts time 50 per cent on mobile crane carrier chassis. il Welding Eng 49:82 S '64

Welding time for T-1 steel truck chassis cut in half with semiautomatic equipment. il Welding J 43:693 Ag '64

Cleaning

Automatic truck washer is fast, efficient. il Diesel Equip Supt 41:36 N '63

Commercial vehicle washing. il Engineering 198:250 Ag 21 '64

Commercial vehicle washing plant. il Engineer 218:339 Ag 28 '64

Clutches

How to pick a clutch. F. K. Post. il diags Diesel Equip Supt 41:23-5+ D '63

Cold weather operation

Labrador deep freeze doesn't chill vehicle performance. N. H. Carr and others. il S A E J 72:94-5 Jl '64

Control

Tractor and semi-trailer handling. F. Jindra. bibliog diags Automobile Eng 53:438-46 O '63; Discussion. 54:94-7 Mr '64

Design

Beat buckling in truck frames. S. J. Shomberger and E. A. Wingerson. diag S A E J 72:66-7 Ja '64

Custom building for economic transportation, Mack trucks, inc. C. R. MacBride. Diesel Equip Supt 42:48-9 O '64

Designers propose to alleviate varied power-take-off application problems. G. S. Park and others. bibliog S A E J 72:86-7 O '64

Designing the truck of the future. J. N. Bauman. Diesel Equip Supt 42:40-1 Je '64

MOTOR trucks—Design—*Continued*

Ford gas turbine truck project. H. W. Barclay. il diags Automotive Ind 131:43-6+ N 1 '64

Highway train; Ford's super-truck. il diags Product Eng 35:69-70 O 26 '64

See also

Motor trucks—Chassis

Electric equipment

Alternator selection. J. V. Poticny. il Pub Works 94:100-1 N '63

Exhibitions

Commercial vehicle exhibition, London, Sept. 25-Oct. 3. il Engineer 218:479-81, 537-40 S 25-O 2 '64; diag Engineering 198:362-3 S 18 '64

Geneva motor show. il diag Engineer 217: 593-5 Mr 27 '64

International exhibition of commercial vehicles, 47th, Amsterdam, Feb. 9-15. il Engineer 217:326-7, 360-2 F 14-21 '64

Leipzig fair. D. Scott. il Automotive Ind 130: 61-3+ Ap 15 '64

Morris commercial vehicle show, Birmingham, May 11-14. il Engineer 217:869 My 15 '64

Paris motor, motor cycle and cycle show, 51st, Oct. 1-10. il diag Engineer 218:598-600, 642-4 O 9-16 '64

Frames

Computers analyze vehicle frames. C. W. Schwabenlender. S A E J 72:33 Ap '64

Ford develops new technique for truck frame test. R. Z. Beauvais and G. R. Sorenson. diags S A E J 72:55-7 Ag '64

Hydraulic equipment

High pressure filter boosts lift's safety. il Hydraulics & Pneumatics 17:22 S '64

Leasing

National truck lease system holds executive conference. Diesel Equip Supt 42:10 My '64

Should you roll your own? A. J. Schoen. Rubber Age 95:906-7 S '64; Gas Age 131:36-8 O '64; Rock Prod 67:90+ O '64

Textile trucking; should your company roll its own? A. J. Shoen and A. B. Rosenbaum. il Textile World 114:50-7 S '64

Lubrication

Automatic lubrication. il diags Automobile Eng 54:358-61 Ag '64

Mileage controlled chassis lubricator. il diag Engineering 197:864 Je 26 '64

Telelube HD lubrication. diags Automobile Eng 54:385 S '64

Maintenance and repair

Appalling defects on heavy lorries. il Engineering 198:140-1 Jl 31 '64

Building design meets vehicle, mechanic needs; abstract. W. F. Eaton. S A E J 72:86 F '64

Can a small operation afford good truck maintenance? C. Cunningham. il Rock Prod 67:110-12 O '64

Maintenance shop design; Spector freight system's West Richfield, Ohio, shop. il plan Diesel Equip Supt 41:26-9 D '63

New hookup for commercial hot water-detergent mixture. il diag Dom Eng 202:158-61 N '63

Parts remanufacture; service to customers, good business for distributor. il Diesel Equip Supt 42:36-9 F '64

Pure Oil's PM program at Pure's truck stops. il Diesel Equip Supt 42:39-41 Jl '64

Regular common carrier conference maintenance committee meeting. Diesel Equip Supt 41:31 N '63

Stop-go vehicle preventive maintenance geared to time; abstract. P. G. Anderson. S A E J 72:79 F '64

This month's equipment superintendent; Bill Crose, Azusa rock & sand co. il Diesel Equip Supt 42:24-7 Je '64

This month's equipment superintendent, Bob Sargent, Indianhead truck line, inc. il Diesel Equip Supt 42:26-9 S '64

This month's equipment superintendent, C. H. Rose, East Texas motor freight lines, inc. il Diesel Equip Supt 42:24-7 Jl '64

This month's equipment superintendent, Don Stahl, operations manager Don Ward inc. il Diesel Equip Supt 41:23-6 N '63

This month's equipment superintendent, Ira Davison, vice-president, equipment, Merritt-Chapman & Scott. il Diesel Equip Supt 41: 16-19 D '63

This month's equipment superintendent; J. C. Paterson. il Diesel Equip Supt 42:24-7 F '64

This month's equipment superintendent, R. R. DeFoor. il Diesel Equip Supt 42:18-20 Ja '64

This month's equipment superintendent; Walter Chanda, Continental baking co. il Diesel Equip Supt 42:16-19 My '64

Vital part of your maintenance program. F. P. Plovick. Diesel Equip Supt 42:45 F '64

Manufacture

Albion transmission production. il Automobile Eng 54:28-32 Ja '64

Automotive processes illustrated. C. J. Kelly. Automotive Ind 131:70-1 Jl 15 '64

CO_2 arc-spot welding of 0.28- and 0.38-inch thick steel. il Mach 70:117-18 D '63

Dump trailer weighs less, carries more. il Welding Eng 48:48-9 D '63

Materials

Aluminum in trucks. il Light Metal Age 21:25 D '63

Magnesium; trucks that float and fly. il Product Eng 35:70-1 S 14 '64

Steel trucks reduce weight to gain sales. H. F. Jones. il Iron Age 192:55 N 21 '63

Upgrading fasteners at Mack Trucks. N. M. Lloyd. il Automotive Ind 130:37-40 Mr 1 '64

Plastics

Making truck panels automatically. il diag Mod Plastics 41:89-91+ Mr '64

Reinforced plastics in cars and trucks. F. L. Siegrist. il Metal Prog 85:105-9 My '64

Royalite truck parts. Automotive Ind 130: 122+ Je 15 '64

Painting and finishing

Applying decals to truck bodies. il Ind Finishing 40:64-5 Mr '64

Finishing army M151 bodies. T. L. McKowen. il Ind Finishing 40:52-3+ Ap '64

Performance

Bifuel operation improves Diesel acceleration. B. S. Murthy. S A E J 72:60-2 F '64

Improving truck ability prediction data. J. W. Anderson and others. S A E J 72:65 O '64

Retarders

Electric retarder cuts brake wear and damage. il Diesel Equip Supt 42:46-7 S '64

Safety measures

Luminescent disc warns of hauling hazards. il diag Elec World 160:138+ O 21 '63

Specifications

Truck specifications, 1964; tables. Automotive Ind 130:152-9 Mr 15 '64

Springs and suspension

Design formulas and procedure for U-shaped torsion springs. R. E. Hanslip. bibliog diags Product Eng 35:77-82 Ag 3 '64

Erasing the bumps with rubber springs. il Product Eng 35:57 Ja 6 '64

New White suspension. Diesel Equip Supt 42:40 Ja '64

Steering gear

Tight turns for army truck. diags Product Eng 35:49-50 S 28 '64

ZF power steering gear. il diags Automobile Eng 54:272-6 Je '64

Testing

Ford develops new technique for truck frame test. R. Z. Beauvais and G. R. Sorenson. diags S A E J 72:55-7 Ag '64

Transmission

Albion transmission production. il Automobile Eng 54:28-32 Ja '64

Are automatic transmissions tinsel or terrific? C. Cunningham. il Rock Prod 67:68-70 O '64

Converter-transmission package aids in rugged logging operation. il Diesel Equip Supt 42:35 Mr '64

Designers propose to alleviate varied power-take-off application problems. G. S. Park and others. bibliog S A E J 72:86-7 O '64

Gear box and transmission. il Engineering 198:463 O 9 '64

Putting an automatic in the driveline. diag Diesel Equip Supt 42:30-3 F '64

Sprag type clutch automatically engages front wheels when rear wheels slip on 2-½-ton truck. C. J. Kelly. il diags Automotive Ind 130:105+ Ap 15 '64

MOTOR trucks—Transmission—*Continued*

U-joint specialists fill a vital gap. il Diesel Equip Supt 42:46-7 O '64

Washing

See Motor trucks—Cleaning

Weight

Bureau of public roads proposes truck sizes, weights. Eng N 173:18 S 3 '64
Dimensions and weights of highway trailer combinations and trucks, 1959. M. F. Kent and H. Stevens. Pub Roads 32:269-85 F '64
Removable weighbridge for construction sites. il Engineering 198:467 O 9 '64
Selecting the best scale for in-motion weighing. R. E. Puckett. diags Pub Roads 33:45-7 Ag '64
Weighing station does double duty. il Eng N 173:105 Ag 6 '64

Wheels

Precision wheel for heavy vehicles. Engineering 198:463 O 9 '64

MOTOR trucks, Industrial

Chevy trucks stress comfort. il Eng N 171:54 D 12 '63
Dual-purpose fork truck. il Engineer 217:144 Ja 17 '64
Fork truck turns around in own length. il Steel 153:131-2 N 18 '63
Gas metal-arc welding gives big lift to Alaska railroad. il Welding J 43:126-7 F '64
How to select safe lift trucks. F. C. Schuster. il Welding Eng 49:55-7 N '64
Internal vacuum eases handling. il Food Eng 36:105 Je '64
Mechanical Humper for building sites. il Mech Eng 86:71 F '64
Mig fabricates world's largest lift truck. il Welding Eng 48:42 N '63
New clamp-truck study presented to aid food warehousemen. il Mod Materials Handling 19:7 S '64
New materials handling concept; use of clamp truck. il Soap & Chem Spec 40:47-8+ Ag '64
Newest in scrap handlers looks good for other jobs, too. il Mod Materials Handling 19:48-9 F '64
1964 materials handling and packaging directory; outdoor-indoor mobile equipment. il Mod Materials Handling 19:195-214 My '64
1964 materials handling and packaging directory; powered floor equipment. il Mod Materials Handling 19:105-50 My '64
Potential of increased pulpwood earnings through efficient use of equipment. T. Walbridge. bibliog diags Paper Ind 46:603-8 O '64
Range of fork-lift trucks extended. il Engineer 216:960-1 D 6 '63
Servo system steers lift truck. diag Hydraulics & Pneumatics 17:90 Mr '64
Slab handling with fork-truck. il Engineer 217:445 Mr 6 '64
Stressing mobility in big steel product handling. il diags Mod Materials Handling 19:58-61 O '64
Unusual vehicle handles heavy prefab sections in shipyard. il Marine Eng/Log 69:90 F '64
Vacuum-lifting truck cuts unloading time. il Mod Materials Handling 19:69 Ap '64
Wheel loader attachments speed flask handling. il Foundry 92:158 Mr '64
See also
Tractors, Industrial

Drivers

Are your lift truck drivers only half professional? Foundry 92:181+ S '64

Fuel

Fuel-saver for LP-gas; pressure-injection carburetion system. il diag Mod Materials Handling 19:43 N '64

Maintenance and repair

Are you spending too much on obsolete trucks? Plant Eng 18:148+ Jl '64
Make truck maintenance pay. B. T. Lewis. diags Mill & Factory 75:64-7 Ag '64

Wheels

Why the sudden shift to polyurethane wheels. il Mod Materials Handling 19:44-6 Ag '64

MOTOR trucks, Military

Finishing army M151 bodies. T. L. McKowen. il Ind Finishing 40:52-3+ Ap '64
Tight turns for army truck. diags Product Eng 35:49-50 S 28 '64

MOTOR trucks and roads

Truck travel in the Los Angeles metropolitan area. L. A. Hoel. Traffic Q 18:535-53 O '64
See also
Road traffic

MOTOR trucks in construction work

Dodge offers broad truck line. il Eng N 173:93 O 8 '64
Dump truck tows dump trailer, trailer body transfers, truck dumps trailer body. il Eng N 172:47 Mr 5 '64
Ford trucks feature new engines. il Eng N 172:26 Ja 2 '64
Harvester builds a 45-ton truck. il Eng N 172:145 Ja 23 '64
Ingenuity stretches machinery usefulness; illustrations with text. Eng N 172:46-7 Ap 9 '64
KW-Dart's Diesel powered dump trucks. il Eng N 172:55 My 14 '64
New general purpose fast-travel cranes. il diags Engineering 196:750-1 D 13 '63

MOTOR trucks in freight service

Du Pont vs. distribution costs; new trucking concept, a rich source of savings. il diags Mod Materials Handling 19:41-3 S '64
Ford gas turbine truck project. H. W. Barclay. il diags Automotive Ind 131:43-6+ N 1 '64
Gas turbine powers a big hauling rig. il Eng N 173:30-1 O 29 '64
This month's equipment superintendent, Bill White. il Diesel Equip Supt 42:38-41 Ap '64
Trucking terminal and home office. il plan Arch Rec 134:130-1 D '63

MOTOR trucks in mining

Aluminum truck bodies in mining operations. R. A. Esmonde. il map diag Can Min & Met Bul 57:263-8 Mr '64
Chino completes changeover to trucks. R. Spivey. il Min Eng 16:33-5 Ja '64
Conversion from rail to truck haulage at the Chino pit. R. W. Shilling. il Min Cong J 50:29-32+ Ap '64
Do lightweight truck bodies pay? Eng & Min J 164:124 D '63
Experience with Diesel haulage units-underground. F. C. Appleyard. il Min Cong J 49:52-4 D '63
Giant trucks carry 100-ton payload; Hanna coal co. il Coal Age 69:62-3+ Ja '64
Labrador deep freeze doesn't chill vehicle performance. N. H. Carr and others. il S A E J 72:94-5 Jl '64
Mammoth four-wheel rear-dump truck. il Coal Age 68:140 D '63
New hauler distributes weight. il Min Cong J 50:104 Ag '64
Progress in the application of electric drive to truck haulage equipment. E. R. Borcherdt. il Min Cong J 50:38-40+ My '64
Trucks feature high power-to-weight ratio. il Coal Age 69:116 My '64

MOTOR trucks in repair service

Asphalt distributor today; dump truck tomorrow. C. L. Huisman. il Pub Works 95:68-70 N '64
Converted utility ladder truck facilitates sign washing. il Pub Works 95:92 My '64
Evolution of work vehicles. C. S. Herrmann. il Bell Lab Rec 42:298-9 S '64
Floatation tires protect lawns. H. S. Kern. il Elec World 161:110 F 10 '64
Keeping construction equipment operating. il Welding Eng 49:41-3 My '64
McCabe-Powers body co. expands facility for vehicular-equipment market. il Elec World 162:133+ O 19 '64
Mobile equipment today; special report. il Elec World 162:75-94 Jl 13 '64
Mount Dora's versatile utility truck. H. D. Overhiser. il Pub Works 95:132 N '64
New mobile units aid downtown gas leakage surveys. il Gas 40:66-7 Je '64
New trucks please company and drivers. il Gas 39:80 D '63
New twists on some old problems. il diags Dom Eng 203:96-9 Je '64
Operational efficiency to be improved in coming utility winches; abstract. S A E J 72:79 F '64
Safety through service vehicle redesign. il Gas Age 130:40 N '63
Three-way snow fighting. H. Echard. il Pub Works 95:81 Ag '64
Truck/trailer combo speeds underground cable handling. il Elec World 160:100 O 21 '63
Van carries one-man meter test shop. E. Nolet. il Elec World 162:78-9 Ag 10 '64

MOTOR trucks in rock products industry

Aluminum truck bodies; light answer to a weighty problem. R. A. Esmonde. il diag Rock Prod 67:64-7+ O '64

MOTOR trucks in rock products industry—*Continued*

Are automatic transmissions tinsel or terrific? C. Cunningham. il Rock Prod 67:68-70 O '64

Big truck means big savings for small quarry. J. H. Bergstrom. il diag Rock Prod 67:84-6 F '64

Can a small operation afford good truck maintenance? C. Cunningham. il Rock Prod 67:110-12 O '64

First 12-axle trailer train hauls aggregates. il Rock Prod 67:71 O '64

How to select and train truck drivers. il Rock Prod 67:94-6 O '64

Pay hauler. il Rock Prod 66:138 N '63

Rock Transport picks new Cat engine. il Diesel Equip Supt 42:40 Mr '64

Should your company roll its own? an expert's advice on company-operated fleets vs. common carriers. A. J. Schoen. Rock Prod 67:90+ O '64

Truck talk. C. Cunningham. Published in monthly numbers of Rock products

Truck topics. J. E. Schipper. Published in monthly numbers of Pit & quarry

MOTOR trucks in the petroleum industry

Big tires lick swamp problems. il Oil & Gas J 62:190-2 Ag 17 '64

MOTOR trucks on rails

Rail flaw detector really mobile now. il Welding Eng 49:52+ Je '64

MOTOR vehicle fleets

Are these cases motor vehicle fleet accidents? Mag of Stand 35:81-3 Mr '64

Diaper fleet goes Diesel. il Diesel Equip Supt 42:26-7 Mr '64

Function and value of an automotive safety program. O. W. Summers. Am Water Works Assn J 55:1407-13 N '63

Genesee brewing co. adds Diesels, retrains mechanics. il Diesel Equip Supt 42:65 O '64

Planned refuse vehicle replacement for better service, lower maintenance. W. M. Kunsch. il Pub Works 95:105-6 Mr '64

Scheduling of vehicles from a central depot to a number of delivery points. G. Clarke and J. W. Wright. diags Op Res 12:568-81 Jl '64

Should you roll your own? A. J. Schoen. Rubber Age 95:906-7 S '64; Gas Age 131:36-8 O '64; Rock Prod 67:90+ O '64

Textile trucking: should your company roll its own? A. J. Shoen and A. B. Rosenbaum. il Textile World 114:50-7 S '64

This month's equipment superintendent. Jack Riesing. Pacific Intermountain Express. il Diesel Equip Supt 42:26-9 O '64

This month's equipment superintendent; Walter Chanda, Continental baking co. il Diesel Equip Supt 42:16-19 My '64

Truck roundup, 1964 style. C. Cunningham. il Gas Age 131:32-5+ F '64

Vehicle users plan for 1974; fleet management conference. Engineering 198:421 O 2 '64

MOTOR vehicles

German folding car. il Automotive Ind 131:122 S 15 '64

Mobile remote manipulator units (MRMU): in case of radioactive trouble. D. G. Jones. il diags Mech Eng 86:28-31 My '64

Motorcart. il Engineering 197:28-9 Ja 3 '64

New ideas cut costs. il Automotive Ind 131:39-41 Jl 1 '64

Theory and practice in off-the-road locomotion. A. R. Reece. bibliog diag Engineer 217:896-7 My 22 '64

Transportation topics. C. Cunningham. Published in monthly numbers of Gas age

See also

Automobiles
Electric vehicles
Motor buses
Motor trucks
Road traffic
Tractors

Clutches

Multi-cone synchromesh. diag Automobile Eng 53:525 D '63

Electric equipment

Land navigation equipment. il Automobile Eng 54:64-5 F '64

Monopolies commission; electrical equipment for motor vehicles. Engineer 217:51 Ja 3 '64

Proper alternator application requires careful system study. Pit & Quarry 57:91+ O '64

What size alternator for you? il Diesel Equip Supt 42:41 S '64

Equipment

Someone must carry reliability's burden; vehicle and engine equipment. R. G. C. Messervy. il diags Engineering 197:680 My 15 '64

Hydraulic equipment

Closed circuit releases valve detents. O. Rice. il diags Hydraulics & Pneumatics 17:55-6 Ag '64

Hydraulic crawler-mounted excavator. il Engineer 217:627 Ap 3 '64

Inspection

1963 vehicle safety-check. Safety Maint 126:22 D '63

Road to safety; motor vehicle inspection. N. J. Parsekian. il diags Mag of Stand 35:35-8 F '64

Law

State legal maximum dimensions and weights of motor vehicles compared with AASHO standards; tabulations. Pub Roads 33:10-11 Ap '64

Maintenance and repair

Getting the most for the money in shop space for common carriers. R. L. Douglas. plans diag S A E J 71:44-6 D '63

Maintenance records; special feature. Diesel Equip Supt 42:32-8 S '64

Manufacturer training centers aid to better fleet maintenance; abstract. F. P. Plovick. S A E J 71:90 D '63

Materials

Automotive materials illustrated. C. J. Kelly. il Automotive Ind 130:50-1 Ja 1 '64

Science of selecting elastomers. N. M. Lloyd. il Automotive Ind 130:44-9 Ja 1 '64

Plastics

New York world's fair; tops in transportation. il Mod Plastics 41:108-11+ Ap '64

Rubber and plastics in road transport. Engineer 217:686 Ap 17 '64

Strengthened thermoplastics bid for body applications. T. P. Murphy and others. il S A E J 72:83-7 Je '64

Specifications

Heavy-duty and off-highway truck specifications, 1964; tables. Automotive Ind 130:236-53 Mr 15 '64

Revised proposals for commercial vehicles. Engineer 217:703 Ap 17 '64

Springs and suspension

New suspension smooths the ride of off-highway hauler. il Machine Design 36:8 Jl 16 '64

Non-reactive tandem axle. diag Engineer 217:626 Ap 3 '64

Non-reactive tandem axle spring suspension. il Engineering 197:446 Mr 27 '64

Road shock damage cut by non-linear spring rate and damping; abstract. W. J. Crake. S A E J 72:100-1 Ja '64

Rubber spring boosts driveline flexibility; abstract. W. Trisler. diag S A E J 71:88-9 D '63

Testing

Low-cost, fast method of testing vehicle frames; abstract. J. W. Holzman and R. K. Wawrousek. S A E J 72:91 Ja '64

Motor vehicle research centre; Vauxhall motors ltd. il Engineer 218:211-12 Ag 7 '64

Track layer types

Allis-Chalmers upgrades crawler tractors. il Eng N 173:36 Jl 23 '64

Antarctic vehicles. Automotive Ind 131:136+ S 15 '64

Articulated off-the-road vehicles. R. M. Ogorkiewicz. bibliog il diag Engineer 216:975-80 D 13 '63

Casting properties tailored for job. il Steel 155:78+ Jl 13 '64

Cost cutting track shoe rebuilder. il Roads & Sts 107:72+ Mr '64

Crawler tractors under 50 hp withstand competition from rubber-tired machines. J. Dunne. diags Automotive Ind 131:100-1 Jl 15 '64

FMC Nodwell low ground pressure carrier. il Automotive Ind 129:62-3 D 1 '63

How to choose the proper track shoes. diags Coal Age 68:115 N '63

Laying through the muskeg; with snowmobile. il Gas Age 131:24-5 Mr '64

Track or tires for cheaper dirt? il Coal Age 68:84-6+ D '63

Track or tires for low-cost dirt? il Rock Prod 67:100-2+ F '64

MOTOR vehicles—*Continued*

Transmission

Automatic transmissions for the heavy vehicle. J. G. Giles. Engineer 217:751-3 Ap 24 '64
Characteristics of hydraulic transmissions for mobile equipment. R. Henke. diags Hydraulics & Pneumatics 16:94+ N '63
Fuller's expansion program. J. Geschelin. plan Automotive Ind 129:75+ N 15 '63
Hydrokinetic transmission for rollers. il Engineering 197:428 Mr 20 '64
Hydromechanical transmission for road vehicles. diag Engineer 218:109 Jl 17 '64
New heavy duty torque converter does the work of automatic transmission. C. J. Kelly. il Automotive Ind 130:65-6 Mr 1 '64
New hydrostatic drive; vehicle's wheels house hydraulic motors. il Automotive Ind 131:37-8 Ag 1 '64
Ten- and fifteen-speed automotive gearboxes. diags Engineer 217:80 Ja 10 '64

Vibration

Motor vehicle noise and vibration; symposium abstracts. Engineer 218:91-2 Jl 17 '64
Rough road simulator for wheeled vehicles. H. M. Forkois. bibliog il diags Naval Eng J 75:971-6 D '63

Weight

High speed vehicle weighbridge. il Engineer 217:1044 Je 12 '64

Wheels

New hydrostatic drive; vehicle's wheels house hydraulic motors. il Automotive Ind 131:37-8 Ag 1 '64
Self-propelled wheel drives itself by differentially-inflated tire segments. D. Scott. il diag Automotive Ind 130:136-7+ Je 15 '64

MOTOR vehicles, Amphibious

Aluminium in Stalwart amphibious vehicle. il Engineer 217:403 F 28 '64
Amphibious carrier. il Automotive Ind 131:116 S 15 '64
Armoured personnel carriers. R. M. Ogorkiewicz. bibliog il diags Engineer 218:204-6, 239-40, 269-71 Ag 7-21 '64
Hydrofoil landing vehicle flies, floats, and rolls. il diags Machine Design 36:173 Je 18 '64

MOTOR vehicles, Military

Airborne earthmover: Universal engineer tractor. il Mod Metals 19:72 N '63
Aluminium in Stalwart amphibious vehicle. il Engineer 217:403 F 28 '64
Amphibious carrier. il Automotive Ind 131:116 S 15 '64
Armoured personnel carriers. R. M. Ogorkiewicz. bibliog il diags Engineer 218:204-6, 239-40, 269-71 Ag 7-21 '64
Army looking for big abilities in small battlefield vehicles. F. B. Lux. S A E J 72:82-4 S '64
Army research engineers breed mechanical war horses. J. H. Kerkering. il diags S A E J 72:68-71 My '64
Articulated off-the-road vehicles. R. M. Ogorkiewicz. bibliog il diag Engineer 216:975-80 D 13 '63
Chrysler defense operations. C. W. Snider. il Automotive Ind 129:56-7 D 1 '63
Dutch armoured cross-country vehicles. il Engineer 218:468 S 18 '64
FMC Nodwell low ground pressure carrier. il Automotive Ind 129:62-3 D 1 '63
Foreign vehicle developments. J. H. Savage. il Automotive Ind 129:64-6 D 1 '63
Horsepower to move, shoot, and communicate. A. T Baynes. il Automotive Ind 129:77 D 1 '63
How Ford serves defense; illustrations with text. Automotive Ind 129:54-5 D 1 '63
Land-war vehicles of the future. W. Zorn. il diag Automotive Ind 129:50-1 D 1 '63
Mobile bridge-ferry built by Chrysler. il Automotive Ind 130:114 Ja 15 '64
Moving up to logistic flexibility. E. W. Sawyer. il Automotive Ind 129:43-5 D 1 '63
Novel mobility research methods used in army vehicle design. I. R. Ehrlich. il S A E J 72:74-6 F '64
Trends in tank transporter concepts. P. D. Denn and T. J. Bischoff. il Automotive Ind 129:46-9 D 1 '63
Unique vehicles, engines, designs and methods; illustrations with text. Automotive Ind 129:58-61 D 1 '63
See also
Tanks, Military

Springs and suspension

Automatic ride control. I. L. Smith. diags Automotive Ind 130:79 F 15 '64
High-mobility suspension system. il Automotive Ind 129:69 D 1 '63

Testing

Army compatibility tests important in selecting best type of lubricant. il Automotive Ind 130:307-8+ Mr 15 '64

Transportation

'Copter-transportable equipment; BAT army's all-purpose tractor, can be carried in sections. E. J. Rodrick. il Automotive Ind 130:31-3 Ap 1 '64
True story of the Big Lift. H. W. Barclay. il map Automotive Ind 129:19-26 D 1 '63

MOTORS, Electric. See Electric motors

MOUNT RAINIER national park

Alkali feldspars of the Tatoosh pluton in Mount Rainier national park. T. L. Wright. bibliog il maps diags Am Mineralogist 49:715-35 My '64

MOUNTAIN roads

Famed scenic highway undergoes shelf widening. il Roads & Sts 107:82-3+ Je '64
Highway through the Smokies. A. Lewis-Morgan. il map Comp Air Mag 69:18-20 O '64
Precarious work on Pan-American highway link continues through the Ecuadorian Andes. J. L. Murphy. il Comp Air Mag 69:4-7, cover Ja '64
Problems and methods in grading a mountain freeway. il Roads & Sts 107:44-9+ Je '64
When a canyon job is really tough. il Roads & Sts 107:52-5+ Mr '64

MOUNTAINS

Central Appalachian tectonics and the deep basin. H. P. Woodward. maps bibliog (p355-6) Am Assn Pet Geologists Bul 48:338-56 Mr '64
Stress chronology of the mid-paleozoic orogeny of the British Isles. W. E. Tremlett. bibliog map pl J Geol 71:793-800 N '63
See also
Geology, Structural
Rocky Mountains
San Juan Mountains
Sierra Nevada
Volcanoes

MOUNTAINS, Submarine

Guyots in the southwestern Pacific Basin. H. W. Menard and others. maps Geol Soc Bul 75:145-7 F '64

MOUNTING of instruments. See Instruments—Mounting

MOUNTING of machinery. See Machinery—Mounting

MOVING objects, Photography of. See Photography of moving objects

MOVING of factories. See Factories—Moving

MOVING of machinery. See Machinery—Moving

MOVING of structures

Church split unifies congregation. il Eng N 173:34-5 Ag 13 '64
Finally, it's moving day for Egypt's Abu Simbel temples. il Eng N 172:64-5 Je 18 '64
Professor solves test room jigsaw puzzle. il Mech Eng 85:110 N '63
See also
Derricks, Oil well—Moving

MOVING picture cameras

Adastra 8mm motion-picture camera system. J. Hampl. il diags SMPTE J 73:325-9 Ap '64
Motion-picture camera design and selection. J. Behrend. il diags SMPTE J 73:12-17 Ja '64
Moving-film system for recording high rate-of-rise signals. R. E. Dietrich and S. Bortniak. il diags Elec Eng 82:73-7 D '63
New 16mm professional magnetic sound-on-film reflex camera. E. M. Di Giulio and L. Brown. il diags SMPTE J 73:873-6 O '64
Picture jump and weave in rotating-prism cameras. J. H. Waddell. bibliog SMPTE J 73:648-50 Ag '64
Progress committee report for 1963: 16, 35/70mm cameras and projectors. il SMPTE J 73:379 My '64
Today's 8mm cartridges are versatile; tomorrow's may be instamatic. M. A. Matzkin. il diags Mod Phot 28:86-7+ F '64
Use of the motion picture camera in interferometric electrochemical investigations. R. N. O'Brien. il diag Electrochem Soc J 111:1300-2 N '64
Versatile film cartridge helps hold, measure, and move the film. il diags Machine Design 36:156-7 F 13 '64

MOVING picture cameras—*Continued*

Want to start making movies without a large equipment investment? low-priced 8mm machines. M. A. Matzkin. Mod Phot 28:49+ Mr '64

Mounting

Camera mount utilizing programed mirror rotation for missile tracking. L. E. Davidson. il diags SMPTE J 73:9-11 Ja '64

Standards

Aperture calibration of motion-picture lenses; American standard PH22.90-1964. diag SMPTE J 73:496-9 Je '64

8mm motion-picture camera aperture image; American standard PH22.19-1964. diag SMPTE J 73:584 Jl '64

8mm motion-picture camera spools (25-ft capacity); American standard PH22.107-1964. diags SMPTE J 73:500-1 Je '64

16mm motion-picture camera aperture image; American standard PH22.7-1964. diag SMPTE J 73:583 Jl '64

MOVING picture films

Analytical study of photographic density. I. Fujimura. il diags SMPTE J 73:27-30 Ja '64

Dimensions of films and frames in common motion-picture systems. E. M. Goldovskii. SMPTE J 73:544-5 Jl '64

8mm variable-area sound motion pictures. J. Willard; J. J. Kuehn. il diag SMPTE J 73:546-7 Jl '64

Format factors affecting 8mm sound-print quality. E. A. Edwards and J. S. Chandler. il diags SMPTE J 73:537-43; Discussion. 543 Jl '64

Gevacolor positive film type 953. L. A. Meeussen. SMPTE J 73:18-21 Ja '64

New heat-developable motion-picture print film. N. R. Bacon and R. B. Lindemeyer. diags SMPTE J 73:213-15 Mr '64

Progress committee report for 1963; film. il SMPTE J 73:371-2 My '64

Progress committee report for 1963; nontheatrical films. il SMPTE J 73:381-5 My '64

Rotating prism camera picture jump and weave. J. H. Waddell. Res/Develop 15:34-5 F '64

16mm color for screen or television. il Ind Phot 13:27+ Mr '64

Willard Beach Cook; pioneer distributor of narrow-gage safety films and equipment. W. F. Kruse. bibliog il SMPTE J 73:576-80 Jl '64

Cleaning

Combined 35mm/16mm automatic film cleaner/waxer. J. J. Rigby. il diag SMPTE J 73:865-6 O '64

Joining

Keep the wrong sounds out. E. Schuller. diags Ind Phot 13:28-9+ Mr '64

Protection

Light gate blocks heat when endless film is stopped. il diag Machine Design 36:142-3 Mr 12 '64

Much film damage can be prevented; badly scratched footage can be salvaged in many instances. M. A. Matzkin. Mod Phot 28:36+ Ap '64

Standards

American standards and small-format films. D. R. White. SMPTE J 73:580-1 Jl '64

Nomenclature for motion-picture film used in studios and processing laboratories; American standard PH22.56a-1964. SMPTE J 73:218-19 Mr '64

Raw stock cores for 16mm motion-picture film; American standard. PH22.38-1964. SMPTE J 73.:217 Mr '64

Raw stock cores for 35mm motion-picture film; American standard PH22.37-1963. diags SMPTE J 73:24 Ja '64

Testing

Quality control of 16mm variable-area soundtracks for small studios. G. Williams and M. Strong. il diags SMPTE J 73:792-6 S '64

MOVING picture industry

See also

Society of motion picture and television engineers

International aspects

Papers committee activities abroad. il SMPTE J 73:31-5 Ja '64

Germany

Progress committee report for 1963; German Federal Republic. il diag SMPTE J 73:395-6 My '64

Great Britain

Progress committee report for 1963; United Kingdom. il SMPTE J 73:402-4 My '64

India

Progress committee report for 1963; India. il SMPTE J 73:397-8 My '64

Iran

Progress committee report for 1963; Iran. il SMPTE J 73:398-9 My '64

Russia

Cinematography in the USSR. V. G. Komar. il SMPTE J 73:196-201 Mr '64

Comments in Moscow on motion-picture industry. D. R. White and others. SMPTE J 72:957-8 D '63

Progress committee report for 1963; USSR. il SMPTE J 73:406-8 My '64

Technical report of a visit to motion-picture facilities in the USSR. F. Capra and others. il SMPTE J 73:177-96 Mr '64

South Africa

History of films in South Africa. E. C. Howes. il SMPTE J 72:882-5 N '63

MOVING picture laboratories

Movie lab seminar. Ind Phot 13:24+ Mr '64

Equipment

Combined 35mm/16mm automatic film cleaner/waxer. J. J. Rigby. il diag SMPTE J 73:865-6 O '64

Progress committee report for 1963; laboratory practice. il SMPTE J 73:373-6 My '64

Use of xenon flashtubes as a light source in color and black-and-white scene testers. C. W. Hauge and others. bibliog il diags SMPTE J 73:866-9 O '64

MOVING picture machines

8mm projectors compared. M. A. Matzkin and M. P. Hayes. il Mod Phot 28:76-9 Ap '64

Film-feed mechanisms in narrow-film projectors. H. Maschgan. il diags SMPTE J 73:134-8 F '64

Portable synchronous interlock projection system. R. Zeper. il diag SMPTE J 72:943-5 D '63

Progress committee report for 1963; 16, 35/70mm cameras and projectors. il SMPTE J 73:379 My '64

Willard Beach Cook; pioneer distributor of narrow-gage safety films and equipment. W. F. Kruse. bibliog il SMPTE J 73:576-80 Jl '64

Xenon projection lamps; a résumé. D. V. Kloepfel. SMPTE J 73:479-80 Je '64

Light sources

Carbon arcs for 16mm film projection. C. E. Heppberger and E. A. Bowen. bibliog SMPTE J 73:862-4 O '64

Maintenance and repair

Servicing sound movie projectors. J. Darr. il diags Radio-Electronics 34:29-31 O; 41-3 N; 72+ D '63; 35:43-4 Ja '64

Standards

Projection lamps double-contact medium ring base-up type; American standard PH22.84-1964. diags SMPTE J 73:585 Jl '64

Projection lamps single-contact medium prefocus base-down type; American standard PH22.85-1964. diags SMPTE J 73:582 Jl '64

MOVING picture photography

Crt recording has wide bandwidth. il Electronics 36:60+ N 15 '63

Movie clinic. W. Strenge. Published in monthly numbers of Industrial photography

Movie maker. M. A. Matzkin. Published in monthly numbers of Modern photography

Progress committee report for 1963; optical developments and special effects. il SMPTE J 73:377-8 My '64

See also

Moving pictures, Amateur

Bibliography

Abstracts from other journals (cont). SMPTE J 73:60+, 162+, 276+, 444+, 718+, 906+ Ja-Mr, My, Ag, O '64

Exposure

Nine tough movie exposure problems solved for you. M. A. Matzkin. il Mod Phot 28:80-1 Jl '64

Squeeze time in your home movies. M. A. Matzkin. il Mod Phot 28:90-1+ S '64

MOVING picture photography—*Continued*

High speed

Cameras; Tokyo scientists reach exposure rates up to 510,000 frames per second. il diags Product Eng 34:36-7 D 23 '63
Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86: 12-22 F '64
High-speed photography aids in the development of mechanical asparagus harvester. il Res/Develop 15:23 F '64
High-speed photography in bristle materials research. G. L. Jones. il Res/Develop 14:19-21 D '63
High-speed photoinstrumentation for a hypersonic wind tunnel. R. L. Leighton. il diags SMPTE J 73:650-3 Ag '64
High-speed X-ray films probe parts in motion. L. A. Milton. il Am Mach 108:148F-148H Ap 13 '64
Picture jump and weave in rotating-prism cameras. J. H. Waddell. bibliog SMPTE J 73:648-50 Ag '64
Progress committee report for 1963; 8mm cinematography. il SMPTE J 73:380-1 My '64
Progress committee report for 1963; instrumentation and high-speed photography. il SMPTE J 73:385-7 My '64
Rotating prism camera picture jump and weave. J. H. Waddell Res/Develop 15:34-5 F '64
Unique jobs require unique methods. R. B. Russell and G. Heebink. il Ind Phot 13:78-80 Mr '64
See also
Photography of projectiles

History

History of films in South Africa. E. C. Howes. il SMPTE J 72:882-5 N '63

Industrial applications

New twists to c.r.t. recording. M. J. Langford. Ind Phot 12:48-9 N '63
See also
Moving pictures in industry

Lighting

How new movie lights stack up. M. A. Matzkin. diags Mod Phot 28:94-5+ Ja '64
Let there be (artificial) light; interview with Dave Golden. il Ind Phot 12:38-9+ N '63
Movie maker. M. A. Matzkin. Published in monthly numbers of Modern photography
Physical characteristics of xenon flashtubes. F. S. Barnes. il SMPTE J 73:569-73 bibliog(p571-3) Jl '64

Medical applications

Motion pictures and television in medicine; symposium. bibliog il diags SMPTE J 73: 617-42 Ag '64

Printing processes

Automatic 35mm A&B composite color printer. S. P. Solow and E. H. Reichard. il SMPTE J 73:870-2 O '64
Trouble chart for variable-area sound. E. A. Schuller. SMPTE J 73:883-7 O '64
Viscous-layer processing of variable-area sound negatives. J. F. Finkle and R. J. Wilson. SMPTE J 73:125-8 F '64

Scientific applications

Some photographic studies of optical masers. T. J. Pavliscak. bibliog il diags SMPTE J 73:206-12 Mr '64
See also
International scientific film association

Terminology

Glossary of terms for photoinstrumentation. W. G. Hyzer. SMPTE J 73:36 Ja '64
Nomenclature for motion-picture film used in studios and processing laboratories; American standard PH22.56a-1964. SMPTE J 73: 218-19 Mr '64

MOVING picture photography, Time lapse. See Photography, Time-lapse

MOVING picture projection
Projection techniques at the World's fair. il SMPTE J 73:507-9 Je '64

MOVING picture projectors. See Moving picture machines

MOVING picture screens
Light versus light; setting up an effective rear screen presentation. il Ind Phot 13:62 Mr '64

MOVING picture sound recording
8mm variable-area sound motion pictures; recording. J. J. Kuehn. il diag SMPTE J 73:547 Jl '64
Keep the wrong sounds out. E. Schuller. diags Ind Phot 13:28-9+ Mr '64
Quality control of 16mm variable-area soundtracks for small studios. G. Williams and M. Strong. il diags SMPTE J 73:792-6 S '64
Sound in the motion picture industry; some historical recollections. D. P. Loye and J. P. Maxfield. bibliog il plans diags Sound 2:14-27 S; 13-23 N '63
Synthesis and manipulation of natural sounds in electronic music for films. M. Schaeffer. bibliog SMPTE J 73:128-9 F '64
Viscous-layer processing of variable-area sound negatives. J. F. Finkle and R. J. Wilson. SMPTE J 73:125-8 F '64
See also
Moving pictures, Amateur—Sound effects

Magnetic recording

Four-track magnetic sound records for 35mm release prints; American standard PH22.137-1963. diag SMPTE J 73:23 Ja '64
New 16mm professional magnetic sound-on-film reflex camera. E. M. Di Giulio and L. Brown. il diags SMPTE J 73:873-6 O '64
Progress committee report for 1963; magnetic sound media. il SMPTE J 73:372-3 My '63
Simplified striping technique. A. Rezai. il SMPTE J 73:221-2 Mr '64
Time-delay system for sound-picture syncing. H. Dussault. il diags SMPTE J 72:843-8 N '63
200-mil magnetic sound record on 16mm film base, perforated 1R-3000; American standard PH22.97-1964. SMPTE J 73:220 Mr '64

Standards

Four-track magnetic sound records for 35mm release prints; American standard PH22.137-1963. diag SMPTE J 73:23 Ja '64
Trouble chart for variable-area sound. E. A. Schuller. SMPTE J 73:883-7 O '64
200-mil magnetic sound record on 16mm film base, perforated 1R-3000 American standard PH22.97-1964. SMPTE J 73:220 Mr '64

Stereophonic recording

Stereo for sound mixing. M. A. Matzkin. il Mod Phot 28:81 Ap '64

MOVING picture studios
New film studios at Hamburg, Germany. R. D. Parnow. il plans diags SMPTE J 72:948-50 D '63

Equipment

Electrical installation techniques for a large film production center. J. R. Mann, jr. and N. Leigh. il diags SMPTE J 72:863-8 N '63
Progress committee report for 1963; studio lighting equipment. il SMPTE J 73:369-71 My '64
Technical note; footage counter. H. Magargle. il diags SMPTE J 73:491-2 Je '64

MOVING picture theaters
Bell system business communications seminar, uses the most unusual little theater in the world. il plan Ind Phot 13:62-5 Ja '64
Cinerama theatre acoustics. M. Rettinger. il diags SMPTE J 73:566-8 Jl '64

Heating and ventilation

Cinema equipment poses ventilation problems. il Engineering 197:19 Ja 3 '64

MOVING picture titling. See Moving pictures —Titles

MOVING pictures
See also
Television broadcasting—Moving pictures

Animated cartoons

Quick guide to illustration and animation. R. C. Matthias. il Ind Phot 13:18-20 Mr '64

Editing

Six ways to edit while you shoot. M. A. Matzkin. il Mod Phot 28:82-3+ Ap '64

Standards

See also
Moving picture films—Standards
Moving picture sound recording—Standards

Titles

Gitzo; an amateurs optical printer. M. A. Matzkin. il Mod Phot 28:80 Ap '64
Proposal for a 16mm/8mm nontheatrical leader. C. O. Probst. il SMPTE J 72:946-7 D '63

MOVING pictures, Amateur
Cut your way to movie impact! M. A. Matzkin. il Mod Phot 28:98-9 Je '64
Family movies on a shoe-string. M. A. Matzkin. il Mod Phot 28:96-7+ My '64

MOVING pictures, Amateur—*Continued*
International amateur film festival, 16th, Cannes, Sept. 7-17. Mod Phot 28:88+ F '64
Squeeze time in your home movies. M. A. Matzkin. il Mod Phot 28:90-1+ S '64
Think telephoto for tighter movie scenes. M. A. Matzkin. il Mod Phot 28:92-3 Ag '64
Toy around with your home movies. M. A. Matzkin. il Mod Phot 28:92-3 Mr '64
Two motion pictures at the New York world's fair are of special interest to home movie makers. M. A. Matzkin. il Mod Phot 28:102+ Jl '64

Sound effects

Stereo for sound mixing. M. A. Matzkin. il Mod Phot 28:81 Ap '64

MOVING pictures, Colored
Automatic 35mm A&B composite color printer. S. P. Solow and E. H. Reichard. il SMPTE J 73:870-2 O '64
Carbon arcs for 16mm film projection. C. E. Heppberger and E. A. Bowen. bibliog SMPTE J 73:862-4 O '64
Considerations in color film production for color television. SMPTE J 73:411-14 My '64
Format factors affecting 8mm sound-print quality. E. A. Edwards and J. S. Chandler. il diags SMPTE J 73:537-43; Discussion. 543 Jl '64
Gevacolor positive film type 953. L. A. Meeussen. SMPTE J 73:18-21 Ja '64
16mm color for screen or television. il Ind Phot 13:27+ Mr '64

MOVING pictures, Industrial. See Moving pictures in industry

MOVING pictures in advertising
Biggest year yet. il Am Gas Assn Mo 46:20-1 O '64
Energy on the move; Columbia Gas motion film. il Am Gas Assn Mo 46:10-11 Jl-Ag '64
Italian cooking. il Am Gas Assn Mo 46:4-5 Je '64
Make slides into films; Filmoslides. il Ind Phot 12:56-7 N '63
Pleasures of Chinese cooking; A.G.A.-GAMA 16-mm film. il Am Gas Assn Mo 46:6-8+ F '64

MOVING pictures in education
Branching teaching machine using motion pictures. D. G. Perrin. il diags SMPTE J 73:760-4 S '64
Experimental 8mm film production workshop for teachers. L. T. Wise. SMPTE J 73:773-4 S '64
Filming of speech therapy clinic sessions via tape-to-film process. L. J. Schram. SMPTE J 73:774 S '64
Location and newsreel motion-picture equipment. R. P. Rigg. il SMPTE J 73:775-7 S '64
Pittsburgh's world premiere; The chemical engineer, a color film. il Chem Eng Prog 60:15-17 Je '64
Use of motion pictures for automated instruction. L. E. Persselin. bibliog il SMPTE J 73:755-60 S '64

MOVING pictures in industry
$805 screen success; Delta air lines first in-plant-produced movie. il Ind Phot 13:40-1 Mr '64
Film of the month program. J. Scovronek. Ind Quality Control 20:11-12 Ap '64
First film; fast $500 feat. il Ind Phot 13:34+ Mr '64
In-plant audio-visual department, must be as good or better than commercial sources. il Ind Phot 13:67-72 Ja '64
Industrial photography's sixth annual motion picture survey shows that in-plant movie-making grows and grows. M. Day. Ind Phot 13:39 Ja '64
Movie lab seminar. Ind Phot 13:24+ Mr '64
One-man company film dept; pro and con. il Ind Phot 13:22-3+ Mr '64
Outside touch. C. Palmer. Ind Phot 13:44+ Mr '64
Script's the thing. M. Langford. Ind Phot 13:12+ Ja '64
Suggested films; April, 1964. Ind Quality Control 20:32 Ap '64
Their E rating is high. B. Austin. il Ind Phot 13:42-4+ F '64
Video film: industrial possibilities? R. B. Steel. il Ind Phot 13:30-2 Mr '64

MOVING pictures in safety education
Safety on film (cont). Safety Maint 126:27-8 D '63; 127:39-40 Ja; 39-40 F; 32 Ap; 59 Je; 128:28-9 Jl; 50 Ag; 57 O; 68 N '64

MOVING platforms
Conveyors; new vertical-belt friction drive for the Futurama ride at the World's fair. diags Product Eng 35:35 Jl 6 '64
Pedestrian-carrying moving belt outdoors. il Engineering 197:685 My 15 '64

MOWERS, Lawn. See Lawn mowers

MOWING machines
Big mower provides better service at less cost. il Pub Works 95:97 F '64
Equipment needs changing for interstate highway mowing. J. E. Bell. S A E J 72:89 N '64
Mower has articulated frame. il Eng N 173:46 O 1 '64
Open center circuit floats mower's cutters. J. Woodward. il diag Hydraulics & Pneumatics 17:90-1 My '64
Reach out and cut! H. McCutchen. il Pub Works 95:91-2 Jl '64
Rotary mower has a long reach. il Eng N 172:37 Ja 9 '64
Safe mechanical methods for vegetation control; abstract. J. E. Bell. Pub Works 95:144 Je '64

MUCONIC acid
Organic syntheses by means of noble metal compounds; synthesis of muconic acid. J. Tsuji and others. Am Chem Soc J 86:2095 My 20 '64

MUD
Chemical additive clears mud from water lines; Zimmite. il Steel 155:54+ Ag 31 '64
Chemical puts mud to rout; Zimmite. il Iron Age 194:124-5 O 8 '64
Mud cracks in the Ordovician Maysville group. H. J. Hofmann. bibliog maps diag J Geol 72:638-41, pl 1 S '64

MUD fluids. See Petroleum—Mud fluids

MUFFLERS. See subdivision Mufflers under special subjects, e.g. Automobile engines; Internal combustion engines; Motor truck engines

MULTIPLE sclerosis. See Sclerosis, Multiple

MULTIPLEX broadcasting. See Radio broadcasting—Multiplex system

MULTIPLICATION
Analogue multiplication with the space-charge-limited surface-channel triode. G. T. Wright. bibliog il Radio & Electronic Eng 28:13-15 Jl '64
Analog multiplier. diags Electronic Ind 23:63 Jl '64
Analog multiplier develops 2.8-v output. il diag Electronics 37:115 Ap 20 '64
Magnetoresistant analog multipliers. diag Electro-Tech 74:126 Ag '64
Multiplication and division using silicon diodes. H. L. Kahn. diags R Sci Instr 33:235-8 F '62; Discussion. L. Eisenberg. 34:592-3 My '63; Reply. 35:135 Ja '64
Multiplication and logarithmic conversion by operational amplifier-transistor circuits. W. L. Paterson. bibliog diags R Sci Instr 34:1311-16 D '63
Product convertors and their applications. A. Nathan. diags Electronic Eng 36:106-7 F '64
Square-root computer uses Hall multiplier. H. H. Wieder. diags Electronics 37:30-1 Ja 24 '64
30-gc multiplier as an ultra-stable parametric amplifier pump. R. J. Kampf and others. diag IEEE Proc 52:1074 S '64

MULTIPLIER tubes. See Photoelectric cells—Multiplier tubes

MULTIVIBRATORS
Added transistor decreases multivibrator reset time. S. A. Bell. diags Electronics 37:72-3 Jl 27 '64
Advantages of free-running cascode multivibrators. C. Sing. diags Electronics 37:28-9 Ja 31 '64
Bistable multivibrator. diag Electronic Ind 23:71 Ja '64
Elements of transistor pulse circuits; Eccles-Jordan bistable multivibrators. T. D. Towers. diags Wireless World 70:242-6 My '64
Elements of transistor pulse circuits; transistor astable multivibrators. T. D. Towers. diags Wireless World 70:128-32 Mr '64
Elements of transistor pulse circuits; transistor monostable multivibrators. T. D. Towers. diags Wireless World 70:199-203 Ap '64
Gated astable multivibrator. S. K. Kar. diags Electronic Eng 36:103-5 F '64
Gated pulses yield selected frequency outputs. J. H. Firestone. diags Electronics 36:38-40 D 20 '63
New type of free-running multivibrator. V. M. Ristic. diags Electronic Eng 36:232-3 Ap '64
Novel multivibrators test tape transports. C. J. Dakin. il diags Electronics 37:40-3 F 14 '64
Temperature dependence in multivibrators. W. F. Miller. diags Electro-Tech 74:38-41+ Ag '64

MULTIVIBRATORS—*Continued*
Tunnel diode multi recovers quickly. P. Heffner. diags Electronics 37:75-7 S 21 '64

MULTIWALL bags. See Paper bags

MUNICIPAL bonds
Municipal bonds offer oil companies new source for financing. map Oil & Gas J 62:66-7 O 26 '64
Water-sewage bond market. Published in monthly numbers of Water works and wastes engineering

MUNICIPAL buildings
Boston's new City Hall; bold beauty. il diag Eng N 172:35 F 20 '64
What's been happening to City Hall? il plans Arch Forum 120:98-105 Ap '64
See also
Fire houses
Police stations

MUNICIPAL centers
Center dedicated to JFK proposed for Long Island. il Prog Arch 45:62-3 My '64
Chicago's tallest topped out. il Eng N 173:29 O 15 '64

MUNICIPAL departments
Big problem of a small city. F. Edmonds. Pub Works 95:99 Je '64

MUNICIPAL employees
Effective municipal eye safety program. A. J. Sziarto. Pub Works 95:170 F '64
Utility-union relations in San Francisco. K. R. Boyd. Am Water Works Assn J 56:1117-20 S '64

MUNICIPAL engineering
See also
Parks
Refuse disposal
Sanitary engineering
Sewage disposal
Sewer design
Sewerage
Water purification
Water supply engineering

MUNICIPAL finance
Financing of streets for Phoenix. E. M. Hall. 3pls Traffic Q 18:77-91 Ja '64
Financing street and highway improvements in urban areas. T. R. Todd. Traffic Q 18:502-22 O '64
See also
Waterworks—Finance

MUNICIPAL government
An answer to the fringe area problem; annexation by ordinance. R. W. Nielson. map Pub Works 95:97-9 Ag '64
See also
Water departments

MUNICIPAL improvement
Aesthetics and the law. B. Tomson and N. Coplan. Prog Arch 44:180 S; 216 O; 188 N '63
Architecture and the urban emergency. D. Canty. il Arch Forum 121:172-9 Ag-S '64
Architecture as total community; urban renewal as creative catalyst. A. Mayer and C. Stein. Arch Rec 135:145-52 My '64
Boston; rebuilding a city. il maps plans diags Arch Forum 120:79-104 Je '64
Boston renewal stresses quality and rehabilitation. il map Eng N 172:28-9+ F 20 '64
Building types study; apartments; James Whitcomb Riley center, Indianapolis. G. A. Christie. il plans Arch Rec 135:144-7 Ja '64
Canton redevelopment combines traffic, people. il Prog Arch 44:56 D '63
Chicago drafts a master plan. map Eng N 173:19 S 3 '64
Civil engineering function in urban renewal. R. E. Barkley. Traffic Q 18:349-70 Jl '64
Dallas downtown project approaches reality. il plans Prog Arch 45:70-1 Jl '64
Design goals for urban renewal. W. Slayton. Arch Rec 134:149-52 N '63
Detroit design; cars still on top (literally). il Prog Arch 45:58 Ag '64
Detroit gets fiscal and physical face-lift. il plan Eng N 172:32-5 Ap 16 '64
Financing street and highway improvements in urban areas. T. R. Todd. Traffic Q 18:502-22 O '64
Golden Gateway redevelopment project; symposium. il plans diags Civil Eng 34:31-9 Ja '64
Grant style urged for Washington's Pennsylvania Ave. il Eng N 172:22-3 Je 4 '64
Health and urban development; symposium. bibliog Am J Pub Health 54:699-728 My '64
Hotel takes part in downtown renewal. il plans diag Arch Rec 136:166-7 O '64
Litho City; a civic contribution. il Prog Arch 44:53 D '63
More integration of past and present in Philadelphia. il plan Prog Arch 44:69 N '63
Office building complexes; Prudential master plan. il map plans diags Arch Rec 135:190-200 Mr '64
P/A eleventh annual design awards; urban renewal project for San Francisco redevelopers, inc. il plans Prog Arch 45:106-9 Ja '64
Paris plans its way out of a century of random urban sprawl. A. Erikson. il map Eng N 173:40-2+ O 22 '64
Philadelphia; how far can renewal go? P. Herrera. il plans Arch Forum 121:180-93 Ag-S '64
Redevelopment proposed for downtown Honolulu. il plan Prog Arch 45:73 Ap '64
San Francisco downtown plan. il plan Prog Arch 44:75 N '63
Theory of optimization and its impact on urban development. R. T. Howe. Traffic Q 18:554-60 O '64
Three solutions of same redevelopment problem; Woodbridge, N.J. il Prog Arch 45:57 Ag '64
Transportation and urban development. W. R. McGrath. Traffic Q 18:491-501 O '64
Urban renewal, for people. il Arch Forum 120:86-9 Ja '64
See also
City planning

MUNITIONS

Manufacture

See also
Guns (ordnance)—Manufacture

MURALS, Photographic. See Photographic murals

MUSCATINE, Iowa

Sewerage

Control juggles levels to save money. H. W. Alexander and W. McElwee. il diags Water & Sewage Works 111:411-13 S '64

MUSCLE
Effect of a skeletal muscle relaxant on muscle extensibility. E. F. Hoerner and others. bibliog Ind Med 32:516-20 D '63
Electromagnetic brake activated by eyebrow muscles. L. Vodovnik. il Electronic Eng 36:694-5 O '64
Embryological origin of muscle. I. R. Konigsberg. il diags Sci Am 211:61-6 Ag '64
Muscle substitutes and myo-electric control. A. Bottomley and others. bibliog il diags Radio & Electronic Eng 26:439-48 D '63
Myo-electric control of hand hook. il Engineer 217:793-4 My 1 '64

MUSCLES

Diseases

See also
Dystrophy, Muscular

MUSCOVITE
Coexistent muscovite and paragonite in pelitic schists. E. A. Zen and A. L. Albee. diags Am Mineralogist 49:904-25 bibliog(p923-5) Jl '64
Crystalline solubility in the muscovite and phlogopite groups. M. S. Crowley and R. Roy. bibliog diags Am Mineralogist 49:348-62 Mr '64

MUSCULAR dystrophy. See Dystrophy, Muscular

MUSEUM of modern art (New York)
Museum of modern art; a study in elegance by Johnson. il Prog Arch 45:65-6 Jl '64

MUSEUMS
Johnson's museum opens at Dumbarton Oaks. il Arch Rec 135:10 F '64
Modern art on the French Riviera. il plan diags Arch Forum 120:98-103 Mr '64
Old craft encloses new museum. il Eng N 173:45 S 10 '64
Personal collection in Vermont; Bundy art gallery. il plan Arch Forum 120:104-5 Mr '64
Pre-Columbian art in a post-modern museum; Dumbarton Oaks. il plan Arch Forum 120:106-11 Mr '64
Spaces for art exhibitions. W. Green. il plan diags Prog Arch 45:161-5 Jl '64
See also
Industrial museums
Museum of modern art (New York)
New York (city)—Galleries and museums
Smithsonian institution

Air conditioning

Add air conditioning to 35-yr-old museum to protect art objects. il plan Heating-Piping 36:129-31 S '64

Lighting

Gallery lighting. il diag Prog Arch 45:195 S '64
Lighting a museum-art gallery. H. M. Sharp. il plan Elec Constr & Maint 63:8-9 Mr '64

MUSEUMS—Lighting—*Continued*
New technique for art galleries. il Illum Eng 59:518-22 Ag '64
Optics turned to profit in money museum. H. J. Wald. il diag Illum Eng 58:712-14 D '63

MUSHROOMS
Freezes whole mushrooms in liquid nitrogen. il Food Eng 36:148 S '64
Improves process and product. il Food Eng 36:69 Jl '64

MUSIC
See also
Jazz music
Tones

Acoustics and physics

Speech immunity of push-button tone signaling systems employing tone receivers with guard circuits. L. Gasser and E. Ganitta. bibliog diags Elec Com 39 no 2:220-43 '64

MUSIC, Electronic
Some electronic extensions to music generating systems. A. Douglas. il diags Electronic Eng 35:726-31 N '63
Synthesis and manipulation of natural sounds in electronic music for films. M. Schaeffer. bibliog SMPTE J 73:128-9 F '64

MUSIC halls
Acoustics in-the-round at the Berlin Philharmonic. R. S. Lanier. il plans diag Arch Forum 120:98-105 My '64
Added warmth of Festival hall tone. il Engineering 197:718 My 22 '64
Electroacoustic revolution. L. L. Beranek. il Audio 48:10+ Ag '64

MUSIC in industry
Tune in greater productivity. Mill & Factory 74:80-1 F '64

MUSIC schools
School proposed to advance American jazz. il diag Prog Arch 45:81 Je '64

MUSICAL instruments
All-electronic method for tuning organs and pianos. A. M. Seybold. il diags Audio 47:28+ F; 20-2+ My '63; 48:22-4+ Mr '64
Dependence of timbre on the tonal loudness produced by musical instruments. M. Clark, jr. and P. Milner. bibliog Audio Eng Soc J 12:28-31 Ja '64
Formed, foam-filled butyrate bass. il diags Mod Plastics 41:92-3 Mr '64
Preliminary experiment on the perceptual basis for musical instrument families. M. Clark, jr. and others. diag Audio Eng Soc J 12:199-203 Jl '64
Rocket wire springs end musicians problem. il Steel 154:72+ Ja 27 '64
See also
Harp
Piano

MUSICAL instruments, Electronic
Electronic melodic instruments. K. A. Macfadyen. bibliog il diags Radio & Electronic Eng 27:365-71; Discussion. 371-2 My '64
Electronic music studio for the independent composer. G. Mumma. bibliog il Audio Eng Soc J 12:240-4 Jl '64
Playing an orchestra; the Mellotron. il Engineering 198:96 Jl 17 '64

MUSTARD
Making Amora mustard. il Comp Air Mag 69:4-6 Je '64
Mustard seed processing; essential oil composition. L. D. Kirk and others. bibliog Am Oil Chem Soc J 41:599-602 S '64
Mustard seed processing; simple methods for following heat damage to protein meals. J. E. McGhee and others. bibliog Am Oil Chem Soc J 41:359-62 My '64

MUTTON
See also
Lamb (meat)

MUTUAL inductance. See Inductance

MYCOSES
Ecology and diagnostic problems of fungal zoonoses. L. K. Georg. Ind Med 33:308-10 My '64
Known and the unknown of the occupational mycoses. E. R. Harrell. Ind Med 33:306-7 My '64
Thiabendazole antimycotic. H. J. Robinson. Drug & Cosmetic Ind 95:277-8 Ag '64

MYLAR
Low frequency dielectric dissipation in Mylar at liquid helium temperature. M. Gottlieb and M. Garbuny. il R Sci Instr 35:641-2 My '64
Superfluid helium container of Mylar construction. T. H. Moss and others. diag R Sci Instr 34:1267-8 N '63

MYLONITE. See Schists

MYOGLOBIN
Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

MYOSIN
Effect of inorganic polyphosphates on the solubility and extractability of myosin B. T. Yasui and others. bibliog J Agri & Food Chem 12:392-9 S '64
Specific interaction of inorganic polyphosphates with myosin B. T. Yasui and others. bibliog J Agri & Food Chem 12:399-404 S '64
Volume changes accompanying the adenosine triphosphate-myosin B interaction. H. Noguchi and others. bibliog Am Chem Soc J 86:2077-8 My 20 '64

MYRISTIC acid
Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

MYSELS, Karol J.
Kendall company award in colloid chemistry. por Chem & Eng N 42:108 Ap 20 '64

N

NALMCO. See National association of lighting maintenance contractors

NASA. See United States—National aeronautics and space administration

NEC. See National electrical code

NECA. See National electrical contractors association

NSF. See National science foundation

NSU-WANKEL engine. See Internal combustion engines

NAILS
Automation applied to wire products. J. McMillan. diags Wire & Wire Prod 39:375-8+ Mr 64
Common wire nail. P. S. Cole. bibliog Wire & Wire Prod 39:546-51+ Ap '64
Fluted auto nail. E. A. Johnston, jr. il Wire & Wire Prod 39:727+ My '64
New study throws light on holding power of helical pallet nails. E. G. Stern. Mod Materials Handling 19:3 O '64
Power-driven, magazine-loaded staple, T-nail and special fastener. L. K. Grimes. Wire & Wire Prod 39:885-7+ Je '64
Significance of the special nail in residential frame construction. E. G. Stern. bibliog il Wire & Wire Prod 39:384-99+ Mr '64
Steel, aluminum, stainless steel and nonferrous threaded nails in residential construction. A. S. Tisch. Wire & Wire Prod 39:563-4+ Ap '64

NAILS (anatomy)
See also
Finger nails

NAME plates
Attractive nameplates; are self bonding. P. C. Bardin. Ind Finishing 40:112 Mr '64

NAPHTHA
British Geon will switch to naphtha for acetylene. Chem & Eng N 42:62+ Jl 20 '64
Electrical distillate treating; Howe-Baker engineers, inc. flow diag Hydrocarbon Process & Pet Refiner 43:205 S '64
Fluid coking; Esso research and engineering co. flow diag Hydrocarbon Process & Pet Refiner 43:155 S '64
Isomax; Universal oil products co. and California research corp. flow diag Hydrocarbon Process & Pet Refiner 43:147 S '64
Naphtha used to submerge submarine pipeline. R. R. Burnett. il plan diag Pet Management 36:165+ O '64
Revamped naphtha cracking for high-purity ethylene; process flowsheet. E. Guccione. il Chem Eng 70:196-8 N 11 '63

NAPHTHALENE
Adsorption of naphthalene on solid metal electrodes. J. O. Bockris and others. bibliog Electrochem Soc J 111:743-8 Je '64
Chemistry of barrellene; a remarkable transformation to naphthalene derivatives. H. E. Zimmerman and G. L. Grunewald. bibliog Am Chem Soc J 86:1434-6 Ap 5 '64
cis- and *trans*-1,2-diphenylnaphtho[*b*]cyclobutenes; a novel synthesis of a naphthalene nucleus. M. P. Cava and others. bibliog Am Chem Soc J 85:4031-2 D 20 '63
Crystallisation of naphthalene oils. D. K. H. Briggs and W. D. Drake. J Ap Chem 14:46-50 Ja '64
Effect of acoustic turbulence on mass transfer at a column wall. D. I. R. Low and J. W. Hodgins. bibliog diag Can J Chem Eng 41:241-5 D '63

NAPHTHALENE—*Continued*

Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64

Kinetics of anionic polymerization and copolymerization of the vinylnaphthalenes and styrene; the intramolecular charge-transfer complexes. F. Bahsteter and others. bibliog Am Chem Soc J 85:3909-18 D 20 '63

Kinetics of thermal dealkylation of alkylnaphthalenes. J. C. Bixel and others. Ind & Eng Chem Proc Design 3:78-84 Ja '64

Naphthalene prices uneconomic now. H. Pylant. Oil & Gas J 62:66-7 Mr 16 '64

OH stretching vibration of pyromellitic dianhydride-hydroxynaphthalene complexes. H. H. Richtol. Anal Chem 36:927 Ap '64

π-complex interactions; methyl substituted benzenes and naphthalenes with tetracyanoethylene. A. R. Lepley. bibliog diag Am Chem Soc J 86:2545-9 Jl 5 '64

Preparation of dimethyl-2,6-naphthalenedicarboxylate. H. J. Peterson and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:230-3 S '64

Rearrangement of acetylene, benzene, ethane, ethylene, methane and naphthalene in a microwave discharge. F. J. Vastola and J. P. Wightman. bibliog J Ap Chem 14:69-73 F '64

Analysis

Analysis of naphthalene homologs by gas chromatography. F. J. Kabot and L. S. Ettre. bibliog Anal Chem 36:250-2 Ja '64

Qualitative analysis of naphthalenes by capillary gas chromatography. J. Q. Walker and D. L. Ahlberg. Anal Chem 35:2028-30 D '63

Quantitative determination of maleic anhydride, benzoic acid, napthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

Manufacture

Detol; Houdry process & chemical corp. flow diag Hydrocarbon Process & Pet Refiner 42:161 N '63

Hydrodealkylation; the Atlantic refining co., Hydrocarbon research, inc. diag Hydrocarbon Process & Pet Refiner 42:178 N '63

Naphthalene; Sun oil co. Hydrocarbon Process & Pet Refiner 42:204 N '63

Naphthalene via hydrodealkylation. C. R. Andersson and D. E. Lamb. bibliog diags Ind & Eng Chem Proc Design 3:177-82 Ap '64

Unidak; Union oil co. of California. diag Hydrocarbon Process & Pet Refiner 42:232 N '63

NAPHTHALENEACETIC acid

Analysis

Residue determination of naphthaleneacetic acid in olives. G. Zweig and others. bibliog J Agri & Food Chem 12:59-61 Ja '64

NAPHTHALENONE

Optical rotatory dispersion studies; some observations on the conformation of *cis*-10-methyl-2-decalones. C. Djerassi and others. bibliog Am Chem Soc J 86:465-71 F 5 '64

Thermal equilibration of *cis*- and *trans*-β-decalones; an example of an unusually large entropy of isomerization. R. L. Augustine and J. A. Caputo. Am Chem Soc J 86:2751-2 Jl 5 '64

NAPHTHENIC acids

Equilibrium studies on the solvent extraction of some transition metals with naphthenic acid. A. W. Fletcher and D. S. Flett. bibliog J Ap Chem 14:250-7 Je '64

NAPHTHOL

Electron ejection and fluorescence in aqueous β-naphthol solutions. M. Ottolenghi. bibliog Am Chem Soc J 85:3557-62 N 20 '63

NAPHTHOLS

Spectrophotometric determination of 1-naphthol. G. A. Pearse, jr. bibliog Anal Chem 35:1954-5 N '63

NAPHTHOQUINONE

Analysis

Quantitative determination of maleic anhydride, benzoic acid, naphthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

NAPPING of textiles

Napping synthetic fibers. K. D. Houser. Am Dyestuff Rep 53:892-4 O 12 '64

Theory and practice of napping. R. A. Herard. diag Am Dyestuff Rep 53:890-1 O 12 '64

NARCISSAMINE. See Alkaloids

NARCOTICS

Congenital neonatal narcotics addiction; a natural history. T. Rosenthal and others. bibliog Am J Pub Health 54:1252-62 Ag '64

Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64

See also
Barbiturates
Marihuana

NARRAGANSETT BAY

Seismic refraction profiles, Narragansett Bay, Rhode Island. J. W. Berg, jr. bibliog maps Geol Soc Bul 74:1305-12 N '63

NARROWS bridge (New York). See New York (city)—Bridges

NATIONAL academy of sciences

Centennial celebration, Washington, D.C. Oct. 21-24. ASHRAE J 5:36 D '63

NAS drafts guidelines for research support. Chem & Eng N 42:27-8 Mr 23 '64

National academy of sciences; 100th anniversary. Phys Today 16:22 D '63

NAS to advise House science committee. Chem & Eng N 42:32 Ja 13 '64

Scientific adviser to government. E. F. Cook. il Min Cong J 50:67-9 Mr '64

NATIONAL aeronautics and space administration. See United States—National aeronautics and space administration

NATIONAL animal disease laboratory. See United States—Agriculture, Department of—National animal disease laboratory

NATIONAL association of corrosion engineers

Canadian region conference, Toronto, Jan. 29-31; with program. Can Chem Process 47:80-2 D '63

NATIONAL association of home builders

NAHB policies facing revision. Eng N 173:17-18 S 3 '64

NATIONAL association of lighting maintenance contractors

Meeting, Denver, April 15-17. Elec Constr & Maint 63:184-6 Je '64

NATIONAL association of photo-lithographers

Annual convention, 31st, Chicago, Nov. 13-16; with program. Inland Ptr/Am Lithogr 152:52-3 N; 97 D '63

Annual convention, 32d, New York, Sept. 9-12; with program. Inland Ptr/Am Lithogr 153:68-9 S; 154:100+ O '64

NATIONAL bituminous concrete association

Annual meeting, 9th, New Orleans. Roads & Sts 107:124+ Ap '64

NATIONAL bureau of standards. See United States—Standards, National bureau of

NATIONAL coal association

Convention, 47th, New York, June 15-17; with abstracts of papers. Coal Age 69:112-15 Jl '64

NATIONAL conference of electric and gas utility accountants

Conference, Cincinnati, April 20-22. Am Gas Assn Mo 46:25-7 Je '64

NATIONAL conference on fluid power (formerly National conference on industrial hydraulics)

Conference, 20th, Chicago, Oct. 22-23; program and abstracts of papers. Hydraulics & Pneumatics 17:81-8 O '64

NATIONAL conference on industrial hydraulics

Conference, 19th, Chicago; abstracts of papers. Product Eng 34:72-3 N 11 '63

NATIONAL conference on standards

Conference, 14th. Mag of Stand 35:99-115 Ap '64

Conference, 14th, Washington, Feb. 17-19; program. Mag of Stand 34:384-5 D '63

NATIONAL crushed stone association

Annual meeting, 47th, Chicago, Feb. 24-27; with abstracts of papers. Pit & Quarry 56:101-5+ Ap '64; Rock Prod 67:73+ Ap '64

Board of directors annual summer meeting, Absecon, N.J. July 16-17. Pit & Quarry 57:130-2 S '64; Rock Prod 67:115+ S '64

NATIONAL electrical code

Code forum. Published in monthly numbers of Electrical construction and maintenance

Electric comfort heating, 1964. W. J. Novak. diags Elec Constr & Maint 63:67-82 F '64

Major code changes in the making. Elec Constr & Maint 63:234-8+ S '64

National electrical code committee session, Dallas, May 18-22. Elec Constr & Maint 63:197-200 Jl '64

NATIONAL electrical contractors association

Annual meeting, Los Angeles, Oct. 8-12; with abstracts of papers. Elec Constr & Maint 62:94-6, 179-80+ N '63

NATIONAL electrical contractors association—*Continued*
District 4 annual meeting, French Lick, Ind., May 5-7; abstracts of papers. Elec Constr & Maint 63:190-3 Jl '64
District no. 1 18th annual meeting, May 9-15. Elec Constr & Maint 63:188 Je '64
District 6, 8, 9 conference, Honolulu, May 20-26; abstracts of papers. Elec Constr & Maint 63:194-6 Jl '64

NATIONAL electrical manufacturers association
Annual meeting, 37th, Chicago. Elec World 160:81+ N 4 '63; Wire & Wire Prod 39:98-9+ Ja '64

NATIONAL engineering laboratory. See Great Britain—National engineering laboratory

NATIONAL foundry association
Annual meeting, 65th, Chicago, Nov. 7-8. Foundry 92:124+ Ja '64
Annual meeting, 66th, Philadelphia, Oct. 1-2. Foundry 92:167+ N '64

NATIONAL institute of ceramic engineers
Membership roster. Am Cer Soc Bul 43:823+ O '64

NATIONAL lime association
Annual meeting, 62d, Point Clear, Ala. May 11-13. Rock Prod 67:93-5 Jl '64
Annual meeting, 62d, Point Clear, Ala. May 11-13; with abstracts of papers. Pit & Quarry 57:189-92+ Jl '64

NATIONAL limestone institute
Annual convention, 19th, Washington, Jan. 20-22; with abstracts of papers. Pit & Quarry 56:96-100+ Mr '64; Rock Prod 67:106+ Mr '64
Board meeting, New York, July 26-31. Rock Prod 67:109+ S '64
Midyear meeting, New York, July 26-31. Pit & Quarry 57:84-7 O '64

NATIONAL machine tool builders association
Annual meeting, Hollywood Beach, Fla. Nov. 20-22. Am Mach/Metalworking Manuf 107:93-4 D 9 '63; Mach 70:122 Ja '64
Annual meeting, 62d, Hollywood Beach, Fla. Nov. 20-22; abstracts of papers. Automotive Ind 129:53+ D 15 '63
Spring meeting, 62d, Chicago, May 7-8. Am Mach 108:69-70 My 25 '64; Mach 70:159 Je '64

NATIONAL metal congress
Metals/materials congress and exposition, Philadelphia, Oct. 19-23; program, list of exhibitors and abstracts of papers. Metal Prog 86:P 1-40, 240+ O '64
Metals/materials exposition and congress, Philadelphia, Oct. 19-23; with program and list of exhibitors. Iron Age 194:148+ O 8 '64; Materials in Design Eng 60:137+ O '64

NATIONAL metal exposition
Metals/materials exposition and congress, Cleveland, Oct. 21-25. il diag Engineer 216:927-30, 967-70, 1009-10 N 29-D 13 '63
Metals/materials show and congress, Philadelphia, Oct. 19-23; preview. il Automotive Ind 131:95+ O 15 '64
Metals/materials show, Philadelphia, Oct. 19-23; list of exhibitors. Metal Finishing 62:36 O '64
1963 Cleveland metal show in print. il Am Mach/Metalworking Manuf 107:153-61 O 14 '63; Iron Age 192:164+ O 10 '63; Metal Prog 84:51+ O '63
Preview of the metals/materials show, Philadelphia, Oct. 19-23. il Am Mach 108:121-4+ O 12 '64; Iron Age 194:130+ O 8 '64

NATIONAL oil jobbers council
NOJC may push harder for divorcement of marketing; annual meeting, Chicago. Oil & Gas J 61:134-6 N 18 '63

NATIONAL paper trade association
Annual fall convention and paper show, New York, Oct. 6-9. Inland Ptr/Am Lithogr 152:108 N '63

NATIONAL park service. See United States—National park service

NATIONAL physical laboratory, Teddington. See Great Britain—National physical laboratory, Teddington

NATIONAL power conference
Conference, 7th, Cincinnati, Sept. 22-26. Mech Eng 85:100-2 N '63
Conference, 7th, Cincinnati, Sept. 22-26; abstracts of papers. Combustion 35:20-6 O '63; Elec World 160:16+ O 28 '63; Power Eng 67:68-70 N '63
Conference, Tulsa, Okla. Sept. 27-Oct. 1; program. IEEE Trans Power Apparatus & Systems 83:sup 1A-2A Ag '64

NATIONAL rural electric cooperative association
Convention, Dallas. Elec World 161:113-14 Mr 23 '64

NATIONAL safety council
National safety congress, Chicago, Oct. 28-31; abstracts of papers. Pit & Quarry 56:126-8+ D '63

NATIONAL sand and gravel association
Annual meeting, 48th, Chicago, Feb. 24-28; with abstracts of papers Pit & Quarry 56:87-97+ Ap '64; Rock Prod 67:72+ Ap '64

NATIONAL science foundation
House approves budget. Chem & Eng N 42:35 Je 1 '64
NSF starts science development program. Chem & Eng N 42:35 Ap 6 '64
National science foundation elevates status of engineering. Machine Design 36:15 Jl 16 '64
Science ain't everything. W. R. Marshall, jr. il Chem Eng Prog 60:17-21 Ja '64
Summer institutes, conferences set. Chem & Eng N 41:36 D 30 '63

NATIONAL slag association
Annual meeting, 46th, Hot Springs, Va., Oct. 8-10. Pit & Quarry 56:84-5+ D '63
Plant operators annual meeting, 11th, Philadelphia, April 20-21. Rock Prod 67:94 Je '64
Plant operators annual meeting, 11th, Philadelphia, April 20-21; with abstracts of papers. Pit & Quarry 56:119-20 Je '64

NATIONAL society of professional engineers
Civil servants strip splinter off NSPE. Eng N 173:21 S 3 '64

NATTA, Giulio
Share 1963 Nobel chemistry prize. por Rubber Age 94:459 D '63
Ziegler and Natta share Nobel prize. por Chem & Eng N 41:22 N 11 '63

NATURAL gas. See Gas, Natural

NATURAL gas association of America, Independent. See Independent natural gas association of America

NATURAL resources
Annual Western resources conference, 5th, Fort Collins, Colo. Aug. 5-7. Water & Sewage Works 110:440 D '63
Natural resources; a summary report, committee on natural resources, National academy of sciences, National research council; and Resources in America's future; patterns of requirements and availabilities, 1960-2000. H. H. Landsberg and others. Review, by F. N. Woodward. Chem & Ind p796-9 My 9 '64
See also
Coal
Fuel
Gas, Natural
Peat
Raw materials
Soil conservation
Water supply

NATURAL steam. See Steam, Natural

NAVAL air service. See United States—Air service, Navy

NAVAL architects and marine engineers, Society of. See Society of naval architects and marine engineers

NAVAL architecture
See also
Cable laying and supply ships
Fire boats
Freight ships
Marine engineering
Masts and rigging
Motor ships
Shipbuilding
Tank ships

Designs and plans

Consideration of size, speed, power in the design of hydrofoil craft. S. F. Hoerner. bibliog diags Naval Eng J 75:915-23 D '63
Design and construction of large tankers in Japan. M. Yoshiki. bibliog il plans diags Inst Mech Eng Proc 177:1147-71 '63
Design and powering of cable ship Long Lines. J. H. Butler and others. plans diags Bell System Tech J 43:1435-59 Jl '64
Method of calculating stiffener-plating section moduli; with nomographs. K. Keays. diags Naval Eng J 76:563-8 Ag '64
Science and the small boat builder. Engineering 196:733 D 6 '63
SS Avalon, British railways' newest Channel ferry. il plans Marine Eng/Log 68:47-53 N '63

NAVAL art and science
See also
War games

NAVAL bases

Water supply

Navy readies Cuba water plant. il Eng N 173:27 Jl 9 '64

NAVAL engineers. See Marine engineers

NAVAL engineers, American society of. See American society of naval engineers

NAVAL officers

Training

Escape. E. M. Avallone. Naval Eng J 76:539-41 Ag '64

NAVAL research

Effect of shallow water on ship speed. H. Lackenby. Naval Eng J 76:21-6 F '64

Marine life: friend and foe of the fleet. S. R. Galler. Naval Eng J 76:635-8 Ag '64

Marine systems. E. G. Stout. il Astronautics & Aerospace Eng 1:36-8 N '63

NAVAL warfare

See also

Submarine warfare

NAVIGATION

Electronic positioning systems. H. W. Bigelow. diags Naval Eng J 76:802-7 O '64

High-accuracy marine navigation with the bottled star. P. V. H. Weems and C. W. Benfield. bibliog il diags Naval Eng J 76:569-76 Ag '64

Raytheon automatic nautical navigator. il Product Eng 34:76-7 D 9 '63

See also

Direction finding apparatus
Inertial guidance systems
Loran system
Radar aids to navigation
Radio aids to navigation
Steering gear

Study and teaching

City of Liverpool college of technology regional college: Department of navigation. F. L. Main. Chem & Ind p 1002-3 Je 13 '64

NEBRASKA

See also subdivision Nebraska under special subjects, e.g.

Atomic power plants
Gas, Natural
Geology
Irrigation
Petroleum
Petroleum industry and trade

NEEDLE bearings. See Bearings, Needle

NEEDLES

Automatic gilding for needle production diag Metallurgia 69:174 Ap '64

Needle production needs automatic plating. diag Engineering 197:267 F 14 '64

NEEDLES, Phonograph. See Phonograph needles

NEGATIVES, Photographic. See Photography—Negatives

NEGLIGENCE

Engineering law; when the employee is careless. E. Mitchell. Engineer 217:302-3 F 14 '64

Rulings divided on blast damages. A. W. Gray. Roads & Sts 107:91-3 Jl '64

See also

Damages
Employers liability

NEGRO market

Negro cosmetic market. il Drug & Cosmetic Ind 95:32-3+ Jl '64

NEGROES

Employment

AFL-CIO starts new anti-bias drive. Eng N 173:28-9 S 10 '64

Civil rights; eternal battlefield; interview with Herbert Hill. E. W. Stearn. Rock Prod 67:52-7 Ag '64

Help wanted, Negro. D. Smith. il Electronics 37:95-7 Mr 23 '64

Negroes help themselves. F. Pitman. il Electronics 37:97-8 Mr 23 '64

New horizons for Negroes. H. Mayfield. Chem Eng 71:242 N 9 '64

What Civil rights bill means to construction. Eng N 172:61-2 Je 18 '64

When Negroes march for jobs. il I S A J 10:25-6 N '63

Segregation

Attitudes toward desegregation. H. H. Hyman and P. B. Sheatsley. map Sci Am 211:16-23 Jl '64

NEMATODES

Chemical control of plant parasitic nematodes in the United Kingdom. J. E. Peachey. bibliog Chem & Ind p 1736-40 N 2 '63

Source and persistence of nematodes in surface waters. N. Chaudhuri and others. bibliog map Am Water Works Assn J 56:73-88 Ja '64

NEODYMIUM

Dependence of the optical-maser threshold on neodymium concentration in sodium-compensated calcium tungstate. A. E. Paladino and others. J Ap Phys 35:249-50 Ja '64

Laser oscillations at 0.918, 1.057, and 1.401 microns in Nd^{3+}-doped borate glasses. A. D. Pearson and others. il diag J Ap Phys 35:1704-6 Je '64

Magnetic structure of neodymium. R. M. Moon and others. bibliog J Ap Phys 35:1041-2 pt 2 Mr '64

Photolytic and reduction coloring of $CaWO_4$: Nd. D. C. Cronemeyer and M. W. Beaubien. bibliog diag J Ap Phys 35:1779-85 Je '64

Spectral characteristics for a neodymium laser liquid filter system. K. F. Tittel. bibliog R Sci Instr 35:522-4 Ap '64

NEODYMIUM compounds

Thermogravimetric analysis of five salts of praseodymium, neodymium, and samarium. R. L. Wilfong and others. bibliog Am Cer Soc J 47:240-1 My '64

NEODYMIUM oxides

Surface contamination of La_2O_3 and Nd_2O_3 by B_2O_3; a source of error in X-ray diffractometry. S. Stecura and W. J. Campbell. Am Cer Soc J 47:468 S '64

Thermal expansion of polycrystalline lanthanum and neodymium sesquioxides. R. E. Mistler and others. Am Cer Soc J 46:561-2 N '63

NEODYMIUM sesquioxide. See Neodymium oxides

NEOHEXANE. See Dimethyl butane

NEOLITHIC period. See Stone age

NEOMYCIN

Resolution of neomycin and catenulin antibiotic complexes by ion exchange resin chromatography. H. Maehr and C. P. Schaffner. bibliog il Anal Chem 36:104-8 Ja '64

NEON

Cataphoresis in helium-neon mixtures. A. L. Schmeltekopf, jr. bibliog diags J Ap Phys 35:1712-17 Je '64

Cataphoretic purification of neon. H. C. Miller. bibliog flow diag J Ap Phys 35:1745-8 Je '64

Chlorine-neon Geiger-Müller counters with energy-independent gamma-ray efficiency. V. Danchenko and N. Mitrofanov. R Sci Instr 35:1076-7 Ag '64

Cw optical maser action up to 133μ(0.133mm) in neon discharges. C. K. N. Patel and others. bibliog IEEE Proc 52:713 Je '64

Electron attachment in a neon spark chamber. J. U. Burnham and M. G. Thompson. J Sci Instr 41:108-10 F '64

^3He-Ne-CH_4 mixtures in a proportional counter for thermal neutrons. V. E. Krohn, jr. il diags R Sci Instr 35:853-4 Jl '64

Lifetime of helium-neon lasers. R. Turner and others. bibliog diags R Sci Instr 35:996-1001 Ag '64

Mechanism of afterglow in neon flashtubes. P. D. Johnson and others. bibliog J Ap Phys 35:1128-30 Ap '64

Neon gas maser lines at 68.329 μ and 85.047 μ. R. A. McFarlane and others. IEEE Proc 52:318 Mr '64

Operation of the field ion microscope with neon. O. Nishikawa and E. W. Müller. bibliog il diags J Ap Phys 35:2806-12 O '64

Power output of the 6328 A helium-neon maser as a function of the resonant cavity length. S. S. Alpert and A. D. White. IEEE Proc 51:1665-6 N '63

Simultaneous laser oscillation on the neon doublet at 1.1523 μ. W. R. Bennett, jr. and J. W. Knutson, jr. bibliog IEEE Proc 52:861-2 Jl '64

Some applications for neon-photocell units. E. Bauman and D. Whateley. diags Electronic Ind 23:61-3 Jl '64

Studies of the properties of the hollow cathode glow discharge in helium and neon. D. J. Sturges and H. J. Oskam. bibliog diag J Ap Phys 35:2887-94 O '64

Super-radiant yellow and orange laser transitions in pure neon. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

2s-*2p* and *3p*-*2s* transitions of neon in a laser ten meters long. R. N. Zitter. bibliog J Ap Phys 35:3070-1 O '64

NEON lamps. See Electric lamps, Neon

NEOPENTYL group

Carbonium ion rearrangements; mechanism of the rearrangement of neopentyl compounds. G. J. Karabatsos and others. bibliog Am Chem Soc J 86:1994-7 My 20 '64

NEOPRENE

Compressed air tapping; stationary or on the run. il diag Tool & Manuf Eng 53:60-1 Jl '64

Heat resistance of neoprene vulcanizates. R. O. Becker. Rubber Chem & Tech 37:76-87 Ja '64; Rubber World 149:49-53 Ja '64

NEOPRENE—*Continued*

Joining neoprene strip fastener. il Product Eng 34:51 N 25 '63

Neoprene-duck packing saves $6500 annually. diag Steel 153:130 D 9 '63

Road bridge expansion joints of extruded neoprene. diags Engineering 196:591 N 8 '63

Sound insulating pads coated with neoprene. Engineering 197:601 My 1 '64

Superprocessing furnace black proves valuable in neoprenes. J. W. Messner and H. V. Krakowski. Rubber Age 94:748-9 F '64

Synthetic resins; the backbone of modern finishes; polychloroprene and chlorosulfonated polyethylene elastomers. H. P. Preuss. il Metal Finishing 62:54-6 Ap '64

NEPAL

See also

Transportation—Nepal

NEPHELINE

Lattice parameters of nepheline hydrate. A. D. Edgar. bibliog Am Mineralogist 49:1139-41 Jl '64

Phase equilibrium relations in the system $CaMgSi_2O_6$(diopside) - $NaAlSiO_4$(nepheline)-$NaAlSi_3O_8$(albite)-H_2O at 1,000 kg/cm^2 water vapor pressure. A. D. Edgar. bibliog Am Mineralogist 49:573-85 My '64

Phase-equilibrium relations in the system nepheline-albite-water at 1,000 kg/cm. A. D. Edgar. bibliog J Geol 72:448-60 Jl '64

NEPHELINE syenite

Stability of forming characteristics of bodies containing nepheline syenite; review. R. C. Wilson and C. J. Koenig. bibliog Am Cer Soc Bul 42:752-5 D '63

NEPHELOMETRIC analysis

Principles of turbidimetric and nephelometric titrations. E. J. Meehan and G. Chiu. bibliog Anal Chem 36:536-40 Mr '64

Quantitative isolation and improved nephelometric microdetermination of lupine alkaloids from plant tissues. D. M. Graham and M. Spencer. bibliog Anal Chem 36:210-13 Ja '64

NEPSEUDIN. See Isoflavanone

NEPTUNIUM

Isotopes

Ion exchange process for the recovery of Pu^{238} from irradiated Np^{237}. G. A. Burney. bibliog Ind & Eng Chem Proc Design 3:328-32 O '64

Np^{237} and Pu^{238} separation at the Savannah River plant. W. L. Poe and others. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:314-22 O '64

Neptunium recovery and purification at Hanford. R. E. Isaacson and B. F. Judson. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:296-301 O '64

New neptunium purification facility at the Hanford Purex plant. J. P. Duckworth and J. R. Lariviere. diags Ind & Eng Chem Proc Design 3:306-8 O '64

New neptunium recovery facility at the Hanford Purex plant. J. P. Duckworth and L. R. Michels. bibliog il diags Ind & Eng Chem Proc Design 3:302-6 O '64

Pu^{238}-Np^{237} production details now complete. diag Chem & Eng N 42:50-1 F 3 '64

Process control in the production of Pu^{238} and Np^{237}. E. K. Dukes and R. S. Dorsett. bibliog diag Ind & Eng Chem Proc Design 3:333-6 O '64

Production of Np^{237} and Pu^{238} in thermal power reactors. D. R. Vondy and others. Ind & Eng Chem Proc Design 3:293-6 O '64

NEPTUNIUM dioxide. See Neptunium oxides

NEPTUNIUM oxides

Fabrication of targets for neutron irradiation of neptunium dioxide. R. E. Myrick and R. L. Folger. bibliog il diag Ind & Eng Chem Proc Design 3:309-13 O '64

Production of neptunium dioxide. J. A. Porter. Ind & Eng Chem Proc Design 3:289-92 O '64

NERVES

Analysis of signals from intact nerve. N. A. Normann and J. U. Casby. diags Archives Environmental Health 9:303-7 S '64

Electromechanical nerve models as neuristors. R. M. Stewart. bibliog IEEE Proc 52:78-9 Ja '64

See also

Neurons

NERVI, Pier Luigi

1964 gold medal of the American institute of architects. por Arch Forum 120:78-9 My '64

P. L. Nervi awarded A.I.A. gold medal. por Arch Rec 135:10 Mr '64

NERVOUS system

Study of the higher nervous functions in occuptational health. M. Horvath and others. Ind Med 33:136-7 Mr '64

See also

Senses and sensation

Diseases

Vitamin unresponsiveness; progression of classic signs of neuropathy and pellagra during therapy. L. Zieve and E. Hill. bibliog Am J Clinical Nutrition 13:312-17 N '63

NESSLER reagent

Influence of solvent vapors on the occurrence of turbidity during color development with the Nessler reagent. R. F. Moore, jr. and D. L. Harris. Anal Chem 36:249-50 Ja '64

NESTY, Glenn A.

CCDA honor award. por Chem & Eng N 42:118 Mr 2 '64

NETHERLANDS

See also subdivision Netherlands under special subjects, e.g.

Drug trade
Gas, Natural
Gas industry
Petroleum
Petroleum industry and trade
Plastics industries
Shipbuilding
Shipping
Steel works
Textile industry
Vocational education

NETS

Extruded netting set to snare big markets. il Mod Plastics 41:80-3+ N '63

NETS, Safety. See Safety nets

NETWORK analyzers. See Electric distribution—Network analyzers

NETWORKS, Electric. See Electric distribution

NEURISTOR. See Semiconductors

NEURONS

Analytic techniques for the study of neural nets. F. Rosenblatt. bibliog diags IEEE Trans Applications & Ind 83:285-92 S '64

NEUTRONS

Activation analysis matures as industrial tool. il Chem Eng 70:92-4 D 9 '63

Activation analysis; new tool finds many uses. il diag Steel 155:40-4 Jl 6 '64

Activation analysis of high purity materials. W. J. Ross. bibliog Anal Chem 36:1114-19 My '64

Analytical technique detects and measures trace metals; abstract. F. J. Berlandi and H. B. Mark, jr. Chem & Eng N 42:84 S 14 '64

Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36:2062-4 O '64

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Computer routines for neutron activation analysis of lubricating oils. D. E. Hull and J. T. Gilmore. bibliog Anal Chem 36:2072-7 O '64

Consequences of neutron-proton mass difference in the kinematics of neutron-proton scattering. A. K. Ghatak. diag Am J Phys 32:163-6 F '64

Determination of fluorine in organic compounds by fast neutron activation analysis. R. Blackburn. Anal Chem 36:669-71 Mr '64

Determination of nickel in hydrogenated fats by neutron activation analysis. A. G. Souliotis. bibliog Anal Chem 36:1385-6 Je '64

Determination of oxygen in gallium arsenide by neutron activation analysis. R. F. Bailey and D. A. Ross. bibliog Anal Chem 35:791-4 Je '63; Discussion. 36:1879 Ag '64

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

Determination of the zinc-68-zinc-64 ratio in rocks and minerals by neutron activation analysis. R. H. Filby. bibliog Anal Chem 36:1597-600 Jl '64

Determination of zinc in ores and mill products by neutron activation analysis. J. M. Bakes and P. G. Jeffery. Anal Chem 36:1594-7 Jl '64

NEUTRONS—*Continued*

Effect of neutron-induced defects on the current-carrying behavior of niobium stannide. G. W. Cullen and others. bibliog RCA R 25:479-90 S '64
Effects of neutron radiation on secondary breakdown. E. B. Hakim and B. Reich. bibliog IEEE Proc 52:735 Je '64
Fabrication of targets for neutron irradiation of neptunium dioxide. R. E. Myrick and R. L. Folger. bibliog il diag Ind & Eng Chem Proc Design 3:309-13 O '64
Fast-neutron spectroscopy. L. Cranberg. il diags Sci Am 210:79-86+ Mr '64
^{3}He-Ne-CH_4 mixtures in a proportional counter for thermal neutrons. V. E. Krohn, jr. il diags R Sci Instr 35:853-4 Jl '64
^{3}He neutron spectrometer using pulse rise-time discrimination. A. Sayres and M. Coppola. bibliog diags R Sci Instr 35:431-7 Ap '64
Investigations of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64
Large volume activation analysis of organically bound iodine using isotopic neutron sources. R. Grunewald and others. bibliog diag Anal Chem 36:1138-40 My '64
Microstrain yield stress in neutron-irradiated copper single crystals. T. J. Koppenaal. bibliog J Ap Phys 35:2750-3 S '64
Neutron activation analysis. il Mech Eng 85:71 N '63
Neutron activation method for soil removal measurements; a comparison of the reflectance method and the neutron activation method. D. A. Netzel and others. bibliog il Am Oil Chem Soc J 41:678-83 O '64
Neutron thermalization theory applied to hot atom chemical reactions; consideration of isotropic and asymmetric scattering. C. H. Hsiung and A. A. Gordus. bibliog Am Chem Soc J 86:2782-9 Jl 20 '64
Neutron transmission data. F. J. Allen and A. T. Futterer. Nucleonics 21:120-1 Ag '63
Neutron transmutations dope semiconductors. C. N. Klahr and M. S. Cohen. il diags Nucleonics 22:62-5 Ap '64
Nomograph for determination of neutron-induced activities. P. A. Benson and C. E. Gleit. bibliog Nucleonics 21:148-50 Ag '63
Nuclear activation analysis; abstract. R. E. Wainerdi and N. P. DuBeau. Metal Prog 85:143+ Ja '64
Oxygen determination in rocks, minerals, and water by neutron activation. A. Volborth and H. E. Banta. bibliog Anal Chem 35:2203-5 D '63
Power sources draw attention at Geneva; fast-neutron reactor. il Chem & Eng N 42:56-7 S 21 '64
Practical approach to the self-shielding problem in low-flux neutron activation analysis. O. U. Anders. bibliog diags Anal Chem 36:564-8 Mr '64
Rapid neutron activation method for determining chromium in ruby maser and laser crystals. J. R. Weiner and others. bibliog il Electrochem Soc J 110:1160-2 N '63
Rapid, nondestructive method of precision oxygen analysis by neutron activation. O. U. Anders and D. W. Briden. bibliog diags Anal Chem 36:287-92 F '64
Second-order interference in activation analysis. E. Ricci and F. F. Dyer. bibliog Nucleonics 22:45-50 Je '64
Self-shielding in activation analysis. J. Gilat and Y. Gurfinkel. Nucleonics 21:143-4 Ag '63
Simultaneous determination of niobium and tantalum by neutron activation using niobium-94*m* and tantalum-182*m* and rapid radiochemical separations. C. K. Kim and W. W. Meinke. bibliog Anal Chem 35:2135-8 D '63
Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64
Simultaneous determination of sulfur and phosphorus in water by neutron activation analysis. C. H. Wayman. Anal Chem 36:665-6 Mr '64
Synchrocyclotron 200-meter flight path neutron velocity spectrometer. J. Rainwater and others. bibliog diags R Sci Instr 35:263-75 Mr '64
Systematic neutron activation technique for the determination of trace metals in petroleum. U. P. Colombo and others. diags Anal Chem 36:802-7 Ap '64
Target reloading in neutron generators. H. Hollister. bibliog Nucleonics 22:68-9 Je '64
Unit monitors neutron flux during reactor start-up. Chem & Eng N 42:77 Ap 20 '64
Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64
See also
Counters (electrons, ions, etc.)

Absorption

Isotope effects in mercurideboronations measured by neutron absorption. D. S. Matteson and others. bibliog Am Chem Soc J 86:3781-3 S 20 '64

Beams

Cryogenic system for the production of very thin targets. P. B. Parks and others. bibliog diags R Sci Instr 35:549-57 My '64
Dislocation channeling in neutron-irradiated molybdenum. B. Mastel and others. il J Ap Phys 34:3637-8 D '63
Magnetic properties of an iron-nickel single crystal ordered by neutron bombardment. L. Néel and others. J Ap Phys 35:873-6 pt 2 Mr '64
Primary damage state in neutron-irradiated iron. J. R. Beeler, jr. bibliog J Ap Phys 35:2226-36 Jl '64

Capture

Phase transitions and the radiative neutron capture in solid organic media. M. Milman. bibliog Am Chem Soc J 86:3567-8 S 5 '64

Diffraction

See also
Crystallography—Neutron diffraction studies

Industrial applications

Density and moisture gauges for the inventory of coal in storage. F. F. Rieke and R. A. Semmler. Combustion 35:25-7 Mr '64
Neutron lifetime, a new nuclear log. A. H. Youmans and others. bibliog il J Pet Tech 16:Trans 319-28 Mr '64
Neutron lifetime log; a performance report. J. W. Little and A. H. Youmans. il diag Oil & Gas J 62:165-8 S 7 '64
Optimization of a neutron scattering water content gauge for soils or concretes. K. Preiss and P. J. Grant. bibliog diags J Sci Instr 41:548-51 S '64
Radiography takes Nondestructive testing conference spotlight. Steel 155:47 N 2 '64

Measurement

Fast-neutron detector with discrimination against background radiation. R. B. Mendell and S. A. Korff. bibliog diag R Sci Instr 34:1356-60 D '63
Fast neutron dose measurements for a D-D neutron source in water. W. B. Beverly and V. Spiegel, jr. bibliog diag J Res Nat Bur Stand 68A:1-4 Ja'64
Self-powered neutron detectors for reactor flux monitoring. J. W. Hilborn. bibliog diags Nucleonics 22:69-72+ F '64
Thermal and fast neutron detection by fission-track production in mica. P. R. Prevo and others. il J Ap Phys 35:2636-8 S '64
Time-shared time-of-flight analysis by computer. R. E. Chrien and others. bibliog flow diag diags R Sci Instr 35:1150-6 S '64

Scattering

Critical magnetic scattering of neutrons in iron. L. Passell and others. bibliog J Ap Phys 35:933-4 pt 2 Mr '64
Thin-walled specimen container for neutron scattering studies of liquids at high temperatures and pressures. S. J. Cocking and A. R. Ball. diag J Sci Instr 41:376-8 Je '64

NEVADA

See also subdivision Nevada under special subjects, e.g.
Gas, Natural
Geology
Iron mines and mining
Iron ores
Mines and mineral resources
Petroleum
Petroleum industry and trade

NEW BRUNSWICK

See also
Geology—New Brunswick
Mines and mineral resources—New Brunswick
Tin mines and mining—New Brunswick

NEW ENGLAND

See also
Electronics industry—New England
Hydroelectric plants—New England

NEW GUINEA
See also
Birds—New Guinea
Nutrition problems—New Guinea

NEW HAMPSHIRE
See also
Architecture, Domestic—New Hampshire
Floods—New Hampshire
Geology—New Hampshire

NEW JERSEY
See also subdivision New Jersey under special subjects, e.g.
Airports
Architecture, Domestic
Atomic power plants
Hydroelectric plants
Petroleum products pipe lines
Roads

NEW MEXICO
See also subdivision New Mexico under special subjects, e.g.
Coal mines and mining
Copper mines and mining
Gas, Natural
Geology
Mines and mineral resources
Petroleum
Petroleum laws and regulations
Potash mines and mining
Public health
Roads

NEW ORLEANS

Air pollution

Further observations on New Orleans asthma. H. Weill and others. Archives Environmental Health 8:184-7; Discussion. 188-9 Ja '64

Architecture

Redesign for international center proceeds. il Prog Arch 45:72 Ap '64

Bridges

Pile-supported plate girders soar over New Orleans waterway. il Eng N 172:26-8 Ap 23 '64

Sewerage

Determination of run-off coefficients. F. W. MacDonald and A. Mehn, jr. map Pub Works 94:74-6 N '63
New Orleans will begin to treat sewage. map Eng N 172:22-3 My 7 '64

Water supply

New Orleans will begin to treat sewage. map Eng N 172:22-3 My 7 '64

NEW products. See Products, New

NEW YORK (city)
See also
Airports—New York (city)
Building—New York (city)
Building laws and regulations—New York (city)
Electricity supply—New York (city)

Air pollution

New York City considers fuel-oil controls. Oil & Gas J 62:59 My 25 '64

Architecture

America's cast iron age. il Arch Forum 120:110-13 Ap '64
Destruction of New York. il Prog Arch 45:95 O '64
How columns will be designed for 110-story buildings of New York's World trade center. il diags Eng N 172:48-9 Ap 2 '64
Litho City; a civic contribution. il Prog Arch 44:53 D '63
Lung for New York's financial district; Chase-Manhattan plaza. il Prog Arch 45:214-15 S '64
New York court upholds tax on Seagram Tower. il Arch Forum 121:5+ Jl '64
Office building complexes; a great port city planned for New York's lower west side. il plans diags Arch Rec 135:188-9 Mr '64
Seagram building tax upheld. B. Tomson and N. Coplan. Prog Arch 45:252 O '64
Single-loaded corridor for good outlook; Columbia faculty apartment. il plan Arch Rec 136:124-5 Ag '64
Twin towers; Manhattan's World trade center. il plans diags Comp Air Mag 69:12-15 Mr '64
What's where on the way to the Fair. il Civil Eng 34:80-1 Je '64
World's biggest skyscrapers have New York up in the air. il plan diags Arch Forum 120:118-21 Mr '64
World's largest buildings proposed for Manhattan. il diags Prog Arch 45:57-9 F '64
Yama designs 110-story World trade center. il plan diags Arch Rec 135:14-15 F '64
Yamasaki and the Roths, at two ends of the same drafting table, to design the World trade center. il Eng N 173:46-50 Jl 9 '64

Bridges

Floor truss erection begins at the Narrows. il Eng N 171:64-6+ N 14 '63
Narrows bridge gets final link. il Eng N 172:21 My 7 '64
Safety communications system for new span; Verrazano-Narrows bridge. il Safety Maint 128:13+ Jl '64
Short span takes long to build. Eng N 171:20 N 28 '63
Welding builds longest bridge floor. il Welding Eng 49:90 N '64

Galleries and museums

Gallery lighting. il diag Prog Arch 45:195 S '64
Museum builds inverted pyramid; Whitney museum of American art. il diag Eng N 172:16 Ja 2 '64
Stone's new gallery of art opens. il Prog Arch 45:71 Ap '64
Strong Breuer design for Madison avenue. il diags Prog Arch 45:49 Ja '64
Upside-down museum in Manhattan; Whitney museum of American art. il plans diags Arch Forum 120:90-3 Ja '64
See also
Museum of modern art (New York)

Harbor

Ten down, two to go in $95-million pier plan. il Eng N 171:25 D 12 '63

Health, Department of

Some technics for meeting personnel shortages. L. J. Rosner. bibliog Am J Pub Health 54:615-23 Ap '64

Hospitals

Big-city complex in a flexible cube; Bellevue hospital. il plans Arch Rec 135:194-7 Ap '64
Case for voluntary and municipal hospital affiliation. N. Smith and others. bibliog Am J Pub Health 53:1989-94 D '63
Gouverneur ambulatory care unit; a new approach to ambulatory care. H. J. Brown and R. S. Alexander. Am J Pub Health 54:1661-5 O '64
Hospital in the city; N.Y.U.'s giant medical center. il plans Arch Forum 120:92-5 Ap '64

Hotels, restaurants, etc.

Grand Hotel, new version; New York Hilton. il plans diags Arch Rec 134:153-60 N '63

Lincoln center for the performing arts

Acoustics; what happened at Philharmonic Hall? il plans Arch Forum 119:118-23 D '63
Critical trialogue on Johnson's Lincoln Center theater. I. M. Reese and others. il Prog Arch 45:58-9 My '64
Theater glamour again; Lincoln Center's newest theater. il plans diags Arch Rec 135:137-44 My '64
Two down, four to go in Lincoln Center. il Eng N 172:52 Ap 2 '64

Metropolitan district

Roger, H. Gilman and the Tri-State transportation committee. map Eng N 172:122-3+ F 13 '64

Parks

Kahn-Noguchi playground proposed. il Prog Arch 45:67 Mr '64

Public health

Current status of venereal disease; a survey of 6,649 physicians in solo practice. A. C. Gelman and others. bibliog Am J Pub Health 53:1903-18 D '63
Epidemiology of systemic lupus erythematosus; time trend and racial differences. M. Siegel and others. bibliog Am J Pub Health 54:33-43 Ja '64
Public health program for children with heart disease or rheumatic fever; Manhattan cardiac program. K. D. Brownell and R. K. Stix. Am J Pub Health 53:1587-93 O '63

Railroads

Pennsylvania station; finis. il Prog Arch 44:54-5 D '63

Rapid transit

Improving transportation on Long Island. il Pub Works 94:88-9 N '63
Queens-Long Island corridor; urban transportation laboratory. J. M. Leiper. map Traffic Q 18:335-48 Jl '64
Roger H. Gilman and the Tri-State transportation committee. map Eng N 172:122-3+ F 13 '64

NEW YORK (city)—*Continued*

Sanitary affairs

Disposal of bulk wastes. F. J. Lucia. il Pub Works 95:100-2 O '64

Sewerage

City plans to treat storm water. il map Eng N 172:36-7 My 28 '64

Streets

Big city snow melting; abstract. F. J. Lucia. Pub Works 95:156+ S '64

Subways

Construction comes to the rescue. il Eng N 172:13-14 Ap 30 '64
Crane uses fingertip in tunnel. il Eng N 172:39 Ja 16 '64
New York subway cut and cover; unit prices. plans Eng N 172:14+ Mr 19 '64
Subway tunnel construction. G. B. Knight. il diags Am Soc C E Proc 90 [CO 2 no 4032]: 15-36 S '64
World's largest vacuum cleaner. il diag Comp Air Mag 69:28 Je '64

Tunnels

Jam in the tube. il Electronics 37:28-9 Ap 6 '64
Patrol cars ride tunnel catwalk. il Pub Works 95:150 F '64

Water supply

Machine will bore hardrock tunnel. il Eng N 172:24-5 Mr 12 '64

Worlds fair, 1964

Aluminum at the World's fair. il Mod Metals 20:38+ Ag '64
American standards help build the Fair. il Mag of Stand 35:67-70, cover Mr '64
Architecture at the New York world's fair. M. F. Schmertz. il Arch Rec 136:143-50 Jl '64
At the Fair they're cooling with gas. il Gas Age 131:30-2 Ap '64
A-v world in a meadow. il Ind Phot 12:46 N '63
Busy architect's guide to the World's fair. il plan diags Prog Arch 45:223-38 O '64
CE goes to the Fair. il Chem Eng 71:121-8 Je 22 '64
Civil engineers build for the Fair. W. Whipple, jr. il plan Civil Eng 34:50-3 Je '64
Cooling keynotes World's fair. L. Smith. il plans diag Heating-Piping 36:106-11 Ap '64
Designing an acre of rocks; utilize reinforced plastics for major World's fair exhibit. il Plastics World 22:24-5 My '64
Driving exhibits at the New York world's fair. il Product Eng 35:98-100 Ap 27 '64
Energy systems at the World's fair. il map diags Power 108:201-6 Ap '64 (reprints 25c)
Engineering features of free-form concrete thin shell for Eastman Kodak pavilion. L. Zetlin. il diags Am Concrete Inst J 61:1249-59 O '64
Engineer's guide to the Fair. il diags Machine Design 36:22-6+ Je 4 '64
Fair at Flushing Meadows; a zesty bazaar from the corners of the world. il I S A J 11:86-7+ O '64
Fair forecast of the future of plastics in building construction. il Plastics World 22:24-7 Jl '64
Fiber and fabric at the Fair. N. Heimbold. il Textile World 114:40-7 Je '64
Foreign exhibits promote ceramics for export. A. C. Allen. Cer Ind 83:110 S '64
Garden of the giants installation to demonstrate total energy concept. il Am Gas Assn Mo 46:24-5 F '64
Gas cart with refrigeration unit to bring chef to table at Festival '64 restaurant. il Am Gas Assn Mo 46:20 Mr '64
Gas cooling at the Fair. J. Wyrtzen. il diags Prog Arch 45:172-8 Jl '64
Gas cooling is truly a first at the Fair. il Am Gas Assn Mo 45:12-14 D '63
Gas goes to the Fair, April 1964-October 1965. il Gas 40:56-9 Ap '64
Gas is fun at the Fair. il Am Gas Assn Mo 46:2-3 Je '64
Gas turbine energy system powers the Gas pavilion. H. D. Daudet. il diags Gas 40: 113-18+ My '64; Excerpt. Am Gas Assn Mo 46:8-10+ Ap '64
GM's dream cars at the World's fair. il Automotive Ind 130:57+ My 15 '64
Heliport flight-deck lighting at World's fair il Elec Constr & Maint 63:117-18+ Ag '64
How oil firms will cash in on World's fair traffic. G. T. Kinney. il Oil & Gas J 62: 64-6 Ap 20 '64
How plastics were used to solve design problems at the World's fair. M. Immermann. il Plastics World 22:28-31 Jl '64
How utilities promote the Fair. il Am Gas Assn Mo 46:14-15 Ja '64
Imagineering; Audio-Animatronics by Walt Disney. il diags Comp Air Mag 69:7-9 Je; 16-18 Jl; 10-11 Ag; 20-2 S '64
Industrial electronics; Fair programed for fun. G. V. Novotny. il Electronics 37:99-102+ Ap 6 '64
Industry has star role at World's fair. il Elec World 161:87-8 Ap 20 '64
Johnson pavilion at World's fair showcase of specialties. il Soap & Chem Spec 40:132-3+ My '64
Lighting at the Fair. B. C. Cooper. il plan diags Elec Constr & Maint 63:93-100+ Jl '64
Lighting details of the Kodak photo-tower; New York world's fair. C. J. Bartleson and others. il diags Illum Eng 59:375-81 sec 2 My '64
Lighting innovations featured at 1964-1965 New York world's fair. il Illum Eng 59:sup 5A-6A Ap '64
Man who gets things done; Robert Moses. Eng N 172:49-50+ Ap 23 '64
Materials (people) handling at the World's fair. H. Balfour and M. Barrangon. il diags Mech Eng 86:46-54 Ag '64
Moses builds a Fair. il plan diag Arch Forum 120:64-75 Ja '64
New York fair opens; drizzles, fizzles, and drama by night. il Arch Forum 120:12-15 My '64
New York world's fair; fiber glass, a structural material which increases design possibilities. il Glass Ind 45:67-9 F '64
New York World's fair 1964-65. il Engineer 218:472-4, 527-9, 568-70, 606-10 S 18-O 9 '64
New York world's fair 1964-1965 lighting. J. S. Hamel and others. il diags Illum Eng 59:644-59 O '64
New York world's fair; plastics by the acre; illustrations with text. Brit Plastics 37:382-5 Jl '64
N.Y. world's fair street lighting piped for hi-fi sound system. il Elec World 160:20-1 D 23 '63
New York world's fair; testing ground for plastics. il diag Mod Plastics 41:88-94 F; 94-8 Mr; 108-11+ Ap; 103-5 My; 107-9+ Je '64
Newest way to drive conveyors found at the World's fair. il diag Mod Materials Handling 19:41 Je '64
Old craft encloses new museum. il Eng N 173:45 S 10 '64
People, people, people; Festival of Gas pavilion il Am Gas Assn Mo 46:20-1 Jl-Ag '64
Preview. New York world's fair, 1964-1965. il Arch Rec 135:137-44 F '64
Projection techniques at the World's fair. il SMPTE J 73:507-9 Je '64
Radio-Electronics goes to the World's fair. il Radio-Electronics 35:50-2 S '64
Reinforced plastics at the World's fair. il Metal Prog 85:110-11 My '64
Round hospital flies to the Fair. il Eng N 171:20 N 28 '63
Rubber industry products much in evidence at World's fair. il Rubber Age 95:470-2 Je '64
Safety sets stage for World's fair. il Safety Maint 127:14-16+ Ja '64
Science at New York world's fair; American chemical society's oceanography exhibit. il Chem & Eng N 42:43-6 Jl 13 '64
Size is no barrier to precision assembly; giant ferris wheel at New York worlds fair. il Mill & Factory 74:80-1 Ap '64
Slip forming New York State World's fair pavilion. M. Madison. il Am Concrete Inst J 61:755-62 Jl '64
Spanish pavilion is a beauty, but a beast to build. il Eng N 173:22-4 Jl 30 '64
Spanish pavilion; surprise hit of the Fair. il Arch Forum 120:16-17 Je '64
Special report on the World's fair. F. Schneller. il diags Civil Eng 34:54-68 Je '64
Total energy on public display. il Gas Age 131:33 Ap '64
Underground home of the future debuts at Fair. plan Elec World 161:165 Ap 20 '64
Unique distribution powers New York world's fair. J. H. Watt. il diag Elec Constr & Maint 62:51-3+ D '63
Welcome mat for New York fair visitors. il Roads & Sts 107:104+ Mr '64
Welding at the Fair. T. Jefferson. il Welding Eng 49:51-5, cover Ap '64
Welding helps Sinclair's Dino go to the Fair. il Welding J 42:975 D '63

NEW YORK (city)—Worlds fair, 1964—*Cont.*

What's new in mechanical systems, job techniques, problem-solving. il plans diags Dom Eng 204:74-102 Ag '64

What's where on the way to the Fair. il Civil Eng 34:80-1 Je '64

World's fair arrives in a rush. il Eng N 172:19-21 Ap 23 '64

World's fair is natural-gas showcase. G. T. Kinney. il Oil & Gas J 62:70-1 Ag 3 '64

World's fair; new technology, new products. il Product Eng 35:46-7 My 11 '64

World's fair products. il Prog Arch 45:91-6 Jl '64

NEW YORK (state)

See also subdivision New York (state) under special subjects, e.g.

Air pollution
Architecture, Domestic
Atomic power plants
Electric lines
Electric utilities
Gas, Natural
Geology
Hydroelectric plants
Mines and mineral resources
Petroleum
Petroleum industry and trade
Public works
Sewerage
Water supply

NEW YORK state association of electrical contractors and dealers

Annual meeting, 65th, Lake George, July 16-18. Elec Constr & Maint 63:175 Ag '64

NEW YORK Times building

Leaving behind a steel skeleton; stripping the facade from Times Tower building in New York City. R. L. Moxey. il Comp Air Mag 69:4-10 Ap '64

Tall scaffold makes Tower demolition safe. il Eng N 172:24-5 Ap 30 '64

NEW ZEALAND

See also subdivision New Zealand under special subjects, e.g.

Aeronautic research
Chemical industries
Electricity supply
Gas, Natural
Hydroelectric plants
Mines and mineral resources
Petroleum

NEWARK, New Jersey

See also

Airports—Newark, New Jersey

NEWBURGH-BEACON bridge. See Hudson River bridges

NEWCASTLE disease

Nutrition and biochemistry of survival during Newcastle disease virus infection. R. L. Squibb. bibliog J Nutrition 81:48-54; 82:422-31 S '63. Ap '64

NEWFOUNDLAND

See also

Geology—Newfoundland

NEWPORT, England

Bridges

George Street bridge, Newport. il diag Engineer 217:683-4 Ap 17 '64

NEWSPAPER offices

New image for a newspaper office. il Ilum Eng 58:722 D '63

See also

New York Times building

Equipment

Coded conveyor system directs press plates. il Automation 10:68 N '63

NEWSPAPERS

Circulation systems

Optimal order to serve in certain servicing problems. O. Frank. diags Op Res 12:433-40 My '64

Make-up

How hot-metal pasteup speeds up newspaper ad makeup. A. Lawson. il Inland Ptr/Am Lithogr 153:76-7 Ap '64

Photography departments

Newspapers instant color. il Ind Phot 13:94 Ap '64

NEWSPRINT paper

Complete New York newsprint terminal. il Tappi 47:sup 119A F '64

Letterpress process of tomorrow: its paper requirements. W. E. Ward. 3d. Tappi 46:sup 166A-7A D '63

NEWTON, Ohio

Sewerage

Ohio's first privately owned, independently operated plant. il Water Works & Wastes Eng 1:101 Mr '64

NIACIN. See Nicotinic acid

NICHOLS medal

Cope awarded Nichols medal. Chem & Eng N 42:78 Mr 16 '64

NICKEL

Band-theoretic view of ferromagnetic nickel: abstract. H. Ehrenreich and H. R. Philipp. bibliog J Ap Phys 35:739 pt 2 Mr '64

Catalysis of the decarboxylation of dimethyloxaloacetate by manganese(II), nickel(II), and their complexes. J. V. Rund and R. A. Plane. bibliog Am Chem Soc J 86:367-71 F 5 '64

Catalysis over supported metals; kinetics of ethane hydrogenolysis over nickel surfaces of known area. D. J. C. Yates and others. bibliog Am Chem Soc J 86:2996-3001 Ag 5 '64

Diffusion of chromium in nickel. S. P. Murarka and others. bibliog J Ap Phys 35:1339-41 Ap '64

Effect of cold rolling on magnetization reversal of high-purity nickel tapes. A. A. Hirsch. J Ap Phys 35:909-10 pt 2 Mr '64

Effect of temperature and environment on the structure of thin single-crystal nickel films. E. I. Allessandrini. bibliog il diag J Ap Phys 35:1606-10 My '64

Electron field emission studies of the oxidation of nickel. J Metals 16:433 My '64

Fermi surface of nickel from galvanomagnetic measurements. W. A. Reed and E. Fawcett. bibliog diag J Ap Phys 35:754-9 pt 2 Mr '64

Hydrogen evolution and surface oxidation of nickel electrodes in alkaline solution. J. L. Weininger and M. W. Breiter. bibliog diag Electrochem Soc J 111:707-12 Je '64

Hydrogenation of linolenate; comparison of products formed with platinum and nickel catalysts. C. R. Scholfield and others. bibliog Am Oil Chem Soc J 41:615-19 S '64

Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64

Influence of nickel and molybdenum on the mechanical properties of cast Stellite cobalt base alloys. H. Griffiths and R. E. Phelps. il Metallurgia 69:203-5 My '64

Interaction of oxygen with (110) nickel. R. L. Park and H. E. Farnsworth. bibliog diags J Ap Phys 35:2220-6 Jl '64

Interactions between Ni and NiO. A. E. Berkowitz and J. H. Greiner. bibliog J Ap Phys 35:925-6 pt 2 Mr '64

Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

Kinetics of the anodic dissolution of nickel in sulfuric acid solutions. N. Sato and G. Okamoto. bibliog Electrochem Soc J 111:897-903 Ag '64

Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64

Mechanism for the autocatalytic reduction of nickel by hypophosphite ion. R. M. Lukes. bibliog Plating 51:969-71 O '64

Nickel, an historical review. F. B. Howard-White. Review. by W. R. Lewis. Chem & Ind p363-4 F 29 '64

Nickel and nickel alloys. bibliog il Materials in Design Eng 60:97-108 Jl '64 (reprints 35c)

Nickel and nickel alloys; electrical/electronic design parameters. J. L. Shaw and F. L. Perry. bibliog il Electro-Tech 73:101-9 My '64

Oxidation of nickel studies. W. J. Ambs. Franklin Inst J 277:91-2 Ja '64

Properties of materials; nickel and its alloys; wrought and cast; tables. Materials in Design Eng 60:164-9 Mid-O '64

Properties of nickel fume generated in a plasma jet. T. B. Selover, jr. bibliog diags A I Ch E J 10:79-82 Ja '64

Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

Static magnetization reversal in thin films of Co-Ni-P. G. Bate and others. J Ap Phys 35:972-3 pt 2 Mr '64

Studies of field emission and electrical breakdown between extended nickel surfaces in vacuum. I. Brodie. il diags J Ap Phys 35:2324-32 Ag '64

Surface combustion of hydrogen on oxidized nickel. D. Gidaspow and R. T. Ellington. A I Ch E J 10:714-16 S '64

NICKEL—*Continued*

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow recombination mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:858-63 Jl '64

Thermal diffusivity of nickel from 25° to 500°C. E. L. Foley and R. B. Sawyer. bibliog J Ap Phys 35:3053 O '64

Work hardening and dislocation arrangement of fcc single crystals; plastic deformation and slip line studies of nickel single crystals. S. Mader and others. bibliog il J Ap Phys 34:3368-75 N '63

Analysis

Determination of nickel in hydrogenated fats by neutron activation analysis. A. G. Souliotis. bibliog Anal Chem 36:1385-6 Je '64

Problems of direct determination of trace nickel in oil by X-ray emission spectrography. E. L. Gunn. bibliog Anal Chem 36:2086-90 O '64

Separation of traces of zinc with triisooctylamine and its spectrophotometric determination in electrolytic nickel. W. L. Ott and others. bibliog Anal Chem 36:363-4 F '64

Spectrophotometric determination of nickel with 4-*tert*-butyl-1,2-cyclohexanedionedioxime. M. M. Barling and C. V. Banks. bibliog Anal Chem 36:2359-60 N '64

Vanadium and nickel test accuracy improves. Oil & Gas J 62:177 Je 22 '64

Corrosion

Corrosion of gold-palladium, nickel and type 347 stainless steel in molten alkali carbonates. G. J. Janz and A. Conte. Corrosion 20:237-8 Jl '64

Effect of surface preparation on cracking and structure of chromium deposits. D. W. Hardesty. bibliog il diags Electrochem Soc J 111:912-19 Ag '64

Influence of pH on corrosion and passivation of nickel. D. E. Davies and W. Barker. bibliog diags Corrosion 20:47-53 F '64

Metallography

Effect of annealing on the microstructure and hardness of some nickel electrodeposits. R. Weil and others. bibliog il Electrochem Soc J 111:1046-52 S '64

Effect of some variations in prestrain treatment on the creep and fracture properties of pure nickel and a dilute nickel alloy. P. W. Davies and others. bibliog il Metallurgia 68:259-63 D '63

Effect of stress on the dihedral angle in leaded nickel. C. A. Stickels and E. E. Hucke. bibliog diag Inst Metals J 92:234-7 '63-64

Ghost grain boundaries as markers in nickel. W. L. Phillips, jr. il Inst Metals J 92:95 '63-64

Growth habits of electrodeposited nickel and cobalt. D. R. Cliffe and J. P. G. Farr. bibliog il Electrochem Soc J 111:299-306 Mr '64

High temperature service offered by new nickel-base alloys. J. C. Freche and W. J. Waters. bibliog il diag Foundry 92:44-7 Jl '64

Solute distribution near a grain boundary in a high-temperature nickel-base alloy. R. R. Dils and C. P. Sullivan. bibliog il Inst Metals J 92:186-7 '63-64

Substructure formation in aluminium, copper, and nickel during deformation at high temperatures and high strain rates. H. Ormerod and W. J. M. Tegart. il Inst Metals J 92:297-9 '63-64

Raney nickel

Adsorption of gases on Raney nickel. J. R. Huff and others. bibliog Ind & Eng Chem Proc Design 3:159-64 Ap '64

Modified preparation of Raney nickel catalysts. J. H. P. Tyman. bibliog Chem & Ind p404-5 Mr 7 '64

New methods of obtaining fuel cell electrodes; aluminum-nickel mixed powder hydrogen electrode. A. R. Despić and others. bibliog il Electrochem Soc J 111:1109-12 O '64

Raney nickel catalyst of improved stability and reactivity in the hydrogenation of triglycerides. H. V. Tümer and others. bibliog Am Oil Chem Soc J 41:212-14 Mr '64

Raney nickel desulphurisation of catechol thionocarbonate; a new synthesis of methylenedioxybenzene. M. H. Benn and J. May. Chem & Ind p499-500 Mr 21 '64

Testing

Comparison of the creep and fracture behaviour of pure nickel, nickel-0·1 at.-per cent gold, and nickel-0·1 at.-per cent silver alloys at 500 and 600°C. J. P. Dennison and B. Wilshire. bibliog Inst Metals J 92:360-3 '63-64

Welding

New high temperature superalloy is weldable. Materials in Design Eng 58:88 D '63

Process and design criteria for resistance welding René 41. D. T. Lovell and C. N. Anderson. il diags Welding J 43:sup307-19 Jl '64

Rene 41 can be welded. J. R. Ewell. il diags Am Mach/Metalworking Manuf 107:112-13 O 14 '63

René 62; a strong superalloy for welded structures. H. T. McHenry and others. il diags Metal Prog 84:86-90 D '63

Resistance welding of Inconel 718 nickel base alloy. W. D. Padian and R. P. Robelotto. il diags Welding J 43:sup49-56 F '64

Welds in René 62 resist cracking. il Iron Age 193:77 Ja 16 '64

NICKEL, Powdered

New methods of obtaining fuel cell electrodes; aluminum-nickel mixed powder hydrogen electrode. A. R. Despić and others. bibliog il Electrochem Soc J 111:1109-12 O '64

Nickel powder of low density now available for compacting. il Steel 154:115 Je 8 '64

Nickel strip has better electrical conductivity. Materials in Design Eng 59:97 Ja '64

NICKEL, Strip

Nickel strip has better electrical conductivity. Materials in Design Eng 59:97 Ja '64

NICKEL alloys

Beryllium nickel plungers. O. H. Samuelson. il Glass Ind 45:249-50 My '64

Brazing copper-nickel alloys. Welding Eng 49:74+ N '64

Comparison of the creep and fracture behaviour of pure nickel, nickel-0.1 at.-per cent gold, and nickel-0·1 at.-per cent silver alloys at 500 and 600°C. J. P. Dennison and B. Wilshire. bibliog Inst Metals J 92:360-3 '63-64

Compositional and thickness dependence of the ferromagnetic anisotropy in resistance of iron-nickel films. E. N. Mitchell and others. bibliog J Ap Phys 35:2604-8 S '64

Copper-nickel alloys for feed-water heater service. B. E. Hopkinson. bibliog il Corrosion 20:80-8; Discussion. 88 Mr '64

Corrosion of steels and nickel alloys in superheated steam. W. E. Ruther and S. Greenberg. bibliog il diag Electrochem Soc J 111:1116-21 O '64

Critical and passive current densities for copper-nickel-zinc alloys in sulfuric acid. N. D. Stolica and H. H. Uhlig. Electrochem Soc J 110:1215-18 D '63

Deposition of nickel-tungsten alloys; acid peroxide solutions. L. Domnikov. bibliog Metal Finishing 62:68-71 Ap '64

Deposition temperature and compositional dependence of negative anisotropy in nickel-iron films. G. P. Weiss and D. O. Smith. bibliog J Ap Phys 35:818-20 pt 2 Mr '64

Domain structure of narrow thin films of Ni-Fe. K. Kuwahara and others. J Ap Phys 35:820-1 pt 2 Mr '64

Effect of stress on the dihedral angle in leaded nickel. C. A. Stickels and E. E. Hucke. bibliog diag Inst Metals J 92:234-7 '63-64

Effect of vacuum annealing of oxide films on the oxidation of copper-nickel alloy. T. Yamashina and T. Nagamatsuya. Electrochem Soc J 111:249-52 F '64; Discussion. 111:1439-40 D '64

Elastic constants of a (73.8 per cent Ni-26.2 per cent Fe) ferromagnetic alloy. N. G. Einspruch and L. T. Claiborne. bibliog J Ap Phys 35:175 Ja '64

Electrodeposition of nickel-iron-phosphorus thin films for computer memory use. W. O. Freitag and others. Electrochem Soc J 111:35-9 Ja '64

Electrodeposition of nickel-molybdenum alloys; plating from concentrated ammonia solutions. L. Domnikov. bibliog Metal Finishing 62:57-60 Ag '64

Electron-bombardment evaporation source for nickel-iron alloys. J. C. Brice and U. Pick. bibliog diag J Sci Instr 41:633-5 O '64

NICKEL alloys—*Continued*

Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H. Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64

Heat treatment of René 41. J. T. Stacy. il Metal Prog 85:92-5 Mr '64

High temperature service offered by new nickel-base alloys. J. C. Freche and W. J. Waters. bibliog il diag Foundry 92:44-7 Jl '64

Induced magnetic anisotropy and ordering in Ni-Fe single crystals. M. Takahashi and others. bibliog J Ap Phys 35:869-70 pt 2 Mr '64

Inhomogeneity in the magnitude of the anisotropy field in thin nickel-iron films. H. N. Oredson and E. J. Torok. J Ap Phys 35:810-11 pt 2 Mr '64

Investigation of a new nickel alloy strengthened by dispersed thoria; abstract. C. R. Manning, jr. and others. Metal Prog 85: 182+ Je '64

Machining difficult materials; René 41. M. Field and others. Metal Prog 85:80-4 Je '64

Machining René 41 in the shop. J. R. Ewell. il Metal Prog 85:85-6 Je '64

Magnetic properties of an iron-nickel single crystal ordered by neutron bombardment. L. Néel and others. J Ap Phys 35:873-6 pt 2 Mr '64

Magnetic properties of Ni-Fe-Cr films. M. S. Cohen. J Ap Phys 35:834-5 pt 2 Mr '64

Magnetoresistance and Hall-voltage measurements on single-crystal Ni and Ni-Fe thin films. V. A. Marsocci. bibliog J Ap Phys 35:774-5 pt 2 Mr '64

Native nickel-iron alloy, its mode of occurrence, distribution and origin. J. S. R. Krishnarao. bibliog il Econ Geol 59:443-8 My '64

New heat treatments for Inconel X-750. H. L. Eiselstein and R. E. Crickmer. Metal Prog 84:116-17 N '63

New high temperature superalloy is weldable. Materials in Design Eng 58:88 D '63

New nickel alloy is age hardenable. Steel 153:62 N 11 '63

New superalloy sheets feature high-temperature strength. H. Greenewald, jr. and T. J. Riley. S A E J 71:56-8 D '63

Nickel and nickel alloys. bibliog il Materials in Design Eng 60:97-108 Jl '64 (reprints 35c)

Nickel and nickel alloys; electrcial/electronic design parameters. J. L. Shaw and F. L. Perry. bibliog il Electro-Tech 73:101-9 My '64

Nickel brazing cuts fabrication costs. il Welding J 43:302+ Ap '64

Nickel-cobalt-copper ternary alloy deposition from the pyrophosphate bath. M. Sarojamma and T. L. Rama Char. bibliog Chem & Ind p620-1 Ap 11 '64

Nickel-cobalt-iron ternary alloy deposition from the pyrophosphate bath. D. V. Subrahmanyam and T. L. Rama Char. Chem & Ind p2010-11 D 28 '63

Oxidation of 8ONi-2OCr alloys in carbon monoxide at high temperatures. K. Osthagen. bibliog Corrosion 20:252-5 Ag '64

Oxidation of Ni-2ThO$_2$ between 900° and 1400°C. F. S. Pettit and E. J. Felten. bibliog il Electrochem Soc J 111:135-9 F '64

Paramagnetic susceptibility, electrical resistivity, and lattice parameters of nickel-rich nickel-tantalum alloys. H. Chessin and others. bibliog J Ap Phys 35:2419-23 Ag '64

Preventing sigma phase embrittlement in nickel base superalloys. W. J. Boesch and J. S. Slaney. il Metal Prog 86:109-11 Jl '64

Process and design criteria for resistance welding René 41. D. T. Lovell and C. N. Anderson. il diags Welding J 43:sup307-19 Jl '64

Properties of materials; nickel and its alloys; wrought and cast; tables. Materials in Design Eng 60:164-9 Mid-O '64

Rene 41 can be welded. J. R. Ewell. il diags Am Mach/Metalworking Manuf 107:112-13 O 14 '63

René 62: a strong superalloy for welded structures. H. T. McHenry and others. il diags Metal Prog 84:86-90 D '63

Resistance welding of Inconel 718 nickel base alloy. W. D. Padian and R. P. Robelotto. il diags Welding J 43:sup49-56 F '64

Solute distribution near a grain boundary in a high-temperature nickel-base alloy. R. R. Dils and C. P. Sullivan. bibliog il Inst Metals J 92:186-7 '63-64

Some metallurgical factors influencing the thermal-fatigue resistance of wrought nickel-chromium-base high-temperature alloys. A. W. Franklin and others. bibliog il diag Inst Metals J 92:313-22 '63-64

Stress corrosion cracking susceptibility of stainless steels and nickel-base alloys in polythionic acids and acid copper sulfate solution. C. H. Samans. diags Corrosion 20:256-61; Discussion. 261-2 Ag '64

Stronger copper-nickel can cut costs. Materials in Design Eng 58:90 D '63

Structural and magnetic properties of sputtered NiFe films grown in a dc discharge environment. E. Kay. bibliog il J Ap Phys 35:2936-42 O '64

Structure of IN-100; abstract. S. T. Wlodek. Metal Prog 86:284+ O '64

Temperature dependence of domain wall creep in thin Ni-Fe magnetic film. M. E. Sweet. J Ap Phys 35:814-15 pt 2 Mr '64

Thermal conductivity, thermoelectric power and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

Tool life in Ni-Cr alloys. C. B. Haeberle. Am Mach 108:66-8 Jl 20 '64

Welding copper-nickel alloys. diag Welding Eng 49:60+ O '64

Welding nickel-iron alloys of the Invar type. C. E. Witherell. bibliog il Welding J 43:sup 161-9 Ap '64

Welding of 60 chromium-40 nickel alloy to low carbon and stainless steels. H. J. Lander and others. bibliog il diags Welding J 43:sup 198-201 My '64

Welds in René 62 resist cracking. il Iron Age 193:77 Ja 16 '64

Work hardening and dislocation arrangement of fcc single crystals: electron microscope transmission studies of Ni-Co single crystals and relation to work-hardening theory. S. Mader and others. bibliog il diag J Ap Phys 34:3376-86 N '63

See also

Iron alloys—Chromium nickel alloys
Iron alloys—Nickel alloys
Nickel steel

Testing

Creep-rupture behavior of Hastelloy-X in vacuum. M. J. Donachie, jr. and R. G. Shepheard. bibliog il diag Materials Res & Stand 4:495-8 S '64

Effect of some variations in prestrain treatment on the creep and fracture properties of pure nickel and a dilute nickel alloy. P. W. Davies and others. bibliog il Metallurgia 68:259-63 D '63

NICKEL bromide

Growth spirals on NiBr$_2$ platelets. E. N. Sickafus and D. R. Winder. il diag J Ap Phys 35:2541-5 Ag '64

NICKEL carbonyl

Determination of nickel and iron carbonyls in town gas. A. B. Densham and others. bibliog J Ap Chem 13:576-80 D '63

Volatile chelated-nickel dicarbonyl. A. B. Burg and G. B. Street. Am Chem Soc J 85: 3522 N 5 '63

NICKEL chromium molybdenum steel

Banding in a 1½ per cent nickel-chromium-molybdenum steel. T. B. Smith and others. bibliog il diags Iron & Steel Inst J 201: 602-9 Jl '63; Abstract. Metal Prog 85:180+ Mr '64

NICKEL chromium steel

Pitting of 18-8 stainless steel in ferric chloride inhibited by nitrates. H. H. Uhlig and J. R. Gilman. bibliog Corrosion 20:289-92 S '64

NICKEL compounds

Activity of gallium in NiGa and associated gallium-gallium oxide equilibria. A. U. Seybolt. bibliog diag Electrochem Soc J 111: 697-700 Je '64

Electrochemical behavior of nickel compounds. A. K. M. Shamsul Huq and others. bibliog Electrochem Soc J 111:270-86 Mr '64

Formation constants of nickel(II) and zinc(II) complexes of dithizone and related compounds. K. S. Math and others. bibliog Anal Chem 36:1762-7 Ag '64

Investigation on the occurrence of tetrahedral forms of substituted bis(N-alkylsalicylaldimino)nickel(II) complexes. L. Sacconi and others. bibliog Am Chem Soc J 86:819-23 Mr 5 '64

Isotropic proton magnetic resonance shifts in π-bonding ligands coordinated to paramagnetic nickel(II) and cobalt(II) acetylacetonates. W. D. Horrocks, jr. and others. bibliog Am Chem Soc J 86:3031-8 Ag 5 '64

Mn, Ni, Co, and UO$_2$ perchlorate complexes made. D. K. Straub and Y. M. Yung. Chem & Eng N 42:53-5 S 21 '64

NICKEL compounds—*Continued*

Molecular and electronic structure of the bis(maleonitriledithiolato)nickelate(II) ion. R. Eisenberg and others. bibliog Am Chem Soc J 86:113-15 Ja 5 '64

Neutron diffraction study of magnetic stacking faults in antiferromagnetic K_2NiF_4. R. Plumier. diags J Ap Phys 35:950-1 pt 2 Mr '64

Nickel(II) in a weak tetragonal field. S. L. Holt, jr. and others. bibliog Am Chem Soc J 86:519-20 F 5 '64

Ni(II) salts and lutidines give NiL_4X_2 complexes. S. Buffagni and others. Chem & Eng N 41:42+ D 2 '63

Nickeliferous serpentines, chlorites, and related minerals found in two lateritic ores. J. W. Montoya and G. S. Baur. bibliog Am Mineralogist 48:1227-38 N '63

Reactions of coordinated ligands; metal ion control in the synthesis of planar nickel(II) complexes of α-diketo-bis-mercaptoimines. M. C. Thompson and D. H. Busch. bibliog Am Chem Soc J 86:213-17 Ja 20 '64

Studies on nickel(II) complexes; a nuclear resonance investigation of mixed ligand complexes. A. Chakravorty and R. H. Holm. bibliog Am Chem Soc J 86:3999-4004 O 5 '64

Studies on nickel(II) complexes; a nuclear resonance study of conformational equilibria. R. H. Holm and others. bibliog Am Chem Soc J 86:379-87 F 5 '64

Study of nickel(II) and cobalt(II) phosphate complexes. G. G. Hammes and M. L. Morrell. bibliog Am Chem Soc J 86:1497-502 Ap 20 '64

Trace metals boost gasoline performance. W. F. Schoen and F. L. Voelz. il Chem & Eng N 42:40+ Ag 31 '64

X-ray powder diffraction patterns of nickel cyanide-ammonia complex, nickel cyanide-ammonia-benzene clathrate and nitrogen-quinol clathrate. V. M. Bhatnagar and J. A. R. Cloutier. bibliog il Chem & Ind p707-9 Ap 25 '64

NICKEL ferrates

Internal magnetoelastic coupling constant of nickel ferrite. N. Goldberg and W. McCann. bibliog diags J Ap Phys 35:1026-7 pt 2 Mr '64

Microwave properties of fine-grain nickel ferrite. J. J. Green and others. J Ap Phys 35:1006-7 pt 2 Mr '64

Origin of the induced magnetic anisotropy in nickel ferrite. F. J. Schnettler and E. M. Gyorgy. bibliog J Ap Phys 35:330-4 F '64

Square-loop properties of materials in the system $NiFe_2O_4$-Fe_3O_4-$MnFe_2O_4$. H. B. Im and D. G. Wickham. bibliog diag J Ap Phys 35:1442-5 My '64

Variation with temperature of the magnetocrystalline anisotropy of several nickel iron ferrites. F. W. Chapman and others. bibliog J Ap Phys 35:1063-4 pt 2 Mr '64

Spectra

Ferromagnetic resonance linewidths of nickel ferrite. A. J. Pointon and others bibliog diags Inst E E Proc 110:2267-70 D '63

NICKEL fluorides

Antiferromagnetic resonance in CoF_2, NiF_2, and $MnCO_3$. P. L. Richards. bibliog J Ap Phys 35:850-1 pt 2 Mr '64

NICKEL halides

Proton resonance study of the magnetic structure of antiferromagnetic $CoCl_2 \cdot 6H_2O$, $CoBr_2 \cdot 6H_2O$, $NiCl_2 \cdot 6H_2O$, and $NiBr_2 \cdot 6H_2O$. R. D. Spence and others. diags J Ap Phys 35:854-5 pt 2 Mr '64

NICKEL in the body

Chromium, lead, cadmium, nickel and titanium in mice; effect on mortality, tumors and tissue levels. H. A. Schroeder and others. bibliog J Nutrition 83:239-50 Jl '64

NICKEL industry and trade

Nickel consumption hits record high in 1963. il Chem & Eng N 42:19-21 Ja 6 '64

Nickel, 1963. G. C. Ware. Eng & Min J 165:102-3 F '64

Nickel, 1963. H. S. Wingate. il Min Cong J 50:117-18 F '64

Finland

Nickel refining in Finland. T. Toivanen and P. O. Grönqvist. bibliog flow sheets diags Can Min & Met Bul 57:653-8 Je '64

NICKEL metallurgy

Carving a career in hydrometallurgy; Sherritt Gordon. il Can Chem Process 48:55-6+ S '64

Nickel refining in Finland. T. Toivanen and P. O. Grönqvist. bibliog flow sheets diags Can Min & Met Bul 57:653-8 Je '64

Ore pebble regrind of sulphide concentrates in the Hardy concentrator, Falconbridge. S. McQuitty and L. S. Rivett. il diags Can Min & Met Bul 57:397-400 Ap '64

Production of nickel. E. Rich. il maps diag Chem & Ind p 1856-62 N 23 '63

NICKEL mines and mining

Ontario

Falconbridge mine; no. 9 internal shaft and facilities. V. I. McCallum. plans diags Can Min & Met Bul 57:615-25 Je '64

NICKEL nitrates

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

NICKEL ores

Exploration program for nickel in the southeastern United States. J. E. Worthington. bibliog map Econ Geol 59:97-109 Ja '64

Production of nickel. E. Rich. il maps diag Chem & Ind p 1856-62 N 23 '63

NICKEL oxides

Dissociation pressures of iron-nickel oxides. G. A. Roeder and W. W. Smeltzer. bibliog il diag Electrochem Soc J 111:1074-8 S '64

Fabrication and plastic behavior of single-crystal MgO-NiO and MgO-MnO solid-solution alloys. T. S. Liu and others. bibliog il Am Cer Soc J 47:276-9 Je '64

Interactions between Ni and NiO. A. E. Berkowitz and J. H. Greiner. bibliog J Ap Phys 35:925-6 pt 2 Mr '64

Phase equilibria in the system NiO-Al_2O_3-SiO_2. B. Phillips and others. bibliog Am Cer Soc J 46:579-83 D '63

Pressure-sintered nickel oxide. R. M. Spriggs and others. bibliog il diags Am Cer Soc Bul 43:572-7 Ag '64

Structure of nickel oxide containing alumina. E. Gillam and J. P. Holden. bibliog il Am Cer Soc J 46:601-4 D '63

Sublattice magnetization and lattice distortions in MnO and NiO. D. S. Rodbell and J. Owen. bibliog diag J Ap Phys 35:1002-3 pt 2 Mr '64

NICKEL plating

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Effect of annealing on the microstructure and hardness of some nickel electrodeposits. R. Weil and others. bibliog il Electrochem Soc J 111:1046-52 S '64

Electrodeposited coatings of multi-layer nickel plus chromium on steel. Plating 51:324-5 Ap '64

Faster nickel plating with sulfamate solutions. F. L. Siegrest. il Metal Prog 85:101-4+ Mr '64

Growth habits of electrodeposited nickel and cobalt. D. R. Cliffe and J. P. G. Farr. bibliog il Electrochem Soc J 111:299-306 Mr '64

New diffusion coatings protect superalloys. il Materials in Design Eng 59:124+ Ja '64

New nickel plating process for improved corrosion resistance. R. K. Barnett. il Metal Prog 85:87-90 Je '64

New plating processes show bright promise. il Materials in Design Eng 58:138+ D '63

Nickel platers trim costs with titanium baskets. il Metal Prog 86:118-19 Jl '64

Nickel-tungsten electroless deposition; preliminary report. F. Pearlstein and others. Metal Finishing 61:77 N '63

Plated surfaces get fast check. il Iron Age 194:64 Ag 20 '64

Platers put dirt to work. C. L. Kobrin. il Iron Age 193:77-9 F 13 '64

Plating teams up with rolling to clad nickel onto steel. J. E. Sandford. il Iron Age 193:63-5 My 28 '64

Producing colored coatings on various metals; black nickel plating electrolyte. J. A. McCarthy. Metal Finishing 62:50-60+ S '64

Satin nickel by co-deposition of finely dispersed solids; abstract. T. W. Tomaszewski and others. Metal Prog 86:182+ S '64

Uptake of sulfur from plating brighteners by copper and nickel. J. J. Hoekstra and D. Trivich. bibliog il Electrochem Soc J 111:162-8 F '64

Volumetric determination of hypophosphite in electroless nickel plating solutions. J. P. McCloskey. Plating 51:689-92 Jl '64

NICKEL plating—*Continued*

Specifications

Tentative specification for electrodeposited coatings of multi-layer nickel plus chromium on zinc and zinc-base alloys. Plating 51:44-5 Ja '64

Testing

Effect of some addition agents on stress in nickel deposits; abstract. S. A. Watson. Metal Prog 85:188+ Ap '64

Investigations into the corrosion resistance of decorative nickel and chromium electrodeposits; abstract. J. K. Dennis and T. E. Such. Metal Prog 85:177-8 F '64

NICKEL steel

Automatic welding of nine per cent nickel steel for low temperature service. J. J. Wright and W. B. Sharav. il diags Welding J 43:745-52 S '64

Cast maraging steel evaluated. J. B. Dabney and H. R. Larson. bibliog il diags J Metals 15:907-11 D '63; Abstract. Metal Prog 85:186+ Je '64

Cryogenic tests on nickel steel. il diag Engineer 218:138 Jl 24 '64

Evaluation of maraging steel sheet. D. L. Corn. bibliog il J Metals 16:814-20 O '64

Gas-shielded arc welding of 18 per cent nickel maraging steel. D. A. Corrigan. bibliog il diags Welding J 43:sup289-94 Jl '64

How maraging steel transforms. D. M. Cheney. il Metal Prog 85:92-3 My '64

Liquid methane's metal; nine per cent nickel steel. R. E. Petsinger. bibliog diags Gas 40:65-73 O '64

New maraging steel developed by Inco. il Iron Age 194:31 N 5 '64

Nickel-steel tank tests at minus 320. L. P. Zick and others. il diags Mech Eng 85:40-4 Jl '63; Discussion. 85:75-7 D '63

Nine per cent nickel steel used in French LNG project reviewed. Gas 40:166 O '64

Strength and toughness of maraging steels; abstract. S. Floreen and G. R. Speich. Metal Prog 86:268-9 O '64

Stress corrosion cracking of 18 per cent nickel maraging steel. L. R. Scharfstein. il Iron & Steel Inst J 202:158-9 F '64

Weld heat-affected zone of 18 per cent nickel maraging steel. W. A. Petersen. bibliog il Welding J 43:sup428-32 S '64

Welding 18 per cent Ni maraging steel by electron beam. M. L. Kohn and C. D. Schaper. il Metal Prog 85:93-4 My '64

Welding of 18 per cent Ni-Co-Mo maraging alloys. C. M. Adams, jr. and R. E. Travis. il diag Welding J 43:sup 193-7 My '64

Welding 3½ and 9 per cent nickel steels and 36 per cent nickel-iron alloy for cryogenic service. J. W. Flannery and C. E. Witherell. bibliog diags Materials Res & Stand 4:533-9 O '64

Working with maraging steels; welding. C. E. Witherell and others. il Metal Prog 84:81-3 Jl '63; Discussion. L. N. Hjelm. 84:130+ D '63

See also

Chromium nickel steel

NICKEL sulfides

Metastable solid solution relations in the system FeS_2-CoS_2-NiS_2. G. Springer and others. bibliog il diags Econ Geol 59:475-91 My '64

NICOTIANA. See Tobacco

NICOTINAMIDE

Oxygen-dependent ring opening of cyclobutanone catalysed by a model for a coenzyme. D. C. Dittmer and others. bibliog Chem & Ind p 152-3 Ja 25 '64

Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

NICOTINE

Biosynthesis of nicotine in nicotiana glutinosa from carbon-14 dioxide. W. L. Alworth and others. bibliog Am Chem Soc J 86:1608-16, 3375-81 Ap 20, Ag 20 '64

Tertiary amine oxide rearrangements; the mechanism of the demethylation of nicotine. J. C. Craig and others. bibliog Am Chem Soc J 86:3866-9 S 20 '64

NICOTINIC acid

Assessment of nicotinic acid status of population groups. D. J. deLange and C. P. Joubert. bibliog Am J Clinical Nutrition 15:169-74 S '64

Effect of freeze-drying on the thiamine, riboflavin, and niacin content of chicken muscle. D. M. Rowe and others. bibliog Food Tech 17:1449-50 N '63

Fatty livers produced in albino rats by excess niacin in high fat diets. L. L. Rikans and others. bibliog J Nutrition 82:83-7 Ja '64

Influence of nicotinic, picolinic and pyridine-3-sulfonic acids on cholesterol metabolism in the rat. D. Kritchevsky and S. A. Tepper. bibliog J Nutrition 82:157-61 Ja '64

Relationship between tryptophan—niacin metabolism and changes in nitrogen balance. V. M. Vivian. bibliog J Nutrition 82:395-400 Mr '64

Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

NIGERIA

See also

Architecture—Nigeria

Petroleum—Nigeria

NIGHT photography. See Photography, Night

NIMBIN. See Plants—Chemical composition

NINHYDRIN

Influence of disulfide cross-linkages on the reaction between ninhydrin and wool. P. Mellet. bibliog Textile Res J 34:644-5 Jl '64

Spectrophotometric determination of *p*-phenylenediamines and *p*-aminophenols with ninhydrin. R. Suffis and others. Anal Chem 36:636-7 Mr '64

Wool fibers treated with ninhydrin or formaldehyde; mechanical properties. M. Feughelman and I. C. Watt. diags Textile Res J 34:643-4 Jl '64

NIOBATES

High-temperature transitions in rare-earth niobates and tantalates. V. S. Stubičan. bibliog diags Am Cer Soc J 47:55-8 F '64

Rare-earth niobates and tantalates of defect fluorite- and weberite-type structures. H. P. Rooksby and E. A. D. White. Am Cer Soc J 47:94-6 F '64

Self-activated luminescence of M^{2+} niobates and tantalates. A. Wachtel. bibliog Electrochem Soc J 111:534-8 My '64

Study of the calcium molybdate-rare earth niobate systems. L. H. Brixner. bibliog il diag Electrochem Soc J 111:690-7 Je '64

See also

Lead niobates

NIOBIUM

Chlorination of ores and concentrates as applied to extracting tantalum, columbium, and tungsten. A. W. Henderson. bibliog diags J Metals 16:155-60 F '64

Columbium and tantalum minerals, 1963. R. B. Brackin. Eng & Min J 165:120-1 F '64

Critical temperature of niobium and tantalum films. J. R. Rairden and C. A. Neugebauer. bibliog diags IEEE Proc 52:1234-8 O '64

Determination of the density of Ta, Nb, and anodically formed Ta_2O_5 and Nb_2O_5. A. J. Schrijner and A. Middlehoek. bibliog diag Electrochem Soc J 111:1167-9 O '64

Development of alloys for brazing columbium. C. W. Fox and others. bibliog il diag Welding J 42:sup535-40 D '63

Electrical conductivity of niobium-doped barium titanate. F. Brown and C. E. Taylor. J Ap Phys 35:2554-6 Ag '64

High-temperature phase equilibrium and superconductivity in the system niobium-tin. L. J. Vieland. bibliog il RCA R 25:366-78 S '64

New technique of niobium film production. Franklin Inst J 277:375-6 Ap '64

Niobium films from one-millionth inch thick. il Engineering 197:422 Mr 20 '64

Photogalvanic effects with anodized zirconium and niobium electrodes. R. E. Salomon and others. bibliog Electrochem Soc J 110:1163-5 N '63

Procedure for stripping anodic oxide films from tantalum and niobium. R. E. Pawel. R Sci Instr 35:1066-7 Ag '64

Properties of materials: columbium and its alloys; wrought; tables. Materials in Design Eng 60:138-9 Mid-O '64

Properties of superconducting niobium films made by asymmetric ac sputtering. R. Frerichs and C. J. Kircher. bibliog diag J Ap Phys 34:3541-3 D '63

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Study of the thermal oxidation of tantalum and niobium by means of electron-diffraction and capacity measurements. J. Harvey and P. H. G. Draper. bibliog il Inst Metals J 92:136-40 '63-64

Submicron sectioning technique for analyzing diffusion specimens of tantalum and niobium. R. E. Pawel and T. S. Lundy. bibliog J Ap Phys 35:435-8 F '64

Superconducting niobium films by vacuum deposition. P. Fowler. bibliog diags J Ap Phys 34:3538-40 D '63

NIOBIUM—*Continued*

Vapor-deposited superconductive films of Nb, Ta, and V. C. A. Neugebauer and R. A. Ekvall. bibliog il diag J Ap Phys 35:547-53 Mr '64

See also

Steel—Niobium content

Analysis

Determination of hydrogen in niobium. R. J. Walter and H. G. Offner. diag Anal Chem 36:1779-81 Ag '64

Determination of niobium in mild steels. N. Jenkins. bibliog Metallurgia 70:95-8 Ag '64

Evaluation of some analytical procedures for niobium-base alloys. J. P. McKaveney. bibliog Anal Chem 35:2139-44 D '63

Intensity ratio technique for X-ray spectrometric analysis of binary samples. E. P. Bertin. bibliog Anal Chem 36:826-32 Ap '64

Simultaneous determination of niobium and tantalum by neutron activation using niobium-94*m* and tantalum-182*m* and rapid radiochemical separations. C. K. Kim and W. W. Meinke. bibliog Anal Chem 35:2135-8 D '63

Metallography

Glide systems in niobium single crystals in the range 1400-2300°C. B. Harris. bibliog il diags Inst Metals J 92:89-92 '63-64

Microstraining in polycrystalline niobium. T. J. Koppenaal and P. R. V. Evans. bibliog il Inst Metals J 92:238-41 '63-64

New feature in the metallographic etching of niobium. R. S. Eary and R. D. Johnston. bibliog il diags Metallurgia 69:43-9 Ja '64

Protection

New coating system protects columbium at high temperature. diag Steel 154:128 Mr 16 '64

Welding

Welding characteristics of commercial columbium alloys. J. M. Gerken and J. M. Faulkner. bibliog il Welding J 42:sup 84-96 F '63; Abstract. Metal Prog 85:161A+ My '64

Welding evaluation of experimental columbium alloys. G. G. Lessmann. bibliog il diag Welding J 43:sup 103-15 Mr '64

NIOBIUM alloys

Alternating current power losses in superconducting Nb-Zr alloys. W. R. Wisseman and others. bibliog diag J Ap Phys 35:2649-55 S '64

Autoradiographic location of precipitated hydride in a Zr-two per cent Nb alloy. W. H. Erickson and D. Hardie. il Inst Metals J 92:191-2 '63-64

Brazing of columbium D36 honeycomb structures. A. H. Freedman and E. B. Mikus. bibliog il diag Welding J 43:sup385-92 S '64

Evaluation of some analytical procedures for niobium-base alloys. J. P. McKaveney. bibliog Anal Chem 35:2139-44 D '63

Flux jumping in Nb+25 per cent Zr wire. M. S. Lubbell and others. bibliog J Ap Phys 35:956-8 pt 2 Mr '64

How irradiation at 1,100-1,800°F effects niobium-uranium alloys. J. A. De Mastry and others. il Nucleonics 21:86+ O '63

Magnetization of superconducting niobium-zirconium alloys. J. P. McEvoy, jr. and R. F. Decell. J Ap Phys 35:982-3 pt 2 Mr '64

Properties of materials; columbium and its alloys: wrought; tables. Materials in Design Eng 60:138-9 Mid-O '64

Room-temperature resistivity of Mo-Nb and Mo-Re alloys containing one percent iron. M. P. Sarachik. J Ap Phys 35:1094-5 pt 2 Mr '64

Superconducting properties of the $(Nb,Ta,V)_3Sn$ system. G. D. Cody and others. diags RCA R 25:338-41 S '64

Supercooled magnet yields repeatable 100 kilogauss. W. T. Reynolds. Electronics 37:47 F 28 '64

Welding characteristics of commercial columbium alloys. J. M. Gerken and J. M. Faulkner. bibliog il Welding J 42:sup 84-96 F '63; Abstract. Metal Prog 85:161A+ My '64

Welding evaluation of experimental columbium alloys. G. G. Lessmann. bibliog il diag Welding J 43:sup 103-15 Mr '64

NIOBIUM chlorides

Kinetics of the reaction of niobium pentachloride with water vapor. T. R. Ingraham and B. J. P. Whalley. bibliog diags Can J Chem Eng 41:265-8 D '63

NIOBIUM compounds

σ-bonded alkyl compounds of niobium and tantalum: trimethyldichloroniobium and trimethyldichlorotantalum. G. L. Juvinall. Am Chem Soc J 86:4202-3 O 5 '64

Oxidation kinetics of $ZrBe_{13}$ and $NbBe_{12}$. G. Ervin, jr. and M. M. Nakata. bibliog il diags Electrochem Soc J 110:1103-10 N '63

Superconducting thin films of niobium, tantalum, tantalum nitride, tantalum carbide, and niobium nitride. D. Gerstenberg and P. M. Hall. bibliog diag Electrochem Soc J 111:936-42 Ag '64

NIOBIUM oxides

Determination of the density of Ta, Nb, and anodically formed Ta_2O_5 and Nb_2O_5. A. J. Schrijner and A. Middlehoek. bibliog diag Electrochem Soc J 111:1167 O '64

Dielectric properties and phases of some Ga_2O_3-Nb_2O_5 ceramic compositions. F. A. Philgreen. Am Cer Soc J 47:49-50 Ja '64

Electron microscope observations of the crystallization of anodically formed tantalum and niobium oxide films. R. E. Pawel and J. J. Campbell. bibliog il Electrochem Soc J 111:1230-4 N '64

Further properties and a suggested model for niobium oxide negative resistance. W. R. Beam and A. L. Armstrong. diag IEEE Proc 52:300-1 Mr '64

NIOBIUM stannide

Superconducting niobium stannide; special report. bibliog il diags RCA R 25:333-612 S '64

NIRENBERG, Marshall W.

Pfizer Paul-Lewis award in enzyme chemistry. por Chem & Eng N 42:78 F 24 '64

NITRAMINES

Acid-catalyzed nitramine rearrangement; the products of rearrangement of N-nitro-N-methylaniline. W. N. White and others. bibliog Am Chem Soc J 86:1517-20 Ap 20 '64

NITRATES

Adsorption of the elements on inorganic ion exchangers from nitrate media. W. J. Maeck and others. Anal Chem 35:2086-90 D '63

Determination of nitrogen in inorganic nitrates by the Dumas method. D. F. Ketchum. Anal Chem 36:957-8 Ap '64

Direct current measurement of fused salt conductivity; molten nitrates. L. A. King and others. bibliog diags Electrochem Soc J 111:712-16 Je '64

Electron exchange kinetics of the NO_3 free radical in solution. T. W. Martin and others. bibliog diags Am Chem Soc J 86:2595-600 Jl 5 '64

Molar volumes of mixed nitrate melts. A. A. K. Al-Mahdi. J Ap Chem 14:269-70 Jl '64

Pitting of 18-8 stainless steel in ferric chloride inhibited by nitrates. H. H. Uhlig and J. R. Gilman. bibliog Corrosion 20:289-92 S '64

Reaction of acetyl nitrate with alcohol derivatives of fatty acids; a synthesis of nitrate esters. D. C. Malins and others. bibliog Am Oil Chem Soc J 41:44-6 Ja '64

Relation of ascorbic acid to nitrate content of turnip greens and to methemoglobin formation. L. Kilgore and others. bibliog Am J Clinical Nutrition 14:52-5 Ja '64

Solid nitrates may contain metal-to-oxygen bond; abstract. J. Ferraro. Chem & Eng N 41:41 N 25 '63

Study of the nitrate ion dissociation in fused nitrates. R. N. Kust and F. R. Duke. Am Chem Soc J 85:3338-40 N 5 '63

Thorium interaction with the silanol group, water, and nitrate in the pores of silica gel. J. Stanton and R. W. Maatman. bibliog J Colloid Sci 18:878-85 D '63

See also

Aluminum nitrate
Ammonium nitrate
Barium nitrate
Cadmium nitrate
Copper nitrates
Lithium nitrate
Nickel nitrates
Potassium nitrate
Silver nitrate
Sodium nitrate
Uranyl nitrate
Water supply—Nitrate content

Analysis

Absorptivities for infrared determination of peroxyacyl nitrates. E. R. Stephens. Anal Chem 36:928-9 Ap '64

Analysis of alcohols, hydroxy esters, glycerides, and glyceryl ethers as nitrates by thin layer chromatography and infrared spectrometry. D. C. Malins and others. bibliog Anal Chem 36:658-61 Mr '64

Determination of nitrate nitrogen in bovine blood, milk, urine, and rumen liquor. T. Greweling and others. J Agri & Food Chem 12:139-40 Mr '64

NITRATES—Analysis—*Continued*

Determination of nitrate or nitrate plus nitrite with 1-aminopyrene; application to air pollution. E. Sawicki and others. bibliog Anal Chem 35:1934-6 N '63

Separation and analysis of alkylpolynitrates by gas chromatography. E. Camera and D. Pravisani. bibliog Anal Chem 36:2108-9 O '64

Spectrophotometric determination of nitrate with 4-methylumbelliferone. J. J. Skujins. Anal Chem 36:240-1 Ja '64

Spectrophotometric microdetermination of nitrate with chromotropic acid reagent. J. J. Batten. Anal Chem 36:939-40 Ap '64

NITRATION

Aromatic substitution; intact and dealkylating nitration of propylated and butylated alkylbenzenes with nitronium tetrafluoroborate. G. A. Olah and S. J. Kuhn. bibliog Am Chem Soc J 86:1067-70 Mr 20 '64

Effect of co-ordination on the rate of nitration of *o*-phenanthroline. A. F. Richards and others. Chem & Ind p 1727 O 26 '63

Kinetics of aromatic nitration. R. C. Miller and others. bibliog diags Ind & Eng Chem 56:43-53 Je '64

Kinetics of nitration of pyridine 1-oxide and isoquinoline 2-oxide. R. B. Moodie and others. Chem & Ind p 1577 S 12 '64

New design; continuous seven-stage nitration for TNT; process flowsheet. H. C. Prime. il Chem Eng 71:126-8 Mr 16 '64

See also

Denitration

NITRENES

Carbethoxynitrene; selectivity of the C-H insertion. W. Lwowski and T. J. Maricich. Am Chem Soc J 86:3164-5 Ag 5 '64

Electron spin resonance of alkyl nitrenes. E. Wasserman and others. Am Chem Soc J 86:3166-7 Ag 5 '64

Nitrene insertion into a C-H bond at an asymmetric carbon atom with retention of optical activity; thermally generated nitrenes. G. Smolinsky and B. I. Feuer. bibliog Am Chem Soc J 86:3085-8 Ag 5 '64

NITRIC acid

Anion exchange characteristics of elements in nitric acid medium. J. P. Faris and R. F. Buchanan. bibliog Anal Chem 36:1157-8 My '64

Anion exchange study of a number of elements in nitric-hydrofluoric acid mixtures. E. A. Huff. bibliog diags Anal Chem 36:1921-3 S '64

Chemical etching of germanium in solutions of HF, HNO_3, H_2O, and $HC_2H_3O_2$. B. Schwartz and H. Robbins. bibliog Electrochem Soc J 111:196-201 F '64

Corrosion resistance of type 329 stainless steel in nitric acid containing chloride ion. I. I. Tingley. il diag Corrosion 19:408-13 D '63

Distribution of nitric acid between tri-n-butyl phosphate and water. P. E. Burns and C. Hanson. bibliog J Ap Chem 14:117-21 Mr '64

Etching of gallium arsenide with nitric acid. D. F. Kyser and M. F. Millea. il Electrochem Soc J 111:1102-4 S '64

Extraction of thorium from nitric acid solutions by some cyclohexyl- and benzyl-alkylamines. T. Sato. bibliog J Ap Chem 14:41-6 Ja '64

Extraction of uranium(VI) from nitric acid solutions by some cyclohexyl- and benzyl-alkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Formation of nitric acid mists. G. G. Goyer. bibliog J Colloid Sci 18:616-24 S '63

Hydrogen bonding in gaseous mixtures; nitric acid ether systems. D. J. Millen and O. A. Samsonov. Chem & Ind p 1694-5 O 19 '63

Molybdenum species in acid solution. I. L. Jenkins and A. G. Wain. bibliog J Ap Chem 13:561-4 D '63

Analysis

Determination of water in red fuming nitric acid by Karl Fischer titration. E. A. Burns and R. F. Muraca. bibliog il Anal Chem 35:1967-70 N '63

Potentiometric titration of free acid and uranium in uranium(VI) solutions with alkali. K. Motojima and K. Izawa. bibliog Anal Chem 36:733-5 Ap '64

Manufacture

Ammonium nitrate and nitric acid; the Chemical & Industrial corp. diag Hydrocarbon Process & Pet Refiner 42:150 N '63

Concentrated nitric acid. H. G. Graham, jr. and others. bibliog flow sheets il Chem Eng Prog 60:77-84 Jl '64

Nitric acid; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:205 N '63

Nitric acid production by Kuhlmann process. E. P. Bahari. flow sheets il diags Ind Chem 40:233-9 My '64

Nitric acid; smart engineering boosts the yield. B. E. Barnes. flow sheet il Chem Eng 71:38-40 Mr 30 '64

Nitrogen fertilizer plant integrates Dutch and American know-how; process flowsheet. P. Ellwood. Chem Eng 71:136-8 My 11 '64

NITRIDES

Dispersion strengthening of chromium; abstract. N. E. Ryan and C. S. Landau. Metal Prog 85:164+ My '64

Effect of nitride-formers upon the ductile-brittle transition in chromium. F. Henderson and others. bibliog il Inst Metals J 92:111-17 '63-64

Enriched steels show new pep. C. L. Kobrin. Iron Age 193:54-6 Ja 9 '64

Nitride additions lift steel strength. Steel 154:58+ F 17 '64

See also

Rare earth nitrides
Titanium nitride
Uranium nitrides

NITRIDING process. See Case hardening—Nitriding process

NITRIFICATION

Nitrification of triazine nitrogen. R. D. Hauck and H. F. Stephenson. bibliog J Agri & Food Chem 12:147-51 Mr '64

NITRILE rubber. See Rubber, Artificial

NITRILES

Action of elementary fluorine upon organic compounds; the direct fluorination of perhalonitriles. B. C. Bishop and others. Am Chem Soc J 86:1827-30 My 5 '64

Aromatic nitriles by ammoxidation. S. Sakuyama and others. il diag Chem Eng Prog 60:48-9 S '64

Novel example of participation by an *N*-oxide group in nitrile hydrolysis. G. Tennant. Chem & Ind p 1622 S 19 '64

π-system properties of pyromellitonitrile. A. Zweig and others. bibliog Am Chem Soc J 85:3937-9 D 20 '63

Preparation of nitriles from α-chloroethers and sodium cyanide in dipolar aprotic media. P. A. Argabright and D. W. Hall. bibliog Chem & Ind p 1365 Jl 25 '64

Selective reductions; the partial reduction of nitriles with lithium triethoxyaluminohydride; a convenient aldehyde synthesis. H. C. Brown and C. P. Garg. bibliog Am Chem Soc J 86:1085-9 Mr 20 '64

See also

Acetonitrile
Acrylonitrile
Malonitrile

Analysis

Use of differential reaction rates to analyze mixtures of organic materials containing the same functional group; application to amides and nitriles. S. Siggia and others. Anal Chem 36:227-8 Ja '64

NITRITES

Radical exchange during nitrite photolysis. M. Akhtar and others. Am Chem Soc J 86:3394-5 Ag 20 '64

Rates of substitution reactions of square-planar platinum(II) complexes; the reaction of *trans*-dichloro-bis-(triethylphosphine)-platinum(II) with radiochloride and nitrite ions. U. Belluco and others. bibliog Am Chem Soc J 86:226-9 Ja 20 '64

Reaction of carotene with nitrite solutions. D. L. Pugh and G. B. Garner. bibliog J Agri & Food Chem 11:528-9 N '63

See also

Sodium nitrite

Analysis

Determination of nitrate or nitrate plus nitrite with 1-aminopyrene; application to air pollution. E. Sawicki and others. bibliog Anal Chem 35:1934-6 N '63

Determining nitrite in sausage. M. Z. Barakat and I. Sadek. bibliog Food Tech 18:242-4 F '64

Diazotization method for nitrate and nitrite. M. J. Fishman and others. bibliog Am Water Works Assn J 56:633-8 My '64

Polarographic determination of nitrite as 4-nitroso-2,6-xylenol. A. M. Hartley and R. M. Bly. bibliog Anal Chem 35:2094-100 D '63

Sensitive new methods for autocatalytic spectrophotometric determination of nitrite through free-radical chromogens. E. Sawicki and others. bibliog Anal Chem 35:2183-91 D '63

NITROALKANES. See Nitroparaffins

NITROANILINE

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

NITROBENZALDEHYDE

Stereochemical assignments for β-ketols formed by aldol addition of three simple ketones to *p*-nitrobenzaldehyde. M. Stiles and others. bibliog diags Am Chem Soc J 86:3337-42 Ag 20 '64

NITROBENZENE

Association of tetrabutylammonium bromide in methanol-nitrobenzene mixtures. R. L. Kay and D. F. Evans. bibliog Am Chem Soc J 86:2748-9 Jl 5 '64

Molecular structure of the methyl ester of *o*-nitrobenzenesulfenic acid. W. C. Hamilton and S. J. LaPlaca. bibliog Am Chem Soc J 86:2289-90 Je 5 '64

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

NITROBENZENE sulfonates

Cationic cyclizations involving olefinic bonds; solvolysis of *cis*-5,9-decadienyl *p*-nitrobenzenesulfonate. W. S. Johnson and J. K. Crandall. Am Chem Soc J 86:2085-6 My 20 '64

Cationic cyclizations involving olefinic bonds; solvolysis of 5-hexenyl and *trans*-5,9-decadienyl *p*-nitrobenzenesulfonates. W. S. Johnson and others. bibliog Am Chem Soc J 86:1959-66 My 20 '64

NITROBENZOATES

Determination of trace quantities of alcohols by ultraviolet spectrophotometry of alkyl nitrobenzoates. M. W. Scoggins. Anal Chem 36:1152-4 My '64

Nature of ion-pair intermediates involved in the solvolysis of *p*-chlorobenzhydryl *p*-nitrobenzoate. H. L. Goering and J. F. Levy. Am Chem Soc J 86:120-1 Ja 5 '64

Preparation and decomposition of *p*-nitrobenzoic-t-butylcarbonic anhydride. C. J. Michejda and D. S. Tarbell. Chem & Ind p369-70 F 29 '64

Rates of solvolysis of the *p*-nitrobenzoates of *exo-endo* tertiary norborneols; a critical examination of the *exo-endo* rate ratio as a basis for the postulated nonclassical structure of the norbornyl cation. H. C. Brown and others. bibliog diags Am Chem Soc J 86:1248-50 Mr 20 '64

Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64

NITROBENZYL compounds

Chemical microscopy of the platinum metals; reactions with 4-bromoisoquinoline and 4-(*p*-nitrobenzyl) pyridine. H. F. Schaeffer. il Anal Chem 36:169-72 Ja '64

Mechanisms of α-elimination; nitrobenzylsulfonium, -ammonium, and -phosphonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. Am Chem Soc J 86:3296-301 Ag 20 '64

NITROCELLULOSE

Properties of materials; cellulose nitrate and ethyl cellulose; molded, extruded; tables. Materials in Design Eng 60:216 Mid-O '64

NITRO compounds

Charge-transfer complexes in solution; spectrophotometric studies of aromatic hydrocarbon-aromatic nitro compounds dissolved in carbon tetrachloride. N. B. Jurinski and P. A. D. de Maine. bibliog Am Chem Soc J 86:3217-22 Ag 20 '64

Electron spin resonance studies of aromatic polynitro compounds. I. Bernal and G. K. Fraenkel. bibliog diags Am Chem Soc J 86:1671-5 My 5 '64

Identification of nitro-olefins in the combustion products of hydrocarbons. K. F. Lampe and W. B. Deichmann. bibliog diag Ind Med 33:281-3 My '64

International symposium on nitro compounds, Warsaw, Sept. 18-20. Chem & Ind p 1741-8 N 2 '63

Nitrogen-14 nuclear magnetic resonance in nitro compounds. M. Witanowski and others. bibliog Am Chem Soc J 86:2569-70 Jl 5 '64

Reactions of organoalkali compounds with nitro compounds; a new synthesis of nitroxides. A. K. Hoffman and others. bibliog Am Chem Soc J 86:646-50 F 20 '64

Reduction of nitroaromatic compounds with sodium borohydride. L. A. Kaplan. bibliog Am Chem Soc J 86:740-1 F 20 '64

Relationship between chemical structure and fastness to light and gas fumes of nitrodiphenylamine dyes. R. S. Asquith and B. Campbell. bibliog Soc Dyers & Col J 79:678-85; Discussion. 685-6 D '63

Synthesis and characterization of nitronic esters. N. Kornblum and R. A. Brown. bibliog Am Chem Soc J 86:2681-7 Jl 5 '64

Tunneling in a proton transfer; a large isotope effect. L. Funderburk and E. S. Lewis. Am Chem Soc J 86:2531-2 Je 20 '64

NITROFURAZONE

Analysis

Determination of trace amounts of nitrofurazone in milk. L. R. Stone. bibliog J Agri & Food Chem 12:121-3 Mr '64

NITROGEN

Adsorption of nitrogen-methane on molecular sieves. P. B. Lederman and B. Williams. bibliog flow diag diag A I Ch E J 10:30-4 Ja '64

Ammoniation of triple superphosphate fertilizers with gaseous ammonia and with nitrogen solutions. R. F. Nunn and others. bibliog diag J Agri & Food Chem 12:351-7 Jl '64

Biosynthesis of anabasine; origin of the nitrogen of the piperidine ring. E. Leete and others. bibliog Am Chem Soc J 86:3907-8 S 20 '64

Comparative study of outgassing charcoals in vacuum and in a stream of nitrogen. B. R. Puri and K. M. Bedi. bibliog Chem & Ind p 1899-900 N 30 '63

Compressibility of ammonia and its mixtures with nitrogen and hydrogen. I. M. Lichtblau and others. bibliog diag A I Ch E J 10:486-90 Jl '64

Condensation studies in hotshot tunnels. B. J. Griffith and others. AIAA J 2:1645-7 S '64

Dual-flow plasma torch. J. A. Browning. il diags Welding J 43:275-9 Ap '64

Effect of argon addition on shock-layer radiance of CO_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64

Effects of nitrogen and manganese on the deformation substructure of iron strained at 20°, 225°, and 450 C. J. D. Baird and C. R. MacKenzie. bibliog il Iron & Steel Inst J 202:427-36 My '64

Effects of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64

Experimental determination of the drift velocity of low-energy electrons in Ar, N_2,CO_2, several Ar-N_2 mixtures, and several Ar-CO_2 mixtures. N. E. Levine and M. A. Uman. bibliog diags J Ap Phys 35:2618-24 S '64

Fast nitrogen light source. L. Mancebo. il diags R Sci Instr 35:968-70 Ag '64

Field and laboratory results of carbon dioxide and nitrogen in well stimulation. G. H. Neill and others. bibliog diags J Pet Tech 16:244-8 Mr '64

Gas phase reactions between carbon tetrachloride and mass analyzed ions of nitrogen between three and 200 e.v. E. R. Weiner and others. bibliog diags Am Chem Soc J 86:788-93 Mr 5 '64

Hydrates at high pressures; application of statistical mechanics to the study of the hydrates of methane, argon, and nitrogen. S. Saito and others. bibliog A I Ch E J 10:734-40 S '64

Hydrates at high pressures; methane-water, argon-water, and nitrogen-water systems. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5 Mr '64

Intermolecular-force effects on the thermodynamic properties of nitrogen. C. E. Smith, jr. bibliog AIAA J 2:183-5 Ja '64

Isomeric pyridinecarboxylates as bridging groups in oxidation-reduction reactions; electron transfer through nitrogen. E. S. Gould and H. Taube. Am Chem Soc J 85:3706-7 N 20 '63

Joule-Thomson effects for nitrogen-ethane mixtures. A. L. Stockett and L. A. Wenzel. bibliog diags A I Ch E J 10:557-61 Jl '64

Metals burning nitrogen; atmosphere of the planet Mars should be considered for propulsion purposes. J. Q. Weber and K. H. Mueller. Chem Eng Prog 60:40-1 F '64

NITROGEN—*Continued*

Mollier chart for nitrogen. G. S. Lin. il Chem Eng Prog 59:70-1 N '63

Molten zirconium reacts with N_2 in air. L. S. Nelson. il Chem & Eng N 42:45-6 S 14 '64

Nitrogen addition speeds carburizing. il Steel 154:54-5 Je 29 '64

Novel reduction of an allylic carbon-nitrogen bond. G. B. Butler and G. L. Statton. bibliog Am Chem Soc J 86:518 F 5 '64

Novel six-membered aluminum-nitrogen heterocycles *via* metalative cyclization. J. J. Eisch and M. E. Healy. bibliog Am Chem Soc J 86:4221-2 O 5 '64

O-2 transition of CO in condensed oxygen, nitrogen, and argon. S. Abramowitz and H. P. Broida. bibliog J Res Nat Bud Stand 68A:331-3 My '64

Paschen curve in nitrogen. H. C. Miller. bibliog diag J Ap Phys 34:3418 N '63

Phase relations in the system uranium-nitrogen. J. Bugl and A. A. Bauer. bibliog il diags Am Cer Soc J 47:425-9 S '64

Pine growth aided by nitrogen in North Carolina experiments. Paper Ind 46:498 S '64

Quantitative determination of parts-per-million quantities of nitrogen dioxide in nitrogen and oxygen by electron-capture detection in gas chromatography. M. E. Morrison and others. Anal Chem 36:2256-9 N '64

Reactions of active nitrogen with organic substrates; molecular origins of products of reaction with propene. Y. Shinozaki and others. bibliog diag Am Chem Soc J 86:341-4 F 5 '64

Small-angle X-ray scattering study of critical opalescence in nitrogen. J. E. Thomas and P. W. Schmidt. bibliog Am Chem Soc J 86:3554-6 S 5 '64

Surface area of nonporous carbon blacks and area of the adsorbed nitrogen molecule. A. Voet. bibliog Rubber Chem & Tech 37:630-4 Jl '64

Thermodynamic properties for imperfect air and nitrogen to 15,000°K. C. H. Lewis and C. A. Neel. bibliog AIAA J 2:1847-9 O '64

Virial coefficients for argon, methane, nitrogen, and xenon. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:621-5 S '64

Visible laser transitions in ionized oxygen, nitrogen, and carbon monoxide. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

See also
Sewage—Nitrogen content
Steel—Nitrogen content

Analysis

Automatic Dumas nitrogen analyses of lubricating oils and additives. L. L. Farley and others. Anal Chem 36:1061-3 My '64

Characterization and routine determination of nonbasic nitrogen types in cracked gas oils by linear elution adsorption chromatography. L. R. Snyder and B. E. Buell. bibliog Anal Chem 36:767-73 Ap '64

Critical evaluation of a platinum-bath, vacuum-fusion procedure for the determination of oxygen and nitrogen in steels. V. A. Fassel and others. bibliog Anal Chem 36:2115-20 O '64

Determination of ammonium, amide, amino, and nitrate nitrogen in plant extracts by a modified Kjeldahl method. A. V. Barker and R. J. Volk. Anal Chem 36:439-41 F '64

Determination of nitrogen in inorganic nitrates by the Dumas method. D. F. Ketchum. Anal Chem 36:957-8 Ap '64

Determination of nitrogen in silicon by solid source mass spectrometry. P. R. Kennicott. il Electrochem Soc J 111:1101-2 S '64

Rapid semi-micro Kjeldahl method for nitrogen in petroleum and its products. W. R. Battles and others. bibliog il diags Inst Pet J 49:340-4 N '63

Spectrophotometric determination of nitrogen in total micro-Kjeldahl digests. L. T. Mann, jr. bibliog Anal Chem 35:2179-82 D '63

Industrial applications

In-process gases aid quality. J. V. Ziemba. il Food Eng 36:61-3 Ja; 75-7 F '64

Nitrogen finds big market in the process industries. H. S. Pylant. il diag Oil & Gas J 62:76-7 Mr 23 '64

See also
Case hardening—Nitriding process

Isotopes

Nitrogen-14 nuclear magnetic resonance in nitro compounds. M. Witanowski and others. bibliog Am Chem Soc J 86:2569-70 Jl 5 '64

Nitrogen-17 decay monitors reactor power. A. M. Plummer. flow diag Nucleonics 22:84-5 Ap '64

Spectroscopic studies of keto-enol equilibria; nitrogen-15 substituted Schiff bases. G. O. Dudek and E. P. Dudek. bibliog Am Chem Soc J 86:4283-7 O 20 '64

Manufacture

High purity nitrogen, oxygen and argon. il Engineering 196:588 N 8 '63

Industrial gases plant at Stoke-on-Trent. il(p720) Engineer 216:721 N 1 '63

Spectra

Approximate theoretical calculation of continuum opacities. S. S. Penner and M. Thomas. bibliog diag AIAA J 2:1572-5 S '64

NITROGEN, Liquid

Another job for cryogenics; construction of a sewage main necessitated freezing waterlogged ground with liquid nitrogen. il diags Comp Air Mag 69:16-17 Ja '64

Automatic liquid nitrogen filling system. S. J. Moss and W. T. K. Johnson. diags R Sci Instr 35:909-10 Jl '64

Boiling heat transfer with cryogenic fluids at standard, fractional, and near-zero gravity. H. Merte, jr. and J. A. Clark. bibliog il diags A S M E Trans ser C 86:351-8; Discussion. 358-9 Ag '64

Cryogenic biological container. R. F. O'Connell and W. Haumann. il Materials in Design Eng 59:133 Ap '64

Cryogenics squelch quench distortion. E. Dullberg. il S A E J 72:86-8 Ag '64

Effect of low-temperature precompression on the ductility of iron. A. W. Sleeswyk and others. bibliog il Iron & Steel Inst J 202:330-4 Ap '64

Expansion fits with nitrogen; nomograph; reference book sheet. T. G. Hicks. Am Mach 108:161 Ap 13 '64

Freezes whole mushrooms in liquid nitrogen. il Food Eng 36:148 S '64

Inexpensive, nonelectrical, liquid nitrogen, constant level control system for ultrahigh vacuum trapping. J. R. Woodyard and C. B. Cooper. diag R Sci Instr 35:1082 Ag '64

Liquid-nitrogen-cooled induction heat source for vacuum studies. S. Podlaseck. diag R Sci Instr 35:921 Jl '64

Liquid nitrogen cryostat to facilitate isothermal annealing studies on metals after heavy-particle bombardment. F. Dworschak and others. diags R Sci Instr 35:46-8 Ja '64

Liquid nitrogen gauge. S. M. Trujillo and L. L. Marino. diag J Sci Instr 41:184 Mr '64

Liquid nitrogen quenches without distortion. E. Dullberg and C. Vanderhoof. il Tool & Manuf Eng 52:71-3 My '64

New high vacuum rotary feedthrough for liquid nitrogen. P. M. Chirlian. diag R Sci Instr 35:1078-9 Ag '64

Nitrogen; food freezing, refrigeration could boost liquid N_2 usage. Can Chem Process 48:58 F '64

Nucleation characteristics of static liquid nitrogen and liquid hydrogen. J. Hord and others. bibliog il diags A S M E Trans ser A 86:485-94 O '64

Perfectly constant level liquid nitrogen glass trap for ultrahigh vacuum application. J. R. Woodyard and C. B. Cooper. diag R Sci Instr 35:753-4 Je '64

Pressure vessel tested with liquid nitrogen inside. il Engineering 198:72 Jl 17 '64

Ups efficiency of nitrogen as transport refrigerant. diag Food Eng 36:101 Ag '64

Upside-down liquid nitrogen trap. H. W. Jones. diags R Sci Instr 35:1240-1 S '64

NITROGEN compounds

Azidotriazoles lose N_2 without cyclization. P. A. S. Smith and others. Chem & Eng N 42:40-1 Je 1 '64

Cargill enters fatty nitrogen field. il Chem & Eng N 42:33-4 My 25 '64

Changes in nonprotein nitrogeneous constituents of chicken breast muscle stored at below-freezing temperatures. A. W. Khan. bibliog J Agri & Food Chem 12:378-80 Jl '64

Effect of the quality of dietary protein on nitrogen compounds in the urine of rats. S. Kiriyama and K. Ashida. bibliog J Nutrition 82:127-34 Ja '64

Heterocyclic nitrogen ylides. R. A. Olofson and others. Am Chem Soc J 86:1865-6 My 5 '64

Linear Si-N polymers prepared. Chem & Eng N 42:26-7 Ja 6 '64

Minor element release from organic-N fertilizer materials in laboratory and field studies. J. G. Fiskell and others. bibliog J Agri & Food Chem 12:363-7 Jl '64

NITROGEN compounds—*Continued*

Polarography of nitroferrocene. A. M. Hartley and R. E. Visco. bibliog Anal Chem 35:1871-4 N '63

Reaction mechanisms proposed for nitrogen compounds. Chem & Eng N 42:40-1 Ag 3 '64

Reaction scheme adds nitrogen to olefins; amozonolysis will make heterocyclic nitrogen compounds. E. K. Fields and M. I. Fremery. Chem & Eng N 41:30-2 D 23 '63

Structure of erythroskyrine, a nitrogen-containing colouring matter of penicillium islandicum Sopp. J. Shoji and S. Shibata. Chem & Ind p419-21 Mr 7 '64

Studies of boron-nitrogen compounds. D. F. Gaines and others. bibliog Am Chem Soc J 85:3592-4; 86:1503-7 N 20 '63, Ap 20 '64

Studies of rat liver and kidney enzymes; response to massive intragastric doses of chronically administered nitrogenous substances. J. H. Hutchinson and others. Am J Clinical Nutrition 14:291-301 bibliog(p300-1) My '64

See also

Azoxy compounds
Nitrates
Nitration
Nitrites
Urea

Analysis

Nonaqueous titration of high molecular weight nitrogen compounds. M. E. Puthoff and J. H. Benedict. bibliog Anal Chem 36:2205-7 O '64

NITROGEN dioxide. See Nitrogen oxides

NITROGEN fixation

Biochemists see new nitrogen fixation path. R. W. F. Hardy and A. J. D'Eustachio. Chem & Eng N 42:23-4 Ap 6 '64

Molybdate- and tungstate-catalyzed fixation of nitrogen. G. P. Haight, jr. and R. Scott. Am Chem Soc J 86:743-4 F 20 '64

NITROGEN in the body

Amino acid balance in the adult; high nitrogen-low tryptophan diets. H. Fisher and others. bibliog J Nutrition 81:230-4 N '63

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L. E. Ericson. J Nutrition 82:385-94 bibliog (p392-4) Mr '64

Amino acid requirements of children; nitrogen balance at the minimal level of essential amino acids. I. Nakagawa and others. bibliog J Nutrition 83:115-18 Je '64

Effect of certain factors on nitrogen retention and lysine requirements of adult human subjects. H. E. Clark and others. bibliog J Nutrition 78:173-8; 79:131-9; 81:223-9 O '62, F, N '63

Effect of protein level of diet on nitrogen excretion in fowls. I. Tasaki and J. Okumura. bibliog J Nutrition 83:34-8 My '64

Effect of water intake on nitrogen metabolism in dogs. R. Bressani and J. E. Braham. bibliog J Nutrition 82:469-74 Ap '64

Protein-energy relationship in adult rats; qualitative and quantitative variations in dietary nitrogen and effects on deposition of hepatic fat and on nitrogen utilization. P. A. Garcia and C. E. Roderuck. bibliog J Nutrition 82:231-6 F '64

Relationship between tryptophan; niacin metabolism and changes in nitrogen balance. V. M. Vivian. bibliog J Nutrition 82:395-400 Mr '64

Tissue distribution of α-aminoisobutyric acid and nitrogen metabolism in the rat; effects of environmental temperature and dietary imbalance. L. A. Bavetta and M. E. Nimni. J Nutrition 82:379-84 Mr '64

NITROGEN oxides

Carbide adds nitrous oxide to Ucon line. Soap & Chem Spec 40:143 Mr '64

Electrolysis in anhydrous hydrogen fluoride; hydrogen fluoride-nitrous oxide system. H. H. Rogers and others. diag Electrochem Soc J 111:704-7 Je '64

Emphysema after low-level exposure to NO_2. G. Freeman and G. B. Haydon. il pl(p 117) Archives Environmental Health 8:125-8; Discussion. 129-31 Ja '64

High-dose N_2O dosimeter. D. A. Flory. bibliog diags Nucleonics 21:50+ D '63

Loading pressurized products with soluble gases as propellants. H. Z. Sokol. Soap & Chem Spec 40:139-40+ Mr; 147-8+ Ap '64

N_2O is good efficiency-test tracer. diags Oil & Gas J 61:112+ D 16 '63

Quantitative determination of parts-per-million quantities of nitrogen dioxide in nitrogen and oxygen by electron-capture detection in gas chromatography. M. E. Morrison and others. Anal Chem 36:2256-9 N '64

Radiolysis of deaerated aqueous solutions of 2-propanol containing nitrous oxide. J. T. Allan and C. M. Beck. bibliog Am Chem Soc J 86:1483-8 Ap 20 '64

Reaction of methyl radicals with nitric oxide. A. Maschke and others. bibliog Am Chem Soc J 86:1929-34 My 20 '64

Analysis

Spectrophotometric determination of total nitrogen dioxide and nitrogen tetroxide in air. S. W. Comer and A. V. Jensen. bibliog Anal Chem 36:799-800 Ap '64

Spectra

Infrared absorption spectrum of nitrous oxide (N_2O) from 1830 cm^{-1} to 2270 cm^{-1}. E. K. Plyler and others. bibliog J Res Nat Bur Stand 68A:79-86 Ja '64

NITROGLYCERIN

Glyceryl trinitrate. Drug & Cosmetic Ind 95:599 O '64

NITRO group

Cleavage reactions of tertiary nitro anion radicals. A. K. Hoffmann and others. bibliog Am Chem Soc J 86:631-9 F 20 '64

Steric effects of the nitro group on the uncatalyzed halogenation of methylbenzenes. E. Baciocchi and G. Illuminati. bibliog Am Chem Soc J 86:2677-80 Jl 5 '64

NITROMETHANE

Aromatic substitution; ferric chloride catalyzed bromination of benzene and alkylbenzenes with bromine in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-44 Mr 20 '64

Aromatic substitution; ferric chloride catalyzed bromination of halobenzenes in nitromethane solution. G. A. Olah and others. bibliog Am Chem Soc J 86:1044-6 Mr 20 '64

Velocity-depth relationship in microelectrophoresis cell for asphaltenes in nitromethane. J. R. Wright and R. R. Minesinger. J Colloid Sci 18:802-4 O '63

Analysis

Spectrophotometric method for determination of tetranitromethane in solution and in air. D. J. Glover and S. G. Landsman. bibliog Anal Chem 36:1690-1 Jl '64

NITRONE

Addition of nitrones to olefins; fused bicyclic isoxazolidines. N. A. LeBel and others. Am Chem Soc J 86:3759-67 S 20 '64

Gravimetric method for determination of pentachlorophenol with nitron. A. M. Lode. bibliog Tappi 47:148-53 Mr '64

NITROPARAFFINS

Ionization of nitroalkanes by substituted pyridines. E. S. Lewis and J. D. Allen. bibliog Am Chem Soc J 86:2022-4 My 20 '64

Proton magnetic resonance study of nitroalkanes. W. Hofman and others. bibliog Am Chem Soc J 86:554-8 F 20 '64

Radical anions as intermediates in substitution reactions; carbon alkylation of nitroparaffin salts. R. C. Kerber and others. bibliog Am Chem Soc J 86:3904-5 S 20 '64

Statistical methods and Beer's law; ultraviolet absorption study of binary solutions containing a nitroparaffin. R. L. Foley and others. bibliog Anal Crem 36:1100-3 My '64

NITROPHENOL

Electron spin resonance spectra of different solvates of *m*-nitrophenol negative ion in a mixed solvent. C. Corvaja and G. Giacometti. Am Chem Soc J 86:2736 Jl 5 '64

Urinary excreton of paranitrophenol by volunteers following dermal exposure to parathion at different ambient temperatures. A. J. Funckes and others. J Agri & Food Chem 11:455-7 N '63

NITROPHENYL group

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Phosphate esters; catalytic hydrolysis of *p*-nitrophenyl dihydrogen phosphate by ceric ion precipitates in the pH range 2-7. F. Millich and E. L. Hayes, jr. bibliog Am Chem Soc J 86:2914-18 Jl 20 '64

NITROSAMINES

Structural studies by nuclear magnetic resonance; configurations and conformations of N-nitrosamines. G. J. Karabatsos and R. A. Taller. bibliog Am Chem Soc J 86:4373-8 O 20 '64

NITROSOBENZENE
Reaction of dibenzylmercury with nitrosobenzene. K. C. Bass. Chem & Ind p 1712-13 O 10 '64

NITROSO compounds
Catalysis of the decomposition of *N*-nitrosotriacetonamine by a polymeric quaternary hydroxide. M. S. M. Alger and others. bibliog Chem & Ind p2008-9 D 28 '63
Decomposition reactions of N-nitrosoacetanilide. D. B. Denney and others. Am Chem Soc J 86:3180-1 Ag 5 '64
Electrochemical study of kinetics of a chemical reaction coupled between two charge transfer reactions; potentiostatic reduction of *p*-nitrosophenol. G. S. Alberts and I. Shain. bibliog diag Anal Chem 35:1859-66 N '63
Nitrosocarboranes from nitrosyl chloride. J. M. Kauffman and others. bibliog Am Chem Soc J 86:4210-11 O 5 '64
Phenylation with nitrosoacetanilides. E. L. Eliel and J. G. Saha. bibliog Am Chem Soc J 86:3581-2 S 5 '64
Polarographic determination of nitrite as 4-nitroso-2,6-xylenol. A. M. Hartley and R. M. Bly. bibliog Anal Chem 35:2094-100 D '63

NITROSOPHENYLHYDROXYLAMINE
Behavior of technetium species with cupferron. G. B. Salaria and others. bibliog Anal Chem 36:146-9 Ja '64
Extraction of submicrogram amounts of molybdenum with cupferron-chloroform using molybdenum-99. W. B. Healy and W. J. McCabe. Anal Chem 35:2117-19 D '63
Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64
Spectrophotometric determination of cerium with thenoyltrifluoroacetone after cupferron-chloroform extraction. H. Onishi and Y. Toita. Anal Chem 36:1867-9 Ag '64

NITROSYL bromide
Addition of nitrosyl halides to olefins; dependence of steric course on olefin structure. J. Meinwald and others. bibliog Am Chem Soc J 86:4074-80 O 5 '64

NITROSYL chloride
Addition of nitrosyl halides to olefins; dependence of steric course on olefin structure. J. Meinwald and others. bibliog Am Chem Soc J 86:4074-80 O 5 '64
Nitrosocarboranes from nitrosyl chloride. J. M. Kauffman and others. bibliog Am Chem Soc J 86:4210-11 O 5 '64
Norbornene forms cis adducts with NOCl. J. Meinwald and others. Chem & Eng N 42:40-2 O 12 '64

NITROSYL compounds
Preparation of nitrosyl tetrafluorochlorate. E. D. Whitney and others. bibliog Am Chem Soc J 86:4340-2 O 20 '64

NITROTOLUENE
Spectrophotometric study of the reactions of *p*-nitrotoluene in basic solution. J. M. Miller and H. Pobiner. Anal Chem 36:238-9 Ja '64

NITROUS acid
Isolation of a 2-nitropurine from the reaction of guanosine with nitrous acid. R. Shapiro. bibliog Am Chem Soc J 86:2948-9 Jl 20 '64
Kinetics of the reaction of cyclohexyl aryl ketones with nitrous acid in sulfuric acid. Y. Ogata and others. Am Chem Soc J 85:3649-50 N 20 '63
Nitrous acid deamination of the norbornylamines; carbon and nitrogen rearrangements of norbornyl cations. J. A. Berson and A. Remanick. bibliog Am Chem Soc J 86:1749-55 My 5 '64
Preparation of solutions of pure nitrous acid. C. S. Scanley. Am Chem Soc J 85:3888 D 5 '63
Specifically solvated ion-pair intermediates in nitrous acid deamination of an axial amine. T. Cohen and E. Jankowski. bibliog Am Chem Soc J 86:4217-18 O 5 '64

NITROUS oxide. See Nitrogen oxides

NITROXIDE
Mechanism of the formation of di-*t*-butylnitroxide from *t*-nitrobutane and sodium metal. A. K. Hoffmann and others. Am Chem Soc J 86:639-46 F 20 '64
Reactions of organoalkali compounds with nitro compounds; a new synthesis of nitroxides. A. K. Hoffmann and others. bibliog Am Chem Soc J 86:646-50 F 20 '64

NITRYL fluoborate
Aromatic substitution; intact and dealkylating nitration of propylated and butylated alkylbenzenes with nitronium tetrafluoroborate. G. A. Olah and S. J. Kuhn. bibliog Am Chem Soc J 86:1067-70 Mr 20 '64

NOBEL prizes
Cholesterol work cited in Nobel award; biochemist in U.S. and chemist in West Germany share $52,700 prize in medicine. Chem & Eng N 42:34 O 26 '64
1963 Nobel prize in physics. Phys Today 16:21 D '63
Nobel prize given for vitamin B_{12} studies; Dorothy Crowfoot Hodgkin honored. Chem & Eng N 42:54-5 N 9 '64
Nobel prizes. Sci Am 209:64 D '63
Share 1963 Nobel chemistry prize; awarded jointly to Karl Ziegler and Giulio Natta. Rubber Age 94:459 D '63
Ziegler and Natta share Nobel prize. Chem & Eng N 41:22 N 11 '63

NOBLE gases. See Gases, Rare

NOBLE metals. See Precious metals

NODULAR iron. See Cast iron

NOISE
Advanced tape mastering system. J. T. Mullin; K. Clunis. il diags Audio Eng Soc J 12:298-307 O '64
Application of nonstationary shot noise in the study of system response to a class of nonstationary excitations. Y. K. Lin. diags A S M E Trans ser E 30:555-8 D '63
Does noise in your plant endanger hearing? J. J. Martiner. il Plant Eng 18:122-4 Mr '64
FHA joins the tenants' war against noise. diags Arch Forum 120:96-7 Mr '64
Frequency analysis of noise. E. F. Feldman. bibliog il diags Electro-Tech 73:36-42 Je '64
Fundamental noise, the limit of observation. R. Fox and others. Westinghouse Eng 24:60-4 Mr '64
How to beat it: abstract. E. J. Richards. Product Eng 34:30-2 D 23 '63
Industrial noise creates an uproar. K. W. Bennett. il Iron Age 194:30 N 5 '64
Industrial noise symposium stresses need for hearing conservation programs. Am Mach 108:225-6+ S 14 '64
Keeping up with noise control developments. il Safety Maint 127:47-50+ F '64
Likelihood detection of a signal obscured by first-order Markovian noise. D. S. Potter and C. D. Leedham. bibliog J Ap Phys 35:2282-4 Ag '64
Microwave signal-to-noise performance of CdSe bulk photoconductive detectors. M. DiDomenico, jr. and L. K. Anderson. bibliog diags IEEE Proc 52:815-22 Jl '64
Noise limitations in tape reproducers. E. P. Skov. bibliog diags Audio Eng Soc J 12:280-93 O '64
Nuclear-resonance sensing of mechanical noise. R. Zito, jr. bibliog diags Electro-Tech 73:43-51 Je '64
Preliminary analysis of surface-induced tape noise. E. D. Daniel. diags IEEE Trans Com & Electronics 83:250-3 My '64
Quiet in man's indoor environment. L. L. Beranek. bibliog diags ASHRAE J 6:30-8 Jl '64
Reducing your problems with foundry noises. E. W. Fair. Foundry 92:194+ O '64
Signal and noise in deep wells. E. J. Douze. Geophysics 29:721-32 O '64
Some questions about noise. il Safety Maint 127:42-4 Ja '64
Techniques for achieving wide dynamic range from magnetic recorders. K. O. Johnson. diags Audio Eng Soc J 12:308-11 O '64
Theoretical prediction of seismic noise in a deep borehole. R. L. Sax and R. A. Hartenberger. bibliog Geophysics 29:714-20 O '64
Water jets make less noise. H. W. Schab. il Naval Eng J 76:132-4 F '64
Wide-band velocity filtering, the Pie-Slice process. P. Embree and others. diags Geophysics 28:948-74 D '63
Wide-range microwave spectroscopy of noise radiation from magnetoplasmas. C. D. Lustig and others. bibliog diags R Sci Instr 35:869-71 Jl '64

See also
Ear—Injuries
Ear—Protection
Radio communication—Interference
Radio communication—Interference elimination

NOISE—See also—*Continued*
- Silencers
- Soundproofing
- *also* subdivision Noise under special subjects, e.g.
- Air compressors
- Air conditioning equipment
- Airplanes
- Airplanes, Jet propelled
- Amplifiers
- Amplifiers, Vacuum tube
- Automobile engines
- Automobiles
- Diesel engines, Automotive
- Electric fans
- Electric lamps, Fluorescent
- Electric transformers
- Electronic apparatus and instruments
- Fans, Mechanical
- Gas burners
- Gas turbines
- Gas turbines, Aircraft
- Helicopters
- High fidelity sound systems
- Light amplifiers
- Machinery
- Magnetic tape
- Oscillators
- Pneumatic machinery
- Pneumatic tools
- Pumps, Centrifugal
- Radio receiving apparatus
- Radio resistors
- Refrigerators
- Rock drills
- Semiconductors
- Telephone
- Tractors, Farm
- Transistors
- Vacuum tubes

NOISE generators. See Sound—Apparatus

NOISE measurement. See Sound—Measurement

NOMOGRAPHS
- Accuracy of lineal analysis in metallographic investigations. T. Gladman. bibliog il diags Iron & Steel Inst J 201:1044-9 D '63
- Bridged T. J. L. Ogdin. il diags Radio-Electronics 35:28-30 F '64
- Calculation of vapour velocities in plate columns. G. Narsimhan. Ind Chem 40:40 Ja '64
- Capillary viscometer for non-Newtonian liquids. A. Ram and A. Tamir. bibliog diags Ind & Eng Chem 56:47-53 F '64
- Chart finds concentration change in series of vessels. W. L. Godfrey and R. A. Watrous. Chem Eng 71:184+ My 11 '64
- Check your condenser performance. R. B. Leeming. Power 108:128 Ja '64
- Communications range nomograph; reference sheet. M. W. Shores. Electronics 36:41+ D 20 '63; Correction. 37:6 F 7 '64
- Compressibilities of *n*-butane, *iso*-butane, and 1,3-butadiene. A. M. P. Tans. Ind Chem 40:196 Ap '64
- Convert viscosity with these nomographs. R. L. Peters. Hydraulics & Pneumatics 17: 118-19 My '64
- Deflections of straddle-mounted shafts. R. L. Peters. diag Product Eng 35:103-4 Ap 13 '64
- Density of gaseous hydrogen chloride; nomograph. A. M. P. Tans. Ind Chem 39:597 N '63
- Design for solder preforms. H. Manko. il diag Materials in Design Eng 59:96-8 Mr '64
- Designing hairsprings quickly and accurately; with nomographs. R. L. Peters. Product Eng 35:161-2 Je 22 '64
- Designing hthw systems with nomographs. F. Caplan. Plant Eng 18:129-30 F '64
- Determine Reynolds number quickly; with nomograph; data sheet. F. Caplan. Power 108:96 O '64
- Effective rainfall and irrigation water requirements. D. M. Hershfield. bibliog maps Am Soc C E Proc 90 [IR 2 no 3920]:33-47 Je '64
- Estimate heat capacity for liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:115-19 F '64
- Estimate heat capacity for vapors; with nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:129-32 Mr '64
- Estimate physical properties accurately. F. E. McKelvey. bibliog Hydrocarbon Process & Pet Refiner 43:145-50 My; 147-8 Je; 146-8 Jl; 127 Ag '64
- Excess pressure of water hammer; data sheet. M. F. Myers. Power 108:82 Mr '64
- Expansion and cone clutches. W. Griffel. Product Eng 34:95-7 D 23 '63
- Expansion fits with nitrogen; reference book sheets. T. G. Hicks. Am Mach 108:161 Ap 13 '64
- Find acetone thermal conductivity; nomographs. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:148 Ap '64
- Find *n*-butane/propane compressibility; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:156 Jl '64
- Find glycerol thermal conductivity. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:158 Je '64
- Find propane fugacity. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:242 S '64
- Find *i*-propanol thermal conductivity. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 42:128 D '63
- Find propylene liquid density. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:126 Ag '64
- Handy way to determine plastics shrinkage. Plastics Tech 10:54-5 S '64
- How much cooling tower makeup? F. Caplan. Plant Eng 18:131 My '64
- How much steam is required to heat water; data sheet. F. Caplan. Heating-Piping 36:169-70 Ja '64
- How to design circular force-fit plastics joints. R. L. Peters. diag Mod Plastics 41: 119-22+ Ap; 129+ My '64
- Hydraulic design of slurry pipes. A. L. Simon. Water & Sewage Works 111:98-9 F '64
- Idealized limited-pressure compression-ignition cycle. P. Van Der Werf. bibliog diag A S M E Trans ser A 86:201-8 Ap '64
- Instant color correction. C. S. McCamy. Mod Phot 28:66-7 Ja '64
- Laminar-flow pressure drop; data sheet. F. Caplan. Power 108:86 F '64
- Life estimation radiation effects nomograph. R. L. Peters. Wire & Wire Prod 39:1339+ S '64
- Load/life ratings for rolling bearings. Engineering 197:766-7 Je 5 '64
- Metal removed in drilling; reference book sheet. T. G. Hicks. Am Mach 108:83 Ja 6 '64
- New nomogram for the solution of problems in structural and economic geology. G. W. Leney. diags Econ Geol 58:1326-39 D '63
- New viscosity index for 100 and above. Hydrocarbon Process & Pet Refiner 43:141-2 My '64
- Noise-figure nomograph for multistage systems. K. R. Tipple. diag Electronics 37: 64-5 O 5 '64
- Nomogram for finding yarn diameters. Textile Ind 128:223+ O '64
- Nomograms speed earthwork computations. D. E. Low. Civil Eng 34:60 My '64
- Nomograph aids computation of 90 degree elbow losses in rectangular ducts; data sheet. F. Caplan. Heating-Piping 35:135-6 D '63
- Nomograph determines pressure rise due to water hammer; data sheet. J. K. O'Hara. Heating-Piping 36:117-18 F '64
- Nomograph for available net positive suction head. F. Caplan. Water & Sewage Works 111:50-1 Ja '64
- Nomograph for determination of neutron-induced activities. P. A. Benson and C. E. Gleit. bibliog Nucleonics 21:148-50 Ag '63
- Nomograph for head loss due to sudden enlargement. F. Caplan. Water & Sewage Works 111:67 Ja '64
- Nomograph for relative humidity by slide rule. D. S. Davis. diag Paper Ind 46:108 My '64
- Nomograph for the estimation of paraffin wax composition. F. W. Melpolder and others. bibliog Tappi 47:283-5 My '64
- Nomograph for the maximum stress for extension and compression spring wire. R. L. Peters. Wire & Wire Prod 39:565+ Ap '64
- Nomograph for the solution of stream pollution equations. N. H. Harley. Water & Sewage Works 111:144-6 Mr '64
- Nomograph for valve flow coefficient. F. Caplan. Water & Sewage Works 111:298 Je '64
- Nomograph for weights of pulpwood logs. D. S. Davis. Paper Ind 45:662 Mr '64
- Nomograph gives binary vapor-liquid equilibrium. F. Caplan. Chem Eng 71:154 S 28 '64
- Nomograph gives steam line size to limit velocity; data sheet. F. Caplan. Heating-Piping 36:153-4 Ap '64
- Nomograph quickly finds shear modulus. R. L. Peters. Product Eng 34:140 D 9 '63
- Nomograph scale chart. C. E. Diehl. Radio-Electronics 35:44 O '64
- Nomograph shows phase-shift angle. M. Grelot. Electronics 37:73-4 Jl 27 '64
- Nomograph solves valve sizing formulas for liquid flow; data sheet. F. Caplan. Heating-Piping 36:135-6 Ag '64

NOMOGRAPHS—*Continued*
- Nomograph solves valve sizing formulas for saturated steam; data sheet. F. Caplan. Heating-Piping 36:151-2 S '64
- Nomograph to establish tolerances for compression and extension wire springs. R. L. Peters. Wire & Wire Prod 38:1718+ N '63
- Nomographs for analyzing rigid gable frames. J. W. Gillespie. bibliog diags Civil Eng 34:57-8 Ja '64
- Nomographs give properties of monoethanolamine solutions. A. Devore. bibliog Chem Eng 71:164 F 17; 176 Mr 16; 210 Ap 13 '64
- Nomographs quickly select the right compressed air system. F. Caplan. Plant Eng 17:129-30 D '63
- Nomographs speed gas concentration calculations. F. Caplan. Hydraulics & Pneumatics 16:122-3 N '63
- Percentage oxygen in coal. D. S. Davis. Ind Chem 40:86 F '64
- Piston position, velocity and maximum-velocity angle; data sheet. J. Bakker. Power 108:72 Jl '64
- Power losses in electric conductors; data sheet. S. Salva and L. Crull. Power 108: 84 Je '64
- Protect electric motors from high temperatures with aid of nomograph; data sheet. F. Caplan. Heating-Piping 35:147-8 N '63
- Pump specific speed. F. Caplan. Water & Sewage Works 110:424 D '63
- Relief-valve reaction force; data sheet. F. Caplan. Power 108:87 My '64
- Research octane of thermal reformates. G. E. Mapstone. Hydrocarbon Process & Pet Refiner 42:258 N '63
- Response of structures to triangular pulse loading. T. Huang. bibliog diags Am Soc C E Proc 90 [ST 2 no 3862]:55-76 Ap '64
- Short-cut nomograms for natural convection coefficients. A. Devore. bibliog Hydrocarbon Process & Pet Refiner 42:109-14 D '63
- Specific heats of materials at low temperatures. R. L. Peters. Materials in Design Eng 59:87 My '64
- Stress and modulus nomographs for thermoplastics. R. L. Peters. Materials in Design Eng 60:89-91 Jl '64
- Tubing and solid shafts of equal strength; data sheet. H. W. Hamm. Power 108:86 Ag '64
- Use complimentray error function to find product per cent defective. R. A. Dewberry. Elec World 161:76-7 My 4 '64
- Use nomographs to size horizontal vapor-liquid separators. A. D. Scheiman. bibliog diags Hydrocarbon Process & Pet Refiner 43:155-60 My '64
- Vapor pressure nomograph for CO_2 and H_2S over MEA. G. E. Mapstone. Hydrocarbon Process & Pet Refiner 43:196+ My '64
- Water hammer nomograph. F. Caplan. Water & Sewage Works 110:416 N '63
- Wire needed for springs; reference book sheet. J. W. Diachenko. Am Mach 108:73 F 3 '64
- Your electronic flash exposure made easy. W. Hanson and B. T. Wolfe. Mod Phot 28: 52-3 Jl '64

NONDESTRUCTIVE testing. See Testing

NON-FERROUS founders society
- Annual meeting, Oak Brook, Ill. Sept. 25-27; with abstracts of papers. Foundry 91:103-4+ N '63
- Annual meeting, 21st, Hershey, Pa. Sept. 30-Oct. 2. Foundry 92:199+ N '64

NON-FERROUS metals. See Metals, Nonferrous

NONLINEAR equations. See Equations, Nonlinear

NONPROFIT institutions. See Institutions, Nonprofit

NONWOVEN fabrics. See Textile fabrics—Bonded web

NORBORNADIENE. See Bicycloheptadiene

NORBORNENE. See Bicycloheptene

NORBORNENYL compounds
- Racemization in the solvolysis of *exo*-2-benznorbornenyl brosylate. W. P. Giddings and J. Dirlam. bibliog Am Chem Soc J 85: 3900-1 D 5 '63

NORBORNYLAMINE. See Norcamphanamide

NORBORNYLENE. See Bicycloheptene

NORCAMPHANAMIDE
- Nitrous acid deamination of the norbornylamines; carbon and nitrogen rearrangements of norbornyl cations. J. A. Berson and A. Remanick. bibliog Am Chem Soc J 86:1749-55 My 5 '64

NORCAMPHANE
- Comparison of the rates of solvolysis of representative norbornyl and cyclopentyl derivatives; a critical examination of rates as a basis for the postulated nonclassical structure of norbornyl cations. H. C. Brown and others. bibliog Am Chem Soc J 86:1247-8 Mr 20 '64
- Deuterium tracer studies on the elimination reactions of norbornyl tosylate and bromide. H. Kwart and others. bibliog Am Chem Soc J 86:2606-11 Jl 5 '64
- Electron donor ability of 7-oxabicyclo[2.2.1] heptane. M. Tamres and others. bibliog Am Chem Soc J 86:3934-6 O 5 '64
- Mechanism of elimination reactions; kinetic preference for *exo-cis* bimolecular eliminations with *trans*-2,3-dihalonorbornanes. N. A. LeBel and others. bibliog Am Chem Soc J 86:4144-7 O 5 '64
- Rates of solvolysis of the *p*-nitrobenzoates of *exo-endo* tertiary norborneols; a critical examination of the *exo-endo* rate ratio as a basis for the postulated nonclassical structure of the norbornyl cation. H. C. Brown and others. bibliog diags Am Chem Soc J 86:1248-50 Mr 20 '64
- Solvolysis of 7-*anti*-bromo-2-*exo*-benzenesulfonamidobicyclo[2.2.1]heptane; an example of solvolytic ring opening. L. H. Zalkow and A. C. Oehlschlager. bibliog Am Chem Soc J 86:4208-9 O 5 '64
- Synthesis and rates of ethanolysis of 2-phenyl-*exo*-norbornyl chloride; the question of a nonclassical 1- and 2- phenylnorbornyl cation. H. C. Brown and others. bibliog Am Chem Soc J 86:1246-7 Mr 20 '64
- Synthesis of three monodeuterionorbornanes, and the stereochemistry of acid-catalyzed cleavage of nortricyclene. A. Nickon and J. H. Hammons. bibliog diags Am Chem Soc J 86:3322-8 Ag 20 '64

NORSTEROIDS
- Reactions at position 19 in the steroid nucleus; a convenient synthesis of 19-norsteroids. M. Akhtar and D. H. R. Barton. bibliog Am Chem Soc J 86:1528-36 Ap 20 '64

NORTH AMERICA

See also

Geology—North America
Paleogeography—North America
Paleontology—North America

NORTH CAROLINA

See also subdivision North Carolina under special subjects, e.g.

Electric utilities
Mines and mineral resources
Petroleum
Phosphate rock
Roads

NORTH DAKOTA

See also subdivision North Dakota under special subjects, e.g.

Coal mines and mining
Petroleum
Petroleum industry and trade
Petroleum pipe lines
Roads

NORTH MIAMI BEACH, Florida

Sewerage

- Designing an ocean outfall for North Miami Beach. J. W. Greenleaf, jr. and B. A. McAdams. map diags WPCF J 36:1107-15 S '64

NORTH SEA

See also

Gas, Natural—North Sea

NORTHEAST

See also

Railroads—Northeastern states

NORTHERN IRELAND

See also

Airplane industry and trade—Northern Ireland
Petroleum industry and trade—Northern Ireland

Industries and resources

- Tyre valve production in northern Ireland. il Engineer 217:67-9 Ja 10 '64

NORTHWEST

See also subdivision Northwestern states under special subjects, e.g.

Electricity supply
Hydroelectric plants
Petroleum pipe lines
Water supply

NORTHWEST electric light and power association
- Annual meeting, 56th, Spokane, Wash. Elec World 160:56+ O 21 '63
- Meeting, Banff, Canada; abstracts of papers. Elec World 162:62-3 Jl 27 '64

NORTHWEST mining association
Annual meeting, 69th, Spokane, Wash. Dec. 6-7. Eng & Min J 165:66-8 Ja '64; Min Cong J 50:46-7 Ja '64

NORTHWEST TERRITORIES, Canada
See also
Geology—Northwest Territories, Canada
Mines and mineral resources—Northwest Territories, Canada
Petroleum—Northwest Territories, Canada
Roads—Northwest Territories, Canada

NORTHWESTERN university
University expands into Lake Michigan. il Eng N 173:58 O 8 '64

NORWAY
See also subdivision Norway under special subjects, e.g.
Atomic power plants
Hydroelectric plants
Mines and mineral resources
Sewerage
Textile industry

NOSE cones. See Rockets—Nose cones

NOTCHED bar testing
Acoustic detection of crack initiation in sharply notched specimens. M. H. Jones and W. F. Brown, jr. bibliog il diags Materials Res & Stand 4:120-7; Discussion. 127-9 Mr '64
Appraisal of brittle fracture temperature of rolled armor steel by the NRL drop weight test. V. H. Pagano and C. O. McHugh. bibliog il plan diags Welding J 43:sup 129-39 Mr '64
Assault on fracture pays off. A. Q. Mowbray. il Materials Res & Stand 4:103-6 Mr '64; Same. Naval Eng J 76:632-4 Ag '64
Broaching notches in Charpy impact specimens. M. B. Reynolds. il Materials Res & Stand 4:211 My '64
Composition controlled, high-strength, ductile, tough, steel weld metals. J. Heuschkel. bibliog il diags Welding J 43:sup361-84 Ag '64
Definitions of fatigue-notch factor. H. J. Grover. diags Materials Res & Stand 4:493-4 S '64
Development of a high-strength, tough, weldable, structural steel. E. T. Wessel and L. E. Hays. bibliog il Welding J 43:sup215-31 My '64
Effect of desulphurization on the impact properties of some low-alloy steels. A. G. Franklin and W. J. M. Tegart. bibliog il Iron & Steel Inst J 202:588-92 Jl '64
Effect of niobium and tantalum on the tensile and impact properties of mild steel. R. Phillips and others. bibliog il Iron & Steel Inst J 202:593-600 Jl '64
Effect of prestraining on Charpy V-notched impact specimens. H. de Vries. Iron & Steel Inst J 202:375-6 Ap '64
Effect of proof stress on the notched fatigue strength of the aluminum alloy HE 15. P. G. Forrest. Roy Aeronautical Soc J 67:596-8 S '63; Discussion. E. R. Welbourne. 67:798-9 D '63
Effects of neutron irradiation at 250°C on the tensile and impact properties of a one per cent Cr-0.5 per cent Mo pressure vessel steel. D. R. Harries and others. bibliog il diags Iron & Steel Inst J 202:448-53 My '64
Fracture characteristics of some high-strength, weldable, structural steels. E. T. Wessel and L. E. Hays. bibliog il diag Welding J 42:sup512-28 N '63
Heat-affected zone study of an eutectoid ultra-high strength steel. E. F. Nippes and E. W. Emmerich. bibliog il Welding J 42:sup547-56 D '63
How failures occur, topography of fracture surfaces. F. R. Larson and F. L. Carr. il Metal Prog 85:74-8 F '64
Maintaining high impact properties in ductile iron. S. F. Carter and C. K. Donoho. diags Foundry 92:80-4 Je '64
Morphology of stress-corrosion cracks in notched specimens of austenitic stainless steels. J. C. Scully and T. P. Hoar. il diags Corrosion 20:174-7 My '64
New specimen design for plane-strain fracture toughness tests. A. M. Sullivan. diags Materials Res & Stand 4:20-4 Ja '64
Notch brittleness in mild steel. J. F. Knott and A. H. Cottrell. bibliog il Iron & Steel Inst J 201:249-60 Mr '63; Discussion. 202:225-35 Mr '64
Progress in measuring fracture toughness and using fracture mechanics: fifth report of a special ASTM committee. bibliog il diags Materials Res & Stand 4:107-19 Mr '64
Weld heat-affected zone of 18 per cent nickel maraging steel. W. A. Petersen. bibliog il Welding J 43:sup428-32 S '64
Weldability and heat-affected-zone toughness of HY-150 steel. G. E. Grotke. bibliog diags Welding J 43:sup265-81 Je '64

NOVA SCOTIA
See also subdivision Nova Scotia under special subjects, e.g.
Coal mines and mining
Geology
Mineral industries
Mines and mineral resources
Petroleum

NOVOTNY, John J.
J. Novotny receives Richard H. Morris medal. pors Plant Eng 18:136-7 Mr '64

NOYES, W. Albert
Noyes retires as JPC editor. por Chem & Eng N 42:83-4 O 12 '64

NOZZLES
Angular momentum equations for a swivel-nozzle rocket. H. W. Butler. diag A S M E Trans ser E 31:355-6 Je '64
Approximate method for plug nozzle design. G. Angelino. diags AIAA J 2:1834-5 O '64
Calculation of the discharge coefficient of profiled choked nozzles and the optimum profile for absolute air flow measurement. B. S. Stratford. bibliog diags Roy Aeronautical Soc J 68:237-45 Ap '64
Calculations of real-gas effects in flow through critical-flow nozzles. R. C. Johnson. bibliog diags A S M E Trans ser D 86:519-26 S '64
Compressible discharge coefficient of a Borda pipe and other nozzles. T. H. Frost. diag Roy Aeronautical Soc J 68:346-9 My '64
Consistency of coefficients in small Venturi nozzles. R. H. Hawley. il diags Instruments & Control Systems 37:99-101 Mr '64
Contour calculations for chemical nonequilibrium flow. T. E. Widmer and T. P. Anderson. bibliog AIAA J 1:2631-3 N '63
Cooling solid rocket nozzles. S. E. Colucci. diags Chem Eng Prog 60:52-4 F '64
Effect of the boundary layer upon the flow in a conical hypersonic nozzle. M. Sichel. bibliog AIAA J 2:180-3 Ja '64
Entropy production in vibrational-non-equilibrium nozzle flow. L. N. Connor and W. D. Erickson. AIAA J 2:397-8 F '64
Exact kinetic and approximate nozzle recombination losses. D. Migdal and A. Goldford. bibliog AIAA J 2:1457-8 Ag '64
Exact solutions of gas-particle nozzle flows. H. A. Hassan. AIAA J 2:395-6 F '64
Expansion of a very low quality two-phase fluid through a convergent-divergent nozzle. E. S. Starkman and others. bibliog diags A S M E Trans ser D 86:247-54; Discussion. 254-6 Je '64
Experimental evaluation of plug cluster nozzles. D. Migdal and others. diag AIAA J 2:1325-7 Jl '64
Flow nozzles with zero beta ratio. H. J. Leutheusser. bibliog diags A S M E Trans ser D 86:538-40; Discussion. 540-2 S '64
GE machines nozzles via tracer control. il Steel 154:57 Ja 20 '64
Impregnated tungsten for rocket nozzles. A. Eisenlohr. Metal Prog 85:94-5 Ap '64
Injector nozzle inspection aid. il Engineer 217:409 F 28 '64
Integral equations for viscous hypersonic nozzle flow. M. Sichel. bibliog diags AIAA J 2:148-50 Ja '64
Interaction between primary and secondary streams of supersonic ejector systems and their performance characteristics. W. L. Chow and A. L. Addy. bibliog diags AIAA J 2:686-95 Ap '64
Internal pressure cyclic fatigue test of an HY-80 marine boiler drum. I. Berman and D. H. Pai. il diags Welding J 43:sup24-32 Ja '64
Magnetohydrodynamic nozzle. F. N. Khabeta. AIAA J 1:2699-700 N '63
Mass flow in nozzle of a gas-blast circuit-breaker. A. A. Hudson. diags Engineer 217:933-9 My 29 '64
Nozzle characteristics in the transition regime between continuum and free molecular flow. M. W. Milligan. bibliog diag AIAA J 2:1088-92 Je '64
Nozzle contours for minimum particle-lag loss. F. E. Marble. AIAA J 1:2793-801 D '63
Numerical study of hydrogen-fluorine kinetics in nozzles. K. A. Wilde. bibliog AIAA J 2:374-6 F '64
Optimum geometric factors for semicircular fins in radiation-cooled nozzles. R. Jaroudi and D. E. Heard. diag AIAA J 2:146-8 Ja '64; Correction. 2:1168 Je '64
Rocket nozzle manufacturing requires huge equipment and unusual techniques. R. A. Whitaker. il diag Mach 70:79-83 Ag '64
Rocket recombination losses. R. R. Koppang and others. Chem Eng Prog 60:41-3 F '64

NOZZLES—*Continued*

Roosamaster's new pencil nozzle; Fuel injection division. Standard screw co. il diag Diesel Equip Supt 42:39-41 S '64

Semiquantitative prediction of the erosion of graphite nozzle inserts. L. J. Delaney and others. bibliog AIAA J 2:1428-33 Ag '64

Shrouded prop drives supertug. R. J. Corcoran. il diags Mech Eng 86:54-6 F '64

Side walls for variable throat supersonic nozzle. G. Deane. il diags Engineer 218: 372-3 S 4 '64

Stability of the hodograph equations in one-dimensional reacting gas flow. J. L. Throne. AIAA J 2:360-1 F '64

Sudden expansion of a bounded jet at a high pressure ratio. E. J. Barakauskas. AIAA J 2:1644-5 S '64

Supersonic annular nozzle as a differential barrier. C. H. Stallings and D. H. Martin. diag R Sci Instr 35:1011-13 Ag '64

Thrust effectiveness of oxidizer injection in a convergent-divergent nozzle. G. R. Hall. diag AIAA J 2:1434-6 Ag '64

Thrust nozzles for supersonic transport aircraft. D. Migdal and J. J. Horgan. bibliog il diags A S M E Trans ser A 86:97-104 Ap '64

Transpiration and film cooling combined with external cooling. E. Mayer and D. Divoky. bibliog AIAA J 2:578-80 Mr '64

Transpiration cooling of a turbulent boundary layer in an axisymmetric nozzle. J. Librizzi and R. J. Cresci. bibliog diag AIAA J 2: 617-24 Ap '64

Velocity of fluid from a nozzle; data sheet. V. P. Bokil. Power 108:86 Ap '64

Viscous and nonviscous nonequilibrium nozzle flows. J. J. Brainerd and E. S. Levinsky. bibliog diags AIAA J 1:2474-81 N '63

NUCERITE. See Cermets

NUCLEAR emulsions. See Photographic emulsions

NUCLEAR engineering

Ceramics for nuclear applications; symposium abstracts. Am Cer Soc Bul 43:323+ Ap '64

Nuclear engineering; symposium series abstracts. Chem Eng Prog 60:90+ Jl '64

Nuclear fuel element: an exercise in metallurgy. H. M. Finniston. il diags Inst Metals J 92:385-97 '63-64

Some advances in metallurgical practice introduced for nuclear engineering. L. Rotherham. il Inst Metals J 92:257-64 '63-64

Bibliography

Russian nucleonics; abstracts of recent papers ((cont). Nucleonics 21:82 Ja; 91 Ap; 82 S; 76 D '63

Standards

Standards; a must in the nuclear field; National conference on standards report. Mag of Stand 35:105 Ap '64

Study and teaching

Consort II research reactor for London university. il Engineer 217:180-1 Ja 24 '64

Nuclear know-how for Japanese users. il Engineering 197:468 Ap 3 '64

NUCLEAR explosives. See Atomic blasting

NUCLEAR fission. See Nuclear reactions

NUCLEAR gages. See Isotopes—Industrial applications; Radioactive substances—Industrial applications

NUCLEAR physics

Information centers in nuclear physics. N. B. Gove. bibliog Phys Today 17:44-7 Ja '64

See also

Atomic nuclei

Mössbauer effect

Bibliography

Nuclear bookshelf. Published in monthly numbers of Nucleonics

Experiments

On-line operation of a digital computer in nuclear physics experiments. J. F. Whalen and others. il diags R Sci Instr 35:682-90 Je '64

NUCLEAR power. See Atomic power

NUCLEAR power plants. See Atomic power plants

NUCLEAR propulsion of rockets. See Rockets, Atomic powered

NUCLEAR reactions

Deposition efficiency of fission-fragment energy. M. Steinberg. bibliog Nucleonics 21: 151-3 Ag '63

Discovery of nuclear fission. H. G. Graetzer. bibliog Am J Phys 32:9-15 Ja '64

Electron microscope observation of fission fragment tracks in plastics. A. G. Malmon. il J Ap Phys 34:3634-5 D '63

Fission-gas release from uranium carbide. Nucleonics 21:72 O '63

Hot-atom reactions data fit kinetic theory. R. Wolfgang and A. H. Rosenberg. il Chem & Eng N 42:47-8+ S 14 '64

Insertion reaction by methyne forms ethylene. A. P. Wolf and G. Stöcklin. il Chem & Eng N 42:46-7 Ja 27 '64

Interaction of medium-energy nucleons with complex nuclei. L. Rosen. il diag Phys Today 16:21-4+ N '63

Laser excited by nuclear heat. F. M. Johnson. bibliog diags Nucleonics 22:57-60 Ap '64

Model for fission-fragment damage in thin polycrystalline metal films. A. N. Goland and A. Paskin. bibliog J Ap Phys 35:2188-94 Jl '64

Nuclear chemistry, isotopes and radioactivity. G. T. Austin and H. F. Austin. bibliog Chem Eng 71:129-32 O 26 '64

Production of Np^{237} and Pu^{238} in thermal power reactors. D. R. Vondy and others. Ind & Eng Chem Proc Design 3:293-6 O '64

Study of the discovery of fission. E. B. Sparberg. bibliog Am J Phys 32:2-8 Ja '64

See also

Neutrons—Capture

Fusion

Astron device begins operating. il diag Phys Today 17:74-5 Je '64

Better cages for thermonuclear plasma. il diags Engineering 197:877-9 Je 26 '64

Controlled fusion power still beyond reach. il Chem & Eng N 42:31-3 S 21 '64

Low-pressure gas discharge switches for use in fusion experiments. R. Hancox. bibliog diags Inst E E Proc 111:203-13 Ja '64

Megajoule CLR circuit. il diags Wireless World 70:382-3 Ag '64

Recent developments in controlled fusion. A. S. Bishop. il diags Phys Today 17:19-26, cover Mr '64

Skirmishing with fusion at Geneva. il Engineering 198:360-1 S 18 '64

NUCLEAR reactors

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on nuclear energy. Combustion 35: 35-8 My '64

Atomic power. C. E. Wise. il diags Machine Design 36:116-23 Ap 9; 198-205 Ap 23; 134-9 My 7 '64

Chemical aspects of nuclear reactors. J. K. Dawson and R. G. Sowden. Review, by C. M. Nicholls. Chem & Ind p 1649-53 S 26 '64

Consort II research reactor for London university. il Engineer 217:180-1 Ja 24 '64

Dual-purpose nuclear reactor goes critical. il diag Chem Eng 71:40+ Mr 2 '64

Economic and technical data for major U.S. power reactors; with tables and charts. il Nucleonics 22:56-9 Jl '64

Economic nuclear ship reactor. Naval Eng J 76:542 Ag '64

First meteoroid-penetration data for SNAP designers. C. T. D'Aiutolo. bibliog il diags Nucleonics 21:51-5 N '63

First satellite powered by nuclear energy. il Engineering 196:541 O 25 '63

Future of the Rankine cycle in space. H. L. Davis. diag Nucleonics 22:34-6 Mr '64

Instrument for measuring long narrow holes. il Engineer 217:405 F 28 '64

Line-up of nuclear fission reactor systems under development. Can Chem Process 48: 53-4 My '64

Molten salt reactor experiment. E. S. Bettis and W. B. McDonald. il diags Nucleonics 22:67-70 Ja '64

New nonbolted closure for reactor vessels. N. R. Johanson. diags Nucleonics 22:79-80+ F '64; Discussion. 22:6-8 Je '64

Offshore rigs may use nuclear generator. il Oil & Gas J 61:66 O 28 '63

173-ton reactor for Peach Bottom A-plant. il diag Elec World 161:85+ Ja 27 '64

Power generation and conditioning for SNAP. N. W. Bucci and R. W. Briggs. diags Nucleonics 22:51-4 Je '64

Power reactors the world around; tables. Nucleonics 21:112-15 Ag '63

Remote viewing system for Dragon reactor. il diag Engineer 217:644-6 Ap 10 '64

Satellite powered by nuclear energy is launched. Elec Eng 82:739 D '63

Sunken SNAP beams out navigational signals. il diag Machine Design 36:8 Ag 13 '64

NUCLEAR reactors—*Continued*

Technical conference on compounds of interest in nuclear reactor technology; Boulder, Colo. Aug. 3-5; program. J Metals 16:477-9 Je '64

Unit monitors neutron flux during reactor start-up. Chem & Eng N 42:77 Ap 20 '64

See also

Atomic power plants

Rockets, Atomic powered

Ship propulsion, Atomic

Boiling water reactors

Corrosion of steels and nickel alloys in superheated steam. W. E. Ruther and S. Greenberg. bibliog il diag Electrochem Soc J 111: 1116-21 O '64

Materials for boiling water and superheated steam nuclear power reactors. W. R. Smith. il diag Materials Res & Stand 4: 170-4 Ap '64

Measurements of burnout conditions for flow of boiling water in a vertical annulus. K. M. Becker and G. Hernborg. bibliog flow diag diags A S M E Trans ser C 86:393-404; Discussion. M. Petrick. 404; Reply. 404-7 Ag '64

New theory of thermal stability in boiling systems. E. F. Adiutori. bibliog il diags Nucleonics 22:92+ My '64

Next for Candu; direct cycle steam? diags Can Chem Process 48:57-8+ O '64

Nuclear superheat concept. Franklin Inst J 277:94-5 Ja '64

Saxton tests lead toward better water reactors. D. R. Rees and E. U. Powell. il diags Nucleonics 21:72+ N '63

US reactor types weighed by Britain. Elec World 161:68 My 4 '64

Breeder reactors

Fast breeder progress up to industry. Elec World 160:27 D 16 '63

Future of fast breeders. L. J. Koch. bibliog Nucleonics 21:72-5 Je '63; Discussion. 21:6-7 N '63

Future of thermal breeders. M. C. Edlund and P. F. Schutt. Nucleonics 21:76-8 Je '63; Discussion. 21:6-7+ O '63

New breed of reactor. Combustion 35:33 F '64

Power to see by Argonne experimental breeder reactor II. Product Eng 35:64 S 14 '64

Control

Chemical-shim control for nuclear reactors. P. Cohen and H. W. Graves, jr. diags Westinghouse Eng 24:90-3 My '64; Nucleonics 22:75-6+ My '64

Computer simplifies control of Candu. il Can Chem Process 48:65-7 My '64

Computer sizes parameters of a pneumatic scram system. R. H. Larson. il diags Hydraulics & Pneumatics 17:94-101 O '64

Controlling nuclear reactor gas systems. S. L. Nelson. diags I S A J 11:69-70 Mr '64

New ultrasonic measuring device. Franklin Inst J 277:294-5 Mr '64

Transistor instrumented nuclear reactor. Electronic Eng 36:626 S '64

Control rods

Departure from nucleate boiling (DNB) varies with rod spacing in 19-rod bundles. E. D. Waters and D. E. Fitzsimmons. bibliog diag Nucleonics 21:96+ O '63

Cooling

Advanced gas-cooled reactor. K. Saddington. diag Engineer 218:482-3 S 25 '64

Boiling potassium reactor for space. A. P. Fraas. diag Nucleonics 22:72+ Ja '64; Discussion. H. R. Kroeger. 22:6-7 Mr '64

Determination of polyphenyls in working environments of organic reactors by spectrophotometric methods. C. Testa and G. Masi. bibliog diag Anal Chem 36:2284-7 N '64

Emergency cooling for large nuclear reactors at Hanford, Wash. G. T. Lewis. flow diag il diag Power 108:59-61 Ag '64

Fuel cycle economics of large D_2O moderated, organic cooled power reactors. R. J. Rickert. diags Combustion 35:20-2 Ap '64

Light-water reactors are almost competitive. il Chem & Eng N 42:50-2 Jl 6 '64

Liquid-metal heat transfer. R. D. Brooks and C. F. Bonilla. bibliog Nucleonics 22:43-8 Mr '64

New correlations predict departure from nucleate boiling conditions. L. S. Tong and others. bibliog Nucleonics 21:43-7 My '63; Discussion. 21:6-7+ Jl '63; 22:6-7+ F '64

Peach Bottom atomic power-station in Pennsylvania. il diag Engineer 216:752-4, 791-4 N 1-8 '63

Pipeline gas from coal using nuclear heat. L. J. Pieroni and others. bibliog flow diags diag Chem Eng Prog 60:58-63 Je '64

Radiolysis and pyrolysis of polyaromatic compounds. J. Weiss and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:73-8 Je '64

Reclamation of damaged nuclear reactor coolant by catalytic hydrocracking. L. E. Gardner and W. M. Hutchinson. Ind & Eng Chem Product Res & Develop 3:28-33 Mr '64

Status of gas cooled reactor program. R. M. Evans and A. E. Goldman. il diags Metal Prog 85:118-22 Mr '64

Steam-cooled reactor under study. diag Elec World 162:40 Ag 24 '64

Steam cycles for advanced gas-cooled magnox reactors. N. G. Worley. Engineer 217:307-9 F 14 '64

Use of carbon-14 in the study of metal-carbon dioxide reactions. W. B. Jepson. bibliog diag J Ap Chem 14:309-15 Ag '64

Corrosion

Corrosion of high-temperature materials in alkali metals; panel discussion. bibliog il diags Nucleonics 22:37-42 Mr '64

Finding a corrosion-resistant cladding for superheater fuels. C. N. Spalaris. bibliog il Nucleonics 21:41-9 S '63

How corrosion affected design of Candu. D. G. Boxall. bibliog il diag Can Chem Process 48:69-72 My '64

New heat treatment cuts Zircaloy-2 corrosion, hydrogen embrittlement. il Nucleonics 21:70 N '63

Design

Advanced technology for space reactors; special report. bibliog il diags Nucleonics 22:33-48 Mr '64

Assessment of steels for nuclear reactor pressure vessels. A. Cowan and R. W. Nichols. bibliog il A S M E Trans ser A 86:393-401; Discussion. 401-2 O '64

Free convection heat transfer up to near-critical conditions. V. E. Holt and R. J. Grosh. flow diag Nucleonics 21:122-5 Ag '63

Graphite support grid for a nuclear reactor. F. H. Turner. il diags Engineer 218:104-6 Jl 17 '64

New theory of thermal stability in boiling systems. E. F. Adiutori. bibliog il diags Nucleonics 22:92+ My '64

Power reactor development by the U.K.A.E.A. il Engineer 218:127-9 Jl 24 '64

Power sources draw attention at Geneva; fast-neutron reactor. il Chem & Eng N 42: 56-7 S 21 '64

Re-examination of gas-cycle nuclear-electric space powerplants. J. Grey and P. M. Williams. bibliog diags AIAA J 1:2801-11 D '63

Scottish research reactor centre. il Engineer 216:843-5 N 22 '63

Two-phase pressure drop across vertically mounted thick plate restrictions. J. O. Cermak and others. bibliog diags A S M E Trans ser C 86:227-39 My '64

Universities' research reactor. il diag Engineer 218:243-4 Ag 14 '64

Unusual design aspects of Hunterston reactors. A. N. H. Bond. il diag Engineer 217: 514-16 Mr 20 '64

When economics favor shift to nuclear power generation. R. J. Bender. diags Power 108: 70-3 O '64

Failure

Finding failed fuel in CANDU. J. F. Palmer. bibliog diag Nucleonics 22:39-40+ Je '64

Mechanical failures of materials testing reactor fuel assemblies. L. J. Harrison. bibliog il diags Nucleonics 21:78+ O '63

Planning for care of injured radiating patients. W. D. Norwood. il plan diag Archives Environmental Health 8:474-9 Mr '64

Fuel

Advanced in-core instrumentation from Halden. H. Ager-Hanssen and R. D. Smith. bibliog il diags Nucleonics 22:49-56 Ap '64

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on nuclear fuels. Combustion 35:38-9 My '64

AEC reactor designed to produce more fuel than it consumes becomes operable. Combustion 35:51 D '63

Autoradiography; useful tool for examining irradiated UO_2. R. F. Boyle and others. bibliog il Nucleonics 22:76-8 Ap '64

Babcock & Wilcox banks on need for newer fuels. il Chem & Eng N 42:52-3 F 3 '64

NUCLEAR reactors—Fuel—*Continued*

Betatron radiographs irradiated UO_2 fuels. H. Nagami and others. il diag Nucleonics 21:66+ D '63

Bonding of metals to uranium dioxide. A. Milner and C. R. Tottle. bibliog il diags Inst Metals J 93:48-52 '64-65

Coining technique for the fabrication of medium-volume cermet nuclear fuels. L. H. Cope. il Metallurgia 70:59-63 Ag '64

Cutting fins on atomic fuel cans. il Engineering 198:127-8 Jl 24 '64

Determination of long-lived iodine-129 in irradiated graphite fuel systems. G. Buzzelli. Anal Chem 36:1973-5 S '64

Development of magnox fuel. J. C. C. Stewart. Engineer 216:807-9 N 15 '63

Direct path from refractory oxides to carbides. diag Chem Eng 70:134+ N 11 '63

Dresden refueled and improved. P. P. Eddy. il Nucleonics 21:101-5 O '63

Effects of changing economic conditions on fuel-cycle costs. P. Dragoumis and others. Nucleonics 21:116-19 Ag '63

End of nuclear fuel monopoly urged. Elec World 161:19-20 Je 22 '64

Evaluating coated particles of nuclear fuel. R. W. McClung and others. il Metal Prog 86:90-3 Jl '64

Finding a corrosion-resistant cladding for superheater fuels. C. N. Spalaris. bibliog il Nucleonics 21:41-9 S '63

Finding failed fuel in CANDU. J. F. Palmer. bibliog Nucleonics 22:39-40+ Je '64

Gas-pressure bonding now production process. bibliog il Nucleonics 22:76 F '64

High-density nuclear fuel pellets. Engineering 196:736 D 6 '63

Hot extrusion of UO_2 fuel elements. J. Hunt and P. Loewenstein. il diags Am Cer Soc Bul 43:562-5 Ag '64

How irradiation at 1,100-1,800°F affects niobium-uranium alloys. J. A. De Mastry and others. il Nucleonics 21:86+ O '63

How to measure hardness of pyrolytic carbon. T. M. Kegley, jr. and B. C. Leslie. il diags Nucleonics 21:62-4 D '63

How toll enrichment will reduce fuel costs. D. P. Herron. diags Nucleonics 22:62-3 Je '64

How utilities can figure nuclear fuel costs. D. G. Adler. diag Elec World 162:114-17 S 21 '64

Implications of U-N phase system for UN fuel. J. Bugl and A. A. Bauer. Nucleonics 22:64 Ja '64

In-pile performance of ceramic coated-particle fuels. C. W. Townley and others. bibliog il Nucleonics 22:43-8 F '64

Instrument for determining crushing strength of fuel particles. G. Hallerman and R. J. Gray. il diags R Sci Instr 35:850-2 Jl '64

Irradiation behavior of plutonium fuels. V. W. Storhok. bibliog Nucleonics 22:86 Ap '64

Joint research programs save time and money; Dow-Westinghouse program on nuclear fuels typifies some of the why's and how's of cooperative research. il Chem & Eng N 42:34-5 N 2 '64

Largest sample of important isotope of thorium-uranium fuel cycle isolated. Franklin Inst J 277:506-7 My '64

Magnox nuclear fuel elements. bibliog il Engineer 218:446 S 18 '64

Manufacture of egcr core 1 fuel assemblies. G. M. Tolson and M. G. Arlotti. bibliog il diags Welding J 43:280-6 Ap '64

Mechanical failures of materials testing reactor fuel assemblies. L. J. Harrison. bibliog il diags Nucleonics 21:78+ O '63

Molten salt reactor could cut power costs. diags Elec World 162:60+ O 5 '64

New firm will aid Germany's reactor program: Alkem. alphachemie und metallurgie. G.m.b.H. Chem & Eng N 42:92-3 Mr 9 '64

Nuclear fuel element; an exercise in metallurgy. H. M. Finniston. il diags Inst Metals J 92:385-97 '63-64

Nuclear fuel handling. A. D. Wordsworth. Review. by L. R. Katz. il Nucleonics 22:72-3 Je '64

Nuclear fuel success and station progress. Engineering 197:365 Mr 6 '64

Nuclear power; experience and trends. L. F. C. Reichle. il diags Combustion 35:22-9 Je '64

Plutonium-bearing glass for nuclear applications. L. V. Jones and others. il Am Cer Soc Bul 43:131-5 F '64

Plutonium carbide fuels for high-temperature gas-cooled reactors. S. Langer. bibliog Nucleonics 21:73-5 S '63

Plutonium; nuclear fuel of the future. Engineer 217:920-1 My 22 '64

Preparation and properties of plutonium-bearing oxide particulates. L. V. Jones and others. bibliog il Ind & Eng Chem Product Res & Develop 3:78-82 Je '64

Private ownership of atomic fuel approved. Chem & Eng N 42:44-5 Ag 17 '64

Private ownership of fuel explored. C. Hosmer. Elec World 161:111-13 My 18 '64

Production of Np^{237} and Pu^{238} in thermal power reactors. D. R. Vondy and others. Ind & Eng Chem Proc Design 3:293-6 O '64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Selenium; possible Rankine-cycle fluid. C. F. Bonilla and G. Shulman. bibliog Nucleonics 22:58+ Mr '64

Spiral machining produces fuel discs. il Steel 155:159-60 O 12 '64

Step nearer new nuclear fuel source; protactinium-233. Engineering 197:431-2 Mr 20 '64

Third Shippingport refueling still faster. R. E. Barclay and W. J. O'Brien. il Nucleonics 21:70-2 S '63

Toward longer-life army-reactor cores. J. G. Gallagher. bibliog diags Nucleonics 22:62+ Mr '64

Ultrasound maps flaws in bonds. W. N. Redstreake. il diags Iron Age 193:58-9 Ja 23 '64

UO_2 fuel capability extended above melting point. M. F. Lyons and others. bibliog il Nucleonics 22:102 My '64

UO_2 molten zone identified. il Nucleonics 21:68 S '63

Uranium-molybdenum-carbon equilibrium diagram. F. G. Streets and J. J. Stobo. bibliog il Inst Metals J 92:171-4 '63-64

Fuel reprocessing

Fuel-cycle services offered by American companies; tables. Nucleonics 22:60-3 Jl '64

Halide fusion reprocesses reactor fuels; abstract. G. A. Bennett and others. Chem & Eng N 42:78 S 14 '64

Inorganic ion exchanges separation of cesium from Purex-type high-level radioactive wastes. J. L. Nelson and others. bibliog flow sheet Ind & Eng Chem Proc Design 3:143-8 Ap '64

Neptunium recovery and purification at Hanford. R. E. Isaacson and B. F. Judson. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:296-301 O '64

New look is likely in nuclear-fuels reprocessing. il Chem Eng 71:90-2 N 9 '64

New neptunium purification facility at the Hanford Purex plant. J. P. Duckworth and J. R. Lariviere. diags Ind & Eng Chem Proc Design 3:306-8 O '64

New neptunium recovery facility at the Hanford Purex plant. J. P. Duckworth and L. R. Michels. bibliog il diags Ind & Eng Chem Proc Design 3:302-6 O '64

Plutonium fuel advances improved outlook for recycling. Nucleonics 22:23 My '64

Radial gas mixing in fluidized-packed beds. J. D. Gabor and W. J. Mecham. bibliog diag Ind & Eng Chem Fundamentals 3:60-5 F '64

Sugar replaces formaldehyde in denitration. il Chem & Eng N 42:50-1 Ja 27 '64

Survey of headend processes for nuclear fuel reprocessing. C. M. Slansky. bibliog il J Metals 16:25-32 Ja '64

Welded vessel carries hot fuel. il Welding Eng 49:66 My '64

Heavy water reactors

Direct-cycle boiling heavy water reactor to be built in Sweden. flow diag Power Eng 68:59 S '64

Fuel cycle economics of large D_2O moderated, organic cooled power reactors. R. J. Rickert. diags Combustion 35:20-2 Ap '64

Heavy-water reactor stressed. Elec World 162:23 Jl 6 '64

Heavy-water reactors in comeback, vie for prototype. Nucleonics 21:17-19 D '63

Keeping the Candu system competitive. il Can Chem Process 48:49-52 My '64

Layout and building design features of the Douglas Point nuclear power project. E. C. Smith. il plans diags Eng J 47:27-32 Je '64

Spark source mass spectrometry use extended. il Chem & Eng N 42:79+ Jl 13 '64

Swedish turbine to operate on heavy-water cycle in Marviken nuclear power plant. flow diag diags Power 108:62-3 Ag '64

History

History and accomplishments of the Oak Ridge graphite reactor. A. H. Snell and A. M. Weinberg. il diags Phys Today 17:32-8 Ag '64

NUCLEAR reactors—*Continued*

Maintenance and repair

Atom's-eye view of a reactor. il Mod Materials Handling 19:57 Mr '64
How to look into a hot reactor. il Safety Maint 127:48-9+ Mr '64
Third Shippingport refueling still faster. R. E. Barclay and W. J. O'Brien. il Nucleonics 21:70-2 S '63
Three-eyed maintenance man. il Mech Eng 86:58 F '64

Manufacture

Building an atomic-age furnace. H. W. Bredin. il Mach 71:105-11 S '64
Fabrication of the Molten-salt reactor experiment heat exchanger core. R. G. Donnelly and G. M. Slaughter. bibliog il diags Welding J 43:118-24 F '64
Incompatible-metal tubes welded explosively. R. J. Carlson. il Nucleonics 21:59 D '63
Massive container to house first floating reactor. il Welding Eng 49:74+ S '64

Materials

Brazing of ceramics. C. W. Fox and G. M. Slaughter. bibliog il Welding J 43:591-7 Jl '64
Cast magnesium components for nuclear reactors. R. W. Eade. il diag Mod Metals 20:32+ Mr '64
Chromium-5 per cent magnesia for high temperature service. W. C. O'Neal. il Metal Prog 85:96-100 Mr '64
Corrosion of high-temperature materials in alkali metals; panel discussion. bibliog il diags Nucleonics 22:37-42 Mr '64
Design with refractories. Product Eng 34:78 N 11 '63
Effect of oxidation on the reactivity of nuclear graphite towards air. A. R. Blake. bibliog J Ap Chem 14:382-8 S '64
Fabrication of ceramic internal reflectors for the SNAP 8 experimental reactor. K. Langrod. il diags Am Cer Soc Bul 43:392-4 My '64
Industry fallout from the atom mushrooms; interview with G. T. Seaborg. R. W. Crosby. Iron Age 194:60-3 S 17 '64
Materials for boiling water and superheated steam nuclear power reactors. W. R. Smith. il diag Materials Res & Stand 4:170-4 Ap '64
Nuclear and space ceramic research; special report. A. C. Allen. il Cer Ind 83:31-43 O '64
Nuclear reactors use magnesium castings. R. W. Eade. il Foundry 92:152+ Je '64
Rules for construction of nuclear vessels; a report on the ASME boiler and pressure vessel code. E. O. Bergman. Materials Res & Stand 4:175-6 Ap '64
Snap-8 materials. C. M. Scheuermann and others. bibliog il diags Astronautics & Aerospace Eng 1:40-3 D '63
Total hemispherical emissivity of 20 per cent Cr:25 per cent Ni:Nb-stabilized steel. D. A. Howl and A. F. Davis. diags Iron & Steel Inst J 202:523-6 Je '64

Pressurized water reactors

Consolidated nuclear steam generator for marine application. diags Engineer 218:297-300 Ag 21 '64
CNSG-3: most advanced pwr for merchant marine use. diags Nucleonics 22:23-5 Jl '64
PWR plant has conventional controls. R. Eastman and D. F. Winters. il diag Elec World 161:49-51+ Je 1 '64
Research reactor makes use of existing turbine-generator set. il Power Eng 68:49-50 Ja '64
Toward longer-life army-reactor cores. J. G. Gallagher. bibliog diags Nucleonics 22:62+ Mr '64

Protection

Controlling nuclear reactor gas systems. S. L. Nelson. diags I S A J 11:69-70 Mr '64
Focal-point protection system for power reactors. D. D. Bowen. diags Inst E E Proc 110:2213-20 D '63; Discussion. 111:1593-6 S '64
Shielding isotopic power sources for space missions. J. P. Nichols and E. D. Arnold. bibliog Nucleonics 22:52-6 F '64

Safety measures

Action guides for radioactive effluents from Plutonium recycle test reactor. R. F. Foster and others. map diags Am Soc C E Proc 89 [SA 6 no 3733]:17-35 D '63
Advanced in-core instrumentation from Halden. H. Ager-Hanssen and R. D. Smith. bibliog il diags Nucleonics 22:49-56 Ap '64
Filters for reactor containment. J. W. Walker and A. H. Peters. bibliog il diags Mech Eng 85:46-50 S '63; Same. Naval Eng J 76:135-40 F '64
Focal-point protection for nuclear power reactors; abstract. D. D. Bowen. Engineer 217:136 Ja 17 '64
Nitrogen-17 decay monitors reactor power. A. M. Plummer. flow diag Nucleonics 22:84-5 Ap '64
Nuclear safety tests expanded by AEC. Steel 154:107 Mr 16 '64
Periscopes and television for Dragon project. Electronic Eng 36:329 My '64
Reactor containment and environmental considerations. R. O. Brittan. Am Soc C E Proc 90 [UP 1 no 4037]:21-31 S '64
Safety for nuclear-powered space vehicles. A. J. Clark, jr. il Mech Eng 86:36-9 S '64
Self-powered neutron detectors for reactor flux monitoring. J. W. Hilborn. bibliog diags Nucleonics 22:69-72+ F '64

Testing

New monitor for reactors. M. A. Schultz. diag Electronics 36:30 D 6 '63
Nuclear space projects face up to safety problems. H. L. Davis. bibliog Nucleonics 21:41-5 D '63
Quality control and non-destructive testing in the construction of marine nuclear power plant. W. H. Samson. bibliog il Naval Eng J 76:753-69 O '64

Waste

Action guides for radioactive effluents from Plutonium recycle test reactor. R. F. Foster and others. map diags Am Soc C E Proc 89 [SA 6 no 3733]:17-35 D '63

NUCLEAR research laboratories. See Atomic research laboratories

NUCLEAR resonance. See Magnetic resonance

NUCLEAR rocket propulsion. See Rockets, Atomic powered

NUCLEAR spin. See Atomic nuclei—Spin

NUCLEATION. See Condensation

NUCLEI, Atomic. See Atomic nuclei

NUCLEIC acids

Chemistry of nucleosides and nucleotides, by A. M. Michelson; Progress in nucleic acid research, vol. 1, ed. by J. N. Davidson and W. E. Cohn. Review, by C. B. Reese. Chem & Ind p 1918-19 D 7 '63
Essays on nucleic acids. E. Chargaff. Review, by T. L. V. Ulbricht. Chem & Ind p740-2 My 2 '64
Hybrid nucleic acids. S. Spiegelman. diags Sci Am 210:48-56 My '64
Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of clinical symptoms and starvation to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:422-6 Ap '64
Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of dietary protein to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:427-31 Ap '64
Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of certain 5- and 6- halogenouracils and -cytosines. I. Wempen and J. J. Fox. bibliog Am Chem Soc J 86:2474-7 Je 20 '64
Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of 3-methylcytosine. T. Ueda and J. J. Fox. bibliog Am Chem Soc J 85:4024-8 D 20 '63

See also
Desoxyribonucleic acid
Ribonucleic acid

NUCLEOPHILES

Aromatic nucleophilic substitution rules apply to hydrated electron reactions. E. J. Hart and M. Anbar. il Chem & Eng N 42:50+ S 14 '64

NUCLEOPROTEINS

Polyribosomes. A. Rich. il diags Sci Am 209:44-53 D '63

NUCLEOSIDES

Acidic solvolytic transformations of an iodinated nucleoside, the antiviral 5-iodo-2'-deoxyuridine. E. R. Garrett and others. bibliog Am Chem Soc J 86:4460-8 O 20 '64
Adenine nucleosides of 4-thioribofuranose. E. J. Reist and others. Chem & Ind p 1364-5 Jl 25 '64
Anomeric purine nucleoside derivatives of 2-amino-2-deoxy-d-glucose. M. L. Wolfrom and others. bibliog Chem & Ind p930 My 30 '64

NUCLEOSIDES—*Continued*

Association constants of methylmercuric and mercuric ions with nucleosides. R. B. Simpson. bibliog Am Chem Soc J 86:2059-65 My 20 '64

Biosynthesis of cordycepin. R. J. Suhadolnik and others. bibliog Am Chem Soc J 86:948-9 Mr 5 '64

Chemistry of nucleosides and nucleotides, by A. M. Michelson; Progress in nucleic acid research, vol. 1, ed. by J. N. Davidson and W. E. Cohn. Review, by C. B. Reese. Chem & Ind p 1918-19 D 7 '63

3′-Deoxynucleosides; a synthesis of 3′-deoxyadenosine. E. Walton and others. bibliog Am Chem Soc J 86:2952 Jl 20 '64

Direct iodination of the sugar moiety in nucleosides. J. P. H. Verheyden and J. G. Moffatt. bibliog Am Chem Soc J 86:2093-5 My 20 '64

Direct utilization of glycals for the preparation of purine deoxynucleosides. W. A. Bowles and R. K. Robins. bibliog Am Chem Soc J 86:1252-3 Mr 20 '64

Dismutation of nucleoside 5′-polyphosphates. W. E. Wehrli and others. bibliog Am Chem Soc J 86:1254-5 Mr 20 '64

Interaction and association of bases and nucleosides in aqueous solutions. P. O. P. Ts'o and S. I. Chan. bibliog Am Chem Soc J 86:4176-88 O 5 '64

Nucleosides; the introduction of unsaturation into the carbohydrate of a pyrimidine nucleoside via a 2, 3′-anhydro bond. J. P. Horwitz and others. Am Chem Soc J 86:1896-7 My 5 '64

2′,3′-*O*-alkoxymethylene derivatives of ribonucleosides. J. Žemlička. bibliog Chem & Ind p581 Ap 4 '64

Purine deoxynucleosides; synthesis of 9-(2′-deoxy-α- and -β-D-ribofuranosyl and 2′-deoxy-α- and -β-D-ribopyranosyl)purines by the fusion method. M. J. Robins and others. bibliog Am Chem Soc J 86:1251-2 Mr 20 '64

Purine nucleosides; direct bromination of adenosine, deoxyadenosine, guanosine, and related purine nucleosides. R. E. Holmes and R. K. Robins. bibliog Am Chem Soc J 86:1242-5 Mr 20 '64

Reaction of mercury(II) with nucleosides. G. L. Eichhorn and P. Clark. bibliog Am Chem Soc J 85:4020-4 D 20 '63

Reduction of acylated aldono-γ-lactones to aldofuranose derivatives; a new synthetic pathway to nucleosides. P. Kohn and others. bibliog Am Chem Soc J 86:1457-8 Ap 5 '64

Ribonucleoside 2′,3′-cyclic orthoformates. M. Jarman and C. B. Reese. Chem & Ind p 1493-4 Ag 22 '64

Simultaneous formation of both α- and β-nucleosides by the fusion method. W. W. Lee and others. bibliog Chem & Ind p2007-8 D 28 '63

Studies on polynucleotides; the specific synthesis of $C^{3'}$-$C^{5'}$-linked ribooligonucleotides; new protected derivatives of ribonucleosides and ribonucleoside 3′-phosphates; further syntheses of diribonucleoside phosphates. R. Lohrmann and H. G. Khorana. bibliog Am Chem Soc J 86:4188-94 O 5 '64

Synthesis of 2,3-didehydro-2,3-dideoxy and 2,3-dideoxy sugar nucleosides of known configuration. C. L. Stevens and others. Am Chem Soc J 86:1894-5 My 5 '64

See also

Desoxyribonucleoside

Pseudouridine

NUCLEOTIDES

Chemistry of nucleosides and nucleotides, by A. M. Michelson; Progress in nucleic acid research, vol. 1, ed. by J. N. Davidson and W. E. Cohn. Review, by C. B. Reese. Chem & Ind p 1918-19 D 7 '63

Continuous flow analyzer for recording of light absorption and radioactivity in the eluates from chromatographic columns. C. I. Sjöberg and G. Ågren. bibliog il diags Anal Chem 36:1017-21 My '64

Distribution of 5′-ribonucleotides in foods and their application to foods. H. Shimazono. bibliog il(cover) Food Tech 18:294+ Mr '64

Helix-to-random coil change takes less than microsecond; kinetic studies of hydrogen bond formation. M. Eigen and others. diags Chem & Eng N 41:38-40 D 2 '63

History and development of flavor nucleotides. A. Kuninaka and others. bibliog il(cover) Food Tech 18:287-93 Mr '64

2′*O*-(α-ethoxyethyl)-5′-*O*-acetyluridine 3′-phosphate, a new key intermediate for oligonucleotide synthesis. S. Chládek and J. Smrt. Chem & Ind p 1719 O 10 '64

Optical rotatory dispersion of deoxyribonucleotides. J. T. Yang and T. Samejima. bibliog Am Chem Soc J 85:4039-40 D 20 '63

Plant enzyme system produces cellulose. il Chem & Eng N 42:44-5 F 3 '64

Possible intermediates in the biosynthesis of deoxyribonucleotides; the synthesis of cytidine 2′-phosphate 5′-diphosphate. J. P. H. Verheyden and J. G. Moffatt. bibliog Am Chem Soc J 86:1236-41 Mr 20 '64

Preparative method for the 5′-phosphorylation of deoxyribo-oligonucleotides. A. L. Nussbaum and A. M. Duffield. bibliog Chem & Ind p 1729-30 O 26 '63

Reaction of 5′-thymidylic acid with the condensation product of phosphorus pentoxide and ethyl ether. F. N. Hayes and E. Hansbury. bibliog Am Chem Soc J 86:4172-5 O 5 '64

Stepwise synthesis of certain deoxyribotrinucleotides. A. L. Nussbaum and others. bibliog Am Chem Soc J 86:102-6 Ja 5 '64

Studies on polynucleotides. H. Schaller and others. bibliog Am Chem Soc J 85:3821-62; 86:1630-5, 2926-32, 4188-94 D 5 '63, Ap 20, Jl 20, O 5 '64

NUDIFLORINE. See Alkaloids

NUMBERING systems

Composite numbers. J. Zdunek. Inst E E Proc 110:2125-31 D '63

Part numbers vs data processing. H. A. Pohs. diags Mag of Stand 35:202-6 Jl '64

NUMBERS

Calculations with pseudo-random numbers. F. Stockmal. bibliog Assn for Computing Mach J 11:41-52 Ja '64

Evaluation of a pseudorandom normal number generator. R. Kronmal. bibliog Assn for Computing Mach J 11:357-63 Jl '64

House numbers for urban and fringe areas. J. H. Vogel. plans Pub Works 94:121-3 D '63

Mixed congruential random number generators for binary machines. T. E. Hull and A. R. Dobell. bibliog Assn for Computing Mach J 11:31-40 Ja '64

NUMBERS, Irrational

Numerical analysis. S. Kravitz. Product Eng 35:123-5 Je 8 '64

NUMBERS, Prime

Mathematical games; remarkable lore of the prime numbers. M. Gardner. il diag Sci Am 210:120+ Mr '64

NUMBERS, Theory of

Finite automata and the set of squares. R. W. Ritchie. bibliog Assn for Computing Mach J 10:528-31 O '63

Number. P. J. Davis. il diags Sci Am 211:50-9 S '64

See also

Stirling numbers

NUMERATION

Mechanical binary scaler. B. I. H. Scott. diag Am J Phys 32:645-6 Ag '64

Now count the computer way. R. H. Cortes. Hydrocarbon Process & Pet Refiner 43:95-100 F '64

NUMERICAL control

Compensating for dynamics in digital control. J. B. Slaughter. bibliog diags Control Eng 11:109-14 My '64

Digital magnetic tape; will it win bulk of n/c market? il Steel 155:62-3 Jl 20 '64

Direct digital control gets user go-ahead. H. R. Karp. diag Control Eng 11:23+ Je '64

Esso joins direct digital control ranks. il Chem & Eng N 42:58 My 11 '64

Languages of tape. R. A. Thomas. diags Am Mach 108:73-80 Ja 6 '64 (reprints 50c)

Mechanical switch-cart systems; towed platform carts, mechanically programmed. W. L. DeWent. il diag Mech Eng 85:34-7 D '63

N/c programming from undimensioned drawings. R. C. McCarty. il diag Tool & Manuf Eng 53:65-7 O '64

Phonograph-like controller plays multichannel program. il diags Machine Design 36:126-7 Ap 9 '64

Pushing n/c for peak efficiency. diags Iron Age 193:96-7 Ap 23 '64

NUMERICAL control—*Continued*

Zeroing in on direct digital control. H. R. Karp. Control Eng 11:105 My '64

See also subdivision Numerical control under special subjects, e.g.

Assembling machines
Blast furnaces
Broaching machines
Cutting machines
Diffractometers
Digesters (paper making)
Drilling and boring machinery
Electric welding machines
Extrusion machines
Forging machinery
Gages
Grinding machines
Knitting machines
Lathes
Machine tools
Measuring instruments
Milling machines
Plastics machinery
Positioning equipment
Punching machinery
Testing machines
Tube bending machines
Typesetting machines

Terminology

Definitions for numerically controlled machine tools; data sheets. Mach 70:177-8 Ap; 161-2 My '64

NURSES and nursing

Organized hospital based home care program. A. F. Elconin and others. Am J Pub Health 54:1106-17 Jl '64

NURSES and nursing, Industrial

In-plant nurse. B. Kosche. Archives Environmental Health 9:247-51 Ag '64

Industrial nursing in the United States; interview with M. L. Brown. Ind Med 33:28-33 Ja '64

Teamwork for safety; the industrial nurse. L. Roche. Safety Maint 128:44-6+ O '64

NURSES and nursing, Public health

Changes in rates of visiting nurse services in the health insurance plan. S. Shapiro and M. M. Einhorn. Am J Pub Health 54:417-30 Mr '64

Characteristics of psychiatric patients who utilize public health nursing services. F. C. Austin and others. bibliog Am J Pub Health 54:226-38 F '64

Child health station personnel; a profile. M. Goldman and others. Am J Pub Health 54:1302-11 Ag '64

Health insurance coverage of patients under public health nursing supervision. M. E. Parker and H. C. Chase. Am J Pub Health 54:108-14 Ja '64

New Mexico cardiovascular disease nursing project. S. J. Leland and others. Am J Pub Health 54:1118-24 Jl '64

1963 evaluation conferences; implications for public health nursing. L. J. Murray. Am J Pub Health 54:1053-7 Jl '64

Nursing services to the sick at home in selected communities. W. H. Stewart and V. V. Vahey. Am J Pub Health 54:407-16 Mr '64

Potential contribution of public health nursing. C. Chambers. Am J Pub Health 53:1894-902 D '63

System of public health nursing records for community health evaluation. G. M. Keranen and C. A. Lang. Am J Pub Health 54:295-300 F '64

Teaching of public health nursing in schools of public health; a report to the Association of schools of public health. Am J Pub Health 53:2000-9 D '63

NURSES homes

Ingenious plan for nurses' residence. il plan Prog Arch 45:62 Ag '64

NURSING homes

Dental needs of nursing home patients. E. C. Maloof and others. Am J Pub Health 54:991-6 Je '64

How can we improve food service in nursing homes? J. C. Obert and M. E. Burr. bibliog Am J Pub Health 54:932-9 Je '64

New concept in housing and nursing spaces. il plans Arch Rec 135:189-91 Ap '64

Nursing home criteria based on patients' needs. il plans Arch Rec 135:183-8 Ap '64

Public health approach to nursing home care. L. J. Taubenhaus and others. bibliog Am J Pub Health 54:53-9 Ja '64

NUTRITION

Agriculture and health. C. G. King. bibliog Food Tech 18:1162-3+ Ag '64

Ecological factors in nutritional disease. N. S. Scrimshaw. bibliog Am J Clinical Nutrition 14:112-22 F '64

Influence of dietary factors upon salmonella typhimurium infection in the guinea pig. D. P. Nabb and B. L. O'Dell. bibliog J Nutrition 84:191-9 O '64

Interactions of food technology with nutrition during the last twenty-five years. A. F. Morgan. bibliog Food Tech 18:1314-18 S '64

Long-term tolerance study of two fat emulsions for intravenous nutrition in dogs. B. Edgren and others. bibliog il Am J Clinical Nutrition 14:28-36 Ja '64

Nutrient-to-calorie ratios in applied nutrition. E. W. Crampton. bibliog J Nutrition 82:353-65 Mr '64

Nutrition, confidence and FDA aid. Food Tech 18:1565-7+ O '64

Pesticides; a contribution to agriculture and nutrition. W. J. Darby. Am J Pub Health 54:18-23 pt 2 Ja '64

Popular nutritional knowledge and its application; abstract and discussion. J. C. McKenzie. Chem & Ind p585 Ap 4 '64

Protein-rich foods in calorie-protein malnutrition. P. György and C. Perna. bibliog Am J Clinical Nutrition 14:7-12 Ja '64

Role of dispensable amino acids in the nutrition of the rat. L. H. Breuer, jr. and others. bibliog J Nutrition 82:499-506 Ap '64

Symposium on clinical nutrition, Chicago, April 16; abstracts of papers. Am J Clinical Nutrition 15:246-50 O '64

Twenty-five years of nutrition. A. E. Bender. bibliog Chem & Ind p 1668-75 O 19 '63

U.S. agriculture and nutrition. R. R. Renne. Food Tech 18:1541-3 O '64

See also

Children—Nutrition
Diet
Digestion
Feeding and feeding stuffs
Fishes—Nutrition
Metabolism

Bibliography

Reviews of recent books. Am J Clinical Nutrition 14:182, 310; 15:57-8, 115, 251-3 Mr, My, Jl-Ag, O '64

Study and teaching

Clinical teaching of nutrition. W. H. Sebrell, jr. diag Am J Clinical Nutrition 15:111-14 Ag '64

Combating nutrition misinformation through coordinated programs. H. L. Sipple. Am J Pub Health 54:823-6 My '64

NUTRITION problems

Cottonseed proteins; problems and opportunities for world protein deficits. M. Milner. Food Tech 18:1539-40 O '64

New developments in nutrition. bibliog Am J Pub Health 53:1780-812 N '63

Protein-rich foods for overcoming nutritional deficiencies; the industrial viewpoint. H. W. Bruins. il Food Tech 18:995-7 Jl '64

Africa

Iron overload in Bantu subjects. T. H. Bothwell and others. bibliog Am J Clinical Nutrition 14:47-51 Ja '64

Asia

Food consumption and nutritional status in Asian countries in relation to the need for U.S. aid. D. B. Hand. bibliog map Food Tech 18:1007-11 Jl '64

Far East

Canada-Mysore project. J. H. Hulse. il Chem & Ind p 1358-61 Jl 25 '64

Canada-Mysore project. J. H. Hulse. il Food Tech 18:1168-73 Ag '64

Guatemala

Beliefs and practices concerning medicine and nutrition among lower-class urban Guatemalans. N. L. Solien de González. bibliog Am J Pub Health 54:1726-34 O '64

India

Canada-Mysore project. J. H. Hulse. il Chem & Ind p 1358-61 Jl 25 '64

Canada-Mysore project. J. H. Hulse. il Food Tech 18:1168-73 Ag '64

Israel

Nutrition of the Bedouins in the Negev Desert. J. J. Groen and others. bibliog il Am J Clinical Nutrition 14:37-46 Ja '64

Middle East

Evaluation of protein in Middle Eastern diets. J. W. Cowan and others. bibliog J Nutrition 81:235-40 N '63

NUTRITION problems—*Continued*

New Guinea

Nutrition studies in New Guinea. R. Luyken and others. il map Am J Clinical Nutrition 14:13-27 bibliog(p26-7) Ja '64

NUTRITION research

Influence of artifical diet on weight gain and body composition of the neonatal rat. H. A. Dymsza and others. bibliog J Nutrition 84:100-6 O '64

New approach to overweight. C. H. Fellner and H. Levitt. bibliog Am J Clinical Nutrition 15:50-3 Jl '64

Nutritional effects of dihydroxystearic acid in rats. H. Kaunitz and R. E. Johnson. bibliog Am Oil Chem Soc J 41:50-2 Ja '64

Nutritional evaluation of acetostearins in rats. R. D. Coleman and others. bibliog Am Oil Chem Soc J 40:737-42 D '63

Nutritional studies of polyglycerol esters. V. K. Babayan and others. Am Oil Chem Soc J 41:434-7 Je '64

Nutritional studies with the guinea pig; determination of the linoleic acid requirement. M. E. Reid and others. bibliog il J Nutrition 82:401-8 Ap '64

Research developments in international nutrition. W. J. Darby. Am J Pub Health 53: 1789-94 bibliog(p 1793-4) N '63

Use of electronic computers in searching out nutritional interrelationships. W. H. James. Anal Chem 36:1848-9 Ag '64

NUTRITION surveys

Food consumption and nutritional status in Asian countries in relation to the need for U.S. aid. D. B. Hand. bibliog map Food Tech 18:1007-11 Jl '64

Review of methods used in nutrition surveys conducted by the Interdepartmental committee on nutrition for national defense (ICNND). Am J Clinical Nutrition 15:29-44 bibliog(p42-4) Jl '64

Studies in atherosclerosis; electronic computers in the processing of dietary data. M. H. R. Goodloe and others. bibliog flow sheet Am J Clinical Nutrition 13:304-11 N '63

NUTRITION workers

Physician and the dietitian; editorial. D. Johnson. Am J Clinical Nutrition 14:183-5 Ap '64

NUTS

See also

Almonds

Peanuts

NUTS and bolts. See Bolts and nuts

NYLON

American Enka reports growth; nylon and polyester output expands. il Mod Textiles Mag 45:72-3 Je '64

Big changes ahead in Britain's nylon business. Chem & Eng N 42:25-6 My 4 '64

Continuous formation of polyamides. R. W. Moncrieff. Ind Chem 40:87-8 F '64

Diffusion coefficient for the nylon 6 and water system. T. Asada and S. Onogi. bibliog J Colloid Sci 18:784-92 O '63

Expanding universe of nylon; how it all began. il diags Mod Textiles Mag 45:23-109+ Ja '64

More nylon requires more adipic acid. P. W. Sherwood. Mod Textiles Mag 44:56-8 N '63

Nylon (polyamide). Mod Plastics 41:105 Ja '64

Polyamides (nylons). D. D. Carswell. il Machine Design 36:76-9 S 17 '64

Portable nylon shelters with inflatable frame. il Engineering 197:395 Mr 13 '64

Properties of materials; polyamides (nylons); molded, extruded; tables. Materials in Design Eng 60:226-7 Mid-O '64

Some crystallisation phenomena in rapidly quenched 6.6 nylon. F. P. Chappel and others. bibliog il diags J Ap Chem 14:12-19 Ja '64

Strategy of nylon's growth; create new markets. J. P. Yale. Mod Textiles Mag 45:32-3+ F '64

Svenska Rayon to build nylon 6 fiber plant. Chem & Eng N 41:40+ D 23 '63

Synthetic resins; the backbone of modern finishes; polyamide resins. H. P. Preuss. bibliog il Metal Finishing 62:75-81+ Je '64

See also

Caprolactam

Dyes and dyeing—Nylon

Industrial applications

After beer kegs, what? il Product Eng 35: 68 Ag 3 '64

Cast nylon; mold polymerized nylon replaces metal; cuts costs in steel mill applications. il Plastics World 22:56 Je '64

Cast nylon parts resist wear in steel mills and presses. il Iron Age 193:62-3 Ja 23 '64

Cast nylon takes on new jobs. il Am Mach 108:72-3 Mr 2 '64

Engineering industrial plastics. C. A. Vandervell. il Brit Plastics 37:317-21 Je '64

Fused nylon coat. il Plastics World 22:47 F '64

Hardened gear teeth cut with nylon. il Iron Age 192:86 N 21 '63

Nylon bushings outwear bronze. il Eng N 172:39 Ap 23 '64

Nylon gear lap will produce over 20,000 gears before requiring replacement. il Product Eng 34:60-1 N 25 '63

Nylon gears cut printing press noise more than one-third. il Plastics World 21:66 N '63

Nylon insulators; plastics material replaces paper in parts for auto alternator. il Plastics World 22:17 Ja '64

Nylon today, a galaxy of successful end uses. G. L. Solomon. il Mod Textiles Mag 45:47-8+ Ja '64

Properties and fabrication of the nylons. D. D. Carswell. il Metal Prog 86:94-9 Jl '64

Swedish firm develops inflatable bladder to close mine shafts. il diag Eng & Min J 165:118 My '64

Tiller cable; nylon/piano-wire conduit steers boats, controls tools. il Plastics World 22: 20 Je '64

Tiny nylon parts cut typewriter wear. il Materials in Design Eng 58:159-60 N '63

Two molded nylon insulators replace 38 paper parts. il Mod Plastics 41:111 My '64

Vibrating nylon finishes gears. Steel 154:120 Ja 27 '64

What about those good old days? R. W. Duncan. Safety Maint 126:25-6+ D '63

Manufacture

Fantastically strict quality control for top quality nylon; Allied Chemical's Fibers division plant at Columbia, S.C. il Mod Textiles Mag 45:34+ Jl '64

Molding

Cast nylon; mold polymerized nylon replaces metal; cuts costs in steel mill applications. il Plastics World 22:56 Je '64

Cast nylon parts resist wear in steel mills and presses. il Iron Age 193:62-3 Ja 23 '64

Cast nylon takes on new jobs. il Am Mach 108:72-3 Mr 2 '64

Castable nylon solves problem jobs. il diag Steel 154:104-6 Mr 16 '64

Casting process; now formed in large shapes, nylon replaces metal machine parts. il Plastics World 22:23 Ap '64

Engineering design properties of plastics. Brit Plastics 37:176-9 Ap '64

How the crystallization of nylon affects processing and properties. R. T. Steinbuch. bibliog il Mod Plastics 42:137-9+ S '64

Injection moulding of nylon II. S. R. Cunliffe and J. G. Hawkins. il diags Brit Plastics 36:682-9 D '63

New casting process makes nylon parts. il Plastics Tech 10:12 Ja '64

Nylon castings scratch two abrasion problems. il diags Materials in Design Eng 59:134+ Je '64

Nylon + asbestos = strength + heat resistance. il Mod Plastics 41:94-5 Je '64

Nylon products cast directly from monomer. Steel 154:33 Je 22 '64

Properties and fabrication of the nylons. D. D. Carswell. il Metal Prog 86:94-9 Jl '64

Two molded nylon insulators replace 38 paper parts. il Mod Plastics 41:111 My '64

What engineers should know about nylon. D. D. Carswell. il Metal Prog 85:116-20 Je '64

NYLON, Powdered

Mechanics of orthogonal cutting of Delrin and Zytel plastics. U. M. Rao and others. bibliog il diags A S M E Trans ser B 86: 117-21 My '64

NYLON cords

Chemstrand has process to prevent tire flatspotting. Chem & Eng N 42:19-20 Ag 31 '64

Radial-ply tires blur tire cord picture. il Chem & Eng N 42:48+ O 19 '64

NYLON fabrics

Covers provide protection for equipment. il Elec World 161:94 F 10 '64

Hints for nylon tufters. il Textile Ind 128: 101+ My '64

Radiation grafting yields new properties. il Can Chem Process 47:73-4+ D '63

Coating

New blimp rises high. il Rubber Age 95:885 S '64

NYLON fibers

Extension of unoriented nylon 66 filaments. M. F. Bender and M. L. Williams. bibliog J Ap Phys 34:3329-35 N '63

NYLON fibers—*Continued*

Extension of unoriented nylon 66 filaments. M. L. Williams and M. F. Bender. Textile Res J 33:1023-6 D '63

Fantastically strict quality control for top quality nylon; Allied Chemical's Fibers division plant at Columbia, S.C. il Mod Textiles Mag 45:34+ Jl '64

Influence of dyes on the thermal stability of polyamide fibers. W. Fester. Textile Res J 34:362-6 Ap '64

Nylon; what it is, what it is made of, how it is made. H. H. Weinstock, jr. diags Mod Textiles Mag 45:63-4+ Ja '64

Two new nylons. L. O'Guin. Am Dyestuff Rep 53:900-3 O 12 '64

NYLON finishing

Nylon; 25 years of finishing progress. H. C. Borghetty. Mod Textiles Mag 45:82+ Ja '64

NYLON spinning

Air conditioning in a nylon spinning factory. L. G. Williams. diag Engineer 216:799-800 N 15 '63

NYLON straps

Nylon strapping shrinks with package. il Steel 153:137 N 18 '63

NYLON yarn

Enka offers new crepe-type nylon yarn. Mod Textiles Mag 45:22 F '64

Processing of nylon knit goods and stretch fabrics. W. Stump. Am Dyestuff Rep 53:100-4 F 3 '64

O

OECD. See Organization for economic cooperation and development

OTS. See United States—Commerce, Department of—Technical services, Office of

OAK

Factors affecting yield increase and fiber quality in polysulfide pulping of loblolly pine, other softwoods, and red oak. N. Sanyer and J. F. Laundrie. bibliog Tappi 47:640-52 O '64

OAK HARBOR, Washington

Water supply

Water for an island city. J. Buckner. il map Pub Works 95:76-7 Ja '64

OAK RIDGE national laboratory

History and accomplishments of the Oak Ridge graphite reactor. A. H. Snell and A. M. Weinberg. il diags Phys Today 17:32-8 Ag '64

OATS

Oxidation of dry products of oats and barley. H. Astrup. Chem & Ind p 107-8 Ja 18 '64

Supplementation of cereal proteins with amino acids; effect of amino acid supplementation of rolled oats as measured by nitrogen retention in young children. R. Bressani and others. bibliog J Nutrition 81:399-404 D '63

OBERLIN, Ohio

Public health

Oberlin plan for community health service. A. C. Siddall. Am J Pub Health 54:1312-18 Ag '64

OBESITY. See Corpulence

OBSERVATORIES, Astronomical. See Astronomical observatories

OBSOLESCENCE

Mineral obsolescence and substitution. C. W. Merrill. Min Eng 16:55-9 S '64

Planned replacement of water utility plant and equipment; panel discussion. Am Water Works Assn J 56:132-42 F '64

Technological obsolescence. E. T. Guerrero and S. J. Martinez. bibliog Pet Management 36:94-9+ Ap '64

See also
Machinery, Replacement of

OBSOLESCENT products. See Products, Obsolescent

OCCUPATIONS

Occupations in Palestine at the time of Christ on earth. C. P. McCord. il map Ind Med 32:495-9 D '63

OCEAN

Measurements on radiation reflected obliquely from a rough surface. R. H. Clarke. bibliog diags Inst E E Proc 110:1921-7 N '63

Origin and evolution of atmospheres and oceans. A. G. W. Cameron and others. il Phys Today 17:19-22 F '64

See also
Atlantic Ocean
Marine fauna
Pacific Ocean
Sea level
Sea water
Sound—Transmission thru sea water
Tidal power
Waves

OCEAN bottom

Clear-seeing sonar sketches the ocean bottoms. il Machine Design 36:14 Ja 30 '64

Collection and analysis of Pacific Ocean-bottom seismic data. W. A. Schneider and others. bibliog il maps diags Geophysics 29:745-71 O '64

Engineering aspects of mineral recovery from the ocean floor. G. S. Lockwood. il diags Min Eng 16:45-9 Ag '64

Grand Banks slump. B. C. Heezen and C. L. Drake. bibliog maps Am Assn Pet Geologists Bul 48:221-5 F '64

Guyots in the southwestern Pacific Basin. H. W. Menard and others. maps Geol Soc Bul 75:145-7 F '64

Heavy mineral reconnaissance Florida west coast. J. D. Bates. bibliog map Econ Geol 58:1237-45 D '63

Mohole project. il Anal Chem 36:sup31A-40A Ja '64

Pendulation of pipes and cables in water; Mohole deep-sea drilling project. F. J. Lampietti. diags A S M E Trans ser B 86:299-304 Ag '64

Photographing the sea bed by sound. Engineering 197:239-40 F 7 '64

Sonar shows ocean bottom. il Westinghouse Eng 24:79 My '64

Sonar; topography at the bottom. il Product Eng 35:52-3 Ag 31 '64

Tests are given under simulated ocean floor conditions. il Elec Eng 82:741-2 D '63

See also
Canyons, Submarine
Marine deposits
Mountains, Submarine
Submarine geology

OCEAN currents

Estimation of flushing rates from tide height and current data in an inshore marine channel of the Canadian Pacific Coast; abstract. M. Waldichuk. WPCF J 36:318-19 Mr '64

Photogrammetric measurement of tidal currents. J. E. Waugh. il maps diags Am Soc C E Proc 90 [SU 1 no 3857]:17-29 Ap '64

Thresher post-mortem. Sci Am 209:66+ N '63

Turbidites and topography of north end of San Diego Trough, Calif. B. M. Hand and K. O. Emery. bibliog maps J Geol 72:526-42, pl 1-5 S '64

OCEANIA

See also
Public health—Oceania

OCEANOGRAPHIC instruments

Frontier of the deep. J. M. Carroll and H. C. Hood. il Electronics 37:70-7 Jl 13 '64

Wavemeters made in Newport Beach. diag Marine Eng/Log 69:16F-16G Ap '64

OCEANOGRAPHIC research

Aluminaut is launched; test dives begin. il Machine Design 36:6+ S 24 '64

Aluminaut may open wealth of seas. Steel 155:28 S 7 '64

Aluminaut progress report. Mech Eng 86:52-3 My '64

Aluminium submarine to explore ocean depths. il Engineering 198:378 S 18 '64

Alvin. E. Boyd. il diag Comp Air Mag 69:12-14 Ag '64

Alvin, ocean research submarine. J. B. Walsh and W. O. Rainnie, jr. il plan diags Mech Eng 86:22-6 Ag '64; Discussion. 86:83 D '64

Ceramic-alumina shapes to aid undersea studies. Chem & Eng N 42:157 S 7 '64

Chemistry and the oceans. il maps diags Chem & Eng N 42:sup 1A-48A Je 1 '64 (reprints $1)

Choosing oceanographic platforms. F. E. Elliott. I S A J 11:57-8 Mr '64

Deep-sea buoy systems. S. C. Daubin. bibliog il diags I S A J 11:49-53 Mr '64

Deep-sea vehicle made of glass. il Mech Eng 86:47 O '64

Dream of ASME member Edward Wenk, jr. comes true; Aluminaut submarine will explore 60 percent of ocean's floor. il Mech Eng 86:122 O '64

Facts of life on the ocean floor. il Comp Air Mag 69:23 Ja '64

First aluminum sub to explore ocean three miles down. il Welding Eng 49:44-5 S '64

OCEANOGRAPHIC research—*Continued*
Glass and ceramics for underwater vehicles. J. D. Stachiw. il diag Glass Ind 45:469-72+ S '64
Glass, plastics, metals take a plunge in the sea. il Materials in Design Eng 60:134+ N '64
Lifting-body vehicle passes deep-diving tests. il Machine Design 36:8 Ap 23 '64
Lockheed's lenticular vehicle. il Product Eng 35:97 Ap 27 '64
Man's race for the ocean bottom. S. Barnes. il diags Machine Design 36:136-41 Mr 12; 154-9 Mr 26 '64
Master oceanographic plan called for. E. G. Brown. Marine Eng/Log 69:16B+ Ap '64
Next frontier the oceans? C. M. Wiley. Electronics 36:56+ N 8 '63
Oceanographic research; special report. il Marine Eng/Log 69:61-72 Je 15 '64
Oceanographic study of sewage discharge into Kailua (Hawaii) Bay. R. M. Belt. il maps Water & Sewage Works 111:368-73 Ag '64
Oceanographic survey ship has integrated electric system. Westinghouse Eng 24:151-2 S '64
Oceanography. J. M. Carroll and H. C. Hood. il diags Electronics 37:70-84 Jl 13 '64
Pyroceram hull designed for deep-sea vehicle. il Machine Design 36:6 Ag 27 '64
Research vessels; seagoing platform for acoustical research. diag Product Eng 35:70-1 Ag 3 '64
Shaping our industrial world ocean destiny. D. Groves. il Naval Eng J 76:417-24 Je '64
Shell takes shape; Aluminaut readies for sea. il Machine Design 36:6 Mr 26 '64
Soucoupe and Aluminaut. il Product Eng 35:53-4 Mr 30 '64
Study of oceanography and its bearing on exploration for oil. T. F. Gaskell; R. G. S. Avery. bibliog il diags Inst Pet J 50:131-45; Discussion. 146-9 Je '64
Thresher disaster spurs ocean engineering work. Steel 153:27-8 N 18 '63
Trieste II. L. A. Shumaker. il Naval Eng J 76:513-19 Ag '64
Under-sea mining; new research aimed at tapping nature's biggest resource. J. Keene. il Eng & Min J 165:114-17 Je '64
Unique Doppler current and direction meter. Franklin Inst J 277:375 Ap '64
See also
Bathyscaph

OCOTILLOL. See Triterpenes

OCTADECADIENOIC acid
Convenient laboratory method for preparing *trans*, *trans*-9-11-octadecadienoic acid. W. J. Schneider and others. bibliog Am Oil Chem Soc J 41:605-6 S '64
Metabolism of *trans*, *trans*-octadecadienoic acid; incorporation of *trans*, *trans*-octadecadienoic acid into the C_{20} polyunsaturated acids of the rat. W. G. Knipprath and J. F. Mead. bibliog Am Oil Chem Soc J 41:437-40 Je '64
Preparation of 9,15-octadecadienoate isomers. R. O. Butterfield and others. bibliog Am Oil Chem Soc J 41:397-400 Je '64

OCTADECANOL
Retardation of water evaporation by the monolayers of octadecyl alcohol and of its condensation products with ethylene glycol. R. N. Shukla and others. bibliog J Ap Chem 14:236-9 Je '64

OCTADECATETRAENOIC acid. See Acids. Fatty

OCTADECENOIC acid
Isomerization during hydrogenation; methyl *cis* 6, *cis* 9-, *cis* 12-octadecenoates. R. R. Allen. Am Oil Chem Soc J 41:521-3 Ag '64

OCTADECYL alcohol. See Octadecanol

OCTALONE
Synthesis of 1,9-*cis*-diacetoxy-$\Delta^{5,10}$-octalone-6: stereochemical course of the Robinson annelation reaction. T. A. Spencer and others. bibliog Am Chem Soc J 85:3785-93 D 5 '63

OCTANE number
Catalytic reforming: octane booster with a future. H. C. Bozeman. il diags Oil & Gas J 61:50-8 D 23 '63
Improve antiknock rating of LP-gas. A. E. Felt and R. V. Kerley. bibliog Hydrocarbon Process & Pet Refiner 43:157-64 Ap '64
More on F-2 and F-3 octane ratings. Oil & Gas J 61:182 N 18 '63

OCTANOIC acid. See Caprylic acid

OCTENE
Proximity effects: proximity effects in the solvolysis of 1-octene oxide. A. C. Cope and others. bibliog Am Chem Soc J 85:3752-3 D 5 '63

OCTYLAMINE
Separation of traces of zinc with triisooctylamine and its spectrophotometric determination in electrolytic nickel. W. L. Ott and others. bibliog Anal Chem 36:363-4 F '64

ODELL, Arthur G.
AIA's new president. pors Eng N 172:46-7 Je 25 '64

ODORS
Conference on odor theory, measurement and control, New York, Nov. 7-9; abstracts of papers. Drug & Cosmetic Ind 93:879 D '63; Air Cond Heat & Ven 61:114-16 Ja '64
How to identify and handle odors in air conditioning systems. P. W. Sherwood. Air Cond Heat & Ven 60:37-8 D '63
Neighbors spared; why does this home get sewer odors? answer. diag Dom Eng 203:92 My '64
Relation between pyruvate content and odor strength of reconstituted onion powder. S. Schwimmer and others. bibliog diags Food Tech 18:1231-4 Ag '64
Role of bacteria in the development of perspiration odor on fabrics. bibliog il Am Dyestuff Rep 52:1010-13 D 9 '63
Stereochemical theory of odor. J. E. Amoore and others. il diags Sci Am 210:42-9 F '64
See also
Deodorants
Deodorization
Sewage disposal—Odor removal
Smell
Water purification—Taste and odor removal

Measurement

Conference on recent advances in odor; theory, measurement and control, New York, Nov. 7-19; abstracts of papers. Am Perfumer 79:49-50+ F '64
Odor testing laboratory. R. A. Baker. bibliog il plan diag WPCF J 35:1396-402 N '63
Physical foundations in perfumery. L. Appell. bibliog diags Am Perfumer 79:25-33 Ja; 43-8 F; 29-41 My '64 (to be cont)
Scent proves the composition. Product Eng 35:79-80 O 26 '64

OERSTED medal. See Medals

OFFICE appliances
ABS housing; maximum performance at minimum cost. il Mod Plastics 41:108-9 My '64
Machinery and the white collar worker. R. M. Patton. il Safety Maint 127:10-12+ My '64
Product Engineering fifth annual master design awards; office copying machine. il diag Product Eng 35:111 Ap 27 '64
Revolution in office copying. il Chem & Eng N 42:114-25+ Jl 13; 84-94+ Jl 20 '64 (reprints 75c)
See also
Accounting—Mechanical aids
Calculating machines
Dictating machines
Duplicating machines
Typewriters

Exhibitions

Business efficiency exhibition, London, Oct. 6-14. il Engineering 198:428 O 2 '64

Painting and finishing

Flexible finishing system provides more consistent quality and greater safety. H. J. Warwick. il diag Mach 70:96-9 Ag '64

OFFICE buildings
Boston's Prudential Tower puts new life into Back Bay. il Eng N 172:38-9 F 20 '64
Forum roundtable takes a look at tomorrow's office. Arch Forum 120:110-17 Ja '64
Friction supports 14-story building. il diags Eng N 173:46-9 Ag 20 '64
Garden graces fund's new home. il Eng N 173:54 O 8 '64
Hand-dug holes finish caissons for office buildings over tracks. il Eng N 172:44-5 Ap 16 '64
Hartford office tower clad in preglazed panels. il Eng N 172:23 Je 25 '64
IBM building, Sydney, Australia. il Am Concrete Inst J 61:sup6-8 Ag '64
Miami utility builds its own office building. W. E. Dinn. il Water & Sewage Works 110:379-81 N '63
Multi-storey frame in high-yield-stress steel. il Engineer 217:173-4 Ja 24 '64
National geographic society office building, Washington. il plan Arch Rec 136:150-3 O '64
New office building by SOM has unusual site plan, and a well integrated structural and mechanical system. il plans diags Arch Rec 136:139-43 Ag '64

OFFICE buildings—*Continued*

New work, a new style; solid taste in Virginia. il plan Arch Forum 121:142-3 Ag-S '64

Office building, Nairobi, Kenya. il plans Prog Arch 45:244 O '64

Offices cling to rocky hilltop. il Eng N 173:13 O 29 '64

Planning the downtown center; building types study; office building complexes. il map plans diags Arch Rec 135:177-200 Mr '64

Powerful grid for a prairie tower; Kansas City's new BMA office building. il plans Arch Forum 121:86-91 Jl '64

Renovation saves $5 million. il Eng N 173:35 O 15 '64

Search for architectural principles; office building for Marathon oil co. il plan diags Prog Arch 45:180-1 S '64

Steel pipe columns support 20-story walls. il Eng N 173:66-8 O 8 '64

Structure plays leading role in latest Yamasaki designs; unusual structural wall for IBM in Seattle. il plans diags Arch Rec 134:104-7 D '63

Textured concrete and air ducts mesh like a Chinese puzzle. il diags Eng N 173:30-2 O 22 '64

Twin towers; Manhattan's World trade center. il plans diags Comp Air Mag 69: 12-15 Mr '64

Typhoon-proof louvers screen tropical sun; Philippine American life insurance company building. il plan diags Arch Rec 134: 139-41 D '63

Utility office building has dramatic features. il diag Elec World 161:142+ F 10 '64

Xerox will produce an original. il Eng N 173:18 S 3 '64

See also

Electric utilities—Buildings
Gas companies—Buildings
High buildings
Medical buildings
Oil companies—Buildings
Public utilities—Buildings

Air conditioning

Air conditioning a 41 story office building. L. R. Flook. il plans diag Heating-Piping 35:118-23 D '63

Application and economics of advanced electrical space conditioning. G. W. Dunn and others. bibliog il diags Illum Eng 59:43-8 Ja '64; Discussion. 59:48-51 Ja; sup20A Je '64

Centralized air conditioning plus individual control. il Engineering 197:360 Mr 6 '64

Decorative/functional spray pools. R. F. Coyne. flow diag il diags Air Cond Heat & Ven 61:63-9 My '64

Ducts, pipes climb outside wall. il Eng N 173: 14 Jl 30 '64

Heat, cool 28 offices thermoelectrically. il diag Heating-Piping 36:48+ Je '64

How HPAC systems serve Canadian urban complex. M. Kert and E. J. Losi. il plan Heating-Piping 36:126-31 Mr '64

No space for ducts. R. J. Salinger. il Heating-Piping 36:108-11 S '64

Office building or fallout shelter; heat pump provides air conditioning. R. G. Vanderweil. plan diags Heating-Piping 36:119-24 Ap '64

Quiet thermoelectric cooling has no moving parts. il diag Plant Eng 18:139 Jl '64

Shock protect mechanical systems in office building-fallout shelter. R. G. Vanderweil. diags Heating-Piping 36:124-8 Jl '64

Structure delivers air and controls light; Cummins engine company. il plans diags Arch Rec 136:180-4 Jl '64

Thermoelectric air conditioning. il diags Dom Eng 204:78-9+ S '64

Three-zone split system heats, cools 6000 sq ft office area. il Heating-Piping 36:170-1 Ag '64

Trichloroethylene conveys heat in air source heat pump serving office building complex; Detroit Edison co. R. E. Polkinghorne. il diag Heating-Piping 35:133-6 My '63; Discussion. 35:85-6 O; 104+ N '63

Year-round through-wall units. W. J. McGuinness. Prog Arch 44:186 N '63

See also

Office buildings, Industrial—Air conditioning

Cleaning

Building maintenance to boom. Safety Maint 128:57 Ag '64

Safety in building maintenance. J. Pagano. il Safety Maint 127:58-61 Mr '64

Electric equipment

Electrical services at Shell centre. D. E. Bird and A. E. Gaster. plans diags Inst E E Proc 111:799-809 Ap '64; Discussion. 111: 1333-5 Jl '64

High efficiency converter. il Prog Arch 44: 95 N '63

Modular total energy system in operation at NI-Gas. J. F. Ebdon. il diag Gas 40:107-10 Ja '64

Heating and ventilation

Engineered climate in a windowless building. il Illum Eng 59:536-7 Ag '64

Gas to power huge energy systems in Los Angeles. il Oil & Gas J 62:194 O 12 '64

Heating and lighting integrated. Engineering 197:429 Mr 20 '64

How HPAC systems serve Canadian urban complex. M. Kert and E. J. Losi. il plan Heating-Piping 36:126-31 Mr '64

Modular total energy system in operation at NI-Gas. J. F. Ebdon. il diag Gas 40: 107-10 Ja '64

No space for ducts. R. J. Salinger. il Heating-Piping 36:108-11 S '64

Northern Illinois-Gas sells total energy in new general office building. il Gas Age 131:22-4 Ap '64

Small office building air distribution employs glass fiber duct, ventilating ceiling. G. T. Dearing. il Heating-Piping 35:114-15 D '63

Three-zone split system heats, cools 6000 sq ft office area. il Heating-Piping 36:170-1 Ag '64

Trichloroethylene conveys heat in air source heat pump serving office building complex; Detroit Edison co. R. E. Polkinghorne. il diag Heating-Piping 35:133-6 My '63; Discussion. 35:85-6 O; 104+ N '63

See also

Office buildings, Industrial—Heating and ventilation

Lighting

See Office lighting

Power

Gas-turbine energy system completes 10,000 hours. il Oil & Gas J 61:78 D 9 '63

Light and power in office building. il Elec Constr & Maint 62:124+ N '63

Total energy concept gives on-site generation a big boost. A. H. Williams. il Power Eng 68:42-3 F '64

OFFICE buildings, Government

New town federal building, Hyattsville, Md. il plan Arch Rec 136:158-9 O '64

OFFICE buildings, Industrial

Bold and direct, using metal in a strong, basic way; Eero Saarinen's design for the Deere & company Administrative center. il plans diags Arch Rec 136:135-42 Jl '64

Glass firm's £4 million headquarters. Engineering 198:183 Ag 7 '64

John Deere's sticks of steel. il plans diags Arch Forum 121:76-85 Jl '64

Rust enhances office building. il Eng N 172: 22 Je 25 '64

See also

Printing offices

Air conditioning

All-electric environmental control system integrates lighting-heating-cooling. il Air Cond Heat & Ven 61:100-1 My '64

Building height and costs lowered by underground air duct. C. B. Miller. il plan Air Cond Heat & Ven 61:60-3 Ap '64

Johnson's Wax gets first commercial thermoelectric air conditioning system. il diag Air Cond Heat & Ven 62:88-9 Je '64

New perspectives with unified ceilings. R. F. Coyne. il diags Air Cond Heat & Ven 61: 79-82 My '64

Stress quality in office building air conditioning. H. C. Gupta. il plans Heating-Piping 36:85-9 F '64; Discussion. 36:96 Jl '64

Sun louvers cut 20 tons off air conditioning load. J. Molnar. il diags Heating-Piping 36:109-12 F '64

Electric equipment

Algas goes all-gas. diag Gas Age 131:28-9 Ap '64

Duct heaters serve all-electric industrial offices. il Elec Constr & Maint 63:92-3 Ap '64

Heating and ventilation

All-electric environmental control system integrates lighting-heating-cooling. il Air Cond Heat & Ven 61:100-1 My '64

OFFICE buildings, Industrial—Heating and ventilation—*Continued*

Duct heaters serve all-electric industrial offices. il Elec Constr & Maint 63:92-3 Ap '64

Lighting

See Office lighting

OFFICE costs

Cost of operating a field construction office. J. D. Bristor. bibliog Am Soc C E Proc 89 [CO 2 no 3643]:75-89 S '63; Discussion. 90 [CO 1 no 3851]:99-101 Mr '64; Reply. 90 [CO 2 no 4051]:63-4 S '64

Front office cost cutters. F. H. Drewes. Textile Ind 128:67-8+ F '64

OFFICE equipment industry

Great Britain

1964 prospects of all engineerings; data processing equipment and office machinery. il diag Engineering 197:132-4 Ja 17 '64

OFFICE furniture

Finishing attractive office furniture. P. W. Daley. il Ind Finishing 40:24-8+ Je '64

Finishing of fine matched office suites. A. L. Larsen. il Ind Finishing 40:76-8+ F '64

Metalstand's setup for steel office furniture. P. C. Bardin. il Ind Finishing 40:24-6+ D '63

OFFICE lighting

Analysis of reflected glare and visual effect from windows. J. W. Griffith. bibliog diags Illum Eng 59:184-6; Discussion. 186-8 Mr '64

Board room has four-point lighting plan. il Elec Constr & Maint 63:107 Ap '64

Comprehensive study of lighting economics for an office building; abstract. W. S. Fisher and others. Illum Eng 59:618-19 S '64

Day or night selective office lighting. diag Engineering 196:741 D 13 '63

Design for a consulting engineer's office. il Illum Eng 59:440-2 Je '64

Design for controlled lighting; office building, Public service company of Colorado, Denver. il plan Arch Rec 136:144-6 Ag '64

Designing for office recommended practice. il Illum Eng 59:225-7 Ap '64

Economic effects of lighting and air conditioning on building costs. T. L. Ballman and others. diag IEEE Trans Applications & Ind 83:206-8 Jl '64

Effects of lighting system geometry, distribution and polarization on typical pencil tasks. F. K. Sampson and B. F. Jones. bibliog il diags Illum Eng 59:170-7; Discussion. 177-81; Reply. 181-2 Mr '64

Engineered climate in a windowless building. il Illum Eng 59:536-7 Ag '64

Field investigation of flux contrast; small offices. J. A. Walick and R. R. French. bibliog diags Illum Eng 59:365-71; Discussion. 371-3 My '64

Good lighting on display. il Illum Eng 59:538-43 Ag '64

Higher lighting levels and interior zone air-distribution systems; action-reaction; abstract. G. R. Dally and T. L. Ballman. diags Illum Eng 59:619-20 S '64

Idea center for office planning. il diags Illum Eng 59:532-5 Ag '64

Light and power in office building. il Elec Constr & Maint 62:124+ N '63

Lighting a private office; installation at Holophane co. engineering center; lighting data sheet. H. A. Odle. il diag Illum Eng 58:745-6 D '63

Lighting a ticket office; data sheet. J. C. Epperson. il Illum Eng 59:495-6 Jl '64

Lighting takes the lead. il Illum Eng 59:506-8 Jl '64

Luminaire brightness limitations. Illum Eng 59:390-1 sec 2 My '64

More ideas for a lighting man's file; dramatizing corporate prestige. il Illum Eng 59:473-80 Jl '64

New image for a newspaper office. il Illum Eng 58:722 D '63

No windows on the future. il Illum Eng 59:399-402 sec 2 My '64

Pacific Tel and Tel building. il Illum Eng 59:160 Mr '64

Pleasantness and efficiency in an office. il Illum Eng 59:218-19 Ap '64

Structure delivers air and controls light; Cummins engine company. il plans diags Arch Rec 136:180-4 Jl '64

OFFICE management

Hough homes in on receiving; keeping ahead of the flow. il Mod Materials Handling 19:46 Jl '64

Streamlining plant engineering paperwork. G. Meehan. il Plant Eng 18:118-20 F '64

See also

Executives
Files and filing (documents, etc)

OFFICES

Administrative offices and recreation center for YWCA. il plans Arch Rec 135:159-64 Mr '64

Designer Bergson; she shows how to turn an office into a testing lab. il plans Arch Forum 120:108-11 F '64

Forum roundtable takes a look at tomorrow's office. Arch Forum 120:110-17 Ja '64

Modern estimating room ups accuracy at Molnar electrical contractors, inc. il Elec Constr & Maint 63:94+ Ja '64

Office landscape; new German system of office planning. il plans Prog Arch 45:201-3 S '64

Six offices from New York's Pan Am building. il plans Arch Forum 120:102-9 Ja '64

See also

Dentists offices
Office lighting

OFFSET printing. See Printing, Offset

OFFSHORE drilling structures. See Petroleum —Offshore drilling structures

OGILVIE, Ida Helen

Memorial; with bibliography of her publications. E. A. Wood. por Geol Soc Bul 75: sup35-9 F '64

OHIO

See also subdivision Ohio under special subjects, e.g.

Coal mines and mining
Electricity supply
Gas, Natural
Geology
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Water, Underground
Water supply

OHIO RIVER

Flood control projects

Reservoirs prevent $290-million damage. il Eng N 172:51 Mr 19 '64

OHIO VALLEY improvement association

Annual meeting, 68th, Cincinnati, Oct. 10-11. Marine Eng/Log 68:57-8 N '63

OHMMETERS

Meters for beginners. R. G. Middleton. il diags Radio-Electronics 35:44-6 N '64

Non-contact resistivity meter. A. C. Brown. diags J Sci Instr 41:472-3 Jl '64

OIL, Gas. See Gas oil

OIL, Insulating. See Insulating oil

OIL and colour chemists association

Technical exhibtiion, 16th, London, March 16-19. Chem & Ind p625-6 Ap 11 '64

OIL burner industry

Germany

Manufacture, import and export of oil burners in West Germany; tr. by W. Pichel. A. F. Larem. ASHRAE J 6:66-7 S '64

OIL burners

Toroidal oxy-fuel burner. J. G. C. Pope. diags J Metals 16:520-1 Je '64

Ultrasonic atomizer developed for oil burner. Combustion 35:49 Ap '64

OIL burning equipment

See also

Boilers—Oil firing

OIL cans

European developments in blow molded high density polyethylene oil cans. il diags Mod Plastics 42:110-11 O '64

OIL, chemical and atomic workers international union

OCAW after oil industry's good name. Oil & Gas J 62:50-1 Je 15 '64

Sinclair, OCAW reach bellwether pact. Oil & Gas J 62:46-7 Jl 20 '64

Two chemical unions call off plan to merge. Chem & Eng N 42:24-5 Jl 20 '64

Why OCAW's goal is more fringe benefits. J. Knight. Oil & Gas J 62:66-7 F 17 '64

OIL companies

British Petroleum pegs Canada as market of future. G. T. Kinney. il Oil & Gas J 62:118-21 Jl 27 '64

Consignment selling in doubt. il Oil & Gas J 62:71-3 My 18 '64

Domestic producer goes international: Marathon oil co. R. G. Gibson. map Oil & Gas J 61:121-3 D 2 '63

Firms join forces for North Sea play. Oil & Gas J 62:64 Jl 20 '64

Humble-Tidewater hearing delayed. Oil & Gas J 62:80 Ap 27 '64

Independent will ride out the storm. Oil & Gas J 61:74 O 21 '63

Independents seek legislative relief. Oil & Gas J 62:60-1 Jl 20 '64

OIL companies—*Continued*

Independents to try political attack. Oil & Gas J 62:76-8 Jl 6 '64
Justice seeks to freeze big firms. Oil & Gas J 62:59-60 Ap 20 '64
Marathon plans to diversify overseas. Oil & Gas J 62:50-1 S 28 '64
New ventures buoy Cities Service. il Oil & Gas J 62:60-1 Ag 10 '64
Oil firms push deeper into fertilizers. Oil & Gas J 62:66-7 S 7 '64
Pan American reorganizes. Oil & Gas J 62:107 Jl 27 '64
Phillips tries to educate the educator. il Oil & Gas J 62:34-5 Je 1 '64
Skelly oil co. plans move into olefins. Oil & Gas J 62:75 O 26 '64
Sunray Houma plant on floating slabs. J. J. Weatherby. il diags Hydrocarbon Process & Pet Refiner 43:109-12 Ap '64
Two U.S. firms take big step overseas; Pure and Westates subsidiaries join AMI in exploration in Italy, Libya, and Algeria. Oil & Gas J 62:81 Mr 16 '64

See also

American petrofina, inc.
Atlantic refining company
Cosden petroleum corporation
Delhi-Taylor oil corporation
Gulf oil corporation
Humble oil and refining company
National oil jobbers council
Standard oil company of Ohio
Texas company
Union oil of California

Accounting

Computer updates accounts and data on field transactions. il Oil & Gas J 62:101 Ag 24 '64
Data system cuts credit card work. il diag Pet Management 36:140-1 Ag '64

Buildings

Electrical services at Shell centre. D. E. Bird and A. E. Gaster. plans diags Inst E E Proc 111:799-809 Ap '64; Discussion. 111:1333-5 Jl '64

Consolidation

Atlantic-Union merger: new $2 billion company? Oil & Gas J 61:36-7 D 23 '63
Decision nearing in Esso-Kyso suit. Oil & Gas J 61:88-9 D 30 '63
Depletion becomes issue in San Francisco trial. Oil & Gas J 62:77-9 Mr 2 '64
Do antimerger policies curb competition; interview with R. H. Bork. Oil & Gas J 62:29-31 Je 1 '64
El Paso's merger upset. Oil & Gas J 62:43-4 Ap 13 '64
Humble buys 3,900 Tidewater stations. Oil & Gas J 61:106-7 D 2 '63
Humble, Tidewater consider next step. Oil & Gas J 62:92 My 11 '64
It's certain now that '63 will be a record year for sellouts, mergers. G. T. Kinney. Oil & Gas J 61:88-9 N 4 '63
Justice aims big guns at mergers. C. J. Lawrence. Oil & Gas J 62:59-62 F 24 '64
Justice meets setback on merger views. Oil & Gas J 62:42-3 Je 29 '64
Merger attacks likely to broaden. Oil & Gas J 62:116 Je 22 '64
Mergers are tough now, but just wait. W. H. Orrick, jr. Oil & Gas J 62:80-2 My 18 '64
Pure gets reserves data. Oil & Gas J 62:67 O 26 '64
Stakes are high in Jersey-Potash case. Oil & Gas J 62:42-3 N 2 '64
Union is still merger-minded, Rubel and Hartley agree. Oil & Gas J 62:68-9 F 17 '64
What happens when two oil firms merge? J. Scott. il Pet Management 36:80-7 Ja '64
When Tidewater deal is closed, Humble will gain a good share of West Coast market. C. J. Lawrence. Oil & Gas J 62:42-3 Mr 30 '64

Employees

Employment shows strength; 17th annual report survey. il Pet Management 36:104+ Je '64
How early can you spot tomorrow's managers? G. T. Kinney. Oil & Gas J 62:100-2 Ag 10 '64

Finance

Atlantic hunts immediate profits. G. T. Kinney. Oil & Gas J 62:62-4 My 25 '64
Municipal bonds offer oil companies new source for financing. map Oil & Gas J 62:66-7 O 26 '64
New kind of horn to sound profits. R. L. Rowell. diags Hydrocarbon Process & Pet Refiner 43:173-6 Ap '64
Those profit reports can be deceptive. Oil & Gas J 62:64-5 F 10 '64

Management

Anatomy of a promotion; Inter-Oil promotion exhibit. C. B. O'Neal. il Pet Management 36:130+ Ap '64
Can management handle research and development? C. A. Thomas. Pet Management 35:42-3 D '63
Climbing three ladders to success. R. O. Campbell. Oil & Gas J 62:58-9 N 2 '64
Computers lick management problems. G. T. Kinney. il Oil & Gas J 62:44-5 Ja 20 '64
Corporate planning. C. S. Brinegar. Oil & Gas J 61:44-8 D 23 '63
Dynamic models: new working tool for top management. D. B. McDevitt. Oil & Gas J 62:53-8 Ja 6 '64
Executive training now old fashioned. Oil & Gas J 62:70-1 F 17 '64
For corporate longevity; choose a growing market, adapt to change. G. T. Kinney. Oil & Gas J 62:92-4 S 28 '64
Get good results from your failures. R. Crook. Hydrocarbon Process & Pet Refiner 43:169-70 Jl '64
Good manager manages men. T. H. Lawrence. Pet Management 36:102-5 S '64
How Atlantic discovers and develops management talent. G. T. Kinney. Oil & Gas J 62:102-5+ Ap 27 '64
How Mobil strengthens its dealer programs. il Oil & Gas J 61:92-3 N 11 '63
How oil companies use purchasing research. H. Fearon. Pet Management 36:71-5 F '64
How Shell sharpens young managers. il Oil & Gas J 62:93-4 O 19 '64
How the oil industry finds tomorrow's managers. G. T. Kinney. Oil & Gas J 62:96-8+ Je 15 '64
How to deliver the goods. D. L. Bower. Pet Management 36:150 O '64
Integrating corporate functions for optimum performance. G. M. Stankiewicz. diags Automation 10:63-5 N '63
Jersey centralizes services for its New York affiliates. G. T. Kinney. Oil & Gas J 62:110-11 O 5 '64
Learn to use the managerial grid. C. H. Vervalin. Hydrocarbon Process & Pet Refiner 43:191-4 Ap; 184+ My '64
Management holds key to profit return. T. F. Bradshaw. Oil & Gas J 62:48-9 Jl 20 '64
Manager status commands high price. N. E. Trumbull. Pet Management 36:69-73 Mr '64
New Humble; study in organization. M. J. Davis. map J Pet Tech 16:395-8 Ap '64
Petroleum management man. E. Adams. Pet Management 36:81-3 S; 79-81 O '64
Professional managers now run Sinclair. G. T. Kinney. Oil & Gas J 62:48-9 My 4 '64
Profit is the test for all investments. R. L. Milligan. Oil & Gas J 62:70-1 F 10 '64
Profit making not sole management goal. E. D. MacPhee. Pet Management 36:61-5 Jl '64
Signal takes chances, and gets results. Oil & Gas J 62:46-7 Je 1 '64
Socal uses electronic data processing to PEEP at investment potential. H. J. Haynes. Oil & Gas J 62:62-3 Ag 24 '64
Sunray DX reorganizes to spur growth from within. W. A. Bachman. Oil & Gas J 62:80-1 S 14 '64
Three views of management development; symposium. Oil & Gas J 62:142-5 Ag 3 '64
Tip to jobbers; be efficient or die. W. H. Miller. Oil & Gas J 62:116 Ja 27 '64
Tulsa survey turns up marketing faults. Oil & Gas J 62:100 Ja 27 '64
Your boss's eye is on you. G. T. Kinney. Oil & Gas J 62:50-1 Je 29 '64

Records

Computer aid to production. W. R. Tankersley and S. B. Coleman. diags J Pet Tech 15:1199-202 N '63

Securities

Profit is the test for all investments. R. L. Milligan. Oil & Gas J 62:70-1 F 10 '64

OIL films

Camella restricted-clearance bearings. il diags Naval Eng J 76:219-22 Ap '64
Developments in elasto-hydrodynamic lubrication. A. W. Crook. bibliog il diags Inst Pet J 49:295-304; Discussion. 304-7 O '63
Properties of materials: rust preventives; tables. Materials in Design Eng 60:403 Mid-O '64

OIL filters

Filter improvements simplify lube oil clarifying. Marine Eng/Log 70:84+ My '64

OIL filters—*Continued*

Hydraulic filters; fluid power component selection charts. Hydraulics & Pneumatics 17:98-9 Ja '64

RT magnetic filters. diag Automobile Eng 54:108 Mr '64

Some yardsticks for filtration of hydraulic fluids. A. A. Kuecken. Foundry 92:124-6 My '64

Two new filters from Fram. il diag Diesel Equip Supt 41:44 N '63

Wash filters: new concept in contamination control. R. L. Carmon. il diags Hydraulics & Pneumatics 17:116-17 My '64

What Grumman learned about testing pumps. F. Dini and C. Coss. il diag Hydraulics & Pneumatics 17:97-100 Ap '64

OIL filters, Airplane

Dual filters increase aircraft reliability. D. B. Meredith. il diag Hydraulics & Pneumatics 17:68-70 F '64

Filtering a jet aircraft hydraulic system. Product Eng 34:57 N 25 '63

OIL filters, Automobile

W.G.B. oil clarifier inc. enters filtration business. Diesel Equip Supt 42:36-7 Je '64

Weatherhead's million-mile filter. il diag Diesel Equip Supt 42:24-5 Ag '64

OIL fires

Lessons from the Aramco tank fire. T. J. Laney. il plan Hydrocarbon Process & Pet Refiner 42:247-50 N '63

Two-component system fights oil fires. il Chem & Eng N 42:44 Je 29 '64

See also

Petroleum industry and trade—Fires and fire protection

OIL fuel

Bulk loading of ammonium nitrate blasting agents. J. E. Wilson. il Min Cong J 49:60-3 D '63

Comparison of Canadian energy prospects; potential of coal-in-oil fuels. G. A. Vissac and R. P. Charbonnier. bibliog map Eng J 47:23-8 Ap '64

Earthen pits free costly tankage. A. Franco. il Oil & Gas J 62:62 Ag 31 '64

Four roads offered to less fuel oil. diags Oil & Gas J 62:65-8 Ja 6 '64

Fuel-oil burning outlawed in Los Angeles. Oil & Gas J 62:54-5 Ja 20 '64

Fuel oil tubing gets coating. il Steel 153:85 D 2 '63

How Benquet measures FO in AN-FO. Eng & Min J 165:111 Mr '64

How those residual-oil-fired turbines are performing. Oil & Gas J 62:130-1 Ap 20 '64

Oil-powered air conditioning; is it in your future? Dom Eng 204:105-6 Jl '64

Overcoming the problem of Diesel fuel freezing. diag Engineer 216:705 O 25 '63

Preventing fuel freezing in Diesels. il diag Engineering 196:516 O 25 '63

Recent trends in the use of explosives in mining. M. D. Saunders. il Can Min & Met Bul 57:933-8 S '64

Research on primers for blasting agents. N. M. Junk. il diags Min Cong J 50:98-101 Ap '64

Safety and efficiency in hole loading and blasting with AN-FO. G. H. Damon. bibliog diags Pit & Quarry 56:89-94 D '63

Small diameter AN-FO blasting methods cut underground mining costs at Aguilar. M. Rossetti and G. Preisz. il diags Eng & Min J 164:94-7 D '63

Tracy generating station fuel oil storage and handling facilities. D. L. Harris and others. il plans diags Eng J 47:32-7 F '64

Truck mixes and charges AN-fuel oil at job. il Coal Age 69:116 Ag '64

Vertical drilling and new bulk AN/fuel oil blasting system; Enos coal mining div. of Interlake iron corp. J. R. Kerr. il Min Cong J 50:56-9 S '64

Where are the errors in metering residual fuel for truck shipments? H. R. Stover. diags Oil & Gas J 62:76-7 S 28 '64

See also

Boilers—Oil firing
Diesel engines—Fuel
Gasoline
Kerosine
Petroleum refineries—Fuel

Analysis

Separation and infrared spectrometric determination of ester polymer additives in distillate fuel oils. N. Feldman. Anal Chem 36:347-8 F '64

X-ray analyses of fuels and lubricants. R. F. Haycock. il Engineer 218:179 Jl 31 '64

Ash content

Corrosion problems affecting boiler plant. A. E. Lock. il Engineer 217:939-42 My 29 '64

Manufacture

Gulf HDS; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:189 S '64

Storage

See Oil storage

Sulfur content

Corrosion problems affecting boiler plant. A. E. Lock. il Engineer 217:939-42 My 29 '64

Dualayer distillate process; Socony mobile oil co. flow diag Hydrocarbon Process & Pet Refiner 43:204 S '64

OIL fuel industry

Anti-smog rule raises fuel worries. Elec World 161:19 F 17 '64

Balmy weather keeps fuel-oil stocks high. Oil & Gas J 62:60 Mr 23 '64

Distillate competition; paradox in marketing. G. T. Kinney. Oil & Gas J 62:42-3 S 28 '64

Heating-oil business is gaining new life. Oil & Gas J 62:43 Je 1 '64

Interior lifts lid on resid imports. Oil & Gas J 62:58 Mr 9 '64

Military demand to top 800,000 b/d. G. T. Kinney. Oil & Gas J 62:28-9 N 2 '64

Now oil can compete for air conditioning. Oil & Gas J 62:45 My 4 '64

New York City considers fuel-oil controls. Oil & Gas J 62:59 My 25 '64

Persuasion will win sales. Oil & Gas J 62:43 Mr 9 '64

Resid-control critics step up attack. Oil & Gas J 62:54-5 F 3 '64

Suit attacks Los Angeles fuel-oil ban. Oil & Gas J 62:90 Ap 27 '64

What fuel-oil apathy does to profits. Oil & Gas J 62:46-7 N 2 '64

See also

Petroleum industry and trade—United States—Imports problem

Competitive fuels

Heating oil nears crossroads. G. T. Kinney. Oil & Gas J 62:77-9 S 14 '64

Natural gas competition

One company's response to city taxes; Wenatchee, Washington. W. E. Wall. Gas 40:57-61 F '64

OIL handling

Automated cargo-oil handling system. il Marine Eng/Log 69:16F Je '64

See also

Oil storage

OIL heaters

Thermobloc heater with swivelling air distribution head. il Engineer 217:145 Ja 17 '64

OIL industries

See also

Gasoline industry
Petroleum industry and trade

Great Britain

Some aspects of the edible fat industry in the United Kingdom. A. A. McKerrigan. Am Oil Chem Soc J 41:sup56+ Ap '64

Some problems in improving tropical materials utilized by the United Kingdom oil-milling industry. E. S. Hiscocks and W. D. Raymond. bibliog Am Oil Chem Soc J 41:224-8 Mr '64

OIL jobbers council, National. See National oil jobbers council

OIL lands

Federal oil-shale leasing to be slow. Oil & Gas J 62:84-5 Ap 6 '64

Finances govern California lease policy. Oil & Gas J 62:80 Ag 3 '64

Hopis hopping mad over Arizona test. Oil & Gas J 62:70 My 25 '64

Lease bids ruffle Indians' feathers: Alaskan reservation lands. Oil & Gas J 62:75 My 18 '64

Legal snarl perils Kenai leases. Oil & Gas J 61:48 28 '63

Louisiana seeks step-by-step tidelands settlement. H. M. Wilson. map Oil & Gas J 62:64-5 O 26 '64

Methods and procedures for estimating fair-market value of petroleum properties. W. D. Eggleston. bibliog J Pet Tech 16:481-6 My '64

Santa Monica drilling proposal inches ahead. Oil & Gas J 62:64 Ag 24 '64

This may be the last federal sale in the Gulf for awhile. maps Oil & Gas J 62:42-3 Mr 9 '64

OIL lands—*Continued*
U.S. cedes mud lump islands to the states. Oil & Gas J 62:37 Ja 6 '64
See also
Petroleum—Concessions
Petroleum laws and regulations

OIL leases. See Oil lands

OIL measurement
Where are the errors in metering residual fuel for truck shipments? H. R. Stover. diags Oil & Gas J 62:76-7 S 28 '64
See also
Petroleum—Measurement

OIL mists
Control for the oil mist hazard. il Safety Maint 127:44-5 Je '64

OIL pipe lines
See also
Petroleum pipe lines
Petroleum products pipelines

OIL pipes
Fuel oil tubing. il Plastics World 22:28-9 Ap '64
See also
Petroleum—Well casing
Petroleum pipe lines

OIL pumps
Design and application of automatic pumping plant oil supply for self-contained oil-filled cable systems. J. Jerome and others. bibliog il diags IEEE Trans Power Apparatus & Systems p 182-91; Discussion. 191-4; Reply. 194-6 F '64
Pumping cargo oil. diags Engineer 217:727-8 Ap 24 '64
See also
Petroleum pipe lines—Pumping stations
Pumps, Fuel

OIL purification
See also
Oil refining

OIL reclamation
Process for the reclamation of cold strip mill rolling oils for reuse. B. W. Funk and R. C. Allen. bibliog Iron & Steel Eng 41:87-91; Discussion. il 91-3 F '64
See also
Lubrication and lubricants (cutting and grinding)

OIL refineries
See also
Petroleum refineries

OIL refining
Cod liver oil refinery. il Engineer 216:774-5 N 8 '63
Continuous refining of crude cottonseed miscella. L. S. Crauer and H. Pennington. flow diag il Am Oil Chem Soc J 41:656-9 O '64
Laboratory centrifugal refining method for control application. W. D. Pohle and others. Am Oil Chem Soc J 40:703-7 D '63
New plant puts science into cotton seed processing; process flowsheet. H. J. Witz and W. B. Hendrick. il Chem Eng 71:48-50 Ag 31 '64
Safety in solvent plant operation and miscella refining. G. C. Cavanagh. Am Oil Chem Soc J 41:sup4+ O '64

OIL sand
Alberta delays two big oil-sand projects. Oil & Gas J 61:87 N 4 '63
Black oil may challenge Athabasca. G. T. Kinney. map Oil & Gas J 61:54-5 D 16 '63
Commercial oil-sands plant to open in '67. Oil & Gas J 62:71 F 24 '64
Construction starts at Athabasca oil sand project. maps diag Eng & Min J 165:86-90 O '64
Construction starts on first Athabasca plant. il Oil & Gas J 62:100+ Ag 17 '64
Experimentally determined resistivity profiles in invaded water and oil sands for linear flows. M. Gondouin and A. Heim. bibliog il diags J Pet Tech 16:Trans 337-48 Mr '64
Heavy-oil recovery experiments spread in east Kansas. R. J. Enright. il map Oil & Gas J 62:112-14 Je 22 '64
How the first Athabasca oil-sand plant will operate. G. T. Kinney. diags Oil & Gas J 62:116-17 Ap 20 '64
Kansas' Burgess sand; elusive but profitable. F. W. Morgan and M. E. Torline. maps diags Oil & Gas J 62:112-15 F 3 '64
Payoff on 100-to-1 odds; Great Canadian. Oil & Gas J 62:84-6 Mr 2 '64
Study of the oil component of the Athabasca bitumen. M. L. Boyd and D. S. Montgomery. bibliog Inst Pet J 49:345-52 N '63
Warm-air coking: new completion method for unconsolidated sands. P. J. Terwilliger and others. bibliog diag J Pet Tech 16:367-71 Ap '64

OIL seals
Extending the lip type seal horizon. E. W. Fisher and D. H. Wilkinson. diags Lub Eng 20:87-93 Mr '64
Oil seal for a gear-box. E. T. Jagger. il diags Engineer 218:451-2 S 18 '64
Shaft oil leaks can be stopped. F. J. Charhut. diags Plant Eng 17:114-17 N '63
Silicone rubber for crankshaft seal. il Engineering 197:601 My 1 '64

OIL seeds
Activation and specificity of crambe abyssinica seed lipase. H. L. Tookey and I. A. Wolff. bibliog diag Am Oil Chem Soc J 41:602-4 S '64
Amino-acid and vitamin contents of bombacopsis glabra kernels. R. J. Abbott and others. bibliog Chem & Ind p 1390-1 Ag 1 '64
Chromatographic analysis of seed oils; fatty acid composition of dimorphotheca oil. R. G. Binder and others. bibliog Am Oil Chem Soc J 41:108-11 F '64
Determination of available lysine in oilseed meal proteins. S. Raghavendar Rao and others. bibliog Anal Chem 35:1927-30 N '63
Factors affecting the composition of Canadian oil seeds. H. R. Sallans. bibliog maps Am Oil Chem Soc J 41:215-18 Mr '64
Fatty acids, fatty alcohols, wax esters, and methyl esters from crambe abyssinica and lunaria annua seed oils. T. K. Miwa and I. A. Wolff. bibliog Am Oil Chem Soc J 40:742-4 D '63
5,11,14-Eicosatrienoic acid in podocarpus nagi seed oil. T. Takagi. bibliog Am Oil Chem Soc J 41:516-19 Jl '64
Hydroxy-unsaturated oils and meal from dimorphotheca and lesquerella seed. R. E. Knowles and others. J Agri & Food Chem 12:390-2 S '64
International symposium on oilseed protein foods, Japan, May 11-15. Food Tech 18:1146-7 Ag '64
Search for new industrial oils; seed oils of the calenduleae. F. R. Earle and others. bibliog Am Oil Chem Soc J 41:345-7 My '64
Search for new industrial oils; the genus limnanthes. R. W. Miller and others. bibliog il Am Oil Chem Soc J 41:167-9 Mr '64
Standard equipment processes crambe seed. il Chem & Eng N 42:50+ Mr 2 '64
Vernonia anthelmintica (L.) Willd; extraction of oil or trivernolin from the seed. C. F. Krewson and W. E. Scott. Am Oil Chem Soc J 41:422-6 Je '64

OIL shales
Current status of U.S. oil shale technology. C. H. Prien. bibliog il map Ind & Eng Chem 56:32-40 S '64
Direct determination of sulfur forms in Green River oil shale. J. W. Smith and others. bibliog diag Anal Chem 36:618-22 Mr '64
Federal oil-shale leasing to be slow. Oil & Gas J 62:84-5 Ap 6 '64
IPAA delays shale-oil policy. Oil & Gas J 62:88 My 11 '64
IPAA wary of shale development plans. Oil & Gas J 62:34 N 2 '64
Interest in shale oil reaches new heights. il Chem Eng Prog 60:26-7 Ag '64
Interest rises in oil shale. R. E. Johnson. il Chem Eng Prog 60:34-6 O '64
Interior told; do something on shale. Oil & Gas J 62:57+ Ap 13 '64
Oil-shale advisors handed first task. Oil & Gas J 62:52 Jl 13 '64
Oil shale symposium of the Colorado school of mines research foundation inc. Golden, Colo. April 30-May 1; abstracts of papers. il maps plan diags Eng & Min J 165:103-9 Je '64
Pipeline gas from oil shale by direct hydrogasification. H. L. Feldkirchner and H. R. Linden. bibliog diag Ind & Eng Chem Proc Design 3:218-26 Jl '64
Porphyrin skeleton survives retorting; abstract. J. R. Morandi and H. B. Jensen. Chem & Eng N 42:48 Ap 20 '64
Shale oil near commercial development. Oil & Gas J 62:79 Ap 20 '64
Shale-oil study open to all. Oil & Gas J 62:75-6 My 11 '64
Shale oil; the problems and the prospects. il maps diags Oil & Gas J 62:65-80 Mr 9 '64
Three move to exploit oil from shale. Chem & Eng N 42:28 Ap 27 '64

Distillation

Shale oil; dig it out, or burn it out. il diags Oil & Gas J 62:68-70 Mr 9 '64
Sinclair plans in-place retorting of oil shale. Chem & Eng N 42:24-5 Je 8 '64

OIL shales—Distillation—*Continued*

Sinclair retorts oil shale in place in a series of tests. B. Grant. diags Oil & Gas J 62:84-6 Jl 20 '64

Canada

Oil shales make surprise debut in western Canada. F. J. Gardner. map Oil & Gas J 62:113 Ag 10 '64

Kentucky

Oil yields of Devonian New Albany shales, Kentucky. J. W. Smith and K. E. Stanfield. bibliog Am Assn Pet Geologists Bul 48:712-14 My '64

OIL storage

Earthen pits free costly tankage. A. Franco. il Oil & Gas J 62:62 Ag 31 '64

Proper fuel storage begins with good housekeeping. Diesel Equip Supt 42:38 Mr '64

Storing oil in bottom-less sea tanks. Engineer 218:567 O 2 '64

Tracy generating station fuel oil storage and handling facilities. D. L. Harris and others. il plans diags Eng J 47:32-7 F '64

See also

Oil tanks

OIL tanks

Fundamentals of fuel oil firing. A. A. Abrahams. diags Heating-Piping 36:132-4 S; 134-8 O '64

How to specify low temperature storage vessels. L. P. Zick and M. B. Clapp. diags Hydrocarbon Process & Pet Refiner 43:125-32 Je '64

Plastic, glass tanks under test. Oil & Gas J 62:75 F 10 '64

Tank logging system. J. T. Dobson. il diags Ind Electronics 2:30-3 Ja '64

See also

Tank ships

Corrosion

Now anodic control of corrosion is practical for field applications. J. D. Sudbury and C. E. Locke. diag Oil & Gas J 61:111-13 O 28 '63

Foundations

Controlled water tests to preload tank foundations. R. D. Darragh. bibliog diags Am Soc C E Proc 90 [SM 5 no 4059]:303-29 S '64

Effect of preconsolidation on settlements. L. Casagrande. diags Am Soc C E Proc 90 [SM 5 no 4041]:349-62 S '64

Maintenance and repair

Emergency repair of leaking crude oil tank. il diag Safety Maint 127:55-6 My '64

Is your fuel-oil consumption too high? underground storage tank might be leaking. F. Wendel. il Power 108:140 Jl '64

Onstream methods help reduce in-service tank failures. H. C. Bozeman. il Oil & Gas J 61:145-6 N 18 '63

Sprayed-on urethane foam tested for heated-fuel-oil-tank insulation. D. H. Stormont. il Oil & Gas J 62:90-1 Mr 9 '64

Successful tank repair using plastics. R. R. Miron. il Hydrocarbon Process & Pet Refiner 43:151-4 My '64

Roofs

Volatile liquids protected by floating aluminum decks. diag Mod Metals 20:48 S '64

OIL tanks, Rubber

Tanker truck with collapsible rubber containers. il Engineer 217:632 Ap 3 '64

OIL testing

See also

Insulating oil—Testing

Lubricating oils—Testing

OIL transportation

Diesel-powered fuel oil trucks. il Diesel Equip Supt 42:29 Ag '64

See also

Petroleum—Transportation

Tank ships

OIL waste

Capacitance probe fights seawater pollution. Power 108:75 Ap '64

Compact shipboard device designed to end inshore pollution by oily ballast and bilge water. diag Marine Eng/Log 68:118 D '63

How to use oil absorbents. il Safety Maint 128:52-4 Ag '64

New vessel sweeps up oil. il Oil & Gas J 62:68 Jl 20 '64

Oil boom facilitates control of oil spillage. il Marine Eng/Log 68:98+ N '63

Separation of oil from oil/water dispersions by coagulation: abstract and discussion. F. H. Valentin and R. Farley. Chem & Ind p 1976-7 D 21 '63

Tank pollution attacked by Standard of New Jersey. il Chem Eng Prog 60:98 Ag '64

Tankers clean up oil slops at sea. Oil & Gas J 62:124 Je 22 '64

OIL well derricks. See Derricks, Oil well

OIL well drilling ships. See Ships, Oil well drilling

OIL well drills. See Drills, Oil well

OIL wells. See Petroleum—Well drilling

OILS, Essential. See Essential oils

OILS, Lubricating. See Lubricating oils

OILS, Mineral. See Mineral oils

OILS and fats

Appraisal of the management of peptic ulcer including comparative studies of the value of a polyunsaturated fat nutritional preparation in the management of gastric hypersecretion. H. C. Laureta and others. bibliog Am J Clinical Nutrition 15:211-17 O '64

Autoxidation of fatty materials in emulsions. D. H. Saunders and others. bibliog Am Oil Chem Soc J 39:434-9; 41:347-51 O '62, My '64

Blood lipid responses to feedings of a polyunsaturated fat nutritional preparation and milk-cream mixture. D. Berkowitz. bibliog Am J Clinical Nutrition 15:218-22 O '64

Chemical reactions involved in the catalytic hydrogenation of oils. S. S. Chang and others. diags Am Oil Chem Soc J 40:721-4 D '63

Chick oedema factor; abstract and discussion. J. Williams. Chem & Ind p585-6 Ap 4 '64

Confectionery fats: their current status and potential market. R. O. Feuge. Am Oil Chem Soc J 41 sup4+ Ap '64

Configuration of the disaturated glycerides in garcinia indica and vateria indica seed fats. A. R. S. Kartha. Am Oil Chem Soc J 41:456 Je '64

Constancy of red blood cell lipids in man during extreme variations of dietary fat intake. J. G. Hill and others. bibliog Am Oil Chem Soc J 41:393-7 Je '64

Contribution to the knowledge of the structure of two hydropericardium-producing factors from a toxic fat. J. C. Wootton and W. L. Courchene. bibliog diags J Agri & Food Chem 12:94-8 Ja '64

Conventional dietary treatment of peptic ulcer. H. C. Moeller. bibliog Am J Clinical Nutrition 15:194-7 O '64

Dietary fat and cornary heart disease; abstract. A. N. Howard and G. A. Gresham. Chem & Ind p 1220-1 Jl 4 '64

Dietary fat and the structure and properties of rat erythrocytes. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 81:75-80; 82:323-32 S '63, Mr '64

Dimethoxypropane induced transesterification of fats and oils in preparation of methyl esters for gas chromatographic analysis. M. E. Mason and G. R. Waller. bibliog Anal Chem 36:583-6 Mr '64

Effect of dietary fat on the glyceride structure of rat carcass fat. E. G. Perkins. bibliog Am Oil Chem Soc J 41:285-9 Ap '64

Effect of polyunsaturated fat diet on serum lipids of hypercholesteremic patients with peptic ulcer. G. McHardy and others. bibliog Am J Clinical Nutrition 15:229-34 O '64

Effects of egg oil, cholesterol, cholic acid and choline upon plasma and liver lipids. J. B. Walker and G. A. Emerson. bibliog J Nutrition 82:311-17 Mr '64

Effects of gormandizing and semicontinuous eating of equicaloric amounts of formula-type high fat diets on plasma cholesterol and triglyceride levels in human volunteer subjects. S. N. Jagannathan and others. bibliog Am J Clinical Nutrition 15:90-3 Ag '64

Effects of high dietary calcium and phosphorus on calcium, phosphorus, nitrogen and fat metabolism in children. L. Lutwak and others. bibliog Am J Clinical Nutrition 14:76-82 F '64

Effects of ionzing radiations on fats; accumulation of peroxides and other chemical changes. J. R. Chipault and G. R. Mizuno. bibliog Am Oil Chem Soc J 41:468-73 Jl '64

Experiences with a polyunsaturated fat nutritional preparation in the dietary management of patients with peptic ulcer. D. Caver and J. M. Ruffin. Am J Clinical Nutrition 15:227-8 O '64

Fat research institute of Seville. J. M. Martinez Moreno. il Chem & Ind p 1850-5 N 23 '63

Fats in relation to ice cream; abstract and discussion. D. A. Walker. Chem & Ind p 1897-8 N 30 '63

OILS and fats—*Continued*

Fatty acids of serum and adipose tissue in six groups eating natural diets containing 7 to 40 per cent fat. R. F. Scott and others. bibliog Am J Clinical Nutrition 14:280-90 My '64

Fatty livers produced in albino rats by excess niacin in high fat diets. L. L. Rikans and others. bibliog J Nutrition 82:83-7 Ja '64

Growth stimulating effects of high levels of vegetable oils. R. E. Isaacks and others. bibliog Am Oil Chem Soc J 40:747-9 D '63

Homogeneous catalytic hydrogenation of unsaturated fats; iron pentacarbonyl. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:186-91 Mr '64

Hydroxy-unsaturated oils and meal from dimorphotheca and lesquerella seed. R. E. Knowles and others. J Agri & Food Chem 12:390-2 S '64

Hydroxy unsaturated oils; preparation and characterization of methyl dimorphecolate and methyl lesquerolate from dimorphotheca and lesquerella oils. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41:430-3 Je '64

Influence of amount and type of fat on metabolic efficiency of energy utilization by the chick. L. B. Carew, jr. and others. bibliog J Nutrition 83:300-6 Ag '64

Influences of dietary carbohydrate-fat combinations on various functions associated with glycolysis and lipogenesis in rats. C. Carroll. bibliog J Nutrition 79:93-100; 82:163-72 Ja '63, F '64

Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63

Isolation of a natural isomer of linoleic acid from a seed oil. C. Y. Hopkins and M. J. Chisholm. bibliog Am Oil Chem Soc J 41:42-4 Ja '64

Long-term tolerance study of two fat emulsions for intravenous nutrition in dogs. B. Edgren and others. bibliog il Am J Clinical Nutrition 14:28-36 Ja '64

Method of increasing the water vapor porosity of fat materials; patent. Am Perfumer 78:40-1 D '63

Minor component fatty acids of common vegetable oils. D. F. Kuemmel. bibliog Am Oil Chem Soc J 41:667-70 O '64

Naturally occurring all-*cis* 6,9,12,15-octadecatetraenoic acid in plant oils. B. M. Craig and M. K. Bhatty. bibliog Am Oil Chem Soc J 41:209-11 Mr '64

Occurrence of 6,9,12,15-octadecatetraenoic acid in echium plantagineum seed oil. C. R. Smith, jr. and others. bibliog il Am Oil Chem Soc J 41:290-1 Ap '64

Pro-oxidant effect of some carbonyl compounds in vegetable oils. R. H. Anderson and T. E. Huntley. bibliog Am Oil Chem Soc J 41:686-8 O '64

Report on fats and oils. Published in monthly numbers of the Journal of the American oil chemists society

Reproductive performance of rats receiving various levels of dietary protein and fat. L. R. Richardson and others. bibliog J Nutrition 82:257-62 F '64

Role of polyunsaturated fatty acids in nutrition. F. A. Kummerow. bibliog Food Tech 18:839-43 Je '64

Satisfactory gas-liquid chromatography column for the determination of epoxyoleic acid in seed oils. S. F. Herb and others. bibliog Am Oil Chem Soc J 41:222-4 Mr '64

Search for new industrial oils. F. R. Earle and others. bibliog il Am Oil Chem Soc J 41:167-9, 345-7, 459-60 Mr, My, Jl '64

Simplifies hydrogenation. diag Food Eng 35:120 N '63

Some aspects of fats and cosmetics; abstract. D. M. Bryce. Chem & Ind p 113:14; Discussion. 114-15 Ja 18 '64

Stazione sperimentale olii e grassi. G. Jacini. il Chem & Ind p 1508-11 Ag 29 '64

Unsaturated dietary fats: editorial. L. W. Kinsell. Am J Clinical Nutrition 14:125-7 Mr '64

Vernonia anthelmintica (L.) Willd; extraction of oil or trivernolin from the seed. C. F. Krewson and W. E. Scott. Am Oil Chem Soc J 41:422-6 Je '64

Vernonia anthelmintica (L.) Willd; highly purified epoxy components from the seed oil. C. F. Krewson and F. E. Luddy. il Am Oil Chem Soc J 41:134-6 F '64

Vitamin E content of vegetable oils and fats. D. C. Herting and E.-J. E. Drury. bibliog J Nutrition 81:335-42 D '63

See also

Butterfat
Castor oil
Cod liver oil
Corn oil
Essential oils
Fish oil
Grease
Lard
Linseed oil
Lipides
Lubricating greases
Lubricating oils
Mineral oils
Oil seeds
Olive oil
Palm oil
Patchouli oil
Pine oil
Rapeseed oil
Sesame oil
Shortening
Spearmint oil
Tall oil
Tallow
Wool fat

Analysis

Analysis of skin oils from soiled clothing. K. H. Bey. bibliog Am Perfumer 79:35-8+ Ag '64

Applications of nuclear magnetic resonance spectroscopy in the fat and oil industry. J. W. Harlan. il Am Oil Chem Soc J 41:sup4+ S '64

Colorimetric method for determining free fatty acids in vegetable oils. D. Baker. Am Oil Chem Soc J 41:21-2 Ja '64

Determination of nickel in hydrogenated fats by neutron activation analysis. A. G. Souliotis. bibliog Anal Chem 36:1385-6 Je '64

Determination of the component glycerides of seed oils containing saturated oleic and linoleic acids. F. D. Gunstone and others. Chem & Ind p483 Mr 21 '64

Determination of the glyceride structure of fats; analysis of 14 animal and vegetable fats. M. R. Subbaram and C. G. Youngs. Am Oil Chem Soc J 41:595-6 S '64

Determination of the glyceride structure of fats; anomalous features of the seed fat of bitter gourd (momordica charantia). M. R. Subbaram and others. bibliog Am Oil Chem Soc J 41:691-2 O '64

Determination of the glyceride structure of fats; distribution of individual saturated and unsaturated acids. M. R. Subbaram and C. G. Youngs. bibliog Am Oil Chem Soc J 41:445-8 Je '64

Determination of the volatile or free carbonyl content of fats. C. H. Lea and H. A. F. Jackson. bibliog Chem & Ind p 1429-30 Ag 8 '64

Direct quantitative isolation of monocarbonyl compounds from fats and oils. D. P. Schwartz and others. bibliog Anal Chem 35:2191-4 D '63

Evaluation of the internal standard method for the quantitative estimation of oil polymer content by gas chromatography. W. L. Zielinski, jr. Am Oil Chem Soc J 41:249-51 Ap '64

Fatty acid components of fried foods and fats used for frying. L. T. Kilgore and W. D. Luker. bibliog Am Oil Chem Soc J 41:496-500 Jl '64

Gas chromatography in the fat and oil industry. L. D. Metcalfe. il Am Oil Chem Soc J 41:sup4+ My '64

Infrared spectroscopy of fats and oils. F. L. Kauffman. Am Oil Chem Soc J 41:sup4+ Ag '64

Preparation and analysis of some food fats and oils for fatty acid content by gas-liquid chromatography. K. J. Hivon and others. bibliog Am Oil Chem Soc J 41:362-6 My '64

Procedure for the simultaneous quantitative determination of glycerol and fatty acid contents of fats and oils. M. E. Mason and others. Anal Chem 36:587-90 Mr '64

Seed oils from citrus sinensis. R. Hendrickson and J. W. Kesterson. bibliog Am Oil Chem Soc J 40:746-7 D '63

Spectrophotometric determination of small amounts of 1-monoglycerides in fats. C. Szonyi and K. Sparrow. bibliog Am Oil Chem Soc J 41:535-7 Ag '64

X-ray diffraction of fats. C. W. Hoerr. il Am Oil Chem Soc J 41:sup4+ Jl '64

See also

Iodine number

OILS and fats—*Continued*

Bibliography

Abstracts. Published in monthly numbers of Journal of the American oil chemists society

Report of the literature review committee; annual review of the literature on fats, oils, and detergents. V. Mahadevan. Am Oil Chem Soc J 41:559-84, 623-48 Ag-S '64

Bleaching

Basic factors in the bleaching of fatty oils. A. D. Rich. diags Am Oil Chem Soc J 41:315-21 Ap '64

Physical and chemical properties of alumina bleached cottonseed oil. J. C. Kuck and others. bibliog Am Oil Chem Soc J 41:101-4 F '64

Heating

Effect of heat on triglycerides of corn oil. M. R. Sahasrabudhe and I. G. Farn. bibliog diag Am Oil Chem Soc J 41:264-7 Ap '64

Factors affecting the rate of deterioration in the frying qualities of fats. S. P. Rock and H. Roth. bibliog diag Am Oil Chem Soc J 41:228-30, 531-3 Mr, Ag '64

Method for the determination of the extent of polymerization in frying fats and in fats extracted from fried foods. M. R. Sahasrabudhe and V. R. Bhalerao. Am Oil Chem Soc J 40:711-12 D '63

Symposium on chemical and nutritional aspects of oxidised and heated fats; abstracts of papers and discussion. Chem & Ind p 1541-9 S 5 '64

Testing

Continuous deglycerination of monoglycerides. J. A. Monick. flow diag Am Oil Chem Soc J 40:606-8 N '63

Determination of the peroxide value of fats. C. H. Lea and L. J. Parr. Chem & Ind p 1560 S 5 '64

Factors affecting the rate of deterioration in the frying qualities of fats. S. P. Rock and H. Roth. bibliog diag Am Oil Chem Soc J 41:228-30, 531-3 Mr, Ag '64

Further observations on the 2-thiobarbituric acid method for the measurement of oxidative rancidity. T. C. Yu and R. O. Sinnhuber. bibliog Am Oil Chem Soc J 41:540-3 Ag '64

Keeping properties of edible oils. S. Paul and others. bibliog diags Am Oil Chem Soc J 39:163-8; 41:95-100 Mr '62, F '64

Quick and simple methods for studying crystallization behavior of fats. I. Wilton and G. Wode. il diag Am Oil Chem Soc J 40:707-11 D '63

Rapid oxygen bomb method for evaluating the stability of fats and shortenings. W. D. Pohle and others. Am Oil Chem Soc J 40:603-5 N '63

Relationship of peroxide value and thiobarbituric acid value to development of undesirable flavor characteristics in fats. W. D. Pohle and others. Am Oil Chem Soc J 41:649-50 O '64

Study of the applicability of a modified thiobarbituric acid test to flavor evaluation of fats and oils. G. A. Jacobson and others. bibliog Am Oil Chem Soc J 41:124-8 F '64

Temperature dependence of the expansion coefficient of liquid glycerides. P. W. Hendrikse. bibliog Am Oil Chem Soc J 41:184-5 Mr '64

OILSEEDS. See Oil seeds

OINTMENTS

Applying ointments. Drug & Cosmetic Ind 94:606 Ap '64

Benzalkonium creams. Drug & Cosmetic Ind 95:429 S '64

How to use barrier creams. Safety Maint 128:50 O '64

Non-ionic surfactants and water absorption. R. W. Mendes and others. bibliog Drug & Cosmetic Ind 95:34-5+ Jl '64

Ointment vs. cream: abstract. J. Bleiberg and R. H. Brodkin. Drug & Cosmetic Ind 94:774 My '64

Topical betamethasone. A. W. McKenzie and R. M. Atkinson. Drug & Cosmetic Ind 94:935-6 Je '64

OKINAWA

See also

Electric plants (central stations)—Okinawa

OKLAHOMA

See also subdivision Oklahoma under special subjects, e. g.

Gas. Natural
Geology
Mines and mineral resources
Petroleum
Petroleum industry and trade
Petroleum products pipe lines
Roads

OLAH, George A.

American chemical society award in petroleum chemistry. por Chem & Eng N 42:72 Mr 30 '64

OLD age

Aging of the lung; perspectives; symposium abstracts. Archives Environmental Health 9:255-65 Ag '64

Determinants of serum antirachitic activity; special reference to involutional osteoporosis. R. W. Smith, jr. and others. bibliog Am J Clinical Nutrition 14:98-108 F '64

Physiological aspects of aging; calcium and magnesium metabolism in senescent mice. H. H. Draper. bibliog J Nutrition 83:65-72 My '64

See also

Age and employment
Retirement

Care and hygiene

Health, welfare, and rehabilitation; an official agency approach from a local viewpoint. H. D. Chope. bibliog Am J Pub Health 54:98-102 Ja '64

Principles and criteria for determining medical indigency; report of the committee for the project of the National council on the aging. bibliog Am J Pub Health 54:1745-65 O '64

Housing

Environment for the elderly. il plans diags Prog Arch 45:136-53 Ap '64

OLD age homes

Environment for the elderly; degrees of sheltered living. il plans Prog Arch 45:150-3 Ap '64

New concept in housing and nursing spaces. il plans Arch Rec 135:189-91 Ap '64

OLD age pensions

Voluntary pension plans for the self-employed. Elec Constr & Maint 63:98 F '64

OLEATES

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

See also

Methyl oleate

OLEFINS

Acid-catalyzed cyclization of acyclic dienes. H. E. Ulery and J. H. Richards. bibliog Am Chem Soc J 86:3113-17 Ag 5 '64

Addition of acyl- and alkylcobalt carbonyls to conjugated dienes. R. F. Heck. bibliog Am Chem Soc J 85:3381-3 N 5 '63

Addition of nitrones to olefins: fused bicyclic isoxazolidines. N. A. LeBel and others. Am Chem Soc J 86:3759-67 S 20 '64

Addition of nitrosyl halides to olefins: dependence of steric course on olefin structure. J. Meinwald and others. bibliog Am Chem Soc J 86:4074-80 O 5 '6'4

Addition of silicon hydrides to olefinic double bonds: the addition of trichlorosilane-*d*. J. W. Ryan and J. L. Speier. bibliog Am Chem Soc J 86:895-8 Mr 5 '64

Addition of the trichloromethyl radical to ω-phenylalkenes. M. M. Martin and G. J. Gleicher. bibliog diag Am Chem Soc J 86:238-41 Ja 20 '64

Alpha-olefins in the surfactant industry. T. H. Liddicoet. bibliog Am Oil Chem Soc J 40:631-6 N '63

Application of the Ritter reaction to α-olefins. T. Clarke and others. bibliog Am Oil Chem Soc J 41:78-82 Ja '64

Assignment of *cis trans* configuration to mono-olefin pairs by gas chromatography. R. A. Hively. bibliog Anal Chem 35:1921-4 N '63

Carbenoid formation of arylcyclopropanes from olefins, benzal bromides, and organolithium compounds and from photolysis of aryldiazomethanes. G. L. Closs and R. A. Moss. bibliog diags Am Chem Soc J 86:4042-53 O 5 '64

Cationic cyclizations involving olefinic bonds. W. S. Johnson and others. bibliog Am Chem Soc J 86:1959-78 My 20 '64

Concerning the mechanism of addition of simple olefins to organotin dihydrides. C. Barnetson and others. bibliog Chem & Ind p458-9 Mr 14 '64

OLEFINS—*Continued*

Concerning the mechanism of the reaction of phenyl(trihalomethyl)mercurials with olefins. D. Seyferth and J. M. Burlitch. bibliog Am Chem Soc J 86:2730-1 Jl 5 '64
Cycloaddition; the 1,2-addition of 1,1-dichloro-2,2-difluoroethylene to some dienes. P. D. Bartlett and others. bibliog Am Chem Soc J 86:616-22 F 20 '64
Cyclopropane synthesis from methylene iodide, zinc-copper couple, and olefins. E. P. Blanchard and others. bibliog Am Chem Soc J 86:1337-56 Ap 5 '64
Designing polyolefins for extrusion coating. R. L. Erratt. diags Tappi 47:sup 195A-8A Ja '64
Electrophilic addition reactions of 1,1-dimethyldiazenium bromide with 1,3-dienes and styrenes. W. H. Urry and others. bibliog Am Chem Soc J 86:2224-9 Je 5 '64
Electrophilic addition to olefins; the stereochemistry of addition of deuterium bromide to 1-phenylpropene. M. J. S. Dewar and R. C. Fahey. bibliog Am Chem Soc J 85:3645-8 N 20 '63
α-Halosulfones; a facile conversion of mercaptans to homologous terminal olefins. L. A. Paquette. bibliog Am Chem Soc J 86:4383-5 O 20 '64
Hammett-Taft study of the addition of the trichloromethyl radical to substituted alkenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:242-4 Ja 20 '64
Homogeneous catalysis; double bond migration in *n*-olefins, catalyzed by group VIII metal complexes. J. F. Harrod and A. J. Chalk. bibliog Am Chem Soc J 86:1776-9 My 5 '64
Hydroboration of ureido-substituted olefins. D. N. Butler and A. H. Soloway. Am Chem Soc J 86:2961 Jl 20 '64
Hydroboration; the reaction of diisopinocampheylborane with representative *cis*-acyclic, cyclic, and bicyclic olefins; a convenient synthesis of optically active alcohols and olefins of high optical purity and established configuration. H. C. Brown and others. bibliog Am Chem Soc J 86:397-403 F 5 '64
Hydroboration: the reaction of diisopinocampheylborane with representative *trans* and hindered olefins; triisopinocampheyldiborane as a reagent for the configurational assignment of alcohols and olefins via hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:1071-6 Mr 20 '64
Internal olefins, organoaluminum compounds give alpha olefins. G. Bruno. Chem & Eng N 42:47-8 Ja 27 '64
Measuring the density of polyolefins with an improved gradient column. N. Payne and C. E. Stephenson. bibliog diags Materials Res & Stand 4:3-7 Ja '64
Mechanism of fluorination; the effect of temperature and of fluorine concentration upon the olefin dimerization reaction; a new fluorination apparatus. W. T. Miller, jr. and others. bibliog diags Am Chem Soc J 86:51-6 Ja 5 '64
Mechanism of hydrocracking; reactions of paraffins and olefins. H. L. Coonradt and W. E. Garwood. bibliog Ind & Eng Chem Proc Design 3:38-45 Ja '64
CH_2 transfer from halomethylmercury compounds to olefins. D. Seyferth and others. bibliog Am Chem Soc J 86:121-2 Ja 5 '64
More olefins with new cyclic cracker. A. Roche and others. bibliog flow sheet Hydrocarbon Process & Pet Refiner 43:161-4 My '64
New method copolymerizes ω-haloolefins with α-olefins; abstracts. R. Bacskai. Chem & Eng N 42:55 S 14 '64
New olefin copolymers bid for share of plastics market. il Chem & Eng N 42:25-6 Mr 16 '64
New phosphorylation reaction of olefins. E. Jungermann and H. E. Reich. bibliog Ind & Eng Chem Product Res & Develop 2:315-17 D '63
Non-catalytic oxidation of olefins to epoxides with molecular oxygen. F. W. Meadus and K. U. Ingold. bibliog Can J Chem Eng 42:86-7 Ap '64
Olefin coordination compounds of rhodium; the barrier to rotation of coordinated ethylene and the mechanism of olefin exchange. R. Cramer. bibliog diags Am Chem Soc J 86:217-22 Ja 20 '64
Olefin copolymers. il Ind & Eng Chem 56:63 My '64
Olefin disproportionation; a new catalytic process. R. L. Banks and G. C. Bailey. diag Ind & Eng Chem Product Res & Develop 3:170-3 S '64
Olefin exchange reactions in platinum(II) complexes containing pyridine N-oxides. S. I. Shupack and M. Orchin. bibliog Am Chem Soc J 86:586-90 F 20 '64
Olefin oxidations with excited singlet molecular oxygen. C. S. Foote and S. Wexler. bibliog Am Chem Soc J 86:3879-80 S 20 '64
Olefin polymerization over synthetic molecular sieves. C. J. Norton. bibliog Ind & Eng Chem Proc Design 3:230-6 Jl '64
Olefins disproportionated by new catalytic process; abstract. R. L. Banks and G. C. Bailey. Chem & Eng N 42:70-1 Ap 20 '64
Olefins in Europe. il maps Chem & Eng N 42:102-34 Ag 3; 66-88+ Ag 31; 92-108 S 28 '64
One-electron transfer from an olefin to a dicarbonium ion. H. Hart and others. Am Chem Soc J 86:2079-80 My 20 '64
Oxymercuration of olefins; *cis*- and *trans*-oxymercuration of bicyclo[2.2.2]oct-2-ene. T. G. Traylor. diags Am Chem Soc J 86:244-8 Ja 20 '64
Ozone, HCN convert olefins to acids. E. K. Fields. Chem & Eng N 42:65 S 14 '64
Photolysis of thiobenzophenone in the presence of olefins; a novel reaction. E. T. Kaiser and T. F. Wulfers. bibliog Am Chem Soc J 86:1897-8 My 5 '64
Photosensitized cyclization of myrcene; the problem of addition of dienes to alkenes. R. S. H. Liu and G. S. Hammond. Am Chem Soc J 86:1892-3 My 5 '64
Polyolefins are still leading the plastics-packaging boom. V. D. McCarthy and J. E. Flood. il Oil & Gas J 62:122-6 Ap 20 '64
Preparation and etherification reaction of fatty dichlorocyclopropanes. H. E. Kenney and others. bibliog Am Oil Chem Soc J 41:82-5 Ja '64
Reaction scheme adds nitrogen to olefins; amozonolysis will make heterocyclic nitrogen compounds. E. K. Fields and M. I. Fremery. Chem & Eng N 41:30-2 D 23 '63
Reactions of alpha-olefins. E. Clippinger. bibliog diag Ind & Eng Chem Product Res & Develop 3:3-7 Mr '64
Relationship between morphology and deformation mechanisms of polyolefins. K. Sasaguri and others. bibliog diags J Ap Phys 35:47-54 Ja '64
Soluble catalysts for the hydrogenation of olefins. M. F. Sloan and others. bibliog Am Chem Soc J 85:4014-18 D 20 '63
Solvents of low nucleophilicity; the effect of remote substituents in the addition of trifluoroacetic acid to substituted alkenes. P. E. Peterson and G. Allen. bibliog Am Chem Soc J 85:3608-13 N 20 '63
Solvolytic halogenation of olefins in ethers. I. G. Dinulescu and others. Chem & Ind p840-1 My 16 '64
Some radical reactions of trivalent phosphorus derivatives with mercaptans, peroxides, and olefins; a new radical cyclization. C. Walling and M. S. Pearson. bibliog Am Chem Soc J 86:2262-6 Je 5 '64
Some stereoregular polymerizations of conjugated dienes. M. H. Lehr. Rubber Chem & Tech 36:1571-82 bibliog(p 1581-2) D '63
Stabilizers, pigments, antioxidants give you better polyolefin uv resistance. R. J. Martinovich. Plastics Tech 9:45-8 N '63
Stereochemistry of no-mechanism reactions; transfer of asymmetry in the reaction of olefins with dienophiles. R. K. Hill and M. Rabinovitz. bibliog Am Chem Soc J 86:965-6 Mr 5 '64
Stereochemistry of the reaction of benzal chloride with olefins. J. E. Hodgkins and others. bibliog Am Chem Soc J 86:4080-5 O 5 '64
Stereospecific synthesis of 1,4-dienes. G. Hata. Am Chem Soc J 86:3903 S 20 '64
Stereospecific *trans* photoaddition of elementary iodine to aliphatic olefins; bridged iodoalkyl radicals. P. S. Skell and R. R. Pavlis. Am Chem Soc J 86:2956 Jl 20 '64
Structure-reactivity relationship of olefin reductions with lithium in ethylamine; a comparison of the ethylamine and ammonia systems. A. P. Krapcho and M. E. Nadel. bibliog Am Chem Soc J 86:1096-100 Mr 20 '64

See also
Cycloolefins
Ethylene
Propylene

Analysis

Determination of normal alpha-olefins by hydrobromination. J. C. Suatoni. Anal Chem 35:2196-8 D '63
Determination of olefinic unsaturation. B. Fleet. bibliog Ind Chem 39:601-3, 657-9 N-D '63

OLEFINS—Analysis—*Continued*

Gulf reveals analytical scheme for alpha olefins control. il Chem & Eng N 41:48-9 D 16 '63

Infrared analysis of alpha-olefins. E. L. Saier and others. Anal Chem 35:2219-20 D '63

Separation of isotopic position isomers of tritium-labeled olefins by gas chromatography. E. K. C. Lee and F. S. Rowland. bibliog Anal Chem 36:2181-3 O '64

Manufacture

Alpha olefins get new vote of confidence. il Chem & Eng N 42:36-7 Ag 17 '64

French olefin capacity surges ahead. il Chem & Eng N 42:42 Ja 6 '64

Spectra

Nuclear magnetic resonance in poly(normal α-olefins). W. P. Slichter and D. D. Davis. bibliog J Ap Phys 35:10-14 Ja '64

Organic quantum chemistry; calculation of the near-ultraviolet spectra of polyolefins. N. L. Allinger and M. A. Miller. bibliog Am Chem Soc J 86:2811-19 Jl 20 '64

OLEIC acid

Determination of the component glycerides of seed oils containing saturated oleic and linoleic acids. F. D. Gunstone and others. Chem & Ind p483 Mr 21 '64

Effect of oleic and linoleic acids on the absorption of saturated fatty acids in the chick. R. J. Young and R. L. Garrett. bibliog J Nutrition 81:321-9 D '63

Enzyme is stereospecific. G. J. Schroepfer, jr. Chem & Eng N 42:44 Ja 27 '64

Hydrogenolysis of saturated, oleic and ricinoleic acids to the corresponding alcohols. A. J. Pantulu and K. T. Achaya. bibliog Am Oil Chem Soc J 41:511-14 Jl '64

OLFACTION. See Smell

OLIGOCENE period. See Geology, Stratigraphic—Oligocene

OLIGONUCLEOTIDE. See Nucleotides

OLIVE oil

Relative reactivity toward hydrogenation of the oleoyl group in the 2- and 1,3-positions of triglycerides. H. V. Tumer and others. bibliog Am Oil Chem Soc J 41:413-15 Je '64

OLIVES

Residue determination of naphthaleneacetic acid in olives. G. Zweig and others. bibliog J Agri & Food Chem 12:59-61 Ja '64

OLIVINE

Errors in the measurement of 2V with the universal stage. M. Munro. bibliog diags Am Mineralogist 48:308-23 Mr '63; Discussion. A. C. Tobi. 49:812-13; Reply. 813-15 My '64

Olivine shear strength at high pressure and room temperature. R. E. Riecker and K. E. Seifert. bibliog Geol Soc Bul 75:571-3 Je '64

Revised composition of two olivines from the Skaergaard intrusion, East Greenland; discussion. E. A. Vincent and others. Am Mineralogist 49:805-6 My '64

Spectra

Infrared investigation of the olivine group minerals. D. A. Duke and J. D. Stephens. bibliog diags Am Mineralogist 49:1388-406 S '64

OLNEY medal

Richard O. Steele, 1964 AATCC Olney medal award winner; with list of his publications. il Am Dyestuff Rep 53:689, 773-5 Ag 3, 31 '64

OLYMPIC games

Comsat comes on strong with a really big show. L. D. Shergalis. il diags Electronics 37:60-3 O 5 '64

Olympic telecasts. Electronics 37:151 O 19 '64

Tokyo's Olympic buildings reach last lap. il Eng N 173:24-5 S 24 '64

OMAN

See also

Petroleum—Oman

OMPHACITE. See Pyroxenes

ONIONS, Dried

Relation between pyruvate content and odor strength of reconstituted onion powder. S. Schwimmer and others. bibliog diags Food Tech 18:1231-4 Ag '64

ONSAGER equation

Onsager reciprocal principle. L. T. Fan and C. H. Chan. Ind & Eng Chem Fundamentals 3:181-2 My '64

ONTARIO

See also subdivision Ontario under special subjects, e.g.

Geology
Hydroelectric plants
Iron mines and mining
Iron ores
Nickel mines and mining
Petroleum
Water supply

Hydroelectric power commission

Ontario Hydro has 300 researchers. il Elec World 161:142 Mr 23 '64

ONTARIO, Lake

Comparison of actual with predicted waveheights and periods for the north shore of Lakes Ontario and Erie. A. Brebner and B. P. Sangal. bibliog il Eng J 47:32-6; Discussion. 42+ Mr '64

ONTARIO research foundation

Ontario research foundation. A. E. R. Westman. il Chem & Ind p 1662-71 O 3 '64

OPACITY

Direct measurement of xenon flashtube opacity. J. L. Emmett and others. diag J Ap Phys 35:2601-4 S '64

Quantitative diffractometric analysis of X-ray transparent specimens. R. Bergin. bibliog diag J Sci Instr 41:558-60 S '64

See also

Paper—Opacity

OPEN hearth furnaces

Dual-hearth furnace offers great promise. W. M. Mathias. diag Iron & Steel Eng 41:177-8+ Ap '64

Ohio Steel Foundry doubles melt capacity. Iron & Steel Eng 41:150 Ja '64

Open hearth design trims operating costs. diag Steel 154:54+ Ap 27 '64

Charging

Transfer of sulphur from gas to molten oxide systems. A. S. Alwan and P. M. Bills. bibliog Iron & Steel Inst J 202:367-72 Ap '64

Control

Combustion control in the open hearth. P. J. Koros and others. bibliog diags Iron & Steel Eng 41:109-14; Discussion. 114-15 Je '64

Firing

Oxy-gas burners for cold-metal open hearths. G. M. Hagenberger. diags J Metals 16:362-4 Ap '64

Oxygen; can it revive the open hearth? E. F. Kurzinski. il diags Iron & Steel Eng 41:83-9 Ap '64

Toroidal oxy-fuel burner. J. G. C. Pope. diags J Metals 16:520-1 Je '64

Lining

Resistance of basic brick to deterioration from changes in atmosphere. D. H. Hubble. bibliog il Am Cer Soc Bul 43:506-9 Jl '64

Roofs

Cooled roofs may save steelmen buck a ton. T. Milhaupt. Steel 153:96-8 D 9 '63

Direct bonding of basic brick. B. Davies and F. H. Walther. bibliog il Am Cer Soc J 47:116-22 Mr '64

Furnace roof. Iron & Steel Eng 41:244+ Mr '64

OPEN hearth process

Development and application of rapid carbon determination for open-hearth control. W. G. Hines and others. il J Metals 16:165-9 F '64

Experimental study of the rate of metal mixing in an open-hearth furnace. J. Szekely. bibliog diags Iron & Steel Inst J 202:505-8 Je '64

National open hearth and basic oxygen steel committee. Eastern section annual conference. 17th, Philadelphia, Oct. 18; abstracts of papers. J Metals 16:191+ F '64

National open hearth and basic oxygen steel conference, 47th and 23d ironmaking conference, Pittsburgh, April 13-15; combined program, list of officers and local section reports. J Metals 16:297-317 Ap '64

Openhearth model predicts effects of changes in melting bath. Iron Age 193:140-2 Mr 12 '64

Oxygen converters in existing open hearth buildings. R. P. Krause. il diags Iron & Steel Eng 41:121-30 Jl '64

See also

Open hearth furnaces

OPEN pit mining. See Mining methods—Stripping operations

OPERATING rooms. See Hospitals—Operating rooms

OPERATIONS research

Accuracy, precision, and reliableness in operational research. J. W. Mayne. bibliog Op Res 11:990-6 N '63

Analogue computer application in operations research. D. Longley. diags Electronic Eng 36:378-81 Je '64

Consultants develop work study. Engineering 196:729 D 6 '63

Depth studies pinpoint costly operations at Vertol. il Steel 155:56-7 Jl 20 '64

Mathematical modeling; an engineering approach to marketing. R. A. Labine. bibliog Chem Eng 71:193-6 Ap 13 '64

Operations research as applied to mining. M. E. Smith. il Can Min & Met Bul 57:109-14 F '64

Operations research in construction planning. R. L. Nicholls. bibliog Am Soc C E Proc 89 [CO 2 no 3640]:59-74 S '63; Discussion. 90 [CO 1 no 3851]:95-8 Mr '64; Reply. 90 [CO 2 no 4051]:61-2 S '64

Outline for research in penology. R. H. Roy. Op Res 12:1-12; Discussion. J. C. Pollard. 12-14; Reply. 14-15 Ja '64

Tentacles of operational research. diag Engineering 198:105 Jl 24 '64

Work study and related techniques. J. E. Payne. bibliog il Naval Eng J 76:471-81 Je '64

Work study from the top. R. Currie. Engineering 197:346 Mr 6 '64

See also

Dynamic programming
Linear programming
Sequencing problems
System simulation
Systems engineering
Weapons systems
Work sampling

Bibliography

Analyst's bookshelf. Published in bi-monthly numbers of Operations research

Study and teaching

Cranfield's approach to training in operations research. J. Murdoch. il Engineering 196:536 O 25 '63

OPINION, Public. See Public opinion

OPINION polls. See Public opinion polls

OPIUM

How poppies make opium; abstract. A. R. Battersby. Chem & Ind p583 Ap 4 '64

OPTICAL communication systems. See Light communication systems

OPTICAL glass. See Glass, Optical

OPTICAL illusions

Illusion of movement. P. A. Kolers. il diags Sci Am 211:98-106 O '64

OPTICAL instruments

Amplitude modulation with a noise carrier. H. E. Rowe. bibliog diags IEEE Proc 52:389-95 Ap '64

Beam of light has found widespread application in optical alignment systems. diags Product Eng 35:71 Mr 16 '64

Broadband electro-optic traveling-wave light modulators. M. DiDomenico, jr. and L. K. Anderson. diags Bell System Tech J 42:2621-78 bibliog(p2677-8) N '63

Calculated divergence of laser beam from generalized spherical mirror cavities. N. Karube. diag IEEE Proc 52:327-8 Mr '64

Circle diagram for optical resonators. J. P. Gordon. bibliog diags Bell System Tech J 43:1826-7 pt 2 Jl '64

Direct viewing of Debye-Scherrer patterns with transmission secondary electron multipliers. G. W. Goetze and A. Taylor. il diag R Sci Instr 34:1434-6 D '63

Electrical read-out from optical alignment devices. J. Dyson and P. J. W. Noble. il diags J Sci Instr 41:311-16 My '64

Electroforming of aluminum optical components. il Light Metal Age 22:4-5 Ag '64

Electro-optic frequency modulation in optical resonators. A. Yariv. diags IEEE Proc 52:719-20 Je '64

Experimental verification of transverse modes in concave optical resonators. J. T. Verdeyen and others. bibliog il diag IEEE Proc 51:1775-6 D '63

Flexible light pipes. N. W. Reay and L. M. Preston. R Sci Instr 35:519 Ap '64

Gamma-ray response of simple slit-collimated detectors. A. L. Lillegraven. diags J Ap Phys 35:1974-82 Je '64

Inexpensive optical-lever amplifier for studying the Brownian motion of a galvanometer. K. S. White. bibliog diags Am J Phys 31:922-5 D '63

Lensless optical system uses laser. L. H. Dulberger and C. Wixom. il Electronics 36:44 D 27 '63

Mathematical technique for evaluating optical systems. Franklin Inst J 277:513-14 My '64

Method for producing fine transparent slits. K. Fea and A. C. Newton. il diag J Sci Instr 41:188-9 Mr '64

Moiré fringe interpolator of high resolution. A. H. McIlraith. bibliog diags J Sci Instr 41:34-7 Ja '64

Noise-modulated optical radar. H. E. Band. bibliog IEEE Proc 52:306-7 Mr '64

Optical guidance system. W. R. F. Gosling. diags J Sci Instr 41:264-6 My '64

Optical line following; new aid to EDM. il diags Tool & Manuf Eng 52:81-4 F '64

Optical mike gages hot wire. diags Iron Age 193:121 F 20 '64

Optical network synthesis using birefringent crystals. S. E. Harris and E. O. Ammann. diags IEEE Proc 52:411-12 Ap '64

Optical tooling for profit. L. Hurtt. diags Naval Eng J 76:461-5 Je '64

Optics for precise machining. A. Waigandt. il Am Mach 108:70-1 Jl 20 '64

Optics plus electronics; paper surface inspector. diag Product Eng 35:64-5 Ag 3 '64

Production and use of the optical contact bond. R. N. Smartt and J. V. Ramsay. J Sci Instr 41:514 Ag '64

Refractive index monitor employing Fresnel's principle. R. D. Conlon. diags R Sci Instr 34:1418-20 D '63

Standard sapphire windows available for optical system. il Electronics 37:64+ F 14 '64

See also

Collimators
Densitometers
Diffraction gratings
Diffractometers
Ellipsometers
Exposure meters
Interferometers
Kerr cell
Light filters
Measuring instruments, Optical
Microscope and microscopy
Monochromators
Moving picture photography—High speed
Photometers
Projection apparatus
Reading machines
Refractometers
Schlieren apparatus
Spectrograph
Spectrometers
Spectrophotometers
Stroboscopic instruments
Surveying instruments
Telescope

OPTICAL measurements

Align machinery by optical measurement. E. H. Koenig. il diags Plant Eng 18:140-3 My '64

Causes of optical-crystallographic scatter of plagioclase in grain mounts. T. A. Vogel. diag Geol Soc Bul 74:1403-4 N '63

Determination of optical path difference for a photographic objective. F. E. Washer and W. R. Darling. il J Res Nat Bur Stand 67C:311-18 O '63

Errors in the measurement of 2V with the universal stage. M. Munro. bibliog diags Am Mineralogist 48:308-23 Mr '63; Discussion. A. C. Tobi. 49:812-13; Reply. 813-15 My '64

Extinction measurements for the determination of 2V with the universal stage. N. Joel and I. D. Muir. bibliog diags Am Mineralogist 49:286-96 Mr '64

Ferromagnetic Hall effect at optical frequencies and inner effective magnetic field of ferromagnetic metals. G. S. Krinchik. bibliog J Ap Phys 35:1089-92 pt 2 Mr '64

Kits check n/c positioning. R. Johnstone. il Am Mach 108:70-1 Mr 2 '64

Near-ultraviolet light scattering for the determination of molecular dimensions. W. R. Krigbaum and others. bibliog J Ap Phys 34:3218-20 N '63

Optical tooling for precise structural measurements. G. C. Ward and J. F. Ely. il diags Am Soc C E Proc 90 [ST 3 no 3944]:179-200 Je '64

Relationship of optical axial angle with the three principal refractive indices. J. McAndrew. bibliog Am Mineralogist 48:1277-85 N '63

Scientific uses of Ferranti moiré fringe system. Engineering 196:35 D 6 '63

Technique for measuring small optical loss using an oscillating spherical mirror interferometer. A. J. Rack and M. R. Biazzo. bibliog il diags Bell System Tech J 43:1563-79 pt 2 Jl '64

OPTICAL measurements—*Continued*

Use of the Nakamura plate in universal stage orientations. T. A. Vogel. Am Mineralogist 49:406-8 Mr '64

See also

Light—Velocity

Measuring instruments. Optical

Range finders

OPTICAL measuring instruments. See Measuring instruments, Optical

OPTICAL methods

Black Knight electronic flash installation for optical tracking. R. L. Aspden. il diag Electronic Eng 36:88-91 F '64

Dispersion properties of air as a possible limitation on the maximum useable bandwidths of coherent optical communication systems. C. M. Knop. IEEE Proc 52:319-20 Mr '64

Effective thickness of two birefringent crystals for the study of natural birefringence. M. Ziauddin and T. S. Narasimhamurty. bibliog il diags R Sci Instr 35:303-5 Mr '64

Inspecting surfaces from a distance. R. A. Betz. il Metal Prog 85:91-4 Ja '64

Optical correlation technique. L. Slobodin. il diag IEEE Proc 51:1782 D '63; Discussion. 52:842 Jl '64

Optical-crystallographic scatter in plagioclase. T. A. Vogel. bibliog il diags Am Mineralogist 49:614-33 My '64

Optical heterodyne detection of microwave-modulated light. R. Targ. bibliog diag IEEE Proc 52:303-4 Mr '64

Optical heterodyning with noncritical angular alignment. W. S. Read and D. L. Fried. diag IEEE Proc 51:1787 D '63

Optical marking-out equipment. Engineer 217:365 F 21 '64

Optical observation of elastic resonances in $NH_4H_2PO_4$. D. J. A. Gainon and others. bibliog il diag J Ap Phys 35:1166-8 Ap '64

Optical systems for observing surface topography by frustrated total internal reflection and by interference. C. W. McCutchen. bibliog il diags R Sci Instr 35:1340-5 O '64

Optical-wedge technique for measuring angular vibration. A. Degenholtz. diags Machine Design 36:167-8 Mr 12 '64

Optically induced forces in a dielectric; comparison of theory and experiment. A. Bramley and J. E. Rosenthal. IEEE Proc 52:1064-5 S '64

Optically-induced ultrasonic waves in transparent dielectrics. A. J. DeMaria. bibliog il IEEE Proc 52:96-7 Ja '64

Optically projected meter readings promise to shrink instrument consoles. il Machine Design 36:12 S 10 '64

Permanent optical memories for compact systems. F. P. DeNegri. bibliog il diags Electronics 37:64-71 Ap 20 '64

Pulse power supply design for laser pumping. S. J. Grabowski. il diags Electronics 36:33-5 D 20 '63

Simultaneous observation of diffusion-induced dislocation slip patterns in Si with electron beam scanning and optical means. W. Czaja and G. H. Wheatley. bibliog il J Ap Phys 35:2782-3 S '64

Solving the mail count problem. il Automation 11:39 Jl '64

Spectrum reader rapidly gives analysis. diags Can Chem Process 47:67-8 N '63

OPTICAL properties

Absence of optically positive potash feldspar in the Inyo Mountains, California-Nevada. D. O. Emerson. bibliog Am Mineralogist 49:194-5 Ja '64

Change of the refractive index of ruby during optical pumping. U. J. Schmidt. J Ap Phys 35:259-60 Ja '64

Effect of heat treatment on the optical properties of heavily doped silicon and germanium. W. G. Spitzer and others. bibliog J Ap Phys 35:206-11 Ja '64

Electroluminescent gallium arsenide diodes with negative resistance. K. Weiser and R. S. Levitt. bibliog il diag J Ap Phys 35:2431-8 Ag '64

Ellipsometry: valuable tool in surface research. K. H. Zaininger and A. G. Revesz. diags RCA R 25:85-115 bibliog(p 112-15) Mr '64

Fluorescence lifetimes of ruby. G. C. Brown, jr bibliog J Ap Phys 35:3062-3 O '64

Guide to optical materials. J. E. Hauck. bibliog il diags Materials in Design Eng 60:91-5 O '64

Interference microscopy in polymer research. V. G. Peck and W. L. Carter. bibliog il diags Textile Res J 34:40-5, pl 1 Ja '64

Nonlinear optical properties of solids. P. S. Pershan. bibliog J Res Nat Bur Stand 68D:671-2 My '64

Optical and electrical properties of selenium-tellurium alloys. H. P. D. Lanyon. bibliog J Ap Phys 35:1516-23 My '64

Optical and electrical properties of single-crystal GaP vapor-grown on GaAs substrate. H. Flicker and others. bibliog diag J Ap Phys 35:2959-62 O '64

Optical character-recognition systems. H. Falk. bibliog Electro-Tech 74:42-52+ Jl '64

Optical extinction of anorthite at high temperatures. F. D. Bloss. bibliog Am Mineralogist 49:1125-31 Jl '64

Optical second-harmonic generation in ZnS-CdS and CdS-CdSe alloys. R. A. Soref and H. W. Moos. bibliog diag J Ap Phys 35:2152-8 Jl '64

Particle orbit theory for an ionized gas. P. Mallozzi. diag Am J Phys 32:556-8 Jl '64

Preparation, optical properties, and band structure of boron monophosphide. C. C. Wang and others. bibliog diag RCA R 25:159-67 Je '64

Properties of rare-earth nitrides. N. Sclar. bibliog J Ap Phys 35:1534-8 My '64

Structural and optical characteristics of thin GaAs films. J. E. Davey and T. Pankey. bibliog il diags J Ap Phys 35:2203-9 Jl '64

Structural defects in GaP crystals and their electrical and optical effects. M. Gershenzon and R. M. Mikulyak. bibliog il J Ap Phys 35:2132-41 Jl '64

See also

Absorption of rays

Refractive index

OPTICAL rotation

Apparatus for the measurement of optical rotation of solutions at high pressure. S. J. Gill and R. L. Glogovsky. bibliog diags R Sci Instr 35:1281-3 O '64

Asymmetric reduction of sulphoxides with optically active thiols. K. Balenović and N. Bregant. bibliog Chem & Ind p 1577-8 S 12 '64

Calculation of the magnitude of the rotation of the components of a racemic modification, by way of two partial, consecutive resolutions in homogeneous medium. A. Horeau. Am Chem Soc J 86:3171-3 Ag 5 '64

Comparison of the optical Faraday rotation and magnetic susceptibility of cerous phosphate glass. S. B. Berger and C. B. Rubinstein. bibliog J Ap Phys 35:1798-801 Je '64

Cotton effects in aliphatic amino-acids. W. Gaffield. Chem & Ind p 1460-1 Ag 15 '64

Cyclopropanes; an optically active Grignard reagent and the mechanism of Grignard formation. H. M. Walborsky and A. E. Young. bibliog diags Am Chem Soc J 86:3288-96 Ag 20 '64

Effect of electrolytes on circular dichroism curves of $[Co(en)_3]Cl_3$. H. L. Smith and B. E. Douglas. Am Chem Soc J 86:3885-7 S 20 '64

Evaluation of a sample method for optical rotatory dispersion measurements in the visible and ultraviolet regions. I. P. Dirkx and others. bibliog diags Anal Chem 36:1988-91 S '64

Gem-dihalides from α-haloamides; rearrangement of optically active α-chlorohydrocinnamamides. C. L. Stevens and others. Am Chem Soc J 85:3394-6 N 5 '63

General characteristics of magneto-optical rotation spectra. V. E. Shashoua. bibliog diag Am Chem Soc J 86:2109-15 Je 5 '64

Helix interruption constant for poly-L-glutamic acid from the pressure dependence of optical rotation. J. Rifkind and J. Applequist. bibliog Am Chem Soc J 86:4207-8 O 5 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *cis*-acyclic, cyclic, and bicyclic olefins; a convenient synthesis of optically active alcohols and olefins of high optical purity and established configuration. H. C. Brown and others. bibliog Am Chem Soc J 86:397-403 F 5 '64

Hydroboration; the reaction of diisopinocampheylborane with representative 2-methyl-1-alkenes; a convenient synthesis of optically active 2-methyl-1-alkanols. G. Zweifel and others. bibliog Am Chem Soc J 86:1076-9 Mr 20 '64

Molecular interactions in β-lactoglobulin; optical rotatory dispersion of the genetic variants in different states of association. T. T. Herskovits and others. bibliog Am Chem Soc J 86:4445-52 O 20 '64

Nitrene insertion into a C-H bond at an asymmetric carbon atom with retention of optical activity; thermally generated nitrenes. G. Smolinsky and B. I. Feuer. bibliog Am Chem Soc J 86:3085-8 Ag 5 '64

OPTICAL rotation—*Continued*

Optical rotation of cellulose acetate. R. J. Fort and others. bibliog Chem & Ind p 108-10 Ja 18 '64

Optical rotatory dispersion of carbohydrates. N. Pace and others. Am Chem Soc J 86:3160-2 Ag 5 '64

Optical rotatory dispersion of deoxyribonucleotides. J. T. Yang and T. Samejima. bibliog Am Chem Soc J 85:4039-40 D 20 '63

Optical rotatory dispersion of some amino acids and criteria of protein conformation. L. I. Katzin and E. Gulyas. bibliog Am Chem Soc J 86:1655-9 My 5 '64

Optical rotatory dispersion studies. C. Djerassi and others. bibliog Am Chem Soc J 86:78-90, 465-71, 492-8, 1755-61 Ja 5, F 5, My 5 '64

Optical rotatory power: some recent developments. S. F. Mason. bibliog diags Chem & Ind p 1286-90 Jl 18 '64

Optically active borane compounds made. W. R. Hertler. diags Chem & Eng N 42:39 Jl 27 '64

Optically active 8,8′-dimethyl-1,1′-binaphthyl; the energy barrier for racemisation. Y. Badar and M. M. Harris. Chem & Ind p 1426 Ag 8 '64

Optically active *O*-ethyl ethylphosphonochloridothionates; a new route to optically active organophosphorus compounds. J. Michalski and M. Mikolajczyk. Chem & Ind p661-2 Ap 18 '64

Optically active polyamides; poly-D(—)-β-methyl-ε-caprolactam. C. G. Overberger and H. Jabloner. bibliog Am Chem Soc J 85:3431-5 N 5 '63

Optically active vinyl polymers; synthesis of optically active poly-α-olefins from racemic monomers by asymmetric catalysts. P. Pino and others. bibliog Am Chem Soc J 85:3888-90 D 5 '63

Polymer-homologous series of methyl β-D-glycosides from cellulose. M. L. Wolfrom and S. Haq. bibliog Tappi 47:183-5 Ap '64

Preparation of optically active polyhedral borane derivatives. W. R. Hertler. bibliog diags Am Chem Soc J 86:2949-50 Jl 20 '64

Racemization of an optically active fluorosilane without displacement of fluoride ion; evidence for an expanded-octet mechanism. L. H. Sommer and P. G. Rodewald. Am Chem Soc J 85:3898-9 D 5 '63

Relationship between optical activity and structure of natural triglycerides. C. Litchfield and R. Reiser. Am Oil Chem Soc J 40:749-50 D '63

Rotation properties of certain anisotropic ore minerals. E. N. Cameron and others. bibliog diag Econ Geol 56:569-83; 58:1309-12 My '61, D '63

Specific interactions of optically active ions as studied by conductance. L. J. Parkhurst and R. W. Kunze. Am Chem Soc J 86:300-1 Ja 20 '64

Stereochemistry of asymmetric silicon; relative and absolute configurations of optically active α-naphthylphenylmethylsilanes. L. H. Sommer and others. bibliog Am Chem Soc J 86:3271-6 Ag 20 '64

Stereochemistry of complex inorganic compounds; the Walden inversion in the base hydrolysis of optically active cobalt(III) complexes. L. J. Boucher and others. bibliog diag Am Chem Soc J 86:3656-60 S 20 '64

Stereochemistry of the copper-salt-catalyzed reaction of *t*-butyl perbenzoate with optically active bicyclo[3.2.1]octene-2. H. L. Goering and U. Mayer. bibliog Am Chem Soc J 86:3753-6 S 20 '64

Stereospecific influences in metal complexes containing optically active ligands; the equilibrium ratios and isolation of some of the isomers in the mixture tris-((±)-propylenediamine)-cobalt(III) chloride. F. P. Dwyer and others. Am Chem Soc J 86:590-2 F 20 '64

OPTICS

Application of fibre-optic faceplates in cathode-ray tubes. L. S. Allard. il Ind Electronics 2:273-5 Je '64

Comparison between the optical systems of searchlights and solar radiation simulators. J. P. Latil. il diags Illum Eng 59:67-71 Ja '64

Developments in optics and computers. R. H. Müller. Anal Chem 36:sup 115A My '64

Endoscopic photography using fiber optics. B. I. Hirschowitz. il diag SMPTE J 73:625-6 Ag '64

Fiber optics infrared tracker. il diag Electronics 36:63-4 N 15 '63

Ion optics of fields with rotational symmetry and circular main orbit. A. J. H. Boerboom. diag J Ap Phys 35:1691-7 Je '64

Matrix representation of Gaussian optics. K. Halbach. diags Am J Phys 32:90-108 F '64; Discussion. P. I. Richards. 32:890 N '64

Microsurgery on color tv; fiber-optics bundle allows a color camera to peer through microscope. L. D. Shergalis. il Electronics 37:106-7+ Jl 27 '64

Optical constants in the X-ray range. H. R. Philipp and H. Ehrenreich. bibliog J Ap Phys 35:1416-19 My '64

Optical coupling; new approach to microcircuit interconnections. M. A. Gilleo and J. T. Last. bibliog il diags Electronics 36:23-7 N 22 '63

Optics technology; new electronic discipline. J. Kraus. bibliog il Electronic Ind 23:79-82 F '64

Optoelectronics' advance slows down; Solid-state conference, Philadelphia. il Electronics 37:10-11 F 28 '64

Product Engineering fifth annual master design awards; fiber optics inspection tool. il diag Product Eng 35:110 Ap 27 '64

Some demonstration experiments in optics using a gas laser. D. Dutton and others. il diags Am J Phys 32:355-61 My '64

See also

Aberration (optics)
Absorption of rays
Beer law
Color
Electron optics
Fluorescence
Focus (optics)
Interference (light)
Lenses
Light
Magneto-optics
Measuring instruments, Optical
Photoelasticity
Photographic optics
Photometry
Polarization (light)
Radiation
Reflection (optics)
Refractive index
Resolving power (optics)
Spectrum analysis
Visibility

OPTICS, Geometrical

Concerning limitations and further corrections to geometric-optical theory for lf, vlf propagation between the ionosphere and the ground. J. R. Johler. bibliog diag J Res Nat Bur Stand 68D:67-78 Ja '64

Generalization of the Abbe sine law in geometric optics. J. Rainwater. diags Am J Phys 32:626-31 Ag '64

Geometrical optics convergence coefficient for the whistler case. J. H. Crary. bibliog diags J Res Nat Bur Stand 68D:211-14 F '64

Some remarks on mode and ray theories of vlf radio propagation. J. R. Wait. bibliog J Res Nat Bur Stand 68D:79-80 Ja '64

OPTICS, Physiological

See also

Color sense
Eye—Movements

OPTIMUM lot sizes. See Quantities (in production)

ORANGE COUNTY, California

See also

Sewerage—Orange County, California

ORANGE juice

Centrifuges flavor from juice. F. K. Lawler. flow sheet il diag Food Eng 36:42-5 Ag '64

Shelf life of chilled orange juice with heat treatment and preservatives. N. B. Rushing and V. J. Senn. bibliog Food Tech 18:1222-4 Ag '64

ORANGE juice, Dried

Effects of relative humidity, air, and vacuum on browning of dehydrated orange juice. M. Karel and J. T. R. Nickerson. bibliog diag Food Tech 18:1214-18 Ag '64

ORANGE seed oils. See Oils and fats

ORANGES

Absorption of 1,2-dibromoethane by oranges and by materials used in their fumigation. I. M. Coggiola and F. E. Huelin. diags J Agri & Food Chem 12:192-6 Mr '64

Identification of alcohols and volatile organic acids from natural orange essence. J. A. Attaway and others. bibliog J Agri & Food Chem 12:118-21 Mr '64

ORBITAL rendezvous (space flight)

Docking dynamics for rigid-body spacecraft. C. Grubin. bibliog diags AIAA J 2:5-12 Ja '64

ORBITAL rendezvous (space flight)—*Cont.*

Exact first-order navigation-guidance mechanization and error propagation equations for two-body reference orbits. K. C. Kochi. bibliog AIAA J 2:365-8 F '64

Gemini rendezvous radar. B. H. Vester. il diags Westinghouse Eng 24:19-23 Ja '64

Intercepting a comet. R. A. Park. il diags Astronautics & Aeronautics 2:54-8 Ag '64

Maximum rendezvous launch window characteristics. S. Kass. diags AIAA J 2:580-2 Mr '64

Optimum low-thrust rendezvous and station keeping. T. N. Edelbaum. bibliog diags AIAA J 2:1196-201 Jl '64

Plane-change requirements associated with rendezvous in a lunar satellite orbit. J. M. Deerwester. bibliog diags AIAA J 2: 890-5 My '64

Solid-state cooperative radar for space rendezvous. il Space/Aeronautics 41:116 Ap '64

Some optimal low-acceleration rendezvous maneuvers. B. H. Billik. bibliog diags AIAA J 2:510-16 Mr '64

ORBITALS, Atomic. See Atomic orbitals

ORBITS

Computer versus Kepler. O. Gingerich. bibliog il diags Am Scientist 52:218-26 Je '64

Impulsive force required to effectuate a new orbit through a given point in space. D. G. Magiros. diags Franklin Inst J 276:475-89 D '63

Measured physical characteristics of the West Ford belt. F. E. Heart and others. bibliog diags IEEE Proc 52:519-33 My '64

Trajectories with constant normal force starting from a circular orbit. R. R. Auelmann. diags AIAA J 2:561-3 Mr '64

See also

Satellites, Artificial—Orbits
Space vehicles—Orbits

ORCHARD heaters

Natural gas boasts a green thumb. il diags Gas Age 130:30-1 D '63

ORDER-disorder transformations

Order-disorder change in Fe-Ga alloys. C. Dasarathy. Iron & Steel Inst J 202:51 Ja '64

Order-disorder effects on ferromagnetic resonance. E. G. Spencer and R. T. Denton. bibliog J Ap Phys 35:2633-5 S '64

Studies on the oxygen gradients in oxidizing metals; zirconium. J. P. Pemsler. il Electrochem Soc J 111:381-5 Ap '64

ORDERS

Achievement in a warehouse; how Goodyear gets output. D. Paxton. il Mod Materials Handling 19:36-40, cover Je '64

Facsimile system speeds Bethlehem Steel orders. il Steel 155:56 Jl 6 '64

Getting orders out; a systems focus on service; Louis Zahn drug co. J. A. Eaton. il plan diag Mod Materials Handling 19:40-5 Ap '64

Hough homes in on receiving; keeping ahead of the flow. il Mod Materials Handling 19:46 Jl '64

Integer program for a delivery problem. M. L. Balinski and R. E. Quandt. bibliog diag Op Res 12:300-4 Mr '64

Late orders handled in 30 minutes vs. two days before. E. Bametzrieder. il Steel 154: 67 F 24 '64

Let your customers look over your shoulder; reporting system for Atols Tool & Mold. il Mill & Factory 73:54-5 D '63

Linear programming approach to the cutting stock problem. P. C. Gilmore and R. E. Gomory. bibliog Op Res 9:849-59; 11:863-88 N '61, N '63

Machines talk to machines to speed distribution. il Mod Materials Handling 19:52 Ap '64

Mechanized and automated warehousing. H. A. Zollinger. il diags Westinghouse Eng 24:24-9 Ja '64

New slant to automatic order picking. il diag Mod Materials Handling 19:46-8 Je '64

Protecting job sheets in the foundry. il Foundry 92:148 F '64

Revolving sleeve keeps schedule board current; Automatic machinery engineering section at Colgate-Palmolive co. il diag Plant Eng 18:136-7 Je '64

Setting the correct reorder point. N. L. Enrick. Textile World 114:83-5 Mr '64

Warehouse computer links order picking with invoicing. C. L. Philps and L. Rowland. il diag Control Eng 11:101-2 Mr '64

ORDNANCE

See also

United States—Army—Ordnance and ordnance stores

ORDOVICIAN period. See Geology, Stratigraphic—Ordovician

ORE analysis. See Mineralogy, Determinative

ORE chutes

Graphs simplify determination of launder size and slope. C. W. Matthews. il Eng & Min J 165:176-8 Je '64

ORE deposits

Chromite deposits of the Keonjhar district, Orissa, (India). O. P. Varma. bibliog il maps plan diags Econ Geol 59:799-825 Ag '64

Critical factors in the genesis, extent, and grade of some residual bauxite deposits. P. L. C. Grubb. bibliog diag Econ Geol 58:1267-77 D '63

Facies and types of hydrothermal alteration. C. W. Burnham. bibliog diags Econ Geol 57:768-84 Ag '62; Discussion. J. J. Hemley and P. B. Hostetler. 58:808-11 Ag '63; Reply. 59:332-4 Mr '64

Formation of ore deposits by water of compaction. E. A. Noble. maps diag Econ Geol 58:1145-56 bibliog(p 1155-6) N '63; Discussion. R. R. Reynolds. 59:723-4 Je '64

Hydrothermal versus syngenetic theories of ore deposition. R. H. Sales. maps Econ Geol 57:721-34 Ag '62; Discussion. bibliog diags 58:292-3, 444-6, 447-56, 609-18; 59: 162-7 Mr-Je '63, Ja '64

Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog(p917-19) Ag '64

Mechanisms of mineral zoning. H. L. Barnes. bibliog Econ Geol 57:30-7 Ja '62; Discussion. A. A. Kudenko and V. P. Stetsenko. 58:815-16 Ag '63; Reply. 59:158-60 Ja '64

Mercury halo method of exploration. S. H. Williston. Eng & Min J 165:98-101 My '64

Metallogenetic belts, centers, and epochs in Argentina and Chile. W. C. Stoll. bibliog map Econ Geol 59:126-35 Ja '64

Mineral paragenesis and zoning in the central Kentucky mineral district. J. L. Jolly and A. V. Heyl. maps diags Econ Geol 59:596-624 bibliog(p622-4) Je '64

Neptunist concepts in ore genesis. K. C. Dunham. maps Econ Geol 59:1-21 bibliog(p 19-21) Ja '64

Possible role of volatile metal compounds in ore genesis. K. B. Krauskopf. bibliog Econ Geol 59:22-45 Ja '64

Possible solution to the paradox of the sedimentary bornite. E. Gaucher. bibliog il Econ Geol 59:303-8 Mr '64

Principles of geostatistics. G. Matheron. diags Econ Geol 58:1246-66 D '63

Re-examination of some suggested mechanisms for remobilization of sulfide ore-bodies. A. H. Sorenson. Econ Geol 58:1071-88 bibliog(p 1087-8) N '63; Discussion. A. W. Smith. 59:930-5 Ag '64

Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64

Thermal glow tests as a guide to ore deposits. G. Zeschke. bibliog diags Econ Geol 58:800-3 Ag '63; Discussion. D. J. McDougall. 59:326-7 Mr '64

See also

Copper ores
Geology
Gold ores
Iron ores
Lead ores
Mines and mineral resources
Uranium ores
Zinc ores

ORE handling

Blast furnace materials handling. J. E. Allen. il Iron & Steel Eng 40:101-6; Discussion. 106-7 N '63

New for ships: a roll away loading system. il diag Mod Materials Handling 19:50-1 S '64

Portable loading pocket cuts hoisting time, cost. R. M. Kleine. diags Eng & Min J 165:119 O '64

Raw materials handling and preparation facilities at the Dunkirk integrated iron- and steelworks. M. Pedotti. il plan diags Iron & Steel Inst J 202:147-57 F '64

See also

Ore chutes

ORE ships

Chile's Coquimbo port installs mobile loading facilities. A. T. Yu. il Min Eng 16:84-5 My '64

Distinctive ships: ore-oil carrier San Jaun Pioneer. il Marine Eng/Log 68:84-5 D '63

ORE ships—*Continued*

Mitsubishi delivers ore carrier. il Marine Eng/Log 69:22E Ja '64

ORE testing

See also

Assaying

ORE transportation

Jamaica keeps growing; two new projects will boost bauxite shipments to the U.S. M. Eigo. il maps diags Eng & Min J 165:50-7 Ja '64 (to be cont)

See also

Mine haulage
Ore handling
Ore ships

ORE treatment

Anaconda's Butte concentrator: background and design objectives. W. Wraith, jr. and T. G. Fulmor. flow sheets il plan Min Eng 16:54-73 My '64

Butte mining perks up with new concentrator; Anaconda facility for concentrating copper ore. il diag Chem & Eng N 42:40-2+ Jl 27 '64

Chemical smelter can separate minerals. H. L. Hazen. plan Chem & Eng N 42:52+ F 17 '64

Chlorination of ores and concentrates as applied to extracting tantalum, columbium, and tungsten. A. W. Henderson. diags J Metals 16:155-60 F '64

Expert reviews the sign and evolution of early autogenous grinding systems. F. C. Bond. bibliog diags Eng & Min J 165:105-11 Ag '64

Mineral dressing, 1963. J. E. Lawver and W. D. Trethewey. il Min Cong J 50:61-4 F '64

Minerals beneficiation in 1963. bibliog il diag Min Eng 16:106-20 F '64

Pea Ridge iron mine processing Missouri ore. il Iron & Steel Eng 41:157-8 My '64

Process innovators concentrate on copper ore. il diag Chem Eng 71:46+ Ag 3 '64

Review of air classification. P. J. Vandenhoeck. diags Min Cong J 50:43-6 Mr '64

See also

Crushing
Crushing machinery
Flotation process
Gold metallurgy
Hydrometallurgy
International mineral processing congress
Iron metallurgy
Magnetic separation of ores
Metallurgical plants
Metallurgy
Screening
Sintering
Smelting
Tailings

OREGON

See also subdivision Oregon under special subjects, e.g.

Geology
Hydroelectric plants
Mines and mineral resources
Petroleum
Petroleum industry and trade
Roads
Soils

OREGON, Ohio

Water supply

Water system designed to attract industry; Oregon, Ohio. E. D. L. York and S. J. Wittenberg. il plan Pub Works 95:118-19 My '64

ORES

Cold combination for the quantitative determination of amalgable metals in the presence of their oxides in treated ores. M. G. Habashy. diag Anal Chem 36:1781-3 Ag '64

Ores analysed at the push of a button by radioactivation analysis. il Engineering 197:654 My 8 '64

Proposed working reflectivity standards for opaque ore minerals. G. J. Jansen. bibliog diag Econ Geol 59:1153-8 S '64

Stereoscopic radiography in the study of ore textures. W. K. Hamblin and C. A. Salotti. il Am Mineralogist 49:17-29 Ja '64

See also

Geology
Manganese ores
Metals
Mineralogy
Mines and mineral resources

ORGAN, Electronic

Electronic organ design. W. S. Pike. bibliog il diags Audio 48:19-21+ O; 24+ N '64

Maintenance and repair

Electronic organ service bench. J. Kirk. bibliog il diags Radio-Electronics 35:58+ Ja '64

ORGANIC chemistry. See Chemistry, Organic

ORGANIC compounds. See Chemistry, Organic

ORGANIC finishes. See Finishing materials

ORGANIC matter

Separation of hexachlorophene from organic matter prior to spectrophotometric estimation. V. D. Johnston and P. J. Porcaro. bibliog Anal Chem 36:124-6 Ja '64

ORGANIZATION for economic cooperation and development

Establishment of official relations between OECD and UNESCO. Chem & Ind p536 Mr 28 '64

OECD, catalyst of international science. Engineering 196:537 O 25 '63

ORGANIZATION in industry

Integrating corporate functions for optimum performance. G. M. Stankiewicz. diags Automation 10:63-5 N '63

Mechanized construction reshapes organizations. C. C. Crockett. il Elec World 162:90-1 Jl 13 '64

Personnel survey key to plant space allocation. T. T. Hurst. Plant Eng 18:134-7 My '64

Upgrading a company's information systems. J. E. Ryan. flow diag Automation 11:48-52 My '64

We switched to area maintenance supervision and like it! M. D. O'Hern. il diags Plant Eng 18:110-12 Ap '64

Why not tell your story with the organization tree? C. B. Lepak and M. E. Lynch. bibliog diag Hydrocarbon Process & Pet Refiner 43:112-16 Ag '64

See also

Efficiency, Industrial
Engineering departments
Industrial management
Maintenance departments
Research departments
Safety organization

ORGANOLEPTIC panels

Preservation of fresh unfrozen fishery products by low-level radiation; organoleptic studies on radiation-pasteurized soft-shell clam meats. T. J. Connors and M. A. Steinberg. Food Tech 18:1057-60 Jl '64

Quick and easy method of analysis on organoleptic data. K. I. Hayakawa and E. F. Stier. bibliog Food Tech 18:1470-3 S '64

Sensory testing guide for panel evaluation of foods and beverages. bibliog Food Tech 18:1135-41 Ag '64

ORGANOMETALLIC compounds

Ammonia symmetrization of organomercuric halides. F. R. Jensen and B. Rickborn. bibliog Am Chem Soc J 86:3784-6 S 20 '64

Carbenoid formation of arylcyclopropanes from olefins, benzal bromides, and organolithium compounds and from photolysis of aryldiazomethanes. G. L. Closs and R. A. Moss. bibliog diags Am Chem Soc J 86:4042-53 O 5 '64

Catalyzed reaction of alkylmagnesium halides with alkyl halides. V. D. Parker and others. bibliog diag Am Chem Soc J 86:1110-16 Mr 20 '64

Complexes of organolithium compounds with vacant orbital acceptors; determination of electron-density changes by proton magnetic resonance. R. Waack and M. A. Doran. bibliog Am Chem Soc J 85:4042-4 D 20 '63

Concerning the mechanism of addition of simple olefins to organotin dihydrides. C. Barnetson and others. bibliog Chem & Ind p458-9 Mr 14 '64

Contribution to the chemistry of the polymetallosiloxanes. J. M. C. Thompson. Chem & Ind p700-1 Ap 25 '64

Copolymerization of butadiene and isoprene through use of complex organometallic catalysts. L. S. Bresler and others. bibliog Rubber Chem & Tech 37:121-7 Ja '64

Crystal and molecular structure of metal ion-aromatic complexes; the cuprous ion-benzene complex, $C_6H_6 \cdot CuAlCl_4$. R. W. Turner and E. L. Amma. bibliog Am Chem Soc J 85:4046-7 D 20 '63

Crystal and molecular structures of some metal tetraphenylporphines. E. B. Fleischer and others. bibliog diags Am Chem Soc J 86:2342-7 Je 20 '64

Cyclopropylcarbinyllithium is isolated. P. T. Lansbury and others. Chem & Eng N 42:46-7 Ap 27 '64

Degradation of organomercury fungicides in soil. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:253-7 My '64

ORGANOMETALLIC compounds—*Continued*

Effect of substituent groups on fluorescence of metal chelates. R. J. Argauer and C. E. White. bibliog Anal Chem 36:2141-4 O '64

Effects of lithium halides on the reactivity of organolithium compounds. R. Waack and M. A. Doran. Chem & Ind p496-7 Mr 21 '64

Electron spin resonance follows electron transfer reactions. G. A. Russell and others. Chem & Eng N 42:49-50 Ap 20 '64

Halogen-metal interchange reactions of 3,3,3-trichloro-1,2-epoxypropane and of chloral with organolithium compounds and Grignard reagents. W. Reeve and L. W. Fine. bibliog Am Chem Soc J 86:880-2 Mr 5 '64

High frequency titrimetric determination of the electron deficiency in lithium alkyls. F. A. Settle and others. bibliog Am Chem Soc J 86:2076-7 My 20 '64

Internal olefins, organoaluminum compounds give alpha olefins. G. Bruno. Chem & Eng N 42:47-8 Ja 27 '64

Mechanism of reduction of alkyl halides by organotin hydrides. L. W. Menapace and H. G. Kuivila. bibliog Am Chem Soc J 86:3047-51 Ag 5 '64

Metalation of triphenylmethane by organolithium compounds. R. Waack and P. West. bibliog Am Chem Soc J 86:4494-6 O 20 '64

Modern thinking on organometallic chemistry. R. A. Shaw. Ind Chem 40:17-19 Ja '64

Molecular and electronic structure of the bis(maleonitriledithiolato)nickelate(II) ion. R. Eisenberg and others. bibliog Am Chem Soc J 86:113-15 Ja 5 '64

Mössbauer spectra give new structural data. R. H. Herber and H. A. Stöckler. Chem & Eng N 42:66-7 Jl 13 '64

New cyclic oligomers: metal alkoxide oxides metal acylate oxides. J. Rinse. bibliog il diags Ind & Eng Chem 56:42-50 My '64

Ni(II) salts and lutidines give NiL_4X_2 complexes. S. Buffagni and others. Chem & Eng N 41:42+ D 2 '63

Nuclear magnetic resonance studies of metal aminopolycarboxylate complexes. R. J. Day and C. N. Reilley. bibliog Anal Chem 36:1073-6 My '64

Organic compounds of tin; abstract. G. J. M. van der Kerk. Ind Chem 40:47-8 Ja '64

Organo-aluminum polymers; abstract and discussion. J. I. Jones. Chem & Ind p 159-60 Ja 25 '64

Organogallium compounds; exact analysis of the nuclear magnetic resonance spectra of trivinyl- and tripropenylgallium-trimethylamine adducts. D. Moy and others. bibliog Am Chem Soc J 86:371-7 F 5 '64

Organo-iron complexes. J. E. Mahler and others. bibliog Am Chem Soc J 85:3955-63 D 20 '63

Organometal carbonyl containing covalent bonds from iron to mercury to cobalt. S. V. Dighe and M. Orchin. bibliog Am Chem Soc J 86:3895-6 S 20 '64

Organometal complex containing a copper-manganese bond. A. S. Kasenally and others. Am Chem Soc J 86:1884 My 5 '64

Organometallic azides are Lewis bases: abstract. J. S. Thayer and R. West. Chem & Eng N 42:53 Ap 20 '64

Organometallic complexes of the type triene-$Fe_2(CO)_6$. G. F. Emerson and others. bibliog Am Chem Soc J 86:3590-1 S 5 '64

Organometallic semiconductors: derivatives of oximes of 1,5-diacyl-2,6-dihydroxynaphthalenes. M. J. S. Dewar and A. M. Talati. bibliog diag Am Chem Soc J 86:1592-5 Ap 20 '64

Pfizer enters organotins. il Plastics Tech 10:23 F '64

Phenylaluminium hydrides. J. R. Surtees. Chem & Ind p 1260 Jl 11 '64

Preparation and properties of cyclopropylcarbinyllithium. P. T. Lansbury and others. bibliog Am Chem Soc J 86:2247-51 Je 5 '64

Preparation and properties of methoxo complexes of divalent metal ions. J. A. Bertrand and D. Caine. Am Chem Soc J 86:2298-9 Je 5 '64

Preparation of organolithium compounds by the transmetalation reaction; *cis*- and *trans*-propenyllithium; the stereochemistry of the transmetalation reaction; isopropenyllithium. D. Seyferth and L. G. Vaughan. bibliog Am Chem Soc J 86:883-90 Mr 5 '64

Reaction of triphenylaluminium with benzonitrile. G. K. J. Gibson and D. W. Hughes. Chem & Ind p544 Mr 28 '64

Reactions of organoalkali compounds with nitro compounds; a new synthesis of nitroxides. A. K. Hoffman and others. bibliog Am Chem Soc J 86:646-50 F 20 '64

Reactions of organolithium compounds and diphenylacetylene. J. E. Mulvaney and others. Am Chem Soc J 85:3897-8 D 5 '63

Recent developments in the organotin stabilizer field. H. V. Smith. bibliog Brit Plastics 37:445-7 Ag '64

Solubilities of certain devalent metal complexes of 8-quinolinol and substituted 8-quinolinols in aqueous media. J. Fresco and H. Freiser. bibliog Anal Chem 36:372-5 F '64

Stereochemistry of metal chelates with multidentate ligands. B. Das Sarma and others. Am Chem Soc J 86:14-16 Ja 5 '64

Stereospecific influences in metal complexes containing optically active ligands; the equilibrium ratios and isolation of some of the isomers in the mixture tris-((+)-propylenediamine)-cobalt(III) chloride. F. P. Dwyer and others. Am Chem Soc J 86:590-2 F 20 '64

Transition metal complexes with aliphatic Schiff bases; compounds formed by the reaction of copper(II) and nickel(II) ethylenediamine and triethylenetetramine complexes with some aliphatic aldehydes. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:1331-4 Ap 5 '64

X-ray fluorescence determination of cobalt, zinc, and iron in organic matrices. S. A. Bartkiewicz and E. A. Hammatt bibliog Anal Chem 36:833-6 Ap '64

X-ray powder diffraction patterns of nickel cyanide-ammonia complex, nickel cyanide-ammonia-benzene clathrate and nitrogen-quinol clathrate. V. M. Bhatnagar and J. A. R. Cloutier. bibliog il Chem & Ind p707-9 Ap 25 '64

Analysis

Quantitative determination of chromium(III) hexafluoroacetylacetonate by gas chromatography. W. D. Ross and G. Wheeler, jr. bibliog Anal Chem 36:266-8 F '64

Spectrofluorometric study of (2-methyl-8-quino-linolato)zinc(II) chelates in absolute ethyl alcohol. D. A. Carter and W. E. Ohnesorge. bibliog Anal Chem 36:327-30 F '64

ORGANOSILICON compounds. See Silicon compounds

ORGANOSOLS

Vinyl organosols used on Revere camera products. H. R. Gleason. il Ind Finishing 40:54-6+ My '64

ORIENTATION (chemistry)

Correlation of molecular orientation parameters derived from optical birefringence and sonic velocity methods. I. M. Ward. Textile Res J 34:806-7 S '64

Factors governing orientation in metalation reactions; the metalation of isopropylbenzene with *n*-amylsodium and *n*-amylpotassium. R. A. Benkeser and others. bibliog Am Chem Soc J 85:3984-9 D 20 '63

ORIENTATION (crystals). See Crystals

ORIENTATION (geology)

Mathematical rotation of orientation data. D. C. Noble. Geol Soc Bul 75:247-8 Mr '64

Orientation of small diameter drill core. P. W. Zimmer. il diags Econ Geol 58:1313-25 D '63

Oriented lakes and lineaments of northeastern Bolivia. G. Plafker. maps. diags Geol Soc Bul 75:503-22, pl 1-3 bibliog(p521-2) Je '64

ORIFICE meters

Density measurement and its application to orifice metering. A. B. Hubbard. il Gas 40:72-3+ Ap '64

Design of orifice-type flow reducers. M. C. Ziemke and B. G. McCallie. diags Chem Eng 71:195-8 S 14 '64

Flow computers for gas measurement. M. J. Sergesketter. il Am Gas Assn Mo 46:27-9 O '64

Integrators for field orifice meters. C. B. Nolte. il diag Instruments & Control Systems 37:137-8 O '64

ORIFICES

Characteristics of single- and multiple-hole orifice plates for gas-liquid reactions. D. M. Ottmers and H. F. Rase. bibliog flow diag diags Ind & Eng Chem Fundamentals 3:106-10 My '64

Discharge coefficient characteristics of orifices. F. V. A. Engel and W. Stainsby. bibliog Engineer 218:161-8 Jl 31 '64

How to calculate pneumatic flow through narrow slots; data sheet. T. S. Neprud. diags Machine Design 36:163-5 F 27 '64

How to determine air flow through fixed and variable orifices. W. Weibel. diags Hydraulics & Pneumatics 17:68+ Ag '64

ORIFICES—*Continued*

Investigation of cylindrical starting flows. J. D. Buckmaster. il diags AIAA J 2:1649-50 S '64

Use of sharp-edged orifices for metering pulsating flow. S. W. E. Earles and J. M. Zarek. bibliog diag Inst Mech Eng Proc 177 no 37:997-1012; Discussion. 1013-22; Reply. 1022-4 '63

ORNAMENTAL castings. See Castings, Ornamental

OROGENY. See Mountains

OROTIC acid

Factors influencing the induction of fatty liver by orotic acid. H. Sidransky and others. bibliog J Nutrition 81:348-56 D '63

Ultraviolet-induced dimerization of free and metal-complexed orotic acid. A. Haug. Am Chem Soc J 86:3381-4 Ag 20 '64

ORTHICON. See Television cameras

ORTHOGONAL cutting. See Metal cutting; Plastics—Cutting

ORTHOHYDROGEN. See Hydrogen

ORTHOPHOSPHATES. See Phosphates

OSCILLATIONS

Analysis of the yawing motion of a rocket with a varying mass. W. J. Byrne, jr. and S. Raynor. AIAA J 2:962-3 My '64

Coupled-mode laser oscillation. J. A. Fleck, jr. and R. E. Kidder. bibliog J Ap Phys 35:2825-31 O '64

Criterion for continuous amplitude oscillations of optical masers. J. I. Kaplan. J Ap Phys 34:3411-12 N '63

Damping of a resistive wall beam instability in the cosmotron. M. Q. Barton and others. il R Sci Instr 35:624-5 My '64

Drag and oscillatory motion of freely falling cylindrical particles. E. K. Marchildon and others. bibliog diags Can J Chem Eng 42:178-82 Ag '64

Dynamic stability of a uniform straight column excited by a pulsating load. L. A. Pipes. bibliog diags Franklin Inst J 277:534-51 Je '64

Effect of acoustic environment on the burning rate of solid propellants. J. E. Crump and E. W. Price. bibliog diags AIAA J 2:1274-8 Jl '64

Effect of high-frequency support oscillation on the motion of a spherical pendulum. G. W. Hemp and P. R. Sethna. bibliog diags A S M E Trans ser E 31:351-4 Je '64

Effects of oscillation on free convection from a vertical finite plate. V. D. Blankenship and J. A. Clark. bibliog diags A S M E Trans ser C 86:149-58 My '64

Experimental effects of transverse oscillations on free convection of a vertical, finite plate. V. D. Blankenship and J. A. Clark. il diags A S M E Trans ser C 86:159-65 My '64

Experiments with a solid-propellant acoustic oscillator. J. F. Engler and W. Nachbar. bibliog diags AIAA J 2:1279-84 Jl '64

Feeding parts with oscillating hoppers. A. H. Haberstump. il diags Automation 11:76-9 S '64

Free lateral oscillations of a supported grillage. T. Wah. diags Franklin Inst J 277:349-60 Ap '64

Free resonant oscillations of a conservative two-degree-of-freedom system. R. A. Struble and G. K. Warmbrod. bibliog diags Franklin Inst J 278:195-209 S '64

Heat transfer coefficients for a hot gas oscillating at high amplitudes in a cylindrical chamber. M. D. Horton and others. bibliog diag A I Ch E J 10:580-3 Jl '64

Instabilities in the flow of a boiling liquid. A. H. Stenning. diags A S M E Trans ser D 86:213-17 Je '64

Investigation of relaxation oscillations in the output from a ruby laser. D. D. Bhawalkar and others. bibliog il diag Radio & Electronic Eng 27:285-91 Ap '64

Laser oscillations at 0.918, 1.057, and 1.401 microns in Nd^{3+}-doped borate glasses. A. D. Pearson and others. il diag J Ap Phys 35:1704-6 Je '64

Lift on an oscillating body of revolution. M. Sevik. bibliog diags AIAA J 2:302-5 F '64

Lift on an oscillating ellipsoid of revolution. M. Sevik. bibliog il diags AIAA J 2:646-51 Ap '64

Liquid sloshing in a cylindrical quarter tank. H. F. Bauer. bibliog diags AIAA J 1:2601-6 N '63

Liquid sloshing in a 45° sector compartmented cylindrical tank. H. F. Bauer. AIAA J 2:768-70 Ap '64

Low-frequency acoustic oscillatory combustion. M. D. Horton and others. bibliog diag AIAA J 1:2652-4 N '63

Measuring fluctuating pressure. P. K. Stein. il diags Instruments & Control Systems 37:156-9 S '64

Multimode oscillations in solid-state masers. H. Statz and C. L. Tang. il diags J Ap Phys 35:1377-83 My '64

Neon gas maser lines at 68.329 μ and 85.047 μ. R. A. McFarlane and others. IEEE Proc 52:318 Mr '64

Observations of negative-resistance phenomena and oscillations in the MOS diode. T. Hayashi and T. Niimi. il diag IEEE Proc 52:986 Ag '64

Oscillations in single and colliding plasmas. R. Mirman. Am J Phys 32:690-9 S '64

Oscillatory behavior of normal stresses in viscoelastic fluids. M. C. Williams and R. B. Bird. bibliog diags Ind & Eng Chem Fundamentals 3:42-9 F '64

Preferred frequency oscillatory combustion of solid propellants. J. L. Eisel and others. bibliog il diags AIAA J 2:1319-23 Jl '64

Review of slotted-wall wind tunnel interference effects on oscillating models in subsonic and transonic flows. K. C. Wight. bibliog diags Roy Aeronautical Soc J 68:670-4 O '64

Simultaneous laser oscillation on the neon doublet at 1.1523 μ. W. R. Bennett, jr. and J. W. Knutson, jr. bibliog IEEE Proc 52:861-2 Jl '64

Spectral output of semiconductor lasers. H. Statz and others. diags J Ap Phys 35:2581-5 S '64

Stability of subharmonic oscillations in nonlinear systems. R. Oldenburger and R. E. Nicholls. bibliog diags A S M E Trans ser D 86:116-20 Mr '64

Use of the one-dimensional T-burner to study oscillatory combustion. M. D. Horton. bibliog diags AIAA J 2:1112-18 Je '64

OSCILLATIONS, Electric

Beam-plasma discharge; buildup of oscillations. W. D. Getty and L. D. Smullin. bibliog il diags J Ap Phys 34:3421-9 D '63

Checking oscillation in cathode followers. P. D. Blais. diags Electronics 37:52-3 O 19 '64

45-Gc parametric oscillations and induced negative resistance using varactors. G. W. Fitzsimmons. bibliog IEEE Proc 51:1796-7 D '63

High-frequency oscillations in a thermal plasma. W. H. Cutler. J Ap Phys 35:464-5 F '64

Ion acoustic oscillations in plasma thermionic energy converters. J. S. Chivian. bibliog diags J Ap Phys 35:302-8 F '64

Ion wave resonance and plasma instability in a cesium discharge. J. A. Decker, jr. bibliog il diag J Ap Phys 35:497-501 Mr '64

Modes of oscillation of a grounded grid cyclotron oscillator. D. N. Basu Mallik and B. R. Nag. bibliog il diags Radio & Electronic Eng 27:27-36 Ja '64

Oscillations of ferroelectric bodies. D. R. Callaby and E. Fatuzzo. bibliog diags J Ap Phys 35:2443-51 Ag '64

Oscillatory tunneling current through thin-film insulating barriers in a magnetic field. N. Goldberg and S. R. Pollack. bibliog J Ap Phys 34:3556-8 D '63

Relationship between simultaneous geomagnetic and ionospheric oscillations. H. Rishbeth and O. K. Garriott. bibliog J Res Nat Bur Stand 68D:339-43 Mr '64

OSCILLATORS

Admittance measurements of solid propellants by an acoustic oscillator technique. S. N. Foner and others. bibliog il diags AIAA J 2:1123-9 Je '64

Barker & Williamson audio oscillator, model 210. il Audio 48:32+ Jl '64

Characteristics of a system of two capacitively coupled tuned anode oscillators. B. R. Nag. bibliog il diags IEEE Trans Com & Electronics p584-8 N '63

Elements of transistor pulse circuits; blocking oscillators. T. D. Towers. diags Wireless World 70:463-70 S '64

Fast switching of a parametric subharmonic oscillator. T. Williams and W. D. Ryan. diags IEEE Proc 52:1050-1 S '64

Ferroelectric microwave parametric oscillator. R. A. Pucel and others. bibliog il diag IEEE Proc 51:1660 N '63

Five-gigacycle tunnel diode oscillator with nine-milliwatt output from a single diode. M. V. Schneider. il diags Bell System Tech J 42:2972-4 N '63

Frequency modulated nmr oscillator without amplitude modulation. F. N. H. Robinson. diag R Sci Instr 34:1260 N '63

Frequency response tracer. il Engineer 217:110 Ja 10 '64

OSCILLATORS—*Continued*

Frequency-stable nuclear-magnetic-resonance absorption circuit for small filling factors. A. Timur and others. bibliog diags R Sci Instr 35:1224-5 S '64

Group code-practice oscillator. J. Davis. diag Q S T 48:57 Ap '64

How to find the triggering point of a blocking oscillator. D. M. Bowers. bibliog diags Electronic Ind 23:91-4 Ag '64

Influence of optical quality on ruby laser oscillators and amplifiers. D. P. Bortfeld and others. il J Ap Phys 35:2267-9 Jl '64

Linear fluid power transmission; an oil hydraulic oscillator. L. M. Sutherland. il diags Tappi 47:565-8 S '64

Linearity of oscillating frequency in the feedback type backward-wave oscillator modulator. K. Kakizaki and others. diag IEEE Proc 52:441 Ap '64

Low frequency superregenerative oscillator design for the detection of broad-line nuclear magnetic resonances. A. Narath and others. bibliog diags R Sci Instr 35:476-80 Ap '64

Magnetic field tuning of gaseous laser oscillators. R. L. Fork and C. K. N. Patel. bibliog IEEE Proc 52:208-9 F '64

Modes of oscillation of a grounded grid cyclotron oscillator. D. N. Basu Mallik and B. R. Nag. bibliog il diags Radio & Electronic Eng 27:27-36 Ja '64

Oscillator generates sine, cosine waves simultaneously. J. G. Peddie. diag Electronics 37:74 Ag 10 '64

Phase-stable oscillators for space communications, including the relationship between the phase noise, the spectrum, the short-term stability, and the *Q* of the oscillator. L. R. Malling. bibliog diags Inst Radio Eng Proc 50:1656-64 Jl '62; Discussion. IEEE Proc 52:104-5 Ja '64

Properties of cooled, uncoated ruby laser oscillators. F. A. Brand and others. il IEEE Proc 52:1255-6 O '64

Quadrature triangular wave oscillator. W. H. Alliston diag Instruments & Control Systems 36:125 O '63

Relationship of Bohr orbital quantum condition to Planck oscillator energy levels. A. D. Crowell. Am J Phys 32:643-4 Ag '64

Sensitivity of an oscillator to periodic conductance changes. A. G. J. Holt. bibliog diags Radio & Electronic Eng 27:133-48 F '64

Simple fm subcarrier oscillator suitable for physiological telemetry. N. Z. Lupu. diags IEEE Proc 51:1621-2 N '63

Six millimeter backward-wave oscillator using ring-plane circuit. D. E. Chaffee. diag IEEE Proc 52:316 Mr '64

Stimulated emission of 100μ radiation from Bi-Sb *p-n* junctions. R. Sehr. bibliog IEEE Proc 52:725-6 Je '64

Study of the gas-stabilized arc as an emission source for the measurement of oscillator strengths; determination of some relative *gf*-values for Fe I. M. Margoshes and B. F. Scribner. bibliog diag J Res Nat Bur Stand 67A:561-8 N '63

Transition probabilities for the forced quantum oscillator. L. M. Scarfone. Am J Phys 32:158-62 F '64

Two-section rc phase-shift oscillator. P. J. Nahin. IEEE Proc 52:198 F '64; Discussion. R. K. Even. diag 52:1045-6 S '64

See also

Magnetron

Multivibrators

Pulse generators

Noise

Noise in oscillators; experimental results. M. Yogev. diag IEEE Proc 51:1681 N '63

Optical maser oscillators and noise. E. I. Gordon. bibliog diags Bell System Tech J 43:507-39 pt 2 Ja '64

Testing

Measuring the characteristics of voltage-tunable oscillators. R. Holzel. diags Electro-Tech 74:130+ Jl '64

OSCILLATORS, Crystal

High efficiency millimeter-wave tunnel-diode oscillators. D. T. Young and others. bibliog IEEE Proc 52:1260-1 O '64

High-precision permeability-tuned v.f.o. W. Horn. il diags Q S T 48:22-8 Jl '64

High Q, BT-type, quartz oscillator. A. Seed. J Sci Instr 41:242 Ap '64

Power-saving conversion v.f.o. il diag Q S T 48:23-5 S '64

Precision quartz crystal controlled oscillators using transistor circuits. W. L. Smith. il diags Bell Lab Rec 42:273-9 S '64

Quartz-crystal frequency standards. K. Baulk. il Elec Com 39 no 3:413-22 bibliog(p421-2) '64

Simplified frequency synthesizer. M. R. Briggs and H. J. Morrison. il diag Q S T 48:11-17 Ja '64

Temperature compensated crystal oscillators for production. R. C. Rennick. diags Bell Lab Rec 42:321-5 O '64

13-inch ruby oscillator-amplifier chain. H. G. Heard. il IEEE Proc 51:1664 N '63

V.f.o. and phone for the Gallon Mark II. L. G. McCoy. il diags Q S T 48:50-3+ My '64

Wide-range garnet-tuned tunnel-diode oscillator. M. L. Wright. il IEEE Proc 52:631 My '64

Frequency stabilization

Solid state vhf transmitter design. H. C. Lee and others. diags Electronic Ind 23:96-100 Ag '64

OSCILLATORS, Transistor

Bridge source and detector. F. Butler. diags Wireless World 70:318-21 Je '64

Digital computer analysis of the tunnel diode relaxation oscillator. A. L. Riemenschneider and C. W. Cox. diags Electronic Eng 36:382-5 Je '64

Elimination of residual even-harmonic distortion in transistor oscillators. P. J. Baxandall. diags Electronic Eng 36:97-9 F '64

Field-effect transistor controls pulse oscillator. T. C. Ross. diags Electronics 37:80-1 Je 15 '64

Integrated-circuit oscillator requires few components. H. Yanai and others. il diags Electronics 36:40 D 13 '63

Low-cost oscillator transistors revamp uhf tuner design. L. H. Dulberger. il diags Electronics 37:90-4 Ap 20 '64

Matrix analysis of the Colpitts' oscillator. G. Zelinger. bibliog diags Electronic Eng 36:394-8 Je '64

New, simple r-c sine-wave oscillator. I. Queen. il diags Radio-Electronics 35:49 Ap '64

Novel high-*Q* inductance and a tuned oscillator for microminiature circuits. S. C. D. Roy. diag IEEE Proc 52:214-15 F '64

Octave range voltage-tuned tunnel-diode oscillator. M. L. Wright. il IEEE Proc 52:442 Ap '64

Operating X-band tunnel diodes at Q-band. S. V. Jaskolski and K. Ishii. il diags Electronics 36:32-3 D 27 '63

Precision quartz crystal controlled oscillators using transistor circuits. W. L. Smith. il diags Bell Lab Rec 42:273-9 S '64

Thermal drift of oscillator circuits. R. R. Greenwood. diags Electro-Tech 73:42-5+ Ja '64

Transistorised oscillator. il Engineer 216:959 D 6 '63

Wide-band varactor-tuned tunnel-diode oscillators. M. M. Forigang and H. J. Hindin. il diag IEEE Proc 52:419-20 Ap '64

OSCILLATORS, Vacuum tube

Matrix analysis of the Colpitts' oscillator. G. Zelinger. bibliog diags Electronic Eng 36:394-8 Je '64

U.h.f. oscillator. R. H. Bradsell and M. Grimshaw. il diags Wireless World 70:305-7 Je '64

OSCILLOGRAPHS

Charged ink drops leave high-speed trace. il diag Machine Design 36:147 Ja 16 '64

For dynamic measurements, use oscillograph recorders. R. J. Horak. il diags Product Eng 35:82-8 Jl 6 '64

Unit helps construct stereofluorograph. Chem & Eng N 41:44-5 N 11 '63

Zero-crossing detector suppresses transients. J. L. Nairn and D. A. Thalimer. diags Control Eng 11:129 O '64

OSCILLOGRAPHS, Cathode ray

Circuit converts one-trace scopes to raster display. B. S. White. il diags Electronics 36:33-5 N 29 '63

Description of a device used to measure ion beam emittance. P. H. Rose and others. diags R Sci Instr 35:1283-5 O '64

Digital readout of oscilloscope sweep delay times. K. E. McGee and W. W. Hunt, jr. R Sci Instr 35:912 Jl '64

E.h.t. unit; alternative design for oscilloscope using a valve stabilizer. il diags Wireless World 70:480-3 O '64

Elco 430 general purpose oscilloscope. E. C. Carlson. il diag Radio-Electronics 35:68+ Ag '64

Electronic instrumentation: Solarton oscilloscope. il Engineer 217:833 My 8 '64

Flying spot. G. Grammer. diags Q S T 48:38-42 Mr; 41-5 Ap; 31-5 Je '64 (to be cont)

OSCILLOGRAPHS, Cathode ray—*Continued*
Heathkit HO-10 monitor scope. G. Grammer. il diags Q S T 47:58-61 D '63
Identification of aliased traces in l.f. sampling oscilloscope ranges. J. F. Fulford. diag Electronic Eng 36:559 Ag '64
Increased photographic sensitivity for time-resolved mass spectrometer data recording. R. T. Meyer. il R Sci Instr 35:1064-5 Ag '64
Meet the oscilloscope. G. Grammer. diags Q S T 48:18-21 Ja '64
Moving-film system for recording high rate-of-rise signals. R. E. Dietrich and S. Bortniak. il diags Elec Eng 82:733-7 D '63
New oscilloscopes. il Electronic Ind 23:91 Mr '64
Oscilloscope setups for transmitter testing. G. Grammer. il diags Q S T 48:40-5 O '64
Oscilloscope waveform recorder. R. C. Mackey. il diags R Sci Instr 35:859-61 Jl '64
Plug-in provides high bandwidth in standard oscilloscope. il Res/Develop 15:40 N '64
Refraction seismograph with oscilloscope. il Engineering 196:704 N 29 '63
Sideband scope patterns. G. Grammer. diags Q S T 48:28-32 Ag '64
Spectrum reader rapidly gives analysis. diags Can Chem Process 47:67-8 N '63
Superimposing multiple channel data on a high-speed cine record. J. C. Stall and H. M. Lang. il diag A S M E Trans ser B 86:183-6; Discussion. 186-7 My '64
Wireless World oscilloscope. il plans diags Wireless World 70:67-70, 113-17, 196-8 F-Ap '64

OSCILLOSCOPE. See Oscillographs, Cathode ray

OSMIUM
Ion exchange separation of microgram quantities of osmium from large amounts of base metals. J. C. Van Loon and F. E. Beamish. Anal Chem 36:1771-3 Ag '64
Vapor pressures of ruthenium and osmium. N. J. Carrera and others. bibliog J Res Nat Bur Stand 68A:325-30 My '64

Analysis

Fire assay for osmium in sulfide concentrates. J. C. Van Loon and F. E. Beamish. bibliog diag Anal Chem 36:872-5 Ap '64

OSMIUM compounds
Hydridocarbonyl complexes of osmium by reaction with alcohols. L. Vaska. bibliog Am Chem Soc J 86:1943-50 My 20 '64
Rate of the tris-(2,2′-dipyridine)-osmium(II)-octacyanomolybdate(V) electron-transfer reaction. R. Campion and others. Am Chem Soc J 85:3528-9 N 5 '63

OSMOMETERS
Automatic osmometer for determination of number average molecular weights of polymers. F. B. Rolfson and H. Coll. bibliog il diags Anal Chem 36:888-94 Ap '64

OSMOSIS
Boundary-layer effects in reverse osmosis. U. Merten and others. bibliog Ind & Eng Chem Fundamentals 3:210-13 Ag '64
Converting sea water to fresh by reverse osmosis. il Product Eng 35:53-4 Je 8 '64
Desalinization by osmosis. diags Pub Works 95:140 Jl '64
Electroosmosis of wet wool. D. Stigter. bibliog diag J Colloid Sci 19:268-78 Mr '64
Reverse osmosis enters desalination picture. il diag Chem & Eng N 42:48+ Jl 20 '64
Reverse osmosis gains in water-desalting stature. W. Smith. flow sheet il Chem Eng 71:72-4 Ag 17 '64
Reverse osmosis promises cheap fresh water. diags Machine Design 36:12 Ag 27 '64
Salt transport across cell membranes. S. B. Hendricks. il diags Am Scientist 52:306-33 bibliog(p332-3) S '64
See also
Dialysis
Electrophoresis

OSMOTIC pressure
See also
Osmometers

OTTAWA
See also
Airports—Ottawa

Sewerage

Interceptor route chosen to stay in rock formations. R. E. Curtis. il map diag Pub Works 95:88-91 My '64
Sewer within a sewer; installation of small sanitary lines inside old combined system tunnels saves Ottawa construction dollars. il Water Works & Wastes Eng 1:36-7+ F '64

OUTAGES. See Electric power—Interruptions

OUTBOARD motors. See Motor boat engines, Outboard

OUTDOOR house lighting. See House lighting

OUTER space. See Space, Outer

OVALBUMIN. See Albumin

OVENS
Electric infrared oven effected savings. il Ind Finishing 40:34 Ag '64
Extrusion handling equipment; aging ovens. J. W. Nelson. il Mod Metals 20:50+ Je '64
Gas-fired or infrared ovens; why; question and answer. Ind Finishing 40:96 Ag '64
New infrared oven dries decorations on plastics. il Ind Finishing 40:91+ Jl '64
Obtain gas firing protection with flame safeguards. E. F. Buonanno. diags Plant Eng 18:153-4 S '64
See also
Electronic ovens

OVERLAND PARK, Kansas

Streets

City engineer talks about paving. G. B. White. il Civil Eng 34:63-5 Mr '64

OVERTIME
LBJ seeks overtime pay hike to spread jobs; but industry says it won't work. Dom Eng 203:79-81+ F '64
Oil tells Congress; double time won't make jobs. Oil & Gas J 62:31-2 Mr 30 '64
Overtime penalty bill; interview. E. W. Stearn. Rock Prod 67:99-102+ My '64

OVERVOLTAGE
Constructing electrical systems; overcurrent protection. il diags Elec Constr & Maint 63:106-16 My '64
Frequency of occurrence and the magnitude of short duration transients in low-voltage supply mains. J. H. Bull and W. Nethercot. bibliog diags Radio & Electronic Eng 28:185-90 S '64
Measuring transient overvoltage on instrument feeders. H. J. Turner. bibliog il diags Radio & Electronic Eng 28:191-7 S '64

OWEN, Edgar Wesley
E. W. Owen, Sidney Powers memorial medalist; with response. W. J. Hilseweck. por Am Assn Pet Geologists Bul 48:1437-9 Ag '64

OXADIAZOLE
Interaction of benzamidoxime with fluoroacyl chlorides; some novel 1,2,4-oxadiazoles. J. P. Critchley and others. bibliog Chem & Ind p806-7 My 9 '64

OXALATES
Preparation and thermal analysis of mixed magnesium-manganese-iron oxalates and hydrated oxides. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 47:434-7 S '64
Study of the cerium(IV)-oxalate reaction in acidic sulfate media. Y. A. El-Tantawy and G. A. Rechnitz. bibliog Anal Chem 36:1774-7 Ag '64
Thermal decomposition of some substituted barium titanyl oxalates and its erect on the semiconducting properties of the doped materials. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 46:567-73 D '63

Analysis

Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

OXALIC acid
Kinetic inhibition of cerium(IV) reduction by oxalic acid. G. A. Rechnitz and Y. A. El-Tantawy. Anal Chem 36:2361 N '64

OXAMIDE
Preparation of oxamide from cyanide by glow-discharge electrolysis. E. H. Brown and others. Electrochem Soc J 111:123 Ja '64

OXAZOLES
Comparison of thiazoles and oxazoles. P. Haake and W. B. Miller. bibliog Am Chem Soc J 85:4044-5 D 20 '63

OXAZOLIDINETHIONE
Oxazolidinethiones and volatile isothiocyanates in enzyme-treated seed meals from 65 species of cruciferae. M. E. Daxenbichler and others. bibliog J Agri & Food Chem 12:127-30 Mr '64

OXAZOLIDINONE
Autocatalysis mechanism clarified. W. E. Walles. Chem & Eng N 42:36-7 Jl 20 '64

OXAZOLONE

Peptide synthesis via active esters; racemization and ring-opening reactions of optically active oxazolones. M. Goodman and L. Levine. bibliog Am Chem Soc J 86:2918-22 Jl 20 '64

OXIDASES

Oxidation by molecular oxygen; reactions of a possible model system for mixed-function oxidases. G. A. Hamilton and others. bibliog Am Chem Soc J 86:3390-1 Ag 20 '64

Oxidation by molecular oxygen; the oxygen atom transfer mechanism for mixed-function oxidases and the model for mixed-function oxidases. G. A. Hamilton. bibliog Am Chem Soc J 86:3391-2 Ag 20 '64

Response of the liver to prolonged protein depletion; protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

OXIDATION

Acetaldehyde via ethylene oxidation gets tryout in single-stage design; process flowsheet. il Chem Eng 70:150-2 D 9 '63

Acetic anhydride by direct oxidation. G. L. Gobron and L. A. Alheritiere. flow sheets il diags Chem Eng Prog 60:55-7 S '64

Alkaline hypochlorite oxidation of cellulose analogs. M. L. Wolfrom and W. E. Lucke. bibliog Tappi 47:189-92 Ap '64

Ammonia oxidation; low-cost route to hydrazine; process flowsheet. E. Guccione. il Chem Eng 71:72-4 Mr 2 '64

Ammoxidation of isobutylene in a coated tube. W. F. Brill and J. H. Finley. bibliog Ind & Eng Chem Product Res & Develop 3:89-93 Je '64

Anodic oxidation of formic acid at platinum electrodes. M. H. Gottlieb bibliog Electrochem Soc J 111:465-72 Ap '64

Anodic oxidation of tantalum in formic acid electrolytes. D. M. Cheseldine. bibliog Electrochem Soc J 111:1128-32 O '64

Anodic oxidation of titanium in formic acid electrolytes. D. M. Cheseldine. Electrochem Soc J 111:1005-7 Ag '64

Anodic oxidation of triphenylmethane dyes. Z. Galus and R. N. Adams. bibliog diags Am Chem Soc J 86:1666-71 My 5 '64

Apparatus for gravimetric determination of the effects of low pressure oxidation. R. W. Harrison and E. J. Delgrosso. bibliog diags J Sci Instr 41:222-4 Ap '64

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II) persulfate reaction and the photoreduction of iron(III); presence of oxygen. R. Woods and others. bibliog Am Chem Soc J 85:3334-7 N 5 '63

Base-catalyzed oxidation of mercaptans in the presence of inorganic transition metal complexes. T. J. Wallace and others. bibliog diag Ind & Eng Chem Proc Design 3:237-41 Jl '64

Black liquor oxidation practice and development; a critical review. J. E. Landry. bibliog diags Tappi 46:766-72 D '63

Catalytic oxidation of hydrocarbons. R. S. Mann and D. Rouleau. bibliog flow diag Ind & Eng Chem Product Res & Develop 3:94-6 Je '64

Catalytic vapour-phase oxidation of xylenes in fluidised bed. S. K. Bhattacharyya and R. Krishnamurthy. flow diag J Ap Chem 13:547-52 D '63

Changes in fibrillate structures of cottons on hydrolysis and oxidation. B. R. Porter and W. R. Goynes, jr. bibliog il Textile Res J 34:467-77 Je '64

Chemical oxidation of selected organic pesticides. C. A. Buescher and others. bibliog diag WPCF J 36:1005-14 Ag '64

Coatings protect refractory metals against oxidation above 2000 F. B. S. Payne, jr. il Res/Develop 15:28-31 Ap '64

Complete oxidation of sugars by 1-methylphenylhydrazine; the alkazones. O. L. Chapman and others. Am Chem Soc J 86:732-3 F 20 '64

Complex formation between oxidized lipids and egg albumin. K. A. Narayan and others. bibliog Am Oil Chem Soc J 41:254-9 Ap '64

Constant current transition time investigations of the electrochemical oxidation of formate-formic acid at a smooth platinum electrode. R. A. Munson. bibliog il Electrochem Soc J 111:372-6 Mr '64

Correlation of electrochemical oxidation potential of organic compounds with photoionization potential. W. C. Neikam and others. bibliog Electrochem Soc J 111:1190-2 O '64

Cyclohexane oxidation route replaces coal-tar intermediates. diag Ind Chem 40:152 Mr '64

Degradation of planar junctions during reoxidation. F. Barson and others. bibliog il Electrochem Soc J 111:1263-6 N '64

Determination of double bond position in unsaturated triglycerides by analysis of the oxidation products by gas liquid chromatography. A. P. Tulloch and B. M. Craig. bibliog Am Oil Chem Soc J 41:322-6 Ap '64

Determination of oxidative changes in raw meats by the 2-thiobarbituric acid method. A. Keskinel and others. bibliog Food Tech 18:223-6 F '64

Determination of small amounts of manganese by oxidation of 8-aminoquinoline, extraction, and spectrophotometry. V. L. Gustin and T. R. Sweet. bibliog Anal Chem 36:1674-6 Jl '64

Dry corrosion being attacked via nonstoichiometry approach. Oil & Gas J 62:156 Ap 6 '64

Effect of alloying elements on the oxidation of tin. W. E. Boggs and others. bibliog il Electrochem Soc J 110:4-11 Ja '63; Abstract. Metal Prog 84:175+ D '63

Effect of alternating strain upon the internal oxidation of some copper-silicon alloys. J. A. Kilpatrick and J. W. Martin. bibliog il Metallurgia 70:21-3 Jl '64

Effect of carbon-arc intensity on asphalt oxidation. J. R. Wright and others. bibliog J Ap Chem 14:30-5 Ja '64

Effect of certain gases on the rate of oxidation of uranium by water vapour. S. Orman. bibliog Chem & Ind p 1692-3 O 19 '63

Effect of chloride ions on the kinetics of the oxidation of chromium(II) by iron(III). G. Dulz and N. Sutin. bibliog Am Chem Soc J 86:829-32 Mr 5 '64

Effect of crystallographic orientation on the oxidation of tin. W. E. Boggs and others. bibliog il diags Electrochem Soc J 111:636-46 Je '64

Effect of dissolved oxygen on the oxidation of Zircaloy-2 by steam. B. Cox and B. R. Harder. bibliog Electrochem Soc J 110:1110-13 N '63

Effect of internal oxidation on the plastic deformation of silver-aluminum single crystals. M. J. Marcinkowski and D. F. Wriedt. bibliog il diags Electrochem Soc J 111:92-100 Ja '64

Effect of oxidation on the reactivity of nuclear graphite toward air. A. R. Blake. bibliog J Ap Chem 14:382-8 S '64

Effect of vacuum annealing of oxide films on the oxidation of copper-nickel alloy. T. Yamashina and T. Nagamatsuya. Electrochem Soc J 111:249-52 F '64; Discussion. 111:1439-40 D '64

Effects of thermal and r.f.-activated oxidation on the air reactivity of graphite. A. R. Blake and others. J Ap Chem 14:115-17 Mr '64

Electrochemical oxidation of acetic acid in the presence of aromatic hydrocarbons. S. D. Ross and others. bibliog Am Chem Soc J 86:4139-43 O 5 '64

Electrochemical oxidation of ethylene; an experimental study. M. Green and others. bibliog diags Electrochem Soc J 111:721-8 Je '64

Electrochemical oxidation of formic acid on platinum. C. W. Fleischmann and others. bibliog Electrochem Soc J 111:602-5 My '64

Electrochemical oxidation of propane at room temperature. V. R José and V. D. Long. bibliog diag J Ap Chem 14:64-9 F '64

Electrode reactions and mechanism of silicon anodization in N-methylacetamide. E. F. Duffek and others. bibliog il diags Electrochem Soc J 111:1042-6 S '64

Electron field emission studies of the oxidation of nickel. J Metals 16:433 My '64

Ethyl alcohol oxidation at platinum electrodes. R. A. Rightmire and others. bibliog diags Electrochem Soc J 111:242-7 F '64

Evidence for oxidation growth at the oxide-silicon interface from controlled etch studies. W. A. Pliskin and R. P. Gnall. Electrochem Soc J 111:872-3 Jl '64

Gas chromatographic and gravimetric studies of uranium oxidation mechanism. T. Kondo and others. bibliog il diags Corrosion 20:314-20 O '64

Graphite oxidation at low temperature. E. Effron and H. E. Hoelscher. bibliog flow diag A I Ch E J 10:389-92 My '64

Growth of lattice defects in silicon during oxidation. H. J. Queisser and P. G. G. van Loon. il J Ap Phys 35:3066-7 O '64

High-temperature oxidation of lanthanum. W. L. Phillips. bibliog Electrochem Soc J 111:1184-5 O '64

OXIDATION—*Continued*

High-temperature oxidation of zirconium and Zircaloy-2 in oxygen and water vapor. R. E. Westerman. bibliog il diag Electrochem Soc J 111:140-7 F '64

High temperature oxidation resistance of the beryllides. R. M. Paine and others. Corrosion 20:307-13 O '64

High-temperature oxidation; thermal conductivity method for oxidation measurements. J. B. Berkowitz-Mattuck. bibliog diag Electrochem Soc J 111:908-12 Ag '64

Hydrogen evolution and surface oxidation of nickel electrodes in alkaline solution. J. L. Weininger and M. W. Breiter. bibliog diag Electrochem Soc J 111:707-12 Je '64

Hydrogen, partial oxidation. flow diag Hydrocarbon Process & Pet Refiner 43:230 S '64

Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49:353-8 Je '62, N '63

Infrared spectra of asphalts; some aspects of the changes caused by photooxidation. P. G. Campbell and J. R. Wright. bibliog J Res Nat Bur Stand 68C:115-23 Ap '64

Kinetics of anodic oxidation of iron in neutral solution. N. Sato and M. Cohen. bibliog Electrochem Soc J 111:512-22 My '64

Kinetics of oxidation of pure tungsten, 1150°-1615°C. E. A. Gulbransen and others. bibliog il diag Electrochem Soc J 111:103-9 Ja '64

Kinetics of the catalytic oxidation of sulfur dioxide. B. Davidson and G. Thodos. bibliog diag A I Ch E J 10:568-73 Jl '64

Kinetics of the oxidation of bis-(2,3-dimercapto-1-propanolato)-iron(II) by cystine in alkaline solutions. D. L. Leussing and J. P. Mislan. bibliog Am Chem Soc J 86:349-53 F 5 '64

Ligand bridging in the oxidation of chromium(II) at mercury electrodes. J. G. Jones and F. C. Anson. bibliog Anal Chem 36:1137-8 My '64

Luminescence during the anodic oxidation of silicon. W. Waring and E. A. Benjamin. bibliog il Electrochem Soc J 111:1256-9 N '64

Mechanical stresses during the oxidation of copper and their influence on oxidation kinetics. W. Jaenicke and others. bibliog il diags Electrochem Soc J 111:1031-7 S '64

Mechanism of oxidation of zirconium in the temperature range 400°-850°C. R. J. Hussey and W. W. Smeltzer. bibliog Electrochem Soc J 111:1221-4 N '64

Mechanism of the electro-oxidation of acetylene on platinum. J. W. Johnson and others. bibliog diag Electrochem Soc J 111:863-70 Jl '64

Mechanism of the high-temperature oxidation of iron-chromium alloys in water vapor. C. T. Fujii and R. A. Meussner. bibliog il diag Electrochem Soc J 111:1215-21 N '64

Mechanism of the oxidation of a uranium-one weight per cent copper alloy. J. E. Antill and K. A. Peakall. diags Electrochem Soc J 110:1146-8 N '63

Mechanisms of oxidation of organic compounds, by W. A. Waters; Oxidation mechanisms; applications to organic chemistry, by R. Stewart; review. J. R. Lewis. Chem & Ind p 1217-19 Jl 4 '64

Nature of chromium(VI) in acid solution and its relation to alcohol oxidation. D. G. Lee and R. Stewart. bibliog Am Chem Soc J 86:3051-6 Ag 5 '64

Non-catalytic oxidation of olefins to epoxides with molecular oxygen. F. W. Meadus and K. U. Ingold. bibliog Can J Chem Eng 42:86-7 Ap '64

Now proved; phenol from air-oxidation of toluene; process flowsheet. il diag Chem Eng 71:106-8 S 28 '64

Olefin oxidations with excited singlet molecular oxygen. C. S. Foote and S. Wexler. bibliog Am Chem Soc J 86:3879-80 S 20 '64

Oxidation by molecular oxygen. G. A. Hamilton and others. bibliog Am Chem Soc J 86:3390-2 Ag 20 '64

Oxidation kinetics of zirconium diboride and zirconium carbide at high temperatures. A. K. Kuriakose and J. L. Margrave. bibliog diags Electrochem Soc J 111:827-31 Jl '64

Oxidation kinetics of zirconium in the temperature range 400°-600°C. R. J. Hussey and W. W. Smeltzer. bibliog il Electrochem Soc J 111:564-8 My '64

Oxidation kinetics of $ZrBe_{13}$ and $NbBe_{12}$. G. Ervin, jr. and M. M. Nakata. bibliog il diags Electrochem Soc J 110:1103-10 N '63

Oxidation mechanism of formic acid on platinum at low potentials in acidic solutions. M. W. Breiter. bibliog Electrochem Soc J 111:1298-9 N '64

Oxidation of a highly unsaturated herring oil. H. Astrup. Chem & Ind p 107 Ja 18 '64

Oxidation of aluminum by carbon dioxide in the presence of cryolitic electrolyte. S. Gjerstad and B. J. Welch. bibliog diag Electrochem Soc J 111:976-80 Ag '64

Oxidation of dry products of oats and barley. H. Astrup. Chem & Ind p 107-8 Ja 18 '64

Oxidation of 80Ni-20Cr alloys in carbon monoxide at high temperatures. K. Osthagen. bibliog Corrosion 20:252-5 Ag '64

Oxidation of iron(II) by cobalt(III) in the presence of chloride ions. T. J. Conocchioli and others. Am Chem Soc J 86:1453-4 Ap 5 '64

Oxidation of iron single crystals around 200°C. P. B. Sewell and M. Cohen. bibliog il diags Electrochem Soc J 111:501-8 My '64

Oxidation of methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 86:4124-9 O 5 '64

Oxidation of molybdenum 550° to 1700°C. E. A. Gulbransen and others. bibliog il diag Electrochem Soc J 110:952-9 S '63; Discussion. 111:757-62 Je '64

Oxidation of nickel studies. W. J. Ambs. Franklin Inst J 277:91-2 Ja '64

Oxidation of Ni-2ThO_2 between 900° and 1400°C. F. S. Pettit and E. J. Felten. bibliog il Electrochem Soc J 111:135-9 F '64

Oxidation of pyrolytic carbon 1000° to 1500°C and oxygen pressures of 2 to 38 torr. E. A. Gulbransen and others. Electrochem Soc J 111:626-7 My '64

Oxidation of pyrolytic graphite at temperatures of 1400°-1900°F and at air velocities of 25-100 cm/sec. M. Levy and P. Wong. bibliog il Electrochem Soc J 111:1088-91 S '64

Oxidation of secondary alcohols with carbon tetrachloride. W. J. Jackson, jr. bibliog Ind & Eng Chem Product Res & Develop 3:100-5 Je '64

Oxidation of $TiCl_3$ in hydrocarbon and aqueous media. G. P. Belonovskaya and others. bibliog Rubber Chem & Tech 37:128-33 Ja '64

Oxidation of wheat starch. B. H. Thewlis. bibliog J Ap Chem 13:464-6 O '63

Oxidation-reduction equilibria in iron-containing glass. W. D. Johnston. bibliog Am Cer Soc J 47:198-201 Ap '64

Oxidation stability of steam turbine oils. A. C. M. Wilson. diag Inst Pet J 50:47-57 F '64

Oxidative coupling. J. R. Lewis. bibliog Chem & Ind p 1672-7 O 3 '64

Oxidative dealkylation of alkylaromatic hydrocarbons. C. J. Norton and T. E. Moss. bibliog diag Ind & Eng Chem Proc Design 3:23-32 Ja '64

Oxide films formed on copper single crystal surfaces in water. J. Kruger and J. P. Calvert. bibliog diags Electrochem Soc J 111:1038-41 S '64

Photochemical oxidations. H. S. Johnston and J. Heicklen. bibliog Am Chem Soc J 86:4249-58 O 20 '64

Photoionization and γ-induced oxidation of aromatic amines in rigid organic glasses. M. Kondo and others. bibliog Am Chem Soc J 86:1297-300 Ap 5 '64

Photo-oxidation in asphalts. Franklin Inst J 278:71-2 Jl '64

Pro-oxidant effect of some carbonyl compounds in vegetable oils. R. H. Anderson and T. E. Huntley. bibliog Am Oil Chem Soc J 41:686-8 O '64

Rates of oxidation-reduction reactions between ketyls and ketones. N. Hirota and S. I. Weissman. bibliog Am Chem Soc J 86:2537-8 Jl 5 '64

Redistribution of acceptor and donor impurities during thermal oxidation of silicon. A. S. Grove and others. bibliog diags J Ap Phys 35:2695-701 S '64

Redox-initiated polymerisation of *N*-vinylcarbazole and 4-vinylpyridine by metal ions. C. H. Wang. Chem & Ind p751-2 My 2 '64

Relative electrocatalytic activity of noble metals in the oxidation of ethylene. H. Dahms and J. O. Bockris. diag Electrochem Soc J 111:728-36 Je '64

Residue analysis of ethion by cholinesterase inhibition after oxidation. T. E. Archer and others. bibliog diag J Agri & Food Chem 11:471-4 N '63

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators. B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

OXIDATION—*Continued*

Selective oxidation of arylcarbinols to aldehydes. V. J. Traynelis and W. L. Hergenrother. Am Chem Soc J 86:298-9 Ja 20 '64

Selectivity in hydrocarbon oxidation. M. Spielman. bibliog A I Ch E J 10:496-501 Jl '64

Spectrophotometric method for studying the oxidation of lubricating oils. J. R. Barceló and C. Otero. Inst Pet J 50:15-21 Ja '64

Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

Study of adsorption and oxidation of carbon monoxide on platinum using constant current pulses. T. B. Warner and S. Schuldiner. bibliog Electrochem Soc J 111:992-7 Ag '64

Study of the thermal oxidation of tantalum and niobium by means of electron-diffraction and capacity measurements. J. Harvey and P. H. G. Draper. bibliog il Inst Metals J 92:136-40 '63-64

Surface oxidation of gold electrodes. S. B. Brummer and A. C. Makrides. bibliog Electrochem Soc J 111:1122-8 O '64

Symposium on chemical and nutritional aspects of oxidised and heated fats; abstracts of papers and discussion. Chem & Ind p 1541-9 S 5 '64

System gives useful current densities. G. Sandstede. Chem & Eng N 42:42-3 My 18 '64

(+)-Tembetarine, [N-methyl-(+)-reticuline] in fagara species; oxidation to (+)-laurifoline. S. M. Albonico and others. bibliog Chem & Ind p 1580-1 S 12 '64

Testing the oxidation of motor fuel in the presence of copper. R. Roels. bibliog Inst Pet J 50:22-6 Ja '64

Transition state characterization for the permanganate oxidation of fluoral hydrate. J. L. Kurz. bibliog Am Chem Soc J 86:2229-32 Je 5 '64

Tritium-labeled compounds; determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-*1-t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

Tritium-labeled compounds; isotope effects in the oxidation of aldoses-*1-t* with bromine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:145-51 Mr '64

Tritium-labeled compounds; mechanism for the oxidation of aldehydes and aldoses-1-*t* with sodium chlorite. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:301-4 My '64

Very rapid oxidation of aluminum at room temperature when in contact with mercuric iodide. D. A. Jackson, jr. and H. Leidheiser, jr. bibliog diag Electrochem Soc J 111:652-6 Je '64

Voltammetry and controlled potential oxidation of 3,4-dimethoxypropenyl-benzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

See also

Antioxidants

Spontaneous combustion

Autoxidation

Autoxidation of fatty materials in emulsions. D. H. Saunders and others. bibliog Am Oil Chem Soc J 39:434-9; 41:347-51 O '62, My '64

Autoxidation of the lead soaps of the linseed oil fatty acids. J. E. O. Mayne and E. H. Ramshaw. bibliog diag J Ap Chem 13:553-60 D '63

Base-catalysed autoxidation of hydrocarbons in diphenyl sulphoxide. T. J. Wallace and others. bibliog Chem & Ind p 1316-17 Jl 18 '64

Degradation of monocarbonyls from autoxidizing lipids. D. A. Lillard and E. A. Day. bibliog Am Oil Chem Soc J 41:549-52 Ag '64

Kinetics of autoxidation of methyl linoleate; effect of added antioxidants and a new method for the evaluation of antioxidants. R. M. Quencer and others. bibliog Am Oil Chem Soc J 41:650-3 O '64

Kinetics of methyl linoleate emulsion autoxidation in the presence of polyhydroxy compounds. A. F. Mabrouk. bibliog Am Oil Chem Soc J 41:331-4 Ap '64

Kinetics of the autoxidation of phenylhydroxylamines to azoxybenzenes in methanol. Y. Ogata and others. bibliog diag Am Chem Soc J 86:3854-8 S 20 '64

Measurement of fat autoxidation and browning aldehydes in food vapors by direct vapor injection gas-liquid chromatography. R. G. Buttery and R. Teranishi. bibliog J Agri & Food Chem 11:504-7 N '63

Mechanism of autoxidation of three vinyl polymers; polypropylene, ethylene-propylene rubber, and poly(ethyl acrylate). A. V. Tobolsky and others. bibliog Am Chem Soc J 86:3925-30 O 5 '64

Oxidized-metallic and grassy flavor components of autoxidized milk fat. E. G. Hammond and F. D. Hill. bibliog Am Oil Chem Soc J 41:180-4 Mr '64

Retarding effects of polyarylmethanes in autoxidation reactions. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2371-4 Je 20 '64

Singlet oxygen; a probable intermediate in photosensitized autoxidations. C. S. Foote and S. Wexler. bibliog Am Chem Soc J 86:3880-1 S 20 '64

OXIDATION, Physiological

Aerobic biodegradability of linear alkylbenzene sulfonate. W. A. Sweeney. Soap & Chem Spec 40:45-7+ Mr '64

Biodegradation of nonionics. F. A. Blankenship and V. M. Piccolini. bibliog Soap & Chem Spec 39:75-8+ D '63

Biodegradation of some tallow-based surface active agents in river water. J. K. Weil and A. J. Stirton. bibliog Am Oil Chem Soc J 41:355-8 My '64

Biological oxidation in self-operating, continuously recording manometers; abstract. M. X. V. Snaddon and S. H. Jenkins. WPCF J 36:305-6 Mr '64

British synthetic detergent report. Soap & Chem Spec 39:48-51+ N '63

Chemistry of surfactant biodegradation. R. D. Swisher. bibliog Am Oil Chem Soc J 40:648-56 N '63

Degradation of 4-(2,4-dichlorophenoxy)-butyric acid [4-(2,4-DB)] in plants. D. L. Linscott. bibliog J Agri & Food Chem 12:7-10 Ja '64

Development of a biologically degradable alkyl benzene sulfonate; abstract. R. C. Tarring. WPCF J 36:278 Mr '64

Foreign requirements and developments in biodegradability. C. A. Houston. bibliog Am Oil Chem Soc J 40:659-61 N '63

Measuring biodegradability. Soap & Chem Spec 40:84 O '64

New accelerated test for rapid measurement of detergent biodegradability. D. O. Hitzman. Am Oil Chem Soc J 41:593-5 S '64

Role of external variables in degradation of straight chain ABS. R. Fuhrmann and others. bibliog Soap & Chem Spec 40:51-3+ F '64

Sanitary engineer's approach to biodegradation of nonionics. C. A. Vath. bibliog Soap & Chem Spec 40:56-8+ F '64

Soap plant observer; biodegradability tests. W. J. Beach. il diag Soap & Chem Spec 39:255-6+ D '63

Study of detergent biodegradability as shown by various analytical techniques. R. C. Allred and others. bibliog Am Oil Chem Soc J 41:13-17 Ja '64

Thermodynamic aspects of biological oxidation and synthesis. J. A. Servizi and R. H. Bogan. WPCF J 36:607-18 bibliog(p617-18) My '64

Transient intermediates in the biodegradation of straight chain ABS. R. D. Swisher. bibliog WPCF J 35:1557-64 D '63

OXIDATION ponds. See Sewage lagoons

OXIDES

Cold combustion for the quantitative determination of amalgable metals in the presence of their oxides in treated ores. M. G. Habashy. diag Anal Chem 36:1781-3 Ag '64

Conversion of metallic oxide mineral surfaces to sulphides. R. G. Bautista and others. bibliog il Eng & Min J 163:81-3 N '62; 165:122-4 Je '64

Direct path from refractory oxides to carbides. diag Chem Eng 70:134+ N 11 '63

Electroluminescence in oxide phosphors. S. Jones. bibliog Electrochem Soc J 111:307-11 Mr '64

Grain-boundary diffusion in oxides. I. Zaplatynsky. bibliog il J Ap Phys 35:1358 Ap '64

Growth of oxide crystals by the flux method. M. Schieber. Am Cer Soc J 47:537-8 O '64

High intensity carbon-arc-image furnace and its application to single crystal growth of refractory oxides. G. J. Goldsmith and others. bibliog il diag Electrochem Soc J 111:260-2 F '64

OXIDES—*Continued*

Impurity conduction and negative resistance in thin oxide films. T. W. Hickmott. bibliog J Ap Phys 35:2118-22 Jl '64

Macrodetermination of oxygen in metal oxides by inert gas fusion. B. D. Holt and J. E. Stoessel. il diags Anal Chem 36:1320-4 Je '64

Magnetic tape recording materials. C. D. Mee. bibliog diags IEEE Trans Com & Electronics 83:399-408 Jl '64

Novel example of participation by an *N*-oxide group in nitrile hydrolysis. G. Tennant. Chem & Ind p 1622 S 19 '64

Oxide film protects heat exchanger tubing. Power 107:58 N '63

Oxides erode turbine blades. T. H. Gladney and H. S. Fox. il Elec World 160:38-9+ D 30 '63

Polymorphism of bismuth sesquioxide; effect of oxide additions on the polymorphism of Bi_2O_3. E. M. Levin and R. S. Roth. bibliog J Res Nat Bur Stand 68A:197-206 Mr '64

Preparation and acetylation of 2-aminobenzothiazole 3-oxide. T. A. Liss. bibliog Chem & Ind p368-9 F 29 '64

Role of the zeta potential in coagulation involving hydrous oxides. T. M. Riddick. il diags Tappi 47:sup 171A-9A Ja '64

Scratch test for measuring adherence of thin films to oxide substrates. M. M. Karnowsky and W. B. Estill. bibliog il R Sci Instr 35:1324-6 O '64

Semiconducting oxide glasses; general principle for preparation. J. D. Mackenzie. bibliog diag Am Cer Soc J 47:211-14 My '64

Simple physical model for the space-charge capacitance of metal-oxide-semiconductor structures. A. S. Grove and others. diags J Ap Phys 35:2458-60 Ag '64

Study of surface oxides on platinum electrodes. J. S. Mayell and S. H. Langer. bibliog diags Electrochem Soc J 111:438-46 Ap '64

Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64

Titrimetric determination of bis(disubstituted-phosphinyl)alkanes and (trisubstituted phosphine) oxides. J. R. Parker and C. V. Banks. Anal Chem 36:2191-2 O '64

Transfer of sulphur from gas to molten oxide systems. A. S. Alwan and P. M. Bills. bibliog Iron & Steel Inst J 202:367-72 Ap '64

See also

Alumina
Bismuth oxides
Europium oxide
Gallium oxides
Germanium oxides
Lead oxides
Nickel oxides
Niobium oxides
Nitrogen oxides
Rare earths
Titanium oxides
Tungsten oxides
Vanadium oxides

OXIDIZING agents

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode: experimental; oxidizing agents and hydrogen gas on the exit side. R. A. LaPietra and G. W. Castellan. bibliog diag Electrochem Soc J 111:1276-9 N '64

OXIMES

Electron spin resonance study of iminoxy free radicals. J. R. Thomas. bibliog Am Chem Soc J 86:1446-7 Ap 5 '64

Interaction of benzamidoxime with fluoroacyl chlorides; some novel 1,2,4-oxadiazoles. J. P. Critchley and others. bibliog Chem & Ind p806-7 My 9 '64

Organometallic semiconductors; derivatives of oximes of 1,5-diacyl-2,6-dihydroxynaphthalenes. M. J. S. Dewar and A. M. Talati. bibliog diag Am Chem Soc J 86:1592-5 Ap 20 '64

Oxime tosylates react with Grignards; abstract. S. S. Pelosi, jr. and R. E. Lyle. Chem & Eng N 42:45 Ap 20 '64

Recycling process for the commercial preparation of 1-methylpyridinium-2-aldoxime chloride. R. I. Ellin. bibliog Ind & Eng Chem Product Res & Develop 3:20-1 Mr '64

Spectrophotometric determination of iron in ethylene amines with phenyl-2-pyridyl ketoxime. R. Chernin and E. R. Simonsen. Anal Chem 36:1093-5 My '64

Spectrophotometric determination of rhenium using *syn*-phenyl-2-pyridyl ketoxime. J. Guyon and R. K. Murmann. bibliog Anal Chem 36:1058-61 My '64

Spectrophotometric determination of rhenium with alpha-pyridildioxime. F. Trusell and R. J. Thompson. Anal Chem 36:1870-1 Ag '64

Spectrophotometric determination of urea, thiourea, and certain of their substitution products with *p*-dimethylaminobenzaldehyde and diacetylmonoxime. R. C. Hoseney and K. F. Finney. bibliog Anal Chem 36:2145-8 O '64

OXIRANE compounds. See Epoxy compounds

OXO process

New insight into technology-market interplay. il Chem Eng 71:28 Ag 31 '64

What's the future for oxo alcohols? M. Hill. Hydrocarbon Process & Pet Refiner 43:135-7 Ag '64

OXONIUM compounds

Steroid synthesis based on oxonium intermediates; application to 20-ketosteroids. J. P. Dusza and others. bibliog Am Chem Soc J 86:3908-9 S 20 '64

OXYACETYLENE cutting

Gas flame and its future. il diag Welding Eng 49:37-41 F '64 (reprints 50c)

Oxyacetylene cutting and welding; techniques used by the metal sculptor. il Welding J 43:208-9 Mr '64

OXYACETYLENE flame

Instrumental reduction of background signal of fuel-rich oxyacetylene flames used in atomic absorption spectrometry. J. D. Winefordner and C. Veillon. diag Anal Chem 36:943-4 Ap '64

Premixed, fuel-rich, oxyacetylene flame in flame emission spectrometry. A. P. D'Silva and others. diags Anal Chem 36:1287-9 Je '64

OXYACETYLENE welding

Are you making full use of your gas torches? E. A. Daniels. il Welding Eng 49:42-4 F '64

Gas flame and its future. il diag Welding Eng 49:37-41 F '64 (reprints 50c)

Oxyacetylene cutting and welding; techniques used by the metal sculptor. il Welding J 43:208-9 Mr '64

Popular space-age art provided by gas welding torch. L. D. Richardson. il Welding Eng 49:48-9 Je '64

Welding system for maintenance. il Coal Age 69:182 Ap '64

OXYCELLULOSE

Mechanical properties of paper made from periodate oxycellulose pulp and from the same pulp after reduction with borohydride. S. H. Zeronian and others. bibliog Tappi 47:557-64 S '64

OXYGEN

Absorption of oxygen by sodium sulphite on a sieve plate. I. J. Harris and G. H. Roper. bibliog diag Can J Chem Eng 42:34-7 F '64

Action of oxygen on amino-acids in relation to self-heating of moist wool. H. P. Rothbaum. bibliog J Ap Chem 14:165-74 Ap '64

Amount of π-bonding in phosphorus-oxygen and sulfur-oxygen bonds. P. Haake and others. bibliog Am Chem Soc J 86:3577-8 S 5 '64

Bod and oxygen relationships in streams. W. E. Dobbins. bibliog Am Soc C E Proc 90 [SA 3 no 3949]:53-78 Je '64; Correction. 90 [SA 6 no 4171]:131-2 D '64

Chemisorption detector for oxygen. D. J. Collins and S. A. Hoenig. diags R Sci Instr 35:15-16 Ja '64

Determination of argon in the presence of oxygen and other atmospheric gases by adsorption chromatography. K. Abel. bibliog diags Anal Chem 36:953-4 Ap '64

Detonation of hydrogen-oxygen at low temperature and high pressure. K. W. Ragland and others. bibliog AIAA J 2:142-4 Ja '64

Diffusion of oxygen in hafnium. J. P. Pemsler. bibliog Electrochem Soc J 111:1185-6 O '64

Effect of chemisorbed oxygen on photovoltaic and photoconductive processes in rutile. R. Keezer. bibliog diags J Ap Phys 35:1866-7 Je '64

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:610-15 My '64

Effect of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64

Effect of oxygen and other factors in selenium catalyzed isomerization of unsaturated fatty acid esters. V. V. R. Subrahmanyam and F. W. Quackenbush. bibliog Am Oil Chem Soc J 41:275-9 Ap '64

OXYGEN—*Continued*

Effect of temperature, antioxidant, and oxygen on the stability of precooked dehydrated sweetpotato flakes. H. J. Deobald and T. A. McLemore. bibliog Food Tech 18:739-42 My '64

Effect of velocity and oxygen on corrosion of iron in sulfuric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diags Electrochem Soc J 111:13-17 Ja '64

Efficiency of carbon removal by oxygen in arc furnaces. B. P. Barnsley and D. S. Thornton. Iron & Steel Inst J 202:735-8 S '64

Equilibrium pressures of oxygen over Mn_2O_3-Mn_3O_4 at various temperatures. E. M. Otto. bibliog diag Electrochem Soc J 111:88-92 Ja '64

Evidence for O_4; magnetic studies on adsorption of oxygen. L. N. Mulay and L. K. Keys. bibliog Am Chem Soc J 86:4489-91 O 20 '64

Freons flammable with oxygen. V. C. Vannicola. il IEEE Proc 52:866-7 Jl '64

Improves produce storage; Tectrol system. il diag Food Eng 36:88-9 Ap '64

Influence of oxygen on the surface mobility of tin atoms in thin films. H. L. Caswell and Y. Budo. bibliog il J Ap Phys 35:644-7 Mr '64

Interaction of oxygen with (110) nickel. R. L. Park and H. E. Farnsworth. bibliog diags J Ap Phys 35:2220-6 Jl '64

Interactions of waste feed, activated sludge, and oxygen as traced by radioactive carbon. F. J. Ludzack and others. bibliog WPCF J 36:782-8 Je '64

Luminescence of GaAs grown in oxygen. W. J. Turner and others. diag J Ap Phys 34:3274-6 N '63

Mathematical model for dissolved oxygen. R. V. Thomann. bibliog diags Am Soc C E Proc 89 [SA 5 no 3680]:1-30 O '63; Discussion. A. N. Diachishin. 90 [SA 3 no 3935]:137-43 Je '64

Method and apparatus for determination of small isotopic oxygen variations in beryllium oxide. R. A. Meyer and others. bibliog diags Anal Chem 35:2144-6 D '63

Mixed potentials observed in the iridium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:988-92 Ag '64

New insertion reaction of cationic oxygen. R. A. Sneen and N. P. Matheny. Am Chem Soc J 86:3905-6 S 20 '64

Non-catalytic oxidation of olefins to epoxides with molecular oxygen. F. W. Meadus and K. U. Ingold. bibliog Can J Chem Eng 42:86-7 Ap '64

Oxidation by molecular oxygen. G. A. Hamilton and others. bibliog Am Chem Soc J 86:3390-2 Ag 20 '64

Oxygen adsorption and double layer capacities; gold in perchloric acid. G. M. Schmid and R. N. O'Brien. bibliog diags Electrochem Soc J 111:832-7 Jl '64

Oxygen absorption in low-frequency vertically vibrating liquid columns. R. H. Buchanan and others. bibliog diag Ind & Eng Chem Proc Design 2:173-7 Jl '63; Discussion. 3:191-2 Ap '64

Oxygen adsorption on silicon surfaces observed via electron spin resonance. K. A. Müller and others. bibliog J Ap Phys 35:2254-6 Jl '64

Oxygen deficiency in perovskite-type compounds of calcium. R. V. Coates and J. W. McMillan. bibliog J Ap Chem 14:346-50 Ag '64

Oxygen ion diffusion in single-crystal and polycrystalline yttrium iron garnet. A. E. Paladino and others. bibliog il diag Am Cer Soc J 47:280-2 Je '64

Oxygen molecules dimerize. L. N. Mulay. Chem & Eng N 42:42 S 7 '64

Oxygen relationships in the Sacramento River. C. G. Gunnerson and T. E. Bailey. bibliog map Am Soc C E Proc 89 [SA 4 no 3619]:95-124 Ag '63; Discussion. 90 [SA 1 no 3813]:175-83 F; [SA 2 no 3884]:47-50 Ap '64; Reply. 90 [SA 4 no 4006]:79-85 Ag '64

O-2 transition of CO in condensed oxygen, nitrogen, and argon. S. Abramowitz and H. P. Broida. bibliog J Res Nat Bur Stand 68A:331-3 My '64

Oxygenation from diffused air in aeration tanks. J. K. Bewtra and W. R. Nicholas. bibliog il diags WPCF J 36:1195-224 O '64

Partial molal enthalpies of adsorption of hydrogen and oxygen on platinum and on carbon-supported platinum. J. G. Aston and others. bibliog diag Am Chem Soc J 86:2097-101 Je 5 '64

Phase relations in the system uranium-carbon-oxygen. R. F. Stoops and J. V. Hamme. bibliog diag Am Cer Soc J 47:59-62 F '64

Production of uranium hexafluoride in a fluidized bed reactor by the reaction of uranium tetrafluoride with oxygen. C. D. Scott and others. bibliog il diags Ind & Eng Chem Proc Design 3:266-70 Jl '64

Quantitative determination of parts-per-million quantities of nitrogen dioxide in nitrogen and oxygen by electron-capture detection in gas chromatography. M. E. Morrison and others. Anal Chem 36:2256-9 N '64

Radiolysis of methanol and methanolic solutions; the effect of oxygen on the radiolysis of liquid methanol by ^{60}Co γ-rays and by $^{10}B(n,\alpha)^{7}Li$ recoils. S. U. Choi and N. N. Lichtin. bibliog Am Chem Soc J 86:3948-53 O 5 '64

Rapid oxygen bomb method for evaluating the stability of fats and shortenings. W. D. Pohle and others. Am Oil Chem Soc J 40:603-5 N '63

Ratio of the first to the second diffusion current of oxygen at the dropping mercury electrode; diffusion coefficient of oxygen. I. M. Kolthoff and K. Izutsu. bibliog Am Chem Soc J 86:1275-9 Ap 5 '64

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1:1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

Reactivity of phenyl radicals toward molecular oxygen. G. A. Russell and R. F. Bridger. bibliog Am Chem Soc J 85:3765-6 D 5 '63

Recovery of oxygen. C. S. Coe. Chem Eng Prog 60:33-5 F '64

Reversible oxygen electrodes. N. Watanabe and M. A. V. Devanathan. bibliog diag Electrochem Soc J 111:615-19 My '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

Stand-by and operational apparatus for removal of oxygen from commercial nitrogen. P. Arthur. diags Anal Chem 36:701-2 Mr '64

Studies of the oxygen bomb method for determining shortening stabilities. J. E. Bennett and M. J. Byer. Am Oil Chem Soc J 41:505-7 Jl '64

Studies on the oxygen gradients in oxidizing metals. J. P. Pemsler. il Electrochem Soc J 111:381-5 Ap '64

Ultrasonics hunt oxygen leaks. il Safety Maint 127:45-6 My '64

Visible laser transitions in ionized oxygen, nitrogen, and carbon monoxide. H. G. Heard and J. Peterson. IEEE Proc 52:1258 O '64

Zirconium dioxide-oxygen reactions. T. Smith. bibliog Electrochem Soc J 111:1020-31 S '64

See also

Oxidation

Steel—Oxygen content

Analysis

Adaptation of a galvanic cell for microanalysis of oxygen. H. Lipner and others. bibliog diags Anal Chem 36:204-6 Ja '64

Analysis for oxygen by gas-phase polarography at low temperatures and low pressures; a prototype assembly. G. Halpert and others. il diags R Sci Instr 35:950-2 Ag '64

Automatic dissolved oxygen titration apparatus. W. D. Johnson and others. il WPCF J 35:1489-91 N '63

Critical evaluation of a platinum-bath, vacuum-fusion procedure for the determination of oxygen and nitrogen in steels. V. A. Fassel and others. bibliog Anal Chem 36:2115-20 O '64

Design and performance of temperature compensated electrodes for oxygen measurements. R. Briggs and M. Viney. diags J Sci Instr 41:78-83 F '64

Determination of argon and oxygen by gas chromatography. J. W. Swinnerton and others. diag Anal Chem 36:1669-71 Jl '64

Determination of dissolved oxygen by the Winkler method and the solubility of oxygen in pure water and sea water. H. A. C. Montgomery and others. bibliog diags J Ap Chem 14:280-96 Jl '64

Determination of oxygen in gallium arsenide by neutron activation analysis. R. F. Bailey and D. A. Ross. bibliog Anal Chem 35:791-4 Je '63; Discussion. 36:1879 Ag '64

Determination of oxygen in potassium. W. A. Dupraw and others. diag Anal Chem 36:430-1 F '64

OXYGEN—Analysis—*Continued*

Determination of the oxygen nonstoichiometry in barium titanate. J. Novák and H. Arend. Am Cer Soc J 47:530 O '64

Dissolved oxygen determinations for field surveys. R. Porges. WPCF J 36:1247-55 O '64

Dissolved oxygen measurement by constant-potential derivative coulometry. E. L. Eckfeldt and E. W. Shaffer, jr. bibliog diags Anal Chem 36:2008-13 S '64

Evaluation of the Adcock chemical and vacuum fusion methods for oxygen in electrodeposited chromium. A. Lench and others. bibliog Anal Chem 36:337-9 F '64

Improved galvanic cell for determination of oxygen concentrations in fluids. F. J. H. Mackereth. bibliog diags J Sci Instr 41:38-41 Ja '64

Macrodetermination of oxygen in metal oxides by inert gas fusion. B. D. Holt and J. E. Stoessel. il diags Anal Chem 36:1320-4 Je '64

Oxygen analyses of minerals and oxides. T. Sharma and R. N. Clayton. bibliog Anal Chem 36:2001-2 S '64

Oxygen determination in rocks, minerals, and water by neutron activation. A. Volborth and H. E. Banta. bibliog Anal Chem 35:2203-5 D '63

Oxygen traces may be corroding your waterflood piping. L. C. Case. il diag Oil & Gas J 62:78-80 Ja 13 '64

Pabst brewing co. quickly checks oxygen in head-space gas. il Food Eng 35:91 N '63

Rapid, nondestructive method of precision oxygen analysis by neutron activation. O. U. Anders and D. W. Briden. bibliog diags Anal Chem 36:287-92 F '64

Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64

Starved fuel cell measures oxygen used by the lungs. il Machine Design 36:12 Mr 12 '64

Titration of oxygen and antioxidants using 2,4,6-tri-*tert*-butylphenoxy free radicals. J. P. Paris and others. bibliog Anal Chem 36:1332-4 Je '64

Atomic oxygen

Zirconium dioxide-oxygen reactions; chemisorption of atomic oxygen. T. Smith. bibliog Electrochem Soc J 111:1027-31 S '64

Industrial applications

CO_2-O_2 mixture at 4:1 speeds welding. diag Steel 153:33 D 23 '63

See also

Oxyacetylene flame

Steel metallurgy—Oxygen processes

Isotopes

Anchimerically accelerated bond homolysis; decomposition of an oxygen-18 labeled *t*-butyl perester. J. C. Martin and T. W. Koenig. Am Chem Soc J 86:1771-5 My 5 '64

Method and apparatus for determination of small isotopic oxygen variations in beryllium oxide. R. A. Meyer and others. bibliog diags Anal Chem 35:2144-6 D '63

New technique for assay of oxygen-18 in sulfur dioxide. T. M. Spittler and J. L. Huston. bibliog diag Anal Chem 36:575-7 Mr '64

Oxygen-18 study of the dehydration of asparagine amide with N,N′-dicyclohexylcarbodiimide and *p*-toluenesulfonyl chloride. D. V. Kashelikar and C. Ressler. bibliog Am Chem Soc J 86:2467-73 Je 20 '64

Oxygen-isotope ratios in Antarctic snow, firn, and ice. S. Epstein and others. map J Geol 71:698-720 bibliog(p718-20) N '63

Submicrodetermination of oxygen-18-benzophenone by infrared spectrometry. I. Laulicht and S. Pinchas. Anal Chem 36:1980-1 S '64

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

Variations in the O^{18}/O^{16} and C^{13}/C^{12} ratios of diagenetically altered limestones in the Bermuda Islands. M. G. Gross. map diag J Geol 72:170-94 bibliog(p 193-4) Mr '64

Variations in the oxygen and carbon isotope ratios of Florida Bay mollusks and their environmental significance. R. M. Lloyd. bibliog maps J Geol 72:84-111 Ja '64

Manufacture

Engineering tricks for oxygen plants on wheels. il diag Chem Eng 70:58+ N 25 '63

High purity nitrogen, oxygen and argon. il Engineering 196:588 N 8 '63

Industrial gases plant at Stoke-on-Trent. il(p720) Engineer 216:721 N 1 '63

Tonnage oxygen; illustrations with text. Engineer 217:103 Ja 10 '64

OXYGEN, Liquid

High-energy rocket engines. il diags Engineer 218:364-6, 415-17 S 4-11 '64; Discussion. 218:510, 763 S 25, N 6 '64

Liquid oxygen breathing apparatus. il Engineer 216:823 N 15 '63

Portable breathing apparatus stores liquid oxygen in no-slosh tank. il diag Machine Design 36:177 O 22 '64

Titanium found too fickle for use with LOX. il Materials in Design Eng 59:128+ F '64

Transportation

Development of a flanged joint between stainless steel and aluminium piping for liquid oxygen service. J. W. C. Usher. bibliog il diags Inst Mech Eng Proc 177 no 28:775-82; Discussion. 783-5; Reply. 786-8 '63

OXYGEN apparatus

Environmental control system for Apollo uses pure oxygen at five psia. R. C. Nonoshita. diag Space/Aeronautics 42:69-70+ S '64

Installation of copper tube for oxygen service; abstract. A. I. Heim. Air Cond Heat & Ven 61:63-4 F '64

Liquid oxygen breathing apparatus. il Engineer 216:823 N 15 '63

Portable breathing apparatus stores liquid oxygen in no-slosh tank. il diag Machine Design 36:177 O 22 '64

Precision, safety keynote design for hyperbaric oxygen facilities; Lutheran general hospital. W. D. Ludwig. il diag Heating-Piping 36:109-15 My '64

OXYGEN cutting

Flame-cutting drops ring gear cost. W. Wright. il diags Welding Eng 49:83-4 N '64

OXYGEN cutting machines

Adaptable oxygen cutting head tractor. il Engineer 217:488 Mr 13 '64

Messer cutting and welding plant at Sheffield; open days for demonstration. il diag Engineering 196:662-3 N 22 '63

Messer flame cutting equipment exhibition. il Engineer 216:810-11 N 15 '63

More power, accuracy in cutting machines with dual-carriage design. il diag Welding Eng 49:39-41 F '64

Control

Flame cutter halves costs, production time. il Steel 155:33 O 26 '64

Flame cutter works off scaled drawings. il Engineering 197:679 My 15 '64

Profile flame cutting machine. il Engineer 217:788 My 1 '64

OXYGEN fluorides

Oxidations with oxygen difluoride. R. F. Merritt and J. K. Ruff. bibliog Am Chem Soc J 86:1392-4 Ap 5 '64

Preparation of dioxygenyl salts from dioxygen difluoride. A. R. Young, 2d and others. bibliog Am Chem Soc J 86:20-2 Ja 5 '64

OXYHYDROGEN flame

Spectrophotometric determination of trace fluoride in organic compounds following combustion in oxyhydrogen flame-quartz combustion tube. D. E. Willis and W. T. Cave. bibliog diags Anal Chem 36:1821-5 Ag '64

OXYTOCIN

Analogs of oxytocin containing glycine in place of tyrosine, isoleucine, or glutamine. S. Drabarek. bibliog Am Chem Soc J 86:4477-81 O 20 '64

Synthesis of 1-hemi-D-cystine-oxytocin. D. B. Hope and others. bibliog Am Chem Soc J 85:3686-8 N 20 '63

OZONE

Ozone, HCN convert olefins to acids. E. K. Fields. Chem & Eng N 42:65 S 14 '64

Ozone is stabilized by strong bases. L. J. Heidt and V. R. Landi. diag Chem & Eng N 42:38-9 Jl 27 '64

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphate 1:1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

See also

Rubber—Ozone effect

Rubber, Artificial—Ozone effect

Analysis

Specific spectrophotometric determination of ozone in the atmosphere. H. A. Bravo and J. P. Lodge, jr. bibliog diag Anal Chem 36:671-3 Mr '64

OZONE—*Continued*

Physiological effect

Ozone in high-altitude aircraft cabins. L. S. Jaffe and H. D. Estes. map Archives Environmental Health 9:61-71 bibliog(p70-1) Jl '64

OZONISATION. See Ozonolysis

OZONOLYSIS

Heteropolar ozonization of aza-aromatics and their N-oxides. E. J. Moriconi and F. A. Spano. bibliog Am Chem Soc J 86:38-46 Ja 5 '64

Methyl azelaaldehydate purification via the bisulfite compound. W. R. Miller and others. Am Oil Chem Soc J 40:720-1 D '63

Ozonation of asphalt flux. P. G. Campbell and J. R. Wright. bibliog Ind & Eng Chem Product Res & Develop 3:186-94 S '64

Reaction scheme adds nitrogen to olefins; amozonolysis will make heterocyclic nitrogen compounds. E. K. Fields and M. I. Fremery. Chem & Eng N 41:30-2 D 23 '63

Sewage plant in center of town is ozonized and soundproofed. il Eng N 172:34-6 Je 11 '64

Studies on the ozonization of methyl oleate. O. S. Privett and E. C. Nickell. bibliog il Am Oil Chem Soc J 41:72-7 Ja '64

P

PETN. See Pentaerythritol tetranitrate

pH. See Hydrogen ion concentration

P.V.C. See Vinyl chloride

PACIFIC COAST

See also

Shipping—Pacific Coast

PACIFIC coast electrical association

Western electrical conferences, March. Elec Constr & Maint 63:300-6 My '64

PACIFIC COAST gas association

Annual meeting, 70th Los Angeles. Am Gas Assn Mo 45:8-10 N '63

Joint-AGA-PCGA convention. Los Angeles, Oct. 13-16. Gas Age 130:22-6+ D '63

PACIFIC OCEAN

Collection and analysis of Pacific Ocean-bottom seismic data. W. A. Schneider and others. bibliog il maps diags Geophysics 29:745-71 O '64

Guyots in the southwestern Pacific Basin. H. W. Menard and others. maps Geol Soc Bul 75:145-7 F '64

PACKAGE design

Convenience in packaging. P. H. Sagarin. il Soap & Chem Spec 40:143-5 O '64

Deal packages for aerosols. R. P. McGhie. Soap & Chem Spec 40:97+ F '64

New developments in package designs and machinery. R. W. Coughlin. il diags Soap & Chem Spec 40:169+ Ja '64

Oriental expression; Chun King corp. K. J. Hannigan. il Food Eng 36:84-5 Mr '64

Total design approach halves package bill; Clarke floor machine co. il Steel 153:64 N 11 '63

Turn-about packaging for denture cleanser. il Drug & Cosmetic Ind 95:515 O '64

See also

Labels

PACKAGE goods

Clean all the way; unique carrier keeps can tops clean. il Food Eng 36:146 My '64

Custom packages from standard extrusions. il Plastics World 22:58-9 Ap '64

New directions in marketing packaged products. Soap & Chem Spec 40:53-4+ Mr '64

Report finds drug and cosmetic packaging missing mark. Drug & Cosmetic Ind 94:369 Mr '64

See also

Christmas gifts
Drug packages
Food packages
Fruit—Prepackaging
Labels
Packaging machinery
Soap packages

Gift packages

Aerosols in Christmas packs. il Manuf Chem 35:98-9 O '64

Christmas packs 1964. il Manuf Chem 35:71-4 O '64

New packages

New detergents for coin-ops. il Soap & Chem Spec 40:71-2 S '64

Tear-strip carton for convenience products. A. E. Weber and S. W. Drake. il Food Eng 36:49-51 Mr '64

Opening devices

Beer can with a built-in can-opener. il Engineering 198:457 O 9 '64

Tear-strip carton for convenience products. A. E. Weber and S. W. Drake. il Food Eng 36:49-51 Mr '64

Transparent packages

Bonus in blisters for industry. D. C. Williams. Plastics World 21:3 D '63

PACKAGING

Acetal rails reduce packaging damage. il Plastics World 21:67 N '63

Blister and skin packaging growth. D. DeRyke. il Plastics World 22:54-5 Ap '64

Impact of container design on printing. E. H. Merz. il Drug & Cosmetic Ind 93:642-3+ N '63

Packaging. Published in monthly numbers of Soap and chemical specialties

Packaging and selling. Published in monthly numbers of Drug and cosmetic industry

Packaging challenge in men's toiletries. il Drug & Cosmetic Ind 95:358-60+ S '64

Packaging holds down customer costs. il Steel 155:45 S 21 '64

Packaging of floor care products. E. M. Raabe. il Soap & Chem Spec 40:179+ My '64

Packaging; $23 billion market for problem solving. il Steel 154:60-6 Ja 27 '64

See also

Closures (containers)
Food packages
Food packaging
Fruit—Prepackaging
Meat—Prepackaging
Packing for shipment

Exhibitions

AMA packaging show; innovation goes to work. il Mod Materials Handling 19:44-5 Jl '64

AMA packaging show, New York; products on display. il Food Eng 36:56-62 Je '64

Macropack exhibition, Amsterdam. il Manuf Chem 35:77-8, 93-4+ Je '64

National packaging exposition, 33d, New York. il Chem & Eng N 42:31-3 Ap 27 '64; Soap & Chem Spec 40:183-7+ My '64

1964 parade of packaging; AMA packaging exposition. il Plastics World 22:26-31 Je '64

Report on plastics at the AMA packaging show. R. L. Van Boskirk. Mod Plastics 41:212+ Je '64

Ten top aids for better packing; highlights at AMI show. il Food Eng 35:56-7 D '63

30 new machines for better packaging; illustrations with text. Food Eng 35:48-51 N '63

Standards

Aluminum extrusion packaging specifications. Light Metal Age 21:13-14 D '63

Meeting government packaging standards. R. H. Thomas. Drug & Cosmetic Ind 94:31-2+ Ja '64

Stop abusing the unit load; questions and answers. il Mod Materials Handling 19:52-4 F '64

Unit packaging

Plastic packaging of drugs and cosmetics; plastic pouch and the unit pack. A. Hirsch. Drug & Cosmetic Ind 94:848-9+ Je '64

Portion-packs jam in foil. il Food Eng 36:54-5 Ag '64

PACKAGING awards

Award-winning packages; national annual flexible packaging competition; illustrations with text. Food Eng 36:115 Jl '64

CSMA aerosol design winners. il Drug & Cosmetic Ind 94:210 F '64

CSMA aerosol package contest award winners. il Soap & Chem Spec 39:238-9 D '63

CSMA design awards, 1963. il Manuf Chem 35:76 F '64

Folding box award winners. il Drug & Cosmetic Ind 94:838 Je '64

PACKAGING machinery

AMA packaging show, New York; products on display. il Food Eng 36:56-62 Je '64

Automatic candy packer may aid metalworkers. Steel 154:142 Ap 13 '64

Case loaders; the basic types and how they work. M. M. Hoover. diags Mod Materials Handling 18:45-57 D '63

PACKAGING machinery—*Continued*

Designing plastics containers for automatic production lines. S. Hetherington. il diags Plastics World 22:18-19 F '64
High-speed packaging machine cuts and wraps stick gum. H. Mosedale, jr. il Automation 11:52-3 My '64
New developments in package designs and machinery. R. W. Coughlin. il diags Soap & Chem Spec 40:169+ Ja '64
New machine opens and holds plastic pouches during packaging. il Food Tech 18:838 Je '64
New process for keeping milk wholesome; uperisation. diag Product Eng 35:62-3 Mr 16 '64
1964 materials handling and packaging directory; packaging machinery, equipment and materials. il Mod Materials Handling 19:267-78 My '64
Packaging advance from Sweden. il diag Food Eng 36:64-6 Ja '64
Pouch packing hits new high. J. V. Ziemba. il diag Food Eng 36:56-8 Mr '64
Rayon cord strapping is fast, by machine. il Mod Materials Handling 18:76 D '63
Seven efficiency aids for frozen food packers; illustrations with text. Food Eng 36:100-1 Je '64
Streamlines bun packing; National baking co. J. Glyman. il Food Eng 36:64-5 Mr '64
30 new machines for better packaging; illustrations with text. Food Eng 35:48-51 N '63

See also
Filling machines
Sealing machines
Wrapping machines

Control

Splicing webs for continuous production. R. A. Butler, jr. il diags Automation 11:61-4 F '64
Tips for high-speed feeding. il Automation 11:82-4 O '64

Design

Drives for reciprocating members with varying relative motion. J. A. Cuckson. diags Mach 70:140-1 F '64

PACKAGING materials

Battle for packaging. F. S. Leinbach. Tappi 47:sup44A+ Jl '64
Biaxial orientation ups soluble-film strength. il Chem Eng 71:108+ N 9 '64
Campaign to increase use of petroleum waxes in packaging. Food Tech 18:1403-4 S '64
Colgate soaps in improved foil wrapper. il Soap & Chem Spec 40:127 Je '64
Edible packaging film made from new type of corn. Food Tech 18:877 Je '64
Extruded unplasticized vinyl packaging film. R. L. Van Boskirk. Mod Plastics 41:194+ Ag '64
Fresh approach. il Plastics World 22:18 Ap '64
New package; plastics dispenser ends packaging problems. il Plastics World 22:49 F '64
Packaging material in cellular Netlon. il Engineering 197:759 Je 5 '64
Packaging: $23 billion market for problem solvers. il Steel 154:60-6 Ja 27 '64
Plastic packaging of drugs and cosmetics. A. Hirsch. diags Drug & Cosmetic Ind 94:686-7+, 848-9+; 95:54-5+ My-Jl '64
Plastics in packaging, 1964. il Plastics World 22:34+ Ap '64
Plastics packaging in Holland. il Plastics World 22:16-17 O '64
Polyolefins are still leading the plastics-packaging boom. V. D. McCarthy and J. E. Flood. il Oil & Gas J 62:122-6 Ap 20 '64
Recent observations on paper and plastics in packaging. K. A. Arnold. Tappi 46:sup22A+ D '63
Recommended procedures for handling and storing flexible packaging materials. D. L. McCready. il Food Eng 36:99-100 Mr '64
Shrink packaging today and tomorrow. J. P. Sachs. Plastics World 21:5 N '63
Specialty packaging problems solved by foams. il Plastics World 22:44-5 Ap '64
Water soluble plastic finds new uses. il Materials in Design Eng 60:121+ N '64
Water soluble plastics. il Plastics World 22:21 O '64

See also
Adhesives
Aluminum foil
Cellophane
Paper, Waxed
Paper board
Plastic films

Permeability

Barrier component; polyvinylidene chloride latex for packaging fresh foods. S. Moss. il Plastics World 22:40-1 Ap '64

Printing

Controlling register on packaging materials. J. J. Larew. il diags Automation 11:66-71 O '64

Testing

Testing for foil packaging development. E. Gauldin and Y. M. Brandt. Tappi 47:sup 168A-71A S '64

PACKAGING research

Aerosol success hinges on r&d effort. Soap & Chem Spec 40:157 Ja '64
Steps in package research. il Drug & Cosmetic Ind 95:190-1+ Ag '64
Value analysis in package development. H. A. Richards. Drug & Cosmetic Ind 94:198-9+ F '64

PACKING

Equivalence of pulse and step residence time measurements in a trickle-phase bed. L. B. Rothfeld and J. L. Ralph. diag A I Ch E J 9:852-3+ N '63
How not to pack a packed column. G. A. Biales. diag Chem Eng Prog 60:71-2 O '64
How to select packing; reference book sheet. R. Hoyle. diag Am Mach 108:121+ F 17 '64
Mass transfer in a packed, pulsed column. J. H. Krasuk and J. M. Smith. bibliog diag A I Ch E J 10:759-63 S '64
Molded packings. diags Machine Design 36:50-66 Je 11 '64
Neoprene-duck packing saves $6500 annually. diag Steel 153:130 D 9 '63
Particle-to-column diameter ratio effect on band spreading. J. C. Sternberg and R. E. Poulson. bibliog Anal Chem 36:1492-502 Jl '64
Porous layer glass bead column packing in gas adsorption layer chromatography. I. Halász and C. Horváth. bibliog Anal Chem 36:2226-9 N '64
Pressure monitoring of packed towers. C. W. Yost and others. diag Chem Eng 70:130 N 25 '63
Selecting and maintaining packings. J. J. Whalen. diags Chem Eng 70:256+ N 11 '63
Silver sprayed cylindrical mesh packing in a fluidized bed. A. E. McIlhinney and G. L. Osberg. Can J Chem Eng 42:232-3 O '64
Simple compression packings. M. M. Main and G. R. McKillop. diags Machine Design 36:44-9 Je 11 '64
Single-particle studies of ion exchange in packed beds; cupric ion-sodium ion system. M. Gopala Rao and M. M. David. bibliog A I Ch E J 10:213-19 Mr '64
Teflon packing cuts pump-maintenance costs. Oil & Gas J 62:111 Ag 3 '64
TFE fluorocarbons for gaskets and packings. G. E. Horvath. il diags Machine Design 36:166-72 S 24 '64
Unique way to seal rotating shafts. A. L. Decker. diags Chem Eng 71:170+ Jl 20 '64
What affects packed bed distillation. J. S. Eckert and L. F. Walter. bibliog il diag Hydrocarbon Process & Pet Refiner 43:107-14 F '64

See also
Gaskets
Seals
Stuffing boxes

PACKING for shipment

Cost saving achieved with one-piece shipper; drawings. Drug & Cosmetic Ind 95:47 Jl '64
Cut strapping costs 30 per cent; new method of baling grey goods. il Textile Ind 128:87-8 F '64
Foam first; packaging innovation cushions corners, edges. il Plastics World 21:33 D '63
Foam strand pack; substantial savings result from use of spaghetti form polystyrene. il Plastics World 21:23 N '63
Goods must be handle-able. J. P. O'Hanlon. il Mod Materials Handling 19:46-51 Ja '64
How you can use plastic foams for cushioning. A. R. Gardner. il diags Product Eng 34:114-20 D 9 '63
Machine seals random variety of box sizes. il Automation 11:68 Ja '64
New package for microtransistor. il diags Electronics 36:75 N 8 '63
1964 materials handling and packaging directory; packaging machinery, equipment and materials. il Mod Materials Handling 19:267-78 My '64
Shipping damage to canned foods. il Food Tech 18:1157-9 Ag '64
Stop abusing the unit load; questions and answers. il Mod Materials Handling 19:52-4 F '64

PACKING for shipment—*Continued*

Total design approach halves package bill; Clarke floor machine co. il Steel 153:64 N 11 '63

See also

Containers (for shipping)
Crates
Fruit—Prepackaging
Nylon straps
Rayon straps
Shipment of goods
Steel straps

PACKING houses

By-products

For bone degreasing; a package plant. il Engineering 198:536 O 23 '64

Equipment

Continuous "frank" processing. il diag Food Eng 36:55-7 Jl '64

Producing frankfurters continuously. il diag Automation 10:66-7 N '63

Small companies underwrite unique frankfurter machine. il Automation 11:35 Jl '64

Management

Economies of scale in California cattle-slaughtering plants. S. H. Logan. bibliog Food Tech 18:634+ My '64

Power

Advance planning helps avoid costly mistakes in electrical expansion; Cross bros. H. Cohen. il diags Power 108:60-1 Ja '64

Quality control

Quality assurance guards Swift's products. G. E. Brissey. il Food Eng 36:51-4 Jl '64

PAGE, Frederick Handley

Sir Frederick Handley Page; the man and his work. G. V. Lachmann. por Roy Aeronautical Soc J 68:433-52 Jl '64; Excerpts. Engineer 217:1138-9 Je 26 '64

PAGING service. See Radio communication—Paging service

PAINE, Rodger Ward

Obituary. por Naval Eng J 76:487-8 Je '64

PAINT

Cross-links between plastics, paint, and textile polymers; abstract. L. Valentine. Chem & Ind p983-4 Je 6 '64

Molybdates move into paints for consumer and industry. Chem & Eng N 42:54 O 19 '64

More about zinc rich coatings; question and answers. Ind Finishing 40:86-7 O '64

Protective coatings; annual review. F. Scofield. bibliog Ind & Eng Chem 56:49-50 Ag '64

Resists acids and solvents; paint called Synth-Epoxy S-16. il Can Chem Process 48:24 Mr '64

Right paints stick to galvanized steel. J. Silinsh. Ind Finishing 40:102-4 Ja '64

Some applications of the Davidson and Hemmendinger colorant mixture computer to paints and plastics D. L. Tilleard. bibliog Soc Dyers & Col J 79:590-600; Discussion. 601-3 D '63

Sprayed metal/paint systems give best corrosion resistance. A. P. Shepard. il Welding Eng 49:66+ Ap '64

Straining thick paints. G. Conrad. Ind Finishing 40:93-6 Je '64

Vinyl finishes. L. Heard. Ind Finishing 40:40+ N '63

Viscosity of material changes when it cools. Ind Finishing 40:80-1 Ag '64

Water emulsion paint; coalescence. N. Gaynes. Ind Finishing 40:106-8 D '63

Water emulsion paints and adhesives. B. C. O'Keefe. Ind Finishing 40:108-9 S '64

Water-reducible paints today. R. J. Fabian. diags Materials in Design Eng 58:97-9 D '63

See also

Aluminum—Paint

Drying

Electric infrared oven effected savings. il Ind Finishing 40:34 Ag '64

Gas-fired or infrared ovens; why; question and answer. Ind Finishing 40:96 Ag '64

Grained cabinet finish dried in infrared oven. P. Evans. il Ind Finishing 40:56+ N '63

Heat recovery for paint bake ovens. Ind Finishing 40:86-7 N '63

Infrared lamps solve paint-drying problem. il Ind Finishing 40:39 Jl '64

Failure

Cleanliness in finishing for durable finishes. Ind Finishing 40:107-8 Je '64

Mildew is a problem, even in industrial finishes. Ind Finishing 40:69-70 Jl '64

Rejects? color change? may be caused by. E. C. Smith. Ind Finishing 40:117 Ap '64

Seediness in finishes; why, where, when. Ind Finishing 40:84-5 F '64

Why paint failures on aluminum siding; question and answer. Ind Finishing 40:100+ S '64

Heating

Cold weather; cold paint; a remedy. Ind Finishing 40:58 N '63

Paint cold? use a paint drum warmer. Ind Finishing 40:103 O '64

Specifications

Generous specifications can be a trap. K. Mack. Ind Finishing 40:86+ Ap '64

Testing

How to give your paints accelerated life test. W. Buckshee. Power 108:212 Je '64

Paint adhesion over chromium electroplate. B. K. Dent. il Plating 50:1100-3 D '63

Preparing test panels for exterior exposure. T. E. Poterack. Ind Finishing 40:58+ Mr '64

Quality control of paints and painting. F. G. Dunkley. Metal Finishing 62:64+ Ap '64

Weatherability testing; what to make of it. Ind Finishing 40:92 F '64

What happens to that sample? G. Graham. Ind Finishing 40:78+ D '63

Why test results are not always correct. C. Green. Ind Finishing 40:78 D '63

PAINT, Anti-fouling

Effect of water flow on leaching rates of antifouling paints; consideration of mechanism and preliminary results of laboratory tests. E. T. Wilkie and A. C. Edwards. bibliog il J Ap Chem 14:155-64 Ap '64

Painting aluminum boats; recommendations of the marine committee of the Aluminum association. Light Metal Age 22:5 Ag '64

Techniques for evaluation of chemicals as marine antifoulants. S. M. Miller. il Ind & Eng Chem Product Res & Develop 3:226-30 S '64

PAINT, Fire resisting

Fire retardant paint. il Plastics World 21:78 N '63

Intumescent fire-retardant paint. il Engineering 198:171 Ag 7 '64

Water-resistant, oil-based, intumescing fire-retardant coatings. G. B. Verburg and others. bibliog Am Oil Chem Soc J 41:670-4 O '64

When fire srikes, this paint fights back. il Safety Maint 127:45-6 Ap '64

PAINT, Heat resisting

Coatings prevent oxide scale. il Iron Age 193:54-5 Ja 23 '64

PAINT, Luminous

Luminous finish on keys? answers. Ind Finishing 10:88-90 Jl '64

PAINT, Protective

Best protection of steel combine zinc and paint. E. A. Anderson. il Product Eng 35:66-7 Ap 13 '64

Corrosion resistant primers for steel. L. Heard. Ind Finishing 40:101-3 D '63

Electrocoating; Ford's giant step in painting. il Am Mach 108:110-11 My 11 '64

Electrocoating gains as primer. H. F. Jones. il Iron Age 193:71 My 14 '64

Expanded metal; how it's finished. P. Cathey. il Ind Finishing 40:28-31 Jl '64

How coatings can prevent corrosion. W. B. Maass. il Ind Finishing 40:34+ Jl '64

How to give your paints accelerated life tests. W. Buckshee. Power 108:212 Je '64

Jet airliner's interior parts are painted with a two-component primer. W. M. Anderson. il Ind Finishing 40:24-6+ Ag '64

Maintenance painting. F. R. Charlton. il diags Chem Eng 70:158+ O 28; 140+ N 25; 106+ D 23 '63

Maintenance painting with silicones. R. N. Thomas. il Pub Works 95:108-11 My '64

Manganese powder as a pigment in the preparation of protective paints. V. M. Kelkar and S. V. Puntambekar. Chem & Ind p 1315 Jl 18 '64

Many silicones available. E. Grant. Ind Finishing 40:75-6 S '64

Mechanism of protection by paint; abstract. J. E. O. Mayne. Chem & Ind p333-4 F 22 '64

New cold dip painting improves coating, shaves costs; Black Trilac 22. il Mod Metals 20:82 F '64

One-coat resistant finish for metals. B. O'Keefe. Ind Finishing 40:103-4 Je '64

Paint and zinc; partners in protection. E. A. Anderson. Ind Finishing 40:114-16 N '63

PAINT, Protective—*Continued*
Paint is too simple, you must select organic coating systems. W. L. Boyer. diags Product Eng 35:79-83 S 28 '64
Prime coating big items and sub-assemblies; question and answer. Ind Finishing 40:93 My '64
Primer saves finishing steps on reinforced plastic. il Iron Age 193:154-5 Je 11 '64
Proper protective coating techniques for water and sewage works structures. W. R. Hafling. Water Works & Wastes Eng 1:72-3 F; 70-1 Mr; 66-7 Ap '64
Protective coatings cut gas turbine corrosion. M. F. Grandey. il S A E J 72:79-81 Ap '64
Selecting the right protective coating. S. Danoff and H. Kaufman. il Plant Eng 17: 90-2 D '63
Stainless steel flake for use in protective paints. Ind Finishing 40:116-17 Ja '64
Twin lines coat metal strip. il Iron Age 194: 144 O 29 '64
Water emulsified linseed oil stops bleeding. V. W. Sharrar. il Plant Eng 18:114 My '64
Water-resistant, oil-based, intumescing fire-retardant coatings. G. B. Verburg and others. bibliog Am Oil Chem Soc J 41:670-4 O '64
What you should know before preparing steel surfaces for painting. D. Fraser. Power 108:70 Je '64
When should you paint galvanized steel? Steel 155:59 O 5 '64
When to paint galvanized steel. il diags Safety Maint 128:52-4+ O; 70-3 N '64
Why pay more for blast cleaning? W. J. Bradley. il Eng N 171:103 N 14 '63
Zinc rich coatings are helped by a top coat. Ind Finishing 40:71-2 Jl '64
Zinc-rich welding primer protects car fenders. P. C. Bardin. il Ind Finishing 40:24-7 O '64
See also
Electric trannsformers—Painting
Paint, Anti-fouling
Paint. Fire resisting

PAINT, Radiation-sensitive
Radiation-sensitive paint verifies product irradiation. J. J. Farrell and R. L. Vale. bibliog Nucleonics 21:78-80+ N '63

PAINT industry and trade
Be dependable; make the deliveries as promised. Ind Finishing 40:118-19 N '63
Beating the profit squeeze. B. Nossberg. Ind Finishing 40:106-9 Ja '64
FATIPEC congress, 7th, Vichy, May 25-29. Chem & Ind p 1419-21 Ag 8 '64
Paint industry as a user of heavy organic chemicals. H. G. Rains. Chem & Ind p 1047-58 Je 20 '64
Paint purchase bonus; free consultation. R. B. Lett. Ind Finishing 40:98-100 O '64
Paint samples ethical and unethical practices. Ind Finishing 40:52+ D '63
See also
Oil and colour chemists association

Salesmen

Salesmen of finishes. Ind Finishing 40:84+ Mr '64
Salesmen; save your customer money. G. Conrad. Ind Finishing 40:109-10 D '63
Why did you lose that account? Ind Finishing 40:91-2 F '64

Statistics

Facts and figures for the chemical process industries: polymers and coatings. A. S. Hester. Chem & Eng N 42:134-40 S 7 '64

Canada

1963 review/64 preview; paint sales boosted by auto makers. Can Chem Process 48:54 Ja '64

PAINT materials
Dust-free cabinet upgrades quality control programs. il Res/Develop 15:29 My '64
Industrial paints; solid sales growth based on a shifting market. il Chem & Eng N 42:100-10 O 12 '64
Jet airliner's interior parts are painted with a two-component primer. W. M. Anderson. il Ind Finishing 40:24-6+ Ag '64
Manganese powder as a pigment in the preparation of protective paints. V. M. Kelkar and S. V. Puntambekar. Chem & Ind p 1315 Jl 18 '64
Paint industry as a user of heavy organic chemicals. H. G. Rains. Chem & Ind p 1047-58 Je 20 '64
Thermoplastic phenoxy coatings match many thermosets. P. West. il Materials in Design Eng 60:86-8 Jl '64
See also
Soap, Metallic
Tall oil

PAINT removers
Compound removes paint from metal parts. Materials in Design Eng 60:132-3 N '64
Design and cleaning of work holders, fixtures. Ind Finishing 40:111-13 N '63

PAINT research
Effect of water flow on leaching rates of antifouling paints; consideration of mechanism and preliminary results of laboratory tests. E. T. Wilkie and A. C. Edwards. bibliog il J Ap Chem 14:155-64 Ap '64

PAINT shops
Cleanliness in finishing for durable finishes. Ind Finishing 40:107-8 Je '64
Problems in refinishing. G. Conrad. Ind Finishing 40:107-10 Mr '64
To use more room in same building. Ind Finishing 40:96-7 My '64

Costs

Quality versus price in coating materials. P. C. Bardin. Ind Finishing 40:36+ Je '64
Reduce paint costs; learn how to buy. K. Schreiber. Ind Finishing 40:50+ F '64
Where to make savings in production costs. Ind Finishing 40:66-7 Mr '64

Equipment

Aluminum strip paint line. Light Metal Age 22:12 Je '64
Buy new equipment? make tests first. K. Schreiber. Ind Finishing 40:32-4 Ap '64
Cleaning work holders; stripping rejects. Ind Finishing 40:86 Ja '64
Coating small metal parts in a custom shop. H. A. Kafarski. il Ind Finishing 40:24-6+ S '64
Coating small parts made of metal. P. C. Bardin. Ind Finishing 40:111-12 D '63
Controls regulate automatic spraying. G. R. Carr. il diag Ind Finishing 40:70+ Je '64
Custom finishing of sheet metal products. E. V. Lindstrom. il plan Ind Finishing 40: 64-6+ D '63
Demonstrate performance to sell equipment. Ind Finishing 40:101-2 O '64
Design and cleaning of work holders, fixtures. Ind Finishing 40:111-13 N '63
Design of new racks for electrostatic spraying. P. Standish. Ind Finishing 40:72-3 Jl '64
Electronic touch guides coating in automotive prepaint line. il diag Iron Age 193:104-5 Je 18 '64
Flexible finishing system provides more consistent quality and greater safety. H. J. Warwick. il diag Mach 70:96-9 Ag '64
Massey-Ferguson's new painting setup. G. E. Toles. il Ind Finishing 40:58-60+ O '64
Modernize your finishing setup. E. A. Zahn. il diag Ind Finishing 40:76-8+ Ja '64
New setup; trouble? how to avoid it; editorial. Ind Finishing 40:80-1 My '64
Paint-line conveyors in new AMF plant. W. H. Braun. il Ind Finishing 40:46-8+ N '63
Painting flat stock with a curtain coater. C. M. Smith. il Ind Finishing 40:64-6 Ap '64
Painting steel shelving and similar products. B. Snider. il Ind Finishing 40:56-8+ Ja '64
Selection of spray equipment for finishing furniture. Ind Finishing 40:100-1 O '64
Trouble: too little room and a low conveyor. Ind Finishing 40:106-7 Ag '64

Fires and fire protection

Rely more on automatic fire protection. Ind Finishing 40:86+ Mr '64
Spray booth filters and combustible wrinkles. L. Stone. Ind Finishing 40:66-7 S '64
To prevent fires from starting and spreading. Ind Finishing 40:33-4 S '64

Heating and ventilation

Use a relative humidity and heat indicator. Ind Finishing 40:107 F '64

Layout

Air flow can affect finishing results. Ind Finishing 40:114-15 Mr '64

Maintenance and repair

Airless hose broke; paint flooded floor. Ind Finishing 40:106 Jl '64
Prevent paint build-ups on your floor. Ind Finishing 40:112 F '64
Preventative maintenance can save dollars. H. W. Chester. Ind Finishing 40:108-9 F '64

Management

Avoid booby traps that cause useless rejects. K. MacKenzie. Ind Finishing 40:71-2 Ja '64
Stockpiling suppliers. Ind Finishing 40:16-17+ Jl '64

PAINT shops—*Continued*

Quality control

- Are your repair finish costs excessive? K. Schreiber. Ind Finishing 40:30-2 S '64
- Quality control of paints and painting. F. G. Dunkley. Metal Finishing 62:64+ Ap '64
- Quality versus price in coating materials. P. C. Bardin. Ind Finishing 40:36+ Je '64
- Yes, preventative quality control. H. W. Chester. Ind Finishing 40:64-6+ Ja '64

Safety measures

- Solvent danger? use enough ventilation. G. Gehl. Ind Finishing 40:76-7 Je '64

PAINT spraying

- Adjusting material for; yes, improper spraying. Ind Finishing 40:124-5 Ap '64
- Airless spray painting. R. T. Schafer. Ind Finishing 40:70+ Mr '64 (to be cont)
- Buick engines; how they are painted. P. C. Bardin. il Ind Finishing 40:52-4+ Ag '64
- Car spraying and stoving plant. il Engineer 218:343 Ag 28 '64
- Controls regulate automatic spraying. G. R. Carr. il diag Ind Finishing 40:70+ Je '64
- Finishing Kich-N-Vent ventilating equipment. J. E. Stalker. il Ind Finishing 40:24-8 Ap '64
- Hot airless spray used in finishing tv cabinets. G. Albrecht. il Ind Finishing 40:46-8+ D '63
- Light spray masks for spray operators. B. C. O'Keefe. Ind Finishing 40:105 S '64
- Mechanization cuts costs for producing paint spray guns. W. A. Delger. flow diag il Automation 11:68-9 S '64
- Metal stencils for decorative finishing. P. C. Bardin. il Ind Finishing 40:70+ Ap '64
- Painting parts for vending machines. H. Chase. il Ind Finishing 40:50-2+ Jl '64
- Painting transformer components. G. E. Toles. il Metal Finishing 62:57-8 F '64
- Painting with power. C. J. Vlahos. il Mill & Factory 74:76-9 Je '64
- Positioning parts for spray painting. Ind Finishing 40:116-17 My '64
- Pressure pumps help on fast color changes. Ind Finishing 40:105 Ja '64
- Rejects? color change? may be caused by. E. C. Smith. Ind Finishing 40:117 Ap '64
- Silicone-ceramic adds vigor to Marquette Cement. il Rock Prod 66:96+ D '63
- Spray pressures depend on the material used. Ind Finishing 40:98-9 Je '64
- Vinyl organosols used on Revere camera products. H. R. Gleason. il Ind Finishing 40:54-6+ My '64
- Why hot spray? G. S. Levey. il Ind Finishing 40:80-2+ S '64

Booths

- Filters catch overspray in back of booth. B. C. O'Keefe. Ind Finishing 40:106-7 S '64
- Help! our overspray is flying everywhere; question and answer. Ind Finishing 40:90 O '64
- Inadequate spray exhaust caused mysterious trouble. K. Schreiber. Ind Finishing 40:93-5 O '64
- Makeup air heaters provide pressurization for spray painting jets. il Heating-Piping 36:112-13 S '64
- New dry spray booths catch overspray. S. Forshee. il Ind Finishing 40:91+ Ja '64
- Oldsmobile unveils new paint line. il Steel 154:173-4 My 4 '64
- One way to modernize dry spray booths. Ind Finishing 40:115-16 Ap '64
- Spray booth filters and combustible wrinkles. L. Stone. Ind Finishing 40:66-7 S '64

PAINT spraying, Electrostatic

- Automatic electrostatic and manual steam spraying. H. Chase. il Ind Finishing 40:32-4+ N '63
- Boat trailers; by airless electrostatic. D. Motley. il Ind Finishing 40:46-8+ Je '64
- Design of new racks for electrostatic spraying. P. Standish. Ind Finishing 40:72-3 Jl '64
- Electronic touch guides coating in automotive prepaint line. il diag Iron Age 193:104-5 Je 18 '64
- Electrostatic disc spray; fast color changes now. Ind Finishing 40:111-12 S '64
- Electrostatic finishing at Samsonite plant. D. Sandburg. il Ind Finishing 40:46-8+ O '64
- Electrostatic trouble; question and answers. Ind Finishing 40:104 N '63
- Metalstand's setup for steel office furniture. P. C. Bardin. il Ind Finishing 40:24-6+ D '63
- Painting diversified metal products. J. McNeff. il Ind Finishing 40:62-4+ Jl '64
- Painting Homko power mowers. C. D. McCann. il Ind Finishing 40:66-8+ Ag '64
- Painting tubular parts on conveyor lines. H. Chase. il Ind Finishing 40:60-2+ My '64
- Painting tubular steel parts electrostatically. R. K. Underwood. il Ind Finishing 40:44-6+ Jl '64
- Painting Worlds fair monorail cars. H. R. von Dorster. il Ind Finishing 40:46-8 S '64
- Small appliance parts painted automatically. F. J. Kosma. il Ind Finishing 40:30-2+ Mr '64
- Steel furniture finished with electrostatic spray. W. W. Denhoff. il Ind Finishing 40:30-2+ O '64

PAINTING, Industrial

- Aero-engine finishes. C. Butler and F. Cork. il Aircraft Eng 36:281-5 S '64
- Anodic hydrocoating paints metal surfaces. R. L. Koch, 2d. il Ind Finishing 40:40-2+ S '64
- Charged paint coats complex shapes; electrophoretic coating. diag Iron Age 194:84 N 5 '64
- Color stripes and bands. Ind Finishing 40:106 O '64
- Conversion coats form quickly. J. E. Sandford. il diag Iron Age 194:58-9 Ag 6 '64
- Dip coating; controlled withdrawal of work. H. Sejersen. il Ind Finishing 40:104-5 D '63
- Double-coat line finishes aluminum sheet. il Mod Metals 20:36 My '64
- Double-coat paint line; properties of precoated aluminum broadened. W. Lubars. il Metal Finishing 61:72-3 N '63
- Electrocoating, a new technique for painting auto bodies. il Metal Prog 86:132+ Jl '64
- Electrocoating automobiles. il diag Product Eng 35:88 Je 22 '64
- Electrophoresis. Ind Finishing 40:39 Mr '64
- Electrophoresis; what is it? W. B. Maass. il Ind Finishing 40:40-2+ O '64
- Finishing car licenses for Michigan. H. F. Reves. il Metal Finishing 62:68-72 S '64
- First Electrocoat paint in full production. il Metallurgia 69:180 Ap '64
- Fluidized bed process gives heavy coating. Ind Finishing 40:120-1 My '64
- Hardness in the finish. K. Schreiber. Ind Finishing 40:75-7 My '64
- Industrial paints; solid sales growth based on a shifting market. il Chem & Eng N 42:100-10 O 12 '64
- New data on electrodeposited organic coatings. Materials in Design Eng 60:113+ Jl '64
- Organic finishing in review. H. G. Booker. bibliog il diags Plating 51:777-87 Ag '64
- Painted aluminum windows. A. G. Rosenthal. il Mod Metals 20:44+ Jl '64
- Painting by electrodeposition; recent developments in England. il diags Ind Finishing 40:40-2+ Ag '64
- Painting setup for railroad tank cars. J. Krohne. il Ind Finishing 40:42-4 F '64
- Painting small spreaders. G. D. Tuttle. il Ind Finishing 40:24-6+ N '63
- Painting with power. C. J. Vlahos. il Mill & Factory 74:76-9 Je '64
- Preparation of metal for painting. S. Spring. il Metal Finishing 61:74-6 S; 84-6 O; 74-6+ N; 66-7+ D '63; 62:57-9 Ja '64
- Space heater finish had to stand 400° to 500° F. Ind Finishing 40:104-5 Ag '64
- To wrinkle, the finish must have thickness. K. Schreiber. Ind Finishing 40:90-2 Je '64
- Two-stage trichlor finishing. J. Schmadebeck and O. Lindemann. il Metal Finishing 61:68-70 D '63
- Urethane coatings for industrial finishers. K. G. Meades. Ind Finishing 40:54+ Je '64
- Wheeling Steel's continuous strip coating setup. R. W. Glaser. il Ind Finishing 40:36-8+ D '63

See also
Paint, Protective
Paint removers
Paint spraying
also subdivision Painting and Painting and finishing under special subjects, e.g.
Airplanes
Airplanes, Military
Automobiles
Electric transformers
Factories
Internal combustion engines
Television cabinets
Vending machines
Water tanks, Steel

PAKISTAN

See also
Engineering—Pakistan
Hydroelectric plants—Pakistan
Water supply—Pakistan

PALEOBOTANY

Pleistocene

Pleistocene vegetational studies in the Whitewater Basin, southeastern Indiana. R. O. Kapp and A. M. Gooding. map diags J Geol 72:307-26 bibliog(p325-6) My '64

Greenland

Review of fossil floras and nonmarine deposits of west Greenland. B. E. Koch. map diags Geol Soc Bul 75:535-48, pl 1 bibliog(p547-8) Je '64

PALEOCLIMATOLOGY

Paleotemperature analysis of the Caribbean cores A254-BR-C and CP-28. C. Emiliani. map Geol Soc Bul 75:129-43 bibliog(p 141-3) F '64

See also

Earth temperature

Glacial epoch

PALEOECOLOGY

Classification and environmental significance of algal stromatolites. B. W. Logan and others. bibliog diags J Geol 72:68-83, pl 1-4 Ja '64

Paleoenvironmental analysis as a means of defining oil-producing trends; abstract. O. L. Bandy. Am Assn Pet Geologists Bul 47:2078 D '63

PALEOGEOGRAPHY

Lake Warren and the Two Creeks Interval. A. Dreimanis. bibliog J Geol 72:247-50 Mr '64

Paleogeographic reconstructions by absolute age determinations of sand particles. A. B. Vistelius. map J Geol 72:483-6 Jl '64

Paleogeographic significance of quartz clasticity measurements. K. M. Towe. bibliog diag J Geol 71:790-3 N '63

North America

Pre-Trenton sedimentation and dolomitization, Cincinnati Arch province; theoretical considerations. W. L. Calvert. bibliog maps Am Assn Pet Geologists Bul 48:166-90 F '64

PALEOGEOLOGY

Paleogeologic and quantitative lithofacies analysis, Simpson group, Oklahoma. M. W. Schramm, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1164-95 Jl '64

PALEOMAGNETISM. See Magnetism, Terrestrial

PALEONTOLOGY

See also

Brachiopods, Fossil

Dinosauria

Foraminifera, Fossil

Invertebrates, Fossil

Paleoecology

Ordovician

Sequence and correlation of lower and middle Ordovician graptolite faunas of North America. D. E. Jackson. diags Geol Soc Bul 75:523-34 bibliog(p533-4) Je '64

Pre-Cambrian

Great infra-Cambrian ice age. W. B. Harland and M. J. S. Rudwick. il maps diags Sci Am 211:28-36 Ag '64

Tertiary

Tertiary non-marine vertebrates in Alaska; the lack thereof. J. A. Dorr, jr. bibliog maps Am Assn Pet Geologists Bul 48:1198-203 Jl '64

Alaska

Tertiary non-marine vertebrates in Alaska; the lack thereof. J. A. Dorr, jr. bibliog maps Am Assn Pet Geologists Bul 48:1198-203 Jl '64

Minnesota

Two pollen diagrams from southeastern Minnesota; problems in the regional late-glacial and postglacial vegetational history. H. E. Wright, jr and others. map diags Geol Soc Bul 74:1371-95, pl 1-3 bibliog(p 1392-5) N '63

North America

Sequence and correlation of lower and middle Ordovician graptolite faunas of North America. D. E. Jackson. diags Geol Soc Bul 75:523-34 bibliog(p533-4) Je '64

PALEOTEMPERATURE. See Paleoclimatology

PALEOZOIC period. See Geology, Stratigraphic—Paleozoic

PALESTINE

History

Occupations at the time of Christ on earth. C. P. McCord. il map Ind Med 32:495-9 D '63

PALLADIUM

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:610-15 My '64

Electrodeposited palladium as a low-energy circuit contact coating. G. D. Fatzer. il Plating 50:1000-5 N '63

Palladium curbs hydrogen waste. il Iron Age 193:86 My 7 '64

Pd/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. Electrochem Soc J 111:369-72 Mr '64

Rates and mechanism of substitution reactions of palladium(II)-acetylacetonate complexes. R. G. Pearson and D. A. Johnson. bibliog Am Chem Soc J 86:3983-9 O 5 '64

Some palladian observations. Food Tech 18:1573-4 O '64

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode. G. W. Castellan and others. bibliog diags Electrochem Soc J 111:1273-83 N '64

Analysis

Differential potentiometric determination of palladium in the presence of platinum in high grade palladium-platinum materials. S. Barabas and J. Vinaric. bibliog Anal Chem 36:2365-7 N '64

Improvement in spectrophotometric determination of palladium with excess iodide. J. J. Morrow and J. J. Markham. Anal Chem 36:1159 My '64

Simultaneous spectrophotometric determination of palladium and platinum with 2,3-quinoxalinedithiol. H. F. Janota and G. H. Ayres. Anal Chem 36:138-40 Ja '64

PALLADIUM alloys

Internal fields at iron in FePd alloys. G. Bemski and X. A. da Silva. bibliog J Ap Phys 35:1081-2 pt 2 Mr '64

New ferromagnetic 5:2 compounds in the rare-earth-palladium systems. A. E. Berkowitz and others. J Ap Phys 35:1030-1 pt 2 Mr '64

Palladium-uranium phase diagram up to 25 at.-per cent uranium. G. P. Pells. il Inst Metals J 92:416-18 '63-64

Ultrapure hydrogen in metal processing. G. L. Matlack. flow diag il Metal Prog 85:114-17 Mr '64

PALLADIUM chloride

Kinetics of the oxidation of ethylene by aqueous palladium(II) chloride. P. M. Henry. bibliog Am Chem Soc J 86:3246-50 Ag 20 '64

Organic syntheses by means of noble metal compounds; catalytic carbonylation of allylic compounds with palladium chloride. J. Tsuji and others. bibliog Am Chem Soc J 86:4350-3 O 20 '64

Organic syntheses by means of noble metal compounds; preparation of a new type of π-allylic palladium chloride complex and its carbonylation. J. Tsuji and others. Am Chem Soc J 86:4491 O 20 '64

PALLADIUM compounds

Carboxylates of palladium, platinum and ruthenium. S. M. Morehouse and others. Chem & Ind p544-5 Mr 28 '64

Effect of viscosity on the internal deactivation modes of the triplet state. S. J. Ladner and R. S. Becker. Am Chem Soc J 86:4205-6 O 5 '64

PALLETS

Air cargo rolls faster. J. L. McLellan and J. J. Healy. il S A E J 72:78-81 S '64

At last; standard nomenclature for drive-in pallet racks; reference sheet. diags Mod Materials Handling 19:52-3 Mr '64

Automatic pallet elevator in warehouse. il Engineering 197:809 Je 12 '64

First bench-mark figures; what a pallet pool can save. W. H. Sardo, jr. Mod Materials Handling 19:36-9 Ap '64

General Foods' pallet pool; now everybody benefits. J. A. Eaton. il diags Mod Materials Handling 18:42-5 N '63

Handling-upending system palletizes roll goods. il diag Automation 11:68 Je '64

Lockheed's pegboard approach to all-size parts protection. il Mod Materials Handling 19:48-50 Ag '64

Make or buy; another look at wooden pallets G. Berkwitt. diags Mill & Factory 74:67-9 F '64

New study throws light on holding power of helical pallet nails. E. G. Stern. Mod Materials Handling 19:3 O '64

1964 materials handling and packaging directory; storage equipment. il Mod Materials Handling 19:241-66 My '64

Pallet and skidstack loader in one. il Engineering 196:665 N 22 '63

PALLETS—*Continued*

Standard nomenclature for pallet stacking frames; reference sheet. diags Mod Materials Handling 19:70-1 O '64

Static-switching control system for a pallet loading machine. G. Cooper and F. Shaw. il diag Ind Electronics 2:421-4 S '64

Unit-load shipping can end distribution's dark ages; interview with L. G. Smiley. Mod Materials Handling 18:38-42 D '63

Unloading fixture transfers loads to pallets. il Mod Materials Handling 19:98 Ja '64

PALM oil

Some problems in improving tropical materials utilized by the United Kingdom oilmilling industry. E. S. Hiscocks and W. D. Raymond. bibliog Am Oil Chem Soc J 41:224-8 Mr '64

Studies on Congo palm oil. M. Loncin and B. Jacobsberg. Am Oil Chem Soc J 40:18-19+ Je '63; Discussion. 41:88 Ja '64

PALMITATES

Effect of fasting on the incorporation in vitro of palmitate-C^{14} into glycerolipids of mitochondria. A. Chareonchai and R. M. Johnson. bibliog J Nutrition 81:387-91 D '63

PALMITIC acid

Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

PANAMA CANAL

Aisles of light for the Panama Canal. R. H. Goodman. il map Illum Eng 59:143-5 Mr '64

A-blasted canal seen as ultimate Panama solution. map Eng N 172:38-9 Ja 23 '64

Canal Zone's governor on the problems in Panama. R. J. Fleming. Eng N 172:17 Ja 16 '64

Five years, $250 million to acquire Plowshare excavation capability. map Nucleonics 22:22-3 Ap '64

Panama Canal hailed as engineering masterpiece. B. Atkinson. Civil Eng 34:74-5 Ja '64

Underwater inspection of test fill in Gatun Lake. A. P. Mann. il map Civil Eng 34:31-3 My '64

PAN AMERICAN highway

Look at the Pan American highway system. W. Kurylo. 4pls Traffic Q 18:143-55 Ap '64

PAN AMERICAN world airways

Industrial audio-visuals; their goal is the most; av system in Pan Am building. il Ind Phot 13:57-8+ Ja '64

PANCREAS

Exclusion of the exocrine pancreatic secretion; effect on digestibility of soybean and milk protein by baby pigs at various ages. J. C. Pekas and others. bibliog J Nutrition 82:277-86 F '64

Polymerization of bovine pancreas carboxypeptidase A. J. L. Bethune. bibliog Am Chem Soc J 85:4047-8 D 20 '63

PANCREATIC lipase. See Lipase

PANCREATIN

Pepsin pancreatin digest index of protein quality evaluation. W. R. Akeson and M. A. Stahmann. bibliog J Nutrition 83:257-61 Jl '64

PANELBOARDS. See Switchboards

PANELING

Decorative panels on a self-supporting frame. Engineering 197:229 F 7 '64

Fastening moldings; drawings with text. P. Kostanty. Machine Design 35:153-7 D 5 '63

Finishing steel building panels. R. Lambert. il diag Ind Finishing 40:72-5+ N '63

Foam panel core; concrete panels insulated with expanded polystyrene. il Plastics World 22:12 S '64

Inextensional deformation of a curved panel. K. I. McKenzie. diags A S M E Trans ser E 30:585-8 D '63

Lightweight aggregates in blocks, screeds and panels. J. D. Llewellin. bibliog il Chem & Ind p601-9 Ap 11 '64

Lower costs, better product achieved by mechanized spray-up system. il diag Plastics World 21:35 N '63

Plastic coated steel wall cladding. il Engineering 198:401 S 25 '64

Prefab rooms built with insulated aluminum panels. diag Mod Metals 19:70 Ja '64

Pressed steel building panels. il Engineering 197:840 Je 19 '64

PANELING, Plastic

Building panels; acrylic skin over polyurethane foam provides superior insulation. il Plastics World 21:70 N '63

Foam-core panels. il Plastics World 22:44-5 My '64

Interior sheathing. il Plastics World 22:51 My '64

Making truck panels automatically. il diag Mod Plastics 41:89-91+ Mr '64

Mechanized spray-up system at Brunswick corp. il plan Glass Ind 45:89 F '64

New technique for making large reinforced plastics panels. il Plastics Tech 10:13 F '64

PVC glazed greenhouse. il Plastics World 22:40 Je '64

Reinforced-plastic in a defense job; panels are non-arcing, weather-resistant. il Plastics World 21:167 N '63

Sculptured 3-D acrylic panels; plastics curtain walls and fascias. il Plastics World 21:64 N '63

Vinyl-by-the-mile replaces monitor sash. D. W. Wegrich. il Plant Eng 18:136-7 Ag '64

PANELS, Instrument. See Instrument panels

PANTOGRAPH, Current collecting

Railway pantograph. il Engineer 217:912 My 22 '64

PANTOTHENIC acid

Antimetabolites in the nutrition of aedes aegypti L. larvae; thiamine, riboflavin, and pantothenic acid antagonists. S. Akov and K. Guggenheim. bibliog J Nutrition 81:419-26 D '63

Inhibition of D-pantothenate by L-pantothenate in the rat. H. P. Sarett and J. J. Barboriak. bibliog Am J Clinical Nutrition 13:378-84 D '63

Interrelationships of ascorbic acid and pantothenic acid in the young guinea pig. C. Pudelkewicz and C. Roderuck. J Nutrition 81:415-18 D '63

Pantothenic acid deficiency in cats. S. N. Gershoff and L. S. Gottlieb. bibliog J Nutrition 82:135-8 Ja '64

PAPAIN

Degradation of human hair by papain. A. W. Holmes. bibliog il Textile Res J 34:706-12, 777-82 Ag-S '64

PAPER

Paper troubles chart for pressman. Inland Ptr/Am Lithogr 152:56+ Mr '64

Properties of materials; industrial papers; tables. Materials in Design Eng 60:370-1 Mid-O '64

Recent observations on paper and plastics in packaging. K. A. Arnold. Tappi 46:sup22A+ D '63

Rheology of paper in terms of its molecular structure. D. H. Page. bibliog Tappi 46:750-6 D '63

Structure of paper (cont). O. Kallmes and others. bibliog il diags Tappi 47:540-8, 694-703 S, N '64

What printers need to know about safety papers. diags Inland Ptr/Am Lithogr 152:54-5 Mr '64

See also

Newsprint paper
Paper board
Waste paper
Wood pulp

Analysis

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

New method for sectioning and analyzing paper in the transverse direction. J. Parker and W. C. Mih. bibliog il diag Tappi 47:254-63 My '64

Replica techniques for electron microscopy of wood and paper. W. A. Côté, jr. and others. bibliog il Tappi 47:477-84 Ag '64

Soft X-ray microscopy of paper. S. B. Newman and D. Fletcher. bibliog il diag Tappi 47:177-80 Ap '64

Brightness

Brightness of high-yield pulps; the effect of pulping pH on brightness and bleaching. P. Luner and D. W. Ferguson. bibliog Tappi 47:205-10 Ap '64

Is the concept of standard brightness suitable today? J. A. Van den Akker and others. Tappi 46:sup202A-4A; Discussion. sup204A-6A My; sup 183-7 N '63; Reply. 46:sup206A-7A My; sup 187-90 N '63

Titanium dioxide in paper making. H. B. Clark. bibliog diags Paper Ind 46:393-5 Ag '64

Color

Coloring at the size press and calender. C. M. Helm. Tappi 47:sup 144A Ap '64

Continuous coloring processes. H. Mahlstedt. Tappi 47:sup 141A-3A Ap '64

Instruments for color matching of paper products. Paper Ind 45:493-4 D '63

PAPER—Color—*Continued*
Magnetic flow meter in the continuous coloring of paper. D. Rutherford. Tappi 47:sup 143A-4A Ap '64

Curling

Cause and cure of paper curl. D. A. Spitz and P. S. Blickensderfer. diags Tappi 46: 676-80 N '63
Curl control; panel discussion. Tappi 47:sup 168A-70A Jl '64
Study of curl in coated constructions. R. A. Bates and L. J. Marsella. Tappi 47:sup 133A-5A Jl '64

Dirt content

See also
Paper making—Dirt problem

Durability

Accelerated aging study of several writing papers; re-evaluation of data. W. J. Barrow. bibliog Tappi 47:105-7 F '64

Moisture content

Curl control; panel discussion. Tappi 47:sup 168A-70A Jl '64
Effect of moisture and type of binder on electrophotographic behavior. O. C. Klein. bibliog Tappi 47:sup 145A-8A S '64
Study of curl in coated constructions. R. A. Bates and L. J. Marsella. Tappi 47:sup 133A-5A Jl '64
Vapor transport through paper. R. R. Rounsley. bibliog diag Tappi 47:95-8 F '64

Opacity

Titanium dioxide in paper making. H. B. Clark. bibliog diags Paper Ind 46:393-5 Ag '64

Optical properties

Considerations of the spectral characteristics of papers and inks for use with optical character recognition units. R. W. Detrick and D. J. Lasky. bibliog Tappi 46:sup 175A-8A D '63

Permeability

Study of the porous structure of fibrous sheets using permeability techniques. W. C. Bliesner. bibliog flow diag il diag Tappi 47:392-400 Jl '64
Water vapor transmission through sacks and sack papers. R. L. Reeves and W. E. Kilgore. bibliog diag Tappi 47:408-12 Jl '64

Porosity

Study of the porous structure of fibrous sheets using permeability techniques. W. C. Bliesner. bibliog flow diag il diag Tappi 47:392-400 Jl '64

Printing properties

Correlation between a modified Larocque printability test and the newspaper letterpress. L. E. Foss and G. R. Cashau. il diag Tappi 46:692-704 N '63
Don't take paper qualities for granted. C. V. Morris. Inland Ptr/Am Lithogr 152:49-51+ Mr '64
Electrostatic printing papers, features for performance effectiveness. M. L. Levene. bibliog diags Tappi 46:sup 170A-5A D '63
How far can you stretch a paper merchant's guarantee of runnability and printability? C. V. Morris. Inland Ptr/Am Lithogr 154: 45-7+ O '64
Ink paper interrelationships. J. M. Gess. bibliog Tappi 47:sup 167A-9A Mr '64
Lightweight publication paper requirements. K. B. Latimer. il diag Tappi 47:sup 145A-7A O '64
Paper requirements and performance on heat set web offset equipment. K. L. Wallace and N. J. Beckman. Tappi 47:sup 136A-7A Ap '64
Reproducible test for heatset printing using the IGT tester. M. F. Galer and M. N. Stiles. il diags Tappi 46:sup 178A-82A D '63
Requirements of coated offset papers. A. Carlson. Tappi 47:sup 119A-22A My '64
Warren paper thickness profiler. W. S. Richardson and C. P. Grant. il diag Tappi 46:sup 199A-202A D '63
What the lithographer should know about uncoated offset papers. W. E. Yochheim. il Inland Ptr/Am Lithogr 154:50-2 O; 54+ N '64 (to be cont)

Smoothness measurement

New apparatus and procedure for determining the surface receptivity and roughness of paper as these relate to liquid film applications. R. H. Bromley. Tappi 47:121-2 F '64

Standards

Sampling paper and paperboard. Tappi 47:sup 135A-6A Mr '64

Strength

APPA-TAPPI reference material program; TAPPI standard T 414 m-49 for internal tearing resistance of paper. T. W. Lashof. Tappi 45:656-63; 46:145-50; 47:445-9 Ag '62, Mr '63, Ag '64
Correlations between fiber dimensions and fiber and handsheet strength properties. D. W. Einspahr. bibliog Tappi 47:180-3 Ap '64
Dialdehyde galactomannan gums as wet end wet and dry strength additives. J. W. Opie and J. L. Keen. bibliog Tappi 47:504-7 Ag '64
Dynamic mechanical properties of paper. W. P. Riemen and S. F. Kurath. bibliog il Tappi 47:629-33 O '64
Factors influencing the dynamic strength of pine sulfate pulp. E. L. Springer and others. bibliog Tappi 47:463-7 Ag '64
Influence of two wet-strength resins on fibers and fiber-fiber contacts. J. Russell and others. bibliog il Tappi 47:22-5 Ja '64
Interfiber bonding in paper. K. W. Britt. bibliog Tappi 46:sup 154A-9A D '63
Internal tearing resistance of paper; proposed revision of TAPPI standard T 414 m-49. bibliog diag Tappi 46:sup 132A-4A N '63
Mechanical properties of paper made from periodate oxycellulose pulp and from the same pulp after reduction with borohydride. S. H. Zeronian and others. bibliog Tappi 47:557-64 S '64
Profiler tests burst strength. W. T. Dyer. diag Control Eng 11:130 O '64
Surface strength of paper (IGT tester). il Tappi 47:sup 111A-13A My '64
Tensile energy absorption of paper. Tappi 46:sup 138A-9A D '63
Treatment of paper with copper formate. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:144-8 Mr '64
Which wet strength for you? E. R. Woodward. Paper Ind 45:543-5 Ja '64

Testing

APPA-TAPPI reference material program; TAPPI standard T 414 m-49 for internal tearing resistance of paper. T. W. Lashof. Tappi 45:656-63; 46:145-50; 47:445-9 Ag '62, Mr '63, Ag '64
Arsenic in paper and paperboard; proposed revision of TAPPI standard T 436 m-45. diag Tappi 47:sup 131A-2A Ap '64
Cameron test for determining residual strain in paper. diags Tappi 46:sup 123A D '63
Dynamic mechanical properties of paper. W. P. Riemen and S. F. Kurath. bibliog il Tappi 47:629-33 O '64
Effect of initial span on the measured tensile properties of paper. W. A. Wink and others. bibliog Tappi 47:47-54 Ja '64
Flame-retardant papers and laminates. H. F. Arledter and others. il diag Tappi 47:sup 48A+ Ag '64
IPC line-type specimen clamp. W. A. Wink and others. il Tappi 47:13-15 Ja '64
Machine trials in the development of new grades of paper. U. G. Stoeffler. Tappi 46: sup 181A-2A N '63
Measurement of the strain properties of shipping sack kraft. W. E. Carlson. il Tappi 47:310-12 My '64
Measuring frictional properties of multiwall bag papers. R. W. Bolling, jr. il Tappi 47: 439-44 Jl '64
Modifications to the Canadian standard freeness tester rate-measuring funnel. Tappi 47:sup 147A Ag '64
Paper testing as an art. F. P. Hughes. Paper Ind 45:605-7 F '64
Percentage evaluation of paper properties. H. S. Spencer. Tappi 46:sup 163A-6A D '63
Pick resistance test (Graphic arts technical foundation tester). il Tappi 47:sup 142A O '64
Reproducible test for heatset printing using the IGT tester. M. F. Galer and M. N. Stiles. il diags Tappi 46:sup 178A-82A D '63
Sampling paper and paperboard. Tappi 47:sup 135A-6A Mr '64
Simplified method of air-couching standard test sheets; proposed change to TAPPI standard T 205. J. d'A. Clark. Tappi 47:249-53 My '64
Studies of multiwall sack performances. R. C. McKee and W. J. Whitsitt. bibliog il diags Tappi 47:215-33, 298-304, 371-6 Ap-Je '64
Surface strength of paper (IGT tester). il Tappi 47:sup 111A-13A My '64

PAPER—Testing—*Continued*
Tensile energy absorption of paper. Tappi 46:sup 138A-9A D '63
Thickness and apparent density of paper. D. L. Taylor. Tappi 47:sup 165A-7A Jl '64
See also
Paper—Printing properties

PAPER, Coated
Electrostatic printing papers, features for performance effectiveness. M. L. Levene. bibliog diags Tappi 46:sup 170A-5A D '63
Manufacture and application of coated paper in the packaging and allied industries; abstract and discussion. S. E. Sorrell. Chem & Ind p982-3 Je 6 '64
Saran-coated paper for flexible food packaging. Paper Ind 46:379 Ag '64
See also
Paper coating

PAPER, Gummed
New developments open pressure-sensitive field to small printers. Inland Ptr/Am Lithogr 152:52-3 Mr '64

PAPER, Insulating
Long-time d-c conductivity of oil-impregnated paper capacitors under high field stresses. G. Lengyel and S. S. Mitra. bibliog diags IEEE Trans Power Apparatus & Systems p951-7; Discussion. 957-8 D '63

Testing

Behaviour of moist oil-impregnated paper under electric stress. P. Kogan. bibliog diags Inst E E Proc 110:2257-66 D '63
Dielectric phenomena related to the use of carbon black paper screening in high-voltage fully impregnated paper cables. P. Gazzana-Priaroggia and others. bibliog diags IEEE Trans Power Apparatus & Systems p 137-51; Discussion. 151-2 F '64
Parameters affecting the increase in dielectric loss, caused by carbon black paper screens, for oil paper dielectrics. R. B. Blodgett and F. H. Gooding. bibliog IEEE Trans Power Apparatus & Systems p 121-8; Discussion. 128-9; Reply. 129-30 F '64

PAPER, Laminated
Effect of zinc chloride vulcanization on the structure and properties of cellulose laminate. L. T. C. Lee. bibliog il Tappi 47: 386-92 Jl '64
Flame-retardant papers and laminates. H. F. Arledter and others. il diag Tappi 47:sup 48A+ Ag '64

PAPER, Photographic. See Photographic paper

PAPER, Waxed
Package treatment versus direct application as a means of incorporating BHT in shredded breakfast cereals. E. F. Caldwell and others. bibliog Food Tech 18:383-6 Mr '64

Testing

Coefficient of kinetic friction for waxed coating; proposed new suggested method T 664 su-64. diags Tappi 47:sup 129A-30A Ap '64

PAPER and pulp mills
Chemical engineering problems in the pulp and paper industry. Tappi 47:sup 171A Jl '64
Humane enterprise; an account of the Mead corp. (1846-1963). H. E. Whitaker. Tappi 47:sup42A+ Ja '64
Price Brothers new kraft and paperboard mill. U. A. Shane and J. L. Roberge. Tappi 46:sup 154A-7A N '63
Project turnkey; pulp and paper mills for newly developing countries. K. F. Landegger. Tappi 46:sup 10A+ D '63
See also
Mead corporation

Accounting

Papermill computer keeps the books. F. M. Ryan. il diags Control Eng 11:110-16 O '64

Air conditioning

Chemical dehumidification system solves processing problems involving humidity. W. R. Jeep. il Paper Ind 46:118-19 My '64

Control equipment

Closed loop control of basis weight; application of a beta gage system. J. G. Dipre. il diags Tappi 46:sup 178A-81A N '63
Computer control in the paper mill. E. S. Savas. bibliog diags Tappi 47:sup 164A-8A F; sup 149A-52A Mr; sup 181A-8A Ap; sup 127A-33A My '64
Computer control of continuous paper mill in Alabama. flow diag il Engineer 217:154-7, 196-8 Ja 17-24 '64
Consistency installation and system design techniques. J. T. Dykes. flow diag diags Tappi 46:680-9 N '63
Control model formulation for the pulp and paper industry. T. K. McMahon. bibliog flow diag Tappi 47:84-8 F '64
Control systems solve coat-weight problem. diag Tappi 47:sup 120A Je '64
Do control computers look good on paper? D. Aronson. il Control Eng 11:18-19 My '64
Dynapar control at Owens-Illinois' Valdosta mill. il diag Paper Ind 45:486-7 D '63
Electronic control; how can it help the papermaker? J. R. Lavigne. il diag Tappi 47:sup 116A-19A Jl '64
If feedback is not enough; feedforward control pulp digester at Demopolis plant of the Gulf states paper corp. flow diag il Engineering 196:726-7 D 6 '63
Process instrumentation highlights at Eastman Kodak. B. W. Huston. il Paper Ind 46:199-202 Je '64
Programing for computer control. W. R. Adams. Tappi 47:sup 140A-1A Jl '64

Corrosion

Corrosion on exterior of pulp mill equipment. B. J. Philibert. Tappi 47:sup 136A-8A Jl '64

Costs

Cost efficiencies in a forest enterprise. J. H. Bamping and J. L. Clutter. Paper Ind 46: 302-4 Jl '64
Cost reduction seminar of the Northeastern division of the Paper industry management association. Paper Ind 46:159-61 Je '64
Importance of cost reduction. Paper Ind 46: 562-3 O '64
Papermill computer keeps the books. F. M. Ryan. il diags Control Eng 11:110-16 O '64
Thilmany's vacu-therm system provides maximum heat recovery. A. W. V. Dyck. il diag Paper Ind 45:651-3 Mr '64

Electric equipment

Cable installation methods in pulp and paper industry. T. O. Sweatt and J. Tesoriero. IEEE Trans Applications & Ind 83:178-82 My '64
Case histories of power projects; from planning to results; panel discussion. il diag Tappi 47:sup 131A-41A F '64
Developments in turbogenerator excitation systems. M. A. Buchta. bibliog diags Tappi 47:sup 131A-5A Je '64
Line capacity effect on a-c control circuits. H. A. Wright and T. F. Bellinger. diags Tappi 47:sup 157A+ O '64
Magnet control initiates zero-speed alarm. North Western pulp & power ltd. J. Steingrube. diags Elec Constr & Maint 63:120-1+ S '64
Modernization of an electrical system in an integrated paper mill. J. T. Simmons and D. W. Clark. diags Tappi 47:sup 152A-6A Mr '64
Secondary controllers and resistors for wound rotor motors. T. F. Bellinger. diags Tappi 47:sup 148A-55A O '64
Scr control in paper mills. H. Dooley. il diags Electronics 37:42-7 Je 29 '64
See also
Electric driving—Paper and pulp mills

Employees

Apprenticeship training for paper machine crews. W. L. Adams. Paper Ind 46:383-5 Ag '64
Developing the desire and capacity for promotion; or training for advancement. P. C. Baldwin. Paper Ind 46:291-3 Jl '64
Paper machine training. L. C. Anderson. Paper Ind 46:490-3 S '64
Some things we have learned about training. R. E. Lawton. Paper Ind 46:487-9 S '64
Training for coater startup. E. A. Norris. Paper Ind 46:597-8 O '64
Training in today's industrial economy. E. G. Fisk. Paper Ind 46:385-9 Ag '64

Equipment

Analysis of brown stock washing systems. B. Fitch and W. H. Pitkin. flow sheet diags Tappi 47:sup 170A-2A+ O '64
Automatic drainage tester. N. H. Mayo. il diags Tappi 46:sup 186A-8A D '63
Calculation of evaporator heat balances from operating data. D. Wetherhorn. diag Tappi 47:sup 168A-71A F '64
Changing scope of roll finishing. R. F. Neilsen. diags Tappi 47:sup 157A-62A F '64
Comparison of some economic factors in paper and coating drying. S. G. Holt and K. K. Knapp. diag Tappi 47:sup 130A-5A S '64

PAPER and pulp mills—Equipment—*Continued*
Development and manufacture of equipment for handling wastepaper. J. McKela. diags Tappi 46:sup 190A-5A N '63
Fluid seal end dam. R. R. Growdon and A. J. Pelletier. il Tappi 47:sup 179A-84A F '64
High-speed fiberizing equipment in secondary fiber reclamation. J. Kleinau. il diags Tappi 47:sup 121A-2A Jl '64
Importance of corrosion testing in selecting process equipment. R. R. Christian. bibliog il Tappi 47:sup 124A-30A S '64
Lamb-Gray's roll finishing system at East Texas. flow diag il Paper Ind 45:593-5 F '64
Linear fluid power transmission; an oil hydraulic oscillator. L. M. Sutherland. il diags Tappi 47:565-8 S '64
Liquor-making eased for magnesia-base pulp mills. flow diag il Chem Eng 71:80-1 Jl 20 '64
New products. Published in monthly numbers of Paper industry
New system at Nekoosa-Edwards mill for handling purchased chips from sawmills. il Paper Ind 45:490-1 D '63
North Star coater, five years later. E. R. Clifford. il diag Paper Ind 46:508-11 S '64
Top liner deinking for cylinder machines. E. M. Baker. Tappi 47:sup 119A-20A Jl '64
Turbulent contact absorber. H. R. Douglas and others. il diags Chem Eng Prog 59:85-9 D '63
Vented-nip press. E. J. Justus and D. Cronin. diags Tappi 47:493-6 Ag '64
Wet separator developed by Professor Wultsch. diags Paper Ind 45:654-6 Mr '64
See also
Digesters (paper making)
Knives, Chipper
Paper board mills—Equipment
Paper making machinery
Paper winders

Lighting

Mercury design for paper making. il Illum Eng 59:234 Ap '64

Maintenance and repair

Blade coater startup. E. E. Valley and J. R. Gunning. il diags Tappi 47:65-74 F '64
Repairs and maintenance inventory control; a paying proposition. J. H. Robinson. Tappi 47:sup 116A-18A Ag '64
What advantages in contract maintenance? Paper Ind 45:492-3 D '63

Management

Critical Path planning in the pulp and paper industry. L. H. Nutter, jr. diags Tappi 47:sup 175A-9A F '64
How to prevent labor trouble in the paper industry. M. Goodfellow. Paper Ind 46:192-3 Je '64
Investing in better management. V. M. Gelin. Paper Ind 46:95-7 My '64
Methods of project scheduling as a tool for lowering costs. R. Marsh. diag Tappi 47:sup 136A-7A Ag '64; Excerpts. Automation 11:137-9 F '64
My responsibility in keeping my company competitive. E. B. Hall. Paper Ind 46:194-5 Je '64
Repairs and maintenance inventory control: a paying proposition. J. H. Robinson. Tappi 47:sup 116A-18A Ag '64
See also
Paper industry management association

Power

Case histories of power projects; from plannings to results; panel discussion. il diag Tappi 47:sup 131A-41A F '64
Centralization of power plant controls in the pulp and paper industry. H. L. White and H. R. Arnold. Tappi 47:sup 130A Je '64
Economics of power-factor improvement in pulp and paper mills. C. V. Kirkland and S. A. Bobe. il diag Tappi 47:sup 144A-8A Je '64
Modernization of an electrical system in an integrated paper mill. J. T. Simmons and D. W. Clark. diags Tappi 47:sup 152A-6A Mr '64
Single governing system controlling all generator units in plant; a case history. V. T. Dimitroff and J. H. Watson. flow diag il diags Tappi 47:sup 136A-43A Je '64

Quality control

Consistency installation and system design techniques. J. T. Dykes. flow diag diags Tappi 46:680-9 N '63
Optics plus electronics; paper surface inspector. diag Product Eng 35:64-5 Ag 3 '64
Percentage evaluation of paper properties. H. S. Spencer. Tappi 46:sup 163A-6A D '63
Statistical quality evaluation of out-turn samples. P. F. Pratte. diag Tappi 47:sup 156A-9A S '64

Safety measures

National safety council Pulp and paper section 51st annual meeting, Chicago, Oct. 28-31. Paper Ind 45:436-8 N '63
Safety in pulp and paper mills. J. E. Jones. Mag of Stand 35:172-3 Je '64

Waste

Biochemical oxygen demand reduction of sulfite waste liquor. S. A. Zieminski and B. T. Coyle. bibliog diag Tappi 47:138-42 Mr '64
Black liquor oxidation practice and development; a critical review. J. E. Landry. bibliog diags Tappi 46:766-72 D '63
Black liquor recovery boiler advisory committee progress reports. Tappi 47:sup 142A-50A F '64
Causal factors of population variations of algae in a paper mill waste water pond system. K. H. Oliver, jr. and T. C. Dorris. bibliog map Tappi 47:7-12 Ja '64
Centrifugal dewatering of paper mill waste. R. A. Bamford. il Tappi 47:sup 187A-8A Ja '64
Century-old puzzle: lignin chemistry. I. A. Pearl. bibliog il Chem & Eng N 42:80-93 Jl 6 '64
Deep wells handle pulping effluents. diag Tappi 47:sup 131A O '64
Economic aspect of industrial effluent treatment. A. L. Caron. Tappi 47:sup62A+ S '64
Factors affecting selection of equipment for treatment of deinking waste. W. L. Carpenter. Tappi 47:sup 144A-6A My '64
First fluidized solids lime mud recovery system in a paper mill; S. D. Warren co. H. J. Hotz and others. il diag Pit & Quarry 56:116-19+ My '64
Irrigation and land disposal of pulp mill effluents. R. O. Blosser and E. L. Owens. bibliog il Water & Sewage Works 111:424-32 S '64
Laboratory method for comparing the effects of starches in white water. W. S. Davis, jr. Tappi 47:sup 129A-30A Ag '64
Low operating costs, a feature of thermal compression evaporation. H. L. Smith, jr. Tappi 46:sup 182A-3A D '63
Methods for reducing losses of fiber and filler. W. R. Picard. diag Tappi 47:sup 116A+ S '64
Need for water reuse. J. L. Clouse. Tappi 47:sup 182A-3A Ja '64
Progress in protection of air and water. J. O. Julson. il Paper Ind 46:621-3 O '64
Reuse and reduction of paper mill water. E. N. Ross. Tappi 47:sup 180A-2A Ja '64
Reverse procedure; pumping into a well. Pub Works 95:84+ S '64
Slurry spray for black liquor boilers. R. E. Chappell and J. W. Tester. diags Tappi 47:193-6 Ap '64
Solids dewatering at Downingtown paper co. J. A. MacNeal. Tappi 47:sup 189A-91A Ja '64
Spent sulfite liquor; gas chromatographic analysis of volatile components in spent sulfite liquors. B. F. Hrutfiord and J. L. McCarthy. bibliog Tappi 47:381-6 Jl '64
Stream pollution and effluent treatment, with special reference to textile and paper mill effluents. L. Klein. bibliog Chem & Ind p866-73 My 23 '64
Study of pulp and paper mill pollution in Puget Sound; abstract. A. F. Bartsch. WPCF J 36:312-13 Mr '64
Successful start-up of Hammermill no. 1: a deep disposal well. il diag Paper Ind 46:366-7 Ag '64
Sulfidity control using liquid sulfur in the kraft recovery furnace. R. E. Peach and R. E. Petersen. diags Tappi 47:sup 167A-70A Je '64
Supplemental aeration of oxidation lagoons with surface aerators. H. R. Amberg and others. bibliog diags Tappi 47:27A+ O '64
Ten-year program of fiber loss reduction and water reuse. G. Hawkins. diags Tappi 47:sup 158A-60A Mr '64
Tight white water systems; its operation and problems. R. C. Whisler. Tappi 47:sup 181A-3A O '64
Treatment of neutral sulfite semichemical spent liquors in the fluidized-bed reactor. G. G. Copeland and J. E. Hanway, jr. flow sheet il diags Tappi 47:sup 175A-84A Je '64
Use of a cooling tower in black liquor evaporation. R. G. Cohn and E. T. Tonn. il diag Tappi 47:sup 163A-5A Mr '64

PAPER and pulp mills—Waste—*Continued*

Waste control in a fine paper mill. J. Stevens, jr. and S. R. Newell. Tappi 47:sup 156A-9A Jl '64

Waste water treatment. R. J. Lunebach. Tappi 47:sup 155A-6A F '64

Wet air oxidation. G. H. Teletzke. flow diags il diags Chem Eng Prog 60:33-8 Ja '64

See also

Sulfite liquor

Water supply

See Water supply for paper and pulp mills

Sweden

Skutskärsverken pulp mill. Engineer 216:965 D 6 '63

PAPER associations

See also

Technical association of the pulp and paper industry

PAPER bags

Colwyn Bay's paper sack scheme gives useful data; abstract. A. G. Davies. Pub Works 95:160+ Je '64

Eagle-Picher ships diatomite with care. il Rock Prod 67:73 S '64

Measuring frictional properties of multiwall bag papers. R. W. Bolling, jr. il Tappi 47: 439-44 Jl '64

Paper bag disposal system finds ready acceptance. G. G. Fox. il Pub Works 95: 71-2 N '64

Paper warehouse; bags stored outside keep bulk dry. il Mod Materials Handling 19: 52 N '64

Second community adopts the paper bag refuse system. il Pub Works 95:117 My '64

Studies of multiwall sack performance. R. C. McKee and W. J. Whitsitt. bibliog diags Tappi 47:215-33 Ap '64

This promotion bags prospects. il Am Gas Assn Mo 46:5 O '64

Water vapor transmission through sacks and sack papers. R. L. Reeves and W. E. Kilgore. bibliog diag Tappi 47:408-12 Jl '64

Testing

Friction testing of shipping sack paper; a round robin. H. C. Martin. Tappi 47:sup 162A-5A S '64

Measurement of the strain properties of shipping sack kraft. W. E. Carlson. il Tappi 47:310-12 My '64

Measurement of water vapor resistance of sack papers using walk-in climatic chamber. R. P. Anderson. il Tappi 47:sup 153A-5A S '64

Studies of multiwall sack performance. R. C. McKee and W. J. Whitsitt. bibliog il diags Tappi 47:215-33, 298-304, 371-6 Ap-Je '64

PAPER board

Maximum blanket value when lithographing on paperboard. il Inland Ptr/Am Lithogr 152:62-3 Ja '64

Manufacture

Coating of cylinder board. T. E. Flanagan. diags Paper Ind 46:614-17 O '64

New technology in board mill stock preparation. E. M. Root. il diags Tappi 47:sup 160A-7A O '64

Recent advances in the high-temperature finishing of paperboard. W. O. Kroeschell. bibliog diag Tappi 46:sup 170A-2A N '63

Use of secondary fibers in top liners of folding boxboard. D. S. Brown. Paper Ind 46: 305-6 Jl '64

See also

Paper board, Corrugated—Manufacture

Printing properties

Development of practical and rapid absolute method for determining the surface strength of coated paperboard. W. F. Aloisi, jr. and J. S. Boggs. il Tappi 46:sup 163A-7A N '63

Strength

Bursting strength of paperboard and linerboard; proposed suggested method T 807 su-64. Tappi 47:sup 140A-1A O '64

Cross directional internal tearing resistance of paperboard. diag Tappi 47:sup 136A Ja '64

Stiffness of multi-ply boxboard. A. T. Luey. diag Tappi 46:sup 159A-62A N '63

Testing

Bending number of paperboard. il Tappi 47:sup 127A-8A F '64

Bursting strength of paperboard and linerboard; proposed suggested method T 807 su-64. Tappi 47:sup 140A-1A O '64

Controlled test for measuring the gluability of paperboard. W. O. Kroeschell. il diag Tappi 47:336-8 Je '64

Cross directional internal tearing resistance of paperboard. diag Tappi 47:sup 136A Ja '64

Drum test for fiberboard shipping containers; proposed revision of TAPPI standard T 800 m-50. diags Tappi 47:sup 125A-8A Ap '64

Linerboard testing at the Charleston mill of West Virginia pulp and paper co. R. E. Manning. Tappi 47:sup 151A-3A S '64

Observed crushing in press roll nips. J. D. Lyall. diags Tappi 47:119-21 F '64

Sampling paper and paperboard. Tappi 47:sup 135A-6A Mr '64

PAPER board, Corrugated

Corrugated containers conference, 13th, Detroit, Oct. 22-25; with abstracts and texts of papers. Tappi 47:sup85A-91A Ja; sup 145A-79A Ap '64

Corrugated shipper reduces poultry waste. L. Davis. il Food Eng 36:78-80 Ag '64

Review of case sealing for case makers. I. I. Kaye. Tappi 47:sup 134A My '64

Rotary die cutting of corrugated board. T. E. Monaghan. Tappi 47:sup 171A-4A S '64

Self-locking cartons cut costs for CARE. il Mod Materials Handling 19:65 Jl '64

Stop abusing the unit load; questions and answers. il Mod Materials Handling 19:52-4 F '64

Manufacture

High speed corrugator. il Engineer 216:809-10 N 15 '63

PAPER board, Waxed

Coefficient of kinetic friction for waxed coating; proposed new suggested method T 664 su-64. diags Tappi 47:sup 129A-30A Ap '64

PAPER board industry

Economic outlook for paperboard. R. L. Mentch. Tappi 46:sup66A+ N '63

PAPER board mills

Price Brothers new kraft and paperboard mill. U. A. Shane and J. L. Roberge. Tappi 46:sup 154A-7A N '63

Control equipment

Electronics, automation, and computers for the corrugated industry. S. P. Rubinstein. il Tappi 47:sup 170A-5A Ap '64

Equipment

Container completes Brewton mill expansion. il Paper Ind 46:369 Ag '64

High speed corrugator. il Engineer 216:809-10 N 15 '63

New mill speeds up board making. Engineering 197:455 Mr 27 '64

New technology in board mill stock preparation. E. M. Root. il diags Tappi 47:sup 160A-7A O '64

No. 11 board mill at Purfleet. il Engineer 217:547-9 Mr 27 '64

Stevens inlet vat. R. T. Drummond. diags Paper Ind 46:618-20 O '64

Management

Which are better for the corrugated industry; incentive standards or day work standards? panel discussion. Tappi 47:sup 160A-70A Ap '64

Quality control

Fabrication manual. A. M. Schwartz and M. A. Burnston. Tappi 47:sup 178A-9A Ap '64

Waste

Complete waste treatment for a paperboard company. J. G. Peters and J. A. MacNeal. il diag Pub Works 94:99-102 D '63

Whippany expands tri-mill treatment complex. L. L. Klinger. flow sheet il Water Works & Wastes Eng 1:60-5+ Ja '64

PAPER boxes

Bulk shipper cuts costs; Hex-Keg. il Food Eng 35:98 D '63

Container cuts shipping costs. il Iron Age 194:68 O 22 '64

Controlled test for measuring the gluability of paperboard. W. O. Kroeschell. il diag Tappi 47:336-8 Je '64

Folding box award winners. il Drug & Cosmetic Ind 94:838 Je '64

Four-in-one bulk carton. A. N. Prater. il Food Eng 35:82-3 D '63

High-speed taping of corrugated containers. R. H. Valley. Tappi 47:sup 152A+ Ap '64

Self-locking cartons cut costs for CARE. il Mod Materials Handling 19:65 Jl '64

Short column crush test of corrugated fiberboard. J. W. Koning, jr. bibliog il Tappi 47:134-7 Mr '64

PAPER boxes—*Continued*

Manufacture

Continuous production of paperboard containers. flow diag il Automation 11:85-6 Mr '64

Flexographic down-fold gluer. W. J. Hurrell. diags Tappi 47:sup 156A-9A Ap '64

Review of case sealing for case makers. I. I. Kaye. Tappi 47:sup 134A My '64

Printing

Coating of cylinder board. T. E. Flanagan. diags Paper Ind 46:614-17 O '64

Printing machine cuts costs, two ways. il Mod Materials Handling 19:76+ Ap '64

San Francisco printer is supplier to rigid box industry. H. R. Stoakes. il Inland Ptr/Am Lithogr 154:60-1+ O '64

PAPER chemicals

Priming paper for extrusion coating. A. R. Hurst and C. G. Morse. bibliog diag Tappi 47:sup 125A-8A Jl '64

See also

Carboxymethyl cellulose

PAPER coating

Blade coater startup. E. E. Valley and J. R. Gunning. il diags Tappi 47:65-74 F '64

Coating of cylinder board. T. E. Flanagan. diags Paper Ind 46:614-17 O '64

Control systems solve coat-weight problem. diag Tappi 47:sup 120A Je '64

Drive requirements for coaters. R. J. Farrell. bibliog diags Tappi 46:sup124A-33A D '63

Effect of particle shape and chemical composition on the packing characteristics of pigment combinations. R. W. Hagemeyer. Tappi 47:74-7 F '64

Enzyme conversion of starch. J. E. Maryanski. Paper Ind 46:209-12 Je '64

Evolution and probable future development of trailing blades and trailing blade coating. W. K. Thorndike and J. C. S. Buckley. diags Paper Ind 45:536-9, 596-8 Ja-F '64

Fluid seal end dam. R. R. Growdon and A. J. Pelletier. il Tappi 47:sup 179A-84A F '64

Improved machine coating; rebuild of no. 10 paper machine. E. Norris. il diags Tappi 46:sup203A-7A D '63

Influence of chemical composition on the packing of pigment particles. R. W. Hagemeyer. Tappi 47:595-8 O '64

Manufacture of on-machine coated functional papers. R. L. Savage. Tappi 47:sup 151A-2A Jl '64

Mill experience using polyvinyl alcohol as a coating binder. G. P. Colgan and J. J. Latimer. il diags Tappi 47:sup 146A-50A Jl '64

North Star coater, five years later. E. R. Clifford. il diag Paper Ind 46:508-11 S '64

Paper coating binder has high water retention. Chem & Eng N 42:45-6 F 24 '64

Polyvinylidene chloride coating of papers; Diofan. F. J. Poschmann. diag Paper Ind 46:396-9 Ag '64

Preventive control of coating spoilage. J. R. Nelson and others. bibliog il Tappi 47:sup 168A-70A O '64

Review and appraisal of the trailing blade coating development. H. M. Annis. Tappi 47:sup 14A+ Ja '64

Superficial imbibition by paper. J. J. Bikerman and W. Whitney. Tappi 46:689-91 N '63

Training for coater startup. E. A. Norris. Paper Ind 46:597-8 O '64

See also

Paper making

Testing

Development of practical and rapid absolute method for determining the surface strength of coated paperboard. W. F. Aloisi, jr. and J. S. Boggs. il Tappi 46:sup 163A-7A N '63

Effect of moisture and type of binder on electrophotographic behavior. O. C. Klein. bibliog Tappi 47:sup 145A-8A S '64

Electrophotographic paper requirements for multicolor electrostatic printing. F. C. Myers and J. W. Gladden. bibliog il Tappi 47:sup 139A-44A S '64

Water vapor transmission rate for plastic coated substrates. diags Tappi 47:sup 137A-8A Ja '64

PAPER coating, Plastic

A.c./d.c. adjustable speed drive for plastic film extrusion. J. R. Stephens and others. il diag Tappi 46:sup 195A-8A D '63

Comparing coating with polyethylene solution to extrusion coating. G. S. Price. bibliog Tappi 47:sup 165A-7A S '64

Designing polyolefins for extrusion coating. R. L. Erratt. diags Tappi 47:sup 195A-8A Ja '64

Flame priming extends to paper coating. R. E. Greene. il Chem & Eng N 42:48 N 2 '64

Incorporation of isobutylene-isoprene copolymer latex in polyvinylidene chloride systems for paper. J. R. Condon and R. E. Nash. il Tappi 47:sup 141A-3A+ Jl '64

Influence of extrusion variables on polyethylene extrusion coating performance. H. J. Nalepa and C. C. Cooper. il Tappi 47:266-70 My '64

New 60-inch polyethylene extruder on-stream at Thilmany. A. W. J. Dyck. il Paper Ind 45:429-32 N '63

Plastic coatings stimulate the market for paper products. P. W. Sherwood. il Paper Ind 46:103-8 My '64

Priming paper for extrusion coating. A. R. Hurst and C. G. Morse. bibliog diag Tappi 47:sup 125A-8A Jl '64

Saran latex fills barrier gap. S. Moss. Food Eng 36:66-8 Mr '64

Screw design for high-speed extrusion coating. J. P. Goslin and R. T. Van Ness. il diag Tappi 47:240-4 Ap '64

Study of curl in coated constructions. R. A. Bates and L. J. Marsella. Tappi 47:sup 133A-5A Jl '64

Teams performance with economy; polyethylene-foil combinations. il Food Eng 36:108 Mr '64

PAPER containers

Composites catch on in booming can market; foil and paper combinations. il diag Steel 153:78+ N 18 '63

Corrugated containers conference, Detroit, Oct. 22-25; text of papers. Tappi 47:sup 145A-79A Ap '64

Corrugated containers conference, 13th, Detroit, Oct. 22-25; with abstracts of papers. Tappi 47:sup85A-91A Ja '64

PAPER cutting

Review of rotary sheeting. L. J. Zielinski. Paper Ind 46:624-5 O '64

PAPER cutting machines

Rotary die cutting of corrugated board. T. E. Monaghan. Tappi 47:sup 171A-4A S '64

Control

Paper cutter safety device speeds cutting of narrow work. F. N. Burt. il Inland Ptr/Am Lithogr 154:56 O '64

PAPER drying

Air systems and Yankee drying. T. Gardner. Tappi 47:210-14 Ap '64

Comparison of some economic factors in paper and coating drying. S. G. Holt and K. K. Knapp. diag Tappi 47:sup 130A-5A S '64

Effect of high-frequency sound on displacement of water by air. R. E. White. diag Tappi 47:496-8 Ag '64

Evaluation of the Madeleine felt drying system. E. W. Ramsdell. diag Paper Ind 46:402-6 Ag '64

Initial study of the water removal process in the plain press nip. C. S. Yih and S. J. McNamara. Tappi 47:153-6 Mr '64

Johnson corporation has unique paper drying research center. A. W. J. Dyck. il diags Paper Ind 46:25-8 Ap '64

Madeleine hot air felt drier roll system. F. W. Cassirer. il diags Tappi 47:sup 175A-9A S '64

Paper drying (cont). A. J. Cirrito. bibliog Paper Ind 45:433-5, 548-50, 599-601, 46:115-18, 203-6, 407-9, 499-501 N '63, Ja-F, My-Je, Ag-S '64

Vapor transport through paper. R. R. Rounsley. bibliog diag Tappi 47:95-8 F '64

See also

Felts (paper making)

PAPER finishing

Brush polishing paper and paperboard. A. J. Christensen. il diags Tappi 47:sup 172A-4A F '64

Recent advances in the high-temperature finishing of paperboard. W. O. Kroeschell. bibliog diag Tappi 46:sup 170A-2A N '63

See also

Paper coating

Resinous products—Paper uses

PAPER handling

Changing scope of roll finishing. R. F. Neilsen. diags Tappi 47:sup 157A-62A F '64

Conveyor combination speeds roll handling. il Mod Materials Handling 18:71-2 N '63

Lambs-Gray's roll finishing system at East Texas. flow diag il Paper Ind 45:593-5 F '64

PAPER handling—*Continued*

Mechanical memory controls distribution conveyor. il Automation 11:64 Ja '64

Paper feed mechanism for bank printer. diags Product Eng 35:32-3 Mr 2 '64

Receiving system teams trucks and tow tractors; McCall's printing plant. il Mod Materials Handling 19:77 Ja '64

Review of rotary sheeting. L. J. Zielinski. Paper Ind 46:624-5 O '64

Vacuum-lifting truck cuts unloading time. il Mod Materials Handling 19:69 Ap '64

PAPER industry and trade

Battle for packaging. F. S. Leinbach. Tappi 47:sup11A+ Jl '64

Business combinations are legal in promoting export trade. M. Yondorf. Paper Ind 45:540-2 Ja '64

Department of commerce most optimistic about '64. L. D. Farrar. Paper Ind 45:577-8 F '64

Dynamics of higher education, science, and the paper industry. J. G. Strange. Tappi 46:sup40A+ N '63

Engineering and the industry's future. W. F. Gillespie. Tappi 47:sup32A+ Ja '64

Impact of polymers in the paper industry. F. L. Hudson. bibliog Chem & Ind p 13-15 Ja 4 '64

Importance of the marketing management concept. W. R. Adams. Paper Ind 45:427 N '63

Market research in current sales planning. A. M. McBurney. Paper Ind 45:428+ N '63

Paper production in the years ahead. L. T. Stevenson. Tappi 47:sup26A+ Ja '64

Paper stock in the paper industry; a technical analysis. W. H. Miller. Tappi 47:sup36A+ Ap '64

Promise of 1964. B. Slatin. Paper Ind 45:483-5 D '63

Pulp and paper industry exhibit, New York, Feb. 23-27; floor plan and list of exhibitors. Tappi 47:sup82A-5A Ja; sup87A-9A F '64

Semiannual inventory of new plants and facilities; pulp and paper. Chem Eng 71:157-8 Ap 27; 123-4 O 26 '64

Who merges and how is a merger accomplished? A. A. Imberman. Paper Ind 45:488-9 D '63

See also

Technical association of the pulp and paper industry

Finance

Earnings picture bright, but has one or two dark spots. Paper Ind 45:465-6 D '63

How to export your product and increase your profit. H. L. Goldstein. Paper Ind 46:595-7 O '64

Timing and capital expenditures. A. N. McLeod. Paper Ind 46:189-91 Je '64

History

Papermakers and pioneers; Ontario paper co. and Quebec North Shore paper co. A. A. Schmon. il Tappi 47:sup 14A+ F '64

Statistics

Paper and paperboard, 1963; production and consumption. Tappi 47:sup 121A-2A Ap '64

Canada

1963 review/64 preview; pulp and paper. Can Chem Process 48:46-7 Ja '64

Papermakers and pioneers; Ontario paper co. and Quebec North Shore paper co. A. A. Schmon. il Tappi 47:sup 14A+ F '64

United States

Importance of cost reduction. C. E. Hartford. Paper Ind 46:562-3 O '64

See also

National paper trade association

PAPER industry management association

Annual meeting, 45th, Philadelphia, June 8-11, with program and abstracts of papers. Paper Ind 46:39+, 245-60 Ap, Jl '64

PAPER laboratories

Equipment

Controlled test for measuring the gluability of paperboard. W. O. Kroeschell. il diag Tappi 47:336-8 Je '64

Evaluation of laboratory beaters. B. Malmberg. Tappi 47:sup 119A-24A S '64

Friction testing of shipping sack paper: a round robin. H. C. Martin. Tappi 47:sup 162A-5A S '64

New method for sectioning and analyzing paper in the transverse direction. J. Parker and W. C. Mih. bibliog il diag Tappi 47:254-63 My '64

Use of the Bauer-Mead laboratory refiner in pulp evaluations. R. A. Wiseman and H. A. Smith. il diag Tappi 47:sup 180A-3A S '64

PAPER making

Comparison of cooking processes; panel discussion. flow sheets il diags Tappi 46:sup 143A-53A N '63

Effect of variation of acceleration on free-surface instability. C. S. Yih and S. P. Lin. bibliog il diags Tappi 47:88-94 F '64

For Dard Hunter life began at forty. H. F. Lewis. il Tappi 46:sup28A+ N '63

Foreign abstracts. Published in monthly numbers of Paper industry

How to improve control of paper manufacture by remote temperature measurement. C. Lueders. Tappi 47:sup 144A Mr '64

Some practical aspects of chelation in papermaking. A. J. Gard. Tappi 47:sup 198A-201A Ja '64

See also

Digesters (paper making)
Felts (paper making)
Paper and pulp mills
Paper coating
Paper finishing
Paper making machinery
Paper research
Paper sizing
Technical association of the pulp and paper industry
Wood pulp

Bacteria control

Incidence ond effects of the anaerobic bacteria, clostridium, in paper mill systems. L. L. Wolfson and R. J. Michalski. il Tappi 47:197-9 Ap '64

Preventive control of coating spoilage. J. R. Nelson and others. bibliog il Tappi 47:sup 168A-70A O '64

Relative toxicity of biostatic agents suggested for use in the pulp and paper industry; 1964 supplement. J. H. Conkey and J. A. Carlson. Tappi 47:sup 139A-40A Jl '64

Beating

Evaluation of laboratory beaters. B. Malmberg. Tappi 47:sup 119A-24A S '64

High consistency refining of fibers. W. B. West. diag Tappi 47:313-17 Je '64; Discussion. 47:518-19 Ag '64

Bibliography

Recent books (cont). Tappi 47:sup 179A Mr; sup 192A Ap; sup 185A Je; sup 171A Jl; sup 147A Ag; sup 196A O; sup 197A N '64

Bleaching

Brightness of high-yield pulps; the effect of pulping pH on brightness and bleaching. P. Luner and D. W. Ferguson. bibliog Tappi 47:205-10 Ap '64

Erco plans new twists in ER-2 process. flow diag Can Chem Process 47:59 D '63

International pulp bleaching conference, 3d, Seattle, Aug. 17-20; with abstracts of papers. Tappi 47:sup96A-8A+ O '64

Manganese in the chlorine dioxide bleaching of kraft pulp. R. E. Press. J Ap Chem 14:240-4 Je '64

Rapson hand in pulp bleaching. il Can Chem Process 47:53-6+ D '63

Na borohydride; can cost be lowered? Can Chem Process 47:57-8+ D '63

Sulfamic acid in a multiple stage kraft bleaching sequence. H. M. Love. Tappi 47:sup 163A-5A Je '64

Use of sulfamic acid in bleaching kraft pulps. R. G. Guide and R. R. Holmes. bibliog Tappi 47:515-18 Ag '64

By-products

Hydrolysis process makes molasses from wood. il Chem Eng 71:40+ Ag 3 '64

Preventing auxiliary fuel explosions in recovery units. D. P. Congdon and others. diag Tappi 47:sup 142A-3A F '64

See also

Sulfite liquor
Tall oil

Dirt problem

Application and use of cyclones in deinking systems. S. Fahlgren. Tappi 47:sup 166A-7A Mr '64

Dirt contribution values for natural dirt in red oak chips; sulfate digestion. J. Piper and others. il Tappi 47:368-71 Je '64

Dirt in pulp; proposed revision of tentative standard T 213 m-43. Tappi 47:sup 107A-9A Ag '64

How full felt width suction cleaning benefits papermakers. F. J. McGrath. diags Paper Ind 45:663-4 Mr '64

PAPER making—*Continued*

Fillers

Soft X-ray microscopy of paper. S. B. Newman and D. Fletcher. bibliog il diag Tappi 47:177-80 Ap '64

Freeness testing

Design modified for rate-measuring funnel. Paper Ind 46:620 O '64

Patents

United States patents on papermaking; quarterly list. Tappi 46:sup 197A-206A Ag; sup208A-18A D '63

Pitch problem

Control of depositable resin in southern hardwood pulp. A. L. Minto and R. L. Lougheed. diags Tappi 47:sup 161A-3A Mr '64

Screening

Pulp screening equipment in deinking. D. F. Lehman. Tappi 47:sup 131A-2A Jl '64

Slime problem

Incidence and effects of the anaerobic bacteria, clostridium, in paper mill systems. L. L. Wolfson and R. J. Michalski. il Tappi 47:197-9 Ap '64

Relative toxicity of biostatic agents suggested for use in the pulp and paper industry; 1964 supplement. J. H. Conkey and J. A. Carlson. Tappi 47:sup139A-40A Jl '64

Soda process

Experiences of three years soda-base cooking of dissolving pulps. T. Öhgren. il diags Tappi 46:sup 146A-8A N '63

Standard cold-soda pulping evaluation of Philippine woods and bamboos. P. M. Nicolas and J. R. Navarro. Tappi 47:98-105 F '64

Study and teaching

Lowell Tech's paper engineering program. H. H. Reynolds and N. H. Keeney. il Tappi 47:sup29A+ S '64

University of Maine pulp and paper curriculum. L. H. Elliott. Tappi 47:sup51A+ F '64

University of Maine pulp and paper programs. L. C. Jenness. il Tappi 47:sup58A+ Je '64

Sulfate process

Analysis of alkaline pulping liquors; automatic colorimetric determination of total and active alkali in white and green liquors. R. B. Kesler. flow diag Tappi 47:167-70 Mr '64

Black liquor oxidation practice and development; a critical review. J. E. Landry. bibliog diags Tappi 46:766-72 D '63

Difference between sulfate and sulfite pulps; aspects from the viewpoint of individual fiber strength. L. G. A. Kull. il diag Tappi 46:sup 198A-202A N '63

Direct determination of hydrocarbon sulfides in kraft gases by gas-liquid chromatography. E. W. Thomas. bibliog Tappi 47:587-8 S '64

Dirt contribution values for natural dirt in red oak chips; sulfate digestion. J. Piper and others. il Tappi 47:368-71 Je '64

Domtar unveils new Alkafide process. diags Can Chem Process 48:52-5 Mr '64

Factors affecting yield increase and fiber quality in polysulfide pulping of loblolly pine, other softwoods, and red oak. N. Sanyer and J. F. Laundrie. bibliog Tappi 47:640-52 O '64; Abstract. Chem & Eng N 42:82 S 14 '64

Factors influencing the dynamic strength of pine sulfate pulp. E. L. Springer and others. bibliog Tappi 47:463-7 Ag '64

Kraft pulping kinetics. H. D. Wilder and E. J. Daleski, jr. bibliog Tappi 47:270-5 My '64

Manganese in the chlorine dioxide bleaching of kraft pulp. R. E. Press. J Ap Chem 14:240-4 Je '64

Practical procedure for increased uniformity in kraft pulping. W. H. Buxton. Tappi 46:sup 183A-6A D '63

Prehydrolysis-kraft pulping process in the manufacture of dissolving pulps. F. A. Simmonds. bibliog Tappi 46:sup 145A-6A N '63

Recovering carbonate water softening sludge with kraft causticizing mud. M. M. Schirtzinger and H. A. Smith. flow diag Tappi 47:sup 184A-6A Ja '64

Retention of polysaccharides in kraft pulping. A. Meller and E. L. Ritman. bibliog Tappi 46:317-19; 47:55-64, 634-9 My '63, Ja, O '64

Structural and chemical differences between sulfite and kraft pulps. A. von Koeppen. bibliog il Tappi 47:589-95 O '64

Sulfidity control using liquid sulfur in the kraft recovery furnace. R. E. Peach and R. E. Petersen. diags Tappi 47:sup167A-70A Je '64

Sulfite vs. sulfate pulping. diags Paper Ind 45:657-9 Mr '64

Wood characteristics and kraft paper properties of four selected loblolly pines. A. C. Barefoot and others. bibliog Tappi 47:343-56 Je '64

Bibliography

Progress in alkaline pulping, 1963. Tappi 47: sup 14A+ bibliog(sup58+) My '64

Sulfite process

Advances in sulfite pulping. A. W. J. Dyck. Paper Ind 46:307 Jl '64

Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64

Comparative neutral sulfite semichemical evaluation of northern hardwoods. F. M. Ernest and J. Potter. Tappi 47:sup 129A-31A Jl '64

Difference between sulfate and sulfite pulps; aspects from the viewpoint of individual fiber strength. L. G. A. Kull. il diag Tappi 46:sup 198A-202A N '63

Dissolution of wood components under different conditions of sulfite pulping. K. Forss and K. E. Kremer. bibliog Tappi 47:485-93 Ag '64

Dynamic mechanical properties of paper. W. P. Riemen and S. F. Kurath. bibliog il Tappi 47:629-33 O '64

International sulphite pulping conference, Chicago, June 16-19. Tappi 47:sup96B-96F Jl '64

Laboratory-spun rayon fibers from birch pulp. B. Hackman and others. il diag Tappi 46: 722-6 D '63

Liquor-making eased for magnesia-base pulp mills. flow diag il Chem Eng 71:80-1 Jl 20 '64

Structural and chemical differences between sulfite and kraft pulps. A. von Koeppen. bibliog il Tappi 47:589-95 O '64

Sulfite process keeps ahead of others. il diag Can Chem Process 48:65-7 O '64

Sulfite vs. sulfate pulping. diags Paper Ind 45:657-9 Mr '64

Wood damage and dissolving pulp quality. J. H. Kalisch and others. bibliog il diag Tappi 46:705-16 D '63

See also

Sulfite liquor

Water removal

Nip region pressure gradient measurement. J. C. Hintermaier and S. J. McNamara. bibliog il diags Tappi 47:199-204 Ap '64

Thilmany's experience with the Beloit Venta-Nip press. A. H. Martin. il Paper Ind 46: 502-5 S '64

Vented-nip press. E. J. Justus and D. Cronin. diags Tappi 47:493-6 Ag '64

PAPER making machinery

Better understanding of press and felt performance; engineering approach. J. W. Welch. diags Paper Ind 46:29-33+ Ap '64

Blade coater startup. E. E. Valley and J. R. Gunning. il diags Tappi 47:65-74 F '64

Chemical wire life extenders in bleached, filled papers. W. M. Stephenson. Tappi 47: sup208A-10A Ja '64

Comparison of hydrofoils with table rolls on a Fourdrinier machine. J. Lettenberger. bibliog diags Tappi 47:sup 192A-5A O '64

Crown-Zellerbach cuts cost with latest Lodding wire doctor, gets better sheet formation. il Paper Ind 46:475+ S '64

Direct indicating velocity head manometer. J. Parker. diags Tappi 47:111-14 F '64

Economic evaluation of silicon carbide suction box covers. N. G. Holtz and C. A. Schauer. Tappi 47:sup 133A-5A Ag '64

Fourdrinier wire life progress at Great Northern paper co. A. E. Dentremont. Wire & Wire Prod 38:1715-16+ N '63

Improved machine coating; rebuild of no. 10 paper machine. E. Norris. il diags Tappi 46:sup203A-7A D '63

Initial study of the water removal process in the plain press nip. C. S. Yih and S. J. McNamara. diag Tappi 47:153-6 Mr '64

PAPER making machinery—*Continued*
Machinery manufacturer's role in research and development for the pulp and paper industry. R. F. Vokes. Tappi 46:sup46A+ D '63
Mechanism of surface waves generated by a vibrating table roll. diags K. I. Beitinjaneh. Tappi 47:263-5 My '64
Methods of evaluation of suction box cover materials. G. A. O'Brien. Tappi 47:sup 155A-6A O '64
Models for scheduling a papermaking machine. M. H. Gotterer and D. Zaniker. bibliog Tappi 47:435-9 Jl '64
Modification of cylinder vats at the Alton box board co. E. D. Clark. diags Tappi 46:sup 167A-70A N '63
Phosphor bronze as a Fourdrinier wire material. E. W. Beggs. Wire & Wire Prod 38: 1702-3+ N '63
Project turnkey; pulp and paper mills for newly developing countries. K. F. Landegger. Tappi 46:sup 10A+ D '63
Reviewing a paper machine installation Critical Path. R. H. Gerstenberger. Tappi 47:sup34A+ Ag '64
Rochester Paper uses new approach in paper formation. il diag Paper Ind 46:365-6 Ag '64
Thilmany's experience with the Beloit Venta-Nip press. A. H. Martin. il Paper Ind 46:502-5 S '64
Thilmany's vacu-therm system provides maximum heat recovery. A. W. J. Dyck. il diag Paper Ind 45:651-3 Mr '64
See also
Electric driving—Paper and pulp mills
Paper cutting machines
Paper drying
Rolls (paper machinery)

Cleaning

Felt soils; cause and removal. G. R. Smart and R. L. Fiske. il diags Tappi 46:sup202A-6A N '63
Planned chemical cleaning in pulp and paper mill operation. W. M. Stephenson and J. R. Nelson. Tappi 47:sup 130A-2A Ag '64

Control

Scatter-cell photometer senses dilute stock consistency. J. L. Anders. diag Control Eng 10:95 D '63
Tension control on paper-making and converting machinery. K. P. Grenfell. il diags IEEE Trans Applications & Ind 83:234-40 Jl '64

PAPER making materials
Correlations between fiber dimensions and fiber and handsheet strength properties. D. W. Einspahr. bibliog Tappi 47:180-3 Ap '64
Fiber length of pulp by classification. bibliog Tappi 46:sup 135A-7A D '63
Mechanical properties of paper made from periodate oxycellulose pulp and from the same pulp after reduction with borohydride. S. H. Zeronian and others. bibliog Tappi 47:557-64 S '64
Natural-synthetic fiber-fibrid combinations. M. J. Gluckman. il Tappi 47:sup213A-18A Ja '64
New considerations for the use and buying of paper stock. A. U. Claghorn. Tappi 47: sup 166A-7A Je '64
New look at the problem of secondary fibers supply. W. H. Miller. Paper Ind 46:495-8 S '64
Preliminary study of the refining action on cellulose fibers. J. M. J. Van Stiphout. Tappi 47:sup 189A-91A F '64
Strength of papermaking fibers. K. W. Britt and P. N. Yiannos bibliog diag Tappi 47: 427-31 Jl '64
See also
Bagasse
Bamboo
Cellulose
Cotton linters
Paper making—Fillers
Paper pulp
Paper sizing
Wood pulp

Testing

Application of experimental design to the study of a test method. R. T. Thaxter and P. Hubbe. Tappi 46:sup 189A-92A; Discussion. J. Mandel. sup 193A-4A D '63
Automatic drainage tester. N. H. Mayo. il diags Tappi 46:sup 186A-8A D '63
Fiber and pulp properties; shear strength of single-fiber crossings. A. P. Schniewind and others. bibliog Tappi 47:244-8 Ap '64
Structure of paper; check on scanning technique for measuring weight per unit length of fiber. O Kallmes. Tappi 47:29 Ja '64

PAPER mills. See Paper and pulp mills

PAPER products
Antibacterial and self-sanitizing cellulose products. il Tappi 47:sup 129A-30A Ja '64
Natural-synthetic fiber-fibrid combinations. M. J. Gluckman. il Tappi 47:sup213A-18A Ja '64
Plastic coatings stimulate the market for paper products. P. W. Sherwood. il Paper Ind 46:103-8 My '64

PAPER pulp
Paper pulp linings for mold release. D. P. James and L. S. Williams. bibliog il Am Cer Soc Bul 42:712-13 N '63
Pulp screening equipment in deinking. D. F. Lehman. Tappi 47:sup 131A-2A Jl '64
Structural and chemical differences between sulfite and kraft pulps. A. von Koeppen. bibliog il Tappi 47:589-95 O '64
Sugar cane bagasse shifts from a waste fuel to basic raw material. S. E. Martinez. il diag Power 108:52-5 Ja '64

PAPER research
Formula for research. M. D. Bardeen. Tappi 47:sup 18A+ Mr '64
Future of research in the pulp and paper industry. J. C. Wollwage. Tappi 47:sup8A+ Mr '64
Johnson corporation has unique paper drying research center. A. W. J. Dyck. il diags Paper Ind 46:25-8 Ap '64
Machinery manufacturer's role in research and development for the pulp and paper industry. R. F. Vokes. Tappi 46:sup46A+ D '63
Paper stock in the paper industry; a technical analysis. W. H. Miller. Tappi 47:sup 36A+ Ap '64
Relationship between marketing and technical research. N. G. Foss. Tappi 47:sup 136A+ My '64

PAPER rolls
Changing scope of roll finishing. R. F. Neilsen. diags Tappi 47:sup 157A-62A F '64
Lamb-Gray's roll finishing system at East Texas. flow diag il Paper Ind 45:593-5 F '64
Pensacola roll paper storage fire. W. J. Orey. diags Tappi 47:sup 145A-8A Ap '64
Two winding methods used to improve paper roll runnability. L. Rockstrom. il diags Tappi 47:sup 137A-40A Ap '64

PAPER sizing
Chemical nature of rosin sizing. R. W. Davison. bibliog il diag Tappi 47:609-16 O '64
Enzyme conversion of starch. J. E. Maryanski. diags Paper Ind 46:209-12 Je '64
Fiber-bonding agents. W. C. Black. Tappi 47:sup201A-4A Ja '64
Laboratory method for comparing the effects of starches in white water. W. S. Davis, jr. Tappi 47:sup 129A-30A Ag '64
Rosin sizing. R. G. Mispley. bibliog Tappi 47:sup58A+ O '64
Size presses and their operation. W. T. Crannell. Tappi 47:sup 116A-18A My '64
See also
Paper coating

PAPER winders
Review of rotary sheeting. L. J. Zielinski. Paper Ind 46:624-5 O '64
Two winding methods used to improve paper roll runnability. L. Rockstrom. il diags Tappi 47:sup 137A-40A Ap '64

PAPERBACK books
Paperbacks indicate teaching changes. G. M. Barrow. Chem & Eng N 42:62 Ap 20 '64

PARABANIC acid
Polarographic determination of parabanic acid. W. A. Struck and P. J. Elving. Anal Chem 36:1374-5 Je '64

PARABOLA
Arc lengths and curvature of parabolic segments. M. H. Thibodeaux. diags Am Soc C E Proc 90 [PL 1 no 3755]:1-6 Ja '64
Potential flow past a parabolic leading edge. J. D. Dennon. diags AIAA J 2:934-6 My '64
See also
Shells (structural engineering)

PARACHUTES
Fast-settling cone cradles a paratrooper. il Machine Design 36:14-15 My 7 '64
Inflation of a parachute. K. E. French. bibliog diag AIAA J 1:2615-17 N '63
Some reflections on parachute design, 1797-1837. S. B. Jackson. diags Roy Aeronautical Soc J 68:464-6 Jl '64

PARACYCLOPHANES
Nonaromatic route to a paracyclophane; a study of the 1,2,4,5-tetramethylenecyclohexane to tetramethyl[2.2]paracyclophane conversion. D. T. Longone and F. P. Boettcher. bibliog Am Chem Soc J 85:3436-43 N 5 '63

PARACYCLOPHANES—*Continued*

Paracyclophanes; a multilayered [2.2] paracyclophane. D. T. Longone and H. S. Chow. bibliog Am Chem Soc J 86:3898-9 S 20 '64

PARADES

See also

Floats (parades)

PARAFFIN

How Martin makes honeycomb contours; fill it with wax, then blast it. il diags Steel 154:52-3 F 17 '64

Nomograph for the estimation of paraffin wax composition. F. W. Melpolder and others. bibliog Tappi 47:283-5 My '64

PARAFFINS

Adsorption of alkanes on cracking catalysts; a study of the exchange between isobutane and its adsorbed radioactive analog. J. G. Larson and W. K. Hall. bibliog Am Chem Soc J 85:3570-5 N 20 '63

Carbon-13 magnetic resonance; chemical shift data for the alkanes. D. M. Grant and E. G. Paul. bibliog Am Chem Soc J 86:2984-90 Ag 5 '64

Correlation of the viscosity of light paraffin hydrocarbons and their mixtures in the liquid and gaseous regions. J. G. Giddings and R. Kobayashi. J Pet Tech 16:Trans 679-82 Je '64

Cyclization to a five-membered ring in the free-radical reaction of iodoperfluoroalkanes with 1,6-heptadiene. N. O. Brace. bibliog Am Chem Soc J 86:523-4 F 5 '64

Determining structure of paraffinic chains by nmr. K. W. Bartz and N. F. Chamberlain. Anal Chem 36:2151-8 O '64

Extract *n*-paraffins for new biodegradable detergents. K. A. Scott. bibliog Hydrocarbon Process & Pet Refiner 43:97-100 Mr '64

Free-radical reactions of diazomethane with reactive bromopolychloroalkanes. W. H. Urry and N. Bilow. bibliog Am Chem Soc J 86:1815-19 My 5 '64

Generalized correlation of the constants of the Benedict-Webb-Rubin-Friend equation for paraffinic isomers. H. H. Beyer and R. G. Griskey. bibliog A I Ch E J 10:764-6 S '64

Mechanism of hydrocracking; reactions of paraffins and olefins. H. L. Coonradt and W. E. Garwood. bibliog Ind & Eng Chem Proc Design 3:38-45 Ja '64

Melting points of linear-chain homologs; the normal paraffin hydrocarbons. P. J. Flory and A. Vrij. bibliog Am Chem Soc J 85:3548-53 N 20 '63

Mercury-photosensitized reactions between paraffins and tritium; a simple, rapid, and selective tritiation technique. P. L. Gant and K. Yang. bibliog Am Chem Soc J 86:2954-6 Jl 20 '64

Molex; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:234 S '64

Multi-branched alkanes, newly identified substances from plant waxes. P. Jarolimek and others. bibliog Chem & Ind p237-8 F 8 '64

Phenylhydrazone-phenylazoalkane interconversion. A. J. Bellamy and R. D. Guthrie. bibliog Chem & Ind p 1575-6 S 12 '64

Small-ring, spiroalkyl cations; solvolysis studies on some 1-halospiroalkanes. J. A. Landgrebe and D. E. Applequist. bibliog Am Chem Soc J 86:1536-42 Ap 20 '64

Sorption of long chain normal paraffins in molecular sieves. C. G. V. Burgess and others. bibliog J Ap Chem 14:350-60 Ag '64

Statistical thermodynamics of chain molecule liquids; an equation of state for normal paraffin hydrocarbons. P. J. Flory and others. bibliog Am Chem Soc J 86:3507-14 S 5 '64

Statistical thermodynamics of chain molecule liquids; liquid mixtures of normal paraffin hydrocarbons. P. J. Flory and others. bibliog Am Chem Soc J 86:3515-20 S 5 '64

Titrimetric determination of bis(disubstitutedphosphinyl)alkanes and (trisubstituted phosphine) oxides. J. R. Parker and C. V. Banks. Anal Chem 36:2191-2 O '64

Urea adduction process in semicontinuous fixed bed. E. C. Makin and others. bibliog flow sheet il Ind & Eng Chem Proc Design 3:226-9 Jl '64

See also

Butane
Cycloparaffins
Ethane
Nitroparaffins

Analysis

Determination of C_5 to C_{11} *n*-paraffins and hydrocarbon types in gasoline by gas chromatography. D. K. Albert. bibliog diags Anal Chem 35:1918-21 N '63

PARAGUAY

See also

Water supply—Paraguay

PARAHYDROGEN. See Hydrogen

PARALYSIS

See also

Poliomyelitis

PARAMAGNETIC resonance. See Magnetic resonance

PARAMAGNETIC susceptibility. See Magnetic susceptibility

PARAMECIUM

Effect of tobacco smoke solutions on paramecium. W. Weiss and W. A. Weiss. bibliog Archives Environmental Health 9:500-4 O '64

PARAMETERS

Admittance parameter of a general pentode network. A. B. Bhattacharyya. diags Electronic Eng 35:829 D '63

Band diffusion with variable parameters along flow. W. H. Li. bibliog diags Am Soc C E Proc 90 [EM 5 no 4106]:343-61 O '64

Characteristic viscoelastic parameters for amorphous polymers. A. V. Tobolsky and M. Takahashi. Rubber Chem & Tech 37:285-90 Ja '64

Comparison of the various parameters employed in the variable-frequency induced-polarization method. P. G. Hallof. bibliog diags Geophysics 29:425-33 Je '64

Computer sizes parameters of a pneumatic scram system. R. H. Larson. il diags Hydraulics & Pneumatics 17:94-101 O '64

Correlation of flat-plate pressures using the rarefaction parameter $M_\infty C_\infty^{1/2}/Re_{x\infty}^{1/2}$. H. E. Deskins. bibliog AIAA J 2:573-4 Mr '64

Definition of *Q* of *rc* networks. S. C. Dutta Roy. diags IEEE Proc 52:421 Ap '64

Design parameters for a portable broadcast television tape recorder. D. A. Horstkorta. diag SMPTE J 73:476-8 Je '64

Determination of antenna parameters by scattering cross-section measurements. R. J. Garbacz. diags Inst E E Proc 111:1679-86 O '64

Double-sideband parametric conversion using non-linear resistance and capacitance. K. L. Hughes and D. P. Howson. bibliog diags Radio & Electronic Eng 27:417-24; Discussion. 439-41 Je '64

Effect of parameter estimation upon radar performance. E. D. Banta. IEEE Proc 52:326 Mr '64

Electromagnetic waves in parameter space for finite magnetoplasmas. V. L. Granatstein and S. P. Schlesinger. bibliog diags J Ap Phys 35:2846-55 O '64

Estimating Weibull-distribution parameters. J. V. J. Ravenis, 2d. bibliog Electro-Tech 73:46-54 Mr '64

Free energy as a parameter in biological treatment. J. A. Servizi and R. H. Bogan. bibliog Am Soc C E Proc 89 [SA 3 no 3539]:17-40 Je '63; Discussion. 89 [SA 6 no 3745]:61-75 D '63; Reply. 90 [SA 2 no 3884]:33-7 Ap '64

Friction welding parameter analysis. M. B. Hollander and others. bibliog il diags Welding J 42:sup495-501 N '63

Gain and directional properties of three- and four-frequency parametric devices. D. P. Howson. bibliog diags Inst E E Proc 111:1517-22 S '64

High-frequency amplifier design using admittance parameters. G. D. Johnson and others. bibliog diags Electro-Tech 72:74-9 N; 66-72+ D '63

Instability of parallel flow of inviscid fluid in a rotating system with variable Coriolis parameter. L. N. Howard and P. G. Drazin. bibliog J Math & Phys 43:83-99 Je '64

Kihara and Lennard-Jones parameters for the isomeric hexanes. R. G. Griskey and others. bibliog diag A I Ch E J 10:584+ Jl '64

Meteorological parameter for radioclimatological purposes. P. Misme. J Res Nat Bur Stand 68D:851-5 Jl '64

New method of locating the maximum point of an arbitrary multipeak curve in the pressence of noise. H. J. Kushner. bibliog diags A S M E Trans ser D 86:97-106 Mr '64

New way to select vehicle design parameters. H. Moss. diags S A E J 72:62-5 Mr '64

PARAMETERS—*Continued*

Optimization of magnetic parameters in thin films DRO storage elements. R. J. Petschauer and others. J Ap Phys 35:766-7 pt 2 Mr '64

Optimum control of distributed-parameter systems. P. K. C. Wang and F. Tung. bibliog diags A S M E Trans ser D 86:67-79 Mr '64

Parameter optimization by hybrid techniques. F. Melanson and P. Lanner. diags Instruments & Control Systems 37:125-8 Ja '64

Parameters affecting the increase in dielectric loss, caused by carbon black paper screens, for oil paper dielectrics. R. B. Blodgett and F. H. Gooding. bibliog IEEE Trans Power Apparatus & Systems p 121-8; Discussion. 128-9; Reply. 129-30 F '64

Parameters in the distribution of fatigue life. E. J. Gumbel. bibliog Am Soc C E Proc 89 [EM 5 no 3667]:45-63 O '63; Correction. 90 [EM 3 no 3936]:285 Je '64

Parametric amplifiers and converters with pumped inductance and capacitance. D. G. Tucker and K. L. Hughes. bibliog diags Radio & Electronic Eng 27:435-9; Discussion. 439-41 Je '64

Parametric energy conversion by nonlinear admittances. R. S. Engelbrecht. diags Inst Radio Eng Proc 50:312-21 Mr '62; Discussion. K. L. Hughes and D. P. Howson. IEEE Proc 52:729-30 Je '64

Parametric up-conversion by the use of nonlinear resistance and capacitance. D. P. Howson and A. Szerlip. bibliog diags Radio & Electronic Eng 27:425-34; Discussion. 439-41 Je '64

Power spectrum identification for adaptive systems. K. Steiglitz. bibliog IEEE Trans Applications & Ind 83:195-7 My '64

Probing active systems statistically for faults. A. A. Wolf. diags IEEE Proc 52:443-4 Ap '64

Radiometeorological study: existing radiometeorological parameters. J. A. Lane and B. R. Bean. bibliog J Res Nat Bur Stand 67D:589-95 N '63

Radiometeorological study; new turbulence parameter. B. R. Bean and others. J Res Nat Bur Stand 67D:605-8 N '63

Real-frequency stability criteria for linear time-varying systems. J. J. Bongiorno, jr. diags IEEE Proc 52:832-41 Jl '64; Correction. 52:1127-8 O '64

Relationships between different kinds of network parameters, not assuming reciprocity or equality of the waveguide or transmission line characteristic impedances. R. W. Beatty and D. M. Kerns. diags IEEE Proc 52:84 Ja '64

Selected glass substrates and the magnetic parameters of thin films. J. S. Lemke. bibliog il IEEE Trans Com & Electronics 83:245-7 My '64

Simultaneous determination of system parameters from transient response. B. G. Madden. bibliog diags IEEE Trans Applications & Ind p327-31 N '63

Some statistical parameters related to the Nakagami-rice probability distribution. W. R. Burns. bibliog J Res Nat Bur Stand 68D:429-34 Ap '64

Study of experimental parameters in atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. bibliog Anal Chem 36:1367-9 Je '64

System philosophy and design parameters; broadband switching. A. F. Connery. IEEE Trans Com & Electronics p687-8 N '63

System reliability when failure depends on a parameter that ages. F. R. Van Wagner. diags Ind Quality Control 21:253-8 N '64

Transistor *h* parameters. D. N. Tilsley. diags Wireless World 70:229-32 My '64

Variation of parameters and the method of Kryloff and Bogoliuboff. B. Rasof. Franklin Inst J 277:266-81 Mr '64

PARAPETS

Prefabricated flashing for parapet walls. H. Edwards. il diags Arch Rec 135:209-10 My '64

PARAROSANILINE

Equilibrium effects in determination of sulfur dioxide with pararosaniline and formaldehyde. H. A. Huitt and J. P. Lodge, jr. bibliog Anal Chem 36:1305-8 Je '64

Pararosaniline acts on specific sites. E. Bueding and others. il Chem & Eng N 42:45 Jl 6 '64

PARATHION

Dermal exposure of human volunteers to parathion. G. R. Hayes, jr. and others. bibliog Archives Environmental Health 8:829-33 Je '64

Enzymatic degradation of parathion in organophosphate-susceptible and -resistant houseflies. F. Matsumura and C. J. Hogendijk. bibliog J Agri & Food Chem 12:447-53 S '64

Hazards of equipment contaminated with parathion. R. S. Ganelin and others. bibliog Archives Environmental Health 8:826-8 Je '64

Oral occupational parathion poisoning treated with 2-PAM iodine (2-pyridine aldoxime methiodide). Ind Med 33:243-4 Ap '64

Respiratory exposure of volunteers to parathion. W. V. Hartwell and others. bibliog Archives Environmental Health 8:820-5 Je '64

Urinary excretion of paranitrophenol by volunteers following dermal exposure to parathion at different ambient temperatures. A. J. Funckes and others. J Agri & Food Chem 11:455-7 N '63

PARATHYROID glands

Dietary production of parathyroid cysts. H. Selye and others. il J Nutrition 84:97-9 O '64

PARIS

Architecture

Paris plans its way out of a century of random urban sprawl. A. Erikson. il map Eng N 173:40-2+ O 22 '64

PARKER, Ralph D.

R. D. Parker, president, C.I.M. por Can Min & Met Bul 57:447 Ap '64

PARKING. See Automobile parking

PARKS

Soil stabilizer helps create recreational areas. il Pub Works 95:101-3 Ap '64

See also

New York (city)—Parks

State parks and reserves

PARSHALL flume

Chemical distributor trough for Parshall flume. A. A. Hirsch. il diags Water Works & Wastes Eng 1:56+ Jl '64

PART time employment

Some technics for meeting personnel shortages. L. J. Rosner. bibliog Am J Pub Health 54:615-23 Ap '64

PARTICLE accelerators. See Accelerators (particles)

PARTICLES

Aerosol studies by light scattering; preparation of octanoic acid aerosols of narrow and reproducible size distributions. E. Matijević and others. diags J Colloid Sci 19:223-7 Mr '64

Analytical study of heat and mass transfer in multiparticle systems at low Reynolds numbers. R. Pfeffer and J. Happel. bibliog A I Ch E J 10:605-11 S '64

Application of acoustics in air pollution problems. J. C. F. Chow. bibliog Am Soc C E Proc 90 [SA 4 no 4005]:59-75 Ag '64

Brownian motion in many-particle systems; forced interdiffusion of two species. G. W. Woodbury, jr. and S. Prager. bibliog Am Chem Soc J 86:3417-21 S 5 '64

Charge analyzer for aerosols and sprays. T. G. Owe Berg and others. il diags R Sci Instr 35:719-23 Je '64

Concentration and mass flow distributions in a gas-solid suspension. S. L. Soo and others. bibliog diags Ind & Eng Chem Fundamentals 3:98-106 My '64

Contact charging of micron-sized particles in intense electric fields. A. Y. H. Cho. diags J Ap Phys 35:2561-4 S '64

Crushing strength of zinc oxide agglomerates. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:202-5 Jl '64

Determination of the density of spherical submicrogram specimens by the terminal velocity method. R. C. Wrigley and C. E. Gleit. bibliog diag Anal Chem 36:307-9 F '64

Drag and oscillatory motion of freely falling cylindrical particles. E. K. Marchildon and others. bibliog diags Can J Chem Eng 42:178-82 Ag '64

Effect of electrification on the dynamics of a particulate system. S. L. Soo. bibliog Ind & Eng Chem Fundamentals 3:75-80 F '64

Effect of particle shape and chemical composition on the packing characteristics of pigment combinations. R. W. Hagemeyer. Tappi 47:74-7 F '64

Effect of particle size and average velocity on resolution under normalized time conditions. B. L. Karger and W. D. Cooke. Anal Chem 36:991-5 My '64

Effect of size distribution on the rate constants for collisions in disperse systems. T. Gillespie. bibliog J Colloid Sci 18:562-7 Ag '63

PARTICLES—*Continued*

Effect of temperature on the charge on kaolinite particles in water. D. D. Button and W. G. Lawrence. bibliog il diags Am Cer Soc J 47:503-9 O '64

Evaluating coated particles of nuclear fuel. R. W. McClung and others. il Metal Prog 86:90-3 Jl '64

Forces on aerosols in gas mixtures. J. R. Brock. bibliog J Colloid Sci 18:489-501 Ag '63

Identifying colorless transparent particles by microscopy. W. C. McCrone and J. S. Martin. il diags Res/Develop 15:28-31 N '64

Importance of small particles in tire yarn viscose. K. L. Gray and others. bibliog Tappi 46:735-9 D '63

Inclined settling of dispersed suspensions of spherical particles in square-section tubes. D. R. Oliver and V. G. Jenson. bibliog diags Can J Chem Eng 42:191-5 O '64

Influence of chemical composition on the packing of pigment particles. R. W. Hagemeyer. Tappi 47:595-8 O '64

Infrared analysis of suspended particulates with millipore filters and attenuated total reflection. R. W. Hannah and J. L. Dwyer. il Anal Chem 36:2341-4 N '64

Inspecting with filtered and electrified particles. E. T. Hughes and D. R. Powers. il diags Metal Prog 84:85-9 N '63

Instrument for determining crushing strength of fuel particles. G. Hallerman and R. J. Gray. il diags R Sci Instr 35:850-2 Jl '64

Interaction between particles and a solid-liquid interface. D. R. Uhlmann and others. bibliog il diags J Ap Phys 35:2986-93 O '64

Introduction of particle-size distribution into kinetics of solid-state reaction. H. Sasaki. bibliog diag Am Cer Soc J 47:512-16 O '64

Kinetics of particle growth in the fluidized bed calcination process. E. S. Grimmett. bibliog il diags A I Ch E J 10:717-22 S '64

Mass transfer to particles. P. Harriott. bibliog diags A I Ch E J 8:93-102 Mr '62; Discussion. 10:415+ My '64

Measurement of the particle weight of a colloid by electron diffraction. Y. Yamaguchi. il J Colloid Sci 18:596-8 Ag '63

Nozzle contours for minimum particle-lag loss. F. E. Marble. AIAA J 1:2793-801 D '63

Particle behavior in shear and electric fields; rigid spheroids and discs. C. E. Chaffey and S. G. Mason. bibliog diags J Colloid Sci 19:525-48 Ag '64

Particle interactions in aqueous kaolinite dispersions. A. S. Michaels and J. C. Bolger. bibliog Ind & Eng Chem Fundamentals 3:14-20 F '64

Particle motion in the equatorial plane. V. L. Pisacane. diag AIAA J 2:1361-4 Ag '64

Particle reference all-electronic guidance system. il Electronics 37:28+ Je 29 '64

Particle-to-column diameter ratio effect on band spreading. J. C. Sternberg and R. E. Poulson. bibliog Anal Chem 36:1492-502 Jl '64

Particle-to-gas heat transfer in fluidized beds. A. C. Juveland and others. bibliog diags Ind & Eng Chem Fundamentals 3:329-33 N '64

Platers put dirt to work. C. L. Kobrin. il Iron Age 193:77-9 F 13 '64

Proceedings of the symposium on the interaction between fluids and particles, London, June 20-22, 1962. Review, by F. H. H. Valentin. Chem & Ind p 1817-23 N 16 '63

Review of the problem of fine-particle interactions with special reference to magnetic recordings. E. P. Wohlfarth. bibliog il diags J Ap Phys 35:783-90 pt 2 Mr '64

Scroll centrifuge separates fine particles. diag Chem Eng 71:114 S 14 '64

Segregation of particles in the storage of materials. J. F. Van Denburg and W. C. Bauer. bibliog diags Chem Eng 71:135-40+ S 28 '64

Single-particle studies of ion exchange in packed beds; cupric ion-sodium ion system. M. Gopala Rao and M. M. David. bibliog A I Ch E J 10:213-19 Mr '64

Small particles in silicon. G. R. Booker and R. Stickler. il Electrochem Soc J 111:1011-12 Ag '64

Solids vs viscosity in finishing materials. K. G. Meades. Ind Finishing 40:102-3 Ag '64

Some segregation effects in packed-fluidized beds. J. P. Sutherland and K. Y. Wong. bibliog Can J Chem Eng 42:163-7 Ag '64

Spontaneous pelletization in fine powders. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:197-201 Jl '64

Spouting of mixed particle-size beds. J. W. Smith and K. V. S. Reddy. bibliog flow diag diag Can J Chem Eng 42:206-10 O '64

Statistical polyhedron model of abrasive grain. H. T. McAdams. bibliog diags A S M E Trans ser B 85:388-93; Discussion. 393-4 N '63

Thermal precipitation at reduced gas pressures. C. Orr, jr. and T. W. Wilson. il J Colloid Sci 19:571-7 Ag '64

Thermionic emission from hot particles in a plasma. C. C. Johnson and C. K. Bullock. J Ap Phys 35:2804-5 O '64

Ventilation effectiveness for indoor air cleaning. P. Kranz. bibliog ASHRAE J 5:27-31 S '63; Discussion. P. M. Engle and R. H. Avery. diag 5:30-3; Reply. 33-5+ D '63

Virus-like particles offer new leads to studies of leukemia. il Chem & Eng N 42:40-2 O 19 '64

See also

Aerosols
Brownian movements
Cloud chambers
Dispersion
Drops
Electrophoresis
Granular materials
Micelles
Polarization of particles
Powders
Sedimentation
Specific surface
Suspensions

Size determination

Alumina size distributions from high-pressure composite solid-propellant combustion. L. A. Povinelli and R. A. Rosenstein. bibliog diags AIAA J 2:1754-60 O '64

Bulk blending of fertilizer material; effect of size, shape, and density on segregation. G. Hoffmeister and others. bibliog diag J Agri & Food Chem 12:64-9 Ja '64

Colour differences in azo pigments; measurements of particle size and of colour. J. D. Hildreth and D. Patterson. bibliog il diags Soc Dyers & Col J 80:474-9 S '64

Conveyability of materials of mixed particle size. F. A. Zenz. bibliog diags Ind & Eng Chem Fundamentals 3:65-75 F '64

Correcting sieve results to nominal values. E. R. Goffaux. Materials Res & Stand 4:157-8 Ap '64

Determination of latex particle size by light scattering. S. H. Maron and others. bibliog J Colloid Sci 18:733-43; 19:591-601 O '63, S '64

Determination of latex particle size distribution by analytical ultracentrifugation. H. W. McCormick. bibliog il J Colloid Sci 19:173-84 F '64

Determination of particle size by the minima and maxima in the angular dependence of the scattered light; range of validity of the method. M. Kerker and others. bibliog J Colloid Sci 19:193-200 Mr '64

Gaussian distribution of dirt particles. Product Eng 34:86-7 D 9 '63

Hydraulic and particle size characteristics of some diatomite filter aids. J. H. Dillingham and E. R. Baumann. bibliog il Am Water Works Assn J 56:793-808 Je '64

Mathematical and graphical interpretation of the log-normal law for particle size distribution analysis. J. E. Smith and M. L. Jordan. bibliog J Colloid Sci 19:549-59 Ag '64

Measurement of droplet size of wide range particle distributions. J. H. Roberts and M. J. Webb. AIAA J 2:583-5 Mr '64

New techniques of particle-size analysis. D. W. Montgomery. Rubber Age 94:759-61 F '64

Particle-size analyzer for emulsion photomicrographs. P. Becher. diags J Colloid Sci 19:468-72 Je '64

Particle-size analysis of sand containing friable fragments. W. B. Bull. Materials Res & Stand 4:407-10 Ag '64

Particle size determination of film-forming latices by electron microscopy. E. Vanzo and others. il J Colloid Sci 19:578-83 Ag '64

Particle size measurement in heterodisperse emulsions using depolarization measurements. W. W. Graessley and J. H. Zufall. bibliog J Colloid Sci 19:516-24 Ag '64

Prediction of minima and maxima in intensities of scattered light and of higher order Tyndall spectra. P. E. Pierce and S. H. Maron. bibliog J Colloid Sci 19:658-72 S '64

Sieve techniques for obtaining small amounts of narrowly classified particles. C. M. Hunt and A. R. Woolf. il diag Materials Res & Stand 4:364-5 Jl '64

PARTICLES—Size determination—*Continued*

Simple method for particle size determination by turbidity measurement. G. Deželić and others. bibliog J Colloid Sci 18:888-92 D '63

Size distribution function. T. G. Callcott. bibliog J Ap Phys 35:250-1 Ja '64

PARTICLES, Elementary

Absolute velocity gauge for nuclear particle beams. J. D. Seagrave and others. bibliog diags R Sci Instr 35:1290-6 O '64

Achromatic translation system for charged particle beams. D. A. Swenson. diags R Sci Instr 35:608-12 My '64

Auroral measurements and upper atmospheric physics. R. E. Meyerott and J. E. Evans. bibliog il map diags AIAA J 2:1169-74 Jl '64

Charged particle orbits in a logarithmic potential. R. H. Hooverman. diags J Ap Phys 34:3505-8 D '63

Charging and acceleration of microparticles. J. F. Vedder. bibliog diags R Sci Instr 34:1175-83 N '63

Correlated energy and time-of-flight measurements of fission fragments with semiconductor detectors; system design and performance. C. W. Williams and others. bibliog diags R Sci Instr 35:1116-23 S '64

Derivation of the expression for the relativistic mass of a particle. F. W. Sears. Am J Phys 32:60 Ja '64

Determination of particle structure from light scattering. R. W. Hart and E. P. Gray. bibliog diag J Ap Phys 35:1408-15 My '64

Effect of radiation damage on the response of semiconductor detectors to fission fragments. H. C. Britt and G. C. Benson. bibliog R Sci Instr 35:842-6 Jl '64

Elementary particles? G. F. Chew. diag Phys Today 17:30-4 Ap '64

Energetic particles in the magnetosphere. J. R. Winckler and R. L. Arnoldy. bibliog J Res Nat Bur Stand 68D:619-29 My '64

Existence of Omega minus verified. diags Chem & Eng N 42:44-5 Mr 2 '64

Focusing of neutral particle beams by fictitious force fields. D. F. Dempsey. diags J Ap Phys 34:3220-3 N '63

For nuclear-particle analysis; computers or multichannel analyzers? R. J. Spinrad. bibliog diag Nucleonics 21:46-9 D '63

Hunting of the quark. Sci Am 210:54-6 Je '64

Image intensifier for sub-atomic particles. Engineering 198:95 Jl 17 '64

Kinematic method for determination of accelerator beam energies. B. M. Bardin and M. E. Rickey. bibliog R Sci Instr 35:902-3 Jl '64

Liquid nitrogen cryostat to facilitate isothermal annealing studies on metals after heavy-particle bombardment. F. Dworschak and others. diags R Sci Instr 35:46-8 Ja '64

Magnetic monopoles. K. W. Ford. diags Sci Am 209:122-5+ D '63

Mass spectrometric study of neutral particles sputtered from Cu by 0- to 100-eV Ar ions. J. R. Woodyard and C. B. Cooper. bibliog diags J Ap Phys 35:1107-17 Ap '64

Medical research with high-energy heavy particles. G. J. D'Angio and J. H. Lawrence. bibliog il Nucleonics 21:56-61 N '63

Neutral beam detection. D. McKeown and A. Cabezas. R Sci Instr 34:1261 N '63

New developments in nuclear-particle detection; special report on 9th scintillation and semiconductor counter symposium, Washington, Feb. 26-28. bibliog il diags Nucleonics 22:49-72 My '64 (reprints $1)

Omega-minus experiment. W. B. Fowler and N. P. Samios. il diags Sci Am 211:36-45 O '64

Omega minus; theory and fact. il diags Phys Today 17:57-60 Ap '64

Optimization of particle injection into a synchrotron. A. J. Lichtenberg. R Sci Instr 34:1196-9 N '63

Phonon radiation by uniformly moving charged particles in piezoelectric solids. R. Tsu. diag J Ap Phys 35:125-30 Ja '64

Power calorimetry of fast-particle beams. E. S. Chambers. bibliog diags R Sci Instr 35:95-7 Ja '64

Prediction confirmed; omega-minus particle. diags Sci Am 210:60-2 Ap '64

Simple structure of nuclear particles proposed. diags Westinghouse Eng 24:48-9 Mr '64

Stopping by elastic collisions of particles from a unidirectional plane source. E. M. Baroody. bibliog J Ap Phys 35:2074-85 Jl '64

Strongly interacting particles. G. F. Chew and others. il diags Sci Am 210:74-93 F '64

Third revolution in 20th century physics. A. W. Stern. bibliog Phys Today 17:42-5 Ap '64

Trapping of a charged particle in a static magnetic field. D. A. Baker. bibliog diag Am J Phys 32:347-54 My '64

Weak quantum; *w* particle. Sci Am 210:54 Mr '64

See also

Accelerators (particles)

Atomic nuclei

PARTITION (chemistry)

Effect of partition function cutoff upon the thermodynamic properties of atomic hydrogen and helium to 100 000°K. J. C. Hester and K. G. Sewell. bibliog J Ap Phys 35:729-30 Mr '64

PARTITIONS

Dividers multiply auditorium uses. il plan Eng N 171:45 N 28 '63

FHA investigates partition cracking. Eng N 172:18 Mr 26 '64

Plant engineer's guide to movable partitions. S. W. Oppenhuizen. il diag Plant Eng 18:118-20 Ja '64

School costs cut by new components; interior partitions; near-total flexibility. B. P. Spring. il plans Arch Forum 120:117 F '64

PARTNERSHIP

GE and Bull outline partnership plan. il Chem & Eng N 42:48 Ag 10 '64

PASADENA, California

Water supply

Should Pasadena expand telemetering? J. L. Behner. il Water Works & Wastes Eng 1:88-9+ My '64

PASSIVITY

Anodic activation of iron. V. D. Kashcheev and others. bibliog Corrosion 20:54-6 F '64

Behavior and nature of thin oxide films on some metals in gaseous media and in electrolyte solutions. V. V. Andreeva. bibliog il Corrosion 20:35-46 F '64

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

Evaluation of passivated integrated circuits using the scanning electron microscope. T. E. Everhart and others. bibliog il diags Electrochem Soc J 111:929-36 Ag '64

Fundamental studies on anodic protection; alloy 20 in sulfuric acid. Z. A. Foroulis. bibliog Ind & Eng Chem Proc Design 3:84-8 Ja '64

Influence of pH on corrosion and passivation of nickel. D. E. Davies and W. Barker. bibliog diags Corrosion 20:47-53 F '64

Magnesium as a passive metal. P. F. King. Electrochem Soc J 110:1113-16 N '63

Nature of initial corrosion of stressed austenitic stainless steel by chloride ions; platinum decoration of active sites. N. A. Nielsen. bibliog il Corrosion 20:104-9; Discussion. 109-10 Mr '64

New approach to corrosion; the Pourbaix diagram. A. G. Guy and F. N. Rhines. Metal Prog 85:117-20 F '64

Passivity of chromium and stainless steel in hydrofluoric acid. C. C. Seastrom. bibliog il Corrosion 20:179-83 Je '64

Sulfates in the passive iron layer. O. L. Riggs, jr. bibliog il diags Corrosion 20:275-81 S '64

PASTE

Heavy paste dispersion drying system. S. J. Baran. diags Ind & Eng Chem 56:34-6 O '64

See also

Adhesives

PATCHOULI oil

Terpenes; synthesis of patchouli alcohol. G. Büchi and others. bibliog Am Chem Soc J 86:4438-44 O 20 '64

PATENT laws and regulations

Patentability and prior publication. A. W. Gray. bibliog Machine Design 35:139-40 N 7 '63

Realistic look at invention records. N. L. Wilson. Res/Develop 15:25-6 Jl '64

See also

Design—Protection

Europe

Common patents for the common market. bibliog il Chem & Eng N 42:86-102+ Je 15 '64 (reprints $1)

United States

House votes higher patent fees. Chem & Eng N 42:35 F 3 '64

Patents and trademarks. T. Cifelli, jr. Published in monthly numbers of Drug and cosmetic industry

PATENT laws and regulations—United States —*Continued*

Patents, licenses, and the antitrust laws. A. W. Gray. bibliog Machine Design 36:158-9 S 10 '64
Prior use invalidates rights of patent holder. A. W. Gray. Foundry 92:210+ O '64
U.S. patent system. L. J. Janowski. diag Food Tech 18:673-9, 1012-14+ My, Jl '64
See also
United States—Patent office

PATENT lawyers

ACS opposes two bills involving practice of patent law. Chem & Eng N 42:62 Ag 3 '64

PATENT office. See United States—Patent office

PATENT searching

Don't overlook patents. R. C. Willson, jr. Chem Eng 71:79-84 F 3; 105-9 Mr 2 '64
When seeking engineering information, don't overlook patents. R. C. Willson, jr. Chem Eng 71:79-84 F 3 '64

PATENTS

Design of building products; proprietary protection. il diags Prog Arch 45:193-7 Je '64
Index of patents plus National catalogue of patents in electric field issued. Elec World 160:76 O 21 '63
Patent system for European economic community. Product Eng 35:57 Mr 30 '64
See also
Chemical patents
Coal patents
Dye patents
Inventions
Metallurgical patents
Patent laws and regulations
Patent searching
Textile patents
United States—Patent office
also subdivision Patents under special subjects, e.g.
Aeronautics
Automobiles
Cosmetics
Drugs
Electronics
Food industry and trade
Foundry practice
Glass machinery
Glass manufacture
Hair preparations
Lubrication and lubricants
Machinery
Metal finishing
Paper making
Petroleum industry and trade—Equipment and supplies
Photography
Plastics
Rubber
Rubber, Artificial
Telegraph
Telephone

Infringement

Government patent infringement. Drug & Cosmetic Ind 95:165+ Ag '64
Great General Tire patent suit. O. J. Scott. il Rubber World 151:32-9 O '64
Pressure gage manufacturer learns patent can't eliminate all competition. R. A. Brown. Heating-Piping 36:108 F '64
Protests against patent infringement. A. W. Gray. bibliog Machine Design 36:157-8 My 21 '64
3M's Thermo-Fax patent upheld by Appeals court. Chem & Eng N 42:26 S 14 '64

Licensing

Chemical processes for sale or lease. R. A. Labine. il Chem Eng 71:142-58 My 11 '64 (reprints 50c)
Is license needed for chromatography? diags Can Chem Process 48:59+ Jl '64
Patents, licenses, and the antitrust laws. A. W. Gray. bibliog Machine Design 36:158-9 S 10 '64
Tetracycline production licensing ordered. Chem & Eng N 42:23 Ja 13 '64

PATHOGENIC bacteria. See Bacteria, Pathogenic

PATHOGENIC fungi. See Fungi, Pathogenic

PATTERN making

Patternmaking; AFS congress; abstracts of papers. Foundry 92:173+ Je '64
Room temperature vulcanizing silicone rubber patterns extend Shaw process. D. Giles. il Tool & Manuf Eng 53:69-70 Jl '64
See also
Templets

Plastic patterns

Construction of plastic patterns. S. P. Zolenas. il Iron & Steel Eng 41:117-20 My '64
Full mold casting process uses foamed plastic patterns. A. Wittmoser. bibliog il diags Foundry 92:62-5 Ja '64
Polystyrene patterns for investment casting. H. Hamel. il Plastics World 22:42-3 S '64
Sand castings take shape fast with consumable patterns. A. W. Young. il Iron Age 194:82-3 N 5 '64

PATTERN recognizer. See Perceptrons

PAVEMENT marking. See Traffic lines

PAVEMENTS

Diesel hammer breaks pavements. il Eng N 171:178 D 19 '63
See also
Airports—Surfaces
Bridges—Floors
Curbs
Streets

Coloring

Epoxy surfacer can be colored. Eng N 172:196 Je 18 '64
Oahe dam gets living color. Eng N 171:176+ D 19 '63

Design

City engineer talks about paving. G. B. White. il Civil Eng 34:63-5 Mr '64

Heating

Ice-free truck ramp features automatic snow melting system. il Safety Maint 127:61 F '64
MI cable in conduit: replaceable heating system embedded in concrete of railroad overpass. il diags Elec Constr & Maint 62:60-3 D '63
Snow melting system keeps Skyway's toll plaza clear. J. Ross. il diags Heating-Piping 36:99-103 Mr '64
Snow-melting systems; new market for the enterprising heating contractor. S. B. Tupper. il diags Dom Eng 204:70-5 S '64

Marking

See Traffic lines

Resurfacing

Attachment renews old pavement. il Eng N 173:58 S 10 '64
Do-it-yourself carpet coating. C. C. Fagerlind. il Pub Works 95:106-7 Ag '64
Minimizing crack reflection. R. Ranson. il Pub Works 94:87-8 N '63
One pass lays a slurry seal. il Eng N 173:44 Jl 16 '64

Subgrades

Tests of concrete pavements on crushed stone. L. D. Childs and J. W. Kapernick. bibliog il diags Am Soc C E Proc 89 [HW 1 no 3497]:57-80 Ap '63; Discussion. J. E. Gray. 90 [HW 1 no 3780]:121-4 Ja '64
See also
Roads—Subgrades

Surface treatment

Elastomeric sealer shows promise. il diag Eng N 172:182 Je 18 '64
Million-yard runway tar seal job; Boston's Logan international airport. il Roads & Sts 107:120-2+ Ap '64
Two-inch bonded concrete overlay for the Port Mann bridge. N. Hilton. il diags Eng J 47:39-44 My '64

PAVEMENTS, Asphalt

Cationic emulsion use in slurry sealing airfield surfaces. T. J. Gates. il plan Roads & Sts 107:88-90+ F '64
Local sand chief aggregate for freeway base and shoulder mix. il Roads & Sts 107:44-8 Mr '64
Two methods combined to reclaim embrittled asphalt. E. Lynch. il Pub Works 94:114-16 D '63
Use of herbicides under asphalt. D. W. Rake. il Pub Works 95:110-11 My '64
Welcome mat for New York fair visitors. il Roads & Sts 107:104+ Mr '64
See also
Pavements, Bituminous
Roads, Asphalt

Maintenance and repair

Asphalt distributor today; dump truck tomorrow. C. L. Huisman. il Pub Works 95:68-70 N '64
Attachment renews old pavement. il Eng N 173:58 S 10 '64
One pass lays a slurry seal. il Eng N 173:44 Jl 16 '64

Testing

Permeability test; abstract. E. Zube. Pub Works 94:134+ D '63
Portable asphalt paving meter. il Engineering 198:441 O 2 '64

PAVEMENTS, Bituminous

Apron paving tar defies jet fuels. Eng N 172:51-2 F 20 '64

Asphalt groups seek better pavements. Eng N 172:24 F 27 '64

Asphalt paving equipment. J. J. Laing. il diag Civil Eng 35:36-8 Je '64

Contractors rush biggest asphalt paving job. il Eng N 173:30-2 Ag 13 '64

Fast deck job; pavers rode right over joints. il Roads & Sts 107:109-10+ Mr '64

Slurry seal used on turnpike shoulders. il Pub Works 95:87 Mr '64

Design

New data for asphalt-paving design. Oil & Gas J 61:101 O 21 '63

Maintenance and repair

Mobile heater aids pavement renewal. il Eng N 172:58 Je 11 '64

℞ for old pavements; infrared. il Eng N 173:53 Ag 27 '64

Testing

Effect of moisture on bituminous pavements in Rocky Mountain areas. W. L. Eager. bibliog il Pub Roads 33:48-54 Ag '64

Stability of bituminous pavements related to aggregate characteristics. R. E. Olsen. Pub Roads 33:54-5 Ag '64

PAVEMENTS, Bituminous concrete

Air permeabilities of asphalt concrete; discussion. P. D. Cady. Materials Res & Stand 4:74-5 F '64

Do-it-yourself carpet coating. C. C. Fagerlind. il Pub Works 95:106-7 Ag '64

Eastern reservoir designers borrow western lining ideas. il map diag Eng N 173:28-30 N 5 '64

Million-yard runway tar seal job: Boston's Logan international airport. il Roads & Sts 107:120-2+ Ap '64

Minimizing crack reflection. R. Ranson. il Pub Works 94:87-8 N '63

Paver lays asphaltic concrete 24 ft wide in a single pass. il Eng N 173:32-5 Jl 9 '64

Paving took ingenuity on Chesapeake Bay bridge. il Roads & Sts 107:136-7+ Je '64

See also

National bituminous concrete association
Roads, Bituminous concrete

PAVEMENTS, Concrete

Construction practice for rigid pavement; report of the subcommittee on construction of the committee on airfield pavement. il Am Soc C E Proc 90 [AT 1 no 3906]:41-72 My '64

Rigid and stiff airport pavement. H. P. Carothers. bibliog diags Am Soc C E Proc 90 [AT 1 no 3893]:17-39 My '64

Runway Rx; lime, cement, concrete, steel; Dallas' Love field. il Eng N 173:28-31 S 24 '64

Tests of concrete pavements on crushed stone. L. D. Childs and J. W. Kapernick. bibliog il diags Am Soc C E Proc 89 [HW 1 no 3479]:57-80 Ap '63; Discussion. J. E. Gray. 90 [HW 1 no 3780]:121-4 Ja '64

Two-inch bonded concrete overlay for the Port Mann bridge. N. Hilton. il diags Eng J 47:39-44 My '64

See also

Bridges—Floors
Roads, Concrete

Design

History and development of concrete pavement design. G. K. Ray. bibliog Am Soc C E Proc 90 [HW 1 no 3769]:79-101 Ja '64

Joints

Can joints at bridge ends be omitted? diag Eng N 173:51 Ag 27 '64

Foam absorbs pavement expansion. il Eng N 171:55 D 5 '63

Joint filler solves complex expansion problem. il Pub Works 95:158 Ag '64

Road bridge expansion joints of extruded neoprene. diags Engineering 196:591 N 8 '63

Maintenance and repair

Epoxy/coal tar cement prevents cold-weather deck failures. il Roads & Sts 107:75-6 My '64

Pressure grouting technique raises sunken slabs. F. Anderson. il Pub Works 95:97-8 Je '64

Reinforcement

Contractors speed Beltway paving. il map Eng N 172:32-3 Je 11 '64

Stinger crane places wire mesh. il Eng N 171:176 D 19 '63

PAVILIONS

Busy architect's guide to the World's fair. il plan diags Prog Arch 45:223-38 O '64

Dining pavilion over water. il plan Arch Rec 136:208-9 S '64

Five pavilions linked by a service spine. il plan diags Arch Rec 135:104-7 Mid-My '64

Four linked pavilions form builder house. il plan Arch Rec 135:92-5 Mid-My '64

Lighting at the fair. B. C. Cooper. il Elec Constr & Maint 63:100+ Jl '64

Patios and pavilions are combined for a walled-in city house for a large family. il plans Arch Rec 135:116-19 Mid-My '64

Pavilion of glass and concrete trees; Heights state bank, Houston, Texas. il plan Arch Rec 135:122-3 Ja '64

People, people, people; Festival of Gas pavilion. il Am Gas Assn Mo 46:20-1 Jl-Ag '64

Pin-wheel plan provides privacy without fences. il plans Arch Rec 135:153-6 Je '64

Prefabricated welded framing helps Wisconsin get to the Fair. il diags Welding Eng 49:45-7 Ag '64

P/A eleventh annual design awards; Israel pavilion for the 1964 World's fair. il plans diags Prog Arch 45:130-1 Ja '64

Sectional plastic fabric ceiling among new features of gas pavilion. il Am Gas Assn Mo 46:24 F '64

Slip forming New York State World's fair pavilion. M. Madison. il Am Concrete Inst J 61:755-62 Jl '64

Spanish pavilion is a beauty, but a beast to build. il Eng N 173:22-4 Jl 30 '64

Spanish pavilion: surprise hit of the Fair. il Arch Forum 120:16-17 Je '64

Two solutions for the tropical house: open pavilion. il plan diag Prog Arch 44:122-5 D '63

Unusual design for first floor pavilion extension. il Engineering 198:372 S 18 '64

PAVING machines

Asphalt paving equipment. J. J. Laing. il diag Civil Eng 34:36-8 Je '64

Fine grade, pave in one pass with Koehring's experimental slipform paver. il Eng N 172:25 Ja 2 '64

Four 34Es abreast pave on narrow fill platform. il Roads & Sts 107:74-8 Je '64

Laying a three lane roadway in one pass. il diag Engineering 198:243 Ag 21 '64

Machines simplify placing of continuous reinforcing. il Eng N 172:20-1 Ja 9 '64

New developments in concrete road construction; illustrations with text. Engineer 217:96 Ja 10 '64

Paver gets shoulder attachment. il Eng N 171:110 N 14 '63

Paver lays asphalt concrete 24 ft wide in a single pass. il Eng N 173:32-5 Jl 9 '64

Road building faster by concrete train. il diag Engineering 198:120 Jl 24 '64

Slipform paver lines drainage channel in broad single passes. il Eng N 173:40-2 O 1 '64

Small paver offers choice of mat material. il Engineering 197:261 F 14 '64

Special rigs speed continuous-steel paving. il Roads & Sts 107:68-9+ Ap '64

Two-course reinforced concrete pavement built without forms. il Eng N 173:38-40 S 10 '64

What's new in concrete paving. E. C. Lokken. il Civil Eng 34:54-7 Mr '64

Control

All-out electronic screed use reported. Roads & Sts 107:122 My '64

Electrohydraulic system controls paving head. J. Girvan. il diag Hydraulics & Pneumatics 17:90+ Ap '64

French road finisher with electronic controls. il Engineering 198:184 Ag 7 '64

PAY television. See Television broadcasting—Subscription programs

PAYMENT

See also

Collecting of accounts
Payrolls

PAYROLLS

Payment of staff: the Payment of wages act, 1960. E. Mitchell. Engineer 216:848-9 N 22 '63

PEACE corps. See United States—Peace corps

PEACHES

Effect of mechanical vibrations on fruit damage during transportation with special reference to cling peaches. M. O'Brien and others. bibliog Food Tech 17:1578+ D '63

Effect of moisture on the accumulation of carbonyl-amine browning intermediates in freeze-dried peaches during storage. I. Y. Huang and H. N. Draudt. bibliog Food Tech 18:1234-6 Ag '64

PEACHES—*Continued*

Effects of maturity and storage on certain biochemical changes in apricots and peaches. P. B. Deshpande and D. K. Salunkhe. bibliog Food Tech 18:1195-8 Ag '64

PEANUT oil

Keeping properties of edible oils; identity of trace materials adsorbed from peanut oil by chromatography on alumina. A. Crossley and A. Thomas. bibliog Am Oil Chem Soc J 41:95-100 F '64

PEANUT products

Preparation of cheese-like products from peanut and the biochemical changes that take place during their ripening. K. Ramamurti and others. bibliog Food Tech 18:888-90 Je '64

PEANUTS

Isolation and localization of the precursors of roasted peanut flavor. M. E. Mason and G. R. Waller. bibliog flow chart flow diag il J Agri & Food Chem 12:274-8 My '64

Peanut protein and milk protein blends in the treatment of kwashiorkor. J. K. G. Webb and others. bibliog Am J Clinical Nutrition 14:331-41 Je '64

Peanuts; from the ball park to the range. M. G. Lambou and others. il maps Am Oil Chem Soc J 40:sup4+ D '63

Pilot plant preparation of defatted peanuts. J. Pominski and others. bibliog il Am Oil Chem Soc J 41:66-8 Ja '64

Some problems in improving tropical materials utilized by the United Kingdom oil-milling industry. E. S. Hiscocks and W. D. Raymond. bibliog Am Oil Chem Soc J 41:224-8 Mr '64

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

PEARL essence

Producing an attractive iridescent finish. Ind Finishing 40:114-15 S '64

PEARS

Nonvolatile organic acids and core breakdown of Bartlett pears. M. W. Williams and M. E. Patterson. bibliog J Agri & Food Chem 12:80-3 Ja '64

PEAS

Effect of postharvest temperature of fresh peas on the quality of the canned peas. K. G. Weckel and others. bibliog Food Tech 18:1207-10 Ag '64

Gas chromatographic evaluation of the formation of volatile substances in stored peas. B. Bengtsson and I. Bosund. bibliog Food Tech 18:773-6 My '64

Mobile pea viner. il Engineer 218:252 Ag 14 '64

Podding peas on the move. il Engineering 198:198 Ag 14 '64

PEAT

Late quaternary sea-level change and crustal rise at Boston, Mass., with notes on the autocompaction of peat. C. A. Kaye and E. S. Barghoorn. il diags Geol Soc Bul 75:63-80 bibliog(p79-80) F '64

Torfinstitut and the Torfforschung G.m.b.H. M. Gordon. il Chem & Ind p682-9 Ap 25 '64

See also

Boilers—Peat firing

PEBBLE heaters

Speed and heat of re-entry simulated in NASA chamber. il diag Steel 154:110 Ap 20 '64

PECTINS

Gelled applesauce. M. E. Lazar and A. I. Morgan, jr. il Food Tech 18:310-11 Mr '64

Low-methoxyl pectin used as thickening agent for frozen gravies. R. H. Waters and M. P. Hood. bibliog Food Tech 18:1074-7 Jl '64

Pectic substances as an index to the chemistry of wood formation. B. R. Haas and R. E. Kremers. bibliog Tappi 47:568-73 S '64

PECTOLITE

Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64

PEDESTRIAN bridges. See Bridges, Foot

PEDESTRIANS

Analysis of pedestrian queueing. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:229-43 O '63

PEELE, Robert, award

A. W. Ruff wins Robert Peele award. Min Eng 16:70 Ja '64

PEELING

Lye peeling of apples improved by wax solvents. W. O. Harrington and C. H. Hills. Food Tech 18:375-6 Mr '64

Peeling grain. A. I. Morgan and others. il diags Food Tech 18:1150-3 Ag '64

PEENING

See also

Shot peening

PEGMATITES

Origin of certain magnetite-bearing pegmatites in the eastern part of the Bushveld Complex, South Africa. E. N. Cameron and G. A. Desborough. bibliog il maps diags Econ Geol 59:197-225 Mr '64

Tin-tantalum-lithium pegmatites of the São João Del Rei district, Minas Gerais, Brazil. E. W. Heinrich. bibliog il maps Econ Geol 59:982-1002 S '64

PEKELHARING, Cornelis Adrianus

Sketch. A. M. Erdman. por J Nutrition 83:2-9 My '64

PELLETIZING. See Iron metallurgy

PELTIER effect

Apparatus for measurement of Peltier coefficients. F. N. Lancia and J. D. McGervey. diags R Sci Instr 35:1302-4 O '64

Corrections used in the adiabatic measurement of thermal conductivity using the Peltier effect. A. W. Penn. diag J Sci Instr 41:626-8 O '64

Developments in the field of thermoelectricity. G. Gramburg and H. G. Flust. bibliog il diags Naval Eng J 75:925-36 D '63

Magnetothermoelectricity. G. Corfield. Gas 40:15 N '64

Semiconductor-cooled laser achieves first all-solid-state laser system. Franklin Inst J 278:154 Ag '64

PENCILS

Controlled dip finishing of pencils. il Ind Finishing 40:141-2 My '64

PENDLETON, Oregon

Water supply

Pendleton's pipeline; a tortuous route. il Water Works & Wastes Eng 1:50-1 O '64

PENDULUM

Air core transformer system eliminating contact wires in the carrier frequency device of a torsion pendulum. U. Zorll. il J Sci Instr 40:529-31 N '63

Effect of high-frequency support oscillation on the motion of a spherical pendulum. G. W. Hemp and P. R. Sethna. bibliog diags A S M E Trans ser E 31:351-4 Je '64

Inexpensive physical pendulum experiment. H. Weltin. diag Am J Phys 32:267-8 Ap '64

Method for the automatic measurement of internal friction by a torsion pendulum. T. Lindveit and others. diags J Sci Instr 41:564-5 S '64

Precision measurement of period vs amplitude for a pendulum. M. K. Smith. diags Am J Phys 32:632-3 Ag '64

Resonant detection of light pressure by a torsion pendulum in air; experiment for underclass laboratories. R. E. Pollock. Am J Phys 31:901-4 D '63

Simulating an inverted pendulum. diags Instruments & Control Systems 36:127-8 O '63

Torsion pendulum photometer. M. Stimler and others. diag R Sci Instr 35:311-13 Mr '64

Versatile ballistic pendulum. R. W. Barton. il Am J Phys 32:229-32 Mr '64

See also

Foucault pendulum

Vibration absorbers

PENDULUM rolling process. See Rolling (metal work)

PENEX process. See Gasoline, Natural—Manufacture

PENICILLIN

Determination of phenylacetic acid in penicillin fermentation media by means of gas chromatography. A. O. Niedermayer. Anal Chem 36:938-9 Ap '64

Experiences with a controlled community rheumatic fever prophylaxis program. C. G. Alexson and others. bibliog Am J Pub Health 54:1580-7 S '64

PENICILLIUM

Isolation and structure of a methyltriacetic lactone from penicillium stripitatum. P. E. Brenneisen and others. bibliog Am Chem Soc J 86:1264-5 Mr 20 '64

Structure of erythroskyrine, a nitrogen-containing colouring matter of penicillium islandicum Sopp. J. Shoji and S. Shibata. Chem & Ind p 419-21 Mr 7 '64

PENNSYLVANIA
See also subdivision Pennsylvania under special subjects, e.g.
Architecture, Domestic
Atomic power plants
Coal mines and mining
Electric lines
Electricity supply
Gas, Natural
Geology
Petroleum
Petroleum industry and trade
Roads
Water supply
Zinc mines and mining

PENNSYLVANIA electric association
Annual meeting, 57th, Pittsburgh. Elec World 162:101 O 19 '64
Annual meeting, Philadelphia. Elec World 160:49 O 21 '63

PENNSYLVANIA turnpike. See Roads—Pennsylvania

PENNSYLVANIAN period. See Geology, Stratigraphic—Pennsylvanian

PENOLOGY. See Punishment

PENS
Instrument pens. Gas 40:81+ Ap; 107+ My '64

PENSIONS
See also
Old age pensions

PENSTOCKS
Measurements of auto-oscillation in a hydroelectric supply tunnel and penstock system. H. F. Abbott and others. diags A S M E Trans ser D 85:625-30 D '63
Optimum penstock diameter in hydroelectric plants. E. J. Low. Am Soc C E Proc 88 [PO 2 no 3186]:9-16 Jl '62; Discussion. 88 [PO 4 no 3374]:193-8 D '62; 89 [PO 1 no 3652]:109-13 S '63; Reply. 90 [PO 1 no 3849]: 61-5 Mr '64
Theory of resonance in hydropower systems. C. Jaeger. bibliog diags A S M E Trans ser D 85:631-40 D '63

PENTACHLOROPHENOL
Gravimetric method for determination of pentachlorophenol with nitron. A. M. Lode. bibliog Tappi 47:148-53 Mr '64

PENTADIENE
New synthesis of 2-methyl-1,3-pentadiene. J. K. Haken. bibliog J Ap Chem 14:174-5 Ap '64
Organo-iron complexes; π-pentadienyl- and π-1,5-dimethylpentadienyliron tricarbonyl cations. J. E. Mahler and R. Pettit. bibliog Am Chem Soc J 85:3955-9 D 20 '63
Organo-iron complexes; reactions of the *syn*-1-methylpentadienyliron tricarbonyl cation. J. E. Mahler and others. bibliog Am Chem Soc J 85:3959-63 D 20 '63
Stable dianion radicals and trianions in substituted pentadienyl systems. N. L. Bauld. bibliog Am Chem Soc J 86:2305-6 Je 5 '64

PENTADIENEDIOIC acid
Absolute configuration of pentadiendioic acid. W. C. Agosta. bibliog Am Chem Soc J 86:2638-42 Jl 5 '64

PENTAERYTHRITOL tetranitrate
Analysis of pentaerythritol tetranitrate and its hydrolysis products by thin layer chromatography and radio scanning. F. J. DiCarlo and others. bibliog il Anal Chem 36:2301-3 N '64

PENTAFINING process. See Gasoline—Manufacture

PENTALENE
Pentalenyl dianion. T. J. Katz and others. bibliog Am Chem Soc J 86:249-52 Ja 20 '64

PENTANE
Critical temperatures and critical pressures for the ethane-*n*-butane-*n* pentane system. V. S. Mehra and G. Thodos. bibliog J Ap Chem 14:265-8 Je '64
More insight into adsorption design. J. M. Campbell and others. bibliog diags Hydrocarbon Process & Pet Refiner 42:89-96 D '63

PENTANONE
Photoelimination of ethylene from 2-pentanone. P. Ausloos and R. E. Rebbert. Am Chem Soc J 86:4512-13 O 20 '64

PENTOSES
Mass spectra of O-isopropylidene derivatives of pentoses and hexoses. D. C. De Jongh and K. Biemann. bibliog Am Chem Soc J 86:67-74 Ja 5 '64
Mass spectra of three acetyl derivatives of 3,4-dideoxyaldopentose. M. Venugopalan and C. B. Anderson. Chem & Ind p370-1 F 29 '64

PEPPER, James Franklin
Memorial; with list of his publications. W. De Witt, jr. por Geol Soc Bul 75:sup61-6 Ap '64

PEPPER
Critical study of two procedures for the determination of piperine in black and white pepper. C. Genest and others. bibliog J Agri & Food Chem 11:508-12 N '63

PEPPERMINT oil
Insecticide residues in peppermint and their distillation with peppermint oil. H. Starr and others. bibliog J Agri & Food Chem 11:482-6 N '63
Mint oil marketing. J. E. Landing. bibliog il Drug & Cosmetic Ind 94:34-5+ Ja '64

PEPPERS
Fatty acids of pimiento pepper seed oil. J. E. Marion and A. H. Dempsey. il Am Oil Chem Soc J 41:548-9 Ag '64

PEPSIN
Blood pepsin as marker of susceptibility to duodenal ulcer disease. J. C. Niederman and others. bibliog Archives Environmental Health 8:540-6 Ap '64
Pepsin pancreatin digest index of protein quality evaluation. W. R. Akeson and M. A. Stahmann. bibliog J Nutrition 83:257-61 Jl '64

PEPTIDES
Active center histidine peptide of α-chymotrypsin. E. B. Ong and others. bibliog Am Chem Soc J 86:1271-2 Mr 20 '64
Active esters and resins in peptide synthesis. M. Bodanszky and J. T. Sheehan. bibliog Chem & Ind p 1423-4 Ag 8 '64
Application of a Hammett-Taft relation to kinetics of alkylation of amino acid and peptide model compounds with acrylonitrile. M. Friedman and J. S. Wall. bibliog Am Chem Soc J 86:3735-41 S 20 '64
Automatic method for separation, hydrolysis, and detection of peptides. G. N. Catravas. flow diags Anal Chem 36:1146-8 My '64
Chemical cleavage of proline peptide bonds. A. Patchornik and others. Am Chem Soc J 86:1457 Ap 5 '64
Cis and *trans* configurations of the peptide bond in N-monosubstituted amides by nuclear magnetic resonance. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 86:337-41 F 5 '64
Cleavage of tyrosyl-peptide bonds by electrolytic oxidation. H. Iwasaki and others. Am Chem Soc J 85:3701-2 N 20 '63
Degradation of synthetic polypeptides. W. G. Miller. bibliog Am Chem Soc J 86:3913-22 O 5 '64
Formyl, a novel NH_2-terminal blocking group in a naturally occurring peptide; the identity of *seco*-gramicidin with desformylgramicidin. R. Sarges and B. Witkop. bibliog Am Chem Soc J 86:1861-2 My 5 '64
Helix-to-random coil change takes less than microsecond; kinetic studies of hydrogen bond formation. M. Eigen and others. diags Chem & Eng N 41:38-40 D 2 '63
Insulin peptides; a synthetic heptadecapeptide derivative corresponding to the C-terminal sequence or the B-chain of insulin. P. G. Katsoyannis and M. Tilak. bibliog Am Chem Soc J 85:4028-31 D 20 '63
Insulin peptides; the synthesis of the B-chain of insulin and its combination with natural or synthetic A-chain to generate insulin activity. P. G. Katsoyannis and others. bibliog Am Chem Soc J 86:930-2 Mr 5 '64
Mass spectra of dipeptides. H. J. Svec and G. A. Junk. bibliog Am Chem Soc J 86:2278-82 Je 5 '64
New methods in peptide synthesis; tritylsulfenyl and *o*-nitrophenylsulfenyl groups as *N*-protecting groups. L. Zervas and others. bibliog Am Chem Soc J 85:3660-6 N 20 '63
New synthesis of a biologically active nonadecapeptide corresponding to the first nineteen amino acid residues of adrenocorticotropins. C. H. Li and others. bibliog il Am Chem Soc J 86:2715-18 Jl 5 '64
Nonenzymatic cleavage of peptide bonds; the half-cystine residues in bovine pancreatic ribonuclease. M. Sokolovsky and A. Patchornik. bibliog Am Chem Soc J 86:1859-60 My 5 '64
Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion into dehydroalanine. A. Patchornik and others. bibliog Am Chem Soc J 86:1206-17 Mr 20 '64
Oxidative cleavage of tyrosyl peptides. J. S. Davies and others. Chem & Ind p 1804-5 O 24 '64
Peptide synthesis from N-carboxy-α-amino acid anhydrides in water; aminoacylpenicillanic acids. N. H. Grant and H. E. Alburn. bibliog Am Chem Soc J 86:3870-3 S 20 '64

PEPTIDES—*Continued*

Peptide synthesis via active esters; racemization and ring-opening reactions of optically active oxazolones. M. Goodman and L. Levine. bibliog Am Chem Soc J 86:2918-22 Jl 20 '64

Preparation of β-poly-L-aspartic acid using activated β-ester derivative. J. Kovacs and others. bibliog Chem & Ind p 1955-6 D 14 '63

Proteins may have hexagonal structure. D. T. Warner. il diags Chem & Eng N 42:53-4 O 26 '64

Serine peptides as carriers of cytoactive groups. M. Szekerke and others. bibliog Chem & Ind p 1385-6 Ag 1 '64

Solid phase peptide synthesis; the synthesis of bradykinin. R. B. Merrifield. Am Chem Soc J 86:304-5 Ja 20 '64

Synthesis of a biologically active heptadecapeptide related to adrenocorticotropin. C. H. Li and others. bibliog il Am Chem Soc J 86:2703-10 Jl 5 '64

Synthesis of a biologically active pentadecapeptide corresponding to an altered sequence in the adrenocorticotropin (ACTH) structure. C. H. Li and others. bibliog il Am Chem Soc J 86:2711-15 Jl 5 '64

Synthesis of an octapeptide corresponding to a sequence around the reactive serine of chymotrypsin. H. T. Cheung and others. bibliog Am Chem Soc J 86:4200-2 O 5 '64

Synthesis of arginine-containing peptides through their ornithine analogs; synthesis of arginine vasopressin, arginine vasotocin, and L-histidyl-L-phenylalanyl-L-arginyl-L-tryptophylglycine. M. Bodanszky and others. bibliog Am Chem Soc J 86:4452-9 O 20 '64

Synthesis of cysteine peptides. M. Sokolovsky and others. bibliog Am Chem Soc J 86:1202-6 Mr 20 '64

Synthetic peptide models of enzyme active sites; l-threonyl-l-alanyl-l-seryl-l-histidyl-l-aspartic acid, an active esterase model. P. Cruickshank and J. C. Sheehan. bibliog Am Chem Soc J 86:2070-1 My 20 '64

Tetra-alkyl esters of phosphorous-phosphoric anhydride as peptide bond-forming reagents. M. Leplawy and others. bibliog diag Chem & Ind p835-6 My 16 '64

Use of esters of N-hydroxysuccinimide in peptide synthesis. G. W. Anderson and others. bibliog Am Chem Soc J 86:1839-42 My 5 '64

PERACETATES

Mass spectrometry in carbohydrate chemistry; ethylene dithioacetal peracetates. D. C. DeJongh. bibliog Am Chem Soc J 86:4027-30 O 5 '64

PERACETIC acid

Preparation of peracetic acid; abstract. R. Kuboszek and others. Ind Chem 40:159-60 Mr '64

Manufacture

Peracetic acid: what's the best route? diags Can Chem Process 47:60-1 D '63

PERBENZOATES

Stereochemistry of the copper-salt-catalyzed reaction of *t*-butyl perbenzoate with optically active bicyclo[3.2.1]octene-2. H. L. Goering and U. Mayer. bibliog Am Chem Soc J 86:3753-6 S 20 '64

PERCEPTION

Illusion of movement. P. A. Kolers. il diags Sci Am 211:98-106 O '64

Perceptual and field factors causing lateral displacement. R. M. Michaels and L. W. Cozan. bibliog il diags Pub Roads 32:233-40 D '63

Preliminary experiment on the perceptual basis for musical instrument families. M. Clark, jr. and others. diag Audio Eng Soc J 12:199-203 Jl '64

Visual search. U. Neisser. il Sci Am 210:94-100+ Je '64

PERCEPTRONS

Analytic techniques for the study of neural nets. F. Rosenblatt. bibliog diags IEEE Trans Applications & Ind 83:285-92 S '64

Character readers for mail sorting pushed by Post Office. il Control Eng 11:19-20 F '64

Conditioned-reflex circuits. K. C. Wehr. bibliog diags Electronics 37:66-70 Ag 24 '64

Developments in electronic reading machines. J. B. Rudkin. il diags Ind Electronics 2:397-9, 410-14, 475-7 Ag-O '64

Devices that learn. il Electronics 37:23-4 Je 29 '64

Feature word construction for use with pattern recognition algorithms; experimental study. R. L. Mattson and O. Firschein. bibliog flow chart diags Assn for Computing Mach J 10:458-77 O '63

Geometrical probability in automatic pattern recognition. A. Rosenfeld. IEEE Proc 52:1269-70 O '64

Geometry of automatic character recognition. R. Townsend. diags Electro-Tech 73:54-7+ My '64

Optical character-recognition systems. H. Falk. bibliog diags Electro-Tech 74:42-52+ Jl '64

Optical device to contact dolphins. il diag Electronics 36:46+ N 22 '63

Pattern recognition and adaptive control. B. Widrow. bibliog il diags IEEE Trans Applications & Ind 83:269-77 S '64

Pattern recognition device, Minos II, can be taught to scan up to 6600 weighted variables of a problem and come up with solution based on past experience. il diag Product Eng 35:53-4 Ja 20 '64

Print reader. diag Electronic Ind 23:139 F '64

Sceptron. R. Waller. diags J Sci Instr 41:261-2 My '64

Spoken digit recognizer for the Japanese language. K. Nagata and others. bibliog il diags Audio Eng Soc J 12:336+ O '64

PERCHLORATES

Benzopyrylium salts; reaction of flavylium perchlorate with ethyl esters of α-amino acids. R. L. Shriner and R. Sutton. bibliog Am Chem Soc J 85:3989-91 D 20 '63

Electrochemical behavior of nickel compounds; anodic dissolution and oxygen reduction in perchlorate solutions. A. K. M. Shamsul Huq and others. bibliog Electrochem Soc J 111:278-86 Mr '64

Homogeneously catalyzed hydration of acetylenes by mercuric perchlorate-perchloric acid; evidence for a bis-(acetylene)-mercuric ion complex as an intermediate. W. L. Budde and R. E. Dessy. bibliog diag Am Chem Soc J 85:3964-70 D 20 '63

Isolation of a 3α,5α-bridged carbonium ion perchlorate. J. W. Blunt and others. Chem & Ind p 1955 D 14 '63

Mn, Ni, Co, and UO_2 perchlorate complexes made. D. K. Straub and Y. M. Yung. Chem & Eng N 42:53-5 S 21 '64

Quantitative saponification of highly hindered esters by perchlorate anion catalysis. D. E. Jordan. bibliog Anal Chem 36:2134-8 O '64

Spectrophotometric determination of perchlorate. J. S. Fritz and others. Anal Chem 36:2123-6 O '64

See also

Ammonium perchlorate

Analysis

Determination of chloride, hypochlorite, chlorite, chlorate, perchlorate, and chlorine dioxide in composite mixtures. L. A. Prince. bibliog Anal Chem 36:613-16 Mr '64

Volumetric determination of perchlorates in pyrotechnics. B. J. Alley and H. W. H. Dykes. Anal Chem 36:1124-6 My '64

PERCHLORIC acid

Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64

Determination of mercaptosilanes by perchloric acid-catalyzed acetylation and with mercuric acetate. A. Berger and J. A. Magnuson. Anal Chem 36:1156-7 My '64

Homogeneously catalyzed hydration of acetylenes by mercuric perchlorate-perchloric acid; evidence for a bis-(acetylene)-mercuric ion complex as an intermediate. W. L. Budde and R. E. Dessy. bibliog diag Am Chem Soc J 85:3964-70 D 20 '63

Molybdenum species in acid solution. I. L. Jenkins and A. G. Wain. bibliog J Ap Chem 13:561-4 D '63

Oxygen adsorption and double layer capacities; gold in perchloric acid. G. M. Schmid and R. N. O'Brien. bibliog diags Electrochem Soc J 111:832-7 Jl '64

PERCHLOROETHYLENE. See Tetrachloroethylene

PEREZ ISLAND. See Alacran Reef

PERFLUORO compounds

Breakdown strengths of a perfluorocarbon vapor (FC-75) and mixtures of the vapor with SF_6. A. H. Sharbaugh and P. K. Watson. bibliog il diags IEEE Trans Power Apparatus & Systems p 131-6 F '64

PERFLUORO compounds—*Continued*

Effect of the perfluoroalkyl group on the nuclear magnetic resonance spectra, conformational equilibria, and *cis-trans* equilibria of 1-iodo-2-(perfluoroalkyl)-cyclohexanes. N. O. Brace. bibliog Am Chem Soc J 86:665-73 F 20 '64

Pentafluorophenyl derivatives. Chem & Eng N 42:40-1 F 10 '64

Perfluorobenzylene oxide polymers. V. C. R. McLoughlin and J. Thrower. Chem & Ind p 1557 S 5 '64

Perfluorophenyl ether and related polymers. W. J. Pummer and L. A. Wall. bibliog J Res Nat Bur Stand 68A:277-86 My '64

Reactions of 1-iodo-2-(perfluoroalkyl)cyclohexane conformers; products of elimination and reduction; rates and mechanisms. N. O. Brace. bibliog Am Chem Soc J 86:2428-34 Je 20 '64

Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system; measurements accurate to 0.0001°. D. R. Thompson and O. K. Rice. bibliog diags Am Chem Soc J 86:3547-53 S 5 '64

PERFORATED sheet metal. See Sheet metal, Perforated

PERFUMERY

About perfumery. J. Pickthall and D E. Butterfield. Chem & Ind p259-62 F 15 '64

Aerosol review, 1964; perfumes and toilet water. Manuf Chem 35:107-8 Mr '64

Animal note in modern fragrance compounds. Soap & Chem Spec 40:161 Jl '64

Annual guide to cosmetic and perfumery materials. il Manuf Chem 34:520-6+ N '63

Art vs. science in perfumery. D. P. Anonis. il Drug & Cosmetic Ind 95:500-1+ O '64

Conference on recent advances in odor; theory, measurement and control. New York, Nov. 7-9; abstracts of papers. Am Perfumer 79:49-50+ F '64

Effect of perfumery materials on tetrahymena pyriformis. J. C. Maruzzella and G. S. Utay. bibliog Am Perfumer 79:35-7 S '64

Filling aerosol colognes. F. Present. Drug & Cosmetic Ind 95:182+ Ag '64

Lanvin atomizer-pump package tested. diags Drug & Cosmetic Ind 93:814-15+ D '63

Leaf alcohol (cis 3-hexen-1-ol). P. Bedoukian. bibliog Am Perfumer 78:31-5 D '63

Make-up perfumes. E. Youngberg. Am Perfumer 79:79-80 O '64

New British perfumery materials factory; Ashford, Kent. il Soap & Chem Spec 40:189+ Ag '64

New home of Dana Perfumes; Wilkes-Barre, Penn. G. E. Toles. il Am Perfumer 79:21-4 Ja '64

New Lanvin atomizer. il Soap & Chem Spec 39:117 N '63

Odor psychology and successful perfuming. E. Paukner. Am Perfumer 79:37-41 F '64

Perfume and flavor research facility in Switzerland has developed special analytical instruments; Firmenich & cie. il Anal Chem 36:sup79A-81A Ag '64

Perfumer's shelf. Published in monthly numbers of Drug and cosmetic industry

Perfumery and essential oils. W. D. Fordham. bibliog Manuf Chem 34:530-2+ N '63; 35:67-70 Ap '64

Perfumery chemicals from pinene. B. D. Sully. Chem & Ind p263-7 F 15 '64

Perfumery practices in various countries. Q. L. Marton. Am Perfumer 78:25-8 N '63

Physical foundations in perfumery. L. Appell. bibliog diags Am Perfumer 79:25-33 Ja; 43-8 F; 29-41 My '64 (to be cont)

Progress in perfumery materials. P. Z. Bedoukian. il Am Perfumer 79:27-37 bibliog(p36-7) Ap '64

Proprietary perfumes ltd.'s new factory at Ashford. il Chem & Ind p939 My 30 '64

Purchasing practices in perfumery and flavor material. L. G. Pochat. Am Perfumer 78:40-4 N '63

Synthetic flavors, fragrances gain new role. il Chem & Eng N 42:25-6 My 11 '64

See also

Essential oils

Odors

PERICLASE

Microstructure of chromite-periclase at 1650° to 2310°C. P. E. Scheerer and others. bibliog il Am Cer Soc J 47:297-305 Je '64

Microstructure of periclase. W. S. Treffner. bibliog il Am Cer Soc J 47:401-9 Ag '64

PERIDOTITE

Alumina content of enstatite in a Venezuelan high-temperature peridotite. D. H. Green. Geol Soc Bul 74:1397-401, pl 1 N '63

Metamorphic aureole of the peridotite at the Lizard, Cornwall. D. H. Green. bibliog maps diags J Geol 72:543-63 S '64

PERIODATES

Mechanism of the periodate oxidation of aromatic systems; a kinetic study of the periodate oxidation of hydroquinone and *p*-methoxyphenol in acidic solution. E. T. Kaiser and S. W. Weidman. bibliog Am Chem Soc J 86:4354-8 O 20 '64

Quantitative recovery and programmed temperature gas chromatographic analysis of periodate-permanganate oxidative cleavage products. D. F. Kuemmel. bibliog Anal Chem 36:426-9 F '64

PERIODIC system

Survey of modern chemistry; periodic law Austin and H. F. Austin. bibliog Chem Eng correlates properties of the elements. G. T. 70:87-92 D 23 '63

PERIODICALS

See also

Tappi (periodical)

PERIODICITY

Forecasting periodic trends by exponential smoothing. J. M. Dobbie. Op Res 11:908-18 N '63

PERKIN medal

Perkin medal goes to William J. Sparks. Chem & Eng N 42:76 F 10 '64

Perkin medal; list of recipients. il Soc Dyers & Col J 80:4 Ja '64

Sparks awarded 1964 Perkin medal. Rubber Age 94:948 Mr '64

PERLITE

New super-lightweight aggregate yields high-strength concrete. H. F. Utley. il Pit & Quarry 56:160-1+ My '64

Volatiles in volcanic glasses and their stability relations. C. S. Ross. bibliog Am Mineralogist 49:258-71 Mr '64

PERLMAN, Isadore

ACS award for nuclear applications in chemistry. por Chem & Eng N 42:158 Ja 27 '64

PERMAFROST. See Soils—Freezing

PERMALLOY

Dispersion in thin magnetic films. J. M. Daughton and A. V. Pohm. bibliog diags IEEE Trans Com & Electronics 83:247-50 My '64

Effect of crystallite size and orientation on the magnetization ripple in permalloy films. A. Baltz and W. D. Doyle. bibliog il J Ap Phys 35:1814-18 Je '64

Influence of the thermal and mechanical history on the squareness characteristics of 4-79 molybdenum permalloy. G. Y. Chin and others. diags J Ap Phys 35:867-9 pt 2 Mr '64

Investigations of the effects of neutron and He^3 irradiation on the magnetic properties of permalloy thin films. A. I. Schindler and C. M. Williams. il J Ap Phys 35:877-9 pt 2 Mr '64

Irradiation of iron and 5-79 Mo permalloy with 2-mev electrons. D. I. Gordon and R. S. Sery. bibliog J Ap Phys 35:879-80 pt 2 Mr '64

Magnetic annealing of thin permalloy films. S. B. Greenberg and E. Korostoff. J Ap Phys 35:1653-4 My '64

Magnetic properties of cube-textured 6-81.3 Mo-permalloy. Y. Odani. J Ap Phys 35:865-6 pt 2 Mr '64

Magnetization of permalloy at low temperatures. B. E. Argyle and S. H. Charap. J Ap Phys 35:802-3 pt 2 Mr '64

Measurement of ferromagnetic resonance of thin permalloy films at low bias field. D. T. Ngo. diag J Ap Phys 34:3626 D '63

Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64

Properties of molybdenum-permalloy films. K. Y. Ahn and W. R. Beam. J Ap Phys 35:832-3 pt 2 Mr '64

Quantitative calculation of the magnetic ripple of uniaxial thin permalloy films. H. Hoffmann. bibliog diag J Ap Phys 35:1790-8 Je '64

Quasistatic flux reversal characteristics of electrodeposited thin permalloy films. R. D. Fisher and others. diags Electrochem Soc J 111:39-42 Ja '64

Quasistatic properties of RIS films of oxidized permalloy. C. H. Wilts. il J Ap Phys 35:2097-101 Jl '64

Recent developments in the manufacture of permalloy powder cores; abstract. A. J. Harendza-Harinxma. Electro-Tech 74:122+ Ag '64

Some structure-property relationships in thin magnetic films. K. Y. Ahn and others. il J Ap Phys 35:1187-90 Ap '64; Discussion. 35:3051-2 O '64

PERMALLOY—*Continued*

Stress effects in evaporated permalloy films. H. L. Pinch and A. A. Pinto. J Ap Phys 35:828-9 pt 2 Mr '64

Study of standing spin waves in thin permalloy films at radio and ultrahigh frequencies. T. E. Hasty. bibliog il diags J Ap Phys 35:1486-93 My '64

PERMANGANATES

Mechanisms of permanganate oxidation; oxidation of tertiary hydrogens. K. B. Wiberg and A. S. Fox. bibliog Am Chem Soc J 85:3487-91 N 5 '63

Quantitative recovery and programmed temperature gas chromatographic analysis of periodate-permangante oxidative cleavage products. D. F. Kuemmel. bibliog Anal Chem 36:426-9 F '64

Transition state characterization for the permanganate oxidation of fluoral hydrate. J. L. Kurz. bibliog Am Chem Soc J 86:2229-32 Je 5 '64

Analysis

Voltammetric determination of permanganate at the gold electrode. C. O. Huber. bibliog diag Anal Chem 36:1873-4 Ag '64

PERMEABILITY

Air permeabilities of asphalt concrete; discussion. P. D. Cady. Materials Res & Stand 4:74-5 F '64

Channel stability in undistributed cohesive soils. E. M. Flaxman. bibliog diags Am Soc C E Proc 89 [HY 2 no 3462]:87-96 Mr '63; Discussion. 89 [HY 6 no 3708]:259-64 N '63; Reply. 90 [HY 3 no 3911]:317-19 My '64

Determining permeability constants of wire insulation and cable jacket. A. G. Ferrari. bibliog il diags Mod Plastics 41:153-4+ Je '64

Effect of bacteria on sandstone permeability. P. J. Kalish and others. diags J Pet Tech 16:Trans805-14 Jl '64

Engineering concepts useful in oil finding. J. J. Arps. diags Am Assn Pet Geologists Bul 48:157-65 F '64

How diffused chromium boosts permeability. Iron Age 193:71 My 28 '64

How permeable are fissured rocks? il diags Engineering 198:58 Jl 10 '64

Influence of chemical composition of water on clay blocking of permeability. F. O. Jones, jr. bibliog diags J Pet Tech 16:Trans 441-6 Ap '64

Laminar and turbulent flow of water through sand. M. Anandakrishnan and G. H. Varadarajulu. bibliog diags Am Soc C E Proc 89 [SM 5 no 3631]:1-15 S '63; Discussion. 90 [SM 2 no 3850]:205-7 Mr; [SM 3 no 3907]: 171-6 My '64

Mechanism of hydrogen evolution on iron in acid solutions by determination of permeation rates. M. A. V. Devanathan and Z. Stachurski. bibliog diags Electrochem Soc J 111:619-23 My '64

Permeation of gases through polyethylene films at elevated pressures. N. N. Li and E. J. Henley. bibliog diags A I Ch E J 10: 666-70 S '64

Portable asphalt paving meter. il Engineering 198:441 O 2 '64

Prediction of relative permeability characteristics of intergranular reservoir rocks from electrical resistivity measurements. S. J. Pirson and others. bibliog diags J Pet Tech 16:564-70 My '64

Principles and practice of permeability measurement in drier felts. E. Race and T. Hindle. bibliog il diag Tappi 47:452-7 Ag '64

Semi-permeability of bentonite membranes to brines. I. H. Milne and others. bibliog diags Am Assn Pet Geologists Bul 48:103-5 Ja '64

Turbulent flow in porous media. J. C. Ward. bibliog Am Soc C E Proc 90 [HY 5 no 4019]:1-12 S '64

See also
Packaging materials—Permeability
Paper—Permeability
Soil permeability
Textile fabrics—Permeability

PERMEABILITY, Magnetic. See Magnetic permeability

PERMEAMETERS

Air-core primary radio frequency permeameter for reversible permeability measurements. C. A. Hoer and R. D. Harrington. il diag IEEE Proc 51:1795-6 D '63

New NBS permeameters. diag Electro-Tech 74:122+ O '64

PERMIAN period. See Geology, Stratigraphic—Permian

PERMITTIVITY. See Dielectric constants

PEROVSKITE

New Perovskite-type compounds A_2BTeO_6. G. Bayer. bibliog Am Cer Soc J 46:604-5 D '63

Oxygen deficiency in perovskite-type compounds of calcium. R. V. Coates and J. W. McMillan. bibliog J Ap Chem 14:346-50 Ag '64

Use of perovskite paraelectrics in beam deflectors and light modulators. F. S. Chen and others. bibliog IEEE Proc 52:1258-9 O '64

PEROXIDES

Competition grows for peroxide catalysts. Chem & Eng N 42:25-6 F 24 '64

Crystalline *o*-azidobenzoyl peroxide detonates violently. J. E. Leffler. Chem & Eng N 41: 45 D 2 '63

Decomposition of acetyl peroxide in solution; kinetics and use of radical traps. H. J. Shine and others. bibliog Am Chem Soc J 85:3613-21 N 20 '63

Deposition of nickel-tungsten alloys; acid peroxide solutions. L. Domnikov. bibliog Metal Finishing 62:68-71 Ap '64

Destroying peroxides of isopropyl ether. A. C. Hamstead. bibliog Ind & Eng Chem 56:37-42 Je '64

Determination of the peroxide value of fats. C. H. Lea and L. J. Parr. Chem & Ind p 1560 S 5 '64

Dialkyl peroxide-induced reductions of aromatic ketones. E. S. Huyser and D. C. Neckers. bibliog Am Chem Soc J 85:3641-4 N 20 '63

Effects of ionizing radiations on fats; accumulation of peroxides and other chemical changes. J. R. Chipault and G. R. Mizuno. bibliog Am Oil Chem Soc J 41:468-73 Jl '64

Evaluation of sulfur donors in ethylene-propylene rubber. J. F. Quirk and others. Rubber Age 94:733-6 F '64

Handling of benzoyl and MEK peroxides. J. D. Malkemus. il Mod Plastics 41:119-20+ D '63

Mechanisms of decomposition of diacyl peroxides. F. D. Greene and others. bibliog Am Chem Soc J 86:2080-1 My 20 '64

Modified acrylic elastomers and their vulcanization with a peroxide-coagent system. M. A. Mendelsohn. bibliog Ind & Eng Chem Product Res & Develop 3:67-72 Mr '64

Organic peroxides; the behavior of cyclohexaneformyl peroxide in the presence of excess stable radicals; the simultaneous determination of kinetics and free radical efficiencies in the thermal decompositions of free radical initiators. R C. Lamb and J. G. Pacifici. bibliog Am Chem Soc J 86: 914-18 Mr 5 '64

Organic peroxides; the mechanism of the thermal decomposition of 6-heptenoyl peroxide in toluene; the rearrangements of the 5-hexenyl radical. R. C. Lamb and others. bibliog Am Chem Soc J 85:3483-6 N 5 '63

Peroxidation of organic compounds by externally generated singlet oxygen molecules. E. J. Corey and W. C. Taylor. Am Chem Soc J 86:3881-2 S 20 '64

Peroxide catalysts for polyesters. M. E. Marks. il Plastics Tech 10:44-7 F '64

Peroxide catalysts race to keep pace. il Can Chem Process 47:53-4 N '63

Photosensitized oxidation of pine gum to yield peroxides. W. H. Schuller and others. bibliog Ind & Eng Chem Product Res & Develop 3:97-100 Je '64

Polymeric peroxide of tetrafluoroethylene. A. Pajaczkowski and J. W. Spoors. Chem & Ind p659 Ap 18 '64

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1 : 1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

Reactions between peroxide and polydiolefins. B. M. E. van der Hoff. bibliog Ind & Eng Chem Product Res & Develop 2:273-8 D '63

Reactions of Lewis acids with diaroyl peroxides. D. Z. Denney and others. bibliog Am Chem Soc J 86:46-50 Ja 5 '64

Reactions of radicals; ethyl peroxide, isopropyl peroxide, and *sec*-butyl peroxide. W. A. Pryor and others. bibliog Am Chem Soc J 86:4237-43 O 20 '64

Recent developments in the peroxide bleaching of mechanical pulps. R. R. Kindron. Tappi 46:sup 152A-4A D '63

Relationship of peroxide value and thiobarbituric acid value to development of undesirable flavor characteristics in fats. W. D. Pohle and others. Am Oil Chem Soc J 41:649-50 O '64

PEROXIDES—*Continued*

Some radical reactions of trivalent phosphorus derivatives with mercaptans, peroxides, and olefins; a new radical cyclization. C. Walling and M. S. Pearson. bibliog Am Chem Soc J 86:2262-6 Je 5 '64

Study of the decomposition of 3,3,3-triphenylpropanoyl peroxide. D. B. Denney and others. bibliog Am Chem Soc J 86:1116-19 Mr 20 '64

Vulcanization of poly(vinyl alkyl ethers) with dicumyl peroxide and sulfur. J. Lal and J. E. McGrath. bibliog Rubber Chem & Tech 36:1159-72 O '63

See also

Hydrogen peroxide

Analysis

Determination of organic peroxides by iodine liberation procedures. R. D. Mair and A. J. Graupner. bibliog il diag Anal Chem 36:194-204 Ja '64

Determination of peroxide by automatic colorimetry. E. K. Dukes and M. L. Hyder. flow diag Anal Chem 36:1689-90 Jl '64

Spectrophotometric determination of organic peroxides in unsaturates. D. K. Banerjee and C. C. Budke. Anal Chem 36:2367-8 N '64

Spectrophotometric determination of traces of peroxides in organic solvents. D. K. Banerjee and C. C. Budke. bibliog diag Anal Chem 36:792-6 Ap '64

Manufacture

Development and manufacture of organic peroxides. il Ind Chem 39:569-75 N '63

PEROXY acids

Heats of combustion of aliphatic long chain peroxyacids, *t*-butyl peroxyesters, and related acids and esters. H. A. Swain, jr. and others. bibliog Am Chem Soc J 86:2562-6 Jl 5 '64

PEROXY compounds

Absorptivities for infrared determination of peroxyacyl nitrates. E. R. Stephens. Anal Chem 36:928-9 Ap '64

Enantiomorphism of organic peroxy compounds in the crystalline state. G. A. Jeffrey and others. Am Chem Soc J 86:949-50 Mr 5 '64

Mechanism of decomposition of sodium peroxybenzoate in alkaline solution. K. Akiba and O. Simamura. Chem & Ind p105-6 Ap 25 '64

PEROXYDISULFATES

Studies on the mechanism of the Elbs peroxydisulfate oxidation. E. J. Behrman. bibliog Am Chem Soc J 85:3478-82 N 5 '63

PEROXYDISULFURYL difluoride

Equilibrium between peroxydisulfuryl difluoride and fluorosulfate free radicals. F. B. Dudley and G. H. Cady. Am Chem Soc J 85:3375-7 N 5 '63

PEROXY group

Directive effects in aliphatic substitutions; reactivity of aralkanes, aralkenes, and benzylic ethers toward peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2364-7 Je 20 '64

Electron spin resonance spectra of organic oxy radicals. K. U. Ingold and J. R. Morton. Am Chem Soc J 86:3400-2 Ag 20 '64

Identification of peroxy radicals by electron paramagnetic resonance. M. Bersohn and J. R. Thomas. Am Chem Soc J 86:959 Mr 5 '64

Reactions of peroxy radicals with poly-nuclear aromatic compounds; reactivities of anthracene, α-benzoanthracene, and tetracene toward alkyl aryl peroxy radicals. L. R. Mahoney. bibliog diag Am Chem Soc J 86:444-9 F 5 '64

PERSIAN GULF

Lower cretaceous-upper Jurassic stratigraphy of Umm Shaif field, Abu Dhabi marine areas, Trucial Coast, Arabia. F. T. Banner and G. V. Wood. bibliog map diags Am Assn Pet Geologists Bul 48:191-206 F '64

PERSONAL efficiency. See Efficiency, Personal

PERSONALITY

Criticism: how to give it. Mod Materials Handling 19:89-90 Ap '64

Engineers and other people. J. J. Dougherty. Naval Eng J 76:605-10 Ag '64

Image of the ideal engineer. E. Raudsepp. Machine Design 36:194-6 Ap 23 '64

Personality differences between smokers and nonsmokers. E. J. Salber and J. E. Rochman. bibliog Archives Environmental Health 8:459-65 Mr '64

S vs. D mind and its significance. M. A. Williamson. Res/Develop 15:50-1 My '64

PERSPIRATION

Eccrine seating. H. S. Hurley and S. A. Witkowski. Drug & Cosmetic Ind 94:936 Je '64

Role of bacteria in the development of perspiration odor on fabrics. bibliog il Am Dyestuff Rep 52:1010-13 D 9 '63

PERSULFATES

Arsenic(IV) as an intermediate in the induced oxidation of arsenic(III) by the iron(II)-persulfate reaction and the photoreduction of iron(III); presence of oxygen. R. Woods and others. bibliog Am Chem Soc J 85:3334-7 N 5 '63

PERT management system

Analytical study of the PERT assumptions. K. R. MacCrimmon and C. A. Ryavec. bibliog diags Op Res 12:16-37 Ja '64

Can PERT improve your r&d planning? R. A. Frantz, jr. and L. B. Nothern. bibliog diags Mach 70:117-21 Je '64; Same. Electro-Tech 74:87-91 Ag '64

Critical Path analyses via chance constrained and stochastic programming. A. Charnes and others. bibliog diags Op Res 12:460-70 My '64

Evaluating human factors in PERT planning. T. V. Sobczak. bibliog Res/Develop 15:42-4 S '64

How Chrysler uses computers. J. Geschelin. Automotive Ind 130:91-2 Je 15 '64

Industry making greater use of PERT for project control. Automation 11:14 My '64

Methods of project scheduling as a tool for lowering costs. R. Marsh. diag Tappi 47: sup 136A-7A Ag '64

Modification of Fulkerson's PERT algorithm. C. T. Clingen. bibliog diags Op Res 12:629-32 Jl '64

Product planning and evaluation; PERT/CPM network. R. D. Archibald and R. L. Villoria. diags Mech Eng 86:48-51 Je '64

PERT, a question unanswered: which job first? D. R. Taylor. diags Product Eng 35:130-1 Ap 27 '64

PERT aids small projects, too. il diag Electronics 36:66+ D 20 '63

PERT and CPM techniques in project management. R. M. Aras and J. Surkis. diags Am Soc C E Proc 90 [CO 1 no 3823]:1-25 Mr '64; Discussion. J. S. Keller. 90 [CO 2 no 4051]:75 S '64

PERT case histories prove versatility. E. J. Hughes and others. flow chart il diags S A E J 72:84-90 Mr '64

PERT goes to work for Chrysler. C. Emerson. Am Mach 108:67-72 F 3 '64

PERT; new management tool for project control. N. L. Enrick. diag Textile World 113:129-31 N '63

Switching network analysis methods. R. M. De Baun. bibliog diags Chem & Eng N 42:84-91 Je 22 '64

Use of the Critical-path method in a pollution control project. R. D. Vaughan. bibliog Am Water Works Assn J 56:1092-6 S '64; Excerpts. Pub Works 95:138+ N '64

PERTURBATION theory

Analysis of slightly anisotropic shells. R. G. Dong and S. B. Dong. bibliog AIAA J 1:2565-9 N '63

Astrodynamics; bibliography of general perturbation solutions of earth-satellite motion. T. Gabbard, jr. and E. Levin. Astronautics & Aerospace Eng 1:121-3+ bibliog(p 122-3+) N '63

Control of a synchronous satellite by continuous radial thrust. R. S. H. Toms and B. E. Kalensher. bibliog maps diags AIAA J 2:1179-88 Jl '64

Decay of shock waves in stationary flows. O. S. Ryzhov. bibliog AIAA J 1:2911-15 D '63

Determination of the preliminary orbits of artificial lunar and planetary satellites. P. E. Koskela. bibliog diags AIAA J 2:917-24 My '64

Drag displacements and decay of near-circular satellite orbits. F. T. Geyling. bibliog diag AIAA J 2:1174-8 Jl '64

Effects of radiation forces on the attitude of an artificial earth satellite. T. F. Clancy and T. P. Mitchell. bibliog diags AIAA J 2:517-24 Mr '64

Effects of wall perturbations in multi-mode waveguides. S. W. Maley and E. Bahar. bibliog il diags J Res Nat Bur Stand 68D:35-42 Ja '64

Error propagation in astro-inertial guidance systems for low-thrust missions. H. M. Dusek. bibliog diags AIAA J 2:879-84 My '64

Exact two-body error sensitivity coefficients. K. C. Kochi. AIAA J 2:1502-4 Ag '64

Extension of *f* and *g* series to non-two-body forces. R. M. L. Baker, jr. AIAA J 2:1337-9 Jl '64

First-order perturbations of laminar free-convection boundary layers on a vertical plate. K. T. Yang and E. W. Jerger. bibliog diag A S M E Trans ser C 86:107-15 F '64

PERTURBATION theory—*Continued*

Free resonant oscillations of a conservative two-degree-of-freedom system. R. A. Struble and G. K. Warmbrod. bibliog diags Franklin Inst J 278:195-209 S '64
Hall current and inlet disturbances in constant area channel flows. G. C. Oates. bibliog diags AIAA J 1:2785-92 D 63
Location of catch-up point in a ΔV perturbed circular orbit. A. H. Milstead. AIAA J 2: 940-1 My '64
Matrix methods in the calculation and analysis of orbits. J. M. A. Danby. AIAA J 2:13-16 Ja '64
Method of measuring the dielectric constant at microwave frequencies by means of the perturbation method. I. Falkvik. IEEE Proc 52:203 F '64
Motion of an artificial earth satellite in an orbit of small eccentricity. G. A. Chebotarev. AIAA J 2:203-8 Ja '64
Optimal measurement and velocity correction programs for midcourse guidance. W. F. Denham and J. L. Speyer. bibliog AIAA J 2:896-907; Discussion. R. J. Fitzgerald. 2: 968-9 My '64
Orbital motion in the theory of general relativity. J. D. Anderson and J. Lorell. bibliog AIAA J 1:1372-4 Je '63; Discussion. 2:1869-70 O '64
Out-of-plane perturbations of a circular satellite orbit. T. T. Soong. AIAA J 1:2862-3 D '63
Perturbation formula for a ferrite-loaded helix. K. P. Ivanov. bibliog diag Radio & Electronic Eng 28:87-8 Ag '64
Perturbation methods for satellite orbits. F. T. Geyling. bibliog diags Bell System Tech J 43:847-84 My '64
Perturbations in the ionosphere caused by a moving body. A. V. Gurevich. diags ARS J 32:1161-7 Jl '62; Discussion. AIAA J 1: 1748-9, 2869 Jl, D '63
Planetary position-velocity ephemerides obtained by special perturbations. P. R. Peabody and N. Block. bibliog AIAA J 1:2812-15 D '63
Shock wave model of unstable rocket combustors. W. A. Sirignano and L. Crocco. bibliog AIAA J 2:1285-96 Jl '64
Simulation using perturbation methods. J A. McDonnell. diags Instruments & Control Systems 37:127-8 F '64
Solar radiation pressure and the motion of earth satellites. Y. N. Polyakhova. bibliog diags AIAA J 1:2893-9 D '63
Three-dimensional perturbations on hypersonic wedge flow. N. D. Malmuth. bibliog diags AIAA J 2:1383-9 Ag '64
Transient heat transfer in a vapor-heated heat exchanger with arbitrary timewise-variant flow perturbation. W. J. Yang. bibliog A S M E Trans ser C 86:133-42 My '64
Unified analysis of supersonic nonequilibrium flow over a wedge: vibrational nonequilibrium. R. S. Lee. bibliog diag AIAA J 2: 637-46 Ap '64
Velocity effects in transverse mode liquid propellant rocket combustion instability. F. H. Reardon and others. bibliog diags AIAA J 2:1631-41 S '64
Vernier exhaust perturbations on radar altimeter systems during a lunar landing. P. Molmud. bibliog diag AIAA J 1:2816-19 D '63
Vlf anomalies observed at State college, Pa., during the U.S. 1962 high-altitude nuclear tests. C. F. Sechrist, jr. bibliog J Res Nat Bur Stand 68D:125-33 Ja '64
Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64
Zonal harmonic perturbations of an accurate reference orbit of an artificial satellite. J. P. Vinti. bibliog J Res Nat Bur Stand 67B:191-222 O '63

PERU

See also subdivision Peru under special subjects, e.g.
Architecture
Iron mines and mining
Lead mines and mining
Petroleum industry and trade
Zinc mines and mining

PERYLENE

Conductivity and thermoelectric potential measurements on perylene: metal halide complexes. M. S. Frant and R. Eiss. bibliog diags Electrochem Soc J 110:769-72 Jl '63; Discussion. 111:755-6 Je '64

PESTICIDES

Control of Florida plant diseases. H. I. Borders. Soap & Chem Spec 40:105+ Ap '64
DDVP, a pesticide of considerable potential E. D. Hurt. bibliog il Manuf Chem 35:39-41 Ap '64
Emulsifiable pesticide concentrates. K. L. Johnson. il Soap & Chem Spec 40:93-6+ S '64
Facts and figures for the chemical process industries; chemicals for agriculture. H. H. Shepard and J. N. Mahan. Chem & Eng N 42:130-3 S 7 '64
Formulation of pet products. J. Greenberg. Soap & Chem Spec 39:126-7+ D '63
Highly specific toxicant for rats synthesized. il Chem & Eng N 42:26 My 4 '64
No grapes on the vine. T. H. Ingalls. Archives Environmental Health 7:714-16 D '63
Pest control chemicals (cont). D. P. Hopkins. bibliog Manuf Chem 35:74-5 Ja '64
Pesticides. D. P. Hopkins. bibliog Manuf Chem 35:48-9 My; 37-8 Ag '64
Pesticides; a contribution to agriculture and nutrition. W. J. Darby. Am J Pub Health 54:18-23 pt 2 Ja '64
Pesticides; a contribution to public health. L. L. Williams. bibliog Am J Pub Health 54:32-6 pt 2 Ja '64
Pesticides; the challenge, how do we meet it? H. L. Haller. Am J Pub Health 54:37-41 pt 2 Ja '64
Review of adsorption and desorption of organic pesticides by soil colloids, with implications concerning pesticide bioactivity. G. W. Bailey and J. L. White. J Agri & Food Chem 12:324-32 bibliog(p331-2) Jl '64
UK sales of pesticides and toiletries. Manuf Chem 35:102 Jl '64
USDA may inspect some pesticide plants. Chem & Eng N 42:32-3 My 4 '64
See also
Insecticides

Analysis

Apparatus for continuous extraction of nonpolar compounds from water applied to determination of chlorinated pesticides and intermediates. L. Kahn and C. H. Wayman. diag Anal Chem 36:1340-3 Je '64
Behavior of demeton in electron affinity detectors. J. E. Barney, 2d and others. bibliog diag Anal Chem 35:2206-8 D '63
Chemical oxidation of selected organic pesticides. C. A. Buescher and others. bibliog diag WPCF J 36:1005-14 Ag '64
Correlation of structure of phosphate pesticides with response in electron affinity detectors. C. E. Cook and others. bibliog diags Anal Chem 36:2354-8 N '64
Detection of pesticides in water by biochemical assay. C. M. Weiss and J. H. Gakstatter. bibliog WPCF J 36:240-53 F '64
Determination of 1,2-dibromo-3-chloropropane and tetrachlorothiophene in crops. H. Beckman and A. Bevenue. J Agri & Food Chem 11:479-82 N '63
Extraction and determination of karathane residues in fruits. W. W. Kilgore and K. W. Cheng. J Agri & Food Chem 11:477-9 N '63
Gas chromatography retention times and sensitivity data for insecticides and herbicides. E. J. Bonelli and others. bibliog diag J Agri & Food Chem 12:333-6 Jl '64
Identification of chlorinated hydrocarbon pesticides in river water. A. Goodenkauf and J. Erdei. bibliog Am Water Works Assn J 56:600-6 My '64
Pesticide content of human fat tissue. W. S. Hoffman and others. bibliog Archives Environmental Health 9:387-94 S '64

Laws and regulations

Broad pesticide plan urged in California. Chem & Eng N 42:29 Ag 3 '64
Pesticides get tangled in net of dead fish. map Chem Eng 71:82+ Je 22 '64

Physiological effect

Agricultural pesticides. M. P. Francone. Ind Med 33:138-9 Mr '64
Effect of the level of dietary protein on the toxicity of dieldrin for the laboratory rat. M. Lee and others. bibliog il J Nutrition 84:136-44 O '64
Farm use of pesticides not to blame for massive river fish kills. Chem & Eng N 42: 23-4 Je 8 '64
Health survey of pest control operators. W. J. Stein and W. J. Hayes, jr. bibliog Ind Med 33:549-55 Ag '64
Pesticide content of human fat tissue. W. S. Hoffman and others. bibliog Archives Environmental Health 9:387-94 S '64
Pesticides; a hazard to nature's equilibrium. L. C. Cole. bibliog Am J Pub Health 54: 24-31 pt 2 Ja '64

PESTICIDES—Physiological effect—*Continued*

Pesticides, in our ecosystem. F. E. Egler. diags Am Scientist 52:110-36 bibliog(p 134-6) Mr '64

Toxicological effects of herbicides on the fish environment. C. R. Walker. bibliog il Water & Sewage Works 111:113-16, 173-5 Mr-Ap '64

Residues

Change of pace; electron-capture (EC) detector for the analysis of pesticide residues. Food Tech 18:1175 Ag '64

Colorimetric determination of dexon residues in crops. C. A. Anderson and J. M. Adams. J Agri & Food Chem 11:474-7 N '63

Colorimetric determination of 6-methyl-2,3-quinoxalinedithiol cyclic carbonate (Morestan) residues in apples and pears. R. Havens and others. J Agri & Food Chem 12:247-8 My '64

Conversion of 4-(2,4-DB) to 2,4-dichlorophenoxycrotonic acid (2,4-DC) and production of 2,4-D from 2,4-DC in soil. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:322-3 Jl '64

Determination of 1,2-dibromo-3-chloropropane and tetrachlorothiophene in crops. H. Beckman and A. Bevenue. J Agri & Food Chem 11:479-82 N '63

Determination of polychlorinated benzoic acid herbicide residues by gas chromatography. J. J. Kirkland and H. L. Pease. bibliog diag J Agri & Food Chem 12:468-72 S '64

Electron affinity residue determination of CIPC, monuron, diuron, and linuron by direct hydrolysis and bromination. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:46-8 Ja '64

Evaluation of the extent and nature of pesticide and detergent involvement in surface waters of a selected watershed. Pub Works 95:142+ N '64

Fate of amiben in tomato plants. S. R. Colby and others. bibliog J Agri & Food Chem 12:320-1 Jl '64

How do you purify the Mississippi? Eng N 172:15 Ap 30 '64

Metabolism of dimethoate by vertebrate tissues. T. Uchida and others. bibliog J Agri & Food Chem 12:48-52 Ja '64

Microcoulometric gas chromatographic analysis of grapes and cottonseed for chlorobenzilate residues. H. Beckman and A. Bevenue. J Agri & Food Chem 12:183-5 Mr '64

Modified analytical method for microgram amounts of metaldehyde in plant material. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:249-50 My '64

Pesticide levels low in West Coast fish: abstract. D. M. DeVries and others. Chem & Eng N 42:17 Ap 20 '64

Pesticide residue problems probed. il Chem & Eng N 42:32-3 Ap 20 '64

Rapid determination of diphenylamine in apples by direct bromination and gas chromatography. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:468-70 N '63

Residue data, definitions and presentation. J. A. R. Bates. Chem & Ind p 1591-2 S 12 '64

Senator Ribicoff attacks smoking report. Chem & Eng N 42:37 Mr 2 '64

Simple apparatus for combustion of samples containing C^{14}-labeled pesticides for residue analysis. G. N. Smith and others. bibliog diags J Agri & Food Chem 12:172-5 Mr '64

Spectrophotometric determination of dithiocarbamate residues on food crops. T. E. Cullen. bibliog diag Anal Chem 36:221-4 Ja '64

Total phosphorous technique for determining organophosphorus pesticide residues using Schöniger flask combustion. R. C. Blinn. bibliog J Agri & Food Chem 12:337-8 Jl '64

Water pollution by organic pesticides. S. D. Faust and O. M. Aly. Am Water Works Assn J 56:267-79 bibliog(p277-9) Mr '64; Correction. 56:666 My '64

Wedge-layer chromatography for pesticide residue clean-up. D. C. Abbott and J. Thomson. Chem & Ind p481 Mr 21 '64

PETRIFIED wood

Boulder train of silicified paleozoic wood, southeastern Massachusetts. C. A. Kaye. bibliog map Geol Soc Bul 75:233-6, pl 1-2 Mr '64

Petrified forests of Yellowstone Park. E. Dorf. il maps diag Sci Am 210:106-12+ Ap '64

PETROCHEMICALS. See Petroleum chemicals

PETROLEUM

Calculating viscosities of reservoir fluids from their compositions. J. Lohrenz and others. bibliog flow sheet J Pet Tech 16:Trans 1171-6 O '64

Complete up-to-date list of the hydrocarbons isolated from petroleum. B. J. Mair. Oil & Gas J 62:130-4 S 14 '64

Petroleum more important as a source of chemicals. J. H. S. Haggin. Ind & Eng Chem 56:16+ My '64

See also

Gasoline
Hydrocarbons
Kerosine
Liquefied petroleum gas
Oil lands
Oil sand
Oil shales
Oil storage

Acidation of wells

Matrix acidizing corrects formation damage in sandstones. W. M. Ross and others. il Pet Management 35:64-9 N '63

Retarded acid makes the difference. il Oil & Gas J 62:143-4 My 11 '64

Retarded HCl heralded as acidizing breakthrough. Pet Management 35:94 D '63

Analysis

Automated determination of elements in organic samples using X-ray emission spectrometry. C. W. Dwiggins, jr. bibliog Anal Chem 36:1577-82 Jl '64

Determination of hydrocarbons in crude oil by capillary-column gas chromatography. R. L. Martin and J. C. Winters. bibliog diag Anal Chem 35:1930-3 N '63

How much asphalt in crude oil? W. L. Nelson and S. Patel. Oil & Gas J 62:120-3 F 17 '64

Identification of 2-quinolones in a California crude oil. E. C. Copelin. bibliog flow diag Anal Chem 36:2274-7 N '64

Problems of direct determination of trace nickel in oil by X-ray emission spectrography. E. L. Gunn. bibliog Anal Chem 36:2086-90 O '64

Programmed preparative-scale gas chromatograph. H. Boer. diags J Sci Instr 41:365-9 Je '64

Routine separation and determination of total saturated hydrocarbons in heavy petroleum samples by adsorption chromatography. L. R. Snyder and W. F. Roth. bibliog Anal Chem 36:128-32 Ja '64

Simultaneous determination of crude oil boiling range distribution and hydrocarbon-type distribution by gas chromatography. V. F. Gaylor and others. bibliog Anal Chem 36:1606-12 Jl '64

Study of the oil component of the Athabasca bitumen. M. L. Boyd and D. S. Montgomery. bibliog Inst Pet J 49:345-52 N '63

Sulfonation and dehydrogenation as an aid to gas chromatography in evaluating 90° to 150°C. petroleum fractions. W. J. Hines and D. E. Smith. bibliog diag Anal Chem 36:2250-4 N '64

Systematic neutron activation technique for the determination of trace metals in petroleum. U. P. Colombo and others. diags Anal Chem 36:802-7 Ap '64

See also

Hydrocarbons—Analysis

Bibliography

Abstracts. Published in monthly numbers of Journal of the Institute of petroleum

Chemical treatment of wells

Additive aids well treatment. Oil & Gas J 61:97 N 11 '63

Guide to chemical well treatments. W. E. Grubb and F. G. Martin. il diag Pet Management 35:94+ My; 100-2+ Je; 82+ Jl; 100+ Ag; 94+ S; 118+ O; 122+ N '63

Increasing injectivity of shaly sands with chemicals. S. K. Chakravorty and others. map diag J Pet Tech 16:1107-12 O '64

Concessions

Arab petroleum congress, 4th, Beirut. Oil & Gas J 61:138-9 N 18 '63

Egypt opens new area for exploration. map Oil & Gas J 61:107-8 N 4 '63

Iran asking bids on offshore tracts. map Oil & Gas J 62:81-2 S 7 '64

North Sea play stirs up legal dispute. map Oil & Gas J 62:46 Ja 6 '64

Objectives must balance for best operations. M. Bridgeman. Pet Management 36:122 S '64

Oil frees Libya of foreign dependence. map Pet Management 36:16c-16e+ Je '64

PETROLEUM—Concessions—*Continued*

OPEC finds compromise more palatable. Oil & Gas J 62:68-9 Ag 24 '64

Pan Am wins Gulf of Suez concession. Oil & Gas J 62:85 F 17 '64

Shell, British Petroleum interest in Anglo-Egyptian seized. Oil & Gas J 62:56 Mr 30 '64

Two U.S. firms take big step overseas; Pure and Westates subsidiaries join AMI in exploration in Italy, Libya, and Algeria. Oil & Gas J 62:81 Mr 16 '64

Venezuela may win service-contract stalemate. Oil & Gas J 62:71 O 19 '64

Conservation

Report on oil efficiency avoids conclusions. Oil & Gas J 62:34-5 Je 29 '64

Unneeded wells should be discouraged. Oil & Gas J 62:38 Je 29 '64

See also

Petroleum—Proration

Desalting

See Petroleum refining—Salt removal

Drilling

See Petroleum—Well drilling

Equipment

See Petroleum industry and trade—Equipment and supplies

Fire flooding

See Petroleum—Production methods

Gas injection

See Petroleum—Production methods

Gas mixtures

Effect of vertical fractures on reservoir behavior; results on oil and gas flow. M. Prats and J. S. Levine. bibliog diags J Pet Tech 15:Trans1119-26 O '63

Geology

Accentuate the positive and exploration will rally; symposium. Oil & Gas J 62:102-4+ My 25 '64

Anatomy of stratigraphic trap, Bisti field, N.Mex. F. F. Sabins, jr. bibliog flow diag il maps diags Am Assn Pet Geologists Bul 47:193-228, 2045-7 F, D '63

Answers still needed for Ohio Cambrian problems. G. Sitler. maps diags Oil & Gas J 62:126-32 Mr 9 '64

Basal Tuscaloosa sediments, east-central Louisiana. H. V. Spooner, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1-21 Ja '64

Big geology for big needs. A. I. Levorsen. bibliog maps diags Am Assn Pet Geologists Bul 48:141-56 F '64

Buried hills hold key to new Mississippian pay in Canada. R. Martin. maps diags Oil & Gas J 62:158-62 O 19 '64

Chadron arch could offer big potential to oil hunters. G. R. Wulf. maps diags Oil & Gas J 62:148-51 F 24 '64

Construction starts at Athabasca oil sand project. maps diag Eng & Min J 165:86-90 O '64

Deep hunting grounds. I. H. Cram. maps Am Assn Pet Geologists Bul 47:2009-14 D '63

Deeper oil possibilities of South Arkansas and North Louisiana. J. J. Chapman. map diags Am Assn Pet Geologists Bul 47:1992-6 N '63

Denver Basin drillers aiming for new, bigger fields. maps Oil & Gas J 62:240-1 O 12 '64

Depositional topography and cyclic deposition in west-central Texas. W. E. Jackson. bibliog maps diags Am Assn Pet Geologists Bul 48:317-28 Mr '64

Drillers may have to probe deep for Illinois basin pay. maps diag Oil & Gas J 62:184-6+ O 5 '64

Engineering concepts useful in oil finding. J. J. Arps. diags Am Assn Pet Geologists Bul 48:157-65 F '64

Finding economic oil should be goal for all geologists. W. O. Twaits. Oil & Gas J 62:66-7 My 25 '64

Geologists hold future in their own hands. W. B. Weeks. Oil & Gas J 62:122-4 Mr 30 '64

Geology not the simple thing it once was. J. C. Sproule. map Oil & Gas J 62:120-2 Je 1 '64

How useful a tool are reef-building studies? Oil & Gas J 62:220 Je 8 '64

Insoluble-residue study may solve stratigraphic problems. M. H. McCracken. bibliog flow sheet il map Oil & Gas J 62:126-31 Ja 13 '64

James lime could be key to Texas-Louisiana reef play. map diag Oil & Gas J 62:116-18 Je 1 '64

Look for ancient deltas in your search for oil. E. H. Rainwater. map diags Oil & Gas J 62:110-11+ Ja 6 '64

Lower cretaceous-upper Jurassic stratigraphy of Umm Shaif field, Abu Dhabi marine areas, Trucial Coast, Arabia. F. T. Banner and G. V. Wood. bibliog map diags Am Assn Pet Geologists Bul 48:191-206 F '64

Mapping pre-Niobrara unconformity may be key to new San Juan Basin oil. W. C. Penttila. maps diags Oil & Gas J 61:164-6 O 28 '63

Methods used in computing secondary equities, Wilmington field, Los Angeles County, Calif. D. R. Allen. maps diags Am Assn Pet Geologists Bul 48:1150-63 Jl '64

Occurrence and exploration significance of strike-slip faults in southern New Brunswick, Canada. G. W. Webb. bibliog il maps diags Am Assn Pet Geologists Bul 47:1904-27 N '63

Ohio oil poses no tough problems in drilling, but finding it can be troublesome for geologists. Oil & Gas J 62:182-3 Ag 3 '64

Oil is a widespread and inherent constituent of sedimentary rocks everywhere. G. Murray. Oil & Gas J 61:191 D 2 '63

Oil is not just where you find it. F. J. Gardner. Oil & Gas J 61:157 N 25 '63

Ordovician explosion structure at Glasford, Ill. T. C. Buschbach and R. Ryan. bibliog il maps diag Am Assn Pet Geologists Bul 47:2015-22 D '63

Paleoenvironmental analysis as a means of defining oil-producing trends: abstract. O. L. Bandy. Am Assn Pet Geologists Bul 47:2078 D '63

Paleogeologic and quantitative lithofacies analysis, Simpson group, Oklahoma. M. W. Schramm, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1164-95 Jl '64

Paleogeomorphology; a practical exploration technique. E. M. McKee. diags Oil & Gas J 61:140-3 O 21 '63

Permian Basin drillers look to Pennsylvanian. F. Wright. maps Oil & Gas J 61:136-8+ D 16 '63

Petroleum in carbonate rocks. E. W. Owen. Am Assn Pet Geologists Bul 48:1727-30 O '64

Pore geometry as related to carbonate stratigraphic traps. J. L. Stout. bibliog il Am Assn Pet Geologists Bul 48:329-37 Mr '64

Recent discoveries point to New York as the next major Cambrian province. O. D. Weaver. maps diags Oil & Gas J 62:114-19 Ag 10 '64

Restudy and upgrade west Texas, Mississippian. W. F. Wright. map Oil & Gas J 61:224-6+ N 11 '63

Siberian strike may throw new light on Cambrian oil. R. G. Gibson. il maps Oil & Gas J 62:82-4 F 10 '64

Smackover may jump gap into Mexico. B. Enright. map Oil & Gas J 62:104+ Je 29 '64

Smackover; rich rewards in a subtle reservoir. V. Peppard. maps diags Oil & Gas J 62:110-12+ My 25 '64

Stay with the Osage if you want Kansas oil. R. M. Euwer. maps diags Oil & Gas J 62:176-9+ Mr 2 '64

Subsurface structure and stratigraphy of Kent Bayou-Turtle Bayou-North Turtle Bayou complex, Terrebonne Parish, La. R. T. Sellars, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1705-25 O '64

Tectonic framework of Eola and southeast Hoover oil fields and West Timbered Hills area, Garvin and Murray Counties, Oklahoma B. H. Harlton. bibliog maps diags Am Assn Pet Geologists Bul 48:1555-67 S '64

Texas' Marfa Basin may be ready to yield to oil hunters. B. Pearson. map diag Oil & Gas J 61:88-91 D 23 '63

Umm Shaif oilfield; history of exploration and development. S. Elder. maps diags Inst Pet J 49:308-14; Discussion. 314-15 O '63

Was oil formed in big underground batteries. Oil & Gas J 62:42-3 Ap 13 '64

Why have we been hesitant? F. J. Gardner. Oil & Gas J 62:213 Je 8 '64

See also

American association of petroleum geologists

Petroleum—Prospecting

Lease automatic custody transfer

See Petroleum—Measurement

PETROLEUM—*Continued*

Measurement

Can we agree on the mathematics of metering? L. M. Davis. Oil & Gas J 62:84-6+ Mr 23 '64
Consolidation and LACT in the SACROC unit. J. W. Mathis. flow diag il map diags J Pet Tech 16:751-6 Jl '64
Increased profits through low-cost alarm telemetering on producing leases; abstract. R. E. Statton. Control Eng 11:165-6 O '64
Instrumentation for simplified commingling and well-testing operations. G. Kite. il diags J Pet Tech 16:732-8 Jl '64
Let's weigh those wells automatically. C. C. Boggus. il Oil & Gas J 62:78+ F 3 '64
Meter factor variations and factors affecting the accuracy of positive displacement meters. M. C Rhoades. J Pet Tech 16:841-4 Ag '64
Positive-displacement meters are here to stay. J. C. Westbrook. diag Oil & Gas J 62:102-4 Ag 24 '64
Remote control, next step beyond lease automation. E. E. Hogwood, jr. bibliog il diags Oil & Gas J 62:81-3 Mr 23; 81-4 Mr 30; 152-5 Ap 6 '64
Swept-volume meter prover aids research. il Oil & Gas J 61:116-17 O 21 '63
Transistors streamline control for multilease LACT. G. DeLozier. il Oil & Gas J 62:204-5+ O 12 '64
See also
Oil measurement

Mud fluids

Arkoma drillers tame sloughing shales. R. W. Ruhe, jr. il diag Oil & Gas J 62:84-6 Ag 24 '64
Don't overlook aerated mud. B. Rehm. il Oil & Gas J 61:150-3 D 2 '63
How lignosulfonate muds behave at high temperatures. J. Kelly, jr. Oil & Gas J 62:112-19 O 5 '64
How to predict mud performances. R. E. Walker. bibliog diag Oil & Gas J 62:65-70 Mr 30 '64
Hydroxyl factor in shale control. W. C. Browning. bibliog il diags J Pet Tech 16: Trans 1177-86 O '64
Low-silt mud increases Gulf's drilling efficiency, cuts costs. V. D. Stone. il diag Oil & Gas J 62:136-9+ O 12 '64
New drilling machine aids mud research. W. M. Evans. il diags Oil & Gas J 62:135-7 My 25 '64
New fast, accurate test measures bentonite in drilling mud. F. O. Jones, jr. Oil & Gas J 62:76-8 Je 1 '64
New low-solids salt mud holds bright promise. J. L. Lummus and D. B. Anderson. Oil & Gas J 62:99-104 Jl 13 '64

Offshore development

Acreage off California draws $18 million bid. map Oil & Gas J 62:59 Je 15 '64
Acreage set for sale off Washington, Oregon. Oil & Gas J 62:65 F 24 '64
Amoseas strikes oil on its third try near coast in northern Spain. map Oil & Gas J 62:62-3 Je 15 '64
California court asked to kill restrictions on Santa Monica drilling. Oil & Gas J 62:104-5 Je 8 '64
California's 1964 offshore sales set new bonus record. T. Armstrong. maps Oil & Gas J 62:28-9 Ag 31 '64
Drilling barges slated for action off S.E. Australia. map Oil & Gas J 62:127 Je 15 '64
Drilling fever spreads in North Sea. R. G. Gibson. map Oil & Gas J 62:92-4 Ap 6 '64
East Wilmington nears bid-calling stage. map Oil & Gas J 62:116 O 12 '64
Gulf lures Mexicans. A. Franco. il map Oil & Gas J 62:102 S 21 '64
Gulf scores again in Nigerian waters. map Oil & Gas J 62:70-1 O 19 '64
Gulf steps up drilling tempo in Nigeria. map Oil & Gas J 62:62 My 4 '64
Hilda's visit is brief but costly for oil industry. map Oil & Gas J 62:104-6 O 12 '64
Humble may have found oil under expensive parcel. Oil & Gas J 62:55 Jl 13 '64
Huntington Beach extension started. il map Oil & Gas J 62:74 My 18 '64
Hurricane Hilda's trail is still well marked. il Oil & Gas J 62:48-9 O 19 '64
Idd-el-Shargi oilfield and storage tank moorings. il plan diag Engineer 218:456-7 S 18 '64
Italians open Bahregan Sar field off Iran. map Oil & Gas J 62:66-7 My 4 '64
Italy grants Adriatic drilling permits. maps Oil & Gas J 62:115 Je 8 '64
Italy may act on Adriatic drilling permits. Oil & Gas J 62:65 Ag 10 '64
Largest aluminum boat serves offshore rigs. il Pet Management 36:101 Jl '64
Leases off Kenai being drilled. map Oil & Gas J 62:75 F 10 '64
Lobos Island; Mexico's most challenging discovery. A. Barnetche. il maps Pet Management 35:67-73 D '63
Los Angeles plans to lease harbor. C. J. Lawrence. map Oil & Gas J 61:123 D 9 '63
Louisiana offshore drilling grows. map Oil & Gas J 62:183-4 Ap 20 '64
Louisiana offshore seen booming another ten years or longer. J. Scott. il map Pet Management 36:73-87 Jl '64
Louisiana seeks step-by-step tidelands settlement. H. M. Wilson. map Oil & Gas J 62:64-5 O 26 '64
Louisiana strike continues to pay off. il Oil & Gas J 61:196-8 D 2 '63
Louisiana's offshore thorn; federal oil. H. M. Wilson. Oil & Gas J 62:50-2 O 19 '64
New plunge planned in the Gulf; Humble's area off Mississippi. map Oil & Gas J 62:46 Mr 9 '64
North Sea drilling off U.K. may get moving in spring. Oil & Gas J 62:64-5 Ag 10 '64
Offshore bids top $60 million at Louisiana sale. map Oil & Gas J 62:43-4 My 4 '64
Offshore leases bring highest bids; Louisiana's take; $12 million. Oil & Gas J 62:114 Ja 27 '64
Offshore oil perks up Brunei drilling. maps Oil & Gas J 62:85 S 7 '64
Offshore report. il maps diag Oil & Gas J 62:127-68 Je 22 '64
Offshore study indicates wildcatters face 11-year payout. Oil & Gas J 62:74-5+ Ap 20 '64
Offshore supply boats for offshore oil drillers. il Marine Eng/Log 69:50 Jl '64
Offshore Washington well set for completion. maps Oil & Gas J 62:178-9 Ag 17 '64
Oregon nearing decision on leasing its offshore area. map Oil & Gas J 62:120-1 Jl 27 '64
Oregon-Washington sale sets stage for lots of wildcatting. maps Oil & Gas J 62:108-9 O 12 '64
Pan American group gets 975-b/d well in Cook Inlet. il map Oil & Gas J 62:56-7 Ag 10 '64
Play off Washington, Oregon warms up. il Oil & Gas J 61:118-19 D 2 '63
Second strike made off Nigeria. maps Oil & Gas J 62:79 F 10 '64
Seismic work soars in Gulf. H. M. Wilson. il Oil & Gas J 62:64-6 S 7 '64
Shell hopes for commercial pay in Texas federal waters. il map Oil & Gas J 62:88-9 O 5 '64
Shell predicts big savings by microwaving offshore log data. map Oil & Gas J 62:62-3 O 26 '64
Shell puts diving saucer through its paces. il Oil & Gas J 62:63 Mr 23 '64
Shell strikes off Texas but commercial value of wells still in doubt. map Oil & Gas J 62:76-7 Ap 6 '64
Shell will focus seismic probe off Nova Scotia. J. C. McCaslin. map Oil & Gas J 62:113 Je 1 '64
Strike by Gulf Oil flows 2,000 b/d. map Oil & Gas J 62:61 Ja 20 '64
Study of oceanography and its bearing on exploration for oil. T. F. Gaskell; R. G. S. Avery. bibliog il diags Inst Pet J 50:131-45; Discussion. 146-9 Je '64
Tarheel state joins offshore oil search. F. J. Gardner. map Oil & Gas J 62:135 Jl 20 '64
Test off Australia due soon. map Oil & Gas J 62:80 O 26 '64
This may be the last federal sale in the Gulf for awhile. maps Oil & Gas J 62:42-3 Mr 9 '64
Western Offshore 3 ready to drill in 600 ft of water. T. Armstrong. il Oil & Gas J 62:128-30 Ag 17 '64
Where Shell plans to expand offshore waterfloods. il map Oil & Gas J 61:37-8 N 25 '63
Wildcat probes Atlantic off Surinam. il map Oil & Gas J 61:41 D 23 '63
Wilmington field compromise expected. Oil & Gas J 61:133 N 18 '63
Wilmington flood to net $172 million. plan Oil & Gas J 62:77-9 My 11 '64
See also
Petroleum—Offshore drilling structures
Petroleum—Well drilling, Subaqueous
Ships, Oil well drilling

Offshore drilling structures

Alaska to get big rig. il Oil & Gas J 62:62 O 19 '64

PETROLEUM—Offshore drilling structures—*Continued*

Big new floater heads for open sea. il Oil & Gas J 62:45 Jl 20 '64
Big platform going to Cook Inlet. il maps Oil & Gas J 62:88-9 Ap 27 '64
Big platform taking shape for Alaska's Cook Inlet. il Oil & Gas J 62:58 Jl 20 '64
Blue Water building new floater. il Oil & Gas J 61:132 N 18 '63
Compact offshore rig improved. L. C. Rogers. il plan Oil & Gas J 62:114-16 Ag 31 '64
Compact platforms click. L. C. Rogers. il plan Oil & Gas J 62:86-7 Ja 13 '64
Copters cut time and cost. il Pet Management 36:116-17+ Je '64
Deepwater platforms will be a little different. L. C. Rogers and H. C. Bozeman. il diag Oil & Gas J 62:152-3+ Je '64
Deepwater rig will join twin. il Oil & Gas J 62:111 O 12 '64
Drill rig's robot probes depths for oil. il Marine Eng/Log 69:80-1 S '64
Drilling platform will operate the year round in Cook Inlet. il Marine Eng/Log 69:44B S '64
Dual-purpose mobile drilling rig begins operation off Louisiana. il Oil & Gas J 62:208 S 7 '64
Dutch tests spud soon. diag Oil & Gas J 62:66 Jl 20 '64
Dutch to build U.S. rig. diag Oil & Gas J 62:102 O 5 '64
Former tanker now builds offshore drill rigs. il Marine Eng/Log 69:62-3 F '64
Giant platform designed for Cook Inlet. diag Oil & Gas J 62:60-1 Mr 9 '64
Heavy-duty rig taking shape. Oil & Gas J 62:73 My 25 '64
Huge platform to test deepwater tracts. il Oil & Gas J 62:32-3 Je 1 '64
Huge steel iceberg to seek oil. R. R. Kay. il Iron Age 193:42 Je 4 '64
Innovations spark interest in deep-drilling rig. E. McGhee. il diags Oil & Gas J 61:128-31 N 4 '63
Jack-up barge to work in inlet. il Oil & Gas J 62:33 Je 1 '64
Kelly spinner cuts offshore makeup time. il Oil & Gas J 61:117 N 4 '63
Mobil installs unique platform off Dutch coast. R. G. Gibson. il map Oil & Gas J 62:62-3 Je 29 '64
New offshore tool; mobile workover rig. L. C. Rogers. il diags Oil & Gas J 62:90-1 S 14 '64
New platforms offer stability. diag Oil & Gas J 62:118-19 Je 22 '64
Offshore hunt spurs building boom for rigs. il Oil & Gas J 62:45-6 Mr 23 '64
Offshore Louisiana spurs rig-building. L. C. Rogers. il Oil & Gas J 62:61-3 S 7 '64
Offshore rigs may use nuclear generator. il Oil & Gas J 61:66 O 28 '63
Platform rises on lonely island. il Pet Management 36:16k Je '64
Platform, tubes shield offshore risers. diag Oil & Gas J 62:76 F 24 '64
Production platform placed off Texas. il Oil & Gas J 62:74 O 26 '64
Scramble starts for North Sea rigs. P. Swain. Oil & Gas J 62:25-6 N 2 '64
Shell sets big platform in Cook Inlet. il Oil & Gas J 62:26-7 Ag 31 '64
Signal builds big platform. il Oil & Gas J 62:66 Ag 17 '64
Southeastern is building four identical combination rigs. Oil & Gas J 62:62-3 S 7 '64
Tallest jackup platform joins offshore fleet. L. C. Rogers. il diag plans Oil & Gas J 62:88-91 F 3 '64
Tenneco wildcats with compact tender platforms. L. C. Rogers. il diags Oil & Gas J 62:58-9 Ag 31 '64
Two-rig platform speeds development. il map Oil & Gas J 62:138 Jl 13 '64
Underwater drilling and completion methods. J. R. McEntee and others. il diags J Pet Tech 16:595-604 Je '64
Zapata's Maverick; new concept in deepwater mobile rigs. L. C. Rogers. il plans diags Oil & Gas J 62:70-3 S 28 '64

Prices

Crude-price cuts take heavy toll. Oil & Gas J 61:55-7 O 21 '63
Demand, technology, competition hurt crude prices. R. J. Gonzalez. Oil & Gas J 62:110-11 Je 22 '64
IPAA seeks cure for pricing ills. Oil & Gas J 62:86-7 My 11 '64
Price trimmed on 137,000 bbl of oil. Oil & Gas J 62:60-1 My 4 '64
Products lead trend in price erosion. W. A. Bachman. Oil & Gas J 62:52-3 Ag 24 '64
Saudis disclose Middle East price trend. Oil & Gas J 62:62 Ja 20 '64
Sour prices spoil outlook. Oil & Gas J 62:35-6 S 28 '64
Weak markets hurt oil's fiscal fitness. Oil & Gas J 62:80-1 Ap 6 '64
What crude-price erosion costs. Oil & Gas J 62:93-4 Je 8 '64

Production costs

What are the prospects for lower oil-production costs? W. F. Lovejoy. diags Oil & Gas J 62:102-7 S 14 '64

Production estimates

How to evaluate exploration prospects. B. F. Rummerfield and N. S. Morrisey. bibliog maps diags Geophysics 29:434-44 Je '64

Production methods

Advancements through 15 years of fracturing. W. E. Hassebroek and A. B. Waters. bibliog il diag J Pet Tech 16:760-4 Jl '64
Aids to forecasting the performance of water floods. R. V. Higgins and others. bibliog flow diag diags J Pet Tech 16:Trans 1076-82 S '64
Applying the frontal advance equation to vertical segregation reservoirs. W. J. Joslin. bibliog diag J Pet Tech 16:Trans 87-94 Ja '64
Areal sweepout behavior in a nine-spot injection pattern. O. K. Kimbler and others. bibliog diag J Pet Tech 16:Trans 199-202 F '64
Atlantic sets up automated data flow. map Oil & Gas J 61:50-1 O 28 '63
Attack on lost circulation pays off in Anadarko Basin. K. A. Freeman. bibliog map diags Oil & Gas J 62:95-6+ Ja 20 '64
Better technology opens way for more thermal projects. C. F. Gates and H. J. Ramey, jr. bibliog diags Oil & Gas J 62:72-80 Jl 13 '64
Big-Inch waterflood line work starts. Oil & Gas J 62:60 Mr 23 '64
Big west Texas waterflood will add 267 million bbl. map Oil & Gas J 62:78-9 S 7 '64
Bisti; solvent production during three years of unit operations. T. W. Brinkley and others. plan J Pet Tech 16:515-18 My '64
Bottom-hole heater impressive in California field tests. C. J. Lawrence. il diags Oil & Gas J 62:72-5 Mr 23 '64
California flood yields profitable recovery of heavy oil from multilayered reservoir. F. H. Oefelein and J. W. Walker. plans diags J Pet Tech 16:509-14 My '64
Colorado's biggest field engineered for maximum recovery. W. B. Bleakley. il map Oil & Gas J 62:108-13+ Mr 2 '64
Compositional material balance for combination drive reservoirs with gas and water injection. J. Lohrenz and others. bibliog J Pet Tech 15:Trans 1233-8 N '63
Computer aid to production. W. R. Tankersley and S. B. Coleman. diags J Pet Tech 15:1199-202 N '63
Double-barreled attack on microbial corrosion. A. W. Baumgartner. il Pet Management 35:98+ N '63
Dual-solvent slugs improve water-well injectivity. Oil & Gas J 62:114-15 Jl 6 '64
Dutch meet oil recovery challenge at Schoonebeek. J. E. Kastrop. il map diags Pet Management 35:59-63 N '63
Effect of liquid viscosity in two-phase vertical flow. A. R. Hagedorn and K. E. Brown. bibliog diags J Pet Tech 16:Trans 203-10 F '64
Effect of vertical fractures on transient pressure behavior of wells. J. O. Scott. bibliog diag J Pet Tech 15:Trans 1365-9 D '63
Effects of fracturing fluid velocity on fluid-loss agent performance. C. D. Hall, jr. and F. E. Dollarhide. il diag J Pet Tech 16:555-60 My '64
Effects of nuclear explosions on oil reservoir stimulation. H. F. Coffer and others. bibliog il diags J Pet Tech 16:473-80, cover My '64
Engine exhaust gas boosts heavy oil recovery. N. J. Clark and others. diag Pet Management 36:83-4+ Ag '64
Engineering aspects of waterflood bacteriology. R. W. Amstutz and L. C. Reynolds. J Pet Tech 15:1073-6 O '63
Field and laboratory results of carbon dioxide and nitrogen in well stimulation. G. H. Neill and others. bibliog diags J Pet Tech 16:244-8 Mr '64
Field comparison of methods of evaluating remedial work on water injection wells. J. M. Ouzts. bibliog J Pet Tech 16:1121-5 O '64
Friction pressure reducers in well stimulation. G. L. White. diags J Pet Tech 16:865-8 Ag '64
Heat is on thermal oil recovery. Pet Management 36:131+ My '64

PETROLEUM—Production methods—*Cont.*
Heavy oil; a billion-barrel prize. R. J. Enright. il map Oil & Gas J 62:41-4 Je 15 '64
Heavy-oil recovery experiments spread in east Kansas. R. J. Enright. il map Oil & Gas J 62:112-14 Je 22 '64
Here's a new lost-circulation treatment. L. C. Rogers. il diag Oil & Gas J 62:84-5 Mr 9 '64
High-injection-rate fracture treatments at Hugoton. F. Braunlich and F. Smith. Oil & Gas J 62:59-61 Ja 6 '64
High pour points, low reservoir temperatures, and multiple fracture jobs. W. B. Bleakley. il map Oil & Gas J 61:102-5 O 28 '63
Horsehoe-Gallup water injection project; an engineering challenge. E. F. Herbeck and E. M. Pringle. map J Pet Tech 16:1101-6 O '64
How to select a pump for high-pressure water injection. J. C. Neal. Oil & Gas J 62:129-30 O 5 '64
Hydrafrac; a look at its impact on the oil industry. W. B. Bleakley. il Oil & Gas J 62:74-6 My 4 '64
Hydraulic fracturing pays off in old Pennsylvania oil field. maps diag Oil & Gas J 62:126-7+ Ja 20 '64
Idd-el-Shargi oilfield and storage tank moorings. il plan diag Engineer 218:456-7 S 18 '64
Implosive shock treatment of injection wells. W. Van Winkle and H. X. Mignotte. diags J Pet Tech 16:128-32 F '64
Improved secondary recovery by control of water mobility. D. J. Pye. bibliog maps diags J Pet Tech 16:911-16 Ag '64; Discussion. 16:Trans 1430 D '64
Increasing injectivity of shaly sands with chemicals. S. K. Chakravorty and others. map diag J Pet Tech 16:1107-12 O '64
Influence of chemical composition of water on clay blocking of permeability. F. O. Jones, jr. bibliog diags J Pet Tech 16:Trans 441-6 Ap '64
Laboratory and field studies of water floods using polymer solutions to increase oil recoveries. B. B. Sandiford. bibliog diags J Pet Tech 16:917-22 Ag '64
Libyan drillers are getting new lost-circulation weapon; compressor packages for aerating drilling fluid. R. J. Enright. il Oil & Gas J 62:77-9 Ja 6 '64
LPG-gas injection recovery process Burkett unit, Greenwood County, Kansas. R. F. Wiemer. plans diags J Pet Tech 15:1067-72 O '63
Low-cost waterflood system scores for Home-Stake. R. O. Bass. il plan Oil & Gas J 62:108-11 F 10 '64
Maximum recovery from thin oil column. map diag Oil & Gas J 62:128 Jl 6 '64
Meadow Creek unit Lakota B combination water-miscible flood. J. M. Gernert and W. E. Brigham. J Pet Tech 16:993-7 S '64
Measuring solvent production in miscible phase oil recovery operations. M. R. Dean and T. W. Brinkley. J Pet Tech 16:519-21 My '64
Methods used in computing secondary equities, Wilmington field, Los Angeles County, Calif. D. R. Allen. maps diags Am Assn Pet Geologists Bul 48:1150-63 Jl '64
Mexican field is large gas-lift tab. il Pet Management 35:78-9 D '63
Mobil proposes unusual miscible flood. diag Oil & Gas J 62:114-15 Jl 27 '64
Model studies of the inverted nine-spot injection pattern. R. E. Watson and others. bibliog il diag J Pet Tech 16:Trans801-4 Jl '64
New floods in west Texas will recover 60,000,000 bbl. Oil & Gas J 61:85-6 D 30 '63
New giant flood planned for Spraberry. map Oil & Gas J 61:127 N 18 '63
Novel process transforms sour crude to sweet. Oil & Gas J 61:69 O 28 '63
Operators move fast to get optimum recovery from Gatner unit. W. B. Bleakley. map Oil & Gas J 62:70-1 Ag 31 '64
Oxygen traces may be corroding your waterflood piping. L. C. Case. il diag Oil & Gas J 62:78-80 Ja 13 '64
Performance of a miscible flood with alternate gas-water displacement. H. D. Holloway and R. A. Fitch. maps diag J Pet Tech 16:372-6 Ap '64
Picton field: review of a successful gas injection project. J. H. McGraw and R. E. Lohec. bibliog maps diag J Pet Tech 16:399-404; Discussion. A. B. Cook. 405 Ap '64
Polymers raise waterflood efficiency. il Oil & Gas J 62:46-7 My 4 '64
Predicting fractured water-drive reservoir performance. G. Perrotti and others. diags Pet Management 35:82-3+ N; 88-9+ D '63
Prediction of waterflood performance for arbitrary well patterns and mobility ratios. W. C. Hauber. bibliog diags J Pet Tech 16:Trans 95-103 Ja 64
Pressure maintenance by fluid injection in the North Pembina Cardium unit no. 1. H. Groeneveld. maps J Pet Tech 16:977-82 S '64
Problems don't slow Spraberry project. map Oil & Gas J 62:48-9 Je 15 '64
Problems mark shallow Texas waterflood. W. H. Leach, jr. maps Oil & Gas J 61:64-7 N 25 '63
Productivity and economic projection method; Ohio Clinton sand gas wells. J. Gurley. map J Pet Tech 15:1183-8 N '63
Proper use of common sense and engineering in secondary recovery. J. E. Russell. J Pet Tech 16:1003-5 S '64
Quiet noise over steam flooding. J. E. Kastrop. il diag Pet Management 36:82-6 F; 80-1+ Mr '64
Sand consolidation with epoxy-resin solutions. I. Havenaar and F. H. Meijs. bibliog il Inst Pet J 49:392-7 D '63
Sand movement in horizontal fractures. H. A. Wahl and J. M. Campbell. bibliog il J Pet Tech 15:Trans 1239-46 N '63
Secondary recovery by waterflood; Cazaux field, France. P. Almaric. il map diag Comp Air Mag 69:16-19 Ap '64
Secondary-recovery operations grow in Texas. Oil & Gas J 61:136-7 N 18 '63
Shell attacks heavy crude in Oklahoma. map Oil & Gas J 62:115 Je 22 '64
Significance of partial pressure maintenance by fluid injection. G. J. Last and others. diags J Pet Tech 16:20-4 Ja '64
Six major floods planned in Texas. map Oil & Gas J 62:118 Ja 27 '64
South Burbank unit; comparison of oil recoveries by various type drives. T. A. Matthews. plans J Pet Tech 15:1180-2 N '63
Standard test for foaming agents. G. I. Freeze. diags Oil & Gas J 62:168+ Jl 27 '64
Systematic study of gas and water coning by potentiometric models. G. L. Chierici and others. bibliog diag J Pet Tech 16:923-9 Ag '64
Texaco starting Rodrigues field steam flood. Oil & Gas J 62:82 S 14 '64
Thermal recovery; special report. il maps diags Oil & Gas J 62:75-90 O 19; 123-30 O 26 '64 (reprints $1)
Transient pressure behavior in vertically fractured reservoirs. D. G. Russell and N. E. Truitt. bibliog diags J Pet Tech 16:Trans 1159-70 O '64
24,000-v system cuts waterflood costs. W. B. Bleakley. il diag Oil & Gas J 62:152-4 O 5 '64
Two-dimensional analysis of a radial heat wave. C. Chu. bibliog il(cover) diag J Pet Tech 15:Trans 1137-44 O '63
Two-wire system controls waterflood. W. B. Bleakley. il Oil & Gas J 62:72-3 Ag 10 '64
Use of carbon dioxide for water injectivity improvement. H. J. Ramsay, jr. and F. R. Small. bibliog J Pet Tech 16:25-31 Ja '64
Use of well interference and build-up data for early quantitative determination of reserves, permeability and water influx. V. J. Driscoll. bibliog diag J Pet Tech 15:Trans 127-36 O '63
Vertical turbine pumps will work on waterfloods. H. Greutink. il diags Oil & Gas J 62:113-15 Ap 20 '64
Vertical turbine vs positive-displacement pumps used in waterflood operations. B. D. Meador and J. R. Russell. il map J Pet Tech 16:139-42 F '64
Water flooding a high water-cut strawn sand reservoir. I. F. Roebuck, jr. and L. L. Crain. maps J Pet Tech 16:845-50 Ag '64
Water-plant success by design. A. L. Holland, jr. Pet Management 35:108+ N '63
Waterflood performance in a high viscosity oil reservoir. E. Sutton. maps diag J Pet Tech 15:1281-4 D '63
Waterflood prediction methods compared to pilot performance in carbonate reservoirs. B. F. Abernathy. bibliog map plans J Pet Tech 16:276-82 Mr '64
Well stimulation by downhole gas-air burner. C. L. DePriester and A. J. Pantaleo. bibliog diags J Pet Tech 15:1297-302 D '63
Where Shell plans to expand offshore waterfloods. il map Oil & Gas J 61:37-8 N 25 '63

PETROLEUM—Production methods—*Cont.*
Wilmington flood to net $172 million. plan Oil & Gas J 62:77-9 My 11 '64
See also
Petroleum—Acidation of wells
Petroleum—Chemical treatment of wells
Petroleum—Mud fluids
Petroleum—Unit operation of pools

Production rates

Systematic study of gas and water coning by potentiometric models. G. L. Chierici and others. bibliog diag J Pet Tech 16:923-9 Ag '64

Proration

Alberta overhauls oil-proration plan. Oil & Gas J 62:68-9 Ag 3 '64
Atlantic's bid to raise east Texas quotas shows up discrepancies in field allowables. Oil & Gas J 62:78-9 S 7 '64

Prospecting

Accentuate the positive and exploration will rally; symposium. Oil & Gas J 62:102-4+ My 25 '64
Alaska looks good again. il Oil & Gas J 62:139 Mr 23 '64
Alaska wildcat pace slows to walk. C. J. Lawrence. il Oil & Gas J 61:175-6 N 4 '63
All totals up, all signs go for Canada. maps Oil & Gas J 62:91-2+ Ag 17 '64
Amazon oil still eludes Brazilians. F. J. Gardner. map Oil & Gas J 61:87 D 23 '63
Amite County, Miss., strike taps good oil production. Oil & Gas J 62:130 Mr 30 '64
Anadarko Basin adds new reserves. map plan Oil & Gas J 62:186 Ag 17 '64
Annual wet spell plagues Louisiana drillers. il Oil & Gas J 62:186-7 S 14 '64
Answers still needed for Ohio Cambrian problems. G. Sitler. maps diags Oil & Gas J 62:126-32 Mr 9 '64
Appalachian production stretches eastward. F. J. Gardner. map Oil & Gas J 62:125 Mr 9 '64
Are you drilling too many cute little prospects? F. J. Gardner. Oil & Gas J 61:163 O 28 '63
Arizona drilling may be due for big boost. J. C. McCaslin. map Oil & Gas J 62:185 My 25 '64
Asphalto field; a guts and imagination discovery. C. J. Lawrence. map Oil & Gas J 62:34-5 Ja 6 '64
Atlantic seeks oil in new frontiers. L. F. Davis. Oil & Gas J 62:64-5 Mr 16 '64
Australia gets two misses and a hit. Oil & Gas J 62:270 Ja 27 '64
Australia wants faster exploration pace. Oil & Gas J 62:56 Mr 30 '64
Benzene could be clue to oil finding. Oil & Gas J 62:125-6 Je 15 '64
Big oil hunt fans out over England. map Oil & Gas J 62:80+ Ap 20 '64
Big-oil search goes to sea. P. Swain. il map Oil & Gas J 62:127-31 Je 22 '64
Big tires lick swamp problems. il Oil & Gas J 62:190-2 Ag 17 '64
Black Warrior Basin entices deep duo. F. J. Gardner. map Oil & Gas J 62:177 Ap 20 '64
Britain is speeding plans for North Sea exploration race. Oil & Gas J 62:96-7 My 18 '64
Britain opens North Sea expanse. R. G. Gibson. map Oil & Gas J 62:53-5 My 25 '64
California still uncovering some big ones. F. J. Gardner. map Oil & Gas J 62:183 O 5 '64
Cambrian interest moves to Canada's Ontario. map Oil & Gas J 62:181 Ag 17 '64
Can oil fields be found with radio waves? new look at an old method. W. M. Barrett. map Oil & Gas J 62:258-60 Ja 27 '64
Canada needs additional incentives to attract foreign capital for oil exploration. Oil & Gas J 62:66-7 My 25 '64
Canadians flock to new center of interest. F. J. Gardner. map Oil & Gas J 62:191 Ap 27 '64
Central Louisiana sees action. map Oil & Gas J 61:190+ N 4 '63
Chadron arch could offer big potential to oil hunters. G. R. Wulf. maps diags Oil & Gas J 62:148-51 F 24 '64
Champlin looks for oil in back yard. map Oil & Gas J 62:151-2 F 17 '64
Chromatographic analysis of gases from soils and vegetation, related to geochemical prospecting for petroleum. G. H. Smith and M. M. Ellis. bibliog Am Assn Pet Geologists Bul 47:1897-903 N '63
Colorado's Moffat County sprinkled with strikes. map Oil & Gas J 62:121-2 Ag 31 '64
Computer joins Permian Basin search. il Oil & Gas J 62:49-51 Ja 20 '64
Deep dig comes to south Texas. F. J. Gardner. map Oil & Gas J 62:95 Je 29 '64
Deep dig sets in. F. J. Gardner. Oil & Gas J 62:235 Jl 27 '64
Deep drilling may hold key to dry parishes. F. J. Gardner. map Oil & Gas J 62:115 My 4 '64
Deep hunting grounds. I. H. Cram. maps Am Assn Pet Geologists Bul 47:2009-14 D '63
Denver Basin drillers aiming for new, bigger fields. maps Oil & Gas J 62:240-1 O 12 '64
Denver basin oil moves out and up. map Oil & Gas J 62:227 Je 22 '64
Despite Canadian success in Disturbed belt, Montana side lacks big production. W. T. Langstroth. maps diags Oil & Gas J 62:144-8 Ap 13 '64
Discoveries come hard in Florida. F. J. Gardner. map Oil & Gas J 62:177 Ag 17 '64
Domal play develops in east Texas. map Oil & Gas J 62:117 Ja 27 '64
Drillers eye Texas' dry domes. R. J. Enright. map Oil & Gas J 61:210-12+ D 30 '63
Drillers may have to probe deep for Illinois basin pay. maps diag Oil & Gas J 62:184-6+ O 5 '64
Drilling in Alaska is million-dollar game. Oil & Gas J 61:100 N 4 '63
Dry spell starts; but not for Louisiana drillers. il map Oil & Gas J 62:140-1 Jl 20 '64
Eagle Springs can't be a freak. F. J. Gardner. map Oil & Gas J 62:107 N 2 '64
East Texas drillers look to Jurassic pay. J. C. McCaslin. il map Oil & Gas J 61:167-70 O 28 '63
Eastern drilling picks up. maps Oil & Gas J 61:184-6 N 4 '63
Egypt opens new area for exploration. map Oil & Gas J 61:107-8 N 4 '63
Engineering concepts useful in oil finding. J. J. Arps. diags Am Assn Pet Geologists Bul 48:157-65 F '64
Enigma of oil and gas economics. W. B. Davis. bibliog Pet Management 36:53-60 Ag '64
Exploration. Oil & Gas J 62:136 Jl 27 '64
Exploration may stage a rally. map Oil & Gas J 62:130-1 Ja 27 '64
Exploration needs more idiots. W. J. Gillingham. Oil & Gas J 61:95 N 11 '63
Exploration surges into New England. F. J. Gardner. map Oil & Gas J 62:239 O 12 '64
Exploration will help show Pascola's potential. D. C. Sargent. maps diag Oil & Gas J 62:128-30 Ag 24 '64
Exploratory drilling drops off again. Oil & Gas J 62:71-2 Ap 20 '64
Explorers look to Black Mesa with great expectations. R. J. Enright. maps Oil & Gas J 62:200-3 Mr 16 '64
Finding economic oil should be goal for all geologists. W. O. Twaits. Oil & Gas J 62:66-7 My 25 '64
First east Texas dome probed for Smackover oil. map Oil & Gas J 62:122-3 Je 15 '64
Flush strike gives Sooners new target. F. J. Gardner. map Oil & Gas J 62:147 F 24 '64
Forty-four Trempealeau locations retain spotlight in Ohio play. Oil & Gas J 62:134 Jl 13 '64
Four winter wildcats due for Alaska. C. J. Lawrence. il Oil & Gas J 62:109 Ja 6 '64
French win Tunisian oil-hunting rights. Oil & Gas J 62:82 Jl 6 '64
Frontal attack pays off in Oklahoma. F. J. Gardner. map Oil & Gas J 62:191 My 18 '64
German North Sea activity picks up steam. Oil & Gas J 61:111-12 N 4 '63
Gulf drills all over the map. F. J. Gardner. map Oil & Gas J 61:223 N 11 '63
Gulf will drill important Willamette Valley, Oregon, test. map Oil & Gas J 61:164 N 25 '63
Here's how the Smackover play is faring in east Texas. R. J. Enright. maps Oil & Gas J 62:152-7 F 10 '64
Here's how to build a good subcrop map. C. F. Dodge. diags Oil & Gas J 62:96-7+ Je 29 '64
How to evaluate exploration prospects. B. F. Rummerfield and N. S. Morrisey. bibliog maps diags Geophysics 29:434-44 Je '64
How useful a tool are reef-building studies? Oil & Gas J 62:220 Je 8 '64
Humble twins dominate Southeast interest. F. J. Gardner. il map Oil & Gas J 62:189 Ap 6 '64
Iberian oil drought may be nearing its end. J. C. McCaslin. map Oil & Gas J 62:153 Jl 6 '64
Idaho's hopes may rest on high-country test. map Oil & Gas J 62:224+ Je 22 '64

PETROLEUM—Prospecting—*Continued*
If books can help find oil, here's a Kentucky wonder. F. J. Gardner. map Oil & Gas J 62:147 F 17 '64
In Australia, big structures imply big oil. F. J. Gardner. map Oil & Gas J 62:143 Ap 13 '64
Indonesia finally clears way for big exploration drive. P. Swain. maps Oil & Gas J 62:66-8+ Ap 13 '64
Investment decisions in petroleum exploration and production. I. G. Northern. bibliog J Pet Tech 16:727-31 Jl '64
Iowa's Butler getting deep wildcat. map Oil & Gas J 62:186 Ag 3 '64
Iran oil picture still looks good for drillers. R. Gibson. map Oil & Gas J 62:192-3 Ap 27 '64
It takes many dry holes to open the windows needed to successfully locate new oil and gas fields. J. R. Rensch. maps Oil & Gas J 62:192-5 My 18 '64
Kaiparowits may have oiler after 43 years. F. J. Gardner. map Oil & Gas J 62:175 Mr 2 '64
Kansas' Burgess sand: elusive but profitable. F. W. Morgan and M. E. Torline. maps diags Oil & Gas J 62:112-15 F 3 '64
Kansas' Gove has wildcat success. map Oil & Gas J 62:117 Ag 31 '64
Kentucky's Hopkins County has drilling spree. J. M. Barnes. map diags Oil & Gas J 61:180-1+ N 4 '63
Knox is the target for northern Kentucky. R. G. Schmidt and R. A. Warner. maps diags Oil & Gas J 62:178-80 Ap 20 '64
Look for ancient deltas in your search for oil. E. H. Rainwater. map diags Oil & Gas J 62:110-11+ Ja 6 '64
Louisiana onshore drilling barely keeps up 1963 pace. map Oil & Gas J 62:204-5+ Ap 27 '64
Louisiana's Avoyelles parish adds eight new wildcats. Oil & Gas J 61:203-4 D 2 '63
Louisiana's Sabine drilling action to expand. D. J. Woods. map diags Oil & Gas J 61:124-6+ D 9 '63
Maritimes get first wildcat in three years. F. J. Gardner. map Oil & Gas J 62:125 Ja 13 '64
Michigan test may change old notions. il Oil & Gas J 62:136-8 Jl 20 '64
Michigan wildcat probes for Niagara Silurian pay. il Oil & Gas J 62:138 Mr 9 '64
Mississippi strikes look good. Oil & Gas J 62:191-2 My 25 '64
Mobil adds two producers. map Oil & Gas J 62:100 Ap 27 '64
Montana set for drilling play. Oil & Gas J 62:191 My 25 '64
More oil found in central California. map Oil & Gas J 62:159-60 F 17 '64
Nebraska's Salina sees action. map Oil & Gas J 62:154 Jl 6 '64
New California field looks better every day. T. A. Armstrong. map Oil & Gas J 62:173 S 14 '64
New drilling slated for Australia. Oil & Gas J 62:242 O 12 '64
New Mexico amends wildcatting rules. Oil & Gas J 62:61 Ag 17 '64
New test to drill in North Holland. map Oil & Gas J 62:44 Ag 31 '64
New Texas salt-dome play cools off. R. J. Enright. map Oil & Gas J 62:193+ Ap 27 '64
Nine wildcats being drilled in south Texas' Wilson County. map Oil & Gas J 62:125 Je 1 '64
North Dakota wildcatting activity keeps growing. C. B. Folsom, jr. il Oil & Gas J 62:194-5 Ap 6 '64
North Sea play opens off Germany. map Oil & Gas J 62:72-3 My 25 '64
Northern Alberta may see big new oil play. map Oil & Gas J 62:156 Ap 13 '64
Ohio oil poses no tough problems in drilling, but finding it can be troublesome for geologists. Oil & Gas J 62:182-3 Ag 3 '64
Ohio's Cambrian play spreads in all directions. F. J. Gardner. map Oil & Gas J 62:257 Ja 27 '64
Oil found near Battle of Little Big Horn site. map Oil & Gas J 62:153 Ap 13 '64
Oil, gas pays abound in Texas' Floresville-Stockdale. L. L. Palmer. map Oil & Gas J 62:190-3 Ap 6 '64
Oil is a widespread and inherent constituent of sedimentary rocks everywhere. G. Murray. Oil & Gas J 61:191 D 2 '63
Oil is not just where you find it. F. J. Gardner. Oil & Gas J 61:157 N 25 '63
Oil search quickens in New Zealand. R. J. Enright. maps Oil & Gas J 62:42+ Ja 6 '64
Oklahoma makes news all over. Oil & Gas J 62:118 Ja 6 '64
Oklahoma wildcat activity is boosted. J. C. McCaslin. maps Oil & Gas J 62:198+ Ap 27 '64
Ontario drillers probe Cambrian. maps Oil & Gas J 62:196 Ap 6 '64
Operators fight icy tides in Alaska. il map Oil & Gas J 62:52-4 Ja 13 '64
Paleogeomorphology; a practical exploration technique. E. M. McKee. diags Oil & Gas J 61:140-3 O 21 '63
Panhandle racks up major discovery. F. J. Gardner. map Oil & Gas J 62:111 F 3 '64
Pemex launches second Yucatan peninsula attack. F. J. Gardner. map Oil & Gas J 62:239 S 21 '64
Pennsylvania adds fields. map Oil & Gas J 61:202 D 2 '63
Pennsylvania setting new wildcatting records in '64. map Oil & Gas J 62:132-5 Mr 23 '64
Photo from space; a new tool for oil exploration? H. Wilson. il map Oil & Gas J 61:72-3 O 21 '63
Railroad gap; best California find in the last 15 years. T. A. Armstrong. map Oil & Gas J 62:132-3 Jl 13 '64
Record depth slated for Michigan. map Oil & Gas J 61:187 N 4 '63
Responsibility of geologists and petroleum engineers in meeting exploration demands in the future. M. T. Halbouty and T. D. Barber. J Pet Tech 16:239-43 Mr '64
Rockies area requires much wildcatting to find reserves. J. C. McCaslin. maps Oil & Gas J 62:116-20 My 4 '64
Rockies scene of brisk exploratory effort. Oil & Gas J 62:120-1 Ag 10 '64
Salt anticlines shine in a new light. F. J. Gardner. map Oil & Gas J 61:135 D 16 '63
Saturation approach to exploration may aid oil hunters. diags Oil & Gas J 62:180-1 Ag 3 '64
Search for Australian oil reserves fans out. F. J. Gardner. il map Oil & Gas J 62:96-9 Ap 27 '64
Shallow Mississippi field could be big producer. map Oil & Gas J 62:181 Ap 20 '64
Sheepherder anticline pays off for Montana. F. J. Gardner. map Oil & Gas J 62:121 Ja 20 '64
Six north central Oklahoma counties set for big play in 1964. map Oil & Gas J 62:153+ F 17 '64
Smackover play edges south. R. Enright. map Oil & Gas J 62:127 Mr 30 '64
Smackover play pushes coastward in Mississippi. F. J. Gardner. map Oil & Gas J 62:113 Ag 31 '64
Smackover play stretches over four states. F. J. Gardner. map Oil & Gas J 62:207 S 7 '64
Smackover; rich rewards in a subtle reservoir. V. Peppard. maps diags Oil & Gas J 62:110-12+ My 25 '64
Small strike sets off new flurry in Kansas. F. J. Gardner. map Oil & Gas J 62:217 Je 22 '64
Socal hits in Kern County. map Oil & Gas J 61:198-9 D 2 '63
Socony steps up oil hunt. Oil & Gas J 61:28-9 D 23 '63
Sooner action sets fast pace. Oil & Gas J 62:119 F 3 '64
Sooner Panhandle counties lead western Oklahoma drilling play. il Oil & Gas J 62:144-5 Jl 20 '64
Sooner Panhandle drilling fares well. Oil & Gas J 62:235-6 Je 22 '64
Sooners may share Palo Duro success. F. J. Gardner. map diags Oil & Gas J 61:139-40 O 21 '63
South Dakota; new oil frontier. G. R. Wulf and J. P. Gries. maps Oil & Gas J 61:192-4 D 2 '63
Southeastern New Mexico looks good in '64. map Oil & Gas J 62:149-51 Ap 13 '64
Soviets bet on Baltic oil. map Oil & Gas J 62:96-7 My 18 '64
Soviets push Cuban exploration effort. map Oil & Gas J 62:86 Ap 20 '64
Standard of California budgeting $50 million on San Joaquin Valley. C. J. Lawrence. map Oil & Gas J 62:131 Mr 23 '64
Stay with the Osage if you want Kansas oil. R. M. Euwer. maps diags Oil & Gas J 62:176-9+ Mr 2 '64
Stepout no. 2 will further evaluate new Utah reserve. H. M. Wilson. map Oil & Gas J 62:127 Ag 24 '64
Strike encourages Pennsylvania drillers to try for more. Oil & Gas J 62:118 Ag 31 '64
Study of oceanography and its bearing on exploration for oil. T. F. Gaskell; R. G. S. Avery. bibliog il diags Inst Pet J 50:131-45; Discussion. 146-9 Je '64

PETROLEUM—Prospecting—*Continued*

Sun enhances Florida chances. F. J. Gardner. il map Oil & Gas J 62:175 O 26 '64
Take another look at Illinois' Carper. maps Oil & Gas J 62:218-20 Je 22 '64
Tarheel state joins offshore oil search. F. J. Gardner. map Oil & Gas J 62:135 Jl 20 '64
Tennessee could share in Appalachian Basin revival. O. D. Weaver. maps diags Oil & Gas J 62:174-7+ S 14 '64
Tennessee drills stay shallow. H. C. Milhous. map Oil & Gas J 62:206-7 Mr 16 '64
Test off Australia due soon. map Oil & Gas J 62:80 O 26 '64
Texas County may pay off after 40-odd years. F. J. Gardner. map Oil & Gas J 61:229 N 18 '63
Texas County snags its first flowing well. F. J. Gardner. map Oil & Gas J 62:201 My 11 '64
Texas drillers keep busy. il Oil & Gas J 62:125 Ja 20 '64
Texas' Marfa Basin may be ready to yield to oil hunters. B. Pearson. map diag Oil & Gas J 61:88-91 D 23 '63
Texas may add no. 215 to list of oil counties. F. J. Gardner. map Oil & Gas J 62:199 Mr 16 '64
There's fun ahead. I. H. Cram. Geophysics 29:4-8 F '64
Third arcticat set to go this winter. il map Oil & Gas J 61:58-9 O 21 '63
Tide has turned in Australia. il map Oil & Gas J 62:45-8 Ag 24 '64
Turkey may finally have its big oil find. J. C. McCaslin. maps diag Oil & Gas J 62:240-3 S 21 '64
12,000-ft Arctic Circle wildcat. R. J. Enright. il Oil & Gas J 62:158-60 Ap 6 '64
25-year-old Forest City Basin stirs. F. J. Gardner. map Oil & Gas J 61:209 D 30 '63
Two reefs hold center stage in Canada's drilling play. J. C. McCaslin. map Oil & Gas J 62:78-9 Ap 6 '64
Two strikes build interest in Texas-Oklahoma border basin. maps Oil & Gas J 62:152-3 F 24 '64
Uinta, Kaiparowits help shape drilling future for Utah. maps Oil & Gas J 62:108+ N 2 '64
Umm Shaif oilfield; history of exploration and development. S. Elder. maps diags Inst Pet J 49:308-14; Discussion. 314-15 O '63
Watch East Texas' cotton valley. map Oil & Gas J 61:166-7 N 25 '63
Wells, not ghosts, stalk dry-hole graveyard. F. J. Gardner. map Oil & Gas J 62:151 F 10 '64
West Texas drillers will dig deep in Delaware Basin. map Oil & Gas J 62:154-5 Ap 13 '64
West Texas features Kent and Schleicher County drilling action. map Oil & Gas J 62:116 F 3 '64
West Virginia drilling yields good rate of success. map Oil & Gas J 62:179 O 26 '64
What is geochemistry's role in oil exploration? Oil & Gas J 62:220+ Je 8 '64
What's the best way to show how many pools lie in a basin? Oil & Gas J 62:222 Je 8 '64
Why have we been hesitant? F. J. Gardner. Oil & Gas J 62:213 Je 8 '64
Wildcat drill is coming to Vermont. E. F. Taylor. map Oil & Gas J 61:230-1 N 18 '63
Wildcats will top 1963 by 690. Oil & Gas J 62:132-3 Ja 2 '64
Will exploration follow the dodo bird, or will management see the light? B. W. Beebe. bibliog maps Oil & Gas J 62:82-7+ My 25 '64
Williston draws drillers' interest. map Oil & Gas J 62:136 Mr 23 '64
Wyoming keeps drillers busy and guessing. J. C. McCasllin. map Oil & Gas J 62:157 O 19 '64

Geophysical methods

Biggest need; new exploration tool; abstract. D. A. McGee. Oil & Gas J 61:119 N 18 '63
Borehole gravity meter and its application. R. R. Goodell and C. H. Fay. bibliog il diags Geophysics 29:774-82 O '64
Computer helps map oil structures. D. F. Merriam and J. W. Harbaugh. bibliog maps Oil & Gas J 61:158-9+ N 25 '63
Dinoseis field tests point to better records at less cost. il diags Oil & Gas J 62:126-7+ My 25 '64
Fargo field, a case history. L. Y. Faust. il maps Geophysics 28:990-1000 D '63
Finding one reef is like finding one ant; look for more reefs in east Wapella. C. Ferris. bibliog maps diags Oil & Gas J 62:188-91 My 25 '64
Geophysical activity in 1962. N. J. Smith. Geophysics 28:1049-71 D '63
Geophysical pace breaks six-year slide. Oil & Gas J 62:105-7 Jl 27 '64
Geophysics is key to new Ohio Trempealeau exploration. L. T. McCarthy. map Oil & Gas J 62:122-4 Ja 20 '64
Gravimetrics are key to Ohio's Trempealeau. C. Ferris. bibliog map diags Oil & Gas J 62:148-51 F 17 '64
Helicopter rigs speed Yukon seismic work. il Oil & Gas J 62:250+ S 21 '64
Helicopters conduct survey off Holland. il Oil & Gas J 62:123 Ja 27 '64
Magnetic tape helps stack data from common depth point. il Oil & Gas J 62:65 S 7 '64
New seismic exploration tool being used by oil hunters. R. J. Enright. il diags Oil & Gas J 62:236+ Jl 27 '64
New seismic tool uses electrical pop. il Oil & Gas J 62:68-9 Ag 17 '64
Play off Washington, Oregon warms up. il Oil & Gas J 61:118-19 D 2 '63
Regionals and residuals in seismic prospecting for stratigraphic features. M. B. Dobrin and W. G. Rimmer. bibliog maps diags Geophysics 29:38-53 F '64
Seismic activity hits peak. il Oil & Gas J 62:26-7 N 2 '64
Seismic boats head northwest to Pacific Coast. il Oil & Gas J 62:128 Je 15 '64
Seismic work soars in Gulf. H. M. Wilson. il Oil & Gas J 62:64-6 S 7 '64
Shell will focus seismic probe off Nova Scotia. J. C. McCaslin. map Oil & Gas J 62:113 Je 1 '64
Stability holds the key to geophysics' future. R. A. Baile. diags Oil & Gas J 62:122-4 My 25 '64

Pumping

Centrifuge traps well-stream sand. il diag Oil & Gas J 62:99 F 24 '64
Plunger-pump rig packages may reduce costs. il Oil & Gas J 62:71 O 26 '64
Proper operation of pumps. diags Oil & Gas J 62:81 Ja 20 '64
Seal for oil well pump polish rods. J. Sneed. il Materials in Design Eng 59:130 Ap '64
Working smarter means working cheaper. W. J. Bentley. flow chart Pet Management 36:100-2+ Ap '64
See also
Petroleum—Production methods

Pumping, Electric

New downhole electric pump lowers costs. diags Oil & Gas J 62:139 O 19 '64
Role of two-speed motors in lifting heavy oil. C. H. Blankenhorn. map J Pet Tech 15:1195-8 N '63
Study compares energy need of oil-field pumping units. Oil & Gas J 62:111 Jl 20 '64
See also
Petroleum pipe lines—Pumping stations, Electric

Secondary recovery

See Petroleum—Production methods

Statistics

Drilling forecast. Oil & Gas J 62:134-5 Jl 27 '64
Well completions. il Oil & Gas J 62:138-42 Jl 27 '64
See also
Petroleum supply

Storage

See Petroleum storage

Sulfur content

Novel process transforms sour crude to sweet. Oil & Gas J 61:69 O 28 '63

Transportation

High pour points, low reservoir temperatures, and multiple fracture jobs. W. B. Bleakley. il map Oil & Gas J 61:102-5 O 28 '63
Petroleum transport borrows a safety idea from the process industries. G. J. Grabowski. diags Oil & Gas J 62:118-19 My 18 '64
Technique of optimizing a bulk-petroleum logistics system. H. N. Emerson. Oil & Gas J 62:96-9 F 17 '64
See also
Petroleum pipe lines
Petroleum shipping terminals
Tank ships

Unit operation of pools

Bisti; solvent production during three years of unit operations. T. W. Brinkley and others. plan J Pet Tech 16:515-18 My '64

PETROLEUM—Unit operation of pools—*Cont.*

Consolidation and LACT in the SACROC unit. J. W. Mathis. flow diag il map diags J Pet Tech 16:751-6 Jl '64

Fairway field of east Texas; its development and efforts towards unitization. J. R. Latimer, jr. and F. L. Oliver. maps diag J Pet Tech 16:133-8 F '64

Water problem

Linear aquifer behavior. G. W. Nabor and R. H. Barham. J Pet Tech 16:561-3 My '64

See also

Petroleum—Well cementing and plugging

Waterflooding

See Petroleum—Production methods

Well blasting

Atomic-age fracturing may soon open up stubborn reservoirs. C. H. Atkinson and M. A. Lekas. bibliog map diags Oil & Gas J 61:154-6 D 2 '63

Well casing

Arkoma drillers tame sloughing shales. R. W. Ruhe, jr. il diag Oil & Gas J 62:84-6 Ag 24 '64

Behavior of casing subjected to salt loading. J. B. Cheatham, jr. and J. W. McEver. bibliog il diags J Pet Tech 16:Trans 1069-75 S '64

Casing alignment tool developed for field uses. diags Pet Management 36:164 Jl 15 '64

Engineered casing cementing programs using turbulent flow techniques. J. W. Brice, jr. and B. C. Holmes. diags J Pet Tech 16:503-8 My '64

New equations help prevent surface-casing overload. J. A. Casner. Oil & Gas J 61:84+ D 16 '63

Oil-system packer fluid insures maximum casing recovery on Bee County dry hole. G. L. Jackson. diag Oil & Gas J 62:116+ F 24 '64

Pan Am sets record-long casing string. L. C. Rogers. il Oil & Gas J 62:66-7 Jl 6 '64

Why high-strength tubular goods fail. S. H. Davis and H. W. Nippert. il Oil & Gas J 62:84-6 Ap 13 '64

Corrosion

Field results of the electromagnetic casing inspection log. J. M. Edwards and S. G. Stroud. il diag J Pet 16:377-82 Ap '64

Measure corrosion rate, now. J. M. Kilpatrick. il diag Oil & Gas J 62:155-7 Mr 16 '64

Stop sulfide corrosion cold with new heat-treating method. W. B. Bleakley. il diag Oil & Gas J 62:130-2 Je 8 '64

Maintenance and repair

Field results of the stressed steel liner casing patch. G. Kemp. il map diags J Pet Tech 16:147-9 F '64

Well cementing and plugging

Additives yield heavy high-strength cements with low water ratios. H. F. Waggoner. Oil & Gas J 62:109-11 Ap 13 '64

Engineered casing cementing programs using turbulent flow techniques. J. W. Brice, jr. and B. C. Holmes. diags J Pet Tech 16:503-8 My '64

How to complete multiple tubingless completions. J. L. Buster. Oil & Gas J 62:121-5 Je 8; 89-91 Je 15 '64

How to increase the odds for a successful primary cement job. P. Bercegeay and G. Gilley. Oil & Gas J 62:88-91 S 28 '64

New small-diameter perforating method aids sand control. F. O. Bohn. il diag Oil & Gas J 62:72-3 Je 15 '64

Progress report on cement bond logging. L. Putman. diags J Pet Tech 16:1117-20 O '64

Study of cement-pipe bonding. L. G. Carter and G. W. Evans. bibliog il diags J Pet Tech 16:157-60 F '64

Well cleaning

Pipe or a spool may be key to instant workovers. il Oil & Gas J 62:72-3 Ja 13 '64

Well completion

Here's a simple, graphical limited-entry design method. Z. Daniel and R. D. Cocanower. bibliog Oil & Gas J 61:113-17 N 4 '63

How to complete multiple tubingless completions. J. L. Buster. Oil & Gas J 62:121-5 Je 8; 89-91 Je 15 '64

Marine drilling and well completions from floating platforms. C. M. Shields. bibliog diag J Pet Tech 16:605-9 Je '64

New tools permit single-string dual completions. R. J. Enright. il diags Oil & Gas J 62:108-10+ F 24 '64

Underwater drilling and completion methods. J. R. McEntee and others. il diags J Pet Tech 16:595-604 Je '64

Warm-air coking; new completion method for unconsolidated sands. P. L. Terwilliger and others. bibliog diag J Pet Tech 16:367-71 Ap '64

Well control

Automation, several Big Horn Basin fields monitored from one point. J. K. Walsh. map diags J Pet Tech 16:983-6 S '64

New blowout preventer control system solves problems offshore. M. Harding. il diags Oil & Gas J 62:132-3+ O 5 '64

Well-killing tool scores big. R. H. Everett and L. R. Records. il diag Oil & Gas J 62:52-6 Je 29 '64

Well drilling

Air-gas drilling techniques assessed; panel discussion. Oil & Gas J 62:105-6 F 24 '64

Air hammer cuts cost in Arkoma Basin. diags Oil & Gas J 62:120+ F 10 '64

Air hammer cuts drilling time. Oil & Gas J 62:47 Je 1 '64

Air rigs popular with Ohio's Cambrian oil hunters. L. C. Rogers. il map Oil & Gas J 61:82-4 D 9 '63

Big bits head for 4,000 ft. R. G. Burke. il Oil & Gas J 62:81-3, cover Ap 27 '64

Calco learns about drilling through excessive doglegs. K. D. Schenck. Oil & Gas J 62:132-5 O 12 '64

Circulating whipstocks prove value. J. C. Ryan. il Oil & Gas J 61:169-70+ N 18 '63

Data taking shape for API rig ratings. Oil & Gas J 62:72-3 Jl 6 '64

Deep holes set new mark. J. Scott. il Pet Management 36:102+ Mr '64

Deeper wells will find more oil more cheaply. Oil & Gas J 62:90 Ap 27 '64

Depth records in 100 countries. Pet Management 36:190-1 Mr '64

Drilco develops tool to steer bits. diags Oil & Gas J 62:49 S 28 '64

Drilling advances highlight Pemex growth. S. Gutierrez G. il map Pet Management 35:80-2+ D '63

Drilling firm puts crews on shorter work week. Oil & Gas J 62:63 Ap 20 '64

Drilling monitored remotely. il Oil & Gas J 62:67 Ag 17 '64

Drilling upturn brings labor shortage. Oil & Gas J 61:82-3 D 30 '63

Duel string devised for big holes may aid oil industry. diag Oil & Gas J 62:56-7 O 19 '64

Exploratory drilling in 1963. L. R. Newfarmer and E. L. Dillon. bibliog maps Am Assn Pet Geologists Bul 48:749-77 Je '64

Full-scale experiments on jets in impermeable rock drilling. R. Feenstra and J. J. M. Van Leeuwen. bibliog il J Pet Tech 16:Trans 329-36 Mr '64

Garfield, Kingfisher top Sooner news. map Oil & Gas J 61:146 D 16 '63

Gulf drills all over the map. F. J. Gardner. map Oil & Gas J 61:223 N 11 '63

Gulf slashes Delaware Basin deep-well costs. il diag Oil & Gas J 62:133-4+ Ap 20 '64

How those 72-in. holes are being drilled. R. G. Burke. il diag Oil & Gas J 62:70-3 My 4 '64

How to make Hydril packing elements last longer. L. C. Rogers. diags Oil & Gas J 62:130-2 Mr 2 '64

How to predict rock drillability. M. G. Bingham. diags Oil & Gas J 62:52-7 N 2; 212-14+ N 9 '64 (to be cont)

Hydroxyl factor in shale control. W. C. Browning. bibliog il diags J Pet Tech 16:Trans 1177-86 O '64

Influence of chemical composition of water on clay blocking of permeability. F. O. Jones, jr. bibliog diags J Pet Tech 16:Trans 441-6 Ap '64

Kentucky's Hopkins County has drilling spree. J. M. Barnes. map diags Oil & Gas J 61:180-1+ N 4 '63

Low-silt mud increases Gulf's drilling efficiency, cuts costs. V. D. Stone. il diag Oil & Gas J 62:136-9+ O 12 '64

New bottom-circulating whipstock cuts rig time. diag Oil & Gas J 62:148 My 25 '64

New directional tool controls lateral drift. il diags Pet Management 36:162-4 Jl 15 '64

New log-while-drilling method proves practical. J. L. Arps. il diags Oil & Gas J 62:154-6 S 7 '64

New method consolidates sand. Oil & Gas J 62:65 O 19 '64

PETROLEUM—Well drilling—*Continued*

1964 looks like a big year for deep holes. J. C. McCaslin. il Oil & Gas J 62:52-3 Mr 9 '64
Ohio gets big drilling play. il Oil & Gas J 61:132-3 D 9 '63
Ohio oil poses no tough problems in drilling, but finding it can be troublesome for geologists. Oil & Gas J 62:182-3 Ag 3 '64
Operators choose uncommon approaches. E. Adams. il Pet Management 36:82-9 My '64
Potable water drawn from abandoned oil well. G. W. Sayers. diag Pub Works 95:79 N '64
Present and future trends in rotary drilling technology. L. L. Payne. bibliog il diags Inst Pet J 50:173-8; Discussion. 178-9 Ag '64
Rig activity and completions pick up. Oil & Gas J 62:63 Mr 16 '64
Stuck drill pipe? surfactant/oil spot may save a washover job. K. A. Pfleger. diags Oil & Gas J 62:152-4 Mr 16 '64
Turbodrill cuts hole costs for Union. T. A. Armstrong. il map Oil & Gas J 62:50-1 Jl 20 '64
U.S. activity is rebounding; drilling survey. J. C. McCaslin. il maps Oil & Gas J 62:145-8+ O 12 '64
Unneeded wells should be discouraged. Oil & Gas J 62:38 Je 29 '64
Vibration control in oil drilling. il Safety Maint 128:43-4 Jl '64
Where 1963's wells were drilled. Oil & Gas J 62:169-71+ Ja 27 '64
See also
Derricks, Oil well
Drills, Oil well
Petroleum—Mud fluids
Petroleum—Prospecting
Petroleum—Well completion

Contracts

Contracts seem doomed in Argentina. Oil & Gas J 61:77-8 O 21 '63
How to use straight-hole specs in API drilling contract. R. B. McCloy. Oil & Gas J 61:72-4 N 25 '63
See also
Petroleum—Well drilling contractors

Costs

Drill-bit costs going down. Oil & Gas J 61:91 N 4 '63
Drilling costs decline. Oil & Gas J 62:88 My 11 '64
Drilling in Alaska is million-dollar game. Oil & Gas J 61:100 N 4 '63
Drilling wages heading up? Oil & Gas J 62:61+ Jl 20 '64
How to keep tabs on equipment-failure expense. D. R. Fincher and G. L. Nunn. Oil & Gas J 62:151-2+ Ap 27 '64
New four-step program cuts drilling costs four ways. J. R. Macgregor. Oil & Gas J 62:127-9 S 14 '64
Oil's drilling costs climbing again. Oil & Gas J 62:83-5 S 14 '64

Sampling

Core-analysis and electric log data gang up on formation-evaluation problems. R. J. Granberry and others. bibliog il diags Oil & Gas J 62:115-16+ Ag 3; 82-4 Ag 10; 136-8+ Ag 17; 89-91 Ag 24 '64
Experimentally determined resistivity profiles in invaded water and oil sands for linear flows. M. Gondouin and A. Heim. bibliog il diags J Pet Tech 16:Trans 337-48 Mr '64
Insoluble-residue study may solve stratigraphic problems. M. H. McCracken. bibliog flow sheet il map Oil & Gas J 62:126-31 Ja 13 '64
Outer-tube stabilization improves efficiency of diamond coring. L. W. Short and B. M. Bumgardner. diags Oil & Gas J 62:120-1 O 26 '64
Prediction of relative permeability characteristics of intergranular reservoir rocks from electrical resistivity measurements. S. J. Pirson and others. bibliog diags J Pet Tech 16:564-70 My '64

Well drilling, Electric

Drilling industry's first split rig proves its durability. R. J. Enright. il plan Oil & Gas J 62:148-50 My 18 '64
Penrod unveils new electromechanical rig. L. C. Rogers. il Oil & Gas J 62:144-6 Ap 27 '64
Plunger-pump rig packages may reduce costs. il Oil & Gas J 62:71 O 26 '64

Well drilling, Subaqueous

Big-oil search goes to sea. P. Swain. il map Oil & Gas J 62:127-31 Je 22 '64
Biggest inland barge boasts 6,000 hp. F. Manning. il Oil & Gas J 62:108-10 Jl 6 '64
Deepwater problems solved by divers. M. D. Black. il Oil & Gas J 62:176-7 O 26 '64
Effects of drilling vessel pitch or roll on kelly and drill pipe fatigue. J. E. Hansford and A. Lubinski. bibliog diags J Pet Tech 16:Trans 77-86 Ja '64
Equipment sales ride rising offshore tide. il Oil & Gas J 62:92-4 S 14 '64
Gravel-packing Maracaibo wells. E. McGhee. diags Oil & Gas J 62:75-6 N 2 '64
How Creole halved its drilling time in an all-out approach. E. McGhee. il Oil & Gas J 62:68-71 Ag 10 '64
Marine drilling and well completions from floating platforms. C. M. Shields. bibliog diag J Pet Tech 16:605-9 Je '64
New blowout preventer control system solves problems offshore. M. Harding. il diags Oil & Gas J 62:132-3+ O 5 '64
Operators fight icy tides in Alaska. il map Oil & Gas J 62:52-4 Ja 13 '64
Shell drills in deep waters; new test off California. map Oil & Gas J 62:41 Ja 6 '64
Snorkel tube; atmospheric pressure tool for underwater operations. V. D. Stone. bibliog il diags J Pet Tech 15:1171-9 N '63
Subsea equipment ready for deepwater drilling. W. W. Word and H. H. Vaughn, jr. diags Oil & Gas J 62:74-8 Jl 20 '64
Umm Shaif oilfield; history of exploration and development. S. Elder. maps diags Inst Pet J 49:308-14; Discussion. 314-15 O '63
Underwater drilling and completion methods. J. R. McEntee and others. il diags J Pet Tech 16:595-604 Je '64
West Coast heads toward new era. T. A. Armstrong. il maps Oil & Gas J 62:139+ Je '64
See also
Barges, Oil well drilling
Petroleum—Offshore development
Petroleum—Offshore drilling structures
Ships, Oil well drilling

Well drilling contractors

Deep holes set new mark. J. Scott. il Pet Management 36:102+ Mr '64
Drilling contractors find some cheer in these signs of stability. L. C. Rogers. il Oil & Gas J 62:128-31 O 12 '64
Is worst about over in contract-drilling business? Oil & Gas J 61:64-5 O 28 '63
Joint ventures; contractors' new hope. Oil & Gas J 62:72 O 26 '64
Oil country still has prizes. il Pet Management 36:102-6 Ja '64
Trouble around the rigs; a study of manpower. J. Scott. il Pet Management 36:95-6+ O '64

Directories

Rig locator including U.S. and Canadian well servicing units plus enlarged international section. Pet Management 36:R3-8+ Mr; R3-58 O '64

Well logging

Application of inverse filters to induction log analysis. C. F. George, jr. and others. bibliog diags Geophysics 29:93-104 F '64
Atlantic sets up automated data flow. map Oil & Gas J 61:50-1 O 28 '63
Committee proposes revised symbols list to SPE membership. E. H. Mayer. J Pet Tech 16:649-56 Je '64; Discussion. G. W. Nabor. 16:894 Ag '64
Computers' future job; finding strat traps. Oil & Gas J 62:82 My 18 '64
Core-analysis and electric-log data gang up on formation-evaluation problems. R. J. Granberry and others. bibliog il diags Oil & Gas J 62:115-16+ Ag 3; 82-4 Ag 10; 136-8+ Ag 17; 89-91 Ag 24 '64
Digital computer programming for automatic analysis of well logs. S. H. Southwick and T. W. Adair, 3d. bibliog flow charts diags J Pet Tech 16:35-40 Ja '64
Effects of pressure and fluid saturation on the attenuation of elastic waves in sands. G. H. F. Gardner and others. bibliog diag J Pet Tech 16:Trans 189-98 F '64
Electronic eye hunts overlooked oil. il Oil & Gas J 61:20-1 D 23 '63
Experimentally determined resistivity profiles in invaded water and oil sands for linear flows. M. Gondouin and A. Heim. bibliog il diags J Pet Tech 16:Trans 337-48 Mr '64
Exploration needs more idiots. W. J. Gillingham. Oil & Gas J 61:95 N 11 '63
Factors affecting the responses of laterologtype logging systems (LL3 and LL7). H. Guyod. bibliog diags J Pet Tech 16:Trans 211-19 F '64
Fluid travel log. T. Walker and others. diags J Pet Tech 16:851-8 Ag '64

PETROLEUM—Well logging—*Continued*

Log-combining refines porosity measurement. F. Lebreton and others. Pet Management 35:116-17+ D '63

Methods used in computing secondary equities. Wilmington field, Los Angeles County, Calif. D. R. Allen. maps diags Am Assn Pet Geologists Bul 48:1150-63 Jl '64

Neutron lifetime, a new nuclear log. A. H. Youmans and others. bibliog il J Pet Tech 16:Trans 319-28 Mr '64

Neutron lifetime log; a performance report. J. W. Little and A. H. Youmans. il diag Oil & Gas J 62:165-8 S 7 '64

New continuous-logging tool unveiled. diag Oil & Gas J 62:106 Je 22 '64

New log-while-drilling method proves practical. J. L. Arps. il diags Oil & Gas J 62:154-6 S 7 '64

Nuclear magnetism logging field results. B. W. Gamson and others. diag J Pet Tech 16:150-6 F '64

Prediction of relative permeability characteristics of intergranular reservoir rocks from electrical resistivity measurements. S. J. Pirson and others. bibliog diags J Pet Tech 16:564-70 My '64

Progress report on cement bond logging. L. Putman. diags J Pet Tech 16:1117-20 O '64

Shell predicts big savings by microwaving offshore log data. map Oil & Gas J 62:62-3 O 26 '64

Subsurface telemetry problem, a practical solution. J. J. Arps and J. L. Arps. bibliog diags J Pet Tech 16:487-93 My '64

Time-lapse logging, a valuable reservoir evaluation technique. R. P. Murphy and W. W. Owens. J Pet Tech 16:15-19 Ja '64

Using compressional and shear acoustic amplitudes for the location of fractures. R. L. Morris and others. bibliog il diags J Pet Tech 16:623-32 Je '64

Will induction log yield pressure data? W. E. Wallace, jr. bibliog Oil & Gas J 62:124-6 S 14 '64

Well packers

Gravel-packing Maracaibo wells. E. McGhee. diags Oil & Gas J 62:75-6 N 2 '64

Well pressure

Anticipating abnormal pressures in drilling. W. E. Wallace, jr.; J. R. Macgregor. bibliog Oil & Gas J 62:124-9 S 14 '64

Applying the frontal advance equation to vertical segregation reservoirs. W. J. Joslin. bibliog diag J Pet Tech 16:Trans 87-94 Ja '64

Computer makes surge-pressure calculations useful. F. J. Schuh. bibliog Oil & Gas J 62:96-8+ Ag 3 '64

Determination of formation characteristics from two-rate flow tests. D. G. Russell. diags J Pet Tech 15:Trans 1347-55 D '63

Effect of vertical fractures on reservoir behavior; results on oil and gas flow. M. Prats and J. S. Levine. bibliog diags J Pet Tech 15:Trans 1119-26 O '63

Effect of vertical fractures on transient pressure behavior of wells. J. O. Scott. bibliog diag J Pet Tech 15:Trans 1365-9 D '63

Experimental study of crater formation in limestone at elevated pressures. N. E. Garner and others. bibliog il diags J Pet Tech 15:Trans 1356-64 D '63

Linear fluid-barrier detection by well pressure measurements. E. G. Davis, jr. and M. F. Hawkins, jr. bibliog J Pet Tech 15:1077-9 O '63; Discussion. M. B. Standing. 16:259-60 Mr '64

New bottom-hole pressure gauge. J. W. Jones and J. D. Bennett. il diags J Pet Tech 15:1277-80 D '63

Practical application of interference tests. E. P. Matthies. bibliog map J Pet Tech 16:249-52 Mr '64

Pressure maintenance by fluid injection in the North Pembina Cardium unit no. 1. H. Groeneveld. maps J Pet Tech 16:977-82 S '64

Radius-of-drainage and stabilization-time equations. H. K. Van Poolen. bibliog Oil & Gas J 62:138+ S 14 '64

Remote reading bottom-hole pressure gauges; an evaluation of installation techniques and practical applications. R. F. Engel. il diags J Pet Tech 15:1303-13 D '63

Reservoir engineering (cont). E. T. Guerrero. bibliog Oil & Gas J 62:82-4 Ja 20; 101-2 Mr 9; 101-3 Ap 13; 137+ My 18; 70-2 Je 29; 107+ Jl 20; 93-5 Ag 10; 206+ S 21; 83-6 N 2 '64

Significance of partial pressure maintenance by fluid injection. G. J. Last and others. diags J Pet Tech 16:20-4 Ja '64

Transient pressure behavior in vertically fractured reservoirs. D. G. Russell and N. E. Truitt. bibliog diags J Pet Tech 16:Trans 1159-70 O '64

Use of well interference and build-up data for early quantitative determination of reserves, permeability and water influx. V. J. Driscoll. bibliog diag J Pet Tech 15:Trans 1127-36 O '63

Well spacing

Changes would promote wider spacing. Oil & Gas J 62:28-9 Je 29 '64

Model studies of the inverted nine-spot injection pattern. R. E. Watson and others. bibliog il diag J Pet Tech 16:Trans 801-4 Jl '64

Small-tract drilling stirs up Ohio. map Oil & Gas J 61:102-3 N 11 '63

Voluntary wider spacing moves ahead in Oklahoma. R. G. Burke. map Oil & Gas J 62:54-5 Je 15 '64

Well temperature

Bottom-hole heater impressive in California field tests. C. J. Lawrence. il diags Oil & Gas J 62:72-5 Mr 23 '64

Forced-air heaters win drilling converts. il Oil & Gas J 61:124-6 O 28 '63

High pour points, low reservoir temperatures, and multiple fracture jobs. W. B. Bleakley. il map Oil & Gas J 61:102-5 O 28 '63

Well testing

Decline and forecast studies based on performances of selected California oilfields. G. B. Shea and others. bibliog J Pet Tech 16:959-65 S '64

Field comparison of methods of evaluating remedial work on water injection wells. J. M. Ouzts. bibliog J Pet Tech 16:1121-5 O '64

Instrumentation for simplified commingling and well-testing operations. G. Kite. il diags J Pet Tech 16:732-8 Jl '64

Practical application of interference tests. E. P. Matthies. bibliog map J Pet Tech 16:249-52 Mr '64

Trouble in a 72-in. hole, then take a trip down to 677 ft and see what's wrong. Oil & Gas J 62:56-7 O 19 '64

Waterflood prediction methods compared to pilot performance in carbonate reservoirs. B. F. Abernathy. bibliog map plans J Pet Tech 16:276-82 Mr '64

Well tubing

Case for aluminum in drilling. C. G. Shiring and E. T. Wanderer. il Oil & Gas J 61:87-91 O 21 '63

Design and performance characteristics of aluminum drill pipe. E. G. Boice and R. S. Dalrymple. bibliog diags J Pet Tech 15:1285-91 D '63

Hinton drilling stamps its ok on aluminum drill pipe. C. Reed. il Oil & Gas J 61:68-9 D 23 '63

New system checks aluminum drill pipe. il Pet Management 35:96 D '63

Stuck drill pipe? surfactant/oil spot may save a washover job. K. A. Pfleger. diags Oil & Gas J 62:152-4 Mr 16 '64

Why high-strength tubular goods fail. S. H. Davis and H. W. Nippert. il Oil & Gas J 62:84-6 Ap 13 '64

Corrosion

Double-barreled attack on microbial corrosion. A. W. Baumgartner. il Pet Management 35:98+ N '63

Measure corrosion rate, now. J. M. Kilpatrick. il diag Oil & Gas J 62:155-7 Mr 16 '64

Oxygen traces may be corroding your waterflood piping. L. C. Case. il diag Oil & Gas J 62:78-80 Ja 13 '64

Practical engineering of corrosion control. A. W. Baumgartner. bibliog J Pet Tech 16:615-18 Je '64

Standards

AAODC wins support for standard pipe grading. Oil & Gas J 61:65 O 28 '63

Confusion threatens drill-pipe grading if decision lags. Oil & Gas J 62:70-1 O 26 '64

Drill-pipe standards suggested by AAODC, API nearing adoption. Oil & Gas J 62:72-3 Jl 6 '64

How to use those new AAODC drill-pipe inspection standards. A. P. Maradudin. il Oil & Gas J 62:78-84 Je 15 '64

Adriatic Sea

Italy grants Adriatic drilling permits. maps Oil & Gas J 62:115 Je 8 '64

Italy may act soon on Adriatic drilling permits. Oil & Gas J 62:65 Ag 10 '64

PETROLEUM—*Continued*

Alaska

Alaska looks good again. il Oil & Gas J 62:139 Mr 23 '64
Alaska to get big rig. il Oil & Gas J 62:62 O 19 '64
Alaska wildcat pace slows to walk. C. J. Lawrence. il Oil & Gas J 61:175-6 N 4 '63
Drilling in Alaska is million-dollar game. Oil & Gas J 61:100 N 4 '63
Four winter wildcats due for Alaska. C. J. Lawrence. il Oil & Gas J 62:109 Ja 6 '64
Jack-up barge to work in inlet. il Oil & Gas J 62:33 Je 1 '64
Leases off Kenai being drilled. map Oil & Gas J 62:75 F 10 '64
Operators fight icy tides in Alaska. il map Oil & Gas J 62:52-4 Ja 13 '64
Pan American group gets 975-b/d well in Cook Inlet. il map Oil & Gas J 62:56-7 Ag 10 '64
Shell sets big platform in Cook Inlet. il Oil & Gas J 62:26-7 Ag 31 '64

Alberta

Alberta's Ante Creek field grows fast. map Oil & Gas J 61:169 N 25 '63
Black oil may challenge Athabasca. G. T. Kinney. map Oil & Gas J 61:54-5 D 16 '63
Canadians flock to new center of interest. F. J. Gardner. map Oil & Gas J 62:191 Ap 27 '64
Construction starts at Athabasca oil sand project. maps diag Eng & Min J 165:86-90 O '64
Despite Canadian success in Disturbed belt, Montana side lacks big production. W. T. Langstroth. maps diags Oil & Gas J 62: 144-8 Ap 13 '64
Northern Alberta may see big new oil play. map Oil & Gas J 62:156 Ap 13 '64
Pressure maintenance by fluid injection in the North Pembina Cardium unit no. 1. H. Groeneveld. maps J Pet Tech 16:977-82 S '64
Study of the oil component of the Athabasca bitumen. M. L. Boyd and D. S. Montgomery. bibliog Inst Pet J 49:345-52 N '63
Vast asphaltic pay found in Alberta. Oil & Gas J 61:115 D 2 '63

Appalachian region

Eastern drilling picks up. maps Oil & Gas J 61:184-6 N 4 '63

Arctic regions

12,000-ft Arctic Circle wildcat. R. J. Enright. il Oil & Gas J 62:158-60 Ap 6 '64

Arizona

Arizona drilling may be due for big boost. J. C. McCaslin. map Oil & Gas J 62:185 My 25 '64
Explorers look to Black Mesa with great expectations. R. J. Enright. maps Oil & Gas J 62:200-3 Mr 16 '64

Arkansas

Deeper oil possibilities of South Arkansas and North Louisiana. J. J. Chapman. map diags Am Assn Pet Geologists Bul 47:1992-6 N '63

Australia

Australia gets two misses and a hit. Oil & Gas J 62:270 Ja 27 '64
Australia wants faster exploration pace. Oil & Gas J 62:56 Mr 30 '64
Australian strike tests new oil zone. Oil & Gas J 62:64-5 Jl 20 '64
Australian wildcat flows 1,050 b/d. map Oil & Gas J 62:66-7 Jl 13 '64
Australia's Perth basin could be one of world's big producers. Oil & Gas J 62:156 Jl 6 '64
In Australia, big structures imply big oil. F. J. Gardner. map Oil & Gas J 62:143 Ap 13 '64
New drilling slated for Australia. Oil & Gas J 62:242 O 12 '64
Search for Australian oil reserves fans out. F. J. Gardner. il map Oil & Gas J 62:96-9 Ap 27 '64
Test off Australia due soon. map Oil & Gas J 62:80 O 26 '64
Tide has turned in Australia. il map Oil & Gas J 62:45-8 Ag 24 '64

Baltic Sea

Soviets bet on Baltic oil. map Oil & Gas J 62:96-7 My 18 '64

Borneo

Offshore oil perks up Brunei drilling. maps Oil & Gas J 62:85 S 7 '64

Brazil

Amazon oil still eludes Brazilians. F. J. Gardner. map Oil & Gas J 61:87 D 23 '63

California

Asphalto field; a guts and imagination discovery. C. J. Lawrence. map Oil & Gas J 62:34-5 Ja 6 '64
California flood yields profitable recovery of heavy oil from multilayered reservoir. F. H. Oefelein and J. W. Walker. plan diags J Pet Tech 16:509-14 My '64
California still uncovering some big ones. F. J. Gardner. map Oil & Gas J 62:183 O 5 '64
Huge platform to test deepwater tracts. il Oil & Gas J 62:32-3 Je 1 '64
Huntington Beach extension started. il map Oil & Gas J 62:74 My 18 '64
Los Angeles may sit up on top of 100 million bbl of oil. T. A. Armstrong. il map Oil & Gas J 62:74-6 S 7 '64
More oil found in central California. map Oil & Gas J 62:159-60 F 17 '64
New California field looks better every day. T. A. Armstrong. map Oil & Gas J 62:173 S 14 '64
Quiet midcity oil field is success in Los Angeles. il Oil & Gas J 62:262-4 Ja 27 '64
Railroad gap; best California find in the last 15 years. T. A. Armstrong. map Oil & Gas J 62:132-3 Jl 13 '64
Shell drills in deep waters; new test off California. map Oil & Gas J 62:41 Ja 6 '64
Socal hits in Kern County. map Oil & Gas J 61:198-9 D 2 '63
Standard of California budgeting $50 million on San Joaquin Valley. C. J. Lawrence. map Oil & Gas J 62:131 Mr 23 '64
Western Offshore 3 ready to drill 600 ft of water. T. Armstrong. il Oil & Gas J 62: 128-30 Ag 17 '64
Wilmington field compromise expected. Oil & Gas J 61:133 N 18 '63
Wilmington flood to net $172 million. plan Oil & Gas J 62:77-9 My 11 '64

Canada

All totals up, all signs go. maps Oil & Gas J 62:91-2+ Ag 17 '64
Two reefs hold center stage in Canada's drilling play. J. C. McCaslin. map Oil & Gas J 62:78-9 Ap 6 '64

Colombia

Choppers lift drilling rigs into Colombian jungle. il map Oil & Gas J 62:82 Ap 20 '64
Colombia develops three new fields. map Oil & Gas J 61:105-6 N 11 '63
'Copter rigs solve jungle drilling. L. C. Rogers. il Oil & Gas J 62:161+ My 11 '64

Colorado

Colorado's biggest field engineered for maximum recovery. W. B. Bleakley. il map Oil & Gas J 62:108-13+ Mr 2 '64
Colorado's Moffat County sprinkled with strikes. map Oil & Gas J 62:121-2 Ag 31 '64
Composition of crude oils in northwestern Colorado and northeastern Utah suggests local sources. N. W. Bass. diag Am Assn Pet Geologists Bul 47:2039-44 D '63

Cuba

Soviets push Cuban exploration effort. map Oil & Gas J 62:86 Ap 20 '64

Egypt

Egypt opens new area for exploration. map Oil & Gas J 61:107-8 N 4 '63
Five-pay strike lifts Egypt's oil hopes. map Oil & Gas J 62:72 O 19 '64

Florida

Discoveries come hard in Florida. F. J. Gardner. map Oil & Gas J 62:177 Ag 17 '64
Sun enhances Florida chances. F. J. Gardner. il map Oil & Gas J 62:175 O 26 '64

France

Secondary recovery by waterflood; Cazaux field, France. P. Almaric. il map diag Comp Air Mag 69:16-19 Ap '64

Great Britain

Big oil hunt fans out over England. map Oil & Gas J 62:80+ Ap 20 '64
Oil in Britain. il Engineer 217:1041 Je 12 '64

Gulf Coast region

Smackover play stretches over four states. F. J. Gardner. map Oil & Gas J 62:207 S 7 '64

PETROLEUM—*Continued*

Hungary

Hungary seeks oil sufficiency. K. I. Turyn. map Pet Management 36:120+ Mr '64

Idaho

Idaho's hopes may rest on high-country test. map Oil & Gas J 62:224+ Je 22 '64

Illinois

Drillers may have to probe deep for Illinois basin pay. maps diag Oil & Gas J 62:184-6+ O 5 '64
Exploration will help show Pascola's potential. D. C. Sargent. maps diag Oil & Gas J 62:128-30 Ag 24 '64
Finding one reef is like finding one ant; look for more reefs in east Wapella. C. Ferris. bibliog maps diags Oil & Gas J 62:188-91 My 25 '64
Take another look at Illinois' Carper. maps Oil & Gas J 62:218-20 Je 22 '64

Indonesia

Indonesia finally clears way for big exploration drive. P. Swain. maps Oil & Gas J 62:66-8+ Ap 13 '64

Iowa

Iowa's Butler getting deep wildcat. map Oil & Gas J 62:186 Ag 3 '64

Iran

Iran oil picture still looks good for drillers. R. Gibson. map Oil & Gas J 62:192-3 Ap 27 '64
Italians open Bahregan Sar field off Iran. map Oil & Gas J 62:66-7 My 4 '64
New fields mark consortium's birthday. map Oil & Gas J 62:118-20 O 12 '64

Kansas

Heavy oil; a billion-barrel prize. R. J. Enright. il map Oil & Gas J 62:41-4 Je 15 '64
Heavy-oil recovery experiments spread in east Kansas. R. J. Enright. il map Oil & Gas J 62:112-14 Je 22 '64
Kansas and Forest City bag new oil county. map Oil & Gas J 62:123 Je 1 '64
Kansas' Burgess sand; elusive but profitable. F. W. Morgan and M. E. Torline. maps diags Oil & Gas J 62:112-15 F 3 '64
Kansas' Gove has wildcat success. map Oil & Gas J 62:117 Ag 31 '64
LPG-gas injection recovery process Burkett unit, Greenwood County, Kansas. R. F. Wiemer. plans diags J Pet Tech 15:1067-72 O '63
Small strike sets off new flurry in Kansas. F. J. Gardner. map Oil & Gas J 62:217 Je 22 '64
Stay with the Osage if you want Kansas oil. R. M. Euwer. maps diags Oil & Gas J 62:176-9+ Mr 2 '64
25-year-old Forest City Basin stirs. F. J. Gardner. map Oil & Gas J 61:209 D 30 '63
Wells, not ghosts, stalk dry-hole graveyard. F. J. Gardner. map Oil & Gas J 62:151 F 10 '64

Kentucky

Exploration will help show Pascola's potential. D. C. Sargent. maps diag Oil & Gas J 62:128-30 Ag 24 '64
If books can help find oil, here's a Kentucky wonder. F. J. Gardner. map Oil & Gas J 62:147 F 17 '64
Kentucky's Hopkins County has drilling spree. J. M. Barnes. map diags Oil & Gas J 61:180-1+ N 4 '63
Knox is the target for northern Kentucky. R. G. Schmidt and R. A. Warner. maps diags Oil & Gas J 62:178-80 Ap 20 '64

Libya

Growing Gialo field may be Oasis' biggest in Libya. map Oil & Gas J 62:78-9 O 26 '64
Libyan drillers are getting new lost-circulation weapon; compressor packages for aerating drilling fluid. R. J. Enright. il Oil & Gas J 62:77-9 Ja 6 '64
Libya's block 59 fields growing fast. map Oil & Gas J 62:64-5 My 4 '64
Mammoth trailer-mounted rig working in Libya. il Pet Management 36:161-2 Jl 15 '64
Specially tailored rig readies for Libyan well servicing. W. B. Bleakley. il diags Oil & Gas J 62:100-5 F 17 '64

Louisiana

Annual wet spell plagues Louisiana drillers. il Oil & Gas J 62:186-7 S 14 '64
Bayou Henry field may be one of Louisiana's best. Oil & Gas J 62:118 Ag 31 '64
Central Louisiana sees action. map Oil & Gas J 61:190+ N 4 '63
Deep drilling may hold key to dry parishes. F. J. Gardner. map Oil & Gas J 62:115 My 4 '64
Deeper oil possibilities of South Arkansas and North Louisiana. J. J. Chapman. map diags Am Assn Pet Geologists Bul 47:1992-6 N '63
Deepwater rig will join twin. il Oil & Gas J 62:111 O 12 '64
Dry spell starts; but not for Louisiana drillers. il map Oil & Gas J 62:140-1 Jl 20 '64
Dual-purpose mobile drilling rig begins operation off Louisiana. il Oil & Gas J 62:208 S 7 '64
Field well sets new record as deepest producer. map Oil & Gas J 61:91 N 11 '63
James lime could be key to Texas-Louisiana reef play. map diag Oil & Gas J 62:116-18 Je 1 '64
Louisiana offshore drilling grows. map Oil & Gas J 62:183-4 Ap 20 '64
Louisiana offshore seen booming another ten years or longer. J. Scott. il map Pet Management 36:73-87 Jl '64
Louisiana onshore drilling barely keeps up 1963 pace. map Oil & Gas J 62:204-5+ Ap 27 '64
Louisiana strike continues to pay off. il Oil & Gas J 61:196-8 D 2 '63
Louisiana's Avoyelles parish adds eight new wildcats. Oil & Gas J 61:203-4 D 2 '63
Louisiana's Sabine drilling action to expand. D. J. Woods. map diags Oil & Gas J 61:124-6+ D 9 '63
Offshore Louisiana spurs rig-building. L. C. Rogers. il Oil & Gas J 62:61-3 S 7 '64
Payoff at Delhi; 65,000,000 bbl. il Pet Management 36:136+ Mr '64
This may be the last federal sale in the Gulf for awhile. maps Oil & Gas J 62:42-3 Mr 9 '64
Two-rig platform speeds development. il map Oil & Gas J 62:138 Jl 13 '64
Where Shell plans to expand offshore waterfloods. il map Oil & Gas J 61:37-8 N 25 '63

Mexico

Gulf lures Mexicans. A. Franco. il map Oil & Gas J 62:102 S 21 '64
Lobos Island; Mexico's most challenging discovery. A. Barnetche. il maps Pet Management 35:67-73 D '63
Mexican field is large gas-lift lab. il Pet Management 35:78-9 D '63
Pemex launches second Yucatan peninsula attack. F. J. Gardner. map Oil & Gas J 62:239 S 21 '64

Michigan

Michigan test may change old notions. il Oil & Gas J 62:136-8 Jl 20 '64
Michigan wildcat probes for Niagara Silurian pay. il Oil & Gas J 62:138 Mr 9 '64
Record depth slated for Michigan. map Oil & Gas J 61:187 N 4 '63

Mississippi

Amite County, Miss., strike taps good oil production. Oil & Gas J 62:130 Mr 30 '64
Black Warrior Basin entices deep duo. F. J. Gardner. map Oil & Gas J 62:177 Ap 20 '64
Humble twins dominate Southeast interest. F. J. Gardner. il map Oil & Gas J 62:189 Ap 6 '64
Mississippi strikes look good. Oil & Gas J 62:191-2 My 25 '64
New plunge planned in the Gulf; Humble's area off Mississippi. map Oil & Gas J 62:46 Mr 9 '64
Shallow Mississippi field could be big producer. map Oil & Gas J 62:181 Ap 20 '64
Smackover play pushes coastward in Mississippi. F. J. Gardner. map Oil & Gas J 62:113 Ag 31 '64
Smackover stock rises in southeastern states. F. J. Gardner. map Oil & Gas J 62:179 Ag 3 '64

Missouri

Heavy oil; a billion-barrel prize. R. J. Enright. il map Oil & Gas J 62:41-4 Je 15 '64

Montana

Despite Canadian success in Disturbed belt, Montana side lacks big production. W. T. Langstroth. maps diags Oil & Gas J 62:144-8 Ap 13 '64
Montana set for drilling play. Oil & Gas J 62:191 My 25 '64
Oil found near Battle of Little Big Horn site. map Oil & Gas J 62:153 Ap 13 '64

PETROLEUM—Montana—*Continued*

Sheepherder anticline pays off for Montana. F. J. Gardner. map Oil & Gas J 62:121 Ja 20 '64

Nebraska

Chadron arch could offer big potential to oil hunters. G. R. Wulf. maps diags Oil & Gas J 62:148-51 F 24 '64

Denver basin oil moves out and up. map Oil & Gas J 62:227 Je 22 '64

Nebraska's Salina sees action. map Oil & Gas J 62:154 Jl 6 '64

Netherlands

Helicopters conduct survey off Holland. il Oil & Gas J 62:123 Ja 27 '64

Mobil installs unique platform off Dutch coast. R. G. Gibson. il map Oil & Gas J 62:62-3 Je 29 '64

New test drill in North Holland. map Oil & Gas J 62:44 Ag 31 '64

Nevada

Eagle Springs can't be a freak. F. J. Gardner. map Oil & Gas J 62:107 N 2 '64

Nevada; oil flows in Eagle Springs. map Oil & Gas J 62:37 Mr 30 '64

New Mexico

Anatomy of stratigraphic trap, Bisti field, N.Mex. F. F. Sabins, jr. bibliog flow diag il maps diags Am Assn Pet Geologists Bul 47:193-228, 2045-7 F, D '63

Horseshoe-Gallup water injection project; an engineering challenge. E. F. Herbeck and E. M. Pringle. map J Pet Tech 16:1101-6 O '64

New Mexico field grows even better. map Oil & Gas J 62:166+ O 19 '64

Southeastern New Mexico looks good in '64. map Oil & Gas J 62:149-51 Ap 13 '64

New York (state)

Recent discoveries point to New York as the next major Cambrian province. O. D. Weaver. maps diags Oil & Gas J 62:114-19 Ag 10 '64

New Zealand

Oil search quickens in New Zealand. R. J. Enright. maps Oil & Gas J 62:42+ Ja 6 '64

Nigeria

Gulf scores again in Nigerian waters. map Oil & Gas J 62:70-1 O 19 '64

Gulf steps up drilling tempo in Nigeria. map Oil & Gas J 62:62 My 4 '64

Mobil adds two producers. map Oil & Gas J 62:100 Ap 27 '64

Second strike made off Nigeria. maps Oil & Gas J 62:79 F 10 '64

Strike by Gulf Oil flows 2,000 b/d. map Oil & Gas J 62:61 Ja 20 '64

North Carolina

Tarheel state joins offshore oil search. F. J. Gardner. map Oil & Gas J 62:135 Jl 20 '64

North Dakota

North Dakota wildcatting activity keeps growing. C. B. Folsom, jr. il Oil & Gas J 62:194-5 Ap 6 '64

Williston draws drillers' interest. map Oil & Gas J 62:136 Mr 23 '64

North Sea

Britain is speeding plans for North Sea exploration race. Oil & Gas J 62:96-7 My 18 '64

Britain opens North Sea expanse. R. G. Gibson. map Oil & Gas J 62:53-5 My 25 '64

British North Sea traffic picks up. map Oil & Gas J 62:54-7 S 28 '64

Drilling fever spreads in North Sea. R. G. Gibson. map Oil & Gas J 62:92-4 Ap 6 '64

Dutch tests spud soon. diag Oil & Gas J 62:66 Jl 20 '64

Firms join forces for North Sea play. Oil & Gas J 62:64 Jl 20 '64

German North Sea activity picks up steam. Oil & Gas J 61:111-12 N 4 '63

North Sea attracts new drilling firm. Oil & Gas J 62:57-8 F 3 '64

North Sea drilling off U.K. may get moving in spring. Oil & Gas J 62:64-5 Ag 10 '64

North Sea play opens off Germany. map Oil & Gas J 62:72-3 My 25 '64

North Sea play stirs up legal dispute. map Oil & Gas J 62:46 Ja 6 '64

Scramble starts for North Sea rigs. P. Swain. Oil & Gas J 62:25-6 N 2 '64

Seismic activity hits peak. il Oil & Gas J 62:26-7 N 2 '64

Northwest Territories, Canada

Just getting to drill site is problem in Far North. il Oil & Gas J 62:136-7 Ja 13 '64

Road to open new arctic frontiers. map Oil & Gas J 62:129 S 28 '64

12,000-ft Arctic Circle wildcat. R. J. Enright. il Oil & Gas J 62:158-60 Ap 6 '64

Nova Scotia

Maritimes get first wildcat in three years. F. J. Gardner. map Oil & Gas J 62:125 Ja 13 '64

Shell will focus seismic probe off Nova Scotia. J. C. McCaslin. map Oil & Gas J 62:113 Je 1 '64

Ohio

Answers still needed for Ohio Cambrian problems. G. Sitler. maps diags Oil & Gas J 62:126-32 Mr 9 '64

Forty-four Trempealeau locations retain spotlight in Ohio play. Oil & Gas J 62:134 Jl 13 '64

Geophysics is key to new Ohio Trempealeau exploration. L. T. McCarthy. map Oil & Gas J 62:122-4 Ja 20 '64

Gravimetrics are key to Ohio's Trempealeau. C. Ferris. bibliog map diags Oil & Gas J 62:148-51 F 17 '64

Ohio gets big drilling play. il Oil & Gas J 61:132-3 D 9 '63

Ohio oil poses no tough problems in drilling, but finding it can be troublesome for geologists. Oil & Gas J 62:182-3 Ag 3 '64

Ohio play leads to new methods. Oil & Gas J 62:209 S 7 '64

Ohio townsite play booming. il Oil & Gas J 62:184-6 Mr 2 '64

Ohio's Cambrian play spreads in all directions. F. J. Gardner. map Oil & Gas J 62:257 Ja 27 '64

Town wells boost Ohio costs. Oil & Gas J 62:35 N 2 '64

Oklahoma

Anadarko Basin adds new reserves. map plan Oil & Gas J 62:186 Ag 17 '64

Attack on lost circulation pays off in Anadarko Basin. K. A. Freeman. bibliog map diags Oil & Gas J 62:95-6+ Ja 20 '64

Flush strike gives Sooners new target. F. J. Gardner. map Oil & Gas J 62:147 F 24 '64

Frontal attack pays off in Oklahoma. F. J. Gardner. map Oil & Gas J 62:191 My 18 '64

Oklahoma makes news all over. Oil & Gas J 62:118 Ja 6 '64

Oklahoma wildcat activity is boosted. J. C. McCaslin. maps Oil & Gas J 62:198+ Ap 27 '64

Operators move fast to get optimum recovery from Gatner unit. W. B. Bleakley. map Oil & Gas J 62:70-1 Ag 31 '64

Panhandle field has big new strike. Oil & Gas J 62:248+ Jl 27 '64

Shell attacks crude in Oklahoma. diag Oil & Gas J 62:115 Je 22 '64

Six north central Oklahoma counties set for big play in 1964. map Oil & Gas J 62:153+ F 17 '64

Sooner action sets fast pace. Oil & Gas J 62:119 F 3 '64

Sooner dry holes respond to treatment. map Oil & Gas J 62:248 Jl 27 '64

Sooner Panhandle countries lead western Oklahoma drilling play. il Oil & Gas J 62:144-5 Jl 20 '64

Sooner Panhandle drilling fares well. Oil & Gas J 62:235-6 Je 22 '64

Two strikes build interest in Texas-Oklahoma border basin. maps Oil & Gas J 62:152-3 F 24 '64

Voluntary wider spacing moves ahead in Oklahoma. R. G. Burke. map Oil & Gas J 62:54-5 Je 15 '64

Oman

Shell cautious about finds. map Oil & Gas J 62:84-5 Ag 3 '64

Ontario

Cambrian interest moves to Canada's Ontario. map Oil & Gas J 62:181 Ag 17 '64

Ontario drillers probe Cambrian. maps Oil & Gas J 62:196 Ap 6 '64

Oregon

Acreage set for sale off Washington, Oregon. Oil & Gas J 62:65 F 24 '64

Gulf will drill important Willamette Valley, Oregon, test. map Oil & Gas J 61:164 N 25 '63

Oregon-Washington sale sets stage for lots of wildcatting. maps Oil & Gas J 62:108-9 O 12 '64

Play off Washington, Oregon warms up. il Oil & Gas J 61:118-19 D 2 '63

PETROLEUM—*Continued*

Pennsylvania

Hydraulic fracturing pays off in old Pennsylvania oil field. maps diags Oil & Gas J 62:126-7+ Ja 20 '64

Pennsylvania adds fields. map Oil & Gas J 61:202 D 2 '63

Pennsylvania setting new wildcatting records in '64. map Oil & Gas J 62:132-5 Mr 23 '64

Strike encourages Pennsylvania drillers to try for more. Oil & Gas J 62:118 Ag 31 '64

Persian Gulf

Idd-el-Shargi oilfield and storage tank moorings. il plan diag Engineer 218:456-7 S 18 '64

New oil field off Qatar starts flowing. map Oil & Gas J 62:65 Ap 13 '64

Umm Shaif oilfield; history of exploration and development. S. Elder. maps diags Inst Pet J 49:308-14; Discussion. 314-15 O '63

Quebec (province)

General review of oil and gas developments in the province of Quebec. J. B. Maughan. Can Min & Met Bul 57:641-7 Je '64

Rocky Mountain region

Basin study will unearth needed new ideas. il Oil & Gas J 62:124-5+ S 28 '64

Rockies scene of brisk exploratory effort. Oil & Gas J 62:120-1 Ag 10 '64

Russia

Siberian strike may throw new light on Cambrian oil. R. G. Gibson. il maps Oil & Gas J 62:82-4 F 10 '64

Soviets expand output east of Caspian Sea. map Oil & Gas J 62:82 F 24 '64

Soviets have high hopes for desolate Siberian region. R. G. Gibson. map Oil & Gas J 62:112-14 Je 8 '64

Sahara Desert

Hassi er R'Mel; a big story in the Sahara. J. Husson. maps diags Pet Management 35:72-4+ N '63

Sakhalin Island

Activity rolling on rocky Sakhalin's pipelines, oil and gas development. il maps Oil & Gas J 62:65-6 Mr 23 '64

Saskatchewan

Buried hills hold key to new Mississippian pay in Canada. R. Martin. maps diags Oil & Gas J 62:158-62 O 19 '64

Sicily

Sicilian test east of Ragusa field being plugged. Oil & Gas J 62:70 Ag 24 '64

Sicilian wildcat test promising. Oil & Gas J 62:66-7 Ag 10 '64

South Dakota

South Dakota: new oil frontier. G. R. Wulf and J. P. Gries. maps Oil & Gas J 61:192-4 D 2 '63

Spain

Amoseas strikes oil on its third try near coast in northern Spain. map Oil & Gas J 62:62-3 Je 15 '64

Iberian oil drought may be nearing its end. J. C. McCaslin. map Oil & Gas J 62:153 Jl [illegible] '64

Spanish well disappointing. Oil & Gas J 62:70 Ag 24 '64

Sumatra

Asamera expands Sumatra wildcatting. il map Oil & Gas J 62:162+ O 19 '64

Tennessee

Tennessee could share in Appalachian Basin revival. O. D. Weaver. maps diags Oil & Gas J 62:174-7+ S 14 '64

Tennessee drills stay shallow. H. C. Milhous. map Oil & Gas J 62:206-7 Mr 16 '64

Texas

Another dry salt dome yields oil. map Oil & Gas J 61:56 D 16 '63

Big west Texas waterflood will add 267 million bbl. map Oil & Gas J 62:78-9 S 7 '64

Champlin looks for oil in back yard. map Oil & Gas J 62:151-2 F 17 '64

Deep dig comes to south Texas. F. J. Gardner. map Oil & Gas J 62:95 Je 29 '64

Domal play develops in east Texas. map Oil & Gas J 62:117 Ja 27 '64

Drillers eye Texas' dry domes. R. J. Enright. map Oil & Gas J 61:210-12+ D 30 '63

East Texas drillers look to Jurassic pay. J. C. McCaslin. il map Oil & Gas J 61:167-70 O 28 '63

Fairway field of east Texas; its development and efforts towards unitization. J. R. Latimer, jr. and F. L. Oliver. maps diag J Pet Tech 16:133-8 F '64

First east Texas dome probed for Smackover oil. map Oil & Gas J 62:122-3 Je 15 '64

Frost field has something new; oil. map Oil & Gas J 62:61 Ap 20 '64

Here's how the Smackover play is faring in east Texas. R. J. Enright. maps Oil & Gas J 62:152-7 F 10 '64

James lime could be key to Texas-Louisiana reef play. map diag Oil & Gas J 62:116-18 Je 1 '64

New giant flood planned for Spraberry. map Oil & Gas J 61:127 N 18 '63

New Texas salt-dome play cools off. R. J. Enright. map Oil & Gas J 62:193+ Ap 27 '64

Nine wildcats being drilled in south Texas' Wilson County. map Oil & Gas J 62:125 Je 1 '64

Oil, gas pays abound in Texas' Floresville-Stockdale. L. L. Palmer. map Oil & Gas J 62:190-3 Ap 6 '64

Panhandle racks up major discovery. F. J. Gardner. map Oil & Gas J 62:111 F 3 '64

Problems don't slow Spraberry project. map Oil & Gas J 62:48-9 Je 15 '64

Problems mark shallow Texas waterflood. W. H. Leach, jr. maps Oil & Gas J 61:64-7 N 25 '63

Production allocation in Fairway upheld. Oil & Gas J 62:74 F 10 '64

Rumored strike could be a milestone. F. J. Gardner. map Oil & Gas J 62:121 Je 15 '64

Secondary-recovery operations grow in Texas. Oil & Gas J 61:136-7 N 18 '63

Shell hopes for commercial pay in Texas federal waters. il map Oil & Gas J 62:88-9 O 5 '64

Shell strikes off Texas but commercial value of wells still in doubt. map Oil & Gas J 62:76-7 Ap 6 '64

Six major floods planned in Texas. map Oil & Gas J 62:118 Ja 27 '64

Smackover may jump gap into Mexico. B. Enright. map Oil & Gas J 62:104+ Je 29 '64

Smackover play edges south. R. Enright. map Oil & Gas J 62:127 Mr 30 '64

Smackover; rich rewards in a subtle reservoir. V. Peppard. maps diags Oil & Gas J 62:110-12+ My 25 '64

Strike here would open vast Texas pay. map Oil & Gas J 62:64-5 F 24 '64

Taylor County, Texas, well taps Ellenburger. Oil & Gas J 62:135 Mr 23 '64

Texaco starting Rodrigues field steam flood. Oil & Gas J 62:82 S 14 '64

Texas County may pay off after 40-odd years. F. J. Gardner. map Oil & Gas J 61:229 N 18 '63

Texas County snags its first flowing well. F. J. Gardner. map Oil & Gas J 62:201 My 11 '64

Texas drillers keep busy. Oil & Gas J 62:125 Ja 20 '64

Texas may add no. 215 to list of oil counties. F. J. Gardner. map Oil & Gas J 62:199 Mr 16 '64

Two strikes build interest in Texas-Oklahoma border basin. maps Oil & Gas J 62:152-3 F 24 '64

Watch east Texas' cotton valley. map Oil & Gas J 61:166-7 N 25 '63

West Texas drillers will dig deep in Delaware Basin. map Oil & Gas J 62:154-5 Ap 13 '64

West Texas features Kent and Schleicher County drilling action. map Oil & Gas J 62:116 F 3 '64

Tunisia

French win Tunisian oil-hunting rights. Oil & Gas J 62:82 Jl 6 '64

Turkey

Mobil sends second rig into Turkey. map diag Oil & Gas J 62:66 Ag 10 '64

Strike in southeast Turkey gets 1,310b/d. map Oil & Gas J 62:46-7 Je 29 '64

Turkey may finally have its big oil find. J. C. McCaslin. maps diag Oil & Gas J 62:240-3 S 21 '64

United States

Exploration may stage a rally. map Oil & Gas J 62:130-1 Ja 27 '64

Wildcats will top 1963 by 690. Oil & Gas J 62:132-3 Ja 27 '64

PETROLEUM—*Continued*

Utah

Composition of crude oils in northwestern Colorado and northeastern Utah suggests local sources. N. W. Bass. diag Am Assn Pet Geologists Bul 47:2039-44 D '63

Kaiparowits may have oiler after 43 years. F. J. Gardner. map Oil & Gas J 62:175 Mr 2 '64

Salt anticlines shine in a new light. F. J. Gardner. map Oil & Gas J 61:135 D 16 '63

Stepout no. 2 will further evaluate new Utah reserve. H. M. Wilson. map Oil & Gas J 62:127 Ag 24 '64

Uinta, Kaiparowits help shape drilling future for Utah. maps Oil & Gas J 62:108+ N 2 '64

Venezuela

Maracaibo yields more cretaceous oil. map Oil & Gas J 62:66 Je 15 '64

Vermont

Exploration surges into New England. F. J. Gardner. map Oil & Gas J 62:239 O 12 '64

Wildcat drill is coming to Vermont. E. F. Taylor. map Oil & Gas J 61:230-1 N 18 '63

Washington (state)

Acreage set for sale off Washington, Oregon. Oil & Gas J 62:65 F 24 '64

Offshore Washington well set for completion. maps Oil & Gas J 62:178-9 Ag 17 '64

Oregon-Washington sale sets stage for lots of wildcatting. maps Oil & Gas J 62:108-9 O 12 '64

Play off Washington, Oregon warms up. il Oil & Gas J 61:118-19 D 2 '63

West Virginia

Appalachian production stretches eastward. F. J. Gardner. map Oil & Gas J 62:125 Mr 9 '64

West Virginia drilling yields good rate of success. map Oil & Gas J 62:179 O 26 '64

Western states

Denver Basin drillers aiming for new, bigger fields. maps Oil & Gas J 62:240-1 O 12 '64

Rockies area requires much wildcatting to find reserves. J. C. McCaslin. maps Oil & Gas J 62:116-20 My 4 '64

Wyoming

Automation, several Big Horn Basin fields monitored from one point. J. K. Walsh. map diags J Pet Tech 16:983-6 S '64

Wyoming keeps drillers busy and guessing. J. C. McCaslin. map Oil & Gas J 62:157 O 19 '64

Wyoming's Powder River adds another Minnelusa pool. Oil & Gas J 61:238 N 11 '63

Yukon

Helicopter rigs speed Yukon seismic work. il Oil & Gas J 62:250+ S 21 '64

PETROLEUM association of America, Independent. See Independent petroleum association of America

PETROLEUM chemicals

Big, versatile plant processes gas, makes petrochemicals; Lacq, France, plant of SNPA. il map diags Oil & Gas J 61:66-71 D 9 '63

Busy Socony Mobil completes merger with Virginia-Carolina. Chem & Eng N 41:27 D 16 '63

Canada's petrochemical growth could be better. H. S. Pylant. il Oil & Gas J 62:110-12 Ap 20 '64

Caribbean; healthy climate for chemicals. il map Chem & Eng N 42:68-70+ My 11 '64

Cities Service streamlines chemical sales. il Chem & Eng N 41:32+ N 25 '63

Competitive position of the U.K. petrochemical industry. E. M. Cairney. il Ind Chem 40:177-82 Ap '64

Computer control in the oil industry; digital control computers in petrochemicals. G. L. Farrar. Oil & Gas J 62:103-4+ O 26 '64

Corrosion resistant steels for petrochemicals. W. G. Renshaw. bibliog il Chem Eng Prog 60:98-105 S '64

Distillate hydrogenation; Gulf research & development co. flow diag Hydrocarbon Process & Pet Refiner 43:188 S '64

Esso expands in European petrochemicals. il Chem & Eng N 42:57 N 2 '64

Ethyl opens the door to wide diversification. Oil & Gas J 62:75 F 17 '64

Europe to get two new petrochemical plants. Oil & Gas J 62:85 O 26 '64

Faster petrochemical growth expected. Oil & Gas J 62:49 Ag 24 '64

Fibers, plastics, ammonia, sulfur show good growth prospects in Canada. il Oil & Gas J 62:108+ Ag 17 '64

First chemical complex in Aruba, Netherland Antilles. Oil & Gas J 62:92+ F 3 '64

How utilities are affecting petrochemical production costs in the EEC. L. H. Frampton. bibliog maps Hydrocarbon Process & Pet Refiner 43:109-13 Jl '64

Hydrogenation of a coker distillate derived from Athabasca bitumen. A. R. Aitken and others. bibliog flow sheet diag Can J Chem Eng 42:234-8 O '64

Impact of Puerto Rican plant feared. Oil & Gas J 62:46-7 Ag 10 '64

Imperial Oil plunges into chemicals. il Can Chem Process 48:35+ Ag '64

Markets and technology of petrochemicals. P. W. Sherwood. Ind Chem 40:251-9 My '64

New firms join Spain's petrochemical drive. il Chem & Eng N 42:76-7 My 18 '64

New foreign-trade zone chosen as plant site. map Oil & Gas J 62:52-3 Jl 20 '64

New horizons for oil. W. C. Firth. il Chem & Ind p374-6 F 29 '64

Oil companies battle over Puerto Rico project. Chem & Eng N 42:23-4 Ag 10 '64

Petrochem show, 3d, Houston, Tex. Feb. 7-11; list of exhibitors. Chem Eng Prog 60:17-19 S '64

Petrochemical boom hits tiny Geismar. il map Oil & Gas J 62:50-2 My 4 '64

Petrochemical construction; 80 projects under way or planned in the U.S. and Canada. R. B. Bizal. il Oil & Gas J 62:128+ Ap 27 '64

Petrochemical equipment on last leg of journey. il Oil & Gas J 61:115 O 28 '63

Petrochemical handbook issue, 1963. diags Hydrocarbon Process & Pet Refiner 42:129-240 N '63

Petrochemical projects; new detergents boost construction. R. B. Bizal. il Oil & Gas J 61:59-60+ D 23 '63

Petrochemicals in U.S. and abroad. flow sheets il map Oil & Gas J 62:88-152 S 7 '64

Petrochemicals lure investment dollars. F. A. Zenz. Pet Management 36:108+ Ja '64

Petrochemicals pay the informed. J. L. Kerr. il Pet Management 36:74-80 Mr '64

Petrochemicals '64 growth cycle continues. R. Katzen. bibliog Hydrocarbon Process & Pet Refiner 43:127-9 Ja '64

Petroleum chemicals enterprise; Heavy organic chemicals division of I.C.I. C. Purvis. il diag Ind Chem 39:625-31 D '63

Petroleum more important as a source of chemicals. J. H. S. Haggin. Ind & Eng Chem 56:16+ My '64

Semiannual inventory of new plants and facilities; petroleum and natural gas products. Chem Eng 71:155-6 Ap 27; 121-2 O 26 '64

Shell and Montecatini link in petrochemicals. Chem & Eng N 41:17 D 30 '63

Shell pushes petrochemical plans abroad. Oil & Gas J 62:68 Jl 13 '64

Sicily gets refining, petrochemical complex at Gela. il map diag Oil & Gas J 62:132-4 Ag 17 '64

Skelly, American Can tie up in petrochemicals. Chem & Eng N 42:33-4 O 26 '64

Skelly oil co. plans move into olefins. Oil & Gas J 62:75 O 26 '64

Soviets give petrochemicals shock treatment. il Pet Management 36:84-90 Ap '64

Spain pushes Puertollano project. il Chem & Eng N 41:40 D 23 '63

Technology spreads its gain; process developments set new trends in petroleum-derived gases. il Chem Eng 71:128-30 Ja 20 '64

Toxicity of petrochemicals in the aquatic environment. J. F. Malina, jr. bibliog Water & Sewage Works 111:457-60 O '64

U.S. firms complete 955 HPI projects in 39 months. Hydrocarbon Process & Pet Refiner 43:204+ My '64

Upgrading by-products. S. M. Parkhill. il diags Comp Air Mag 69:8-13 Ja '64

What's ahead in petrochemicals? M. B. Edwards. Oil & Gas J 61:146-8 N 18 '63

Whither petrochemicals? P. W. Sherwood. Oil & Gas J 61:73-9 D 16 '63

See also

Butadiene

Ethylene

Manufacture

Changing skyline of Baglan Bay. il Engineering 196:534 O 25 '63

Chemical factory at Baglan Bay. il Engineer 216:733-4 N 1 '63

PETROLEUM chemicals—Manufacture—*Cont.*

Handling and treating petrochemical plant wastes; case history. E. S. Shannon. il diags Water & Sewage Works 111:240-5 My '64; Excerpts. Pub Works 95:126+ Jl '64

Here's how petrochemical companies dispose of wastes. H. S. Pylant. il diags Oil & Gas J 61:118-20 N 4 '63

Lacq gas feeds petrochem complex. G. L. Farrar. il diag Oil & Gas J 62:62-4 Ja 6 '64

Lavera complex; second place and growing. il map Pet Management 36:162+ Je '64

Nitrogen finds big market in the process industries. H. S. Pylant. il diag Oil & Gas J 62:76-7 Mr 23 '64

Pajaritos complex typifies Pemex HPI push. il Pet Management 35:183+ D '63

Selected process flow sheets for petrochemicals. Oil & Gas J 62:107-18 S 7 '64

Statistics

Petrochemicals growing eight-ten per cent yearly. H. Groppe. Oil & Gas J 62:46-8 Ja 13 '64

PETROLEUM coke

Coker-calciner complex. H. C. Bozeman. il Oil & Gas J 61:152-4 N 11 '63

Delayed coking. flow diag Hydrocarbon Process & Pet Refiner 43:154 S '64

PETROLEUM distillation

Analysis of tower flooding. A. I. Snow and W. S. Dickinson. diags Chem Eng Prog 60:64-6 O '64

Automatic pour-point testers save for Amoco. S. F. Kapff. il diags Oil & Gas J 62:173-4+ Jl 27 '64

Bimetallic tubes save $10,000/year. il Oil & Gas J 62:160 Mr 16 '64

Capsule review of thermostatic traps. W. Roehreke. diag Hydrocarbon Process & Pet Refiner 43:184 Ap '64

Composition of the dinuclear aromatics, C_{12} to C_{14}, in the light gas oil fraction of petroleum. B. J. Mair and T. J. Mayer. bibliog diags Anal Chem 36:351-62 F '64

Crude distillation, three stages; Foster Wheeler corp. flow diag Hydrocarbon Process & Pet Refiner 43:228 S '64

Crude oil topping (distillation) control. F. D. Marton. diag Instruments & Control Systems 37:112 Ja '64

Cyclic powerforming provides high-yield hydrogen high-octane gasoline. W. F. Taylor and A. B. Welty, jr. bibliog diag Oil & Gas J 61:142+ D 2 '63

Easy way to characterize lube stocks. R. A. Woodle. Hydrocarbon Process & Pet Refiner 43:149-52 Ag '64

Fluid-cracker revamp ups gasoline output 50 per cent. D. H. Stormont. flow sheet il Oil & Gas J 62:86-7 F 24 '64

How Cities Service's H-Oil unit is performing. R. P. Van Driesen and N. C. Stewart. flow diags il diags Oil & Gas J 62:100-5 My 18 '64

Hydrocracking for high yield of middle distillates. diag Oil & Gas J 62:60-1 Je 29 '64

Isomax unit gives extra flexibility in processing middle distillates. il diag Oil & Gas J 61:102+ N 25 '63

Isomax units aimed at different products. Oil & Gas J 61:158 D 30 '63

New fractionator is gas-liquids-complex hub; Cities service oil co. K. Brooks. il map diags Oil & Gas J 61:80-3 D 16 '63

New method for simulation of multicomponent distillation. E. C. Deland and M. B. Wolf. bibliog diags Ind & Eng Chem Proc Design 3:100-6 Ap '64

Operate distillation for most profit. W. O. Webber. bibliog diags Hydrocarbon Process & Pet Refiner 43:143-6 Je '64

Operating costs: hydrocracking. W. L. Nelson. Oil & Gas J 62:198 O 12 '64

Performance of perforated trays in dirty service. R. S. Eagle and E. J. Lemieux. bibliog il diag Chem Eng Prog 60:74-80 O '64

Rate extractive distillation solvents. M. R. Sheets and J. M. Marchello. bibliog Hydrocarbon Process & Pet Refiner 42:99-103 D '63

Socal building world's biggest hydrocracker at Richmond. C. J. Lawrence. diag Oil & Gas J 62:150-1 Ap 6 '64

See also

Oil shales—Distillation

Petroleum refining

Residuum

Coal-resid mix proposed as feedstock. Oil & Gas J 62:59 Mr 23 '64

Coker-calciner complex. H. C. Bozeman. il Oil & Gas J 61:152-4 N 11 '63

How those residual-oil-fired turbines are performing. Oil & Gas J 62:130-1 Ap 20 '64

Petroleum residuals in prebaked carbon anode binders. M. B. Dell. il Ind & Eng Chem Product Res & Develop 3:250-1 S '64

Temperature required to produce asphalt by distillation. W. L. Nelson. Oil & Gas J 61:159 D 2 '63

Tables, calculations, etc.

Easy way to figure equilibrium flash vaporization and true boiling point. M. Van Winkle. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Ap '64

Faster plate-to-plate calculations now. F. Bergamini. bibliog diags Hydrocarbon Process & Pet Refiner 43:169-74 My '64

Graphical models aid distillation. G. H. Weekley, jr. diag Hydrocarbon Process & Pet Refiner 43:115-18 Mr '64

Heat transfer for petroleum fractions. D. L. Voss and others. Hydrocarbon Process & Pet Refiner 43:130-4 Jl '64

Now figure tray flooding closer. A. E. Andersen and E. M. Phillips. bibliog Hydrocarbon Process & Pet Refiner 43:159-66 Ag '64

Rate of approach to equilibrium of distillation columns. P. E. Barker and others. bibliog diags Inst Pet J 49:316-27 O '63

What affects packed bed distillation. J. S. Eckert and L. F. Walter. bibliog il diag Hydrocarbon Process & Pet Refiner 43:107-14 F '64

See also

Calculating machines—Petroleum engineering applications

PETROLEUM engineering

Effect of vertical fractures on reservoir behavior; results on oil and gas flow. M. Prats and J. S. Levine. bibliog diags J Pet Tech 15:Trans 1119-26 O '63

Linear fluid-barrier detection by well pressure measurements. E. G. Davis, jr. and M. F. Hawkins, jr. bibliog J Pet Tech 15:1077-9 O '63; Discussion. M. B. Standing. 16:259-60 Mr '64

Proper use of common sense and engineering in secondary recovery. J. E. Russell. J Pet Tech 16:1003-5 S '64

See also

Calculating machines—Petroleum engineering applications

Petroleum—Pumping

Petroleum refineries—Equipment

Water supply for petroleum industry

Bibliography

Abstracts. Published in monthly numbers of Journal of the Institute of petroleum

Electric analogies

Systematic study of gas and water coning by potentiometric models. G. L. Chierici and others. bibliog diag J Pet Tech 16:923-9 Ag '64

Power

See also

Electricity in the petroleum industry

Petroleum—Pumping, Electric

Petroleum pipe lines—Pumping stations, Electric

Petroleum products pipe lines—Pumping stations, Electric

Study and teaching

AIME section attacks continuing education problem. R. W. Taylor. J Pet Tech 16:1137+ O '64

Phillips tries to educate the educator. il Oil & Gas J 62:34-5 Je 1 '64

Professional contemporizing to overcome obsolescence or Parkinson's law reversed. R. D. Grimm and others. J Pet Tech 15:1271-6 D '63

Programed learning in today's hydrocarbon processing industry. C. H. Vervalin. bibliog Hydrocarbon Process & Pet Refiner 43:158+ Mr '64

Programmed learning reaches the oil industry. P. C. Lauinger, jr. Oil & Gas J 62:73-5 Ja 20 '64

Realistic development of petroleum engineering. H. H. Power. bibliog J Pet Tech 16:947-58 S '64

School of mines at West Virginia university. C. T. Holland. il Min Cong J 50:36-40 Je '64

Tackling training with and for research; BP research centre. Engineering 197:531 Ap 17 '64

Tables, calculations, etc.

Aids to forecasting the performance of water floods. R. V. Higgins and others. bibliog flow diag diags J Pet Tech 16:Trans 1076-82 S '64

PETROLEUM engineering—Tables, calculations, etc.—*Continued*

Alternate method for vapor heat capacity. M. S. Kothari and L. K. Doraiswamy. bibliog Hydrocarbon Process & Pet Refiner 43:133-7 Mr '64

Applying the frontal advance equation to vertical segregation reservoirs. W. J. Joslin. bibliog diag J Pet Tech 16:Trans 87-94 Ja '64

Calculating viscosities of reservoir fluids from their compositions. J. Lohrenz and others. bibliog flow sheet J Pet Tech 16:Trans 1171-6 O '64

Can we agree on the mathematics of metering? L. M. Davis. Oil & Gas J 62:84-6+ Mr 23 '64

Complex problems solved with models. M. A. Albright. diags Hydrocarbon Process & Pet Refiner 43:135-8 Jl '64

Decline and forecast studies based on performances of selected California oilfields. G. B. Shea and others. bibliog J Pet Tech 16:959-65 S '64

Effects of drilling vessel pitch or roll on kelly and drill pipe fatigue. J. E. Hansford and A. Lubinski. bibliog diags J Pet Tech 16: Trans 77-86 Ja '64

Estimate heat capacity for liquids; nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:115-19 F '64

Estimate heat capacity for vapors; with nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:129-32 Mr '64

Evaluation of a stabilizer charged gas lift valve for multiple-phase flow using graphical techniques. V. L. Forsythe. bibliog diags J Pet Tech 16:Trans 683-98 Je '64; Discussion. 16:Trans 698-700, 1187-93 Je, O '64

Here's a simple, graphical limited-entry design method. Z. Daniel and R. D. Cocanower. bibliog Oil & Gas J 61:113-17 N 4 '63

How to predict mud performance. R. E. Walker. bibliog diag Oil & Gas J 62:65-70 Mr 30 '64

Linear aquifer behavior. G. W. Nabor and R. H. Barham. J Pet Tech 16:561-3 My '64

Material balance as an equation of a straight line. D. Havlena and A. S. Odeh. bibliog diags J Pet Tech 15:Trans896-900; 16:Trans 815-22 Ag '63, Jl '64

Mathematics workshop (cont). J. M. Marchello. Pet Management 35:201-2 N; 209-10 D '63

Methods of similarity. R. E. Schilson. diags J Pet Tech 16:877-9 Ag '64

Prediction of waterflood performance for arbitrary well patterns and mobility ratios. W. C. Hauber. bibliog diags J Pet Tech 16: Trans 95-103 Ja '64

Radius-of-drainage and stabilization-time equations. H. K. Van Poolen. bibliog Oil & Gas J 62:138+ S 14 '64

Rapid methods for estimating reservoir compressibilities. H. J. Ramey, jr. bibliog J Pet Tech 16:Trans 447-54 Ap '64

Relationship between density and specific weight. R. E. Schilson and T. A. Pollard. J Pet Tech 16:657-8 Je '64

Reservoir engineering (cont). E. G. Guerrero. bibliog Oil & Gas J 61:150-2 N 18; 88+ D 16 '63

Study of forward combustion in a radial system bounded by permeable media. G. W. Thomas. bibliog J Pet Tech 15:Trans 1145-9 O '63; Discussion. 15:Trans 1370-1 D '63

Two-dimensional analysis of a radial heat wave. C. Chu. bibliog il(cover) diag J Pet Tech 15:Trans1137-44 O '63

Use of well interference and build-up data for early quantitative determination of reserves, permeability and water influx. V. J. Driscoll. bibliog diag J Pet Tech 15:Trans1127-36 O '63

Terminology

Committee proposes revised symbols list to SPE membership. E. H. Mayer. J Pet Tech 16:649-56 Je '64; Discussion. G. W. Nabor. 16:894 Ag '64

PETROLEUM engineers

Career opportunities in oil. T. Armstrong. Oil & Gas J 61:109-18+ N 11 '63 (reprints 50c)

If I were an engineer. M. Garner. Pet Management 36:108-9 Ap '64

Professional contemporizing to overcome obsolescence or Parkinson's law reversed. R. D. Grimm and others. J Pet Tech 15: 1271-6 D '63

Put a value on the engineer's work. R. D. Stevens. diag Pet Management 36:116+ F '64

Qualified personnel sought. Oil & Gas J 61: 165 D 2 '63

Researchers now on oil's operating team. il Oil & Gas J 61:48-50 D 9 '63

Responsibility of geologists and petroleum engineers in meeting exploration demands in the future. M. T. Halbouty and T. D. Barber. J Pet Tech 16:239-43 Mr '64

Selection of management personnel from engineering ranks. J. E. Wilson. J Pet Tech 16:125-7 F '64

Shortage of petroleum engineering grads to last five years. Oil & Gas J 62:47-8 Mr 9 '64

Time and effort budget for engineers. H. N. Marsh. J Pet Tech 16:859-61 Ag '64

See also

American institute of mining, metallurgical and petroleum engineers—Society of petroleum engineers

Salaries

Engineers to cost more (again). Oil & Gas J 62:77 F 24 '64

Industry boosts starting salary offers. Oil & Gas J 62:49 Ja 13 '64

PETROLEUM equipment industries

Breakthroughs coming in tools and well service; interview with Andrew W. Rose. Pet Management 36:86-90 O '64

Industry sales lagging, suppliers say. Oil & Gas J 62:94-5 Ap 27 '64

PETROLEUM geologists. See Geologists, Petroleum

PETROLEUM industry and trade

Approach to oil-data probe modified. Oil & Gas J 61:68-9 O 21 '63

Banker likes oil's future; abstract. W. I. Spencer. Oil & Gas J 61:124 N 18 '63

Demand for jet fuel continues climb. D. H. Stormont. il Oil & Gas J 61:44-6 N 25 '63

Demand of 85 million b/d seen in 1985. map Oil & Gas J 62:86-7 O 5 '64

Exploding the oil industry myth. J. E. Kasch. Pet Management 36:104 F '64

Gas seeks oil's aid in heating fight. P. Duncan. Oil & Gas J 62:56-7 My 4 '64

Growing demand challenges explorers. Oil & Gas J 61:61 O 28 '63

How to approach your Congressman. F. N. Ikard. Pet Management 35:35-6 N '63

How we can reverse oil downtrend. J. L. Hamon. Pet Management 36:70-2 Jl '64

Important growth still lies ahead. Oil & Gas J 61:117 N 18 '63

In next decade, smooth riding for motor fuels. il Chem Eng 71:92+ Jl 20 '64

Independent refiner widens activities: Ashland oil & refining co. Oil & Gas J 61:64-5 D 16 '63

Independent will ride out the storm. Oil & Gas J 61:74 O 21 '63

Independents to try political attack. Oil & Gas J 62:76-8 Jl 6 '64

Industry leaders see upturn. Pet Management 36:75-9+ Ja '64

Is excess capacity here to stay? L. A. Kimpton. Oil & Gas J 62:71-4+ Ap 13 '64

It's certain now that '63 will be a record year for sellouts, mergers. G. T. Kinney. Oil & Gas J 61:88-9 N 4 '63

Jersey's Rathbone charts a course for domestic producers; Texas Mid-Continent meeting, Dallas. Oil & Gas J 62:83-4 O 5 '64

Jet-fuel outlook: slower gains. D. H. Stormont. il Oil & Gas J 62:61-3 Ag 3 '64

Justice, FTC attack big oil. Oil & Gas J 62: 41-3 Ap 13 '64

Justice says oil's competition waning. Oil & Gas J 62:62-3 Jl 6 '64

Marketing needs shortsighted leaders. H. Moir. Oil & Gas J 62:42-3 Je 1 '64

Military demand stays at high level. Oil & Gas J 61:64-5 O 21 '63

NOJC may push harder for divorcement of marketing; annual meeting, Chicago. Oil & Gas J 61:134-6 N 18 '63

1964 prospects bright for better prices and good demand gain worldwide. Oil & Gas J 61:77-9 D 30 '63

Oil country still has prizes. il Pet Management 36:102-6 Ja '64

Oil faces tricky year, economist says. C. R. Jung. Oil & Gas J 61:56-7 O 28 '63

Oil, gas future wins vote of confidence. Pet Management 35:188-9 D '63

Oil in Washington: it will be a year to get ready. C. La Motte. Oil & Gas J 62:29-30 Ja 6 '64

Oil industry no monolith; abstract. J. E. Kasch. Oil & Gas J 61:122 N 18 '63

Oil's future challenges: first a surplus, then meeting demand. Oil & Gas J 61:112-13 N 18 '63

Petroleum industry forecast to 1970. E. Adams. il Pet Management 36:87-102 F '64

Photos in the news. Oil & Gas J 62:66-7 Ag 24 '64

PETROLEUM industry and trade—*Continued*

Production depends on economics, not physical existence. R. J. Gonzalez. Oil & Gas J 62:59-64 Mr 30 '64
Profits rise despite weak prices. Oil & Gas J 62:74-5 My 11 '64
Regulators. Pet Management 36:86-92+ Mr '64
Republican oil planks satisfy independents. Oil & Gas J 62:58 Jl 20 '64
Rising polyvinyl chloride demand attracts petroleum and chemical companies. Oil & Gas J 62:50-1 S 28 '64
Rising stocks undermine markets. Oil & Gas J 62:59-60 Ag 17 '64
Stormy summer ahead for oil? W. A. Bachman. Oil & Gas J 62:99-101 Je 22 '64
Tidewater's George Getty comments on plans and business vs. regulation. Oil & Gas J 62:96-8 Je 8 '64
Weak markets hurt oil's fiscal fitness. Oil & Gas J 62:80-1 Ap 6 '64
What ails oil? TIPRO speakers differ. Oil & Gas J 62:88-9 S 21 '64
What are job opportunities today? interview of Harry J. Peckheiser. R. Martin. Pet Management 36:79-83 Ap '64
Why oil is moving into fertilizers. G. T. Kinney. Oil & Gas J 61:17-18+ D 23 '63
Will exploration follow the dodo bird, or will management see the light? B. W. Beebe. bibliog maps Oil & Gas J 62:82-7+ My 25 '64

See also

American petroleum institute
Gasoline industry
Oil fuel industry
Petroleum research
Petroleum supply
Texas company

Accounting

New run ticket will aid operations in petroleum, accounting. Oil & Gas J 61:52-3 O 28 '63
Oil and gas well property accounting. R. H. Miller. Am Gas Assn Mo 46:23-6 O '64

Advertising

API travel program at critical time. Oil & Gas J 62:36 Ja 6 '64
Travel development program gets a bigger push. Oil & Gas J 62:67 F 17 '64

Costs

Enigma of oil and gas economics. W. B. Davis. bibliog Pet Management 36:53-60 Ag '64

Employees

See Petroleum workers

Equipment and supplies

A. B. C's of rotary-pump operation. il diags Oil & Gas J 62:94 Mr 9 '64
Air hammer cuts cost in Arkoma Basin. diags Oil & Gas J 62:120+ F 10 '64
Breakthroughs coming in tools and well service; interview with Andrew W. Rose. Pet Management 36:86-90 O '64
Case for aluminum in drilling. C. G. Shiring and E. T. Wanderer. il Oil & Gas J 61:87-91 O 21 '63
Confusing boom hits plastic pipe. W. B. Bleakley. Oil & Gas J 62:62-9 S 28 '64
For jet bits; new fluid-passage design reduces trip surge pressures. G. M. McKown. diags Oil & Gas J 62:118-19 F 10 '64
From a supplier; plain talk for contractors. W. J. McWilliams. Oil & Gas J 61:76 O 21 '63
How epoxy resins benefit the oil industry. H. C. Bozeman. il Oil & Gas J 62:120-3+ O 5 '64
How to keep tabs on equipment-failure expense. D. R. Fincher and G. L. Nunn. Oil & Gas J 62:151-2+ Ap 27 '64
How to make Hydril packing elements last longer. L. C. Rogers. diags Oil & Gas J 62:130-2 Mr 2 '64
New tools permit single-string dual completions. R. J. Enright. il diags Oil & Gas J 62:108-10+ F 24 '64
Oil-system packer fluid insures maximum casing recovery on Bee County dry hole. G. L. Jackson. diag Oil & Gas J 62:116+ F 24 '64
Portable plant cuts cost of cement-lining injection-system pipe. W. B. Bleakley. il Oil & Gas J 61:91-3 D 9 '63
Pumps and pump drives. diags Oil & Gas J 62:104 Ap 13 '64
Rotary-pump fundamentals. diag Oil & Gas J 62:111 F 17 '64
Snorkel tube: atmospheric pressure tool for underwater operations. V. D. Stone. bibliog il diags J Pet Tech 15:1171-9 N '63
Vertical turbine vs positive-displacement pumps used in waterflood operations. B. D. Meador and J. R. Russell. il map J Pet Tech 16:139-42 F '64
World-wide new equipment guide. il diags Pet Management 36:1-267 Jl 15 '64

See also

Airplanes in the petroleum industry
Derricks, Oil well
Drills, Oil well
Motor trucks in the petroleum industry
Petroleum—Offshore drilling structures
Petroleum—Pumping
Petroleum—Well casing
Petroleum equipment industries

Patents

What's new in patents (cont). diags Pet Management 35:104-5 D '63

Exhibitions

Dinosaurs go to the Fair. il Pet Management 36:116 Jl '64
How oil firms will cash in on World's fair traffic. G. T. Kinney. il Oil & Gas J 62:64-6 Ap 20 '64
International pipes, pipelines, pumps and valves exhibition, 3d, London, April 13-17; illustrations with text. Engineering 197:506 Ap 10 '64
Pipes, pipelines, pumps and valves exhibition and convention, London, April 13-17. Chem & Ind p874-6 My 23 '64
Texaco displays world's largest map at the World's fair. il Pet Management 36:118 Jl '64

Finance

Analyze ventures this way. F. C. Jelen. Hydrocarbon Process & Pet Refiner 43:125-8 Mr '64
Capital budgets set higher. E. Adams. Pet Management 36:73-4 Ja '64
Companies are trying to polish their Wall Street image. Oil & Gas J 62:116-18 Je 22 '64
Earnings climb 18 per cent for nine months. E. Adams. Pet Management 35:28-9 D '63
Earnings make comeback. E. Adams. Pet Management 36:82-3 Mr '64
First-half profits. Oil & Gas J 62:43-5 Ag 10 '64
Income taxes, revenue and profit, and depreciation. D. J. Oriolo. Oil & Gas J 62:93-5 F 17 '64
Industry sharpens up in 1963; 17th annual report survey. E. Adams. il Pet Management 36:75-89, 120+ My '64
Investment decisions in petroleum exploration and production. I. G. Northern. bibliog J Pet Tech 16:727-31 Jl '64
Investors ask oil firms for more. Oil & Gas J 62:56-7 Mr 9 '64
Majors' profits story. G. T. Kinney. Oil & Gas J 62:45-9 Ap 13 '64
Methods and procedures for estimating fair-market value of petroleum properties. W. D. Eggleston. bibliog J Pet Tech 16:481-6 My '64
More spending seen for '64, but not much. Oil & Gas J 62:138-40 Ja 27 '64
Oil boosts capital spending by 6.5 per cent. Oil & Gas J 61:87 D 30 '63
Oil-industry debt; too high or too low? G. Donaldson. Oil & Gas J 62:71-3 Jl 20 '64
Oil industry profit lags in U.S. economy. E. Adams. Pet Management 36:92-7 S '64
Oil spending in 1963 dips, but earnings up. Oil & Gas J 62:54-5 O 19 '64
Oil's operating costs are down. Oil & Gas J 61:125-6 N 18 '63
Petrochemicals lure investment dollars. F. A. Zenz. Pet Management 36:108+ Ja '64
Productivity and economic projection method; Ohio Clinton sand gas wells. J. Gurley. map J Pet Tech 15:1183-8 N '63
Profit erosion: what is the cure for the petroleum industry? W. W. Smith; J. E. Warren. Oil & Gas J 62:102-4 Je 22 '64
Profits hold up in third quarter. Oil & Gas J 61:85-6 N 4 '63
Relation of earning power to other profitability criteria. F. Brons and M. Silbergh. bibliog J Pet Tech 16:269-75 Mr '64
Smaller firms' profits climb again. Oil & Gas J 62:29-30 Mr 30 '64
Why it's important to minimize venture risks. D. J. Oriolo. Oil & Gas J 62:62-4 F 3 '64

Fires and fire protection

New fire-fighting truck combines foam and dry chemicals. il Oil & Gas J 62:87 N 2 '64

See also

Oil fires

PETROLEUM industry and trade—*Continued*

History

Drake Well Park revamped; birthplace of the oil industry. E. C. Miller. il Pet Management 36:106 Jl '64

International aspects

Crude production rising. Oil & Gas J 61:110 N 4 '63
Domestic producer goes international; Marathon oil co. R. G. Gibson. map Oil & Gas J 61:121-3 D 2 '63
Glances at the international petroleum industry. C. H. Keplinger. map J Pet Tech 16:973-6 S '64
Industry mounts advance despite political power grabs; special report. E. Adams. maps Pet Management 36:71-102 Je '64
International refining grows. Pet Management 36:128+ S '64
Internationals help U.S. trade balance. Oil & Gas J 61:106 N 4 '63
Look at rig activity abroad. Oil & Gas J 61:72 O 28 '63
Objectives must balance for best operations. M. Bridgeman. Pet Management 36:122 S '64
Oil spending abroad to jump in 1965. Oil & Gas J 62:38-40 N 2 '64
OPEC finds compromise more palatable. Oil & Gas J 62:68-9 Ag 24 '64
OPEC wants contracts changed. Pet Management 36:76-8 F '64
Phillips pushes to gain markets overseas. R. G. Burke. il Oil & Gas J 62:97-9 S 14 '64
See also
Petroleum industry and trade—United States—Imports problem

Laws and regulations

See Petroleum laws and regulations

Public relations

API brightens up the dismal science. Oil & Gas J 62:104-5 Je 8 '64
Involve yourself in public affairs; oil industry's greatest danger lies in uninformed friends. L. F. McCollum. Oil & Gas J 61:118-19 N 18 '63
Responsibility of the petroleum professional to participate in public affairs. M. T. Halbouty. Am Assn Pet Geologists Bul 48:723-6 My '64

Radio communication

Remote control, next step beyond lease automation. E. E. Hogwood, jr. bibliog il diags Oil & Gas J 62:81-3 Mr 23; 81-4 Mr 30; 152-5 Ap 6 '64
Shell predicts big savings by microwaving offshore log data. map Oil & Gas J 62:62-3 O 26 '64
See also
Pipe lines—Communication systems

Safety measures

Reduce static hazards by minimizing the human element. P. N. Malherbe. diags Oil & Gas J 62:108 F 17 '64

Securities

Oil stocks: is the bull market over? Oil & Gas J 61:54-5 O 28 '63
Oil stocks still healthy, analyst says. L. E. Fourton. Oil & Gas J 61:90-1 N 11 '63
Pure sale isn't dead yet, Milligan indicates. Oil & Gas J 62:92 O 5 '64
Recent performance and outlook for petroleum securities. K. E. Meyer. J Pet Tech 16:633-9 Je '64

Statistics

API has mixed feelings on statistics. Oil & Gas J 62:114 O 12 '64
API looks back at '63. Oil & Gas J 61:81 D 30 '63
Big growth in rubber rubs off on oil. Oil & Gas J 62:74-5 F 24 '64
Earnings climb 18 per cent for nine months. E. Adams. Pet Management 35:28-9 D '63
First-half profits. Oil & Gas J 62:43-5 Ag 10 '64
Forecast-review. il maps Oil & Gas J 62:127-168 Ja 27 '64
Foreign output dips. Oil & Gas J 62:50 Ja 6 '64
Foreign output up again. Oil & Gas J 62:90 Ap 6 '64
Free-world output dips. Oil & Gas J 62:86 Ag 3 '64
Global data: world-wide petroleum operations in 1963. Pet Management 36:124-5 S '64
Government seeks deep probe in oil statistics. C. La Motte. Oil & Gas J 62:30-1 Je 29 '64
Improved growth rate is seen for 1965. Oil & Gas J 62:32-3 N 2 '64
IPAA advocates realistic statistics. Oil & Gas J 62:90-1 S 21 '64
IPAA says demand will grow only 2.6 per cent. Oil & Gas J 62:90-1 My 11 '64
Industry sharpens up in 1963; 17th annual report survey. E. Adams. il Pet Management 36:75-89, 120+ My '64
Job for IOCC; reform oil statistics. L. J. O'Connor, jr. Oil & Gas J 61:50 D 16 '63
Marketers need a real winter. Oil & Gas J 61:35-6 N 25 '63
Middle East passes U.S. Oil & Gas J 62:53 Je 1 '64
Midyear report. il map Oil & Gas J 62:129-51 Jl 27 '64
Slower growth rate expected in '64. Oil & Gas J 61:92-3 N 4 '63
Stripper-well activity in 1963 again posts sharp decline. Oil & Gas J 62:106-7 O 12 '64
Stripper wells show little change. Oil & Gas J 61:94 N 11 '63
Those profit reports can be deceptive. Oil & Gas J 62:64-5 F 10 '64
World crude output up. Oil & Gas J 62:68 My 4 '64
World flow at new high. Oil & Gas J 61:125 D 2 '63
World oil output climbs. Oil & Gas J 62:51 N 2 '64
World oil output rises. Oil & Gas J 62:86 S 7 '64
World oil output slips. Oil & Gas J 62:107 O 5 '64
Worldwide oil; summary, tables, maps, and country by country analysis. il Oil & Gas J 61:97-152+ D 30 '63

Taxation

Petroleum bears biggest U.S. tax load. G. T. Kinney. Oil & Gas J 62:90-2 O 5 '64
Senatorial trio attacks depletion again, but no changes expected in new tax bill. Oil & Gas J 61:54-5 D 9 '63
Some gains for oil in final tax bill. Oil & Gas J 62:80 F 24 '64

Abu Dhabi

See Petroleum industry and trade—Arabia

Africa

Petroleum developments in Africa in 1963. J. D. Moody and others. maps Am Assn Pet Geologists Bul 48:1622-65 O '64
Worldwide oil. il Oil & Gas J 61:120-6 D 30 '63

Alaska

Big platform going to Cook Inlet. il maps Oil & Gas J 62:88-9 Ap 27 '64
Big platform taking shape for Alaska's Cook Inlet. il Oil & Gas J 62:58 Jl 20 '64
Developments in Alaska in 1963. J. M. Sweet. bibliog maps Am Assn Pet Geologists Bul 48:1035-49 Je '64
Lease bids ruffle Indians' feathers; Alaskan reservation lands. Oil & Gas J 62:75 My 18 '64
Legal snarl perils Kenai leases. Oil & Gas J 61:48 O 28 '63
Oil industry rides out Alaskan quake. Oil & Gas J 62:82-3 Ap 6 '64

Alberta

Alberta delays two big oil-sand projects. Oil & Gas J 61:87 N 4 '63
Alberta grants new gas-export permit. Oil & Gas J 62:53 Ja 20 '64
Alberta overhauls oil-proration plan. Oil & Gas J 62:68-9 Ag 3 '64
How the first Athabasca oil-sand plant will operate. G. T. Kinney. diags Oil & Gas J 62:116-17 Ap 20 '64

Algeria

Algeria claims Saharan talks lagging. Oil & Gas J 62:72-3 Ag 17 '64
Algeria hinders development of new oil. map Oil & Gas J 62:101-2 Mr 2 '64
Algeria likely to win more oil income. Oil & Gas J 62:74-5 My 25 '64
Algeria moves to end French domination of oil. Oil & Gas J 62:58-60 F 3 '64
Ben Bella has big list of oil plans. Oil & Gas J 62:124 O 12 '64
French-Algerian oil talks strained. Oil & Gas J 62:99-100 S 21 '64
French may meet Algeria's oil demands. Oil & Gas J 62:94+ My 18 '64
Industry's future cloudy in Algeria. Oil & Gas J 61:61-2 D 9 '63

Arabia

Murban ships first crude on schedule. il map Oil & Gas J 62:62-3 Ja 13 '64

PETROLEUM industry and trade—Arabia—*Continued*

Oil flows from Abu Dhabi at Murban. Engineering 197:56 Ja 10 '64
Royalties jump in Abu Dhabi. Oil & Gas J 62:63 Ja 13 '64

Arctic regions

Third arcticat set to go this winter. il map Oil & Gas J 61:58-9 O 21 '63

Argentina

Argentine private firms gird for fight. Oil & Gas J 61:62-3 N 25 '63
Compromise possible in Argentina. Oil & Gas J 62:44+ Je 29 '64
Contracts seem doomed in Argentina. Oil & Gas J 61:77-8 O 21 '63

Arizona

Developments in Arizona and western New Mexico, 1963. R. D. Mathews and T. E. Mayhew. maps Am Assn Pet Geologists Bul 48:993-8 Je '64
Hopis hopping mad over Arizona test. Oil & Gas J 62:70 My 25 '64

Arkansas

Developments in Arkansas and north Louisiana in 1963. G. C. Shute and T. G. Carmody. bibliog map Am Assn Pet Geologists Bul 48:941-9 Je '64

Asia

Worldwide oil; Asia-Pacific. il Oil & Gas J 61:111-20 D 30 '63

Australia

Australian oil strikes multiply. J. M. Rayner and W. T. McFadyen. il map plan Pet Management 36:64-8+ Ag '64
Monnie on delivery schedule. il Oil & Gas J 62:126 Jl 27 '64
Petroleum developments in Southwest Pacific region during 1963. E. A. Rudd. maps Am Assn Pet Geologists Bul 48:1401-10 Ag '64
Queensland offers 21 tracts to explorationists. map Oil & Gas J 62:97 Mr 2 '64
Queensland plans lease sale. Oil & Gas J 61:56 N 25 '63
Worldwide oil. Oil & Gas J 61:111-12 D 30 '63

Bolivia

Bolivia will be an oil exporter by '66. map Oil & Gas J 62:58 S 28 '64

California

California's 1964 offshore sales set new bonus record. T. Armstrong. maps Oil & Gas J 62:28-9 Ag 31 '64
East Wilmington nears bid-calling stage. map Oil & Gas J 62:116 O 12 '64
Finances govern California lease policy. Oil & Gas J 62:80 Ag 3 '64
When Tidewater deal is closed, Humble will gain a good share of West Coast market. C. J. Lawrence. Oil & Gas J 62:42-3 Mr 30 '64

Canada

British Petroleum pegs Canada as market of future. G. T. Kinney. il Oil & Gas J 62:118-21 Jl 27 '64
Canada heads for solid gains in 1964. G. T. Kinney. Oil & Gas J 62:104-5 Ja 27 '64
Canada needs additional incentives to attract foreign capital for oil exploration. Oil & Gas J 62:66-7 My 25 '64
Canada raises production goal 50,000 b/d for 1964. Oil & Gas J 62:66-7 F 10 '64
Canada's investment must double. E. D. Loughney. Oil & Gas J 62:87-90 Ag 17 '64
Canada's petrochemical growth could be better. H. S. Pylant. il Oil & Gas J 62:110-12 Ap 20 '64
Construction lull will end soon. Oil & Gas J 62:96+ Ag 17 '64
Construction starts on first Athabasca plant. il Oil & Gas J 62:100+ Ag 17 '64
Demand for Canadian oil, gas to soar. Oil & Gas J 61:98-100 N 4 '63
Developments in eastern Canada in 1963. J. E. S. Milne and R. D. Howie. bibliog maps diags Am Assn Pet Geologists Bul 48:1022-34 Je '64
Developments in western Canada in 1963. T. J. Latus. bibliog maps Am Assn Pet Geologists Bul 48:1009-21 Je '64
1963 review/64 preview; petroleum companies. Can Chem Process 48:55+ Ja '64
Payoff on 100-to-1 odds; Great Canadian. Oil & Gas J 62:84-6 Mr 2 '64
Tar sands; big profits for Sun Oil? flow sheet il Can Chem Process 48:40-5 Ag '64
Third arcticat set to go this winter. il map Oil & Gas J 61:58-9 O 21 '63
Will the money be forthcoming? Oil & Gas J 62:37-9 F 3 '64

Caribbean region

Review of 1963 petroleum developments in South America and the Caribbean area. L. C. Sass and C. H. Neff. maps Am Assn Pet Geologists Bul 48:1242-98 Ag '64

Chile

Chile taps a professional oilman for top oil post; Eduardo Simian. map Oil & Gas J 62:48+ N 2 '64

China

China blames Russia for oil troubles. il Oil & Gas J 62:49 Ja 6 '64

Colorado

Developments in Colorado and western Nebraska in 1963. C. A. Martin, jr. maps Am Assn Pet Geologists Bul 48:978-92 Je '64

Eastern states

Developments in Atlantic coastal states between New Jersey and South Carolina in 1962. H. G. Richards. Am Assn Pet Geologists Bul 48:957 Je '64

Egypt

Pan Am wins Gulf of Suez concession. Oil & Gas J 62:85 F 17 '64
Shell, British Petroleum interest in Anglo-Egyptian seized. Oil & Gas J 62:56 Mr 30 '64

Europe

Europe's refining capacity expected to reach 8.3 million b/d by 1967. R. G. Gibson. il Oil & Gas J 62:48-9 Je 1 '64
Oil beats coal for EEC energy. L. H. Frampton. bibliog Hydrocarbon Process & Pet Refiner 43:103-8 Jl '64
Petroleum exploration and production in Europe in 1963. R. E. King. maps Am Assn Pet Geologists Bul 48:1299-344 Ag '64
Worldwide oil. il Oil & Gas J 61:127-39 D 30 '63

Far East

Petroleum developments in Far East during 1963. F. E. von Estorff. maps Am Assn Pet Geologists Bul 48:1387-400 Ag '64

Florida

Sun hopes to develop Florida's second field north of Sunniland. map Oil & Gas J 62:110-11 O 12 '64

France

French-Algerian oil talks strained. Oil & Gas J 62:99-100 S 21 '64
French may meet Algeria's oil demands. Oil & Gas J 62:94+ My 18 '64
Lavera complex; second place and growing. il map Pet Management 36:162+ Je '64

Germany

North Sea attracts new drilling firm. Oil & Gas J 62:57-8 F 3 '64
Oil industry of Germany. P. D. Torrey. map J Pet Tech 16:589-94 Je '64
Tariff cut shouldn't slow German oil output. Oil & Gas J 62:147 Je 8 '64

Great Britain

British North Sea traffic picks up. map Oil & Gas J 62:54-7 S 28 '64
Refiners to add 400,000-b/d capacity in U.K. Oil & Gas J 62:84 Jl 6 '64

Idaho

Developments in Wyoming and Idaho in 1963. J. D. Copen. map Am Assn Pet Geologists Bul 48:965-9 Je '64

Illinois

Developments in Illinois in 1963. J. Van Den Berg and L. L. Whiting. maps Am Assn Pet Geologists Bul 48:820-8 Je '64

India

India faces dilemma in oil industry. il map Pet Management 36:96-101+ Ja '64
India signs refining pact. Oil & Gas J 61:64 D 9 '63
Soviet prices curdle Indian oil deal. Oil & Gas J 62:84-5 F 17 '64

Indiana

Developments in Indiana in 1963. G. L. Carpenter. maps Am Assn Pet Geologists Bul 48:829-35 Je '64

PETROLEUM industry and trade—*Continued*

Indonesia

Indonesia starts taking over Stanvac's North Sumatra marketing assets. Oil & Gas J 62:46-7 Je 29 '64

Iowa

Iowa in midst of biggest drilling play in its history. map Oil & Gas J 61:143 O 21 '63

Iran

Darius oil goes to market. map Oil & Gas J 62:120+ O 12 '64
Iran asking bids on offshore tracts. map Oil & Gas J 62:81-2 S 7 '64
Iran plans switch in export centers. map Oil & Gas J 62:122-3 Je 22 '64

Israel

Israel's young oil industry makes gains. map Oil & Gas J 62:121-2 Ja 27 '64

Italy

ENI to buy 33,400 b/d more crude from Soviets. Oil & Gas J 61:56 N 25 '63
Italy grants Adriatic drilling permits. maps Oil & Gas J 62:115 Je 8 '64

Japan

Combines quicken Japan's chemical race. il Pet Management 36:66-70 Jl '64
Japanese curb refinery construction. Oil & Gas J 62:94-5 My 11 '64
Japanese juggle refinery runs formula. Oil & Gas J 62:64 Mr 9 '64
Japanese refining; speed up or hold back on expansion? Hydrocarbon Process & Pet Refiner 43:289-90 S '64
Japan's new plant will use Khafji crude. Oil & Gas J 61:92 D 30 '63
Taxis, trucks boosting Japan's LP-gas demand. Oil & Gas J 62:65 Je 15 '64

Kentucky

Oil and gas developments in Kentucky in 1963. E. Nosow. Am Assn Pet Geologists Bul 48:813-17 Je '64

Kuwait

Kuwait plans big refinery at Shuaiba. map Oil & Gas J 62:116-17 Je 8 '64
Kuwait refinery will be a landmark. D. H. Stormont. diag Oil & Gas J 62:83-4 Ag 3 '64

Latin America

Latin America poses construction and design problems. V. E. Butler. il map Pet Management 36:94-5+ Jl '64
Worldwide oil. il Oil & Gas J 61:139-52 D 30 '63

Libya

Libya's Hofra field starts production. map Oil & Gas J 61:63 D 9 '63
Oil frees Libya of foreign dependence. map Pet Management 36:16c-16e+ Je '64

Louisiana

Developments in Arkansas and north Louisiana in 1963. G. C. Shute and T. G. Carmody. bibliog map Am Assn Pet Geologists Bul 48:941-9 Je '64
Developments in Louisiana Gulf Coast in 1963. N. E. Smith and J. S. Eldred. bibliog map Am Assn Pet Geologists Bul 48:930-40 Je '64
Hilda's visit is brief but costly for oil industry. map Oil & Gas J 62:104-6 O 12 '64
Hurricane Hilda's trail is still well marked. il Oil & Gas J 62:48-9 O 19 '64
Louisiana battling brine pollution. maps Oil & Gas J 62:45 Je 1 '64
Louisiana offshore boom, no end in sight. L. R. Rogers and H. M. Wilson. il map Oil & Gas J 62:132-4+ Je 22 '64
Louisiana oil prospers by no politics rule. Oil & Gas J 62:114 Ja 27 '64
Louisiana's offshore thorn: federal oil. H. M. Wilson. Oil & Gas J 62:50-2 O 19 '64
Offshore bids top $60 million at Louisiana sale. map Oil & Gas J 62:43-4 My 4 '64
Offshore leases bring highest bids; Louisiana's take: $12 million. Oil & Gas J 62:114 Ja 27 '64
Petrochemical boom hits tiny Geismar. il map Oil & Gas J 62:50-2 My 4 '64

Mexico

Operations with muscle put Pemex in HPI forefront. il map Pet Management 35:198-204 D '63
Pajaritos complex typifies Pemex HPI push. il Pet Management 35:183+ D '63
Pemex organized for expansion. E. Adams. map Pet Management 35:13-20 D '63
Pemex-potential HPI heavyweight. E. E. Halmos, jr. Pet Management 35:196 D '63
Petroleum developments in Mexico in 1963. F. Mina Uhink. maps Am Assn Pet Geologists Bul 48:1230-41 Ag '64
Worldwide oil. Oil & Gas J 61:146-8 D 30 '63

Michigan

Developments in Michigan in 1963. R. E. Ives and G. D. Ells. bibliog map Am Assn Pet Geologists Bul 48:836-45 Je '64

Mid-continent region

Developments in north Mid-continent in 1963. E. E. Pugh, jr. map Am Assn Pet Geologists Bul 48:846-51 Je '64

Middle East

Arab petroleum congress, 4th, Beirut. Oil & Gas J 61:138-9 N 18; 58-60 N 25 '63
Middle East flow rises. Oil & Gas J 62:61 F 3 '64
OPEC wants contracts changed. Pet Management 36:76-8 F '64
Petroleum developments in Middle East and adjacent countries in 1963. H. Hotchkiss. maps Am Assn Pet Geologists Bul 48:1345-86 Ag '64
Russian disrupts Arab congress to get his say. V. Merkulov. Oil & Gas J 61:139 N 18 '63
Saudis disclose Middle East price trend. Oil & Gas J 62:62 Ja 20 '64
Worldwide oil. il Oil & Gas J 61:104-11 D 30 '63

Montana

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

Morocco

What has Morocco got? P. Gaskell. il map Pet Management 36:74-8 Ap '64

Nebraska

Developments in Colorado and western Nebraska in 1963. C. A. Martin, jr. maps Am Assn Pet Geologists Bul 48:978-92 Je '64

Netherlands

Firms scramble for position in Holland. map Oil & Gas J 62:87 F 17 '64
Major firms compete for new Dutch concession rights. il map Oil & Gas J 61:68-9 O 28 '63

Nevada

Oil and gas developments in Utah and Nevada in 1963. R. P. Kunkel. maps Am Assn Pet Geologists Bul 48:970-7 Je '64

New Mexico

Developments in Arizona and western New Mexico, 1963. R. D. Mathews and T. E. Mayhew. maps Am Assn Pet Geologists Bul 48:993-8 Je '64
Developments in west Texas and southeastern New Mexico in 1963. C. R. Jones and others. bibliog map Am Assn Pet Geologists Bul 48:881-94 Je '64

New York (state)

Gas and oil developments in New York state, 1963. W. L. Kreidler. map Am Assn Pet Geologists Bul 48:778-83 Je '64

New Zealand

Petroleum developments in Southwest Pacific region during 1963. E. A. Rudd. maps Am Assn Pet Geologists Bul 48:1401-10 Ag '64

North Dakota

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

Northern Ireland

Belfast's BP refinery. il Engineering 197:696 My 22 '64
Opening of oil refinery at Belfast. il Engineer 217:853-4 My 15 '64

Ohio

Encourage the producer rather than restrict him. E. C. Stanton, jr. Oil & Gas J 62:158-9 Jl 6 '64
Morrow County today; a big play and still spreading. il Oil & Gas J 62:62-3 F 24 '64
Oil and gas developments in Ohio during 1963. W. L. Calvert and others. maps diags Am Assn Pet Geologists Bul 48:801-8 Je '64
What's behind the boom in Ohio? J. Adams. il map Pet Management 36:136-7+ Je '64

PETROLEUM industry and trade—*Continued*

Oklahoma

Developments in Texas and Oklahoma Panhandles in 1963. J. M. Shelby. map Am Assn Pet Geologists Bul 48:875-80 Je '64

Oil and gas exploration developments in Oklahoma during 1963. P. A. Chenoweth and D. L. Hansen. bibliog map Am Assn Pet Geologists Bul 48:852-74 Je '64

Sooners may share Palo Duro success. F. J. Gardner. map diags Oil & Gas J 61:139-40 O 21 '63

Oregon

Oregon nearing decision on leasing its offshore area. map Oil & Gas J 62:120-1 Jl 27 '64

Pennsylvania

Developments in Pennsylvania, 1963. W. S. Lytle. bibliog map diags Am Assn Pet Geologists Bul 48:784-800 Je '64

Peru

IPC's Peruvian properties threatened. Oil & Gas J 61:111 N 4 '63

Russia

Activity rolling on rocky Sakhalin's pipelines, oil and gas development. il maps Oil & Gas J 62:65-6 Mr 23 '64

Big helicopters solve big problem; moving rigs in western Siberia. il Oil & Gas J 62: 112-13 Je 8 '64

ENI to buy 33,400 b/d more crude from Soviets. Oil & Gas J 61:56 N 25 '63

It would be foolhardy to help Russia develop her oil. Oil & Gas J 62:52-3 Mr 30 '64

Number and productivity of U.S.S.R. refinery employes. bibliog Oil & Gas J 61:103 O 21 '63

Soviet prices curdle Indian oil deal. Oil & Gas J 62:84-5 F 17 '64

Soviets plan 50 percent boost in oil spending. Oil & Gas J 62:48 Ja 6 '64

Soviets still pushing oil offensive. Oil & Gas J 62:47 Mr 23 '64

Saskatchewan

Saskatchewan offers oil new incentives. Oil & Gas J 62:38-9 S 28 '64

Saudi Arabia

Ghawar; not a trend, but one big field. il map Oil & Gas J 62:96-7 Mr 2 '64

South America

Review of 1963 petroleum developments in South America and the Caribbean area. L. C. Sass and C. H. Neff. maps Am Assn Pet Geologists Bul 48:1242-98 Ag '64

South Dakota

Developments in Montana, North Dakota and South Dakota in 1963. A. Hansen and R. S. George. map Am Assn Pet Geologists Bul 48:958-64 Je '64

Southeastern states

Developments in southeastern states in 1963. H. E. Karges and C. H. Bruce. map Am Assn Pet Geologists Bul 48:950-6 Je '64

Marketers scramble for position in the Southeast. il map Oil & Gas J 62:45-8 Jl 13 '64

Spain

Is there a crack in Spain's oil policy? map Oil & Gas J 62:77-8 O 26 '64

Spanish refiners; at the crossroads? P. Swain. map Oil & Gas J 62:60+ Je 15 '64

Syria

Syria now ready to talk oil development. Oil & Gas J 62:84-6 Mr 16 '64

Tennessee

Oil and gas developments in Tennessee in 1963. H. C. Milhous. map Am Assn Pet Geologists Bul 48:818-19 Je '64

Texas

Decision near on Texas well testing. Oil & Gas J 62:40 Ja 6 '64

Developments in east Texas in 1963. B. W. Fox. map Am Assn Pet Geologists Bul 48: 916-21 Je '64

Developments in north Texas in 1963. V. Pettigrew. map Am Assn Pet Geologists Bul 48:895-900 Je '64

Developments in south Texas in 1963. G. M. Heinzelmann and others. map Am Assn Pet Geologists Bul 48:909-15 Je '64

Developments in Texas and Oklahoma Panhandles in 1963. J. M. Shelby. map Am Assn Pet Geologists Bul 48:875-80 Je '64

Developments in upper Gulf Coast of Texas in 1963. J. R. Reynolds and W. A. Piette. map Am Assn Pet Geologists Bul 48:922-9 Je '64

Developments in west-central Texas in 1963. W. L. Walton. map Am Assn Pet Geologists Bul 48:901-8 Je '64

Developments in west Texas and southeastern New Mexico in 1963. C. R. Jones and others. bibliog map Am Assn Pet Geologists Bul 48:881-94 Je '64

Navarro County, Tex., well tests Smackover. Oil & Gas J 61:144 O 21 '63

New floods in west Texas will recover 60,000,000 bbl. Oil & Gas J 61:85-6 D 30 '63

Texas outlaws small-tract allocation formula. Oil & Gas J 61:74+ O 21 '63

Texas outlook better. R. J. Gonzalez. Oil & Gas J 61:113 D 2 '63

Texas raises December flow to 28 per cent. Oil & Gas J 61:54 N 25 '63

United States

Oil activity shows encouraging signs. Oil & Gas J 62:88-9 Mr 2 '64

Oil policy maker for government. S. Udall. Oil & Gas J 62:43-5 Ja 13 '64

Report on oil efficiency avoids conclusions. Oil & Gas J 62:34-5 Je 29 '64

Foreign properties

See also
Petroleum—Concessions

Imports problem

Country-of-origin study shows change in import pattern. Oil & Gas J 62:78-9 Mr 16 '64

Dist. 5 imports will go up temporarily. Oil & Gas J 62:38 Je 1 '64

Double quotas will be phased out in northern tier. Oil & Gas J 62:54-5 Ag 24 '64

Five areas dominate imports. Oil & Gas J 62:54 Mr 9 '64

Importers agree to voluntary cutback. Oil & Gas J 62:27 Ag 31 '64

Imports cut slightly in Dist. 1-4. Oil & Gas J 62:32-4 Je 29 '64

Imports, exports. Oil & Gas J 62:149 Jl 27 '64

Imports peak despite limitations. Oil & Gas J 62:168 Ja 27 '64

IPAA asks for temporary import help. Oil & Gas J 62:62 Jl 13 '64

IPAA balks at import-policy changes. Oil & Gas J 62:20-1 N 2 '64

IPAA seeks new reduction in imports. Oil & Gas J 61:90-1 N 4 '63

Interior agrees on import help. Oil & Gas J 62:60-1 Jl 20 '64

Lid kept on oil imports, utilities hurting. il Elec World 161:31-2 Mr 9 '64

Little change made in imports program. Oil & Gas J 61:84-5 D 30 '63

New proposal slows imports decision. Oil & Gas J 62:105 Je 22 '64

Producers want more than token relief. Oil & Gas J 62:36-7 Je 1 '64

Resid-control critics step up attack. Oil & Gas J 62:54-5 F 3 '64

Resid-import controls face showdown. Oil & Gas J 61:52 O 28 '63

Resid-import policy all wrong. J. L. Hamon. Oil & Gas J 62:29 Je 29 '64

Small refiners press for larger share of import quotas. Oil & Gas J 62:62-3 Ag 17 '64

Unlimited imports costly? Oil & Gas J 62:67-8 Jl 6 '64

Why the U.S. limits oil imports. L. L. Starlight. map Oil & Gas J 62:214-15+ O 12 '64

Utah

Oil and gas developments in Utah and Nevada in 1963. R. P. Kunkel. maps Am Assn Pet Geologists Bul 48:970-7 Je '64

Venezuela

Fast startup for Maracaibo flow stations. il diags Oil & Gas J 61:120-3 O 28 '63

Shell eyeing Venezuela's tar belt. map Oil & Gas J 62:64+ Jl 13 '64

Texaco dickers with Superior again; negotiations for purchase of Superior's Lama field in Lake Maracaibo. map Oil & Gas J 62:60-1 Ja 13 '64

Texaco paid $125.4 million for Superior Oil's Lake Maracaibo properties. Oil & Gas J 62:46 F 3 '64

Venezuela changes chiefs but not its oil policies. Oil & Gas J 62:62 Mr 9 '64

Venezuela may win service-contract stalemate. Oil & Gas J 62:71 O 19 '64

Worldwide oil. Oil & Gas J 61:149-52 D 30 '63

PETROLEUM industry and trade—*Continued*

West Virginia

Oil and gas developments in West Virginia in 1963. R. C. Tucker. Am Assn Pet Geologists Bul 48:809-12 Je '64

Western states

Developments in West Coast area in 1963. E. C. Doell. maps Am Assn Pet Geologists Bul 48:999-1008 Je '64
Humble buys 3,900 Tidewater stations. Oil & Gas J 61:106-7 D 2 '63
West Coast heads toward new era. T. A. Armstrong. il maps Oil & Gas J 62:139+ Je 22 '64

Wyoming

Developments in Wyoming and Idaho in 1963. J. D. Copen. map Am Assn Pet Geologists Bul 48:965-9 Je '64

PETROLEUM institute, American. See American petroleum institute

PETROLEUM laboratories
Koninklijke/Shell-laboratorium, Amsterdam. Chem & Ind p966 Je 6 '64
Research and analytical efforts broaden at Esso research laboratories. il Anal Chem 36:sup 111A-13A My '64
Research laboratories of the Société nationale des pétroles d'Aquitaine. J. Ville and M. Rey. il Chem & Ind p782-93 My 9 '64
Water, the worst explosive. W. L. Nelson. Oil & Gas J 62:148 Mr 16 '64

PETROLEUM laws and regulations
Compact may hold oil's last chance to stem U.S. control. Oil & Gas J 62:87 S 21 '64
Decision near on Texas well testing. Oil & Gas J 62:40 Ja 6 '64
Democratic platform tones down oil issue. Oil & Gas J 62:54-5 Ag 24 '64
Do government and industry cooperate? E. E. Halmos, jr. Pet Management 36:142+ S '64
Duffy case appeal dropped. Oil & Gas J 62:42 Ag 31 '64
Esso's a step closer to national name. Oil & Gas J 62:62 Mr 23 '64
FPC policy on temporary rates attacked. Oil & Gas J 62:46 Mr 9 '64
Humble-Tidewater hearing delayed. Oil & Gas J 62:80 Ap 27 '64
IOCC chairman says states enthusiastic about reviewing controls, and conservation laws; abstract. M. E. Welsh. Oil & Gas J 61:123 N 18 '63
Independents seek legislative relief. Oil & Gas J 62:60-1 Jl 20 '64
Interior lifts lid on resid imports. Oil & Gas J 62:58 Mr 9 '64
Interior will now set oil policy; President's decision makes Udall the key man in oil matters. C. La Motte. Oil & Gas J 61:47-8 D 16 '63
Jobbers balk at trade-regulation rule. Oil & Gas J 62:58-9 My 25 '64
Justice's claims in Honolulu case attacked. Oil & Gas J 62:76-7 Mr 16 '64
Legislation you can expect. E. E. Halmos, jr. Pet Management 36:161-7 Ja '64
Louisiana's offshore thorn: federal oil. H. M. Wilson. Oil & Gas J 62:50-2 O 19 '64
Marketers, API face antitrust probe. G. T. Kinney. Oil & Gas J 61:42-3 N 25 '63
Merger attacks likely to broaden. Oil & Gas J 62:116 Je 22 '64
Mergers are tough now, but just wait. W. H. Orrick, jr. Oil & Gas J 62:80-2 My 18 '64
Oil has no real choice in the presidential race. C. La Motte. Oil & Gas J 62:38-9 Ag 31 '64
Oil's role in federal reports must be made clear. Oil & Gas J 62:52-3 My 4 '64
Resid-control critics step up attack. Oil & Gas J 62:54-5 F 3 '64
Small refiners ask government help to end price wars. Oil & Gas J 62:68-9 Mr 16 '64
Study to redefine antitrust objectives proposed. J. J. Scott. Oil & Gas J 62:44-5 Mr 9 '64
There must be a way to stop increasing inroads of government controls. J. G. Pew. Pet Management 36:112+ S '64
Under Lyndon Johnson: less squabbling, more action, no basic changes affecting oil. C. La Motte. Oil & Gas J 61:101-3 D 2 '63
Wilmington field compromise expected. Oil & Gas J 61:133 N 18 '63
See also
Interstate oil compact commission
Oil lands

Argentina

Compromise possible in Argentina. Oil & Gas J 62:44+ Je 29 '64

California

California court asked to kill restrictions on Santa Monica drilling. Oil & Gas J 62:104-5 Je 8 '64
Fuel-oil burning outlawed in Los Angeles. Oil & Gas J 62:54-5 Ja 20 '64
Santa Monica drilling proposal inches ahead. Oil & Gas J 62:64 Ag 24 '64

France

France keeps grip on foreign firms. Oil & Gas J 62:48-9 Je 29 '64

Louisiana

Louisiana hits hard at brine. Oil & Gas J 62:114-15 O 12 '64
Louisiana seeks step-by-step tidelands settlement. H. M. Wilson. map Oil & Gas J 62:64-5 O 26 '64

New Mexico

New Mexico amends wildcatting rules. Oil & Gas J 62:61 Ag 17 '64

Ohio

Ohio adopts permanent rules. Oil & Gas J 62:57 My 4 '64
Ohio gets new oil rules. Oil & Gas J 62:62 Mr 16 '64
Ohio studies ways to curb wild play. J. A. Rhodes. il Oil & Gas J 62:80-1 Mr 2 '64
Small-tract drilling stirs up Ohio. map Oil & Gas J 61:102-3 N 11 '63
Udall asks governor to curb waste in Ohio oil play. il Oil & Gas J 62:62-3 F 24 '64

Saskatchewan

Saskatchewan offers oil new incentives. Oil & Gas J 62:38-9 S 28 '64

Spain

Spanish sidestep oil-policy decision. Oil & Gas J 62:43 Ag 31 '64

Texas

Atlantic's bid to raise east Texas quotas shows up discrepancies in field allowables. Oil & Gas J 62:78-9 S 7 '64
Calendar-day testing eases into Texas. Oil & Gas J 62:98 S 21 '64
Changes would promote wider spacing. Oil & Gas J 62:28-9 Je 29 '64
Court rules on oil issues. Oil & Gas J 62:68 F 10 '64
Old small-tract wells legally cleared. Oil & Gas J 62:108-9 Je 8 '64
Texas allowable change gains support. Oil & Gas J 62:108-10 Jl 27 '64
Texas crude-oil allowable for April unchanged. Oil & Gas J 62:54-5 Mr 23 '64
Texas raises oil allowable to 29 per cent during February. Oil & Gas J 62:43 Ja 20 '64
Texas seeks ban on all unlined pits. plan Oil & Gas J 62:76-7 My 18 '64

PETROLEUM liquefied gas. See Liquefied petroleum gas

PETROLEUM pipe lines
Aluminum pipe Tig welded and bundled. il Welding Eng 49:58 S '64
Glass-fiber-reinforced pipe seen due for expanded oil-field use. il Oil & Gas J 61:106+ D 16 '63
Interstate pipelines top $15-billion investment level. J. P. O'Donnell. Oil & Gas J 62:165+ Mr 16 '64
Pennsylvania railroad merger plans include Buckeye pipe line co. map Oil & Gas J 62:82-3 F 17 '64
Pipeline construction; who's building where, U.S. and abroad. Published in the last issue of each month of Oil and gas journal
Pipeline technology moving too fast? Oil & Gas J 62:62-3 Ap 20 '64
Pipelines' big gains will be abroad. map Oil & Gas J 62:135 Ja 27 '64
Producers battle pipeline's private status. Oil & Gas J 62:85 My 18 '64
Product-pipeline mileage may exceed that of crude lines by 1970. J. P. O'Donnell. Oil & Gas J 62:141+ Ap 20 '64
See also
Petroleum products pipe lines

Construction

Bundled pipelining. il Comp Air Mag 69:16 S '64
Contractors explain how cooperation also benefits pipelines. J. P. O'Donnell. Oil & Gas J 62:159-61 My 18 '64
How ENI built first Alpine oil pipeline. P. Reed. il map diag Oil & Gas J 62:130-2 S 21 '64

PETROLEUM pipe lines—Construction—*Cont.*

In Canadian construction it's mill double-jointed pipe. J. P. O'Donnell. il Oil & Gas J 62:106-7 O 19 '64

106-mile line laid in eight weeks. J. P. O'Donnell. il Oil & Gas J 62:136-7 O 19 '64

Contractors

Pipeline contractor, a vanishing American? J. P. O'Donnell. il Oil & Gas J 62:68-72 Ja 20 '64

Costs

Pipeline installation and equipment costs; special reports. J. P. O'Donnell. Oil & Gas J 62:87-102 Jl 6 '64 (reprints $1)

Thin wall pipe in distribution systems. J. W. Pierce. Am Soc C E Proc 89 [PL 1 no 3390]: 23-47 Ja '63; Discussion. L. J. Timms, jr. 90 [PL 1 no 3778]:185-6 Ja '64

Electric pumping stations

See Petroleum pipe lines—Pumping stations, Electric

Gathering lines

Electronic pig detection. P. R. Forrer. il diags Ind Electronics 2:110-12 Mr '64

Fast startup for Maracaibo flow stations. il diags Oil & Gas J 61:120-3 O 28 '63

How Pemex automates oil gathering. J. E. Kastrop. flow diag il Pet Management 35: 74-8 D '63

Maintenance and repair

Closed-circuit tv checks dual 250-ft-deep crossing. il diag Oil & Gas J 61:106-8 O 28 '63

Pipe liner. il Plastics World 22:47 S '64

Plastic liner seals leaky pipeline in Texas. Oil & Gas J 62:92-3 My 18 '64

Maps

Atlas of crude-oil pipelines of the U.S. and Canada. Oil & Gas J 62:133-56 S 21 '64

Pumping stations

Fast-operating hydraulic valves actuated from central system. J. P. O'Donnell. il diag Oil & Gas J 62:112-13 F 10 '64

On-line closed-loop computer control proved feasible for pipelines. G. L. Schuman. il map diags Oil & Gas J 62:88-94 Ap 20 '64

Swept-volume meter prover aids research. il Oil & Gas J 61:116-17 O 21 '63

Pumping stations, Electric

Batteries supply emergency power for critical pipeline needs. il diags Power 108:76-7 S '64

Fast startup for Maracaibo flow stations. il diags Oil & Gas J 61:120-3 O 28 '63

Grand Terre booster station operates unattended. H. E. Evans. il map diags Oil & Gas J 61:68-71 N 25 '63

Huge Iraqi pipeline adds remote control. il Pet Management 35:270 D '63

Phillips tailors control policies to specific situations. G. P. Jennings and I. B. Tietze. il map Oil & Gas J 62:114-16 S 21 '64

Portal set to move more crude. J. P. O'Donnell. il Oil & Gas J 62:116+ O 26 '64

Service upgrade existing, adds new Wyoming stations. Oil & Gas J 62:107 Ja 20 '64

Statistics

Oil-pipeline traffic and revenue show good gain. Oil & Gas J 62:112 Jl 20 '64

Trans-Arabian line

Naphtha used to submerge submarine pipeline. R. R. Burnett. il plan diag Pet Management 36:165+ O '64

Algeria

Algeria hinders development of new oil. map Oil & Gas J 62:101-2 Mr 2 '64

British may build Ben Bella's pipeline. Oil & Gas J 62:50 Mr 30 '64

Australia

First Australian line to move 10,000 b/d. il map Oil & Gas J 62:63 Ja 20 '64

Canada

Canadians mix imaginative with practical. map Oil & Gas J 62:114-15+ Ag 17 '64

Colombia

Line may spur Colombian flow. il map Oil & Gas J 62:76-7 Ag 17 '64

Europe

Central Europe's pipeline needs grow. map Oil & Gas J 61:120 N 18 '63

Demands by ENI still block transalpine crude line. Oil & Gas J 62:66-7 My 4 '64

ENI gets transalpine job. Oil & Gas J 62:123 O 12 '64

How ENI built first Alpine oil pipeline. P. Reed. il map diag Oil & Gas J 62:130-2 S 21 '64

Rival pipeline groups fighting it out for European markets. P. Swain. il map Oil & Gas J 62:82-4 Mr 16 '64

Transalpine dispute nears settlement. Oil & Gas J 62:50 Je 1 '64

India

Indian oil pipeline. V. S. Swaminathan. il map Engineer 217:965-6 My 29 '64

Iran

Iran plans switch in export centers. map Oil & Gas J 62:122-3 Je 22 '64

Latin America

Latin America stiff challenge to pipeliners. V. E. Butler. map Oil & Gas J 62:107-9 Ap 20 '64

Libya

Contract let for BP-Hunt Libyan line. map Oil & Gas J 62:46-7 Ag 31 '64

Libyan field has six-billion-bbl tag. map Oil & Gas J 62:43-4 Jl 20 '64

Libyan pipeline work starts. Oil & Gas J 62:66-7 Mr 23 '64

Libya's fourth crude-oil line planned. map Oil & Gas J 62:89 Ap 6 '64

Mobil will build 90-mile line in Libya. map Oil & Gas J 61:55-6 N 25 '63

Louisiana

Big offshore line will be built off Louisiana. map Oil & Gas J 61:130-1 N 18 '63

Grand Terre booster station operates unattended. H. E. Evans. il map diags Oil & Gas J 61:68-71 N 25 '63

Humble laying offshore line. map Oil & Gas J 61:116 D 2 '63

Mexico

Pemex pipeline push aids Mexico's development. F. H. Love. il maps Pet Management 35:242-54 D '63

Middle East

Huge Iraqi pipeline adds remote control. il Pet Management 35:270 D '63

North Dakota

Montana, North Dakota crude gets new outlet. map Oil & Gas J 62:55 My 25 '64

106-mile line laid in eight weeks. J. P. O'Donnell. il Oil & Gas J 62:136-7 O 19 '64

Northwestern states

Portal set to move more crude. J. P. O'Donnell. il Oil & Gas J 62:116+ O 26 '64

Russia

Russia's pipeline plans limping behind schedule. map Oil & Gas J 62:82-3 O 26 '64

Soviet super lines lag despite claims. maps Pet Management 35:270+ N '63

Texas

Duffy case appeal dropped. Oil & Gas J 62:42 Ag 31 '64

PETROLEUM products

Colonial's Atlanta junction tank farm features central hydraulic system. J. P. O'Donnell. il Oil & Gas J 62:74-6 Ja 13 '64

High-temperature hydraulic fluids from petroleum. E. E. Klaus and others. bibliog Ind & Eng Chem Product Res & Develop 2:332-8 D '63

Impact of technology on cost of petroleum products. R. A. Cardello and G. D. Ward. il Chem Eng Prog 60:85-8 Jl '64

See also

Lubricating greases
Naphtha
Naphthenic acids
Petroleum chemicals
Petroleum coke

Analysis

Rapid semi-micro Kjeldahl method for nitrogen in petroleum and its products. W. R. Battles and others. bibliog il diags Inst Pet J 49:340-4 N '63

Blending

General relationships for polymer-petroleum oil blends. W. A. Wright and W. W. Crouse. bibliog Ind & Eng Chem Product Res & Develop 3:153-8 Je '64

PETROLEUM products—Blending—*Continued*

Tank-field control center is a feature of Pascagoula plant. il diags Oil & Gas J 61:114-16+ N 25 '63

Prices

Distillate prices gain strength from new wintry blasts. Oil & Gas J 62:47 Ja 20 '64

Distillate prices in delicate balance. Oil & Gas J 62:48-9 Ja 13 '64

Products lead trend in price erosion. W. A. Bachman. Oil & Gas J 62:52-3 Ag 24 '64

Standards

New slant on the construction of specifications and associated testing. R. W. Cranston and J. Gammon. Inst Pet J 50:73-80 Mr '64

Statistics

Spring outlook: bad hangover. Oil & Gas J 62:39-40 Mr 9 '64

Testing

New slant on the construction of specifications and associated testing. R. W. Cranston and J. Gammon. Inst Pet J 50:73-80 Mr '64

See also

Petroleum laboratories

Transportation

British tankers for Austria. il Engineer 217:406-7 F 28 '64

See also

Petroleum products pipe lines

PETROLEUM products pipe lines

Atlantic Pipe Line's new computer frees dispatchers from routine calculations. map Oil & Gas J 62:52-3 Ja 20 '64

Computer schedules four product pipelines. S. K. Pringle and J. O. Rogers. il diags Oil & Gas J 62:152-4+ My 18 '64

Decision near on Long Island pipeline. Oil & Gas J 61:63 D 16 '63

Digital computer schedules Colonial operations from startup. R. Techo and others. diags Oil & Gas J 62:94-100 Ap 13 '64

Electronic pig detection. P. R. Forrer. il diags Ind Electronics 2:110-12 Mr '64

Pipeline construction; who's building where, U.S. and abroad. Published in the last issue of each month of Oil and gas journal

Pipeline safety controversy to be aired at hearings this week. Chem Eng 71:86 Je 22 '64

Product line pushes East. map Oil & Gas J 61:44 D 9 '63

Product-pipeline mileage may exceed that of crude lines by 1970. J. P. O'Donnell. Oil & Gas J 62:141+ Ap 20 '64

Urethane foam insulation keeps heavy oil flowing. il Mod Plastics 41:123 Je '64

Construction

Citizens' group questions safety of pipeline. F. C. Price. Chem Eng 71:28 Ja 6 '64

Colonial system nearing completion. Oil & Gas J 61:104 N 11 '63

Colonial's work in Jersey dubbed biggest plumbing job. J. P. O'Donnell. il Oil & Gas J 62:81-3 Jl 13 '64

Kaneb moves swiftly, economically on its 120-mile extension. H. C. Bozeman. Oil & Gas J 62:129 S 21 '64

Nashville line Colonial's toughest construction. J. P. O'Donnell. il Oil & Gas J 61:70-1 D 23 '63

Pipelining in the Old Dominion. R. L. Moxey and S. M. Parkhill. il maps Comp Air Mag 68:8-15 N; 4-7 D '63

Costs

Pipeline installation and equipment costs; special reports. J. P. O'Donnell. Oil & Gas J 62:87-102 Jl 6 '64 (reprints $1)

Maintenance and repair

Colonial eliminates air locks. Oil & Gas J 61:38 N 25 '63

Pumping stations

Addco stations multiply Alaska pipeline capacity. il Oil & Gas J 61:151 N 4 '63

Colonial's target: 48,000 bbl/hour. M. U. Bagwell and A. E. Wooster. il diags Oil & Gas J 62:95-8+ Ap 20 '64

How 34-mile products pipeline delivers up to 7,000 bbl/hour. J. P. O'Donnell. il Oil & Gas J 62:104-7 S 21 '64

Okan pipeline system; gas-turbine station. E. A. Slade. Oil & Gas J 61:144 N 4 '63

Okan pipeline system; Liberal station. E. A. Slade. il Oil & Gas J 61:136-9 N 4 '63

Pumping stations, Electric

Batteries supply many primary and standby power needs for Colonial. G. Kinney. il Oil & Gas J 62:86-8 Mr 9 '64

Terminals

Colonial's Atlanta junction tank farm features central hydraulic system. J. P. O'Donnell. il Oil & Gas J 62:74-6 Ja 13 '64

Joint terminals built on Colonial line. map Oil & Gas J 62:54 Mr 9 '64

Okan pipeline system; automatic switching. F. A. Slade. il Oil & Gas J 61:140+ N 4 '63

Okan pipeline system; turbine meters. E. A. Slade. il Oil & Gas J 61:146-7 N 4 '63

Alaska

Addco stations multiply Alaska pipeline capacity. il Oil & Gas J 61:151 N 4 '63

Canada

Canadians mix imaginative with practical. map Oil & Gas J 62:114-15+ Ag 17 '64

Europe

NATO line reaches for more business; is spreading deep into West Germany for more commercial customers. map Oil & Gas J 62:64-5 Je 15 '64

Great Britain

Operation of the Stanlow Carrington pipeline. J. O. Hughes. il map Chem & Ind p 132-9 Ja 25 '64

India

India completing its first products line. il Oil & Gas J 62:73 Je 29 '64

Mexico

Permex pipeline push aids Mexico's development. F. H. Love. il maps Pet Management 35:242-54 D '63

Middle western states

Expansion adds LP-gas to Kaneb's product slate. H. C. Bozeman. il maps Oil & Gas J 62:142+ My 25 '64

New Jersey

Colonial's work in Jersey dubbed biggest plumbing job. J. P. O'Donnell. il Oil & Gas J 62:81-3 Jl 13 '64

Oklahoma

Okan products line is model of flexibility. E. A. Slade. il diags Oil & Gas J 61:134-49 N 4 '63

South Dakota

Kaneb moves swiftly, economically on its 120-mile extension. H. C. Bozeman. Oil & Gas J 62:129 S 21 '64

Virginia

Pipelining in the Old Dominion. R. L. Moxey and S. M. Parkhill. il maps Comp Air Mag 68:8-15 N; 4-7 D '63

PETROLEUM refineries

Belfast's BP refinery. il Engineering 197:696 My 22 '64

Close look at contract maintenance. Pet Management 36:152+ O '64

Commercial oil-sands plant to open in '67. Oil & Gas J 62:71 F 24 '64

Complexity of world refineries. W. L. Nelson. Oil & Gas J 62:69 N 2 '64

Construction boosting capacity in gas processing and refining. R. B. Bizal. il Oil & Gas J 62:95 Jl 13 '64

Construction starts on first Athabasca plant. il Oil & Gas J 62:100+ Ag 17 '64

Demands on refiners will increase in the next ten years. Oil & Gas J 62:78-9 My 18 '64

Gulf Oil picks Louisiana site for new refinery. Oil & Gas J 62:67 F 24 '64

HPI construction boxscore (cont). Hydrocarbon Process & Pet Refiner 43:167-78+ Ja; 208+ My; 290+ S '64

How the first Athabasca oil-sand plant will operate. G. T. Kinney. diags Oil & Gas J 62:116-17 Ap 20 '64

Independent refiner widens activities; Ashland oil & refining co. Oil & Gas J 61:64-5 D 16 '63

Japanese curb refinery construction. Oil & Gas J 62:94-5 My 11 '64

Japanese refining; speed up or hold back on expansion? Hydrocarbon Process & Pet Refiner 43:289-90 S '64

Kuwait plans big refinery at Shuaiba. map Oil & Gas J 62:116-17 Je 8 '64

Kuwait refinery will be a landmark. D. H. Stormont. diag Oil & Gas J 62:83-4 Ag 3 '64

PETROLEUM refineries—*Continued*

New Union hydrocracker will be first of its kind. C. J. Lawrence. il Oil & Gas J 62:88 My 4 '64
The 1970 refinery; how will it have changed? D. H. Stormont. il Oil & Gas J 62:100-7 Ap 6 '64
Operations with muscle put Pemex in HPI forefront. il map Pet Management 35:198-204 D '63
Plant building may hit a five-year high. Oil & Gas J 62:136 Ja 27 '64
Plant construction booms abroad. P. Swain. Oil & Gas J 62:97-9 Ja 27 '64
Productivity costimating. W. L. Nelson. bibliog Oil & Gas J 62:121 Mr 2; 95 Mr 23; 83 Ap 13; 77 My 4; 109+ Jl 13; 131 Ag 17 '64
Refiners to add 400,000-b/d capacity in U.K. Oil & Gas J 62:84 Jl 6 '64
Sicily gets refining, petrochemical complex at Gela. il map diag Oil & Gas J 62:132-4 Ag 17 '64
Signal's plants have different makeups. Oil & Gas J 61:129 N 18 '63
Small refineries in developing countries. K. L. Hagemans and R. E. Ingall. Oil & Gas J 61:98-9 O 21 '63
Socal plans $80 million expansion. il Oil & Gas J 62:40-1 F 3 '64
Spanish refiners; at the crossroads? P. Swain. map Oil & Gas J 62:60+ Je 15 '64
SO_2 extraction unit for Canary Islands plant. il Oil & Gas J 62:95 F 24 '64
See also
Gasoline plants

Accounting

Computation of refinery profits. W. L. Nelson. Oil & Gas J 62:107-8 Ag 24 '64
Yield accounting plays new role. R. F. Cook and others. diags Hydrocarbon Process & Pet Refiner 42:115-20 D '63

Construction

How to calculate footing soil bearing by computer. E. Czerniak. il diags Hydrocarbon Process & Pet Refiner 43:109-14 Mr '64
New approach to dowel sizing for tower foundations. A. A. Brown. diags Hydrocarbon Process & Pet Refiner 43:153-6 Ap '64
Pascagoula; up from scratch in a hurry. il Oil & Gas J 61:125+ N 25 '63
Refinery capacities and construction in the U.S. and Canada. R. B. Bizal. Oil & Gas J 62:116-49 Ap 6 '64 (reprints $2)
Six builders are dominant in HPI field. C. H. Slater, jr. Hydrocarbon Process & Pet Refines 43:165-6 Ja '64

Control equipment

Amoco refineries reflect control gains. il Pet Management 35:206-8 D '63
Blending system design saves money for Mobil. J. F. Schneider. il diag Pet Management 36:124+ Ap '64
Central air supply header simplifies pneumatic lines; Atlantic refining co. H. E. B. Anderson, ed. il Plant Eng 18:92 Ja '64
Computer control of ultraforming. diags Oil & Gas J 61:160+ N 18 '63
Crude oil topping (distillation) control. F. D. Marton. diag Instruments & Control Systems 37:112 Ja '64
Data-logging computers help study of fluid cat cracker operation. D. H. Stormont. il diag Oil & Gas J 61:142-4 N 18 '63
Direct-digital-control study started as joint effort. diag Oil & Gas J 62:80 Ag 10 '64
Direct digital multiloop controller available. il Oil & Gas J 62:116-17 F 10 '64
$500,000 automation investment; Sun oil co. Oil & Gas J 62:154-5 Jl 27 '64
Header in bundled tubing eases pneumatics installation. J. C. Dibbern and L. W. Robinson. il Control Eng 11:103 Ja '64
How novel control center worked out at Kyso's Pascagoula refinery. Oil & Gas J 62:131+ O 26 '64
Modern control and instrumentation techniques applied to refinery operations. S. W. J. Wallis. diags Inst Pet J 49:329-34; Discussion. 334-9 N '63
Multistream distillation monitors. W. H. Topham. diags Control Eng 11:65-7 Ap '64
New analog computer aids instrumentation. diags Oil & Gas J 61:174+ N 18 '63
Operators run simulated refinery for prestartup experience. R. E. Lieber. il diags Control Eng 11:105-7 S '64
Phillips petroleum co. tries DDA computer for distillation columns control. M. L Johnson and others. il diags Control Eng 11:68-73 Ag '64
Plant-wide computer system planned. diag Oil & Gas J 61:60-1 O 21 '63
Tank-field control center is a feature of Pascagoula plant. il diags Oil & Gas J 61:114-16+ N 25 '63
Tank logging system. J. T. Dobson. il diags Ind Electronics 2:30-3 Ja '64
See also
Calculating machines—Petroleum engineering applications

Corrosion

Bothered by corrosion of your crude-unit condensers? A. S. Couper. bibliog diag Oil & Gas J 62:79-83 Jl 20 '64; Excerpts. Hydrocarbon Process & Pet Refiner 43:131-2 My '64

Costs

Estimating petrochemical plant costs from flow sheets. C. C. Schwartz. plan Oil & Gas J 61:156-9 N 11 '63
Has design progress made early costimating figures obsolete? W. L. Nelson. Oil & Gas J 62:89 Jl 20 '64
Here's how cost indexes could be improved. Oil & Gas J 62:114 F 17 '64
How to scale plant costs to other sizes. W. L. Nelson. bibliog Oil & Gas J 62:84-5 S 28 '64
Nelson cost indexes. Published in the second issue of each month of Oil and gas journal
1964 a year of challenge? W. L. Nelson. Oil & Gas J 62:211 Ja 27 '64
Now fuel costs justify heat recovery. W. J. Gossom. Hydrocarbon Process & Pet Refiner 43:135 Je '64
Process costimating (cont). W. L. Nelson. bibliog Oil & Gas J 61:149 N 18; 87-8 N 25; 100 D 16 '63; 62:96+ Ja 13; 116-17 F 17; 89 Mr 30; 129 Ap 20; 132 My 18; 70+ Je 1; 183-4 Je 22; 109 Ag 3; 69 Ag 31; 119 S 14; 198 O 12 '64
Productivity costimating. W. L. Nelson. bibliog Oil & Gas J 62:121 Mr 2; 95 Mr 23; 83 Ap 13; 77 My 4; 109+ Jl 13; 131 Ag 17; 160 S 7; 200 S 21; 95 O 19 '64
Quarterly cost indexes. W. L. Nelson. Oil & Gas J 62:90-1 Ja 20 '64 [cont quarterly]
Refiners offered cost-cutting ideas. C. J. Lawrence. Oil & Gas J 61:185-6+ N 18 '63
Refiners scrutinize utility costs. H. C. Bozeman. il Oil & Gas J 61:179-80 N 18 '63

Electric equipment

Design tips on electrical enclosures. D. B. McDevitt. Hydrocarbon Process & Pet Refiner 43:143-4 My '64
Electrical maintenance at Atlantic's Philadelphia refinery. R. L. Kerr. il diags Elec Constr & Maint 63:94-8+ Ag '64
Oil refineries using more thermoplastic cable; polyvinylchloride. Power Eng 68:36 Ap '64
Radial system reliable for refinery. P. I. Jernigan. diags Elec World 161:95-7+ Ap 20 '64

Employees

Double pay won't create oil jobs. il Oil & Gas J 62:57-9 F 10 '64
Employment shows strength; 17th annual report survey. il Pet Management 36:104+ Je '64
How Conoco trains operators with PILOT. C. Weltge and H. Clement. Hydrocarbon Process & Pet Refiner 43:253-4+ S '64
Labor outlook; two peaceful years. Oil & Gas J 62:59-62 O 26 '64
1964 pattern: hike with fringe on top. Oil & Gas J 62:62-3 Ag 10 '64
Number and productivity of U.S.S.R. refinery employees. bibliog Oil & Gas J 61:103 O 21 '63
Operating costs abroad; labor. W. L. Nelson. Oil & Gas J 62:109 Ag 3 '64
Operators run simulated refinery for prestartup experience. R. E. Lieber. il diags Control Eng 11:105-7 S '64

Equipment

Analyzers prove worth in Shell's new refinery. il diag Oil & Gas J 62:157-8 S 7 '64
Are your fired-heater test data correct? R. D. Reed. diag Oil & Gas J 61:123-4 N 4 '63
Atlantic collects dust to reclaim catalyst. il Pet Management 35:197-8 N '63
Automatic gas chromatograph distillation analyzer. H. J. Maier and others. il diag Instruments & Control Systems 37:75-6 Ag '64
Automatic pour-point testers save for Amoco. S. F. Kapff. il diags Oil & Gas J 62:173-4+ Jl 27 '64
Compact refinery designs reveal latest trends in cost cutting. Oil & Gas J 62:154 Je 8 '64

PETROLEUM refineries—Equipment—*Continued*

Compressor design requirements; users' outlook. P. H. Rohr. Combustion 35:30-4 Mr '64
Computer designs process piping system. diag Pet Management 36:128 Jl '64
Continental adds condensate processing at Billings. diag Oil & Gas J 62:159 Mr 16 '64
Design change saves $170,000 in 13½ months. il Oil & Gas J 62:117-18 Mr 2 '64
Design of vessels for petroleum refining and petrochemicals services. J. S. Clarke and M. S. Northup. bibliog diags A S M E Trans ser A 86:411-17; Discussion. 417-18 O '64
Electric motors aid conveyor operation. il Pet Management 35:198-9 N '63
Electronic instrumentation in petroleum refineries. W. H. Topham. bibliog in diags Radio & Electronic Eng 26:389-95 N '63
Evolution of a fire-safe valve. il Pet Management 35:204-5 D '63
Filming amines, positive protection for the condensate return system. Oil & Gas J 62:74 Je 1 '64
Finned tubes improve fired-heater efficiency. J. A. Judice. diags Oil & Gas J 61:153+ N 18 '63
Flattening test results may give false picture. H. M. Wilten. il Hydrocarbon Process & Pet Refiner 43:176 Mr '64
Flexible shaft solves TCC-unit flow-measurement problem. il Oil & Gas J 62:94 Ja 13 '64
Fluid-cracker revamp ups gasoline output 50 per cent. D. H. Stormont. flow sheet il Oil & Gas J 62:86-7 F 24 '64
Here are some ways to recover energy from refinery streams. diags Oil & Gas J 62:82-3 Ja 6 '64
Hints from European refiners. il diag Hydrocarbon Process & Pet Refiner 43:107-10 Ja '64
How Cities Service's H-oil unit is performing. R. P. Van Driesen and N. E. Stewart. flow diags il diags Oil & Gas J 62:100-5 My 18 '64
How to boost efficiency of furnaces and heaters. Oil & Gas J 62:95 Ja 13 '64
How to figure true temperature difference in shell-and-tube exchangers. D. L. Gulley. bibliog diags Oil & Gas J 62:108-14 S 14 '64
How to inspect and maintain fired heaters. E. Mason and E. L. Godsy. il Oil & Gas J 62:187-8+ O 12 '64
How to rate finned-tube convection section in fired heaters. J. L. Schweppe and C. Q. Torrijos. bibliog diag Hyrdocarbon Process & Pet Refiner 43:159-66 Je '64
How to specify, evaluate and operate steam-jet air ejectors. R. B. Power. bibliog diag Hydrocarbon Process & Pet Refiner 43:121-6 F; 138-42 Mr; 149-52 Ap '64
Ideas from space research for the petroleum industry; ASME petroleum mechanical engineering conference, Los Angeles, Sept. 23. Hydrocarbon Process & Pet Refiner 43:118-19 O '64
Isomax unit gives extra flexibility in processing middle distillates. il diag Oil & Gas J 61:102+ N 25 '63
Light-ends recovery at Baytown refinery. il diag Oil & Gas J 62:196-7 O 12 '64
Line-blind valves. J. W. Gates. diags Power 108:76-7 F '64
Need to get rid of an old coking unit? blow it up! il Hydrocarbon Process & Pet Refiner 43:210 Ap '64
New equipment and literature. Published in monthly numbers of Hydrocarbon processing and petroleum refiner
New light on stress-relieving large vessels. il diag Oil & Gas J 62:82-3 S 28 '64
New tower increases vacuum gas-oil yield. il diag Oil & Gas J 62:95-6 F 10 '64
Opening of oil refinery at Belfast. il Engineer 217:853-4 My 15 '64
Pneumatic tube speeds up sampling. il Oil & Gas J 61:100 O 21 '63
Radiotracers; refinery troubleshooters. diags Oil & Gas J 62:137-8+ Ag 3 '64
Reciprocating-pump principles. diag Oil & Gas J 62:102 Mr 23 '64
Shell Oakville refinery brings several firsts to Canadian and U.S. refining. D. H. Stormont. il diags Oil & Gas J 62:108-11+ Ap 6 '64
Single-stage centrifugal pump gives big boost in pressure. il Oil & Gas J 62:74-5 Ag 10 '64
Socal building world's biggest hydrocracker at Richmond. C. J. Lawrence. diag Oil & Gas J 62:150-1 Ap 6 '64
Space research ideas for hydrocarbon processing plants. F. G. Sawyer. Hydrocarbon Process & Pet Refiner 43:120-34 O '64
Special CO boiler has three-year payout in small refinery. il Power Eng 68:46 Je '64
Thermowell design for process piping. J. A. Masek. flow sheet diags Hydrocarbon Process & Pet Refiner 43:139-42 F; 119-24 Mr; 165-72 Ap '64
Tips on piping layout for flexibility. J. A. Masek. diags Hydrocarbon Process & Pet Refiner 43:143-5 Jl '64
What Kyso's built at Pascagoula. il map diag Oil & Gas J 61:92-7+ N 25 '63
What makes stream analyzers reliable. E. L. Karas. diags Pet Management 35:191-5 N '63
When to use and how to select hinged expansion joints. W. F. Francois. diags Hydrocarbon Process & Pet Refiner 43:169-73 Je '64
Which steel for refinery service? C. H. Samans. bibliog il diag Hydrocarbon Process & Pet Refiner 42:169-73 O; 241-6 N '63

Experimental plants

Automation pays off at UOP's pilot plants. D. H. Stormont. il Oil & Gas J 62:118 Ap 20 '64

Explosions

Inerting system safeguards against loading-rack explosions. diags Oil & Gas J 62:121 S 14 '64

Fires and fire protection

Check these points in fire protection layout. J. A. Landy. bibliog il Hydrocarbon Process & Pet Refiner 43:168-9+ Mr '64
How hazardous are hot metal surfaces? H. W. Husa and E. Runes. il Oil & Gas J 61:180+ N 11 '63
Lessons from the Aramco tank fire. T. J. Laney. il plan Hydrocarbon Process & Pet Refiner 42:247-50 N '63
Oily insulation can cause plant fires. J. J. Petkus. Hydrocarbon Process & Pet Refiner 42:251 N '63
Refiners hit federal safety proposals. Oil & Gas J 62:54-5 Mr 23 '64

Flare stacks

Practical design of flare stacks. G. R. Kent. bibliog il diags Hydrocarbon Process & Pet Refiner 43:121-5 Ag '64

Fuel

CO-boiler payout to come solely from fuel saving. D. H. Stormont. il Oil & Gas J 62:90 Ap 13 '64
Growing outlet for majors' gas; their own refineries. maps Oil & Gas J 62:74-5 F 17 '64

Maintenance and repair

Computerized maintenance scheduling. M. G. Smith and C. R. Dees. Automation 11:22 Ja '64
Effective weed control for the petroleum industry. il Pet Management 36:110-11 F '64
Electrical maintenance at Atlantic's Philadelphia refinery. R. L. Kerr. il diags Elec Constr & Maint 63:94-8+ Ag '64
Eliminate heat-exchanger bottlenecks onstream. H. C. Bozeman. il Oil & Gas J 61:96-7 O 21 '63
How to clean without shutdown. J. H. Van Sandt. il Oil & Gas J 61:75-6 N 25 '63
How to inspect and maintain fired heaters. E. Mason and E. L. Godsy. il Oil & Gas J 62:187-8+ O 12 '64
Maintenance; special report. bibliog flow chart il diags Hydrocarbon Process & Pet Refiner 43:91-118 Ja '64
New development in Critical path method for turnarounds. J. J. O'Brien and others. diags Hydrocarbon Process & Pet Refiner 43:133-8 F '64
Practical ideas on refinery fouling. P. P. Corneli. Hydrocarbon Process & Pet Refiner 43:167-8 Je '64
Refinery maintenance in Mexico today. M. A. Espinosa. Hydrocarbon Process & Pet Refiner 43:174 Je '64
Reinforced polyesters cut maintenance costs. il Oil & Gas J 61:132-3 N 4 '63
Three approaches to chemical cleaning. diags Oil & Gas J 61:136-8 D 2 '63
Tips on places to look for added process efficiency. Oil & Gas J 61:158+ D 30 '63

Management

Are you like the distillation column? J. E. Mitchell. Hydrocarbon Process & Pet Refiner 42:133-4 D '63
Automation pays off at UOP's pilot plants. D. H. Stormont. il Oil & Gas J 62:118 Ap 20 '64

PETROLEUM refineries—Management—*Cont.*

Check your refinery with stream evaluation. P. N. Malherbe. flow plans diag Oil & Gas J 61:82-6 O 21 '63
Computer techniques for refinery planning and control. J. V. Withey. bibliog flow diag diag Oil & Gas J 62:76-80 Ja 20 '64
Critical-Path planning assures safe turnarounds for Marathon Oil. D. H. Stormont. il Oil & Gas J 62:68-71 Ja 13 '64
Ethyl engineers rate the fictional worker. R. R. Faller. Hydrocarbon Process & Pet Refiner 42:252-4+ N '63
Get results with better work standards. V. D. Schoeller. Hydrocarbon Process & Pet Refiner 43:189-92+ Je '64
How to plan profits. W. Wright and T. Coyne. Pet Management 36:71-4 Ap '64
New development in Critical path method for turnarounds. J. J. O'Brien and others. diags Hydrocarbon Process & Pet Refiner 43:133-8 F '64
Operate safer using arrow diagraming. O. M. Allen and L. H. Vautrain. diag Hydrocarbon Process & Pet Refiner 43:129-30 My '64
Plant evaluation. D. J. Oriolo. bibliog Oil & Gas J 62:62-4 F 3; 87-9 F 10; 93-5 F 17; 122+ F 24; 104-7 Mr 2; 82-3 Mr 9; 145-7 Mr 16 '64
Put a value on the engineer's work. R. D. Stevens. diag Pet Management 36:116+ F '64
Selection of management personnel from engineering ranks. J. E. Wilson. J Pet Tech 16:125-7 F '64
Technological obsolescence. E. T. Guerrero and S. J. Martinez. bibliog Pet Management 36:94-9+ Ap '64
Try purchasing research for bigger profits. H. Fearon. Hydrocarbon Process & Pet Refiner 42:136-8 D '63
Try these key steps to creativity. R. M. Berry. Hydrocarbon Process & Pet Refiner 43:197-8 Je '64
Use depth perception in employe relations. A. N. Smith. Hydrocarbon Process & Pet Refiner 43:171-2+ Jl '64
Using learning curves in petroleum refining. W. B. Hirschmann. bibliog Pet Management 36:84-91 S '64
Visualize CPM schedules by calendar. L. F. Checketts. diag Hydrocarbon Process & Pet Refiner 43:133-4 Je '64
Working smarter means working cheaper. W. J. Bentley. flow chart Pet Management 36:100-2+ Ap '64

Power

Gas-turbine drives show promise on fluid cat cracker. J. A. Boatright. il diags Oil & Gas J 62:78-82 Ap 13 '64
Here are some ways to recover energy from refinery streams. diags Oil & Gas J 62:82-3 Ja 6 '64

Quality control

Multistream distillation monitors. W. H. Topham. diags Control Eng 11:65-7 Ap '64

Records

Refinery performance reported via computerized reports. R. T. O'Neil and W. E. Stanley, jr. il Oil & Gas J 62:96-100 O 19 '64

Safety measures

Freshen up your safety program with continuing reviews. Oil & Gas J 62:112-13 F 17 '64
How to compute safe purge rates. H. W. Husa. diag Hydrocarbon Process & Pet Refiner 43:179-82 My '64
Refiners hit federal safety proposals. Oil & Gas J 62:54-5 Mr 23 '64
Stringent safety rules may be altered. Oil & Gas J 62:56 Ja 13 '64
We use safety shoes as safety incentives. J. F. Markel. il Safety Maint 127:14-16 Ap '64

Statistics

Construction lull will end soon for Canada. Oil & Gas J 62:96+ Ag 17 '64
Gulf Coast refinery runs set the pace for U.S. Oil & Gas J 62:79 Ag 3 '64
Hydrocracking capacity climbs in U.S. Oil & Gas J 61:96-7 N 11 '63
New peak in refining capacity. D. H. Stormont. il Oil & Gas J 62:96-9 Ap 6 '64
Refinery capacities and construction in the U.S. and Canada. R. B. Bizal. Oil & Gas J 62:116-49 Ap 6 '64 (reprints $2)
Refinery runs set new record and product inventories pile up. Oil & Gas J 62:102-3 O 12 '64
Refinery runs up eight per cent in four years. Oil & Gas J 62:39-41 Ja 20 '64
Trend; yearly gains of 2.9 per cent. Oil & Gas J 62:49-51 Jl 13 '64
U.S. production. Oil & Gas J 62:144 Jl 27 '64

Waste

Air pollution curbed, profits hiked. M. G. Boone. il diag Oil & Gas J 62:92-3 Ag 24 '64
American Oil cleans up wastes in aerated lagoons. J. C. Lamkin and L. V. Sorg. diags Hydrocarbon Process & Pet Refiner 43:133-6 My '64; Same cond. il Oil & Gas J 62:84-6 Jl 13 '64
Batch process removes oil, fat, grease. J. P. Tassoney and others. flow diag il Water Works & Wastes Eng 1:38-40+ Ag '64
Biofilter cleans waste water. il Pet Management 35:197 D '63
Cooling towers used for waste treatment. R. M. Smith. flow diag Oil & Gas J 62:115-16 S 14 '64
Deep well method of industrial waste disposal. J. S. Talbot and P. Beardon. il Chem Eng Prog 60:49-52 Ja '64
Development of a modern petroleum refinery waste treatment program. B. V. Prather. bibliog flow diag il WPCF J 36:96-102 Ja '64
Fundamentals of sewer design. W. O. Seppa. diags Hydrocarbon Process & Pet Refiner 43:171-6 O '64
How Shell treats Oakville effluent. G. C. Campbell and G. R. Scoullar. diags Hydrocarbon Process & Pet Refiner 43:137-40 My '64
Humble uses ponds to improve waste-water quality. il Oil & Gas J 62:96 Ag 24 '64
New test quickly determines refinery-waste oxygen demand. A. W. Busch. bibliog diag Oil & Gas J 62:120+ O 19 '64
Offgases work overtime at new German refinery. D. H. Stormont. flow diag Oil & Gas J 61:80-2 D 9 '63
Oil moves to the attack on pollution. Oil & Gas J 62:78 F 24 '64
Purifying refinery waste water. B. V. Prather and A. F. Gaudy, jr. bibliog flow sheet Oil & Gas J 62:96-9 Ag 10 '64
Shell's filter system borrows from nature. H. C. Bozeman. il Oil & Gas J 62:92-4 Mr 23 '64
Texas delays waste-disposal deadline. Oil & Gas J 61:54-5 D 9 '63
Who will control pollution in Texas? Oil & Gas J 62:68 F 10 '64

Water supply

See Water supply for petroleum industry

PETROLEUM refining

Better refinery yields come from cracking heavy oils. G. E. McKenna and others. diags Hydrocarbon Process & Pet Refiner 43:113-16 My '64; Same cond. Oil & Gas J 62:106-7 My 18 '64
Catalytic reforming; octane booster with a future. H. C. Bozeman. il diags Oil & Gas J 61:50-8 D 23 '63
Cracking catalysts are metal-acid aluminosilicates; Durabead 5; abstract. C. J. Plank. il Chem & Eng N 42:70 Ap 20 '64
Demetalization of cracking catalysts. R. L. Foster and others. bibliog Ind & Eng Chem Product Res & Develop 2:328-32 D '63
Dow study enlarges knowledge on glycol-hydrocarbon separation. Oil & Gas J 62:178-9 Je 22 '64
Durabead 5 versus clay cracking catalyst. C. D. Edgcumbe and S. Valentine, 3d. Oil & Gas J 62:89-92 Ag 10 '64
Economic balance shows when to change out desiccant. Oil & Gas J 62:116 O 19 '64
Esso develops new molecular-sieve process, recovers linear paraffins. Oil & Gas J 61:46 N 25 '63
Fluid cracking catalyst designed to maximize liquid yields. A. Voorhies, jr. and others. Oil & Gas J 62:108-11 My 18 '64
Formation of cresylic acids in petroleum processing. H. L. Coonradt and B. W. Rope. bibliog Ind & Eng Chem Product Res & Develop 2:317-22 D '63
Four roads offered to less fuel oil. diags Oil & Gas J 62:65-8 Ja 6 '64
Fresh look at solvent decarbonizing. P. T. Atteridg. diags Oil & Gas J 61:72-7 D 9 '63
H-oil and Hy-C eliminate fuel oils. A. R. Johnson and L. M. Rapp. bibliog il Hydrocarbon Process & Pet Refiner 43:165-8 My '64
How hydrocracking can increase the value of marginal gas oils. Oil & Gas J 61:101-2+ D 16 '63

PETROLEUM refining—*Continued*

How hydrogen will be used to upgrade Athabasca tar to sweet crude oil. A. D. Hoskins. diags Oil & Gas J 62:122-4 My 18 '64; Same. Hydrocarbon Process & Pet Refiner 43:122-4 My '64

Hydrocracking, an example of modern hydrogen processing. D. D. MacLaren and others. bibliog diags Can J Chem Eng 42:88-94 Ap '64

Hydrocracking grows at rapid pace. G. D. Gould and others. diags Hydrocarbon Process & Pet Refiner 43:117-21 My '64

Improvements in cat-cracker feed preparations raise refinery realizations. H. C. Bozeman. il diags Oil & Gas J 62:90-4 F 10 '64

International refining grows. Pet Management 36:128+ S '64

Japanese juggle refinery runs formula. Oil & Gas J 62:64 Mr 9 '64

Kinetics of thermal cracking of paraffinic and naphthenic fuels at elevated pressures. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:33-7 Ja '64

Mechanism of hydrocracking; reactions of paraffins and olefins. H. L. Coonradt and W. E. Garwood. bibliog Ind & Eng Chem Proc Design 3:38-45 Ja '63

Minimum reflux for complex fractionators. T. E. Short and J. H. Erbar. diag Pet Management 35:180-4 N '63

More olefins with new cyclic cracker. A. Roche and others. bibliog flow sheet Hydrocarbon Process & Pet Refiner 43:161-4 My '64

NPRA panel on catalytic cracking. Oil & Gas J 62:133-4+ Je 8; 74-7 Je 15; 180-2 Je 22; 74-8 Je 29 '64

New catalysts enhance the economics of hydrocracking. D. H. Stormont. Oil & Gas J 62:60-1 O 19 '64

New distillation know-how offered refiners. Oil & Gas J 61:113 D 2 '63

New reforming catalyst cuts carbon laydown in producing hydrogen from refinery feeds. Oil & Gas J 62:88-9 Ja 20 '64

New techniques spur changes in light-ends processing. H. C. Bozeman. bibliog il diags Oil & Gas J 62:48-57 Ag 31 '64

1964 refining process handbook. flow diags Hydrocarbon Process & Pet Refiner 43:139-234 S '64

Nitrogen finds big market in the process industries. H. S. Pylant. il diag Oil & Gas J 62:76-7 Mr 23 '64

Noble metals vie for catalyst honors. il Can Chem Process 47:49-51 N '63

Promote catalysis with tellurium. V. Kollonitsch and C. H. Kline. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Je '64

Refining. Oil & Gas J 62:146-7 Jl 27 '64

Revamped naphtha cracking for high-purity ethylene; process flowsheet. E. Guccione. il Chem Eng 70:196-8 N 11 '63

Southwestern using unique distillate-upgrading method. diag Oil & Gas J 61:74 D 23 '63

Study of the vaporization of crude oil by carbon dioxide repressuring. D. E. Menzie and R. F. Nielsen. bibliog flow diag diags J Pet Tech 15:Trans 1247-52 N '63

Team: hydrocracking and reforming. H. C. Huffman and others. bibliog diag Hydrocarbon Process & Pet Refiner 43:181-6 Je '64

To run a taut oil refinery, keep track of your hydrogen. Chem Eng 70:94 D 9 '63

Twin vacuum towers reduce bottom make. il diag Oil & Gas J 62:99-100 F 10 '64

Urea adduction process in semicontinuous fixed bed. E. C. Makin and others. bibliog flow sheet il Ind & Eng Chem Proc Design 3:226-9 Jl '64

Utilization of a flash-differential process to increase stock-tank recovery. P. J. Kalish and H. J. Endean. J Pet Tech 16:998-1002 S '64

Versatile total-count method helps operations. D. E. Hull. bibliog il Hydrocarbon Process & Pet Refiner 43:151-6 O '64

What's ahead for catalytic cracking? D. H. Stormont. Oil & Gas J 62:78-81+ Ag 17 '64 (reprint $1)

See also

Gasoline—Manufacture

Lubricating oils

Petroleum distillation

Asphalt removal

New automatic blending system speeds asphalt loading at Sunray DX oil co.'s Tulsa refinery. K. Brooks. il diag Oil & Gas J 61:134-5 D 2 '63

Propane deasphalting and fractionation; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:219 S '64

Temperature required to produce asphalt by distillation. W. L. Nelson. Oil & Gas J 61:159 D 2 '63

Bibliography

New books. Published in monthly numbers of Hydrocarbon processing and petroleum refiner

By-products

How to maximize hydrogen production in catalytic reforming. W. H. Decker and others. diag Oil & Gas J 62:64-9 Je 1 '64

New hydrogenation process upgrades byproduct pyrolysis gasolines. D. H. Stormont. il diag Oil & Gas J 61:96-7 D 16 '63

Soil stabilization; Coherex. F. S. Rostler and W. M. Kunkel, jr. bibliog il diags Ind & Eng Chem 56:27-33 Ap '64

What are Conradson carbons of residues? W. L. Nelson. Oil & Gas J 62:124 F 10 '64

Nitrogen removal

Trickle hydrodesulfurization; Shell development co. flow diag Hydrocarbon Process & Pet Refiner 43:194 S '64

Ultrafining; Standard oil co. (Indiana). flow diag Hydrocarbon Process & Pet Refiner 43:195 S '64

Unifining; Universal oil products co. and Union oil co. of California. flow diag Hydrocarbon Process & Pet Refiner 43:196 S '64

Salt removal

Chemical desalting. flow diag Hydrocarbon Process & Pet Refiner 43:200 S '64

Desalting improves quality of cat-cracker feed. Oil & Gas J 62:97-8 F 10 '64

Electrostatic desalting. flow diag Hydrocarbon Process & Pet Refiner 43:206 S '64

Sulfur removal

Air pollution curbed, profits hiked. M. G. Boone. il diag Oil & Gas J 62:92-3 Ag 24 '64

Autofining; British petroleum co. flow diag Hydrocarbon Process & Pet Refiner 43:186 S '64

Economics hinder pollution-control efforts. Oil & Gas J 62:64-5 Ag 3 '64

Effect of pellet pore structure on catalyst performance in the hydrodesulphurization of straight-run gas oil. D. Van Zoonen and C. T. Douwes. bibliog Inst Pet J 49:383-91 D '63

Hydrodesulfurization; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:191 S '64

Hydrofining; Esso research and engineering co. flow diag Hydrocarbon Process & Pet Refiner 43:192 S '64

Sulfur recovery (Stretford process); the Clayton aniline co., the North Western gas board. diag Hydrocarbon Process & Pet Refiner 42:221 N '63

Trickle hydrodesulfurization; Shell development co. flow diag Hydrocarbon Process & Pet Refiner 43:194 S '64

Ultrafining; Standard oil co. (Indiana). flow diag Hydrocarbon Process & Pet Refiner 43:195 S '64

Unifining; Universal oil products co. and Union oil co. of California. flow diag Hydrocarbon Process & Pet Refiner 43:196 S '64

Tables, calculations, etc.

Computation of refinery profits. W. L. Nelson. Oil & Gas J 62:107-8 Ag 24 '64

Estimate physical properties accurately. F. E. McKelvey. bibliog Hydrocarbon Process & Pet Refiner 43:145-50 My; 147-8 Je; 146-8 Jl; 127 Ag '64

Extraction designing made easier. E. D. Oliver. Hydrocarbon Process & Pet Refiner 42:107-8 D '63

h/r heat transfer (cont). B. E. Lauer. diags Oil & Gas J 61:84 N 25; 49 D 23 '63; 62:105 Ja 13; 115 F 10; 121 F 24; 96 Mr 9; 104 Mr 23; 89 Ap 13; 127 Ap 20; 102 My 4; 143 My 18; 160 Je 8; 59 Je 29; 113 Jl 6; 163 Jl 27; 129 Ag 3; 110 Ag 24; 176 S 7; 78 S 28; 144 O 5; 103 O 19; 89 N 2 '64

How to compute safe purge rates. H. W. Husa. diag Hydrocarbon Process & Pet Refiner 43:179-82 My '64

New viscosity index for 100 and above; nomograph. Hydrocarbon Process & Pet Refiner 43:141-2 My '64

Now you can calculate crude tbp curves by computer. H. B. Henderson. bibliog Oil & Gas J 62:76-81 Ag 24 '64

PETROLEUM refining—Tables, calculations, etc.—*Continued*
Powerful tool, matrix algebra. G. T. Westbrook. bibliog diags Hydrocarbon Process & Pet Refiner 42:173-80 Je; 177-82 Jl; 179-84 S; 129-32 D '63

Wax removal

German unit gives dewaxing data. N. Schneider. il diag Hydrocarbon Process & Pet Refiner 42:104-6 D '63

PETROLEUM research
API handles basic research. D. Martin. il Pet Management 35:13-16 N '63
Big worry; federal control of research. H. W. Ferguson. Oil & Gas J 61:116-17 N 18 '63
British American oil co. seeks new directions in research. il Oil & Gas J 62:46-7 S 28 '64
British Petroleum expands protein-from-oil research. Chem & Eng N 42:41 Ja 20 '64
Can management handle research and development? C. A. Thomas. Pet Management 35:42-3 D '63
Cryogenics makes economic sense. R. W. Temple. il Pet Management 36:110+ My '64
Impact of technology on cost of petroleum products. R. A. Cardello and G. D. Ward. il Chem Eng Prog 60:85-8 Jl '64
New drilling machine aids mud research. W. M. Evans. il diags Oil & Gas J 62:135-7 My 25 '64
Pressures push research to bigger role; interview with P. P. Reichertz. J. E. Kastrop and J. Scott. Pet Management 36:98-103 My '64
Researchers now on oil's operating team. il Oil & Gas J 61:48-50 D 9 '63
Try purchasing research for bigger profits. H. Fearon. Hydrocarbon Process & Pet Refiner 42:136-8 D '63
See also
Petroleum laboratories

PETROLEUM shipping terminals
Floating tanker terminal is boon for mammoth tankers. il Marine Eng/Log 69:62 Je '64
Naphtha used to submerge submarine pipeline. R. R. Burnett. il plan diag Pet Management 36:165+ O '64
New heat exchanger boosts terminal efficiency. il Oil & Gas J 61:95 D 16 '63
Technique of optimizing a bulk-petroleum logistics system. H. N. Emerson. Oil & Gas J 62:96-9 F 17 '64

PETROLEUM storage
Mooring system prevents anchor-chain breakage; oil-storage barge is connected by two nylon ropes to the carousel buoy. il Oil & Gas J 62:115 O 19 '64

PETROLEUM supply
Crude reserves dip, gas, gas-liquids up. Oil & Gas J 62:157-66 Ja 27 '64
Crude surplus expected through 1975. Oil & Gas J 62:70-1 F 24 '64
Is excess capacity here to stay? L. A. Kimpton. Oil & Gas J 62:71-4+ Ap 13 '64
Production depends on economics, not physical existence. R. J. Gonzalez. Oil & Gas J 62:59-64 Mr 30 '64
Supply-demand. Oil & Gas J 62:132-3 Jl 27 '64
There's fun ahead. I. H. Cram. Geophysics 29:4-8 F '64

United States

Crude reserves in U.S. slip again. Oil & Gas J 62:34-6 Mr 30 '64
Oil must provide 111 billion bbl over the next 20 years. Oil & Gas J 62:48-9 Mr 23 '64

PETROLEUM waste
Louisiana hits hard at brine. Oil & Gas J 62:114-15 O 12 '64
Texas seeks ban on all unlined pits. plan Oil & Gas J 62:76-7 My 18 '64
See also
Petroleum refineries—Waste

PETROLEUM waxes
Campaign to increase use of petroleum waxes in packaging. Food Tech 18:1403-4 S '64
Petroleum waxes have bright future. Oil & Gas J 62:139 My 25 '64
Punch-card operation blends wax faster, more accurately. D. H. Stormont. flow plan il diag Oil & Gas J 62:98-100 Mr 23 '64
Wax-blending system installed. diag Oil & Gas J 62:83 Ja 6 '64
Wax makers look hopefully at blends to regain sales. il Oil & Gas J 62:74-5 Ag 3 '64
What is specific gravity of petroleum waxes? W. L. Nelson. Oil & Gas J 62:149 My 11 '64
See also
Petroleum refining—Wax removal

Manufacture

Atlantic's wax plant one of industry's most modern. flow chart il Oil & Gas J 62:172-3 S 7 '64
Thermofor continuous percolation; Socony mobil oil co. flow diag Hydrocarbon Process & Pet Refiner 43:214 S '64
Wax fractionation; Texaco development corp. flow diag Hydrocarbon Process & Pet Refiner 43:225 S '64
Wax manufacturing, MIBK; Union oil co. of California. flow diag Hydrocarbon Process & Pet Refiner 43:226 S '64

PETROLEUM workers
Does an off-the-job safety program pay? M. B. Hamilton. Pet Management 36:184-8 Mr '64
Drilling firm puts crews on shorter work week. Oil & Gas J 62:63 Ap 20 '64
Drilling upturn brings labor shortage. Oil & Gas J 61:82-3 D 30 '63
Drilling wages heading up? Oil & Gas J 62:61+ Jl 20 '64
Employment shows strength; 17th annual report survey. il Pet Management 36:104+ Je '64
Firms make package offer to union. Oil & Gas J 62:78 Ag 3 '64
1964 pattern; hike with fringe on top. Oil & Gas J 62:62-3 Ag 10 '64
OCAW after oil industry's good name. Oil & Gas J 62:50-1 Je 15 '64
Oil tells Congress; double time won't make jobs. Oil & Gas J 62:31-2 Mr 30 '64
Sinclair, OCAW reach bellwether pact. Oil & Gas J 62:46-7 Jl 20 '64
Trouble around the rigs; a study of manpower. J. Scott. il Pet Management 36:95-6+ O '64
Why OCAW's goal is more fringe benefits. J. Knight. Oil & Gas J 62:66-7 F 17 '64
See also
Oil, chemical and atomic workers international union
Petroleum refineries—Employees

Training

Canadians ring bell with rig training course. E. W. Gabert. Pet Management 36:91-2 Jl '64
Texas makes plans to start school for roughnecks in March to combat labor shortage. Oil & Gas J 61:82-3 D 30 '63

PETTY, Dabney E.
Memorial. E. W. Owen. Am Assn Pet Geologists Bul 48:130 Ja '64

PHARMACEUTICAL laboratories
Compact utilities hold down cost of high-rise laboratory. il plan diags Eng N 172:60-2 Ap 2 '64

Air conditioning

Flexibility marks design of lab's air systems; Charles S. Beardsley research laboratory. W. J. Davis. il Heating-Piping 36:115-17 Ag '64

PHARMACEUTICAL research
Canada attracts drug research labs. il Chem & Eng N 42:24-5 Mr 30 '64
Eight-story building houses Abbott's drug and chemical research activities. il Anal Chem 35:sup91A-3A D '63
Mechanised information retrieval at ICI Pharmaceuticals div. F. Grady and E. Hyde. il diags Manuf Chem 35:60-1+ O '64
Report on drug safety. il Drug & Cosmetic Ind 95:498-9+ O '64
Road to new profits; pharmaceutical development costly. D. H. Phillips. il Chem Eng Prog 60:28-30 My '64
Will imported drugs undermine the quality of pharmaceutical research? il Drug & Cosmetic Ind 94:825+ Je '64

PHARMACOPOEIAS
Quality control; its present position. L. C. Miller. Drug & Cosmetic Ind 94:668+ My '64

PHARMACY
Pharmaceutical engineering. H. W. Fowler. bibliog Manuf Chem 35:63-4+ Ap; 42-4 Ag '64
See also
Drugs

Study and teaching

City of Liverpool college of technology regional college; Department of pharmacy. T. L. Bowyer. il Chem & Ind p 1003-5 Je 13 '64
History of the school of pharmacy. T. E. Wallis. Review, by L. G. Matthews. Chem & Ind p 1376-8 Ag 1 '64
Industrial pharmacy curriculum at the University of Iowa. il Drug & Cosmetic Ind 94:836-7 Je '64

PHARMACY—Study and teaching—*Continued*

Training the industrial pharmacist; a review of the St Louis college of pharmacy graduate program. il Drug & Cosmetic Ind 94: 188+ F '64

PHASE adjusters

Conical scan array uses variable phase shifters. L. R. Young and others. il diags Electronics 36:30-2 N 29 '63

Constant magnitude, variable phase circuit for low impedance loads. M. D. Daybell. diags R Sci Instr 35:1237-8 S '64

Measurement of phase shift at audio frequencies using a magslip as a calibrated reference standard. A. G. J. Holt. diags Radio & Electronic Eng 26:305-8 O '63

Novel ferrite quarter-wave plate. J. Helszajn. diags Radio & Electronic Eng 27:455-8 Je '64

Phase shift measurement. H. Steinberg. diags Instruments & Control Systems 37:131-2 Je '64

Reciprocal ferrite phase shifter. G. Buchta. bibliog diags IEEE Proc 52:304-5 Mr '64

Scr phase control of inductive loads. F. W. Gutzwiller. diags Electro-Tech 73:119-23 Ap '64

Single transistor provides low-cost phase shifter. J. J. Collins. diag Electronics 37: 92 My 18 '64

Variable linear phase-shifting network. S. S. Hakim. bibliog diags Inst E E Proc 111:303-7 F '64

Variable-phase, polyphase from single-phase supply. J. J. Vithayathil. diags Electronics 37:56-7 O 19 '64

Design

Method for the design of a phase-lag demodulating compensator for use in carrier control systems. G. J. Murphy and A. Knox. bibliog diags IEEE Trans Applications & Ind 83:252-7 Jl '64

PHASE diagrams

Investigation of the copper-rich portion of the copper-zirconium phase diagram by electron-probe microanalysis. M. J. Donachie, jr. Inst Metals J 92:180 '63-64

1010° and 800°C isothermal sections in the system Na_3AlF_6-Al_2O_3-SiO_2. D. F. Weill and W. S. Fyfe. bibliog Electrochem Soc J 111: 582-5 My '64

Palladium-uranium phase diagram up to 25 at.-per cent uranium. G. P. Pells. il Inst Metals J 92:416-18 '63-64

Phase diagram for the pseudo-binary system CdTe-In_2Te_3. L. Thomassen and others. bibliog diag Electrochem Soc J 110:1127-31 N '63

Phase diagram of cobalt monoxide at high temperatures. B. Fisher and D. S. Tannhauser. bibliog Electrochem Soc J 111:1194-6 O '64

Phase diagrams for ceramists, by E. M. Levin and others; review. Am Cer Soc Bul 43:482-3 Je '64

Structure, properties, and applications of UMCo-50 alloy. M. Urbain and others. bibliog il J Metals 16:837-42 O '64

PHASE meters

Diamond circuit measures phase shift. H. R. Deveraux. diags Electronics 37:74-5 S 21 '64

Digital phase-measurement system. diag Electro-Tech 73:114+ F '64

Direct-reading meter gives impedance and phase angle. P. Lund. il diags Electronics 37:57-9 Ja 3 '64

Measuring phase stability of ultrasonic delay lines; engineer's notebook. M. Davidson. diag Electronic Ind 23:75 F '64

Pulse phasemeter. R. E. King. diags Electronic Eng 36:615-16 S '64

Transistor audio-frequency phasemeter. F. Butler. il diags Wireless World 70:453-9 S '64

PHASE rule and equilibrium

Binary system PbS-PbSe. D. R. Simpson. bibliog Econ Geol 59:150-3 Ja '64

Effect of starting materials on phase relations in the system CaO-Al_2O_3-H_2O. M. S. Crowley. bibliog Am Cer Soc J 47:144-8 Mr '64

Effectiveness of shearing stresses in accelerating solid phase reactions at low temperatures and high pressures. F. Dachille and R. Roy. bibliog J Geol 72:243-7 Mr '64

Equilibrium between FeO-MnO-MgO-SiO_2 slags and molten iron at 1550°C. H. B. Bell. bibliog Iron & Steel Inst J 201:116-21 F '63; Discussion. 202:221-4 Mr '64

Equilibrium in the glass-forming system TeO_2-V_2O_5. G. A. Chase and C. J. Phillips. Am Cer Soc J 47:467 S '64

Gas phase equilibria in the system GaAs-I_2. D. Richman. bibliog RCA R 24:596-602 D '63

High-temperature phase equilibria for the partial system $3CaO.MgO.2SiO_2$-$MgO.Al_2O_3$-$2CaO.Al_2O_3.SiO_2$ in the quaternary system CaO-SiO_2-Al_2O_3-MgO. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64

High-temperature phase equilibrium and superconductivity in the system niobium-tin. L. J. Vieland. bibliog il RCA R 25:366-78 S '64

Inverse segregation of MgO and $MgAl_2O_4$ in fusion-cast bodies. P. H. Ribbe and A. M. Alper. bibliog il Am Cer Soc J 47:162-7 Ap '64

Investigation of the magnesium-zirconium system. Inst Metals J 92:383-4 '63-64

Liquidus⇌solidus relations in iron alloys; ideal solutions. W. Hume-Rothery and R. A. Buckley. Iron & Steel Inst J 202:531-3 Je '64

Liquidus⇌solidus relations in the system iron-manganese. W. Hume-Rothery and R. A. Buckley. Iron & Steel Inst J 202:534 Je '64

Mechanism of peritectic reactions. J. A. Sartell and D. J. Mack. il Inst Metals J 93: 19-24 '64-65

Mineral equilibrium studies of the pseudomorphism of pyromorphite by hinsdalite. W. E. Baker. Am Mineralogist 49:607-13 My '64

New polymorph of Al_2SiO_5 and further studies in the system Al_2O_3-SiO_2H_2O. S. Aramaki and R. Roy. bibliog diags Am Mineralogist 48:1322-47 N '63

Phase equilibria and manganese-activated luminescence in portions of the system $Zn(PO_3)_2$-$Cd(PO_3)_2$-$Mg(PO_3)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111: 660-5 Je '64

Phase equilibria and manganese-activated luminescence in the system $Zn_3(PO_4)_2$-$Cd_3(PO_4)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 110:1218-23 D '63

Phase equilibria and manganese-activated luminescence in the systems CdO-P_2O_5 and $Zn_2P_2O_7$-$Cd_2P_2O_7$; summary for the system ZnO-CdO-P_2O_5. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64

Phase equilibria and the telomerization reaction. L. M. Shorr and others. bibliog Ind & Eng Chem Fundamentals 3:86-7 F '64

Phase equilibria in binary and ternary systems containing nonionic surface-active agents. B. A. Mulley and A. D. Metcalf. bibliog J Colloid Sci 19:501-15 Ag '64

Phase equilibria in sugar solutions; the ternary system sucrose-butanol-water. F. H. C. Kelly and J. M. Rolls. J Ap Chem 13:496-8 N '63

Phase equilibria in the spinel region of the system FeO-Fe_2O_3-Al_2O_3. B. D. Roiter. bibliog Am Cer Soc J 47:509-11 O '64

Phase equilibria in the system boron carbide-silicon carbide. D. R. Secrist. il Am Cer Soc J 47:127-30 Mr '64; Discussion. P. T. B. Shaffer and A. L. Hannam. 47:594-5 N '64

Phase equilibria in the system FeO-Fe_2O_3-TiO_2 at 1300° C. R. W. Taylor. bibliog diags Am Mineralogist 49:1016-30 Jl '64

Phase equilibria in the system MgO-$MgCr_2O_4$. A. M. Alper and others. bibliog il Am Cer Soc J 47:30-3 Ja '64

Phase equilibria in the system NiO-Al_2O_3-SiO_2. B. Phillips and others. bibliog Am Cer Soc J 46:579-83 D '63

Phase equilibrium relations in the system $CaMgSi_2O_6$(diopside) - $NaAlSiO_4$(nepheline)-$NaAlSi_3O_8$(albite)-H_2O at 1,000 kg/cm² water vapor pressure. A. D. Edgar. bibliog Am Mineralogist 49:573-85 My '64

Phase-equilibrium relations in the system nepheline-albite-water at 1,000 kg/cm. A. D. Edgar. bibliog J Geol 72:448-60 Jl '64

Phase equilibrium studies in the system ThO_2-B_2O_3. D. E. Rase and G. Lane. il Am Cer Soc J 47:48-9 Ja '64

Phase relations between cymrite, $BaAlSi_3O_8(OH)$, and celsian, $BaAl_2Si_2O_8$. Y. Seki and G. C. Kennedy. diag Am Mineralogist 49: 1407-26 bibliog(p 1425-6) S '64

Phase relations in the system lead-oxygen. W. B. White and R. Roy. bibliog Am Cer Soc J 47:242-9 My '64

Phase relations in the system PbO-CO_2 and the decomposition of cerussite. D. A. Grisafe and W. B. White. bibliog Am Mineralogist 49:1184-98 S '64

Phase relations in the system uranium-carbon-oxygen. R. F. Stoops and J. V. Hamme. bibliog diag Am Cer Soc J 47:59-62 F '64

Phase relations in the system UO_2-$UO_3Y_2O_3$. S. F. Bartram and others. bibliog diags Am Cer Soc J 47:171-5 Ap '64

PHASE rule and equilibrium—*Continued*

Phase relations in the system uranium-nitrogen. J. Bugl and A. A. Bauer. bibliog il diags Am Cer Soc J 47:425-9 S '64

Some zeolite equilibria with alkaline earth metal cations. L. L. Ames, jr. bibliog Am Mineralogist 49:1099-110 Jl '64

Studies in germanium oxide systems; phase equilibria in the system Li_2O-GeO_2. M. K. Murthy and others. bibliog Am Cer Soc J 47:328-31, 444-7 Jl, S '64

System Al_2SiO_5 at high temperatures and pressures. R. C. DeVries. bibliog il diag Am Cer Soc J 47:230-7 My '64

System manganese oxide-Cr_2O_3 in air. D. H. Speidel and A. Muan. bibliog Am Cer Soc J 46:577-8 D '63

Uranium-molybdenum-carbon equilibrium diagram. F. G. Streets and J. J. Stobo. bibliog il Inst Metals J 92:171-4 '63-64

Vapor-liquid equilibria for aqueous sulfuric acid. J. I. Gmitro and T. Vermeulen. bibliog A I Ch E J 10:740-6 S '64

Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diags Can J Chem Eng 42:82-4 Ap '64

See also

Phase diagrams

PHASE space

Phase-space occupation of electron, proton, and photon beams. R. Katz and B. Curnutte, jr. Am J Phys 32:617-18 Ag '64

PHASE transitions

Apparatus for observing phase transitions of incandescent materials. G. N. Rupert. bibliog diags R Sci Instr 34:1183-7 N '63

Application of the source theory to the solution of problems involving phase change. W. J. Yang and J. A. Clark. bibliog diags A S M E Trans ser C 86:207-12, 443-8 My-Ag '64

BeO phase transformation. J. B. Conway and R. A. Hein. bibliog Nucleonics 22:71 Je '64

High pressure polymorphic transitions studied by audio- and radio-frequency techniques. A. A. Giardini and others. il diags R Sci Instr 35:713-19 Je '64

High-temperature transitions in rare-earth niobates and tantalates. V. S. Stubičan. bibliog diags Am Cer Soc J 47:55-8 F '64

Initial temperatures of zirconia phase changes and solid-solution reactions. T. W. Smoot and J. R. Ryan. bibliog Am Cer Soc J 46:597-600 D '63

Maximum average energy density as the criterion for phase transition in thin superconductive films. K. L. Cheng. bibliog J Ap Phys 35:1302-5 Ap '64

Optical extinction of anorthite at high temperatures. F. D. Bloss. bibliog Am Mineralogist 49:1125-31 Jl '64

Phase transitions and the radiative neutron capture in solid organic media. M. Milman. bibliog Am Chem Soc J 86:3567-8 S 5 '64

Phase transitions in $LiAl_5O_8$. R. K. Datta and R. Roy. bibliog diag Am Cer Soc J 46:388-90 Ag '63; Discussion. 47:362-3 Jl '64

Recovery of the high-pressure phase of cadmium sulfide. J. O. Corll. bibliog J Ap Phys 35:3032-3 O '64

Redistribution of solute during phase transformations. W. A. Tiller and R. F. Sekerka. J Ap Phys 35:2726-9 S '64

Residual stresses in two-phase systems as determined by changes in transition temperature. E. H. Bogardus and R. Roy. bibliog diags Am Cer Soc J 46:573-6 D '63

Solid state reactions in high-talc bodies. E. Planz. bibliog flow diag diags Am Cer Soc Bul 43:443-7 Je '64

Some basic microwave phase shift equations. R. W. Beatty. diag J Res Nat Bur Stand 68D:349-53 Ap '64

Stable mineral assemblages of anhydrous copper and iron oxides. R. A. Yung and G. Kullerud. bibliog Am Mineralogist 49:689-96 My '64

Study of the Clapeyron equation as applied to interfacial phase transitions. A. E. Alexander and F. C. Goodrich. J Colloid Sci 19:473-6 Je '64

Thorite→huttonite phase transformation as determined by growth of synthetic thorite and huttonite single crystals. C. B. Finch and others. il diag Am Mineralogist 49:782-5 My '64

Tridymite-cristobalite relations and stable solid solutions. D. M. Roy and R. Roy. bibliog diags Am Mineralogist 49:952-62 Jl '64

X-ray diffractometry of low-temperature phase transformations in strontium titanate. F. W. Lytle. bibliog il diags J Ap Phys 35:2212-15, cover Jl '64

PHASES (chemistry)

Acoustic instability; influence of and on the solid phase. N. W. Ryan and R. L. Coates. bibliog diags AIAA J 2:1130-4 Je '64

Additivity of individual phase resistances in mass transfer operations. C. J. King. bibliog A I Ch E J 10:671-7 S '64

Dew and bubble isotherm calculational method for binary system phase and volumetric behavior. N. C. Rodewald and others. bibliog diags Ind & Eng Chem Fundamentals 3:8-14 F '64

Frictional pressure drop in two-phase flow. A. E. Dukler and others. bibliog A I Ch E J 10:38-51 Ja '64

One atom in 7700 changes alloy structure; abstract. G. R. B. Elliott and R. B. Roof. Chem & Eng N 42:54+ Ap 20 '64

Organic ions in the gas phase; cycloheptatriene-7-*d*; decomposition of $C_7H_8^+$ and $C_7H_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63

Phase titrations come in for new study. Chem & Eng N 42:42+ Mr 9 '64

Phase-volume relationship at the point of phase inversion in liquid dispersions. G. C. Yeh and others. bibliog diag A I Ch E J 10:260-5 Mr '64

Structure of a phase formed in copper-aluminium alloys at low temperatures. J. S. L. Leach. bibliog Inst Metals J 92:93-4 '63-64

PHENACETIN

Determination of *p*-chloroacetanilide in phenacetin; a polarographic method. R. Jones and B. C. Page. bibliog Anal Chem 36:35-8 Ja '64

Analysis

Spectrophotometric determination of *p*-chloroacetanilide in phenacetin-acid hydrolysis method. W. B. Crummett and others. bibliog Anal Chem 36:1834-7 Ag '64

PHENANTHRENE

Chemical behavior of charge-transfer complexes; phenanthrene catalysis in acetolysis of 2,4,7-trinitro-9-fluorenyl *p*-toluenesulfonate. A. K. Colter and others. bibliog Am Chem Soc J 86:3106-13 Ag 5 '64

Conformational kinetic isotope effects in the racemization of 9,10-dihydro-4,5-dimethylphenanthrene. K. Mislow and others. bibliog Am Chem Soc J 86:1733-41 My 5 '64

Contribution to the knowledge of the structure of two hydropericardium-producing factors from a toxic fat. J. C. Wootton and W. L. Courchene. bibliog diags J Agri & Food Chem 12:94-8 Ja '64

α-Halosulfones; conformation requirements of α-sulfonyl carbanions in the synthesis of phenanthrenes from 2-chloro-2,7-dihydro-3,4-5,6-dibenzothiepin 1,1-dioxides. L. A. Paquette. bibliog Am Chem Soc J 86:4085-9 O 5 '64

Molecular complexes and their spectra; complexes of anthracene and phenanthrene with iodine. J. Peters and W. B. Person. bibliog Am Chem Soc J 86:10-14 Ja 5 '64

Photochemistry of stilbenes: some aspects of the mechanism of photocyclization to phenanthrenes. F. B. Mallory and others. bibliog Am Chem Soc J 86:3094-102 Ag 5 '64

Some zone-refining calculations on phenanthrene-anthracene system. E. T. Nelson and others. Anal Chem 36:931-2 Ap '64

Steric effect on deshielding of the aromatic C_4-proton by a C_5-proton in an octahydrophenanthrene series. W. Nagata and others. bibliog Am Chem Soc J 86:3746-9 S 20 '64

Synthesis and ionization constants of the six hydroxybenzo[*c*]phenanthrenes. M. S. Newman and J. Blum. bibliog Am Chem Soc J 86:503-7 F 5 '64

Synthesis, nuclear magnetic resonance spectrum, resolution, and rate of racemization of 1-fluoro-12-methylbenzo[*c*]phenanthrene. M. S. Newman and others. bibliog Am Chem Soc J 85:4018-20 D 20 '63

PHENANTHROLINE

Decomposition of tris(1,10-phenanthroline) iron(III) salts in concentrated sulphuric acid. A. F. Richards and others. Chem & Ind p1726 O 26 '63

Effect of co-ordination on the rate of nitration of *o*-phenanthroline. A. F. Richards and others. Chem & Ind p 1727 O 26 '63

Spectrophotometric determination of copper in tellurium and related thermoelectric compounds of the bismuth telluride type with 2,9-dimethyl-1,10 phenanthroline. B. Nebesar. bibliog Anal Chem 36:1961-5 S '64

PHENAZINE

Organic rectifying junction. J. E. Meinhard. diag J Ap Phys 35:3059-60 O '64

PHENOL

Absolute configurations of free phenolic forms of diastereoisomeric flavan-3,4-diols related to (+)-mollisacacidin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1555 S 5 '64

Antioxidant inhibition by phenol. W. G. Lloyd and C. E. Lange. bibliog Am Chem Soc J 86:1491-4 Ap 20 '64

Condensation of camphene and phenol; product formation via a direct 2,6-hydride transfer. W. F. Erman. bibliog diags Am Chem Soc J 86:2887-97 Jl 20 '64

Hydrogen bonding studies; the thermodynamics of hydrogen bonding of phenol to ethers and related compounds. R. West and others. Am Chem Soc J 86:3227-9 Ag 20 '64

Iron tricarbonyl adducts of dihydroanisoles; an adduct of a tautomer of phenol. A. J. Birch and others. Chem & Ind p838 My 16 '64

Mechanism of phenol adsorption by organoclay derivatives. A. L. Roberts and others. bibliog J Ap Chem 14:261-5 Je '64

Metal containers for aqueous benzene-phenol dosimeters. F. W. Bloch and others. bibliog Nucleonics 22:77 Mr '64

Oxidation of phenolic wastes. H. R. Eisenhauser. bibliog WPCF J 36:1116-28 S '64

Phenol extraction; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:218 S '64

Solvent effects on the C^{13} chemical shift of the substituted carbon atom of phenol. G. E. Maciel and R. V. James. bibliog Am Chem Soc J 86:3893-4 S 20 '64

Analysis

Gas chromatographic determination of free phenol and free formaldehyde in phenolic resins. M. P. Stevens and D. F. Percival. Anal Chem 36:1023-4 My '64

Manufacture

Details given on phenol air-oxidation routes; Scientific Design and Dow discuss their processes. il Chem & Eng N 42:56-7+ Ap 27 '64

Make phenol by radiation of benzene. A. Danno. bibliog diag Hydrocarbon Process & Pet Refiner 43:131-7 Ap '64

Now proved; phenol from air-oxidation of toluene; process flowsheet. il diag Chem Eng 71:106-8 S 28 '64

PHENOL blue

Stark effect of phenol blue (electrochromism). J. C. Powers, jr. and others. bibliog Am Chem Soc J 86:1004-8 Mr 20 '64

PHENOL condensation products

Crosslinking study of millable polyurethane elastomers with phenolic resins. O. C. Elmer and A. E. Schmucker. bibliog Rubber Age 94:438-45 D '63

How uniformity in molding powder influences processing of phenolics. J. B. McNamara. il diags Mod Plastics 41:135-7 N '63

Phenolic and furan resins in chemical equipment. H. D. Barton. il Ind & Eng Chem 56:66-9 Jl '64

Phenolic resins. Mod Plastics 41:97-8+ Ja '64

Phenolic resins cure EPT rubber. il Chem & Eng N 41:50-3 D 16 '63

Phenolics. E. F. Borro. il Machine Design 36:119-22 S 17 '64

Phenolics: more versatile than ever. E. F. Borro. il diags Mod Plastics 42:102-4 O '64

Properties of materials: phenolics; molded; tables. Materials in Design Eng 60:222-5 Mid-O '64

Switch from steel to phenolic in uncaser saves 50 percent. il Mod Plastics 41:114 Ag '64

See also
Resinous products

PHENOLATES. See Phenoxides

PHENOLIC resins. See Resinous products

PHENOLS

Coordination in solutions: acid strengths of 5- and 7-hydroxy-1-indanone and nitro derivatives; hydrogen bonding in *o*-carbonyl phenols. L. B. Magnusson and others. bibliog Am Chem Soc J 86:3958-61 O 5 '64

Degradation of aromatic compounds by phenol-adapted bacteria. C. W. Chambers and others. bibliog WPCF J 35:1517-28 D '63

Determination of cesium and rubidium after extraction with 4-sec-butyl-2(α-methylbenzyl)phenol. W. J. Ross and J. C. White. bibliog Anal Chem 36:1998-2000 S '64

Diisopropyl peroxydicarbonate offers new route to phenols. P. Kovacic and S. T. Morneweck. Chem & Eng N 42:42-3 S 28 '64

Electrochemical study of kinetics of a chemical reaction coupled between two charge transfer reactions; potentiostatic reduction of *p*-nitrosophenol. G. S. Alberts and I. Shain. bibliog diag Anal Chem 35:1859-66 N '63

Inhibition reactions of hindered phenols. G. M. Coppinger. Am Chem Soc J 86:4385-8 O 20 '64

Interaction between some acid wool dyes and nonylphenol-ethylene oxide derivatives; diffusion coefficients of dyes in aqueous solutions containing surfactants. B. R. Craven and A. Datyner. Soc Dyers & Col J 79:515-19 N '63

Ionization of substituted phenols in aqueous solution. H. C. Ko and others. bibliog Am Chem Soc J 86:1003-4 Mr 20 '64

Oxidative photodimerisation of some simple phenols. A. W. Johnson and S. W. Tam. bibliog Chem & Ind p 1425-6 Ag 8 '64

Production of steam-volatile phenols during the cooking and alcoholic fermentation of grain. R. D. Steinke and M. C. Paulson. bibliog diag J Agri & Food Chem 12:381-7 Jl '64

Reactions of isopropyl methylphosphonofluoridate with substituted phenols. J. Epstein and others. bibliog Am Chem Soc J 86:3075-84 Ag 5 '64

ρ-σ-π analysis; a method for the correlation of biological activity and chemical structure. C. Hansch and T. Fujita. bibliog Am Chem Soc J 86:1616-26 Ap 20 '64

Studies in organophosphorus chemistry; conversion of alcohols and phenols to halides by tertiary phosphine dihalides. G. Wiley and others. bibliog Am Chem Soc J 86:964-5 Mr 5 '64

Study of free energy relationships in hindered phenols; correlation of spectral properties with substituent constants. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3402-6 N 5 '63

Study of free energy relationships in hindered phenols; linear dependence for solvation effects in ionization. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3397-402 N 5 '63

Analysis

Detection of dichlorophene, hexachlorophene, and other related bisphenols by gas liquid chromatography. P. J. Porcaro. bibliog Anal Chem 36:1664-6 Jl '64

Determination of phenolic substances by ultraviolet difference spectrometry. A. S. Wexler. Anal Chem 35:1936-43 N '63

Mass spectrometry of naturally occurring alkenyl phenols and the derivatives. J. L. Occolowitz. bibliog diags Anal Chem 36:2177-81 O '64

Paper chromatography of monohydroxyphenols in vanilla extract. M. H. Anwar. Anal Chem 35:1974-6 N '63

Quantitative analysis of low-boiling phenols by capillary column separation of trimethylsilyl ethers. R. W. Freedman and G. O. Charlier. bibliog Anal Chem 36:1880-1 Ag '64

Quantitative determination of *o*- and *p*-dihydric phenols in presence of monohydric phenols by use of a phosphotungstic acid reagent. E. J. Behrman and M. N. D. Goswami. bibliog Anal Chem 36:2189-91 O '64

Quantitative gas liquid chromatography of phenols by complete trimethylsilylation of hindered phenols in presence of acidic oxides. R. W. Freedman and P. P. Croitoru. bibliog Anal Chem 36:1389-90 Je '64

Separation and analysis of methylated phenols as their trifluoroacetate ester derivatives. T. T. Shulgin. bibliog Anal Chem 36:920-1 Ap '64

Separation and identification of the steam volatile phenols present in cigarette smoke condensate by capillary column gas liquid chromatography. G. A. L. Smith and D. A. King. bibliog Chem & Ind p540-1 Mr 28 '64

PHENOTHIAZINE

Method for calculating gas chromatographic relative retention values for high boiling phenothiazine derivatives. H. F. Martin and others. bibliog Anal Chem 35:1901-4 N '63

Analysis

Controlled-potential coulometric analysis of *N*-substituted phenothiazine derivatives. F. H. Merkle and C. A. Discher. Anal Chem 36:1639-43 Jl '64

Factors influencing spectrofluorometry of phenothiazine drugs. T. J. Mellinger and C. E. Keeler. bibliog Anal Chem 36:1840-7 Ag '64

PHENOTHIAZINE—Analysis—*Continued*

Spectrofluorometric measurement of phenothiazines. J. B. Ragland and V. J. Kinross-Wright. bibliog Anal Chem 36:1356-9 Je '64

PHENOXIDES

Assay of phosphatase activity by direct spectrophotometric determination of phenolate ion. L. L. Salomon and others. bibliog Anal Chem 36:1162-4 My '64

PHENOXYACETIC acid

Determination of phenoxyacetic acids with J and phenyl J acids. O. M. Aly and S. D. Faust. Anal Chem 36:2200-1 O '64

Synthesis, properties, and biological activity of some amino acid derivatives of halogen-substituted phenoxy acids. J. F. Carmichael and others. bibliog J Agri & Food Chem 12:434-6 S '64

PHENOXY group

Vertical ionization potentials of phenyl and phenoxy radicals. I. P. Fisher and others. bibliog Am Chem Soc J 86:2741-2 Jl 5 '64

PHENYL acetate

Compensation in $\Delta H^\ddagger$ and $\Delta S^\ddagger$ accompanying the conversion of lower order nucleophilic displacement reactions to higher order catalytic processes; the temperature dependence of the hydrazinolysis and imidazole-catalyzed hydrolysis of substituted phenyl acetates. T. C. Bruice and S. J. Benkovic. bibliog Am Chem Soc J 86:418-26 F 5 '64

PHENYLACETIC acid

Determination of phenylacetic acid in penicillin fermentation media by means of gas chromatography. A. O. Niedermayer. Anal Chem 36:938-9 Ap '64

Synthesis and decomposition of *o*-iodosophenylacetic acid. J. E. Leffler and others. bibliog Am Chem Soc J 85:3443-8 N 5 '63

PHENYLACETYLENE. See Ethynyl benzene

PHENYLALANINE

Nutrition of salmonoid fishes; isoleucine, leucine, valine and phenylalanine requirements of chinook salmon and interrelations between isoleucine and leucine for growth. R. E. Chance and others. bibliog J Nutrition 83:177-85 Jl '64

Phenylalanine requirements with different levels of tyrosine. L. M. Burrill and C. Schuck. J Nutrition 83:202-8 Jl '64

PHENYLBUTENE

Addition of the trichloromethyl radical to substituted 3-phenyl-1-propenes and 4-phenyl-1-butenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:233-8 Ja 20 '64

PHENYL compounds

Absolute configurations of 2-phenylbutan-2-ol, 2-hydroxy-2-phenylbutyric acid and 3-phenylbutane-1,3-diol. S. Mitsui and others. bibliog Chem & Ind p233-4 F 8 '64

α-elimination in 2-phenyltetrachloropropene; synthesis of phenylhydroxycyclopropenone. D. G. Farnum and P. E. Thurston. Am Chem Soc J 86:4206-7 O 5 '64

Base-catalyzed hydrogen-deuterium exchange at the α-carbon of β-phenylindenone. B. W. Rockett and others. bibliog Am Chem Soc J 85:3491-2 N 5 '63

Beneficial wear; test of polyphenyl ether as lubricant. Product Eng 34:48 N 25 '63

Determination of polyphenyls in working environments or organic reactors by spectrophotometric methods. C. Testa and G. Masi. bibliog diag Anal Chem 36:2284-7 N '64

High temperature catalytic effects on polyphenyls. D. A. Scola and R. J. Wineman. bibliog Ind & Eng Chem Product Res & Develop 2:322-8 D '63

Hydrogen chemical shifts of 3-alkyl and 3-phenyl sydnones. K. D. Lawson and others. Am Chem Soc J 86:463-5 F 5 '64

Pentafluorophenyl derivatives. Chem & Eng N 42:40-1 F 10 '64

Reactions and structure of decaphenylcyclopentasilane. H. Gilman and G. L. Schwebke. bibliog Am Chem Soc J 86:2693-9 Jl 5 '64

Small-ring compounds; synthesis and reactions of 3-phenyl-2-cyclobutenone and some related compounds. S. L. Manatt and others. bibliog Am Chem Soc J 86:2645-53 Jl 5 '64

Structure of 1-phenyl-4-cinnolone. E. Lunt and T. L. Threlfall. bibliog Chem & Ind p 1805-6 O 24 '64

Substituent effects on nuclear magnetic resonance chemical shifts in *para*-substituted phenylhexachlorobicyclo[2.2.1]heptenes and ethylbenzenes. K. L. Williamson and others. bibliog Am Chem Soc J 86:4021-5 O 5 '64

Analysis

Analysis of polyphenyls by gas-solid chromatography on inorganic salt columns. P. W. Solomon. bibliog Anal Chem 36:476-80 Mr '64

PHENYLETHYL compounds

Naturally occurring insecticides in cruciferous crops. E. P. Lichenstein and others. bibliog J Agri & Food Chem 12:158-61 Mr '64

PHENYL group

Directive effects in the attack of phenyl radicals on carbon-hydrogen bonds. R. F. Bridger and G. A. Russell. bibliog Am Chem Soc J 85:3754-65 D 5 '63

Formation of phenyl radical by heterolysis of N-phenyl-N'-benzoyldiimide. S. G. Cohen and J. Nicholson. bibliog Am Chem Soc J 86:3892-3 S 20 '64

Free-radical phenylation of ferricenium ion. A. L. J. Beckwith and R. J. Leydon. bibliog Am Chem Soc J 86:952-3 Mr 5 '64

Mechanistic and exploratory organic photochemistry; phenyl migration in the irradiation of 4,4-diphenylcyclohexenone. H. E. Zimmerman and J. W. Wilson. bibliog Am Chem Soc J 86:4036-42 O 5 '64

Phenylation with nitrosoacetanilides. E. L. Eliel and J. G. Saha. bibliog Am Chem Soc J 86:3581-2 S 5 '64

Reactivity of phenyl radicals toward molecular oxygen. G. A. Russell and R. F. Bridger. bibliog Am Chem Soc J 85:3765-6 D 5 '63

Vertical ionization potentials of phenyl and phenoxy radicals. I. P. Fisher and others. bibliog Am Chem Soc J 86:2741-2 Jl 5 '64

Walden inversion by radicals; the reaction of phenyl radicals with disulfides. W. A. Pryor and H. Guard. bibliog Am Chem Soc J 86:1150-2 Mr 20 '64

PHENYLHYDRAZONES

1-Phenyl-4-cinnolones. V. V. Bhat and J. L. Bose. bibliog Chem & Ind p 1930 D 7 '63

Phenylhydrazone-phenylazoalkane interconversion. A. J. Bellamy and R. D. Guthrie. bibliog Chem & Ind p 1575-6 S 12 '64

Structural studies by nuclear magnetic resonance; phenylhydrazones. G. J. Karabatsos and R. A. Taller. bibliog Am Chem Soc J 85:3624-9 N 20 '63

Structural studies by nuclear magnetic resonance; ring-substituted phenylhydrazones, semicarbazones and thiosemicarbazones. G. J. Karabatsos and others. Am Chem Soc J 86:3351-7 Ag 20 '64

PHENYLPHENOL

Effect of various organic compounds on polyethylene terephthalate fiber; absorption of o-phenylphenol on polyethylene terephthalate fiber. C. R. Jin and D. M. Cates. Am Dyestuff Rep 53:64-8 Ja 20 '64

Paper chromatography of phenylphenols. D. L. Gumprecht. bibliog Anal Chem 36:1154-5 My '64

PHENYLPROPENE

Addition of the trichloromethyl radical to substituted 3-phenyl-1-propenes and 4-phenyl-1-butenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:233-8 Ja 20 '64

PHENYLSILANES. See Silanes

PHENYLENEDIAMINE

Gas chromatographic determination of isomers of phenylenediamine. W. H. Bryan. Anal Chem 36:2025-6 S '64

Organic rectifying junction. J. E. Meinhard. diag J Ap Phys 35:3059-60 O '64

Polarographic determination of *o*-phenylenediamine in the presence of other isomeric phenylenediamines. H. B. Mark, jr. bibliog Anal Chem 36:940-1 Ap '64

Analysis

Spectrophotometric determination of *p*-phenylenediamines and *p*-aminophenols with ninhydrin. R. Suffis and others. Anal Chem 36:636-7 Mr '64

PHEOPHYTINS

Preparation and properties of pyrochlorophyll *a*, methyl pyrochlorophyllide *a*, pyropheophytin *a*, and methyl pyropheophorbide *a* derived from chlorophyll by decarbomethoxylation. F. C. Pennington and others. bibliog Am Chem Soc J 86:1418-26 Ap 5 '64

PHILADELPHIA

Architecture

More integration of past and present. il plan Prog Arch 44:69 N '63

PHILADELPHIA—Architecture—*Continued*

Philadelphia; how far can renewal go? P. Herrera. il plans Arch Forum 121:180-93 Ag-S '64

Precast panels on a frame; Northeast regional library, Philadelphia. il plans diags Prog Arch 45:156-61 S '64

Tower and town houses in Philadelphia. il plans Arch Rec 136:110-13 Ag '64

Sewerage

Half-century later, sewage construction nears completion. il map Eng N 173:34-5 S 24 '64

PHILIPPINE ISLANDS

See also

Building—Philippine Islands

Mines and mineral resources—Philippine Islands

PHILLIPSITE. See Zeolites

PHILOSOPHY

See also

Architecture—Philosophy

Science—Philosophy

PHLOGOPITE

Crystalline solubility in the muscovite and phlogopite groups. M. S. Crowley and R. Roy. bibliog diags Am Mineralogist 49:348-62 Mr '64

Growth spirals on phlogopite crystals. I. Sunagawa. bibliog il diag Am Mineralogist 49:1427-34 S '64

Physical properties of synthetic biotites on the join phlogopite-annite. D. R. Wones. bibliog Am Mineralogist 48:1300-21 N '63

PHOENIX, Arizona

Streets

Financing of streets. E. M. Hall. 3pls Traffic Q 18:77-91 Ja '64

Water supply

Perpetual construction at Squaw Peak. A. F. Vondrick. il Water Works & Wastes Eng 1:38-40 F '64

PHONOGRAPH

Music with a bounce; Columbia stereo 360. il Electronics 37:31 S 21 '64

High fidelity systems

Audio equipment from Germany. il Engineering 198:444 O 2 '64

Audio etc. E. T. Canby. Published in monthly numbers of Audio

Hi-fi pickup arm; theory and practice. W. F. Hughes and E. W. Gaylord. il diags Radio-Electronics 35:60+ My '64

Modern hi-fi stereo cartridges. A. Grundy. il Radio-Electronics 35:40-1, cover O '64

Pickup

ADC Point Four stereo pickup. il diags Audio 48:52+ Mr '64

Better stereo reproduction with 15° stylus. A. B. Grundy, jr. il diags Radio-Electronics 35:32-4, cover Mr '64

Damping of phonograph styli. B. B. Bauer. diags Audio Eng Soc J 12:210-13 Jl '64

Elliptical stylus. J. Kogen and R. Samson. il diags Audio 48:33-6+ My '64

15° stereo pickup. J. Marshall. il Radio-Electronics 35:74 Ap '64

Hi-fi pickup arm; theory and practice. W. F. Hughes and E. W. Gaylord. il diags Radio-Electronics 35:60+ My '64

Integrated treatment of tracing and tracking error. D. H. Cooper. bibliog diags Audio Eng Soc J 12:2-7 Ja '64

Measurement of distortions due to vertical tracking angle errors in stereodisk systems. J. B. Halter and J. G. Woodward. il Audio Eng Soc J 12:8-14; Discussion. 66-7 Ja '64; Reply. 12:162+ Ap '64

Method for raising the load capability of stereo cutters. H. Redlich and H. J. Klemp. diags Audio Eng Soc J 12:231-5 Jl '46

Modern hi-fi stereo cartridges. A. Grundy. il Radio-Electronics 35:40-1, cover O '64

Pickup arm problems. J. K. Murray. diags Wireless World 70:179-80 Ap '64; Discussion. 70:250-1 My '64

Product preview section; phono pickup cartridges and tonearms. il Audio 48:40-3 Ag '64

Sonotone Mark IV ceramic cartridge. H. Fantel. il Radio-Electronics 35:64+ Ag '64

Stereo cartridge (euphonics ceramics). J. Marshall. il Radio-Electronics 35:62+ Mr '64

Westrex 3D StereoDisk system. C. S. Nelson and J. W. Stafford. il diags Audio Eng Soc J 12:178-85 Jl '64

What's new in phono pickups? J. Marshall. il diags Radio-Electronics 35:26-8 Ja '64

Testing

Tracking and tracing error measurements. D. H. Cooper. bibliog diags Audio Eng Soc J 12:312-26, 344+ O '64

Record changers

Thorens TD-224 turntable and record changer. L. A. Wortman. il Radio-Electronics 35:72 N '64

Turntables

Garrard AT 6 auto turntable. il Engineering 197:194-6 Ja 31 '64

Motor-driven turntables. Engineer 218:290 Ag 21 '64

Product preview section; turntables without arm. il Audio 48:43-4 Ag '64

Save turntables from too-early junking. G. F. Stillwell. il Radio-Electronics 35:49 N '64

Stanton stereotable system, model 800B. il diag Audio 48:44-5 Ja '64

Stereographic net mounted on a phonograph. M. J. Oppenheim. Am Mineralogist 49:414-15 Ap '64

Thorens masterpiece automatic turntable, model 224. il Audio 48:48 My '64

Thorens TD-224 turntable and record changer. L. A. Wortman. il Radio-Electronics 35:72 N '64

Towards better transcription; new Garrard turntables. il Engineering 198:284 Ag 28 '64

PHONOGRAPH cabinets

Production finishing of tv and hi-fi cabinets. R. W. Comingore. il diag Ind Finishing 40:60-2+ N '63

PHONOGRAPH needles

Damping of phonograph styli. B. B. Bauer. diags Audio Eng Soc J 12:210-13 Jl '64

Hi-fi synthetic stylus outlives the record player. il Machine Design 36:12 Jl 16 '64

PHONOGRAPH records

Groove deformation in gramophone records. D. A. Barlow. bibliog il diags Wireless World 70:160-6 Ap '64; Discussion. 70:247-9 My '64

Jazz and all that. B. Stanleigh. Published in monthly numbers of Audio

RCA Victor Dynagroove system. H. F. Olson. bibliog il diags Audio Eng Soc J 12:98-114 Ap '64

Radio-Electronics guide to test tapes and records. R. F. Scott. il Radio-Electronics 35:46-7 Mr '64

Record revue. E. T. Canby. Published in monthly numbers of Audio

Reducing distortion in stereo phonograph systems. J. G. Woodward. bibliog il diags Audio 48:23-4+ F; 28+ Mr '64

Report on the proposed NAB disc playback standard. J. J. Bubbers. Audio Eng Soc J 12:51-4 Ja '64

Tape and disc accessories; a directory. R. F. Scott. il Radio-Electronics 35:48-50 Mr '64

Why keep old 78 records around when you can tape them conveniently, inexpensively? R. N. Angus. Mod Phot 28:46+ Ag '64

Manufacture

New, higher-fi stereo disc cutter. G. L. Augspurger. il diag Radio-Electronics 35:49 O '64

Stereophonic records

Dynagroove system. H. F. Olson. bibliog il diags Audio 48:22-3+ N; 44+ D '64

Integrated treatment of tracing and tracking error. D. H. Cooper. bibliog diags Audio Eng Soc J 12:2-7 Ja '64

Measurement of distortions due to vertical tracking angle errors in stereodisk systems. J. B. Halter and J. G. Woodward. il Audio Eng Soc J 12:8-14; Discussion. 66-7 Ja '64; Reply. 12:162+ Ap '64

New, higher-fi stereo disc cutter. G. L. Augspurger. il diag Radio-Electronics 35:49 O '64

Psychoacoustics, the determining factor in stereo disc distortion. J. E. Jacobs and P. Wittman. bibliog diag Audio Eng Soc J 12:115-23 Ap '64

Stereo disc recording comes of age. D. H. Cooper. Audio 48:30+ Ja '64

PHONONS

Drag on dislocations due to thermal losses of the phonon-phonon interaction type. W. P. Mason. bibliog J Ap Phys 35:2779-81 S '64

Microwave acoustics. S. W. Tehon and S. Wanuga. il diags IEEE Proc 52:1113-27 bibliog(p 1125-7) O '64

New laser emits photons and generates phonons in crystal. L. F. Johnson and others. Franklin Inst J 277:92-3 Ja '64

PHONONS—*Continued*
Phonon radiation by uniformly moving charged particles in piezoelectric solids. R. Tsu. diag J Ap Phys 35:125-30 Ja '64
Transmitted phonon drag measurements in epitaxial silicon. R. Gereth and C. Stephens. bibliog diag Electrochem Soc J 111:1012-13 Ag '64

PHOSGENE. See Carbonyl chloride

PHOSPHATASES
Adenosine triphosphatase and ATP-P_i exchange in mitochondria of essential fatty acid-deficient rats. R. M. Johnson. bibliog J Nutrition 81:411-14 D '63
Assay of phosphatase activity by direct spectrophotometric determination of phenolate ion. L. L. Salomon and others. bibliog Anal Chem 36:1162-4 My '64

PHOSPHATE coating
Cleaning-phosphatizing; is it really efficient? Ind Finishing 40:105-6 F '64
Electronic touch guides coating in automotive prepaint line. il diag Iron Age 193:104-5 Je 18 '64
Finishing Kich-N-Vent ventilating equipment. J. E. Stalker. il Ind Finishing 40:24-8 Ap '64
Hard to reach areas protected from corrosion. il Steel 154:66+ Je 22 '64
New three-stage cleaning and phosphatizing. Ind Finishing 40:113-14 Ap '64
Phosphate conversion coatings. Materials in Design Eng 59:101-4 My '64 (reprints 35c)
Phosphatizing problem: why? new product. P. C. Bardin. Ind Finishing 40:110+ Ap '64
Phosphatizing system shows competitive face. il Steel 153:97 N 25 '63
Three-stage cleaning and phosphatizing. P. C. Bardin. Ind Finishing 40:69 Mr '64

PHOSPHATE rock
Phosphate, 1963. H. S. Ten Eyck. Eng & Min J 165:152+ F '64
Phosphate rock solubilization by repeated extractions with citrate solutions. W. M. Hoffman and H. J. Breen. J Agri & Food Chem 12:344-6 Jl '64
Potash and phosphate, 1963. R. W. Lewis. Min Cong J 50:128-31 F '64
Texas Gulf Sulphur mines North Carolina phosphate. il Chem & Eng N 42:33 Ap 13 '64
See also
Phosphorite

Transportation

Transportation affects phosphate output. J. Bradley and G. Sweeney. flow chart map Chem Eng Prog 60:22-5 O '64

Florida

Responsibility reporting: International minerals & chemical corp. P. F. Mataich. il Min Cong J 49:102-4 O '63

North Carolina

USGS report gives boost to mining plans in North Carolina's phosphate fields. B. Barnes. il maps diags Eng & Min J 165:92-5 Mr '64

Western states

Transportation affects phosphate output. J. Bradley and G. Sweeney. flow chart map Chem Eng Prog 60:22-5 O '64

PHOSPHATES
Anionic phosphate surfactants. R. S. Cooper. Am Oil Chem Soc J 40:642-5 N '63
Cold storage of cod fillets treated with polyphosphates. E. Tanikawa and others. bibliog il Food Tech 17:1425-30 N '63
Cyclic saturated oxyphosphoranes and their hydrolysis to cyclic phosphate esters; the diastereomeric 2:1 biacetyl-trimethyl phosphite adducts. F. Ramirez and others. bibliog Am Chem Soc J 85:3465-72 N 5 '63
Deoxyribonucleoside-3′,5′ cyclic phosphates: synthesis and acid-catalyzed and enzymic hydrolysis. G. I. Drummond and others. bibliog Am Chem Soc J 86:1626-30 Ap 20 '64
Determination of silica in the presence of phosphate and fluoride. F. W. Czech and others. bibliog Anal Chem 36:2026-7 S '64
DDVP insecticide sprays. L. F. Sekula. Soap & Chem Spec 40:82+ F '64
Direct argentometric titration of orthophosphate; application to coulometric titration. G. D. Christian and others. bibliog Anal Chem 35:1869-71 N '63
Effect of inorganic polyphosphates on the solubility and extractability of myosin B. T. Yasui and others. bibliog J Agri & Food Chem 12:392 S '64
Effect of phosphate treatment and cooking method on moisture losses of poultry meat. J. A. Monk and others. bibliog Food Tech 18:226-9 F '64
Enhances process cheese; flavorless phosphate emulsifier. Food Eng 36:104 F '64
Estimation of a few nanograms of fluoride in presence of phosphate by use of liver esterase. C. McGaughey and E. C. Stowell. bibliog Anal Chem 36:2344-50 N '64
Fluoride-induced phosphate reversion in fertilizer mixtures. E. J. Fox. bibliog J Agri & Food Chem 11:446-51 N '63
Formation of pyrophosphate from quinol phosphates in dimethylformamide solution. A. Lapidot and D. Samuel. bibliog Am Chem Soc J 86:1886-7 My 5 '64
Improved basis for coordinated phosphate-pH control of boiler water. V. M. Marcy and S. L. Halstead. bibliog Combustion 35:45-7 Ja '64
Infrared spectra of phosphate minerals; symmetry and substitutional effects in the pyromorphite series. H. H. Adler. bibliog diags Am Mineralogist 49:1002-15 Jl '64
Investigations of landesite. P. B. Moore. Am Mineralogist 49:1122-5 Jl '64
Kinetic studies of the catalytic hydrolysis of 1,3-dicarboxyphenyl 2-phosphate and 1-methoxycarbonyl-3-carboxyphenyl 2-phosphate. Y. Murakami and A. E. Martell. bibliog Am Chem Soc J 86:2119-29 Je 5 '64
Molar volume and surface tension of fused metaphosphate-sulfate systems. B. B. Owens and S. W. Mayer. bibliog Am Cer Soc J 47:347-51 Jl '64
Neighboring group participation in phosphate ester hydrolysis. V. M. Clark and A. J. Kirby. bibliog Am Chem Soc J 85:3705-6 N 20 '63
New complexes of guanidinium ion with tetraphosphate ion. J. I. Watters and S. Matsumoto. bibliog Am Chem Soc J 86:3961-4 O 5 '64
Para-substituted meta-xylenyl diethyl phosphates and *N*-methylcarbamates as anticholinesterases and insecticides. R. L. Metcalf and others. bibliog J Agri & Food Chem 12:231-6 My '64
Phosphate builders for detergents. L. E. Netherton and others. Am Oil Chem Soc J 40:624-8 N '63
Phosphate esters; catalytic hydrolysis of *p*-nitrophenyl dihydrogen phosphate by ceric ion precipitates in the pH range 2-7. F. Millich and E. L. Hayes, jr. bibliog Am Chem Soc J 86:2914-18 Jl 20 '64
Phosphorylations and phosphonations of glycerol by recoil atoms. T. Yagi and others. bibliog Am Chem Soc J 85:3462-5 N 5 '63
Pyridoxal phosphate; molecular species in solution. F. J. Anderson and A. E. Martell. bibliog Am Chem Soc J 86:715-20 F 20 '64
Sarcopside from Deering and East Alstead, N.H. D. R. Peacor and D. Garske. Am Mineralogist 49:1149-50 Jl '64
Some Black Hills phosphates. P. B. Moore. Am Mineralogist 49:1119-22 Jl '64
Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64
Specific interaction of inorganic polyphosphates with myosin B. T. Yasui and others. bibliog J Agri & Food Chem 12:399-404 S '64
Study of ammoniation reactions in a fluidized bed of superphosphate. L. F. Albright and others. bibliog flow sheet J Agri & Food Chem 12:73-9 Ja '64
Study of nickel(II) and cobalt(II) phosphate complexes. G. G. Hammes and M. L. Morrell. bibliog Am Chem Soc J 86:1497-502 Ap 20 '64
Synthesis of deoxyribonucleoside-3′,5′ cyclic phosphates by base-catalysed transesterification. M. Smith. bibliog Am Chem Soc J 86:3586 S 5 '64
Titrimetric determination of semimicro amounts of sulfate in presence of phosphate. B. Jaselskis and S. F. Vas. Anal Chem 36:1965-7 S '64
Treating hen carcasses with polyphosphates to control hydration and cooking losses. E. P. Schermerhorn and W. J. Stadelman. bibliog Food Tech 18:101-2 Ja '64
See also
Alkali metal phosphates
Alkaline earth phosphates
Aluminum phosphates
Ammonium phosphates
Apatite
Beryllium phosphates
Cadmium phosphates

PHOSPHATES—See also—*Continued*
Calcium phosphates
Cerium phosphates
Hinsdalite
Iron phosphates
Magnesium phosphates
Manganese phosphates
Monazite
Potassium phosphate
Sodium phosphates
Thorium phosphates
Tributyl phosphate
Zinc phosphates

Analysis

Analytical procedures for nitrogen fertilizers containing phosphates and sulfates. H. G. Graham, jr. and T. C. McRight. bibliog J Agri & Food Chem 12:140-3 Mr '64

Paper chromatography of very long chain phosphates. S. Ohashi and J. R. Van Wazer. bibliog Anal Chem 35:1984-5 N '63

Potentiometric determination or orthophosphate. D. H. McColl and T. A. O'Donnell. Anal Chem 36:848-50 Ap '64

Thin layer chromatographic separation of orthophosphate and pyrophosphate. N. L. Clesceri and G. F. Lee. bibliog diag Anal Chem 36:2207-8 O '64

Manufacture

New American Agricultural Chemical phosphate washer features two major operating improvements. W. E. Trauffer. flow diag il Pit & Quarry 56:108-9+ F '64

One-step continuous quick-curing triple superphosphate process employing rod mill grinding. D. R. Boylan and A. B. Amin. bibliog flow sheet diag J Agri & Food Chem 12:428-32 S '64

Phosphate producers indicted; federal grand jury charges price fixing. Chem & Eng N 41:26 N 18 '63

PHOSPHATIDES

Constancy of red blood cell lipids in man during extreme variations of dietary fat intake. J. G. Hill and others. bibliog Am Oil Chem Soc J 41:393-7 Je '64

Liver lipid accumulation in isoleucine-deficient rats. R. L. Lyman and others. bibliog J Nutrition 82:432-8 Ap '64

Phospholipids of pork muscle tissues. M. Kuchmak and L. R. Dugan, jr. bibliog Am Oil Chem Soc J 40:734-6 D '63

Phospholipids of the South African pilchard (sardina ocellata jenyns). M. H. Silk and A. J. De Koning. bibliog Am Oil Chem Soc J 41:619-22 S '64

Phospholipids of tuna white muscle. C. Y. Shuster and others. bibliog Am Oil Chem Soc J 41:36-41 Ja '64

Serum lipid levels, fat, nitrogen, and mineral metabolism of young men associated with kind of dietary carbohydrate. M. I. Irwin and others. bibliog J Nutrition 82:338-42 Mr '64

Studies of the phospholipids, glycolipids and sterols of wheat endosperm. M. E. McKillican. bibliog Am Oil Chem Soc J 41:554-7 Ag '64

PHOSPHATIDYL ethanolamine

Synthesis of phosphatidylethanolamines. J. D. Billimoria and K. O. Lewis. Chem & Ind p 1626 S 19 '64

PHOSPHIDES

De-alkylation by the secondary phosphide ion. F. G. Mann and M. J. Pragnell. Chem & Ind p 1386 Ag 1 '64

See also
Cadmium phosphide

PHOSPHINE

Acetoxyphosphines. L. K. Peterson and A. B. Burg. Am Chem Soc J 86:2587-91 Jl 5 '64

Alkyliridium and alkylrhodium dihalocarbonylbis(trialkyl- or triarylphosphines). R. F. Heck. bibliog Am Chem Soc J 86:2796-9 Jl 20 '64

Carbon monoxide insertion reactions; the reaction of methylmanganese pentacarbonyl with amines and phosphines. R. J. Mawby and others. bibliog Am Chem Soc J 86:3994-9 O 5 '64

Determination of phosphine in air by gas chromatography. T. Dumas. J Agri & Food Chem 12:257-8 My '64

New open-chain polyphosphines $CH_3HP-P(CF_3)_2$ and $CH_3P[P(CF_3)_2]_2$. A. B. Burg and K. K. Joshi. bibliog Am Chem Soc J 86:353-6 F 5 '64

Open-chain triphosphine $P_3(CF_3)_5$. A. B. Burg and J. F. Nixon. bibliog Am Chem Soc J 86:356-7 F 5 '64

Polyphosphine heterocycles. W. Mahler. Am Chem Soc J 86:2306-7 Je 5 '64

Stereospecific route to *trans*- and *cis*-1,2-vinylenebis(diphenylphosphine). A. M. Aguiar and D. Daigle. bibliog Am Chem Soc J 86:2299-300 Je 5 '64

Studies in organophosphorus chemistry; conversion of alcohols and phenols to halides by tertiary phosphine dihalides. G. Wiley and others. bibliog Am Chem Soc J 86:964-5 Mr 5 '64

PHOSPHINE oxide

Pilot plant and mill applications of tris (1-aziridinyl) phosphine oxide finishes to cotton fabrics. R. B. LeBlanc. Am Dyestuff Rep 53:291-3 Ap 13 '64

Racemization and oxygen exchange of tri-substituted phosphine oxides. D. B. Denney and others. Am Chem Soc J 86:4486-7 O 20 '64

Unsymmetrical tertiary phosphine oxides from diphenyl phenylphosphonate; a convenient synthesis. K. D. Berlin and M. Nagabhushanam. bibliog Chem & Ind p974-5 Je 6 '64

Analysis

Determination of solubility of several phosphine oxides in aqueous solutions using a new spectrophotometric procedure. J. W. O'Laughlin and others. Anal Chem 36:224-6 Ja '64

PHOSPHITES

Cobalt-nickel electrolytes containing phosphite or benzoate additive developed for magnetic plating. G. V. Elmore and P. Bakos. bibliog il Electrochem Soc J 111:1244-8 N '64

Phosphorus-containing unsaturated polyester resins from trialkyl phosphites. R. R. Hindersinn and N. E. Boyer. bibliog Ind & Eng Chem Product Res & Develop 3:141-5 Je '64

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1:1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

Reaction of trialkyl phosphites with aliphatic aldehydes; P^{31} and H^1 nuclear magnetic resonance spectra of tetraoxyalkyl phosphoranes. F. Ramirez and others. Am Chem Soc J 86:514-16 F 5 '64

Reactions of aroyl halides with phosphites; esters of aroylphosphonic acids. K. D. Berlin and H. A. Taylor. bibliog Am Chem Soc J 86:3862-6 S 20 '64

PHOSPHOLIPIDS. See Phosphatides

PHOSPHONATES

Unsymmetrical tertiary phosphine oxides from diphenyl phenylphosphonate; a convenient synthesis. K. D. Berlin and M. Nagabhushanam. bibliog Chem & Ind p974-5 Je 6 '64

PHOSPHONIC acids

Extraction of titanium with dioctyl methylenebisphosphonic acid and direct spectrophotometric determination of titanium in the organic phase. H. Gorican and D. Grdenic. bibliog Anal Chem 36:330-2 F '64

Long chain α-phosphono fatty acids, salts and esters. E. W. Maurer and others. bibliog Am Oil Chem Soc J 41:205-8 Mr '64

Phosphonic acids and esters; intramolecular electrophilic catalysis of phosphonate ester hydrolysis by neighboring carboxyl. M. Gordon and others. bibliog Am Chem Soc J 86:1898-9 My 5 '64

Reactions of aroyl halides with phosphites; esters of aroylphosphonic acids. K. D. Berlin and H. A. Taylor. bibliog Am Chem Soc J 86:3862-6 S 20 '64

PHOSPHONITRILE chloride

New reactions of phosphonitrilic chloride trimer; substitution and cleavage reactions with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 85:4050-1 D 20 '63

Structural identification of a geometric isomer of tetrameric phenylphosphonitrilic chloride. B. Grushkin and others. bibliog Am Chem Soc J 86:4204-5 O 5 '64

PHOSPHONITRILE compounds

Phosphonitrilic compounds; reactions of phosphonitrilic chlorides with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 86:2591-5 Jl 5 '64

Phosphonitrilic trifluorethoxide high polymer. M. V. Lenton and others. Chem & Ind p 1387-8 Ag 1 '64

Urea derivatives of aminophosphonitriles. G. Tesi and others. Chem & Ind p623 Ap 11 '64

PHOSPHONIUM compounds

Formation and reactions of alkoxyphosphonium alkoxides. D. B. Denney and others. Am Chem Soc J 86:4487-8 O 20 '64

Mechanisms of α-elimination; nitrobenzylsulfonium, -ammonium, and -phosphonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. Am Chem Soc J 86:3296-301 Ag 20 '64

Mechanisms of substitution reactions at phosphorus; the Wittig reaction and the decomposition of quaternary phosphonium hydroxides. W. E. McEwen and others. bibliog Am Chem Soc J 86:2378-84 Je 20 '64

Reaction of vinyllithium with tetraphenylphosphonium bromide and the formation of phosphinemethylenes by RLi addition to vinylphosphonium halides. D. Seyferth and others. bibliog Am Chem Soc J 86:307-8 Ja 20 '64

PHOSPHONOFLUORIDATES

Reactions of isopropyl methylphosphonofluoridate with substituted phenols. J. Epstein and others. bibliog Am Chem Soc J 86: 3075-84 Ag 5 '64

PHOSPHORAMIDATES

Electrophilic catalysis; the hydrolysis of phosphoramidate. W. P. Jencks and M. Gilchrist. bibliog Am Chem Soc J 86:1410-17 Ap 5 '64

Preparation of *N*-alkenyl- and *N*-*m*-styrylphosphoramidates and their application as flame retardants for wood. P. C. Arni and E. Jones. bibliog J Ap Chem 14:221-8 Je '64

PHOSPHORANE

Cyclic saturated oxyphosphoranes and their hydrolysis to cyclic phosphate esters; the diastereomeric 2:1 biacetyl-trimethyl phosphite adducts. F. Ramirez and others. bibliog Am Chem Soc J 85:3465-72 N 5 '63

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1:1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

PHOSPHORIC acid

Bright dip phosphoric acid recovery system. W. E. Rushton. flow sheets Plating 51:693-4 Jl '64

Extraction of iron (III) from concentrated phosphoric acid. N. Haberman. Anal Chem 36:1876-7 Ag '64

Solid phosphoric acid condensation; Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:184 S '64

Solubility relationships in liquid fertilizer systems based on superphosphoric acid. A. V. Slack and others. diags J Agri & Food Chem 12:154-7 Mr '64

Trace metals boost gasoline performance. W. F. Schoen and F. L. Voelz. il Chem & Eng N 42:40+ Ag 31 '64

Analysis

Removal of cation interference in paper chromatography of concentrated wet-process phosphoric acid. T. C. Woodis, jr. diag Anal Chem 36:1682-3 Jl '64

Manufacture

Acid's value enhanced by submerged combustion. C. R. Havighorst. il diag Chem Eng 71:26-7 Ja 6 '64

Automated phosphoric acid plant controls pollution. H. O. Grant. il Water Works & Wastes Eng 1:54-6 O '64

Better phosphoric acid processes next. il diag Chem & Eng N 42:68+ O 26 '64

Falling film yields superphosphoric acid. il diag Chem Eng 71:94+ My 11 '64

Improvements in phosphoric acid technology. G. F. Palm. il Chem Eng Prog 59:76-9 D '63

Pollution control in a phosphoric acid plant. H. O. Grant. il diag Chem Eng Prog 60: 53-5 Ja '64

Superphosphoric acid from wet process phosphoric acid. W. E. Rushton and J. L. Smith. il Chem Eng Prog 60:97-9 Jl '64

Wet-process polyphosphoric acid. D. C. Young and C. B. Scott. bibliog il diags Chem Eng Prog 59:80-4 D '63

PHOSPHORIMETRY

Solvents for phosphorimetry. J. D. Winefordner and P. A. St John. Anal Chem 35:2211-12 D '63

PHOSPHORITE

Exploration for phosphorite in Turkey; a case history. R. P. Sheldon. maps diag Econ Geol 59:1159-75 bibliog(p 1174-5) S '64

PHOSPHOROTHIOATES

Determination of residues of *O,O*-dimethyl-*S*-(*N*-methylcarbamoylmethyl) phosphorodithioate (dimethoate) in fruits and forage. H. F. Enos, jr. and D. E. H. Frear. bibliog diag J Agri & Food Chem 12:175-7 Mr '64

Metabolism of dimethoate by vertebrate tissues. T. Uchida and others. bibliog J Agri & Food Chem 12:48-52 Ja '64

Metabolism of phthalimidomethyl-*O,O*-dimethylphosphorodithioate (Imidan) in cotton plants. J. J. Menn and J. B. McBain. bibliog il J Agri & Food Chem 12:162-6 Mr '64

P^{32}- and S^{35} -labeled *S.S.S*-tributylphosphorotrithioate defoliant residue in cottonseed. F. R. Katterman and W. C. Hall. bibliog J Agri & Food Chem 12:187-9 Mr '64

Selective determination of mercury by isotopic exchange with mercuric di-*n*-butyl phosphorothioate in an extraction system. T. H. Handley. Anal Chem 36:153-6 Ja '64

Spectrophotometric microdetermination of Lebaycid, *O,O*-dimethyl-*O*-[4-(methylthio)-*m*-tolyl]-phosphorothioate. Y. Hirano and T. Tamura. bibliog Anal Chem 36:800-2 Ap '64

Analysis

Nuclear magnetic resonance in the examination of the thermal decomposition of *O,O*-dimethyl *N*-[4-(methylthio)-3-tolyl] phosphorothioate. T. A. Fukuto and others. bibliog J Agri & Food Chem 12:169-71 Mr '64

PHOSPHORUS

Amount of π-bonding in phosphorus-oxygen and sulfur-oxygen bonds. P. Haake and others. bibliog Am Chem Soc J 86:3577-8 S 5 '64

Anodic oxide films for device fabrication in silicon; controlled incorporation of phosphorus into anodic oxide films on silicon. P. F. Schmidt and A. E. Owen. bibliog il Electrochem Soc J 111:682-8 Je '64

Bridgman, Krebs, and processed black phosphorus. D. M. Warschauer. J Ap Phys 34: 3630 D '63

Effect of calcium phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64

Exchange of parts between molecules at equilibrium; nonrandom redistribution of dialkylamino groups and halogens on triply connected phosphorus. J. R. Van Wazer and L. Maier. bibliog Am Chem Soc J 86:811-14 Mr 5 '64

Mechanisms of substitution reactions at phosphorus; the Wittig reaction and the decomposition of quaternary phosphonium hydroxides. W. E. McEwen and others. bibliog Am Chem Soc J 86'2378-84 Je 20 '64

New method for the formation of the phosphorus-phosphorus bond. L. D. Quin and H. G. Anderson. bibliog Am Chem Soc J 86:2090-1 My 20 '64

Phosphor bronze as a Fourdrinier wire material. E. W. Beggs. Wire & Wire Prod 38: 1702-3+ N '63

Phosphorus- and arsenic-bridged complexes of metal carbonyls; reactions of tetrakis (trifluoromethyl)diarsine with some metal carbonyl componds. W. R. Cullen and R. G. Hayter. bibliog Am Chem Soc J 86:1030-2 Mr 20 '64

Phosphorus-containing unsaturated polyester resins from trialkyl phosphites. R. R. Hindersinn and N. E. Boyer. bibliog Ind & Eng Chem Product Res & Develop 3:141-5 Je '64

Pressure dependence of creep in white phosphorus. K. L. DeVries and others. J Ap Phys 35:536 Mr '64

Radiotracer studies on the incorporation of phosphorus in epitaxially grown silicon. S. Nakanuma. diag Electrochem Soc J 111:1199-200 O '64

Static magnetization reversal in thin films of Co-Ni-P. G. Bate and others. J Ap Phys 35:972-3 pt 2 Mr '64

Stereochemistry of some cyclic compounds containing phosphorus. H. Goldwhite. bibliog Chem & Ind p494-5 Mr 21 '64

See also

Sewage—Phosphorus content

Analysis

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Combustion separation of phosphorus in the microdetermination of sulfur. J. M. Corliss and E. J. W. Rhodes. bibliog il diag Anal Chem 36:394-7 F '64

PHOSPHORUS—Analysis—*Continued*

New digestion reagent for the determination of microgram quantities of phosphorus in organic compounds. P. M. Saliman. Anal Chem 36:112-14 Ja '64

Phosphorus determination by flame photometry. A. Davis and others. Anal Chem 36:1066-8 My '64

Simultaneous determination of sulfur and phosphorus in water by neutron activation analysis. C. H. Wayman. Anal Chem 36:665-6 Mr '64

Specific detection of halogens and phosphorus by flame ionization. A. Karmen. bibliog il diags Anal Chem 36:1416-21 Jl '64

Spectrophotometric determination of copper and iron in red phosphorus. G. Norwitz and others. Anal Chem 36:142-4 Ja '64

Spectrophotometric determination of traces of phosphorus in silicon tetrachloride utilizing an extractive separation. W. A. Lancaster and M. R. Everingham. diag Anal Chem 36:246-7 Ja '64

Total phosphorus technique for determining organophosphorus pesticide residues using Schöniger flask combustion. R. C. Blinn. bibliog J Agri & Food Chem 12:337-8 Jl '64

Isotopes

Comparison of respiration and metabolism of biological slimes using radiophosphorus. M. M. Varma and G. W. Reid. diags WPCF J 36:176-200 bibliog(p 199-200) F '64

P^{32}- and S^{35}-labeled *S,S,S*-tributylphosphorotrithioate defoliant residue in cottonseed. F. R. H. Katterman and W. C. Hall. bibliog J Agri & Food Chem 12:187-9 Mr '64

PHOSPHORUS chlorides

Reaction of phosphorus pentachloride with acyl anhydrides; a forgotten reaction. C. L. Wale. Chem & Ind p2003 D 28 '63

Reaction of phosphorus trichloride with fatty acids. A. R. Galbraith and others. bibliog Am Oil Chem Soc J 41:104-7 F '64

PHOSPHORUS compounds

Cholinesterase variation as a factor in organophosphate selectivity in insects. W. C. Dauterman and R. D. O'Brien. bibliog J Agri & Food Chem 12:318-19 Jl '64

Correlation of structure of phosphate pesticides with response in electron affinity detectors. C. E. Cook and others. bibliog diags Anal Chem 36:2354-8 N '64

DDVP, a pesticide of considerable potential. E. D. Hurt. bibliog il Manuf Chem 35:39-41 Ap '64

Future gasoline blends will require more phosphorus. Oil & Gas J 62:58-9 Mr 23 '64

Gas chromatographic determination of organophosphorus insecticides using the Zeisel alkoxyl reaction. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 11:470-1 N '63

Gasoline takes more phosphorus additives. il Chem & Eng N 42:30 My 18 '64

Insecticidal properties of some diethyl nitronaphthyl phosphates. T. R. Fukuto and others. bibliog J Agri & Food Chem 12:228-31 My '64

New phosphorus based sequestrant, deflocculant. R. R. Irani and C. F. Callis. Soap & Chem Spec 40:64-6+ Ap '64

Nucleophilic displacement reactions on organophosphorus esters by Grignard reagents. K. D. Berlin and others. bibliog Am Chem Soc J 86:1787-90 My 5 '64

Optically active *O*-ethyl ethylphosphonochloridothionates; a new route to optically active organophosphorus compounds. J. Michalski and M. Mikolajczyk. Chem & Ind p661-2 Ap 18 '64

Organophosphorus insecticides in Colorado. J. H. Holmes. bibliog Archives Environmental Health 9:445-53 O '64

Pentaethoxyphosphorus. D. B. Denney and H. M. Relles. Am Chem Soc J 86:3897-8 S 20 '64

Phenylbis(dimethylamino)fluorophosphonium phenylpentafluorophosphate. R. Schmutzler. bibliog Am Chem Soc J 86:4500-2 O 20 '64

Phosphorus- and arsenic-bridged complexes of metal carbonyls; cobalt and manganese complexes. R. G. Hayter. bibliog Am Chem Soc J 86:823-8 Mr 5 '64

Preparation of phosphorus esters of long-chain hydroxy fatty acids. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41:9-13 Ja '64

Reactions of phosphorus compounds; a new general ring synthesis from vinyltriphenylphosphonium bromide. E. E. Schweizer. Am Chem Soc J 86:2744 Jl 5 '64

Reactions of phosphorus compounds; kinetics and mechanism of the Wittig reaction. A. J. Speziale and D. E. Bissing. bibliog Am Chem Soc J 85:3878-84 D 5 '63

Reactions of phosphorus compounds; preparation of 3H-pyrrolizine, 1,2-dihydro-3-H-pyrrolizine, and pyrrolizidine. E. E Schweizer and K. K. Light. Am Chem Soc J 86:2963 Jl 20 '64

Relation between basicity and selectivity in organophosphates. R. D. O'Brien and B. D. Hilton. bibliog J Agri & Food Chem 12:53-5 Ja '64

Separation of various cations by reversed-phase partition chromatography using neutral organophosphorus compounds. J. W. O'Laughlin and C. V. Banks. bibliog diags Anal Chem 36:1222-9 Je '64

Some radical reactions of trivalent phosphorus derivatives with mercaptans, peroxides, and olefins; a new radical cyclization. C. Walling and M. S. Pearson. bibliog Am Chem Soc J 86:2262-6 Je 5 '64

Studies in organophosphorus chemistry; conversion of alcohols and phenols to halides by tertiary phosphine dihalides. G. Wiley and others. bibliog Am Chem Soc J 86:964-5 Mr 5 '64

Synthesis of the new 5-phosphomethyl-6-chromanyl acetate of vitamin $K_{1(20)}$ by a novel cyclization reaction. A. F. Wagner and others. bibliog Am Chem Soc J 85:3793-5 D 5 '63

Tetra-alkyl esters of phosphorous-phosphoric anhydride as peptide bond-forming reagents. M. Leplawy and others. bibliog diag Chem & Ind p835-6 My 16 '64

Thermodynamic properties of some methylphosphonyl dihalides from 15 to 335° K. G. T. Furukawa and others. bibliog J Res Nat Bur Stand 68A:367-79 Jl '64

See also

Phosphates

PHOSPHORUS fluorides

Dialkylamido phosphorus fluorides. D. H. Brown and others. Chem & Ind p367-8 F 29 '64

PF_3 replaces CO in metal carbonyls. R. J. Clark and P. I. Hoberman. Chem & Eng N 42:52-3 O 26 '64

Preparation of amino-derivatives of sulphur tetrafluoride and phosphorus pentafluoride by silicon-nitrogen bond cleavage reactions. G. C. Demitras and others. Chem & Ind p 1712 O 10 '64

PHOSPHORUS in the body

Biochemical changes in progressive muscular dystrophy; phosphorus metabolism in normal, nutritional and hereditary dystrophic muscles, livers and brains of animals. N. K. Sarkar and U. Srivastava. bibliog J Nutrition 83:193-201 Jl '64

Calcium, strontium and phosphorus utilization by chicks as influenced by nutritional and endocrine variations. P. E. Waibel and F. R. Mraz. bibliog J Nutrition 84:58-64 S '64

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Estimation of net phosphorus utilization by the slope method. S. Hurwitz. bibliog J Nutrition 84:83-92 S '64

Mineral balance studies with the baby pig; effects of dietary phosphorus level upon calcium and phosphorus balance. E. R. Miller and others. bibliog J Nutrition 82:111-14 Ja '64

Phosphorus, calcium and magnesium relationships in ovine urolithiasis. L. V. Packett and J. P. Hauschild. bibliog J Nutrition 84:185-90 O '64

Phosphorus metabolism in lambs fed varying phosphorus intakes. R. L. Preston and W. H. Pfander. bibliog J Nutrition 83:369-78 Ag '64

Phosphorus requirement of the baby pig. E. R. Miller and others. bibliog il J Nutrition 82:34-40 Ja '64

PHOSPHORUS oxides

Quality of phosphorus in mixed fertilizers as revealed by solubility in water, neutral ammonium citrate, and alkaline ammonium citrate solutions. J. W. Gilliam and B. Wright. bibliog J Agri & Food Chem 12:205-7 My '64

Reaction of 5′-thymidylic acid with the condensation product of phosphorus pentoxide and ethyl ether. F. N. Hayes and E. Hansbury. bibliog Am Chem Soc J 86:4172-5 O 5 '64

PHOSPHORUS pentachloride. See Phosphorus chlorides

PHOSPHORYL compounds

Titrimetric determination of bis(disubstituted-phosphinyl)alkanes and (trisubstituted phosphine) oxides. J. R. Parker and C. V. Banks. Anal Chem 36:2191-2 O '64

PHOSPHORYLASES

More of phosphorylase's structure known. C. Nolan and others. diags Chem & Eng N 42:43-4 Ap 27 '64

PHOSPHORYLATION

New phosphorylation reaction of olefins. E. Jungermann and H. E. Reich. bibliog Ind & Eng Chem Product Res & Develop 2:315-17 D '63

Phosphorylation of cotton with inorganic phosphates. D. M. Gallagher. bibliog Am Dyestuff Rep 53:361-3 My 11 '64

Phosphorylations and phosphonations of glycerol by recoil atoms. T. Yagi and others. bibliog Am Chem Soc J 85:3462-5 N 5 '63

Preparative method for the 5^1-phosphorylation of deoxyribo-oligonucleotides. A. L. Nussbaum and A. M. Duffield. bibliog Chem & Ind p 1729-30 O 26 '63

PHOSPHOTUNGSTIC acids

Nature of Benedict's arsenophosphotungstic acid reagent. E. Vandalen and M. G. Mellon. bibliog Anal Chem 36:1068-71 My '64

Quantitative determination of *o*- and *p*-dihydric phenols in presence of monohydric phenols by use of phosphotungstic acid reagent. E. J. Behrman and M. N. D. Goswami. bibliog Anal Chem 36:2189-91 O '64

PHOTOCELLS. See Photoelectric cells

PHOTOCHEMISTRY

Advances in photochemistry. W. A. Noyes and others, eds. Review, by A. B. Callear. Chem & Ind p 1247-9 Jl 11 '64

Biological lighting; abstract. E. D. Bickford. diags Illum Eng 59:602-3 S '64

Cage effects in thermal and photochemical decomposition of an azo compound. G. S. Hammond and J. R. Fox. bibliog Am Chem Soc J 86:1918-21 My 20 '64

Carbenoid formation of arylcyclopropanes from olefins, benzal bromides, and organolithium compounds and from photolysis of aryldiazomethanes. G. L. Closs and R. A. Moss. bibliog diags Am Chem Soc J 86:4042-53 O 5 '64

Comparison of thermal and photochemical rearrangements of triarylmethyl and related azides. W. H. Saunders, jr. and E. A. Caress. bibliog Am Chem Soc J 86:861-4 Mr 5 '64

Cross-conjugated cyclohexadienones show versatile photochemical behavior. P. J. Kropp and W. F. Erman. il Chem & Eng N 42:50-1 Ap 20 '64

Detection and lifetime of enol-acetone in the photolysis of 2-pentanone vapor. G. R. McMillan and others. bibliog Am Chem Soc J 86:3602-5 S 20 '64

Dihydroazepinone chemistry; the photoisomerization of 1,3-dihydro-3,5,7-trimethyl-2H-azepin-2-one. L. A. Paquette. bibliog Am Chem Soc J 86:500-3 F 5 '64

Electron ejection and fluorescence in aqueous β-naphthol solutions. M. Ottolenghi. bibliog Am Chem Soc J 85:3557-62 N 20 '63

Excited states in the photolysis of carbonyl compounds; the photosensitized decomposition by benzophenone. P. Borrell. Am Chem Soc J 86:3156-7 Ag 5 '64

Fluid amplifiers of glass shaped by photoetching. C. M. Harman and L. W. Langley. diag Materials in Design Eng 60:117+ Jl '64

Formation and photochemical rearrangement of β'-ketosulfoxonium ylides. E. J. Corey and M. Chaykovsky. bibliog Am Chem Soc J 86:1640-1 Ap 20 '64

General theory of photochemical reactions; mechanisms of epoxy ketone reactions. H. E. Zimmerman and others. bibliog Am Chem Soc J 86:947-8 Mr 5 '64

High voltage flash photolysis lamp. L. Lindqvist. bibliog il diag R Sci Instr 35:993-5 Ag '64

Inhibition of light-induced reactions by mercaptans and disulfides; benzophenone-benzhydrol and acetophenone-α-methylbenzyl alcohol. S. G. Cohen and others. bibliog Am Chem Soc J 86:3060-8 Ag 5 '64

Isolation of tetramethylcyclopropanone ethyl hemiketal from photolysis of tetramethylcyclobutanedione. H. G. Richey, jr. and others. Am Chem Soc J 86:3906-7 S 20 '64

Mechanisms of photochemical reactions in solution; photochemical *cis-trans* isomerization. G. S. Hammond and others. bibliog Am Chem Soc J 86:3197-217 Ag 20 '64

Mechanisms of photochemical reactions in solution photodimerization of methyl β-naphthyl ether. J. S. Bradshaw and G. S. Hammond. bibliog Am Chem Soc J 85:3953-5 D 20 '63

Mechanisms of photochemical reactions in solution; photosensitized decomposition of azo compounds. J. R. Fox and G. S. Hammond. bibliog Am Chem Soc J 86:4031-5 O 5 '64

Mechanisms of photochemical reactions in solutions; the photodimerization of coumarin. G. S. Hammond and others. bibliog Am Chem Soc J 86:3103-6 Ag 5 '64

Mechanistic and exploratory organic photochemistry; phenyl migration in the irradiation of 4,4-diphenylclohexenone. H. E. Zimmerman and J. W. Wilson. bibliog Am Chem Soc J 86:4036-42 O 5 '64

Mechanistic organic photochemistry; identification of the n-π^* triplet excited state in the rearrangement of 4,4-diphenylcyclohexadienone. H. E. Zimmerman and J. S. Swenton. Am Chem Soc J 86:1436-7 Ap 5 '64

Mercury-photosensitized decomposition and collision broadening of resonance line. K. Yang. bibliog Am Chem Soc J 86:3941-8 O 5 '64

New mercury-hydrogen lamp developed. J. T. D'Alessio and others. il Chem & Eng N 42:35-6 Ag 10 '64

Oxidative photodimerisation of some simple phenols. A. W. Johnson and S. W. Tam. bibliog Chem & Ind p 1425-6 Ag 8 '64

Photochemical addition of benzo[*a*]pyrene to pyrimidine derivatives. J. M. Rice. Am Chem Soc J 86:1444-6 Ap 5 '64

Photochemical and thermal rearrangement of α,β-epoxyketones. C. K. Johnson and others. Am Chem Soc J 85:3894-6 D 5 '63

Photochemical and thermal valence tautomerization of 2,3-diphenylindenone oxide. E. F. Ullman and J. E. Milks. bibliog Am Chem Soc J 86:3814-19 S 20 '64

Photochemical cycloaddition as a device for general annelation. H. Hikino and P. de Mayo. bibliog Am Chem Soc J 86:3582-3 S 5 '64

Photochemical degradation of cotton cellulose. B. A. Gingras and others. bibliog Textile Res J 33:1000-4 D '63

Photochemical isomerization of B-nor-1-dehydrotestosterone acetate in dioxane solution. G. Bozzato and others. Am Chem Soc J 86:2073-5 My 20 '64

Photochemical isomerization of di-*t*-butylbenzenes. A. W. Burgstahler and P. L. Chien. bibliog Am Chem Soc J 86:2940-1 Jl 20 '64

Photochemical oxidations. H. S. Johnston and J. Heicklen. bibliog Am Chem Soc J 86:4249-58 O 20 '64

Photochemical properties of a 2-methyl-1,4-dien-3-one. P. J. Kropp. bibliog Am Chem Soc J 86:4053-61 O 5 '64

Photochemical properties of chlorophyllin *a*. G. Oster and others. bibliog Am Chem Soc J 86:1313-18 Ap 5 '64

Photochemical reactions; a total synthesis of (±)-thujopsene. G. Büchi and J. D. White. bibliog Am Chem Soc J 86:2884-7 Jl 20 '64

Photochemical reactions in potassium chloride crystals grown from reagent grade KCl. U. M. Grassano and P. W. M. Jacobs. bibliog J Ap Phys 35:2391-7 Ag '64

Photochemical reactions of azo dyes in solution with different substrates. H. C. A. van Beek and P. M. Heertjes. bibliog diags Soc Dyers & Col J 79:651-9; Discussion. 669-70 D '63

Photochemical rearrangement of N-chloroimides to 4-chloroimides; a new synthesis of γ-lactones. R. C. Petterson and A. Wambsgans. bibliog Am Chem Soc J 86:1648-9 Ap 20 '64

Photochemical rearrangements of cross-conjugated cyclohexadienones; an example of steric control. P. J. Kropp. bibliog Am Chem Soc J 85:3779-82 D 5 '63

Photochemical reduction of rare earth ions in fused halides. H. L. Pinch. Am Chem Soc J 86:3167-8 Ag 5 '64

Photochemical studies in an alkali halide matrix; an *o*-nitrobenzaldehyde actinometer and its application to a kinetic study of the photoreduction of benzophenone by benzhydrol in a pressed potassium bromide disk. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:3606-10 S 20 '64

Photochemical tendering and fading of dyed textiles at different humidities. A. H. Little and J. W. Clayton. bibliog Soc Dyers & Col J 79:671-7; Discussion. 677 D '63

Photochemical transformations of 1,5-cyclooctadiene. R. Srinivasan. bibliog diags Am Chem Soc J 86:3318-21 Ag 20 '64

PHOTOCHEMISTRY—*Continued*

Photochemical transformations; the structure of photolevopimaric acid. W. G. Dauben and R. M. Coates. bibliog Am Chem Soc J 86:2490-6 Je 20 '64

Photochemical valence tautomerization of 2,4,6-triphenylpyrylium 3-oxide. E. F. Ullman. bibliog Am Chem Soc J 85:3529-30 N 5 '63

Photochemically-induced reactions of sulphenyl chlorides. N. Kharasch and Z. S. Ariyan. bibliog Chem & Ind p929-30 My 30 '64

Photochemistry of α-keto acids and α-keto esters. P. A. Leermakers and G. F. Vesley. bibliog Am Chem Soc J 85:3776-9; 86:1768-71 D 5 '63, My 5 '64

Photochemistry of 4,5-diphenyl-2-pyrone; a mechanistic study. A. Padwa and R. Hartman. Am Chem Soc J 86:4212-13 O 5 '64

Photochemistry of long-chain fatty alcohols for evaporation control. A. Golden and others. bibliog Am Water Works Assn J 56:784-92 Je '64

Photochemistry of riboflavin; the hydrogen transfer process in the anaerobic photobleaching of flavins. W. M. Moore and others. bibliog Am Chem Soc J 85:3367-72 N 5 '63

Photochemistry of stilbenes; some aspects of the mechanism of photocyclization to phenanthrenes. F. B. Mallory and others. bibliog Am Chem Soc J 86:3094-102 Ag 5 '64

Photochemistry of tetrasubstituted 1,3-cyclobutanediones; effect of oxygen. P. A. Leermakers and others. Am Chem Soc J 86:4213-15 O 5 '64

Photoionization and γ-induced oxidation of aromatic amines in rigid organic glasses. M. Kondo and others. bibliog Am Chem Soc J 86:1297-300 Ap 5 '64

Photoisomerization depends on concentration; abstract. C. M. Orlando and others. Chem & Eng N 42:43 Ap 20 '64

Photoisomerization of 1-aza-3,5,7-trimethylcyclohepta-4,6-dien-2-one. O. L. Chapman and E. D. Hoganson. bibliog Am Chem Soc J 86:498-500 F 5 '64

Photoisomerization of 1,3,5-cyclooctatriene. O. L. Chapman and others. bibliog Am Chem Soc J 86:2660-3 Jl 5 '64

Photoisomerization of diakylbenzenes. K. E. Wilzbach and L. Kaplan. Am Chem Soc J 86:2307-8 Je 5 '64

Photoisomerization of pyrazolenines and formation of 7,7-dimethylbicyclo[4.1.0]heptene-Δ-1,6. G. L. Closs and W. A. Böll. Am Chem Soc J 85:3904-5 D 5 '63

Photolysis and pyrolysis of 4-methyl-4-methoxy-2-pentanone. D. J. Coyle and others. bibliog Am Chem Soc J 86:3850-4 S 20 '64

Photolysis of $\Delta^{2,5}$-bicyclo[2.2.1]heptadiene in the vapor phase. B. C. Roquitte. Am Chem Soc J 85:3700 N 20 '63

Photolysis of cyclic dienes; an example of a dual path light-induced valence tautomerism. G. J. Fonken and K. Mehrotra. Chem & Ind p 1025 Je 13 '64

Photolysis of maleic hydrazide. A. Stoessl. bibliog Chem & Ind p580-1 Ap 4 '64

Photolysis of pseudouridine 3′-phosphate and sRNA. M. Tomasz and R. W. Chambers. bibliog Am Chem Soc J 86:4216-17 O 5 '64

Photolysis of spiro[2.5]octa-1,4-dien-3-one in ethyl ether; a note on the mechanism of photolysis of 2.5-cyclohexadienones. D. I. Schuster and C. J. Polowczyk. bibliog Am Chem Soc J 86:4502-3 O 20 '64

Photolysis of tetramethyl-1,3-cyclobutanedione. N. J. Turro and others. bibliog Am Chem Soc J 86:955-6 Mr 5 '64

Photolysis of thiobenzophenone in the presence of olefins: a novel reaction. E. T. Kaiser and T. F. Wulfers. bibliog Am Chem Soc J 86:1897-8 My 5 '64

Photolytic and reduction coloring of $CaWO_4$: Nd. D. C. Cronemeyer and M. W. Beaubien. bibliog diag J Ap Phys 35:1779-85 Je '64

Photolytic decomposition of some sulfones by an internally sensitized path. M. P. Cava and others. bibliog Am Chem Soc J 86:3173-4 Ag 5 '64

Photo-oxidation in asphalts. Franklin Inst J 278:71-2 Jl '64

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Photoreduction of 2,2-diphenyl-1-picrylhydrazyl (DPPH) in hydrocarbons. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:296-7 Ja 20 '64

Photoresponsive systems; photochromic macromolecules. R. Lovrien and J. C. B. Waddington. bibliog Am Chem Soc J 86:2315-22 Je 20 '64

Photosensitized isomerization involving saturated centers. G. S. Hammond and others. Am Chem Soc J 86:2532-3 Je 20 '64

Photosensitized oxidation of pine gum to yield peroxides. W. H. Schuller and others. bibliog Ind & Eng Chem Product Res & Develop 3:97-100 Je '64

Possible formation of crossed pinacols in the photolysis of benzophenone mixtures. H. W. Johnson, jr. and others. Chem & Ind p 1493 Ag 22 '64

Radical exchange during nitrite photolysis. M. Akhtar and others. Am Chem Soc J 86:3394-5 Ag 20 '64

Sensitization and catalysis of light-induced decarbonylation of aldehydes. J. D. Berman and others. bibliog Am Chem Soc J 85:4010-13 D 20 '63

Thermal and photochemical rearrangement of substituted dibenzo[*a*, *e*]cyclooctatetraenes. M. Stiles and U. Burckhardt. Am Chem Soc J 86:3396-7 Ag 20 '64

Thermal and photochemical valence tautomerism of bicyclo[6,1,0]-nona-2,4,6-triene derivatives. G. J. Fonken and W. Moran. bibliog Chem & Ind p 1841-2 N 16 '63

Versatile system for liquid-phase quantum yield measurements. D. J. Trecker and J. P. Henry. bibliog diags Anal Chem 35:1882-4 N '63

See also

Chlorophyl

Photosynthesis

Textile fibers, Effect of light on

PHOTOCONDUCTIVITY

Demodulation of low-level broad-band optical signals with semiconductors; analysis of the photoconductive detector. H. S. Sommers, jr. and W. B. Teutsch. bibliog diags IEEE Proc 52:144-53 F '64

Dependence of photoconductivity gain on photon energy in CdS : I : Cu crystals. R. H. Bube and B. Young. J Ap Phys 35:462-3 F '64

Determination of capture cross sections by optical quenching of photoconductivity. R. H. Bube and F. Cardon. bibliog J Ap Phys 35:2712-19 S '64

Direct demodulation and frequency conversion of microwave-modulated light in a CdSe bulk photoconductor. M. DiDomenico, jr. diags J Ap Phys 35:1353-4 Ap '64

Effect of chemisorbed oxygen on photovoltaic and photoconductive processes in rutile. R. Keezer. bibliog diags J Ap Phys 35:1866-7 Je '64

Extremely sensitive solid-state image storer. S. C. Requa and J. M. N. Hanlet. diags Space/Aeronautics 42:87+ Ag '64

Infrared photoconductive characteristics of boron-doped germanium. H. Shenker and others. bibliog diag J Ap Phys 35:2965-70 O '64

Large-signal photoconductive effect. A. R. Beattie and R. W. Cunningham. bibliog diags J Ap Phys 35:353-9 F '64

Microwave signal-to-noise performance of CdSe bulk photoconductive detectors. M. DiDomenico, jr. and L. K. Anderson. bibliog diags IEEE Proc 52:815-22 Jl '64

Optical coupling; optoelectronic switch. Electronics 37:23-4 Je 1 '64

Photoconductive mixing in CdSe single crystals. O. Svelto and others. bibliog diags J Ap Phys 34:3182-6 N '63

Photoconductive thermoplastic recording system. N. E. Wolff. bibliog il diags RCA R 25:200-8 Je '64

Photoconductivity in single-crystal tellurium. V. A. Vis. bibliog diag J Ap Phys 35:360-4 F '64

Pulse excitation studies of gain and trapping in photoconductors. R. H. Bube. bibliog J Ap Phys 34:3309-14 N '63

Solid-state photodetection; comparison between photodiodes and photoconductors. M. DiDomenico, jr. and O. Svelto. bibliog diags IEEE Proc 52:136-44 F '64

PHOTOELASTICITY

Analysis of stress-wave propagation by photoviscoelastic techniques. C. W. Ferguson. bibliog il diags SMPTE J 73:782-7 S '64

How to select photoelastic coatings. il Materials in Design Eng 60:99-102 S '64

Photo-elastic analysis; quick, thorough aid for stress research. H. Cook. il Res/Develop 15:32-6 N '64

Scattered light photoelastic polariscope for three-dimensional stress analysis. Y. F. Cheng. il diag R Sci Instr 35:976-7 Ag '64

PHOTOELASTICITY—*Continued*

Simple geometric method for analyzing polarization states in photoelasticity. R. Mark. bibliog diags AIAA J 2:150-2 Ja '64

Spray-on plastics pinpoint flaws. il Iron Age 193:56-7 Ap 2 '64

Tumut 2 underground power plant. I. L. Pinkerton and E. J. Gibson. bibliog il maps plans diags Am Soc C E Proc 90 [PO 1 no 3835]:33-58 Mr '64; Discussion. 90 [PO 3 no 4063]:135-46 O '64

PHOTOELECTRIC cells

Available power-bandwidth product for photodiodes. R. B. Emmons and G. Lucovsky. diag IEEE Proc 52:865 Jl '64

B & L 505 spectrophotometer modifications for measuring spectral response of photodetectors. S. Licht. il diags R Sci Instr 35:1027-31 Ag '64

Cartridge-type point-contact photodiode. W. M. Sharpless. diags IEEE Proc 52:207-8 F '64

Communication channel model of a photoelectric detector. L. P. Bolgiano, jr. and L. F. Jelsma. IEEE Proc 52:218-19 F '64

Detection of scintillation photons with photodiodes. C. Y. Fan. bibliog diag R Sci Instr 35:158-63 F '64

Improved method of audio level control for broadcasting and recording. J. F. Lawrence, jr. diags SMPTE J 73:661-3 Ag '64

Look at light-sensitive devices. I. Rubin. il Electronic Ind 23:50-2 Ag '64

Method for the precise evaluation of interferograms. G. D. Dew. il diags J Sci Instr 41:160-2 Mr '64

Solid-state photodetection; comparison between photodiodes and photoconductors. M. DiDomenico, jr. and O. Svelto. bibliog diags IEEE Proc 52:136-44 F '64

Some applications for neon-photocell units. E. Bauman and D. Whateley. diags Electronic Ind 23:61-3 Jl '64

Thin oxide film sandwich structure photocell. K. L. Chopra and L. C. Bobb. bibliog IEEE Proc 51:1784-5 D '63

Transit-time considerations in *p-i-n* diodes. G. Lucovsky and others. bibliog diags J Ap Phys 35:622-8 Mr '64

Variable r-f resistor attained with photocell. R. H. Wagner. diag Electronics 37:67 O 5 '64

See also

Solar batteries

Control uses

Auto-phototimer. J. Giannelli. il diag Radio-Electronics 35:38-40 F '64

Control designer's guide to solid state photosensors. J. R. McDermott. il diags Control Eng 11:71-84 O '64

Method to record or control the number of Soxhlet syphonings. A. B. Dehlsen. diags J Sci Instr 41:522 Ag '64

Photoconductive selector circuit uses neon glow lamps. J. Laflandra and H. Jennings. il diag Electro-Tech 73:108 Ja '64

Photoelectric controller uses flasher concept. H. Shavel. il diag Elec World 162:67 Ag 10 '64

Photoelectric edge scanner. il Engineer 218:253 Ag 14 '64

Photoelectric systems control without contact. il diags Mod Materials Handling 19:48-51 Mr '64

Photoelectric unit offers longer lamp life. K. H. Miller. il diag Elec World 161:70 Ap 6 '64

Register control systems for web materials. il Automation 11:103 Ag '64

Try a selective photocircuit. T. Jaski. il diags Radio-Electronics 35:38-9 Jl '64

Industrial applications

Milling with an eye of light. il diags Iron Age 193:70-1 Mr 5 '64

New photocell-conveyor concept tested on crushed rock sorting. diag Pit & Quarry 56:38 Ap '64

New photocell sorting device piloted at limestone quarry. J. R. Slotemaker. il diag Min Eng 16:41-3 Ja '64

Pipes of light find holes in strip. il Iron Age 194:66 S 3 '64

Measurement uses

Automatic system logs length of sections in hot mill. il diag Iron Age 193:104-6 Mr 26 '64

Electronics in golf-club shaft production. il diag Ind Electronics 2:445 S '64

Light-modulated scattering technique for diffraction field measurements. A. M. Vural and D. K. Cheng. bibliog diags J Res Nat Bur Stand 68D:355-62 Ap '64

Measuring road lighting from the motorist's viewpoint. il Ind Electronics 2:73 F '64

Photocell technique for linear measurements. W. R. Ketterer and R. H. Schuman. diags Electro-Tech 72:120-1 N '63

Photoelectric smoke density measuring instrument. Engineer 216:831 N 15 '63

See also

Photometers, Photoelectric

Multiplier tubes

Effect of an electrostatic field in the dynamic crossed-field photomultiplier. R. Hankin and others. diags IEEE Proc 52:412-13 Ap '64

Effect of photocathode-to-first dynode voltage on photomultiplier noise pulses. P. W. Walton. R Sci Instr 35:518-19 Ap '64

Fatigue and saturation in photomultipliers. J. P. Keene. diags R Sci Instr 34:1220-2 N '63

Improved gain and stability in the dynamic crossed-field photomultiplier. O. L. Gaddy and D. F. Holshouser. diag IEEE Proc 52:616 My '64

Investigation of noise in Venetian blind photomultipliers. J. C. Barton and others. bibliog J Sci Instr 41:599-604 O '64

Linear gate and stretcher for photomultiplier dynode pulses. K. B. Keller. diags R Sci Instr 35:1360-1 O '64

Low-noise performance of photo diode envelope detectors in the megacycle range. D. J. Roulston. diags IEEE Proc 52:1067 S '64

Optical receiving devices. M. Ross. bibliog diags Electro-Tech 73:93-100 Ap '64

Photomultiplier and electronic study of Geiger counter pulses in air. H. M. Herreman and L. B. Loeb. bibliog il diags J Ap Phys 34:3160-7 N '63

Photomultiplier cooling chamber. P. E. V. Shannon. diag R Sci Instr 34:1281-2 N '63

Photomultiplier gating system. K. B. Keller and B. M. K. Nefkens. diags R Sci Instr 35:1359-60 O '64

Photomultiplier tester. H. L. Kahn and L. A. Hurlbut. diags Electro-Tech 73:128+ Mr '64

Photomultiplier transit times. M. Feldman. R Sci Instr 35:1238-9 S '64

Simple photomultiplier cooling apparatus. H. W. Gandy and J. F. Weller. diag R Sci Instr 35:413-14 Mr '64

Some aspects of electron motion in biased DCFEM operation. O. L. Gaddy and D. F. Holshouser. IEEE Proc 52:413-14 Ap '64

Statistics of time in photomultiplication. R. Euling. bibliog diags J Ap Phys 35:1391-403 My '64

Study of high speed photomultiplier systems. L. G. Hyman and others. bibliog il diags R Sci Instr 35:393-406 Mr '64

PHOTOELECTRIC effect

Comparison of the photoelectric properties of cleaved, heated, and sputtered silicon surfaces. F. G. Allen and G. W. Gobeli. bibliog diags J Ap Phys 35:597-605 Mr '64

Composition dependence of photoelectric characteristics of Cs-Sb compounds. M. Hagino and others. bibliog diags J Ap Phys 35:2112-18 Jl '64

Effect of chemisorbed oxygen on photovoltaic and photoconductive processes in rutile. R. Keezer. bibliog diags J Ap Phys 35:1866-7 Je '64

Fast InSb PEM detectors for optical maser studies to 7μ. R. N. Zitter. il diags R Sci Instr 35:594-6 My '64; Discussion. P. W. Kruse. 35:1728-9 D '64

Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64

Photoelectronic properties of imperfections in cadmium sulfo-selenide solid solutions. R. H. Bube. bibliog diag J Ap Phys 35:586-96 Mr '64

Photogalvanic effects with anodized zirconium and niobium electrodes. R. E. Salomon and others. bibliog Electrochem Soc J 110:1163-5 N '63

Photovoltaic effects in rutile. R. Keezer and others. bibliog diag J Ap Phys 35:1868-9 Je '64

Polar properties of ZnS crystals and the anomalous photovoltaic effect. O. Brafman and others. bibliog il diag J Ap Phys 35:1855-60 Je '64

Preliminary investigation of the two-photon photoelectric effect. P. Bloch. bibliog diags J Ap Phys 35:2052-4 Jl '64

Pressure theory of the thermoelectric and photovoltaic effects. M. Green. bibliog diags J Ap Phys 35:2689-94 S '64

PHOTOELECTRIC effect—*Continued*

Simple electron diffraction camera for the examination of alkali antimonide photo-electric films. W. H. McCarroll and R. E. Simon. bibliog il diag R Sci Instr 35:508-11 Ap '64

Voltage decay measurement of photoexcitation and trapping of carriers in selenium. P. J. Regensburger. diag J Ap Phys 35:1863-5 Je '64

PHOTOELECTRICITY

Photoemitters having a high quantum efficiency. R. M. White. IEEE Proc 51:1662 N '63

Ruby-laser-induced photocurrents and luminescence in ZnO. D. R. Hotchkiss. bibliog J Ap Phys 35:2455-7 Ag '64

PHOTOELECTROMAGNETIC effect. See Photoelectric effect

PHOTOENGRAVING

Kinetics of the copper-ferric chloride reaction and the effects of certain inhibitors. W. H. Burrows and others. bibliog diag Ind & Eng Chem Proc Design 3:149-59 Ap '64

PHOTOGRAMMETRY

Analogue aerial triangulation. H. S. Williams. bibliog diags Am Soc C E Proc 90 [SU 2 no 3968]:49-73 Jl '64

From clay to tape to die; a revolution comes to diemaking. il diags Steel 155:50-5 Jl 20 '64

Highway plans from photogrammetrically-compiled maps. L. E. Parker. Am Soc C E Proc 90 [SU 1 no 3859]:31-8 Ap '64

Photogrammetric measurement of tidal currents. J. E. Waugh. il maps diags Am Soc C E Proc 90 [SU 1 no 3857]:17-29 Ap '64

Photogrammetry and highway law. M. M. Abrams. bibliog Am Soc C E Proc 90 [SU 2 no 3989]:153-68 Jl '64

Photogrammetry of estrogens on thin layer chromatograms by a one-step photographic procedure. G. M. Jacobsohn. il diag Anal Chem 36:2030-2 S '64

Planning and design of aerotriangulation projects. H. M. Karara. bibliog diags Am Soc C E Proc 90 [SU 2 no 3986]:117-32 Jl '64

Simultaneous relative orientation of multiple cameras. H. M. Karara and A. A. Elassal. bibliog diag Am Soc C E Proc 90 [SU 2 no 3982]:109-16 Jl '64

See also

Mapping, Aerial

Surveying, Aerial

PHOTOGRAPHERS

Discovery; Georg Bergmann. P. Caulfield. il Mod Phot 28:64-5+ F '64

Edward Steichen, way out. H. Keppler. il Mod Phot 28:74-7 F '64

Eliot Porter. P. Caulfield. il Mod Phot 28:52-7+ F '64

PHOTOGRAPHIC chemistry

See also

Photographic emulsions

PHOTOGRAPHIC departments

An ounce of prevention. Ind Phot 13:85+ Mr '64

Inter-lab communications. R. Baum. Ind Phot 13:14+ Mr '64

One-man company film dept; pro and con. il Ind Phot 13:22-3+ Mr '64

Outside touch. C. Palmer. Ind Phot 13:44+ Mr '64

12,000 slides in nine days; efficiency gets the job done at the John Hancock company's photographic dept. R. Astra. il Ind Phot 12:60-1 N '63

What makes a good lab? J. Hughes. il plans Ind Phot 13:19-24+ F '64

PHOTOGRAPHIC emulsions

Distortion and spurious scattering in nuclear emulsions. P. K. Aditya and R. K. Puri. bibliog diags J Sci Instr 41:529-34 S '64

Electrical measurements on photographic grains containing cadmium. L. E. Brady and J. F. Hamilton. bibliog il diag J Ap Phys 35:1565-9 My '64

Film granularity measurement by Kodak. il diag Ind Electronics 2:213-14 My '64

PHOTOGRAPHIC films. See Moving picture films; Photography—Films

PHOTOGRAPHIC laboratories

An ounce of prevention. Ind Phot 13:85+ Mr '64

Inter-lab communications. R. Baum. Ind Phot 13:14+ Mr '64

Truth about color print labs. E. Meyers. il Mod Phot 28:72-3 F '64

12,000 slides in nine days; efficiency gets the job done at the John Hancock company's photographic dept. R. Astra. il Ind Phot 12:60-1 N '63

What makes a good lab? J. Hughes. il plans Ind Phot 13:19-24+ F '64

See also

Moving picture laboratories

PHOTOGRAPHIC lenses. See Lenses, Photographic

PHOTOGRAPHIC murals

Mural makers. M. Day. il Ind Phot 13:39-40 F '64

Old master, new material; IBM's photo exhibit honoring Leonardo da Vinci. il Ind Phot 12:54-5 N '63

PHOTOGRAPHIC optics

FRF; new optical tool. M. Langford. diags Ind Phot 13:6+ F '64

See also

Resolving power (optics)

PHOTOGRAPHIC paper

Impulse streamer branching from Lichtenberg figure studies. E. Nasser and L. B. Loeb. bibliog il diag J Ap Phys 34:3340-8 N '63

Process intrumentation highlights at Eastman Kodak. B. W. Huston. il Paper Ind 46:199-202 Je '64

Processing as a function of a photographic instrumentation system. J. H. Waddell. Res/Develop 15:18-19 Ja '64

PHOTOGRAPHIC reproduction and projection

Complex diagrams produced with keyboard machines. il diag Westinghouse Eng 24:78 My '64

New, economical way to control inventories. il Textile World 113:68-9 N '63

Ozalid diazo printing machines. il diag Engineering 196:754-5 D 13 '63

Photocopying: called Photo-Chromic micro image. il Product Eng 35:46-7 S 28 '64

Reproduction manager. H. Denstman. Ind Phot 13:14+ Ja; 14+ F; 6+ Mr; 4+ Ap '64

PHOTOGRAPHIC supplies. See Photography—Apparatus and supplies

PHOTOGRAPHIC supplies industry

Agfa and Gevaert agree on tie-up. Chem & Eng N 42:23-4 F 24 '64

Directories

Directory of accessories for Polaroid Land photography. Ind Phot 13:66+ Ap '64

1964 gold book. Ind Phot 12:20-153 D '63

Italy

3M buys Italian photoproducts firm. il Chem & Eng N 42:62+ Je 15 '64

PHOTOGRAPHS

American landscape; illustrations with text. P. Caulfield. Mod Phot 28:80-1+ Ja '64

Composite photographs show fluid-flow relationships. il diag Chem Eng 71:144 O 26 '64

Discovery; Georg Bergmann. P. Caulfield. il Mod Phot 28:64-5+ F '64

See also

Advertisements, Pictorial—Photographs

PHOTOGRAPHY

And stay out; illustrations with text. P. Caulfield. Mod Phot 28:68-77 Ja '64

Discovery. P. Caulfield. il Mod Phot 28:70-1+ Ag '64

Discovery; candid documentary tradition; Roger Mayne; illustrations with text. P. Caulfield. Mod Phot 28:78-9+ Je '64

Evaluation of photographic image quality and resolving power. O. H. Schade. bibliog il diags SMPTE J 73:81-119 F '64

Get the picture. P. Caulfield. il Mod Phot 27:10+ Ag; 14-15 S; 23 O; 54 N '63; 28:12-13 Ja; 15 F; 32+ Mr; 32 Ap; 16 My; 12-13 Je; 10-11 Ag; 12-13 O '64

How fast, how many; illustrations with text. P. Caulfield. Mod Phot 28:68-75 Je '64

Image recording in lead iodide. A. J. Forty and others. J Sci Instr 41:274-6 My '64

Objective rangefinder; illustrations with text. H. Keppler. Mod Phot 28:72-9 My '64

Pictures in a moment. J. Wolbarst. Published in monthly numbers of Modern photography

Scrambling technique produces photos without a lens. il Machine Design 36:6 Ja 2 '64

Single-lens reflex impact! illustrations with text. P. Caulfield. Mod Phot 28:62-71 Mr '64

Subjective rangefinder; illustrations with text. P. Caulfield. Mod Phot 28:64-71 My '64

Teaching system that saves time and talk. il Ind Phot 13:59-61 Ap '64

Techniques tomorrow. B. Sherman. Published in monthly numbers of Modern photography

35 mm. J. Wolbarst. Published in monthly numbers of Modern photography

Use of photographic triangulation in determining the positions of objects in large-scale experiments. D. E. Phillips. flow chart il diags SMPTE J 72:869-71 N '63

PHOTOGRAPHY—*Continued*

Well traveled camera. Published in monthly numbers of Modern photography

See also

Astronomical photography
Color photography
Electrophotography
Microphotography
Photogrammetry
Photographs
Photolithography
Photomicrography
Photostat
Radiography

Apparatus and supplies

Auto-phototimer. J. Giannelli. il diag Radio-Electronics 35:38-40 F '64

Behind the scenes. Published in monthly numbers of Modern photography

Big little flash; AG-1 flashbulb. J. Wolbarst. il Mod Phot 28:78-9+ Ja '64

Equipment preview '65. M. A. Matzkin and E. Meyers. il Mod Phot 28:82-3 My; 90-7 Je '64

Instrumentation lighting; with list of light units. Ind Phot 13:35-6+ F '64

Lowdown on portable electronic flash units. T. Karp. diags Mod Phot 28:82-7 Ja '64

Modern tests. Published in monthly numbers of Modern photography

More than just Hollywood. Ind Phot 13:34 F '64

New products. B. Lefkowitz. Published in monthly numbers of Industrial photography

New products and developments. Published in monthly numbers of Journal of the Society of motion picture and television engineers

Photographic positive/negative viewer. il Engineer 218:423 S 11 '64

Shortcuts. Published in monthly numbers of Industrial photography

Simple electronic stroboscope. J. D. Pye. il diags Wireless World 70:339-42 Jl '64

Too hot to handle. Published in monthly numbers of Modern photography

Your darkroom: what to get, where to put it. E. Myers. il plan Mod Phot 28:66-9 F '64

See also

Camera shutters
Cameras
Photography—Films

Bibliography

Books in review (cont). Mod Phot 28:14 F; 44 Ap; 50 Je; 14-15+ S '64

Image dissection in high-speed photography; bibliography. J. S. Courtney-Pratt. SMPTE J 72:876-8 N '63

Competitions

Are winners really winners? il Mod Phot 28:38-9+ Ag '64

Monthly contest. Published in monthly numbers of Modern photography

Developing and developers

Anhydrous ammonia development in the diazo process. H. Denstman. diag Ind Phot 12:6+ N '63

Cold weather can mean trouble with Polacolor film. J. Wolbarst. il Mod Phot 28:32 Ja '64

For film washing, running water may be the least desirable method. J. Wolbarst. Mod Phot 28:36 Ag '64

How super are the super speed developers? J. Wolbarst. il Mod Phot 28:80-5+ S '64

Liquid development of electrophotographic images for office copy processes. D. E. Hanson. Tappi 47:sup 149A-50A S '64

1964 film-developer roundup. J. Wolbarst. Mod Phot 28:72-7+ O '64

Processing as a function of a photographic instrumentation system. J. H. Waddell. Res/Develop 15:18-19 Ja '64

Quest for film speed. J. Wolbarst. Mod Phot 28:14-15 Ja; 26+ F '64

Enlarging

Top black and white quality. E. Meyers. il Mod Phot 28:68-71+ Ap '64

Equipment

See Photography—Apparatus and supplies

Exhibitions

ASTM 1964 photographic exhibit awards. Materials Res & Stand 4:562-3 O '64

Eloquent light: Ansel Adams' giant West Coast exhibit. P. Caulfield. il Mod Phot 28:12-13 F '64

Photographer's eye. P. Caulfield. il Mod Phot 28:66-77 S '64

Exposure

Creative exposure; illustrations with text. P. Caulfield. Mod Phot 28:58-65 Jl '64

Factors affecting determination of monochrome television film exposure and speed indexing. H. Wright. bibliog il diags SMPTE J 73:305-13 Ap '64

For consistently well exposed Polaroid prints, stick to these basic exposure techniques. J. Wolbarst. Mod Phot 28:40+ Jl '64

How bad is black and white printing? M. A. Matzkin. il Mod Phot 28:66-7+ Je '64

How super are the super speed developers? J. Wolbarst. il Mod Phot 28:80-5+ S '64

How to put your best footcandle forward. D. Mohler. Ind Phot 12:30-2+ N '63

If you don't have a meter, do you know how to get on without one? J. Wolbarst. il Mod Phot 28:32+ Jl '64

Limits of present day available light photography. B. Sherman. diags Mod Phot 28:16-17+ Ja; 16-17+ F '64

SLR man's (or woman's) guide to automatic exposure control. H. Keppler. diags Mod Phot 28:18+ Jl '64

Slow/fast how sharp? W. Benser. il Mod Phot 28:88-9 S '64

See also

Exposure meters
Moving picture photography—Exposure

Films

Better Polacolor pictures with model 100 Polaroid Land cameras. J. Wolbarst. Mod Phot 28:10+ Mr '64

Cold weather can mean trouble with Polacolor film. J. Wolbarst. il Mod Phot 28:32 Ja '64

Color films compared! D. L. Miller. Mod Phot 28:84-5 O '64

Compare! compare! to mask (Kodacolor-X) or not to mask (Agfacolor CN 14), that is the question. E. Meyers. il Mod Phot 28:74-5+ Ap '64

Early evening or even moonlight effects in daytime with artificial light type film. F. Bond. il Mod Phot 28:24+ O '64

Film granularity measurement by Kodak. il diag Ind Electronics 2:213-14 My '64

How are the customers doing with Poloroid's pack film? J. Wolbarst. Mod Phot 28:40+ F '64

Inspecting photographic film. H. S. Glick. il Illum Eng 59:22-3 Ja '64

Kodachrome II? Kodachrome-X? H/S Ektachrome? Ektachrome-X? H. Keppler. il Mod Phot 28:78-83 O '64

Modern tests. Published in monthly numbers of Modern photography

1964 film-developer roundup. J. Wolbarst. Mod Phot 28:72-7+ O '64

Processing as a function of a photographic instrumentation system. J. H. Waddell. Res/Develop 15:18-19 Ja '64

Quest for film speed. J. Wolbarst. Mod Phot 28:14-15 Ja; 26+ F '64

Rapid system for loading 35mm film. J. Wolbarst. Mod Phot 28:28+ O '64

Simple way to interchange Polaroid roll film and conventional roll film on a 4 x 5. J. Wolbarst. il Mod Phot 28:54-5 O '64

Stop wasting your time with Kodachrome? E. Meyers. il Mod Phot 28:78-9 Mr '64

Top black and white quality. E. Meyers. il Mod Phot 28:68-71+ Ap '64

X-ray diffraction camera using Polaroid film. P. H. Schmidt and E. G. Spencer. il diag R Sci Instr 35:957-8 Ag '64

See also

Moving picture films

Focusing

Depth of field constant? H. Keppler. Mod Phot 28:18+ Ja '64

Depth of field tables. J. H. Waddell. Res/Develop 15:59-60 Ap '64

Fight against rangefinder parallax. L. A. Mannheim. il diags Mod Phot 28:98+ My '64

Here's how to make that big image sharp. B. Sherman. Mod Phot 28:24+ Ag '64

In/out? out-of-focus foregrounds are in with color. P. Caulfield. il Mod Phot 28:66-71 O '64

It's how you look at it; single-lens reflex viewfinders. B. Sherman and H. Keppler. diags Mod Phot 28:74-5 Mr '64

More on focusing and related camera adjustments. A. Feininger. Mod Phot 28:23+ My '64

Slow/fast how sharp? W. Benser. il Mod Phot 28:88-9 S '64

Technique of focusing. A. Feininger. diag Mod Phot 28:18+ F '64

PHOTOGRAPHY—Focusing—*Continued*
With single-lens reflex only; control! illustrations with text. Mod Phot 28:56-7 Mr '64

High speed

Amateur scientist; constructing high-speed cameras for photographing fleeting events. W. Gannaway. il diags Sci Am 211:118-24+ Jl '64
Analysis of stress-wave propagation by photoviscoelastic techniques. C. W. Ferguson. bibliog il diags SMPTE J 73:782-7 S '64
Applications of the high-speed focal-plane shutter camera to explosives research. T. P. Liddiard, jr. and others. il diags SMPTE J 72:927-30 D '63
Camera delivers instant print with sequence of eight pictures. il Engineering 197:400 Mr 13 '64
High-speed focal-plane shutter framing camera. S. J. Jacobs and others. il diag SMPTE J 72:923-6 D '63
High-speed radiography. D. J. Davis and D. C. Laval. bibliog il diags Ind Electronics 2:386-90 Ag '64
Image dissection in high-speed photography; bibliography. J. S. Courtney-Pratt SMPTE J 72:876-8 N '63
Open letter on high-speed photography and education. J. H. Waddell. Res/Develop 14:43-4 N '63
Photographic instrumentation as a system concept. J. H. Waddell. Res/Develop 14:36-7 D '63
Pinch phenomena in a flash X-ray discharge. S. K. Händel. bibliog il SMPTE J 73:320-4 Ap '64
See also
Photography of projectiles

Industrial applications

Advances on every research front. il diag Ind Phot 13:30-2 Ap '64
More than just Hollywood. Ind Phot 13:34 F '64
Photo-drafting catches on big. F. B. Campbell. il Pet Management 36:88-90 Ja '64
Photoetched parts. W. A. Strauss, jr. il diags Machine Design 36:132-5 Je 4 '64
Photo-etching thin-film circuits. C. W. Skaggs. il diags Electronics 37:94-8 Je 15 '64
Photo templets grow up. il Am Mach/Metalworking Manuf 108:88-9 Je 22 '64
See also
Photography in industry

Landscapes

Ansel Adams; fine, sharp, dramatic photographs. P. Caulfield. il Mod Phot 28:55-65+ Ap '64

Lighting

Bright field photography in a hydrogen bubble chamber. D. R. Firth. bibliog il diags R Sci Instr 34:1393-8 D '63
Instrumentation lighting; with list of light units. Ind Phot 13:35-6+ F '64
Quartz-iodine. il Ind Phot 12:34+ N '63
Sane guide to indoor lighting; illustrations with text. H. Keppler. Mod Phot 28:58-65 Ja '64
Some ideas for producing brilliant and spectacular color shots by transmitted light. F. Bond. il Mod Phot 28:24+ S '64
See also
Photography—Exposure
Photography, Flashlight

Negatives

If you must retouch. R. Baum. Ind Phot 13:28+ F '64
Negative from transparencies can be as good as originals. R. Baum. Ind Phot 13:11+ Ja '64
Negatives are for burning. il Ind Phot 13:84+ Mr '64
Photographic positive-negative viewer. Electronic Eng 36:681 O '64

Patents

Patent news. L. Sipley. Published in monthly numbers of Industrial photography

Portraits

Feininger: human faces make images. H. Keppler. il Mod Phot 28:70-1 F '64
Pros check results and equipment before, not after. J. Foldes. il Ind Phot 13:34-5+ Ap '64
Think outside-in for candid portraits. M. A. Matzkin. il Mod Phot 28:62-3 F '64

Printing processes

Create color by solarizing. H. Keppler and P. Caulfield. il Mod Phot 28:52-4 Ap '64
How bad is black and white printing? M. A. Matzkin. il Mod Phot 28:66-7+ Je '64
How to shoot duotones for offset. L. G. Sellinger. il Inland Ptr/Am Lithogr 153:67+ S '64
It works; simple way to process color prints at home; illustrations with text. E. Meyers. Mod Phot 28:84-9, 102 Je '64
Truth about color print labs. E. Meyers. il Mod Phot 28:72-3 F '64
See also
Moving picture photography—Printing processes

Scientific applications

Advances on every research front. il diag Ind Phot 13:30-2 Ap '64
Amateur scientist; how to photograph air currents in color and build an accurate Foucault pendulum. il diags Sci Am 210:132-3+ F '64
Bright field photography in a hydrogen bubble chamber. D. R. Firth. bibliog il diags R Sci Instr 34:1393-8 D '63
Image intensifier for nuclear research. Electronic Eng 36:529 Ag '64
Image intensifier for sub-atomic particles. Engineering 198:95 Jl 17 '64
New satellite space photography system. Franklin Inst J 277:97-8 Ja '64
New technique takes 3-D photographs for measuring velocity and direction of flow of fluids. il diag Oil & Gas J 62:120 S '64
Oscilloscope waveform recorder. R. C. Mackey. il diags R Sci Instr 35:859-61 Jl '64
Photographic instrumentation as a system concept. J. H. Waddell. Res/Develop 14:36-7 D '63
Photography in space of the ejection of a capsule containing a television camera and transmitter. B. H. Mollberg. bibliog il diag SMPTE J 73:481-90 Je '64
Photography of burning gases. J. H. Waddell. il Res/Develop 15:38-9 N '64
Technique for measuring amplitudes of small surface waves. K. Muenz and J. M. Marchello. bibliog il R Sci Instr 35:953-7 Ag '64
Visual and photographic study of electron beams. K. J. Ausburn. il J Ap Phys 35:111-13 Ja '64
See also
Photography of projectiles
Photography of shock waves

Standards

Next year, more trials, less errors. H. Denstman. Ind Phot 12:14 D '63

Studios and darkrooms

Architect in the darkroom. J. Martin. plans Ind Phot 13:26-7 F '64
What makes a good lab? J. Hughes. il plans Ind Phot 13:19-24+ F '64
Your darkroom; what to get, where to put it. E. Myers. il plan Mod Phot 28:66-9 F '64

Study and teaching

How good are the home study schools? D. L. Miller. Mod Phot 28:78-9 F '64

PHOTOGRAPHY, Aerial
Aerial photography, a valuable sensor for the scientist. R. N. Colwell. bibliog il diag Am Scientist 52:16-49 Mr '64
On the job in almost every federal agency. E. Hannigan. il Ind Phot 13:36-9+ Ap '64
Photo from space; a new tool for oil exploration? H. Wilson. il map Oil & Gas J 61:72-3 O 21 '63
Pictures from the air. P. Caulfield. il Mod Phot 28:12-13 Ja '64
Pipeline location; specifications for aerial photography; progress report. Am Soc C E Proc 90 [PL 1 no 3765]:7-12 Ja '64
Reconnaissance and surveillance photography. J. S. Goldhammer. il SMPTE J 73:858-62 O '64
Taking pictures of earth from 100 miles in space. B. Sherman. diag Mod Phot 28:14-15 Je '64
Why build a special camera for space travel? B. Sherman. il Mod Phot 28:12-13 Jl '64
See also
Surveying, Aerial

PHOTOGRAPHY, Artistic
See also
Composition (photography)

PHOTOGRAPHY, Close-up
More on close-up and macrophotography. A. Feininger. Mod Phot 28:40 Ag '64
Tele close-ups from a distance. P. Caulfield and L. Solmssen. il Mod Phot 28:80-1 Ag '64

PHOTOGRAPHY, Color. See Color photography

PHOTOGRAPHY, Commercial

Instant ingenuity. il Ind Phot 13:40+ Ap '64

Pros check results and equipment before, not after. J. Foldes. il Ind Phot 13:34-5+ Ap '64

PHOTOGRAPHY, Flashlight

Baby flash. M. S. Lieberman. il diag Radio-Electronics 35:56-7 N '64

Big little flash: AG-1 flashbulb. J. Wolbarst. il Mod Phot 28:78-9+ Ja '64

Bright Genie; the slave of light. R. L. Winklepleck. il diag Radio-Electronics 35:46-8 My '64

Flash! well-known lamp authority tells all! D. Mohler. il diags Ind Phot 12:26-7+ N '63

Focal plane flash problems with single-lens reflexes. D. L. Miller. il Mod Phot 28:82-3+ Mr '64

Getting your wires crossed, correctly; lighting with electronic flash equipment. H. L. Parker. il diags Ind Phot 12:22-4 N '63

Lowdown on portable electronic flash units. T. Karp. diags Mod Phot 28:82-7 Ja '64

Your electronic flash exposure made easy; nomograph. W. Hanson and B. T. Wolfe. Mod Phot 28:52-3 Jl '64

PHOTOGRAPHY, High speed. See Photography —High speed

PHOTOGRAPHY, Infrared

Long-wavelength thermal photography. il Ind Phot 13:86-7 F '64

PHOTOGRAPHY, Journalistic

Almost endless applications. il Ind Phot 13:53-6+ Ap '64

PHOTOGRAPHY, Legal

Chicago's silver-sensitized policemen. J. Hughes. il Ind Phot 13:43-4+ Ap '64

PHOTOGRAPHY, Medical

Advances on every research front. il diag Ind Phot 13:30-2 Ap '64

PHOTOGRAPHY, Military

On the job in almost every federal agency. E. Hannigan. il Ind Phot 13:36-9+ Ap '64

Space surveillance. J. A. Fusca. il diags Space/Aeronautics 41:92-103 Je '64

PHOTOGRAPHY, Night

Image intensifiers through electronics. B. Sherman. Mod Phot 28:32-3 O '64

PHOTOGRAPHY, Stereoscopic

Composite photographs show fluid-flow relationships. il diag Chem Eng 71:144 O 26 '64

Photography plots fluid flow. il diag Pet Management 36:118 S '64

Prospects of stereo tv from Mars orbiter. V. J. Young. diag Space/Aeronautics 42:66-7 O '64

PHOTOGRAPHY, Submarine

And now; under the sea! il Ind Phot 13:82 Ja '64

Underwater inspection of test fill in Gatun Lake. A. P. Mann. il map Civil Eng 34:31-3 My '64

PHOTOGRAPHY, Time-lapse

Time-lapse cine technique in biology and medicine. C. G. Lefeber. bibliog il diag SMPTE J 73:631-4 Ag '64

PHOTOGRAPHY, X ray. See Radiography

PHOTOGRAPHY in criminal investigation

See also

Photography, Legal

PHOTOGRAPHY in industry

Photography and applied photography in the wire industry. D. Houghton. Wire & Wire Prod 38:1724-6+ N '63

P. r. photo contains scientific data. il Ind Phot 13:102-3 Mr '64

Relationship of the photographer, the engraver and the printer. P. Kelty. Ind Phot 12:14+ N '63

Slides are something special in G.E.'s Lamp division. T. Knowles. il Ind Phot 13:60-1+ Mr '64

These Dunlop chaps put on a smashing good show. il Ind Phot 13:44-5 Ja '64

They junked the book; in the dynamic aerospace industry, techniques age quickly. il Ind Phot 13:32-4+ Ja '64

350 tons of steel. A. F. Taylor. il Ind Phot 13:36-7+ Ja '64

See also

Salesmanship—Visual aids

PHOTOGRAPHY of children

Baby flash. M. S. Lieberman. il diag Radio-Electronics 35:56-7 N '64

PHOTOGRAPHY of flowers

Focus your camera on flowers and gardens for some of your most satisfying color shots. F. Bond. il Mod Phot 28:16+ Ag '64

PHOTOGRAPHY of machinery

Make manuals more effective with pictures. C. R. Myers. il Plant Eng 18:124-6 Je '64

350 tons of steel. A. F. Taylor. il Ind Phot 13:36-7+ Ja '64

PHOTOGRAPHY of moving objects

Play the angles for action movies. M. A. Matzkin. il Mod Phot 28:88-9 O '64

PHOTOGRAPHY of projectiles

Hypersonic cone wake velocities obtained from streak pictures. W. K. Washburn and others. bibliog il diag AIAA J 2:1465-7 Ag '64

PHOTOGRAPHY of shock waves

Shock speed measurement by a modified streak camera. T. Akamatsu. il diags J Sci Instr 41:508-9 Ag '64

PHOTO-LITHOGRAPHERS, National association of. See National association of photolithographers

PHOTOLITHOGRAPHY

Santaglio provides three-dimensional halftone reproduction. J. N. Pannullo. Inland Ptr/Am Lithogr 152:74-5 Mr '64

PHOTOMECHANICAL processes

Photo-etching makes tiny parts with hairline accuracy. A. F. Legun. il Iron Age 193:70-1 Ap 16 '64

Photoforming parts from foil. il Am Mach 108:66-8 My 25 '64

This business of printing. H. Stagnito. il Comp Air Mag 69:4-7 Ag '64

See also

Photoengraving

Photolithography

Photostat

Xerography

PHOTOMETERS

Absolute light scattering photometer; direct determination of scattered light from solutions. D. McIntyre. bibliog diags J Res Nat Bur Stand 68A:87-96 Ja '64

Continuous flow analyzer for recording of light absorption and radioactivity in the eluates from chromatographic columns. C. I. Sjöberg and G. Ågren. bibliog il diags Anal Chem 36:1017-21 My '64

Contrast determination with the Pritchard telephotometer; abstract. A. A. Eastman. diags Illum Eng 59:605-6 S '64

Independent photometric laboratory. il Engineer 216:685-7 O 25 '63

Omnidirectional photometer. R. S. Adhav and A. T. Murphy. diag J Sci Instr 41:50-1 Ja '64

Pertinence of spectral radiation to outdoor lighting controls. T. I. Marx. diag Elec World 162:58-9 O 5 '64

Pocket-sized luminance meter. D. A. Schreuder. il diag Illum Eng 59:384-5 sec 2 My '64

Portable photointegrating meter for use in crops. J. A. Irvine and P. Harper. diags J Sci Instr 41:231-3 Ap '64

Scatter cell photometer senses dilute stock consistency. J. L. Anders. diag Control Eng 10:95 D '63

Sliding photometer head for the microspectrophotometer. W. L. Evans. bibliog il diags R Sci Instr 35:305-6 Mr '64

Torsion pendulum photometer. M. Stimler and others. diags R Sci Instr 35:311-13 Mr '64

Versatile light scattering photometers. B. Chu. bibliog il diags R Sci Instr 35:1201-5 S '64

Wood quality studies; scanning microphotometer for automatically measuring and recording certain wood characteristics. H. V. Green and J. Worrall. bibliog il Tappi 47:419-27 Jl '64

See also

Densitometers

Reflectometers

Spectrophotometers

PHOTOMETERS, Photoelectric

Measuring high frequency voltage with photometric bolometers. K. H. Klarer. il diags I S A J 11:69-72 Jl '64

Photoelectric particle counter. G. R. Yourt. Ind Med 33:228-9 Ap '64

PHOTOMETRY

Analytical study of photographic density. I. Fujimura. il diags SMPTE J 73:27-30 Ja '64

Applying photometric techniques to chemical analyses. R. A. Hagstrom and S. Siggia. flow diags il diags Automation 10:82-8 D '63

Collection and flame photometric determination of cesium. C. Feldman and T. C. Rains. bibliog Anal Chem 36:405-9 F '64

Correlating ten-foot photometry. W. G. Riggs and A. R. Lampert. diags Illum Eng 58:736-41; Discussion. 741 D '63

Flame photometric determination of stable strontium in environmental media. L. A. Elfers and others. bibliog Anal Chem 36:540-3 Mr '64

International intercomparison of photometric and colorimetric measurements of fluorescent lamps. Illum Eng 59:497-8 Jl '64

PHOTOMETRY—*Continued*

Phosphorus determination by flame photometry. A. Davis and others. Anal Chem 36:1066-8 My '64

Photometric method for trace mercury determination using a Beckman DU spectrophotometer. R. E. Mansell and E. J. Hunemorder. diag Anal Chem 35:1981 N '63

Polarization and photometry. K. E. Fairbanks and D. A. Ansley. il diags Illum Eng 59:255-63; Discussion. 263-5; Reply. 265-6 Ap '64

Removal of radioactive actinides and lanthanides from aqueous solutions with calcium fluoride prior to flame photometric determination of lithium. H. P. Holcomb. Anal Chem 36:2360-1 N '64

Shutter for continuous square wave modulation of a pencil of light. R. G. Berry and O. C. Jones. diags J Sci Instr 41:92-4 F '64

Solar salt production control by flame photometry. H. P. Rothbaum and W. Kitt. Chem & Ind p 1392 Ag 1 '64

See also

Measuring instruments, Optical
Reflectometers
Spectrophotometry

PHOTOMICROGRAPHY

Camera, microscope and lots of curiosity. H. E. C. Rowans. il Ind Phot 12:69-71 N '63

Etching of II-VI and III-V compounds. G. A. Wolff and others. bibliog il diags Electrochem Soc J 111:22-7 Ja '64

Light microscopy of polymer-treated wool. R. J. Hine and J. R. McPhee. bibliog il Textile Res J 34:659-62 Ag '64

Micromorphology and appearance of plastics. R. J. Clark and G. W. Ingle. il diags Materials Res & Stand 4:76-9 F '64

Microscopic study of chip formation. J. Datsko and M. F. DeVries. bibliog il A S M E Trans ser B 86:82-4 F '64

New techniques in use of microflash equipment in the analysis of water and wastewater. M. Mayer. il WPCF J 36:263-4 F '64

Particle-size analyzer for emulsion photomicrographs. P. Becher. diags J Colloid Sci 19:468-72 Je '64

Photomicrography of electrically sprayed heavy particles. C. D. Hendricks, jr. and others. bibliog il diags AIAA J 2:733-7 Ap '64

Photooptical instrumentation in medicine. I. Rehman. bibliog il diags SMPTE J 73:635-42 Ag '64

Show toppers from ceramographic exhibit. il Am Cer Soc Bul 43:580-2 Ag '64

Technique of cinephotomicrography of sequential serial sections. S. N. Postlethwait and others. il SMPTE J 73:629-31 Ag '64

Time-lapse cine technique in biology and medicine. C. G. Lefeber. bibliog il diag SMPTE J 73:631-4 Ag '64

Zeiss Ultraphot II camera microscope. il Mach 70:134-5 Ja '64

See also

Electron microscope
Microphotography

PHOTOMULTIPLIERS. See Photoelectric cells—Multiplier tubes

PHOTONS

Dependence of photoconductivity gain on photon energy in CdS : I : Cu crystals. R. H. Bube and B. Young. J Ap Phys 35:462-3 F '64

Detection of scintillation photons with photodiodes. C. Y. Fan. bibliog diag R Sci Instr 35:158-63 F '64

Far-flow approximations for precursor ionization profiles. L. Wetzel. bibliog AIAA J 2:1208-14 Jl '64

New laser emits photons and generates phonons in crystal. L. F. Johnson and others. Franklin Inst J 277:92-3 Ja '64

Optoelectronics at work. I. Wunderman. il diags Electronics 37:58-67 Jl 27 '64

Photon avalanches from a population inversion. L. Tonks. diags J Ap Phys 35:1134-41 Ap '64

Photon emission from irradiated dielectric slabs. J. C. Ashley and R. H. Ritchie. diags J Ap Phys 35:2313-21 Ag '64

Preliminary investigation of the two-photon photoelectric effect. P. Bloch. bibliog diags J Ap Phys 35:2052-4 Jl '64

Pulse excitation studies of gain and trapping in photoconductors. R. H. Bube. bibliog J Ap Phys 34:3309-14 N '63

Redshift and deflection of photons by gravitation; comparison of relativistic and Newtonian treatments. A. J. O'Leary. bibliog Am J Phys 32:52-5 Ja '64

Synchrotron photons. il diag Engineering 197:367-8 Mr 6 '64

See also

Mössbauer effect

Beams

Phase-space occupation of electron, proton, and photon beams. R. Katz and B. Curnutte, jr. Am J Phys 32:617-18 Ag '64

PHOTOOXIDATION. See Oxidation

PHOTOPERIODISM

Photoperiodic control of reproductive cycles in birds. D. S. Farner. il diags Am Scientist 52:137-56 bibliog(p 154-6) Mr '64

PHOTOPHORESIS

Photophoretic force. M. H. Rosen and C. Orr, jr. bibliog diags J Colloid Sci 19:50-60 Ja '64

PHOTOSENSITIVE glass. See Glass, Photosensitive

PHOTOSTAT

Enlarged and reduced stats are made without a darkroom. il Machine Design 36:15 Jl 2 '64

PHOTOSYNTHESIS

Developments in photosynthesis. S. C. Lewis. Archives Environmental Health 9:308-9 S '64

Effect of light intensity on photosynthesis. M. M. Varma and M. J. Wilcomb. bibliog il Water & Sewage Works 110:426-9 D '63; Abstract. Pub Works 95:156+ Mr '64

Efficient production of biosynthetically labeled fatty acids. T. L. Mounts and H. J. Dutton. bibliog diag Am Oil Chem Soc J 41:537-9 Ag '64

Exchangeable hydrogen in chlorophyll and the path of hydrogen in photosynthesis. J. J. Katz and others. bibliog Am Chem Soc J 86:4220-1 O 5 '64

Ferredoxin acts in primary CO_2 fixation. B. B. Buchanan and others. il Chem & Eng N 42:48-9 S 21 '64

Flashing-light spectrophotometer for studying the fast reactions occurring during photosynthesis. B. Ke and others. diags R Sci Instr 35:296-300 Mr '64

Hydromechanical method to increase efficiency of algal photosynthesis. R. L. Miller and others. bibliog il diags Ind & Eng Chem Proc Design 3:134-43 Ap '64

Solar power via a botanical process. W. J. Oswald and C. G. Golueke. diag Mech Eng 86:40-3 F '64

PHOTOTAXIS

Amateur scientist; experiments in phototaxis; the response of organisms to changes in illumination. W. C. Baum. diags Sci Am 211:128-32 O '64

PHOTOTYPESETTING

Modern inventions have not made compositor a dead duck. A. Lawson. Inland Ptr/Am Lithogr 153:78-9 S '64

PHOTOVOLTAIC effect. See Photoelectric effect

PHTHALATES

Diallyl phthalate moulding materials. A. L. Ashton and J. B. Pratt. bibliog il Brit Plastics 37:310-16 Je '64

Plasticizers made from phthalic acid esters; abstract. H. R. Gamrath and L. O. Raether. diag Chem & Eng N 42:85-6 Ap 13 '64

Precision measurement of the cleavage plane grating spacing of potassium acid phthalate. A. J. Bearden and F. N. Huffman. bibliog diag R Sci Instr 34:1233-4 N '63

Properties of materials; diallyl phthalates; molded; tables. Materials in Design Eng 60:218 Mid-O '64

PHTHALIC acid

Polarographic and chronopotentiometric behavior of o-phthalic acid in acidic solutions. R. P. Buck. bibliog diag Anal Chem 35:1853-9 N '63

PHTHALIC anhydride

Phthalic prices face critical test. Chem & Eng N 42:23 Ja 20 '64

Analysis

Quantitative determination of maleic anhydride, benzoic acid, naphthalene, and 1,4-naphthoquinone in phthalic anhydride by gas liquid chromatography. H. Trachman and F. Zucker. diags Anal Chem 36:269-71 F '64

Manufacture

Phthalic anhydride; California research corp. diag Hydrocarbon Process & Pet Refiner 42:210 N '63

Phthalic anhydride; Chemische fabrik von Heyden. diag Hydrocarbon Process & Pet Refiner 42:211 N '63

PHTHALIC anhydride—Manufacture—*Cont.*

Phthalic anhydride: Foster Wheeler corp. diag Hydrocarbon Process & Pet Refiner 42:212 N '63

Phthalic anhydride: Scientific design co. diag Hydrocarbon Process & Pet Refiner 42:213 N '63

Phthalic anhydride set for production. Oil & Gas J 62:87-8 N 2 '64

U.K.'s phthalic anhydride picture changes. il Chem & Eng N 42:166-7 S 7 '64

PHTHALIMIDE

Catalytic vapour-phase transformation of isoquinoline to phthalimide. S. K. Ray and others. J Ap Chem 14:129-31 Mr '64

PHYSICAL apparatus and instruments

Calibration of 30-cm Faraday cup. J. N. Palmieri and R. Goloskie. bibliog diags R Sci Instr 35:1023-6 Ag '64

Darcy's law. G. W. Horton. diag Am J Phys 32:569 Jl '64

Electromagnetic levitator. H. E. White and H. Weltin. il diags Am J Phys 31:925-9 D '63

Improved quiescent plasma source. N. Rynn. bibliog il diags R Sci Instr 35:40-6 Ja '64

Spinthariscope for measuring alpha activity. Engineer 218:26 Jl 3 '64

Undergraduate laboratory timer. B. E. Clotfelter. Am J Phys 31:885 N '63

See also

Astronomical instruments
Cyclotron
Extensometers
Geophysical instruments
Goniometers
Optical instruments
Scientific apparatus and instruments
Sound—Apparatus

Exhibitions

Institute of physics and the Physical society annual exhibition, 48th, Jan. 6-9. il Chem & Ind p285-9 F 15 '64

Institute of physics and the Physical society exhibition, London. il Engineer 217:75-7, 126-7 Ja 10-17 '64

Physical society exhibition, London, Jan. 6-9. il Engineering 197:13 Ja 3 '64; Wireless World 70:12-21 Ja '64

PHYSICAL chemistry. See Chemistry, Physical and theoretical

PHYSICAL constants

Consistent set of physical constants proposed. Chem & Eng N 41:43-4 N 18 '63

New values for the physical constants. Instruments & Control Systems 37:85-7 Ja '64

New values for the physical constants. Phys Today 17:48-9 F '64

See also

Boiling points

PHYSICAL examinations

Effect of cytologic program on pelvic examinations. I. N. Dubin and others. Archives Environmental Health 9:514-20 O '64

Method for the detection of the hidden diabetic in industry. H. T. Englehardt. bibliog Ind Med 33:742-3 O '64

Periodic evaluation of outpatients. J. C. Lashof and I. R. Turner. bibliog Archives Environmental Health 8:531-8 Ap '64

Preplacement examinations in industry having a pulmonary health hazard. J. W. G. Hannon. il Ind Med 33:62-4 F '64

Statistical evaluation of recurrent medical examinations. T. L. Lincoln and G. H. Weiss. bibliog Op Res 12:187-205 Mr '64

PHYSICAL geography

Distribution of active volcanoes; summary of preliminary results of three-dimensional least-squares analysis. J. H. Tatsch. bibliog Geol Soc Bul 75:751-2 Ag '64

See also

Climatology
Drainage (physical geography)
Paleogeography

PHYSICAL laboratories

Berkeley physics laboratory. A. M. Portis. bibliog il Am J Phys 32:458-64 Je '64

Laboratory-techniques course for physics students. J. Hart and K. F. Hafner. il Am J Phys 32:265-6 Ap '64

See also

Great Britain—National physical laboratory, Teddington

Equipment

Apparatus notes. Published in monthly numbers of American journal of physics

Mössbauer-effect apparatus for an advanced undergraduate teaching laboratory. A. J. Bearden and others. bibliog diags Am J Phys 32:109-19 F '64

Two-dimensional air table. H. A. Daw. il diag Am J Phys 31:867-9 N '63

Versatile ballistic pendulum. R. W. Barton. il Am J Phys 32:229-32 Mr '64

PHYSICAL measurements

See also

Dimensional analysis
Doppler effect
Electric measurements
Temperature—Measurement
Vibration—Measurement
Viscosity—Measurement

PHYSICAL research

Fundamental research in underdeveloped countries. M. J. Moravcsik. il Phys Today 17:21-5 Ja '64; Discussion. H. Schenck, jr. 17:75+ Jl '64

IQSY: International years of the quiet sun. Phys Today 17:78-9 F '64

PHYSICAL society, American. See American physical society

PHYSICIANS

Child health station personnel; a profile. M. Goldman and others. Am J Pub Health 54:1302-11 Ag '64

Doctor, his patient, and the environment. L. E. Hinkle, jr. bibliog Am J Pub Health 54:11-17 pt 2 Ja '64

General practitioner in prepaid group practice plans. I. S. Neiman. bibliog Am J Pub Health 53:1635-43 O '63

In-plant postgraduate psychiatric training. J. Donnelly and J. H. Houck. bibliog Archives Environmental Health 9:355-63 S '64

Occupational health for general practitioners. J. S. Felton. bibliog Archives Environmental Health 9:99-103 Jl '64

Physician and the dietitian; editorial. D. Johnson. Am J Clinical Nutrition 14:183-5 Ap '64

Physician related outbreak of hepatitis. W. J. Dougherty and R. Altman. Am J Pub Health 53:1618-22 O '63

Role of the general practitioner in zoonoses. S. P. Leinbach. Ind Med 33:322-5 My '64

See also

Lanza, Anthony J.

PHYSICIANS offices

See also

Medical buildings

PHYSICISTS

Anniversaries in 1964 of interest to physicists. E. S. Barr. bibliog Am J Phys 32:285-305 Ap '64

Education and manpower in physics. F. Boercker. bibliog flow diag Phys Today 17:42-4+ S '64

Physicist goes visiting. W. W. Watson. il Phys Today 17:28-32 Mr '64

Physics doctorates. Phys Today 17:78 Mr '64

Some results of the 1962 physics roster. S. Barisch. Phys Today 17:48-53 Ap '64

See also

Bauer, Edmond
Michels, Walter Christian
Regge, Tullio
Szilard, Leo
Wu, Chien Shiung

PHYSICS

American physics comes of age. J. H. Van Vleck. Phys Today 17:21-6 Je '64

Axiomatic approach to dimensions in physics. M. Parkinson. Am J Phys 32:200-5 Mr '64

National conference of regional counselors in physics. 1st, St Louis, March 8-9. Phys Today 16:41-2+ D '63

Physics of nonthermal radio sources. S. P. Maran. il Phys Today 16:33-5 N '63

Physics refresher (cont). B. G. A. Skrotzki. diags Power 107:130-1 N; 154-5 D '63

Radar meteorology and cloud physics. bibliog J Res Nat Bur Stand 68D:555-7 My '64

Symmetry and conservation laws. E. P. Wigner. bibliog Phys Today 17:34-40 Mr '64

Symposium on physics and nondestructive testing; abstracts of papers. il Metal Prog 85:130+ My '64

Third revolution in 20th century physics. A. W. Stern. bibliog Phys Today 17:42-5 Ap '64

Tyger hunting in the Everglades; conference on symmetry principles at high energy. L. M. Brown. Phys Today 17:36-40 Ap '64

See also

American institute of physics
Atoms
Ballistics
Compressibility
Cyclotron
Diffusion
Dimensional analysis
Dynamics
Elasticity
Electricity

PHYSICS—See also—*Continued*

Electrodynamics

Electromagnetic theory

Electrons

Evaporation

Expansion (heat)

Fluids

Force and energy

Free energy

Friction

Geophysics

Gravitation

Gravity

Heat transmission

Hydraulics

Inertia (mechanics)

Ionization, Gaseous

Ions

Light

Liquids

Magnetism

Meteorology

Molecules

Music—Acoustics and physics

Neutrons

Nuclear physics

Particles, Elementary

Photoelasticity

Plasma (physics)

Plasticity

Porosity

Pressure

Quantum theory

Radiation

Reflection (optics)

Relativity (physics)

Relaxation time (physics)

Sound

Space and time

Statistical mechanics

Steam

Temperature

Thermodynamics

Turbulence

Uncertainty principle

Velocity

Vibration

Viscosity

Vortex motion

Wave mechanics

Work function

Bibliography

Book reviews. Published in monthly numbers of American journal of physics

Book reviews. Published in monthly numbers of Physics today

Resource letter FC-1 on the evolution of the electromagnetic field concept. W. T. Scott. Am J Phys 31:819-26 N '63

Selected abstracts of publications of the National bureau of standards (cont). J Res Nat Bur Stand 67A:639-45; 68A:139-44, 253-8, 335-42, 419-23, 541-6 N '63-S '64

Dictionaries and encyclopedias

Encyclopaedic dictionary of physics. J. Thewlis and others, eds. Review, by A. Lemonick. Am Scientist 52:389-93 S '64

Examinations

Open-book tests. N. W. Goldsmith. Am J Phys 32:321 Ap '64

Experiments

Behavior of a helium balloon in a car. H. G. Graetzer and P. W. Williams. Am J Phys 31:302-3 Ap '63; Discussion. J. A. Van den Akker. diags 31:943-4 D '63

Compton effect; a simple laboratory experiment. A. A. Bartlett. il diags Am J Phys 32:127-34 F '64

Compton effect; experiment for the advanced laboratory. A. A. Bartlett and others. il diags Am J Phys 32:135-42 F '64

Experiment offering varied experience; conductivity changes of a germanium crystal under tension and illumination. M. Allen and E. J. Saxl. bibliog diags Am J Phys 31:837-41 N '63

Experiment to demonstrate the finite velocity of light (educational exhibit). J. M. Osborne. il diag J Sci Instr 41:279-80 My '64

Experimental experiments in the elementary physics laboratory. H. M. Landis. il diags Am J Phys 32:704-6 S '64

Inexpensive physical pendulum experiment. H. Weltin. diag Am J Phys 32:267-8 Ap '64

Laboratory experiment on the kinetic theory of gases. F. L. Weichman. diag Am J Phys 31:930-1 D '63

Laboratory experiments on the Hall effect using evaporated metal films. M. A. Jeppesen and others. bibliog diag Am J Phys 31:860-3 N '63

Library of experiments. F. Oppenheimer and M. Correll. Am J Phys 32:220-5 Mr '64

Magnetic resonance experiment for the undergraduate laboratory. P. J. Limon and R. H. Webb. bibliog il Am J Phys 32:361-4 My '64

Mechanical binary scaler. B. I. H. Scott. diag Am J Phys 32:645-6 Ag '64

Resonant detection of light pressure by a torsion pendulum in air; experiment for underclass laboratories. R. E. Pollock. Am J Phys 31:901-4 D '63

Simple experiment on electroluminescence. H. L. Armstrong and J. Hancock. Am J Phys 32:384-5 My '64

Sophmore-laboratory experiment on the viscosity of air. F. Oppenheimer. il diag Am J Phys 32:526-8 Jl '64

Student experiment in Fresnel diffraction. P. A. Young. diags Am J Phys 32:367-9 My '64

Temperature variation of gamma for various gases; a student experiment. D. J. Cronin. diag Am J Phys 32:700-4 S '64

Theory of the air-supported puck. W. M. Whitney. diags Am J Phys 32:306-12 Ap '64

Translation project on Soviet lecture demonstrations in physics. H. A. Robinson. Am J Phys 32:56-8 Ja 64

Undergraduate experiment on elasticity of rubber bands. E. P. Papadakis. Am J Phys 31:938-9 D '63

Undergraduate laboratory experiment for studying the motion of coupled mechanical systems. F. Bueche and C. Pavelka. diags Am J Phys 32:226-8 Mr '64

See also

Nuclear physics—Experiments

History

Teaching the history of physics. R. J. Seeger. Am J Phys 32:619-25 Ag '64

Study and teaching

Beating about the calculus bush. I. M. Freeman. Am J Phys 32:319-20 Ap '64; Discussion. R. Weinstock. 32:644-5 Ag '64

City of Liverpool college of technology regional college; Department of physics and mathematics. R. Thorburn. Chem & Ind p 1005-6 Je 13 '64

COPFIC report on teaching physics in the four-year colleges. bibliog Phys Today 17:36-8+ My '64

Education and manpower in physics. F. Boercker. bibliog flow diag Phys Today 17:42-4+ S '64

Emission spectroscopy as an elective for science majors and engineers. J. T. Peters. il Am J Phys 32:802-4 O '64

Experiences with solder glass and students. J. G. King. diag Am J Phys 32:473-8 Je '64

Laboratory-techniques course for physics students. J. Hart and K. F. Hafner. il Am J Phys 32:265-6 Ap '64

Less may be more. P. Morrison. Am J Phys 32:441-57 Je '64

Lorentz transformation in the undergraduate curriculum. J. E. Romain. Am J Phys 31:870-1 N '63

Novel derivation of the formula for the period of simple harmonic motion. L. C. Baird. diag Am J Phys 32:233-4 Mr '64

Physicist goes visiting. W. W. Watson. il Phys Today 17:28-32 Mr '64

Programmed materials for college physics teaching. T. Logan. Am J Phys 31:886-7 N '63

Progress report of the Commission on college physics. diag Am J Phys 32:398-427 Je '64

Remedial programs. H. R. Crane. diags Am J Phys 32:465-73 Je '64

Report of a conference on physical science courses. Am J Phys 32:428-32 Je '64

Teaching of gyroscopic precession. L. Larmore. Am J Phys 32:595-6 Ag '64

Teaching physics in the elementary grades; science curriculum improvement study. R. Karplus. il Phys Today 17:34-8 O '64

Teaching significant figures. T. H. Logan. Am J Phys 32:258-9 Ap '64

Undergraduate curricula in physics; report on the Princeton conference on curriculum S. E. L. Jossem. Am J Phys 32:491-7 Je '64

PHYSICS, Mathematical. See Mathematical physics

PHYSICS laboratories. See Physical laboratories

PHYSICS students

Foreign students and immigrant physicists. Phys Today 16:57-8+ N '63

Prediction of success in physics for high-ability students; a small sample study. N. F. Dessel. Am J Phys 32:197-9 Mr '64

PHYSICS teachers

1964 citations for distinguished service. V. E. Parker. Am J Phys 32:365-6 My '64

PHYSICS teachers—*Continued*
Study programs for college physics teachers; an analysis of supply and demand. A. A. Strassenburg. Am J Phys 32:433-40 Je '64

PHYSIOLOGICAL apparatus
See also
Biomedical engineering
Electrocardiograph
Electrophysiology—Apparatus
Oxygen apparatus
Respirometers

PHYSIOLOGICAL chemistry
See also
Biochemistry
Cadmium in the body
Chromium in the body
Fat
Nickel in the body
Radioactive substances in the body
Strontium in the body
Titanium in the body

Bibliography

Reviews of recent books. Am J Clinical Nutrition 14:128, 310; 15:57-8, 115 Mr, My, Jl-Ag '64

PHYSIOLOGICAL oxidation. See Oxidation, Physiological

PHYSIOLOGICAL research
Physiological vibrator. il Engineering 198:117 Jl 24 '64
Unique test chamber used in navy's Project Genesis undersea test. il Naval Eng J 75:924 D '63
See also
Space flight—Physiological aspects

PHYSIOLOGY
Human machine, work and environment. F. H. Fuller. bibliog Mech Eng 85:22-6 D '63; Discussion. 86:81-2 Je '64
Work physiology. D. Minard. bibliog Archives Environmental Health 8:427-36 Mr '64
See also
Brain
Digestion
Fatigue
Growth
Metabolism
Radioactivity—Physiological effect
Stress (physiology)
Temperature—Physiological effect
Temperature, Animal and human

PHYTIC acid
Effect of phytic acid on the availability of zinc in amino acid and casein diets fed to chicks. H. J. A. Likuski and R. M. Forbes. bibliog J Nutrition 84:145-8 O '64

PHYTOLACCAGENIN. See Glycosides

PIANO
Looking beyond the keyboard. diag Engineering 198:32 Jl 3 '64

PICKLES
Better pickles with dextrose. il Food Eng 36:66 My '64
Some aspects of pickel pasteurisation; abstract. D. A. Shapton. Chem & Ind p 1298-9 Jl 18 '64

PICKLING (metals)
Caloric has installed two air hoists for the pickling of range components. L. Nickert. il Comp Air Mag 69:4-5 Jl '64
Hydrogen absorption and ductility of mild steel after pickling or cathodic treatment. K. Sachs and M. Odgers. bibliog Metallurgia 69:105-13 Mr '64
Limiting hydrogen absorption by and dissolution of steel during pickling. R. M. Hudson and K. J. Riedy. bibliog Metal Finishing 62:48-52 Jl '64
Liquid adhesion barrier boosts pickler life; Pliosil. il Steel 155:88 S 28 '64
Low-carbon steels; new analyses improve enameling traits. Iron Age 193:66-7 Je 4 '64
New technology of iron and steel: hydrochloric acid pickling. F. C. Price. flow diag Chem Eng 71:191-2 S 14 '64
Processing of rods and wire through the cleaning line. D. N. Habersack. plan diag Wire & Wire Prod 38:1691-2+ N '63
Reliable heat-scale removal starts with good cleaning. il Mach 70:141-2 My '64
Ultrasonic cleaning and pickling. S. Spring. bibliog il diag Metal Finishing 62:66-71 Mr '64

PICKUP. See Phonograph—Pickup

PICOLINIC acid
Influence of nicotinic, picolinic and pyridine-3-sulfonic acids on cholesterol metabolism in the rat. D. Kritchevsky and S. A. Tepper. bibliog J Nutrition 82:157-61 Ja '64

PICRIC acid
New etchant brings out grain boundaries in martensitic steels. G. A. Dreyer and others. il Metal Prog 86:116-17 Jl '64
Picric acid and tetracyanoethylene complexes of some benzocycloalkenes. J. B. F. Lloyd and P. A. Ongley. Chem & Ind p 1267-8 Jl 11 '64

PICTURES
See also
Photographs

PIERCING. See Punching

PIERS
Damaged piles found safe; points prevent damage. B. Silveston and I. Greenzang. il Eng N 172:20-1 Ja 2 '64
Peru's Callao gets two new piers. il map Eng N 172:40 My 28 '64
Resistance of cylindrical piers in open-channel flow. T. Hsieh. diags Am Soc C E Proc 90 [HY 1 no 3770]:161-73 S '64; Discussion. 90 [HY 5 no 4050]:223-30 S '64
Ten down, two to go in $95-million pier plan. il Eng N 171:25 D 12 '63
Unit locates logs automatically. il Eng N 172:49 F 20 '64
See also
Fenders, Dock

PIERS (foundations)
Reusable forms solve pier variables. il Roads & Sts 107:64-7 F '64
See also
Bridges—Foundations and piers

PIERS, Concrete
Innovations simplify pier extension and repair. R. A. Papp. il diags Civil Eng 34:48-50 Jl '64
Nervi gives a factory the grace of a bridge. il diags Arch Forum 121:110-13 Jl '64

PIES
Upgrades product and process: new milo starch cuts preparation time for pie fillings. W. H. Minkema. il Food Eng 36:94 Ap '64

PIEZOELECTRIC crystals. See Crystals, Piezoelectric

PIEZOELECTRICITY
Application of a piezoelectric bar gauge to shock tube studies. D. H. Edwards and others. bibliog diags J Sci Instr 41:609-13 O '64
Automatic plot of piezoelectric resonance. A. Aharoni and D. Sapoznikov. il diag R Sci Instr 35:1370-1 O '64
Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64
Piezoelectric gauges for measuring rapidly varying pressures up to seven kilobars. A. W. Blackstock and others. bibliog diag R Sci Instr 35:105-10 Ja '64
Piezoelectric sensitivity and reproducibility of Z-cut tourmaline to 7 kbar. J. R. Hearst and others. il diags J Ap Phys 35:2145-50 Jl '64
Piezoelectricity in salicylidene aniline crystals. A. Aharoni and D. Sapoznikov. bibliog diag J Ap Phys 35:1906-9 Je '64
Ruby laser with piezoelectrically excited vibrating reflector. E. A. Gerber and E. R. Ahlstrom. il J Ap Phys 35:2546-7 Ag '64
Studies concerning the piezoelectric control of an electroluminescent display. Y. Yamamoto and J. Frost. diags IEEE Proc 52:77-8 Ja '64
Thumbtack accelerometer for the 1.5-150 kc range. P. Hertelendy and P. Reynard. diags R Sci Instr 35:1305-6 O '64
See also
Oscillators, Crystal

PIG iron
Blast or rotary furnace? Stora betting on latter. diag Steel 153:59 N 11 '63
Foundry pig iron has nodular graphite. il Foundry 92:86 Mr '64
Hot-blast cupola makes iron fast. il Iron Age 192:47 N 21 '63
Injected bubbles lighten ironmaking. diags Iron Age 194:81 N 5 '64
Ironmaking in the Stora rotary furnace. E. Bengtsson and others. diags J Metals 16:337-9 Ap '64
New fires under merchant iron. T. M. Rohan. il Iron Age 194:27 S 3 '64
New pig iron production method similar to Kaldo process. il diag Iron & Steel Eng 40:143-4 N '63
Process makes low-phosphorus iron directly from ore. Chem & Eng N 41:47 N 11 '63
See also
Iron founding

PIGMENTS
Detection of resin-bonded pigments and mass-pigmented fibres. B. C. Burdett. bibliog Soc Dyers & Col J 80:83-7 F '64

PIGMENTS—*Continued*

Effect of particle shape and chemical composition on the packing characteristics of pigment combinations. R. W. Hagemeyer. Tappi 47:74-7 F '64

Hiding power versus tinting strength. Ind Finishing 40:118-19 My '64

Influence of chemical composition on the packing of pigment particles. R. W. Hagemeyer. Tappi 47:595-8 O '64

Microscopy of pigment-elastomer systems. W. M. Hess and F. P. Ford. il Rubber Chem & Tech 36:1175-229 bibliog(p 1227-9) D '63

Role of pigments in current day textile printing. A. Booth. Am Dyestuff Rep 53:904 O 12 '64

Thumbnail guide to cosmetic color additives. H. D. Goulden. Drug & Cosmetic Ind 94:186-7 F '64

Titanium dioxide; valuable pigment. Ind Finishing 40:96-7 Je '64

See also
Carbon black
Carotene
Cochineal
Dyes and dyeing
Manganese, Powdered
Nepheline syenite
Titanium oxides

Manufacture

Flame process produces titanium pigments. flow diag il Automation 11:57-9 F '64

Testing

New laboratories to make white whiter. il Engineering 196:571 N 1 '63

PIGMENTS, Biological

Astacene pigment loss occurring in freeze-dried shrimp and salmon during storage. G. Lusk and others. bibliog Food Tech 18:751-2 My '64

Carotenoids of diospyros kaki (Japanese persimmons). J. Brossard and G. Mackinney. bibliog J Agri & Food Chem 11:501-3 N '63

Color and pigment stability of packaged refrigerated beef. A. A. El-Badawi and others. bibliog Food Tech 18:753-7 My '64

Flower pigments. S. Clevenger. il diags Sci Am 210:84-8+ Je '64

Pigment changes in anaerobically packaged ground beef. A. J. Cutaia and Z. J. Ordal. bibliog Food Tech 18:757-60 My '64

Separation of planktonic algal pigments by thin layer chromatography. H. Rai and G. F. Lee. bibliog diags Anal Chem 36:2208-9 O '64

Structure of erythroskyrine, a nitrogen-containing colouring matter of penicillium islandicum Sopp. J. Shoji and S. Shibata. Chem & Ind p419-21 Mr 7 '64

Structure of itaconitin, a colouring matter of aspergillus itaconicus Kinoshita. S. Nakajima and others. bibliog Chem & Ind p805-6 My 9 '64

Structure of spinochrome M. C. W. J. Chang and others. bibliog Am Chem Soc J 86:2959-61 Jl 20 '64

See also
Chlorophyl
Gossypol
Porphyrins

PILE drivers

Coiler makes hammer cushions. il Eng N 171:48 N 28 '63

Diesel hammer breaks pavements. il Eng N 171:178 D 19 '63

Foam rescues pile driver. il Plastics World 22:52 O '64

New for Shell in '64; a noiseless sonic pile driver. Oil & Gas J 62:106-7 Ja 27 '64

Now you can drive piles without noise or vibration. il Power Eng 68:35 O '64

Silent pile driver operates on quagmire principle. il Machine Design 36:148 Mr 12 '64

Sonic piledriver takes test as fast, soft-ground tunneler. il Eng N 172:16-17 Ja 9 '64

Tracked Diesel-hydraulic pile driver. il Engineer 218:430-1 S 11 '64

Vibratory driver successful for sheetpile cells. E. W. Boggs. il diags Civil Eng 34:58-60 Ap '64

PILE fabrics

Fact file 1964; tufting. Textile World 114:92+ Jl '64

For producing high quality yarns for tufting Whitin's sliver-to-yarn system. F. M. Johnson. flow chart il Mod Textiles Mag 45:60+ Je '64

How to tuft Herculon. P. C. Kochhar. il Textile Ind 127:130-2 N '63

Pile fabrics. D. Frishman. bibliog il diags Textile Ind 128:67-72 Ag; 70-2+ S; 175+ O '64 (to be cont)

Pile fabrics; how they are made and marketed. S. P. Leffler. Mod Textiles Mag 44:48-52 D '63

Pile fabrics specialist; Glenoit Mills. il Mod Textiles Mag 44:25-7 N '63

Tufted textiles; 10th annual review. il Textile Ind 128:77-87+ My '64

Tufters see billion dollar sales ahead, hear of need for more styling, research. il Mod Textiles Mag 45:22-4 Je '64

PILES and pile driving

Allowable bearing capacity of initially bent piles. B. B. Broms. bibliog diags Am Soc C E Proc 89 [SM 5 no 3651]:73-90 S '63; Correction. 90 [SM 3 no 3907]:179 My '64

Analysis of pile groups with flexural resistance. A. J. Francis. bibliog diags Am Soc C E Proc 90 [SM 3 no 3887]:1-32 My '64

Bearing capacity of piles in cohesionless soils. R. L. Norlund. bibliog diags Am Soc C E Proc 89 [SM 3 no 3506]:1-35 My '63; Discussion. 89 [SM 6 no 3701]:125-6 N '63; 90 [SM 1 no 3781]:127-31 Ja '64; Reply. 90 [SM 4 no 3979]:139-43 Jl '64

Computer study of dynamic behavior of piling. C. H. Samson, jr. and others. bibliog diags Am Soc C E Proc 89 [ST 4 no 3608]:413-49 Ag '63; Discussion. J. L. Reese and P. W. Forehand. 90 [ST 1 no 3812]:259-60 F '64; Reply. 90 [ST 4 no 4001]:269-70 Ag '64

Damaged piles found safe; points prevent damage. B. Silveston and I. Greenzang. il Eng N 172:20-1 Ja 2 '64

Determining the capacity of bent piles. S. M. Johnson. bibliog diags Am Soc C E Proc 88 [SM 6 no 3349]:65-79 D '62; Discussion. 89 [SM 3 no 3528]:177-80 My; [SM 4 no 3578]:213-16 Jl '63; Reply. 90 [SM 1 no 3781]:101-2 Ja '64

Double pile resists subsoil acid. il diag Eng N 172:96-7 F 13 '64

$59-million job shaken to stop? vibration of piledriving has raised fears for the safety of nearby structures. Eng N 171:20-1 N 28 '63

Inspector checks slope of hollow piles. Eng N 173:55 S 10 '64

Lateral resistance of piles in cohesionless soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 3 no 3909]:123-56 My '64

Lateral resistance of piles in cohesive soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 2 no 3825]:27-63 Mr '64

Load transfer in a step-taper pile. E. D'Appolonia and J. A. Hribar. bibliog diags Am Soc C E Proc 89 [SM 6 no 3700]:57-77 N '63; Discussion. K. V. Swaminathan. 90 [SM 4 no 3979]:199-202 Jl '64

Load transfer in end-bearing steel H-piles. E. D'Appolonia and J. P. Romualdi. bibliog il diags Am Soc C E Proc 89 [SM 2 no 3450]:1-25 Mr '63; Discussion. 89 [SM 5 no 3654]:127-32 S; [SM 6 no 3701]:97-100 N '63; Reply. 90 [SM 3 no 3907]:163-4 My '64

Major bids taken for record building; piledriving ends, steelwork starts moon rocket assembly plant at Cape Kennedy. il Eng N 172:15 Ja 16 '64

Not so much piling for town underpass. il diag Engineering 196:622 N 15 '63

Pile foundations for retaining structures. K. R. Patel. diags Civil Eng 33:43 D '63

Prediction of pile capacity by the wave equation. P. W. Forehand and J. L. Reese, jr. bibliog Am Soc C E Proc 90 [SM 2 no 3820]:1-25 Mr '64

Pressure grout piles support 230-kv towers in boggy soil. G. Aslaksen. il diags Power Eng 68:47-8 Ja '64

Seismic analysis of bridges on long piles. J. Penzien and others. diags Am Soc C E Proc 90 [EM 3 no 3953]:223-54 Je '64

Steel H-piles anchor breakwater. diag Eng N 173:31 O 29 '64

See also
Concrete piling
Pile drivers
Sheet piling

Testing

Michigan pile test lid lifts a little. Eng N 173:12-13 O 29 '64

Studying the behaviour of bored piles in London clay. Engineering 197:428 Mr 20 '64

PILFERAGE. See Theft

PILOT plants. See subdivision Experimental plants under special subjects, e.g. Chemical plants; Metal working plants; Petroleum refineries; Sewage disposal plants; Steel works; Waterworks

PIMIENTOS. See Peppers

PINACEAE
See also
Metasequoia

PINACOL
Possible formation of crossed pinacols in the photolysis of benzophenone mixtures. H. W. Johnson, jr. and others. Chem & Ind p 1493 Ag 22 '64

PINE
Anatomical factors influencing wood specific gravity of slash pines and the implications for the development of a high-quality pulpwood. J. P. van Buijtenen. bibliog Tappi 47:401-4 Jl '64
Chemistry of New Zealand grown pinus radiata; prehydrolysis-sulfate pulps. D. J. Brasch and K. W. Free. bibliog Tappi 47:186-9 Ap '64
Composition of turpentine from pinus khasya. G. S. Fisher. bibliog Chem & Ind p 1761 N 2 '63
Correlation and heritability of certain wood properties in loblolly pine (pinus taeda L.). J. F. Goggans. bibliog Tappi 47:318-22 Je '64
Correlation of fibril angle with wall thickness of tracheids in summerwood of slash and loblolly pine. C. H. Hiller. bibliog Tappi 47:125-8 F '64
Correlations between fiber dimensions and fiber and handsheet strength properties. D. W. Einspahr. bibliog Tappi 47:180-3 Ap '64
Effect of stress applied during drying on some of the properties of individual pulp fibers. C. A. Jentzen. bibliog il Tappi 47:412-18 Jl '64
Factors affecting yield increase and fiber quality in polysulfide pulping of loblolly pine, other softwoods, and red oak. N. Sanyer and J. F. Laundrie. bibliog Tappi 47:640-52 O '64
Factors influencing the dynamic strength of pine sulfate pulp. E. L. Springer and others. bibliog Tappi 47:463-7 Ag '64
Inheritance of specific gravity in two and three-year-old seedlings of loblolly pine. R. Stonecypher and others. Tappi 47:405-7 Jl '64
Patterns of variation in specific gravity of southern pines and other coniferous species. H. L. Mitchell. bibliog il maps Tappi 47:276-83 My '64
Pine growth aided by nitrogen in North Carolina experiments. Paper Ind 46:498 S '64
Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64
Retention of polysaccharides in kraft pulping; the effect of borohydride addition to kraft liquor on pulp yield, chemical characteristics and papermaking properties of pinus radiata pulps. A. Meller and E. L. Ritman. bibliog Tappi 47:55-64 Ja '64
Wood characteristics and kraft paper properties of four selected loblolly pines. A. C. Barefoot and others. bibliog Tappi 47:343-56 Je '64

PINE needles
Ignition delay of ponderosa pine needles and sphagnum moss. R. W. Mutch. bibliog J Ap Chem 14:271-5 Jl '64

PINE oil
Pine oil effective laundry disinfectant. Soap & Chem Spec 40:191 Ja '64
See also
Tall oil

PINEAPPLES
Determination of beta-hydroxyethyl-hydrazine in pineapples. M. P. Thomas and H. J. Ackermann. bibliog J Agri & Food Chem 12:432-3 S '64

PINENE
Hydroboration of terpenes: the hydroboration of α- and β-pinene, the absolute configuration of the dialkylborane from the hydroboration of α-pinene. G. Zweifel and H. C. Brown. bibliog Am Chem Soc J 86:393-7 F 5 '64
Perfumery chemicals from pinene. B. D. Sully. Chem & Ind p263-7 F 15 '64

PINS, Machinery
Metal-in-plastic inserts; illustrations with text. F. Strasser. Machine Design 36:174-8 Ja 16 '64
Projecting pins keep new drive belt from slipping. il Machine Design 36:12 Je 4 '64
Slotted spring pins find many jobs; drawings with text. R. O. Parmley. Product Eng 35:68-9 Ag 31; 74-5 S 28 '64

PINUS khasya. See Pine

PIPE. See Pipes

PIPE bending
Prevention of pipe failures. H. Thielsch. il Heating-Piping 35:115-19 F '63; Discussion. 35:93-4 Je '63; 36:114+ Ja '64
See also
Tube bending

PIPE bending machines
Cold bending twists pipes 180 degrees plus. Steel 155:47 O 12 '64
Electrically powered portable automatic bender. il Mach 70:163-4 Ag '64
Modular-design machine bends tubes accurately. E. M. Wishing. il Tool & Manuf Eng 53:63-4 Jl '64
New bender will handle 48-in. pipe. il Oil & Gas J 62:104 O 5 '64
Pipe bending on a press brake. R. J. Phillip. il diag Mach 70:144 My '64
Popular pipe bender makes good use of welded tubulars. T. B. Jefferson. il Welding Eng 48:42-4 D '63

PIPE bends
Compliances of pipe components. J. E. Brock. bibliog diags Naval Eng J 76:535-8 Ag '64

PIPE coating
Bacteria thrive on pipe wraps. Eng N 172:105 Ap 2 '64
Guide for selecting coatings for pipes of pipe-type cable systems. bibliog diag IEEE Trans Power Apparatus & Systems 83:783-94 Ag '64
Thin wall coatings for pipelines; abstract. F. Costanzo. Metal Prog 85:180+ Ap '64

PIPE coating, Plastic
Buton coating; X-60 pipe and CO_2 welding team up. J. P. O'Donnell. il map Oil & Gas J 62:92-4+ Mr 30 '64
Coatings form unbreakable bonds. J. E. Sandford. il Iron Age 194:53-5 Ag 20 '64
High-speed installation with plastic-coated pipe. il Gas Age 131:30-1 My '64
Mill-applied plastic pipe coating. il Gas Age 130:34-5 N '63
New process coats pipe at mill. H. C. Bozeman. il Oil & Gas J 62:101+ Ja 20 '64
Plastic-coated lines guard fuel. il plan Oil & Gas J 62:66 F 24 '64

PIPE coils. See Coils. Pipe

PIPE coverings
Design principles of underground prefabricated, air-testable conduit systems. J. L. Martin and C. G. Van Schoor. ASHRAE J 6:37-9 Je '64
Electrical strip heats pipelines. diag Mech Eng 85:70 N '63
Extruding a plastics sheath over steel pipe. il Chem Eng 70:34-6 D 23 '63
Fibers keep pipe under wraps. il Iron Age 194:158 S 24 '64
Heat conductive sheeting; Cellotherm. W. J. Beach. diags Soap & Chem Spec 40:164+ Ag '64
Loose plastic film wrap as cast-iron pipe protection. E. F. Wagner. il Am Water Works Assn J 56:361-8 Mr '64
Pipe insulation seals itself. Eng N 172:190 Je 18 '64
Preformed pipe insulation to 27½-in. dia meets startup deadline. il Elec World 162:90-1 O 5 '64
Thin wall coatings for pipelines; abstract. F. Costanzo. Metal Prog 85:180+ Ap '64
Urethane foam insulation keeps heavy oil flowing. il Mod Plastics 41:123 Je '64
Vapor-vent pipe heated with electrical tracer strip. il Elec World 160:98 D 2 '63

PIPE elbows
Compliances of pipe components. J. E. Brock. bibliog diags Naval Eng J 76:535-8 Ag '64
Performance characteristics of elbow flowmeters. J. W. Murdock and others. bibliog A S M E Trans ser D 86:499-503; Discussion. 504-6 S '64
Resistance welding machines cut downspout elbow costs; speed spark plug production. il Welding Eng 49:77 N '64

PIPE fittings
Hose, fittings and assemblies; fluid power component selection charts. Hydraulics & Pneumatics 17:97 Ja '64
New flared tube fitting cuts leakage. R. E. Robertson and W. F. Britt. S A E J 72:85 Ap '64
Pipe supports and hangers. B. L. Sturdevant and W. C. Battey. diags Air Cond Heat & Ven 60:53-6 D '63
Pipe-tube connections; reference sheet. W. J. Quinn. diags Tool & Manuf Eng 53:73 O '64
Pipe, tubing, and fittings. J. Nicol. diags Machine Design 35:99-105 D 12 '63
Removable plugs seal pipe ends; drawings with text. Product Eng 35:76-7 Ja 6; 88-9 F 3 '64
Shrinks occur at the flange; question and answer. Foundry 92:66 F '64
Tube and port fittings; fluid power component selection charts. Hydraulics & Pneumatics 17:120 Ja '64
See also
Pipe hangers
Pipe joints
Plumbing

PIPE fittings, Plastic

Plastics pipe portal-to-portal. L. Stoll. il plan Gas 40:76-81 Mr '64

PIPE flanges

Bolt force to flatten warped flanges. S. Levy. diags A S M E Trans ser B 86:269-72 Ag '64

PIPE hangers

Pipe supports and hangers. B. L. Sturdevant and W. C. Battey. diags Air Cond Heat & Ven 60:53-6 D '63

PIPE joints

Expansion joint for pipe-type cable lines. N. B. Timpe. il diags IEEE Trans Power Apparatus & Systems 83:671-4 Jl '64
Field-joining of reinforced plastic pipe. il Plant Eng 18:96 S '64
Flexible metal hose handles vibration, expansion in cryogenic piping. il diag Heating-Piping 35:115-18, cover N '63
Fuelling method of bell joint sealing. J. V. Roegiers. bibliog il Gas 40:59-67 Jl '64
How to prevent stress corrosion cracking of 300 series stainless steel bellows expansion joints used in steam and htw heating systems. R. B. Hill and A. R. C. Markl. il Heating-Piping 36:103-7 O '64
Huge sliding joints for relief. il Chem Eng 70:98 D 9 '63
Joining glass-fiber reinforced pipe. T. Lautenbach. il Chem Eng 71:124+ Ag 3 '64
Natural gas pipe double jointed in plant. il Welding Eng 49:56-7 Ag '64
Precast outside drop manholes use rubber gasket joints. D. F. Hanley. il diag Pub Works 95:93 Jl '64
Reinforced plastic assembly made easy. T. Lautenbach. il diags Mod Plastics 41:91-3+ Je '64
Welded tube joints easily disconnected. il diags Welding Eng 49:66 Jl '64
When to use and how to select hinged expansion joints. W. F. Francois. diags Hydrocarbon Process & Pet Refiner 43:169-73 Je '64

See also

Pipe elbows
Piping (power plants)

Testing

Development of a flanged joint between stainless steel and aluminium piping for liquid oxygen service. J. W. C. Usher. bibliog il diags Inst Mech Eng Proc 177 no 28:775-82; Discussion. 783-5; Reply. 786-8 '63
Flanged joints must be inspected and tested. A. H. Witten. diags Power 108:62-3 Ja '64

PIPE laying

Big concrete pipes jacked under rail line. il Roads & Sts 107:94+ Mr '64
Canadian contractor finds U.S. job tough. L. O. Rowland. il Pet Management 36:104-6+ My '64
Device buries tube without trenching. il Eng N 172:107 My 21 '64
Forcing large bore pipes underground by two methods. il Engineering 197:621 My 1 '64
How Olean, N.Y., ended its distribution system woes. C. H. Weatherell. il Water Works Eng 116:963+ D '63
Pipelaying in a single pass. il Eng N 172:49 Ap 9 '64
Pipe-laying speed halves Critical path method schedule. J. S. Miller. il diag Civil Eng 34:52-3 Ap '64
Tampers pace pipe setters. il Roads & Sts 107:56-8 Ja '64

See also

Gas, Natural—Pipe lines—Construction
Petroleum products pipe lines—Construction
Pipe joints
Water distribution

PIPE laying, Subaqueous

Bundled pipelining. il Comp Air Mag 69:16 S '64
Divers drill and shoot a trench in rock under mud and water. il Eng N 173:34-6 Ag 27 '64
Mechanized contour display helps lay ocean pipeline. R. M. Gitlin. diags Control Eng 11:125+ My '64
Naphtha used to submerge submarine pipeline. R. R. Burnett. il plan diag Pet Management 36:165+ O '64
Ol' Man River vs. the pipeliner. il Gas Age 131:21-3 Mr '64
Pipelining with air and television. J. L. Russell. il Comp Air Mag 69:24-6 S '64
Shifting bed; hazard to river crossings. S. A. Mason. il diag Water Works & Wastes Eng 1:58-9+ Mr '64
Texas eastern transmission corporation builds Venice-New Roads line. il map Gas 40:55-69 Ag '64
Underwater pipeline laid at record rate. il Oil & Gas J 62:132 Mr 2 '64

PIPE line contractors association

Annual meeting, 16th, Hollywood, Fla. Oil & Gas J 62:64-7 Ja 20 '64

PIPE lines

Aircraft jets for pipeline pumping. R. F. Naples and D. M. Salls. il Mech Eng 86:38-9 My '64
Economics now key to solids pipelines. W. A. Doble. il Can Chem Process 47:50-2 D '63
Energy transportation conference, 1st, St Louis. Power Eng 67:44-5 D '63
Flammable liquids travel the safe way; through pipe. D. L. Cooper. il Plant Eng 18:132-3 My '64
Important savings follow use of X-60 pipe. W. S. Schaefer. il Oil & Gas J 62:96+ S 28 '64
Longest polypropylene line handles salt-water disposal. H. C. Bozeman. il Oil & Gas J 61:163-4 D 2 '63
Metallurgy of pipeline transmission systems; symposium. bibliog Can Min & Met Bul 57:119-38 F '64
Pipe heated by new electrical method at Allied Chemical plant. Oil & Gas J 61:177 N 18 '63
Pipeline flow of capsules. G. W. Hodgson and others. bibliog diags Can J Chem Eng 41:43-51; 42:1-8, 69-76, 155-61, 168-73, 201-6 Ap '63, F-Ap, Ag, O '64; Discussion. 41:181, 212 Ag, O '63
Pipeline movement of solids appears to be step nearer. Oil & Gas J 62:113 Jl 20 '64
Pipelines for chemicals. B. W. G. Ayling. Chem & Ind p 128-31 Ja 25 '64
Pumping of wood chips through a four-inch aluminum pipe-line. A. Brebner. diag Can J Chem Eng 42:139-42 Je '64
Pumping solid-liquid mixtures. A. J. Stepanoff. bibliog diags Mech Eng 86:29-35 S '64; Discussion. 86:79-80 D '64
Theory of resonance in hydropower systems. C. Jaeger. bibliog diags A S M E Trans ser D 85:631-40 D '63

See also

Coal pipe lines
Gas, Natural—Pipe lines
Gas distribution
Gas pipes
Hydraulic conveying
Manholes
Petroleum pipe lines
Petroleum products pipe lines
Pipe joints
Pipe laying
Piping (power plants)
Steam pipe lines
Water hammer
Water pipes

Bridge crossing

Bridge replaces buried crossing. D. H. McNeile. il Oil & Gas J 62:117-18 S 21 '64
Underbridge pipe goes in fast. il Eng N 173:40 Ag 13 '64

Cathodic protection

Cathodic protection in congested areas. L. H. West. diags Am Water Works Assn J 56:721-6 Je '64
Control of corrosion in water systems. J. A. Lehmann. diags Am Water Works Assn J 56:1009-18 Ag '64
High-voltage power transmission could endanger pipelines. maps diags Oil & Gas J 62:105+ Je 15 '64
More widespread use seen for thermoelectric generators. L. C. Hill. il Oil & Gas J 62:158-60 Jl 27 '64
Thermoelectric generator protects remote Montana pipeline. D. P. Price and R. Schwede. il map diag Gas 40:83-4+ Jl '64
What is cathodic protection? M. E. Parker. Gas 40:21 N '64

See also

Gas pipes—Cathodic protection

Communication systems

Automated compressor station overcame severe winter test; Mountain Fuel Supply's Nightingale station. Oil & Gas J 62:105-7 My 4 '64
Communications, tele-control. F. V. Long. Published in monthly numbers of Gas
Computerized pipeline data-gathering and control. R. P. Sanders and R. E. Schauer. il map diag Gas Age 131:21-5 O '64
Ferrite-core system controls two stations. D. D. Compton. il Oil & Gas J 61:96-8 D 9 '63
Fiberglass buildings house microwave stations. J. P. O'Donnell. il Oil & Gas J 62:97+ F 3 '64
Gas well automation. H. J. Fitzgibbon. il map diags J Pet Tech 16:873-6 Ag '64
Mountain fuel supply co. takes its first step in modern private communications. J. K. Duvall. il map Gas 39:110-12 D '63

PIPE lines—Communication systems—*Cont.*

Okan pipeline system; supervisory control. E. A. Slade. il Oil & Gas J 61:148-9 N 4 '63

On-line closed-loop computer control proved feasible for pipelines. G. L. Schuman. il map diags Oil & Gas J 62:88-94 Ap 20 '64

180 miles of buried pipeline to be used for telemetering. il diag Oil & Gas J 62:129+ Jl 6 '64

Remote control by telephone. il Ind Electronics 2:148 Mr '64

Simplified approach to digital telemetering. B. C. Joyce. il diags Gas 40:86-8 Ag '64

Some unique essentials of good liquid pipeline control. H. A. Brainerd. diag I S A J 11:43-6 Ja '64

United Gas has multifunction microwave system. Oil & Gas J 62:119 O 5 '64

Construction

Computer streamlines pipelaying schedule. J. J. Kennedy. il Pub Works 95:67-9 Ja '64

Expect construction upswing from '63 decline. Pet Management 35:228-42+ N '63

Field bending and welding of thin-wall high-tensile pipeline steels. R. Banister. Can Min & Met Bul 57:133-6; Discussion. 137-8 F '64

Guide to good practice for highway-pipeline crossings. il diags Am Soc C E Proc 90 [HW 1 no 3763]:19-52 Ja '64

Pipeline activity off to a good start. Oil & Gas J 62:42-3 F 3 '64

Pipeline products. il Gas Age 131:26-7. 30 Mr '64

Refraction seismograph in sewer and pipeline construction. G. C. Carpenter and D. R. Bassarab. il diags Water & Sewage Works 111:198-202 Ap '64

Steel pipeline follows watery rock-bound route. A. F. Robinson. il Pub Works 94:99 N '63

See also

Pipe laying

Corrosion

Economic aspects of mitigating pipeline corrosion; task force report. Am Soc C E Proc 90[PL 1 no 3779]:89-153 Ja '64

Support cuts maintenance. il Oil & Gas J 61:160-1 N 11 '63

Winning the corrosion battle. il Plastics World 22:40 Mr '64

See also

Corrosion and anti-corrosives—Underground corrosion

Gas pipes—Corrosion

Water pipes—Corrosion

Costs

Dip in pipeline costs matches record. Oil & Gas J 62:79 Jl 6 '64

What it costs to transport LP-gas. H. Thomas. map Oil & Gas J 62:138-42 My 11; 126-7 My 18 '64

Design

Hydraulic design of slurry pipes: nomograph. A. L. Simon. Water & Sewage Works 11:98-9 F '64

Location

Busy pipeline relocated in 55 hours. R. A. Bainter. il Pet Management 36:91-3 Ap '64

Electronic witch takes guesswork out of pipe finding. J. W. Still. il diags Pub Works 95:101-2 Jl '64

Pipeline location; special surveys; progress report. diags Am Soc C E Proc 89 [PL 1 no 3388]:7-21 Ja '63; Discussion. J. E. Thompson. 90 [PL 1 no 3778]:181-4 Ja '64

Pipeline location; specifications for aerial photography; progress report. Am Soc C E Proc 90 [PL 1 no 3765]:7-12 Ja '64

Routing pipelines by computer. R. P. Jefferis, 3d and K. A. Fegley. map diags Oil & Gas J 62:184-6 O 12 '64

See also

Gas, Natural—Pipe lines—Location

Bibliography

Pipeline location: bibliography. Am Soc C E Proc 90 [PL 1 no 3766]:13-19 Ja '64

Maintenance and repair

Sonic method pinpoints pipeline leaks. H. C. Bozeman. il diag Oil & Gas J 62:126-7 Ap 27 '64

Multiple fluid lines

Multiphase flow in pipelines. A. E. McDonald and O. Baker. bibliog diags Oil & Gas J 62:68-71 Je 15; 171-5 Je 22; 64-7 Je 29; 118-19 Jl 6 '64

Will proposed potash pipeline make it? map Can Chem Process 48:47-8 Jl '64

Protection

Criteria for selection of underground heat distribution systems. N. M. Demetroulis. ASHRAE J 6:41-3 Ag '64

Design principles of underground prefabricated, air-testable conduit systems. J. L. Martin and C. G. Van Schoor. ASHRAE J 6:37-9 Je '64

Electrical strip heats pipelines. diag Mech Eng 85:70 N '63

Fuel oil tubing gets coating. il Steel 153:85 D 2 '63

Handling chlorine; barge and pipeline safety. H. P. Nelson. il diag Chem Eng Prog 60:88-9 S '64

How would you protect piped utilities at the North Pole? N. J. Staihar. il diags Power Eng 68:46-8 Ag '64

New heat tracer system for piped utilities; Electro-Wrap. il diags Power Eng 67:74-5 N '63

Pipeline crossings under railroads and highways. M. G. Spangler. bibliog il diags Am Water Works Assn J 56:1029-46 Ag '64; Abstract. Pub Works 95:182 O '64

Practical engineering of corrosion control. A. W. Baumgartner. bibliog J Pet Tech 16:615-18 Je '64

Soil conditions are major consideration when insulating underground piping. S. Elonka. diags Power 108:sup22-3 Mr '64

Water named the villain in underground piping systems; ASHRAE symposium. Air Cond Heat & Ven 61:60 Mr '64

See also

Gas pipes—Protection

Pipe lines—Cathodic protection

Railroad crossing

Strain-gage analysis for uncased pipeline crossings. diags Am Soc C E Proc 90 [PL 1 no 3777]:49-87 Ja '64

Right of way

Guide to good practice for highway-pipeline crossings. il diags Am Soc C E Proc 90 [HW 1 no 3763]:19-52 Ja '64

Rod, not acre, urged as base for buying right-of-way. H. N. Dold. Oil & Gas J 61:151-3 N 4 '63

River crossing

Methane pipeline across the Thames. Engineer 216:702 O 25 '63

Monongahela River, B&O railroad and steep, rocky slope traversed in 600 feet of transmission main. A. F. Robinson. il Water Works Eng 16:806 O '63; Same. Pub Works 94:99 N '63

Ol' Man River vs. the pipeliner. il Gas Age 131:21-3 Mr '64

PVC solves river crossing problem. il Engineering 198:171 Ag 7 '64

Retire old, install new Mississippi crossings. il Oil & Gas J 61:195+ N 18 '63

Shifting bed; hazard to river crossing. S. A. Mason. il diag Water Works & Wastes Eng 1:58-9+ Mr '64

Winter water utility construction in Canada. N. S. Bubbis. bibliog Am Water Works Assn J 56:1303-14 O '64; Excerpts. Pub Works 95:124+ D '64

Surveying

See Pipe lines—Location

Tables, calculations, etc.

Analysis of pipeline networks. D. M. Ingels and J. E. Powers. bibliog il diags Chem Eng Prog 60:65-70 F '64

Development and use of the Modpares device. bibliog il diags Am Soc C E Proc 90 [PL 1 no 3782]:155-78 Ja '64

Flexibility analysis of three-dimensional pipeline networks. J. Michalos and B. Grossfield. bibliog diags A S M E Trans ser A 86:369-85 Jl '64

New ways to solve liquid line flow problems. J. W. J. Bercher. diags Pet Management 35:258-60+ O; 255-6+ D '63

Pipeline crossings under railroads and highways. M. G. Spangler. bibliog il diags Am Water Works Assn J 56:1029-46 Ag '64; Abstract. Pub Works 95:182 O '64

Testing

Flow characteristics of PVC sewer pipe. L. C. Neale and R. E. Price. il diags Am Soc C E Proc 90 [SA 3 no 3955]:109-29 Je '64; Discussion. L. L. Sphar. 90 [SA 5 no 4097]:69-71 O '64

Strain-gage analysis for uncased pipeline crossings. diags Am Soc C E Proc 90 [PL 1 no 3777]:49-87 Ja '64

PIPE lines—*Continued*

Welding

Aluminium pipeline automatically site welded. il Engineering 197:714 My 22 '64
Aluminum pipe Tig welded and bundled. il Welding Eng 49:58 S '64
CO_2 welding equals or exceeds earlier work. L. J. Cunningham and J. Baker. il Oil & Gas J 62:119-20+ S 21 '64
Field bending and welding of thin-wall high-tensile pipeline steels. R. Banister. Can Min & Met Bul 57:133-6; Discussion. 137-8 F '64
Fully automatic CO_2 welding may stage comeback in 1964. P. Reed. il Oil & Gas J 62:106-9 My 11 '64
Metallurgy of aluminum in pipeline transmission systems. G. F. Drumm and L. G. Jamieson. bibliog Can Min & Met Bul 57:126-32; Discussion. 137-8 F '64
Natural gas pipe double jointed in plant. il Welding Eng 49:56-7 Ag '64
New job for ultrasonics; checking pipe welds at 60 fpm. E. H. Uecker. il diags Am Mach/Metalworking Manuf 107:59-61 D 23 '63
Semiautomatic welding of transmission pipelines. G. J. Williams and others. il diags Welding J 43:111-17 F '64
Texas crew completes Illinois gas line. il Welding Eng 49:50 N '64

PIPE lines, Subaqueous

Big offshore line will be built off Louisiana. map Oil & Gas J 61:130-1 N 18 '63
Closed-circuit tv checks dual 250-ft-deep crossing. il diag Oil & Gas J 61:106-8 O 28 '63
How does flexible submarine pipe work for the gas industry? il diags Gas 40:53-7 Je '64
Humble laying offshore line. map Oil & Gas J 61:116 D 2 '63
Interstate, underwater sewer line. M. A. Haynes. il Pub Works 95:108-9+ Jl '64
Mediterranean crossing will play big role. J. A. Kornfeld. il maps diags Pet Management 36:94-5+ Ag '64
Retire old, install new Mississippi crossings. il Oil & Gas J 61:195+ N 18 '63
Underwater tie-in saves for United. il Oil & Gas J 62:139 O 26 '64
See also
Pipe laying, Subaqueous

Maintenance and repair

Industry's first gastronaut. il diags Pet Management 36:79-81 F '64
SoCal's big sea battle. W. H. Krammes. il Gas 40:96-7 F '64

PIPE lining

Glass-lined pipe stops grease build-up problem. R. E. Pailthorp. il Pub Works 95:95-7 Mr '64
Plastics pipe progress. R. B. Seymour. il Plastics World 22:24-30 F '64
Portable plant cuts cost of cement-lining injection-system pipe. W. B. Bleakley. il Oil & Gas J 61:91-3 D 9 '63
Refractory lining stops erosion in pulverized coal supply line. E. W. Schwarm and W. J. Mayberry. il Power Eng 67:73 N '63
See also
Sewer pipes—Lining
Water pipes—Lining

PIPE lining, Plastic

Epoxy-lined pipe reduces cost of trunk sewer. A. J. Hotz, jr. il map Civil Eng 34:64-6 S '64
Jet fuel network. il Plastics World 22:18 Je '64
Pipe liner. il Plastics World 22:47 S '64
Plastic liner mends underwater pipe leak. Chem Eng 71:118 Ag 3 '64

PIPE threads

Modified two-inch threader handles up to four-inch pipe. il Plant Eng 18:160 My '64

PIPECOLIC acid. See Piperidine carboxylic acid

PIPERAZINE

Synthesis of pyrazines: vapor-phase dehydrogenation of piperazines. M. Cenker and others. bibliog Ind & Eng Chem Product Res & Develop 3:11-14 Mr '64

PIPERIDINE

Biosynthesis of anabasine; origin of the nitrogen of the piperidine ring. E. Leete and others. bibliog Am Chem Soc J 86:3907-8 S 20 '64
Critical study of two procedures for the determination of piperine in black and white pepper. C. Genest and others. bibliog J Agri & Food Chem 11:508-12 N '63
Preparation and plasticizing characteristics of piperidides of long chain fatty acids and N-fatty acyl derivatives of other cyclic imines. R. R. Mod and others. bibliog Am Oil Chem Soc J 41:237-40 Mr '64

PIPERIDINE carboxylic acid

Conversion of baikiain to *trans*-5 and *trans*-4-hydroxypipecolic acids by hydroboration. Y. Fujita and others. Am Chem Soc J 86:1844-6 My 5 '64
Effect of piperdine on rubber solutions. A. Soininen and others. bibliog Rubber Chem & Tech 37:477-85 Ap '64

PIPERIDONE

Catalysis of the decomposition of *N*-nitrosotriacetonamine by a polymeric quaternary hydroxide. M. S. M. Alger and others. bibliog Chem & Ind p2008-9 D 28 '63

PIPES

Adiabatic, evaporating, two-phase flow of steam and water in horizontal pipe. R. W. Pike and H. C. Ward. bibliog diags A I Ch E J 10:206-13 Mr '64
Adiabatic single and two-phase flow in small bore tubes. E. P. Mikol. bibliog il diags ASHRAE J 5:75-86 N '63
Asymptotic solution for combined free and forced convection in vertical and horizontal conduits with uniform suction and blowing. L. F. Carter and W. N. Gill. bibliog diags A I Ch E J 10:330-9 My '64
Behavior of non-Newtonian fluids in the entry region of a pipe. M. Collins and W. R. Schowalter. bibliog A I Ch E J 9:804-9 N '63
Concentration and mass flow distributions in a gas-solid suspension. S. L. Soo and others. bibliog diags Ind & Eng Chem Fundamentals 3:98-106 My '64
Discharge coefficient characteristics of orifices. F. V. A. Engel and W. Stainsby. bibliog Engineer 218:161-8 Jl 31 '64
Fluctuations in the local rate of turbulent mass transfer to a pipe wall. P. Van Shaw and T. J. Hanratty. bibliog diags A I Ch E J 10:475-82 Jl '64
International pipes, pipelines, pumps and valves exhibition, 3d London, April 13-17; illustrations with text. Engineering 197:506 Ap 10 '64
Laminar heat transfer to non-Newtonian fluids in the entrance region of a circular conduit. R. A. Pawlek and C. Tien. bibliog diag Can J Chem Eng 42:223-7 O '64
Momentum and heat transfer correlations for a reacting gas in turbulent pipe flow. M. J. Callaghan and D. M. Mason. bibliog A I Ch E J 10:52-5 Ja '64
Numerical method for the solution of the energy equation for steady turbulent heat. transfer. M. R. Strunk and F. F. Tao. bibliog A I Ch E J 10:269-73 Mr '64
Pendulation of pipes and cables in water; Mohole deep-sea drilling project. F. J. Lampietti. diags A S M E Trans ser B 86:299-304 Ag '64
Pipe, tubing, and fittings. J. Nicol. diags Machine Design 35:99-105 D 12 '63
Pipes, pipelines, pumps and valves exhibition and convention, London, April 13-17. Chem & Ind p874-6 My 23 '64
Polytropic efficiency in constant area duct flow. T. B. Ferguson. Engineer 217:948 My 29 '64
Temperature distribution and heat transfer in annular two-phase (liquid-liquid) flow. M. Bentwich and S. Sideman. bibliog Can J Chem Eng 42:9-13 F '64
Temperatures generated by the flow of liquids in pipes. I. J. Gruntfest and others. bibliog J Ap Phys 35:18-22 Ja '64
Thermal method of determining the rate of flow in pipes. il diags Naval Eng J 76:305-9 Ap '64
Transport characteristics of suspensions; representation of periodic phenomena on a flow regime diagram for dilute suspension transport. D. G. Thomas. bibliog diag A I Ch E J 10:303-8 My '64
Transport of aerosols through ducts. R. I. Mitchell and others. plan diags Ind & Eng Chem Proc Design 3:339-45 O '64
Turbulent flow in rectangular ducts. H. J. Leutheusser. bibliog diags Am Soc C E Proc 89 [HY 3 no 3508]:1-19 My '63; Discussion. R. E. Nece. 90 [HY 1 no 3783]:271-2 Ja '64; Reply. 90 [HY 4 no 3980]:229 Jl '64
Turbulent motion and mixing in a pipe. J. Lee and R. S. Brodkey. bibliog diags A I Ch E J 10:187-93 Mr '64
Turbulent pipe flow heat transfer with a simultaneous chemical reaction of finite rate. P. L. T. Brian. bibliog A I Ch E J 9:831-41 N '63

PIPES—*Continued*

Velocity profiles of thoria suspensions in turbulent pipe flow. D. M. Eissenberg and D. C. Bogue. bibliog diag A I Ch E J 10:723-7 S '64

See also

Air pipes

Gas pipes

Petroleum—Well casing

Petroleum—Well tubing

Petroleum pipe lines

Pipe elbows

Pipe joints

Pipe laying

Pipe lines

Piping (power plants)

Plumbing

Sewer pipes

Steam pipes

Tubes

Water pipes

Cleaning

Applying chemical cleaning solvents. C. M. Loucks. bibliog il Heating-Piping 36:171-86 S '64

Jet gun unplugs blocked piping. il Plant Eng 17:134 D '63

Steps for chemical cleaning of piping systems. C. M. Loucks. bibliog il Heating-Piping 36:179-94 My '64

See also

Gas, Natural—Pipe lines—Cleaning

Maintenance and repair

Support cuts maintenance. il Oil & Gas J 61:160-1 N 11 '63

Manufacture

Shop fabrication of piping increases contractor's output. il Air Cond Heat & Ven 61:78 S '64

Tables, calculations, etc.

Analytical treatment of the laminar flow of annulus forming fibrous suspensions in vertical pipes. H. Meyer. bibliog diag Tappi 47:78-84 F '64

Direct method for friction factor calculation. K. M. Yao. Water & Sewage Works 111:100-4 F '64

New friction-factor chart for pipe flow. R. S. Ramalho and others. Chem Eng 71:153-4 Jl 20 '64

Tables provide short cut for pipe stress analysis. E. W. Bramley. Heating-Piping 36:104-7 Mr '64

Weights of piping materials; reference data. Air Cond Heat & Ven 61:77-80 Mr; 81-4 Ap; 83-6 Je '64 (to be cont)

PIPES, Aluminum

Aluminum conduit in Chicago's new filtration plant. il Water & Sewage Works 111:282-3 Je '64

Aluminum in Manicouagan; 4800 miles of aluminum transmission cable and 340 miles of aluminum pipe. il Light Metal Age 22:7-8 Je '64

Aluminum pipe Tig welded and bundled. il Welding Eng 49:58 S '64

Aluminium pipeline automatically site welded. il Engineering 197:714 My 22 '64

Big aluminum culverts placed without heavy equipment. il Roads & Sts 107:154 My '64

Case for aluminum in drilling. C. G. Shiring and E. T. Wanderer. il Oil & Gas J 61:87-91 O 21 '63

Coatings form unbreakable bonds. J. E. Sandford. il Iron Age 194:53-5 Ag 20 '64

Hinton drilling stamps its ok on aluminum drill pipe. C. Reed. il Oil & Gas J 61:68-9 D 23 '63

Hydraulic efficiency of aluminum pipe over a large range of Reynolds' numbers. A. Brebner. Can J Chem Eng 42:45-6 F '64

New system checks aluminum drill pipe. il Pet Management 35:96 D '63

Pumping of wood chips through a four-inch aluminum pipe-line. A. Brebner. diag Can J Chem Eng 42:139-42 Je '64

Spalled concrete traced to conduit. il Eng N 172:28-9 Mr 12 '64

Manufacture

Metallurgy of aluminum in pipeline transmission systems. G. F. Drumm and L. G. Jamieson. bibliog Can Min & Met Bul 57:126-32; Discussion. 137-8 F '64

Mig welded spiral pipe home-made in Hawaii. il Welding Eng 49:86-7 N '64

Testing

Design and performance characteristics of aluminum drill pipe. E. G. Boice and R. S. Dalrymple. bibliog diags J Pet Tech 15:1285-91 D '63

PIPES, Asbestos cement

Chemical resistance of asbestos-cement pipe. W. Lerch. Materials Res & Stand 2:745-6 S '62; Discussion. bibliog 3:918-22 N '63

Everite asbestos cement pressure pipes. il diags Engineering 197:258-60 F 14 '64

Sulfate resistance of asbestos-cement pipe. P. W. Manson and L. R. Blair. bibliog il diag Materials Res & Stand 2:828-35 O '62; Discussion. 3:918-21 N '63

See also

Sewer pipes, Asbestos cement

Manufacture

New plant produces complete line of asbestos-cement pipe. il Water & Sewage Works 111:300-1 Je '64

PIPES, Cast iron

Ductile-iron pipe design. E. C. Sears. bibliog il diags Am Water Works Assn J 56:4-22 Ja '64

Loose plastic film wrap as cast-iron pipe protection. E. F. Wagner. il Am Water Works Assn J 56:361-8 Mr '64

Select cast iron casing for underground pipe conduit. il Heating-Piping 36:194-5 Ap '64

See also

Gas pipes, Cast iron

Water pipes, Cast iron

PIPES, Concrete

Silicon tetrafluoride gas treatment improves concrete. Eng N 172:109 Ap 2 '64

See also

Culverts, Concrete

Sewer pipes, Concrete

Water pipes, Concrete

PIPES, Copper

Copper tube types compared. H. E. Voegeli. Air Cond Heat & Ven 61:89 Ap '64

Flow in threadless copper pipe; reference data. Air Cond Heat & Ven 61:65-8 F '64

How long will copper drainage tube last? J. E. McGinness, jr. Air Cond Heat & Ven 61:85-6 Ap '64

See also

Water pipes, Copper

PIPES, Flexible

Avoid overstressed piping through flexible layout. E. W. Bramley. diags Heating-Piping 36:125-7 Ap '64

Design of flexible steel pipe under external loads. W. H. Cates. bibliog Am Soc C E Proc 90 [PL 1 no 3767]:21-31 Ja '64

Factors to watch in designing piping for flexibility. J. A. Masek. diags Heating-Piping 36:97-9 F '64

PIPES, Glass

Pipe insulation seals itself. Eng N 172:190 Je 18 '64

PIPES, Pitch fiber

Bituminous pipe institute. il Pub Works 95:112-13 Jl '64

Doubling the output of pitch fibre pipes. il Engineering 197:421 Mr 20 '64

Pitch fibre pipe plant. il Engineer 217:573 Mr 27 '64

PIPES, Plastic

Aluminized polystyrene light pipes. P. Mockett. diag R Sci Instr 35:238 F '64

Confusing boom hits plastic pipe. W. B. Bleakley. il Oil & Gas J 62:62-9 S 28 '64

Desalination with reinforced plastic pipe cuts cost to 15¢/1000 gal. il diags Mod Plastics 41:111 Ag '64

Field-joining of reinforced plastic pipe. il Plant Eng 18:96 S '64

Flexible duct; provides water and air tight conductor. il Plastics World 22:63 Ap '64

Flexible PVC pipe. il Plastics World 21:113 N '63

Flexible PVC pipe needs no couplings. il Eng N 171:48 N 21 '63

Glass-fiber-reinforced pipe seen due for expanded oil-field use. il Oil & Gas J 61:106+ D 16 '63

International standards meeting on plastics pipes, Wiesbaden, Nov. 4-8. Brit Plastics 37:27 Ja '64

Joining glass-fiber reinforced pipe. T. Lautenbach. il Chem Eng 71:124+ Ag 3 '64

Pipe chemicals for treating city's water. W. R. Stevens. il Heating-Piping 36:122-5 S '64

Plastic duct handles easily, costs less. L. W. Little. il Elec World 161:124 Ap 20 '64

Plastic pipe for power plant service. P. W. Sherwood. Combustion 35:29-31 D '63

Plastic pipe research. il Am Gas Assn Mo 45:29 D '63

Plastics pipe progress. R. B. Seymour. il Plastics World 22:24-30 F '64

Spiral plastic ducts expand and bend. il Eng N 172:166 Mr 19 '64

Thermoplastics pipe. D. W. Baird. il Plastics World 22:16 S '64

PIPES, Plastic—*Continued*
Vacuum sizing of plastics pipe. J. L. Vermillion. diag Mod Plastics 42:130-1 O '64
Winning the corrosion battle. il Plastics World 22:40 Mr '64
See also
Gas pipes, Plastic
Sewer pipes, Plastic
Tubes, Plastic
Water pipes, Plastic

Testing

Admiralty tests on epoxy resin pipe show favorable results. Naval Eng J 76:528 Ag '64
Controlling extruded tube or pipe wall thickness. A. Halegua. il diag Plastics Tech 10: 37-40 Jl '64
Hydrostatic strength and design stresses for thermoplastic pipe. F. W. Reinhart. Mod Plastics 42:162+ S '64

PIPES, Steel
Design of flexible steel pipe under external loads. W. H. Cates. bibliog Am Soc C E Proc 90 [PL 1 no 3767]:21-31 Ja '64
Extruding a plastics sheath over steel pipe. il Chem Eng 70:34-6 D 23 '63
A first; snow-melting installation uses plastic-coated steel pipe. il Dom Eng 203:68-9 Ja '64
High-pressure 42-in. pipe used for gas storage. il Oil & Gas J 62:88-9 F 24 '64
In Canadian construction it's mill double-jointed pipe. J. P. O'Donnell. il Oil & Gas J 62:106-7 O 19 '64
New steel cuts cost of process piping. N. E. Whitcomb. il Chem Eng 71:71-4 Ja 6 '64
Pipe-and-film huts; low-cost protection. il Mod Materials Handling 18:61 D '63
Pipe chemicals for treating city's water. W. R. Stevens. il Heating-Piping 36:122-5 S '64
Plastic-coated lines guard fuel. il plan Oil & Gas J 62:66 F 24 '64
Portable plant cuts cost of cement-lining injection-system pipe. W. B. Bleakley. il Oil & Gas J 61:91-3 D 9 '63
Service experiences at 1050 F and 1100 F of piping of austenitic steels. R. A. Baker and H. M. Soldan. bibliog il diags Combustion 35:24-8 N; 42-5 D '63
Simplified stress analysis for piping systems. L. Maurer and others. bibliog diags Air Cond Heat & Ven 61:94-8 O '64
Stainless piping and tubing; reference book sheet. Am Mach 108:75 F 3 '64
Stainless steel piping distributes detergent for hospital sanitation. E. A. Kaplun. diags Heating-Piping 36:122-3 Jl '64
Stop sulfide corrosion cold with new heat-treating method. W. B. Bleakley. il diag Oil & Gas J 62:130-2 Je 8 '64
See also
Tubes, Steel
Water pipes, Steel

Manufacture

Automated pipe galvanizing line installed at Armco div. plant. il Iron & Steel Eng 41: 227-8 S '64
Electric resistance weld pipe mill produces 80 ft lengths at National works. il Iron & Steel Eng 41:244 S '64
Electricweld pipe made direct from coils. il Steel 154:72+ My 11 '64
Metallurgical aspects of natural gas transmission pipelines. A. Hanson and J. G. Parr. Can Min & Met Bul 57:123-5. Discussion. 137-8 F '64
Modern welded pipe processes. A. Palynchuk. Can Min & Met Bul 57:119-22; Discussion. 137-8 F '64
Pipe picks up galvanized coat in continuous flow process. il Iron Age 194:80-1 Jl 16 '64
Prevention of pipe failures. H. Thielsch. il Heating-Piping 35:115-19 F '63; Discussion. 35:93-4 Je '63; 36:114+ Ja '64
Process expands pipe mechanically. il Steel 154:53 Mr 23 '64
Republic Steel's no. 5 electric weld pipe mill begins operation. il Iron & Steel Eng 41: 161-2 Je '64
Seamless pipe and tubing from continuously cast steel billets. J. H. Fishburn il diag J Metals 16:402-5 My '64
Spiral weld pipe mills. U. G. D. de Salis. il diags Iron & Steel Eng 41:76-80; Discussion. 80-2 Je '64

Specifications

Prevention of pipe failures. H. Thielsch. il Heating-Piping 36:142-9 O '64
Seamless, welded stainless tubing and piping index; engineering data sheet. Welding Eng 49:59 F '64

Testing

Flattening test results may give false picture. H. M. Wilten. il Hydrocarbon Process & Pet Refiner 43:176 Mr '64
Important savings follow use of X-60 pipe. W. S. Schaefer. il Oil & Gas J 62:96+ S 28 '64
Prevention of pipe failures. H. Thielsch. bibliog il diags Heating-Piping 36:129-35 Jl '64
Ultrasonics check heat treat quality. N. B. Heckler and B. Ostrofsky. il Hydrocarbon Process & Pet Refiner 43:143-7 Ap '64

PIPES, Vitrified clay
See also
Sewer pipes, Vitrified clay

PIPETS
Modified combustion pipette to analyse explosive mixtures of methane with air in Haldane mine-air analysis apparatus. A. K. Ghosh and B. Mitra. diags Chem & Ind p269-70 F 15 '64
Plastic pipets. il Res/Develop 15:33 F '64
Simple micropipette or microneedle manipulator. C. Horwitz and S. Wood. diag J Sci Instr 41:518 Ag '64

PIPING
Annual equipment specification digest; piping and plumbing. il Air Cond Heat & Ven 61:77-8+ Ja '64
CPM; how it fits into overall system of project control. E. J. Mark. diag Heating-Piping 36:118-22 Mr '64
Computer designs process piping system. diag Pet Management 36:128 Jl '64
Computer turns talents to piping drawings. diag Oil & Gas J 62:144 My 18 '64
Designing for thermal expansion through piping configuration. J. A. Masek. il diags Heating-Piping 35:123-5 N '63
Dual drain pipes separate acids, save solvents; Hughes Aircraft's Semiconductor division. il Plant Eng 18:134-5 Je '64
Electrically traced process lines. S. O. Jones. Elec Eng 82:717-21 D '63
Employ basic flexibility data to facilitate piping design. J. A. Masek. Heating-Piping 35:100-1 D '63
For piping corrosive wastes; glass, metal or plastic? J. C. Sell. Plant Eng 18:121-4 Ap '64
Friction heat; factor in liquid H_2 line design; abstract. K. D. Folkerts and E. H. Hoag. diag S A E J 72:109-10 Ja '64
How to determine free expansions of piping due to pressurization and nonuniform heating. J. E. Brock. diags Heating-Piping 36: 152-5 Ja '64
Mechanical design for low temperature piping and vessels; special report. il diags Hydrocarbon Process & Pet Refiner 43:115-32 Je '64
New steel cuts cost of process piping. N. E. Whitcomb. il Chem Eng 71:71-4 Ja 6 '64
Pipe layouts by computer. diag Mech Eng 86:57 Je '64
Pipelines to profit. il Dom Eng 204:94-7 Jl '64
Piping network design is computerized. L. Critides. Ind & Eng Chem 56:11-12 Je '64
Prevention of pipe failures. H. Thielsch. bibliog il diags Heating-Piping 35:124-32 Ag; 114-22 O '63; 36:139-47 Ja; 129-35 Jl; 142-9 O '64; Discussion. 35:106+ N '63
Process piping systems are major effort in rushed textile plant construction. il Heating-Piping 36:103-7 S '64
Simplified stress analysis for piping systems. L. Maurer and others. bibliog diags Air Cond Heat & Ven 61:94-8 O '64
Soap plant observer; piping. W. J. Beach. Soap & Chem Spec 40:185-6+ Je '64
Solve measuring problems in piping liquefied NH_3. C. A. Lee. diags Heating-Piping 36: 102-5 Je '64
Some secondary effects in a simple piping structure under heating. J. E. Brock. diags A S M E Trans ser E 31:88-90 Mr '64
Thermowell design for process piping. J. A. Masek. flow sheet diags Hydrocarbon Process & Pet Refiner 43:139-42 F; 119-24 Mr; 165-72 Ap '64
Tips on piping layout for flexibility. J. A. Masek. diags Hydrocarbon Process & Pet Refiner 43:143-5 Jl '64
Underground piping, district cooling, and a guide; annual meeting of National district heating association, Niagara Falls, Ontario. Air Cond Heat & Ven 61:67-70 Ag '64
When to use and how to select hinged expansion joints. W. F. Francois. diags Hydrocarbon Process & Pet Refiner 43:169-73 Je '64
See also
Air pipes
Ships—Piping

PIPING—*Continued*

Bibliography

Books and reports. Published in monthly numbers of Heating, piping and air conditioning

Estimates

How to estimate costs of hot and cold insulation for piping. T. N. Dinning. Heating-Piping 35:133-7 Je; 119-21 Jl; 102+ N '63

Roundup of data for estimating piping costs. bibliog Chem Eng 71:228+ S 14 '64

Tables, calculations, etc.

Calculate pressure drop the easy way; local resistance to flow. L. Dodge. diags Product Eng 35:63-8 Mr 2 '64

Compliances of pipe components. J. E. Brock. bibliog diags Naval Eng J 76:535-8 Ag '64

Fluid friction flow resistance in pipe. L. Dodge. diag Product Eng 35:94-7 F 17 '64

Fluid throttling devices for controlled flow resistance. L. Dodge. il diags Product Eng 35:81-7 Mr 30 '64

Weights of piping materials; 10, 12, 14, and 16 inch pipe; reference data. Air Cond Heat & Ven 61:87-90 S '64

Testing

Gamma rays check varied parts. il Iron Age 194:65 O 15 '64

Vibration

Causes and cures of pressure pulsation. W. S. Everett. Hydrocarbon Process & Pet Refiner 43:117-20 Ag '64

Welding

Prevention of pipe failures. H. Thielsch. il Heating-Piping 35:115-19 F; 104-9 Mr '63; 36:142-9 O '64; Discussion. 35:93-4 Je '63; 36:114+ Ja '64

Significance of wire diameter in the CO_2 welding of pipe; abstract. A. A. Smith and S. A. Dye. il Metal Prog 85:162-4+ Ap '64

Solid consumable insert rings improve ship ride weld quality. H. Thielsch. il Naval Eng J 76:147-9 F '64

Special resistance welding and Tig techniques applied to tubing. il Welding Eng 49:77 Jl '64

Welded tube joints easily disconnected. il diags Welding Eng 49:66 Jl '64

Welding proves its worth on a bakery piping job; Kitchens of Sara Lee. il Welding Eng 49:58+ Je '64

See also

Pipe lines—Welding

PIPING (power plants)

Perils of poor piping. T. E. Bridge. Heating-Piping 36:136 My; 122 Je; 118-19 Ag '64

Plastic pipe for power plant service. P. W. Sherwood. Combustion 35:29-31 D '63

Service experiences at 1050 F and 1100 F of piping of austenitic steels. R. A. Baker and H. M. Soldan. bibliog il diags Combustion 35:24-8 N; 42-5 D '63

Design

Trend toward increased velocities in central station steam and water piping. H. M. Soldan and E. J. Siegel. il plan diags Combustion 35:18-24 My '64

Standards

Interpretations of code for pressure piping. Mech Eng 86:116 O '64

Prevention of pipe failures. H. Thielsch. bibliog il diags Heating-Piping 36:129-35 Jl '64

Welding

Do you recognize the main causes of failures in piping systems? H. Thielsch. il Power Eng 68:55-7 S; 50-2 O '64

PIPING (refrigerating plants)

Coils that cool and dehumidify. M. Ramsey. Air Cond Heat & Ven 61:49-51 F '64

Dehydrating refrigerant piping systems. H. L. Mayers. il diag Heating-Piping 36:124-8 Ja '64

Determining pressure drop and refrigerant flow capacities of liquid line driers. E. Jones. diags ASHRAE J 6:70-4+ F '64

Employ quality control in the fabrication of refrigerant piping. H. L. Mayers. Heating-Piping 35:92-4 D '63

Welding proves its worth on a bakery piping job; Kitchens of Sara Lee. il Welding Eng 49:58+ Je '64

Where was the ammonia going? A. Quick. diag Power 108:142 Jl '64

PISTON rings

Carbon ring oil-free air compressors. il diag Engineering 197:570 Ap 24 '64

New engine component works in Gloucestershire. il Metallurgia 68:178-80 O '63

Ring failures; causes at a glance; illustrations with text. Diesel Equip Supt 42:66-7 Ap '64

PISTON rods

Positive seal for pistons and axially moving rods. J. A. Rietdijk. diags Engineer 218:346-7 Ag 28 '64

PISTONS

Choice of compressor piston diameters. P. C. Bevis. diags Engineer 217:615-16 Ap 3 '64

Contactless piston seal for internal combustion engines. L. Strach. il diag Engineer 217:969-70 My 29 '64

Dashpots and damping. L. Dodge. diags Product Eng 35:69-73 S 28 '64

Free-floating piston controls flow through valve. il diags Product Eng 35:136-7 O 26 '64

Piston position, velocity and maximum-velocity angle; data sheet. J. Bakker. Power 108:72 Jl '64

Piston temperatures solved by computer. Engineering 197:816 Je 12 '64

Piston zone temperature measurement. H. C. Tsien. bibliog il diag Instruments & Control Systems 37:105-7 My '64

Positive seal for pistons and axially moving rods. J. A. Rietdijk. diags Engineer 218:346-7 Ag 28 '64

Design

New piston design makes practical vc-ratio engine. W. A. Wallace and F. B. Lux. il diags S A E J 72:82-6 Ja '64

Manufacture

Applying mechanized handling to standard machines. J. F. Oldani. il diag Automation 11:80-6 My '64

Automatic broaching of grooves in piston wrist-pin holes. il Mach 70:111 D '63

Cadillac retools its piston line. C. Emerson. il Am Mach 108:115-18 F 17 '64

Cadillac's new piston processing line. J. Geschelin. il diag Automotive Ind 130:39-42 Ja 1 '64

Ex-Cell-O thirty-four-station transfer machines for processing aluminum pistons. il Mach 71:171-2 O '64

Feedback machine trims pistons. R. H. Eshelman. il Iron Age 192:80-1 N 28 '63

Piston poses production puzzle. R. H. Eshelman. il Iron Age 192:73 D 12 '63

Pistons ground automatically to tolerance of 0.00025 inch. il Mach 70:121-2 D '63

Snyder special machine for spot-facing and weigh-milling aluminum pistons. il Mach 70:176 F '64

PITCH

Analysis of aromatic hydrocarbons from pitch oils by liquid chromatography on gas chromatography analog. C. Karr, jr. and others. Anal Chem 36:2105-8 O '64

Testing

Ring-and-ball softening point test for asphalts, pitches, and tars. Materials Res & Stand 4:417-21 Ag '64

PITCH fiber pipes. See Pipes, Pitch fiber

PITOT tubes

Chemical engineering problems in the pulp and paper industry; fluid mechanics. Tappi 47:sup 141A F '64

Experimental measurement of pitot pressure in the boundary layer on a model in a hypersonic gun tunnel. A. J. Cable. il AIAA J 2:944-5 My '64

Experiments with a pitot rake at M=1·60. V. G. Quincey and J. Callinan. il diags Roy Aeronautical Soc J 67:793-5 D '63

Pitot tube measurements in pipe; with reference data sheets. C. H. R. Hook. diags Air Cond Heat & Ven 60:64-8 D '63

Supersonic pitot tube measurements at an angle of attack. S. L. Strack. il diags AIAA J 2:778-9 Ap '64

PITTMAN, Allen G.

1964 ADR award. por Am Dyestuff Rep 53:912 O 26 '64

PITTSBURGH

Rapid transit

Predicting the modal split. L. E. Keefer. flow diag Am Soc C E Proc 89 [HW 1 no 3469]:13-25 Ap '63; Discussion. 90 [HW 1 no 3780]:109-12 Ja '64; Reply. 90 [HW 2 no 3997]:11-12 Ag '64

PITUITARY body
See also
Gonadotropin

PLACEMENT of workers. See Employment agencies

PLACENTA
Placental transfer and fetal tissue iron utilization in sheep. F. H. Hoskins and S. L. Hansard. bibliog J Nutrition 83:10-14 My '64
Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog il J Nutrition 81:312-20 D '63

PLAGIOCLASE. See Feldspar

PLAGUE
Black death. W. L. Langer. il map Sci Am 210:114-18+ F '64

PLANETARY gearing. See Gearing, Planetary

PLANETS
Physical nature of the Doppler-frequency spectrum from a rotating planet and its effect on detection. F. O. Willoughby. bibliog diags IEEE Proc 52:80-1 Ja '64
Planetary position-velocity ephemerides obtained by special perturbations. P. R. Peabody and N. Block. bibliog AIAA J 1:2812-15 D '63
See also
Jupiter (planet)
Life on other planets
Mars (planet)
Satellites
Solar system
Venus (planet)

Atmosphere

Effect of argon addition on shock-layer radiance of CO_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64
Entry into planetary atmospheres. L. Roberts. bibliog il diags Astronautics & Aeronautics 2:22-9 O '64
Experimental heat-transfer studies of hypervelocity flight in planetary atmospheres. J. S. Gruszczynski and W. R. Warren, jr. bibliog il diags AIAA J 2:1542-50 S '64
Experimental study of radiative transport from hot gases simulating in composition the atmospheres of Mars and Venus. C. S. James. bibliog il diag AIAA J 2:470-5 Mr '64
Hypersonic flow field around a hemisphere in a CO_2-N_2-A gas mixture. J. H. Klaimon. bibliog AIAA J 2:953-4 My '64
New evidence of water vapor on Venus. Franklin Inst J 277:622-3 Je '64
Planet Mars. S. Tilson. bibliog il diags Space/Aeronautics 42:46-53 Jl '64
Radiative vs. convective heat fluxes for Martian entry. M. G. Boobar and R. M. Foster. bibliog Astronautics & Aerospace Eng 1:30-5 D '63
Spectrum of shock-heated gases simulating the Venus atmosphere. A. R. Fairbairn. bibliog il AIAA J 2:1004-7 Je '64

PLANING machines
Boeing applies planing techniques to titanium. il Steel 155:112 Ag 17 '64
Planer with electronic positioning system. il Engineering 196:535 O 25 '63
Planing machine with controlled rectifier drive. il Engineer 218:292 Ag 21 '64
Three stage pump gives planer seven speeds. il Hydraulics & Pneumatics 17:22+ S '64

PLANKTON
Lacustrine microcosm reconsidered. G. E. Hutchinson. bibliog Am Scientist 52:334-41 S '64
Plankton as a source of flavor. Food Tech 18:546 Ap '64
Separation of planktonic algal pigments by thin layer chromatography. H. Rai and G. F. Lee. bibliog diags Anal Chem 36:2208-9 O '64

PLANNING
Advanced planning to meet the impact of automation in large scale test environments. G. J. Kashuba. diags Naval Eng J 75:1003-12 D '63
Buying job taxes skill of project manager; construction of Aerojet-General's rocket fuel plant. il Eng N 172:72-3 My 21 '64
Chemical product development symposium; abstracts of papers. Chem & Ind p 1681-5 O 19 '63
Corporate planning. C. S. Brinegar. Oil & Gas J 61:44-8 D 23 '63
Elements in planning for advanced technology. Coal Age 69:110-11 Ag '64
How selective modernization pays off at Pickett cotton mills. il Textile World 114:74-6 N '64
Keeping an eye on development costs. il diags Engineering 198:224-5 Ag 21 '64
Lagrange multipliers and the optimal allocation of defense resources. G. E. Pugh. Op Res 12:543-67 Jl '64
Manpower by Critical path method. J. A. Keane and J. D. Trawick. Civil Eng 34:42-3 Jl '64
Mathematical models help automate Iowa power pool planning. C. E. Parks and H. E. Lokay. flow diag Power Eng 67:71-2 N '63
Moving a plant calls for precise planning. A. J. Steele. il Electronic Ind 23:48-52 Ap '64
National planning is required to obtain social stability. J. A. Beirne. Automation 11:89-90 Ap '64
Operations research in construction planning. R. L. Nicholls. bibliog Am Soc C E Proc 89 [CO 2 no 3640]:59-74 S '63; Discussion. 90 [CO 1 no 3851]:95-8 Mr '64; Reply. 90 [CO 2 no 4051]:61-2 S '64
Organizing for planning. W. P. Hall. Chem Eng Prog 60:23-4 Je '64
Planning and programming n/c. J. C. Keebler. il diag Automation 11:58-67 S '64
Planning for growth. R. R. Dockson. Am Gas Assn Mo 45:25 D '63
Pre-planning helped set big girders across track jungle. il plans Roads & Sts 107:52-5+ Je '64
Split second timing enables steam plant modernization. S. L. Bunting. il Heating-Piping 36:128-30 Ap '64
Standardization + modernization boosts sales 50 per cent. W. J. Davidson. il Mach 71:129-32 S '64
U.S. will turn to industry for socioeconomic solutions. G. McDaniel. Steel 154:49 Je 29 '64
Using industry know-how in planning your lab. S. Fiance. il Res/Develop 15:25-7 Mr '64
See also
Schedules

PLANT cells and tissues
Review of herbicide penetration through plant surfaces. C. L. Foy. bibliog J Agri & Food Chem 12:473-6 S '64
See also
Cambium

PLANT engineers, American institute of. See American institute of plant engineers

PLANT growth
Air conditioning plays key role in plant-growth research room. il diag Air Cond Heat & Ven 60:102-3 N '63
Amateur scientist; extraction of growth-promoting substances from cantaloupe. R. C. Caggiano. Sci Am 211:100-3 Ag '64
Detection of compounds that inhibit vegetative bud growth of tobacco. P. C. Marth and J. W. Mitchell. bibliog il J Agri & Food Chem 12:61-4 Ja '64
Determination of beta-hydroxyethyl-hydrazine in pineapples. M. P. Thomas and H. J. Ackermann. bibliog J Agri & Food Chem 12:432-3 S '64
New plant growth regulators are derived from carbohydrates. il Chem & Eng N 42:60+ My 25 '64
Persistence and translocation of exogenous regulating compounds that exude from roots. P. J. Linder and others. bibliog il J Agri & Food Chem 12:437-8 S '64
Residue determination of naphthaleneacetic acid in olives. G. Zweig and others. bibliog J Agri & Food Chem 12:59-61 Ja '64
Synthesis, properties, and biological activity of some amino acid derivatives of halogen-substituted phenoxy acids. J. F. Carmichael and others. bibliog J Agri & Food Chem 12:434-6 S '64
See also
Plants, Effect of light on

PLANT viruses. See Viruses, Plant

PLANTS
See also
Aquatic plants
Poisonous plants

Alkaloid content

Quantitative isolation and improved nephelometric microdetermination of lupine alkaloids from plant tissues. D. M. Graham and M. Spencer. bibliog Anal Chem 36:210-13 Ja '64

Chemical analysis

Colorimetric determination of glucose, fructose, and sucrose in plant materials using a combination of enzymatic and chemical methods. G. Johnson and others. bibliog J Agri & Food Chem 12:216-19 My '64

PLANTS—Chemical analysis—*Continued*

Determination of ammonium, amide, amino, and nitrate nitrogen in plant extracts by a modifed Kjeldahl method. A. V. Barker and R. J. Volk. Anal Chem 36:439-41 F '64
Modified analytical method for microgram amounts of metaldehyde in plant material. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:249-50 My '64
Taurine as reference standard in chromatography of plant material extracts. J. G. Karas and others. bibliog Anal Chem 36:1671-2 Jl '64

Chemical composition

Biogenesis of the simarubaceae bitter compounds. J. B. Bredenberg. bibliog Chem & Ind p73-4 Ja 11 '64
Direct determination of the crystal structure of *p*-bromobenzoate-glaucarubin. G. Kartha and D. J. Haas. bibliog diags Am Chem Soc J 86:3630-4 S 20 '64
4-Hydroxy-*N*-methyl-L-proline from afrormosia elata heartwood. J. W. W. Morgan. Chem & Ind p542-3 Mr 28 '64
Isolation of stachene and two related alcohols. R. D. H. Murray and R. McCrindle. bibliog Chem & Ind p500-1 Mr 21 '64
Nicandrenone, a new compound with insecticidal properties, isolated from nicandra physalodes. O. Nalbandov and others. bibliog J Agri & Food Chem 12:55-9 Ja '64
Plant sulfolipid; sulfosugar syntheses from methyl hexoseenides. J. Lehmann and A. A. Benson. bibliog Am Chem Soc J 86:4469-72 O 20 '64
Stereochemistry of nimbin. C. R. Narayanan and others. Chem & Ind p324 F 22 '64
Structure of nimbin. C. R. Narayanan and others. bibliog Chem & Ind p322-4 F 22 '64

Diseases and pests

Chemical control of plant parasitic nematodes in the United Kingdom. J. E. Peachey. bibliog Chem & Ind p 1736-40 N 2 '63
Chemical factors influencing host selection by the Mexican bean beetle epilachna varivestis muls. J. B. LaPidus and others. bibliog J Agri & Food Chem 11:462-3 N '63
Control of Florida plant diseases. H. I. Borders. Soap & Chem Spec 40:105+ Ap '64
Insects in relation to plant disease. W. Carter. Review, by J. C. Felton. Chem & Ind p 1678-9 O 3 '64
Instrumentation in crop parasitology; abstract. J. M. Hirst and others. Chem & Ind p433-4 Mr 14 '64
United Fruit places emphasis on research to improve earnings. Food Tech 18:1185-6+ Ag '64
See also
Celery—Diseases and pests
Viruses, Plant

Metabolism

Identification of metabolites of Zectran insecticide in broccoli. E. Williams and others. bibliog J Agri & Food Chem 12:453-7 S '64
Metabolism of herbicides; symposium. bibliog il J Agri & Food Chem 12:2-43 Ja '64
Metabolism of phthalimidomethyl-*O,O*-dimethylphosphorodithioate (Imidan) in cotton plants. J. J. Menn and J. B. McBain. bibliog il J Agri & Food Chem 12:162-6 Mr '64

Selenium content

Amount and chemical form of selenium in vegetable plants. J. W. Hamilton and O. A. Beath. bibliog J Agri & Food Chem 12:371-4 Jl '64

Translocation

Metabolism and translocation of 3-amino-1,2,4-triazole by Canada thistle. R. A. Herrett and W. P. Bagley. bibliog diag J Agri & Food Chem 12:17-20 Ja '64
Persistence and translocation of exogenous regulating compounds that exude from roots. P. J. Linder and others. bibliog il J Agri & Food Chem 12:437-8 S '64
P^{32}- and S^{35}-labeled *S,S,S*-tributylphosphorotrithioate defoliant residue in cottonseed. F. R. H. Katterman and W. C. Hall. bibliog J Agri & Food Chem 12:187-9 Mr '64
Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

Zinc content

Nature of zinc-containing substances in the alfalfa plant cell. W. J. Johnson and W. G. Schrenk. J Agri & Food Chem 12:210-13 My '64

PLANTS, Aquatic. See Aquatic plants

PLANTS, Effect of air pollution on

Trends in air pollution damage. J. T. Middleton. bibliog maps Archives Environmental Health 8:19-23; Discussion. 31-8 Ja '64

PLANTS, Effect of light on

Effect of light intensity on photosynthesis. M. M. Varma and M. J. Wilcomb. bibliog il Water & Sewage Works 110:426-9 D '63
Light topics. il Engineering 196:608 N 8 '63
Portable photointegrating meter for use in crops. J. A. Irvine and P. Harper. diags J Sci Instr 41:231-3 Ap '64

PLANTS, Effect of radiation on

Some experiments on the effects of ionizing radiation on plants. C. L. Stong. il diags Sci Am 209:151-2+ D '63

PLANTS, Fragrant

Fragrant flowers and leaves (cont). E. S. Maurer. Am Perfumer 79:55-7 My '64
Scent of flowers and leaves; a search for fragrance among the minor natural orders (cont). E. S. Maurer. Manuf Chem 34:527-8 N '63; 35:74+ Mr '64

PLANTS, Industrial. See Factories

PLASMA (physics)

Admittance of annular slot antennas radiating into a plasma layer. J. Galejs. bibliog diag J Res Nat Bur Stand 68D:317-24 Mr '64
Analog computer for plasma thermometry. J. B. Shumaker, jr. and C. R. Yokley. Franklin Inst J 276:441-2 N '63
Analysis of wave propagation in a magnetoplasma-filled waveguide. J. E. Willett. J Ap Phys 34:3470-6 D '63
Approximate theoretical calculation of continuum opacities. S. S. Penner and M. Thomas. bibliog diag AIAA J 2:1572-5 S '64
Astron device begins operating. il diag Phys Today 17:74-5 Je '64
Backward-wave surface mode in a plasma waveguide. R. N. Carlile. bibliog il diags J Ap Phys 35:1384-91 My '64
Ballista or ball-throwing device for momentum and density measurements in a rotating plasma. J. G. Bannenberg and F. G. Insinger. il diags R Sci Instr 35:792-5 Jl '64
Beam-plasma discharge; buildup of oscillations. W. D. Getty and L. D. Smullin. bibliog il diags J Ap Phys 34:3421-9 D '63
Computation of the eigenfrequencies of nonuniform plasmas. A. F. Kuckes. J Ap Phys 35:3071-2 O '64
Current distributions in large-radius pinch discharges. R. G. Jahn and W. von Jaskowsky. il diags AIAA J 2:1749-53 O '64
Current flow between electrodes of unequal area immersed in a low-gas-pressure plasma. M. J. Kofoid. bibliog il diags IEEE Trans Com & Electronics 83:294-302 My '64
Design and construction of high magnetic field traveling wave lines. L. M. Lidsky and D. J. Rose. il diags R Sci Instr 34:1223-7 N '63
Design of a high enthalpy, radio frequency, gas discharge volume. A. Mironer. il diag AIAA J 1:2638-9 N '63
Diagnostic studies of a pinch plasma accelerator. D. P. Duclos and others. bibliog il diags AIAA J 1:2505-13 N '63
Dipole resonances of a plasma in a magnetic field. F. W. Crawford and others. bibliog diags J Ap Phys 34:3168-75 N '63
Dispersion characteristics of circular waveguides containing isotropic plasma. P. J. B. Clarricoats and J. S. L. Wong. diag Inst E E Proc 111:1087-90 Je '64
Double-probe method for unstable plasmas. F. F. Chen. bibliog il diags R Sci Instr 35:1208-12 S '64
Effect of ion motion on plasma oscillations. G. F. Freire. IEEE Proc 51:1790-1 D '63
Electrical conductivity of potassium-seeded argon plasmas near thermal equilibrium. L. P. Harris. J Ap Phys 35:1993-4 Je '64
Electromagnetic properties of finite plasmas. M. P. Bachynski and K. A. Graf. bibliog diags RCA R 25:3-53 Mr '64
Electromagnetic wave propagation in inhomogeneous plasmas and/or magnetoplasmas. W. C. Hoffman. J Res Nat Bur Stand 68D:486-9 bibliog(p488-9) Ap '64
Electromagnetic waves in parameter space for finite magnetoplasmas. V. L. Granatstein and S. P. Schlesinger. bibliog diags J Ap Phys 35:2846-55 O '64
Electron beam-plasma interaction in a traveling-wave tube. K. R. U. Weimer and H. Bodt. IEEE Proc 52:965-6 Ag '64
Electron density measurement of a plasma column by surface wave resonances. Y. Akao and Y. Ida. bibliog diags J Ap Phys 35:2565-70 S '64

PLASMA (physics)—*Continued*

Electrostatic plasmas containment system and electron motion through grids. R. G. Herb. diags R Sci Instr 35:569-72 My '64
Excitation of surface waves. W. E. Williams. Inst E E Proc 111:1693-5 O '64
Experiments concerning nonequilibrium conductivity in a seeded plasma. E. E. Zukoski and others. bibliog diags AIAA J 2:1410-17 Ag '64
Experiments on turbulent mixing in a partially ionized gas. J. Grey and P. F. Jacobs. bibliog il diags AIAA J 2:433-8 Mr '64
Experiments with a fission-heated plasma diode. P. D. Dunn and others. bibliog il diags Inst E E Proc 110:2285-91 D '63
Experiments with an electron cyclotron resonance plasma accelerator. D. B. Miller and E. F. Gibbons. bibliog diags AIAA J 2:35-41 Ja '64
Fast-acting valve which operates at temperatures up to 400°C. H. K. Forsen. il diag R Sci Instr 35:1362-3 O '64
Flexible conductor coil for magnetic field generation. D. J. Spencer. il diag R Sci Instr 35:409-10 Mr '64
Formation of ion beams from plasma sources. J. Hyman, jr. and others. bibliog il diags AIAA J 2:1739-48 O '64 (to be cont)
Free-space microwave techniques for plasma measurements. M. P. Bachynski and G. G. Cloutier. bibliog il diags RCA R 25:168-99 Je '64
Frequency dependence of the resistivity of a fully ionized plasma. D. A. deWolf. IEEE Proc 52:197 F '64
Gas breakdown criterion for pulsed optical radiation. R. G. Tomlinson. IEEE Proc 52:721-2 Je '64
Gas stream bounces off hot plate to form a well-mannered plasma. il Machine Design 36:10 My 7 '64
Generation of an electromagnetic pulse by an expanding plasma in a conducting half-space. A. P. Stogryn and R. N. Ghose. bibliog diag J Res Nat Bur Stand 68D:147-55 F '64
High-frequency oscillations in a thermal plasma. W. H. Cutler. J Ap Phys 35:464-5 F '64
Improved quiescent plasma source. N. Rynn. bibliog il diags R Sci Instr 35:40-6 Ja '64
Interaction of a radiating source with a plasma. K. M. Chen. bibliog diags Inst E E Proc 111:1668-78 O '64
Internal resonances of a discharge column. F. W. Crawford. bibliog diags J Ap Phys 35:1365-9 My '64
Investigation of gas discharges with a rotational component. J. F. Jaeger. bibliog il diags Inst E E Proc 111:1049-58 My '64
Investigation of plasma boundaries with electromagnetic surface waves. H. W. Wassink and A. J. Estin. bibliog diags J Ap Phys 35:2795-800 O '64
Ion acoustic oscillations in plasma thermionic energy converters. J. S. Chivian. bibliog diags J Ap Phys 35:302-8 F '64
Ion wave resonance and plasma instability in a cesium discharge. J. A. Decker, jr. bibliog il diag J Ap Phys 35:497-501 Mr '64
Kinetic theory of waves in a warm plasma excited by a current source. H. H. Kuehl. bibliog diag J Math & Phys 43:218-26 S '64
Langmuir probe measurements in the presence of oscillations. A. Garscadden and P. Bletzinger. il diag R Sci Instr 35:912-13 Jl '64
Laser interferometer; application to plasma diagnostics. J. B. Gerardo and J. T. Verdeyen. bibliog il diags IEEE Proc 52:690-7 Je '64
Long waves associated with disturbances produced in plasmas. H. Bremmer. J Res Nat Bur Stand 68D:47-58 Ja '64
Low-density plasma for molecular ion dissociation. W. L. Stirling and others. bibliog diags J Ap Phys 34:3466-9 D '63
Magnetic bottles for containing extremely hot plasmas. E. E. Callaghan. il diag Space/Aeronautics 41:113-14+ Je '64
Means of determining plasma density distribution. L. C. Robinson. bibliog il diag J Ap Phys 35:458-9 F '64
Mechanism of resonance probe. T. Dote and T. Ichimiya. IEEE Proc 52:1240-1 O '64
Megajoule CLR circuit. il diags Wireless World 70:382-3 Ag '64
Method of approximation for langmuir probes. T. S. Pak. J Sci Instr 41:180-1 Mr '64
Method of measuring the velocity of a continuously flowing plasma. J. A. Cooney. il diag R Sci Instr 35:442-4 Ap '64
Microwave interferometer for studying rapidly fluctuating plasmas. L. C. Robinson. il diag R Sci Instr 35:226 F '64
Microwave reflection by nonuniform plasmas with exponential electron distribution. K. T. Yen. bibliog J Ap Phys 35:290-4 F '64; Discussion. C. R. Mullin and E. D. Shane. IEEE Proc 52:1272-3 O '64
Microwave reflection from small-diameter plasma columns. R. A. Stern. bibliog diags J Ap Phys 34:2562-5 S '63; Discussion. J. Willis. 35:734 Mr '64
Minimum-field magnetic bottles. diag Nucleonics 22:93 F '64
Model for the electrical behavior of a microplasma. R. H. Haitz. bibliog diags J Ap Phys 35:1370-6 My '64
Modulated dipole plasma probes. L. C. Robinson. il diag J Ap Phys 35:2843-5 O '64
Modulated reflection plasma interferometer. L. C. Robinson. il diag R Sci Instr 35:1239-40 S '64
Multiple probe measurements in high-frequency plasma lasers. S. Aisenberg. bibliog diags J Ap Phys 35:130-4 Ja '64
Mutual interaction between microplasmas in silicon *p-n* junctions. I. Ruge and G. Keil. bibliog il diags J Ap Phys 34:3306-8 N '63
New communication system to penetrate plasma sheath. Franklin Inst J 276:574 D '63
New millimeter wave device; beam-plasma amplifier. G. A. Swartz. bibliog il diag Electronics 36:40-2 N 8 '63
Nonequilibrium ionization due to electron heating. J. L. Kerrebrock and M. A. Hoffman. bibliog diags AIAA J 2:1072-87 Je '64
Oscillations in single and colliding plasmas. R. Mirman. Am J Phys 32:690-9 S '64
Plasma behavior in an oscillating-electron ion engine. J. W. Davis and others. bibliog diags AIAA J 1:2497-504 N '63
Plasma camera. F. H. Coensgen and others. il diag R Sci Instr 35:1072-4 Ag '64
Plasma effects in solids. R. Bowers and M. C. Steele. bibliog IEEE Proc 52:1105-12 O '64
Plasma equation of state. D. C. Kelly. bibliog Am J Phys 31:827-8 N '63; Discussion. H. Wergeland. 32:566-7 Jl '64
Plasma experiments with a 570-kJ theta-pinch. F. C. Jahoda and others. bibliog il diags J Ap Phys 35:2351-63 Ag '64
Plasma microwave power density detector. N. H. Farhat. IEEE Proc 52:1053-4 S '64
Plasma physics. Engineer 217:649 Ap 10 '64
Plasma pinch excitation of a ruby laser. R. A. Brandewie and others. il J Ap Phys 34:3415-16 N '63
Plasma property of liquid metals. C. P. Flynn. bibliog J Ap Phys 35:1641 My '64
Plasma radiation shielding. R. H. Levy and G. S. Janes. bibliog diags AIAA J 2:1835-8 O '64
Plasma resonances excited by antennas. H. Schmitt. il diag IEEE Proc 52:622-3 My '64
Plasma waveguide cell for afterglow measurements. E. H. Holt and K. C. Stotz. il R Sci Instr 34:1285 N '63
Plasmas in solids. R. Bowers. il diags Sci Am 209:46-53 N '63
Probe system for plasma research. J. M. Chapuk and others. bibliog il diags R Sci Instr 34:1377-83 D '63
Production of low divergence positive ion beams of high intensity. N. B. Brooks and others. bibliog diags R Sci Instr 35:894-901 Jl '64
Propagation of microwaves in a plasma-filled waveguide. G. S. Harmon and M. Eisner. bibliog diag J Ap Phys 35:319-21 F '64
Propagation of plasma waves in a spoke-wheel magnetic field. R. L. Liboff. bibliog diag J Res Nat Bur Stand 68D:325-31 Mr '64
Proposed lossless dissociating plasma for use with a DCX-type device. A. W. Ehler. bibliog J Ap Phys 35:2309-11 Ag '64
Pulsed electromagnetic acceleration of metal plasmas. T. L. Rosebrock and others. bibliog il diags AIAA J 2:328-34 F '64
Radiation field of a magnetic dipole antenna in a conical sheath. D. C. Pridmore-Brown. diags J Math & Phys 43:199-217 S '64
Radiation field produced by an infinite slot in an infinite cylinder surrounded by a homogeneous plasma sheath. D. L. Sengupta. bibliog diags Inst E E Proc 111:950-8 My '64
Radiation from plasmas. L. B. Felsen. J Res Nat Bur Stand 68D:480-5 bibliog(p484-5) Ap '64
Radiation through cylindrical plasma sheaths. J. H. Harris. diags J Res Nat Bur Stand 67D:717-33 N '63
Radiofrequency plasma emission spectrophotometer. C. D. West and D. N. Hume. diags Anal Chem 36:412-15 F '64
Rectifier equipment for plasma research. Engineer 216:925 N 29 '63

PLASMA (physics)—*Continued*

Reentry plasma sheath. diags Space/Aeronautics 41:53-7 My '64

Reflection of electromagnetic waves from a lossy magnetoplasma. J. R. Wait and L. C. Walters. bibliog diags J Res Nat Bur Stand 68D:95-101 Ja '64

Self-generating plasma waveguide. D. B. Harris and M. C. Pease. il IEEE Proc 51:1676-7 N '63

Skin effect in anisotropic plasmas at high frequencies. B. Pfeiffer. IEEE Proc 51:1619-20 N '63

Some improvements in the microwave cavity method of probing decaying gaseous plasmas. R. Hackam and J. J. Lennon. bibliog diag J Sci Instr 41:388 Je '64

Static theory of density and potential distribution in a beam-generated plasma. D. A. Dunn and S. A. Self. bibliog diags J Ap Phys 35:113-22 Ja '64

Superheterodyne radiometers for short millimetre wavelengths. R. Meredith and others. bibliog il diags Inst E E Proc 111:241-56 F '64

Surface waves along a plasma-air boundary. L. W. Zelby. diag IEEE Proc 51:1774 D '63

Technique for measuring self-absorption of spectral lines in plasmas. P. J. Dickerman and R. W. Deuel. bibliog diags R Sci Instr 35:978-80 Ag '64

Technique for the experimental determination of the electrical conductivity of plasmas. D. D. Hollister. bibliog diags AIAA J 2:1568-71 S '64

Temperature effect on Langmuir probe measurement. C. J. Chen. bibliog diag J Ap Phys 35:1130-3 Ap '64

Theory of a slotted-sphere antenna immersed in a compressible plasma. J. R. Wait. bibliog diag J Res Nat Bur Stand 68D:1127-43 O '64

Thermionic emission from hot particles in a plasma. C. C. Johnson and C. K. Bullock. J Ap Phys 35:2804-5 O '64

Transient phenomenon in an isotropic plasma without collision loss. S. N. C. Chen. IEEE Proc 51:1045-6 Jl '63; Discussion. C. M. Knop. diags 52:99 Ja '64

Waves in plasmas. A. Bers and P. Chorney. bibliog J Res Nat Bur Stand 68D:674-8 My '64

Wide-range microwave spectroscopy of noise radiation from magnetoplasmas. C. D. Lustig and others. bibliog diags R Sci Instr 35:869-71 Jl '64

Bibliography

Selective survey of books on plasma physics. Review. by E. P. Gray. Phys Today 16:66-8+ N '63

PLASMA arc torch. See Plasma jet

PLASMA jet

Acetylene from plasma jets. J. H. S. Haggin. Ind & Eng Chem 56:10+ Ap '64

Before you plasma spray. P. Jackman. il Am Mach 108:56-7 F 3 '64

Dual-flow plasma torch. J. A. Browning. il diags Welding J 43:275-9 Ap '64

Electro magnetic forming plasma jet cutting. D. G. Scorgie. Light Metal Age 22:8 Ag '64

Emission spectrometric determination of beryllium in oilfield water using plasma arc. A. G. Collins and C. A. Pearson. bibliog Anal Chem 36:787-9 Ap '64

Fluid transpiration through anodic boundary of an electric arc. C. Sheer and others. bibliog il diags AIAA J 2:483-9 Mr '64

Free-burning plasmajets. il diag Mech Eng 86:50 O '64

High speed shape cutting with plasma. G. R. Spies and C. R. Felmley. il diag Welding J 43:187-94 Mr '64; Same. Naval Eng J 76:557-62 Ag '64

Instrument to measure velocity electrical conductivity of arc plasmajets. A. E. Fuhs. bibliog il diags AIAA J 2:667-73 Ap '64

Metallurgical bonding of plasma sprayed tungsten on hot molybdenum substrates. W. A. Spitzig and S. J. Grisaffe. il Welding J 43:sup425-7 S '64

NASA research finds plasma spraying creates real diffusion bonding. il Steel 154:60 F 24 '64

New developments in plasma arc cutting. R. L. O'Brien and R. J. Wickham. il diags Welding J 42:107-11 F '63; Abstract. Metal Prog 84:180-1 D '63

New developments in plasma arc weld surfacing. R. S. Zuchowski and E. Garrabrant. il diag Welding J 43:13-16+ Ja '64

New foundry tool: the dual flow plasma torch. il diags Foundry 92:141-2+ Ag '64

Plasma acetylene process developed. il Chem & Eng N 42:42 Ja 20 '64

Plasma arc takes thick slices from stainless steel plate. F. R. Romeo. il Iron Age 193:67-9 Ja 16 '64

Plasma arc welding of stainless tubing is latest in Republic's facilities modernization program. il Iron & Steel Eng 41:144 Ag '64

Plasma flame blazes new trails. R. R. Irving. il diag Iron Age 193:135-8 Mr 12 '64

Plasma jet process activates polymer surface for printing; abstract. R. M. Mantell and W. Ormand. il Chem & Eng N 42:72+ Ap 20 '64

Plasma jet spraying. Engineer 217:1005 Je 5 '64

Plasma jet spraying torch. il diag Metallurgia 70:79-80 Ag '64

Plasma makes a better weld. il Steel 155:116-17 O 19 '64

Plasma source gives controlled temperatures. M. L. Thorpe. diag Chem & Eng N 42:85 F 3 '64

Plasmarc furnace. G. Magnolo. il diags Can Min & Met Bul 57:57-62 Ja '64

Plotting a plasma's profile. il Chem Eng 71:32 Ag 31 '64

Preliminary investigation of particle-substrate bonding of plasma-sprayed materials; abstract. S. J. Grisaffe and W. A. Spitzig. Metal Prog 86:166-7 Jl '64

Present use, future hopes for plasma, electron beam, laser. il diags Welding Eng 49:35-40; Discussion. 40-2 Ja '64

Properties of nickel fume generated in a plasma jet. T. B. Selover, jr. bibliog diags A I Ch E J 10:79-82 Ja '64

Propulsion application of the modified Penning arc plasma ejector. W. D. Kilpatrick and others. bibliog il diags AIAA J 1:806-13 Ap '63; Discussion. E. A. Pinsley and others. 2:401-3 F '64

Quenching the plasma reaction by means of the fluidized bed. W. M. Goldberger and J. H. Oxley. bibliog diag A I Ch E J 9:778-82 N '63

Shape cutting with the plasma arc torch in steel service center operations. J. D. Wait and S. H. Resh. il diags Welding J 43:415-20 My '64

Summary of experiments on a transpiration-cooled electric-arc heat-transfer system. R. B. Kinney and others. il diag A S M E Trans ser C 86:131-2 F '64

System converts high-melting powders into spherical particles. il diag Chem Eng 71:60+ Mr 2 '64

Welders look at three new processes. R. G. Dermott. Metal Prog 85:122-3 Ap '64

PLASMADYNAMICS. See Magnetohydrodynamics

PLASTER and plastering

Guide to portland cement plastering. bibliog il diags Am Concrete Inst J 60:817-34 Jl '63; Discussion. 61:1923-35; Reply. 1935-6 Mr '64

Improved specifications for gypsum plastering. E. M. Lurie. il Mag of Stand 35:299-302 O '64

Setting and hardening of gypsum plasters. W. C. Hansen. bibliog Materials Res & Stand 3:359-63 My '63; Discussion. 4:63-5; Reply. 65-6 F '64

Spraying speeds wall partition plastering. il Eng N 173:83 O 8 '64

See also

Mortar

PLASTER molds. See Molds (for casting)—Plaster molds

PLASTER of Paris

Equilibrium solubility of calcium sulphate hemihydrate in sodium chloride-magnesium sulphate solutions at elevated temperatures. J. B. Clampett and R. T. Fowler. bibliog diags J Ap Chem 14:81-6 F '64

Setting and hardening of gypsum plasters. W. C. Hansen. bibliog Materials Res & Stand 3:359-63 My '63; Discussion. 4:63-5; Reply. 65-6 F '64

PLASTIC adhesive tape. See Adhesive tape, Plastic

PLASTIC bags. See Bags, Plastic

PLASTIC balls. See Balls, Plastic

PLASTIC bathtubs. See Bathtubs, Plastic

PLASTIC beads

Composition of foam structures from expandable polystyrene beads. A. R. Ingram and H. A. Wright. il Mod Plastics 41:152+ N '63

Plastic balls cut chrome-plating costs. Engineering 197:223 F 7 '64

Plastics in electro plating: economies effected by a blanket of floating polypropylene spheres. il Automobile Eng 54:407 S '64

PLASTIC bearings. See Bearings, Plastic

PLASTIC boats. See Boats, Plastic

PLASTIC bottles. See Bottles, Plastic

PLASTIC buildings. See Buildings, Plastic

PLASTIC cartridge cases. See Cartridge cases, Plastic

PLASTIC coating
- Coating halts bolt corrosion. il Eng N 172:109 Ap 2 '64
- Coating of steel with PVC powder compounds. D. W. A. Farmer. bibliog il diag Brit Plastics 37:558-62 O '64
- Coatings form unbreakable bonds. J. E. Sandford. il Iron Age 194:53-5 Ag 20 '64
- Corona discharge promotes adhesion in polyolefin coating operations. Plastics World 21:170 N '63
- Easier coating with thermoset powders. il Engineering 197:800 Je 12 '64
- Electrified gas coats metals. J. E. Sandford. il diag Iron Age 194:75-7 Jl 16 '64
- Epoxy coating solves 4.16-kv switchgear insulation problems. W. R. Pascoe. il diag Elec World 161:51 Mr 9 '64
- Epoxy coatings are solvent-free. R. J. Fabian. il Materials in Design Eng 58:94-6 D '63
- Evaluation of fatty vinyl ether polymers and styrenated polymers for metal coatings. B. G. Brand and others. Am Oil Chem Soc J 41:597-9 S '64
- Experiments with new can coating process. il Soap & Chem Spec 40:125 Ag '64
- Extruding a plastics sheath over steel pipe. il Chem Eng 70:34-6 D 23 '63
- Film-to-steel bond; mile-long galvanized steel coil uses pure acrylic as vinyl bond. il diag Plastics World 21:94-5 N '63
- A first; snow-melting installation uses plastic-coated steel pipe. il Dom Eng 203:68-9 Ja '64
- Fluidized-bed process for coating castings. P. C. Bardin. il Ind Finishing 40:86-7 D '63; Discussion. 40:103-4 F '64
- FEP coated rollers cut down time. il Plastics World 21:68 N '63
- Formable vinyl-clad steel plate resists corrosion. J. W. Pedlow. il Materials in Design Eng 59:86-7 F '64
- Fuel oil tubing. il Plastics World 22:28-9 Ap '64
- Graft polymerization onto cellulose; panel discussion. bibliog Tappi 46:652-75 N '63
- How to select a prepainted metal. Y. E. Chin and R. J. Fabian. il Materials in Design Eng 58:106-8 D '63
- How to select photoelastic coatings. il Materials in Design Eng 60:99-102 S '64
- Improved coatings for cellulose films. O. J. Sweeting. Tappi 46:sup 141A-3A N '63
- Improving adhesion of polyethylene extrusion coatings. G. R. DeHoff and T. F. McLaughlin, jr. il diags Mod Plastics 41:107-10+ N '63
- Industry's parade of new coatings. J. E. Sandford il Iron Age 194:93-100 Jl 23 '64
- New approach to cutting fence maintenance; resin-clad components. il diags Mod Plastics 42:130 S '64
- New dimer-acid based urethane coatings. Plastics Tech 9:11 N '63
- New wrinkle for finishes. il diag Mod Plastics 41:90-1+ Jl '64
- Parabolic microwave antenna. W. D. Williams. il Materials in Design Eng 59:131 Ap '64
- Plastic-coated fastener. H. M. Schoen and R. F. Horan. Wire & Wire Prod 39:715-17+ My '64
- Plastic coated steel wall cladding. il Engineering 198:401 S 25 '64
- Plastic coatings by fluidized bed process. il Prog Arch 44:143-5 D '63
- Plastic coatings for corrosion protection of wire and wire products. P. W. Sherwood. Wire & Wire Prod 38:1719+ N '63; Same. Metal Finishing 62:59-60 F '64
- Plastic coatings protect plating shop equipment. il Steel 155:118+ O 19 '64
- Plastic impregnation of powder metal parts. N. B. Newcomb. il Metal Prog 85:88-90 Ap '64
- Plastic turf wins football tryout to oppose the rain. il Chem Eng 71:96 N 9 '64
- Plastics for industry. il diags Brit Plastics 37:122-3, 180-2, 243-6, 308-9, 372-3, 431-4, 491-4, 546-9 Mr-O '64
- Plastics-protected chain-link fence. il Plastics World 22:24-5 O '64
- Plastisol coatings testing; formulation. C. J. Berg. Ind Finishing 40:28-34+ Ja '64
- Polyethylene protects cast iron. il Chem Eng 71:156 O 26 '64
- PE rod sheath. il Plastics World 22:42 Ag '64
- Polyvinyl butyral resins in metal finishing. M. D. Kellert. il Metal Finishing 62:61-2+ Ag '64
- PVC covered metal sheet on the move. il Brit Plastics 37:542-5 O '64
- Pre-coated metals. il diags Plastics World 22:34 O '64
- Protect complex metal parts with the fluidized-bed process. F. J. Nagel. bibliog il Product Eng 35:84-91 Ag 3 '64
- Reinforced polyesters cut maintenance costs. il Oil & Gas J 61:132-3 N 4 '63
- Repairing trailers; plywood re-faced with thixotropic polyester on woven glass roving. il Plastics World 21:102 N '63
- Resin clad valves; fluidized bed process. il Plastics World 21:44-5 N '63
- Spray-on plastics pinpoint flaws. il Iron Age 193:56-7 Ap 2 '64
- Suggestions for riveting vinyl-metal laminates. il Steel 153:81 D 16 '63
- Swimming pools so durable you can let them freeze in winter for ice skating rinks are made of Tedlar coated aluminum. il Mod Metals 20:64+ Je '64
- Teflon seals aluminum hardcoat. J. E. Sandford. il Iron Age 193:82-3 Mr 19 '64
- Tumbling drum lining; a plastic coating. il Ind Finishing 40:118-19 Ap '64
- Vacuum depositing TFE film; new way to coat plastics and metals. J. H. Gorrell. il Plastics Tech 10:45-6 O '64
- Vinyl clad windows. il Plastics World 22:23 F '64
- Vinyl finishes. L. Heard. Ind Finishing 40:40+ N '63
- X-ray shows make-up of epoxy coatings. il Plastics Tech 10:44 O '64

See also
- Paper coating, Plastic
- Pipe coating, Plastic
- Plastic lining
- Plastic spraying

PLASTIC containers. See Containers, Plastic

PLASTIC deformation. See Deformation (mechanics)

PLASTIC dies. See Dies, Plastic

PLASTIC domes. See Domes, Plastic

PLASTIC filaments. See Filaments, Plastic

PLASTIC films
- Additives strengthen plastic films; abstract. W. J. Jackson, jr. and J. R. Caldwell. Chem & Eng N 42:78 Ap 20 '64
- Bagged hot fudge; new concept cuts costs. il Plastics World 22:24 S '64
- Blister and skin packaging growth. D. DeRyke. il Plastics World 22:54-5 Ap '64
- Biaxial orientation ups soluble-film strength. il Chem Eng 71:108+ N 9 '64
- Bonus in blisters for industry. D. C. Williams. Plastics World 21:3 D '63
- Bridge building speeded by polythene shelters. il Engineering 197:429 Mr 20 '64
- Contacting device for sheet and film. L. L. Scheiner. il Plastics Tech 10:36 Jl '64
- Cryovac develops new packing film. il Can Chem Process 48:79+ My '64
- Effect of heat processing in flexible films on product quality. J. R. Geisman and others. bibliog diag Food Tech 17:1563-7 D '63
- Electrical properties of thin polymer films. H. T. Mann; R. W. Christy. bibliog J Ap Phys 35:2173-84 Jl '64
- Etching of plastic film produces no punch, no die hole patterns. H. B. Thoeni. il Am Mach/Metalworking Manuf 107:65-6 D 23 '63
- Extruded film-cloth; lightweight cloth with extruded polyethylene coat has wide market. il Plastics World 22:31 Ap '64
- Extruded unplasticized vinyl packaging film. R. L. Van Boskirk. Mod Plastics 41:194+ Ag '64
- Film extrusion with beta gages; quality up, costs down. G. R. Gerhard. Plastics Tech 10:39-43 F '64
- Film package; transparent material holds all liquids. il Plastics World 22:39 O '64
- Flat die vinyl film extrusion. G. J. Koch and B. M. O'Rear. il plan Mod Plastics 41:138+ Je '64
- Fluorine-bearing films get set for bigger markets. il Chem Eng 71:90-1 My 11 '64
- Handling and storage of flexible packaging materials. D. L. McCready. il Plastics World 22:24-5 Je '64
- Heat-set polypropylene film. Plastics World 22:7 Jl '64
- In winter; under-cover construction speeds projects. R. F. Legget. il Eng N 171:58-61 D 19 '63

PLASTIC films—*Continued*

Laminated and coated polyolefin films. G. Jordan. il Plastics World 22:56-7 Ap '64

Light scattering from oriented polymer films. R. S. Stein and T. Hotta. bibliog diags J Ap Phys 35:2237-42 Jl '64

Loose plastic film wrap as cast-iron pipe protection. E. F. Wagner. il Am Water Works Assn J 56:361-8 Mr '64

More data on new packaging film; Kordite corp. Plastics Tech 10:51 Ja '64

New PE film bids for meat-wrap market. il Plastics Tech 10:13 My '64

New polymers combine covalent, ionic bonds. il Chem Eng N 42:25 S 7 '64

Packaging of foods in laminate and aluminum-film combination pouches. B. S. Luh and G. de la Hoz. bibliog Food Tech 18:1473-6 S '64

Permeation of gases through polyethylene films at elevated pressures. N. N. Li and E. J. Henley. bibliog diags A I Ch E J 10:666-70 S '64

Plastic packaging of drugs and cosmetics; plastic pouch and the unit pack. A. Hirsch. Drug & Cosmetic Ind 94:848-9+ Je '64

Plastic surgery on irrigation arteries. K. S. Ehrman. il diags Am Soc C E Proc 90 [CO 1 no 3837]:47-57 Mr '64

Plastics still gain in produce packaging. il Chem & Eng N 42:36 O 26 '64

Plastics World contemporary film and sheeting, property and price chart. Plastics World 22:112-13 Ap '64

Polyester film laminates for wire insulation. W. L. Gore and R. E. Martz. il Wire & Wire Prod 39:380-2+ Mr '64

Polyester mirror. il Plastics World 22:18 O '64

Polyethylene wrap. il Plastics World 22:43 Jl '64

Polyimide film. R. S. Mallouk. Machine Design 36:232-5 Ap 23 '64

Polymer chemistry advances into ionomers. il Chem Eng 71:90 O 26 '64

Polymer packaging for freezing and preservation of fish. W. Pichel. ASHRAE J 6:78-9 O '64

Polypropylene film. il Plastics World 22:14 Ap '64

Polythene film in bridge work. il Engineering 198:401 S 25 '64

Properties of materials; plastics films; tables. Materials in Design Eng 60:239-41 Mid-O '64

Recent observations on paper and plastics in packaging. K. A. Arnold. Tappi 46:sup 22A+ D '63

Sales upped with PVC-wrapped wrenches. il Plastics World 21:171 N '63

Shrink packaging today and tomorrow. J. P. Sachs. Plastics World 21:5 N '63

Thickness measurement of polymer films for infrared spectrometry by beta-ray absorption. T. A. Veerkamp and others. Anal Chem 36:2277-8 N '64

Three-ply poly film; first application in bakery business. il Plastics World 22:10 F '64

Tough resin films push their way into new field. il Chem Eng 71:72-4 O 26 '64

Unplasticized calendered PVC film on the move. R. L. Van Boskirk. Mod Plastics 41:186+ Jl '64

Water soluble plastic finds new uses. il Materials in Design Eng 60:121+ N '64

Water soluble plastics. il Plastics World 22:21 O '64

Web alignment and wrinkle control. W. M. Gallahue. il diags Mod Plastics 42:123-5+ O '64

Where we are with gas phase polymerization. diags Plastics Tech 10:9-11 F '64

X-ray measurement of plastics film coatings. W. Arnold and D. Darnell. il diag Plastics World 22:32-3 Ja '64

See also

Mylar

Saran

Manufacture

FEP-fluorocarbon film goes commercial. il Chem Eng 71:108+ Ap 13 '64

System described for automating extruder die adjustment; beta gage seminar. Plastics Tech 10:59 My '64

Permeability

Improved permeability apparatus of the variable-volume type. S. A. Stern and others. bibliog il diags Mod Plastics 42:154+ O '64

Testing

Improved permeability apparatus of the variable-volume type. S. A. Stern and others. bibliog il diags Mod Plastics 42:154+ O '64

Interlaboratory study of cutting plastic film tension specimens. G. D. Patterson, jr. il Materials Res & Stand 4:159-61 Ap '64

Physical testing of plastics films. M. E. Baird and D. A. Lannon. bibliog il diags Brit Plastics 37:82-8 F '64

Pressure-deflection and burst characteristics of plastics films. H. A. Burgman and R. H. Calderwood. il diag Mod Plastics 41:143-4+ Jl '64

PLASTIC flooring. See Flooring, Plastic

PLASTIC furniture. See Furniture, Plastic

PLASTIC gas pipes. See Gas pipes, Plastic

PLASTIC gearing. See Gearing, Plastic

PLASTIC goggles. See Goggles, Plastic

PLASTIC guitars. See Guitars, Plastic

PLASTIC heels. See Heels, Plastic

PLASTIC household products. See Household products, Plastic

PLASTIC houses. See Houses, Plastic

PLASTIC ladders. See Ladders, Plastic

PLASTIC lenses. See Lenses, Plastic

PLASTIC lighting fixtures. See Lighting fixtures, Plastic

PLASTIC lining

Plastic liner seals leaky pipeline in Texas Oil & Gas J 62:92-3 My 18 '64

Plastics protection for water main. il Engineering 197:693 My 22 '64

Refrigerator liner. il Plastics World 22:20 O '64

Renewing services without street openings at the main; Epi-SEAL system. F. C. Shaughnessy. il diag Gas 40:82-7 O '64

Sealing reservoirs with vinyl sheet. il Engineering 197:692-3 My 22 '64

Tanks lined with phenol-epoxy. il Engineering 198:342 S 11 '64

PLASTIC materials. See Plastics

PLASTIC paneling. See Paneling, Plastic

PLASTIC patterns. See Pattern making—Plastic patterns

PLASTIC pipe fittings. See Pipe fittings, Plastic

PLASTIC pipe lining. See Pipe lining, Plastic

PLASTIC pipes. See Pipes, Plastic

PLASTIC printing plates. See Printing plates, Plastic

PLASTIC pumps. See Pumps, Plastic

PLASTIC roofs. See Roofs, Plastic

PLASTIC rope. See Rope, Plastic

PLASTIC scintillators. See Counters (electrons, ions, etc.)

PLASTIC sewer pipes. See Sewer pipes, Plastic

PLASTIC sheeting

Absorption measurements of ultrasonic waves in plastic sheets. Y. Nakamura. bibliog diags J Ap Phys 34:3288-90 N '63

Clearly educational. il Plastics World 22:60-1 My '64

Colored acrylic sheet; via ultrasonics. il Mod Plastics 41:95 Ag '64

Contacting device for sheet and film. L. L. Scheiner. il Plastics Tech 10:36 Jl '64

Greenhouses protected winter bridge concreting. il diag Roads & Sts 106:38-9+ D '63

Machine heat-welds vinyl in field. il Eng N 171:55 D 5 '63

Pipe-and-film huts; low-cost protection. il Mod Materials Handling 18:61 D '63

Plastic permits tennis all year. il Eng N 172:50 F 13 '64

Plastics add an exciting new dimension. il diags Mod Plastics 41:90-3 My '64

Plastics World contemporary film and sheeting, property and price chart. Plastics World 22:112-13 Ap '64

Polyethylene sheet for better scooter parts. il Mod Plastics 42:109+ S '64

Polyethylene tarp; plastics sheeting protects grain in river transit. il Plastics World 22:25 S '64

Post-forming rigid PVC shapes. il Plastics Tech 10:42-3 Ag '64

Simple and inexpensive method of tracing cathode-ray tube waveforms. A. W. Gooder. J Sci Instr 41:392 Je '64

3-D sheet produces unique optical effects. il Plastics World 22:19 Ap '64

Vertical extrusion system for methacrylate sheet. il diags Mod Plastics 41:50+ Ap '64

Web alignment and wrinkle control. W. M. Gallahue. il diags Mod Plastics 42:123-5+ O '64

PLASTIC signs. See Signs, Plastic

PLASTIC soles. See Soles, Plastic

PLASTIC spraying

Guide to spray-up equipment for reinforced plastic. R. C. Hosford. il Plastics Tech 10:36-41 Ap '64

Lower costs, better product achieved by mechanized spray-up system. il diag Plastics World 21:35 N '63

Pittsburgh Plate Glass develops process for spraying rigid urethane foam. Chem & Eng N 42:42 Ag 31 '64

Process developed for rigid urea foam. Oil & Gas J 62:138+ O 5 '64

Use hollow hot stick to spray silicone. il Elec World 161:75 Ap 6 '64

PLASTIC straps

Polypropylene strapping. il Plastics World 22:37 Jl '64

PLASTIC tableware. See Tableware, Plastic

PLASTIC tanks. See Tanks, Plastic

PLASTIC tape. See Tape, Plastic

PLASTIC tools. See Tools, Plastic

PLASTIC toys. See Toys, Plastic

PLASTIC trays. See Trays, Plastic

PLASTIC tubes. See Tubes, Plastic

PLASTIC wall coverings. See Wall coverings, Plastic

PLASTIC walls. See Walls, Plastic

PLASTICITY

Analysis of contained plastic flow in plane solids. A. H. S. Ang and G. N. Harper. bibliog flow diag diags Am Soc C E Proc 90 [EM 5 no 4113]:397-418 O '64

Analysis of elastic-plastic shells of revolution containing discontinuities. D. A. Spera. bibliog diags AIAA J 1:2583-9 N '63

Application of some principles to plastic deformation. O. Kienzle. diags Machine Design 35:200+ N 7 '63

Applications of some principles to plastic deformation; abstract. O. Kienzle. Metal Prog 85:172+ Je '64

Bending strength in the plastic range; data sheet. R. Gavalis. diags Machine Design 36:129-33 Jl 2 '64

Bilinear theories in plasticity and an application to two-dimensional wave propagation. H. R. Aggarwal and others. bibliog diags A S M E Trans ser E 31:181-8 Je '64

Breakthrough in plastic design aim of studies. Steel 153:116 N 25 '63

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

Dynamic plastic analysis of steel frames. B. Rawlings. bibliog diags Am Soc C E Proc 90 [ST 3 no 3954]:265-83 Je '64

Elastic-plastic analysis of centrally clamped annular plates under uniform loads. F. W. French. bibliog diags Franklin Inst J 277:575-92 Je '64

Elastic-plastic deformation of a single grooved flat plate under longitudinal shear. M. F. Koskinen. bibliog il diags A S M E Trans ser D 85:585-91; Discussion. 591-3; Reply. 593-4 D '63

Elasto-plastic medium containing a cylindrical cavity under uniform internal pressure. R. D. Bhargava and C. B. Sharma. Franklin Inst J 277:422-7 My '64

Experimental solution of elastic-plastic plane-stress problems. P. S. Theocaris. bibliog il A S M E Trans ser E 29:735-43 D '62; Discussion. F. A. McClintock. 30:631; Reply. 632-4 D '63

Extrusion properties of non-clay oxides. J. F. White and A. L. Clavel. bibliog diag Am Cer Soc Bul 42:698-702 N '63

Final shape of a dynamically loaded elastic-plastic redundant structure. H. C. Schjelderup and R. E. Ball. diag AIAA J 2:958 My '64

Flat plate structures. J. F. Brotchie and J. J. Russell. diags Am Concrete Inst J 61:959-96 bibliog(p990-1) Ag '64; Supplement. pt 2:1-17 '65

Flow stress on the (100) and (110) planes in LiF, and the plasticity of polycrystals. D. W. Budworth and J. A. Pask. bibliog Am Cer Soc J 46:560-1 N '63

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Longitudinal impact on viscoplastic rods; linear stress-strain rate law. T. C. T. Ting and P. S. Symonds. bibliog diags A S M E Trans ser E 31:199-207 Je '64

Minimum weight plastic design of continuous frames. D. A. Sawyer and L. E. Grinter. bibliog diags Am Soc C E Proc 90 [EM 3 no 3927]:39-52 Je '64; Discussion. J. Heyman and W. Prager. 90 [EM 5 no 4093]:459-61 O '64

Outer and inner bounds on Tresca limit loads of cylindrical shells. S. L. Lee and B. J. Thorn. bibliog diags Franklin Inst J 277:517-33 Je '64

Penetration of water into plastically deformed NaCl. A. T. Kellogg and R. O. Pohl. bibliog J Ap Phys 35:1359-60 Ap '64

Plane-strain cam plastometer for use in metal-working studies. J. A. Bailey and A. R. E. Singer. il diag Inst Metals J 92:288-9 '63-64

Plastic analysis of circular balcony girders. K. H. Chu and A. Thelen. bibliog diags Am Soc C E Proc 89 [ST 6 no 3726]:159-86 D '63; Discussion. L. W. Lu. 90 [ST 3 no 3940]:415-16 Je '64

Plastic analysis of orthotropic circular plates. J. Markowitz and L. W. Hu. bibliog diags Am Soc C E Proc 90 [EM 5 no 4098]:251-92 O '64

Plastic deformation of a cantilever beam with strain-rate sensitivity under impulsive loading. T. C. T. Ting. bibliog diags A S M E Trans ser E 31:38-42 Mr '64

Repeated loading in the plastic design of crane girders. M. R. Horne and J. M. Davies. diags Engineer 216:1053-7 D 27 '63

Steel structures shed weight. L. S. Beedle. il Iron Age 193:74-5 F 6 '64

Stresses in an incompressible viscoelastic-plastic thick-walled cylinder. M. Shinozuka. bibliog AIAA J 2:1800-4 O '64

Theory of plasticity applied to machining with cut-away tools. E. Usui and others. bibliog il diags A S M E Trans ser B 86:95-104 My '64

World manufacturing research; CIRP meeting, Cincinnnati; abstracts of papers on material forming. Tool & Manuf Eng 52:81-3 My '64

See also

Creep of materials

Crystals—Dislocations

PLASTICIZERS

Brassylic acid esters as plasticizers for poly(vinyl chloride). H. J. Nieschlag and others. Ind & Eng Chem Product Res & Develop 3:147-9 Je '64

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

Extenders for ethylene-propylene rubbers. R. M. White. bibliog il Rubber Age 94:897-909 Mr '64

For better vinyl products. C. F. Huber and J. D. Farr. bibliog il Mod Plastics 41:91-4+ Ag '64

Fusion rates of plasticizers. N. W. Touchette and others. Plastics Tech 10:33-5 Jl '64

Lacquer marring by plasticizer migration from PVC. J. B. De Coste. diag Mod Plastics 42:169+ S '64

New extending oils make headway in plastics. il Chem & Eng N 42:25-6 Mr 9 '64

Plasticization of PVC by polyisoprene SKN-40. V. A. Byl'ev and V. A. Voskresenskii. bibliog Rubber Chem & Tech 37:770-3 Jl '64

Plasticized PVC for high temperature service. I. Phillips. bibliog Brit Plastics 37:261-5, 325-9 My-Je '64

Plasticizers made from phthalic acid esters; abstract. H. R. Gamrath and L. O. Raether. diag Chem & Eng N 42:85-6 Ap 13 '64

Plasticizers story: 1963. J. W. Eihausen and E. C. Wilde. Mod Plastics 42:120-3+ S '64

Plastics modifiers and their functions. R. B. Seymour. il Plastics World 22:60-5 O '64

PAPA offers many advantages as a converter for epoxies. R. G. Black and others. il Plastics Tech 10:37-40 Mr '64

Preparation and plasticizing characteristics of piperidides of long chain fatty acids and N-fatty acyl derivatives of other cyclic imines. R. R. Mod and others. bibliog Am Oil Chem Soc J 41:237-40 Mr '64

Why epoxy plasticizers spew. J. W. Little and others. Plastics Tech 9:42-4 N '63

PLASTICS

Additives in plastics. R. N. Haward. bibliog il Chem & Ind p 1442-55 Ag 15 '64

Aromatic polyimide compositions for solid lubrication. bibliog il diags Lub Eng 20:225-30 Je '64

Comparisons of materials; hardness of plastics, rubber and nonmetallics; tables. Materials in Design Eng 60:33 Mid-O '64

PLASTICS—*Continued*

Cross-links between plastics, paint, and textile polymers; abstract. L. Valentine. Chem & Ind p983-4 Je 6 '64
Electron microscope observation of fission fragment tracks in plastics. A. G. Malmon. il J Ap Phys 34:3634-5 D '63
Ferromagnetic plastics as r-f attenuators in traveling-wave tubes. il Electro-Tech 74:134+ Jl '64
Forms and shapes of materials; plastics and rubber forms; tables. Materials in Design Eng 60:465-71 Mid-O '64
High-performance toluene diisocyanate-polypropylene glycol castable elastoplastics. S. E. Berger and W. Szukiewicz. bibliog Ind & Eng Chem Product Res & Develop 3:129-32 Je '64
How structure determines properties of plastics. R. M. Kell and P. B. Stickney. diags Materials in Design Eng 59:79-82 My '64
Keeping up with plastics; essay reviews. A. J. Gait. Chem & Ind p 1412-13 Ag 8 '64
New olefin copolymers bid for share of plastics market. il Chem & Eng N 42:25-6 Mr 16 '64
New plastic develops rubber-like traits; Ultrathene. il Iron Age 193:110 Mr 26 '64
New products. Published in monthly numbers of Plastics world
Plastics reference issue handbook; design data; product directory. il diags Machine Design 36:1-308 S 17 '64
Polymer processing; symposium series abstracts. il Chem Eng Prog 60:82+ S '64
Polymeric materials. C. H. Adams. bibliog il diags Chem Eng 71:83-90 Ja 6 '64
Role of plastics in corrosion engineering. R. B. Seymour. Plastics World 22:50-2 Ap '64
Trade marks. Published in monthly numbers of British plastics
Which plastics for refrigerators? R. E. Deaux. il Materials in Design Eng 59:98-9 Ja '64

See also

Containers, Plastic
Creep of plastics
Electric circuits—Plastics embedment
Electronic circuits—Plastics embedment
Embossing (plastics)
Extrusion process (plastics)
Molded products
Molding
Molding machines (for plastics)
Plastic coating
Plasticizers
Plastics engineering
Printing on plastics
Resinous products
Saran
Thermoplastics
Tools, Plastic
Urethans

also subdivision Plastics under special subjects, e.g.

Airplanes—Materials
Automobiles—Materials
Building materials
Motor trucks—Materials
Motor vehicles—Materials
Rockets—Materials
Shipbuilding—Materials
Space vehicles—Materials

Aging

Causes of polypropylene oven aging variability. J. P. Forsman. il Mod Plastics 42:175+ S '64

Weathering resistance of plastics. G. R. Rugger. bibliog il diags Materials in Design Eng 59:69-84 Ja '64 (reprints 35c)

Analysis

Laser probe traces contaminants in plastics materials. il Plastics World 22:23-4 My '64

Bibliography

Abstracts; digest of world-wide literature. Published in monthly numbers of Modern plastics

Book reviews. Brit Plastics 36:706; 37:42, 155, 211-12, 270, 335-6, 396, 573 D '63-Ja, Mr-Jl, O '64

Books and reports. Plastics Tech 9:64 F; 68 Mr; 61-2 Ap; 63 My; 57 Jl; 74-5 Ag; 67 S; 111+ O; 72 N '63; 10:55 Ja; 63 F; 75 Mr; 73 Ap; 69 My; 138 Je; 54 Jl; 71 Ag; 75 S '64

Reviews. Published in monthly numbers of Rubber age

Blowing

Blow molding may offer bigger units. il Chem & Eng N 41:26 N 25 '63
Blow molding polycarbonate. C. G. McCubbin and R. L. Berwick. il diags Mod Plastics 41:130+ Je '64
Blow molding; thermoforming. J. M. Margolis. il Plastics World 22:46-9 Ja '64
Cost comparison of rotational casting with injection moulding and blow moulding. W. C. Johnson. Brit Plastics 37:378-81 Jl '64
European developments in blow molded high density polyethylene oil cans. il diags Mod Plastics 42:110-11 O '64
Internal cooling for blow moldings. R. C. Gasmire and A. J. Scalora. diags Mod Plastics 41:130-2 Mr '64
Thermoforming today. L. L. Scheiner. il diags Plastics Tech 10:45-56 Ag '64

Cleaning

Deflashing tool; abrasive blast quickly cleans molded parts. il Plastics World 21:105 N '63

Coloring

See Color in plastics

Crazing

Polymer strength related to crazes. R. P. Kambour. il Chem & Eng N 42:44-5 N 2 '64

Cutting

Diamonds; processor's best friend. il Plastics Tech 10:12 My '64
Machining plastics. A. Kobayashi. bibliog il diags Mod Plastics 40:110-11+ Jl; 109-10+ Ag; 41:144+ S; 229+ O; 121-2+ N; 127-9+ D '63; 163+ Ja '64
Mechanics of orthogonal cutting of Delrin and Zytel plastics. U. M. Rao and others. bibliog il diags A S M E Trans ser B 86:117-21 My '64
Precision machining of Polaris missile chambers. J. Heller. il Mach 70:98-9 F '64
Shearing machine for hard plastics sheets. il Engineer 217:445 Mr 6 '64
Should you bid on plastic jobs? Am Mach/Metalworking Manuf 108:96 Je 22 '64
Try numerically controlled drilling. il Plastics Tech 10:11-12 Ja '64

Electric properties

Conducting plastics. Ind & Eng Chem 56:14-15 O '64
Designing plastics parts for electrical and electronic uses. S. Levy. diags Plastics World 22:40-5 O '64
Designing with fluorocarbons for electrical applications. J. Swiss. il Mod Plastics 42:141-4 O '64
Effects of fabrication on design properties of materials. B. Bennett. bibliog Electro-Tech 72:108-11 N '63
Electron conductor. il Plastics World 22:53 O '64
New technique for the measurement of dielectric properties of plastics. J. C. Pais and V. S. Griffiths. bibliog diags Inst E E Proc 111:1775-7 O '64
Permanent antistatic treatment of polystyrene. A. E. Sherwood. il Brit Plastics 37:252-4 My '64
Plastics and static buildup; a review of the how, why and where of static charge. D. J. Doyle. il Plastics World 22:26-7 O '64
Plastics conduct electricity. Chem Eng 71:114 O 12 '64
Polyimide plastics withstand high temperatures. N. W. Todd and F. A. Wolff. il Materials in Design Eng 60:86-91 Ag '64
Recent developments in the electrical testing of plastics. K. A. Fletcher. bibliog il diags Brit Plastics 37:68-73 F '64
Research spurs high hopes for electrically conductive plastics. il Plastics Tech 10:15 O '64

Expansion and contraction

Handy way to determine plastics shrinkage; with nomograph. R. L. Peters. Plastics Tech 10:54-5 S '64

Extrusion

See Extrusion process (plastics)

Failure

Fatigue characteristics of reinforced plastic laminates subjected to axial loading. K. H. Boller. bibliog il diags Mod Plastics 41:145-6+ Je '64
Origin of stress failure in glass reinforced plastics. P. E. Throckmorton and others. il Mod Plastics 41:140+ N '63

Fillers

Dielectric; composite material features increased thermal conductivity. Plastics World 22:48 F '64

PLASTICS—Fillers—*Continued*

Filled linear polyethylene compositions. W. F. Furter. bibliog Can J Chem Eng 42:77-81 Ap '64

How to use fillers and reinforcements for building superior performance into plastics. il diag Mod Plastics 42:90-5+ S '64

Metal-filled encapsulant; beryllium oxide raises thermal conductivity. il Plastics World 22:36 O '64

New plastic fillers solve radio frequency interference problems. J Ehrreich. diag Electronics 37:84+ Ja 3 '64

Plastics marble; cutting the cost of beauty. il diags Mod Plastics 41:92-5+ Jl '64

Plastics modifiers and their functions. R. B. Seymour. il Plastics World 22:60-5 O '64

Reinforced and filled plastics. C. A. Sprang and others. il Machine Design 36:39-46 S 17 '64

Thermal conductivity of epoxy resin systems. H. Hirsch and F. Koved. il Mod Plastics 42:133-4+ O '64

Finishing

Advances in finishing techniques. il Brit Plastics 37:408-13 Ag '64

All that glitters may not be gold but metallized plastics. il Plastics World 22:16 F '64

Aluminized polystyrene light pipes. P. Mockett. diag R Sci Instr 35:238 F '64

Better plated-ABS parts. Plastics Tech 10:12 Ap '64

Broader horizons for vacuum metallizing. A. Weiss. il diag Plastics World 22:22-3 Jl '64

Coating methods juggle plastics-metals fortunes. F. Arne. il Chem Eng 71:76-8 Ja 20 '64

Decoration and surface finish. J. Scharnberg. Machine Design 36:30-2 S 17 '64

Electrolytic metal plating of ABS. C. R. Holt and B. J. Jensen. il Brit Plastics 37:498-500 S '64

Electroplate colorful parts. il Product Eng 35:56-7 Ap 13 '64

Electroplates broaden use of plastics. P. West. il Materials in Design Eng 60:96-9 N '64

Factors influencing the design of molded plastics parts. R. L. Davis and H. W. Ashley. diags Plastics World 21:16-18 D '63

Finishes for glass fiber reinforced plastics. P. West. il Materials in Design Eng 60:106-10 O '64

Finishes for plastics. A. R. Gardner. il Product Eng 35:100-4 F 17 '64

Finishing and decorating molded plastics. R. H. Hollis. il Ind Finishing 40:24-7 Mr '64

Finishing the Avanti plastic body. H. F. Reves. il Metal Finishing 62:52-6 Ja '64

How to electroplate plastic parts. J. B. McNamara. flow chart il Metal Prog 86:112-15 Jl '64

Laminate surfacing. il Plastics World 22:72 Ja '64

Major advances broaden the market potential of metal-plated thermoplastics. il Plastics World 22:34+ My '64

Micromorphology and appearance of plastics. R. J. Clark and G. W. Ingle. il diags Materials Res & Stand 4:76-9 F '64

Molded plastics product finishing now. il diags Plastics World 22:16-18 Ag '64

New liquid for metal plating plastics; Enplate conditioner 470. Steel 154:98 Ap 13 '64

New way to finish fiberglass reinforced polyester surfaces. O. E. Curtis, jr. and others. il Ind Finishing 40:26-8+ My '64

New ways to decorate. il diags Mod Plastics 41:100-3+ Mr '64

Plastic for metal plating backed by quality program. Steel 154:47+ Mr 30 '64

Plastic tightens grip on metal. il Iron Age 193:100-1 Mr 26 '64

Plated plastics invade the metal parts market. il Chem Eng 71:106+ Je 8 '64

Plated plastics ride design wave. il Iron Age 193:88 Je 25 '64

Precision machining of Polaris missile chambers. J. Heller. il Mach 70:98-9 F '64

Primer saves finishing steps on reinforced plastic. il Iron Age 193:154-5 Je 11 '64

Vacuum metallizing of plastics. il diags Brit Plastics 37:166-71 Ap '64

What you should know about plating on plastics. M. W. Riley. bibliog il diags Plastics Tech 10:48-53 S '64

Wood grain on plastics. il Plastics World 21:77 N '63

Fire hazards

Plastic dust explosions. Safety Maint 128:42 Ag '64

Fire resistance

Flame retardance, key to new plastics markets. il Mod Plastics 42:84-9+ O '64

Flame retardant market is hinged to plastics. il Chem & Eng 42:32-3 Je 1 '64

Flame retardant plastics. J. E. Hauck. bibliog il Materials in Design Eng 60:83-90 N '64

Retention of flame properties of rigid polyurethane foams. J. J. Anderson. bibliog Ind & Eng Chem Product Res & Develop 2:260-3 D '63

Technique puts bromine in polyesters. Chem & Eng N 42:56-7 Mr 2 '64

Fluidity

Flow properties of polyethylene whole polymers and fractions. J. Ferguson and others. bibliog diags J Ap Chem 14:53-63 F '64

Limitations on measuring flow rates of polyethylene and ethylene copolymers by extrusion plastometer. A. A. Harban and R. M. McGlamery. bibliog diag Materials Res & Stand 3:906-9 N '63

Rheological measurements on polymer melts using very small samples. J. J. Benbow and P. Lamb. il diags J Sci Instr 41:203-5 Ap '64

Two instruments for measuring the low-shear viscosity of polymer melts. R. M. McGlamery and A. A. Harban. bibliog il diags Materials Res & Stand 3:1003-7 D '63

Glass reinforcement

Acoustic verification of structural integrity of Polaris chambers. A. T. Green and others. il diags Mod Plastics 41:137-9+ Jl '64

Autoclave potentials. W. P. Koval. il Plastics World 21:26-7 D '63

Autos step up fiber glass use. H. F. Jones. il Iron Age 192:141 N 14 '63

Beryllium and fiberglass new gas turbine lightweights? D. B. King and others. il diags S A E J 72:76-82 Je '64

Chemically bound pre-preg mats. il Brit Plastics 37:495-7 S '64

Corrosion-hit castings replaced by glass reinforced plastics. il Engineering 197:569 Ap 24 '64

Desalination with reinforced plastic pipe cuts cost to 15¢/1000 gal. il diags Mod Plastics 41:111 Ag '64

Designing an acre of rocks; utilize reinforced plastics for major World's fair exhibit. il Plastics World 22:24-5 My '64

Double insulated portable power tools. il Plastics World 22:58-60 Ja '64

Elastic moduli of fiber-reinforced materials. Z. Hashin and B. W. Rosen. bibliog diags A S M E Trans ser E 31:223-32 Je '64

Fabricating integrally heated reinforced plastics tools. L. F. Hesse. il diags Plastics World 22:36-40 S '64

Fiberglass buildings house microwave stations. J. P. O'Donnell. il Oil & Gas J 62:97+ F 3 '64

Fiberglass cylinder needs no lubrication. il Hydraulics & Pneumatics 17:46 S '64

Fiberglass Porsche. il Product Eng 35:58 F 17 '64

Filament winding goes after commercial markets. R. R. Irving. il Iron Age 192:159-61 N 14 '63

Filament winding goes commercial. S. W. Keegin and R. F. Siefert. il Machine Design 36:130-3 My 7 '64

Filament winding is coming of age. M. L. Chazottes. il diags Can Chem Process 48:90+ Ap '64

Filament winding puts strength where needed. G. Epstein. il diags Materials in Design Eng 59:90 F '64

Filament wound glass reinforced staves for large rocket cases. A. Hegarty. il Brit Plastics 37:196 Ap '64

Filament-wound structures. R. E. Young. il Mod Plastics 42:160+ S '64

Finishes for glass fiber reinforced plastics. P. West. il Materials in Design Eng 60:106-10 O '64

For reinforced plastics parts; premix or preform moldings? il diags Materials in Design Eng 58:77-80 D '63

For reinforced plastics, slower but sure growth. il Chem Eng 71:98+ Mr 16 '64

Glass cases for the biggest solids. E. E. Morris. bibliog diags Astronautics & Aeronautics 2:28-36+ Jl '64

Glass-fiber motor cases test out stronger than expected. il Machine Design 36:12 Jl 30 '64

Glass fibre moulds for concrete columns. il Engineering 198:416 O 2 '64

Glass-fiber pieces form large rocket-motor cases. il Machine Design 35:8 D 5 '63

PLASTICS—Glass reinforcement—*Continued*

Glass fiber prepreg; high-strength material produced by unique package impregnation process. il diags Plastics World 21:24 N '63
Glass-fibre-reinforced plastics moulding. il Engineer 217:188 Ja 24 '64
Glass fibers; the new structural material. E. M. Lindsay. il Am Dyestuff Rep 53:679-82 Ag 3 '64
Glass-filled acetal has high stiffness. Materials in Design Eng 60:107 Ag '64
Glass reinforcement upgrades rubber and plastics. il Chem Eng 71:98+ Jl 20 '64
Glass-tube reinforced plastic. Mech Eng 86:64 Jl '64
Guide to automotive fasteners; fastening of reinforced plastics. il Automotive Ind 130:57-8 Ap 1 '64
Guide to spray-up equipment for reinforced plastic. R. C. Hosford il Plastics Tech 10:36-41 Ap '64
Here's a new way to automatically control filament tension. il Plastics Tech 9:60 D '63
How to evaluate fiberglass vs sheet metal. C. L. Ward and M. Martin. il Product Eng 35:84-90 Ja 6 '64
Joining glass-fiber reinforced pipe. T. Lautenbach. il Chem Eng 71:124+ Ag 3 '64
Making truck panels automatically. il diag Mod Plastics 41:89-91+ Mr '64
Marine applications. il Brit Plastics 36:674-8 D '63
Mechanized spray-up system at Brunswick corp. il plan Glass Ind 45:89 F '64
Molded glass-polyester homes for highways. il Plastics World 21:58-9 N '63
Molded glass-truck body is tested. il Elec World 162:82-3 Ag 10 '64
New designs in giant reinforced plastic roof. il Mod Plastics 41:108-9+ Ag '64
New fiberglass-reinforced plastic is a smoothie. C. A. Sprang and G. I. Davis. S A E J 72:84 S '64
New strength, new life, with reinforced thermoplastics. A. R. Gardner. il Product Eng 35:132-8 Ap 27 '64
New way to finish fiberglass reinforced polyester surfaces. O. E. Curtis, jr. and others. il Ind Finishing 40:26-8+ My '64
New York world's fair; fiber glass, a structural material which increases design possibilities. il Glass Ind 45:67-9 F '64
Nimrod's protons contained by glass fibre. il diag Engineering 197:633 My 8 '64
No special foundation needed for lightweight plastic chimney. C. B. McCreadie. il Power Eng 67:46 D '63
Origin of stress failure in glass reinforced plastics. P. E. Throckmorton and others. il Mod Plastics 41:140+ N '63
Planar-wound filamentary pressure vessels. R. F. Hartung. diag AIAA J 1:2842-4 D '63
Plastic composites. H. E. Pebly, jr. bibliog il Chem Eng 71:75-82 Ja 6 '64
Plastic exhaust system stops corrosion attack. il Steel 155:65 Jl 20 '64
Plastic radio tower rises rapidly. il Eng N 172:28 Ap 9 '64
Plastic workboard increases safety. A. R. Marsee. il Elec World 161:75 Je 1 '64
Plumbing fixtures. il Plastics World 22:43 My '64
Polyester/glass fibre aerials. il Ind Electronics 2:368 Ag '64
Post-curing glass fibre bodies. il Automobile Eng 54:441 O '64
Precision machining of Polaris missile chambers. J. Heller. il Mach 70:98-9 F '64
Prefabricated reinforced plastic construction. il Plastics World 22:46 Ap '64
Preimpregnated glass fibre is tougher. il Engineering 197:184 Ja 31 '64
Primer saves finishing steps on reinforced plastic. il Iron Age 193:154-5 Je 11 '64
Railroad tank car. C. V. Little. il Materials in Design Eng 59:122-3 Ap '64
Reinforced acrylic ceiling controls light, sound, air distribution. diag Mod Plastics 41:114 Ag '64
Reinforced and filled thermoplastics. T. P. Murphy. il Machine Design 36:42-6 S 17 '64
Reinforced epoxy outperforms hardened steel in springs. il Mod Plastics 42:127 S '64
Reinforced fiberglas polyester solves corrosion problem. F. D. Johnson. il Can Chem Process 48:76-7 F '64
Reinforced plastic assembly made easy. T. Lautenbach. il diags Mod Plastics 41:91-3+ Je '64
Reinforced plastic forms produce sharply detailed concrete facade. il Arch Rec 135:182-3 Je '64
Reinforced plastic stack; three sections go up fast. il Eng N 173:162 S 17 '64
Reinforced plastics at the World's fair. il Metal Prog 85:110-11 My '64
Reinforced plastics in Britain. il Plastics World 22:22 Je '64
Reinforced plastics in cars and trucks. F. L. Siegrist. il Metal Prog 85:105-9 My '64
Reinforced plastics slats; glass-reinforced epoxy braces lower machinery maintenance costs. il Plastics World 22:46 Jl '64
Reinforced polyester is the natural choice for aero- and hydro-dynamic research. il Plastics World 21:16-17 N '63
Reinforced polyesters cut maintenance costs. il Oil & Gas J 61:132-3 N 4 '63
Reinforced thermoplastics molding technology.
Relative economics of the hand lay-up process and of matched die moulding. G. Ogden. Brit Plastics 37:138-41 Mr '64
S.P.I. Reinforced plastics division 19th annual technical and management conference, Chicago; abstracts of papers. Glass Ind 45:179-80+ Ap '64
Simple mechanization of the bucket and brush. il Engineering 196:679 N 29 '63
Strength degradation of filament-wound pressure vessels. J. O. Outwater and W. J. Seibert. bibliog Mod Plastics 41:151-2+ My '64
Stress-strain relations of reinforced plastics parallel and normal to their internal filaments. B. W. Shaffer. bibliog diags AIAA J 2:348-52 F '64
Structural design considerations for fibrous glass pressure vessels. J. T. Hofeditz. bibliog diags Mod Plastics 41:127+ Ap '64
Successful tank repair using plastics. R. R. Miron. il Hydrocarbon Process & Pet Refiner 43:151-4 My '64
Tanks, pipe use more reinforced plastics. il Iron Age 193:47 F 13 '64
Test system uses beta ray, microwave, and corona devices. il Automation 11:80 Jl '64
Trends and possibilities in the application of plastics in chemical engineering; symposium abstracts. Chem & Ind p 1067-9 Je 20 '64
Utility pole repair. il Plastics World 22:14-15 Je '64
Vacuum cleaner base. il Plastics World 22:87 S '64
Wash-away mandrels for filament winding. N. K. Hankins and D. G. Prideaux. il Mod Plastics 41:115-16+ N '63
What's new in production reinforced plastics processing. R. C. Hosford. il Plastics Tech 10:47-58 O '64
When to design for filament winding. J. S. Howard, jr. il Product Eng 35:102-7 O 26 '64
Wound reinforced plastic uses gain. Steel 154:68+ F 17 '64
Zoom expected in filament winding. S. W. Keegin. il Plastics World 22:26-7 My '64

Joining

Bell laboratories develop method to bond Kel-F. H. Schonhorn and L. H. Sharpe. Chem & Eng N 42:53 Jl 6 '64
Bonding epoxies and fluorocarbon polymers. il Engineering 198:157 Jl 31 '64
Design of joints and physical strength of rigid plastics. G. C. Grimes. Machine Design 35:166+ D 5 '63
Dielectric, induction and ultrasonic bonding. E. G. Castagna; L. L. Scheiner. diags Plastics Tech 10:32-6 Mr; 45-50 Ap '64
Electronically sealed vinyl for low-cost bottle. il diag Mod Plastics 42:90-1+ O '64
High-energy joining methods for plastics. E. G. Castagna. Machine Design 35:148+ D 19 '63
How to design circular force-fit plastics joints. R. L. Peters. diag Mod Plastics 41:119-22+ Ap; 129+ My '64
Joining rigid thermoplastics with ultrasonics. il diag Product Eng 35:59-60 Mr 30 '64
Machine heat-welds vinyl in field. il Eng N 171:55 D 5 '63
New concepts in ultrasonic sealing. R. S. Soloff. il diags Mod Plastics 41:125-9 Mr '64
Polymer bond; untreated fluorocarbon bonded without melting. il Plastics World 22:23 S '64
Reinforced plastic assembly made easy. T. Lautenbach. il diags Mod Plastics 41:91-3+ Je '64
Spot welding; principle applied to polyolefin films. il Plastics World 22:81 Mr '64
Structural joints formed between epoxies and fluorocarbon polymers. il Bell Lab Rec 42:320 O '64
Welding rigid spheres; good application for ultrasonic bonding. il diags Plastics Tech 10:11 My '64

PLASTICS—*Continued*

Joining to metal

Deep draw laminate; polyethylene-aluminum sheet. il Plastics World 22:29 My '64

Film-to-steel bond; mile-long galvanized steel coil uses pure acrylic as vinyl bond. il diag Plastics World 21:94-5 N '63

Foam-core panels. il Plastics World 22:44-5 My '64

How to design circular force-fit plastics joints. R. L. Peters. diag Mod Plastics 41:119-22+ Ap; 129+ My '64

Laminate core reduces stresses by rebounding itself to the skins. il Machine Design 36:14 Ap 9 '64

Metal clad foam. il Plastics World 22:22 Ap '64

New aluminum-plastic laminate superior industrial material. il Automation 11:28 My '64

New high-performance plastic-metal assemblies. W. J. Ehner. il diags Machine Design 36:189-90+ S 24 '64

New structural laminate; polyethylene core, aluminum skins. K. H. Pohl and A. T. Spencer. bibliog il diags Mod Plastics 41:119-24 Mr '64

New versatility in fluorocarbon-metal laminates. il Mod Plastics 41:79+ N '63

Plastic-aluminum sandwich makes strong structures. il Materials in Design Eng 59:125-6 Je '64

Plastics and induction heating. P. Capolongo. il diags Plastics World 21:48-51 N '63

PVC covered metal sheet on the move. il Brit Plastics 37:542-5 O '64

Strong light inexpensive laminate; can be shaped by deep drawing. il Metallurgia 69:207-8 My '64

Technique bonds plastics to metals. C. R. Ruffing and F. J. Traynor. Materials in Design Eng 60:118+ Ag '64

Unusual new laminate. il Mech Eng 86:56 My '64

Manufacture

Continuous estimation of acidic gases evolved from polymer systems. B. C. Cox and W. J. Criddle. diags Brit Plastics 37:148-50 Mr '64

Instant cure; electronic method cuts small parts curing time. il Plastics World 22:42-3 Ap '64

Off the consultant's cuff. Published in monthly numbers of Plastics world

Peroxide catalysts for polyesters. M. E. Marks. il Plastics Tech 10:44-7 F '64

Plastics and induction heating. P. Capolongo. il diags Plastics World 21:48-51 N '63

PAPA offers many advantages as a converter for epoxies. R. G. Black and others. il Plastics Tech 10:37-40 Mr '64

Medical applications

Implant materials in the human body. il Materials in Design Eng 60:147-8 N '64

Inguinal herniorrhaphy: immediate return to unrestricted work; surgical techniques using local anesthesia. C. J. Bellis. bibliog il Ind Med 33:721-5 O '64

Shoring up blood vessels in the human brain. Product Eng 35:65 F 17 '64

Military uses

Plastics in military equipment. R. M. Ogorkiewicz. il Brit Plastics 36:634-41 N '63

Patents

New patents (cont). Plastics Tech 10:54-5 F; 58-9 Mr; 60+ Ap; 60+ My; 122-4 Je; 68+ S '64

Patents. R. C. Rinker, comp. Published in monthly numbers of Modern plastics

Recent patents. Published in monthly numbers of Plastics world

Physiological effect

Toxicity problems associated with the use of plastics materials in food packaging. C. A. Brighton. Brit Plastics 37:448-51 Ag '64

Preforming

Checkweigher sorts plastic preforms. il Automation 11:48 Ja '64

Prices

Plastics 1963. Mod Plastics 41:84-107 Ja '64

Plastics world contemporary thermoplastics and thermosetting materials, property and price chart. Plastics World 22:198-9, 202-3 O '64

Styrene-acrylonitrile price hike in doubt. il Chem & Eng N 42:23 F 17 '64

Protection

Stabilizers, pigments, antioxidants give you better polyolefin uv resistance. R. J. Martinovich. Plastics Tech 9:45-8 N '63

Reinforcement

Applications of plastic materials in aerospace; symposium series abstracts. il Chem Eng Prog 60:72+ Ap '64

Asbestos reinforced plastics. W. Taylor. il Brit Plastics 37:435-9 Ag '64

Fibrous reinforcement run-down; a review of the commercially available fibers for R-P use. R. L. Davies. Plastics World 21:60-2 N '63

How to use fillers and reinforcements for building superior performance into plastics. il diag Mod Plastics 42:90-5+ S '64

International reinforced plastics exhibition and convention, 2d, London, June 16-19. il Brit Plastics 37:366-8 Jl '64; Chem & Ind p 1254-5 Jl 11 '64

Nylon + asbestos = strength + heat resistance. il Mod Plastics 41:94-5 Je '64

Phenolic and furan resins in chemical equipment. H. D. Barton. il Ind & Eng Chem 56:66-9 Jl '64

Plastic composites. H. E. Pebly, jr. bibliog il Chem Eng 71:75-82 Ja 6 '64

Plastics institute Reinforced plastics group conference on sandwich construction, London. Nov. 28; abstracts of papers. Brit Plastics 37:25-6 Ja '64

Plastics supersedure; composition advance in reinforced tubing. il Plastics World 22:35 O '64

Reinforced and filled plastics. C. A. Sprang and others. il Machine Design 36:39-46 S 17 '64

Reinforced epoxy tooling technology. il Plastics World 22:58 O '64

Reinforced foams. il Plastics World 22:13 Je '64

Reinforced-plastic equipment in pharmaceutical manufacturing. W. A. Kessel. il Drug & Cosmetic Ind 95:43-4+ Jl '64

Reinforced plastics chimney. il Engineer 218:256 Ag 14 '64

Reinforced plastics curb corrosion. J. P. Edwards. il Chem Eng 70:206+ D 9 '63

Reinforced plastics gain ground in Europe. il Chem & Eng N 42:94+ O 26 '64

Reinforced plastics industry. Mod Plastics 41:104+ Ja '64

Reinforced plastics products SPI award winners for 1964. il Plastics World 22:20-1 Mr '64

Reinforced polyester equipment in the chemical process industry. A. F. Torres. bibliog il diag Ind & Eng Chem 56:32-6 Je '64

SPI Reinforced plastics division 19th annual conference, Chicago, Feb. 4-6. Mod Plastics 41:216+ Mr '64; Plastics World 22:22 Mr '64

True to form, if it's reinforced polyester. il Mod Plastics 41:94-5 My '64

Wet spinning of high-strength, low-elongation polyvinyl alcohol fibers. M. M. Zwick and C. van Bochove. bibliog il diags Textile Res J 34:417-30 My '64

Whiskers as reinforcement materials. E. Keller. il Ind & Eng Chem 56:9-10 Ap '64

Why not use metal wires in filament winding? D. V. Rosato. il Iron Age 193:102-3 Mr 26 '64

Zirconia; reinforcing fibers for high temperature applications. il Plastics World 22:33 F '64

Research

See Plastics research

Shrinkage

See Plastics—Expansion and contraction

Specifications

Fluorocarbon plastics. il Materials in Design Eng 59:93-104 F '64 (reprints 35c)

How specifications for thermoplastics are applied at Ford; interview with Travis H. Meister. Metal Prog 86:146-51 O '64

Stabilizers

Application of carbon blacks for the stabilization of high density polythene. R. N. Haward and others. bibliog il Brit Plastics 36:692-7 D '63

How to select uv stabilizers for plastics. A. L. Baseman. il Plastics Tech 10:30-5 Ap '64

Plasticized PVC for high temperature service. I. Phillips. bibliog Brit Plastics 37:261-5, 325-9 My-Je '64

Plastics modifiers and their functions. R. B. Seymour. il Plastics World 22:60-5 O '64

Recent developments in the organotin stabilizer field. H. V. Smith. bibliog Brit Plastics 37:445-7 Ag '64

PLASTICS—*Continued*

Standards

Guarantee for PVC structural products. R. L. Van Boskirk. Mod Plastics 41:206+ N '63
International standardization organization technical committee 61 on plastics meeting. 13th. London. Sept. 9-14. Mod Plastics 41: 158+ N '63
Plastics executive calls for support of standardization. A. C. Webber. il Mag of Stand 35:139-40 My '64

Strength

Chlorinated polyethylene as impact modifier for rigid PVC. J. L. O'Toole and others. Mod Plastics 41:149-50+ Mr '64
Comparisons of materials; impact strength of metals and plastics; tables. Materials in Design Eng 60:34 Mid-O '64
Computing high-rate tensile strength from static strength data. S. Goldfein. Mod Plastics 41:149+ Ag '64
Designing plastics parts to withstand static loads. S. Levy. diags Plastics World 22:18-21 My; 32-4 Je '64
Designing plastics parts to withstand varying loads. S. Levy. diags Plastics World 22: 32-3+ Ag '64
High-speed tests evaluate toughness of plastics. F. J. Furno and others. bibliog il diag Product Eng 35:87-94 Ag 17 '64
High-strength epoxy resins. Chem Eng 71:110 Mr 16 '64
How to use time-dependent property data. J. H. Faupel. diags Mod Plastics 41:119-22+ Ag '64
Polyimide plastics withstand high temperatures. N. W. Todd and F. A. Wolff. il Materials in Design Eng 60:86-91 Ag '64
Polymer strength related to crazes. R. P. Kambour. il Chem & Eng N 42:44-5 N 2 '64
Reinforced epoxy outperforms hardened steel in springs. il Mod Plastics 42:127 S '64
Repeated impact tests. J. R. Heater and E. M. Lacey. bibliog il diags Mod Plastics 41:123-6+ My '64

Temperature effect

Automatic Vicat-type heat-distortion and softening-range apparatus. G. F. L. Ehlers and W. M. Powers. il diag Materials Res & Stand 4:298-300 Je '64
Comparisons of materials; maximum service temperatures of plastics and rubber; tables. Materials in Design Eng 60:22 Mid-O '64
Diallyl phthalate moulding materials. A. L. Ashton and J. B. Pratt. bibliog il Brit Plastics 37:310-16 Je '64
Effect of crystallization conditions and heat treatment on polyethylene; lamellar thickness, melting temperature, and density. R. G. Brown and R. K. Eby. bibliog il J Ap Phys 35:1156-61 Ap '64
How temperature affects plastic laminates. M. G. Young. il Product Eng 35:67-72 Jl 20 '64
Influence of stearates on thermal degradation of PVC. J. Stepek and Z. Vymazal. bibliog Mod Plastics 41:166+ Mr '64
Insulation resistance changes in polyethylene when exposed to high temperature and humidity. W. D. Paist. diags Wire & Wire Prod 39:1587-90+ O '64
Plasticized PVC for high temperature service. I. Phillips. bibliog Brit Plastics 37:261-5, 325-9 My-Je '64
Plastics performance in outdoor service. R. B. Seymour. il Plastics World 22:48-53 Je '64
Resurgence for thermosets. J. H. Du Bois. il diags Plastics World 22:30-5+ S '64
Simple, inexpensive way for testing thermophysical properties of polymers. T. Raphael and C. D. Armeniades. diag Plastics Tech 10:45-8 Mr '64
Thermal conductivity of epoxy resin systems. H. Hirsch and F. Koved. il Mod Plastics 42:133-4 O '64
Thermal stability of polymers for space. il Engineering 197:462-3 Mr 27 '64
Thermosets take shape quickly in injection molding unit. il Iron Age 193:58-9 Ja 9 '64
Weathering resistance of plastics. G. R. Rugger. bibliog il diags Materials in Design Eng 59:69-84 Ja '64 (reprints 35c)

Testing

Are you evaluating thermoplastics properly? L. A. Cohen. Materials in Design Eng 59: 105-7+ Je '64
Chemical resistance of polyester resins. E. H. G. Sargent. bibliog Ind Chem 40:36-9 Ja '64
Flame retardant plastics. J. E. Hauck. bibliog il Materials in Design Eng 60:83-90 N '64
High-speed tests evaluate toughness of plastics. F. J. Furno and others. bibliog il diag Product Eng 35:87-94 Ag 17 '64
Measuring the density of polyolefins with an improved gradient column. N. Payne and C. E. Stephenson. bibliog diags Materials Res & Stand 4:3-7 Ja '64
Mechanical behavior of plastics. Plastics Tech 10:51 Jl '64
Principles and potentials of dynamic elastic testing. G. C. Karas. bibliog il diags Brit Plastics 37:59-62 F '64
Recent developments in the electrical testing of plastics. K. A. Fletcher. bibliog il diags Brit Plastics 37:68-73 F '64
Repeated impact tests. J. R. Heater and E. M. Lacey. bibliog il diags Mod Plastics 41:123-6+ My '64
Shortcomings of current mechanical testing techniques. A. W. Birley. Brit Plastics 37: 56-8 F '64
Simulated service testing. il diags Mod Plastics 42:155-6+ S '64
Small tension-test specimen for plastics. M. M. Karnowsky and J. L. Colp. bibliog il diags Materials Res & Stand 4:351-4 Jl '64
SPI test methods for plastics parts in refrigerators. diag Plastics World 21:11 N '63
Testing: a time for self-analysis. bibliog il Brit Plastics 37:51-5 F '64
Two tests for the assessment of microbiological activity on plastics. R. Burgess and A. E. Darby. bibliog il Brit Plastics 37:32-7 Ja '64
Ultrasonic techniques for plastics inspection. J. B. Ramsey. il diags Brit Plastics 37:63-7 F '64

Uses

Acetal parts protect cruisers and inboard runabouts. il Plastics World 21:31 D '63
Acetal rails reduce packaging damage. il Plastics World 21:67 N '63
ABS housing; maximum performance at minimum cost. il Mod Plastics 41:108-9 My '64
After beer kegs, what? il Product Eng 35: 68 Ag 3 '64
Appliance makers step up use of plastics. il Chem & Eng N 42:24-5 Ag 31 '64
Applications grow; for both old and new. il Plastics World 22:48 O '64
Applications 1963; year of significance. il Mod Plastics 41:108-17 Ja '64
Are we missing a good bet; on plastics. il Power Eng 68:51-2 Ja '64
Automotive uses on the upswing. il Mod Plastics 41:74-8+ N '63
Baby kit design. il Plastics World 22:40 Jl '64
Copy machine design around plastics. il Materials in Design Eng 58:89 D '63
Design triumph; frameless appliance housing. il diag Mod Plastics 41:88-9 Ap '64
Elastomers broaden plastics market base. il Mod Plastics 41:86-90+ Je '64
Engineering design properties of plastics. diags Brit Plastics 37:118-21, 176-9, 240-2, 369-71, 428-30, 488-90 Mr-My, Jl-S '64
Extruded netting set to snare big markets. il Mod Plastics 41:80-3+ N '63
Filament winding goes commercial. S. W. Keegin and R. F. Siefert. il Machine Design 36:130-3 My 7 '64
Focus on plastics in industry. Published in monthly numbers of Plastics world
Formed, foam-filled butyrate bass. il diags Mod Plastics 41:92-3 Mr '64
Giant chessmen rotationally moulded in polythene. il Brit Plastics 36:617 N '63
Growing potential for fluorocarbons. il diag Brit Plastics 37:226-31 My '64
Idea exchange. Published in monthly numbers of Modern plastics
Ideas from Italy. il Mod Plastics 41:98-103+ Jl '64
It's plastics for fasteners these days. J. E. Searle, jr. il Plastics World 21:28-30 D '63
Markets for cellular plastics. il Brit Plastics 37:350-5 Jl '64
Materials of construction: 21st biennial report: plastics for process equipment. O. Fenner. il Chem Eng 71:170-86 N 9 '64
Metal-in-plastic inserts; illustrations with text. F. Strasser. Machine Design 36:174-8 Ja 16 '64
New design concepts in action. il diags Mod Plastics 41:82-8+ Jl '64
New design horizons for plastics. il diag Mod Plastics 41:84-7+ Ap '64
New design opportunities with plastics. W. J. Simpson. il Mech Eng 86:40-4 Mr '64
New jobs for stock shapes. il diags Mod Plastics 41:84-8+ Mr '64

PLASTICS—Uses—*Continued*

- New strength, new life, with reinforced thermoplastics. A. R. Gardner. il Product Eng 35:132-8 Ap 27 '64
- Plastic gaskets. il diags Mech Eng 86:60 Ag '64
- Plastic pipets. il Res/Develop 15:33 F '64
- Plastics applications. il Brit Plastics 36:618-21, 668-73; 37:17-20, 114-17, 172-5, 232-5, 300-5, 362-5, 414-17, 480-3, 536-41 N '63-Ja, Mr-O '64
- Plastics can open up design horizons. Steel 155:134+ O 19 '64
- Plastics for golf club heads. il Engineering 198:106 Jl 24 '64
- Plastics in Japan; progress and innovation. il diag Mod Plastics 41:18-24+ Ja '64
- Plastics lower cost of water conditioner. il Materials in Design Eng 59:82-3 F '64
- Plastics performance in outdoor service. R. B. Seymour. il Plastics World 22:48-53 Je '64
- Plastics versus ferrous metals. R. Sen. Brit Plastics 37:124-6 Mr '64
- Polyolefins are still leading the plastics-packaging boom. V. D. McCarthy and J. E. Flood. il Oil & Gas J 62:122-6 Ap 20 '64
- Predicting the wear of sliding plastic surfaces. R. B. Lewis. diag Mech Eng 86:32-5 O '64
- Selecting plastics. R. J. Jacob. Machine Design 36:4-11 S 17 '64
- Skills sharpen in plastics design; some problems remain. il Machine Design 35:108-9 D 19 '63
- Switch from steel to phenolic in uncaser saves 50 percent. il Mod Plastics 41:114 Ag '64
- Trends and possibilities in the application of plastics in chemical engineering; symposium abstracts. Chem & Ind p 1067-9 Je 20 '64
- U.S. developments in materials and products (cont). il diag Brit Plastics 37:184-9, 420-4 Ap, Ag '64
- Urethane spincasting technique for paraboloidal, short wavelength antenna reflectors. il Plastics Tech 9:12 N '63
- Use of plastics in the plating industry. B. Mohr. Plating 51:39-41 Ja '64
- What engineers should know about ABS plastics. R. F. McCabe. il Metal Prog 85:99-103+ F '64
- Winners among the also-rans; the memory of excellence in design competition lingers on. il Plastics World 22:44-7 Je '64
- Wire-reinforced nylon and PE cable improves steering controls. il Mod Plastics 41:112 Jl '64

Wear

- Mechanical spallation of charring ablators in hyperthermal environments. R. D. Mathieu. bibliog diag AIAA J 2:1621-7 S '64
- Predicting the wear of sliding plastic surfaces. R. B. Lewis. diag Mech Eng 86:32-5 O '64

PLASTICS, Decorative

- Decoration and surface finish. J. Scharnberg. Machine Design 36:30-2 S 17 '64
- Decorative laminates in the mass production of furniture. il Brit Plastics 37:128 Mr '64
- Foils for decorating thermosets. C. L. Keller. il diags Plastics Tech 10:38-40 Ja '64
- Growth pattern for decorative laminates. R. L. Van Boskirk. Mod Plastics 42:212+ O '64
- New ways to decorate. il diags Mod Plastics 41:100-3+ Mr '64
- New wrinkle for finishes. il diag Mod Plastics 41:90-1+ Jl '64
- Plastics marble; cutting the cost of beauty. il diags Mod Plastics 41:92-5+ Jl '64

PLASTICS, Effect of heat on. See Plastics—Temperature effect

PLASTICS, Effect of light on

- Stabilizers, pigments, antioxidants give you better polyolefin uv resistance. R. J. Martinovich. Plastics Tech 9:45-8 N '63
- Weather-beating plastics wanted for big markets. il Chem Eng 71:104+ O 12 '64

PLASTICS, Foamed

- Application of finite elastic theory to the behavior of rubberlike materials. P. J. Blatz. bibliog il diags Rubber Chem & Tech 36:1459-96 D '63
- Bonding vinyl-foam protective padding. il Plastics World 22:48-9 Ap '64
- Chemically stable joint sealer; asphalt-impregnated polyurethane foam. il diag Plastics World 21:98-9 N '63
- Determination of trimethylolpropane in polyesters and polyurethane foams. R. E. Wittendorfer. Anal Chem 36:930-1 Ap '64
- Discount offered to urethane foam makers. Chem & Eng N 42:24 Ja 13 '64
- Finer foams. il Electronics 37:27-8 O 5 '64
- Foam-core panels. il Plastics World 22:44-5 My '64
- Foam first; packaging innovation cushions corners, edges. il Plastics World 21:33 D '63
- Foam panel core; concrete panels insulated with expanded polystyrene. il Plastics World 22:12 S '64
- Foam rescues pile driver. il Plastics World 22:52 O '64
- Foam strand pack; substantial savings result from use of spaghetti form polystyrene. il Plastics World 21:23 N '63
- Foamed plastics now. il Plastics World 22:12-18 Mr '64
- Frothing rigid urethane foams. J. B. Smith. il diag Plastics Tech 10:35-7 Ja '64
- Full mold casting process uses foamed plastic patterns. A. Wittmoser. bibliog il diags Foundry 92:62-5 Ja '64
- Heat transfer through low-density cellular materials. R. H. Harding. bibliog diags Ind & Eng Chem Proc Design 3:117-25 Ap '64
- Hot spot foaming of plastic for wire insulation. il Product Eng 34:82 D 9 '63
- Hot spot method foams plastics. il Iron Age 192:100 D 12 '63
- Houdry markets surfactant for urethane. R. A. Blomquist. il Chem & Eng N 42:46 Je 1 '64
- How to design foam core sandwich laminates. R. Darvas. diags Mod Plastics 41:125-7+ Je '64
- How to handle a huge foaming job. il Mod Plastics 42:92-4+ O '64
- How you can use plastic foams for cushioning. A. R. Gardner. il diags Product Eng 34:114-20 D 9 '63
- Inside-out design developed for low-temperature buildings. C. S. Meyer. il diags ASHRAE J 6:50-2+ Ap '64
- Laminates, their status today. H. S. Howard. il Mod Textiles Mag 45:47-8+ My '64
- Low-density foams for nonmetallic tooling. J. Delmonte. il Tool & Manuf Eng 53:71-2 S '64
- Lube oil additive useful in semiflexible urethane foam. P. G. Gemeinhardt. Chem & Eng N 42:54 S 28 '64
- Man turning turtle; shelters made from foamed plastics may soon be carried in a packroll. il Plastics World 22:55 Je '64
- Markets for cellular plastics. il Brit Plastics 37:350-5 Jl '64
- Mid-South refrigerated warehouse co. uses foam insulation to maximum advantage. il Food Eng 36:95 Mr '64
- Moulding flexible polyurethane foam. J. C. Parkinson. il Brit Plastics 37:146-7 Mr '64
- New machinery for PS foam molding. R. C. Hosford. flow chart Plastics Tech 10:28-32 Jl '64
- New system speeds erection of polystyrene foam structures. il Mod Plastics 41:116 Ag '64
- New technique for foaming polymers. R. H. Hansen. Franklin Inst J 277:181-2 F '64
- New technique for foaming polymers based on hot spot theory. il Bell Lab Rec 41:434-5 D '63
- New York world's fair; testing ground for plastics. il diag Mod Plastics 41:103-5 My '64
- One-shot rigid urethane foam molding reduces costs, improves properties. M. Kaplan. il diags Plastics Tech 10:38-41 Ag '64
- Pittsburgh Plate Glass develops process for spraying rigid urethane foam. Chem & Eng N 42:42 Ag 31 '64
- Plastoponics; plastics foam takes over functions of good soil. il Plastics World 22:28 Mr '64
- Polypropylene foam gains in appeal. Chem & Eng N 42:25 Je 15 '64
- Polystyrene foam core panel generates new design ideas. il Mod Plastics 41:110 Jl '64
- Polystyrene foam floor cores bring insulation, reduce building cost. il Mod Plastics 42:126 S '64
- Polyurethane foam continuously laminated and printed. il diag Mod Plastics 41:113 My '64
- Polyurethane foam dispenser. il Engineer 218:288 Ag 21 '64
- Process developed for rigid urea foam. Oil & Gas J 62:138+ O 5 '64
- Properties of materials; plastics and rubber foams; tables. Materials in Design Eng 60:244-5 Mid-O '64
- Reinforced foams. il Plastics World 22:13 Je '64
- Retention of flame properties of rigid polyurethane foams. J. J. Anderson. bibliog Ind & Eng Chem Product Res & Develop 2:260-3 D '63

PLASTICS, Foamed—*Continued*

Rigid foamed polyurethane insulation for oil refinery storage tanks. D. B. Bruce. il Brit Plastics 37:129-31 Mr '64
Rigid urethane foams from blown castor oils. C. K. Lyon and others. bibliog Am Oil Chem Soc J 41:23-5 Ja '64
Rigid urethane foams from glycoside polyethers. F. H. Otey and others. bibliog Ind & Eng Chem Product Res & Develop 2:256-9 D '63
Sealer, insulator is foamed into and seals curtain wall joints. il Plant Eng 18:94 Jl '64
Specialty packaging problems solved by foams. il Plastics World 22:44-5 Ap '64
Spiral generation; foam board construction saves time and costs. il Plastics World 22:28-9 O '64
Sprayed-on urethane foam tested for heated-fuel-oil-tank insulation. D. H. Stormont. il Oil & Gas J 62:90-1 Mr 9 '64
Theory behind the performance of expandable polystyrene. G. A. Pogany. bibliog Brit Plastics 37:506-9 S '64
To salvage a Texas tower. il Plastics World 22:22-3 O '64
Urethane foam helps to salvage a Texas tower. Chem Eng 71:108 O 12 '64
Urethane foam insulates building columns. il Chem Eng Prog 60:121 O '64
Urethane foam insulation keeps heavy oil flowing. il Mod Plastics 41:123 Je '64
Urethane foam seal. il Plastics World 22:47 Jl '64
Urethane foam-steel panels produced at 40 to 50 per cent savings; Sherer-Gillett co. il Mod Plastics 41:108 F '64
Urethane foams based on castor polyols. A. Ehrlich and T. C. Patton. bibliog Mod Plastics 41:154+ Mr '64
Urethanes. J. K. Backus and E. C. Haag. Machine Design 36:130-3 S 17 '64

Manufacture

Bubbling technique improves cell structure of insulating foam. il Machine Design 36:14 O 22 '64
Composition of foam structures from expandable polystyrene beads. A. R. Ingram and H. A. Wright. il Mod Plastics 41:152+ N '63
Development machine for urethane foamblock. il Engineer 217:235-6 Ja 31 '64
Foam dispenser; injects 250 lbs per minute to make ships virtually unsinkable. il Plastics World 21:96 N '63
Foam plastics machinery. il Plastics World 22:32 Ap '64
Foaming FEP for wire insulation. S. K. Randa. diag Plastics Tech 10:42-4 Ap '64
Hot spot method foams polymers. il Res/Develop 15:36 F '64
Making polymer foams with ultra fine cells. il Engineering 198:460 O 9 '64
Metal particles used as nucleators in foaming polymers. il Bell Lab Rec 42:326 O '64
New machinery for urethane foams. R. C. Hosford. il Plastics Tech 9:36-41 N '63
New method of producing poly(vinyl chloride) flexible foam. K. M. Deal and others. flow chart il Ind & Eng Chem Product Res & Develop 3:209-13 S '64
New technique for foaming polymers. Engineering 197:25 Ja 3 '64
Novel methods for the production of foamed polymers. R. H. Hansen and W. M. Martin. il diag Ind & Eng Chem Product Res & Develop 3:137-41 Je '64; Abstract. Chem & Eng N 42:154-5 S 7 '64
Technology of super soft flexible urethane foams. F. J. Dwyer and others. bibliog diags Mod Plastics 41:139-40+ My '64
Varving the (foamblock) mix at will. il Engineering 197:233 F 7 '64

PLASTICS, Irradiated

How radiation affects polypropylene. bibliog Can Chem Process 48:63-6 Ag '64
Irradiation in plastics processing; where we stand today. W. Brenner and R. Vermes. bibliog il Plastics Tech 10:28-31 Ja '64
Ultraviolet absorbers and their use in plastics. J. A. Weicksel. il Tappi 46:sup 196A-8A N '63

PLASTICS, Laminated

Composite materials: combination plastics laminates. Materials in Design Eng 60:431 Mid-O '64
Composite materials: high pressure laminates; tables. Materials in Design Eng 60:437-41 Mid-O '64
Decorative laminates in the mass production of furniture. il Brit Plastics 37:128 Mr '64
Forming complex shapes from phenolic laminates. il Brit Plastics 37:183 Ap '64
Growth pattern for decorative laminates. R. L. Van Boskirk. Mod Plastics 42:212+ O '64
How temperature affects plastic laminates. M. G. Young. il Product Eng 35:67-72 Jl 20 '64
Industrial laminates. il Brit Plastics 37:484-7 S '64
Jet duty laminates. il Plastics World 22:44 F '64
Laminate surfacing. il Plastics World 22:72 Ja '64
Laminated and coated polyolefin films. G. Jordan. il Plastics World 22:56-7 Ap '64
Laminated plastics. G. J. Muller. il Machine Design 36:33-8 S 17 '64
Polyurethane foam continuously laminated and printed. il diag Mod Plastics 41:113 My '64
Polyester film laminates for wire insulation. W. L. Gore and R. E. Martz. il Wire & Wire Prod 39:380-2+ Mr '64
Seaworthy laminate. il Plastics World 22:15 F '64
See also
Plastics—Joining to metal

Glass reinforcement

Approved polyester offers lower-cost corrosion control. diag Food Eng 36:102 F '64
Corrosion control with glass-reinforced Hetrons. W. A. Szymanski and R. C. Talbot. bibliog il Ind & Eng Chem 56:38-42 Ap '64
Effects of glass surfaces on laminating resins. P. W. Erickson and others. bibliog Mod Plastics 41:141-2+ Ag '64
Electrical laminate resists over 480 F. Materials in Design Eng 60:146-7 O '64
Evaluating performance of fiber glass laminates. R. A. Cass and O. H. Fenner. bibliog il Ind & Eng Chem 56:29-34 Ag '64
Evaluating polyester laminates for chemical resistance. B. Zolin. il Materials in Design Eng 59:110-12 Ap '64
Fabricating plastics laminates. F. J. Hanus, jr. and M. Riccitiello. il Plastics World 21:86-92 N '63
Fatigue characteristics of reinforced plastic laminates subjected to axial loading. K. H. Boller. bibliog il diags Mod Plastics 41:145-6+ Je '64
New reinforced plastic technology gives the 727 a big lift. il diags Mod Plastics 41:100-3 Ag '64
New technique for making large reinforced plastics panels. il Plastics Tech 10:13 F '64
Properties of materials: glass-reinforced plastics; tables. Materials in Design Eng 60:242-3 Mid-O '64
Sandwich cylinder construction for underwater pressure vessels. N. O. Brink. diag Materials Res & Stand 4:162-4 Ap '64
Sandwich panels. il Plastics World 22:24 Ap '64
Saving seal for unsafe, leaking tanks. il diag Engineering 197:556-7 Ap 17 '64
Spray layup of plastics tooling. D. G. Prideaux. il Tool & Manuf Eng 52:87-9 Ap '64

Manufacture

Fabricating plastics laminates. F. J. Hanus, jr. and M. Riccitiello. il Plastics World 21:86-92 N '63

Reinforcement

Asbestos reinforced laminate. Engineering 198:106 Jl 24 '64

Testing

Evaluating performance of fiber glass laminates. R. A. Cass and O. H. Fenner. bibliog il Ind & Eng Chem 56:29-34 Ag '64
Evaluating polyester laminates for chemical resistance. B. Zolin. il Materials in Design Eng 59:110-12 Ap '64
Fatigue characteristics of reinforced plastic laminates subjected to axial loading. K. H. Boller. bibliog il diags Mod Plastics 41:145-6+ Je '64

PLASTICS, Porous

Plastic shoe leather tries industrial jobs. Machine Design 36:10 Je 18 '64
Poromeric for industry; Du Pont's Corfam. il Plastics World 22:49 Jl '64

PLASTICS, Powdered

Coating of steel with PVC powder compounds. D. W. A. Farmer. bibliog il diag Brit Plastics 37:558-62 O '64
Decorating powder molded parts. W. Stebnau. il Plastics World 22:35 F '64
Epoxy molding powders; new method of encapsulation for welded modules. H. L. Uglione, jr. and A. R. Bell, jr. il diags Mod Plastics 41:133-4+ Ag '64

PLASTICS, Powdered—*Continued*
Polyethylene powders are chemically derived. Chem & Eng N 42:72+ N 9 '64
Powder molding cracks industrial markets. il Mod Plastics 41:104-5 Ap '64

PLASTICS, Reinforced. See Plastics—Reinforcement

PLASTICS, Translucent
PVC glazed greenhouse. il Plastics World 22:40 Je '64
Sandwich panels. il Plastics World 22:24 Ap '64
Vinyl-by-the-mile replaces monitor sash. D. W. Wegrich. il Plant Eng 18:136-7 Ag '64

PLASTICS, Transparent
Acrylic lenses. Plastics World 22:13 F '64
Acrylics. Mod Plastics 41:103 Ja '64
Acrylics. O. L. Pierson. il Machine Design 36:56-7 S 17 '64
Acrylics in automotive applications. il Plastics World 22:56 My '64
Clearly educational. il Plastics World 22:60-1 My '64
Do specialty acrylics have a place? C. H. Schramm. Plastics World 22:3 F '64
Film package; transparent materials holds all liquids. il Plastics World 22:39 O '64
Flying saw crisscrosses extruded stock. il diag Tool & Manuf Eng 51:84 N '63
Ionomer, a new thermoplastic; Surlyn A. il Mod Plastics 42:98-9+ S '64
Ionomers. Ind & Eng Chem 56:13 O '64
Ionomers; forceful polyolefins. il Plastics World 22:44-5 S '64
Lighting ideas using acrylic plastic. J. H. Crate. diags Machine Design 36:118-20 Ja 2 '64
Metal ions hold together a new type of plastic. il Machine Design 36:10 S 24 '64
New addition to the olefin family; clear-as-glass ionomer. il Plastics Tech 10:11-12 S '64
New high-temperature acrylic finds high-class application in autos. il Plastics Tech 10:15 Mr '64
New tough, transparent plastics; ionomers. il Materials in Design Eng 60:106-7 S '64
Permanent antistatic treatment of polystyrene. A. E. Sherwood. il Brit Plastics 37:252-4 My '64
Polymer chemistry advances into ionomers. il Chem Eng 71:90 O 26 '64
See-through toughness; Surlyn A. Product Eng 35:71-2 S 14 '64
State-of-the-art and new developments in transparent materials. R. E. Wittman. Machine Design 36:286+ Ap 23 '64
Transparent dome. il Plastics World 22:52-3 My '64
Transparent plastics take hard knocks. il Iron Age 194:137 S 10 '64
Versatile acrylics shine in new markets. il diag Mod Plastics 41:82-7+ D '63
Window on the sky; more daylight via acrylic domes. il Plastics World 22:31 F '64
Windshields; stretched acrylic laminates for aircraft. il Plastic World 22:36 Mr '64
See also
Lenses, Plastic

PLASTICS engineering
Engineering and equipment developments. il diag Brit Plastics 36:702-5; 37:38-41, 151-4, 205-10, 266-9, 330-4, 393-5, 452-5 D '63-Ja, Mr-Ag '64
How to use time-dependent property data. J. H. Faupel. diags Mod Plastics 41:119-22+ Ag '64
Machinery and equipment. Published in monthly numbers of Modern plastics
Materials engineer looks at plastics. L. J. Lamberg. Metal Prog 85:73-4 Ap '64
New products. Published in monthly numbers of Plastics world
To design the macromolecule of a plastic. B. Wunderlich. bibliog il diags Ind & Eng Chem 56:18-25 F '64
What engineers should know about ABS plastics. R. F. McCabe. il Metal Prog 85:99-103+ F '64
Winners among the also rans; the memory of excellence in design competition lingers on. il Plastics World 22:44-7 Je '64

Bibliography

1963 engineering highlights. il diags Mod Plastics 41:111-14+ F '64

PLASTICS engineers, Society of. See Society of plastics engineers

PLASTICS federation, British. See British plastics federation

PLASTICS industries
Plastexpansions. Published in monthly numbers of Plastics world
Plastics; how big a bite out of metals markets? Steel 153:29 D 2 '63
Plastiscope; news of industry and interpretations. R. L. Van Boskirk. Published in monthly numbers of Modern plastics
Progress report on the plastics industry; annual review. R. B. Seymour. bibliog il Ind & Eng Chem 56:43-8 Ag '64
Rising polyvinyl chloride demand attracts petroleum and chemical companies. Oil & Gas J 62:50-1 S 28 '64
Semiannual inventory of new plants and facilities; plastics, resins and synthetic fibers. Chem Eng 71:156-7 Ap 27; 122-3 O 26 '64
U.S. developments in materials and products (cont). il diag Brit Plastics 37:184-9, 420-4 Ap, Ag '64
Year 1963 in review. bibliog Mod Plastics 41:131-2+ F '64
See also
Society of plastics engineers
Society of the plastics industry

Directories

Directory of producers; foamed plastics. Plastics World 22:18-19 Mr '64
Directory of the plastics industry; materials, equipment, supplies and services. Plastics World 22:83-194 O '64
Plastics reference issue product directory. Machine Design 36:134-6+ S 17 '64

Exhibitions

Industrialized building systems and components exhibition, London, June 23-July 4. il Brit Plastics 37:418-19 Ag '64
International fair of the plastics industry, Kunststoffe 1963, 4th, Düsseldorf, West Germany, Oct. 12-20. il Engineer 216:828-9 N 15 '63; Product Eng 34:69-70 N 11 '63
International plastics fair, Düsseldorf, Germany, Oct. 12-20. il Brit Plastics 36:600-15 N '63; diags Mod Plastics 41:92-9+ N '63
International reinforced plastics exhibition and convention, 2d, London, June 16-19. il Brit Plastics 37:366-8 Jl '64; Chem & Ind p 1254-5 Jl 11 '64
International trade fair, Osaka, April 9-29. il Mod Plastics 41:110-12+ Je '64
Kunststoffe 1963; International plastics fair, Düsseldorf. il Plastics Tech 9:10-11 D '63; 10:13+ Ja '64; Plastics World 21:12-15 D '63
National plastics exposition and annual conference, 10th, Chicago, Nov. 19-22; program and list of exhibitors. Materials in Design Eng 58:143+ N '63
National plastics exposition, 10th, Chicago. il diag Mod Plastics 41:94-101 D '63; Plastics Tech 9:39-43 D '63
Nord-Plast plastics fair, Copenhagen. il Brit Plastics 37:236-9 My '64
Plast '64; Milan, Sept. 19-27. il Brit Plastics 37:524-31 O '64
Plastics at the Hanover fair. il Mod Plastics 41:104-5+ Jl '64; Plastics World 22:10-11 Jl '64
Plastics show of Canada, Toronto. il Plastics Tech 10:23 Je '64
Salon international des plastiques, 10th, Oyonnax, France, May 6-12. il Brit Plastics 37:306-7 Je '64

History

History of aminoplastics; sixth Chance memorial lecture. W. Blakey. il Chem & Ind p 1349-57 Jl 25 '64

Statistics

Analysis of 1963 plastics production. Mod Plastics 42:160+ O '64
Facts and figures for the chemical process industries; polymers and coatings. A. S. Hester. Chem & Eng N 42:134-40 S 7 '64
Plastics 1963. Mod Plastics 41:84-107+ Ja '64
Plastics output hit record in 1963. Chem & Eng N 42:26 Ja 13 '64
Plastics sales riding high. Plastics Tech 10:31-2 O '64

Canada

1963 review/64 preview; plastics output still slowed by imports. Can Chem Process 48:52+ Ja '64

Europe

Acrylonitrile build-up begins in Europe. il Chem & Eng N 42:75-6 My 11 '64
Reinforced plastics gain ground in Europe. il Chem & Eng N 42:94+ O 26 '64

Great Britain

Export is for everyone; export market for British plastics materials. il Brit Plastics 37:281-99 Je '64
Production and trends. Brit Plastics 37:1-10 Ja '64
Reinforced plastics in Britain. il Plastics World 22:22 Je '64

PLASTICS industries—*Continued*

Italy

Ideas from Italy. il Mod Plastics 41:98-103+ Jl '64
Italian plastics industry. il Brit Plastics 37:466-70 S '64

Japan

Plastics in Japan; progress and innovation. il diag Mod Plastics 41:118-24+ Ja '64

Netherlands

Plastics in Holland. Plastics World 21:20-1 N '63
Plastics packaging in Holland. il Plastics World 22:16-17 O '64

Russia

Russian plastics; digest of a report. A. B. Tesmen. Metal Prog 85:168+ Ap '64
Soviets set new goals in production of plastics. Chem Eng 71:94 N 9 '64

Scandinavia

Nord-Plast plastics fair, Copenhagen. il Brit Plastics 37:236-9 My '64

United States

All plastics firms to report in 1963 economic censuses. Plastics World 21:10 N '63
Plastics markets in the U.S. construction industry. P. W. Sherwood. il Brit Plastics 36:628-33 N '63

PLASTICS Institute of America
Annual meeting, 2d, Hoboken. Plastics Tech 10:23-4 Mr '64

PLASTICS laboratories
Carbide's plastics division opens new lab. il Soap & Chem Spec 40:119-20 Ag '64
Testing thermoplastic parts in a resin laboratory. D. P. Norris and H. M. Quackenbos. il diags Mod Plastics 42:155-6+ S '64

Equipment

Methods of predicting the processing characteristics of rubber and plastics. A. D. Varenelli. bibliog diags Wire & Wire Prod 39:1598-603+ O '64

PLASTICS machinery
Automation in plastics processing. L. L. Scheiner. Plastics Tech 9:27-38 D '63
Engineering and equipment developments. il diag Brit Plastics 36:702-5; 37:38-41, 151-4, 205-10, 266-9, 330-4, 393-5, 452-5, 510-13, 569-72 D '63-Ja, Mr-O '64
Foam plastics machinery. il Plastics World 22:32 Ap '64
Kunststoffe machinery digest; illustrations with text. Brit Plastics 36:612-15 N '63
Machinery and equipment. Published in monthly numbers of Modern plastics
Machinery 1963; sales remain high, new trends show up. Mod Plastics 41:111-18 Mr '64
New machinery for urethane foams. R. C. Hosford. il Plastics Tech 9:36-41 N '63
Plant plastic shop moonlights. G. DeGroat. il Am Mach 108:60-1 F 3 '64
Selection guide to plastics machinery. Plastics Tech 10:39-102 Je '64 (reprints $1)
Shearing machine for hard plastics sheets. il Engineer 217:445 Mr 6 '64
Web alignment and wrinkle control. W. M. Gallahue. il diags Mod Plastics 42:123-5+ O '64

Control

Temperature controller. il Engineer 217:707 Ap 17 '64

Numerical control

Programmed machine cuts cost of plastic parts. B. E. Shereshaw. il Electronics 36:48-9 D 27 '63
Try numerically controlled drilling. il Plastics Tech 10:11-12 Ja '64

PLASTICS research
Increasing importance of plastics in the work of the Rubber and plastics research association. W. F. Watson. il diags Brit Plastics 37:374-7 Jl '64
Instruments for research and evaluation. il Brit Plastics 37:92-7 F '64
Polymer research. H. Melville. Chem & Ind p 161 Ja 25 '64
Technical progress 1963. bibliog il Brit Plastics 37:11-16 Ja '64

PLASTISOLS
Influence of resin on plastisol fusion. A. J. Heinrichs. bibliog Mod Plastics 41:164+ Ap '64
Plastisol coatings testing; formulation. C. J. Berg. Ind Finishing 40:28-34+ Ja '64
Plastisols; their formulation and application. W. H. McKnight. Ind Finishing 40:32+ F '64
Pre-coated metals. il diags Plastics World 22:34 O '64
Rigid vinyls from plastisols. M. R. Whitley and D. L. Valentine. Mod Plastics 41:159-61+ Ja '64

PLATE glass
Glass; it floats. Product Eng 35:39 Mr 2 '64
Glass strength test. il Glass Ind 45:80-1 F '64
Improvements in sheet glass manufacture. diags Glass Ind 45:474-5+ S '64
Sheet takes plunge into tin bath. A. C. Allen. il diags Cer Ind 84:64-6+ Jl '64
See also
Windows

PLATES
Analogy between three-dimensionally heated plates and generalized plane stress. M. Forray and M. Newman. AIAA J 2:165-6 Ja '64
Analysis of composite beam bridges by orthotropic plate theory. V. Vitols and others. bibliog diags Am Soc C E Proc 89 [ST 4 no 3584]:71-94 Ag '63; Discussion. K. H. Chu and G. Krishnamoorthy. 90 [ST 1 no 3812]:247-50 F '64; Reply. 90 [ST 5 no 4066]:199-201 O '64
Analysis of folded plate structures. G. G. Goble. bibliog diags Am Soc C E Proc 90 [ST 1 no 3797]:93-124 F '64; Discussion. B. Barbarito. 90 [ST 5 no 4066]:213-16 O '64
Analysis of short span folded plates. K. Seetharamulu and M. G. Kulkarni. diags Am Soc C E Proc 90 [ST 3 no 3939]:165-78 Je '64
Analysis of triangular bracket-type plates. C. G. Salmon. bibliog diags Am Soc C E Proc 88 [EM 6 no 3363]:41-87 D '62; Discussion. B. J. Hartz. 89 [EM 5 no 3687]:97-8 O '63; Reply. 90 [EM 2 no 3882]:229-30 Ap '64
Approximate distribution of stress in a finite plate having a stress-free circular cut-out. H. Waters. bibliog diags Roy Aeronautical Soc J 68:204-8 Mr '64
Axisymmetric nonlinear vibration of circular plates. P. Z. Bulkeley. A S M E Trans ser E 30:630-1 D '63
Bending analysis for clamped rectangular plates. L. R. Herrmann. bibliog diags Am Soc C E Proc 90 [EM 3 no 3934]:71-86 Je '64
Bending of rectangular orthotropic plates with small initial curvature. N. R. Rajappa. Roy Aeronautical Soc J 68:280 Ap '64
Bending of rhombic plates. W. E. Warren. diag AIAA J 2:166-8 Ja '64
Bending stress in a cracked plate on an elastic foundation. D. D. Ang and others. bibliog diags A S M E Trans ser E 30:245-51 Je '63; Discussion. 31:365-7 Je '64
Charts and tables speed calculation of thermal stresses in unsymmetrically heated circular rings; data sheet. M. Newman and M. Forray. diag Machine Design 36:125-9 Ja 2 '64
Circular plates with bending moments applied at several points along the boundary. N. Gajendar. diag Roy Aeronautical Soc J 68:702-3 O '64
Circular ring plates under partial arc loading. Ö. Tuncel. diag A S M E Trans ser E 30:340-1 Je '64
Clamped plate analogy for thermoelasticity. A. L. Ross. bibliog diag A S M E Trans ser D 85:579-84 D '63
Combined method for clamped plates using modified Fourier series. S. Gopalacharyulu. A S M E Trans ser E 30:627-8 D '63
Concentrated forces on compressed plates and related problems for moving loads. A. Jahanshahi and J. Dundurs. diags A S M E Trans ser E 31:83-7 Mr '64
Condensation studies in hotshot tunnels. B. J. Griffith and others. AIAA J 2:1645-7 S '64
Correlation of flat-plate pressures using the rarefaction parameter $M_\infty C_\infty^{1/2}/Re_{x\infty}^{1/2}$. H. E. Deskins. bibliog AIAA J 2:573-4 Mr '64
Crack extension in plates under plane loading and transverse shear. F. Erdogan and G. C. Sih. bibliog il diags A S M E Trans ser D 85:519-25; Discussion. F. A. McClintock. 525-7; Reply. 527 D '63
Creep analysis of annular plates. B. Venkatraman and others. bibliog diags Franklin Inst J 275:13-23 Ja '63; 278:248-55 O '64
Criterion for slip near the leading edge of a flat plate in hypersonic flow. L. Talbot. bibliog AIAA J 1:1169-71 My '63; Discussion. J. Aroesty. 2:189-90 Ja '64
Crushing of a tube between rigid plates. J. A. DeRuntz, jr. and P. G. Hodge, jr. bibliog il diags A S M E Trans ser E 30:391-5 S '63; Discussion. 31:357-8 Je '64

PLATES—*Continued*

Deflection of rectangular orthotropic plates under lateral loads. N. R. Rajappa. Roy Aeronautical Soc J 68:483-4 Jl '64

Density distribution over a moving circular plate in free-molecule flow (U). K. J. Touryan. diags AIAA J 2:559-61 Mr '64

Design to prevent buckling in rectangular plates; data sheet. R. W. Peach. diags Machine Design 35:145-7 D 19 '63

Development of boundary layers in buckled plates. E. F. Masur and C. H. Chang. bibliog Am Soc C E Proc 90 [EM 2 no 3863]: 33-50 Ap '64

Direct design of plate and shell structures. J. F. Brotchie. bibliog diags Am Soc C E Proc 88 [ST 6 no 3345]:127-48 D '62; Discussion. 89 [ST 3 no 3560]:203-5 Je; [ST 5 no 3688]:279-83 O '63; Reply. 90 [ST 3 no 3940]:339-47 Je '64

Direct stiffness solution for folded plates. A. DeFries-Skene and A. C. Scordelis. bibliog diags Am Soc C E Proc 90 [ST 4 no 3994]:15-47 Ag '64

Eddy formation in film flow down a vertical plate. S. Portalski. bibliog diags Ind & Eng Chem Fundamentals 3:49-53 F '64

Effect of residual stresses on the critical crack length predicted by the Griffith theory. W. E. Jahsman and F. A. Field. bibliog diags A S M E Trans ser E 30:613-16 D '63

Effect of shock-induced vorticity on the compressible boundary layer along a flat plate. L. Ting. bibliog diag AIAA J 2:490-3 Mr '64

Effects of oscillation on free convection from a vertical finite plate. V. D. Blankenship and J. A. Clark. bibliog diags A S M E Trans ser C 86:149-58 My '64

Eigen-matrix method for beams and plates. B. Tanimoto. bibliog diags Am Soc C E Proc 89 [ST 5 no 3681]:173-215 O '63; Discussion. S. T. Sundara Raja Iyengar. 90 [ST 2 no 3886]:401 Ap '64; Reply. 90 [ST 6 no 4157]:309-14 D '64

Elastic-plastic analysis of centrally clamped annular plates under uniform loads. F. W. French. bibliog diags Franklin Inst J 277: 575-92 Je '64

Elastic-plastic deformation of a single grooved flat plate under longitudinal shear. M. F. Koskinen. bibliog il diags A S M E Trans ser D 85:585-91; Discussion. 591-3; Reply. 593-4 D '63

Elastic stability of castellated plates. M. Sevik. diags AIAA J 2:174-5 Ja '64

Elastic stress analysis of jointed half-planes. K. T. Sundara Raja Iyengar and R. S. Alwar. Franklin Inst J 278:267-79 O '64

Elastostatic problem of a perforated square plate. A. L. Schlack and R. W. Little. bibliog diags Am Soc C E Proc 90 [EM 5 no 4089]:171-87 O '64

Exact solution of a problem of rectangular elastic plates of variable thickness. L. Contri. bibliog J Math & Phys 43:72-4 Mr '64

Example of hole diameter in thin plates due to hypervelocity impact. R. F. Rolsten and others. bibliog J Ap Phys 35:556-9 Mr '64

Experimental effects of transverse oscillations on free convection of a vertical, finite plate. V. D. Blankenship and J. A. Clark. il diags A S M E Trans ser C 86: 159-65 My '64

Extension of iteration method for determining strain distributions to the uniformly stressed plate with a hole. E. A. Davis. A S M E Trans ser E 30:210-14 Je '63; Discussion. 31:362-4 Je '64

Finite twisting and expansion of a hole in a rigid/plastic plate. R. P. Nordgren and P. M. Naghdi. bibliog diags A S M E Trans ser E 30:605-12 D '63

First-order perturbations of laminar free-convection boundary layers on a vertical plate. K. T. Yang and E. W. Jerger. bibliog diag A S M E Trans ser C 86:107-15 F '64

Flexural motions of plates at the cut-off frequency. C. C. Chao and Y. H. Pao. diags A S M E Trans ser E 31:22-4 Mr '64

Flexure by a concentrated force of the infinite plate on a circular support. J. Dundurs and T. M. Lee. bibliog diags A S M E Trans ser E 30:225-31 Je '63; Discussion. 31:364-5 Je '64

Flow of a rarefied gas between two parallel plates. C. Cercignani and A. Daneri. bibliog J Ap Phys 34:3509-13 D '63

Free edge boundary conditions in skew plates. A. Coull. diags Engineer 217:220-1 Ja 31 '64

Graphs simplify selection of dimensions to limit post-buckling deflection of heated rectangular plates; data sheet. M. Newman and M. Forray. diag Machine Design 35: 163-5 D 5 '63

Heat transfer to the turbulent separated flow of air downstream of a step in the surface of a plate. R. A. Seban. bibliog A S M E Trans ser C 86:259-64 My '64

How to determine thermal buckling and post-buckling of circular bulkheads; data sheets. M. Forray. diags Machine Design 36:201-3 Mr 12 '64

Hypersonic viscous flow near a sharp leading edge. R. W. Garvine. diag AIAA J 2:1660-1 S '64

Inequalities for solutions of mixed boundary value problems for elastic plates. J. H. Bramble and L. E. Payne. bibliog J Res Nat Bur Stand 68B:75-92 Ap '64

Initial buckling of slightly curved panels under combined longitudinal and circumferential direct stresses. K. H. Sayers. bibliog diag Roy Aeronautical Soc J 68:271-4 Ap '64

Laminar flow in the inlet section of parallel plates. Y. L. Wang and P. A. Longwell. bibliog A I Ch E J 10:323-9 My '64

Laminar free-convection wake above a heated vertical plate. K. T. Yang. bibliog A S M E Trans ser E 31:131-8 Mr '64

Laminar natural convection to an isothermal flat plate with a spatially varying acceleration. R. Lemlich and J. S. Steinkamp. bibliog diag A I Ch E J 10:445-7 Jl '64

Large-amplitude oscillations of oblique panels with an initial curvature. J. L. Nowinski. bibliog diags AIAA J 2:1025-31 Je '64

Large-amplitude vibration and response of curved panels. B. E. Cummings. diags AIAA J 2:709-16 Ap '64

Limit analysis of circular orthotropic plates. T. Mura and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4109]:375-95 O '64

Load-carrying capacities of simply supported rectangular plates. H. E. Shull and L. W. Hu. diags A S M E Trans ser E 30:617-21 D '63; Discussion. 31:733-4 D '64

Method for accelerating flat plates to high velocity. A. S. Balchan and G. R. Cowan. il diags R Sci Instr 35:937-44 Ag '64

Monte Carlo solution of thermal transfer through radiant media between gray walls. J. R. Howell and M. Perlmutter. bibliog flow charts diags A S M E Trans ser C 86:116-22 F '64

Nature of self-excitation in the flow-induced vibration of flat plates. P. S. Eagleson and others. bibliog diags A S M E Trans ser D 85:599-606 S '64

New specimen design for plane-strain fracture toughness tests. A. M. Sullivan. diags Materials Res & Stand 4:20-4 Ja '64

Nonequilibrium hypersonic flat-plate boundary-layer flow with a strong induced pressure field. G. R. Inger. bibliog AIAA J 2: 452-60 Mr '64

Numerical methods in bending and buckling of plates. A. N. Sherbourne. bibliog Am Soc C E Proc 89 [ST 4 no 3588]:137-50 Ag '63; Discussion. W. C. Lennox. 90 [ST 2 no 3886]:367-8 Ap '64

Phase one report on folded plate construction; report of the task committee. il diags Am Soc C E Proc 89 [ST 6 no 3741]: 365-406 bibliog(p401-6) D '63; Discussion. 90 [ST 2 no 3886]:421-6 Ap; [ST 3 no 3940]: 421-2 Je '64

Photothermoelastic investigation of thermal stress in flat plates. H. Becker and A. Colao. bibliog A S M E Trans ser D 85:566-8 D '63

Planar stress field of a dislocation in an anisotropic plate. Y. T. Chou. bibliog J Ap Phys 34:3608-14 D '63

Plane-stress problem for a doubly connected region in which the medium undergoes elastic and creep deformation. D. L. Platus. bibliog diags A S M E Trans ser E 31:54-60 Mr '64

Plastic analysis of orthotropic circular plates. J. Markowitz and L. W. Hu. bibliog diags Am Soc C E Proc 90 [EM 5 no 4098]:251-92 O '64

Postbuckling behavior of heated skin panels. G. S. Johnston. diags AIAA J 2:141-2 Ja '64

Pressurized star crack. R. A. Westmann. J Math & Phys 43:191-8 S '64

Response of a prestressed elastic plate strip to a moving pressure load. H. Reismann. bibliog diags Franklin Inst J 278:8-19 Jl '64

Response of an elastic plate submerged in a liquid half-space to explosive sound. J. H. Rosenbaum. bibliog diags Geophysics 29: 370-94 Je '64

Section modulus of beams with unsymmetrical cover plates. T. L. Underwood. Civil Eng 34:66 Mr '64

PLATES—*Continued*

Series solution of skewed stiffened plates. J. B. Kennedy and M. W. Huggins. bibliog diag Am Soc C E Proc 90 [EM 1 no 3795]:1-22 F '64; Discussion. A. Coull. 90 [EM 4 no 4000]:179-80 Ag '64

Shear of thin plates with flexible edge members. E. R. Bryan and W. M. El-Dakhakhni. bibliog il diags Am Soc C E Proc 90 [ST 4 no 3991]:1-14 Ag '64

Simultaneous radiative and convective heat transfer in an absorbing, emitting, and scattering medium in slug flow between parallel plates. J. C. Chen. bibliog diags A I Ch E J 10:253-9 Mr '64

Solution of buckling problems by reduction method. P. Shuleshko. diags Am Soc C E Proc 90 [EM 3 no 3945]:147-69 Je '64

Some energy and momentum considerations in the perforation of plates. A. C. Giere. AIAA J 2:1471-2 Ag '64

Some properties and applications of singularity functions based on the theory of distributions. W. D. Pilkey. diags Franklin Inst J 277:464-97 bibliog(p495-7) My '64

Stability of equilateral triangular plates. W. A. Bradley. bibliog diags Am Soc C E Proc 89 [EM 1 no 3426]:37-56 F '63; Discussion. 89 [EM 4 no 3616]:81-7 Ag '63; Reply. 90 [EM 2 no 3882]:231-2 Ap '64

Statistical methods in vibration analysis. R. H. Lyon and G. Maidanik. bibliog diags AIAA J 2:1015-24 Je '64

Steady radial flow between parallel plates. D. Geiger and others. A S M E Trans ser E 31:354-5 Je '64

Stress concentration factors for plates with holes. W. Griffel. diags Product Eng 34: 98-104 S 16; 104-13 N 11 '63; 35:85-91 Mr 16 '64 (reprints $1.)

Structural synthesis capability for integrally stiffened waffle plates. L. A. Schmit, jr. and others. bibliog diags AIAA J 1:2820-36 D '63

Structure of the boundary layer at the leading edge of a flat plate in hypersonic slip flow. J. A. Laurmann. bibliog diag AIAA J 2: 1655-7 S '64

Temperature and velocity profiles along a vertical hot plate in a compressible fluid considering the effect of buoyancy. S. Ghoshal. AIAA J 2:364-5 F '64

Thermoelastic dissipation in vibrating plates. J. Tasi. bibliog A S M E Trans ser E 30: 562-7 D '63

Thin plates and shallow cylindrical shells subjected to hot spots. A. Jahanshahi. diags A S M E Trans ser E 31:79-82 Mr '64

Transient forced convection from a flat plate subjected to a step energy input. D. E. Adams and B. Gebhart. bibliog diags A S M E Trans ser C 86:253-8 My '64

Uniqueness theorem for the nonlinear axisymmetric bending of circular plates. E. L. Reiss. bibliog AIAA J 1:2650-2 N '63

Unsteady boundary-layer flow of a non-Newtonian fluid on a flat plate. C. S. Wells, jr. AIAA J 2:951-2 My '64

Vibration frequencies of tapered bars and circular plates. H. D. Conway and others. diags A S M E Trans ser E 31:329-31 Je '64

Vibration method for the elastic constants of small plates. C. D. Bopp. diags R Sci Instr 35:703-7 Je '64

Vibration of a 45° right triangular cantilever plate by a gridwork method. R. M. Christensen. bibliog diags AIAA J 1:1790-5 Ag '63; Discussion. 2:1870-1 O '64

Viscoelastic boundary damping of beams and plates. T. J. Mentel. bibliog il diags A S M E Trans ser E 31:61-71 Mr '64

Viscous model for plug formation in plates. A. Pytel and N. Davids. bibliog il diags Franklin Inst J 276:394-406 N '63

Yielding in a cracked plate under longitudinal shear. F. A. Field. bibliog diags A S M E Trans ser E 30:622-3 D '63

PLATES, Aluminum. See Aluminum plates

PLATES, Steel. See Steel plates

PLATES, Surface. See Surface plates

PLATFORMING process. See Gasoline—Manufacture

PLATFORMS

Choosing oceanographic platforms. F. E. Elliott. I S A J 11:57-8 Mr '64

Special platform aids in ladle reline. il Iron & Steel Eng 41:172 O '64

PLATING

Composite materials; preplated and procoated metals. Materials in Design Eng 60:436 Mid-O '64

Electrolytic metal plating of ABS. C. R. Holt and B. J. Jensen. il Brit Plastics 37:498-500 S '64

Major advances broaden the market potential of metal-plated thermoplastics. il Plastics World 22:34+ My '64

Military plating specifications; data sheets. Metal Prog 84:106 Ag; 106 S '63; Same cond. Mach 70:149-50 D '63; 151-2 F; 153-4 Mr '64

Plastic for metal plating backed by quality program. Steel 154:47+ Mr 30 '64

Plastic tightens grip on metal. il Iron Age 193:100-1 Mr 26 '64

Plating baths checked quick as a flash. il Iron Age 194:71 O 1 '64

Plating on precious metals. D. G. Foulke. Plating 51:685-8 Jl '64

Plating with a metal mist. D. J. Levy. il diag Iron Age 194:59-61 O 22 '64

Practical problems in industrial plating; panel discussion. Plating 51:1002+ O '64

Selective plating process. il Mech Eng 86:48-9 Ja '64

What you should know about plating on plastics. M. W. Riley. bibliog il diags Plastics Tech 10:48-53 S '64

Writing metal finishing process specifications. W. B. Harding. bibliog Plating 51:125-8 F '64

See also
Bronze plating
Cadmium plating
Chromium plating
Copper plating
Electroplating
Galvanizing
Gold plating
Nickel plating
Platinum plating
Silver plating
Tin plating
Tungsten plating
Zinc plating

Bibliography

Article references. W. Tucker. Published in monthly numbers of Plating

Patents

Patent abstracts. D. G. Foulke. Published in monthly numbers of Plating

PLATING barrels

Bright zinc barrel plating; practical problems and solutions. H. Geduld. bibliog Metal Finishing 62:42-6 F; 56-60 Mr '64

Practical problems in bright cadmium barrel plating. H. Geduld. bibliog Metal Finishing 62:52-6 Ag; 64-7+ S '64

PLATING machinery

Needle production needs automatic plating. diag Engineering 197:267 F 14 '64

Rinsing efficiency in automatic plating, a brief lesson. A. F. Mohrnheim. Metal Finishing 62:92+ My '64

PLATING shops

Poisons in the plating industry. H. Geduld. bibliog Metal Finishing 62:76-80 O '64

Control equipment

Automatic pH control of plating solutions. il Engineer 216:1035 D 20 '63

Equipment

Economy in lined tanks. H. W. Gripton and B. W. Rider. Plating 51:695 Jl '64

Equipment and supplies. Published in monthly numbers of Plating

Faster nickel plating with sulfamate solutions. F. L. Siegrist. il Metal Prog 85:101-4+ Mr '64

Gas plating equipment. C. E. MacNeill. bibliog il diags Metal Finishing 62:47-53+ F '64

Heat requirements for processing solutions; calculation of heating surfaces. M. J. Reidt. diags Metal Finishing 62:60-6 O '64

New plating plant for Jaguar cars. il Metallurgia 69:159-60 Ag '64

New polishing and plating plant at Smethwick. il Engineering 196:664 N 22 '63

Nickel platers trim costs with titanium baskets. il Metal Prog 86:118-19 Jl '64

Plastic coatings protect plating shop equipment. il Steel 155:118+ O 19 '64

Presswork and finishing plant: Coventry radiator and presswork co. il Engineer 216: 697 O 25 '63

Smiths new plant for metal finishing. il Engineering 197:476-7 Ap 3 '64

Use of plastics in the plating industry. B. Mohr. Plating 51:39-41 Ja '64

Waste

Evaporation system recovers plating solutions from contaminated rinse water. H. E. P. Barta. il diag Automation 11:54-6 My '64

PLATING shops—Waste—*Continued*

Systematic waste treatment tames seven solutions. C. E. Shroyer. il diag Plant Eng 18:132-4 Ag '64

Zinc plating bath avoids cyanide. il Iron Age 193:62 Ja 9 '64

PLATINUM

Anodic oxidation of formic acid at platinum electrodes. M. H. Gottlieb. bibliog Electrochem Soc J 111:465-72 Ap '64

Anodic polarization curves of the platinum electrode in neutral and alkaline potassium chloride solutions. B. M. Blavatnik and G. A. Tsiganov. Corrosion 19:421-3 D '63

Chemisorption and surface chemistry of ethylene on supported platinum catalysts. P. J. Lucchesi and others. bibliog Am Chem Soc J 86:1494-7 Ap 20 '64

Constant current transition time investigations of the electrochemical oxidation of formate-formic acid at a smooth platinum electrode. R. A. Munson. bibliog il Electrochem Soc J 111:372-6 Mr '64

Differential potentiometric determination of palladium in the presence of platinum in high grade palladium-platinum materials. S. Barabas and J. Vinaric. bibliog Anal Chem 36:2365-7 N '64

Effect of acidity on the differential capacity of polarized platinum electrodes. M. C. Banta and N. Hackerman. bibliog Electrochem Soc J 111:114-19 Ja '64

Electrochemical oxidation of formic acid on platinum. C. W. Fleischmann and others. bibliog Electrochem Soc J 111:602-5 My '64

Ethyl alcohol oxidation at platinum electrodes. R. A. Rightmire and others. bibliog diags Electrochem Soc J 111:242-7 F '64

Field-emission microscopy of twins in vapor-grown fcc whiskers. A. J. Melmed. bibliog il diags J Ap Phys 34:3325-8 N '63

Hydrogenation of linolenate; comparison of products formed with platinum and nickel catalysts. C. R. Scholfield and others. bibliog Am Oil Chem Soc J 41:615-19 S '64

Low-energy electron diffraction studies of gas adsorption on platinum (100), (110), and (111) surfaces. C. W. Tucker, jr. bibliog il diags J Ap Phys 35:1897-905 Je '64

Mechanism of the electro-oxidation of acetylene on platinum. J. W. Johnson and others. bibliog diag Electrochem Soc J 111:863-70 Jl '64

Oxidation mechanism of formic acid on platinum at low potentials in acidic solutions. M. W. Breiter. bibliog Electrochem Soc J 111:1298-9 N '64

Partial molal enthalpies of adsorption of hydrogen and oxygen on platinum and on carbon-supported platinum. J. G. Aston and others. bibliog diag Am Chem Soc J 86:2097-101 Je 5 '64

Platinum as a thermal conductivity standard. G. A. Slack. bibliog J Ap Phys 35:339-44 F '64

Pt/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. il Electrochem Soc J 110:1142-6 N '63

Preparation and surface area measurements of platinized-platinum electrodes. M. J. Joncich and N. Hackerman. bibliog diags Electrochem Soc J 111:1286-9 N '64

Study of adsorption and oxidation of carbon monoxide on platinum using constant current pulses. T. B. Warner and S. Schuldiner. bibliog Electrochem Soc J 111:992-7 Ag '64

Study of surface oxides on platinum electrodes. J. S. Mayell and S. H. Langer. bibliog diags Electrochem Soc J 111:438-46 Ap '64

Surface combustion of hydrogen; on platinum-coated alumina. D. Gidaspow and R. T. Ellington. bibliog diag A I Ch E J 10:707-13 S '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow recombination mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:858-63 Jl '64

Thermal and hydrostatic behavior of miniature platinum resistance elements. C. M. Knobler and others. R Sci Instr 34:1437-8 D '63

Tubular platinum electrode. W. J. Blaedel and others. bibliog diags Anal Chem 35:2100-3 D '63

Analysis

Determination of metallic platinum in platinum-alumina catalysts by X-ray diffraction. R. A. Van Nordstrand and others. bibliog Anal Chem 36:819-24 Ap '64

Simultaneous spectrophotometric determination of palladium and platinum with 2,3-quinoxalinedithiol. H. F. Janota and G. H. Ayres. Anal Chem 36:138-40 Ja '64

Spectrophotometric determination of platinum with 2,3-quinoxalinedithiol. G. H. Ayres and R. W. McCrory. bibliog Anal Chem 36:133-8 Ja '64

PLATINUM alloys

Heat treatment furnace for platinum alloys. il Engineering 197:815 Je 12 '64

Large differences in surface ionization efficiencies between K and its halides on the contaminated surface of a Pt alloy (8 per cent W) wire. T. R. Touw and J. W. Trischka. J Ap Phys 34:3635-6 D '63

Reference tables for platinum 20 per cent rhodium/platinum 5 per cent rhodium thermocouples. R. E. Bedford. bibliog diags R Sci Instr 35:1177-90 S '64

PLATINUM chlorides

Nature of initial corrosion of stressed austenitic stainless steel by chloride ions; platinum decoration of active sites. N. A. Nielsen. bibliog il Corrosion 20:104-9; Discussion. 109-10 Mr '64

PLATINUM compounds

Basic behaviour of some platinum (0) derivatives. F. Cariati and others. Chem & Ind p 1714-15 O 10 '64

Carboxylates of palladium, platinum and ruthenium. S. M. Morehouse and others. Chem & Ind p544-5 Mr 28 '64

Olefin exchange reactions in platinum(II) complexes containing pyridine N-oxides. S. I. Shupack and M. Orchin. bibliog Am Chem Soc J 86:586-90 F 20 '64

Rates of substitution reactions of square-planar platinum(II) complexes; reactions of *trans*-dichlorobis(piperidine)platinum(II). U. Belluco and others. bibliog Am Chem Soc J 86:3257-61 Ag 20 '64

Rates of substitution reactions of square-planar platinum(II) complexes; the reaction of *trans*-dichloro-bis-(triethylphosphine)-platinum(II) with radiochloride and nitrite ions. U. Belluco and others. bibliog Am Chem Soc J 86:226-9 Ja 20 '64

PLATINUM metals

Chemical microscopy of the platinum metals; reactions with 4-bromoisoquinoline and 4-(*p*-nitrobenzyl) pyridine. H. F. Schaeffer. il Anal Chem 36:169-72 Ja '64

Platinum-group metals, 1963. G. C. Ware. Eng & Min J 165:132-3 F '64

Platinum metals as selective hydrogenation catalysts; abstract and discussion. P. B. Wells. Chem & Ind p666-7 Ap 18 '64

Recovery of platinum metals still challenges engineers; process flowsheet. A. F. S. Gouldsmith and B. Wilson. il Chem Eng 70:90-2 N 25 '63

Soviets disrupt world platinum market; Engelhard raises prices as demand strengthens. il Chem & Eng N 41:30-1 N 25 '63

Thermal condensation polymerizations of inorganic monomers in platinum-metal crucibles. M. C. Miller and others. bibliog il Ind Chem 40:183-7 Ap '64

PLATINUM plating

Engineering applications for precious metal plating. D. G. Foulke. il Metal Prog 84:107-11+ D '63

PLAYGROUNDS

Aluminum zoo for playground roughriders. il Pub Works 94:168 D '63

Kahn-Noguchi playground proposed for New York. il Prog Arch 45:67 Mr '64

PLAZAS

Lung for New York's financial district; Chase-Manhattan plaza. il Prog Arch 45:214-15 S '64

Miniature Rockefeller Plaza in a Midwest city. il plan Arch Forum 120:98-101 Ja '64

Unified variety on a fountained mall. il plan Arch Rec 135:166-9 Je '64

PLEIADENE

Barriers to inversion of 7,12-dihydropleiadenes. P. T. Lansbury and J. F. Bieron. bibliog Am Chem Soc J 86:2524-5 Je 20 '64

PLEISTOCENE period. See Geology, Stratigraphic—Pleistocene

PLUMBING

Hospital engineering; piping for hospital distribution systems. G. Kasin. Air Cond Heat & Ven 61:77-82 Jl '64

New fad in plumbing; the industry's playing footsies. diags Dom Eng 203:70-1 Ja '64

Plumbing, heating, and cooling Fantasia; New York world's fair. il plans diags Dom Eng 204:85-102 Ag '64

Plumbing utilities for a science laboratory. M. R. Perozzi. diags Air Cond Heat & Ven 61:87-9 My '64

See also

Faucets
Hot water supply
Lavatories
Pipe fittings

PLUMBING—See also—*Continued*
Pipes
Water distribution
Water pipes
Water supply for hospitals

Costs

Economy in plumbing design. W. G. Spathias. Air Cond Heat & Ven 61:74-5 S '64

Standards

Behind those walls! washroom; what it is and what it should be. plans Dom Eng 204:sup OB R-X O '64
New standard for hospital plumbing. Air Cond Heat & Ven 61:63-8 Je '64
Plumbing code revision. W. J. McGuinness. Prog Arch 45:248 O '64
Plumbing codes; how they grew, where they stand now, what makes a good code. D. Dedrick. Dom Eng 202:106-7+ N; 55-7+ D '63; 203:74+ Ja; 100-2+ F; 86-7+ Mr; 112-14 Ap; 103+ My; 93-5 Je '64 (to be cont)

PLUMBING fixtures
Plumbing fixtures. il Plastics World 22:43 My '64
Protecting and controlling water. il diags Engineering 198:188 Ag 7 '64
Putting the spotlight on key industry issues; interview with D. C. Fabiani. Dom Eng 204:78-9+ Jl '64
Taps and shower fixtures. il Engineering 197: 208 Ja 31 '64
Why plastics' future looks good in plumbing. il Mod Plastics 42:98-101+ O '64
See also
Sinks
Water closets

PLUMBING laws and regulations
It's the law! legal decisions of interest to contractors. Published in monthly numbers of Domestic engineering

PLUMBING shops

Equipment

New tools and techniques to help you cut job overhead; illustrations with text. Dom Eng 201:100-1+ My; 202:74-6+ Jl; 80-3 D '63; 203:93-5 Ja '64
New twists on some old problems. il diags Dom Eng 203:96-9 Je '64

Management

Showcase for a master merchandiser. il plan Dom Eng 203:86-9 Je '64

PLUMBING supplies
Annual equipment specification digest; piping and plumbing. il Air Cond Heat & Ven 61:77-8+ Ja '64
New products on parade. Published in monthly numbers of Domestic engineering
Water systems merchandising; seven sins of omission. Dom Eng 204:86-7 S '64
Water systems 1964. Dom Eng 203:75-92 Ja; 96-9+ F; 114-15+ Mr '64
Why plastics' future looks good in plumbing. il Mod Plastics 42:98-101+ O '64
See also
Plumbing fixtures

PLUMBING supplies industry
Putting the spotlight on key industry issues; interview with D. C. Fabiani. Dom Eng 204:78-9+ Jl '64

PLUMBING trade
Big-job contractor tells how he supervises 20 jobs at once. R. Smith. il Dom Eng 202: 84+ D '63
Competitive bidding; let's cut down the odds. A. Johnson. Dom Eng 203:100-1 Ap '64
Installment financing; neglected sales tool. il Dom Eng 203:90-1 Je '64
Job problems and how to solve them. diags Dom Eng 202:58-65, 90+ D '63
Unlawful lending of plumbing licenses; how big a factor in bidding? W. Weintraub. Dom Eng 203:82-3 My '64
What I'd do if. C. Hendrix. Dom Eng 203:84-6+ F '64
See also
Plumbing laws and regulations
Plumbing supplies industry

Advertising

Better than money in the bank. il Dom Eng 203:92 Je '64
Grass roots ad campaign upgrades contractor image. il Dom Eng 204:98 Jl '64
Plumbing City revisited! il Dom Eng 203:73-80 Ap '64
Showcase for a master merchandiser. il plan Dom Eng 203:86-9 Je '64
Spring carnival of sales ideas! for water systems, bathrooms, kitchens, heating. Dom Eng 203:94-102 My '64

Public relations

How contractors answer the complaint, your price is too high. il diags Dom Eng 203: 77-85 Mr '64
Spring carnival of sales ideas! for water systems, bathrooms, kitchens, heating. Dom Eng 203:94-102 My '64
Thanks; don't forget to say it-in writing! P. Moore. Dom Eng 203:84 My '64

Remodeling

Book of remodeling wins top editorial award for DE. il Dom Eng 203:96-7+ Ja '64
Commercial remodeling equation; big jobs = complex problems = big profits. il Dom Eng 204:88-91 S '64
Order of the bath. il plans diags Dom Eng 204:sup OB A-X O '64
Portrait of a big spender; the public washroom market. il plans Dom Eng 204:75-81 O '64
Restyling; a new market. A. DeLancey. il Dom Eng 204:80-5+ S '64
Seven master keys to remodeling profits; 1964 book of remodeling. il plans Dom Eng 202:71-105+ N '63

Service

Plumbing system insurance; will it pay off for homes? il Dom Eng 203:73-8 F '64

PLUTONIC rocks. See Rocks, Igneous

PLUTONIUM
Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64
Hanford plutonium complex may diversify. R. Bloomberg. Chem Eng 71:50 F 3 '64
Irradiation behavior of plutonium fuels. V. W. Storhok. bibliog Nucleonics 22:86 Ap '64
Plutonium-bearing glass for nuclear applications. L. V. Jones and others. il Am Cer Soc Bul 43:131-5 F '64
Plutonium; nuclear fuel of the future. Engineer 217:920-1 My 22 '64
Plutonium uranium cutback to idle 2900. Chem & Eng N 42:25 Ja 20 '64
Preparation of Pu^{238} metal. F. D. Lonadier and J. S. Griffo. il diags Ind & Eng Chem Proc Design 3:336-9 O '64
Separation and determination of trace quantities of uranium in presence of plutonium. R. J. Baltisberger. Anal Chem 36:2369-70 N '64

Analysis

Amine extraction-spectrographic determination of tantalum in plutonium. R. Ko. bibliog Anal Chem 36:1290-1 Je '64
Emission spectrographic determination of americium in plutonium. C. E. Pietri and A. W. Wenzel. bibliog Anal Chem 36:1937-9 S '64

Isotopes

Comparison of self-irradiation effects in alpha plutonium enriched and unenriched in ^{238}Pu R. O. Elliott and C. E. Olsen. bibliog J Ap Phys 35:1925-31 Je '64
Ion exchange process for the recovery of Pu^{238} from irradiated Np^{237}. G. A. Burney. bibliog Ind & Eng Chem Proc Design 3: 328-32 O '64
Np^{237} and Pu^{238} separation at the Savannah River plant. W. L. Poe and others. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:314-22 O '64
New production of non-weapon material. Franklin Inst J 276:541-2 D '63
Pu^{238}-Np^{237} production details now complete. diag Chem & Eng N 42:50-1 F 3 '64
Process control in the production of Pu^{238} and Np^{237}. E. K. Dukes and R. S. Dorsett. bibliog diag Ind & Eng Chem Proc Design 3:333-6 O '64
Production of Np^{237} and Pu^{238} in thermal power reactors. D. R. Vondy and others. Ind & Eng Chem Proc Design 3:293-6 O '64
Radioactive material generates electricity for new satellite signals. Franklin Inst J 276:540-1 D '63

PLUTONIUM alloys
Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64

PLUTONIUM carbide
Plutonium carbide fuels for high-temperature gas-cooled reactors. S. Langer. bibliog Nucleonics 21:73-5 S '63

PLUTONIUM oxides
Melting behavior in the system UO_2-PuO_2. T. D. Chikalla. bibliog il Am Cer Soc J 46: 323-8 Jl '63; Discussion. 47:308-9 Je '64

PLUTONIUM oxides—*Continued*

Preparation and properties of plutonium-bearing oxide particulates. L. V. Jones and others. bibliog il Ind & Eng Chem Product Res & Develop 3:78-82 Je '64

PLYWOOD

Dialdehyde starch promising in glue for plywood industry. F. B. Weakley and C. L. Mehltretter. Chem & Eng N 42:58+ S 21 '64

Energy absorption of structures under cyclic loading. K. Medearis and D. H. Young. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3791]:61-91 F '64; Discussion. 90[ST 5 no 4066]:207-11 O '64

Panelized plywood reduces roof erection time. il Plant Eng 18:124-5 F '64

Plywood; new shapes yield new strength. il diags Arch Forum 120:126-31 Ap '64

Properties of materials; plywood panels; tables. Materials in Design Eng 60:368-9 Mid-O '64

Special plywoods for concrete formwork. Engineering 197:557 Ap 17 '64

Manufacture

Plywood primer. W. Lubars. il Materials in Design Eng 58:90-6+ N '63

Painting and finishing

Finishing plywood block flooring. il Ind Finishing 40:58 F '64

PLYWOOD roofs. See Roofs

PNEUMATIC control

Air cylinders sequence feed mixer. W. E. Cavanaugh. il diags Hydraulics & Pneumatics 17:94-5 My '64

Air permits design of compact high speed clutch. K. Schubert. il diags Hydraulics & Pneumatics 17:94 Jl '64

Air pilot circuit plugs into machine controls. W. H. Lucas. diags Hydraulics & Pneumatics 17:100-1 S '64

All-gas control directs rockets. J. Campagnuolo and L. M. Sieracki. il diag Control Eng 11:127+ O '64

Building-block valve concept increases versatility of air control. R. Dickey. diags Mach 70:148-50 Je '64

Central air supply header simplifies pneumatic lines; Atlantic refining co. H. E. B. Anderson, ed. il Plant Eng 18:92 Ja '64

Computer sizes parameters of a pneumatic scram system. R. H. Larson. il diags Hydraulics & Pneumatics 17:94-101 O '64

Designing a pneumatic pressure programmer. T. S. Neprud. il diag Hydraulics & Pneumatics 17:69 Ap '64

Drum programme controller. il Engineer 218:593 O 9 '64

Electric versus pneumatic actuators. R. Reut. il diag Instruments & Control Systems 37:119-20 My '64

Header in bundled tubing eases pneumatics installation. J. C. Dibbern and L. W. Robinson. il Control Eng 11:103 Ja '64

Hot-gas servo controls missile; abstract. C. L. Conklin. diag S A E J 72:87 F '64

Making pneumatic regulators stable; drill a capillary. T. P. Carey. diags Control Eng 11:87-9 F '64

Martonair pneumatic valves. il diags Engineering 197:50-1 Ja 10 '64

Motor vs pneumatic time-delay. G. K. Houpt. il diag Instruments & Control Systems 37:107 O '64

New type cable cuts installation time on pneumatic control system. il Oil & Gas J 61:114-15 O 28 '63

Pneumatic control valves for machine tools. Engineer 216:706 O 25 '63

Pneumatic fluid-power control for high temperature operation. N. Saslove. diag Space/Aeronautics 41:119+ Je '64

Pneumatic linear actuators. T. P. Watson. diags Machine Design 35:126-9 D 12 '63

Pneumatic logic circuits (cont). E. L. Holbrook. diags Hydraulics & Pneumatics 16:92-3 D '63; 17:84 Ap; 120-1 My; 76 Je '64

Pneumatic system controls web tension. W. Gallahue. il diags Automation 11:71-4 My '64

Pneumatic system for low-cost centralization. il Prog Arch 45:91 Mr '64

Pneumatically-operated production machines. il Engineer 216:1017-18 D 20 '63

Practical control system components. E. J. Kompass. bibliog diags Control Eng 11:82-5 S '64

Programmers. R. C. Nelson. il diag Instruments & Control Systems 37:93-100 O '64

Proportional level controller. W. A. Cannon, jr. il diag Instruments & Control Systems 37:109-10 Ap '64

Pulse-bleed control valves simplify assembly circuit. J. V. Patton and J. N. Magaw. il diags Hydraulics & Pneumatics 17:89 Ap '64

Rotary pneumatic actuators. L. B. Taplin and A. J. Gregory. diags Control Eng 10:58-62 D '63

Russians push fluid controls. D. Winston. il Control Eng 11:27 My '64

Sensor installed remote from controller is feature of pneumatic control system. diag Heating-Piping 36:161 Mr '64

Servosystem controls tension in winding machine. il Hydraulics & Pneumatics 17:32 Je '64

Time delay valves sequence pneumatic actuators. J. A. Neff. il diags Automation 11:69-70 Ag '64

Where are pneumatics headed? il diag Iron Age 194:74-5 N 5 '64

See also

Electropneumatic control
Hydropneumatic control

PNEUMATIC conveying

ACF adds pressure-unloading car to covered hopper line. Chem & Eng N 42:64-5 My '64

Add pump, rotate conveyor, make two handling systems from one. il diag Plant Eng 18:116-17 O '64

Arteries of a cement plant; pneumatic conveying and aeration systems. W. F. Hahn. il diags Rock Prod 67:72-6 Je '64

Automatic conveyer systems pneumatically unload, store and transfer polyethylene pellets. diags Plastics World 21:74 N '63

B. F. Goodrich introduces bulk handling systems. diag Rubber Age 95:286 My '64

Bentonite travels in air stream. il Iron Age 194:80-1 Ag 13 '64

Blender uses gravity flow for mixing. diag Chem & Eng N 42:47 Je 1 '64

Bulk handling systems. il Mech Eng 86:54-5 S '64

Chart determines pressure drops for pneumatic systems of conveying solids; data sheet. J. D. Constance. Heating-Piping 36:151-2 O '64

Chemical conveyors cut waste treatment costs. flow diag il Pub Works 95:102-3 Ap '64

Conveyability of materials of mixed particle size. F. A. Zenz. bibliog diags Ind & Eng Chem Fundamentals 3:65-75 F '64

Economics and design of a bulk starch handling system. J. C. Coulter. diags Tappi 47:sup 143A-6A Ag '64

Fluidized material handling. il Chem Eng Prog 60:123 Je '64

Gentle ride for sensitive bulk; newest in pneumatic. il diag Mod Materials Handling 19:50-1 Ap '64

Goodrich Granu-Flow systems. il diag Rubber World 150:38 My '64

Handling bulk materials with air. W. F. Hahn. il diags Automation 11:72-81 O '64

Heavy powder in short haul. il Chem Eng 71:102 N 9 '64

Materials handling system. il Plastics World 22:49 O '64

Mobile pneumatic conveyors. il Engineer 217:185 Ja 24 '64

New high-speed pneumatic system introduced for bulk material transport. il Pit & Quarry 56:33 Je '64

Pneumatic and fluidizing feeders. il diags Rock Prod 67:86 Ag '64

Pneumatic conveying systems. H. T. Young. Automation 11:135-6 F '64

Pneumatic conveyor system imported. diag Engineering 196:792 D 20 '63

Pneumatic system completely removes solids from vessels. diag Chem Eng 71:112 Je 8 '64

Pneumatic tube speeds up sampling. il Oil & Gas J 61:100 O 21 '63

Pneumatics in bulk handling. il diags Product Eng 35:44-5 My 11 '64

Push-button system for hard-to-handle clay. il Mod Materials Handling 19:84 N '64

Save with pneumatic conveying. J. V. Ziemba. il diags Food Eng 36:78-81+ Jl '64

Speeds pneumatic conveying. il diag Food Eng 36:146 S '64

System for conveying solids in pipelines. Engineer 217:798 My 1 '64

Thanks to pneumatic tubes, paperwork flow is fast; Allis-Chalmers mfg. co. il Mod Materials Handling 19:76 Ja '64

PNEUMATIC gages. See Gages, Pneumatic

PNEUMATIC hammers

Air hammer cuts drilling time. Oil & Gas J 62:47 Je 1 '64

PNEUMATIC instruments

Computer; fluid logic. il Product Eng 35:78 O 26 '64

PNEUMATIC instruments—*Continued*

Dead weight gauge utilizing an air loading device to measure varying pressures. S. K. Nisbet. bibliog diags J Sci Instr 41:415-20 Jl '64

Designing a pneumatic pressure programmer. T. S. Neprud. il diag Hydraulics & Pneumatics 17:69 Ap '64

Experimental digital computer operates on pneumatic system. Chem & Eng N 42:74+ O 26 '64

Fluid computers. O. L. Wood and H. L. Fox. il diags Naval Eng J 76:248-56 Ap '64

How to use turbulence amplifiers for control logic. R. N. Auger. il diags Control Eng 11:89-93 Je '64

New pneumatic resistors made of glass-ceramic. Franklin Inst J 277:295 Mr '64

Play tic-tac-toe against pneumatic logic. D. E. Gauthier. il diags Hydraulics & Pneumatics 17:73-5 Mr '64

Pneumatic dewpoint meter. W. S. Pappas. il diags Anal Chem 36:1885-8 Ag '64

Pneumatic typewriter. il diags Comp Air Mag 68:12-13 D '63

Pneumatically simulating control. L. M. Zoss and C. A. Wagner. il diags I S A J 11:61-2+ F '64

Univac displays fluid operated digital computer. il Steel 155:42-3 O 19 '64

PNEUMATIC machinery

Air power for table tops at Superior Furniture. R. Krepela. il Comp Air Mag 69:22-4 My '64

Air power keeps roll machines moving. il Comp Air Mag 69:22 Mr '64

Air-powered tool tightens bolts, checks torques. il diag Hydraulics & Pneumatics 17:22+ Je '64

Air rigs popular with Ohio's Cambrian oil hunters. L. C. Rogers. il map Oil & Gas J 61:82-4 D 9 '63

Calculating horsepower losses in an air-oil system. J. Carpenter. diag Hydraulics & Pneumatics 16:90+ N '63

Caloric has installed two air hoists for the pickling of range components. L. Nickert. il Comp Air Mag 69:4-5 Jl '64

Cams multiply low pressure input forces. K. P. Schubert. diags Hydraulics & Pneumatics 16:86-7 N '63

Clutch/brake double valves. diags Hydraulics & Pneumatics 16:108-9 D '63

Compressed air equipment; its growing importance in energy systems engineering. il Power 108:154-5 Je '64

Compressed air side dump loader in colliery. il Engineering 197:521 Ap 10 '64

Design in action. il diags Machine Design 35:125 D 5 '63

Fluid power international exhibition, 3d, London, April 13-18. Engineer 217:757-8 Ap 24 '64; Engineering 197:503 Ap 10 '64

Fluid power products review. il diags Hydraulics & Pneumatics 17:133-235 Ja '64

Gunning machine for refractories. il Engineer 218:338 Ag 28 '64

High-velocity forging. S. A. Skeen. il diags Mach 71:117-23 O; 112-20 N '64

Hydraulics and pneumatics; 1964 review of technical literature. Hydraulics & Pneumatics 17:67-82 Jl '64

Interconnected air cylinders cut lumber to size. N. B. Peterson. il diags Hydraulics & Pneumatics 17:62-3 Ag '64

Leaving behind a steel skeleton; stripping the facade from Times Tower building in New York City. il Comp Air Mag 69:4-10 Ap '64

Madan airhydropumps. il diags Engineering 196:594-5 N 8 '63

Measuring the air consumption of pneumatically actuated mechanisms. diags Product Eng 35:50 Ap 13 '64

One pneumatic operation replaces three. D. C. Chwalisz. il diags Hydraulics & Pneumatics 17:108-9 S '64

Pneumatic agitator improves parts cleaning. F. Rider. il Plant Eng 18:131 S '64

Pneumatic blender. il diag Plastics World 22:48 Jl '64

Pneumatic blending. diag Chem Eng Prog 60:119 Jl '64

Pneumatic cylinders where muscle is needed. il Mod Materials Handling 19:39-41 Jl '64

Pneumatic production for valve construction. il diag Comp Air Mag 69:28 My '64

Pneumatic reduction of salt intrusion through locks. G. Abraham and P. v. d. Burgh. il diags Am Soc C E Proc 90 [HY 1 no 3759]: 83-119 Ja '64; Discussion. D. I. H. Barr. 90 [HY 5 no 4050]:197-9 S '64

Pneumatic unloading of purchased chips. J. H. Ross. flow sheet il diag Tappi 47:sup 153A-6A Jl '64

Pneumatically-operated production machines. il Engineer 216:1017-18 D 20 '63

Design

Connecting elements into circuits and systems. J. N. Shinn and W. A. Boothe. bibliog il diags Control Eng 11:86-93 S '64

Fluid power book issue; design data; product directory. il diags Machine Design 35:1-390 D 12 '63

Numerical control

Pneumatic n/c machine tools put job shop in the chips. W. N. Redstreake. il Iron Age 193:62-3 Ap 16 '64

Specifications

Quick guide to product selection; specification charts. Hydraulics & Pneumatics 17:73-120 Ja '64

PNEUMATIC tools

Air distribution system for pneumatically powered tools. il Mech Eng 86:57 S '64

Air takes a trolley to work. il Iron Age 193:143 My 21 '64

Distribut-Air system for distributing compressed air to pneumatically powered tools. il Mach 70:140-1 Jl '64

Versatile applications provided by air tools. il diags Foundry 92:193+ Ap '64

Noise

Attachment for reducing road drill noise. il Engineering 196:688 N 29 '63

Road breaking equipment made less noisy. il Engineering 197:734 My 29 '64

PNEUMATIC tools, Portable

Getting the most out of portable tools. D. B. Dallas. il diags Tool & Manuf Eng 51:69-75 D '63

Hand tool route to automation; Gardner-Denver co. il Steel 153:56-7 N 11 '63

Safe extraction of a person from a crippled car. il Comp Air Mag 69:27 S '64

PNEUMATIC transmission

Automation of pneumatic conveying systems. J. Fischer and W. S. Holmes. Automation 10:126-8 D '63

Comparison of hydraulic and pneumatic systems. Z. L. Lansky. diags Machine Design 35:7-10 D 12 '63

Fluid power at work; keeping up with design, application, methods. Published in monthly numbers of Hydraulics and pneumatics

How to determine air flow through fixed and variable orifices. W. Weibel. diags Hydraulics & Pneumatics 17:68+ Ag '64

Pneumatic power system proposed for flight vehicles. R. W. Casebolt. diags S A E J 72:87-90 Ja '64

What you can get in manifolds. il Hydraulics & Pneumatics 16:88-9 N '63

Terminology

Fluid power symbols. F. L. Mackin. diags Machine Design 35:11-15 D 12 '63

PNEUMOCONIOSIS. See Lungs—Dust diseases

PODOCARPIC acid

Studies of the conversion of podocarpic acid into atisine. L. H. Zalkow and N. N. Girotra. bibliog Chem & Ind p704-5 Ap 25 '64

PODOCARPUS

5,11,14-Eicosatrienoic acid in podocarpus nagi seed oil. T. Takagi. bibliog Am Oil Chem Soc J 41:516-19 Jl '64

PODOPHYLLOTOXIN

Compounds related to podophyllotoxin; isopodophyllotoxin and epiisopodophyllotoxin. W. J. Gensler and F. Johnson. bibliog Am Chem Soc J 85:3670-3 N 20 '63

POINCARÉ, Henri

Henri Poincaré and the principle of relativity. C. Scribner, jr. bibliog Am J Phys 32:672-8 S '64

POISONOUS plants

Poisoning in man from eating poisonous plants. S. B. O'Leary. bibliog Archives Environmental Health 9:216-42 Ag '64

Poisonous plants; new twists to old environmental hazards; editorial. E. Press. Archives Environmental Health 9:142-3 Ag '64

See also

Conium maculatum

POISONS

Adventitious toxic factors in protein concentrates. L. Friedman. bibliog Food Tech 18:1553-4+ O '64

Chemical poisoning treatment. Safety Maint 128:47-8 S '64

POISONS—*Continued*

Contribution to the knowledge of the structure of two hydropericardium-producing factors from a toxic fat. J. C. Wootton and W. L. Courchene. bibliog diags J Agri & Food Chem 12:94-8 Ja '64

Evaluation of a poison center; Boston poison information center. G. L. Robb and others. bibliog Am J Pub Health 53:1751-60 N '63

Metabolic fate of foreign compounds and toxicity. R. T. Williams. bibliog Archives Environmental Health 7:612-20 N '63

Toxicity of petrochemicals in the aquatic environment. J. F. Malina, jr. bibliog Water & Sewage Works 111:457-60 O '64

See also

Antidotes

Beryllium poisoning

Carbon monoxide poisoning

Curare

Cyanide poisoning

Fish poisons

Food poisoning

Gases, Asphyxiating and poisonous

Lead poisoning

Poisonous plants

POISONS, Industrial

Acute hydrogen sulfide intoxication; an unusual source of exposure. M. Kleinfeld and others. bibliog Ind Med 33:656-60 S '64

Chemical cyanosis-anemia syndrome. R. L. Wuertz and others. Archives Environmental Health 9:478-91 bibliog(p490-1) O '64

Effect of arsenic trioxide exposure on mortality. S. S. Pinto and B. M. Bennett. bibliog Archives Environmental Health 7:583-91 N '63

Engineering control of industrial contaminants. I. Kingsley. diag Safety Maint 128:44-6+ Ag '64

Environmental toxicology in industry and agriculture. K. Kay. Archives Environmental Health 8:681-9 bibliog(p698-9) My '64

Experimental research on toxicity of furfural. N. Castellino and others. bibliog Archives Environmental Health 7:574-82 N '63

Hazards from thermodecomposition of epoxy resins. K. J. Leong and H. N. MacFarland. bibliog il Archives Environmental Health 7:675-81 D '63

How industry approaches the problem of insuring that its processes and products are safe. J. A. Zapp, jr. Ind Med 33:625-9 S '64

Hygienic principles underlying the determination of allowable concentration limits of flotoreagents in water basins; abstract. Y. T. Loshakov. Pub Works 94:148+ N '63

Maximum allowable concentrations; international symposium. 2d. Paris. Archives Environmental Health 8:487-91 Mr '64

Metabolism of N,N'-di(acetoacetyl)-o-tolidine. H. M. L. Dieteren. bibliog Archives Environmental Health 9:167-8 Ag '64

Poisons in the plating industry. H. Geduld. bibliog Metal Finishing 62:76-80 O '64

Relationship between short- and long-term feeding studies in designing an effective toxicity test. C. S. Weil and D. D. McCollister. bibliog J Agri & Food Chem 11:486-91 N '63

Threshold limit values for 1963. H. B. Ashe and others. Archives Environmental Health 7:592-9 N '63

Threshold limit values for 1964. Archives Environmental Health 9:545-54 O '64

Toxicology of industrial chemicals. H. F. Smyth, jr. bibliog Archives Environmental Health 8:384-92 Mr '64

Unusual risk; permanent eye and nerve injuries due to ethylene glycol. Ind Chem 40:89 F '64

See also

Beryllium poisoning

Carbon monoxide poisoning

Lead poisoning

POISSON ratio

Instrument to measure transverse strain. A. J. Lobdell and others. il diag Materials Res & Stand 4:8-11 Ja '64

New method for determining Poisson's ratio. S. C. Crow. bibliog il diags Materials Res & Stand 3:996-1002 D '63

New methods to determine elastic constants. A. J. Durelli and L. Ferrer. diags Materials Res & Stand 3:988-91 D '63

Reformulation of the elastic field equation, in terms of displacements, valid for all admissible values of Poisson's ratio. L. R. Herrmann and R. M. Toms. diag A S M E Trans ser E 31:140-1 Mr '64

POLAND

See also

Chemical industries—Poland

POLAR coordinates. See Coordinates, Polar

POLAR regions

How would you protect piped utilities at the North Pole? N. J. Staihar. il diags Power Eng 68:46-8 Ag '64

See also

Public health—Polar regions

POLARIMETERS. See Polariscope

POLARIMETRY. See Polariscope

POLARISCOPE

Dual light source for a large field diffused-light polariscope. R. Mark. diags R Sci Instr 35:521-2 Ap '64

Evaluation of a simple method for optical rotatory dispersion measurements in the visible and ultraviolet regions. I. P. Dirkx and others. bibliog diags Anal Chem 36:1988-91 S '64

Polarimeter measures optical activity of process streams. Chem & Eng N 41:48 N 25 '63

Polarimetric determination of semimicro amounts of orthotellurate. J. G. Lanese and B. Jaselskis. Anal Chem 35:1880-1 N '63

Polarimetric investigation of *d*-tartrate-orthotellurate complex. J. G. Lanese and B. Jaselskis. bibliog Anal Chem 35:1878-80 N '63

Scattered light photoelastic polariscope for three-dimensional stress analysis. Y. F. Cheng. il diag R Sci Instr 35:976-7 Ag '64

See also

Saccharimeters

POLARITY

Crystal structure and polarity of beryllium oxide. D. K. Smith and others. bibliog il diags Electrochem Soc J 111:78-87 Ja '64

Force constants for polar substances; their prediction from critical properties. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:266-9 Mr '64

Gas liquid chromatographic analysis of high-boiling polar compounds utilizing nichrome helices as the support material. J. F. T. Kung and R. J. Romagnoli. Anal Chem 36:1161-2 My '64

Solvation of polar groups; conformational and chemical effects of the solvation of polar groups. C. D. Ritchie and A. L. Pratt. bibliog Am Chem Soc J 86:1571-6 Ap 20 '64

Solvent effects in the reactions of free radicals and atoms; effect of solvent polarity on the reactions of peroxy radicals. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2368-71 Je 20 '64

Viscosity of polar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:275-7 Mr '64

POLARIZATION (light)

Aerosol studies by light scattering; particle size distribution by polarization ratio method. M. Kerker and others. bibliog J Colloid Sci 19:213-22 Mr '64

Azimuthally dispersed polarized light. K. S. Deffeyes. il Am Mineralogist 49:165-9 Ja '64

Dichroic and reflective polarizers in lighting applications; abstract. A. S. Makas and G. R. Bird. Illum Eng 59:625-6 S '64

Magnesium fluoride polarizing prism for the vacuum ultraviolet. W. C. Johnson, jr. bibliog il R Sci Instr 35:1375-6 O '64

Polarization and photometry. K. E. Fairbanks and D. A. Ansley. il diags Illum Eng 59:255-63; Discussion. 263-5; Reply. 265-6 Ap '64

Polarization controversy; does polarized lighting really reduce reflected glare? R. Dulude and others. il diags Plant Eng 18:132-5 Ja; 139-41 F '64

Polarization of charge-transfer bands. M. Chowdhury and L. Goodman. bibliog Am Chem Soc J 86:2777-81 Jl 20 '64

Polarized light: discussion. il diag Illum Eng 59:sup 13A Ap; sup 10A-11A sec 2 My; sup28A-9A Ag '64

Polarized reflected light in microscopic examination of refractories. H. A. Freeman. bibliog il Am Cer Soc Bul 43:448-51 Je '64

Simple geometric method for analyzing polarization states in photoelasticity. R. Mark. bibliog diags AIAA J 2:150-2 Ja '64

POLARIZATION, Dielectric

Comparison of the various parameters employed in the variable-frequency induced-polarization method. P. G. Hallof. bibliog diags Geophysics 29:425-33 Je '64

Electromagnetic fields of a small loop antenna on the surface of a polarizable medium. B. K. Bhattacharyya. bibliog Geophysics 29:814-31 O '64

Polarization induced in a dielectric medium by an intense laser beam. A. Bramley and J. E. Rosenthal. IEEE Proc 52:205-6 F '64

POLARIZATION, Dielectric—*Continued*

Polarization of dielectrics by nuclear radiation; gamma-ray induced polarization. P. V. Murphy and B. Gross. bibliog J Ap Phys 35:171-4 Ja '64

Polarization phenomena in electrical tests on hexane. A. A. Zaky and H. House. bibliog J Ap Phys 34:3194-9 N '63

Some aspects of polarization reversal in ferroelectric TGS. H. H. Wieder. bibliog J Ap Phys 35:1224-7 Ap '64

Spontaneous polarization noise in polar dielectrics. L. Davis. bibliog J Ap Phys 35:2004-10 Jl '64

Study in induced polarization. L. A. Anderson and G. V. Keller. bibliog diag Geophysics 29:848-64 O '64

See also

Electrets

POLARIZATION, Electrolytic

Anodic activation of iron. V. D. Kashcheev and others. bibliog Corrosion 20:54-6 F '64

Anodic polarization curves of the platinum electrode in neutral and alkaline potassium chloride solutions. B. M. Blavatnik and G. A. Tsiganov. Corrosion 19:421-3 D '63

Anodic potentiostatic polarization of iron in sulfuric acid; effect of chloride ions. K. Nobe and R. F. Tobias. bibliog diag Corrosion 20:263-6 Ag '64

Capacity measurements on rapidly polarized germanium electrodes. P. J. Boddy and W. J. Sundburg. il diag Electrochem Soc J 110:1170-2 N '63

Developing a new alloy. R. B. Leonard. il diag Chem Eng 71:150+ O 26 '64

Effect of acidity on the differential capacity of polarized platinum electrodes. M. C. Banta and N. Hackerman. bibliog Electrochem Soc J 111:114-19 Ja '64

Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64

Electrochemical behavior of nickel compounds; hydrogen evolution reaction on NiSi, NiAs, NiSb, NiS, $NiTe_2$, and their constituent elements. A. K. M. Shamsul Hug and A. J. Rosenberg. bibliog Electrochem Soc J 111:270-8 Mr '64

Formation of dissolved atomic hydrogen by electrochemical polarization. H. H. Uhlig and R. Krutenat. bibliog Electrochem Soc J 111:1303-6 N '64

Kinetics of the anodic dissolution of nickel in sulfuric acid solutions. N. Sato and G. Okamoto. bibliog Electrochem Soc J 111:897-903 Ag '64

Kinetics of the Fe^{+++}/Fe^{++} reaction on Fe-Cr alloys. A. C. Makrides. bibliog Electrochem Soc J 111:400-7 Ap '64

Mechanism of electrolytic rectification. A. Middelhoek. bibliog Electrochem Soc J 111:379-80 Mr '64

Methods for the calculation of polarization in porous electrodes. F. A. Posey. bibliog diag Electrochem Soc J 111:1173-81 O '64

Polarization characteristics of electrodialytic demineralization. S. A. Weiner and others. bibliog diag Ind & Eng Chem Proc Design 3:126-9 Ap '64

Polarization characteristics of the hydrogen gas diffusion electrode. R. P. Iczkowski. bibliog diags Electrochem Soc J 111:605-9 My '64

Polarization studies of molten carbonate fuel cell electrodes. I. Trachtenberg. il diag Electrochem Soc J 111:110-13 Ja '64

Short-pulse techniques; kinetics of the triiodide/iodide reaction on a platinum electrode in neutral solution. S. Schuldiner and C. H. Presbrey, jr. bibliog il diags Electrochem Soc J 111:457-65 Ap '64

Space charge and electrode polarization in glass. P. M. Sutton. bibliog diag Am Cer Soc J 47:188-94, 219-30 Ap-My '64

Sulfates in the passive iron layer. O. L. Riggs, jr. bibliog il diags Corrosion 20:275-81 S '64

POLARIZATION of particles

Polarized protons. J. H. Williams. bibliog diags Phys Today 17:28-34 Je '64

POLARIZATION of radio waves. See Radio waves—Polarization

POLARIZING microscope. See Microscope and microscopy

POLAROGRAPH

Preliminary evaluation of a new electronic polarographic instrument. E. P. Parry and R. A. Osteryoung. Anal Chem 36:1366-7 Je '64

Sensitive polarograph. G. W. Miller and others. diag Anal Chem 36:1143-4 My '64

POLAROGRAPHIC analysis

Analysis for oxygen by gas-phase polarography at low temperatures and low pressures; a prototype assembly. G. Halpert and others. il diags R Sci Instr 35:950-2 Ag '64

Determination of *p*-chloroacetanilide in phenacetin; a polarographic method. R. Jones and B. C. Page. bibliog Anal Chem 36:35-8 Ja '64

Pabst brewing co. quickly checks oxygen in head-space gas. il Food Eng 35:91 N '63

Polarographic behavior of dysprosium(III) in aqueous solutions. R. F. Large and A. Timnick. bibliog Anal Chem 36:1258-64 Je '64

Polarographic behavior of silver in cyanide solutions. R. F. Large and E. P. Przybylowicz. bibliog Anal Chem 36:1648-52 Jl '64

Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

Polarographic cell for continuous analysis of flowing solutions. W. J. Blaedel and J. H. Strohl. diags Anal Chem 36:445-6 F '64

Polarographic determination of isophthalic acid in the presence of terephthalic acid in polyester fibers. L. Beníšek. bibliog il Textile Res J 32:539-48; 34:456-7 Jl '62, My '64

Polarographic determination of lead in aluminium alloys containing molybdenum or up to 5 per cent of iron (iron hardeners). W. Stross and J. Clark. Metallurgia 68:191-2 O '63

Polarographic determination of nitrite as 4-nitroso-2,6-xylenol. A. M. Hartley and R. M. Bly. bibliog Anal Chem 35:2094-100 D '63

Polarographic determination of *p,p'*-oxybis (benzenesulfonyl hydrazide) in polyethylene blends. C. C. Budke and others. Anal Chem 36:523-6 Mr '64

Polarographic determination of parabanic acid. W. A. Struck and P. J. Elving. Anal Chem 36:1374-5 Je '64

Polarographic determination of *o*-phenylenediamine in the presence of other isomeric phenylenediamines. H. B. Mark, jr. bibliog Anal Chem 36:940-1 Ap '64

Polarographic determination of submicrogram quantities of molybdenum. A. T. Violanda and W. D. Cooke. bibliog Anal Chem 36:2287-90 N '64

Polarographic study of the system alloxan-alloxantin-dialuric acid. W. A. Struck and P. J. Elving. bibliog Am Chem Soc J 86:1229-35 Mr 20 '64

Polarography of some benzodiazepines. B. Z. Senkowski and others. bibliog Anal Chem 36:1991-4 S '64

Rate study of mercury(II)-thioacetamide reaction. D. C. Taylor and others. bibliog diag Anal Chem 36:1924-30 S '64

Review of fundamental developments in analysis; organic polarography. S. Wawzonek and D. J. Pietrzyk. Anal Chem 36 [no 5]:220R-39R bibliog(p230R-9R) Ap '64

Review of fundamental developments in analysis; polarographic theory, instrumentation, and methodology. D. N. Hume. Anal Chem 36 [no 5]:200R-10R bibliog(p208R-10R) Ap '64

Submicromicrogram determination of cyanide by a polarographic method. G. W. Miller and others. Anal Chem 36:890-3 My '64

POLAROGRAPHY

A.c. polarography employing operational amplifier instrumentation. D. E. Smith. bibliog diags Anal Chem 35:1811-20 N '63

Cathodic action of the uranyl-itaconate complex at the dropping mercury electrode. T. T. Lai and B. C. Wang. bibliog Anal Chem 36:26-8 Ja '64

Cathodic action of the uranyl-malate complexes at the dropping mercury electrode. T. T. Lai and S. J. Wey. bibliog Electrochem Soc J 111:1283-6 N '64

Chronopotentiometry of the bromide-bromine couple at platinum and carbon paste electrodes. D. G. Davis and M. E. Everhart. bibliog Anal Chem 36:38-40 Ja '64

Drop-time trigger for synchronization of delay and timing circuits with drop-rate of dropping mercury electrode. R. C. Propst and M. H. Goosey. diag Anal Chem 36:2382-3 N '64

High resistance and derivative polarography. W. B. Schaap and P. S. McKinney. bibliog Anal Chem 36:29-35 Ja '64

Influence of ionic strength on polarographic half-wave potentials; aqueous systems involving reversible electrode reactions and amalgamation of the reduced species in uni-univalent inert electrolytes. D. E. Sellers and N. E. Vanderborgh. Am Chem Soc J 86:1934-8 My 20 '64

POLAROGRAPHY—*Continued*

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

Polarographic and chronopotentiometric behavior of o-phthalic acid in acidic solutions. R. P. Buck. bibliog diag Anal Chem 35:1853-9 N '63

Polarographic determination; cholinesterase activity. V. Fiserova-Bergerova. Archives Environmental Health 9:438-44 O '64

Polarographic reduction of some aryl diketones. R. H. Philip jr. and others. bibliog diags Electrochem Soc J 111:328-34 Mr '64

Polarographic studies in acetonitrile and dimethylformamide. S. Wawzonek and others. bibliog Electrochem Soc J 111:74-8 Ja '64

Polarographic studies in acetonitrile and dimethylformamide; behavior of α,β-unsaturated carbonyl compounds. S. Wawzonek and A. Gundersen. bibliog Electrochem Soc J 111:324-8 Mr '64

Polarography in acetonitrile of titanium tetrachloride and tetraiodide in various supporting electrolytes. I. M. Kolthoff and F. G. Thomas. bibliog Electrochem Soc J 111:1065-74 S '64

Polarography in fused alkali metaphosphates. R. D. Caton and H. Freund. bibliog Anal Chem 35:2103-8 D '63

Polarography of 2-aminoethanethiosulfuric acid and 2-aminoethaneselenosulfuric acid. W. Stricks and R. G. Mueller. bibliog Anal Chem 36:40-4 Ja '64

Polarography of derivatives of hydrazines with acetone. D. K. Banerjee and others. Anal Chem 36:2220-1 O '64

Polarography of lanthanum(III), praseodymium(III), and ytterbium(III) in anhydrous ethylenediamine. L. C. Hall and D. A. Flanigan. bibliog diags Anal Chem 35:2108-12 D '63

Polarography of nitroferrocene. A. M. Hartley and R. E. Visco. bibliog Anal Chem 35:1871-4 N '63

Ratio of the first to the second diffusion current of oxygen at the dropping mercury electrode; diffusion coefficient of oxygen. I. M. Kolthoff and K. Izutsu. bibliog Am Chem Soc J 86:1275-9 Ap 5 '64

Resistance compensation in polarography; application to high-resistance nonaqueous systems and to high current-density aqueous systems. W. B. Schaap and P. S. McKinney. bibliog diag Anal Chem 36:1251-8 Je '64

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

Theory of stationary electrode polarography; single scan and cyclic methods applied to reversible, irreversible, and kinetic systems. R. S. Nicholson and I. Shain. bibliog Anal Chem 36:706-23 Ap '64

Three-compartment cell for polarography and coulometry. J. M. Costa and others. diag Anal Chem 36:698-9 Mr '64

Time dependence of a.c. polarographic currents. H. L. Hung and D. E. Smith. bibliog Anal Chem 36:922-5 Ap '64; Discussion. 36:2218-20 O '64

See also

Reduction, Electrolytic
Voltammetry

POLES

Sectioned pole unfolds into space. il diags Machine Design 36:170-1 Je 18 '64

See also

Electric lines—Poles and towers

POLES, Concrete

Color styling improves overhead distribution. E. K. Nelson. il Elec World 162:24-5 Jl 20 '64

Concrete poles aid spacer cable gain. R. M. Clarke. il Elec World 162:113 S 21 '64

Unique water/land rigs build concrete-pole line. M. E. Rosman, 2d. il Elec World 161:67-8 Ap 6 '64

POLES, Steel

Steel-pole feeders serve underground distribution. L. R. Gardner and W. G. Purser, jr. il diag Elec World 162:24-6 Ag 3 '64

POLICE

Police; pivot for highway safety efforts. Q. Tamm. Traffic Q 18:250-64 Ap '64

See also

Radio telephone—Police uses

POLICE stations

Precast walls support police headquarters. il Eng N 172:73 Mr 19 '64

POLIOMYELITIS

Attenuated polioviruses in sewage. S. Kelly and W. W. Sanderson. bibliog WPCF J 36:905-13 Jl '64

Observed and expected poliomyelitis in the United States, 1958-1961. G. Stickle. bibliog Am J Pub Health 54:1222-9 Ag '64; Discussion. 54:2085-6 D '64

Vaccines

Salk and Sabin vaccination of population groups. L. J. Taubenhaus and others. bibliog Archives Environmental Health 9:37-42 Jl '64

POLISHING

Art of roller burnishing. R. Le Grand. diags Am Mach 108:81-8 Ap 27 '64 (reprints 50c)

Polishing of metal ribbons. J. R. Nichols and C. P. Butler. il diags R Sci Instr 34:1278-9 N '63

Sphere grinding and polishing. H. S. Belson. bibliog diags R Sci Instr 35:234-6 F '64

Transmission electron microscope investigation of removal of mechanical polishing damage on Si and Ge by chemical polishing. R. Stickler and G. R. Booker. il diags Electrochem Soc J 111:485-8 Ap '64

Vibration polishing. Metallurgia 69:250 My '64

See also

Abrasives
Glass—Polishing
Grinding
Grit blasting
Shot blasting
Tumbling barrels

POLISHING, Electrolytic

Electropolishing aluminum. B. A. Shenoi and others. bibliog Metal Finishing 61:50-4 D '63

Electropolishing of aluminum. B. A. Shenoi and K. S. Indira. bibliog il Metal Finishing 61:52-7 N '63

Electropolishing of steel. S. Ramachandran and R. Subramanian. bibliog Metal Finishing 62:68-9+ O '64

Investigation of electrolytic jet polishing at high current densities. R. R. Cole and Y. Hopenfeld. bibliog il diags A S M E Trans ser B 85:395-401 N '63

Nontoxic technique for electrolytically polishing and thinning gold. J. D. Meakin. R Sci Instr 35:763 Je '64

Surface treatments and electroplated coatings on uranium. J. K. Gore and R. Seegmiller. bibliog il Plating 50:215-20 Mr '63; Discussion. 50:1012-13 N '63

X-ray fluorescence analysis of Roman coins. G. F. Carter. bibliog Anal Chem 36:1264-8 Je '64

POLISHING machines

Continuous-feed polishing and stain finishing machine. il Mach 70:169 Ja '64

Contour polishing with servo control. F. R. Whitcomb. il diag Hydraulics & Pneumatics 16:102-3 N '63

Floating piston follows curved surface. il diags Hydraulics & Pneumatics 17:28+ Jl '64

Reciprocating table polishing machine. il Engineer 216:956 D 6 '63

See also

Lapping machines

POLISHING materials

Production and trade figures; sales of polishes in UK. Manuf Chem 35:72 My '64

See also

Cleaning compositions
Floor wax
Furniture polishes
Silver polish

POLITICAL conventions

See also

Television broadcasting—Political conventions

POLITICS, Practical

Responsibilities of scientists toward technical aspects of political problems. F. A. Long. Chem & Eng N 41:76+ D 16 '63

You don't have to fight alone! K. E. Mundt. Min Cong J 50:28-30+ Mr '64

See also

Business—Political aspects

POLLEN

Pollen analyses of surface materials from the southern San Juan Mountains, Colorado. L. J. Maher, jr. bibliog map Geol Soc Bul 74:1485-503 D '63

POLLEN, Fossil

Pleistocene vegetational studies in the Whitewater Basin, southeastern Indiana. R. O. Kapp and A. M. Gooding. map diags J Geol 72:307-26 bibliog(p325-6) My '64

Tell-tale dust. P. B. Sears. Am Scientist 52:1-15 Mr '64

POLLEN, Fossil—*Continued*

Two pollen diagrams from southeastern Minnesota; problems in the regional late-glacial and postglacial vegetational history. H. E. Wright, jr. and others. map diags Geol Soc Bul 74:1371-95, pl 1-3 bibliog (p 1392-5) N '63

POLLUCITE

Two processes benefit cesium technology. il Chem & Eng N 41:34-5 D 23 '63

POLYACRYLONITRILE. See Acrylonitrile

POLYAMIDES. See Amides

POLYBUTADIENE. See Butadiene

POLYBUTENE. See Butylene

POLYCARBONATE resins. See Resinous products

POLYCARBONATES. See Carbonates

POLYESTER fibers. See Textile fibers, Synthetic

POLYESTER resins. See Resinous products

POLYETHERS. See Ethers

POLYETHYLENE

Additives make polyethylene stick. Plastics Tech 9:59 N '63

Aluminum-plastic laminate can be drawn, welded. il Mod Metals 20:78-9 Ap '64

Aluminum-polyethylene laminate developed. il Chem & Eng N 42:46-7 Mr 23 '64

Aluminium/polyethylene sheet laminate. il Engineering 197:517 Ap 10 '64

Application of carbon blacks for the stabilization of high density polythene. R. N. Haward and others. bibliog il Brit Plastics 36:692-7 D '63

Automatic conveyer systems pneumatically unload, store and transfer polyethylene pellets. diags Plastics World 21:74 N '63

Beer case; injection molded of tough polyethylene. il Plastics World 21:25 N '63

Biaxial orientation ups soluble-film strength. il Chem Eng 71:108+ N 9 '64

Chlorinated polyethylene as impact modifier for rigid PVC. J. L. O'Toole and others. Mod Plastics 41:149-50+ Mr '64

Coming up, multi-million lb. market; polyethylene reclosure lids. il Mod Plastics 41:93 D '63

Comparing coating with polyethylene solution to extrusion coating. G. S. Price. bibliog Tappi 47:sup 165A-7A S '64

Conventional polyethylene ripe for expansion. Chem & Eng N 41:11-12 D 23 '63

Crosslinking chlorosulfonated polyethylenes. J. T. Maynard and P. R. Johnson. bibliog Rubber Chem & Tech 36:963-74 O '63

Cryovac develops new packing film. il Can Chem Process 48:79+ My '64

Crystallization and melting behavior of polyethylene oxide copolymers. F. T. Simon and J. M. Rutherford, jr. bibliog diags J Ap Phys 35:82-6 Ja '64

Designing for toughness; polyethylene mortar shell casings. il diags Mod Plastics 41:91+ N '63

Dielectric, dynamic mechanical and nuclear resonance properties of polyethylene oxide as a function of molecular weight. T. M. Connor and others. bibliog J Ap Chem 14:74-81 F '64

Diffusion in a polymer with lamellar morphology, polyethylene. R. K. Eby. bibliog il J Ap Phys 35:2720-4 S '64

Effect of crystallization conditions and heat treatment on polyethylene; lamellar thickness, melting temperature, and density. R. G. Brown and R. K. Eby. bibliog il J Ap Phys 35:1156-61 Ap '64

Effect of die land length on the surface appearance of low melt index polyethylene extrudates. J. S. King and A. J. Durno. il diags Wire & Wire Prod 39:553-5+ Ap '64

European developments in blow molded high density polyethylene oil cans. il diags Mod Plastics 42:110-11 O '64

Fertilizer packaging. il Plastics World 22:12-13 Ja '64

Filled linear polyethylene compositions. W. F. Furter. bibliog Can J Chem Eng 42:77-81 Ap '64

Flow properties of polyethylene whole polymers and fractions. J. Ferguson and others. bibliog diags J Ap Chem 14:53-63 F '64

Frictional properties of polyethylenes and perfluorocarbon polymers. R. C. Bowers and W. A. Zisman. bibliog Mod Plastics 41:139-40+ D '63

Giant chessmen rotationally moulded in polythene. il Brit Plastics 36:617 N '63

How to form integral hinges in polyethylene. S. A. Woods. il diags Mod Plastics 42:149-50+ S '64

Improving adhesion of polyethylene extrusion coatings. G. R. DeHoff and T. F. McLaughlin, jr. il diags Mod Plastics 41:107-10+ N '63

Influence of extrusion variables on polyethylene extrusion coating performance. H. J. Nalepa and C. C. Copper. il Tappi 47:266-70 My '64

Insulation resistance changes in polyethylene when exposed to high temperature and humidity. W. D. Paist. diags Wire & Wire Prod 39:1587-90+ O '64

Insulations and jackets for cross-linked polyethylene cables. R. B. Blodgett and R. G. Fisher. bibliog il IEEE Trans Power Apparatus & Systems p971-80 D '63

Irradiation cross linking of polyethylene; the temperature dependence of cross linking in the crystalline and amorphous states. R. Kitamaru and L. Mandelkern. bibliog Am Chem Soc J 86:3529-34 S 5 '64

It's a snap with PE cap; self-tightening closure. il diag Mod Plastics 41:97 Ap '64

It's go for polyethylene in go/no-go gage. il diag Mod Plastics 41:89+ Jl '64

Large PE bin for fruit-picker is vacuum formed of ½-in. sheet. il Mod Plastics 42:111 O '64

Limitations on measuring flow rates of polyethylene and ethylene copolymers by extrusion plastometer. A. A. Harban and R. M. McGlamery. bibliog diag Materials Res & Stand 3:906-9 N '63

Mill-applied plastic pipe coating. il Gas Age 130:34-5 N '63

Molecular structure of polyethylene; comparison of number-average molecular weights by various methods. F. W. Billmeyer, jr. and V. Kokle. bibliog Am Chem Soc J 86:3544-6 S 5 '64

Morphology of isothermally bulk-crystallized linear polyethylene. F. R. Anderson. bibliog il diags J Ap Phys 35:64-70 Ja '64

New high-density polyethylene insulation now peels-off. il Elec World 160:73-4 O 21 '63

New polyethylenes for wire and cable. A. J. Houston and others. bibliog diag Rubber World 149:40-5 Mr '64

New seal improves moisture resistance of PE shipping bags. il diag Mod Plastics 41:105 F '64

New 60-inch polyethylene extruder on stream at Thilmany. A. W. J. Dyck. il Paper Ind 45:429-32 N '63

New ways to produce dyeable olefin. Textile World 113:74 D '63

New York rubber group panel on polyethylene, March 20; abstracts of papers. Rubber Age 95:133-4 Ap '64

Novel process for making polyethylene polish emulsions. il diag Soap & Chem Spec 40:167+ Ap '64

Permeation of gases through polyethylene films at elevated pressures. N. N. Li and E. J. Henley. bibliog diags A I Ch E J 10:666-70 S '64

Plastics still gain in produce packaging. il Chem & Eng N 42:36 O 26 '64

Polyethylene. Mod Plastics 41:87-90 Ja '64

Polyethylene-butyl blends. J. J. Danic and others. Rubber World 149:36-47 F '64

PE eliminates maintenance. il Mod Plastics 41:89+ My '64

Polyethylene growth continues strongly. il Can Chem Process 48:85+ Je '64

Polyethylene housing; rotational molding meets appliance needs. il Plastics World 22:39 Jl '64

Polyethylene-insulated cables. N. D. Kenney and R. C. Graham. I S A J 11:60-2 Ja '64

Polyethylene jerrycan gets ok. il Mod Plastics 41:86-7 F '64

Polyethylene litter baskets. il Plastics World 22:19 Ag '64

Polyethylene powders are chemically derived. Chem & Eng N 42:72+ N 9 '64

Polyethylene protects cast iron. il Chem Eng 71:156 O 26 '64

Polyethylene protects cast iron from corrosive chemicals. il Oil & Gas J 62:91 Ap 13 '64

Polyethylene sheet for better scooter parts. il Mod Plastics 42:109+ S '64

Polyethylene wax market grows steadily. Chem & Eng N 42:34-5 Ja 27 '64

Polyethylene wrap. il Plastics World 22:43 Jl '64

Polyethylenes. P. H. Estes. Machine Design 36:83-6 S 17 '64

Polymer deformation: twinning and phase transformation of polyethylene single crystals as a function of stretching direction. H. Kiho and others. bibliog il diags J Ap Phys 35:1599-605 My '64

Poly-ply bag. il Plastics World 22:42 My '64

POLYETHYLENE—*Continued*

Polythene for heavy gauge sacks. P. L. Clegg and J. W. Ladbury. il diags Brit Plastics 37:256-60 My '64
Powder molding. il Plastics World 22:13 S '64
Powder molding cracks industrial markets. il Mod Plastics 41:104-5 Ap '64
Preparation and properties of fractions from high density polyethylenes. G. R. Williamson and others. bibliog J Ap Chem 14:131-40 Mr '64
Promise for beer cases. il diags Mod Plastics 41:96-8+ My '64
Properties of materials; polyethylenes; molded, extruded; tables. Materials in Design Eng 60:230-1 Mid-O '64
Reassessment of polyethylene power cable. W. J. Plate and others. bibliog IEEE Trans Power Apparatus & Systems p990-8; Discussion. 998-1001; Reply. 1001-2 D '63
Relationship between molecular weight, radial-growth rate, and the width of the extinction bands in polyethylene spherulties. P. H. Lindenmeyer and V. F. Holland. bibliog il J Ap Phys 35:55-8 Ja '64
Relationships of corona to life and reliability of polyethylene insulated cable; new test methods for cable. W. T. Starr and J. P. Agrios. il IEEE Trans Com & Electronics p88-97; Discussion. 97-8 Ja '64
Saving on shipping containers. il diags Mod Plastics 41:113+ Je '64
Secondary crystallization and annealing of polyethylene. A. Peterlin. bibliog J Ap Phys 35:75-81 Ja '64
75,000 one-quart bottles a day! il diag Mod Plastics 41:96-9+ Ag '64
Successful injection moulding of high density polythenes. E. Overgage and O. P. Phillips. diags Brit Plastics 37:132-7 Mr '64
When to use plastic rotational molding. il Iron Age 193:100 Ja 30 '64

Analysis

Identification of trace quantities of antioxidants in polyethylene. D. F. Slonaker and D. C. Sievers. flow diag il Anal Chem 36:1130-2 My '64
Infrared determination of hydroxyl content of oxidized polyethylene. D. E. Kramm and others. Anal Chem 36:2170-1 O '64
Integrated absorption standardization for infrared determination of ester content in oxidized polyethylene. J. N. Lomonte. bibliog Anal Chem 36:192-4 Ja '64
Polarographic determination of *p,p'*-oxybis (benzenesulfonyl hydrazide) in polyethylene blends. C. C. Budke and others. Anal Chem 36:523-6 Mr '64
Pyrolysis conditions for carbon-black recovery from polyethylene compounds. H. P. Schreiber. Materials Res & Stand 4:288-9 Je '64

Manufacture

France strengthens polyethylene position. Chem & Eng N 42:50 Ag 10 '64
Polyethylene; AGFO and scientific design co. diag Hydrocarbon Process & Pet Refiner 42:217 N '63
Polyethylene and ethylene-propylene copolymers; Standard oil company (Ind.). diag Hydrocarbon Process & Pet Refiner 42:218 N '63
Polyethylene: Phillips petroleum co. diag Hydrocarbon Process & Pet Refiner 42:216 N '63
Selected process flow sheets for petrochemicals; linear polyolefins. Oil & Gas J 62:115 S 7 '64
Upgrading by-products. S. M. Parkhill. il diags Comp Air Mag 69:8-13 Ja '64

Prices

Carbide sets new polyethylene prices. Chem & Eng N 41:25 N 11 '63

Testing

Degradation of insulation materials by electrical discharges. R. J. Meats and A. W. Stannett. bibliog diag IEEE Trans Power Apparatus & Systems p49-54 Ja '64
Insulation resistance of polyethylenes on wire; effect of heat, water and electrical stress. C. A. Liddicoat and B. F. Brown. il Wire & Wire Prod 38:1874-7 D '63
Surface and volume phenomena in dielectric breakdown of polyethylene. E. J. McMahon and J. R. Perkins. bibliog il diags IEEE Trans Power Apparatus & Systems p 1128-35; Discussion. 1135-6 D '63

POLYHEDRONS

Statistical polyhedron model of abrasive grain. H. T. McAdams. bibliog diags A S M E Trans ser B 85:388-93; Discussion. 393-4 N '63
Tessellations and polyhedrons. S. Kravitz. diags Product Eng 35:119-22 Jl 20 '64

POLYIMIDE resins. See Resinous products

POLYISOBUTENE. See Isobutylene

POLYISOPRENE. See Isoprene

POLYMERIZATION

Anionic stereospecific polymerisation of N-disubstituted acrylamides and some vinyl ketones; abstract and discussion. P. R. Thomas. Chem & Ind p 1831 N 16 '63
Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63
Approximate degrees of polymerization of cellulose esters from intrinsic viscosities. L. B. Genung. bibliog Anal Chem 36:1817-21 Ag '64
Batch polymerization narrowing molecular weight distribution. R. F. Hoffman and others. bibliog flow diag Ind & Eng Chem 56:51-7 My '64
Bulk acid polymerization; California research corp. flow diag Hydrocarbon Process & Pet Refiner 43:182 S '64
California polymerization; California research corp. and Hydrocarbon research, inc. flow diag Hydrocarbon Process & Pet Refiner 43:183 S '64
Catalytic species in some alkyl aluminum titanium iodide catalysts for *cis*-1,4-polybutadiene. W. M. Saltman and T. H. Link. bibliog Ind & Eng Chem Product Res & Develop 3:199-203 S '64
Condensation-polymerization of pentamethyldisilanyl cyanide and related compounds. J. V. Urenovitch and A. G. MacDiarmid. bibliog Am Chem Soc J 85:3372-5 N 5 '63
Continuous formation of polyamides. R. W. Moncrieff. Ind Chem 40:87-8 F '64
Copolymerization of butadiene and isoprene through use of complex organometallic catalysts. L. S. Bresler and others. bibliog Rubber Chem & Tech 37:121-7 Ja '64
Copolymerization of methyl esters of unsaturated C_{18} fatty acids. F. R. Mago and C. W. Gould. bibliog Am Oil Chem Soc J 41:25-9 Ja '64
Cyclization to a five-membered ring in the free-radical reaction of iodoperfluoroalkanes with 1,6-heptadiene. N. O. Brace. bibliog Am Chem Soc J 86:523-4 F 5 '64
1,5-Cyclooctadiene by the catalytic dimerization of butadiene. G. Bosmajian and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:117-19 Je '64
Cyclopentene yields polypentenamer. G. Dall'Asta and others. Chem & Eng N 42:42-4 Ap 6 '64
Cyclopolymerization of aliphatic 1,2-diisocyanates. C. King. Am Chem Soc J 86:437-40 F 5 '64
Determination of cure of epoxy resins by infrared analysis. S. M. Lee and S. Brelant. bibliog Mod Plastics 41:150-1 D '63
Determination of residual monomers in latex by gas chromatography. L. B. Wilkinson and others. bibliog Anal Chem 36:1759-62 Ag '64
Dimer acid structures; the dehydro-dimer from methyl oleate and di-t-butyl peroxide. R. F. Paschke and others. bibliog Am Oil Chem Soc J 41:56-60 Ja '64
Dimerization of cyclooctatetraene; structure of the three double bond dimer. H. W. Moore. bibliog diags Am Chem Soc J 86:3398-9 Ag 20 '64
Electrolytic reductive coupling. M. M. Baizer and J. D. Anderson. bibliog diag Electrochem Soc J 111:215-28 F '64
50°C transition in polystyrene. B. Wunderlich and D. M. Bodily. bibliog J Ap Phys 35:103-4 Ja '64
Glass transition and ionic conductivity in cellulose acetate. R. E. Barker, jr. and C. R. Thomas. bibliog J Ap Phys 35:87-94 Ja '64
Graft polymerization onto cellulose; panel discussion. bibliog Tappi 46:652-75 N '63
Grafting to cellulose and its derivatives. V. Stannett. bibliog diag Tappi 47:sup58A+ Mr '64
Handling of benzoyl and MEK peroxides. J. D. Malkemus. il Mod Plastics 41:119-20+ D '63
How to make polyurethanes. I. A. Eldib. bibliog diags Hydrocarbon Process & Pet Refiner 42:121-7 D '63
Initiation of ionic reactions in liquid hydrocarbons via photoionization with vacuum ultraviolet radiation; the polymerization of isobutylene. E. W. Schlag and J. J. Sparapany. bibliog Am Chem Soc J 86:1875-6 My 5 '64
Interfacial polymerization; abstract. Am Dyestuff Rep 52:1087+ D 23 '63

POLYMERIZATION—*Continued*

Irradiation in plastics processing; where we stand today. W. Brenner and R. Vermes. bibliog il Plastics Tech 10:28-31 Ja '64

Kinetics of anionic polymerization and copolymerization of the vinylnaphthalenes and styrene; the intramolecular charge-transfer complexes. F. Bahsteter and others. bibliog Am Chem Soc J 85:3909-18 D 20 '63

Labeled monomer shows reaction course; Grignard-initiated polymerization of an isopropyl acrylate is random with respect to deuterated CH_2. F. A. Bovey. il Chem & Eng N 42:49-50 S 21 '64

Mechanism of strong-base-initiated polymerization of N-carboxyanhydrides. M. Goodman and U. Arnon. bibliog Am Chem Soc J 86:3384-90 Ag 20 '64

Mechanism of the anionic polymerization of methyl methacrylate; effects of solvents upon stereoregularity and rates in fluorenyllithium-initiated polymerizations. D. L. Glusker and others. bibliog Am Chem Soc J 86:187-96 Ja 20 '64

Method for the determination of the extent of polymerization in frying fats and in fats extracted from fried foods. M. R. Sahasrabudhe and V. R. Bhalerao. Am Oil Chem Soc J 40:711-12 D '63

New method copolymerizes α-haloolefins with α-olefins; abstract. R. Bacskai. Chem & Eng N 42:55 S 14 '64

New synthetic rubbers from copolymerization of butadiene and ene-yne diols. V. I. Nikitin. Rubber Chem & Tech 37:774-5 Jl '64

Olefin polymerization over synthetic molecular sieves. C. J. Norton. bibliog Ind & Eng Chem Proc Design 3:230-6 Jl '64

One-step synthesis gives cyclobutanes. K. Griesbaum. il Chem & Eng N 42:59 S 14 '64

Oxidative photodimerisation of some simple phenols. A. W. Johnson and S. W. Tam. bibliog Chem & Ind p 1425-6 Ag 8 '64

Oxygen molecules dimerize. L. N. Mulay. Chem & Eng N 42:42 S 7 '64

Peroxide catalysts race to keep pace. il Can Chem Process 47:53-4 N '63

Polymerization in the crystalline state: electron spin resonance study of the propagating species in a polymerizing single crystal of barium methacrylate dihydrate. J. H. O'Donnell and others. bibliog Am Chem Soc J 86:2322-5 Je 20 '64

Polymerization of bovine pancreas carboxypeptidase A. J. L. Bethune. bibliog Am Chem Soc J 85:4047-8 D 20 '63

Polymerisation of *N*-vinylcarbazole by π-complex-forming electron acceptors. L. P. Ellinger. bibliog Chem & Ind p 1982-3 D 21 '63

Polyurethanes cure at room temperature; abstract. L. Montesano. Chem & Eng N 42:79 Ap 20 '64

Preformed aluminum triisobutyl-titanium tetrachloride catalysts for isoprene polymerization. E. Schoenberg and others. bibliog Rubber Chem & Tech 37:103-20 Ja '64

Preparation of *N*-alkenyl- and *N*-*m*-styrylphosphoramidates and their application as flame retardants for wood. P. C. Arni and E. Jones. bibliog J Ap Chem 14:221-8 Je '64

Preparation of biaxially oriented polycapramide by the solid state polycondensation of a single crystal of ε-aminocaproic acid. N. Morosoff and others. bibliog il Am Chem Soc J 86:3167 Ag 5 '64

Propagation steps of free-radical and anionic polymerization. T. Yoshino and others. bibliog Am Chem Soc J 86:4482-4 O 20 '64

Radiation-induced graft polymers of cotton cellulose and styrene. J. C. Arthur, jr. and D. J. Daigle. Textile Res J 34:653-4 Jl '64

Radiation-initiated polymerization: screening speeds polymer studies. P. J. Manno. bibliog il Nucleonics 22:49-51 F; 64-7 Je '64

Redox-initiated polymerisation of *N*-vinylcarbazole and 4-vinylpyridine by metal ions. C. H. Wang. Chem & Ind p751-2 My 2 '64

Relation of transition temperatures to chemical structure in high polymers. R. F. Boyer. diags Rubber Chem & Tech 36:1303-1421 bibliog(p 1418-21) D '63

Solid phosphoric acid condensation: Universal oil products co. flow diag Hydrocarbon Process & Pet Refiner 43:184 S '64

Some stereoregular polymerizations of conjugated dienes. M. H. Lehr. Rubber Chem & Tech 36:1571-82 bibliog(p 1581-2) D '63

Stereoregularity in ionic polymerization of acenaphthylene. V. M. Story and G. Canty. bibliog diags J Res Nat Bur Stand 68A:165-71 Mr '64

Stereospecificity in the anionic polymerization of isopropyl acrylate. C. Schuerch and others. bibliog Am Chem Soc J 86:4481-2 O 20 '64

Theory and measurements of the glass-transformation interval of polystyrene. B. Wunderlich and others. bibliog J Ap Phys 35:95-102 Ja '64

Thermal condensation polymerizations of inorganic monomers in platinum-metal crucibles. M. C. Miller and others. bibliog il Ind Chem 40:183-7 Ap '64

Thermal polymerisation of glucose. H. Sugisawa and H. Edo. Chem & Ind p892-3 My 23 '64

Two methods give polybutene-2. H. Z. Friedlander. Chem & Eng N 42:42 F 10 '64

Ultraviolet-induced dimerization of free and metal-complexed orotic acid. A. Haug. Am Chem Soc J 86:3381-4 Ag 20 '64

Where we are with gas phase polymerization. diags Plastics Tech 10:9-11 F '64

Wool fabric stabilization by interfacial polymerization. R. E. Whitfield and others. bibliog il diags Textile Res J 31:704-12; 32:743-50; 33:440-4, 752-4, 1029-32; 34:736-8 Ag '61, S '62, Je, S, D '63, Ag '64

See also
Polymers

POLYMERS

Acetal and copolymers. Mod Plastics 41:101 Ja '64

Analysis of ethylene polymers and copolymers by high resolution nuclear magnetic resonance. R. S. Porter and others. diag Anal Chem 35:1948-50 N '63

Application of Reten 205 in sewage treatment. Water & Sewage Works 111:64-6 Ja '64

Automatic osmometer for determination of number average molecular weights of polymers. F. B. Rolfson and H. Coll. bibliog il diags Anal Chem 36:888-94 Ap '64

Block and graft copolymers. C. M. Thomas. bibliog il Brit Plastics 36:645-50 N '63

Butadiene-styrene block copolymer for molded and extruded goods. H. E. Railsback and others. Rubber Age 94:583-9 Ja '64

Calculations of the partial specific volumes of the constitutents of ternary systems from density measurements. G. E. Molau. bibliog Anal Chem 36:2004-8 S '64

Characteristic viscoelastic parameters for amorphous polymers. A. V. Tobolsky and M. Takahashi. Rubber Chem & Tech 37:285-90 Ja '64

Computer search for active site configurations. M. O. Dayhoff. diag Am Chem Soc J 86:2295-7 Je 5 '64

Concentric cylinder viscometer for the measurement of flow birefringence and viscosity in concentrated polymer solutions. A. Kaye and D. W. Saunders. bibliog diags J Sci Instr 41:139-44 Mr '64

Copolymer with lamellar morphology. R. K. Eby. bibliog il J Res Nat Bur Stand 68A:269-72 My '64

Cross-links between plastics, paint, and textile polymers; abstract. L. Valentine. Chem & Ind p983-4 Je 6 '64

Crystalline polymers; solid-state deformation. T. F. Jordan. bibliog diags Mech Eng 86:40-3 S '64

Crystallization and melting behavior of polyethylene oxide copolymers. F. T. Simon and J. M. Rutherford, jr. bibliog diags J Ap Phys 35:82-6 Ja '64

Cyclopentene yields polypentenamer. G. Dall'Asta and others. Chem & Eng N 42:42-4 Ap 6 '64

Derivation of the orientation correlation function in semicrystalline polymers. K. J. Smith, jr. J Ap Phys 35:2488 Ag '64

Determination of functional groups in copolymers by infrared spectrometry. F. D. Brako and A. S. Wexler. Anal Chem 35:1944-7 N '63

Dislocation arrays in polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:1351 Ap '64

Dislocations in polymer crystals. H. D. Keith and E. Passaglia. bibliog diags J Res Nat Bur Stand 68A:513-18 S '64

Effect of reaction path and initial distribution on molecular weight distribution of irreversible condensation polymers. H. Kilkson. bibliog diag Ind & Eng Chem Fundamentals 3:281-93 N '64

Electron paramagnetic resonance study of electron exchange effects in reduced aromatic hydrocarbon polymers. D. H. Eargle, jr. bibliog diag Am Chem Soc J 86:2567-9 Jl 5 '64

POLYMERS—*Continued*

End-use evaluation of some copolymers and terpolymers of vinyl ethers of linseed conjugated fatty alcohols. R. H. Dent and others. bibliog Am Oil Chem Soc J 40:713-16 D '63

Energetics of flocculation and redispersion by polymers. T. W. Healy and V. K. La Mer. bibliog J Colloid Sci 19:323-32 Ap '64

Equation of state for linear polymer monolayers. K. Motomura and R. Matuura. bibliog J Colloid Sci 18:52-64 Ja '63; Correction. 18:696 S '63

Equation of state of oligomer and polymer liquids. R. Simha and A. J. Havlik. bibliog Am Chem Soc J 86:197-204 Ja 20 '64

Fluorine-containing polymers as solid supports in gas chromatography. J. J. Kirkland. bibliog Anal Chem 35:2003-9 D '63

Formation of pellet-like flocs of kaolinite by polymer chains. M. Yusa and A. M. Gaudin. bibliog il Am Cer Soc Bul 43:402-6 My '64

Friedel-Crafts reactions for the synthesis of heat-resistant aromatic polymers; abstract and discussion. L. N. Phillips. Chem & Ind p716-17 Ap 25 '64

Fundamental physical characteristics of polymers in relation to their behaviour. G. Allen. bibliog J Ap Chem 14:1-12 Ja '64

General relationships for polymer-petroleum oil blends. W. A. Wright and W. W. Crouse. bibliog Ind & Eng Chem Product Res & Develop 3:153-8 Je '64

Grafting to cellulose and its derivatives. V. Stannett. bibliog diag Tappi 47:sup58+ Mr '64

High polymers; structures and physical properties. M. Gordon. Review, by G. Allen. Chem & Ind p 1249-51 Jl 11 '64

Impact of polymers in the paper industry. F. L. Hudson. bibliog Chem & Ind p 13-15 Ja 4 '64

Internal rotation and conformation of linear high polymers. S. I. Mizushima and T. Shimanouchi. diags Am Chem Soc J 86:3521-4 S 5 '64

Introduction to the molecular viscoelastic theory of polymers and its applications. W. L. Peticolas. bibliog diags Rubber Chem & Tech 36:1422-58 D '63

Investigation of comonomer distribution in ethylene-acrylate copolymers with thermal methods. K. J. Bombaugh and others. diags Anal Chem 35:1834-7 N '63

Investigation of the morphology associated with the dissolution process of polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:59-63 Ja '64

Laboratory and field studies of water floods using polymer solutions to increase oil recoveries. B. B. Sandiford. bibliog diags J Pet Tech 16:917-22 Ag '64

Light microscopy of polymer-treated wool. R. J. Hine and J. R. McPhee. bibliog il Textile Res J 34:659-62 Ag '64

Limitations on measuring flow rates of polyethylene and ethylene copolymers by extrusion plastometer. A. A. Harban and R. M. McGlamery. bibliog diag Materials Res & Stand 3:906-9 N '63

Linear Si-N polymers prepared. Chem & Eng N 42:26-7 Ja 6 '64

List of ferrocene-type polymers growing. D. S. Trifan and E. W. Neuse. diag Chem & Eng N 42:46-7 S 7 '64

Mobility promotes polymer crystal growth. I. Kirshenbaum. il Chem & Eng N 42:53-4 S 7 '64

Molecular jumping aids polymer handling. il Chem & Eng N 42:66-7 N 9 '64

Need: polymer engineering. A. Kennaway. bibliog Rubber World 149:44-8 N '63

New class of materials formed by bonding clays to polymers. P. G. Nahin. Chem & Eng N 42:70+ O 26 '64

New device speeds and simplifies transition measurements of polymers. N. Brenner and V. J. Bartolot, jr. diags Plastics Tech 10:56-9 S '64

New polymer developments; December technical session of the Akron rubber group meeting. Rubber World 149:74+ Ja '64

Normal stress effects in second-order fluids. B. D. Coleman and H. Markovitz. bibliog J Ap Phys 35:1-9 Ja '64

Observations of deformation bands in amorphous polymers. W. Whitney. il diags J Ap Phys 34:3633-4 D '63

Olefin copolymers. il Ind & Eng Chem 56:63 My '64

Optimizing electrical properties of ethylene-propylene terpolymers. J. R. Wolfe, jr. and I. D. Roche. Rubber World 149:62-6 N '63

Organo-aluminium polymers; abstract and discussion. J. I. Jones. Chem & Ind p 159-60 Ja 25 '64

Orientation distribution function of statistical segments in deformed polymer networks. R. J. Roe and W. R. Krigbaum. bibliog J Ap Phys 35:2215-19 Jl '64

Perfluorobenzylene oxide polymers. V. C. R. McLoughlin and J. Thrower. Chem & Ind p 1557 S 5 '64

Perfluorophenyl ether and related polymers. W. J. Pummer and L. A. Wall. bibliog J Res Nat Bur Stand 68A:277-86 My '64

Phosphonitrilic trifluorethoxide high polymer. M. V. Lenton and others. Chem & Ind p 1387-8 Ag 1 '64

Polycarbonates from three-dimensional polycyclic bisphenols. W. J. Jackson, jr. and J. R. Caldwell. bibliog Ind & Eng Chem Product Res & Develop 2:246-56 D '63

Polyethylene and ethylene-propylene copolymers; Standard oil company (Ind.). diag Hydrocarbon Process & Pet Refiner 42:218 N '63

Polymer association; solution behavior and rheology of neutralized styrene-methacrylic acid copolymers. N. Z. Erdi and H. Morawetz. bibliog J Colloid Sci 19:708-21 O '64

Polymer chemistry underlies fiber properties and utility. Chem & Eng N 41:40-2 N 18 '63

Polymer conformation based on configuration. M. Goodman and others. Chem & Eng N 42:38+ Jl 20 '64

Polymer deposition and grafting; controlled site initiation. D. J. Bridgeford. bibliog Tappi 46:673-5 N '63

Polymer dispersions used in the building and allied industries. I. Llewellyn and L. Tasker. il Brit Plastics 37:563-6 O '64

Polymer processing; symposium series abstracts. il Chem Eng Prog 60:82+ S '64

Polymer research. H. Melville. Chem & Ind p 161 Ja 25 '64

Polymeric heat shields in space; abstract. C. K. Chicklis. Rubber World 149:82 F '64

Polymeric sulfur and other polysulfide polymers. A. V. Tobolsky. bibliog Am Scientist 52:358-64 S '64

Polymers raise waterflood efficiency. il Oil & Gas J 62:46-7 My 4 '64

Radiation grafting yields new properties. il Can Chem Process 47:73-4+ D '63

Recent advances in polymer science. C. H. Bamford. bibliog J Ap Chem 13:525-37 D '63

Relation of transition temperatures to chemical structure in high polymers. R. F. Boyer. diags Rubber Chem & Tech 36:1303-1421 bibliog(p 1418-21) D '63

Reversibility of polyester adsorption on glass. R. R. Stromberg and W. H. Grant. bibliog J Res Nat Bur Stand 67A:601-6 N '63

Revised theory of high polymer solutions. M. L. Huggins. bibliog Am Chem Soc J 86:3535-40 S 5 '64

Rheological measurements on polymer melts using very small samples. J. J. Benbow and P. Lamb. il diags J Sci Instr 41:203-5 Ap '64

Rheological unit in a high polymer under continuous shear. M. Mooney. bibliog diags Rubber Chem & Tech 37:503-10 Ap '64

Separation and infrared spectrometric determination of ester polymer additives in distillate fuel oils. N. Feldman. Anal Chem 36:347-8 F '64

Shear wave propagation in a birefringent viscoelastic medium. G. B. Thurston and J. L. Schrag. bibliog il diags J Ap Phys 35:144-51 Ja '64

Some reactions of ethyl crotonate. R. H. Peters and others. Chem & Ind p37 Ja 4 '64

Spreading and adhesion of polymers on wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:634-42 Jl '64

Symposium on the thermal stability of polymers. Plastics Tech 10:45 Ja '64

Theory of orientation correlations in crystalline polymeric solids. R. S. Stein and S. N. Stidham. bibliog diags J Ap Phys 35:42-6 Ja '64

Thermal degradation of fractionated high and low molecular weight polyisobutylene. D. McIntyre and others. bibliog diag J Res Nat Bur Stand 68A:153-7 Mr '64

Thermodynamics of polymer solubility in polar and nonpolar systems. R. F. Blanks and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:1-8 F '64

Three kinds of polymers show thermal stability: polyimides near commercialization; polybenzothiazoles, polyquinoxalines at earlier stage. il Chem & Eng N 42:55-7 Ap 13 '64

To design the macromolecule of a plastic. B. Wunderlich. bibliog il diags Ind & Eng Chem 56:18-25 F '64

POLYMERS—*Continued*

Two decades of high-polymer physics. W. F. Busse. bibliog il diags Phys Today 17:32-6+ S '64

Vinyl isocyanate gives ladder polymers. C. G. Overberger and others. Chem & Eng N 41:33-4 D 30 '63

Viscous flow and flow temperature of polymers. T. I. Sogolova and others. bibliog Rubber Chem & Tech 37:637-9 Jl '64

X-ray diffraction studies of the conformation of polymer molecules in solution; p-iodopolystyrene. G. W. Brady and R. Salovey. bibliog Am Chem Soc J 86:3499-503 S 5 '64

See also

Mylar

Silicones

Styrene (and polymers)

Analysis

Apparatus for determining weight loss in an inert atmosphere. J. M. Holovka. diag Anal Chem 36:255-6 Ja '64

Application of pyrolysis-gas chromatography to polymer characterization. B. Groten. bibliog diag Anal Chem 36:1206-12 Je '64

Complementary methods of polymer analysis by infra-red spectroscopy and gas-phase chromatography. G. Guiochon and J. Henniker. bibliog Brit Plastics 37:74-81 F '64

Determination of propylene in ethylene-propylene copolymers by infrared spectrometry. J. E. Brown and others. bibliog diag Anal Chem 35:2172-6 D '63

Direct determination of inhibitors in polymers by luminescence techniques. H. V. Drushel and A. L. Sommers. bibliog Anal Chem 36:836-40 Ap '64

Identification of polymers by mass spectrometric examination of both volatile and nonvolatile pyrolysis products. G. P. Happ and D. P. Maier. bibliog diag Anal Chem 36:1678-9 Jl '64

Microreactor; gas chromatographic method for the identification of polymeric materials. B. C. Cox and B. Ellis. bibliog diag Anal Chem 36:90-6 Ja '64

New differential thermal analysis technique for measuring isothermal crystallization rates of high polymers. J. Chiu. bibliog diags Anal Chem 36:2058-61 O '64

Silver chloride disk technique for infrared spectra of aqueous polymer suspensions. R. K. Metzler. bibliog Anal Chem 36:2378-9 N '64

Fracture

Color phenomena in polymer fracture. S. B. Newman and I. Wolock. bibliog il diags J Res Nat Bur Stand 67A:625-38 N '63

Fracture of polymer melts at high shear stress. O. Bartoš. bibliog J Ap Phys 35:2767-75 S '64

Fracture processes in polymeric materials: further studies on the topography of fracture surfaces. J. P. Berry. bibliog il J Ap Phys 35:1355-6 Ap '64

Polymer strength related to crazes. R. P. Kambour. il Chem & Eng N 42:44-5 N 2 '64

Spectra

Evaluation of small-angle X-ray scattering of polymers. C. Reinhold and others. bibliog J Ap Phys 35:71-4 Ja '64

Nuclear magnetic resonance in poly(normal α-olefins). W. P. Slichter and D. D. Davis. bibliog J Ap Phys 35:10-14 Ja '64

Testing

Developments in polymer evaluation procedures. G. M. Kline. il diag Mod Plastics 41:182+ Ja '64

Elastic modulus of polymers from resonant flexure of clamped disks. J. Roberts. bibliog diag J Sci Instr 41:357-60 Je '64

Flexcracking of polymers. F. H. D. Akkerman. il diags Rubber Chem & Tech 37:186-98 Ja '64

New torsion tester for polymers. Franklin Inst J 277:95 Ja '64

Procedure gives basic data on polymer properties; abstract. B. W. Terry and K. Yang. Chem & Eng N 42:47-8 F 10 '64

Simple, inexpensive way for testing thermophysical properties of polymers. T. Raphael and C. D. Armeniades. diag Plastics Tech 10:45-8 Mr '64

Simple instrument measures physical properties of polymers. il diag Chem Eng 71:62+ Mr 30 '64

Test method checks stability of polymers under stress; abstract. W. H. Haslett, jr. and L. A. Cohen. Chem & Eng N 42:46-7 F 10 '64

Two instruments for measuring the low-shear viscosity of polymer melts. R. M. McGlamery and A. A. Harban. bibliog il diags Materials Res & Stand 3:1003-7 D '63

POLYMORPHISM

Lattice parameters and lattice energies of high-pressure polymorphs of some alkali halides. C. E. Weir and G. J. Piermarini. bibliog J Res Nat Bur Stand 68A:105-11 Ja '64

Long spacings of polymorphic crystalline forms of long-chain compounds, with special reference to triglycerides. F. D. Gunstone. bibliog Chem & Ind p84-9 Ja 18 '64

Molecular structure in monolayers as saturated triglycerides on water as related to three-dimensional polymorphic forms. D. R. Merker and B. F. Daubert. bibliog Am Chem Soc J 86:1009-12 Mr 20 '64

New polymorph of Al_2SiO_5 and further studies in the system Al_2O_3-SiO_2H_2O. S. Aramaki and R. Roy. bibliog diags Am Mineralogist 48:1322-47 N '63

Petrological significance of illite polymorphism in paleozoic sedimentary rocks. B. Velde and J. Hower. bibliog Am Mineralogist 48:1239-54 N '63

Polymorphism of bismuth sesquioxide. E. M. Levin and R. S. Roth. bibliog J Res Nat Bur Stand 68A:189-206 Mr '64

Polymorphism of silver iodide. G. Burley. bibliog diag Am Mineralogist 48:1266-76 N '63

Polymorphism of the kaolin minerals. S. W. Bailey. bibliog diags Am Mineralogist 48:1196-209 N '63

Reexamination of the polymorphism of Ca_3SiO_5. H. Miyabe and D. M. Roy. bibliog Am Cer Soc J 47:318-19 Jl '64

X-ray investigation of polymorphism in ZrC. D. K. Smith and C. F. Cline. Am Cer Soc J 46:566 N '63

POLYNOMIALS

Aitken-Hermite interpolation. M. Gershinsky and D. A. Levine. bibliog Assn for Computing Mach J 11:352-6 Jl '64

Approximating polynomials by polynomials of lower degree. P. A. Jarvie. bibliog Instruments & Control Systems 37:140-2 Ap '64

Chart for the half-power frequencies of low-pass networks having Chebyshev response. A. G. J. Holt. diag Inst E E Proc 111:1563-4 S '64

Factoring polynomials by iteration. Y. L. Luke. bibliog Electro-Tech 74:30-7 Ag '64

Reduction of number range in the use of the Graeffe process. A. A. Grau. Assn for Computing Mach J 10:538-44 O '63

Roots of polynomials. A. J. Sykas. bibliog Electro-Tech 73:109-16 Ap '64

Time-to-frequency-domain matrix formulation. W. D. Stanley. IEEE Proc 52:874-5 Jl '64

Velocity distribution on a polynomial mean line and the converse. R. P. Llewelyn. bibliog diag Roy Aeronautical Soc J 68:57-8 Ja '64

Wilf stability criterion for numerical integration. G. Emanuel. Assn for Computing Mach J 10:557-61 O '63

Zeros of polynomials in several variables and fractional order differences of their coefficients. B. Mond and O. Shisha. J Res Nat Bur Stand 68B:115-18 Jl '64

POLYNUCLEOTIDES. See Nucleotides

POLYOLEFINS. See Olefins

POLYOXYETHYLENE

Microdetermination of polyoxyethylene and polyoxypropylene surface active agents. J. L. Williams and H. D. Graham. bibliog diag Anal Chem 36:1345-9 Je '64

POLYOXYMETHYLENE

N.m.r. spectra of polyoxymethylenes in solution. G. Allen and others. Chem & Ind p623-4 Ap 11 '64

Rate of spherulitic crystallization with chain folds in polyoxymethylene. E. Baer and D. R. Carter. bibliog J Ap Phys 35:1895-7 Je '64

POLYOXYPROPYLENE

Microdetermination of polyoxyethylene and polyoxypropylene surface active agents. J. L. Williams and H. D. Graham. bibliog diag Anal Chem 36:1345-9 Je '64

POLYPEPTIDES. See Peptides

POLYPHENYLS. See Phenyl compounds

POLYPHOSPHATES. See Phosphates

POLYPROPYLENE

Causes of polypropylene oven aging variability. J. P. Forsman. il Mod Plastics 42:175+ S '64

Cuts twist-wrap costs 33 per cent. F. K. Lawler. il Food Eng 36:102 Je '64

POLYPROPYLENE—*Continued*

Dependence of mechanical relaxation on morphology in isotactic polypropylene. E. Passaglia and G. M. Martin. bibliog il J Res Nat Bur Stand 68A:519-27 S '64

For optimum wire and cable insulation cellular polypropylene seems best bet. Plastics Tech 10:47 Ja '64

Heat-set polypropylene film. Plastics World 22:7 Jl '64

How radiation affects polypropylene. bibliog Can Chem Process 48:63-6 Ag '64

Italy's Montecatini gets two U.S. polypropylene patents. il Chem & Eng N 41:10 D 23 '63

Longest polypropylene line handles salt-water disposal. H. C. Bozeman. il Oil & Gas J 61:163-4 D 2 '63

Materials handling system. il Plastics World 22:49 O '64

Mechanism of autoxidation of three vinyl polymers; polypropylene, ethylene-propylene rubber, and poly(ethyl acrylate). A. V. Tobolsky and others. bibliog Am Chem Soc J 86:3925-30 O 5 '64

Molded coffee pot. il Plastics World 22:20 Jl '64

New look for latches. il diag Mod Plastics 41:103 Ap '64

New propylene copolymer. Plastics Tech 9:15 N '63

New technology ups polypropylene's sales appeal. il Chem Eng 71:92 Ap 27 '64

Oscillating polypropylene hinge brings parts reduction. il diag Mod Plastics 42:114-15 S '64

Osuro; polypropylene selected for Japanese fixture. il Plastics World 22:38 Jl '64

Pipe liner. il Plastics World 22:47 S '64

Polypropylene. Mod Plastics 41:91+ Ja '64

Polypropylene film. il Plastics World 22:14 Ap '64

Polypropylene foam gains in appeal. Chem & Eng N 42:25 Je 15 '64

Polypropylene marketing tie-ups changing. il Chem & Eng N 42:34-5 Je 8 '64

Polypropylene poultry cages. il Brit Plastics 36:691 D '63

Polypropylene rope passes three year service test. G. S. Heylin. il Elec World 161:104-5 F 24 '64

Polypropylenes. R. F. Jones. il diag Machine Design 36:92-5 S 17 '64

Power transmission device; hinging ability of polypropylene is extended to perform dynamic function. A. D. Smith. il Materials in Design Eng 59:116-17 Ap '64

Properties of materials; polypropylenes; molded, extruded; tables. Materials in Design Eng 60:232 Mid-O '64

Propylene copolymer. il Plastics World 21:104 N '63

Variation of glass temperature with pressure in polypropylene. E. Passaglia and G. M. Martin. bibliog J Res Nat Bur Stand 68A:273-6 My '64

Manufacture

Polypropylene; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:219 N '63

Selected process flow sheets for petrochemicals; linear polyolefins. Oil & Gas J 62:115 S 7 '64

POLYPROPYLENE fibers

Dyeable polypropylene. R. G. Curtis and others. bibliog Am Dyestuff Rep 53:380-6 My 11 '64

How to set cards for polypropylene staple. diags Textile World 114:56 Jl '64

New ways to produce dyeable olefin. Textile World 113:74 D '63

Piece-dyeable polyolefin fiber goes commercial. Chem Eng 71:54+ Ag 3 '64

Polypropylene fiber has bright future. il Chem & Eng N 42:27-8 S 28 '64

Polypropylene fibres; abstract and discussion. A. B. Thompson. Chem & Ind p844-5 My 16 '64

Relationship on polypropylene fiber orientation as determined by optical birefringence and sonic velocity measurements. S. E. Ross. bibliog Textile Res J 34:565-71 Jl '64

Symposium on polypropylene fibers. Birmingham, Ala. Sept. 17-18; abstracts of papers. Am Dyestuff Rep 53:919-20 O 26 '64; Plastics Tech 10:67 O '64

Tensile behavior of polypropylene textile fibers. D. Poller and R. I. McDougall. bibliog Textile Res J 34:117-23 F '64

POLYRIBOSOMES. See Nucleoproteins

POLYSACCHARIDES

Constitution of the glucan from mango (mangifera indica Linn). A. Das and C. V. N. Rao. bibliog Tappi 47:339-43 Je '64

Polysaccharides used as soil suspending agents; abstract. A. Jeanes. Chem & Eng N 42:70 S 14 '64

Retention of polysaccharides in kraft pulping. A. Meller and E. L. Ritman. bibliog Tappi 46:317-19; 47:55-64, 634-9 My '63, Ja, O '64

POLYSTYRENE. See Styrene (and polymers)

POLYTHENE. See Polyethylene

POLYURETHANE. See Urethans

POLYVINYL alcohol. See Vinyl alcohol

POLYVINYL chloride. See Vinyl chloride

POLYVINYL fluoride. See Vinyl fluoride

POLYVINYLIDENE chloride. See Dichloroethylene

POLYVINYLIDENE fluoride. See Difluoroethylene

PONDS

Effects of conservation techniques on yield. U. Stephens. bibliog Am Water Works Assn J 56:991-1000 Ag '64

See also

Lagoons, Manure

Limnology

PONDS, Cooling. See Cooling ponds

PONDS, Sewage. See Sewage lagoons

POPULATION

Man's food in a competitive world. W. Slater. Chem & Ind p 1785-7 N 9 '63

Population problem. M. C. Balfour. Am J Pub Health 54:644-8 Ap '64

See also

Metropolitan districts

Estimates

Population forecasting by sanitary engineers. F. E. McJunkin. Am Soc C E Proc 90 [SA 4 no 3993]:31-58 bibliog(p56-8) Ag '64

Statistics

World population yearly increase, 63 million. Mech Eng 86:85 O '64

See also

Apportionment

Taiwan

Study in fertility control. B. Berelson and R. Freedman. il maps Sci Am 210:29-37 My '64

POPULATION (zoology)

Population control in animals. V. C. Wynne-Edwards. il map diags Sci Am 211:68-74 Ag '64

PORCELAIN

Cation-exchange between molten salts and a special porcelain of high sodium content. R. J. Labrie. bibliog Electrochem Soc J 111:473-6 Ap '64

Porcelains having low-firing shrinkage. R. K. Ware and R. Russell, jr. Am Cer Soc Bul 43:383-9 My '64

PORCELAIN, Insulating

Designing tools for electrical porcelain is a fine art; interview with Albert J. Pointon. A. C. Allen. Cer Ind 83:100-1 S '64

PORK

Effect of added lysine in swine diets on lean cuts and enzyme activity in the heart and liver. R. L. Shirley and others. bibliog J Agri & Food Chem 11:530-1 N '63

Effect of cooking conditions upon the yield and palatability of pork loin roasts. C. E. Weir and others. bibliog Food Tech 17:1567-8 D '63

Effect of cooking temperature and time on the tenderness of pork. J. M. Tuomy and R. J. Lechnir. bibliog Food Tech 18:219-22 F '64

Effect of gamma irradiation on the spoilage of canned pork luncheon meat. L. L. Kempe and J. T. Graikoski. bibliog Food Tech 18:1078-80 Jl '64

Fat-emulsifying properties of prerigor and postrigor pork proteins. J. C. Trautman. Food Tech 18:1065-6 Jl '64

Influence of intramuscular fat level on organoleptic, physical, and chemical characteristics of irradiated pork. L. A. Whitehair and others. bibliog il Food Tech 18:230-41 F '64

Interrelationships of gross chemical components of pork muscle. R. G. Kauffman and others. bibliog J Agri & Food Chem 12:102-5 Mr '64

Oxidative changes in cured and uncured frozen cooked pork. M. W. Zipser and others. bibliog J Agri & Food Chem 12:105-9 Mr '64

Phospholipids of pork muscle tissues. M. Kuchmak and L. R. Dugan, jr. bibliog Am Oil Chem Soc J 40:734-6 D '63

Relation of physical and sensory evaluations of pork loin quality to backfat thickness. L. U. Onate and A. F. Carlin. il Food Tech 17:1461-4 N '63

PORK—*Continued*
Use of a transparent hot-melt coating material for prolonging storage life of frozen pork chops. J. C. Ayres. bibliog Food Tech 18:1621-4 O '64

POROSITY
Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63
Correlation of slag resistance with the pore structure of an alumina-silica refractory. T. Vojnovich and others. bibliog diag Am Cer Soc Bul 43:514-17 Jl '64
Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64
Effect of open and closed pores on Young's modulus of polycrystalline ceramics. R. S. Piatasik and D. P. H. Hasselman. bibliog Am Cer Soc J 47:50-1 Ja '64
Effect of small fraction of spherical porosity on elastic moduli of glass. D. P. H. Hasselman and R. M. Fulrath. bibliog il Am Cer Soc J 47:52-3 Ja '64
Effects of porosity in quenched and tempered steel. J. W. Bradley and R. B. McCauley. bibliog il diags Welding J 43:sup408-14 S '64
Engineering concepts useful in oil finding. J. J. Arps. diags Am Assn Pet Geologists Bul 48:157-65 F '64
Functional relation between creep rate and porosity for polycrystalline ceramics. R. M. Spriggs and T. Vasilos. bibliog Am Cer Soc J 47:47-8 Ja '64
Influence of depth, temperature, and geologic age on porosity of quartzose sandstone. J. C. Maxwell. bibliog Am Assn Pet Geologists Bul 48:697-709 My '64
Method of increasing the water vapor porosity of fat materials; patent. Am Perfumer 78:40-1 D '63
Paleosalinity in upper Visean Yoredale formation of England; geochemical method for locating porosity. C. T. Walker. bibliog map diags Am Assn Pet Geologists Bul 48:207-20 F '64
Pigma; new weld method for minimum porosity. il Steel 155:30-1 O 5 '64
Platers put dirt to work. C. L. Kobrin il Iron Age 193:77-9 F 13 '64
Pore geometry as related to carbonate stratigraphic traps. J. L. Stout. bibliog il Am Assn Pet Geologists Bul 48:329-37 Mr '64
Pores in tantalum oxide films and their influence on the photoresponse. R. Dreiner and J. Schimmel. bibliog Electrochem Soc J 111:453-6 Ap '64
Porosity; its cause and prevention. L. C. Barr. il Welding Eng 49:47-8 Mr '64
Porosity; key to corrosion of concrete. H. G. Bennett. il Can Chem Process 48:74-6 Mr; 111+ Je '64
Relation between effects of porosity on strength and on Young's modulus of elasticity of polycrystalline materials. D. P. H. Hasselman. bibliog diag Am Cer Soc J 46:564-5 N '63
Role of porosity in filtration; new definition of filtration resistance. F. M. Tiller and M. Shirato. diags A I Ch E J 10:61-7 Ja '64
Secondary hydrogen porosity in aluminium. D. E. J. Talbot and D. A. Granger. bibliog il Inst Metals J 92:290-7 '63-64
Strength-porosity relation involving different pore geometry and orientation. S. D. Brown and others. bibliog diags Am Cer Soc J 47:320-2 Jl '64
See also
Paper—Porosity
Textile fabrics—Permeability

Measurement

Developments in polymer evaluation procedures. G. M. Kline. il diag Mod Plastics 41:182+ Ja '64
Effect of pellet pore structure on catalyst performance in the hydrodesulphurization of straight-run gas oil. D. Van Zoonen and C. T. Douwes. bibliog Inst Pet J 49:383-91 D '63
Improved method for the calculation of pore size distribution from adsorption data. D. Dollimore and G. R. Heal. bibliog J Ap Chem 14:109-14 Mr '64
Intraparticle pressure gradients in porous catalysts. S. Otani and others. diag A I Ch E J 10:130+ Ja '64
Log-combining refines porosity measurement. F. Lebreton and others. Pet Management 36:116-17+ D '63

POROUS materials
Adsorption rate studies: significance of pore diffusion. S. Masamune and J. M. Smith. bibliog diag A I Ch E J 10:246-52 Mr '64
Application of radiography to the study of the structure and operation of porous electrodes. M. Bonnemay and others. bibliog il diags Electrochem Soc J 111:265-9 Mr '64
Axial diffusion and pressure drop of liquids in porous media. E. P. Stahel and C. J. Geankoplis. bibliog flow diag diag A I Ch E J 10:174-9 Mr '64
Diffusion and reaction in porous catalysts. N. Wakao and J. M. Smith. bibliog diag Ind & Eng Chem Fundamentals 3:123-7 My '64
Dispersion and adsorption in porous media flow. R. B. Banks. bibliog diags Am Soc C E Proc 90 [HY 5 no 4022]:13-31 S '64
Flow models and scaling laws for flow through porous media. R. A. Greenkorn. bibliog il Ind & Eng Chem 56:32-7 Mr '64
Immersion cell for the quantitative determination of liquid absorption, swelling, and density of porous solids. I. G. Fels. diags R Sci Instr 35:1357-9 O '64
Inspecting with filtered and electrified particles. E. T. Hughes and D. R. Powers. il diags Metal Prog 84:85-9 N '63
Longitudinal dispersion of thermal energy through porous media with a flowing fluid. D. W. Green and others. bibliog diags A I Ch E J 10:645-51 S '64
Sintered plate flowmeter. J. D. Chase. diag J Sci Instr 41:386-7 Je '64
Theory of buckling of a porous slab and its thermoelastic analogy. M. A. Biot. diags A S M E Trans ser E 31:194-8 Je '64
Thermal conductivities of gas-filled porous solids. J. C. Harper and A. F. El Sahrigi. bibliog diag Ind & Eng Chem Fundamentals 3:318-24 N '64
Turbulent flow in porous media. J. C. Ward. bibliog Am Soc C E Proc 90 [HY 5 no 4019]:1-12 S '64
See also
Permeability

PORPHINE
Crystal and molecular structures of some metal tetraphenylporphines. E. B. Fleischer and others. bibliog diags Am Chem Soc J 86:2342-7 Je 20 '64
Structure of crystalline tetraphenylporphine; the stereochemical nature of the porphine skeleton. M. J. Hamor and others. bibliog Am Chem Soc J 86:1938-42 My 20 '64
Triclinic crystal form of α,β,γ,δ-tetraphenylporphine. S. Silvers and A. Tulinsky. Am Chem Soc J 86:927-8 Mr 5 '64

PORPHYRINS
Determination of vanadyl porphyrins by demetalation with hydrogen bromide-formic acid. J. M. Sugihara and R. G. Garvey. bibliog Anal Chem 36:2374-6 N '64
Mechanistic investigations of porphyrin syntheses; preliminary studies on *ms*-tetraphenylporphin. A. D. Adler and others. bibliog Am Chem Soc J 86:3145-9 Ag 5 '64
More evidence supports crevice concept. A. H. Corwin. diags Chem & Eng N 41:42 D 2 '63
Porphyrin skeleton survives retorting; abstract. J. R. Morandi and H. B. Jensen. Chem & Eng N 42:48 Ap 20 '64
Rapid oxidation of iron(II) porphyrins by alkyl halides; a possible mode of intoxication of organisms by alkyl halides. C. E. Castro. bibliog Am Chem Soc J 86:2310-11 Je 5 '64
Steric effects on the near-ultraviolet absorption (Soret band) of porphyrins. A. H. Corwin and others. bibliog Am Chem Soc J 85:3621-4 N 20 '63

PORTABLE air compressors. See Air compressors, Portable

PORTABLE air conditioners. See Air conditioning equipment, Portable

PORTABLE asphalt plants. See Asphalt plants, Portable

PORTABLE atomic power plants. See Atomic power plants, Portable

PORTABLE boilers. See Boilers, Portable

PORTABLE buildings. See Buildings, Portable

PORTABLE concrete plants. See Concrete plants, Portable

PORTABLE conveying machinery. See Conveying machinery, Portable

PORTABLE electric substations. See Electric substations, Portable

PORTABLE electric tools. See Electric tools, Portable

PORTABLE electric welding machines. See Electric welding machines, Portable

PORTABLE pneumatic tools. See Pneumatic tools, Portable

PORTABLE power plants. See Power plants, Portable

PORTABLE radio transmitters. See Radio transmitters, Portable

PORTLAND, Maine

Sewerage

Extensive sewerage will curb pollution of a bay. F. E. Potter. maps Pub Works 95:104-5 O '64

PORTLAND, Oregon

Architecture

Hotel planned as urban focal point. il plans Arch Rec 136:172-3 O '64

Bridges

Oregon tests bridges for beauty. il Eng N 173:56 O 8 '64

PORTRAITS

See also

Photography—Portraits

PORTS

Amsterdam's $365 million improvement plan. il Marine Eng/Log 69:40L Je 15 '64

Big expansion project for forward-looking port of Toledo. il Marine Eng/Log 68:98 D '63

Port and railroad unlock Liberia's iron ore deposits. il map Eng N 172:34-6 My 7 '64

Port engineer's role in management; 12th annual Fort Schuyler forum. Marine Eng/Log 70:57-8 My '64

Port of Le Havre; illustrations with text. Engineer 218:566 O 2 '64

San Francisco builds big ocean terminal. Marine Eng/Log 68:34A-34B N '63

Seattle gets first of four multipurpose cranes. T. D. MacMullen. il Marine Eng/Log 69:32A Mr '64

Southampton water; conflicting demands. J. P. M. Pannell. il maps Engineering 198:430-3 O 2 '64

Thriving U.S. ports look to the future. il Marine Eng/Log 69:77-8+ Je 15 '64

See also

Docks
Harbors
Terminals

PORTSMOUTH, Virginia

Water supply

Portsmouth plans for progress. X. D. Murden. il Water Works & Wastes Eng 1:89-90+ S '64

PORTUGAL

See also

Bridges—Portugal
Fertilizer industry—Portugal
Steel works—Portugal

POSITIONERS, Welding

Adjustable bars back up welds. il Iron Age 192:82-3 N 28 '63

If you weld it, position. il Welding Eng 49:35-44 Ag '64 (reprints 50c)

New solution to a tube welding problem. C. Hansen and others. il Tool & Manuf Eng 52:85-7 F '64

Positioners flip TTX freight cars. il Welding J 43:209 Mr '64

Positioning counts on this Mig job. il Welding Eng 49:70 Je '64

Railroad car positioner cuts costs 50 per cent. il Welding Eng 49:72-3 Ja '64

Standard parts, solution to railway welding problem. il Welding J 43:762 S '64

Tooling for electron beam welding. M. M. Schwartz. il diag Tool & Manuf Eng 51:87-90 N '63

Welding joint in closed vessel. diags Welding Eng 49:64 S '64

POSITIONING equipment

Aligning method insures proper boiler tube window positioning; magnetic jig. H. O. Werner. il Combustion 36:32-3 S '64

Applying electromagnetic clutch drives for positioning applications. B. King. il diags Automation 11:56-8 Mr '64

Automatic puller-press slashes setup time. il Elec Constr & Maint 63:149-50 S '64

Floating positioner centers castings for drilling, reaming, tapping. L. Bobbitt. diags Am Mach 108:132 Mr 16 '64

1964 materials handling and packaging directory: plant and auxiliary equipment. il Mod Materials Handling 19:279-302 My '64

Positioning parts for spray painting. Ind Finishing 40:116-17 My '64

Smart handling slashes workplace waiting time. il Mod Materials Handling 19:56-7 S '64

Numerical control

Kits check n/c positioning. R. Johnstone. il Am Mach 108:70-1 Mr 2 '64

Planer with electronic positioning system. il Engineering 196:535 O 25 '63

POSITRONS

Device for displaying the distribution of positron emitting nuclides *in vivo*. P. C. R. Turner and P. D. Freebrey. il diag J Sci Instr 41:276-7 My '64

Gamma-ray and positron scintillation camera. H. O. Anger. il diags Nucleonics 21:56-9 O '63

Positrons found in primary radiation. P. Meyer and others. Chem & Eng N 42:39 Ja 13 '64

POST offices

Equipment

Scanning the mails. W. Kornberg. il diag Electronics 37:115-16+ Je 15 '64

See also

Mail handling

Heating and ventilation

Heat conservation cycle for Houston post office. D. S. Cooper and W. N. Meyer. il Air Cond Heat & Ven 61:61-4 Mr '64

POSTAL service

See also

Mail handling

POSTERS, Safety. See Safety posters

POTASH

Genesis of potash rocks in middle Devonian prairie evaporite formation of Saskatchewan. W. M. Schwerdtner. bibliog diags Am Assn Pet Geologists Bul 48:1108-15 Jl '64

Interest developing in Arizona potash lands. Chem & Eng N 41:18 D 30 '63

Transportation

Will proposed potash pipeline make it? map Can Chem Process 48:47-8 Jl '64

POTASH industry and trade

Potash and phosphate, 1963. R. W. Lewis. Min Cong J 50:128-31 F '64

Potash, 1963. R. W. Lewis. Eng & Min J 165:147-8 F '64

Canada

World markets; key to future of Canada's potash industry. W. G. Scott. Can Min & Met Bul 57:849-55 Ag '64

POTASH mines and mining

Canada

Kalium's potash solution mining plant will go on-stream this fall in Canada. il map plan Eng & Min J 165:110-13 Je '64

New Mexico

Special pillar recovery technique. J. S. Wright and J. C. Horne. il plans Min Cong J 50:74-7 S '64

Saskatchewan

Application of European shaft-sinking techniques to the Blairmore formation. J. R. O. Walli. diags Can Min & Met Bul 57:139-46 F '64

Cavity control, key to solution mining. il diag Can Chem Process 48:63-6 Je '64

First solution-mined potash leaves Saskatchewan. il Chem Eng 71:84+ O 26 '64

Grouting the prairie sediments. L. A. York. diags Can Min & Met Bul 57:63-7 Ja '64

Kalium Chemicals to use solution mining technique to recover Saskatchewan potash. il diag Min Eng 16:72-3 Je '64

Mining methods and equipment used at IMC's Esterhazy operations. A. J. Kyle. il plan diag Can Min & Met Bul 57:497-505 My '64

Operating experience with 4160 volts at the face. A. J. W. Schwandt. il diag Min Cong J 49:76-8 O '63

Potash minerals big business. G. Sweeney and J. Bradley. il Chem Eng Prog 60:19-21 O '64

Significance of solution mining to the potash industry. B. P. Edmonds. il Can Min & Met Bul 57:953-5 S '64

Unique International Mineral & Chemical tailing line solves freezing problem. J. Mitchell and R. Beach. il diag Eng & Min J 165:94-6 Ag '64

Will proposed potash pipeline make it? map Can Chem Process 48:47-8 Jl '64

Western states

Potash minerals big business. G. Sweeney and J. Bradley. Chem Eng Prog 60:19-21 O '64

POTASSIUM

Electrical conductivity of potassium-seeded argon plasmas near thermal equilibrium. L. P. Harris. J Ap Phys 35:1993-4 Je '64

Extraction of potassium from adularia shale. D. A. Everest and others. Chem & Ind p 1684-5 O 3 '64

Forced convection boiling of potassium-mercury systems. Y. S. Tang and others. bibliog il diag A I Ch E J 10:617-20 S '64

Influence of alkali-vapor atmospheres on pyrometrically determined temperatures; cesium and potassium. M. Lapp and L. P. Harris. bibliog diag J Ap Phys 34:3622-5 D '63

Large differences in surface ionization efficiencies between K and its halides on the contaminated surface of a Pt alloy (8 per cent W) wire. T. R. Tuow and J. W. Trischka. J Ap Phys 34:3635-6 D '63

Novel cyclisation of alkenylarenes catalysed by potassium. E. Lewicki and others. bibliog Chem & Ind p 154-5 Ja 25 '64

Reactions of metal-ammonia solutions; kinetics of potassium-liquid ammonia reaction at room temperature. D. Y. P. Chou and others. bibliog Am Chem Soc J 85:3530-1 N 5 '63

Visible absorption spectra of lithium, sodium, and potassium in molten lithium chloride-potassium chloride. J. Greenberg and I. Warshawsky. diag Am Chem Soc J 86:3572-4 S 5 '64

Analysis

Determination of oxygen in potassium. W. A. Dupraw and others. diag Anal Chem 36:430-1 F '64

Determination of potassium in solids and liquids by measurement of the gamma activity of naturally radioactive potassium-40. W. G. Harris and others. bibliog J Agri & Food Chem 12:144-6 Mr '64

Isotopes

Determination of potassium in solids and liquids by measurement of the gamma activity of naturally radioactive potassium-40. W. G. Harris and others. bibliog J Agri & Food Chem 12:144-6 Mr '64

Potassium-argon ages from lavas of the Hawaiian Islands. I. McDougall. map Geol Soc Bul 75:107-27 bibliog(p 123-4) F '64

K-Ar dating of rocks and tectonic events in the Piedmont of southeastern Pennsylvania. D. M. Lapham and W. A. Bassett. bibliog map diag Geol Soc Bul 75:661-7 Jl '64

POTASSIUM bromide

Effect of temperature on the deformation of KCl-KBr alloys. N. S. Stoloff and others. bibliog il J Ap Phys 34:3315-22 N '63

Photochemical studies in an alkali halide matrix; an *o*-nitrobenzaldehyde actinometer and its application to a kinetic study of the photoreduction of benzophenone by benzhydrol in a pressed potassium bromide disk. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:3606-10 S 20 '64

Reflectance fluorescence spectra of aromatic compounds in potassium bromide pellets. B. L. Van Duuren and C. E. Bardi. bibliog diag Anal Chem 35:2198-202 D '63

POTASSIUM butoxide

Ketones cleaved at room temperature; abstract. P. G. Gassman and F. V. Zalar. Chem & Eng N 42:44 Ap 20 '64

POTASSIUM carbonates

Review of dry chemicals; fire extinguishing agents. il Safety Maint 127:42-4 Ap '64

Two-component system fights oil fires. il Chem & Eng N 42:44 Je 29 '64

POTASSIUM chloride

Anodic polarization curves of the platinum electrode in neutral and alkaline potassium chloride solutions. B. M. Blavatnik and G. A. Tsiganov. Corrosion 19:421-3 D '63

Direct current measurement of fused salt conductivity: KCl-LiCl. F. R. Duke and L. Bissell. bibliog diag Electrochem Soc J 111:717-19 Je '64

Effect of Co-60 gamma irradiation on surface energy of KCl. T. K. Bhattacharya and others. J Ap Phys 35:1352-3 Ap '64

Effect of temperature on the deformation of KCl-KBr alloys. N. S. Stoloff and others. bibliog il J Ap Phys 34:3315-22 N '63

Occurrence of new color center absorptions in KCl. J. G. Ring and L. I. Grossweiner. J Ap Phys 35:2257-8 Jl '64

Photochemical reactions in potassium chloride crystals grown from reagent grade KCl. U. M. Grassano and P. W. M. Jacobs. bibliog J Ap Phys 35:2391-7 Ag '64

Production of potassium sulphate from naturally occurring sodium sulphate and potassium chloride. B. Gunn. flow sheet bibliog Can J Chem Eng 42:187-90 Ag '64

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63

POTASSIUM compounds

Direct Mn^{55} nmr absorption in antiferromagnetic $KMnF_3$. A. Nakamura and others. bibliog J Ap Phys 35:842-3 pt 2 Mr '64

Effects of solutions of urea and of ammonium and potassium salts on the germination of kale, barley and wheat. J. K. R. Gasser. Chem & Ind p 1687-9 O 3 '64

Neutron diffraction study of magnetic stacking faults in antiferromagnetic K_2NiF_4. R. Plumier. diags J Ap Phys 35:950-1 pt 2 Mr '64

Potassium perxenate nonahydrate. A. Zalkin and others. bibliog Am Chem Soc J 86:3569-71 S 5 '64

Precision measurement of the cleavage plane grating spacing of potassium acid phthalate. A. J. Bearden and F. N. Huffman. bibliog diag R Sci Instr 34:1233-4 N '63

Spin exchange in solutions of potassium naphthalenide. J. C. Danner and T. R. Tuttle, jr. Am Chem Soc J 85:4052-3 D 20 '63

POTASSIUM cyanide

Hydroxy-1,2-5-thiadiazoles; a novel route from potassium cyanide and sulfur dioxide. J. M. Ross and W. C. Smith. bibliog Am Chem Soc J 86:2861-8 Jl 20 '64

POTASSIUM ferricyanide

Chemiluminescent indicator titration of cadmium with potassium ferricyanide. F. Kenny and others. bibliog Anal Chem 36:529-32 Mr '64

Potassium ferricyanide oxidation product of α-tocopherol. D. McHale and J. Green. bibliog Chem & Ind p366 F 29 '64

POTASSIUM halides

Electrical effects due to the *F* center in the potassium halides. J. N. Maycock. bibliog J Ap Phys 35:1512-15 My '64

Large differences in surface ionization efficiencies between K and its halides on the contaminated surface of a Pt alloy (8 per cent W) wire. T. R. Touw and J. W. Trischka. J Ap Phys 34:3635-6 D '63

POTASSIUM hydroxide

Charging the silver oxide electrode with periodically varying current. C. P. Wales. Electrochem Soc J 111:131-5 F '64

Reaction of hexachlorocyclopentadiene with alcohols and potassium hydroxide. W. H. Chang. bibliog diags Chem & Ind p709-10, 1491-2 Ap 25, Ag 22 '64

POTASSIUM in the body

Effect of potassium on juxtaglomerular cells and the adrenal zona glomerulosa of rats. P. M. Hartroft and E. Sowa. bibliog J Nutrition 82:439-42 Ap '64

POTASSIUM iodate

Precise method for assay of potassium iodate by comparison with (primary standard) arsenic trioxide. S. M. Tuthill and others. bibliog Anal Chem 36:1994-6 S '64

POTASSIUM iodide

Viscosities of cellulosic polyelectrolytes in organic solvents containing potassium iodide. M. E. Rowley and E. K. Gruschow. Anal Chem 36:616-18 Mr '64

POTASSIUM nitrate

Effects of millimolar concentrations of silver (I) ion upon the γ-radiolysis of crystalline potassium nitrate. J. Cunningham. bibliog Am Chem Soc J 85:3716-18 N 20 '63

Electric conductivity of fused $LiNO_3$-$NaNO_3$-KNO_3 eutectic. L. A. King and others. Electrochem Soc J 111:720-1 Je '64

Granulation characteristics of a 5-4-12 (5-10-15) fertilizer containing potassium nitrate. D. R. Boylan and D. V. Kamat. il diags J Agri & Food Chem 12:423-8 S '64

New source of potassium nitrate. E. Keller. Ind & Eng Chem 55:14+ D '63

Switching behavior in ferroelectric potassium nitrate. R. A. Dork and others. J Ap Phys 35:1984-5 Je '64

POTASSIUM permanganate

Chemical plants at Nottingham. il Engineer 217:893-4 My 22 '64

POTASSIUM permanganate—*Continued*

Clearing of weathered wool shrinkproofed by the permanganate/brine process. O. A. Swanepoel and D. P. Veldsman. il Textile Res J 34:457-8 My '64

Effectiveness of potassium permanganate for disinfection. J. L. Cleasby and others. bibliog il Am Water Works Assn J 56:466-74 Ap '64

Evaluation of potassium permanganate as an algicide for water cooling towers. G. P. Fitzgerald. bibliog il Ind & Eng Chem Product Res & Develop 3:82-5 Je '64

Oxidation of primary, secondary, and tertiary amines with neutral potassium permanganate. H. Shechter and S. S. Rawalay. bibliog Am Chem Soc J 86:1706-9 My 5 '64

Potassium permanganate solves a problem at Charlottesville, Va. C. G. Haney. Water & Sewage Works 111:341-2 Jl '64

Removal of hydrogen sulfide with potassium permanganate. B. F. Willey and others. diag Am Water Works Assn J 56:475-9 Ap '64

Studies of oxidation of benzylamines with neutral potassium permanganate and the chemistry of the products thereof. H. Schechter and others. bibliog Am Chem Soc J 86:1701-5 My 5 '64

Use of potassium permanganate in water treatment. A. E. Griffin. Pub Works 95: 112-13 F '64

POTASSIUM phosphate

Buffer solutions of potassium dihydrogen phosphate and sodium succinate at 25° C. M. Paabo and others. bibliog J Res Nat Bur Stand 67A:573-6 N '63

Solid crystal modulates light beams. E. Lindberg. il diag Electronics 36:58+ D 20 '63

POTASSIUM silicates

Chemical aspects of the production of television-tube screens, reaction of potassium silicate in solution; effect of impurities. F. Lines. bibliog J Ap Chem 14:369-76 S '64

POTASSIUM sulfate

Manufacture

Production of potassium sulphate from naturally occurring sodium sulphate and potassium chloride. B. Gunn. flow sheet bibliog Can J Chem Eng 42:187-90 Ag '64

POTATO chips

Microwaves improve color control. il Food Eng 36:95 Ag '64

Teams performance with economy; polyethylene-foil combinations. il Food Eng 36: 108 Mr '64

POTATO granules. See Potatoes, Dried

POTATO products

Potato products; abstract. G. Adler. Chem & Ind p 1300 Jl 18 '64

POTATO starch

Biological treatment of protein water from manufacture of potato starch. J. C. Buzzell, jr. and others. bibliog flow diag Water & Sewage Works 111:327-30, 360-5 Jl-Ag '64

POTATOES

Isolation, concentration, separation, and identification of amino acids in potatoes by ion exchange and paper chromatography. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:112-14 Mr '64

Quantitative analysis of glucose and fructose in potatoes. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:109-12 Mr '64

Volatile sulfur compounds in potatoes. M. R. Gumbmann and H. K. Burr. bibliog J Agri & Food Chem 12:404-8 S '64

POTATOES, Dried

Quick-cooking dehydrated potato pieces. J. Cording, jr. and others. flow sheet il Food Eng 36:49-52 Je '64

Storage properties of potato flakelets. F. H. Drazga and others. bibliog Food Tech 18: 1201-4 Ag '64

WRRL direct process for potato granules. M. E. Lazar and others. il Food Tech 18:1053-5 Jl '64

POTENTIAL, Electric

Anodic potentiostatic polarization of iron in sulfuric acid; effort of chloride ions. K. Nobe and R. F. Tobias. bibliog diag Corrosion 20:263-6 Ag '64

Appearance potentials of the lower chloroalkanes. M. Baldwin and others. Am Chem Soc J 86:4498-9 O 20 '64

Atmospheric electric potential gradient. G. I. Moller. bibliog Am J Phys 32:386 My '64

Calculation of axially symmetric electrostatic fields for two coaxial equidiameter cylinders. M. Morikawa. bibliog J Ap Phys 34:3179-81 N '63

Calculation of the potential distribution at the surface of an intrinsic semiconductor. R. B. McQuistan. J Ap Phys 34:3626-8 D '63

Capacity measurements on rapidly polarized germanium electrodes. P. J. Boddy and W. J. Sundburg. il diag Electrochem Soc J 110: 1170-2 N '63

Conductivity and thermoelectric potential measurements on perylene; metal halide complexes. M. S. Frant and R. Eiss. bibliog diags Electrochem Soc J 110:769-72 Jl '63; Discussion. 111:755-6 Je '64

Controlled potential coulometry of metals in fused lithium chloride-potassium chloride eutectic. R. D. Caton, jr. and H. Freund. bibliog diags Anal Chem 36:15-19 Ja '64

Correlation of electrochemical oxidation potential of organic compounds with photoionization potential. W. C. Neikam and others. bibliog Electrochem Soc J 111:1190-2 O '64

Determination of charge passed following application of potential step in study of electrode processes. J. H. Christie and others. Anal Chem 35:1979 N '63

Developing a new alloy. R. B. Leonard. il diag Chem Eng 71:150+ O 26 '64

Discussion of potentiostatic methods for evaluation of inhibitors. R. D. Weed. bibliog diags Corrosion 20:321-8 O '64

Dynamic analysis of activation overpotential. L. Karasyk and others. bibliog Electrochem Soc J 111:237-41 F '64

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:610-15 My '64

Effect of potential of mild steel on stress corrosion cracking in ammonium nitrate solutions. Z. Szklarska-Smialowska. bibliog diag Corrosion 20:198-202 Je '64

Effect of winding potentials on voltage transformer errors. N. L. Kusters and others. diags IEEE Trans Power Apparatus & Systems p 115-21 F '64

Electroanalytical controlled-potential instrumentation. G. L. Booman and W. B. Holbrook. bibliog il diags Anal Chem 35:1793-809 N '63

Electrode potentials in fused systems; effect of ion size on membrane potentials. K. H. Stern and J. A. Stiff. bibliog Electrochem Soc J 111:893-7 Ag '64

Electrokinetic energy conversion. J. F. Osterle. diag A S M E Trans ser E 31:161-4 Je '64

Electromotive force. diags Wireless World 70: 343-6, 415-18 Jl-Ag '64

Electromotive force cell for carbonium ion stabilization energies. E. D. Jenson and R. W. Taft. bibliog Am Chem Soc J 86: 116-17 Ja 5 '64

Estimation of contact potential differences in thermionic energy converters. H. J. Caulfield. bibliog diag J Ap Phys 35:2862-9 O '64

Experimental determination of the shape of metal-insulator-metal potential barriers. D. V. Geppert. J Ap Phys 35:2151 Jl '64

Generalized circuits for electroanalytical instrumentation. W. M. Schwarz and I. Shain. bibliog diags Anal Chem 35:1770-8 N '63

Hypothesis for the change in potential of iron on uncoupling from tin in citric acid solution. W. R. Buck, 3d and others. il Electrochem Soc J 111:386-92 Ap '64

Influence of ionic strength on polarographic half-wave potentials; aqueous systems involving reversible electrode reactions and amalgamation of the reduced species in uni-univalent inert electrolytes. D. E. Sellers and N. E. Vanderborgh. Am Chem Soc J 86:1934-8 My 20 '64

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

Instrumentation for cyclic and step-function voltammetry using operational amplifier switching modules. R. P. Buck and R. W. Eldridge. diags Anal Chem 35:1829-33 N '63

Ionization method of measuring contact potential differences. K. W. Bewig. bibliog diags R Sci Instr 35:1160-2 S '64

Kinetics of anodic dissolution of germanium. P. J. Boddy. bibliog il diags Electrochem Soc J 111:1136-41 O '64

Kinetics of redox reactions on passive electrodes. A. C. Makrides. bibliog Electrochem Soc J 111:392-400 Ap '64

Kinetics of the Fe^{+++}/Fe^{++} reaction on Fe-Cr alloys. A. C. Makrides. bibliog Electrochem Soc J 111:400-7 Ap '64

POTENTIAL, Electric—*Continued*

Mechanochemical anodic dissolution of austenitic stainless steel in hot chloride solution at controlled electrode potential. T. P. Hoar and J. C. Scully. bibliog diag Electrochem Soc J 111:348-52 Mr '64

Method for comparing two nearly equal potentials directly in parts per million. C. J. Saunders. diag R Sci Instr 34:1452-3 D '63

Methods for the calculation of polarization in porous electrodes. F. A. Posey. bibliog diag Electrochem Soc J 111:1173-81 O '64

Mixed potentials observed in the iridium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:988-92 Ag '64

Monte Carlo range calculations for a Thomas-Fermi potential. O. S. Oen and M. T. Robinson. bibliog J Ap Phys 35:2515-21 Ag '64

Multilayer membrane electrodes; biionic potentials across nonpressurized membranes. J. Bagg and H. P. Gregor. Am Chem Soc J 86:3626-9 S 20 '64

Multipurpose electrochemical instrument for control of potential or current. G. Lauer and others. bibliog diags Anal Chem 35:1789-93 N '63

Oxidation mechanism of formic acid on platinum at low potentials in acidic solutions. M. W. Breiter. bibliog Electrochem Soc J 111:1298-9 N '64

Pd/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. Electrochem Soc J 111:369-72 Mr '64

Pt/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. il Electrochem Soc J 110:1142-6 N '63

Potential barriers and emission-limited current flow between closely spaced parallel metal electrodes. J. G. Simmons. bibliog diags J Ap Phys 35:2472-81 Ag '64

Potential distribution and negative resistance in thin oxide films. T. W. Hickmott. bibliog diags J Ap Phys 35:2679-89 S '64

Reversible oxygen electrodes. N. Watanabe and M. A. V. Devanathan. bibliog diag Electrochem Soc J 111:615-19 My '64

Role of the zeta potential in coagulation involving hydrous oxides. T. M. Riddick. il diags Tappi 47:sup 171A-9A Ja '64

Scalar and vector potentials of the infinite sheath helical aerial. T. S. M. Maclean. bibliog diag Radio & Electronic Eng 27:21-5 Ja '64

Solid state potentiostat for controlled potential electrolysis. F. Lindstrom and J. B. Davis. il diag Anal Chem 36:11-15 Ja '64

Static theory of density and potential distribution in a beam-generated plasma. D. A. Dunn and S. A. Self. bibliog diags J Ap Phys 35:113-22 Ja '64

Streaming potentials in diatomite filtration of water. C. S. Oulman and E. R. Baumann. bibliog flow sheet diags Am Water Works Assn J 56:915-30 Jl '64

Surface charge of alumina and magnesia in aqueous media. M. Robinson and others. bibliog diag Am Cer Soc J 47:516-20 O '64

Surface oxidation of gold electrodes. S. B. Brummer and A. C. Makrides. bibliog Electrochem Soc J 111:1122-8 O '64

Ta_2O_5 films formed with nonsteady potentials. D. A. Vermilyea. il Electrochem Soc J 111:883-4 Jl '64

Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64

Voltammetry and controlled potential oxidation of 3,4-dimethoxypropenylbenzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

Zero-charge potentials of solid metals. T. N. Andersen and others. Am Chem Soc J 86:4496 O 20 '64

Zero point of charge of alpha-alumina. J. A. Yopps and D. W. Fuerstenau. bibliog diag J Colloid Sci 19:61-71 Ja '64

Zeta-Meter aids research into colloids. il diag Can Chem Process 47:77-8 D '63

Zeta potential and pitch control; the application of the Zeta-Meter. N. A. Jacobson and R. Schmut. il diags Tappi 47:sup210A-13A Ja '64

Zeta potential measurement, applications in the paper industry. R. Schmut. il diag Ind & Eng Chem 56:28-33 O '64

Zeta potential measurements in the control of coagulation chemical doses. E. L. Bean and others. bibliog Am Water Works Assn J 56:214-24; Discussion. R. W. Ockershausen and C. J. Peterman. 224-7 F '64

POTENTIAL dividers. See Voltage dividers

POTENTIOMETERS

Calibration of potentiometers by resistance bridge methods. D. Ramaley. bibliog diags Instruments & Control Systems 37:106-8 Ja '64

Potentiometer burn-outs caused by use of Wheatstone bridge. B. Erlichman. diag Instruments & Control Systems 37:109 Ja '64

Potentiometer features built-in vernier. il Radio-Electronics 35:43 S '64

Manufacture

Versatile machine winds potentiometer coils. il diag Automation 11:65-8 F '64

Versatile winder reduces costs. il Electronics 36:80 N 8 '63

POTOMAC RIVER

Water supply economics in the Potomac River Basin. R. K. Davis. bibliog Am Water Works Assn J 56:257-66 Mr '64

POTTERIES

Frankoma Pottery enjoys national distribution. il Am Cer Soc Bul 43:144-5 F '64

POTTERY

Foreign exhibits promote ceramics for export. A. C. Allen. Cer Ind 83:110 S '64

See also

American ceramic society

Enamel and enameling

Decoration

Decals; an answer to modern decorating trends; interview with Charles K. Silberstein. J. J. Svec. il Cer Ind 83:88-9+ S '64

POTTERY industry

Postwar trends in international trade of whiteware industries. V. Sadagopan. bibliog Am Cer Soc Bul 42:756-8 D '63

POULTRY

Calcium metabolism and skeletal dynamics of laying pullets. W. J. Mueller and others. bibliog J Nutrition 84:20-6 S '64

Effect of protein level of diet on nitrogen excretion in fowls. I. Tasaki and J. Okumura. bibliog J Nutrition 83:34-8 My '64

Thyroxine and antithyrotoxic effects in the chick. W. W. Westerfeld and others. bibliog J Nutrition 83:325-31 Ag '64

See also

Turkeys

Diseases and pests

Chick oedema factor: abstract and discussion. J. Williams. Chem & Ind p585-6 Ap 4 '64

Relative anti-muscular dystrophy activity of the *d*- and *l*-epimers of α-tocopherol and of other tocopherols in the chick. M. L. Scott and I. D. Desai. bibliog J Nutrition 83:39-43 My '64

Feeding

Absorption of preformed vitamin A from ligatured poultry intestinal sections. T. E. Shellenberger and others. bibliog J Nutrition 82:99-105 Ja '64

Adaptation of the chick to dietary energy source. W. E. Donaldson. bibliog J Nutrition 82:115-20 Ja '64

Anti-rachitic effects of soybean preparations for turkey poults. C. W. Carlson and others. bibliog J Nutrition 82:366-70 Mr '64

Calcium, strontium and phosphorus utilization by chicks as influenced by nutritional and endocrine variations. P. E. Waibel and F. R. Mraz. bibliog J Nutrition 84:58-64 S '64

Cardiovascular lesions in experimental copper deficiency in chickens. W. W. Carlton and W. Henderson. bibliog il J Nutrition 81:200-8 N '63

Determination of the essential amino acid proportions needed to allow rapid growth in chicks. D. C. Dobson and others. bibliog J Nutrition 82:67-75 Ja '64

Effect of barbituric acid, chlortetracycline and carbohydrates upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 82:93-8 Ja '64

Effect of corn oil on metabolic efficiency of energy utilization by chicks. L. B. Carew, jr. and F. W. Hill. bibliog J Nutrition 83:293-9 Ag '64

Effect of linoleic acid on nutritional muscular dystrophy in the chick. C. C. Calvert and others. bibliog J Nutrition 83:307-13 Ag '64

Effect of oleic and linoleic acids on the absorption of saturated fatty acids in the chick. R. J. Young and R. L. Garrett. bibliog J Nutrition 81:321-9 D '63

Effect of phytic acid on the availability of zinc in amino acid and casein diets fed to chicks. H. J. A. Likuski and R. M. Forbes. bibliog J Nutrition 84:145-8 O '64

POULTRY—Feeding—*Continued*

Effect of stress from high protein diets on vitamin A metabolism in chicks. G. S. Stoewsand and M. L. Scott. bibliog il J Nutrition 82:188-96 F '64

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Effect of zinc nutrition upon uptake and retention of zinc-65 in the chick. T. R. Zeigler and others. bibliog J Nutrition 82:489-94 Ap '64

Effects of dietary antibiotics and uric acid on the growth of chicks. L. N. Bare and others. bibliog J Nutrition 83:27-33 My '64

Effects of dietary magnesium and fluoride on the magnesium content of tissues from growing chicks. F. D. Griffith and others. bibliog diags J Nutrition 83:15-19 My '64

Effects of isoniazid, chlortetracycline, and copper upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 83:79-84 My '64

Energy intake and fertility of male chickens. J. E. Parker and G. H. Arscott. il J Nutrition 82:183-7 F '64

Fatty acid composition of plasma and liver lipid components as influenced by diet in the growing chick. G. A. Leveille and others. bibliog J Nutrition 81:357-62 D '63

Feeding tung oil to chickens. H. M. Edwards, jr. bibliog J Nutrition 83:365-8 Ag '64

Growth stimulating effects of high levels of vegetable oils. R. E. Isaacks and others. bibliog Am Oil Chem Soc J 40:747-9 D '63

Influence of amount and type of fat on metabolic efficiency of energy utilization by the chick. L. B. Carew, jr. and others. bibliog J Nutrition 83:300-6 Ag '64

Influence of dietary phytol, isophytol, and squalene on the tocopherol content of liver tissue. W. J. Pudelkiewicz and others. J Nutrition 83:111-14 Je '64

Influence of high protein diets on vitamin A metabolism and adrenal hypertrophy in the chick. G. S. Stoewsand and M. L. Scott. bibliog J Nutrition 82:139-44 Ja '64

Influence of protein and energy on growth and protein utilization in the growing chicken. J. D. Summers and others. J Nutrition 82:463-8 bibliog(p467-8) Ap '64

Interrelationships of dietary lipids upon fatty acid composition of brain mitochondria, erythrocytes and heart tissue in chicks. B. Century and others. bibliog Am J Clinical Nutrition 13:362-8 D '63

Iron deficiency studies in chicks. P. N. Davis and others. J Nutrition 84:93-4 S '64

Mechanism of interaction between dietary protein levels and coccidiosis in chicks. W. M. Britton and others. bibliog J Nutrition 82:306-10 Mr '64

Mercury and silver interrelationships with copper. C. H. Hill and others. J Nutrition 83:107-10 Je '64

Nonspecific role of arginine in the promotion of muscular dystrophy in the chick. K. J. Jenkins and others. bibliog J Nutrition 82:415-21 Ap '64

Overcoming the inhibition of intestinal proteolytic activity caused by raw soybean in chicks of different ages. Z. Nitsan and E. Alumot. bibliog J Nutrition 84:179-84 O '64

Studies on chloride deficiency in chicks. R. M. Leach, jr. and M. C. Nesheim. bibliog J Nutrition 81:193-9 N '63

Vitamin A activity of acidulated soybean soapstocks in chicks. P. Budowski and others. bibliog Am Oil Chem Soc J 41:441-5 Je '64

POULTRY, Dried

Effects of enzyme addition on the quality of freeze-dehydrated chicken meat. M. E. Sosebee and others. bibliog Food Tech 18: 551-4 Ap '64

POULTRY, Frozen

Changes in nonprotein nitrogenous constituents of chicken breast muscle stored at below-freezing temperatures. A. W. Khan. bibliog J Agri & Food Chem 12:378-80 Jl '64

Effect of freeze-drying on the thiamine, riboflavin, and niacin content of chicken muscle. D. M. Rowe and others. bibliog Food Tech 17:1449-50 N '63

See also

Turkeys, Frozen

POULTRY as food

Corrugated shipper reduces poultry waste. L. Davis. il Food Eng 36:78-80 Ag '64

Treating hen carcasses with polyphosphates to control hydration and cooking losses. E. P. Schermerhorn and W. J. Stadelman. bibliog Food Tech 18:101-2 Ja '64

Preservation

Extension of poultry shelf life by processing with sorbic acid. G. A. Perry and others. bibliog Food Tech 18:891-7 Je '64

Storage

Changes in non-protein nitrogenous constituents of chicken breast muscle stored at below-freezing temperatures. A. W. Khan. bibliog J Agri & Food Chem 12:378-80 Jl '64

Changes in quality and water-holding and ion-binding properties of chicken meat during above-freezing storage under aseptic conditions. L. van den Berg and others. bibliog Food Tech 18:729-31 My '64

Tenderness

Effects of enzyme addition on the quality of freeze-dehydrated chicken meat. M. E. Sosebee and others. bibliog Food Tech 18: 551-4 Ap '64

Post-mortem changes in tenderness and water-holding and ion binding properties of poultry leg and breast meat. L. van den Berg and others. bibliog Food Tech 18:573-5 Ap '64

POULTRY cages. See Poultry houses—Equipment

POULTRY farms

Sanitation

Treatment of Long Island duck farm wastes. C. D. Gates. bibliog il WPCF J 35:1569-79 D '63

POULTRY houses

Air conditioning

Poultry environments. A. D. Longhouse and H. L. Garver. bibliog ASHRAE J 6:68-74 Jl '64

Equipment

Polypropylene poultry cages. il Brit Plastics 36:691 D '63

Heating and ventilation

Poultry environments. A. D. Longhouse and H. L. Garver. bibliog ASHRAE J 6:68-74 Jl '64

POULTRY processing plants

Equipment

Contractor salesmanship boosts profits; installation at poultry plant of Long Island packers inc. il diag Elec Constr & Maint 63:96-7 Je '64

Waste

Dual secondary treatment plant licks Willmar's permanent and temporary population boom. A. W. Banister and A. D. Cloud. il diag Water Works & Wastes Eng 1:32-5+ Ap '64

POWDER-actuated tools. See Power cartridge

POWDER metallurgy. See Metal powders

POWDERED aluminum. See Aluminum, Powdered

POWDERED iron. See Iron, Powdered

POWDERED metals. See Metal powders

POWDERED nylon. See Nylon, Powdered

POWDERED plastics. See Plastics, Powdered

POWDERED steel. See Steel, Powdered

POWDERS

Air micropycnometer for measuring volumes of small samples of fine powder. A. L. Mular and others. diag Am Cer Soc J 47: 156 Mr '64

Air-tight sample holder for a Hägg Guinier-type camera. D. E. Scaife and J. A. Watts. diag J Sci Instr 41:569-70 S '64

Diffusion sintering; initial stage sintering models and their application to shrinkage of powder compacts. D. L. Johnson and I. B. Cutler. bibliog Am Cer Soc J 46:541-5 N '63

Dry liquid concentrates. Rubber World 150: 30 Ag '64

Effect of powder parameters on grain growth in manganese-zinc ferrite. T. Yamaguchi. bibliog il Am Cer Soc J 47:131-3 Mr '64

Emission spectrographic determination of lead in powder samples with spark excitation. D. C. Hargis and G. W. Smith. bibliog Anal Chem 36:824-6 Ap '64

Keeps powders free-flowing. il Food Eng 36: 102 Ag '64

Optical absorption and diffuse reflectance of powders. P. D. Johnson. J Ap Phys 35:334-6 F '64

Practical mixing problems. G. T. King. il Ind Chem 40:20-4 Ja '64

POWDERS—*Continued*
Pressure and additive effects on flow of bulk solids. P. U. Bulsara and others. bibliog diags Ind & Eng Chem Proc Design 3:348-55 O '64
Quantitative diffractometric analysis of X-ray transparent specimens. R. Bergin. bibliog diag J Sci Instr 41:558-60 S '64
Softening-range tester for powdered samples. C. D. Doyle. il Materials Res & Stand 3:915-17 N '63
Solids blending. M. W. Scott. bibliog Am Perfumer 78:25-7 D '63
Some characteristics of arc vaporized submicron particulates. J. D. Holmgren and others. il Electrochem Soc J 111:362-9 Mr '64
Spontaneous pelletization in fine powders. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:197-201 Jl '64
System converts high-melting powders into spherical particles. il diag Chem Eng 71:60+ Mr 2 '64
Thin-film evaporator can produce dry powders. il diag Chem Eng 70:52+ D 23 '63
Use of dry liquid concentrates proposed by Johns-Manville; Micro-Cel E. Chem & Eng N 42:53 Jl 6 '64
See also
Metal powders
Particles
Pulverizers

POWDERS, Metal. See Metal powders

POWER (mechanics)
Critical evaluation of power requirements in agitated systems. A. T. Gretton. bibliog Chem Eng 71:145-8 Ja 20 '64
What's ahead in energy? M. A. Elliott. bibliog Pet Management 36:70-8 O '64
See also
American power conference
Atomic power
Compressed air
Electric power
Force and energy
Load factor
Machinery
National power conference
Power plants
Power transmission
Servomechanisms
Ship propulsion
Solar power
Steam
also subdivision Power under special subjects, e.g.
Automobile factories
Chemical plants
Coal mines and mining
Hospitals
Metallurgical plants
Office buildings
Packing houses
Paper and pulp mills
Petroleum refineries
Rolling mills
Steel works

POWER cartridge
Eight cartridge-actuated mechanisms; drawings with text. G. C. Stichling. Product Eng 35:92-5 Ag 3 '64
Gas pressure from pyrotechnic devices; drawings with text. A. W. Schellman. Product Eng 35:128-9 Ap 27 '64
Impact tool makers efficient line-tap in minutes. V. P. Armour and J. E. McLaughlin. il Elec World 161:92-3 Je 1 '64
Instant muscle with pyrotechnic power; cartridge-actuated devices; drawings with text. A. W. Schellman. Product Eng 35:68-9 Ap 13 '64
Safety in operating powder-actuated tools; abstract. E. W. Wheeler. Pub Works 95:76 F '64

POWER conference, World. See World power conference

POWER cost
Analyzing costs for total energy. N. J. Mazzocco. il Heating-Piping 36:133-7 Ja '64
Power costs may drop 15 per cent. Elec World 160:79 N 18 '63
See also
Steam plants—Costs
Waste fuel

POWER factor
Economics of power-factor improvement in pulp and paper mills. C. V. Kirkland and S. A. Bobe. il diag Tappi 47:sup 144A-8A Je '64
How low power factor costs money. J. Schachner. diag Mill & Factory 75:92 O '64

POWER plants
Fourth Combustion industrial power plant award to Mead corp. A. W. Hindenlang. flow diag il diags Combustion 36:17-25 Ag '64
1964 energy systems design survey; total energy approach scores impressive gains. Power 108:sup34-5 O '64
On-site generation interest mounts. R. H. Marks. flow diag diags Power 108:82-3 O '64
Peaking steam plant concept disclosed. il Elec World 160:30 N 25 '63
Technical briefs. Published in monthly numbers of Power
See also
Atomic power plants
Boiler plants
Coal mines and mining—Power
Electric generator sets
Factories—Electric equipment
Hydroelectric plants
Steam plants
Water supply for power plants
Waterworks—Power

Combined steam-gas turbines

See Electric plants (central stations)—Gas turbine auxiliaries

Control equipment

Centralization of power plant controls in the pulp and paper industry. H. L. White and H. R. Arnold. Tappi 47:sup 130A Je '64
Computer control; power plants join industry-wide advance. R. K. Evans. il diags Power 108:189-94 S '64
Single governing system controlling all generator units in plant; a case history. V. T. Dimitroff and J. H. Watson. flow diag il diags Tappi 47:sup 136A-43A Je '64
What's the score on power plant automation? Power Eng 68:41 My '64

Costs

Estimating gas turbine profitability. F. Wright. Air Cond Heat & Ven 61:65-74 Mr '64
Estimating the economics of on-site generation. R. W. Chapin. Gas 40:106-10+ Jl '64
Should we generate our own power; question and answers. il Power 108:160-1 F '64
What you should know about onsite energy systems. bibliog il diags Heating-Piping 36:159-74 Jl '64
See also
Atomic power plants—Costs
Hydroelectric plants—Costs

Design

Advanced technology in systems design. flow diags il diags Power 108:69-92 O '64
Industrial power plant of the future. Power Eng 67:40-1 D '63
See also
Atomic power plants—Design
Electric plants (central stations)—Design
Steam plants—Design

Diesel engine plants

Turbo-charged four-cycle Diesel engines. il Engineer 217:661 Ap 10 '64

Equipment

Equipment and design aids roundup. diags Power 108:105-8+ O '64
Equipment news. Published in monthly numbers of Power engineering
On-site generation serves large housing development. L. Kazan. il diag Elec Constr & Maint 63:86-9 F '64
Remote controls make possible high-speed bulk transfer from train to plant; illustrations with text. Mod Materials Handling 19:54-5 Mr '64
What you should know about onsite energy systems. bibliog il diags Heating-Piping 36:159-74 Jl '64
See also
Atomic power plants—Equipment
Coal handling
Condensers (steam)
Steam plants—Equipment

Fuel

See also
Electric plants (central stations)—Fuel

Gas engine plants

Algas goes all-gas. diag Gas Age 131:28-9 Ap '64
Algas Industries moves into new total energy plant. il Gas 40:138-40 Mr '64
Almost-total-energy package used in Atlanta apartment. il Gas 40:107-9 Ag '64
Annual on-site generation savings exceed $23,000 at J M Fields shopping center. il diag Power 108:74-5 Ag '64
Discount store cashes in on total energy. il plan Gas Age 131:24-6 Ap '64

POWER plants—Gas engine plants—*Continued*

Do-all power system for shopping center. E. Sterrett. il Gas 40:114-17 F '64
Small industry discovers total energy. il Gas Age 131:24-5 My '64
Space center marks new energy concept. il Gas 40:131-4 Mr '64
Total energy in Vancouver; Finning tractor & equipment co. E. T. Nesbitt. il Gas 40:103-6 Ag '64
Tractor dealer runs shop with on-site generation system. il Gas 40:112 Ag '64

Gas turbine plants

Another look at the Uni-Plant concept. R. M. McIntyre. Gas 40:122-3 Ap '64
Architect's viewpoint on total energy. Z. Rike. il Gas 40:103-5 Je '64
Blueprint for the future for gas-fired total energy systems. S. Orlofsky. Gas 40:106+ Je '64
Energy package at Standard Pipeprotection. il diags Gas Age 131:32-4 Mr '64
Estimating gas turbine profitability. F. Wright. Air Cond Heat & Ven 61:65-74 Mr '64
Estimating the economics of on-site generation. R. W. Chapin. Gas 40:106-10+ Jl '64
5860 apartments are fueled by all-gas power plant. il Gas 40:110-11 Je '64
Gas company's office building employs gas turbines for on-site total energy. il diags Air Cond Heat & Ven 60:72-3 D '63
Gas-turbine energy system completes 10,000 hours. il Oil & Gas J 61:78 D 9 '63
Gas turbine energy system powers the Gas pavilion. H. C. Daudet. il diags Gas 40:113-18+ My '64; Excerpts. Am Gas Assn Mo 46:8-10+ Ap '64
Integrating the modular on-site gas turbine energy system. W. L. Hinde and A. H. Williams. diag Gas Age 131:21-4 My '64
Northern Illinois-Gas sells total energy in new general office building. il Gas Age 131:22-4 Ap '64
School has total energy system. il Power Eng 68:43 F '64
Small gas turbine used to supply total energy to space research laboratory. il Air Cond Heat & Ven 61:96 Jl '64
Small gas turbines prove out. il diags Gas 40:112-13 F '64
Total energy; a concept becomes practical. Gas Age 131:21 Ap '64
Total energy concept gives on-site generation a big boost. A. H. Williams. il Power Eng 68:42-3 F '64
Total energy sites on the increase. Gas 39:134+ D '63
Turbine-powered package starts one-year test in Phoenix. il Gas 40:136 Mr '64
What do higher frequencies promise? high-frequency generation by gas turbine drives. diags Power 107:162-4 N '63
Why 420-cycle electric power? H. C. Daudet. Am Gas Assn Mo 46:28-9+ Je '64

Piping

See Piping (power plants)

Safety measures

Safety in the power plant. C. F. Paulus and W. B. O'Konski. bibliog IEEE Trans Power Apparatus & Systems p 1112-15 D '63

POWER plants, Floating

Power plant on barge is floated to operating site. T. D. Coyne and F. Mele. il diag Power Eng 67:49-51 N '63

POWER plants, Outdoor

See also
Steam plants, Outdoor

POWER plants, Portable

High tonnage and full-range power. il plan Coal Age 69:92-3+ F '64
Mobile boiler plant can supply 53,200 pounds of steam per hour. il Power Eng 68:55 Ja '64
Mobile lighting demonstrator. il Elec Constr & Maint 63:120+ Ag '64
Modern underground power centers; Geco mines ltd. F. E. Hill. diags Can Min & Met Bul 57:763-4 Jl '64
Only a whisper from new portable powerplant. D. R. Snoke and G. L. Mrava. il diags S A E J 72:72-5 N '64
Power plant for Bloodhound missile sites. il Engineer 217:186 Ja 24 '64
Silenced Diesel electric generator. il diag Engineer 217:408 F 28 '64
See also
Boiler plants, Portable

POWER pools. See Electric plants—Interconnection

POWER transmission

Advances in mechanical power transmission; speed reducers, variable speed drive. Plant Eng 17:102 N '63
Boost power transmission productivity. il Mill & Factory 74:69-70 Je '64
Designing the flexspline with plastics for harmonic drive system. D. V. Tinder and W. R. Carey. il diags Mech Eng 86:50-3 Jl '64
Drives for center shaft winding process control. A. A. Arterton. diags Rubber Age 95:420-5 Je '64
Electrical, fluid, and mechanical adjustable-speed drives. F. D. Yeaple. bibliog diags Product Eng 35:139-50 Ap 27 '64
Fluidrive Synchro-Self-Shifting clutch. il diags Engineering 196:498-500 O 18 '63
Free-wheel transmission. P. Tout-Kowsky. il diags Engineer 216:924-5 N 29 '63
Guide to variable-speed mechanical drives. D. Z. Dvorak. il diags Product Eng 34:63-74 D 23 '63; 35:90-3 F 3 '64
How to design O-ring drives. H. L. Boyce. il diag Machine Design 36:166-9 F 13 '64
How to transmit power through an air bearing. diag Mod Material Handling 19:67 N '64
Infinitely variable drive units. diag Engineering 196:815 D 27 '63
Manufacturing/maintenance engineers' know-how handbook; mechanical power transmission. Published in monthly numbers of Mill & Factory
Picking a mechanical variable speed drive. R. L. Hatschek. il Mill & Factory 74:70-3 F '64
Planetary speed reducer. il diags Mech Eng 86:67 F '64
Planetary variable speed reducer. il diags Plant Eng 18:145-6 F '64
Power transmission device; hinging ability of polypropylene is extended to perform dynamic function. A. D. Smith. il Materials in Design Eng 59:116-17 Ap '64
Powering compressors for the process industries. W. B. Wilson. il diags Combustion 35:36-42 F '64
Putting power drives to work. il Mill & Factory 74:84-7 Mr '64
Reducer varies speed infinitely. Eng N 172:45 F 6 '64
Shaft-mounted reducers; thrifty road to speed control. il Mill & Factory 75:54-5 Jl '64
Space crank mechanisms to transmit angular motion between two skewed shafts. L. Harrisberger. diags Machine Design 36:170-5 S 10 '64
Speed reducers by swashplate. il Product Eng 35:62 S 14 '64
Speed reducers; spinning sun, adjustable planets. il diags Product Eng 35:53 F 3 '64
Springs, shuttle-gear, gliding-ball in novel one-way drives. R. H. Meier. diags Product Eng 35:96-7 O 12 '64
Tailoring gear drives for tougher jobs. il diag Steel 154:42-5 F 3 '64
Traction drives. C. E. Kraus. diags Machine Design 36:106-12 Jl 2; 147-52 Jl 16 '64
Use and care of gear drives. D. Kinna. il Mill & Factory 75:82-4 O '64
When should you consider shaft-mounted drives? C. W. Dorman. il Chem Eng 71:120 Ag 3 '64
See also
Bearings
Belting
Chain gear
Clutches
Compressed air
Couplings
Electric distribution
Electric driving
Electric transmission
Gearing
Gearmotors
Hydraulic transmission
Hydrostatics
Joints, Universal
Pneumatic transmission
Power (mechanics)
Servomechanisms
Shafting
Speed variation
Torque converters
also subdivision Transmission under special subjects, e.g.
Automobiles
Motor buses
Motor trucks
Motor vehicles
Tractors

POWERFORMING process. See Gasoline—Manufacture

POZZUOLANA

Heat curing of sand, lime, fly ash mixtures. M. Mateos. Materials Res & Stand 4:212-17 My '64

PRAHL, Walter H.

Prahl is Schoellkopf medalist. por Chem & Eng N 42:90 My 25 '64

PRANDTL number

Heat transfer at zero Prandtl number in flows with variable thermal properties; discussion. AIAA J 2:1864-5 O '64

Solution of the energy equation for small Prandtl numbers. L. G. Napolitano. A S M E Trans ser C 85:381-2 N '63

PRASEODYMIUM compounds

Thermogravimetric analysis of five salts of praseodymium, neodymium, and samarium. R. L. Wilfong and others. bibliog Am Cer Soc J 47:240-1 My '64

PRE-CAMBRIAN period. See Geology, Stratigraphic—Pre-Cambrian

PRECAST concrete. See Concrete, Precast

PRECIOUS metals

Corrosion of gold-palladium, nickel and type 347 stainless steel in molten alkali carbonates. G. J. Janz and A. Conte. Corrosion 20:237-8 Jl '64

Eddy current unit cuts test time on precious metal products. il Wire & Wire Prod 39:1322+ S '64

Noble metals vie for catalyst honors. il Can Chem Process 47:49-51 N '63

Organic syntheses by means of noble metal compounds; catalytic carbonylation of allylic compounds with palladium chloride. J. Tsuji and others. bibliog Am Chem Soc J 86:4350-3 O 20 '64

Plating on precious metals. D. G. Foulke. Plating 51:685-8 Jl '64

Properties of materials; precious metals; wrought; tables. Materials in Design Eng 60:170-2 Mid-O '64

Relative electrocatalytic activity of noble metals in the oxidation of ethylene. H. Dahms and J. O. Bockris. diag Electrochem Soc J 111:728-36 Je '64

Spring performance of electrical contact alloys. C. S. Barker. il Product Eng 35:62-6 My 11 '64

Stacking fault probabilities of some inter-noble metal alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3402-4 N '63

X-ray spectrometric analysis of noble metal dental alloys. B. W. Mulligan and others. bibliog il J Res Nat Bur Stand 68A:5-8 Ja '64

See also

Platinum metals

PRECIOUS stones

See also

Sapphires

PRECIPITATION (chemistry)

Colour differences in azo pigments: the effect of precipitation conditions. J. D. Hildreth and D. Patterson. bibliog Soc Dyers & Col J 79:519-23 N '63

Comparative study of recovery of zinc and nickel by ion exchange media and chemical precipitation. D. Kantawala and H. D. Tomlinson. bibliog diag Water & Sewage Works 111:192-7 Ap '64

Decontamination of thorium; direct precipitation of thorium sulfate from thorium nitrate solutions in tributyl phosphate. K. J. Bril and P. G. De Sabóia Araújo. bibliog Ind & Eng Chem Proc Design 3:8-10 Ja '64

Effect of impurities on precipitation of calcium. E. Schonfeld. bibliog Am Water Works Assn J 56:767-73 Je '64

Formation, nature, and prevention of precipitates in frozen and thawed beers. G. J. Haas and A. I. Fleischman. J Agri & Food Chem 12:409-11 S '64

Precipitation chromatography; separation of metals as ferrocyanides on filter paper. A. M. Liimatta and J. D. Spain. bibliog il Anal Chem 35:1898-900 N '63

Precipitation of copper on iron. F. M. Monninger. il Min Cong J 49:48-51 O '63

Precipitation of impurities in large single crystals of CdS. A. Dreeben. bibliog il Electrochem Soc J 111:174-9 F '64

Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64

Precipitation reaction of carrageenan with gelatin. E. A. MacMullan and F. R. Eirich. bibliog J Colloid Sci 18:526-37 Ag '63

Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64

Separation of stereoisomers by column fractional precipitation. W. W. Schulz and W. C. Purdy. bibliog Anal Chem 35:2044-8 D '63

Silicon phosphide precipitates in diffused silicon. P. F. Schmidt and R. Stickler. bibliog il Electrochem Soc J 111:1188-9 O '64

Surface composition of hydroxylapatite derived from solution behavior of aqueous suspensions. V. R. Deitz and others. bibliog J Colloid Sci 19:87-101 Ja '64

Tomatine and digitonin as precipitating agents in the estimation of cholesterol. C. H. Edwards and others. bibliog Anal Chem 36:420-1 F '64

Trimethylphenylammonium iodide as a quantitative precipitant for gold. W. W. White and J. R. Zuber. bibliog Anal Chem 36:2363-4 N '64

See also

Cloud points

PRECIPITATORS, Electric. See Electric precipitators

PREECE, Isaac Arthur

Obituary. H. B. Nisbet. por Chem & Ind p 1727 O 10 '64

PREFABRICATED bridges. See Bridges, Prefabricated

PREFABRICATED buildings. See Buildings, Prefabricated

PREFABRICATED houses. See Houses, Prefabricated

PREFORMING of plastics. See Plastics—Preforming

PREGNANCY

Alterations in serum proteins during pregnancy and lactation in urban and rural populations in Guatemala. G. H. Beaton and others. bibliog il Am J Clinical Nutrition 14:269-79 My '64

Comparative effects of certain antioxidants on gestational performance and teratogeny in vitamin E-deficient rats. D. W. King. J Nutrition 83:123-32 bibliog(p131-2) Je '64

Effect of dietary restriction of pregnant rats on body weight gain of the offspring. B. F. Chow and C. J. Lee. bibliog J Nutrition 82:10-18 Ja '64

Effect of protein deficiency during gestation and lactation on body weight and composition of offspring. P. S. Venkatachalam and K. S. Ramanathan. J Nutrition 84:38-42 S '64

Growth of rats from normal dams restricted in diet in previous pregnancies. B. F. Chow. J Nutrition 83:289-92 Ag '64

Influence of diet on blood serum lipids in pregnant women and newborn infants. A. E. Hansen and others. bibliog Am J Clinical Nutrition 15:11-19 Jl '64

School leaving due to pregnancy in an urban adolescent population. O. C. Stine and others. Am J Pub Health 54:1-6 Ja '64

Selenium-75 metabolism in the gestating ewe and fetal lamb: effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64

Significant bacteriuria and duration of pregnancy. M. Henderson. bibliog Archives Environmental Health 8:527-30 Ap '64

See also

Abortion

PREGNENE

Spectra and stereochemistry; a nuclear magnetic resonance spectral study of some 16-substituted pregnenes and 17α-pregnenes. A. D. Cross and P. Crabbé. bibliog Am Chem Soc J 86:1221-4 Mr 20 '64

PREHEATERS. See Air preheaters

PREMATURE infants. See Infants, Premature

PREPACKAGING

See also

Fruit—Prepackaging

Meat—Prepackaging

PRESERVATION of records. See Records, Preservation of

PRESIDENTS science advisory committee. See United States—Presidents science advisory committee

PRESS brake. See Sheet metal working machinery

PRESS tools

Protecting tooling in automatic presses. J. Meister. il diags Automation 11:86-8 O '64

PRESSES

Automatic notching press. il Engineer 217:293 F 7 '64

Compacting press has multiple platens: Cincinnati rigid reflex press. il diags Tool & Manuf Eng 52:74-5 My '64

PRESSES—*Continued*

Die-set bushings speed up presses. il diag Am Mach 108:70 Mr 30 '64

How to calculate four-slide press capacity. D. D'Angelo. il diag Tool & Manuf Eng 53:67-9 N '64

Low-pressure automatic de-watering press. il Engineer 217:487 Mr 13 '64

Magnets speed press loading. il Am Mach 108:72 Ja 6 '64

Minster line of eccentric geared presses. il Mach 70:162 Je '64

Notching press for lamination segments. il Engineering 197:744 My 29 '64

Powder compacting presses made by Cincinnati Shaper. il diag Mach 70:160 My '64

Press line switches dies quickly. il Iron Age 193:83 My 7 '64

Prestincerts; new method of inserting components such as drain plug bosses, electrical terminal posts and other devices into metal components. il Automobile Eng 54:150-1 Ap '64

Quality up, cost down with interchangeable-station progressive dies. A. F. Perry. il Mach 70:140-1 D '63

Razor blade press cuts 525 times a minute. il Engineering 197:297 F 21 '64

Swinging arm extractor for large presses. il Engineer 216:918-19 N 29 '63

3150-tonne automatic transfer press. il Engineer 217:1014 Je 5 '64

20-ton precision press. il Engineer 216:821 N 15 '63

20-ton press with inclinable die set. il Metallurgia 69:131-2 Mr '64

What you should know about press feeds and unloaders. R. Le Grand. il diags Am Mach 108:113-32, cover My 11 '64 (reprints 50c)

What's new in forming? Am Mach/Metalworking Manuf 107:133-4 N 11 '63

See also

Dies
Extrusion machines
Forging machinery
Hydraulic presses
Molding machines (for plastics)
Printing presses
Punching machinery

Control

Automatic forming of converter housings and covers. il Mach 70:98-100 D '63

Control unit protects press. A. Ragazzo. diag Automation 10:88 N '63

Fast-cycling stretch-draw forming press. il Mach 70:148+ D '63

Gaged press avoids overloading. R. A. Gibbons. il Iron Age 192:164-5 N 14 '63

Making presses really automatic. B. Wells. il diags Am Mach/Metalworking Manuf 107:119-22 O 14 '63

Portable automation for a small press shop. H. A. Joerger, jr. il Am Mach 108:69 Jl 20 '64

Pressure and position controls for a compacting press. F. W. Dorenbos. diags Hydraulics & Pneumatics 17:61-3 F '64

Universal bonding with a computer. il diags Am Mach 108:112 Ja 20 '64

Safety devices

Clutch/brake double valves. diags Hydraulics & Pneumatics 16:108-9 D '63

Protecting tooling in automatic presses. J. Meister il diags Automation 11:86-8 O '64

Udal fastrip press guard. il Engineering 198:458-9 O 9 '64

Udal hydraulic arrester for power press. il diag Metallurgia 70:110-11 S '64

Valves; new system with double-safety factor. diags Product Eng 34:27 D 23 '63

PRESSES, Forging. See Forging machinery

PRESSES, Hydraulic. See Hydraulic presses

PRESSURE

Alumina size distributions from high-pressure composite solid-propellant combustion. L. A. Povinelli and R. A. Rosenstein. bibliog diags AIAA J 2:1754-60 O '64

Analysis for oxygen by gas-phase polarography at low temperatures and low pressures; a prototype assembly. G. Halpert and others. il diags R Sci Instr 35:950-2 Ag '64

Analysis of the critical heat-flux condition in high-pressure boiling water flows. F. E. Tippets. bibliog diags A S M E Trans ser C 86:22-33; Discussion. il 33-6; Reply. 36-8 F '64

Apparatus for gravimetric determination of the effects of low pressure oxidation. R. W. Harrison and E. J. Delgrosso. bibliog diags J Sci Instr 41:222-4 Ap '64

Apparatus for the measurement of optical rotation of solutions at high pressure. S. J. Gill and R. L. Glogovsky. bibliog diags R Sci Instr 35:1281-3 O '64

Application of flow and stability theory to the design of externally pressurized spherical gas bearings. R. L. Grossman. bibliog il diag A S M E Trans ser D 85:495-502 D '63

Application of pressure and velocity criteria to the design of a centrifugal-pump impeller and inlet. P. Cooper. bibliog il A S M E Trans ser A 86:181-90 Ap '64

Automatic pressure calibration systems. R. C. Schumacher. il Instruments & Control Systems 37:83-5 F '64

Axial diffusion and pressure drop of liquids in porous media. E. P. Stahel and C. J. Geankoplis. bibliog flow diag diag A I Ch E J 10:174-9 Mr '64

Blowing effects on pressure interaction associated with cones. N. A. Thyson and E. E. H. Schurmann. AIAA J 1:2179-80 S '63; Discussion. 2:1868-9 O '64

Breakdown in air at very low pressure in a waveguide. A. S. Dunbar. bibliog J Ap Phys 35:3047-8 O '64

Breakdown voltages of some electronegative gases at low pressures. S. Schreier. bibliog diag IEEE Trans Power Apparatus & Systems 83:468-71 My '64

Buckling of a very thin cylindrical shell due to an impulsive pressure. H. E. Lindberg. bibliog il diag A S M E Trans ser E 31:267-72 Je '64

Buckling of circular arches under nonuniform pressure. W. Wempner and T. Ewbank. diag Am Soc C E Proc 89 [EM 4 no 3597]:17-20 Ag '63; Discussion. R. Schmidt. 89 [EM 6 no 3774]:275-6 D '63; Reply. 90 [EM 3 no 3936]:279-80 Je '64

Calculate pressure drop the easy way; local resistance to flow. L. Dodge. diags Product Eng 35:63-8 Mr 2 '64

Catalytic esterification of saturated carboxylic acids with ethylene under high pressure. S. K. Bhattacharyya and C. R. Lahiri. bibliog J Ap Chem 13:544-7 D '63

Causes and cures of pressure pulsation. W. S. Everett. Hydrocarbon Process & Pet Refiner 43:117-20 Ag '64

Collapse loads of orthotropic cylindrical shells under radial pressures. B. Venkatraman and R. Sankaranarayanan. diags Franklin Inst J 278:183-94 S '64

Collapse of pressure-loaded spherical shells. B. Klein. bibliog AIAA J 1:482 F '63; [cont in] Roy Aeronautical Soc J 68:631-3 S '64

Computer calculation of pressure drop. P. Taylor. il Chem Eng Prog 60:67-70 Ap '64

Consolidation testing with back pressure. J. Lowe, 3d and others. il diag Am Soc C E Proc 90 [SM 5 no 4058]:69-86 S '64

Correlation of some gas adsorption data extending to low pressures and supercritical temperatures. R. J. Grant and M. Manes. bibliog Ind & Eng Chem Fundamentals 3:221-4 Ag '64

Correlation of the critical pressure of conical shells with that of equivalent cylindrical shells. J. Singer. AIAA J 1:2675-6 N '63

Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86:12-22 F '64

Decreasing sorption effect with increasing pressure. P. A. Faeth and A. F. Clifford. bibliog Am Chem Soc J 86:1874-5 My 5 '64

Deflection of hinged rings under uniform pressure. J. A. Cheney. diags Am Soc C E Proc 89 [EM 6 no 3721]:161-76 D '63; Discussion. 90 [EM 3 no 3936]:291-4 Je; [EM 4 no 4000]:171-4 Ag '64

Designing a pressure-balanced gear pump for high pressures. D. S. Strader. diags Hydraulics & Pneumatics 17:66-9 Je '64

Designing a pressure intensifier. J. Morando. diags Hydraulics & Pneumatics 16:85-8 D '63

Dielectric measurements on glass at very high pressure. D. Chakravorty and L. E. Cross. bibliog diag Am Cer Soc J 47:370-4 Ag '64

Dynamic pressure of granular material in deep bins. A. M. Turitzin. bibliog diags Am Soc C E Proc 89 [ST 2 no 3479]:49-73 Ap '63; Discussion. 89 [ST 5 no 3688]:337-46 O; [ST 6 no 3743]:451-2 D '63; Reply. 90 [ST 2 no 3886]:357-9 Ap '64

Effect of anvil material on the generation of high pressures. J. H. King. bibliog diags J Sci Instr 41:102-4 F '64

PRESSURE—*Continued*

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Effect of pressure on the conductivity of battery electrolytes. R. A. Horne and others. bibliog Electrochem Soc J 110:1282-3 D '63

Effect of pressure on Young's modulus and the glass transition in rubbers. M. S. Paterson. bibliog J Ap Phys 35:176-9 Ja '64

Effect of temperature on pressure measurements. G. D. Arney, jr. and A. B. Bailey. diag AIAA J 1:2863-4 D '63

Effect of transient creep on the collapse time of cylinders and cones under external pressure. E. Z. Stowell and E. M. Briggs. AIAA J 1:2663-4 N '63

Effect of transverse enthalpy gradient on blunt body pressure distributions in hypersonic flow. D. Brooke and R. E. Thomas. AIAA J 2:1829 O '64

Effects of pressure and fluid saturation on the attenuation of elastic waves in sands. G. H. F. Gardner and others. bibliog diag J Pet Tech 16:Trans 189-98 F '64

Efficiency in a tetrahedral-anvil press as related to anvil and pyrophyllite size. M. D. Banus and S. D. Nye. bibliog il R Sci Instr 35:1319-23 O '64

Elastic instability of relatively thick circular cylindrical shells subjected to hydrostatic pressure. T. M. Barry and L. D. Ballow. bibliog il diags Naval Eng J 76:621-31 Ag '64

Elasto-plastic medium containing a cylindrical cavity under uniform internal pressure. R. D. Bhargava and C. B. Sharma. Franklin Inst J 277:422-7 My '64

Expeller bladders for space vehicles. J. Vanderbur. il diag Space/Aeronautics 41:95+ My '64

Film boiling of steam-water mixtures in annular flow at 800, 1100, and 1400 psi. E. E. Polomik and others. bibliog il diags A S M E Trans ser C 86:81-7; Discussion. 87-8 F '64

Fluid throttling devices for controlled flow resistance. L. Dodge. il diags Product Eng 35:81-7 Mr 30 '64

Frictional pressure drop in two-phase flow. A. E. Dukler and others. bibliog A I Ch E J 10:38-51 Ja '64

Galvanostalametry; a new technique, based on the negative pressure of liquids, for investigating electrochemical phenomena at an electrode. J. L. Sligh and A. Brenner. il diags Electrochem Soc J 110:1136-42 N '63

Gas-pressure bonding now production process. bibliog il Nucleonics 22:76 F '64

Gas pressure from pyrotechnic devices; drawings with text. A. W. Schellman. Product Eng 35:128-9 Ap 27 '64

Heat transfer and pressure drop of refrigerants evaporating in horizontal tubes. R. C. Johnston, jr. and J. B. Chaddock. ASHRAE J 6:91-2 My '64

Heat transfer in film boiling with pulsating pressures. D. A. Di Cicco and R. J. Schoenhals. bibliog diags A S M E Trans ser C 86:457-60; Discussion. J. D. Parker. 460; Reply. 460-1 Ag '64

Helix interruption constant for poly-L-glutamic acid from the pressure dependence of optical rotation. J. Rifkind and J. Applequist. bibliog Am Chem Soc J 86:4207-8 O 5 '64

High energy forming of glasses and ceramics. R. L. Hallse. Am Cer Soc Bul 42:711 N '63

High heat and pressure may lead to new steels. il Steel 154:58 F 24 '64

High-pressure effects on oxide glasses. J. D. MacKenzie. bibliog diags Am Cer Soc J 46:461-76; 47:76-80 O '63, F '64

High pressure, low temperature, glass-to-metal seal. T. S. Huang and others. diags R Sci Instr 35:637-8 My '64

High pressure polymorphic transitions studied by audio- and radio-frequency techniques. A. A. Giardini and others. il diags R Sci Instr 35:713-19 Je '64

Horizontal scroll centrifuge is designed for high pressures. il Chem Eng 71:100+ Ja 20 '64

How to determine free expansions of piping due to pressurization and nonuniform heating. J. E. Brock. diags Heating-Piping 36:152-5 Ja '64

Hydrates at high pressures. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5, 734-40 Mr, S '64

Intermolecular forces and chain flexibilities; internal pressures of polyethylene glycol in the region of its melting point. G. Allen and D. Sims. Rubber Chem & Tech 36:1000-2 O '63

Intraparticle pressure gradients in porous catalysts. S. Otani and others. diag A I Ch E J 10:130+ Ja '64

Isostatic pressing extends horizon of powder metallurgy. H. C. Jackson. il diags Mach 70:126-9 Ap '64

Isothermal bulk modulus of selected fluids to 700 F and 10,000 psig. V. Hopkins and others. A S M E Trans ser D 86:463-8 S '64

Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman. bibliog diags A I Ch E J 10:652-5 S '64

Kinetics of thermal cracking of paraffinic and naphthenic fuels at elevated pressures. B. M. Fabuss and others. bibliog Ind & Eng Chem Proc Design 3:33-7 Ja '64

Linearized viscous free mixing with streamwise pressure gradients. M. H. Steiger and M. H. Bloom. bibliog diags AIAA J 2:263-6 F '64

Longitudinal Knudsen forces. J. A. Poulis and others. bibliog diags J Sci Instr 41:295-301 My '64

Manifold pressures. S. E. Bonamy. bibliog Automobile Eng 54:397-401 S '64

Mass spectrometric investigation of the thermal decomposition of cyclobutane at low pressures. R. W. Vreeland and D. F. Swinehart. bibliog Am Chem Soc J 85:3349-53 N 5 '63

Materials for ultrahigh pressure sealing in Bridgman anvil devices. R. J. Vaisnys and P. W. Montgomery. diags R Sci Instr 35:985-9 Ag '64

Maximum total pressure recovery across a system of *n* shock waves. L. F. Henderson. AIAA J 2:1138-40 Je '64

New shear apparatus for temperatures of 1000°C and pressures of 50 kilobars. R. E. Riecker. il diags R Sci Instr 35:596-9 My '64

Nomograph determines pressure rise due to water hammer; data sheet. J. K. O'Hara. Heating-Piping 36:117-18 F '64

Nonequilibrium hypersonic flat-plate boundary-layer flow with a strong induced pressure field. G. R. Inger. bibliog AIAA J 2:452-60 Mr '64

Non-Newtonian fluids; tube entrance region flow. E. B. Christiansen. bibliog Chem Eng Prog 60:49-52 Ag '64

Permeation of gases through polyethylene films at elevated pressures. N. N. Li and E. J. Hanley. bibliog diags A I Ch E J 10:666-70 S '64

Precise measurement and prediction of bulk-modulus values for fluids and lubricants. E. E. Klaus and J. A. O'Brien. bibliog A S M E Trans ser D 86:469-74 S '64

Pressure and additive effects on flow of bulk solids. P. U. Bulsara and others. bibliog diags Ind & Eng Chem Proc Design 3:348-55 O '64

Pressure-bonding beryllium. il Nucleonics 21:72 O '63

Pressure changes during passage of a solute through a theoretical plate in gas liquid chromatography. R. P. W. Scott. bibliog diag Anal Chem 36:1455-61 Jl '64

Pressure cooling for fruits and vegetables. R. Guillou. bibliog il ASHRAE J 5:45-9 N '63

Pressure dependence of creep in white phosphorus. K. L. DeVries and others. J Ap Phys 35:536 Mr '64

Pressure dependence of the ^{59}Co nuclear magnetic resonance in hexagonal cobalt. D. H. Anderson and G. A. Samara. bibliog J Ap Phys 35:3043-4 O '64

Pressure dependence of the magnetization of cobalt. J. S. Kouvel and C. C. Hartelius. bibliog J Ap Phys 35:940-1 pt 2 Mr '64

Pressure distribution for hypersonic boundary-layer flow. M. S. Sastry. diag AIAA J 1:2398-9; 2:961-2 O '63, My '64

Pressure drop and liquid film thickness of two-phase annular and annular-mist flows. S. F. Chien and W. Ibele. bibliog il diags A S M E Trans ser C 86:89-96 F '64

Pressure drop due to the entrance region in ducts of arbitrary cross section. T. S. Lundgren and others. bibliog A S M E Trans ser D 86:620-6 S '64

Pressure effects on reaction rates; the compressibility of transition states. S. W. Benson and J. A. Berson. bibliog Am Chem Soc J 86:259-61 Ja 20 '64

PRESSURE—*Continued*

Pressure fluctuations and fatigue stresses in storage pumps and pump-turbines. R. A. Strub. bibliog il diags A S M E Trans ser A 86:191-4 Ap '64

Pressure gradient effects on nonequilibrium far wakes. N. Ness and J. B. Fanucci. bibliog AIAA J 2:1514-15 Ag '64

Pressure gradients in a liquid propellant rocket motor. W. T. Peschke and S. S. Hammer. AIAA J 2:1467-9 Ag '64

Pressure-induced growth of metal whiskers. C. H. Pitt and R. G. Henning. J Ap Phys 35:459-60 F '64

Pressure-induced transformations to crystal structures of lower packing density. F. K. Weddeling. J Ap Phys 35:1201-2 Ap '64

Pressure-sintered nickel oxide. R. M. Spriggs and others. bibliog il diags Am Cer Soc Bul 43:572-7 Ag '64

Pressure theory of the thermoelectric and photovoltaic effects. M. Green. bibliog diags J Ap Phys 35:2689-94 S '64

Pressure variation in a tank undergoing an acceleration. R. C. Progelhof. diags AIAA J 2:1505-7 Ag '64

Pressures in the stagnation regions of blunt bodies in rarefied flow. J. L. Potter and A. B. Bailey. bibliog AIAA J 2:743-5 Ap '64

Radiation pressure errors in Knudsen pressure gauges. S. Schalkowsky and T. Marshall, jr. diag R Sci Instr 35:908-9 Jl '64

Reactions of gaseous ions; high pressure mass spectrometric study of methane. F. H. Field and others. bibliog Am Chem Soc J 85:3575-83 N 20 '63

Recovery of the high-pressure phase of cadmium sulfide. J. A. Corll. bibliog J Ap Phys 35:3032-3 O '64

Relation between velocity and velocity pressure for air and other gases reference data. J. K. Brasch. Air Cond Heat & Ven 61:109-10 Ja '64

Residual pressure effects in polycrystalline aluminum. M. H. Miles and P. Gibbs. bibliog il J Ap Phys 35:1941-4 Je '64

Resonant detection of light pressure by a torsion pendulum in air; experiment for underclass laboratories. R. E. Pollock. Am J Phys 31:901-4 D '63

Rights and wrongs of gear checking pressure. L. D. Martin. il diags Ind Quality Control 21:197-202 O '64

Short-bearing solution for pressure distribution in a non-Newtonian lubricant. R. I. Tanner. A S M E Trans ser E 31:350-1 Je '64

Similarity in axisymmetric viscous free mixing with streamwise pressure gradient. M. H. Steiger. AIAA J 2:1509-10 Ag '64

Simple glow discharge probe for detecting weak shock waves at high pressure. J. Wadsworth and F. E. Stokes. J Sci Instr 41:52 Ja '64

Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64

Sources of ionisation in high-pressure gases above 2000°K. D. W. George. bibliog il diag Inst E E Proc 111:1619-23 S '64

Stability of internally pressurized conical shells under torsion. V. I. Weingarten. bibliog il diag AIAA J 2:1782-8 O '64

Study of the incompressible turbulent boundary layer with pressure gradient. P. A. Libby and others. bibliog AIAA J 2:445-52 Mr '64

Sudden expansion of a bounded jet at a high pressure ratio. E. J. Barakauskas. AIAA J 2:1644-5 S '64

System Al_2SiO_5 at high temperatures and pressures. R. C. DeVries. bibliog il diag Am Cer Soc J 47:230-7 My '64

Theoretical consideration of the low pressure region of protein monolayers. K. Motomura. bibliog J Colloid Sci 19:425-32 Je '64

Thermal decomposition of cyclobutane at low pressures. J. N. Butler and R. B. Ogawa. bibliog Am Chem Soc J 85:3346-9 N 5 '63

Thermal precipitation at reduced gas pressures. C. Orr, jr. and T. W. Wilson. il J Colloid Sci 19:571-7 Ag '64

Thin-walled specimen container for neutron scattering studies of liquids at high temperatures and pressures. S. J. Cocking and A. R. Ball. diag J Sci Instr 41:376-8 Je '64

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode; pressure and temperature dependence. P. L. Damour and G. W. Castellan. diag Electrochem Soc J 111:1280-3 N '64

Two-phase pressure drop across vertically mounted thick plate restrictions. J. O. Cermak and others. bibliog diags A S M E Trans ser C 86:227-39 My '64

Venting of high pressure fixed-bed catalytic reactors. D. Basmadjian. Can J Chem Eng 42:204-6 Je '64

Viscosity-temperature-pressure relationship of lubricating oils and its correlation with chemical constitution. C. J. A. Roelands and others. bibliog A S M E Trans ser D 85:601-7; Discussion. 607-8; Reply. 608-10 D '63

What's optimum exchanger pressure drop? F. W. Lohrisch. Hydrocarbon Process & Pet Refiner 43:153-7 Je '64

See also

Atmospheric pressure

Spectrum—Pressure effects

Vapor pressure

Wind pressure

PRESSURE cells

Cylindrical high temperature, high pressure apparatus. W. J. Witteman and T. Werkman. bibliog diags R Sci Instr 35:461-5 Ap '64

Pressure testing of thick reinforced concrete cell. S. H. Fistedis. il diags Am Soc C E Proc 90 [ST 2 no 3860]:31-54 Ap '64

PRESSURE controllers. See Pressure regulators

PRESSURE gages

Anomalous behaviour of blast pressure gauges with ferroelectric ceramic elements. J. C. Muirhead and W. J. Fenrick. diags J Sci Instr 41:483-4 Jl '64

Application of a piezoelectric bar gauge to shock tube studies. D. H. Edwards and others. bibliog diags J Sci Instr 41:609-13 O '64

Dead weight gauge utilizing an air loading device to measure varying pressures. S. K. Nisbet. bibliog diags J Sci Instr 41:415-20 Jl '64

Discharge gauge for transient density measurements. M. E. Levy. bibliog diags R Sci Instr 35:1232-3 S '64

Gages shrink with new technology. P. W. Harland. il Iron Age 194:62-4 O 15 '64

High pressure manganin gauge with multiple integral calibrants. G. A. Samara and A. A. Giardini. bibliog diag R Sci Instr 35:989-92 Ag '64

International conference on fundamental problems of low pressure measurements; abstracts of papers. Engineering 198:533 O 23 '64

New bottom-hole pressure gauge. J. W. Jones and J. D. Bennett. il diags J Pet Tech 15:1277-80 D '63

Piezoelectric gauges for measuring rapidly varying pressures up to seven kilobars. A. W. Blackstock and others. bibliog diag R Sci Instr 35:105-10 Ja '64

Pressure gauge with one-tenth microsecond risetime for shock reflection studies. D. Baganoff. bibliog il diags R Sci Instr 35:288-95 Mr '64

Pressure gauges; fluid power component selection charts. Hydraulics & Pneumatics 17:108 Ja '64

Radiation pressure errors in Knudsen pressure gauges. S. Schalkowsky and T. Marshall, jr. diag R Sci Instr 35:908-9 Jl '64

Remote reading bottom-hole pressure gauges; an evaluation of installation techniques and practical applications. R. F. Engel. il diags J Pet Tech 15:1303-13 D '63

Simple and sensitive differential pressure gauge. G. W. Green. diags J Sci Instr 40:593 D '63

Thermistor pressure gauge. R. H. Müller. Anal Chem 36:sup 119A Ap '64

See also

Anemometers

Ionization gages

McLeod gage

Manometers

Vacuum gages

PRESSURE measurement

Accurate pressure transducers for extreme environments. P. J. Colburn. il diags Ind Electronics 2:407-9 S '64

Air leakage and pressure measurements on two occupied houses. G. T. Tamura and A. G. Wilson. bibliog plans ASHRAE J 5:65-73 D '63

Compressor cylinder pressure measurements. E. C. Harry. il A S M E Trans ser A 86:89-94; Discussion 94:5 Ja '64

Determining pressure drop and refrigerant flow capacities of liquid line driers. E. Jones. diags ASHRAE J 6:70-4+ F '64

Device for determining pressure distribution in dry-pressing refractories. F. H. McRitchie. diags Am Cer Soc Bul 43:501-4 Jl '64

PRESSURE measurement—*Continued*

Effect of Mach number, incidence and hole position on the static pressure measured by a square ended probe. J. F. Hahn. il diags Roy Aeronautical Soc J 68:54-7 Ja '64

High pressure, low temperature, differential-pressure probe. J. G. McCreary and G. W. Swift. il diags R Sci Instr 35:1366-8 O '64

Laminar-flow pressure drop; nomograph; data sheet. F. Caplan. Power 108:86 F '64

Low-pressure marvels; solid-state transducers. J. C. Sanchez. bibliog il diags Astronautics & Aeronautics 2:50-3 Ap '64

Measuring fluctuating pressure. P. K. Stein. il diags Instruments & Control Systems 37:156-9 S '64

Measuring 100 pressures in 15 seconds. R. H. Cerni. il diag Control Eng 11:89 Jl '64

Pressure cell observations-Garrison dam project. H. A. Sikso and C. V. Johnson. il plans diags Am Soc C E Proc 90 [SM 5 no 4023]: 157-79 S '64

Pressure drop across regenerator of a Stirling cycle machine. G. Walker. diags Engineer 216:1063-6 D 27 '63

Pressure monitoring of packed towers. C. W. Yost and others. diag Chem Eng 70:130 N 25 '63

Pressure-sensing device. diag Product Eng 35:98 S 28 '64

Techniques for p-v-t measurements. R. T. Ellington and B. E. Eakin. bibliog il diags Chem Eng Prog 59:80-8 N '63

Testing program for lateral pressure of concrete. D. E. Fleming and W. H. Wolf. diags Am Concrete Inst J 60:567-74 My '63; Discussion. 60:1783-5 D '63

Transducers for measurement; devices for measuring pressure. L. E. Bollinger. il diags I S A J 11:65-70 S '64

Viscous interaction effects on a static pressure probe at $M=6$. W. Behrens. bibliog diags AIAA J 1:2864-6 D '63

See also

Gas, Natural—Well pressure

Manometers

Petroleum—Well pressure

PRESSURE regulation

Applying static pressure control in building areas and duct systems. C. J. Busch. il diags Air Cond Heat & Ven 61:56-9 Ap '64

Pressure set using Boyle's law. S. Siegel. il diags I S A J 10:69-70 D '63

PRESSURE regulators

Droop; nemesis of regulator valves. G. A. Groh. diags Automation 11:78-80 Jl '64

Fuel-cell pressure controller. il Electro-Tech 72:110 D '63

Hydraulic pressure-control valves. J. J. Pippenger. diags Machine Design 35:63-7 D 12 '63

Hydrogen pressure regulator with high absorption rate. O. Reifenschweiler. bibliog il diags R Sci Instr 35:456-60 Ap '64

Making pneumatic regulators stable; drill a capillary. T. P. Carey. diags Control Eng 11:87-9 F '64

Pneumatic servo regulators control pressure and flow. J. F. Taplin. diags Automation 11:89-92 Je '64

Pressure switches; fluid power component selection charts. Hydraulics & Pneumatics 17:109 Ja '64

Simple diaphragm pressure regulator for cryogenic bath temperatures. M. M. Kreitman. diag R Sci Instr 35:749-50 Je '64

Sizing pressure regulating values. C. D. Orth. ASHRAE J 6:72-5 Ap '64

See also

Valves, Hydraulic

PRESSURE vessels

Analysis of slightly anisotropic shells. R. G. Dong and S. B. Dong. bibliog AIAA J 1:2565-9 N '63

Comparing costs of materials for cryogenic containers. Chem Eng 70:136+ N 25 '63

Concrete pressure vessel for Wylfa. il Engineer 218:273 Ag 21 '64

Externally heated cold-seal pressure vessels for use to 10,000 bars and 750°C. W. C. Luth and O. F. Tuttle. diags Am Mineralogist 48:1401-3 N '63

Fabrication of epoxy electrical lead insulation for pressure vessels. J. A. Corll. diag R Sci Instr 35:243-4 F '64

Gages read pressure-vessel strain. il Iron Age 194:104 Jl 23 '64

Glass pressure reactor. L. M. Shorr and others. diag Chem & Ind p52-3 Ja 11 '64

Insulated storage controls helium pressure. diag Space/Aeronautics 40:94-5 N '63

Low cycle fatigue damage in pressure-vessel materials. J. G. Sessler and V. Weiss. bibliog diags A S M E Trans ser D 85:539-45; Discussion. 546-7 D '63

New nonbolted closure for reactor vessels. N. R. Johanson. diags Nucleonics 22:79-80+ F '64; Discussion. 22:6-8 Je '64

Pressure vessel for Oxford electrostatic generator. il Engineering 197:267 F 14 '64

Pressure vessels formed at cryogenic temperatures. il Metal Prog 85:124 Ap '64

Prestressing nuclear pressure vessels. S. C. C. Bate and others. il diags Engineering 197:492-5 Ap 3 '64

Quartz glass pressure vessels for hydrothermal studies. R. Speed and A. Filice. diags Am Mineralogist 49:1114-19 Jl '64

Sealing of large bore pressure vessels. R. H. Cornish and B. W. Abbott. diags A S M E Trans ser D 86:637-8 S '64

Simple technique for introducing electrical leads into a high pressure vessel. L. A. Davis and others. diags R Sci Instr 35:368-70 Mr '64

Small oil-filled pressure vessel capable of producing controlled pressures up to 200,000 psi. diag Product Eng 35:58 Mr 30 '64

Strength degradation of filament-wound pressure vessels. J. O. Outwater and W. J. Seibert. bibliog Mod Plastics 41:151-2+ My '64

Study of subcritical embrittlement in pressure vessel steels. A. W. Pense and others. bibliog Welding J 42:sup 541-6 D '63

Weld overlay protects vessels. il Iron Age 194:82 Ag 13 '64

See also

Autoclaves

Boilers

Design

Analytical design for optimum filamentary pressure vessels. H. U. Schuerch and O. R. Burggraf. bibliog il diags AIAA J 2:809-20 My '64

Burst test results simplify design of irradiation capsules for explosive materials. A. Mackenzie and E. W. Dalrymple. Nucleonics 22:85-7 F '64

Design of vessels for petroleum refining and petrochemicals services. J. S. Clarke and M. S. Northup. bibliog diags A S M E Trans ser A 86:411-17; Discussion. 417-18 O '64

Full-size pressure vessel testing and its application to design. L. F. Kooistra and others. bibliog il diags A S M E Trans ser A 86:419-28 O '64

Gasket bolts in pressure vessel design. diags Product Eng 35:85-7 S 14 '64

Material requirements for long-life pressure vessels. B. F. Langer and W. L. Harding. bibliog A S M E Trans ser A 86:403-9; Discussion. 409-10 O '64

Mechanical design for low temperature piping and vessels; special report. il diags Hydrocarbon Process & Pet Refiner 43:115-32 Je '64

Nonlinear pressure vessel stress analysis using the optimum programming approach. C. Hwang. diag AIAA J 1:2830-40 D '63

Orthotropic pressure vessels with axial constraint. C. R. Steele bibliog diags AIAA J 2:703-9 Ap '64

Planar-wound filamentary pressure vessels. R. F. Hartung. diag AIAA J 1:2842-4 D '63

Practical considerations in applying laboratory fracture test criteria to the fracture-safe design of pressure vessels. W. S. Pellini and P. P. Puzak. bibliog il diags A S M E Trans ser A 86:429-43 O '64

Pressure vessel design. J. F. Harvey. Review, by D. W. McLaughlin. Nucleonics 22:106-7 My '64

Structural design considerations for fibrous glass pressure vessels. J. T. Hofeditz. bibliog diags Mod Plastics 41:127+ Ap '64

Failure

Correlation of laboratory determinations of fracture toughness with the performance of large steel pressure vessels. E. T. Wessel. bibliog il diags Welding J 43:sup415-24 S '64

Effect of end conditions on the burst strength of finite cylinders. C. J. Costantino and others. bibliog diags A S M E Trans ser E 31:97-104 Mr '64

Fatigue characteristics of open-end thick-walled cylinders under cyclic internal pressure. T. E. Davidson and others. bibliog il diags A S M E Trans ser D 85:555-65 D '63

Fracture toughness and pressure vessel performance. C. M. Carman and others. bibliog il diags A S M E Trans ser A 86:465-71 O '64

Material requirements for long-life pressure vessels. B. F. Langer and W. L. Harding. bibliog A S M E Trans ser A 86:403-9; Discussion. 409-10 O '64

PRESSURE vessels—Failure—*Continued*

SAE aerospace group discusses pressure effects. diags Hydraulics & Pneumatics 17:67+ F '64

Lining

Designing monolithic refractory vessel linings. J. F. Wygant and M. S. Crowley. bibliog diags Am Cer Soc Bul 43:173-82 Mr '64

Manufacture

Beryllium alloy used in pressure vessel. il Chem & Eng N 42:50+ Je 15 '64

Building an atomic-age furnace. H. W. Bredin il Mach 71:105-11 S '64

Cryogenic storage vessels are made to stringent requirements. V. L. Potter. il Mach 70:117-21 Ap '64

High strength pressure vessels by stretch forming. S. W. Henderson. il Materials in Design Eng 60:104-6 N '64

Large boiler and pressure vessel fabrication; Babcock and Wilcox ltd. il Engineer 218: 401-5 S 11 '64

Mismatch stresses in pressure vessels. R. H. Johns. diags AIAA J 2:1827-8 O '64

Sandwich cylinder construction for underwater pressure vessels. N. O. Brink. diag Materials Res & Stand 4:162-4 Ap '64

Weld overlay solves corrosion problem. Steel 155:114 N 2 '64

Safety measures

Impervious graphite rupture discs. G. Sarvadi. il diags Instruments & Control Systems 37:135-7 S '64

Rupture discs. F. D. Marton. il Instruments & Control Systems 37:128-30 S '64

Selection and sizing of rupture units. R. L. Solter and others. bibliog il diag Instruments & Control Systems 37:131-4 S '64

Standards

ASME boiler and pressure vessel code (cont). Mech Eng 86:76-7 Ja; 95 F; 158-9 Ap; 85 Je; 78-9 Ag; 83-4 O '64

Recent developments in pressure vessel steels; U.S. vs. Europe. J. F. Lancaster. Hydrocarbon Process & Pet Refiner 43:161-70 O '64

Rules for construction of nuclear vessels; a report on the ASME boiler and pressure vessel code. E. O. Bergman. Materials Res & Stand 4:175-6 Ap '64

Tables, calculations, etc.

Calculating weight efficiencies of pressure vessels. R. H. Reid. Materials in Design Eng 59:82-3 Mr '64

Cut vessel flange costs by computer. T. H. Korelitz. diags Hydrocarbon Process & Pet Refiner 43:125-9 Jl '64

Plastic analysis of radial outlets from spherical pressure vessels. N. C. Lind. bibliog diags A S M E Trans ser B 86:193-8 My '64

Strength of thick-walled cylindrical pressure vessels. J. Marin and T. L. Weng. bibliog il diags A S M E Trans ser B 85:405-16 N '63

Stress and total strain rate distribution in spherical pressure vessels. A. E. Johnson and J. Henderson. Engineer 217:729-39 Ap 24 '64

Use table to find ASME vessel thickness. R. Feng. Hydrocarbon Process & Pet Refiner 43:138 Ap '64

Testing

Assessment of steels for nuclear reactor pressure vessels. A. Cowan and R. W. Nichols. bibliog il A S M E Trans ser A 86:393-401; Discussion. 401-2 O '64

Cryogenically stretch-formed type 301 stainless steel for cryogenic service. R. H. Alper. bibliog il diags Materials Res & Stand 4:525-32 O '64

Effect of stress on the radiation stability of ASTM A 302 grade B pressure-vessel steel. M. B. Reynolds. diag Materials Res & Stand 3:644-5 Ag '63; Same. Naval Eng J 75:965-6 D '63

Effects of neutron irradiation at 250°C on the tensile and impact properties of a one per cent Cr-0.5 per cent Mo pressure vessel steel. D. R. Harries and others. bibliog il diags Iron & Steel Inst J 202:448-53 My '64

Experimental study of the strength of standard flanged and dished and ellipsoidal heads convex to pressure. R. Bart. il diags A S M E Trans ser B 86:188-92 My '64

Full-size pressure vessel testing and its application to design. L. F. Kooistra and others. bibliog il diags A S M E Trans ser A 86:419-28 O '64

Internal pressure cyclic fatigue test of an HY-80 marine boiler drum. I. Berman and D. H. Pai. il diags Welding J 43:sup24-32 Ja '64

Logging strains at Oldbury. il Engineering 197:783 Je 5 '64

Nickel-steel tank tests at minus 320. L. P. Zick and others. il diags Mech Eng 85:40-4 Jl '63; Discussion. 85:75-7 D '63

Overpressure tests on a prototype duct corner unit. C. H. A. Townley and E. Procter. il diags Engineer 216:1057-63 D 27 '63

Pressure vessel tested with liquid nitrogen inside. il Engineering 198:72 Jl 17 '64

Quick disconnects help boost gas cylinder pressure testing. il Welding J 43:761 S '64

Strain measurement in concrete pressure vessels. il Engineer 217:960-1 My 29 '64

Why the boiler burst under test. il Engineering 198:254 Ag 28 '64

PRESSURIZED containers. See Containers, Pressurized

PRESSURIZED gas bearings. See Bearings

PRESSURIZED water reactors. See Nuclear reactors—Pressurized water reactors

PRESSWORK. See Printing, Practical—Presswork

PRESTRESSED concrete. See Concrete—Prestressing

PRESTRESSED concrete institute

P.C.I. honors eleven structures in awards program. il Arch Rec 136:12-13 S '64

PREVENTIVE medicine. See Medicine, Preventive

PRICE, Charles C.

Price is ACS president-elect for 1964. por Chem & Eng N 41:74 D 16 '63

PRICE fixing

Phosphate producers indicted; federal grand jury charges price fixing. Chem & Eng N 41:26 N 18 '63

Salt companies sued again. Chem & Eng N 42:38+ O 26 '64

Trustbusters shift to phosphate fertilizers. Chem & Eng N 42:23-4 My 11 '64

PRICE policies

How to price specials. R. R. Putnam. Am Mach 108:69-72 Ap 27 '64

PRICES

Reduction of queues through the use of price. W. A. Leeman. Op Res 12:783-5 S '64

See also

Price fixing
Price policies

also subdivision Prices under special subjects, e.g.

Aluminum
Chemicals
Coal
Copper
Gasoline
Materials
Metals
Petroleum products
Plastics
Polyethylene
Steel

PRIESTLEY medal

Esso's Sparks named Priestley medalist. Chem & Eng N 42:28 S 7 '64

John C. Bailar awarded Priestley medal. Chem & Eng N 42:36 Ap 13 '64

PRIME numbers. See Numbers, Prime

PRINCETON university

Structure plays leading role in latest Yamasaki designs; Princeton building with colonnaded facade. il plan diag Arch Rec 134: 108-10 D '63

PRINCI, Frank

Early professional years. H. J. Dodge. por Ind Med 32:514-15 D '63

Obituary. R. F. Buchan. por Archives Environmental Health 8:199-201 F '64

PRINCIPLE of the maximum

Application of the discrete maximum principle to a transportation problem. L. T. Fan and C. S. Wang. diag J Math & Phys 43: 255-60 S '64

Application of the discrete maximum principle to crosscurrent extraction with a simple recycle stream. R. L. Zahradnik and D. H. Archer. diag Ind & Eng Chem Fundamentals 3:384-6 N '64

PRINCIPLE of uncertainty. See Uncertainty principle

PRINTED circuits. See Electric circuits—Printed circuits; Electronic circuits—Printed circuits

PRINTERS

For Dard Hunter life began at forty. H. F. Lewis. il Tappi 46:sup28A+ N '63

PRINTERS—*Continued*

Rudolph Ruzicka brings back memories of typographic greats. Inland Ptr/Am Lithogr 152:65 Ja '64

See also

International association of printing house craftsmen

PRINTING

Conversion systems; what they are, how they operate. il Inland Ptr/Am Lithogr 153:38-41 Jl '64

How automation and technology will change Chicago's printing industry. Inland Ptr/Am Lithogr 153:63 S '64

Impact of container design on printing. E. H. Merz. il Drug & Cosmetic Ind 93:642-3+ N '63

Web-offset versus letterpress and gravure. O. E. Freedman. il Inland Ptr/Am Lithogr 153:35-7+ Jl '64

See also

Advertisements—Printing
Color printing
Flexography
Labels—Printing
Lithography
Packaging materials—Printing
Paper boxes—Printing
Photomechanical processes
Printing machinery
Rotogravure
Silk screen printing
Textile printing
Xerography

Bibliography

Books for the printer. Inland Ptr/Am Lithogr 150:76 N '62; 78 F; 84 Mr; 151:67 Jl; 58 Ag; 152:78-9 N; 130 D '63; 114-15 F; 96-7 Mr; 153:66 My; 136 Je; 100+ Ag; 114 S; 154:70 O; 83 N '64

History

Michigan artist revives ancient litho stone process. il Inland Ptr/Am Lithogr 153:79 Ap '64

Printing educator collects ancient items of black art. Inland Ptr/Am Lithogr 153:57 Ag '64

Prize contests

Galley 10; 10th annual awards exhibit. il Inland Ptr/Am Lithogr 153:52-3 Je '64

Printing winners in 1964 folding carton competition. il Inland Ptr/Am Lithogr 153:65 Ap '64

Specimens

Specimen review. Published in monthly numbers of Inland printer/American lithographer

Study and teaching

See Printing, Practical—Study and teaching

Typography

Americans may be falling behind in type design. A. Lawson. il Inland Ptr/Am Lithogr 153:70-1 My '64

Book types losing ground to market-place faces. A. Lawson. Inland Ptr/Am Lithogr 153:56-7 Jl '64

Design for Richardson. F. A. Richardson. Inland Ptr/Am Lithogr 152:68+ O; 80+ N; 76+ D '63; 57+ Ja '64

Distinction between upper and lower case may disappear in the future; Alphabet 26. A. Lawson. diag Inland Ptr/Am Lithogr 152:120+ D '63

Galley 10; 10th annual awards exhibit. il Inland Ptr/Am Lithogr 153:52-3 Je '64

How phonetic spelling will affect typography. A. Lawson. Inland Ptr/Am Lithogr 152:64-5 Ja '64

New alphabet spells safety. Safety Maint 128: 13+ O '64

1964 is vintage year for books on topography. A. Lawson. il Inland Ptr/Am Lithogr 154: 68-9 O '64

Some postwar roman faces rank with classic revivals. A. Lawson. Inland Ptr/Am Lithogr 153:66-7+ Ag '64

Twelve points of typography. Inland Ptr/Am Lithogr 153:70 Je '64

Type founders are keeping pace with demand for modern gothics. A. Lawson. Inland Ptr/Am Lithogr 152:74-5 N '63

Typographic scoreboard. A. Lawson. Inland Ptr/Am Lithogr 151:53 Je; 75 S; 152:63 D '63

Young typographers are going back to design of roaring twenties. A. Lawson. Inland Ptr/Am Lithogr 152:70-1 Mr '64

PRINTING, Electrostatic

Electrophotographic paper requirements for multicolor electrostatic printing. F. C. Myers and J. W. Gladden. bibliog il Tappi 47:sup 139A-44A S '64

Electrostatic printing papers, features for performance effectiveness. M. L. Levene. bibliog diags Tappi 46:sup 170A-5A D '63

PRINTING, Offset

Blankets are critical factor in successful offset printing. il Inland Ptr/Am Lithogr 152:54-5 N '63

Color revolution will double market for web-offset. H. Safran. Inland Ptr/Am Lithogr 154:66-7+ O '64

Commercial printers have wide choice of wrap-around, letterset (dry offset) presses. il Inland Ptr/Am Lithogr 153:58-60 Ag '64

Difficulties spur changes in web-offset. R. Wardley. Inland Ptr/Am Lithogr 153:58-9 Jl; 68-9 Ag '64

How lithographers can print successfully with gold inks. A. Hendler. il Inland Ptr/Am Lithogr 152:56-62+ O; 56-61+ N '63

How offset blankets meet rigors of metal decorating. il Inland Ptr/Am Lithogr 152: 124+ D '63

How offset printers can avoid hickies. O. Diehl. il Inland Ptr/Am Lithogr 154:58 O '64

How to get better plate life on your web offset press. Inland Ptr/Am Lithogr 153:74 My '64

How to shoot duotones for offset. J. G. Sellinger. il Inland Ptr/Am Lithogr 153:67+ S '64

Manufacturers offer variety of web offset equipment. il Inland Ptr/Am Lithogr 153: 52-4+ My '64

Memphis firm builds new plant, enters offset field. il plan Inland Ptr/Am Lithogr 152:50-2 F '64

New concept in web-to-sheet feeding of offset presses. T. E. Redstone. diag Inland Ptr/Am Lithogr 153:80-1+ S '64

Offset; questions and answers (cont). Inland Ptr/Am Lithogr 152:126 D '63; 71 F; 73+ Mr; 153:75 My; 75 Je; 59 Jl; 69 Ag; 81 S; 154:67 O; 71 N '64

Paper requirements and performance on heat set web offset equipment. K. L. Wallace and N. J. Beckman. Tappi 47:sup 136A-7A Ap '64

Past year has seen major improvements in offset. M. H. Bruno. il diag Inland Ptr/Am Lithogr 152:60-3 Mr '64

Requirements of coated offset papers. A. Carlson. Tappi 47:sup 119A-22A My '64

Should you buy web- or sheet-fed offset presses? who decides? R. B. Hubbard. Inland Ptr/Am Lithogr 153:55 My '64

Small-town company competes successfully with big-city printers on web-offset publications. il Inland Ptr/Am Lithogr 153:72-3 S '64

Status of web offset research. M. H. Bruno. Tappi 47:sup 12A+ Ag '64

This business of printing. H. Stagnito. il diag Comp Air Mag 69:4-7 Ag; 12-15 S '64

Two-colour offset press. il diag Engineer 216:761 N 8 '63

Web-offset versus letterpress and gravure. O. E. Freedman. il Inland Ptr/Am Lithogr 153: 35-7+ Jl '64

What the lithographer should know about uncoated offset papers. W. E. Yochheim. il Inland Ptr/Am Lithogr 154:50-2 O; 54+ N '64 (to be cont)

What's new in offset dampening systems. H. W. Gegenheimer. il diags Inland Ptr/Am Lithogr 152:58-9+ F '64

Where is web offset going now? H. Safran. il Inland Ptr/Am Lithogr 152:49-51 N '63

See also

Photolithography

PRINTING, Practical

How to select the correct adhesives for pressure-sensitive purposes. J. Questel. Inland Ptr/Am Lithogr 154:59 O '64

See also

Forms and blanks, Business—Printing
Paper—Printing properties
Printing presses
Proofreading
Typesetting

Costs

How to cut typesetting costs. H. J. Reilley. il Inland Ptr/Am Lithogr 153:54-5 Je '64

How to reduce costs in letterpress printing. J. R. Parrish. il Inland Ptr/Am Lithogr 153:49-51 Je '64

Presswork

Pressroom. Published in monthly numbers of Inland printer/American lithographer

PRINTING, Practical—*Continued*

Study and teaching

Modernize your pressmen, too. G. W. Bassett. Inland Ptr/Am Lithogr 152:70-1+ F '64

Peace corps volunteers teach printing in Afghanistan. Inland Ptr/Am Lithogr 152:122+ Mr '64

PRINTING, Specialty

Design your own Christmas card this year. il Inland Ptr/Am Lithogr 152:62-3 N '63

Detroit firm is department store of printing services. il Inland Ptr/Am Lithogr 153:74+ S '64

San Francisco printer is supplier to rigid box industry. H. R. Stoakes. il Inland Ptr/Am Lithogr 154:60-1+ O '64

Specialty printer. Published in monthly numbers of Inland printer/American lithographer

PRINTING, Textile. See Textile printing

PRINTING associations

See also

International association of printing house craftsmen

PRINTING for blind. See Blind, Printing for

PRINTING house craftsmen, International association of. See International association of printing house craftsmen

PRINTING industry of America

Annual convention, 78th, St Louis, Mo. Sept. 21-25; program. Inland Ptr/Am Lithogr 153:70-1+ S '64

Cold type composition conference and exhibit, Chicago, Nov. 19-21; program. Inland Ptr/Am Lithogr 154:102 O '64

Lithographic trade platemakers section formed. Inland Ptr/Am Lithogr 152:100 D '63

PRINTING machinery

Machine prints labels individually. il Engineering 197:235 F 7 '64

Manufacturers offer variety of web offset equipment. il Inland Ptr/Am Lithogr 153:52-4+ My '64

Oscillating shaft driven with simple harmonic motion. P. W. Jensen. diags Mach 70:142 F '64

Ticket to cost-cutting. il Textile Ind 128:112 Mr '64

See also

Printing presses

Typesetting machines

PRINTING offices

Australia builds new $7-million government printing office. il Inland Ptr/Am Lithogr 152:72-3 F '64

How Victor Business Forms built a new plant. il Inland Ptr/Am Lithogr 153:58-60 Ap '64

Memphis firm builds new plant, enters offset field. il plan Inland Ptr/Am Lithogr 152:50-2 F '64

See also

United States—Government printing office

Air conditioning

National Litho moves to model printing plant. J. D. Phelan. il Inland Ptr/Am Lithogr 153:78-9 Ap '64

Composing rooms

Composing room. A. Lawson. Published in monthly numbers of Inland printer/American lithographer

Equipment

New Texas plant is geared for expansion; Litho press, inc. of San Antonio. J. H. Reed. il Inland Ptr/Am Lithogr 153:54-5 Ag '64

What's new in equipment and supplies? Published in monthly numbers of Inland printer/American lithographer

Lighting

Fewer errata? printing plant uses 200 fc. il Illum Eng 59:216 Ap '64

Good lighting aids seeing in printing plant. il Elec Constr & Maint 63:122+ Jl '64

Management

Computers a growing factor in today's printing industry. D. L. Ritter. Inland Ptr/Am Lithogr 153:52 Jl '64

Detroit firm is department store of printing services. il Inland Ptr/Am Lithogr 153:74+ S '64

How to analyze your production control requirements. R. C. Short. diag Inland Ptr/Am Lithogr 153:72+ Ap '64

Small-town company competes successfully with big-city printers on web-offset publications. il Inland Ptr/Am Lithogr 153:72-3 S '64

Suggestion plan can produce profit-making ideas. Inland Ptr/Am Lithogr 153:48-9 Jl '64

Technological changes call for management ingenuity. M. C. Rogers. Inland Ptr/Am Lithogr 153:43-5 Ag '64

Moving

National Litho moves to model printing plant. J. D. Phelan. il Inland Ptr/Am Lithogr 153:78-9 Ap '64

Records

How to design a job ticket for a small printing plant. D. M. Ferguson. Inland Ptr/Am Lithogr 152:64-5+ D '63; 52-3+ Ja; 60-1 F '64

Safety measures

How small printers and lithographers can have an effective safety program. Inland Ptr/Am Lithogr 154:57 O '64

Paper cutter safety device speeds cutting of narrow work. F. N. Burt. il Inland Ptr/Am Lithogr 154:56 O '64

PRINTING on glass

Color decoration and printing on glass containers. J. W. Hackett and H. H. Holscher. bibliog il Glass Ind 45:237-43, 296-300, 358-61+, 420-5+ My-Ag '64

PRINTING on metal

How offset blankets meet rigors of metal decorating. il Inland Ptr/Am Lithogr 152:124+ D '63

How to lithograph aluminum foil. V. J. Shaw. Inland Ptr/Am Lithogr 153:56 Ag '64

PRINTING on plastics

Adhesion of printing inks and adhesives on pretreated polyolefin surfaces. K. F. Büchel. bibliog il Brit Plastics 37:142-5 Mr '64

Clearly educational. il Plastics World 22:60-1 My '64

Factors influencing the design of molded plastics parts. R. L. Davis and H. W. Ashley. diags Plastics World 21:16-18 D '63

Getting a new look with valley printing. M. Marlowe and M. W. Neitlich. il diags Mod Plastics 41:104-6+ Je '64

New Jersey printer scores success with acetate overlays. il Inland Ptr/Am Lithogr 153:64-5 Ag '64

Plasma jet process activates polymer surface for printing; abstract. R. M Mantell and W. Ormand. il Chem & Eng N 42:72+ Ap 20 '64

PRINTING plates

New letterpress plates in your future; abstract. C. C. Harris. Inland Ptr/Am Lithogr 153:74 Je '64

New methods speed positioning of color plates on rotary press. G. Marsh. il Inland Ptr/Am Lithogr 152:72-3 Mr '64

PRINTING plates, Plastic

Dycril in wraparound and letterset printing. P. H. Smith. Tappi 46:sup 167A-8A D '63

PRINTING plates, Rubber

15 check-points for longer rubber plate life. il Inland Ptr/Am Lithogr 152:76-7 N '63

PRINTING presses

Commercial printers have wide choice of wrap-around, letterset (dry offset) presses. il Inland Ptr/Am Lithogr 153:58-60 Ag '64

Letterpress process of tomorrow; its paper requirements. W. E. Ward, 3d. Tappi 46:sup 166A-7A D '63

Review of 1964's business forms equipment. il Inland Ptr/Am Lithogr 153:66-9 Ap '64

Should you buy web- or sheet-fed offset presses? who decides? R. B. Hubbard. Inland Ptr/Am Lithogr 153:55 My '64

Two-colour offset press. il diag Engineer 216:761 N 8 '63

See also

Printing, Offset

Printing machinery

Control

What's new in offset dampening systems. H. W. Gegenheimer. il diags Inland Ptr/Am Lithogr 152:58-9+ F '64

Maintenance and repair

How to get better plate life on your web offset press. Inland Ptr/Am Lithogr 153:74 My '64

PRINTING processes, Photographic. See Photography—Printing processes

PRINTING research

New computers are changing printing industry production techniques. J. N. Pannullo. il plan Inland Ptr/Am Lithogr 153:60-1 Je '64

PRINTING supplies industry

Directories

Equipment services and supplies: annual directory. Inland Ptr/Am Lithogr 152:145-94 D '63

PRINT-OUT machine. See Calculating machines—Print-out equipment

PRISMS

Magnesium fluoride polarizing prism for the vacuum ultraviolet. W. C. Johnson, jr. bibliog il R Sci Instr 35:1375-6 O '64

Magnetic anomalies due to prism-shaped bodies with arbitrary polarization. B. K. Bhattacharyya. diags Geophysics 29:517-31 Ag '64

Three-prism design for laser Q-switch. il Electronics 37:121 Ag 10 '64

Use of Wollaston prisms for a high-capacity digital light deflector. W. J. Tabor. diag Bell System Tech J 43:1153-4 My '64

Wave front shearing prism interferometer. J. B. Saunders. bibliog il diags J Res Nat Bur Stand 68C:155-71 Jl '64

PRISONS

Designers turn bars into beauty; Wayne County jail, Detroit. il diag Eng N 172:24 Mr 5 '64

New prison lavatory; reference data. R. Steffens. il diags Air Cond Heat & Ven 61:90-4 My '64

PRIVACY, Right of

Hi fi and the British; privacy. A. Watling. Audio 48:38 S '64

PRIVATE brands

Day of the private label. P. Vautin. il Drug & Cosmetic Ind 95:27-8 Jl '64

PRIVATE enterprise. See Capitalism

PRIVATE wire systems. See Telephone—Private wire systems

PRIVIES

Vitreous china water closets; detail sheets. diags Air Cond Heat & Ven 61:99-102 O '64

PRIZE contests

Announcing the winners! sump pump spectacular dealer contest. il Dom Eng 202:66-79 D '63

Designing for arc welding; winners of the 1963 award program. il diags Product Eng 34:71-7 N 25 '63

Gray iron founders society design contest. il Product Eng 34:77 N 11 '63

Hydraulics & Pneumatics 1964 prize paper contest awards. il diags Hydraulics & Pneumatics 17:91-108+ O '64

Lighting fixture and welding head win 1963 Alcoa industrial design awards. il Mod Metals 19:72 D '63

Winners of the Chicago molded plastic corp. contest. il Product Eng 34:33-4 D 23 '63

Winners of the Malleable founders society annual design contest. il Product Eng 34:34 D 23 '63

See also

Printing—Prize contests

PROBABILITIES

Amplitude-probability distribution of atmospheric radio noise. P. Beckmann. bibliog J Res Nat Bur Stand 68D:723-36 Je '64

Application of a modified conditional probability computer to chemical process optimization. E. B. Tinker and P. N. Nikiforuk. bibliog diags Can J Chem Eng 42:126-31 Je '64

Application of the excess distribution to an inventory study. M. A. Geisler. Op Res 12:620-3 Jl '64

Approach to empirical time series analysis. E. Parzen. bibliog J Res Nat Bur Stand 68D:937-51 S '64

Approximate circular and noncircular offset probabilities of hitting. F. E. Grubbs. bibliog diag Op Res 12:51-62 Ja '64

Basic probabilistic methods in geological search. A. Kyrala. Geophysics 29:105-8 F '64

Bayesian statistics. L. G. Locke. Ind Quality Control 20:18-22 Ap '64

Calculations with pseudo-random numbers. F. Stockmal. bibliog Assn for Computing Mach J 11:41-52 Ja '64

Central limit theorem for correlated random variables. M. Blum. IEEE Proc 52:308-9 Mr '64

Consideration of two ensemble methods for treating a certain class of stochastic problems. D. Martin. IEEE Proc 51:1786-7 D '63

Correlation times and spectral bandwidths for non-stationary random processes. H. Kaufman. Electronic Eng 35:813 D '63

Critical Path analyses via chance constrained and stochastic programming. A. Charnes and others. bibliog diags Op Res 12:460-70 My '64

Cumulative probability of detection for targets approaching a uniformly scanning search radar. J. D. Mallett and L. E. Brennan. IEEE Proc 51:596-601 Ap '63; Correction. 52:708-9 Je '64

Current topics in the stochastic theory of radiation. F. J. Zucker. diags J Res Nat Bur Stand 68D:989-93 S '64

Discrete spectral densities of Markov pulse trains. R. D. Barnard. bibliog flow diag Bell System Tech J 43:233-59 Ja '64

Distribution of busy time for a simple queue. I. Greenberg. Op Res 12:503-4 My '64

Effect of linear and nonlinear signal processing on signal statistics. A. V. Balakrishman. bibliog J Res Nat Bur Stand 68D:953-65 S '64

Establishment and replenishment comparison of synchronous and medium altitude satellite systems; analytic approach. R. J. Heppe. IEEE Proc 52:762-9 Jl '64

Evaluation of a pseudorandom normal number generator. R. Kronmal. bibliog Assn for Computing Mach J 11:357-63 Jl '64

Failure studies help engineers predict jet engine reliability. G. Reethof. bibliog S A E J 72:100-2 My '64

Fracture of brittle solids; maxima in the differential probability distribution for single fracture. J. J. Gilvarry and B. H. Bergstrom. bibliog J Ap Phys 35:1644-6 My '64

Generalization of a Markoff envelope process. R. Esposito. IEEE Proc 51:1792 D '63

Geometrical probability in automatic pattern recognition. A. Rosenfeld. IEEE Proc 52:1269-70 O '64

In-process gaging brings out machine capability. F. Giordano. il diags Tool & Manuf Eng 52:65-7 Je '64

Inequalities for stochastic nonlinear programming problems. O. L. Mangasarian and J. B. Rosen. bibliog Op Res 12:143-54 Ja '64

Markov processes representing traffic in connecting networks. V. E. Beneš. bibliog diag Bell System Tech J 42:2795-837 N '63

Markov-renewal programming. W. S. Jewell. flow charts Op Res 11:938-71 bibliog(p970-1) N '63

Mixed congruential random number generators for binary machines. T. E. Hull and A. R. Dobell. bibliog Assn for Computing Mach J 11:31-40 Ja '64

NEASIM; a general-purpose computer simulation program for load-loss analysis of multistage central office switching networks. R. F. Grantges and N. R. Sinowitz. diags Bell System Tech J 43:965-1004 bibliog(p 1003-4) My '64

New method of locating the maximum point of an arbitrary multipeak curve in the presence of noise. H. J. Kushner. bibliog diags A S M E Trans ser D 86:97-106 Mr '64

Occupation time problems in the theory of queues. L. Takács. bibliog Op Res 12:753-67 S '64

Optimization of random-access discrete address communications. R. C. Sommer. IEEE Proc 52:1255 O '64

Optimum test procedure under stress. H. Greenberg. bibliog Op Res 12:689-92 S '64

Paradoxical features of uniformly distributed random events. K. S. Kunz. Am J Phys 32:562-5 Jl '64

Pre-envelopes of nonstationary bandpass processes. H. Urkowitz. bibliog Franklin Inst J 277:31-6 Ja '64

Probabilistic approach to the problem of large antenna arrays. Y. T. Lo. bibliog J Res Nat Bur Stand 68D:1011-19 S '64

Probabilistic design to resist earthquakes. E. Rosenblueth. Am Soc C E Proc 90 [EM 5 no 4090]:189-220 bibliog(p215-18) O '64

Probability. M. Kac. diags Sci Am 211:92-6+ S '64

Probability density function for phase-difference estimates obtained from the envelopes of the sum and difference of two sine waves. W. B. Kendall. diag IEEE Proc 52:1072 S '64

Probability math shows benefits of pooling. J. H. Cronin. Elec World 162:66-8 Jl 13 '64

Probability method for determining the reliability of electric power systems. C. F. DeSieno and L. L. Stine. bibliog diags IEEE Trans Power Apparatus & Systems p 174-9; Discussion 179-81 F '64

Probability method for transmission and distribution outage calculations. Z. G. Todd. diags IEEE Trans Power Apparatus & Systems 83:695-701; Discussion. 756-7 Jl '64

Probability of meteoroidal penetration. F. B. Shaffer. bibliog AIAA J 2:738-42 Ap '64

PROBABILITIES—*Continued*

Probability of structural failure under random loading. M. Shinozuka. bibliog Am Soc C E Proc 90 [EM 5 no 4088]:147-70 O '64

Procedure for the determination of impact probabilities. D. R. Cruise. AIAA J 1:2668-9 N '63

Project yields by a probability method. W. D. Maughan and R. Y. Kawano. bibliog map Am Soc C E Proc 89 [HY 3 no 3513]: 41-60 My '63; Correction. 89 [HY 5 no 3656]:171 S '63; Discussion. 89 [HY 6 no 3708]:279-86 N '63; 90 [HY 1 no 3783]:273-6 Ja '64; Reply. 90 [HY 3 no 3911]:327-30 My '64

Radar detection. W. L. Rubin and J. V. Difranco. bibliog il diags Electro-Tech 73: 61-90 Ap '64 (reprints $1)

Radiometeorological study; analysis of vhf field strength variations and refractive index profiles. B. R. Bean and others. bibliog map diag J Res Nat Bur Stand 67D: 597-604 N '63

Random walk study of convective diffusion. G. Bugliarello and E. D. Jackson. bibliog diags Am Soc C E Proc 90 [EM 4 no 4003]:49-77 Ag '64

Random walks, fire damage amount and other Paretian risk phenomena. B. Mandelbrot. bibliog Op Res 12:582-5 Jl '64

Ranking laboratories and evaluating methods of measurement in round-robin tests. T. W. Lashof. bibliog Materials Res & Stand 4: 397-407 Ag '64

Reduction of an integral of the joint Rayleigh probability density to tabulated functions. W. D. Mark. bibliog IEEE Proc 52:741-2 Je '64

Relations between time and ensemble averages for weekly nonergodic random processes. A. A. Wolf. IEEE Proc 51:1672-3 N '63

Response of a loaded nonlinear string to random excitation. S. T. Ariaratnam. A S M E Trans ser E 29:483-5 S '62; Discussion. 30: 634-6 D '63

Review of some basic characteristics of probability methods as related to power system problems. C. W. Watchorn. IEEE Trans Power Apparatus & Systems 83:737-43 Jl '64; Discussion. 83:868-72; Reply. 872-3 Ag '64

Risk criteria. L. E. Borgman. bibliog Am Soc C E Proc 89 [WW 3 no 3607]:1-35 Ag '63; Discussion. C. A. Cornell. 90 [WW 1 no 3814]:167-70 F '64

Ruin problem for the generalized random walk. J. Keilson. diags Op Res 12:504-6 My '64

Some nonlinear problems arising in the study of random processes. M. Rosenblatt. bibliog J Res Nat Bur Stand 68D:933-6 S '64

Some queuing problems with balking and reneging. C. J. Ancker, jr. and A. V. Gafarian. bibliog Op Res 11:88-100, 928-37 Ja, N '63

Some remarks on server breakdown. M. Eisen and M. Leibowitz. bibliog Op Res 12:155-8 Ja '64

Some statistical parameters related to the Nakagami-rice probability distribution. W. R. Burns. bibliog J Res Nat Bur Stand 68D:429-34 Ap '64

Stacking fault probabilities of some internoble metal alloys. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3402-4 N '63

Statistical test for texture. P. R. Morris. bibliog J Ap Phys 35:2553-4 Ag '64

Statistics of radom surfaces. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1035-47 S '64

Statistics of the product of two independent modified Rayleigh variates. J. L. Ekstrom. IEEE Proc 52:981 Ag '64

Steady state probabilities of a Markov chain as a function of the transition probabilities. A. Singer. Op Res 12:498-9 My '64

Stochastic behavior of trace substances. J. S. Rustagi. bibliog Archives Environmental Health 8:68-76; Discussion. 110-14 Ja '64

Stochastic duels with limited ammunition supply. C. J. Ancker, jr. diags Op Res 12:38-50 Ja '64

Surveillance of a region by detection and tracking operations. J. M. Dobbie. Op Res 12:379-94 My '64

System reliability; redundant networks. G. D. Weinstock. bibliog diags Electro-Tech 74:26-9+ Ag '64

System reliability when failure depends on a parameter that ages. F. R. Van Wagner. diags Ind Quality Control 21:253-8 N '64

Time dependent solutions to the (s,S) inventory problem. H. Greenberg. bibliog diag Op Res 12:725-35 S '64

Transition probabilities for the forced quantum oscillator. L. M. Scarfone. Am J Phys 32:158-62 F '64

Transition probabilities of forbidden lines. R. H. Garstang. bibliog J Res Nat Bur Stand 68A:61-73 Ja '64

See also

Frequency distribution (statistics)
Games, Theory of
Least squares
Monte Carlo method
Sampling (statistical methods)
System simulation

PROBABILITY paper

Practical applications of the Weibull distribution. J. N. Berrettoni. Ind Quality Control 21:71-9 Ag '64

PROBLEM solving

Engineer's challenge. J. M. McEwen. il Tappi 47:sup20A+ S '64

Experiments with a heuristic compiler. H. A. Simon. flow diag Assn for Computing Mach J 10:493-506 O '63

Heuristic program that solves symbolic integration problems in freshman calculus. J. R. Slagle. bibliog diags Assn for Computing Mach J 10:507-20 O '63

Profile of a profitable project. H. K. Eckert and G. A. Cain. flow diag Chem Eng Prog 60:81-92 Mr '64

PROCAINE

Reactions of procaine. Drug & Cosmetic Ind 94:605-6 Ap '64

PROCTER and Gamble company

P & G largest advertiser in 1963. Soap & Chem Spec 40:80+ S '64

PRODUCERS, Gas. See Gas producers

PRODUCTION

Boost productivity. il Mill & Factory 74:61-72 Je '64

Design and productivity. H. G. Conway. bibliog il diags Inst Mech Eng Proc 177: 1181-200 '63

International conference on production engineering research, Pittsburgh; abstracts of papers. Metal Prog 84:146+ D '63

Production research abroad, a threat to U.S. industry? il Tool & Manuf Eng 51:65-8 D '63

Productivity and employment. W. K. Bailey. Automation 11:117-18 Jl '64

Productivity; how do your machines rate? Am Mach/Metalworking Manuf 107:111-42 N 11 '63 (reprints 60c)

Research and productivity. J. Convey and V. A. Haw. Can Min & Met Bul 57:45-8 Ja '64

See also

Efficiency, Industrial
Factory management
Labor productivity

PRODUCTION control

Easy way to control production lot routing. N. L. Enrick. diag Textile World 114:59-61 Ja '64

Efficient manufacturing control starts with data collection. R. L. O'Connor. il diags Automation 11:43-7 Ja '64

How to analyze your production control requirements. R. C. Short. diag Inland Ptr/Am Lithogr 153:72+ Ap '64

How to prevent stock-outs. A. O. Putnam. Am Mach 108:97-100 F 17 '64

Inventory-production balance. R. F. Ward. Textile Ind 128:125-6+ O '64 (to be cont)

Logic, a new partner for forging. il Iron Age 193:117-20 F 20 '64

1964 production preview; manufacturing control. Am Mach 108:142-3 Ja 20 '64

One tag system controls it all. il Textile World 114:80-2 S '64

Planning by resource allocation methods; illustrated by military applications. J. L. Taylor and J. E. Walsh. Op Res 12:693-706 S '64

Sensing discrete pieces during production. G. J. Michel, jr. il diags Control Eng 10: 117-20 N '63

Stone age production control works in the space age. R. B. Heldt. Mill & Factory 74:89-90 Ap '64

Ten stumbling blocks slow mechanized production control. D. E. Clancy. S A E J 72:132 Ja '64

Twin plants story; monitoring production; a new concept. R. B. Pressley and W. G. Ashmore. il Textile World 113:52-3 N '63

See also

Schedules

PRODUCTS, Diversified

See also

Diversification in industry

PRODUCTS, Improved

Climate for product improvement. E. S. Pattison. Am Oil Chem Soc J 40:sup 12-13+ N '63

Redesign to welded fabrication calls for new concepts. J. Mikulak. il diags Welding Eng 49:76+ Je '64

Redesigned production milling machine. il Engineer 217:1030 Je 12 '64

Redesigning the Saturn V/Apollo moon rocket. il diag Product Eng 35:59-60 Jl 20 '64

Retaining rings. diags Product Eng 34:139 D 9 '63

Wire skeletons: a framework for precision designing. R. R. Irving. il Iron Age 194:53-5 Jl 30 '64

PRODUCTS, Laminated. See Laminated products

PRODUCTS, Molded. See Molded products

PRODUCTS, New

Chemical product development symposium: abstracts of papers. Chem & Ind p 1681-5 O 19 '63

Design automation for numeric machine tools. G. M. Cooley. Automation 10:144+ N '63

Design of building products; manufacturers' design process. il plans diags Prog Arch 45:177-90 Je '64

Fifty years of new-product development, 1939-1989. H. H. Mottern and A. H. Johnson. bibliog Food Tech 18:1333-6 S '64

How to control engineering in new-product development. T. W. Rogerson. Product Eng 35:102-4 Mr 16 '64

How to develop a new product at low cost. M. L. Clevett, jr. Product Eng 35:80-1 Jl 6 '64

Ideas should hit a peak when production is in a valley. T. M. Rohan. il Iron Age 194:40-2 S 3 '64

Keeping an eye on development costs. il diags Engineering 198:224-5 Ag 21 '64

Master plan guides new products to moneymaking maturity. J. E. Sandford. il Iron Age 193:51-3 Ap 2 '64

Measurement of research performance. F. C. Theile. Am Perfumer 78:33-7 N '63

New-product decision making. E. D. Wang. bibliog Machine Design 36:112-15 Ag 13 '64

New-product manager; filter or innovator? P. Marvin. Machine Design 36:108-11 Ap 9 '64

Optimizing commitment timing in procuring manufacturing equipment. A. M. Hanfmann and D. Cleinow. Automation 10:54-9 N '63

Planning products for a sound economy. Engineering 196:610 N 15 '63

Product failure; causes and prevention. I. J. Fuchs. il diag Mech Eng 86:36-9 F '64

Road to new profits; techno-economic evaluation needed. J. A. Kanehann. il Chem Eng Prog 60:21-4 My '64

Sensible controls for new-product development. C. Juhola. flow charts il diag Machine Design 36:118-23 Jl 16 '64

See also

Diversification in industry

PRODUCTS, Obsolescent

Ethics of planned obsolescence. il Machine Design 36:136-8 Ag 27 '64

PRODUCTS, Quality of. See Quality of products

PRODUCTS liability

Design engineers and the law; abstract. E. L. Rushmer. Steel 154:79 Je 29 '64

Engineering law; a workman and his tools. E. Mitchell. Engineer 218:178 Jl 31 '64

Product liability suits warn, let the manufacturer beware. S. Shepard. diag Product Eng 34:99-101 D 9 '63

Trends in product liability claims. L. F. Senger. Drug & Cosmetic Ind 94:500-2+ Ap '64

PRODUCTS of inertia. See Moments of inertia

PROFESSIONAL associations

Who is responsible for professional growth? P. E. Nethercut. Tappi 46:sup60A+ D '63

PROFESSIONAL education

See also

Colleges and universities—Graduate work

Engineering education

Medical education

PROFESSIONAL engineers, National society of. See National society of professional engineers

PROFESSIONAL ethics

Professional relations and status committee studies code of ethics. Chem & Eng N 42:102 Jl 13 '64

Responsibilities of scientists to their nation and the world. G. T. Seaborg. Chem & Eng N 41:55-7 D 23 '63

See also

Engineering ethics

PROFESSIONAL societies. See Professional associations

PROFESSIONAL workers

Dilemma of the professional in industry. C. F. Rassweiler. Chem & Eng N 41:98-101 D 9 '63

Essays on engineering; are engineers really professionals? G. C. Lammers. Hydrocarbon Process & Pet Refiner 43:197-8 O '64

Holding professionals takes understanding. R. R. Kay. il Iron Age 192:56 N 21 '63

Professional responsibility of engineering. R. B. Smith. Mech Eng 86:18-20 Ja '64; Discussion. M. B. Richardson. 86:79 Je '64

Pursuit of competence. J. C. Hollister. Geophysics 29:1-3 F '64

Scientist; professional or skilled craftsman? J. W. Zabor. Chem & Eng N 41:74+ N 25 '63

Self-appraisal: a first responsibility. R. F. Moore. Chem & Eng N 41:68-70 D 2 '63

Stepping-stones to professionalism. G. A. Lessells. il Chem Eng 71:86+ Ag 31 '64

Who is responsible for professional growth? P. E. Nethercut. Tappi 46:sup 60A+ D '63

See also

Chemists

Engineers

Research workers

Technical workers

PROFESSIONS

Who speaks for the engineering profession? AIME-sponsored seminar, national problems affecting the engineering profession. J Metals 16:737-8 S '64

See also

Architects

Engineers

Employment

PROFIT

Beating the profit squeeze. B. Nassberg. Ind Finishing 40:106-9 Ja '64

Call out the profit corps. A. C. Daugherty. Pet Management 36:91-4 O '64

Computation of refinery profits. W. L. Nelson. Oil & Gas J 62:107-8 Ag 24 '64

Creative power of profits. Coal Age 69:106-7 S '64

Developing a realistic approach to profit improvements. G. C. Lennox. Machine Design 36:82-4 Ja 30 '64

Engineer can be key to industry profits. M. J. Kittler. il S A E J 72:28-32 Ap '64

Estimating gas turbine profitability. F. Wright. Air Cond Heat & Ven 61:65-74 Mr '64

Improve your profit picture. N. L. Enrick. il Textile Ind 128:111-15+ Ap '64

Making money in space. J. A. Strasser. il Electronics 37:124-6 Je 15 '64

Management holds key to profit return. T. F. Bradshaw. Oil & Gas J 62:48-9 Jl 20 '64

Managing company profits all the way at Avondale mills. il Textile World 114:56-60 Ap '64

New kind of horn to sound profits. R. L. Rowell. diags Hydrocarbon Process & Pet Refiner 43:173-6 Ap '64

Nourish profit by controlling foundry costs. J. G. Berger. diags Foundry 91:45-7 D '63

Oil industry profit lags in U.S. economy. E. Adams. Pet Management 36:92-7 S '64

Profile of a profitable project. H. K. Eckert and G. A. Cain. flow diag il Chem Eng Prog 60:81-92 Mr '64

Profitability analysis. G. N. Rumbaugh, jr. bibliog Mech Eng 86:43-5 Ag '64

Profits from maintenance. H. S. Mann. Mill & Factory 74:60-9 Ja '64

Relation of earning power to other profitability criteria. F. Brons and M. Silbergh. bibliog J Pet Tech 16:269-75 Mr '64

Road to new profits. il Chem Eng Prog 60:19-30 My '64

Soap departments profitable. il Soap & Chem Spec 40:79-80+ O '64

Studied approach to capital expenditures spurs production growth. R. O. Swalm. Automation 11:89-92 S '64

Yardsticks for rate of return; evaluating equipment proposals. K. Dornish, jr. diags Automation 11:71-3 Ag '64

PROGRAM control. See Numerical control

PROGRAMMING (calculating machines). See Calculating machines—Programming

PROGRAMMING (planning). See Planning

PROGRAMMING (teaching). See Teaching—Aids and devices

PROGRAMMING, Linear. See Linear programming

PROGRESS

See also

Technological change

PROJECT evaluation and review technique. See Pert management system

PROJECTILES

Analytical approach to hypervelocity impact. S. W. Yuan and A. M. Bloom. bibliog AIAA J 2:1667-9 S '64

Compressed gas gun for controlled planar impacts over a wide velocity range. S. Thunborg, jr. and others. diag R Sci Instr 35:11-14 Ja '64

Technique for measuring the electrical conductivity of wakes of projectiles at hypersonic speeds. H. E. Koritz and J. C. Keck. bibliog il diags R Sci Instr 35:201-8 F '64

Theoretical penetration of hypervelocity projectiles into massive targets. J. K. Wall bibliog AIAA J 2:1242-6 Jl '64

See also

Ballistics
Bullets
Photography of projectiles
Rockets
Torpedoes

PROJECTILES, Photography of. See Photography of projectiles

PROJECTION, Stereographic

Simplified stereographic projection solution of the two drillhole problem. G. Addie. diags Econ Geol 57:1122-6 N '62; Discussion. 58:618-21, 811-15; 59:149-50 Je-Ag '63, Ja '64

Stereocineradiography. bibliog diags SMPTE J 73:622-4 Ag '64

Stereographic net mounted on a phonograph. M. J. Oppenheim. Am Mineralogist 49:414-15 Ap '64

PROJECTION apparatus

Extended pictorial map display system. il diag Engineeringg 196:813 D 27 '63

Gnomonic projector. L. L. Hawes. il diags Am Mineralogist 49:180-3 Ja '64

Making lectures live. il plan diag Engineering 198:353 S 18 '64

Panoramic projection system. il Engineer 217:537 Mr 20 '64

Scanning and measuring projector. P. G. Davey and others. bibliog il diags R Sci Instr 35:1134-46 S '64

Silicon controlled rectifier circuit for the control of high wattage projection lamps. J. R. Wilson and F. Oppenheimer. diag R Sci Instr 35:1013-14 Ag '64

State-of-the-art of dynamic plotting projection displays. R. Andresson. il diags Electronic Ind 23:78-82 My '64

See also

Slide films—Projectors

PROJECTORS, Moving picture. See Moving picture machines

PROLINE

Chemical cleavage of proline peptide bonds. A. Patchornik and others. Am Chem Soc J 86:1457 Ap 5 '64

Evidence for a cooperative intramolecular transition in poly-L-proline. F. Gornick and others. bibliog Am Chem Soc J 86:2549-55 Jl 5 '64

4-Hydroxy-*N*-methyl-L-proline from afrormosia elata heartwood. J. W. W. Morgan. Chem & Ind p542-3 Mr 28 '64

PROMETHIUM

Isotopes

Liquid scintillation counting of promethium-147, bioassay procedure. J. D. Ludwick. Anal Chem 36:1104-6 My '64

PROOFREADING

Proofroom. B. Lasky. Published in monthly numbers of Inland printer/American lithographer

PROPANE

Automated peak-shaving plant serves fast-growing Massachusetts area. N. F. Stultz. il Gas 40:55-8 Jl '64

Electrochemical oxidation of propane at room temperature. V. R. José and V. D. Long bibliog diag J Ap Chem 14:64-9 F '64

Find n-butane/propane compressibility; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:156 Jl '64

Find propane fugacity; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:242 S '64

Formwork burns on two projects; ignited by propane-fueled salamanders. il Eng N 172:17 Ja 9 '64

High performance propane fuel cell operating in the temperature range of 150°-200°C. W. T. Grubb and C. J. Michalske. bibliog diag Electrochem Soc J 111:1015-19 S '64

How Btu control improves peak shaving with propane-air gas. P. E. Petrash. diag Gas 40:156-7+ O '64; Same. il Gas Age 131:32-3+ O '64

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Mercury-photosensitized decomposition of propane at temperatures above 300°. R. A. Back and S. Takamuku. bibliog diag Am Chem Soc J 86:2558-62 Jl 5 '64

Mercury $6(^3P_1)$ photosenitized decomposition of propane and 2,2-dideuteriopropane. J. P. Chesick. bibliog Am Chem Soc J 86:3597-601 S 20 '64

North Shore solves peak-day problems; propane-air is injected into two 12-in. and one 24-in. pipeline for distribution. il Gas 40:93 Jl '64

Nuclear magnetic resonance spectra-structure correlation for chlorinated propanes. H. F. White. Anal Chem 36:1291-4 Je '64

Peak shaving with propane-air; utilization and evaluation. C. C. Heath. il plan diags Gas 39:70-3 D '63

Propane/air; standby fuel for industry. E. J. Skerkoske. Am Cer Soc Bul 43:630-1 S '64

Propane marketers set out to win outlets in Canada. il Oil & Gas J 62:92 Mr 2 '64

Propane plants for mountain markets. J. A. Thompson. il Gas 40:66-7 F '64

Propanesultone. R. F. Fischer. bibliog Ind & Eng Chem 56:41-5 Mr '64

Reactions of propane at the surface of a working fuel cell anode. W. T. Grubb. bibliog Electrochem Soc J 111:1086-8 S '64

Thermodynamics of the dehydrogenation of propane by iodine vapor. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2770-3 Jl 20 '64

Storage

Below-ground propane storage minimizes fire hazards. H. E. Thomas. diag Gas Age 130:36 N '63

Frozen earth storage; how Phillips built it. P. S. Massey. il diag Hydrocarbon Process & Pet Refiner 43:147-9 Mr '64; Same cond. Oil & Gas J 62:102-3 Mr 16 '64

Kuwait Oil completes two successful years of refrigerated storage. J. L. Coulter. il Oil & Gas J 62:104-6 Mr 16 '64

PROPANE, Liquid

Beth-Beaumont delivers two liquid-propane barges. il Marine Eng/Log 69:67 F '64

More accuracy in liquid propane compressibility. L. C. Kahre and R. J. Livingston. Hydrocarbon Process & Pet Refiner 43:119-21 Ap '64

PROPANEDIOL. See Propylene glycol

PROPANOL. See Propyl alcohol

2-PROPANOL. See Isopropyl alcohol

PROPELLANTS

Breakthrough of solid rocket flexibility. Franklin Inst J 277:182-3 F '64

British rocket research. il Engineer 217:1023-5 Je 12 '64

Canada soars into solid propellants. il Can Chem Process 47:47-9 D '63

Centaur program is LH_2 pioneer; abstract. J. J. Gilbeau and D. G. Huber. diag S A E J 72:78-9 F '64

Combustion instability in solid propellant rockets; AIAA conference, Palo Alto, Calif., Jan. 29-31; texts of papers. bibliog il diags AIAA J 2:1100-34, 1270-323 Je-Jl '64

Continuous pneumatic mixing. A. J. Colli. il diags Chem Eng Prog 60:81-4 O '64

Correcting sieve results to nominal values. E. R. Goffaux. Materials Res & Stand 4:157-8 Ap '64

Critical point phenomena. E. K. Landis and others. Chem Eng Prog 60:47-8 F '64

Deflagration characteristics of ammonium perchlorate strands. L. J. Shannon and E. E. Petersen. bibliog diag AIAA J 2:168-9 Ja '64

Determination of fluorine in fluorine-oxygen mixtures. S. Kaye and J. E. Koency. diag Anal Chem 36:1838-40 Ag '64

Determination of the dynamic shear modulus of a composite solid propellant. L. H. Layton and others. bibliog il R Sci Instr 34:1333-40 D '63

Digital capacitance system for mass, volume, and level measurements of liquid propellants. R. L. Blanchard and A. E. Sherburne. il diags AIAA J 1:2590-6 N '63

Dousing a solid-propellant fire. Chem Eng 71:38 Ag 3 '64

Effect of cyclic loading on the temperature in viscoelastic media with variable properties. R. A. Schapery. bibliog diags AIAA J 2:827-35 My '64

Effect of radiation on ammonium perchlorate propellants. T. Acker and others. AIAA J 2:1165 Je '64

PROPELLANTS—*Continued*

Exotic fuels. G. Corfield. Gas 40:15 Ag '64
Fluid-particle motion during rotary sloshing. R. E. Hutton. bibliog diags A S M E Trans ser E 31:123-30 Mr '64
Heterogeneous reactions in ignition and combustion of solid propellants. R. Anderson and others. bibliog AIAA J 2:179-80 Ja '64
Hydrazine as a rocket fuel. il Product Eng 35:29 Mr 2 '64
Liquid propulsion. H. Burlage, jr. il diags Space/Aeronautics 41:60-7 F '64
Liquid rocket propellant technology moves forward. E. G. Haberman. il Chem Eng Prog 60:72-6 Jl '64
Mathematical determination of stresses and displacements in star-perforated grains. H. B. Wilson, jr. bibliog diag AIAA J 2:1247-53 Jl '64
New organoborane compounds are stable: carboranes. M. S. Cohen and others. il diags Chem & Eng N 41:62-70 D 9 '63
Nonlinear axial combustion instability in solid propellant motors. W. G. Brownlee. bibliog il diags AIAA J 2:275-84 F '64
Pneumatic system mixes solid propellants. A. J. Colli. diags Chem & Eng N 42:48-9 O 5 '64
Propellant erosive burning. M. J. Zucrow and others. bibliog diags Chem Eng Prog 60:43-5 F '64
Propellant gaging system for Apollo spacecraft. E. Ulicki. il diags Space/Aeronautics 42:68+ O '64
Propulsion; liquid rockets. R. Beichel. diags Space/Aeronautics 42 no 4:39-43 '64-65
Propulsion; solid rockets. E. Kirchner. Space/Aeronautics 42 no 4:44-7 '64-65
Reinforcing a rocket grain. Chem Eng 71:104 N 9 '64
Safety, high thrust, low cost: hybrid rockets make a comeback. il Machine Design 36:6 Je 4 '64
Simplified calculation of the jet-damping effects. N. Rott and L. Pottsepp. diags AIAA J 2:764-6 Ap '64
Solid-propellant rockets getting easier to control. Chem Eng 71:26 Ag 31 '64
Solid propellant technology; new dimensions. il Chem & Eng N 42:50-3 S 28 '64
Solid propellants power emergency hydraulic systems. M. L. Caplan. il diags S A E J 72:72-5 Ja '64
Solid rocket fuels just about ready. Steel 154:158 My 25 '64
Solid-rocket modules will lock together to power any mission. il Machine Design 36:6 My 21 '64
Space-vehicle service system. Franklin Inst J 276:454 N '63
Spectrophotometric determination of unsymmetrical dimethylhydrazine employing chromotropic acid. N. V. Sutton. bibliog Anal Chem 36:2120-1 O '64
Staying up-to-date in rocket research. il Engineering 197:842-3 Je 19 '64
Steam is propellant in novel missile-launch idea. il Chem Eng 71:94 N 9 '64
Stress functions for the axisymmetric, orthotropic, elasticity equations. L. R. Herrmann. AIAA J 2:1822-4 O '64
Stresses in an incompressible viscoelastic-plastic thick-walled cylinder. M. Shinozuka. bibliog AIAA J 2:1800-4 O '64
Temperature distribution in a case-bonded cylindrical rocket assembly. M. Levitsky and B. W. Shaffer. bibliog diag AIAA J 1:2870-2 D '63
Transport of powdered metals. H. L. Burge and others. il diag Chem Eng Prog 60:45-6 F '64
Tripropellant system can boost specific impulse. Space/Aeronautics 41:93+ F '64

Manufacture

Big solid-propellant plant is second to rise in Southeast. il Chem Eng 71:86 Jl 6 '64
Making solid propellants. C. H. Herty, 3d. il diags Chem Eng 71:85-90 F 3 '64
Manufacturing solid rockets; Thiokol space booster div. il Product Eng 35:49-50 Je 8 '64
New solid-propellant plant to make rockets for air force. Chem Eng 71:91-2 My 11 '64
Rocket propellants from the moon. D. M. Cole and R. Segal. bibliog diags Astronautics & Aeronautics 2:56-60+ O '64

Safety measures

Exploding valves guard rocket-propellant plant. il diag Machine Design 36:174-5 O 22 '64

Storage

Temperature-entropy diagram of monomethylhydrazine. F. Bizjak and F. F. Stal. bibliog AIAA J 2:954-6 My '64
Time for a totally wetting liquid to deform from a gravity-dominated to a nulled-gravity equilibrium state. H. L. Paynter. bibliog AIAA J 2:1627-20 S '64

Testing

Alumina size distributions from high-pressure composite solid-propellant combustion. L. A. Povinelli and R. A. Rosenstein. bibliog diags AIAA J 2:1754-60 O '64
Apparatus for determining combustion rate of solid propellants. J. P. Picard and others. il diags Ind & Eng Chem 56:49-52 Ja '64
Determination of propellant properties by the arc image furnace technique. R. O. Fleming, jr. and R. W. Fleming. diag AIAA J 2:117-18 Ja '64
Effect of oxidizer concentration on combustion instability of a solid propellant. D. W. Rice. bibliog AIAA J 2:1654-5 S '64
Effects of materials on card gap test results. F. J. Loprest and others. AIAA J 1:2619 N '63
Failure criteria for some polyurethane propellants. W. T. Milloway and J. H. Wiegand. Rubber Chem & Tech 37:511-23 Ap '64
Gas-film effects in the linear pyrolysis of solids. R. H. Cantrell. bibliog il diags AIAA J 1:1544-50 Jl '63; Discussion. W. H. Andersen. bibliog 2:404-6; Reply. 406-7 F '64
Gas gun lofts test package to test weightless fuel. il diags Machine Design 36:124-5 Ap 9 '64
Low-frequency acoustic oscillatory combustion. M. D. Horton and others. bibliog diag AIAA J 1:2652-4 N '63
Low pressure rocket extinction. F. A. Anderson and others. bibliog diags AIAA J 1:2668-71 N '63
Preferred frequency oscillatory combustion of solid propellants. J. L. Eisel and others. bibliog il diags AIAA J 2:1319-23 Jl '64
Recent advances in mechanical properties evaluation of solid propellants. J. H. Wiegand. bibliog il diags Rubber Chem & Tech 37:542-56 Ap '64
Relation of mechanical properties to solid rocket motor failure. K. W. Bills, jr. and J. H. Wiegand. bibliog il diags AIAA J 1:2116-23 S '63; Same. Rubber Chem & Tech 37:524-41 Ap '64
Simulation of solid propellant exhaust products with a hybrid rocket motor. J. F. Brown. AIAA J 1:2671-2 N '63
Structural analysis of viscoelastic materials. M. L. Williams. il diags AIAA J 2:785-808 bibliog(p806-8) My '64
Technique for measuring burning rates of solid propellants. J. R. Osborne and H. E. Bethel. bibliog il diags R Sci Instr 35:1130-4 S '64
Thermal stability apparatus for liquid propellants. L. Stiefel and E. D. Grossman. diags R Sci Instr 35:727-8 Je '64
Use of stress relaxation tests to characterize time dependencies of a composite solid propellant. J. H. Stoker. diags AIAA J 2:1816-18 O '64

PROPELLER club

National convention, 37th, Baltimore, Oct. 9-11; with abstracts of papers. Marine Eng/Log 68:59-60 N '63

PROPELLERS

Hydro-jet propulsion reduces vibration. M. R. Hale and D. H. Vorrie. diags Engineering 198:118-19 Jl 24 '64
Propellers cavitation as influenced by air content of the water. Naval Eng J 75:1002 D '63
Shrouded prop drives supertug. R. J. Corcoran. il diags Mech Eng 86:54-6 F '64
Survey of hull and propeller roughness data. F. Wellman. bibliog diags Naval Eng J 76:101-8 F '64
Unique design cuts cost of controllable-pitch propellers. il Marine Eng/Log 69:62 Ag '64
Unsteady forces due to propeller-appendage interaction. O. Pinkus and others. bibliog diags A S M E Trans ser E 30:279-87 Je '63; Discussion. J. P. Breslin. 31:359-60 Je '64
Use of reversing systems for stopping of turbine-powered ships. G. Broersma and G. G. Maclennan. bibliog Naval Eng J 75:909-13 D '63
See also
Airplane propellers

PROPELLERS—*Continued*

Manufacture

How Baldwin-Lima-Hamilton made the world's biggest propeller. il Marine Eng/Log 69:54-5 Mr '64

PROPENE. See Propylene

PROPIOLACTONE

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19 F 5 '64

Disinfection with beta-propiolactone. R. L. Alg and others. bibliog Soap & Chem Spec 40:97-100 S '64

PROPIONANILIDES

Absolute configuration of (-)-*N*-(1-methyl-2-piperidinoethyl)propionanilide. P. S. Portoghese. bibliog Chem & Ind p582 Ap 4 '64

PROPIONATES

Effect of propionate on the dietary vitamin B_{12}, biotin and folic acid requirement of the rat. D. E. Hogue and J. M. Elliot. bibliog J Nutrition 83:171-5 Je '64

Hydrolysis of D(-)-ethyl β-phenyl-β-hydroxypropionate and D(-)-ethyl β-phenyl-β-acetamidopropionate by α-chymotrypsin. S. G. Cohen and S. Y. Weinstein. bibliog Am Chem Soc J 86:725-8 F 20 '64

Thermal decomposition of *t*-butyl 3,3,3-triarylperpropionates; evidence for the intramolecular rearrangement and cyclization of aliphatic acyloxy radicals. W. H. Starnes, jr. bibliog Am Chem Soc J 85:3708-9 N 20 '63

PROPORTIONING equipment

Automated flow proportioning. Engineer 217:56 Ja 3 '64

Metering pumps. F. D. Marton. il diags Instruments & Control Systems 36:86-8 Ap; 99-100 O; 126-7 N; 102-3 D '63

PROPYL alcohol

Find *i*-propanol thermal conductivity; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 42:128 D '63

Identification and estimation of finishes based on dichloropropanol. H. R. Cooper and J. G. Roberts. bibliog Soc Dyers & Col J 80:428-9 Ag '64

PROPYLAMINE

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the deamination of 3,3,3-d_3-1-aminopropane. A. A. Aboderin and R. L. Baird. bibliog Am Chem Soc J 86:2300-1 Je 5 '64

PROPYLENE

Aromatic substitution; Friedel-Crafts isopropylation of benzene and methylbenzenes with isopropyl bromide and propylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1046-54 Mr 20 '64

Effect of oils on ethylene-propylene terpolymer. Rubber World 149:54-9 Ja '64

Equilibria in the hydration of ethylene and of propylene. C. S. Cope. bibliog A I Ch E J 10:277+ Mr '64

Evaluation of cross-linking coagents in ethylene-propylene rubber. L. P. Lenas. Ind & Eng Chem Product Res & Develop 2:202-8 S '63; Same. Rubber Chem & Tech 37:229-45 Ja '64

Find propylene liquid density; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:126 Ag '64

New corona- and heat-resistant cable insulation based on ethylene propylene rubber. R. B. Blodgett and R. G. Fisher. bibliog IEEE Trans Power Apparatus & Systems p980-8; Discussion. il 988-90 D '63

New sulfur-curable ethylene-propylene rubber. H. E. Haxo, jr. and others. bibliog il Rubber Age 94:255-67 N '63

Optimizing electrical properties of ethylene-propylene terpolymers. J. R. Wolfe, jr. and I. D. Roche. Rubber World 149:62-6 N '63

Philadelphia rubber group symposium on EPT, Jan. 24; abstracts of papers. Rubber Age 95:129-30 Ap '64

Properties of a new unsaturated ethylene-propylene elastomer. H. H. Waddell and others. bibliog Rubber Age 94:427-37 D '63

Reactions of active nitrogen with organic substrates; molecular origins of products of reaction with propene. Y. Shinozaki and others. bibliog diag Am Chem Soc J 86:341-4 F 5 '64

U.S. Rubber to double capacity of new ethylene-propylene rubber plant. H. S. Pylant. il diag Oil & Gas J 62:94-5 Ag 3 '64

See also
Polypropylene

Analysis

Determination of propylene in ethylene-propylene copolymers by infrared spectrometry. J. E. Brown and others. bibliog diag Anal Chem 35:2172-6 D '63

Manufacture

Ethylene and propylene; the Lummus co. flow diag Hydrocarbon Process & Pet Refiner 42:167 N '63

Molecular sieves dry propylene better. J. A. McConnell. Hydrocarbon Process & Pet Refiner 42:97-8 D '63

Polyethylene and ethylene-propylene copolymers; Standard oil company (Ind.). diag Hydrocarbon Process & Pet Refiner 42:218 N '63

Selected process flow sheets for petrochemicals; ethylene-propylene. Oil & Gas J 62:108 S 7 '64

PROPYLENE glycol

Conjoined crystals. N. H. Kuhrt and others. Am Oil Chem Soc J 40:725-33 D '63

Polypropylene glycol cuts urethane polymer cost. il Chem Eng 71:108 S 14 '64

PROPYLENE oxide

New rubber derived from propylene oxide. E. E. Gruber and others. bibliog Ind & Eng Chem Product Res & Develop 3:194-9 S '64

Propylene oxide and its derivatives. A. C. Fyvie. bibliog diags Chem & Ind p384-8 Mr 7 '64

Specialty rubber made from propylene oxide. D. A. Meyer. Chem & Eng N 42:57-8 My 11 '64

Manufacture

New polyether and propylene oxide plants of the Pfizer group. il Ind Chem 40:188-9 Ap '64

PROPYNE

Cis-trans isomerization in vinyl radicals; gas phase radical-chain addition of hydrogen bromide to propyne. P. S. Skell and R. G. Allen. bibliog Am Chem Soc J 86:1559-60 Ap 20 '64

Hybrid gas cuts cutting costs; MAPP gas. il Iron Age 193:153 Je 11 '64

New gas solves flame hardening problem. il Am Mach 108:71 Ja 6 '64

New industrial fuel gas speeds cutting, handling. Steel 154:51 Ap 13 '64

Stabilized methylacetylene-propadiene, a safe product with optimum heating characteristics. il Iron & Steel Eng 41:153-4 My '64

PROSPECTING

Basic probabilistic methods in geological search. A. Kyrala. Geophysics 29:105-8 F '64

Conceptual uranium ore roll and its significance in uranium exploration. H. H. Adler. bibliog diags Econ Geol 59:46-53 Ja '64

Dithizone field tests. H. E. Hawkes. Econ Geol 58:579-86 Je '63; Discussion. 59:721-2, 1178-9 Je, S '64

Exploration men set sights on British Columbia targets. T. Elliott. il Min Eng 15:50-4 D '63

Exploration program for nickel in the southeastern United States. J. E. Worthington. bibliog map Econ Geol 59:97-109 Ja '64

Exploration program for small mining companies. J. D. Bateman. il Min Cong J 49:45-8 D '63

Geochemical prospecting. D. H. Yardley. Min Eng 16:77 F '64

Jackson details government plan to serve as mining partner. il Eng & Min J 165:70-1 Ja '64

Mercury halo method of exploration. S. H. Williston. Eng & Min J 165:98-101 My '64

Progress in the science of ore-finding, 1963. V. E. McKelvey. bibliog map Min Cong J 50:45-9 F '64

Prospecting for expansible shale. J. L. Burnett. bibliog Min Eng 16:50-1 Ja '64

Radioelement dispersion in a sedimentary environment and its effect on uranium exploration. R. M. Moxham. maps Econ Geol 59:309-21 bibliog(p320-1) Mr '64

Scientific prospecting; achievements and possibilities. C. J. Sullivan. Can Min & Met Bul 57:279-81 Mr '64

Statistical case study in geochemical prospecting for copper. B. W. Brown. bibliog Econ Geol 59:492-8 My '64

Statistical design and analysis of geochemical exploration surveys. M. P. Nackowski and others. diags Min Cong J 50:56-9 My '64

Statistical methods applied to mineral exploration. M. F. Ayler. map diags Min Cong J 49:41-5 N '63

PROSPECTING—*Continued*

Thermal glow tests as a guide to ore deposits. G. Zeschke. bibliog diags Econ Geol 58:800-3 Ag '63; Discussion. D. J. McDougall. 59:326-7 Mr '64

See also

Coal-Prospecting
Gas, Natural—Prospecting
Magnetic surveying
Mines and mineral resources
Petroleum—Prospecting
Water, Underground—Prospecting

Electric methods

Adoption and standardization of the term electrical sounding. S. P. Gay, jr. bibliog Geophysics 29:447-8 Je '64

Better drill logging by gamma rays and resistivity; Peabody coal co. B. J. Archer, jr. and M. Warrick. Coal Age 69:79-81 S '64

Comparison of the various parameters employed in the variable-frequency induced-polarization method. P. G. Hallof. bibliog diags Geophysics 29:425-33 Je '64

Conductivity spectra of rocks from the Craigmont ore environment. D. C. Fraser and others. bibliog map diag Geophysics 29:832-47 O '64

Study in induced polarization. L. A. Anderson and G. V. Keller. bibliog diag Geophysics 29:848-64 O '64

Geophysical methods

Aeromagnetics. M. S. Reford and J. S. Sumner. il maps diags Geophysics 29:482-516 bibliog(p515-16) Ag '64

Discovery and exploration of the Poirier ore deposit. J. B. Boniwell and R. A. Dujardin. maps diags Can Min & Met Bul 57:945-52 S '64

Free world mining geophysical activity in 1963. C. L. Elliot. Min Eng 16:52+ Ag '64

Geophysical activity in 1962. N. J. Smith. Geophysics 28:1049-71 D 63

Geophysical exploration. T. Cantwell. il Min Eng 16:75-6 F '64

Gravitational exploration and the principle of equivalence. S. Thyssen-Bornemisza. bibliog Geophysics 29:301-3 Ap '64

Microseisms and an attempted application to exploration. M. N. Toksöz. bibliog diags Geophysics 29:154-77 Ap '64

Partial list of world geophysical discoveries. Eng & Min J 165:191-2 Je '64

Seismic method tested in Illinois fluorspar district. R. B. Johnson. diags Min Eng 16:55-6 Ja '64

See also

Petroleum—Prospecting—Geophysical methods
Prospecting—Electric methods
Water, Underground—Prospecting—Geophysical methods

Terminology

Adoption and standardization of the term electrical sounding. S. P. Gay, jr. bibliog Geophysics 29:447-8 Je '64

PROSTHESIS

Engineering for the doctors. il diag Tool & Manuf Eng 53:96-7 Ag '64

Eyebrow controls arm via servo. diag Control Eng 11:30 O '64

Implant materials in the human body. il Materials in Design Eng 60:147-8 N '64

Today's prosthetic metals; are they satisfactory for surgical use? D. C. Ludwigson. J Metals 16:226-9; Discussion. bibliog 229-31 Mr '64

PROSTHETICS. See Prosthesis

PROTACTINIUM

Isotopes

Absolute dating of deep-sea cores by the Pa^{231}/Th^{230} (ionium) method. J. N. Rosholt and others. J Geol 69:162-85 bibliog(p 183-5) Mr '61; Discussion. G. A. Rusnak. 71:809-10 N '63

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Recovery of protactinium-231 from a uranium refinery residue. J. J. Hillary and A. R. Morgan. flow diag il diags Ind Chem 40:131-6 Mr '64

PROTECTIVE clothing. See Clothing, Protective

PROTECTIVE coatings. See Finishing materials; Metal protection

PROTECTIVE paint. See Paint, Protective

PROTEINS

Activity of amino acid-activating enzymes in tissues from protein-depleted rats. S. Gaetani and others. bibliog J Nutrition 84:173-8 O '64

Advanced countries offer market potential for vegetable proteins. Food Tech 18:702+ My '64

Adventitious toxic factors in protein concentrates. L. Friedman. bibliog Food Tech 18:1553-4+ O '64

All-vegetable protein mixtures for human feeding. R. Bressani and others. bibliog J Nutrition 83:209-17 Jl '64

All-vegetable protein mixtures for human feeding; effect of cooking mixtures containing cottonseed flour on free gossypol content. R. Bressani and others. bibliog Food Tech 18:1599-603 O '64

Alterations in serum proteins during pregnancy and lactation in urban and rural populations in Guatemala. G. H. Beaton and others. bibliog il Am J Clinical Nutrition 14:269-79 My '64

Amino acid composition and nutritive value of proteins. P. B. Rama Rao and others. bibliog J Nutrition 82:88-92 Ja '64

Binding of lipids by proteins; symposium. Am Oil Chem Soc J 41:481-94 Jl '64

Biological treatment of protein water from manufacture of potato starch. J. C. Buzzell, jr. and others. bibliog flow diag Water & Sewage Works 111:327-30, 360-5 Jl-Ag '64

British Petroleum expands protein-from-oil research. Chem & Eng N 42:41 Ja 20 '64

Collapse of protein monolayers. F. MacRitchie. bibliog J Colloid Sci 18:555-61 Ag '63

Comparison of protein structure in the crystal and in solution using tritium-hydrogen exchange. M. Praissman and J. A. Rupley. bibliog Am Chem Soc J 86:3584-5 S 5 '64

Cottonseed proteins; problems and opportunities for world protein deficits. M. Milner. Food Tech 18:1539-40 O '64

Dietary protein level and the turnover rate of tissue proteins in rats. K. Muramatsu and others. bibliog J Nutrition 81:427-33 D '63

Differential oxidation of protein-bound tryptophan and tyrosine by N-bromosuccinimide in urea solution. M. Funatsu and others. Am Chem Soc J 86:1846-8 My 5 '64

Effect of dietary α-tocopherol on protein metabolism in vitamin A-deficient rats. O. A. Roels and others. bibliog J Nutrition 84:161-6 O '64

Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64

Effect of protein deficiency during gestation and lactation on body weight and composition of offspring. P. S. Venkatachalam and K. S. Ramanathan. J Nutrition 84:38-42 S '64

Effect of protein intake on the ribonucleic acid of liver cell sap. H. N. Munro and others. bibliog J Nutrition 83:186-92 Jl '64

Effect of protein level of diet on nitrogen excretion in fowls. I. Tasaki and J. Okumura. bibliog J Nutrition 83:34-8 My '64

Effect of pyridoxine deficiency upon valine incorporation into tissue proteins of the rat. A. C. Trakatellis and A. E. Axelrod. bibliog J Nutrition 82:483-8 Ap '64

Effect of stress from high protein diets on vitamin A metabolism in chicks. G. S. Stoewsand and M. L. Scott. bibliog il J Nutrition 82:188-96 F '64

Effect of the level of dietary protein on the toxicity of dieldrin for the laboratory rat. M. Lee and others. bibliog il J Nutrition 84:136-44 O '64

Effect of the quality of dietary protein on nitrogen compounds in the urine of rats. S. Kiriyama and K. Ashida. bibliog J Nutrition 82:127-34 Ja '64

Effects of food restriction and realimentation on serum proteins; complement levels and electrophoretic patterns. H. E. Weimer and others. bibliog J Nutrition 81:405-10 D '63

Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63

Evaluation of protein in Middle Eastern diets. J. W. Cowan and others. bibliog J Nutrition 81:235-40 N '63

PROTEINS—*Continued*

Exclusion of the exocrine pancreatic secretion; effect on digestibility of soybean and milk protein by baby pigs at various ages. J. C. Pekas and others. bibliog J Nutrition 82:277-86 F '64

Fat-emulsifying properties of prerigor and postrigor pork proteins. J. C. Trautman. Food Tech 18:1065-6 Jl '64

Fatty acid composition of plasma and liver lipid components as influenced by diet in the growing chick. G. A. Leveille and others. bibliog J Nutrition 81:357-62 D '63

Ferredoxin acts in primary CO_2 fixation. B. B. Buchanan and others. il Chem & Eng N 42:48-9 S 21 '64

Genetic code of a virus. H. Fraenkel-Conrat. il diags Sci Am 211:46-54 O '64

Heat of combustion values of the protein and fat in the body and wool of sheep. O. L. Paladines and others. bibliog J Nutrition 82:145-9 Ja '64

Hydrophobic properties of adsorbed protein. S. Ghosh and others. bibliog J Colloid Sci 19:457-67 Je '64

Improvement in the protein efficiency of soybean concentrates and isolates by heat treatment. J. B. Longenecker and others. bibliog J Agri & Food Chem 12:411-12 S '64

Influence of high protein diets on vitamin A metabolism and adrenal hypertrophy in the chick. G. S. Stoewsand and M. L. Scott. bibliog J Nutrition 82:139-44 Ja '64

Influence of low, intermediate and high levels of dietary protein on heat production of rats. E. W. Hartsook and T. V. Hershberger. J Nutrition 81:209-17 bibliog(p216-17) N '63

Influence of protein and energy on growth and protein utilization in the growing chicken. J. D. Summers and others. J Nutrition 82:463-8 bibliog(p467-8) Ap '64

International symposium on oilseed protein foods, Japan, May 11-15. Food Tech 18:1146-7 Ag '64

Isothermal unfolding of globular proteins in aqueous urea solutions. C. Tanford. bibliog diag Am Chem Soc J 86:2050-9 My 20 '64

Meat powder; new African food. Food Eng 36:108 Je '64

Mechanism of interaction between dietary protein levels and coccidiosis in chicks. W. M. Britton and others. bibliog J Nutrition 82:306-10 Mr '64

Mustard seed processing; simple methods for following heat damage to protein meals. J. E. McGhee and others. bibliog Am Oil Chem Soc J 41:359-62 My '64

Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of dietary protein to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:427-31 Ap '64

Nutritional value of proteins of oriental soybean foods. B. R. Standal. bibliog J Nutrition 81:279-85 N '63

Optical rotatory dispersion of some amino acids and criteria of protein conformation. L. I. Katzin and E. Gulyas. bibliog Am Chem Soc J 86:1655-9 My 5 '64

Peanut protein and milk protein blends in the treatment of kwashiorkor. J. K. G. Webb and others. bibliog Am J Clinical Nutrition 14:331-41 Je '64

Pepsin pancreatin digest index of protein quality evaluation. W. R. Akeson and M. A. Stahmann. bibliog J Nutrition 83:257-61 Jl '64

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86:3434-8 S 5 '64

Plasma and liver lipids of mice as influenced by dietary protein and sulfur-containing amino acids. G. A. Leveille and H. E. Sauberlich. bibliog J Nutrition 84:10-14 S '64

Polarographic evidence for the binding of zinc to amino-groups of protein. W. U. Malik and Salahuddin. bibliog Chem & Ind p706-7 Ap 25 '64

Protein and lysine as factors in the cariogenicity of a cereal diet. M. L. Dodds. bibliog J Nutrition 82:217-23 F '64

Protein-energy relationship in adult rats. P. A. Garcia and C. E. Roderuck. bibliog J Nutrition 82:224-36 F '64

Protein offers clue to evolution. E. Margoliash and E. L. Smith. il Chem & Eng N 42:52-4 Ag 17 '64

Protein reserves; evidence for their utilization under nutritional and disease stress conditions. H. Fisher and others. bibliog J Nutrition 83:165-70 Je '64

Protein-rich foods for overcoming nutritional deficiencies; the industrial viewpoint. H. W. Bruins. il diags Food Tech 18:995-7 Jl '64

Protein-rich foods in calorie-protein malnutrition. P. György and C. Perna. bibliog Am J Clinical Nutrition 14:7-12 Ja '64

Protein structure-function correlation aided. D. E. Koshland, jr. and M. Burr. il diags Chem & Eng N 42:42-3 N 2 '64

Proteins may have hexagonal structure. D. T. Warner. il diags Chem & Eng N 42:53-4 O 26 '64

Relative potency of diets containing amino acids and proteins for promoting growth of rats. W. D. Salmon. J Nutrition 82:76-82 Ja '64

Reproductive performance of rats receiving various levels of dietary protein and fat. L. R. Richardson and others. bibliog J Nutrition 82:257-82 F '64

Research widens soy protein uses. Food Eng 36:72+ Jl '64

Response of digestive enzymes to dietary protein. J. T. Snook and J. H. Meyer. bibliog J Nutrition 82:409-14 Ap '64

Response of the liver to prolonged protein depletion; protection of succinic oxidase and succinic dehydrogenase by dietary methionine and cystine in a protein-free ration. J. N. Williams, jr. bibliog J Nutrition 82:51-60 Ja '64

Stable foams from unhydrolyzed soybean protein. A. C. Eldridge and others. bibliog Food Tech 17:1592+ D '63

Studies in infantile malnutrition; effect of protein and calorie intake on weight gain. G. G. Graham and others. bibliog J Nutrition 81:249-54 N '63

Studies of rat liver and kidney enzymes; response to dietary protein deficiency and repletion during chronic administration of ammonium acetate and L-glutamine. J. H. Hutchinson and D. H. Labby. bibliog Am J Clinical Nutrition 14:302-9 My '64

Studies on improved recovery of protein from rendering-plant raw materials and products. L. G. Criswell and others. bibliog flow sheet diag Food Tech 18:1489-97 S '64

Studies on the utilization of tempeh protein by weanling rats. L. R. Hackler and others. bibliog J Nutrition 82:452-6 Ap '64

Studies on unimolecular layers of modified proteins. bibliog diags J Colloid Sci 18:625-46 S '63

Tempeh fermentation; package and tray fermentations. A. Martinelli and others. bibliog il diags Food Tech 18:761-5 My '64

Theoretical considerations of the low pressure region of protein monolayers. K. Motomura. bibliog J Colloid Sci 19:425-32 Je '64

Three methods for the determination of the degree of substitution at protein-amino groups with special reference to substituted gelatins. W. G. Cobbett and others. bibliog J Ap Chem 14:296-302 Jl '64

World-wide importance of protein malnutrition and progress toward its prevention. N. S. Scrimshaw. bibliog Am J Pub Health 53:1781-8 N '63

See also

Albumin
Casein
Collagen
Cystine
Gelatin
Hemoglobin
Keratin
Myoglobin
Myosin
Nucleoproteins

Analysis

Densitometer for quantitation of stained protein fractions separated electrophoretically on acrylamide gel slab. T. G. Ferris and others. diag Anal Chem 36:955-7 Ap '64

Determination of available lysine in oilseed meal proteins. S. Raghavendar Rao and others. bibliog Anal Chem 35:1927-30 N '63

Determination of molecular weights of proteins by gel filtration on Sephadex. J. R. Whitaker. bibliog Anal Chem 35:1950-3 N '63

Environmentally-sensitive reagent with selectivity for the tryptophan residue in proteins. D. E. Koshland, jr. and others. bibliog Am Chem Soc J 86:1448-50 Ap 5 '64

Use of the Debye-Hückel approximation in the analysis of protein potentiometric titration data. M. Nagasawa and A. Holtzer. bibliog Am Chem Soc J 86:531-8 F 20 '64

PROTEINS—*Continued*

Denaturation

Nonpolar group participation in the denaturation of proteins by urea and guanidinium salts; model compound studies. D. B. Wetlaufer and others. bibliog Am Chem Soc J 86:508-14 F 5 '64

Thermodynamics of protein denaturation. J. F. Brandts. bibliog diags Am Chem Soc J 86:4291-314 O 20 '64

PROTON synchrotron. See Synchrotron

PROTONATION

Nuclear magnetic resonance studies of protonation of polyamine and aminocarboxylate compounds in aqueous solution. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1698-706 Ag '64

Nuclear magnetic resonance studies of protonation of some polyaminocarboxylate compounds containing asymmetric carbon atoms. J. L. Sudmeier and C. N. Reilley. bibliog Anal Chem 36:1707-12 Ag '64

Protonation and substitution studies on cyclopenta[*c'*]thiapyran and 2-phenyl-2-pyrindine. A. G. Anderson, jr. and W. F. Harrison. bibliog Am Chem Soc J 86:708-14 F 20 '64

Protonation of indoles; basicity studies; the dependence of acidity functions on indicator structure. R. L. Hinman and J. Lang. bibliog Am Chem Soc J 86:3796-806 S 20 '64

PROTONS

Chemical shifts of methyl protons in polymethylnaphthalenes. F. F. Yew and others. bibliog Anal Chem 36:843-5 Ap '64

Consequences of neutron-proton mass difference in the kinematics of neutron-proton scattering. A. K. Ghatak. diag Am J Phys 32:163-6 F '64

Energy dependence of proton irradiation damage in silicon. W. Rosenzweig and others. bibliog J Ap Phys 35:2707-11 S '64

Energy resolution of CsI(Tl) scintillation counter for 12.5- to 100-kev protons. A. C. Riviere and D. R. Sweetman. diag R Sci Instr 34:1286 N '63

Excitation of characteristic X rays by protons, electrons, and primary X rays. L. S. Birks and others. diags J Ap Phys 35:2578-81 S '64

External beam cross section distribution display. J. G. Cottingham. il diag R Sci Instr 35:517-18 Ap '64

Geminal proton-proton coupling constants in $CH_2{=}N$-systems. B. L. Shapiro and others. bibliog Am Chem Soc J 85:4041-2 D 20 '63

Graphic representation of proton chemical shifts; general consideration and methyl and methylene groups. K. Nukada and others. bibliog Anal Chem 35:1892-8 N '63

Introduction to dispersion relations. C. H. Holbrow and W. C. Davidon. bibliog diags Am J Phys 32:762-74 O '64

Kinetics of proton exchange in aqueous solutions of acetate buffer. Z. Luz and S. Meiboom. bibliog Am Chem Soc J 85:3923-5 D 20 '63

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in acetylated lignins. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1196-202 Mr 20 '64

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in compounds related to lignin. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1186-96 Mr 20 '64

Long-range effect of an asymmetric grouping on the magnetic equivalence of methylene group protons. J. C. Randall and others. bibliog Am Chem Soc J 86:3229-32 Ag 20 '64

Plasma radiation shielding. R. H. Levy and G. S. Janes. bibliog diags AIAA J 2:1835-8 O '64

Polarized protons. J. H. Williams. bibliog diags Phys Today 17:28-34 Je '64

Proton resonance study of the magnetic structure of antiferromagnetic $CoCl_2 \cdot 6H_2O$, $CoBr_2 \cdot 6H_2O$, $NiCl_2 \cdot 6H_2O$, and $NiBr_2 \cdot 6H_2O$. R. D. Spence and others. bibliog J Ap Phys 35:854-5 pt 2 Mr '64

Proton transfers in dipolar aprotic solvents; transfers to fluorenyl and trityl anions in dimethyl sulfoxide solution. C. D. Ritchie and R. Uschold. bibliog Am Chem Soc J 86:4488-9 O 20 '64

Relation of proton exchange to tautomerism in unsaturated sulfoxides. D. E. O'Connor and C. D. Broaddus. bibliog Am Chem Soc J 86:2267-70 Je 5 '64

Solar-flare proton data. W. R. Webber. bibliog diag Nucleonics 21:154-7 Ag '63

Steric effect on deshielding of the aromatic C_4-proton by a C_5-proton in an octahydrophenanthrene series. W. Nagata and others. bibliog Am Chem Soc J 86:3746-9 S 20 '64

Structural studies by nuclear magnetic resonance; the stereospecificity of coupling between protons separated by five bonds and conformations of some aromatic aldehydes. G. J. Karabatsos and F. M. Vane. bibliog Am Chem Soc J 85:3886-8 D 5 '63

Technique for studying oxygen diffusion and locating oxide inclusions in metals by using the proton radioactivation of oxygen-18. R. H. Condit and J. B. Holt. bibliog il Electrochem Soc J 111:1192-4 O '64

Tunneling in a proton transfer; a large isotope effect. L. Funderburk and E. S. Lewis. Am Chem Soc J 86:2531-2 Je 20 '64

Beams

Atom smasher beams 10^{18} protons. C. Wiley. il diag Electronics 37:81-2 Ja 3 '64

Depth-dose studies with 3-bev and 33-bev proton beams. L. F. Phillips and others. plans diags Nucleonics 21:55-6+ D '63

Nonsaturating ionization chamber for high intensity external proton beam. C. E. Swartz and others. diags R Sci Instr 34:1398-9 D '63

Phase-space occupation of electron, proton, and photon beams. R. Katz and B. Curnutte, jr. Am J Phys 32:617-18 Ag '64

Reduced energy spread of synchrocyclotron beams. F. Gotow and others. R Sci Instr 35:755-6 Je '64

Spin

Long range proton spin coupling over four bonds. E. W. Garbisch, jr. bibliog Chem & Ind p 1715-18 O 10 '64

Proton-^{13}C spin-spin coupling; inadequacy of correlation of proton-^{13}C coupling with s-character. G. J. Karabatsos and C. E. Orzech, jr. bibliog Am Chem Soc J 86:3574-5 S 5 '64

PROTOZOA

Effect of perfumery materials on tetrahymena pyriformis. J. C. Maruzzella and G. S. Utay. bibliog Am Perfumer 79:35-7 S '64

Foraminiferal facts, fallacies, and frontiers. A. R. Loeblich, jr. and H. Tappan. Geol Soc Bul 75:367-92 bibliog(p389-92) My '64

See also

Leishmaniasis
Paramecium

PRUNES

Effects of mechanical harvesting on the quality of prunes. M. W. Miller and others. Food Tech 17:1451-3 N '63

PSEUDOMORPHS

Mineral equilibrium studies of the pseudomorphism of pyromorphite by hinsdalite. W. E. Baker. Am Mineralogist 49:607-13 My '64

Pseudomorphs of anatase after sphene from Roanoke County, Va. R. S. Mitchell. bibliog Am Mineralogist 49:1186-9 Jl '64

PSEUDOURIDINE

Photolysis of pseudouridine 3′-phosphate and sRNA. M. Tomasz and R. W. Chambers. bibliog Am Chem Soc J 86:4216-17 O 5 '64

PSYCHIATRIC diseases. See Mental diseases

PSYCHIATRIC hospitals. See Hospitals, Psychiatric

PSYCHIATRY

Behavioral science and criminal law. E. J. Sachar. il Sci Am 209:39-45 N '63; Discussion. 210:8-9 Ja '64

Vital balance; the life process in mental health and illness. K. Menninger and others. Review, by E. G. Boring. Sci Am 210:145-6+ Ap '64

PSYCHIATRY, Industrial

Early recognition of problem behavior in industry. L. E. Himler. Ind Med 33:564-5 Ag '64

In-plant postgraduate psychiatric training. J. Donnelly and J. H. Houck. bibliog Archives Environmental Health 9:355-63 S '64

Psychiatrist for your mill? L. Christiansen, jr. Textile World 113:66-7 D '63

PSYCHICAL research

Lectures on psychical research. C. D. Broad. Review, by G. A. Miller. Sci Am 209:171-2+ N '63

PSYCHOLOGY

See also

Attitude (psychology)
Behavior (psychology)
Child study
Learning, Psychology of
Motivation (psychology)
Perception
Reaction time
Thought and thinking

PSYCHOLOGY, Experimental

Personality differences between smokers and nonsmokers. E. J. Salber and J. E. Rochman. bibliog Archives Environmental Health 8:459-65 Mr '64

See also

Stimulus and response

PSYCHOLOGY, Industrial

Don't shoot the foreman. Engineering 198:191 Ag 14 '64

How to motivate employees. A. E. Finnessy. Safety Maint 126:58-60+ D '63

How to succeed in r&d without really dying. H. A. Singer. Res/Develop 15:38-40 Ap '64

Psychologic challenge in automation. A. P. Solomon. bibliog Archives Environmental Health 9:72-81 Jl '64

Self-fulfilling prophecy in r&d management. M. A. Williamson. Res/Develop 15:92-3 Mr '64

See also

Music in industry

PSYCHOLOGY, Physiological

Stochastic learning and a quantal model of signal detection. D. A. Norman. bibliog IEEE Trans Applications & Ind 83:292-6 S '64

See also

Sight

PSYCHOMETRICS

Quality grading of impaired television pictures. R. D. Prosser and others. bibliog Inst E E Proc 111:491-502 Mr '64

PSYCHOPHYSICS. See Psychology, Physiological

PSYCHROMETRIC charts. See Humidity

PTERIDINE

Spectrophotometric test for xanthopterin. W. S. McNutt. Anal Chem 36:912-14 Ap '64

PTEROYLGLUTAMIC acid. See Folic acid

PUBLIC buildings

$46-million JFK cultural center. Eng N 172:18 Ja 16 '64

See also

Capitols
Embassy buildings
Fire houses
Hospitals
Municipal buildings
Office buildings, Government

Air conditioning

Air condition 115-yr-old building to serve as soldier's memorial. D. L. Gusler. il plans diags Heating-Piping 36:132-4 Je '64

Air conditioning of the Kremlin palace of congresses. W. Pichel. diags ASHRAE J 6:83-5 My '64

PUBLIC health

Airborne infection: how important for public health? bibliog il Am J Pub Health 54:1666-88 O '64

Children of families who follow the crops; a responsibility for public health; editorial. Am J Pub Health 54:520-1 Mr '64

Communications' role in environmental health. Soap & Chem Spec 39:171 N '63

Complex world of modern public health. L. L. Terry. Am J Pub Health 54:189-95 F '64

Criteria for evaluation of environmental health programs. H. J. Dunsmore. bibliog Am J Pub Health 54:7-10 Ja '64

Defining public health goals; a transactional approach; editorial. B. H. Kaplan. bibliog Am J Pub Health 54:1600-2 S '64

Environmental health, once again; editorial. Am J Pub Health 53:1836-8 N '63

Environmental health; present and future; symposium. bibliog Am J Pub Health 54:69-84 Ja '64

Health and urban development; symposium. bibliog Am J Pub Health 54:699-728 My '64

Health industry. J. S. McKenzie-Pollock. Am J Pub Health 54:1647-52 O '64

Livingston Farrand (1867-1939); promoter of public health; editorial. Am J Pub Health 53:1995-9 D '63

Man, his environment and health: Eastern states health education conference. Am J Pub Health 54:sup3, 1-83 pt 2 Ja '64

Organization of medical care and the health of the Nation. Am J Pub Health 54:147-52 Ja '64

Our continuing chief health need; frontiersmen. J. W. R. Norton. Am J Pub Health 54:393-9 Mr '64

Prisoners of jargon. I. D. J. Bross. bibliog Am J Pub Health 54:918-27 Je '64

Provoked abortion, a major public health problem. E. Rice-Wray. bibliog Am J Pub Health 54:313-21 F '64

Public health approach to nursing home care. L. J. Taubenhaus and others. bibliog Am J Pub Health 54:53-9 Ja '64

Responsibility of the board member of voluntary health agencies; editorial. P. D. Bonnet. Am J Pub Health 54:1766-8 O '64

Scope and methods of epidemiology. M. Terris. bibliog Am J Pub Health 52:1371-6 S '62; Discussion. 53:288-90, 1696-701 F, O '63

Scope and methods of epidemiology; editorial. A. M. M. Payne. bibliog Am J Pub Health 52:1502-4 S '62; Discussion. 53:1696-701 O '63

Trends in air pollution health effects. L. Breslow. Archives Environmental Health 8:24-6 Ja '64

Two masters of the school of public health. H. G. Fry. Am J Pub Health 54:1467-73 S '64

Use of time and cost data in environmental health program planning. J. A. Locke. Am J Pub Health 54:501-5 Mr '64

Uses and misuses of environmental health standards. H. I. Shuval. bibliog Am J Pub Health 54:1319-29 Ag '64

See also

Air pollution
Dental clinics
Infectious diseases
Insurance, Health
Medical service
Mental diseases
Mosquitoes—Extermination
New York (city)—Public health
Nutrition surveys
Refuse disposal
Safety devices and measures
Sanitary engineering
Sanitation
Sewage disposal
United States—Public health service
Vaccination
Water pollution
Water purification

Bibliography

Book reviews. Published in monthly numbers of American journal of public health

Selected public health bibliography with annotations. R. S. Patterson; C. J. Potthoff. Am J Pub Health 53:2036-8; 54:181-4, 385-6, 1631-5, 1792-5 D '63-F, S-O '64

Finance

Financing public health in urban areas. H. R. Domke and others. bibliog Am J Pub Health 54:729-40 My '64

International aspects

Impact of food and drug regulations on world health; editorial. H. G. S. van Raalte. bibliog Archives Environmental Health 8:771-4 Je '64

Statistics

Health statisticians and the American public health association. F. E. Linder. Am J Pub Health 54:1005-6 Je '64

Indicators of health, economy, and culture in Puerto Rico and Latin America. G. Molina and I. F. Noam. bibliog Am J Pub Health 54:1191-206 Ag '64

Reported congenital malformations in New York City, 1958-1959. C. L. Erhardt and F. G. Nelson. bibliog Am J Pub Health 54:1489-506 S '64

See also

Diseases—Statistics
Mortality—Statistics

Study and teaching

Development of the medical school as a community resource. W. R. Willard. Am J Pub Health 54:1041-8 Jl '64

Educational qualifications of directors of survey, planning, and licensing programs for hospital and other health facilities. Am J Pub Health 54:330-3 F '64

National conference on public health training, Kansas City, Mo. Aug. 19-22; texts of four papers. Am J Pub Health 54:1049-62 Jl '64

Teaching of public health nursing in schools of public health; a report to the Association of schools of public health. Am J Pub Health 53:2000-9 D '63

Alabama

Development of medical care programs in Alabama under the Kerr-Mills bill. H. C. Wylie. Am J Pub Health 54:1293-301 Ag '64

PUBLIC health—*Continued*

Appalachian region

Community health in a mountain neighborhood. J. W. Tapp and others. bibliog il Archives Environmental Health 8:510-17 Ap '64

Brazil

Community health challenge; northeast Brazil. G. M. Leiby and F. Figueira. bibliog map Am J Pub Health 54:1207-21 Ag '64

California

Occupational health activities in public health practice. M. H. Merrill. Am J Pub Health 53:1877-82 D '63

Some basic assumptions in community mental health. H. R. Brickman. bibliog Am J Pub Health 54:890-9 Je '64

Study of use of health records by 83 California families. J. Zusman. Am J Pub Health 54:908-17 Je '64

Colorado

Measuring community health levels. B. S. Sanders. bibliog Am J Pub Health 54:1063-70 Jl '64

Connecticut

Administrative problems in organizing and maintaining an employee health service program. J. F. Kilgus, jr. Am J Pub Health 53:1890-3 D '63

Florida

Occupational health program in Hillsborough County, Fla. J. S. Neill and C. L. Nayfield. Am J Pub Health 53:1886-9 D '63

Germany

Public health in East Germany. B. Gebhard. Am J Pub Health 54:928-31 Je '64

Great Britain

Chronic respiratory disease in Great Britain. C. B. McKerrow. bibliog Archives Environmental Health 8:174-9; Discussion. 180-1 Ja '64

Guatemala

Beliefs and practices concerning medicine and nutrition among lower-class urban Guatemalans. N. L. Solien de González. bibliog Am J Pub Health 54:1726-34 O '64

India

Industrial pulmonary disease in India. P. K. Ghosh. bibliog il map Ind Med 33:732-7 O '64

Israel

Epidemiological analysis of the hemoglobin picture in parturient women of Jerusalem. S. L. Kark and others. bibliog Am J Pub Health 54:947-60 Je '64

Latin America

Death and disease in infants and toddlers of preindustrial countries. M. Béhar. Am J Pub Health 54:1100-5 Jl '64

Indicators of health, economy, and culture in Puerto Rico and Latin America. G. Molina and I. F. Noam. bibliog Am J Pub Health 54:1191-206 Ag '64

New Jersey

Experience with a state chronic illness law. R. P. Kandle. Am J Pub Health 54:103-7 Ja '64

New Mexico

New Mexico cardiovascular disease nursing project. S. J. Leland and others. Am J Pub Health 54:1118-24 Jl '64

Oceania

Public health in the South Pacific. W. Norman-Taylor. bibliog Am J Pub Health 54:780-90 My '64

Polar regions

Factors to be considered in delineating Arctic and Antarctic in terms of health problems and services. K. Evang. bibliog Am J Pub Health 53:1565-78 O '63

Puerto Rico

Family planning program using volunteers as health educators. C. Zalduondo. Am J Pub Health 54:301-7 F '64

Indicators of health, economy, and culture in Puerto Rico and Latin America. G. Molina and I. F. Noam. bibliog Am J Pub Health 54:1191-206 Ag '64

Russia

Alcoholism in the Soviet Union; public health and social aspects. J. Wortis. bibliog Am J Pub Health 53:1644-55 O '63

United States

Observed and expected poliomyelitis in the United States, 1958-1961. G. Stickle. bibliog Am J Pub Health 54:1222-9 Ag '64; Discussion. 54:2085-6 D '64

Yugoslavia

Differential rates of schizophrenia in Croatia, Yugoslavia. G. M. Crocetti and others. maps Am J Pub Health 54:196-206 F '64

PUBLIC health administration

Effects of program research in a local health department. H. W. Carter. Am J Pub Health 53:1818-24 N '63

Staff response to innovation in a mental health service. R. H. Blum and J. J. Downing. bibliog Am J Pub Health 54:1230-40 Ag '64

Study in administrative practices. A. R. Leonard and L. Swales. Am J Pub Health 53:1825-8 N '63

See also

Public health departments

United States—Public health service

PUBLIC health association, American. See American public health association

PUBLIC health awards

Bronfman prizes, 1963. il Am J Pub Health 54:122-4 Ja '64

See also

Sedgwick memorial award

PUBLIC health departments

Community health resources for small plants. J. P. Bartlett. Archives Environmental Health 9:117-26 bibliog(p 125-6) Jl '64

Congestive heart failure, the patient and the community. R. T. Benack. bibliog Am J Pub Health 54:1706-10 O '64

Financing public health in urban areas. H. R. Domke and others. bibliog Am J Pub Health 54:729-40 My '64

Health department role in the Los Angeles reservoir failure. C. L. Senn. il Pub Works 95:116-17 Ap '64

Health department's responsibility in mental health. P. R. Ensign. Am J Pub Health 53:1829-34 N '63

Local health department; services and responsibilities. Am J Pub Health 54:131-9 Ja '64

Local health department's responsibility for environmental health programs. W. J. Peeples. Am J Pub Health 54:632-7 Ap '64

Occupational health in the local health department, a status report. H. N. Doyle. Am J Pub Health 53:1883-5 D '63

Relationship of health agencies and planning agencies. L. S. Goerke. bibliog Am J Pub Health 54:713-20 My '64

Responsibility of official health agencies in meeting city problems. G. James. bibliog Am J Pub Health 54:703-12 My '64

State health department's responsibility for environmental health programs. M. H. Thompson. Am J Pub Health 54:627-31 Ap '64

PUBLIC health education

Community approach to respiratory disease. L. J. Taubenhaus. bibliog Archives Environmental Health 8:746-51 My '64

See also

Public health—Study and teaching

PUBLIC health laboratories

Analytical reference service. H. P. Kramer. Am J Pub Health 54:1531-5 S '64

PUBLIC health laws and regulations

Experience with a state chronic illness law. R. P. Kandle. Am J Pub Health 54:103-7 Ja '64

Legal requirements for immunizations; survey of state laws and regulations. F. V. Hein and W. W. Bauer. Archives Environmental Health 9:82-5 Jl '64

New York passes clinical lab bill. Chem & Eng N 42:38 Ap 13 '64

See also

Plumbing laws and regulations

Water laws and regulations

PUBLIC health nurses and nursing. See Nurses and nursing, Public health

PUBLIC health officers

Health officer; his image. H. B. Cottrell. Am J Pub Health 54:255-6 F '64

Health officer's code. T. P. Haney. Am J Pub Health 54:257-60 F '64

Local health officer: his job. E. D. Sox. Am J Pub Health 54:249-54 F '64

PUBLIC health records

Study of use of health records by 83 California families. J. Zusman. Am J Pub Health 54:908-17 Je '64

PUBLIC health research

Conversion of laboratory data for computer analysis. H. E. Tompkins. bibliog Am J Pub Health 53:1953-9 D '63

Effects of program research in a local health department. H. W. Carter. Am J Pub Health 53:1818-24 N '63

Research programs and projects by local health departments; general policies and practices. W. F. Mayes. Am J Pub Health 53:1813-17 N '63

PUBLIC health service. See United States—Public health service

PUBLIC health surveys

Contact investigation; a practical approach to tuberculosis eradication. K. H-K. Hsu. diag Am J Pub Health 53:1761-9 N '63

Effect of misclassification on estimated relative prevalence of a characteristic. A. Keys and J. K. Kihlberg. diag Am J Pub Health 53:1656-65 O '63

Health survey of pest control operators. W. J. Stein and W. J. Hayes, jr. bibliog Ind Med 33:549-55 Ag '64

How well are well children? H. Jacobziner and others. bibliog Am J Pub Health 53:1937-52 D '63

Human exposure to external background radiation; population survey in northern New England. A. Segall and R. Reed. map Archives Environmental Health 9:492-9 O '64

Interviewer response bias in a survey of handicapping conditions among children. W. P. Richardson and others. Am J Pub Health 54:1092-9 Jl '64

Nashville air pollution study; morbidity in relation to air pollution. L. D. Zeidberg and others. map Am J Pub Health 54:85-97 bibliog(96-7) Ja '64

Some preliminary findings on physical complaints from a prospective study of 1,064,004 men and women. E. C. Hammond. Am J Pub Health 54:11-23 Ja '64

Studies of serum cholesterol in 4,244 men and women; an epidemiological and pathogenetic interpretation. F. J. Schilling and others. Am J Pub Health 54:461-76 bibliog(p474-6) Mr '64

PUBLIC health workers

Biostatistician and health administration. M. Tayback. Am J Pub Health 54:603-8 Ap '64

Health hazards to health workers; a neglected area; editorial. G. S. Siegel. Am J Pub Health 54:1001-3 Je '64

Improving recruitment and retention of public health personnel. E. McCrensky. Am J Pub Health 54:624-6 Ap '64

Public health professional; a marginal man. M. J. Lefcowitz. bibliog Am J Pub Health 54:1125-8 Jl '64; Discussion. 54:2086-8 D '64

Some technics for meeting personnel shortages. L. J. Rosner. bibliog Am J Pub Health 54:615-23 Ap '64

Staff response to innovation in a mental health service. R. H. Blum and J. J. Downing. bibliog Am J Pub Health 54:1230-40 Ag '64

See also

Nurses and nursing, Public health

Training

Realism in the preparation of health workers. J. L. Troupin. Am J Pub Health 54:997-1000 Je '64

PUBLIC housing administration. See United States—Public housing administration

PUBLIC opinion

Attitudes toward desegregation. H. H. Hyman and P. B. Sheatsley. map Sci Am 211:16-23 Jl '64

What changes are occurring in public opinion toward cancer; national public opinion survey. D. Horn and S. Waingrow. Am J Pub Health 54:431-40 Mr '64

PUBLIC opinion polls

Hartford's customer opinion trend survey. H. R. Carlson. il Gas 40:59-65 Je '64

Improvement of customer relations through public opinion surveys. W. M. Longman. Am Water Works Assn J 56:563-8 My '64

PUBLIC power association, American. See American public power association

PUBLIC relations

Consol employee relations and community relations. il Coal Age 69:222-4 O '64

Planning advice for hosts and visitors. M. A. Williamson. Res/Develop 15:57-8 Ap '64

Role of public relations in coal-mine safety. Coal Age 69:172+ Ap '64

Successful pr at Christmas. P. Lockwood. Rubber Age 94:290 N '63

Why be low man on the totem pole of public esteem? B. Hamilton. Dom Eng 203:72-3 Ja '64

See also

Customer relations

also subdivision Public relations under special subjects, e.g.

Engineers

Gas companies

Highway departments

Petroleum industry and trade

Plumbing trade

Public utilities

Waterworks

PUBLIC roads, Bureau of. See United States—Public roads, Bureau of

PUBLIC speaking

Giving a talk? some useful suggestions. F. J. Galvin. il Electronic Ind 23:138-9+ Ja '64

PUBLIC utilities

See also

Electric rates

Electric utilities

Gas, Natural—Pipe lines

Gas companies

Petroleum pipe lines

Railroads

Telephone

Waterworks

Accounting

Five goals for the accountant. A. R. Sterner. Am Gas Assn Mo 46:23-5 Jl-Ag '64

See also

Electric utilities—Accounting

Gas companies—Accounting

Telephone companies—Accounting

Advertising

See also

Electric utilities—Advertising

Gas industry—Advertising

Appliance selling

See also

Electric utilities—Appliance selling

Gas companies—Appliance selling

Buildings

Design for controlled lighting; office building, Public service company of Colorado, Denver. il plan Arch Rec 136:144-6 Ag '64

Costs

See also

Electric utilities—Costs

Equipment and supplies

Accurate records support best bid equipment purchases. V. M. Whitfield. il Pub Works 95:114-16 Mr '64

Five year plan; modern machinery for a small city. F. Edmonds. il Pub Works 95:112-13 O '64

Mount Dora's versatile utility truck. H. D. Overhiser. il Pub Works 95:132 N '64

See also

Motor trucks in repair service

Finance

Five year plan; modern machinery for a small city. F. Edmonds. il Pub Works 95:112-13 O '64

See also

Electric utilities—Finance

Gas companies—Finance

Laws and regulations

See also

Electric utilities—Laws and regulations

Gas, Natural—Laws and regulations

Management

Fundamental considerations for utility managements and regulators. R. L. Rosenthal. Gas 40:66-73 Ja '64; Same. Gas Age 131:25-30+ Ja; 40-2+ F '64

See also

Electric utilities—Management

Gas companies—Management

Waterworks—Management

Public relations

Incinerator model convinces public. J. L. Hayden. il Pub Works 95:94-5 Jl '64

See also

Electric utilities—Public relations

Electric utilities—Service

Gas companies—Public relations

Waterworks—Public relations

Radio communication

Electricity, gas and coal industries operate more than 9,500 radio stations. il Engineering 198:512-13 O 23 '64

PUBLIC utilities—Radio communication—*Cont.*

Noise-blanking circuit extends mobile radio operating range. il Power Eng 68:37 Ja '64

Rates

See also
Gas, Natural—Rates
Water rates

Records

Accurate records support best bid equipment purchases. V. W. Whitfield. il Pub Works 95:114-16 Mr '64

Securities

See also
Electric utilities—Securities

PUBLIC welfare

See also
Social welfare

PUBLIC works

Equipment news. Published in monthly numbers of Public works

Trade associations that serve the public works field (cont). il Pub Works 95:112-13 Jl '64

Using engineering to enslave you. A. J. Ackerman. bibliog Civil Eng 34:67-70 Jl '64

See also
American public works association
County engineering
Highway departments
Sewage disposal

Bibliography

Books in brief. Published in monthly numbers of Public works

Federal aid

Congress wraps bundle for Nation's contractors. Eng N 173:22-3 Ag 27 '64

Despite crises, U.S. plans for peace. il Eng N 173:19-21 Ag 13 '64

Johnson takes on Congress. Eng N 171:23-4 D 5 '63

LBJ calls for public building funds. Eng N 172:17 Ja 16 '64

New jobs added to public works. Eng N 171:19-20 N 21 '63

Finance

Goldwater; let the states build it. il Eng N 173:17-18 Jl 23 '64

LBJ counts on construction bills. Eng N 173:11-12 Jl 30 '64

See also
Roads—Finance
Sewerage—Finance
Waterworks—Finance

Laws and regulations

Legal aspects of public works. D. A. Schneider. Published in monthly numbers of Public works

New York (state)

New York state's new Public Works test labs are mechanized and automated. il Eng N 172:24-6+ Ja 16 '64

PUBLIC works association, American. See American public works association

PUBLIC works departments

Measuring maintenance performance. J. H. Kiracofe. Pub Works 95:80-2 Jl '64

Public works, imagination and salesmanship; Grove City, Pa. F. E. Fisher. il Pub Works 95:84-7 My '64

Small city centralizes municipal service operations. P. J. Prout. plan Pub Works 95:182 S '64

Urban planning and public works. S. N. Grimm. Pub Works 95:104-5 Ap '64

See also
Water departments

PUBLISHERS offices

Equipment

Books offset in stacks by counter control. il diag Automation 10:89-90 N '63

PUERTO RICO

See also subdivision Puerto Rico under special subjects, e.g.
Chemical industries
Electricity supply
Lime industry
Public health
Sewerage

Economic conditions

Operation bootstrap. R. V. Urrutia. il Power Eng 67:47-9 D '63

PULLEYS

Drive ends pulley lubrication. il Mech Eng 86:63 Mr '64

See also
Sheaves

PULP. See Wood pulp

PULP mills. See Paper and pulp mills

PULSATION

Causes and cures of pressure pulsation. W. S. Everett. Hydrocarbon Process & Pet Refiner 43:117-20 Ag '64

Infra-sonic effect of liquid separation in gas pulsation dampeners. W. S. Everett. il diag Gas 40:72+ Je '64

PULSE code modulation. See Radio pulse code modulation

PULSE generators

Complementary shaper replaces Schmitt trigger. L. L. Kleinberg. diag Electronics 37:66-7 O 5 '64

Current-source excitation-type electromechanical pulser. H. C. Pande. bibliog diags IEEE Trans Com & Electronics 83:528-35 S '64

Generation of random-time pulses at an accurately known mean rate and having a nearly perfect Poisson distribution. G. White. il diags J Sci Instr 41:361-4 Je '64

Generator provides complex pulse sequences. il Electronics 37:133 Je 15 '64

High current low impedance pulse generator. N. B. Stevens. il diags R Sci Instr 35:167-70 F '64

High power rf pulse generator. E. S. Weibel. il diags R Sci Instr 35:173-5 F '64

High voltage pulse generator for a Kerr cell shutter. A. Hrisoho and B. Souček. diags J Sci Instr 41:482-3 Jl '64

Inexpensive pulse generator for single-shot operation of magnetrons. J. A. Green and J. Guttridge. diag J Sci Instr 40:541-2 N '63

New generator tests data handling systems. L. Mobley. il diags Electronic Ind 23:108-10 Jl '64

Nondestructive readout drive circuit for transfluxors. K. A. Harriger. diags IEEE Trans Com & Electronics 83:589-92 S '64

Positive-pulse generator. R. J. Bouchard. diags Electronics 37:74-5 Jl 27 '64

Pulse generator system for fast-reaction experiments using a time-of-flight mass spectrometer. J. S. Riney and W. C. Gardiner, jr. diags R Sci Instr 35:384-7 Mr '64

Silicon controlled rectifiers to pulse radar. T. Maguire. diags Electronics 37:14-15 Ja 17 '64

Simple alternating-polarity pulse generator. S. E. Cummins. il diag R Sci Instr 35:1372 O '64

Static pulse generator is packaged in whr meter. il Elec World 161:58 F 10 '64

Surge-magnetic-field and pulse-current effects in niobium stannide. W. H. Cherry. bibliog il diags RCA R 25:510-32 S '64

Transistor delay and pulse generator. W. J. Bannister. diags Electronic Eng 35:746-7 N '63

2000-A pulse generator. N. A. Sullivan. il diag R Sci Instr 35:639-40 My '64

Variable frequency square pulse generator. H. H. Ho. diags Electronic Eng 35:822-3 D '63

PULSE techniques (electronics)

Analysis of a feedback amplifier. C. D. West. bibliog diags Electronic Eng 36:326-9 My '64

Cathode particle vapors in a glow discharge in pulsed diodes. F. T. Worrell and H. A. Pike. J Ap Phys 34:3491-2 D '63

Charge-storing technique for measuring small conduction currents under microsecond pulse conditions. P. K. Watson and A. H. Sharbaugh. diags R Sci Instr 35:1310-13 O '64

Counting pulses on parallel channels. R. G. Farnsworth. il diags Control Eng 11:65-7 Jl '64

Design considerations for laser pulse amplifiers. A. E. Siegman. J Ap Phys 35:460 F '64

Discrete spectral densities of Markov pulse trains. R. D. Barnard. bibliog flow diag Bell System Tech J 43:233-59 Ja '64

Elements of transistor pulse circuits. T. D. Towers. diags Wireless World 70:2-8, 74-80, 128-32, 199-203, 242-6, 351-7, 403-7, 463-70, 534-9, 634-9 Ja-My, Jl-O, D '64; Discussion. 70:560-1, 617-19 N-D '64

Gated pulses yield selected frequency outputs. J. H. Firestone. diags Electronics 36:38-40 D 20 '63

PULSE techniques (electronics)—*Continued*
Generation of an electromagnetic pulse by an expanding plasma in a conducting half-space. A. P. Stogryn and R. N. Ghose. bibliog diag J Res Nat Bur Stand 68D:147-55 F '64
^{3}He neutron spectrometer using pulse rise-time discrimination. A. Sayres and M. Coppola. bibliog diags R Sci Instr 35:431-7 Ap '64
High speed decade pulse counting. R. S. Foote and D. Johnson. il diags R Sci Instr 35:1126-9 S '64
How coded-pulse techniques extend radar range. T. Sakamoto and others. bibliog il diags Electronics 36:34-7 N 22 '63
Inexpensive digital voltmeter using multiple-anode dekatrons. P. Gleghorn. diags Radio & Electronic Eng 28:107-13 Ag '64
Internal pulse amplification in silicon p-n junction radiation detection junctions. G. C. Huth and others. diag R Sci Instr 35:1220-2 S '64
Ion distributions in a pulsed Townsend discharge. D. Edelson and others. bibliog J Ap Phys 35:1682-90 Je '64
Kerr cell measuring system for high voltage pulses. D. C. Wunsch and A. Erteza. bibliog diags R Sci Instr 35:816-20 Jl '64
Low cost digital tape store. C. C. Rockwood and G. A. McGinnis. diags R Sci Instr 35:751-2 Je '64
Method for correction of accumulated error in 180° pulses in Carr-Purcell experiment. R. C. Wayne and others. il diags R Sci Instr 35:1051-5 Ag '64
Nanosecond pulse technique for multiple front studies in shock tubes. M. J. Lubin. il diags R Sci Instr 34:1408-9 D '63
Nanosecond pulsing for Van de Graaff accelerators. C. D. Moak and others. bibliog il diags R Sci Instr 35:672-9 Je '64
Narrow pulse generation by nonlinear transmission lines. J. R. Alday. IEEE Proc 52:739 Je '64
New technique for designing fast rise transistor pulse amplifiers. C. J. Rush. il diags R Sci Instr 35:149-56 F '64
One-shot multi produces constant pulse width. R. T. Stevens. diag Electronics 37:74-5 Ap 6 '64
Performance of a multiple pulse, multiprism laser *Q* switch. J. P. Chernoch and K. F. Tittel. bibliog il IEEE Proc 52:859-60 Jl '64
Photomultiplier and electronic study of Geiger counter pulses in air. H. M. Herreman and L. B. Loeb. bibliog il diags J Ap Phys 34:3160-7 N '63
Programmer for a two-dimensional pulse-height analyzer. T. J. Kennett. diags R Sci Instr 35:1230-1 S '64
Pulse apparatus for the measurement of ultrasonic absorption in solution from 1 to 60 mc. G. Atkinson and others. bibliog diags R Sci Instr 35:1270-3 O '64
Pulse compression predistortion function for efficient sidelobe reduction in a high-power radar. C. E. Cook and J. Paolillo. bibliog il diags IEEE Proc 52:377-89 Ap '64
Pulse control of d-c and a-c motors by silicon-controlled rectifiers. K. Heumann. bibliog il diags IEEE Trans Com & Electronics 83:390-9 Jl '64
Pulse distribution amplifier with new pulse re-forming technique. A. J. Banks. il diags SMPTE J 72:931-7 D '63
Pulse excitation studies of gain and trapping in photoconductors. R. H. Bube. bibliog J Ap Phys 34:3309-14 N '63
Pulse period meter with short response time, applied to cardiotachometry. P. A. Tove and J. Czekajewski. bibliog diags Electronic Eng 36:290-5 My '64
Pulse propagation in a laser amplifier. J. P. Wittke and P. P. Warter. bibliog J Ap Phys 35:1668-72 Je '64
Pulse technique extends range of Chromel-Alumel to 7000° F. A. F. Wormser and R. A. Pfuntner. il diags Instruments & Control Systems 37:101-3 My '64
Radar resolution properties of pulse trains. A. W. Rihaczek. bibliog diags IEEE Proc 52:153-64 F '64
Short-pulse techniques; kinetics of the triiodide/iodide reaction on a platinum electrode in neutral solution. S. Schuldiner and C. H. Presbrey, jr. bibliog il diags Electrochem Soc J 111:457-65 Ap '64
Study of adsorption and oxidation of carbon monoxide on platinum using constant current pulses. T. B. Warner and S. Schuldiner. bibliog Electrochem Soc J 111:992-7 Ag '64
Timing slow pulses for fast coincidence measurements. M. G. Strauss. diags R Sci Instr 34:1248-53 N '63
Transistor's stored charge controls pulse delay. R. H. Blumenthal and F. E. Williams. diags Electronics 37:52-3 Je 29 '64
Unijunction circuit generates specific numbers of pulses. R. Ferrie. diag Electronics 37:78 My 4 '64
Wide-range audio-frequency pulse modulator. M. E. Bryan and W. Tempest. il diags Electronic Eng 36:154-8 Mr '64

PULVERIZED coal. See Coal, Pulverized

PULVERIZED coal firing. See Boilers—Pulverized coal firing

PULVERIZERS
Air-swept comminutor gives fine product distribution. Chem & Eng N 41:60+ D 16 '63
High-frequency vibrating mill. il diag Engineer 218:461 S 18 '64
Intermediate fine grinding. W. E. Lenaway. il diag Chem Eng Prog 60:100-3 Mr '64
Modern fluid energy mill. F. E. Albus. il Chem Eng Prog 60:102-6 Je '64
New micronizer facilities at Stratford Berk offer complete service to the industry. il Manuf Chem 35:78-9 Mr '64
One-step continuous quick-curing triple superphosphate process employing rod mill grinding. D. R. Boylan and A. B. Amin. bibliog flow sheet diag J Agri & Food Chem 12:428-32 S '64
Pulverizer doesn't wear; can be used for both friable and heat-sensitive materials. diag Chem & Eng N 42:49 N 2 '64
Pulverizer has wide processing flexibility. il Chem Eng 71:44+ Ag 31 '64
Thirty-inch micronizer for research. il Engineering 197:235 F 7 '64
See also
Ball mills

PULVERIZING
Cold crushing strength of small ceramic pellets. C. M. Jones, 2d. Am Cer Soc Bul 43:19 Ja '64
Grindability tests; short cut to blending coals for strong coke. J. W. Leonard. Min Eng 16:45-7+ Mr '64
Resin crushing; mesh sized phenolic coating resins. il Plastics World 22:66 Ja '64
Theory of grinding operations. L. G. Austin and R. R. Klimpel. bibliog diag Ind & Eng Chem 56:18-29 N '64

PULVILLORIC acid. See Acids, Organic

PUMMERER rearrangement. See Molecular rearrangements

PUMPING
Design considerations for pumping viscous liquids. D. Meier. diags Heating-Piping 35:134-9 N; 108-13 D '63
Pumping non-Newtonian fluids. G. E. Alves. bibliog Chem Eng Prog 60:39-40 Ag '64
Pumping of wood chips through a four-inch aluminum pipe-line. A. Brebner. diag Can J Chem Eng 42:139-42 Je '64
See also
Hydroelectric plants—Storage type
Petroleum—Pumping
Pumping stations
Pumps
Sewage pumping

Tables, calculations, etc.

Importance of system head curves. P. E. Cardillo. Pub Works 95:118-20 O '64

PUMPING machinery
Diesel-driven pump set. il Engineer 216:858 N 22 '63
Engine-mounted marine pumps. il Engineer 217:449 Mr 6 '64
N engines star on farm. il Diesel Equip Supt 42:54 S '64
Pump and pump drives. diags Oil & Gas J 62:104 Ap 13 '64
Pumps take ten-ft gulps; flood protection for St Louis. il Mech Eng 86:56-7 Ag '64
See also
Air pumps
Gasoline pumps
Petroleum—Pumping
Petroleum pipe lines—Pumping stations
Pumping stations
Pumps
Sewage pumping
Vacuum pumps

Maintenance and repair

Well and pump maintenance. J. R. Tubman. il Water & Sewage Works 111:147-9 Mr '64

PUMPING machinery, Electric
Electrical plant in Heathwall pumping station. il Engineer 217:106-7 Ja 10 '64

PUMPING machinery, Electric—*Continued*

How to evaluate the suitability of variable-speed pumping to the particular plumbing installation; guide for designers. J. E. McGinness, jr. Air Cond Heat & Ven 60:71-6 N '63

Variable-ratio epicyclic gear pump drive. il diags Engineer 216:994-5 D 13 '63

Why should adjustable-speed drives be used in lift stations? O. A. Bush diags Water Works & Wastes Eng 1:52-5 Mr '64

See also

Petroleum—Pumping, Electric

Petroleum pipe lines—Pumping stations, Electric

Petroleum products pipe lines—Pumping stations, Electric

Pumps, Submergible

Control

Application and economics of variable speed drives to pumps. J. R. Harbaugh. Water & Sewage Works 111:84-6 F '64

Pumping equipment controls. P. T. Roach. il diag Water & Sewage Works 110:453-7 D '63

Types of variable-speed pump controls in water service. A. Ambrosini. il diags Am Water Works Assn J 56:710-20 Je '64

PUMPING stations

Aircraft jets for pipeline pumping. R. F. Naples and D. M. Salls. il Mech Eng 86:38-9 My '64

Chicago's Southwest pumping station. il maps Water & Sewage Works 110:419-21 D '63

Pipeline surges and their effect on pump station design. S. Perliter and E. A. Urbain. il map diag Am Water Works Assn J 56:891-8 Jl '64

South branch pumping station to complete New Jersey water plan. il Water Works Eng 116:892 N '63

Winter water utility construction in Canada. N. S. Bubbis. bibliog Am Water Works Assn J 56:1303-14 O '64; Excerpts. Pub Works 95:124+ D '64

See also

Petroleum pipe lines—Pumping stations

Sewage pumping

Waterworks

Control

Denver's 120-mgd, unmanned, climate-controlled pump station. R. B. McRae. il Water Works & Wastes Eng 1:42-5 Mr '64

More remote control for Brighton Waterworks. il Ind Electronics 2:219 My '64

Water through automation from sea level up to 1500 feet. J. B. Gilbert. diag Water Works & Wastes Eng 1:93-4+ My '64

Costs

Competition is stiff on San Luis pumping plant and dam; unit prices. Eng N 172:128-30 Mr 19 '64

Electric equipment

Significant factors in the selection of ac motors. R. J. Conrad. il Water & Sewage Works 111:134-7 Mr '64

Equipment

Allis-Chalmers International receives contract to equip Lameirao pumping station in Brazil. Water & Sewage Works 111:131 Mr '64

Denver's 120-mgd, unmanned, climate-controlled pump station. R. B. McRae. il Water Works & Wastes Eng 1:42-5 Mr '64

Diesel pump stations bail out flooded farmland in Florida. C. J. Bottomley. il Power Eng 67:65-6 N '63

48 inch water line tapped without shutdown at the Savannah water works' new pumping installation. il diag Water & Sewage Works 111:132-3 Mr '64

New pumping station supplying water to Southend. il Engineering 196:591 N 8 '63

Pumping station piping provides challenge for mechanical contractor. W. R. Stevens. il Heating-Piping 36:125-8 My '64

Re-modelled pumping stations at Staines and Walton. il Engineer 218:543-4 O 2 '64

Vertical pump accessories. H. L. Keith. diags Water & Sewage Works 111:39-43 Ja '64

Supervisory control

Automation of the Rivermines pumping station. P. W. Green. il Water Works & Wastes Eng 1:52-3 Jl '64

PUMPS

A.B.C's of rotary-pump operation. il diags Oil & Gas J 62:94 Mr 9 '64

Add pump, rotate conveyor, make two handling systems from one. il diag Plant Eng 18:116-17 O '64

All-purpose pump with extra-short stroke. il diag Product Eng 35:120 S 14 '64

Announcing the winners! sump pump spectacular dealer contest. il Dom Eng 202:66-79 D '63

Circulating pump and flowmeter for kinetic reaction apparatus. D. Kalló and others. diags J Sci Instr 41:338-40 My '64

Compact hydraulic pump. Engineer 217:356 F 21 '64

Designing a pressure intensifier. J. Morando. diags Hydraulics & Pneumatics 16:85-8 D '63

Distillers co. ltd. metering pumps. il diags Engineering 197:418-20 Mr 20 '64

Double pumps supply telescoping cylinders of unloading platform. W. A. Kostick. il diags Hydraulics & Pneumatics 16:84-5 N '63

Efficiency of pumping from small circular sumps. A. M. Shahroody and J. R. Davis. bibliog diag Am Soc C E Proc 90 [IR 1 no 3817]:1-8 Mr '64

Four large pumps for liquid methane. diag Engineering 196:804-5 D 27 '63

Gear pumps. N. W. Horn. il diags Machine Design 35:22-6 D 12 '63

How can we improve pump seal life? answers. Power 108:170-1 S '64

How to select a pump for high-pressure water injection. J. C. Neal. Oil & Gas J 62:129-30 O 5 '64

How to specify non-overloading pump motors. J. A. Cable. Water Works & Wastes Eng 1:58-60 Ap '64

Hydraulic pumps. diag Engineer 218:592 O 9 '64

Hydraulic systems; selecting pumps and actuators. R. W. Henke. il diags Machine Design 36:119-23 Jl 2 '64

Hydrodifferential transmission; new designs for variable speed. M. Schacter. diags Hydraulics & Pneumatics 17:65-8 Ap; 65-7 Ag '64

Influence of channel curvature on flow, pressure distribution, and power requirements of screw pumps and melt extruders. M. L. Booy. bibliog diags A S M E Trans ser B 86:22-30 F '64

Intensifiers and hand pumps; fluid power component selection charts. Hydraulics & Pneumatics 17:102 Ja '64

List of pumps required to make a big central station function. E. A. Sommerfield. Power Eng 68:58 S '64

Madan airhydropumps. il diags Engineering 196:594-5 N 8 '63

Metering pumps. F. D. Marton. il diags Instruments & Control Systems 36:86-8 Ap; 99-100 O; 126-7 N; 102-3 D '63

New designs for htw. O. S. Lieberg. diags Air Cond Heat & Ven 61:55-7 Je '64

Piston pumps. J. Olson. il diags Machine Design 35:32-6 D 12 '63

Pressure pumps help on fast color changes. Ind Finishing 40:105 Ja '64

Pump dealers speak up; tell what they like, don't like about manufacturer sales aids. il Dom Eng 203:86-7+ Ap '64

Pump moves bulk cement without delays. il Mod Materials Handling 19:59 S '64

Pump selection. C. J. Hohmann and A. O. Roberts, jr. il diags Machine Design 35:16-21 D 12 '63

Pumpcrete PC3 mechanical concrete pump. il diags Engineering 198:334-6 S 11 '64

Pumps and continuous processing. J. P. Bolanowski. il diags Food Tech 18:32-7 Ja '64

Pumps; Chemical exposition, New York. diags Product Eng 34:28-9 D 23 '63

Pumps; fluid power component selection charts. Hydraulics & Pneumatics 17:110-12 Ja '64

Pumps synchronize single acting cylinders up and down. A. T. Browne. il diags Hydraulics & Pneumatics 17:92-3 My '64

Reciprocating-pump principles. diag Oil & Gas J 62:102 Mr 23 '64

Reciprocating pumps bid for new jobs. J. W. McConaghy. il diags Power 107:54-6 N '63

Rig pumps concrete at 30 cu yd per hour. il diag Eng N 172:107 F 13 '64

Rotary-pump fundamentals. diag Oil & Gas J 62:111 F 17 '64

Selecting and installing the hydraulic pump. D. E. Vosburgh. Lub Eng 20:299-304 Ag '64

Selecting and maintaining packings. J. J. Whalen. diags Chem Eng 70:256+ N 11 '63

Simple, continuous-flow, low and variable rate pump; M.I.T. electrolysis pump. J. M. Symons. diags WPCF J 35:1480-5 N '63

60 hp concrete pump feeds work points. il Engineering 198:121 Jl 24 '64

Slurries multiply pump requirements. I. Dalstad. Mill & Factory 74:82-4 F '64

PUMPS—*Continued*

Three stage pump gives planer seven speeds. il Hydraulics & Pneumatics 17:22+ S '64

Trouble-shooting well and well pump problems. A. D. Henderson. Water Works & Wastes Eng 1:51+ Ag '64

Unique tube pump slashes abrasive wear. diag Chem Eng 71:62+ F 3 '64

Vane pumps. R. W. Henke. il diags Machine Design 35:27-31 D 12 '63

Vertical turbine vs positive-displacement pumps used in waterflood operations. B. D. Meador and J. R. Russell. il map J Pet Tech 16:139-42 F '64

Water jet pump. N. H. G. Mueller. bibliog diags Am Soc C E Proc 90 [HY 3 no 3908]: 83-113 My '64

Water systems merchandising; seven sins of omission. Dom Eng 204:86-7 S '64

Water systems 1964. Dom Eng 203:75-92 Ja; 96-9+ F; 114-15+ Mr '64

See also

Air pumps

Gasoline pumps

Heat pump

Mine pumps

Oil pumps

Petroleum—Pumping

Pumping machinery

Pumping stations

Pumps, Electromagnetic

Sewage pumps

Vacuum pumps

Bearings

Careful maintenance insures good bearing service. diags Oil & Gas J 62:104 Jl 20 '64

Hydrostatic slipper pads. D. E. Lambeth and J. W. Everett. bibliog diags Engineer 218:6-9 Jl 3 '64

Control

Remote control of variable-displacement pumps; drawings with text. W. Meisel. Machine Design 36:238-41 Ap 23 '64

Should we use variable speed pumps? answers. il diags Power 108:134-6 Jl '64

Spool valve times hydraulic flow. W. J. Millard. il diags Hydraulics & Pneumatics 17: 96-7 My '64

Design

Designing a pressure-balanced gear pump for high pressures. D. S. Strader. diags Hydraulics & Pneumatics 17:66-9 Je '64

Latest bent-axis pump is the Thru-Bore. diags Product Eng 35:51-2 Ja 6 '64

Theoretical design of a high-head axial-flow reversible pump-turbine. R. Baldur. diags A S M E Trans ser A 86:84-8 Ja '64

Failure

Causes and cures of mechanical shaft seal failures in water pumps. S. Sussman. il diag Heating-Piping 35:141-8 S '63; Discussion. 36:108+ Ja '64

Installation

Mounting and grouting for pumps. N. L. Meyerson. diags Air Cond Heat & Ven 60:39-46 D '63

Maintenance and repair

Dual filters increase aircraft reliability. D. B. Meredith. il diag Hydraulics & Pneumatics 17:68-70 F '64

Pump plungers like new at half the original cost. il Welding Eng 49:65 My '64

Teflon packing cuts pump-maintenance costs. Oil & Gas J 62:111 Ag 3 '64

Manufacture

Modernisation of a pump factory; British LaBour pump co. il Engineer 217:474-5 Mr 13 '64

Protection

Centrifuge traps well-stream sand. il diag Oil & Gas J 62:99 F 24 '64

Tables, calculations, etc.

Nomograph for available net positive suction head. F. Caplan. Water & Sewage Works 111:50-1 Ja '64

Pump specific speed; nomograph. F. Caplan. Water & Sewage Works 110:424 D '63

Pumps. il diags Oil & Gas J 61:86 N 25; 90 D 9; 79 D 23 '63; 62:87 Ja 6; 81 Ja 20; 104 Ap 13; 87 My 4; 152 My 25; 156 Je 8; 185 Je 22; 104 Jl 20; 133 Ag 3; 135 Ag 17 '64

Testing

Accelerated wear tests on hydraulic pumps. J. A. Edwards. il diags Automobile Eng 54:350-2 Ag '64

Environmental testing of hydraulic pumps. J. A. Denneny, jr. and C. B. Brantley. il diags Hydraulics & Pneumatics 17:82-5 Je '64

Supplementing skills with research work; Sigmund pulsometer pumps limited. il plan Engineering 196:605 N 8 '63

What Grumman learned about testing pumps. F. Dini and C. Coss. il diag Hydraulics & Pneumatics 17:97-100 Ap '64

PUMPS, Centrifugal

Cavitation in an impeller; looking from the inside out. R. R. Langteau and E. R. Dodge. bibliog il diag Water & Sewage Works 111:122-31 Mr '64

Cavitation properties of liquids. A. J. Stepanoff. diags A S M E Trans ser A 86:195-200 Ap '64

Extra flexibility offered in new standard pump line; Peerless pump. il Chem Eng 70:146 N 11 '63

Flow distribution in centrifugal impellers. P. Polak. diags Engineer 218:175-6 Jl 31 '64

Know your centrifugal pumps. J. A. Cable and O. M. Kristy. il diags Plant Eng 18: 106-8 Mr; 140-3 Ap; 146-9 My; 148-50+ Je; 143-5 Jl '64

Molded acetal parts. il Plastics World 22:29 Mr '64

Process-pump design draws on aerospace know-how. il Chem Eng 71:78-9 Je 22 '64

Single-stage centrifugal pump gives big boost in pressure. il Oil & Gas J 62:74-5 Ag 10 '64

Specialised centrifugal pumps. il diag Engineer 217:790-1 My 1 '64

Unique pump will handle any proportion of liquid and vapor. il diags Chem Eng 71: 104+ Ap 27 '64

See also

Pumps, Feed water

Control

Centrifugal pump control. I. J. Karassik. diags Water Works & Wastes Eng 1:42-5 Je; 37-8+ Jl; 57-8+ Ag; 111-13 S; 57-9 O; 54-5 N '64

Controlling pump displacement for accurate speed. R. V. McNeill. il diags Hydraulics & Pneumatics 17:102-4 O '64

How far can centrifugal pump flow be throttled? J. R. Broce. diags Power 107: 51-4 N '63

Design

Application of pressure and velocity criteria to the design of a centrifugal-pump impeller and inlet. P. Cooper. bibliog il A S M E Trans ser A 86:181-90 Ap '64

Flow in volutes and its effect on centrifugal pump performance. R. C. Worster. bibliog diags Inst Mech Eng Proc 177 no 31:843-61; Discussion. 861-73; Reply. 874-5 '63

Novel volute design increases reliability of standard pump. il Chem Eng 71:104+ Jl 20 '64

Stuffing boxes and glands for rotating shafts. L. C. Nuttall. diags Engineer 217:957-8 My 29 '64

Installation

How to install centrifugal pumps for quiet operation. W. Babcock. Heating-Piping 36: 143-5 Ap '64; Discussion. R. M. Hoover. 36: 85-6; Reply. 86+ Je '64

Lubrication

Pump wearing ring lubrication. C. E. Keefer and H. S. M. Becker. il Water & Sewage Works 110:400-1 N '63

Noise

How to install centrifugal pumps for quiet operation. W. Babcock. Heating-Piping 36: 143-5 Ap '64; Discussion. R. M. Hoover. 36: 85-6; Reply. 86+ Je '64

How to select centrifugal pumps for quiet operation. W. Babcock. diags Heating-Piping 36:113-16 F '64

Tables, calculations, etc.

Affinity laws and specific speed in centrifugal pumps. R. P. Horwitz. Water & Sewage Works 111:343-6 Ag '64

Testing

Pump testing speeded. il Mech Eng 86:51 Ja '64

Testing a centrifugal intensifier. il Hydraulics & Pneumatics 16:82-3 D '63

PUMPS, Electromagnetic

Centrifugal force keeps fluid in groove; liquid shaft seals. S. B. Rothberg. diags Product Eng 34:85-7 N 11 '63

PUMPS, Electromagnetic—*Continued*

Channel-flow of conducting fluids under an applied transverse magnetic field. A. E. Germeles. bibliog diags A S M E Trans ser E 31:165-9 Je '64

Electromagnetic gas pump for low temperature service. F. B. Canfield and others. diags R Sci Instr 34:1431-3 D '63

Electromagnetic pump for liquid metals. R. S. Baker. diags Mech Eng 86:54-6 Jl '64

Thermoelectric-hydromagnetic pump. J. F. Osterle and S. W. Angrist. diags A S M E Trans ser C 86:166-8 My '64

PUMPS, Feed water

Auxiliary turbine drives for boiler feed pumps. A. W. Rankin. il diags Combustion 35:14-22 Ja '64

Boiler feed pumps for Tilbury-B power-station. il Engineer 217:831 My 8 '64

Combination boiler feed pumps drive economical for big unit. A. W. Rankin. diags Elec World 160:90-2 N 4 '63

High power variable ratio epicyclic gear; Margam B power station of the Steel company of Wales. il diag Engineering 196:681 N 29 '63

Seven years' experience with single turbine-driven feed pumps serving large generating units. T. T. Frankenberg and J. A. Tillinghast. bibliog diags Combustion 36: 14-21 Jl '64

Steam power plant clinic; the boiler feed pump; questions and answers (cont). I. J. Karassik. il diags Combustion 35:49-51 D '63; 31-3 Ja; 28-30 F; 43-4 My; 36:44-6 Ag '64

Turbine-driven boiler feed pumps. il Engineer 217:446 Mr 6 '64

Two-stage centrifugal boiler feed pump. il Engineer 217:532 Mr 20 '64

Variable-ratio epicyclic gear pump drive. il diags Engineer 216:994-5 D 13 '63

Control

Turbine-driven boiler feed pumps respond to precise control. M. Gottlieb and M. Pierpoline. diags Elec World 161:60-4, 160 Ap 6 '64

Lubrication

Development of the water-lubricated feed pump. G. F. Arkless. il diags Inst Mech Eng Proc 177 no 26:691-704; Discussion. 704-11; Reply. 712-17 '63

Testing

Tests on new 500-mw unit complicated by two turbine-driven boiler feed pumps. R. H. Dunham. il diag Elec World 160:86-8 D 2 '63

PUMPS, Fire. See Fire apparatus

PUMPS, Fuel

Design comments and experimental results for cavitation-resistant inducers up to 40,000 suction specific speed. M. K. Wright. il diags A S M E Trans ser A 86:176-80 Ap '64

Manifold vacuum runs fuel pump. il Eng N 172:39 My 7 '64

Mechanism of head breakdown in cavitating inducers. J. K. Jakobsen. bibliog diags A S M E Trans ser D 86:291-305 Je '64

Manufacture

Multiple edm operation permits product improvement. L. W. Collins, jr. il diag Mach 71:127-9 O '64

Testing

Silver corrosion by aviation turbine fuel. S. A. W. Thompson and others. il plan diag Inst Pet J 50:61-8; Discussion. 68-72 Mr '64

PUMPS, Plastic

All-plastics chemical pump. il Engineer 218:340 Ag 28 '64

Simple acidproof plastic pump for slurries. K. E. Cox. diag Chem Eng 71:93 Ag 31 '64

PUMPS, Sewage. See Sewage pumps

PUMPS, Submergible

New downhole electric pump lowers costs. diags Oil & Gas J 62:139 O 19 '64

PUMPS, Turbine

Pressure fluctuations and fatigue stresses in storage pumps and pump-turbines. R. A. Strub. bibliog il diags A S M E Trans ser A 86:191-4 Ap '64

Pump selection. D. Joslyn. il Water & Sewage Works 110:395-9 N '63

Symposium on pumped storage; development of reversible pump-turbines. M. Braikevitch and others. il diags Am Soc C E Proc 88 [PO 4 no 3368]:83-106 bibliog(p 104-6) D '62; Discussion. 89 [PO 1 no 3652]:163-8 S '63; Reply. 90 [PO 2 no 3977]:17-20 Jl '64

Theoretical design of a high-head axial-flow reversible pump-turbine. R. Baldur. diags A S M E Trans ser A 86:84-8 Ja '64

Vertical turbine pumps will work on waterfloods. H. Greutink. il diags Oil & Gas J 62:113-15 Ap 20 '64

PUMPS, Vacuum. See Vacuum pumps

PUNCHED card system

Card, punched tape, and printing devices for 16 more medium to large computers. Control Eng 11:103-11 Mr '64

Carousel, punch card automate transformer quality control system. il diags Elec World 161:78+ Je 29 '64

Computerized system improves machinery maintenance efficiency. L. W. Collins, jr. il diags Mach 70:101-10 My '64

Hand-sorted punched card system for gas chromatographic data. R. E. Simson and J. A. Micallef. bibliog Chem & Ind p743-5 My 2 '64

Punched-card reader enters equations into a calculator. il Machine Design 36:12 S 10 '64

Punched cards replace survey notebook. P. D. Spindel. il Eng N 173:166 S 17 '64

See also

Information storage and retrieval systems

Numerical control

PUNCHED tape

Card, punched tape, and printing devices for 16 more medium to large computers. Control Eng 11:103-11 Mr '64

C.w. sign-off with RTTY tape. K. N. Sapp. diags Q S T 48:34-5 Mr '64

Coordinate concept, an approach to tape punching. D. B. Holland and others. il diag Control Eng 11:60-2 Ag '64

Data processing peripheral equipment. il Engineer 217:55 Ja 3 '64

Low friction computer tape. J. E. Snyker. il Materials in Design Eng 59:128 Ap '64

New standard code for teletypewriters. J. F. Auwaerter. il diags Bell Lab Rec 41:394-400 N '63

Punched tape perforator for typesetting. il Engineer 216:966 D 6 '63

See also

Numerical control

PUNCHES

Ausformed steels show promise for tool and die applications. W. M. Justusson and others. il Mach 70:150-1 My '64

Punches can do double duty. B. Wolf. diags Am Mach 108:108-9 F 17 '64

PUNCHING

Are you drilling holes you could be piercing? T. F. Brolund. diags Am Mach 108: 134-5 Ap 13 '64

Dial press shapes up castings. R. H. Eshelman. il Iron Age 194:60-1 Ag 6 '64

Finished parts in single stroke; called smooth edge blanking, or fine blanking. il diag Steel 154:96-7 Ap 20 '64

Forger makes holes by hot piercing. il Steel 155:52-3 Ag 31 '64

Hot punch shapes new laminate. il Iron Age 193:64 Ap 2 '64

How to calculate blanks. J. Benson. diags Am Mach 108:84-5 Ag 17 '64

How we'll make holes in materials tomorrow. il Steel 154:46-57 My 17 '64

Low-cost blanking dies produce high-quality parts. A. F. van Heuven and J. Muntendam. il diags Tool & Manuf Eng 52:69-73 F '64

Piercing die for thin stock. F. C. Fehely. il diags Am Mach 108:78-9 Je 8 '64

Punching small holes in heavy stock. F. Strasser. diags Mach 70:136-7 N '63

Tried steel rule dies for piercing? il diag Am Mach 108:90 S 14 '64

What it takes to draw and pierce stainless. Am Mach 108:86-7 S 28 '64

When and why to apply fine blanking. il Engineering 197:584 Ap 24 '64

PUNCHING machinery

Adjustable guide pins for strip stock. R. W. Van Zant. diags Mach 70:128 Ja '64

Automatic notching press. il Engineer 217:293 F 7 '64

How standardization solves punch problems, cuts costs. il Steel 153:58-9 N 11 '63

How the tool designer can cut die-maintenance costs. F. Strasser. diags Mach 70: 105-11 F '64

Low-cost forming with urethane die components. H. S. Achler. diags Tool & Manuf Eng 52:73-6 Je '64

Multiple station die forms pure silver parts. il Steel 154:50+ Mr 9 '64

Standardizing the design of punching dies. diags Mach 70:90-3 N '63

Steel rule dies save on stock. il Am Mach 108:62-3 F 3 '64

PUNCHING machinery—*Continued*

Whitney punches offer low cost, speed, flexibility. il Steel 154:77 Ja 27 '64

See also

Dies

Press tools

Control

Fabramatic electronically controlled punching and notching machine. il Mach 71:161 S '64

Numerical control

Computer programmed press makes computer parts. D. G. Foster. il Tool & Manuf Eng 53:57-8 S '64

Mechanical engineer discovers building-block logic; Morgan the NORman. E. L. Rudisill. il diags Product Eng 35:80-6 Ag 31 '64

Numerically controlled punching press. il Electronic Eng 36:626 S '64

Wiedemann turret punch presses with Pratt & Whitney control. il Mach 70:184 Jl '64

PUNISHMENT

Outline for research in penology. R. H. Roy. Op Res 12:1-12; Discussion. J. C. Pollard. 12-14; Reply. 14-15 Ja '64

PURCHASING

Buying job taxes skill of project manager; construction of Aerojet-General's rocket fuel plant. il Eng N 172:72-3 My 21 '64

Buying new and used machines. W. Rosenberg. Mill & Factory 74:86-8 Ap '64

Coal Age mining guidebook; modern purchasing and warehousing. il Coal Age 69:259-64 Jl '64

Consol supplies; purchasing and warehousing. il Coal Age 69:196-203 O '64

How oil companies use purchasing research. H. Fearon. Pet Management 36:71-5 F '64

How we cut our steel costs. R. L. Biddle. Am Mach 108:145 Ap 13 '64

How you can buy by the numbers; Value rating system. diag Eng N 172:155 Mr 19 '64

Optimizing commitment timing in procuring manufacturing equipment. A. M. Hanfmann and D. Cleinow. Automation 10:54-9 N '63

Purchasing practices in perfumery and flavor material. L. G. Pochat. Am Perfumer 78:40-4 N '63

Purchasing research. H. Fearon. il Textile Ind 128:97-100+ Je '64

Purchasing research in the chemical process industries. H. Fearon. il Chem Eng Prog 60:20-5 Ag '64

Reduce paint costs; learn how to buy. K. Schreiber. Ind Finishing 40:50+ F '64

Systematic approach to buying; value rating system. diags Water & Sewage Works 111:57-61 Ja '64

Systems approach; a better way to buy any capital equipment. diags Steel 154:34-43 Je 1 '64

Value analysis is design step. J. L. Elliott. Iron Age 193:88 My 28 '64

See also

Consumers

Electric utilities—Purchasing

Instalment plan

Waterworks—Purchasing

Supplier relations

Are equipment manufacturers shortchanging maintenance? Plant Eng 18:132-3 Je '64

Cummins engine co. creates effective piece price for buying castings. V. V. Boll. Foundry 92:57-60 Ja '64

Finished goods house looks at its suppliers. E. Morgan. Am Perfumer 79:75-6 Je '64

Goods must be handle-able. J. P. O'Hanlon. il Mod Materials Handling 19:46-51 Ja '64

How to control vendors. P. B. Crosby. Ind Quality Control 20:11-13 Ja '64

How to rate your vendors. W. J. Hill. Am Mach 108:68-9 Ja 6 '64

Product verification. J. Mandelson. Ind Quality Control 20:8-11 Ap '64

VIP: changing suppliers' ideas into productive information. il Steel 155:48-9 Ag 24 '64

Vendor surveillance. Ind Quality Control 20:65-6 My '64

Way to tell what materials really cost. V. V. Boll and W. M. Dolton. Steel 155:48-9 Jl 6 '64

PURCHASING, Government

Government bid plan for buying gasoline may backfire. Oil & Gas J 62:50-1 Ap 13 '64

Military and government procurement guide. Electronics 37:R2-13 Jl 25 '64

Military electronics; our man in Washington. S. Payne. Electronics 37:112-16 Ag 10 '64

New shift in purchasing to affect industry. C. W. Irven. il Electronic Ind 22:69-70+ N '63

See also

Contracts, Government

PURCHASING agents

This month's equipment superintendent: J. C. Paterson. il Diesel Equip Supt 42:24-7 F '64

PURINES

Direct condensation of 2-deoxy-D-ribose with purines; structure of the products. J. A. Carbon. Am Chem Soc J 86:720-5 F 20 '64

Experimental assignment of the proton magnetic resonance spectrum of purine. M. P. Schweizer and others. bibliog Am Chem Soc J 86:696-700 F 20 '64

Interaction and association of bases and nucleosides in aqueous solutions; a nuclear magnetic resonance study of the self-association of purine and 6-methylpurine. S. I. Chan and others. bibliog Am Chem Soc J 86:4182-8 O 5 '64

Interaction and association of bases and nucleosides in aqueous solutions; association of 6-methylpurine and 5-bromouridine and treatment of multiple equilibria. P. O. P. Ts'o and S. I. Chan. bibliog Am Chem Soc J 86:4176-81 O 5 '64

Purine deoxynucleosides; synthesis of 9-(2′-deoxy-α- and -β-D-ribofuranosyl and 2′-deoxy-α and -β-D-ribopyranosyl)purines by the fusion method. M. J. Robins and others. bibliog Am Chem Soc J 86:1251-2 Mr 20 '64

Purine nucleosides; direct bromination of adenosine, deoxyadenosine, guanosine, and related purine nucleosides. R. E. Holmes and R. K. Robins. bibliog Am Chem Soc J 86:1242-5 Mr 20 '64

Search for accidental degeneracy in purines. P. R. Callis and others. bibliog Am Chem Soc J 86:2292-4 Je 5 '64

PUROMYCIN

100-mc. nuclear magnetic resonance and nuclear magnetic double resonance study of puromycin. L. F. Johnson and N. Bhacca. Am Chem Soc J 85:3700-1 N 20 '63

PURVES, Edmund Randolph

Obituary. por Arch Rec 135:26 My '64

PUTNAM, William Clement

Memorial. C. Durrell. por Am Assn Pet Geologists Bul 48:363-5 Mr '64

Memorial; with bibliography of his publications. W. C. Smith. por Geol Soc Bul 75:sup79-82 My '64

PYCNOMETERS

Air micropycnometer for measuring volumes of small samples of fine powder. A. L. Mular and others. diag Am Cer Soc J 47:156 Mr '64

PYRACENE

Line width alternation in the electron spin resonance spectrum of the alkali radical-ion complex of pyracene. E. de Boer and E. L. Mackor. bibliog Am Chem Soc J 86:1513-16 Ap 20 '64

PYRAMID LAKE, Nevada

Evaporation from Pyramid and Winnemucca Lakes, Nevada. S. T. Harding. map Am Soc C E Proc 88 [IR 1 no 3083]:1-13 Mr '62; Discussion. 88 [IR 2 no 3170]:119-23 Je; [IR 3 no 3286]:49-57 S; [IR 4 no 3377]:53-4 D '62; Reply. 89 [IR 2 no 3554]:65-7 Je '63; 90 [IR 1 no 3848]:111-13 Mr '64

PYRAN

1-Phenyl-4-cinnolones. V. V. Bhat and J. L. Bose. bibliog Chem & Ind p 1930 D 7 '63

PYRAZINE

Synthesis of pyrazines. W. K. Langdon and others. bibliog diag Ind & Eng Chem Product Res & Develop 3:8-14 Mr '64

PYRAZOLE

Heterocyclic studies; the tautomeric structure of 3(5)-methyl-4-phenylpyrazole. J. A. Moore and C. L. Habraken. bibliog Am Chem Soc J 86:1456-7 Ap 5 '64

Kinetics and mechanism of iodination of pyrazole; comparative reactivities of pyrazole and imidazole. J. D. Vaughan and others. bibliog Am Chem Soc J 86:2857-61 Jl 20 '64

Synthesis and structure of steroidal pregn-4-eno- and 5α-pregnano[3,2-*c*]pyrazoles; a novel class of potent anti-inflammatory steroids. R. Hirschmann and others. bibliog Am Chem Soc J 86:1520-7 Ap 20 '64

PYRAZOLIDONE

Pyrazolones, pyrazolidones and derivatives. R. H. Wiley and P. Wiley. Review, by R. F. Robbins. Chem & Ind p969-72 Je 6 '64

PYRAZOLINONE

Pyrazolones, pyrazolidones and derivatives. R. H. Wiley and P. Wiley. Review, by R. F. Robbins. Chem & Ind p969-72 Je 6 '64

PYRAZOLONE

Spectrophotometric determination of ammonia as rubazoic acid with bispyrazolone reagent. L. Procházková. bibliog Anal Chem 36:865-71 Ap '64

PYRENE

Determination of nitrate or nitrate plus nitrite with 1-aminopyrene; application to air pollution. E. Sawicki and others. bibliog Anal Chem 35:1934-6 N '63

PYRETHRINS

Analysis

Estimation of pyrethrin II. A. Brierley and N. C. Brown. bibliog Soap & Chem Spec 40:149+ My '64

PYRETHRUM

New pyrethrum synergists. il Soap & Chem Spec 40:73-5+ F '64

Analysis

Jasmolin II; a new constituent of pyrethrum extract. P. J. Godin and others. bibliog Chem & Ind p371-2 F 29 '64

PYREX

Borosilicate glass production. il Engineer 218:366-7 S 4 '64

Old and new methods in glass making; James A. Jobling's wear glassworks. il Engineering 198:337 S 11 '64

PYRIDINDOLE

Synthesis of 1-methyl-1,2,3,4-tetrahydro-2-carboline and of its 6-methoxy-derivative. B. Meek and others. Chem & Ind p622 Ap 11 '64

PYRIDINE

Amination of 5-ethyl-2-methylpyridine. R. F. Childs and A. W. Johnson. bibliog Chem & Ind p542 Mr 28 '64

Amination of pyridine. G. C. Barrett and K. Schofield. Chem & Ind p 1980 D 21 '63

Biosynthesis of the nicotiana alkaloids; the incorporation of glycerol-2-C^{14} into the pyridine ring of anabasine. E. Leete and A. R. Friedman. bibliog Am Chem Soc J 86:1224-6 Mr 20 '64

Chemical microscopy of the platinum metals; reactions with 4-bromoisoquinoline and 4-(*p*-nitrobenzyl) pyridine. H. F. Schaeffer. il Anal Chem 36:169-72 Ja '64

Direct amination of 3-ethylpyridine. Y. Ban and T. Wakamatsu. bibliog Chem & Ind p710-11 Ap 25 '64

Direct conversion of pyridine to benzoic acid. L. Schmerling and W. G. Toekelt. Am Chem Soc J 86:1259 Mr 20 '64

Direct 4-alkylation of pyridine by alkyl halides and magnesium or lithium. D. Bryce-Smith and others. bibliog Chem & Ind p495-6 Mr 21 '64

Electrical effects of *ortho*-substituents in pyridines and quinolines. M. Charton. bibliog Am Chem Soc J 86:2033-7 My 20 '64

Far infrared study of metal-pyridine complexes. R. J. H. Clark and C. S. Williams. Chem & Ind p 1317-18 Jl 18 '64

Ionization of nitroalkanes by substituted pyridines. E. S. Lewis and J. D. Allen. bibliog Am Chem Soc J 86:2022-4 My 20 '64

Light scattering measurements near the lower critical solution temperature of the 2,6-dimethylpyridine-water system. R. Pancirov and H. Brumberger. bibliog Am Chem Soc J 86:3562-3 S 5 '64

Loss of 2-chloro-6-(trichloromethyl)-pyridine from soil. C. T. Redemann and others. J Agri & Food Chem 12:207-9 My '64

Mechanism of the amination of pyridine. R. A. Abramovitch and others. Chem & Ind p659-60 Ap 18 '64

Nonaqueous titration of acidic groups of lignins; titration in pyridine using potassium methoxide as titrant. S. O. Thompson and G. Chesters. bibliog Anal Chem 36:655-7 Mr '64

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Polyfluoropyridines. R. E. Banks and others. Chem & Ind p835 My 16 '64

Preparation of the sulfates of 5-fluorodeoxyuridine with pyridine-sulfur trioxide. P. W. Wigler and H. U. Choi. bibliog Am Chem Soc J 86:1636-9 Ap 20 '64

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators. B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

Silica-alumina catalysis theory unfolds. M. R. Basila and others. Chem & Eng N 42:42-4 O 5 '64

Structure of nudiflorine, a naturally occurring isomer of ricinidine. R. Mukherjee and A. Chatterjee. bibliog Chem & Ind p 1524-5 Ag 29 '64

Synthesis and electronic properties of polypyridylacetylenes. Y. Okamoto and D. Alia. bibliog Chem & Ind p 1311-12 Jl 18 '64

Unexpected cleavage in the pyridine series. R. A. Barnes and A. Aszalos. Am Chem Soc J 86:523 F 5 '64

Voltammetry and controlled potential oxidation of 3,4-dimethoxypropenyl-benzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

PYRIDINE compounds

Acid-catalysed hydrogen exchange of pyridine 1-oxides. A. R. Katritzky and others. bibliog Chem & Ind p 1576 S 12 '64

Isomeric pyridinecarboxylates as bridging groups in oxidation-reduction reactions; electron transfer through nitrogen. E. S. Gould and H. Taube. Am Chem Soc J 85:3706-7 N 20 '63

Kinetics of nitration of pyridine 1-oxide and isoquinoline 2-oxide. R. B. Moodie and others. Chem & Ind p 1577 S 12 '64

Olefin exchange reactions in platinum(II) complexes containing pyridine N-oxides. S. I. Shupack and M. Orchin. bibliog Am Chem Soc J 86:586-90 F 20 '64

PYRIDINE nucleotides. See Codehydrogenases

PYRIDINIUM compounds

Effect of temperature on the critical micelle concentration of dodecylpyridinium bromide. J. E. Adderson and H. Taylor. bibliog J Colloid Sci 19:495-500 Ag '64

Rates of pyridinyl radical reactions. E. M. Kosower and I. Schwager. bibliog Am Chem Soc J 86:4493-4 O 20 '64

Recycling process for the commercial preparation of 1-methylpyridinium-2-aldoxime chloride. R. I. Ellin. bibliog Ind & Eng Chem Product Res & Develop 3:20-1 Mr '64

Thiazolo[3,2-a]pyridinium ion; a new aromatic heterocyclic system. C. K. Bradsher and D. F. Lohr, jr. Chem & Ind p 1801 O 24 '64

PYRIDONE

Internal photoaddition reactions of 2-pyrone and N-methyl-2-pyridone; a new synthetic approach to cyclobutadiene. E. J. Corey and J. Streith. bibliog Am Chem Soc J 86:950-1 Mr 5 '64

PYRIDOXAL

Pyridoxal phosphate; molecular species in solution. F. J. Anderson and A. E. Martell. bibliog Am Chem Soc J 86:715-20 F 20 '64

PYRIDOXINE. See Vitamins—Vitamin B_6

PYRIMIDINE

Boron-substituted pyrimidines. T. K. Liao and others. bibliog Am Chem Soc J 86:1869-70 My 5 '64

Facile dethiation of mercapto- and methylthio-pyrimidines. H. N. Schlein and others. bibliog Chem & Ind p418-19 Mr 7 '64

Photochemical addition of benzo-[*a*]pyrene to pyrimidine derivatives. J. M. Rice. Am Chem Soc J 86:1444-6 Ap 5 '64

Synthesis of 4-amino-5-cyanopyrrolo[2,3-*d*]-pyrimidine, the aglycone of toyocamycin. E. C. Taylor and R. W. Hendess. bibliog Am Chem Soc J 86:951-2 Mr 5 '64

PYRIMIDINECARBOXYLIC acid

Studies of thiamine metabolism in the rat; isolation and identification of 2-methyl-4-amino-5-pyrimidinecarboxylic acid as a metabolite of thiamine in rat urine. R. A. Neal and W. N. Pearson. bibliog J Nutrition 83:351-7 Ag '64

PYRINDINE

1H-cyclohepta[*d,e*]-1-pyrindine; a new conjugate-unsaturated heterocyclic system. L. L. Replogle. bibliog Am Chem Soc J 86:3137-42 Ag 5 '64

Protonation and substitution studies on cyclopenta[*c*]thiapyran and 2-phenyl-2-pyrindine. A. G. Anderson, jr. and W. F. Harrison. bibliog Am Chem Soc J 86:708-14 F 20 '64

Syntheses of cyclopenta[c]thiapyran and 2-phenyl-2-pyrindine. A. G. Anderson, jr. and others. bibliog Am Chem Soc J 85:3448-53 N 5 '63

PYRITE

Electropolishing of pyrite. E. G. Ehlers and J. D. Birle. il diag Am Mineralogist 49:800-4 My '64

Experimental determination of the reaction chalcopyrite + sulfur = pyrite + bornite from 350 to 500°C. P. B. Barton, jr. and P. Toulmin, 3d. bibliog diags Econ Geol 59:747-52 Ag '64

Geochemical studies at the Helen iron range. A. M. Goodwin. bibliog il map diags Econ Geol 59:684-718 Je '64

Study in induced polarization. L. A. Anderson and G. V. Keller. bibliog diag Geophysics 29:848-64 O '64

PYRITES

Leaching burnt pyrite ore is new way to recover cobalt; process flowsheet. E. C. Dominguez and L. H. Windsor. Chem Eng 71:78-80 Ag 3 '64

See also
Chalcopyrite
Pyrrhotite

PYROCERAM

Deep-sea vehicle made of glass. il Mech Eng 86:47 O '64

Pyroceram hull designed for deep-sea vehicle. il Machine Design 36:6 Ag 27 '64

Radiant gas heater; ceramic-glass in cellular, foam and cast forms minimizes expansion problems. J. G. Lanning and C. W. Arnott. il Materials in Design Eng 59:118-19 Ap '64

PYROELECTRICITY

Electron diffraction study of a pyroelectric tourmaline crystal. S. Yamaguchi. il J Ap Phys 35:1654-5 My '64

Primary pyroelectric effect in the PZT 95/5 ceramic. J. L. Wentz and L. Z. Kennedy. bibliog J Ap Phys 35:1767-70 Je '64

PYROLYSIS

Acetylene black is now a domestic product. il Chem Eng 71:80 Je 22 '64

Application of pyrolysis-gas chromatography to polymer characterization. B. Groten. bibliog diag Anal Chem 36:1206-12 Je '64

Base-induced pyrolysis of tosylhydrazones of α,β-unsaturated aldehydes and ketones; a convenient synthesis of some alkylcyclopropenes. G. L. Closs and others. bibliog Am Chem Soc J 85:3796-800 D 5 '63

Bracket method for molecular weight determination of pyrolysis products using gas chromatography with a gas density detector. J. S. Parsons. diag Anal Chem 36:1849-52 Ag '64

Comparison of pyrolytic carbon film electrode with wax-impregnated graphite electrode. A. L. Beilby and others. bibliog il Anal Chem 36:22-6 Ja '64

Crop response to urea and urea pyrolysis products. G. L. Terman and others. J Agri & Food Chem 12:151-4 Mr '64

Determination of hydroxyethyl group in hydroxyethyl starch by pyrolysis; gas chromatography technique. H. Tai and others. diags Anal Chem 36:108-10 Ja '64

Diborane pyrolyzes to borane, triborane. F. E. Stafford and others. Chem & Eng N 42:54 S 7 '64

Effect of dehydrogenation on the pyrolysis of two coals. P. H. Dicker and others. bibliog J Ap Chem 13:455-63 O '63

Electrical resistivity of pyrolytic beta MnO_2. J. S. Wiley and H. T. Knight. bibliog Electrochem Soc J 111:656-60 Je '64

Epitaxial deposition of silicon by thermal decomposition of silane. S. R. Bhola and A. Mayer. bibliog il diag RCA R 24:511-22 D '63

Epitaxial deposition of silicon layers by pyrolysis of silane. S. E. Mayer and D. E. Shea. bibliog diags Electrochem Soc J 111:550-6 My '64

Epitaxial growth of silicon from the pyrolysis of monosilane on silicon substrates. B. A. Joyce and R. R. Bradley. bibliog il diag Electrochem Soc J 110:1235-40 D '63

Expansion of annealed pyrolytic graphite. S. F. McKay. il J Ap Phys 35:1992-3 Je '64

Fluidized bed pyrolysis of coal. J. F. Jones and others. flow sheet il Chem Eng Prog 60:69-73 Je '64

Gas-film effects in the linear pyrolysis of solids. R. H. Cantrell. bibliog il diags AIAA J 1:1544-50 Jl '63; Discussion. W. H. Andersen. bibliog 2:404-6; Reply. 406-7 F '64

Growth of germanium epitaxial layers by the pyrolysis of germane. E. A. Roth and others. bibliog il diags RCA R 24:499-510 D '63

Hydrogen carrier technique for the pyrolysis of toluene. J. G. Burr and others. bibliog diag Am Chem Soc J 86:3846-50 S 20 '64

Identification of elastomers by gas chromatography applied to pyrolyzates. A. Fiorenza and G. Bonomi. bibliog diags Rubber Chem & Tech 37:741-51 Jl '64

Identification of polymers by mass spectrometric examination of both volatile and nonvolatile pyrolysis products. G. P. Happ and D. P. Maier. bibliog diag Anal Chem 36:1678-9 Jl '64

Identification of the pyrolyzates of substituted barbituric acids by gas chromatography. D. F. Nelson and P. L. Kirk. bibliog Anal Chem 36:875-8 Ap '64

Mechanism of the pyrolysis of bicyclo[2.2.1] heptadiene; kinetics of the bicyclo[2.2.1] heptadiene to toluene isomerization. W. C. Herndon and L. L. Lowry. bibliog Am Chem Soc J 86:1922-6 My 20 '64

Microreactor; gas chromatographic method for the identification of polymeric materials. B. C. Cox and B. Ellis. bibliog diag Anal Chem 36:90-6 Ja '64

N,N′-bis(2-dimethylaminoethyl)urea; preparation and pyrolysis of the di-*N*-oxide and the quaternary ammonium hydroxide derivatives. A. Crawshaw and A. N. Mason. Chem & Ind p365 F 29 '64

New hydrogenation process upgrades byproduct pyrolysis gasolines. D. H. Stormont. il diag Oil & Gas J 61:96-7 D 16 '63

New pyrolytic boron nitride. M. Basche and D. Schiff. bibliog il diag Materials in Design Eng 59:78-81 F '64

Oxidation of pyrolytic carbon 1000° to 1500°C and oxygen pressures of 2 to 38 torr. E. A. Gulbransen and others. Electrochem Soc J 111:626-7 My '64

Photolysis and pyrolysis of 4-methyl-4-methoxy-2-pentanone. D. J. Coyle and others. bibliog Am Chem Soc J 86:3850-4 S 20 '64

Pyrolysis conditions for carbon-black recovery from polyethylene compounds. H. P. Schreiber. Materials Res & Stand 4:288-9 Je '64

Pyrolysis of diborane. R. J. Polak and C. Obenland. bibliog flow diag diag Ind & Eng Chem Product Res & Develop 3:234-8 S '64

Pyrolysis of *sec*-butyl acetate; stereospecific *cis* elimination. P. S. Skell and W. L. Hall. bibliog Am Chem Soc J 86:1557-8 Ap 20 '64

Pyrolytic tungsten parts and coatings resist heat. M. Basche. il diag Materials in Design Eng 60:82-5 Ag '64

Quantitative pyrolytic gas chromatography by internal standard. G. G. Esposito. bibliog Anal Chem 36:2183-5 O '64

Radiolysis and pyrolysis of polyaromatic compounds. J. Weiss and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:73-8 Je '64

Rapid determination of relative proportions of natural and SBR rubber in manufactured articles. M. Lerner and R. C. Gilbert. Anal Chem 36:1382 Je '64

Reinvestigation of the pyrolysis of tetramethylammonium hydroxide. W. K. Musker. bibliog Am Chem Soc J 86:960-1 Mr 5 '64

Simple two-band model and transport properties of pyrolytic graphites. C. A. Klein. bibliog diags J Ap Phys 35:2947-57 O '64

Structure-property relations for pyrolytic graphite. L. F. Coffin, jr. il diags Am Cer Soc J 47:473-8 O '64

Synthesis, brominolysis, and pyrolysis of a Dewar anthracene; a free radical displacement on carbon. D. E. Applequist and R. Searle. bibliog Am Chem Soc J 86:1389-91 Ap 5 '64

Terminal and averaging control of pyrolysis in a tubular reactor. S. M. Roberts. bibliog Ind & Eng Chem Proc Design 3:14-18 Ja '64

Thermal decomposition of dimethyllaurylamine oxide. G. P. Shulman and W. E. Link. bibliog Am Oil Chem Soc J 41:329-31 Ap '64

Unstable species and the isotope effect in the pyrolysis of diborane in a shock tube. T. P. Fehlner and W. S. Koski. bibliog diags Am Chem Soc J 86:1012-18 Mr 20 '64

PYROMELLITIC anhydride

OH stretching vibration of pyromellitic dianhydride-hydroxynaphthalene complexes. H. H. Richtol. Anal Chem 36:927 Ap '64

Pyromellitic dianhydride attracts new producers. diags Chem & Eng N 42:52+ O 5 '64

PYROMETERS and pyrometry

Adaptable radiation pyrometer. il Engineer 216:781 N 8 '63

Comparing pyrometer methods for hot strip applications. W. Mikelson. il diag I S A J 11:61-4 S '64

Influence of alkali-vapor atmospheres on pyrometrically determined temperatures; cesium and potassium. M. Lapp and L. P. Harris. bibliog diag J Ap Phys 34:3622-5 D '63

Modified pyrometer temperature measurement technique. M. C. Paul and P. E. Oberg. R Sci Instr 35:1078 Ag '64

Pyrometer has added versatility. il Diesel Equip Supt 42:35 Je '64

Pyrometer reads molten iron temperatures continuously. diags Foundry 91:86 N '63

Radiation pyrometer. diag Product Eng 35:94 Ap 27 '64

Radiation pyrometer for temperature measurement in the hot extrusion of aluminium. G. A. Woolvet and J. M. Alexander. diags Inst Metals J 92:430-2 '63-64

PYROMETERS and pyrometry—*Continued*
Thermal testing; hypersonic testing. A. R. Mendelsohn and W. A. Barron. map Space/Aeronautics 42 no 4:196-9 '64-65
See also
Temperature—Measurement
Thermocouples

PYRONE
Electron impact fragmentation of 4-pyrone. P. Beak and others. bibliog Am Chem Soc J 86:3833-5 S 20 '64
Internal photoaddition reactions of 2-pyrone and N-methyl-2-pyridone; a new synthetic approach to cyclobutadiene. E. J. Corey and J. Streith. bibliog Am Chem Soc J 86:950-1 Mr 5 '64
Photochemistry of 4,5-diphenyl-2-pyrone: a mechanistic study. A. Padwa and R. Hartman. Am Chem Soc J 86:4212-13 O 5 '64

PYROPHOSPHATES
Calcium ammonium and calcium potassium pyrophosphate systems. E. H. Brown and others. J Agri & Food Chem 12:70-3 Ja '64
Copper-activated alkaline-earth phosphate phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:538-41 My '64
Formation of pyrophosphate from quinol phosphates in dimethylformamide solution. A. Lapidot and D. Samuel. bibliog Am Chem Soc J 86:1886-7 My 5 '64
Nickel-cobalt-copper ternary alloy deposition from the pyrophosphate bath. M. Sarojamma and T. L. Rama Char. bibliog Chem & Ind p620-1 Ap 11 '64
Nickel-cobalt-iron ternary alloy deposition from the pyrophosphate bath. D. V. Subrahmanyam and T. L. Rama Char. Chem & Ind p2010-11 D 28 '63
Phase equilibria and manganese-activated luminescence in the systems $CdO-P_2O_5$ and $Zn_2P_2O_7-Cd_2P_2O_7$; summary for the system $ZnO-CdO-P_2O_5$. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64
Thin layer chromatographic separation of orthophosphate and pyrophosphate. N. L. Clesceri and G. F. Lee. bibliog diag Anal Chem 36:2207-8 O '64

PYROPHYLLITE
Efficiency in a tetrahedral-anvil press as related to anvil and pyrophyllite size. M. D. Banus and S. D. Nye. bibliog il R Sci Instr 35:1319-23 O '64

PYROXENES
Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64
Clinopyroxenes from alkaline rocks of Japan. K. I. Aoki. diags Am Mineralogist 49:1199-223 bibliog(p 1221-3) S '64
Clinopyroxenes from eclogites and basic granulites. A. J. R. White. bibliog plan Am Mineralogist 49:883-8 Jl '64
Clinopyroxenes of a monzonitic complex at Mount Dromedary, New South Wales. R. S. Boesen. il diags Am Mineralogist 49:1435-57 bibliog(p 1456-7) S '64
Distribution of magnesium and iron between orthopyroxene and calcic pyroxene in natural mineral assemblages. R. Kretz. bibliog J Geol 71:773-85 N '63
Phase equilibrium relations in the system $CaMgSi_2O_6$(diopside-$NaAlSiO_4$(nepheline)-$NaAlSi_3O_8$(albite-H_2O at 1,000 kg/cm^2 water vapor pressure. A. D. Edgar. bibliog Am Mineralogist 49:573-85 My '64
Recalculation of pyroxene analyses. M. G. Bown. Am Mineralogist 49:190-4 Ja '64
Use of the angle $A_1 \wedge c$ in optical determination of the composition of augite. N. R. Ruegg. bibliog diags Am Mineralogist 49:599-606 My '64
X-ray crystallography of omphacite. J. Warner. Am Mineralogist 49:1461-7 S '64
X-ray identification of ordered and disordered ortho-enstatite. S. S. Pollack and W. D. Ruble. il Am Mineralogist 49:983-92 Jl '64

PYRRHOTITE
Measurement of pyrrhotite composition in the presence of both hexagonal and monoclinic phases. D. I. Groves and R. J. Ford. Am Mineralogist 48:911-13 Jl '63; Discussion. 49:1491-6 S '64
Ore pebble regrind of sulphide concentrates in the Hardy concentrator, Falconbridge. S. McQuitty and L. S. Rivett. il diags Can Min & Met Bul 57:397-400 Ap '64
Range in solid solution and structure of naturally occuring troilite and pyrrhotite. R. H. Carpenter and G. A. Desborough. bibliog diags Am Mineralogist 49:1350-65 S '64

PYRROLE
Synthesis and properties of pyrrolo(1,2-α)quinoxalines. E. C. Taylor and G. W. H. Cheeseman. bibliog Am Chem Soc J 86:1830-5 My 5 '64

PYRROLIDINE
Biosynthesis of nicotine in nicotiana glutinosa from carbon-14 dioxide; formation of the pyrrolidine ring. W. L. Alworth and others. bibliog Am Chem Soc J 86:3375-81 Ag 20 '64
Thermal decomposition of *t*-butyl 2,5-dioxo-1-pyrrolidineperformate. T. Koenig and W. Brewer. bibliog Am Chem Soc J 86:2728-30 Jl 5 '64

PYRROLIZIDINE
Reactions of phosphorus compounds; preparation of 3H-pyrrolizine, 1,2-dihydro-3-H-pyrrolizine and pyrrolizidine. E. E. Schweizer and K. K. Light. Am Chem Soc J 86:2963 Jl 20 '64
Synthesis and stereochemistry of indolizidine and pyrrolizidine methosalts. W. L. Meyer and N. Sapianchiay. bibliog Am Chem Soc J 86:3343-50 Ag 20 '64

PYRROLIZINE
Reactions of phosphorus compounds; preparation of 3H-pyrrolizine, 1,2-dihydro-3-H-pyrrolizine, and pyrrolizidine. E. E. Schweizer and K. K. Light. Am Chem Soc J 86:2963 Jl 20 '64

PYRUVATES
Biochemists see new nitrogen fixation path. R. W. F. Hardy and A. J. D'Eustachio. Chem & Eng N 42:23-4 Ap 6 '64
Nuclear magnetic resonance study of aqueous pyruvate-glycinate-zinc(II) and related systems. D. Leussing and C. K. Stanfield. bibliog Am Chem Soc J 86:2805-10 Jl 20 '64
Relation between pyruvate content and odor strength of reconstituted onion powder. S. Schwimmer and others. bibliog diags Food Tech 18:1231-4 Ag '64

PYRUVIC acid
Photochemistry of α-keto acids and α-keto esters; photolysis of pyruvic acid and benzolformic acid. P. A. Leermakers and G. F. Vesley. bibliog Am Chem Soc J 85:3776-9 D 5 '63

Q

Q FEVER
Comparative Q fever investigations. D. H. Ferris and others. bibliog map Am J Pub Health 54:1282-92 Ag '64
Occupational hazards of Q fever. R. G. Stoenner. Ind Med 33:296-300 My '64

QUALITY control
Applications of the functional equation to complex-system reliability problems. B. C. Roberts and E. G. Frankel. bibliog diag Naval Eng J 76:289-95 Ap '64
Assuring quality. E. G. D. Paterson. il diags Naval Eng J 75:1035-42 D '63
Basic quality control procedures. W. L. Lieberman. bibliog Ind Quality Control 20:4-6 D '63
Cooperation in quality control work between countries with different culture; successful example. K. Koyanagi. Ind Quality Control 21:60-3 Ag '64
Cost; a reliability factor. P. H. Fowler. Electro-Tech 74:101-3 S '64
Dust-free cabinet upgrades quality control programs. il Res/Develop 15:29 My '64
Get to know reliability control. J. de S. Coutinho and others. diags S A E J 72:32-9 Ag '64
Latest thinking on contractor job quality control; discussion. Roads & Sts 106:73-4 Ag; 57+ S; 70-1 O; 53 N '63
Methods of reliability engineering. V. J. Bracha. diags Machine Design 36:70-6 Jl 30 '64
National symposium on reliability and quality control. Product Eng 35:51-2 Ja 20 '64
Need for quality control in the plastics industry. il diag Plastics World 22:32-4 Jl '64
Promise or reliability engineering. R. L. Harrington and R. P. Riddick. diag Marine Eng/Log 69:34-7 Je '64
Prospecting; statistical and quality control techniques. E. R. Ott. bibliog Ind Quality Control 20:13-14+ N '63
Quality assurance. E. G. D. Paterson. il Bell Lab Rec 41:419-23 D '63

QUALITY control—*Continued*

Quality control and service performance. H. Thielsch. il diags A S M E Trans ser A 86:451-64 O '64
Quality control from A to Z. P. B. Crosby. diag Ind Quality Control 20:4-16 Ja '64
Quality control is everybody's business; seminar on quality control in construction, New York. Eng N 172:24 My 7 '64
Quality survey; an administrative control. G. R. Gause. Ind Quality Control 20:17-20 Ja '64
Reliability and quality in communications. E. G. D. Paterson. diags Ind Quality Control 20:15-23+ bibliog(p37-8) Mr '64
Systems reliability in the space program. N. E. Golovin. bibliog Ind Quality Control 20:20-30 My '64
U.S. musket, contract of 1822 officer's presentation model. L. E. Snodgrass. il Ind Quality Control 20:4-8 Mr '64
Value vs. reliability. Ind Quality Control 20:6-10 F '64
Vendor surveillance. Ind Quality Control 20:65-6 My '64
What should a reliability program cost? F. E. Wenger. Ind Quality Control 20:21-2 Ja '64
Z is for zero defects. P. B. Crosby. Am Mach 108:148A-148D Ap 13 '64

See also

American society for quality control
Control charts
Inspection
also subdivision Quality control under special subjects, e.g.
Airplane factories
Automobile factories
Breweries
Canneries
Cement plants
Chemical plants
Concrete plants
Corn products plants
Drug factories
Factory management
Food factories
Foundry management
Glass factories
Guided missile factories
Hosiery mills
Knitting mills
Machine works
Metal working plants
Paint shops
Paper and pulp mills
Paper board mills
Petroleum refineries
Shipyards
Textile mills
Welding shops
Wire mills

Bibliography

Book reviews. L. S. Nelson, ed. Published in monthly numbers of Industrial quality control
Guide to governmental assurance documentation; data sheet. W. B. Rossnagel. Machine Design 36:157-61 Ap 9 '64

Study and teaching

Film of the month program. J. Scovronek. Ind Quality Control 20:11-12 Ap '64
Qual-Man-Ex (quality control management exercise). V. Rehg. Ind Quality Control 21:192-7 O '64
Suggested films; April, 1964. Ind Quality Control 20:32 Ap '64

QUALITY of products

Blueprint for reliability; Westinghouse adopts defense-plant technique to commercial products. E. J. Tangerman. Product Eng 35:117-28 O 26 '64
Commercial reliability program paid for itself; Raytheon's Radarange. E. G. Lebre. bibliog il diag Product Eng 35:75-8 Ap 13 '64
Defective products, who pays the cost? Dom Eng 203:88-95 Ap; 75-81+ My '64 (to be cont)
How to set up a reliability control program. N. Gellman. Machine Design 36:146-50 Mr 26 '64
Importance of quality. il Steel 154:48-9 Mr 9 '64
Optimizing product reliability. D. B. Kececioglu and R. C. Hughes. il plan diags Automotive Ind 130:66-9 Je 15 '64
Product certification; putting standards to work. G. B. Tebo. il Mag of Stand 35:131-5 My '64
Product failure; causes and prevention. I. J. Fuchs. il diag Mech Eng 86:36-9 F '64
Product verification. J. Mandelson. Ind Quality Control 20:8-11 Ap '64
Pursuit of perfection. B. Cooke. Ind Quality Control 21:16-20 Jl '64
Reliability queries answered. S A E J 72:86 My '64
Reliability starts with teamwork. C. O. Bancroft. S A E J 72:68 N '64
Reliability's big saving; customers. T. A. Daly and P. H. Ockerman. Steel 155:100-2 N 2 '64
Someone must carry reliability's burden; vehicle and engine equipment. R. G. C. Messervy. il diags Engineering 197:680 My 15 '64
Way to tell what materials really cost. V. V. Ball and W. M. Dalton. Steel 155:48-9 Jl 6 '64

See also

Inspection
Products, Improved

QUANTITIES (in production)

Modern inventory management. N. L. Enrick. Textile World 114:51-5 F '64

QUANTUM electrodynamics

Line strengths for noble-gas maser transitions; calculations of gain/inversion at various wavelengths. W. L. Faust and R. A. McFarlane. diags J Ap Phys 35:2010-15 Jl '64
Semiclassical theory of infrared divergence. J. G. Belinfante. Am J Phys 32:655-6 S '64

QUANTUM mechanics. See Wave mechanics

QUANTUM theory

Franck-Condon factors to high vibrational quantum numbers; CN. R. W. Nicholls. bibliog diags J Res Nat Bur Stand 68A:75-8 Ja '64
New semiempirical approach to the quantum theoretical study of unsaturated molecules. M. K. Orloff and D. D. Fitts. bibliog Am Chem Soc J 85:3721-7 D 5 '63
New theory called atom breakthrough. Steel 155:102+ Jl 27 '64
Organic quantum chemistry; calculation of the near-ultraviolet spectra of polyolefins. N. L. Allinger and M. A. Miller. bibliog Am Chem Soc J 86:2811-19 Jl 20 '64
Quantum efficiency of a new GaAs spontaneous infrared source. W. N. Carr and G. E. Pittman. diag IEEE Proc 52:204-5 F '64
Relationship of Bohr orbital quantum condition to Planck oscillator energy levels. A. D. Crowell. Am J Phys 32:643-4 Ag '64
Transition probabilities for the forced quantum oscillator. L. M. Scarfone. Am J Phys 32:158-62 F '64

See also

Mössbauer effect
Radiation
Statistical mechanics
Wave mechanics

QUARRIES and quarrying

Aggregate production speed record set at Curtis Construction. il Rock Prod 66:68-70 D '63
Boom! there's enough stone for a season; engineered blast nets 400,000 tons of limestone for Warner co. il Rock Prod 67:70-2 S '64
Bradford Hills Quarry keeps a close eye on cost by using meticulous record-keeping system. flow sheet il Rock Prod 67:66-8+ F '64
Busy firm with unique deposit serves widely varied markets. B. C. Herod. il Pit & Quarry 56:133-5 Mr '64
Don't invite insolvency; protect your capital base! H. J. Ashe. Pit & Quarry 56:121-2 Je '64
European blasting today. R. Ironman. il Rock Prod 66:60+ D '63; 67:94+ Ja '64
Galloway limestone co. B. C. Herod. il Pit & Quarry 56:131-3 My '64
High-pressure drilling; Campbell limestone co. R. C. Alfred. il Pit & Quarry 56:122-4+ Ap '64
Place of inclined drilling in open-pit mining. N. O'Brien. bibliog il Pit & Quarry 56:88-94 F '64
Plowing up profits in Florida's soft rock valley. A. J. Kent. il Rock Prod 67:97+ Ap '64
Rock deposits and good crushed stone aggregates. N. C. Rockwood. Rock Prod 67:26+ My '64
Rodeffer Industries has the answer to zoning problems. J. N. Bell. il Rock Prod 67:67-70 Ap '64
Study courses aid quarry management. B. G. Fish. il Pit & Quarry 57:89-92 Ag '64

See also

Stone, Crushed

Equipment

Big truck means big savings for small quarry. J. H. Bergstrom. il diag Rock Prod 67:84-6 F '64

QUARRIES and quarrying—Equipment—*Cont.*

California quarry saves money with new explosive. J. R. Bogert. il Rock Prod 67:104-7 My '64

Cement plants of the 60's; raw material preparation. J. H. Bergstrom. il Rock Prod 67:78-9 My '64

Davon, inc. operates two adjacent quarries and plants. W. E. Trauffer. il Pit & Quarry 57:84-8+ Ag '64

Keeping up with the market requires expansion at Texas Lime. S. Levine. il Rock Prod 67:81-4 Jl '64

Lube survey racks up big savings. il Rock Prod 67:86+ O '64

New machinery and equipment. Published in monthly numbers of Pit and quarry

New photocell sorting device piloted at limestone quarry. J. R. Slotemaker. il diag Min Eng 16:41-3 Ja '64

New plant of Acton limestone quarries, ltd. of Toronto. W. E. Trauffer. il plan Pit & Quarry 56:76-84+ N '63

Safety and economy results of Idaho Portland's switch to benching. il Pit & Quarry 57:99-100+ O '64

Varied markets readily served by expanded carbon limestone operations. B. C. Herod. il Pit & Quarry 57:76-81 Jl '64

Safety measures

Safety and efficiency in hole loading and blasting with AN-FO. G. H. Damon. bibliog diags Pit & Quarry 56:89-94 D '63

U.S. Bureau of mines names winners in quarries-mines safety contest. Pit & Quarry 56:30 N '63

Winning operations cited in 1962 NCSA-Mines bureau safety contest. Pit & Quarry 56:144-5+ Ja '64

QUARTZ

Anelastic effects of alkali ions in crystalline quartz. D. B. Fraser. bibliog diag J Ap Phys 35:2913-18 O '64

Biochemistry of lungs in relation to silicosis; effect of quartz dust on the protein amino acids of guinea pig lung tissue. P. Baily and others. bibliog Archives Environmental Health 8:547-54 Ap '64

Capillary quartz cell for liquid laser research. E. J. Schimitschek and E. R. Schumacher. diag R Sci Instr 35:521 Ap '64

Cleavage in quartz. F. D. Bloss and G. V. Gibbs. bibliog diags Am Mineralogist 48:821-38 Jl '63; Discussion. A. Hoffer. 49:435-6; Reply. 436-8 Mr '64

Color center zonation in quartz. C. J. Ritter and W. H. Dennen. bibliog Geol Soc Bul 75:915-16 S '64

Defect structures on polished quartz surfaces as seen by X-ray diffraction microscopy. J. B. Newkirk and others. il J Ap Phys 35:1362-3 Ap '64

Dielectric loss due to impurity cation migration in α quartz. E. H. Snow and P. Gibbs. bibliog diag J Ap Phys 35:2368-74 Ag '64

Experimental investigation of the internal friction of small diameter quartz strands at low frequencies. J. H. Whitelaw. bibliog diags J Sci Instr 41:215-18 Ap '64

Experimental study of quartz overgrowths and synthetic quartzites. W. G. Ernst and H. Blatt. bibliog J Geol 72:461-70, pl 1-3 Jl '64

Geometric acoustic attenuation at gigacycle frequencies in single crystals of quartz. E. Gates. bibliog il diags IEEE Proc 52:1129-37 O '64

Impurities in quartz. W. H. Dennen. bibliog diags Geol Soc Bul 75:241-5 Mr '64

Myrmekite. D. Shelley. bibliog il diags Am Mineralogist 49:41-52 Ja '64

Nature of ground quartz particles. A. Liberti and G. Devitofrancesco. bibliog Chem & Ind p 1983-4 D 21 '63

Origin of the gold-quartz deposits, Yellowknife, N.W.T.; discussion. map Econ Geol 57:1137-40; 58:804-7; 59:328-30, 1176-7 N '62, Ag '63, Mr, S '64

Paleogeographic significance of quartz clasticity measurements. K. M. Towe. bibliog diag J Geol 71:790-3 N '63

Quartz-crystal frequency standards. K. Baulk. il Elec Com 39 no 3:413-22 bibliog(p421-2) '64

Quartz-cristobalite transformation. F. J. Kuellmer and T. I. Poe. il Am Cer Soc J 47:311-12 Je '64

Quartz glass pressure vessels for hydrothermal studies. R. Speed and A. Filice. diags Am Mineralogist 49:1114-19 Jl '64

Radiation-induced stress relaxation in quartz and vitreous silica. W. Primak. bibliog diags J Ap Phys 35:1342-7 Ap '64

Ag ion migration in α quartz. E. L. Milne and P. Gibbs. bibliog J Ap Phys 35:2364-7 Ag '64

Simple remotely operated quartz spring recording balance. A. Landsberg. diag J Sci Instr 41:337-8 My '64

Undulatory extinction in quartz grains of some Chilean granitic rocks of different ages. S. M. DeHills and J. Corvalán. Geol Soc Bul 75:363-6, pl 1-2 Ap '64

Use of the interaction of thermal and ultrasonic waves to study radiation-induced defects in quartz. T. M. Fitzgerald and others. bibliog J Ap Phys 35:1639-40 My '64

QUARTZ, Artificial

Growing quartz crystals. il Ind Electronics 2:373 Ag '64

In 21 days; a 3,000,000 year process. il Engineering 197:648 My 8 '64

Quartz crystal production. il Engineer 217:822-3 My 8 '64

QUARTZ, Powdered

Free amino acids in quartz-dusted guinea pigs. P. Bailey and T. A. Kilroe-Smith. bibliog Archives Environmental Health 9:53-7 Jl '64

QUARTZITE

Experimental study of quartz overgrowths and synthetic quartzites. W. G. Ernst and H. Blatt. bibliog J Geol 72:461-70, pl 1-3 Jl '64

QUATERNARY ammonium compounds. See Ammonium compounds

QUATERNARY ammonium salts. See Ammonium compounds

QUATERNARY period. See Geology, Stratigraphic—Quaternary

QUEBEC (province)

See also subdivision Quebec (province) under special subjects, e.g.

Electric plants (central stations)
Electricity supply
Gas, Natural
Geology
Gold mines and mining
Hydroelectric plants
Iron mines and mining
Iron ores
Mines and mineral resources
Petroleum

QUEBRACHO

Aspidosperma alkaloids; fendleridine. R. H. Burnell and others. bibliog Chem & Ind p33-4 Ja 4 '64

Aspidosperma alkaloids; fendlerine. R. H. Burnell and others. Chem & Ind p235-6 F 8 '64

Chemistry of cleavamine; a novel transannular cyclization relating to biosynthesis of aspidosperma alkaloids. J. P. Kutney and E. Piers. bibliog Am Chem Soc J 86:953-5 Mr 5 '64

QUENCHING

Automatic induction hardening line. il Metal Prog 85:121-2 Je '64

Cryogenics squelch quench distortion. E. Dullberg. il S A E J 72:86-8 Ag '64

Liquid nitrogen quenches without distortion. E. Dullberg and C. Vanderhoof. il Tool & Manuf Eng 52:71-3 My '64

Martensitic transformation in pure iron. M. J. Bibby and J. G. Parr. bibliog il diag Iron & Steel Inst J 202:100-4 F '64

Quench-aging makes headway with 6061 aluminum. O. R. Singleton, jr. Iron Age 192:94-5 D 12 '63

QUENCHING of steel. See Steel, Quenching of

QUESTIONNAIRES

NAFOP; key to customer satisfaction. Am Gas Assn Mo 46:26-9 Mr '64

Questionnaire data sheet. Tappi 47:sup 145A-6A F '64

Report of a questionnaire study of the membership of AATCC conducted by the executive committee of the council. Am Dyestuff Rep 53:645-52 Jl 20 '64

Travelers' preferences in hotel and motel bar soaps. il Soap & Chem Spec 40:76-8+ O '64

What changes are occurring in public opinion toward cancer; national public opinion survey. D. Horn and S. Waingrow. Am J Pub Health 54:431-40 Mr '64

QUEUING theory

Alternate derivation of the Pollaczek-Khintchine formula. R. M. Oliver. Op Res 12:158-9 Ja '64

Analysis of pedestrian queueing. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:229-43 O '63

Approximate method for a queuing process with a randomly deteriorating server. M. Eisen. Op Res 11:996-1000 N '63

Batched queuing processes. F. G. Foster. bibliog diag Op Res 12:441-9 My '64

QUEUING theory—*Continued*

Derivation of a waiting-time factor for a multiple-bank memory. I. Flores. diags Assn for Computing Mach J 11:265-82 Jl '64

Distribution of busy time for a simple queue. I. Greenberg. Op Res 12:503-4 My '64

Distribution of the maximum length of a Poisson queue during a busy period. M. F. Neuts. Op Res 12:281-5 Mr '64

Effects of a distribution on gap acceptance functions on pedestrian queues. G. H. Weiss. J Res Nat Bur Stand 68B:31-3 Ja '64

Generalized M/G/1 queuing process in which the first customer of each busy period receives exceptional service. P. D. Welch. bibliog Op Res 12:736-52 S '64

Limiting distribution of an estimate of mean queue length. R. F. Gebhard. Op Res 11:1000-3 N '63

Occupation time problems in the theory of queues. L. Takács. bibliog Op Res 12:753-67 S '64

Optimization of network configurations through queueing theory. F. P. Randazzo. bibliog diags Elec Com 38 no 4:511-23 '63

Priority queues. L. Takács. bibliog Op Res 12:63-74 Ja '64

Probability problem arising in reliability and traffic studies. D. P. Gaver, jr. Op Res 12:534-42 Jl '64

Queues with finite waiting time. A. Ghosal. Op Res 11:918-21 N '63

Queues with hyper-Poisson input and exponential output with finite waiting space. S. K. Gupta and J. K. Goyal. Op Res 12:82-8 Ja '64

Queues with Poisson input and hyper-exponential output with finite waiting space. S. K. Gupta and J. K. Goyal. Op Res 12:75-81 Ja '64

Queuing approach to logistics systems. N. M. Mirasol. bibliog diags Op Res 12:707-24 S '64

Reduction of queues through the use of price. W. A. Leeman. Op Res 12:783-5 S '64

Single-server bulk-queuing processes with binomial input. U. Narayan Bhat. bibliog Op Res 12:527-33 Jl '64

Some queuing problems with balking and reneging. C. J. Ancker, jr. and A. V. Gafarian. bibliog Op Res 11:88-100, 928-37 Ja, N '63

Some remarks on server breakdown. M. Eisen and M. Leibowitz. bibliog Op Res 12:155-8 Ja '64

Stochastic variations in queuing processes. M. Eisen and M. Tainiter. diag Op Res 11:922-7 N '63

Trunking problem. O. Hellman. diags Op Res 12:276-80 Mr '64

Two-server bulk-service queuing process. K. L. Arora. bibliog Op Res 12:286-94 Mr '64

QUINIC acid

Lignin precursors; the role of quinic acid. O. Goldschmid and G. R. Quimby. bibliog il Tappi 47:528-33 S '64

Synthesis of the four mono-*O*-cinnamoylquinic acids. K. R. Hanson. bibliog Chem & Ind p 1691-2 O 19 '63

QUININE

Quinine may soon be in short supply. il Chem & Eng N 42:35-6 Ag 17 '64

QUINOLINE

Electrical effects of *ortho*-substituents in pyridines and quinolines. M. Charton. bibliog Am Chem Soc J 86:2033-7 My 20 '64

5- and 8-chlorination of quinoline in concentrated sulphuric acid. M. K. Din and A. K. Choudhury. bibliog Chem & Ind p 1840 N 16 '63

Investigation of the dissociation phenomena of quinoline-8-selenol in water and aqueous dioxane. E. Sekido and others. bibliog Anal Chem 36:1768-71 Ag '64

1-Methyl-3,4-methylene-3,4-dihydroquinolin-2-one(s); derivatives of a new ring system, the 1-*H*-cycloprop(*c*)quinolines. B. Loev and others. Chem & Ind p 1710 O 10 '64

QUINOLINOL

Distribution coefficients of certain 8-quinolinols and their copper chelates. J. Fresco and H. Freiser. bibliog Anal Chem 36:631-3 Mr '64

Identification of 2-quinolones in a California crude oil. E. C. Copelin. bibliog flow diag Anal Chem 36:2274-7 N '64

Kinetic studies with electrogenerated halogens; bromination of 8-quinolinol and 2-methyl-8-quinolinol. G. S. Kozak and others. bibliog Anal Chem 36:296-300 F '64

Solubilities of certain divalent metal complexes of 8-quinolinol and substituted 8-quinolinols in aqueous media. J. Fresco and H. Freiser. bibliog Anal Chem 36:372-5 F '64

X-ray fluorescence spectrometric analysis of iron(III), cobalt(II), nickel(II), and copper(II) chelates of 8-quinolinol. K. E. Daugherty and others. Anal Chem 36:1869-70 Ag '64

QUINOLIZIDINE

Nuclear magnetic resonance spectra of the angular proton in benzo[*a*]- and indolo[*a*]quinolizidines. M. Uskoković and others. bibliog diags Am Chem Soc J 86:3364-7 Ag 20 '64

QUINONE

Chemistry of 9-hydroxy-α-tocopherone, a quinone hemiacetal. W. Dürckheimer and L. A. Cohen. bibliog Am Chem Soc J 86:4388-93 O 20 '64

Kinetics of displacement of halides from substituted quinones by sulfite. C. A. Bishop and others. bibliog Am Chem Soc J 85:3991-8 D 20 '63

Reaction of the *o*-quinone-trialkyl phosphite and the α-diketone-trialkyl phosphite 1 : 1 adducts with ozone and with oxygen; a new synthesis of cyclic diacyl peroxides *via* oxyphosphoranes. F. Ramirez and others. bibliog Am Chem Soc J 86:4394-400 O 20 '64

QUINONES

Formation of alicyclic semiquinones; conformational analysis by electron spin resonance. G. A. Russell and E. T. Strom. Am Chem Soc J 86:744-5 F 20 '64

Mitomycin antibiotics; synthetic studies; related indoloquinones, active antibacterial agents. G. R. Allen, jr. and others. bibliog Am Chem Soc J 86:3878-9 S 20 '64

Preparation and properties of some duroquinone π-complexes of cobalt, rhodium, and iridium. G. N. Schrauzer and K. C. Dewhirst. diags Am Chem Soc J 86:3265-70 Ag 20 '64

Reaction of thymoquinone with hydrogen azide. A. H. Rees. Chem & Ind p931-2 My 30 '64

Reductive alkylation of quinones with trialkylboranes. M. F. Hawthorne and M. Reintjes. Am Chem Soc J 86:951 Mr 5 '64

QUINOXALINE

Simultaneous spectrophotometric determination of palladium and platinum with 2,3-quinoxalinedithiol. H. F. Janota and G. H. Ayres. Anal Chem 36:138-40 Ja '64

Spectrophotometric determination of platinum with 2,3-quinoxalinedithiol. G. H. Ayres and R. W. McCrory. bibliog Anal Chem 36:133-8 Ja '64

Synthesis and properties of pyrrolo(1,2-*a*) quinoxalines. E. C. Taylor and G. W. H. Cheeseman. bibliog Am Chem Soc J 86:1830-5 My 5 '64

Three kinds of polymers show thermal stability; polyimides near commercialization; polybenzothiazoles, polyquinoxalines at earlier stage. il Chem & Eng N 42:55-7 Ap 13 '64

R

RACES. See Radio amateur civilian emergency service

RABBITS

Australian rabbit. J. M. Ingersoll. bibliog map Am Scientist 52:265-73 Je '64

Dynamic aspects of cholesterol ester metabolism in rabbits with atherosclerosis. L. Swell and others. bibliog J Nutrition 81:263-70 N '63

Serum and aortic lipids in rabbits fed cholesterol and linoleic acid stereoisomers. B. I. Weigensberg and G. C. McMillan. bibliog J Nutrition 83:314-24 Ag '64

RABIES

Vaccines

Court decisions; vaccine treatments. H. N. Morse. Drug & Cosmetic Ind 94:869 Je '64

Pre-exposure rabies prophylaxis; problems and procedures. F. B. Peck, jr. and K. C. Kohlstaedt. bibliog Ind Med 33:17-21 Ja '64

RACE differences

Racial differences in hip fracture mortalities. L. Adelson and R. Oseasohn. Archives Environmental Health 9:206-8 Ag '64

RACE discrimination

See also

Negroes—Employment

RACE tracks

Employ mass ventilation for track's grandstand. A. M. P. Amey. il Heating-Piping 36:136-7 Je '64

Outdoor infra-red heat lengthens track season. il Gas Age 131:28-9 Jl '64

They're off at Belmont. il Prog Arch 45:99 O '64

Lighting

Lighting remodels a race track. il Illum Eng 59:146-8 Mr '64

RACEMIZATION

Conformational kinetic isotope effects in the racemization of 9,10-dihydro-4,5-dimethylphenanthrene. G. Mislow and others. bibliog Am Chem Soc J 86:1733-41 My 5 '64

Hydrogen chloride-catalyzed racemization of sulfoxides. K. Mislow and others. bibliog Am Chem Soc J 86:1452-3 Ap 5 '64

Optically active 8,8′-dimethyl-1,1′-binaphthyl; the energy barrier for racemisation. Y. Badar and M. M. Harris. Chem & Ind p 1426 Ag 8 '64

Peptide synthesis via active esters; racemization and ring-opening reactions of optically active oxazolones. M. Goodman and L. Levine. bibliog Am Chem Soc J 86:2918-22 Jl 20 '64

Photoracemization of biphenyls. K. Mislow and A. J. Gordon. Am Chem Soc J 85:3521 N 5 '63

Racemization and oxygen exchange of trisubstituted phosphine oxides. D. B. Denney and others. Am Chem Soc J 86:4486-7 O 20 '64

Racemization in the solvolysis of *exo*-2-benznorbornenyl brosylate. W. P. Giddings and J. Dirlam. bibliog Am Chem Soc J 85:3900-1 D 5 '63

Racemization of an optically active fluorosilane without displacement of fluoride ion; evidence for an expanded-octet mechanism. L. H. Sommer and P. G. Rodewald. Am Chem Soc J 85:3898-9 D 5 '63

Steric isotope effects: the isotope effect on the racemization of 2,2′-dibromo-4,4′-dicarboxybiphenyl. L. Melander and R. E. Carter. Am Chem Soc J 86:295-6 Ja 20 '64

Synthesis, nuclear magnetic resonance spectrum, resolution, and rate of racemization of 1-fluoro-12-methylbenzo[*c*]phenanthrene. M. S. Newman and others. bibliog Am Chem Soc J 85:4018-20 D 20 '63

RACEWAYS, Electric. See Electric conduits

RACING

See also

Automobile racing

RACING cars. See Automobiles, Racing

RACKS

At last: standard nomenclature for drive-in pallet racks; reference sheet. diags Mod Materials Handling 19:52-3 Mr '64

Computer verifies beam design; advances capacity of lightweight storage racks. L. Hall. il diags Iron Age 193:76-7 My 7 '64

Extrusion handling system cuts costs and waste. il Mod Metals 20:62+ F '64

1964 materials handling and packaging directory; storage equipment. il Mod Materials Handling 19:241-66 My '64

Pet milk co. constructs from inside out; storage racks support roof and walls in unique warehouse. il Food Eng 35:84 D '63

Racking integrated with building structure. il Engineering 197:83 Ja 17 '64

RADAR

Advanced radar technique. il Electronic Ind 22:192-3 N '63

Angular ambiguity function of a discrete-continuous array. H. Urkowitz. diag IEEE Proc 51:1775 D '63

Angular resolution of multiple targets. J. R. Sklar and F. C. Schweppe. IEEE Proc 52:1044-5 S '64

Audio-frequency characterization of radar-absorbing material. L. C. Lynnworth. bibliog il IEEE Proc 52:98-9 Ja '64

Automatic radar data extraction by storage tube and delay line techniques. J. C. Plowman. il diags Radio & Electronic Eng 26:317-26; Discussion. 327-8 O '63

Backward diodes as microwave detectors. H. V. Shurmer. bibliog Inst E E Proc 111:1511-16 S '64

Biggest telescope on earth is in the earth. E. Leslie. il diag Radio-Electronics 35:36-7, cover F '64

Bounds for correlation peaks of periodic digital sequences. J. E. Stadler and C. R. Cahn. IEEE Proc 52:1262-3 O '64

C-band radar-beacon tracking for Project Mercury. B. H. Labitt. bibliog diags IEEE Trans Com & Electronics p647-56 '63

Degradation effects of arbitrary phase errors on high-resolution radar performance. D. K. Cheng. bibliog Inst E E Proc 111:1375-8 Ag '64

Design and application of computers for radar data processing. R. A. Ballard and L. Moore. Radio & Electronic Eng 26:407-15 N '63

Development of a reliable miniature beacon for radar tracking of research rockets and balloons. W. F. Slaght and H. Morewood. il diags Eng J 47:26-31 Mr '64

Developments in swept-frequency radar technique. Radio & Electronic Eng 27:98 F '64

Digital automatic radar data extraction equipment. J. V. Hubbard. il diags Radio & Electronic Eng 26:397-404 N '63

Digital data processing considerations in radar. P. J. Child. bibliog diags Radio & Electronic Eng 27:75-83 Ja '64

Display of automatically processed radar information. D. R. Jarman. il diags Radio & Electronic Eng 26:469-76 D '63

Effect of linear and nonlinear signal processing on signal statistics. A. V. Balakrishnan. bibliog J Res Nat Bur Stand 68D:953-65 S '64

Effect of parameter estimation upon radar performance. E. D. Banta. IEEE Proc 52:326 Mr '64

Effect of weather on performance of an 8mm radar. O. Nourse and S. G. Nicholls. diags Inst E E Proc 111:1523-33 S '64

Errors in radar distance measurement. diag Engineering 196:766 D 13 '63

Evaluating light demodulators. D. E. Caddes and B. J. McMurtry. bibliog il diags Electronics 37:54-61 Ap 6 '64

Fabrication of lightweight targets for radar measurements. S. Abrams and others. il IEEE Proc 52:436 Ap '64

Four-beam landing radar set for LEM. J. A. Strasser. il diags Electronics 37:70-2 F 7 '64

Frequency and amplitude stabilisation of transmitters for c.w. radar. I. R. Harris and others. diags Inst E E Proc 111:1236-40 Jl '64

Gas laser radar. Electronics 37:30+ Ap 20 '64

Gemini rendezvous radar. B. H. Vester. il diags Westinghouse Eng 24:19-23 Ja '64

High efficiency light generator; Enetron. W. H. Long. il diags Electronic Ind 23:73-4 F '64

How coded-pulse techniques extend radar range. T. Sakamoto and others. bibliog il diags Electronics 36:34-7 N 22 '63

Introductory statistics and sampling concepts applied to radar evaluation. R. J. Ortenzio. bibliog diags RCA R 25:116-47 Mr '64; Correction. 25:319 Je '64

Laser camera takes bright picture. il diag Electronics 37:44-5, cover F 28 '64

Layer structure of the troposphere; simultaneous radar and microwave refractometer investigations. J. A. Saxton and others. bibliog il Inst E E Proc 111:275-83 F '64

Limit of radar range resolution for a distributed target. W. Gersch. IEEE Proc 51:1787-8 D '63

Low-noise c-w klystron oscillators meet Doppler radar requirements. J. J. Hamilton. il Electronics 36:85-8 D 6 '63

Man and machine in the extraction and use of radar information. R. Benjamin. diags Radio & Electronic Eng 26:309-16 O '63

Measurement of frequency deviation by a simulated frequency-modulated radar technique. B. S. Rao and D. E. N. Davies. Electronic Eng 36:100-2 F '64

Microcircuit Doppler radar. S. Weber. diags Electronics 37:48+ Ja 24 '64

Molecular-electronic radar and infrared tracking systems. il Westinghouse Eng 24:152 S '64

Monitoring radar by neon-helium gas laser system. diag Electronics 37:27-8 O 19 '64

New baby: eight-lb radar. il Electronics 37:11 Ja 31 '64

New magnetron shifts frequency fast. R. E. Edwards. il diags Electronics 37:76-81 Ap 6 '64

New method of measuring small radar cross sections by digital vector-field subtraction. P. C. Fritsch and F. E. Heart. diag IEEE Proc 52:628-9 My '64

New optical Doppler radar system. Franklin Inst J 277:624-5 Je '64

New X-band radar. Electronic Eng 36:533 Ag '64

Over-the-horizon radar is in business. Electronics 37:101 O 5 '64

RADAR—*Continued*

Pulse compression predistortion function for efficient sidelobe reduction in a high-power radar. C. E. Cook and J. Paolillo. bibliog il diags IEEE Proc 52:377-89 Ap '64

Radar detection. W. L. Rubin and J. V. Difranco. bibliog il diags Electro-Tech 73:61-90 Ap '64 (reprints $1)

Radar resolution properties of pulse trains. A. W. Rihaczek. bibliog diags IEEE Proc 52:153-64 F '64

Radar scattering from coated perfect conductors; application to the semi-infinite cone and use of exact eikonal. H. Überall. bibliog J Res Nat Bur Stand 68D:749-66 Je '64

Radiation hazards in high-power radars. J. D. McCarthy. il diags Safety Maint 126:46-9+ D '63

Range and angle prediction tracking of objects with difinable trajectories. T. T. Kumagai. diags AIAA J 2:557-9 Mr '64

Real world digital detection. E. S. Lurin. diag IEEE Proc 52:870-1 Jl '64

Recent developments in silicon radar crystals. H. V. Shurmer. diags Inst E E Proc 111:257-63 F '64

Recent trends and future developments in radar displays. D. W. G. Byatt. il diags Radio & Electronic Eng 26:459-67 D '63

Signal processing in radar and sonar directional systems; symposium abstracts. Radio & Electronic Eng 27:327-30 My '64

Silicon controlled rectifiers to pulse radar. T. Maguire. diags Electronics 37:14-15 Ja 17 '64

Simulating tactical radar and sonar. R. G. Hundley. il diags Electronics 36:25-31 D 13 '63

Solid-state cooperative radar for space rendezvous. il Space/Aeronautics 41:116 Ap '64

Spectral measurement techniques in planetary radar. G. Pettengill. bibliog diags J Res Nat Bur Stand 68D:1025-9 S '64

Statistical methods in radar astronomy; determination of surface roughness. H. S. Hayre. bibliog J Res Nat Bur Stand 67D:763-4 N '63

Statistical problems in electromagnetics; rough surface. W. S. Ament. bibliog J Res Nat Bur Stand 68D:451-4 Ap '64

Statistics of the product of two independent modified Rayleigh variates. J. L. Ekstrom. IEEE Proc 52:981 Ag '64

Symposium on Signal processing in radar and sonar directional systems; program and abstracts of papers. Radio & Electronic Eng 27:442-5 Je '64

Three-dimensional radar of frequency-modulated pulse system. T. Makimoto and T. Sueta. diags IEEE Proc 52:727-8 Je '64

Three lasers in tandem promise practical optical radar. il Machine Design 36:14 Mr 26 '64

Tr switch for use at 200 mc/s in air filled coaxial line. W. I. Moore and D. T. O'Dell. diags Inst E E Proc 111:1625-9 O '64

Use of color film in manufacture of color map transparencies for radar trainers. E. E. Griffith. il diags SMPTE J 73:849-53 O '64

Use of statistics in radar astronomy. I. Kay. J Res Nat Bur Stand 68D:849-50 Jl '64

Antenna and scanning mechanism

Application of electronic sector scanning techniques to height-finding radar systems. D. E. N. Davies. bibliog diags Inst E E Proc 110:1941-8 N '63

Array radar's problem; too many components. T. Maguire. Electronics 36:28-9 D 6 '63

Big dish is almost ready; project Haystack. T. Maguire. Electronics 37:110-12 O 5 '64

Combination of pulse compression with frequency scanning for three-dimensional radars. K. Milne. bibliog diags Radio & Electronic Eng 28:89-106 Ag '64

Cumulative probability of detection for targets approaching a uniformly scanning search radar. J. D. Mallett and L. E. Brennan. IEEE Proc 51:596-601 Ap '63; Correction. 52:708-9 Je '64

Frequency scanning aerials. M. F. Radford. bibliog il diags Electronic Eng 36:222-6 Ap '64

Generation of alpha-numeric flight data on bright displays. G. E. Fenimore. diags Inst E E Proc 111:514-18 Mr '64

Giant radar antenna would dwarf Arecibo's. il Space/Aeronautics 41:90-1 My '64

Hydraulic nutation for height-finding radar. il diag Engineer 217:578-9 Mr 27 '64

Hydraulic nutation for radar. il Engineering 197:352 Mr 6 '64

Microwave heating of a Luneberg lens. S. P. Morgan. diag Bell System Tech J 43:659-77 Mr '64

New sensitive radar antenna. Franklin Inst J 277:371-2 Ap '64

Non-collinear and cylindrical multiplicative arrays. E. D. R. Sherman. bibliog diags Radio & Electronic Eng 26:481-4 D '63

Planar arrays with unequally spaced elements. M. I. Skolnik and J. W. Sherman. bibliog diags Radio & Electronic Eng 28:173-84 S '64

Radar-tracking accuracy increased. C. H. Stewart and G. J. Vincent. il diags Electronics 37:73-5 My 4 '64

Scattering losses in a large Luneberg lens due to random dielectric inhomogeneities. S. P. Morgan. bibliog diag Bell System Tech J 43:679-96 Mr '64

Tracking performance of the Mercury quadhelix acquistion aid. J. G. Barry and G. F. Dalrymple. bibliog il diags IEEE Trans Com & Electronics p657-63 N '63

Tracking radars for complex targets. L. Peters and F. C. Weimer. bibliog Inst E E Proc 110:2149-62 D '63

Use of an effective transmission pattern to improve the angular resolution of within-pulse sector-scanning radar or sonar systems. D. C. Cooper. bibliog diags Radio & Electronic Eng 28:153-60 S '64

Interference

Noise-modulated optical radar. H. E. Band. bibliog IEEE Proc 52:306-7 Mr '64

Meteorological use

Cloud analyser. il Electronics 37:34+ S 21 '64

Radar meteorology and cloud physics. bibliog J Res Nat Bur Stand 68D:555-7 My '64

Military use

Army seeks gear for air traffic and navigation. J. F. Mason. il Electronics 36:10-11 N 22 '63

Automatic spacetracking era begins. T. Maguire. il Electronics 37:24-5 F 14 '64

C-w radar measures artillery ballistics. H. D. Raynes. il diags Electronics 37:31-3 Ja 3 '64

Evolution of a radar. J. W. Schaefer. il diags Bell Lab Rec 42:48-57 F '64

How computers align phased-array radars. A. G. Kramer and A. Slocum. diags Electronics 36:29-33 N 15 '63

Infrared aims laser, locks radar on evading aircraft. il Machine Design 36:12 Je 18 '63

New radar unit is small enough to be held in the hand. il Product Eng 35:90 Ap 27 '64

New twist in space tracking; the vehicle tracks the ground. J. A. Strasser. il diags Electronics 36:10-11 N 15 '63

Radar in 3-D. Electronics 37:32 O 19 '64

Radar sees target, buzzes operator. A. Berg. Electronics 37:48 Mr 6 '64

Studies of a twin-channel frequency-modulated echo-location system. D. E. N. Davies and B. S. Rao. bibliog diags Radio & Electronic Eng 28:161-72 S '64

Scientific applications

Antenna pointing system for West Ford. F. E. Heart and A. A. Mathiasen. bibliog il diags IEEE Proc 52:599-606 My '64

Effects of the West Ford belt on astronomical observations. D. C. MacLellan and others. bibliog IEEE Proc 52:564-70 My '64

Influence of the earth's orbital motion on radar measurements of range and velocity in space. V. M. Vakhnin. diags AIAA J 1:2700-3 N '63

Measured physical characteristics of the West Ford belt. F. E. Heart and others. bibliog diags IEEE Proc 52:519-33 My '64

Orbital properties of the West Ford dipole belt. I. I. Shapiro and others. bibliog il diags IEEE Proc 52:469-518 My '64; Correction. 52:911 Ag '64

Radar studies of the sun, moon, and planets. bibliog J Res Nat Bur Stand 68D:565-7 My '64

Radar's new partner; space probe. L. D. Shergalis. diag Electronics 37:24-5 Ja 3 '64

Statistical radar estimate of the lunar surface roughness. H. S. Hayre. bibliog Franklin Inst J 277:197-205 Mr '64

URSI national committee report, 14th general assembly, Tokyo, Sept. 9-20, 1963; radio and radar astronomy. bibliog J Res Nat Bur Stand 68D:631-53 My '64

West Ford antenna and feed system. B. F. LaPage and others. bibliog il diags IEEE Proc 52:589-98 My '64

West Ford radar and microwave equipment. B. E. Nichols and D. Karp. bibliog il diags IEEE Proc 52:576-88 My '64

RADAR—*Continued*

Surveying use

Electronic surveying; accuracy of tellurometer over short distances. S. H. Laurila. il Am Soc C E Proc 89 [SU 3 no 3671]:77-95 O '63; Correction. 90 [SU 2 no 3978]:175 Jl '64
Electronic surveying; electronic distance measurements. A. E. Harrison. Am Soc C E Proc 89 [SU 3 no 3672]:97-116 O '63; Correction. 90 [SU 2 no 3978]:177 Jl '64
Tellurometer. il diag Engineering 197:354-5 Mr 6 '64

RADAR aids to aviation
Air traffic control by radar screen map. il Engineering 198:198 Ag 14 '64
Air traffic control radar. il Wireless World 69:623 D '63
Army seeks gear for air traffic and navigation. J. F. Mason. il Electronics 36:10-11 N 22 '63
Cutting through clutter in flight-control radar. W. J. Evanzia. il diags Electronics 37:83-9 Ag 10 '64
Digitrac for handling radar data. S. M. Eriksson. diags Elec Com 39 no 3:360-8 '64
F-m feedback stabilizes airborne solid-state vhf transponder. J. C. Wright and W. L. Blair. il diags Electronics 36:66-8 D 6 '63
New air traffic control radar. Electronic Eng 35:821 D '63
Radar and radio guidance and navigation. C. G. McMullen. il diag Space/Aeronautics 42 no 4:61-3 '63-64
Transradar; a narrow-band radar relay equipment using storage capacitors. K. Jekelius. bibliog il diags Elec Com 38 no 4:501-10 '63
Wanted: ways to spot rough air. A. A. McKenzie. il diags Electronics 37:49-51 F 7 '64
See also
Radar apparatus on aircraft

RADAR aids to navigation
Back-scattering properties of moon and earth at *X* band. H. Safran. AIAA J 2:100-1 Ja '64
Extend radar coverage at London to five miles seaward of Gravesend. Marine Eng/Log 69:16H Jl '64
Helping shipping up the Thames by radar. il map Engineering 197:500-1 Ap 10 '64
Methods of distinguishing sea targets from clutter on a civil marine radar. A. Harrison. bibliog il diags Radio & Electronic Eng 27:261-73; Discussion. 273-5 Ap '64
New twists to c.r.t. recording. M. J. Langford. Ind Phot 12:48-9 N '63
Recent extensions of the Thames navigational service. il map Wireless World 70:217-18 My '64
Remote radar from Thames Navigation Service. il Engineer 217:619 Ap 3 '64
Transistorized marine radar. Electronic Eng 36:381 Je '64
See also
Radar apparatus on ships

RADAR apparatus on aircraft
Attack planes hug hostile terrain with new radar. J. F. Mason and H. C. Hood. il Electronics 37:10-11 F 21 '64
Bracket for airborne radar equipment. C. Allen. il diags Engineer 218:511-13 S 25 '64
Doppler in aircraft. G. Thomas. il diags Ind Electronics 2:55-7, 117-19 F-Mr '64
Doppler installation in the Trident. il Engineer 217:620 Ap 3 '64
Farnborough display; communications and radar. il Engineer 218:442-3 S 18 '64
Integrated circuits shrink a doppler radar system. E. M. Pacifico and S. King. il diags Electronics 37:74-9 Mr 23 '64
Lightweight radar for light twin aircraft. il Engineering 198:516 O 23 '64
Synthetic aperture radar. J. Holahan. il diags Space/Aeronautics 40:88-93 N '63
See also
Airplanes—Radomes

RADAR apparatus on ships
Automatic nautical navigator. Franklin Inst J 277:178-9 F '64
Larger Argus radar. il Engineer 218:256 Ag 14 '64
Marine radar series for vessels of all sizes. il Marine Eng/Log 69:32P Ap '64
Multi-purpose marine radar. il Engineer 216:951 D 6 '63
Multi-purpose transistorized marine radar. il Engineering 196:720 D 6 '63
Yacht radar. il Wireless World 70:70 F '64

RADAR echoes
Angels, insects, and weather. A. H. LaGrone and others. bibliog il J Res Nat Bur Stand 68D:895-901 Ag '64
Broadside radar echoes from ionized trails. H. Weil. bibliog AIAA J 2:429-32 Mr '64
Polarization of radar echoes, including aircraft, precipitation and terrain. H. Gent and others. il diags Inst E E Proc 10:2139-48 D '63
Studies of a twin-channel frequency-modulated echo-location system. D. E. N. Davies and B. S. Rao. bibliog diags Radio & Electronic Eng 28:161-72 S '64

RADAR receiving apparatus
Receiver sensitivity and design curves for radar pulse integration. B. D. Steinberg. IEEE Proc 52:437-8 Ap '64
Three-dimensional radar display. Electronic Eng 36:695 O '64

RADAR reflectors. See Radar—Antenna and scanning mechanism

RADAR research
Tunable source of millimeter and submillimeter electromagnetic radiation. I. B. Bott. il diags IEEE Proc 52:330-2 Mr '64

RADAR stations
B.M.E.W.S. at Fylingdales, Yorkshire; illustrations with text. Engineer 217:91 Ja 10 '64
Safeguard ballistic missile warning relay. il Engineering 196:670 N 22 '63

Equipment

Digitrac for handling radar data. S. M. Eriksson. diags Elec Com 39 no 3:360-8 '64

RADIANT heating. See Electric heating—Radiant heating; Heating—Radiant heating; Hot water heating—Radiant heating

RADIATION
Absolute measurement of GaAs diodes radiation using solar cells. E. J. Schiel and J. J. Bolmarcich. IEEE Proc 51:1780-1 D '63
Atmosphere and near space. F. S. Johnson and W. L. Webb. bibliog diag Astronautics & Aerospace Eng 1:81-5+ N '63
Behavior of plastics in space environments. A. F. Ringwood. Mod Plastics 41:173-4+ Ja '64
Current topics in the stochastic theory of radiation. F. J. Zucker. diags J Res Nat Bur Stand 68D:989-93 S '64
Dose fields from plane sources using point-source data. J. H. Hubbell. bibliog diags Nucleonics 21:144-8 Ag '63
Effects of neutron radiation on secondary breakdown. E. B. Hakim and B. Reich. bibliog IEEE Proc 52:735 Je '64
Effects of radiation forces on the attitude of an artificial earth satellite. T. F. Clancey and T. P. Mitchell. bibliog diags AIAA J 2:517-24 Mr '64
Gas breakdown criterion for pulsed optical radiation. R. G. Tomlinson. IEEE Proc 52:721-2 Je '64
Ionizing radiation and constitution of the atmosphere. T. E. Van Zandt. bibliog J Res Nat Bur Stand 68D:569-71 My '64
Phonon radiation by uniformly moving charged particles in piezoelectric solids. R. Tsu. diag J Ap Phys 35:125-30 Ja '64
Radiation extends beyond Van Allen belts. Chem & Eng N 42:39-40 Mr 23 '64
Radiation fields of a loop antenna. T. D. Shockley, jr. diag IEEE Proc 52:970-1 Ag '64
Radiation from an aperture in a coated plane. C. M. Knop and G. I. Cohn. bibliog il diags J Res Nat Bur Stand 68D:363-78 Ap '64
Radiation from plasmas. L. B. Felsen. J Res Nat Bur Stand 68D:480-5 bibliog(p484-5) Ap '64
Radiation in a lossless magneto-ionic medium at frequencies high relative to the electron gyrofrequency. J. W. Marini. bibliog diags J Res Nat Bur Stand 67D:707-16 N '63
Radiation-initiated polymerization; screening speeds polymer studies. P. J. Manno. bibliog il Nucleonics 22:49-51 F; 64-7 Je '64
Radiation pressure errors in Knudsen pressure gauges. S. Schalkowsky and T. Marshall, jr. diag R Sci Instr 35:908-9 Jl '64
Representation of a function by its line integrals, with some radiological applications. A. M. Cormack. bibliog diag J Ap Phys 34:2722-7; 35:2908-13 S '63, O '64
Satellite reveals new radiation facts. Franklin Inst J 278:225 S '64
Simulating space radiation. E. A. Burrill. il diags Space/Aeronautics 41:78-87 My '64
Size-dependent spontaneous energy loss in lasers due to self-stimulated emission. T. Waite. J Ap Phys 35:1680-2 Je '64
Spatial distribution of radiation from GaAs lasers. G. E. Fenner and J. D. Kingsley. bibliog il diags J Ap Phys 34:3204-8 N '63

RADIATION—*Continued*

Super radiant narrowing in fluorescence radiation of inverted populations. A. Yariv and R. C. C. Leite. bibliog J Ap Phys 34:3410-11 N '63

Transient radiation; ICBM bugaboo. H. C. Hood. diags Electronics 37:10-11 Ja 31 '64

Twin satellites to probe radiation belts. Engineering 197:301 F 21 '64

Two-dimensional radiating gas flow by a moment method. P. Cheng. bibliog AIAA J 2:1662-4 S '64

Visible radiation from metal anodes preceding electrical breakdown. C. J. Bennette and others. bibliog J Ap Phys 35:3054-5 O '64

Wide-range microwave spectroscopy of noise radiation from magnetoplasmas. C. D. Lustig and others. bibliog diags R Sci Instr 35:869-71 Jl '64

Zenith 58.3-gc radiation from the earth's atmosphere between the altitudes of 5 and 100 thousand feet. C. W. Tolbert and A. W. Straiton. il IEEE Proc 52:867 Jl '64

See also

Absorption of rays
Black body
Bremsstrahlung
Cosmic rays
Gamma rays
Glass, Effect of radiation on
Heat radiation
Irradiation
Light
Metals—Radiation effect
Mössbauer effect
Radiation sterilization
Radioactivity
Radiochemistry
Relativity (physics)
Rubber, Artificial—Radiation effect
Scattering of particles and rays
Semiconductors—Radiation effect
Solar radiation
Ultraviolet rays
X-rays

Measurement

Automatic film-badge reader improved. R. B. Purcell and others. il diag Nucleonics 21:66-8 N '63

Eccentric-orbiting Imp fills gap in space-radiation data. il Machine Design 35:12 D 19 '63

High-dose N_2O dosimeter. D. A. Flory. bibliog diags Nucleonics 21:50+ D '63

High-geometry system counts low activity levels. P. H. Gudiksen and A. W. Fairhall. diag Nucleonics 22:62 Ja '64

Internal pulse amplification in silicon p-n junction radiation detection junctions. G. C. Huth and others. diag R Sci Instr 35:1220-2 S '64

Metal containers for aqueous benzene-phenol dosimeters. F. W. Bloch and others. bibliog Nucleonics 22:77 Mr '64

Miniature p-i-n junctions for in-vivo dosimetry. N. A. Baily and A. Norman. bibliog il Nucleonics 21:64-5 O '63

Portable monitor for alpha radiation. il Engineer 217:355 F 21 '64

Power-series buildup factor formulation; application to rectangular and off-axis disk source problems. J. H. Hubbell. bibliog diags J Res Nat Bur Stand 67C:291-306 O '63

Prototype of a portable microcalorimeter for measurement of absorbed dose. E. R. Schleiger and N. Goldstein. bibliog diag R Sci Instr 35:890-4 Jl '64

Radiation damage effects in semiconductor detectors. G. Dearnaley. bibliog diags Nucleonics 22:78+ Jl '64

Radiation monitoring. W. F. Bland. J Sci Instr 41:253-4 My '64

SAND (sample analysis of nuclear debris); instrument which will perform atmospheric exploration. Product Eng 35:77 Je 22 '64

Semiconductor detectors of nuclear radiations. W. Abson. diags R Sci Instr 41:272-4 My '64

Small in-vivo dosimeters; solid-state dosimeters for in-vivo measurements. J. F. Fowler. bibliog diag Nucleonics 21:60-4 O '63

Stable, high field silicon p-n junction radiation detectors. G. C. Huth and others. diags R Sci Instr 34:1283-5 N '63

Physiological effect

Genetic effects of radiation. C. E. Purdom. Review, by S. Abrahamson. Nucleonics 22:78+ Mr '64

Ionizing radiation and supersonic transport. S. R. Mohler. bibliog diags Astronautics & Aeronautics 2:60-4+ S '64

Low-level radiation effects on man; good, bad, or both? J. W. Gofman. Nucleonics 22:19 Je '64

Radiation and cause of sickness. L. M. Meyer. Am J Pub Health 54:51-6 pt 2 Ja '64

Radiation and heredity. H. J. Muller. Am J Pub Health 54:42-50 pt 2 Ja '64

Radiation and the public health. D. R. Chadwick. Am J Pub Health 54:63-70 pt 2 Ja '64

Protection

Clothing for radiation protection. T. J. Seery. Mod Textiles Mag 45:42 F '64

Contractor casts two-mile tunnel with 80-ft-long ganged forms. il Eng N 172:82-3 Je 18 '64

Design for radiation safety. W. J. Thon. Air Cond Heat & Ven 61:87-93 O '64

Health program for radiation workers. W. D. Norwood. bibliog Archives Environmental Health 9:529-35 O '64

Ionizing radiation and the supersonic transport. S. R. Mohler. bibliog diags Astronautics & Aeronautics 2:60-4+ S '64

Labor contract takes new approach to radiation safety. Nucleonics 22:24 F '64

Plasma radiation shielding. R. H. Levy and G. S. Janes. bibliog diags AIAA J 2:1835-8 O '64

Proton fluxes along low-acceleration trajectories through the Van Allen belt. F. J. Hrach. bibliog AIAA J 2:762-4 Ap '64

Shielding moderate-energy electron accelerators. K. M. Murray. bibliog diags Nucleonics 22:61-7 F '64

See also

Radioactivity—Protection
X-rays—Protection

Terminology

Ionizing radiation terminology. S. R. Mohler. Astronautics & Aeronautics 2:62-3 S '64

RADIATION chemistry. See Radiochemistry

RADIATION-sensitive paint. See Paint, Radiation-sensitive

RADIATION sterilization

Sterilization of barley malt with gamma radiation. L. L. Kempe and others. bibliog J Agri & Food Chem 12:98-100 Ja '64

See also

Food preservation—Radiation sterilization

RADIATORS

Effect of asymmetrical thermal boundary conditions on radiating-fin heat transfer. E. M. Sparrow and V. K. Jonsson. A S M E Trans ser C 86:299-300 My '64

Fin-tube view factors. H. C. Haller and N. O. Stockman. diags A S M E Trans ser C 85:380-1 N '63

RADIATORS, Automobile. See Automobile engines—Radiators

RADICALS (chemistry)

Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63

Batch polymerization narrowing molecular weight distribution. R. F. Hoffman and others. bibliog flow diag Ind & Eng Chem 56:51-7 My '64

Bisgalvinoxyl, a stable triplet. E. A. Chandross. bibliog Am Chem Soc J 86:1263-4 Mr 20 '64

C^{13} hyperfine splittings in the 7,7,8,8-tetracyanoquinodimethane anion radical. M. T. Jones and W. R. Hertler. Am Chem Soc J 86:1881-2 My 5 '64

Cation radical of tetrakis(dimethylamino) ethylene. K. Kuwata and D. H. Geske. bibliog Am Chem Soc J 86:2101-5 Je 5 '64

Competition between ionic and free-radical reactions during chlorination of cyclohexene spontaneous generation of radicals. M. L. Poutsma. bibliog Am Chem Soc J 85:3511-12 N 5 '63

Cyclization to a five-membered ring in the free-radical reaction of iodoperfluoroalkanes with 1,6-heptadiene. N. O. Brace. bibliog Am Chem Soc J 86:523-4 F 5 '64

Cyclisations following radical addition to ethyl diallylacetate. J. I. G. Cadogan and others. Chem & Ind p753 My 2 '64

Differences in electron spin resonance spectra and annealing characteristics of radicals produced in polycrystalline and glassy alkyl iodides by γ-radiolysis. H. W. Fenrick and others. bibliog Am Chem Soc J 85:3731-2 D 5 '63

Directive effects in aliphatic substitutions: reactivity of aralkanes, aralkenes, and benzylic ethers toward peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2364-7 Je 20 '64

Electrochemistry of diphenylpicrylhydrazyl. E. Solon and A. J. Bard. bibliog Am Chem Soc J 86:1926-8 My 20 '64

RADICALS (chemistry)—*Continued*

Electron exchange kinetics of the NO_3 free radical in solution. T. W. Martin and others. bibliog diags Am Chem Soc J 86:2595-600 Jl 5 '64

Electron spin resonance study of free radicals in ultraviolet-irradiated ethanol at 77°K. P. J. Sullivan and W. S. Koski. bibliog Am Chem Soc J 86:159-61 Ja 20 '64

Electron spin resonance study of iminoxy free radicals. J. R. Thomas. bibliog Am Chem Soc J 86:1446-7 Ap 5 '64

Electronic interaction in ketyl radicals. N. Hirota and S. I. Weissman. diags Am Chem Soc J 86:2538-45 Jl 5 '64

Electronic interactions in biradicals; a single-triplet equilibrium. E. A. Chandross and R. Kreilick. Am Chem Soc J 86:117-18 Ja 5 '64

Equilibrium between peroxydisulfuryl difluoride and fluorosulfate free radicals. F. B. Dudley and G. H. Cady. Am Chem Soc J 85:3375-7 N 5 '63

Free-radical addition to azobenzene in cumene solution; electron paramagnetic resonance spectra of some long-lived radical intermediates. J. K. S. Wan and others. bibliog Am Chem Soc J 86:2069-70 My 20 '64

Free-radical cycloadditions to *cis,cis*-1,5-cyclooctadiene. R. Dowbenko. bibliog Am Chem Soc J 86:946-7 Mr 5 '64

Free radical mechanism for solvent toxicity. Z. T. Wirtschafter and M. W. Cronyn. bibliog Archives Environmental Health 9: 186-91 Ag '64

Free-radical phenylation of ferricenium ion. A. L. J. Beckwith and R. J. Leydon. bibliog Am Chem Soc J 86:952-3 Mr 5 '64

Free-radical reactions of diazomethane with reactive bromopolychloroalkanes. W. H. Urry and N. Bilow. bibliog Am Chem Soc J 86:1815-19 My 5 '64

Free radical yields in *n*-alcohols resulting from gamma irradiation. I. Zwiebel and R. H. Bretton. bibliog A I Ch E J 10:339-44 My '64

How radiation affects polypropylene. bibliog Can Chem Process 48:63-6 Ag '64

Matrix isolation in free radical studies. Ind & Eng Chem 56:14 Jl '64

Nature of the free-radical moiety in lignin. C. Steelink and others. bibliog Am Chem Soc J 85:4048-9 D 20 '63

Nature of the polar effect in reactions of atoms and radicals; reactions of chlorine atoms and peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2357-64 Je 20 '64

Organic peroxides; the behavior of cyclohexaneformyl peroxide in the presence of excess stable radicals; the simultaneous determination of kinetics and free radical efficiencies in the thermal decompositions of free radical initiators. R. C. Lamb and J. G. Pacifici. bibliog Am Chem Soc J 86: 914-18 Mr 5 '64

Organic sulfur compounds; free-radical addition of thiols to phenylacetylene. A. A. Oswald and others. bibliog Am Chem Soc J 86:2877-84 Jl 20 '64

Perchlorodiphenylmethyl (PDM), a carbon free radical of remarkable stability. M. Ballester and J. Riera. Am Chem Soc J 86: 4505 O 20 '64

Peroxide catalysts race to keep pace. il Can Chem Process 47:53-4 N '63

Photolytic decomposition of aryldiazonium salts; the *p*-dimethylaminophenoxy radical. P. J. Zandstra and E. M. Evleth. bibliog Am Chem Soc J 86:2664-6 Jl 5 '64

Predictability of chain reactions. S. W. Benson. bibliog diags Ind & Eng Chem 56:18-27 Ja '64

Propagation steps of free-radical and anionic polymerization. T. Yoshino and others. bibliog Am Chem Soc J 86:4482-4 O 20 '64

Radical exchange during nitrite photolysis. M. Akhtar and others. Am Chem Soc J 86: 3394-5 Ag 20 '64

Radical rotation is rate-controlling step. D. M. Golden and others. Chem & Eng N 42: 55 S 7 '64

Radicals may cause displacement reactions by Walden inversion mechanism. W. A. Pryor and H. Guard. il Chem & Eng N 42:38-9 Mr 30 '64

Rates of pyridinyl radical reactions. E. M. Kosower and I. Schwager. bibliog Am Chem Soc J 86:4493-4 O 20 '64

Reactions of radicals. bibliog Am Chem Soc J 86:4229-43 O 20 '64

Reactions of unsaturated free radicals with nitric oxide; radical-induced scission of carbon-carbon triple bonds. A. G. Sherwood and H. E. Gunning. Am Chem Soc J 85: 3506-8 N 5 '63

Sensitive new methods for autocatalytic spectrophotometric determination of nitrite through free-radical chromogens. E. Sawicki and others. bibliog Anal Chem 35: 2183-91 D '63

Solvent effects in the reactions of free radicals and atoms; effect of solvent polarity on the reactions of peroxy radicals. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2368-71 Je 20 '64

Stable dianion radicals and trianions in substituted pentadienyl systems. N. L. Bauld. bibliog Am Chem Soc J 86:2305-6 Je 5 '64

Stable trianion radicals. N. L. Bauld. Am Chem Soc J 86:3894-5 S 20 '64

Stereochemical evidence for bridged radicals; photobromination of *cis-* and *trans*-4-bromo-*t*-butylcyclohexane. P. S. Skell and P. D. Readio. bibliog diags Am Chem Soc J 86:3334-7 Ag 20 '64

Stereospecific *trans* photoaddition of elementary iodine to aliphatic olefins; bridged iodoalkyl radicals. P. S. Skell and R. R. Pavlis. Am Chem Soc J 86:2956 Jl 20 '64

Survey of modern chemistry; reaction mechanisms. G. T. Austin and H. F. Austin. diags Chem Eng 71:143-6+ My 25 '64

Synthesis, brominolysis, and pyrolysis of a Dewar anthracene; a free radical displacement on carbon. D. E. Applequist and R. Searle. bibliog Am Chem Soc J 86:1389-91 Ap 5 '64

Thermal decomposition of *t*-butyl 3,3,3-triarylperpropionates; evidence for the intramolecular rearrangement and cyclization of aliphatic acyloxy radicals. W. H. Starnes, jr. bibliog Am Chem Soc J 85: 3708-9 N 20 '63

Thermochemistry of alkyl polyoxides and their radicals. S. W. Benson. bibliog Am Chem Soc J 86:3922-4 O 5 '64

Titration of oxygen and antioxidants using 2,4,6-tri-*tert*-butylphenoxy free radicals. J. P. Paris and others. bibliog Anal Chem 36:1332-4 Je '64

Total synthesis of alkaloids seems to follow biogenesis. A. I. Scott and others. il Chem & Eng N 42:40-1 F 24 '64

Walden inversion by radicals; the reaction of phenyl radicals with disulfides. W. A. Pryor and H. Guard. bibliog Am Chem Soc J 86:1150-2 Mr 20 '64

RADIO aids to aviation

Dominant cutoff wavelength of a Tseptate lunar line. A. Y. H. Wang. bibliog diags Inst E E Proc 111:1262-6 Jl '64

Microwaves for remote sensing. E. O. Frye. il diags Electronics 37:66-70 N 2 '64

New approach to I.L.S. modulation depth comparison. G. G. Gouriet. il diags Electronic Eng 36:2-7 Ja '64

Radar and radio guidance and navigation. C. G. McMullen. il diag Space/Aeronautics 42 no 4:61-3 '64-65

Transistor multichannel v.h.f. communication and navigation receiver for aircraft. T. T. Brown. bibliog il diags Inst E E Proc 111: 1227-35 Jl '64

Wanted: ways to spot rough air. A. A. McKenzie. il diags Electronics 37:49-51 F 7 '64

See also

Airports—Traffic control
Radar aids to aviation
Radio apparatus on aircraft

RADIO aids to navigation

GE proposes worldwide navigation system based on satellites. Marine Eng/Log 70:80+ My '64

Recent extensions of the Thames navigational service. il map Wireless World 70:217-18 My '64

Ship's inertial navigation system. diag Electronic Eng 36:29 Ja '64

Terrestrial navigation by artificial satellites. P. C. Sandretto. bibliog il diags Elec Com 39 no 1:155-67 '64

See also

Decca navigation system
Direction finding apparatus
Loran system
Radar aids to navigation
Radio apparatus on ships
Radio beacons
Radio telephone on ships

RADIO amateur civilian emergency service

Amateur radio and civil defense. G. Hart. diag Q S T 48:44-7 Ag '64

RADIO antennas

Admittance of annular slot antennas radiating into a plasma layer. J. Galejs. bibliog diag J Res Nat Bur Stand 68D:317-24 Mr '64

Amplified indoor antennas for fm and tv. P. E. Sutheim. il diags Radio-Electronics 35:32-4 O '64

Analysis of corona-generated interference in aircraft. R. L. Tanner and J. E. Nanevicz. bibliog diags IEEE Proc 52:44-52 Ja '64

Antenna illuminated by a cavity resonator. S. Jacobsen and others. bibliog diags IEEE Proc 51:1431-5 N '63

Antenna pattern smoothing by phase modulation. S. Kazel. IEEE Proc 52:435 Ap '64

Antenna pointing system for West Ford. F. E. Heart and A. A. Mathiasen. bibliog il diags IEEE Proc 52:299-606 My '64

Antenna relay for the beginner. R. Hanes. diags Q S T 48:59-61 Ap '64

Antenna system for the entire h-f band. S. W. Kershner. il diags Electronic Ind 23:88-90 Ag '64

Antenna system for transportable space-communication terminal. E. Singer and T. J. Vaughan. il diags Elec Com 39 no 1:58-72 '64

Antenna systems. R. C. Hansen. IEEE Proc 52:643 Je '64

Antennas and feeders. G. Grammer. diags Q S T 47:30-3 O; 36-40 N; 53-5 D '63

Antennas and transmatches. L. G. McCoy. diag Q S T 48:18-21 O '64

Antennas in lossy media. C. T. Tai. bibliog J Res Nat Bur Stand 68D:466-8 Ap '64

Aperture synthesis and supergain. H. N. Kritikos and M. R. Dresp. IEEE Proc 52:1052 S '64

Booster triples radio output. H. E. Stockman. diag Radio-Electronics 35:28 Ag '64

Broad-band-signal response of a phase-steered linear receiving array. W. B. Adams. diag IEEE Proc 52:106 Ja '64

Conical scan array uses variable phase shifters. L. R. Young and others. il diags Electronics 36:30-2 N 29 '63

Contra-wound linearly polarized helical aerial. R. A. Clark and T. S. M. Maclean. diags Electronic Eng 36:80-3 F '64

Determination of antenna parameters by scattering cross-section measurements. R. J. Garbacz. diags Inst E E Proc 111:1679-86 O '64

Different satellite-tracking antenna system. J. D. McMechan and C. D. Clifford. il diags Q S T 48:34-7 O '64

Effect of lossy earth on antenna gain. R. J. Coe and W. L. Curtis. bibliog il diags J Res Nat Bur Stand 68D:251-5, 813-18 F, Jl '64

Electric drive system for a steerable aerial at a satellite-communication earth station. H. A. Prime and others. il diags Inst E E Proc 111:556-64 Mr '64

Electromagnetic fields of a small loop antenna on the surface of a polarizable medium. B. K. Bhattacharyya. bibliog Geophysics 29:814-31 O '64

Electron densities from satellite antenna impedance. O. C. Haycock and K. D. Baker. il diags IEEE Trans Com & Electronics 83:458-62 S '64

Experiences with the impedance probe on satellites. O. C. Haycock and others. bibliog il diag IEEE Proc 52:1029-33 S '64

Extension of cosmic noise absorption measurements to lower frequencies, using polarized antennas. C. G. Little and others. bibliog J Res Nat Bur Stand 68D:859-65 Ag '64

Fabrication by copper electroforming; flush copper helical antenna on epoxy base. L. Missel and M. E. Shaheen. il diags Metal Finishing 62:61-3 S '64

Fixing auto antennas. D. Held. il Radio-Electronics 35:53-5 Ag '64

Flagpole without a flag. N. H. Davidson. il diags Q S T 48:36-9 N '64

Full sized replica of Jansky antenna completed. il Bell Lab Rec 41:351 O '63

Fundamental principle in the theory of planar antennas. D. R. Rhodes. bibliog diags IEEE Proc 52:1013-21 S '64

Glass-fiber array produces many beams. K. Ikrath and W. Schneider. il diags Electronics 36:28-9 N 1 '63

Haystack can find needle in sky. il Mod Metals 20:66+ S '64

H-f array scans horizon. il diags Electronics 37:50 F 14 '64

Homemade ground stations to receive weather pictures from Nimbus satellite. J. A. Strasser. il diag Electronics 37:99-101 Jl 27 '64

How DX kings rate antennas. D. G. Ross, jr. Q S T 48:75-7+ Ja '64

Impedance of a cylindrical dipole having a sinusoidal current distribution in a homogeneous anisotropic ionosphere. W. S. Ament and others. bibliog diags J Res Nat Bur Stand 68D:379-405 Ap '64

Impedance of a monopole antenna with a radial-wire ground system on an imperfectly conducting half-space. S. W. Maley and R. J. King. bibliog diags J Res Nat Bur Stand 66D:175-80, 68D:157-63, 297-301 Mr '62, F-Mr '64

Improved method of measuring aerial gain. B. Collins and B. Sykes. diag Ind Electronics 2:345-7 Jl '64

Indoor and outdoor antennas for apartment dwellers. L. G. McCoy. diags Q S T 48:45-7 Ja '64

Influence of natural noise upon antenna system performance. A. R. Giddis. bibliog diag IEEE Trans Com & Electronics p 148-58 Mr '64

Interaction of a radiating source with a plasma. K. M. Chen. bibliog diags Inst E E Proc 111:1668-78 O '64

Keyed antenna relay. G. Grammar. il diags Q S T 48:29-31 Jl '64

Lens-like antenna; low noise, less space. G. V. Rodgers. il diags Electronics 37:25-7 F 28 '64

Magnetically scanned reciprocal and non-reciprocal leaky-wave antennas. G. Buchta. diags IEEE Proc 52:625-6 My '64

Measurements on high-gain helical aerial and on helical aerials of triangular section. T. S. M. Maclean. Inst E E Proc 111:1267-70 Jl '64

Metal lace may unfurl in space to relay radio signals. il Machine Design 36:8 Ag 27 '64

Multicoupler puts five transmitters on one antenna. G. H. Barry and J. D. Hawkins. il diag Electronics 36:32-3 D 13 '63

Multifrequency high-power cassegrainian antenna-feed systems for satellite ground stations. H. Scheiner and others. il Elec Com 39 no 1:73-9 '64

Naturally occurring thermal radiation in the range 1-10 Gc/s. D. L. Croom. bibliog diags Inst E E Proc 111:967-80 My '64

New class of log-periodic antennas. J. W. Greiser. il diags IEEE Proc 52:617-18 My '64

New developments in Luneberg lens antennas. R. L. Horst. bibliog il diags Electronic Ind 22:100-5 N '63

New high-frequency antenna; passive network array. J. H. Dunlavy, jr. bibliog il diag Electronics 37:34-6 Ja 3 '64

Optimum size of radio astronomy antennas. F. D. Drake. IEEE Proc 52:108-9 Ja '64

Optimum size of radio astronomy antennas. E. Rechtin. IEEE Proc 52:723 Je '64

Parabolic microwave antenna. W. D. Williams. il Materials in Design Eng 59:131 Ap '64

Phase-corrected E plane horns. I. D. Craddock. diags Inst E E Proc 111:1379-81 Ag '64

Plasma resonances excited by antennas. H. Schmitt. il diag IEEE Proc 52:622-3 My '64

Polyester/glass fibre aerials. il Ind Electronics 2:368 Ag '64

Polyester/glass microwave dish aerials. il Brit Plastics 37:255 My '64

Post office tower aerials. il Engineer 218:554 O 2 '64

Probabilistic approach to the problem of large antenna arrays. Y. T. Lo. bibliog J Res Nat Bur Stand 68D:1011-19 S '64

Progress in antennas 1960-1962. V. H. Rumsey and others. bibliog J Res Nat Bur Stand 68D:438-50 Ap '64

Radiation field of a magnetic dipole antenna in a conical sheath. D. C. Pridmore-Brown. diags J Math & Phys 43:199-217 S '64

Radiation field produced by an infinite slot in an infinite cylinder surrounded by a homogeneous plasma sheath. D. L. Sengupta. bibliog diags Inst E E Proc 111:950-8 My '64

Radiation fields of a loop antenna. T. D. Shockley, jr. diag IEEE Proc 52:970-1 Ag '64

Radiation from filamentary circular loops. R. Redlich. IEEE Proc 52:1060-1 S '64

Rf characteristics of thin dipoles. C. L. Mack, jr. and B. Reiffen. bibliog il diags IEEE Proc 52:533-42 My '64; Discussion. R. F. Harrington. 52:1736-7 D '64

Rocket aerial system. il Engineer 217:105 Ja 10 '64

Rotating subreflector produces circular scanning. S. Tanaka and S. Okamura. il diags Electronics 37:44-6 F 14 '64

Self-pointing antenna. il Electronics 37:30 Mr 23 '64

RADIO antennas—*Continued*

Servo problems and techniques in large antennas. D. V. Stallard. bibliog diags IEEE Trans Applications & Ind p 105-114 Mr '64
Short quad. W. Pinner. il diag Q S T 48:46-8 F '64
Simple balloon technique for measuring the radiation patterns of radio aerials. C. S. L. Keay and R. E. Gray. il diags Electronic Eng 36:322-5 My '64
Simulation of radio antenna radiation. diags Instruments & Control Systems 37:129 Ja '64
Some properties of a group of co-phased wave antennas. B. E. Keiser. IEEE Proc 52:85-6 Ja '64
Some properties of Van Atta arrays and the use of two-way amplification in the delay paths. D. E. N. Davies. bibliog diags Inst E E Proc 110:507-12 Mr '63; Discussion. 111:980-2 My '64
Stacked halos for omnidirectional coverage. J. Layton. il diags Q S T 48:65 Ag '64
Strong, lightweight construction for the three-band quad. L. G. Clark and P. G. Marsha. diags Q S T 48:36-7 Je '64
Synthesis technique for a class of linear signal-processing antenna arrays. F. I. Tseng and D. K. Cheng. bibliog diags Inst E E Proc 111:1687-91 O '64
Synthesis technique for linear arrays with wide-band elements. F- I Tseng and D. K. Cheng. diags IEEE Proc 51:1679-81 N '63
Tapered tubes for radio research in space. il Engineering 196:702 N 29 '63
Ten-meter vertical. J. P. Gillespie. diag Q S T 48:63 Je '64
Theory of a slotted-sphere antenna immersed in a compressible plasma. J. R. Wait. bibliog diag J Res Nat Bur Stand 68D:1127-43 O '64
Tough skin for lightweight antennas. il Product Eng 35:76 O 26 '64
Variational solution for the admittance of a long cylindrical antenna. R. A. Hurd. bibliog J Res Nat Bur Stand 68D:311-16 Mr '64
Vertical radiation patterns of h.f. curtain arrays on plateau sites. P. Knight and others. Inst E E Proc 111:421-7 Mr '64
V.h.f. antenna facts and fallacies. E. P. Tilton. diags Q S T 48:52-6 Ja; 50-3 F; 29-33 Mr '64
West Ford antenna and feed system. B. F. LaPage and others. bibliog il diags IEEE Proc 52:589-98 My '64
Wind loads on dish shaped structures. R. G. Redwood. diag Eng J 47:43-5 S '64
Working 15- and 20-meter antennas on 40 and 80. D. Talley. Q S T 48:50-1 S '64
Yagi and a helix for Topsi. il Engineering 197:399 Mr 13 '64

See also

Radio masts
Radio telescope
Radio towers
Television antennas

Design

Capacitor type biconical antennas. J. Galejs. diags J Res Nat Bur Stand 68D:165-72 F '64
Near-field plotter; design tool for millimeter-wave antennas. P. Wolfert. il diags Electronics 36:29-31 D 27 '63
Practical log-periodic antenna designs. G. J. Monser. il diags Electronics 37:91-4 My 4 '64
Ring, dish and tire. il Electronics 37:30-1 Ag 10 '64
Scalar and vector potentials of the infinite sheath helical aerial. T. S. M. Maclean. bibliog diag Radio & Electronic Eng 27:21-5 Ja '64
Series and parallel-fed linearly polarized helical aerials. R. A. Clark and T. S. M. Maclean. bibliog diags Radio & Electronic Eng 28:67-71 Jl '64

Directional antennas

Atmospheric radio noise and signals received on directional aerials at high frequencies. P. A. Bradley and C. Clarke. bibliog Inst E E Proc 111:1534-40 S '64
Coded-linear-array antenna. F. S. Gutleber. diags Elec Com 39 no 2:293-304 '64
Theoretical and experimental properties of two-element, multiplicative multi-frequency receiving arrays including superdirectivity. B. S. McCartney. bibliog diags Radio & Electronic Eng 28:129-44 Ag '64
Tilted verticals; effect of tilting on directional patterns. D. W. Covington. diag Q S T 48:32-3 S '64

Manufacture

Hollow antennas. il Electronics 37:27 Ag 24 '64
Machining a parabolic curve. H. C. Emerson. il Am Mach 108:57-9 My 25 '64
Urethane spincasting technique for paraboloidal, short wavelength antenna reflectors. il Plastics Tech 9:12 N '63

Tuning

How to tune a dipole. J. M. Fisher. Q S T 47:33-4 D '63
New aerial tuning system for G.P.O. Rugby v.l.f. transmitter. Radio & Electronic Eng 26:458 D '63

RADIO antennas, Portable

Mobile ground terminal for satellite communications. G. V. Kedrowsky. il Space/Aeronautics 42:85+ Ag '64
Portable aerial for short-wave transmitters. O. Grünberg. il Electronic Eng 36:108-9 F '64

RADIO apparatus

Audio aids and commission policy. R. L. Cutts. Audio Eng Soc J 12:15-20 Ja '64
Consequences of symmetry in periodic structures. P. J. Crepeau and P. R. McIsaac. diags IEEE Proc 52:33-43 Ja '64
Electronic storm finder. T. P. Leary. diags Q S T 48:23-6 Je '64
Fundamental limitations in rf switching and phase shifting using semiconductor diodes. M. E. Hines. bibliog diags IEEE Proc 52:697-708 Je '64
L band broad-bandwidth Y circulator. O. P. Gandhi and C. Dattatreyan. diag Inst E E Proc 111:1285-6 Jl '64
Manufacturers' products; new electronic equipment and accessories. Published in monthly numbers of Wireless world
New products. Published in monthly numbers of Radio-electronics
West Ford radar and microwave equipment. B. E. Nichols and D. Karp. bibliog il diags IEEE Proc 52:576-88 My '64

See also

Amplifiers
Amplifiers, Vacuum tube
Direction finding apparatus
Facsimile transmission
Oscillators, Crystal
Radar
Radio antennas
Radio circuits
Radio control
Radio transformers
Wavemeters
Vacuum tubes

Electric grounding

Electrical safety for beginners. G. P. Schleicher. il diags Q S T 48:52-3 Ag '64; Correction. 48:17 S '64

Exhibitions

Domestic receivers and tape recorders at Hanover fair. il Wireless World 70:275-7 Je '64
International audio festival and fair, London; list of exhibitors and products displayed. il Wireless World 70:167-72 Ap '64
International products seen at London shows. il Wireless World 70:492-4 O '64
National television and radio show, London, Aug. 24-Sept. 5; with list of exhibitors. il diags Wireless World 70:438-47, 484-91 S-O '64
1963 international radio communications exhibition. il Wireless World 69:611-13 D '63
Telecommunications at Marconi display. il Engineering 198:426 O 2 '64
Television and radio show, London, Aug. 24-Sept. 5. Engineer 218:334 Ag 28 '64

Military use

Army may buy radios for every front-line soldier. il Electronics 36:10-11 N 1 '63
Electro-optics; modern war game munitions. J. A. Houston. il diags Electronics 37:27-31 Mr 6 '64

See also

Radio communication, Military

Power supply

Cathode-follower type power supplies. F. E. Ellis. il diags Q S T 48:30-3, 156+ Ap '64
400-cycle supply for Selsyn indicators. L. G. Windom. diag Q S T 48:45-6 My '64
Heathkit transistorized d.c. power supply. il Q S T 48:61 Mr '64
Introduction to microwave techniques; microwave power sources. K. E. Hancock. diags Wireless World 70:507-12 O '64
Transistor voltage limitations. diag Q S T 48:31 N '64

Testing

Frequency response tracer. il Engineer 217:110 Ja 10 '64

RADIO apparatus industry

Directories

Directory section of Electronics buyers' guide, 1964-65. Electronics 37:P 1-242, M 1-210 Jl 25 '64

RADIO apparatus on aircraft

Analysis of corona-generated interference in aircraft. R. L. Tanner and J. E. Nanevicz. bibliog diags IEEE Proc 52:44-52 Ja '64

Command and control center aboard a C-130E cargo plane. il Electronics 37:25 O 19 '64

End of Roger. il Electronics 37:28 Ap 20 '64

Farnborough display; communications and radar. il Engineer 218:442-3 S 18 '64

400-cycle supply for Selsyn indicators. L. G. Windom. diag Q S T 48:45-6 My '64

Light-airplane marker-beacon receiver. J. G. Robertson. bibliog il diags Electronics 37:33-5 Ja 17 '64

Some techniques for the elimination of corona discharge noise in aircraft antennas. J. E. Nanevicz and R. L. Tanner. bibliog il diags IEEE Proc 52:53-64 Ja '64

Transistor multichannel v.h.f. communication and navigation receiver for aircraft. T. T. Brown. bibliog il diags Inst E E Proc 111:1227-35 Jl '64

RADIO apparatus on ships

Marine radio transmitters. il Engineer 216:1034-5 D 20 '63

Marine transmitter with single-sideband facility. F. Hedström. il diags Elec Com 38 no 4:465-74 '63

Single-sideband marine radio. il Engineer 217:1099 Je 19 '64

See also

Radio telephone on ships

RADIO apparatus on space vehicles

Communications with and via spacecraft. H. P. Hutchinson. diag Space/Aeronautics 42 no 4:70-2 '64-65

RADIO astronomy

Arecibo; new era in radio astronomy. T. Maguire. il diags Electronics 36:29-32 D 20 '63

Auroral absorption effects on a transpolar synchronized step-frequency circuit. R. D. Hunsucker. map IEEE Proc 52:330 Mr '64

Ball lightning, stellar rotation and radio galaxies. C. E. R. Bruce. Engineer 216:1047-8 D 27 '63

Broadband radio-star scintillations. D. G. Singleton. bibliog il maps diags J Res Nat Bur Stand 68D:867-79, 1095-108 Ag, O '64

Effects of the West Ford belt on astronomical observations. D. C. Maclellan and others. bibliog IEEE Proc 52:564-70 My '64

Full sized replica of Jansky antenna completed. il Bell Lab Rec 41:351 O '63

Isolation for negative-conductance amplifiers used in radio astronomy. G. Berkovits. diags IEEE Proc 52:982-4 Ag '64

Microwave radio astronomy radiometer design. J. E. Kenney and E. F. McClain. il diag R Sci Instr 35:1227-9 S '64

Optimum size of radio astronomy antennas. F. D. Drake. IEEE Proc 52:108-9 Ja '64

Optimum size of radio astronomy antennas. E. Rechtin. IEEE Proc 52:723 Je '64

Orbiting observatory to measure stars' dim light. R. Cuikay and T. Callahan. il diags Electronics 37:28-31 F 28 '64

Physical nature of the Doppler-frequency spectrum from a rotating planet and its effect on detection. E. O. Willoughby. bibliog diags IEEE Proc 52:80-1 Ja '64

Physics of nonthermal radio sources. S. P. Maran. il Phys Today 16:33-5 N '63

Quasar hypotheses. Sci Am 211:38-9 Ag '64

Quasi-stellar radio sources. J. L. Greenstein. il diag Sci Am 209:54-62 D '63

Radio-emitting flare stars. B. Lovell. il Sci Am 211:13-19 Ag '64

Radio-star scintillations from ionospheric waves. J. W. Warwick. bibliog il diags J Res Nat Bur Stand 68D:179-88 F '64

Radio waves from Jupiter. K. L. Franklin. il diags Sci Am 211:34-42 Jl '64

Some results on the use of a tunnel-diode amplifier on a radio astronomy receiver. T. V. Seling. IEEE Proc 52:423-4 Ap '64

Statistical methods in radar astronomy; determination of surface roughness. H. S. Hayre. bibliog J Res Nat Bur Stand 67D:763-4 N '63

URSI national committee report, 14th general assembly, Tokyo, Sept. 9-20, 1963; radio and radar astronomy. bibliog J Res Nat Bur Stand 68D:631-53 My '64

Unique reticle improves star trackers. il diags Electronics 37:60+ F 14 '64

Use of statistics in radar astronomy. I. Kay. J Res Nat Bur Stand 68D:849-50 Jl '64

West Ford and the scientists. J. W. Findlay. bibliog IEEE Proc 52:455-60 My '64

West Ford experiment; an introduction to this issue. W. E. Morrow, jr. and T. F. Rogers. bibliog il diags IEEE Proc 52:461-8 My '64

X-ray astronomy. H. Friedman. il diags Sci Am 210:36-45 Je '64

See also

Radio telescope

RADIO attenuators

Ferromagnetic plastics as r-f attenuators in traveling-wave tubes. il Electro-Tech 74:134+ Jl '64

Logarithmic attenuator spans three decades. C. D. Nail. il diags Electronics 36:47-8 N 15 '63

Receiver front-end attenuator. D. Talley. diag Q S T 48:30 Ja '64

ZY table for analysing a ladder network G. K. Aggarwal. diag Inst E E Proc 111:758-9 Ap '64

RADIO beacons

Development of a reliable miniature beacon for radar tracking of research rockets and balloons. W. F. Slaght and H. Morewood. il diags Eng J 47:26-31 Mr '64

Light-airplane marker-beacon receiver. J. G. Robertson. bibliog il diags Electronics 37:33-5 Ja 17 '64

Lightship radio beacons. il Engineer 217:146 Ja 17 '64

Personnel rescue beacons. Franklin Inst J 277:91 Ja '64

RADIO broadcasting

Beginning of broadcasting. L. Espenschied. IEEE Proc 51:1791-2 D '63

Frequency allocation

See Radio frequency—Allocation

Frequency modulation system

See Radio frequency modulation

Frequency standards

Radio-controlled frequency standard. il Engineer 216:860 N 22 '63

Standard frequency receiver. il Engineer 216:958 D 6 '63

WWV and WWVH standard frequency and time transmissions. Published in monthly numbers of Proceedings of the IEEE

See also

Radio stations, Standard frequency

Interference

See Radio communication—Interference

Multiplex systems

Gated capacitor store for t.c.m. transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog il diags Inst E E Proc 111:669-74; Discussion. 683-4 Ap '64

Time-assignment speech interpolation in time-compression-multiplex transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog diag Inst E E Proc 111:675-83; Discussion. 683-4 Ap '64

Time-compression-multiplex transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog il diags Inst E E Proc 111:647-68; Discussion. 683-4 Ap '64

Time division multiplexing for industrial applications. J. L. Haynes. il diags Instruments & Control Systems 37:98-102 Ap '64

Stereophonic programs

Pilot phase monitor for fm stereophonic broadcasting. J. F. Dias and J. Rypkema. bibliog il diags Audio Eng Soc J 12:132-9 Ap '64

Stereo broadcasting over a single carrier. M. Valdez. diags IEEE Proc 52:966-7 Ag '64

Stereophonic broadcasting and reception. J. G. Spencer and G. J. Phillips. bibliog diags Radio & Electronic Eng 27:399-416 Je '64

Time signals

See Time signals, Radio

Australia

Some observations on vlf standard frequency transmissions as received at Sydney, N.S.W. A. M. Thompson and others. bibliog il diags IEEE Proc 51:1487-93 N '63

Caribbean region

New Caribbean communications scheme. map Radio & Electronic Eng 27:336 My '64

Europe

Foreign broadcasts get a stronger voice. E. L. Chubbuck, jr. diags Electronics 37:87-90 My 4 '64

RADIO broadcasting—Europe—*Continued*
Transmission-loss measurements and diversity tests made on two knife-edge diffraction paths in Europe. R. E. Gray. il map Elec Com 38 no 4:457-64 '63

Germany

Germany begins satellite communications. R. Mikton. il Electronics 36:74+ D 6 '63

Great Britain

B.B.C. sound broadcasting. E. Jeffery. Wireless World 70:249-50 My '64
B.B.C. transmission fidelity. Wireless World 70:39-40 Ja '64
Point-to-point review; 1963. P. A. C. Morris Wireless World 70:87-8 F '64

India

Spring thunderstorms over Bangalore. S. V. C. Aiya and B. S. Sonde. bibliog IEEE Proc 51:1493-501; 52:1062 N '63, S '64

Latin America

Latin America's communications network nears completion. W. Perry. il map Electronics 37:10-11 Ja 3 '64

RADIO broadcasting stations

Equipment

Automatic announcement reminder and alarm. R. L. Ives. il diags Radio-Electronics 34:56-7 D '63
Establishment of new facilities for WWVL and WWVB. J. M. Richardson. J Res Nat Bur Stand 68D:135 Ja '64
Pilot phase monitor for fm stereophonic broadcasting. J. F. Dias and J. Rypkema. bibliog il diags Audio Eng Soc J 12:132-9 Ap '64

RADIO broadcasting studios
Correlation techniques in studio testing. A. N. Burd. diags Radio & Electronic Eng 27:387-95 My '64

RADIO capacitors
Added capacitor sweeps power supply. M. H. Crothers. diag Electronics 37:62 Je 1 '64
Analysis of sneak paths and sense-line distortion in an improved capacitor read-only memory. D. M. Taub. bibliog diags IEEE Proc 51:1554-69 N '63
Binary high-capacitance substitutor box. I. Math. diag Radio-Electronics 35:70 My '64
By-pass capacitor built into uhf tuner shaft. il Electronics 36:88 D 6 '63
Capacitors; today and tomorrow. R. F. Graf. il diags Electronic Ind 23:20-4+ Je '64
Ferroresonant effect caused by nonlinear capacitors. A. Korpel and V. Ramaswamy. IEEE Proc 52:82 Ja '64
Further tables of element values for inductively coupled double-tuned networks. S. S. Hakim. diags Inst E E Proc 111:1637-40 O '64
Gated capacitor store for t.c.m. transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog il diags Inst E E Proc 111:669-74; Discussion. 683-4 Ap '64
Harmonic generation with a capacitor exhibiting an abrupt capacitance change. R. M. Scarlett. diags IEEE Proc 52:612-13 My '64
Low cost, low capacitance glass-dielectric capacitor. Franklin Inst J 277:512-13 My '64
New metallized polycarbonate capacitor is small and self-healing. il Bell Lab Rec 41:352-3 O '63
"S" correction. F. D. Bate. diags Wireless World 70:219-22 My '64
Tables of element values for capacitively coupled double-tuned networks. S. S. Hakim. bibliog diags Inst E E Proc 111:1093-8 Je '64
Trimming resistors and capacitors. M. H. Patrick. diag Radio-Electronics 35:35 F '64
Tuned-circuit temperature compensation. R. H. Decker. diags Q S T 47:24-7 D '63
Unusual instruments for control and measurement. M. Mandl. il diags Radio-Electronics 35:50-2 Ap '64
Wet tantalytic capacitor seals. Franklin Inst J 276:458 N '63

Manufacture

Solid tantalum capacitor production. il diag Ind Electronics 2:195-8 Ap '64
Solid tantalum capacitors. il diag Engineer 217:341-3 F 21 '64
Solid tantalum capacitors made in bulk. il diags Engineering 197:332-3 F 28 '64

Testing

In-circuit capacitance checker (Olsen KB-147). E. C. Carlson. il diags Radio-Electronics 35:78 Ja '64
Measuring capacitor heat rise. E. Bowling. Electronic Ind 23:31-2 Je '64

RADIO circuits
Control of laser radiation with birefringent crystals; the microwave circuit viewpoint. M. R. Wohlers and K. G. Leib. diags J Ap Phys 35:2311-12 Ag '64
Effect of shaping and loading on distributed rc networks. M. S. Ghausi and G. J. Herskowitz. bibliog diags Franklin Inst J 278:108-23 Ag '64
Noteworthy circuits. Published in monthly numbers of Radio-electronics
One circuit; phase modulation, frequency multiplication. D. O. Fairley. diags Electronics 37:71-4 N 2 '64
Radio circuit modules. il Engineer 218:518 S 25 '64
Some simple but unusual circuits. G. J. Rupp. diags Radio-Electronics 35:45 O '64
Useful mircrowave hybrid circuit. P. C. Butson and G. T. Thompson. diags Inst E E Proc 111:1281-2 Jl '64
See also
Television circuits

Design

Design considerations for ferrite junction circulators. J. Rowley and E. Sheehan. IEEE Proc 52:221 F '64
Fm stereo receiver performance as a function of pilot circuit design. A. Csicsatka and R. M. Linz. il diags Audio Eng Soc J 12:192-8 Jl '64
Highlights of small-signal circuit design. L. E. Clark and others. bibliog diags Electronics 36:46-51 D 6 '63
Improved transistor r-f amplifier circuit. I. M. Gottlieb. diags Electronic Ind 23:83-5 Ag '64

Testing

Using the Q meter. D. E. Bowen. il diags Radio-Electronics 35:40-3 S '64

RADIO coils

Testing

Simple inductance bridge checks unknown coils. J. A. Dewar. il diags Radio-Electronics 35:46-7 Jl '64

RADIO communication
Adaptive communication systems. G. S. Glinski. bibliog diags IEEE Trans Com & Electronics p 176-81 Mr '64
Application of Kirchhoff's laws to communication nets. J. Ziv and I. Cederbaum. IEEE Proc 51:1661 N '63
Bounds for correlation peaks of periodic digital sequences. J. E. Stalder and C. R. Cahn. IEEE Proc 52:1262-3 O '64
Communications. S. Metzger. il Astronautics & Aerospace Eng 1:110-13 N '63
Communications with and via spacecraft. H. P. Hutchinson. diag Space/Aeronautics 42 no 4:70-2 '64-65
Deep space communication. J. W. Thatcher. bibliog diags Space/Aeronautics 42:54-63 Jl '64
Effective bandlimits of Gaussian processes under a mean-square error criterion. R. A. McDonald and P. M. Schultheiss. diags IEEE Proc 52:1080-1 S '64
Limitations on lasers for deep space communication. L. R. Bittman. diags IEEE Trans Com & Electronics p 170-3 Mr '64
New communication system to penetrate plasma sheath. Franklin Inst J 276:574 D '63
Optimization of random-access discrete address communications. R. C. Sommer. IEEE Proc 52:1255 O '64
Optimum recovery of a continuous signal from two discrete channels. J. C. Hung. bibliog diags Franklin Inst J 277:428-43 My '64
Orbital-scatter concept proves out. T. Maguire. il Electronics 36:26-7 N 8 '63
Phase-stable oscillators for space communications, including the relationship between the phase noise, the spectrum, the short-term stability, and the Q of the oscillator. L. R. Malling. bibliog diags Inst Radio Eng Proc 50:1656-64 Jl '62; Discussion. IEEE Proc 52:104-5 Ja '64
Symposium on signal statistics, Seattle, Wash. Dec. 6-7. J Res Nat Bur Stand 68D:923-1062 S '64
Tropospheric propagation affecting space communications. bibliog J Res Nat Bur Stand 68D:558-9 My '64

RADIO communication—*Continued*

Underground communications. R. M. Wundt and D. A. Boots. bibliog diags IEEE Trans Com & Electronics p 137-42 Mr '64

West Ford belt as a communications medium. I. L. Lebow and others. bibliog il diags IEEE Proc 52:543-63 My '64

Wide-bandwidth communications. L. S. Schwartz. diags Space/Aeronautics 40:84-9 D '63

See also

Radio aids to navigation

Radio modulation

Satellites, Artificial—Communication applications

also subdivision Radio communication under special subjects, e.g.

Electric utilities

Gas companies

Petroleum industry and trade

Public utilities

Emergency use

See also

Radio amateur civilian emergency service

Interference

Amplitude distortion in non-linear networks with particular reference to carrier transmission systems. W. Dougharty. bibliog diags Electronic Eng 36:390-3 Je '64

Amplitude modulation with a noise carrier. H. E. Rowe. bibliog diags IEEE Proc 52:389-95 Ap '64

Amplitude-probability distribution of atmospheric radio noise. P. Beckmann. bibliog J Res Nat Bur Stand 68D:723-36 Je '64

Analysis of corona-generated interference in aircraft. R. L. Tanner and J. E. Nanevicz. bibliog diags IEEE Proc 52:44-52 Ja '64

Antarctic programme of the National bureau of standards. il Engineer 218:232-3 Ag 7 '64

Atmospheric radio noise and signals received on directional aerials at high frequencies. P. A. Bradley and C. Clarke. bibliog Inst E E Proc 111:1534-40 S '64

Auroral-zone absorption effects on an hf Arctic propagation path. R. D. Hunsucker. bibliog map J Res Nat Bur Stand 68D:717-21 Je '64

Automated performance measurements on a five-link troposcatter system. J. H. Green. IEEE Proc 52:1077-8 S '64

Can rfi control prevent weapons failures? R. J. Sanford. il diags Electronics 36:43-5 N 8 '63

Couplers kill reflected rfi. diags Electronics 36:75-6 N 8 '63

Determination of error rates for narrow-band communication of binary-coded messages in atmospheric radio noise. A. D. Spaulding. bibliog IEEE Proc 52:220-1 F '64

Discussion of the theory of ionospheric cross modulation. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1109-22 O '64

Effects of Arctic nuclear explosions on satellite radio communication. P. R. Arendt and H. Soicher. bibliog maps IEEE Proc 52:672-6 Je '64

Entry-communications problem. P. W. Huber and T. E. Sims. bibliog il diags Astronautics & Aeronautics 2:30-8+ O '64

Expected interference levels due to interactions between line-of-sight radio relay systems and broadband satellite systems. R. G. Medhurst and J. H. Roberts. bibliog Inst E E Proc 111:519-23 Mr '64

Extension of cosmic noise absorption measurements to lower frequencies, using polarized antennas. C. G. Little and others. bibliog J Res Nat Bur Stand 68D:859-65 Ag '64

Frequency analysis of noise. E. F. Feldman. bibliog il diags Electro-Tech 73:36-42 Je '64

Frequency or phase modulation with a noise carrier. H. E. Rowe. bibliog IEEE Proc 52:396-408 Ap '64

Fundamental noise, the limit of observation. R. Fox and others. Westinghouse Eng 24:60-4 Mr '64

Graphical aids to noise figure measurement. M. D. Wood. diags Wireless World 70:258-9 My '64

Influence of natural noise upon antenna system performance. A. R. Giddis. bibliog diag IEEE Trans Com & Electronics p 148-58 Mr '64

Information rates of Gaussian signals under criteria constraining the error spectrum. R. A. McDonald and P. M. Schultheiss. diag IEEE Proc 52:415-16 Ap '64

Interchannel interference in fm systems produced by continuous random mode conversion in circular electric waveguide. L. H. Enloe. bibliog Bell System Tech J 42:2765-86 N '63

Ionosphere dynamics. G. H. Munro and L. H. Heisler. IEEE Proc 51:1475-81 bibliog (p 1480-1) N '63

Ionospheric storms. S. Matsushita. J Res Nat Bur Stand 68D:574-8 bibliog(p576-8) My '64

Leader and junction processes in the lightning discharge as a source of vlf atmospherics. H. R. Arnold and E. T. Pierce. bibliog diags J Res Nat Bur Stand 68D:771-6 Jl '64

Magnetic tape recording and reproducing of atmospheric noise with a wide dynamic range. E. C. Bolton. diags R Sci Instr 35:377-89 Mr '64

Measurements of noise power with the square law dielectric diode. P. Webb and G. T. Wright. J Sci Instr 41:169-71 Mr '64

Mutual interference between communication satellites and terrestrial line-of-sight radio-relay systems. J. K. Chamberlain and R. G. Medhurst. Inst E E Proc 111:524-34 Mr '64

Naturally occurring thermal radiation in the range 1-10 Gc/s. D. L. Croom. bibliog diags Inst E E Proc 111:967-80 My '64

Noise-figure nomograph for multistage systems. K. R. Tipple. diag Electronics 37:64-5 O 5 '64

Nonlinear effects of noise in electronic clocks. P. Grivet and A. Blaquiere. bibliog diags IEEE Proc 51:1606-14 N '63

Orthogonal detection to reduce common channel interference. J. E. Bridges and R. A. Zalewski. bibliog diags IEEE Proc 52:1022-8 S '64

Phase stability of signals from NBA (18 kc/s) Panama as received in New Zealand. G. J. Burtt. bibliog diag Inst E E Proc 110:1928-32 N '63

Progress in emc instrumentation. D. R. J. White. diags Electro-Tech 74:46-50 O '64

Propagation of vlf waves under disturbed conditions. B. Burgess. bibliog J Res Nat Bur Stand 68D:115-16 Ja '64

Properties of some systems that distort signals. I. W. Sandberg. bibliog diags Bell System Tech J 42:2033-46; 43:91-112 S '63. Ja '64

Radio noise due to insulator corona. A. Zaazou and others. bibliog il diag Inst E E Proc 111:959-66 My '64

Radio noise measurement methods and standards. W. W. Mumford. bibliog J Res Nat Bur Stand 68D:536-8 My '64

Results of noise measurements on an operational s.h.f. radio link. D. Turner. bibliog Inst E E Proc 111:1541-5 S '64

Return stroke of the lightning flash to earth as a source of vlf atmospherics. A. S. Dennis and E. T. Pierce. bibliog J Res Nat Bur Stand 68D:777-94 Jl '64

Satellite system interference tests at Andover, Me. H. E. Curtis. il map diags Bell System Tech J 42:2715-39 N '63

Shielded ignition systems. Q S T 48:60 Ag '64

Signal distortion in nonlinear feedback systems. I. W. Sandberg. bibliog diags Bell System Tech J 42:2533-50 N '63

Simplifying radio-frequency interference measurements. Electronic Ind 23:146 Ap '64

Sky noise measurements at millimeter wavelengths. K. N. Wulfsberg. IEEE Proc 52:321-2 Mr '64

Some techniques for the elimination of corona discharge noise in aircraft antennas. J. E. Nanevicz and R. L. Tanner. bibliog il diags IEEE Proc 52:53-64 Ja '64

Spring thunderstorms over Bangalore. S. V. C. Aiya and B. S. Sonde. bibliog IEEE Proc 51:1493-501; 52:1062 N '63, S '64

Survey of ionospheric effects upon earth-space radio propagation. R. S. Lawrence and others. diags IEEE Proc 52:4-27 bibliog(p26-7) Ja '64

Terrestrial radio noise. W. Q. Crichlow and R. T. Disney. bibliog J Res Nat Bur Stand 68D:600-2 My '64

Utilization of the inherent short period time diversity in wideband fm for interference filtering. N. B. Chakrabarti. diags IEEE Proc 52:1248-9 O '64

Vlf anomalies observed at State college, Pa., during the U.S. 1962 high-altitude nuclear tests. C. F. Sechrist, jr. bibliog J Res Nat Bur Stand 68D:125-33 Ja '64

Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64

RADIO communication—Interference—*Cont.*

Vlf propagation in a compressible ionosphere. R. B. Kieburtz. bibliog J Res Nat Bur Stand 68D:795-805 Jl '64

See also

Electric lines—Inductive interference

Interference elimination

Can low-frequency communications beat nuclear blackout? H. Hood. il Electronics 36:11 N 1 '63

Multi-stage r.f. and i.f. noise limiting. D. W. R. McKinley. diags Q S T 48:59-60 Je '64

New plastic fillers solve radio frequency interference problems. J. Ehrreich. diag Electronics 37:84+ Ja 3 '64

New technics in r-f room construction. E. A. Lindgren. il diags Electronic Ind 22:152-5 D '63

Noise-blanking circuit extends mobile radio operating range. il Power Eng 68:37 Ja '64

Radio frequency interference in home music systems. Audio 48:2+ Ag '64

Sweeping carrier signals through interference. W. H. Chiles and H. G. Lafuse. diags Electronics 37:94-6 My 18 '64

Paging service

Automatic radio paging system ups communication efficiency. E. D. Scrogin. il diag Power Eng 67:52-3 N '63

Bellboy switching system. E. L. O'Neal. il diags Bell Lab Rec 42:281-4 S '64

Radio paging; a bellhop in your pocket. Mod Materials Handling 19:42-3 Je '64

Police department use

Superregen monitors fire and police radio. R. L. Hawbaker. il diag Radio-Electronics 35:45-7 Ja '64

Short wave

Attractive alternative at uhf; the ceramic vacuum tube. J. W. Rush, jr. il diags Electronics 37:50-5 Ag 24 '64

Caribbean communications. Engineer 217:353 F 21 '64

Cb chatter. W. Lemons. diags Radio-Electronics 35:63-4 Ja '64

High-frequency radio communication. il Engineer 218:484 S 25 '64

How microwave coordinates two dams on Mokelumne River. L. B. Hertzberg and M. C. Rea. maps diag Power 68:T23-5 Mr '64

Introduction to microwave techniques. K. E. Hancock. bibliog diags Wireless World 70:374-6, 428-32, 507-12, 549-54, 629-33 Ag-D '64

Ionospheric sounding using coded pulse signals. D. C. Coll and J. R. Storey. bibliog il diags J Res Nat Bur Stand 68D:1155-9 O '64

Microwave relaying extended with high-frequency cable. V. A. Nosko and E. W. Downer. bibliog il diags IEEE Trans Power Apparatus & Systems 83:1058-63 O '64

More coaxial cable or waveguides for long-distance communication. H. E. M. Barlow. diags Inst E E Proc 110:902 My '63; Discussion. 111:1417-20 Ag '64

Novel microwave solutions to some telemetry problems; abstract. E. Jamieson and G. Wanless. Engineer 218:5 Jl 3 '64

Results of noise measurements on an operational s.h.f. radio link. D. Turner. bibliog Inst E E Proc 111:1541-5 S '64

Super reception on short waves. H. B. Churchill. diags Radio-Electronics 35:34-7 Ja '64

Using the Oscar III v.h.f. communication satellite. W. I. Orr. diags Q S T 48:17-21 Ag '64

See also

Radio receiving apparatus—Short wave

Radio transmitters—Short wave

Caribbean region

Caribbean communications. Engineer 217:353 F 21 '64

France

Some particular observations on diurnal phase variations of vlf transmissions received in Paris. B. Decaux and A. Gabry. bibliog diag J Res Nat Bur Stand 68D:21-5 Ja '64

Great Britain

Communications in the public service of the United Kingdom. A. Mumford. il Inst E E Proc 111:1-6 Ja '64

RADIO communication, Marine

See also

Radio telephone on ships

RADIO communication, Military

Army talk goes digital. Electronics 37:40+ S 7 '64

Command and control center aboard a C-130E cargo plane. il Electronics 37:25 O 19 '64

Controlling fighter planes from a jeep in battle area. T. Maguire. il Electronics 37:114-18 O 5 '64

Digital communications will permit classified data to be beamed anywhere on earth. T. Maguire. il diag Electronics 37:97-9 S 21 '64

See also

Radio apparatus—Military use

RADIO conductors

See also

Wave guides

RADIO control

Cranes move by remote control. il Iron Age 193:78 F 6 '64

New; remote control over towline systems. H. P. Thatcher. il diags Mod Materials Handling 19:66-9 O '64

Radio control of electric cranes. il Elec Constr & Maint 63:99-101 Mr '64

Radio guides crane with heavy loads. il Mod Materials Handling 19:67 Ap '64

Remote-control capacitor switching advanced. diag Elec World 162:36 Ag 31 '64

Remote-controlled glider. il Electronics 37:34 O 5 '64

Symposium on remote control of material handling equipment. J. W. Bauer, jr.; W. A. Robinson. il Iron & Steel Eng 41:93-7 Je '64

RADIO detectors

Backward diodes as microwave detectors. H. V. Shurmer. bibliog Inst E E Proc 111:1511-16 S '64

Bridge source and detector. F. Butler. diags Wireless World 70:318-21 Je '64

Communication channel model of a photoelectric detector. L. P. Bolgiano, jr. and L. F. Jelsma. IEEE Proc 52:218-19 F '64

Detection of sub-mm radiation. E. H. Putley. bibliog diags IEEE Proc 51:1412-23 N '63

General-purpose phase-sensitive detector. E. A. Faulkner and R. H. O. Stannett. diags Electronic Eng 36:159-61 Mr '64

Germanium bolometer detector of millimeter wavelength thermal energy. D. G. Galloway and C. W. Tolbert. il diags R Sci Instr 35:628-30 My '64

Improve fm reception with a wide-band detector. L. Vincent. diags Radio-Electronics 35:41-3 F '64

Signal detection with a laser amplifier. H. A. Steinberg. diag IEEE Proc 52:28-32 Ja '64

Tuned detectors using the twin-T circuit. T. Spencer. bibliog diags Electronic Eng 36:315-21 My '64

Tunnel diode as a cw detector. J. Reindel. il diags IEEE Proc 51:1677-8 N '63

Tunnel diode super-regenerative detector. J. Reindel. diag IEEE Proc 51:1678 N '63

RADIO echoes

Axial echo area of the prolate spheroid. E. M. Kennaugh and D. L. Moffatt. IEEE Proc 52:1252-3 O '64

Experimental determination of meteoric line densities and attachment rates. L. A. Manning. bibliog J Res Nat Bur Stand 68D:1079-93 O '64

Spectral measurement techniques in planetary radar. G. Pettengill. bibliog diags J Res Nat Bur Stand 68D:1025-9 S '64

Theoretical heights and durations of echoes from large meteors. L. A. Manning. J Res Nat Bur Stand 68D:1067-78 O '64

RADIO engineering

World of wireless. Published in monthly numbers of Wireless world

Bibliography

Book reviews. Published in monthly numbers of Electronic engineering

Books. IEEE Proc 52:111-12 Ja '64

Books received. Published in monthly numbers of Wireless world

New books. Published in monthly numbers of Radio-Electronics

RCA technical papers. Published in quarterly numbers of RCA review

Selected abstracts of publications of the staff of the National bureau of standards (cont). J Res Nat Bur Stand 67D:773-8; 68D:139-45, 261-4, 345-8, 519-21, 767-9, 857-8, 919-21, 1063-5, 1167-70 N '63-Ap, Je-O '64

History

ARRL 1949-1953 sideband, tvi; and regulatory battles. il map diag Q S T 48:66-77 O '64

ARRL serves in wartime. il diags Q S T 48:66-77 Ag '64

RADIO engineering—History—*Continued*

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. bibliog diags IEEE Proc 52:340-59 Ap '64

Maturity. il diags Q S T 48:65-77 Jl '64

More bands! il Q S T 48:68-78 S '64

Study and teaching

Instruction in electronic drawing for students of radio and electronic engineering at professional level. bibliog Radio & Electronic Eng 28:198-200 S '64

Laboratory work in advanced radio and electronic education; its aims and methods. B. F. Gray. il Radio & Electronic Eng 26: 477-80 D '63

Tables, calculations, etc.

Application of the Garrett method to calculation of coil geometries for generating homogeneous magnetic fields in superconducting solenoids. H. L. Marshall and H. E. Weaver. diags J Ap Phys 34:3175-8 N '63

Approximate method for computing diffraction patterns caused by ionospheric irregularities. R. Gagnon. bibliog diags J Res Nat Bur Stand 68D:737-42 Je '64

Approximate model for linear time variant systems. S. G. S. Shiva. diags IEEE Proc 52:727 Je '64

Approximate solution of the H plane right-angled corner in overmoded rectangular waveguide, operating in the H_{10} mode. K. C. Kao. bibliog diags Inst E E Proc 111: 624-8 Ap '64

Autocorrelation-invariant functions and an associated orthogonal set of functions. R. A. Gonsalves. IEEE Proc 52:737-8 Je '64

Calculation and measurement of the gains of end-fire v.h.f. and u.h.f. aerials. R. G. Manton. diags Electronic Eng 36:8-11 Ja '64

Central limit theorem for correlated random variables. M. Blum. IEEE Proc 52:308-9 Mr '64

Common error in fm distortion theory. L. H. Enloe and C. L. Ruthroff. IEEE Proc 51:846 My '63; Discussion. 52:186-9, 1082-4 F, S '64

Communications range nomograph; reference sheet. M. W. Shores. Electronics 36:41+ D 20 '63; Correction. 37:6 F 7 '64

Complex variable frequency electric circuit theory. S. Hahn. IEEE Proc 52:736-7 Je '64

Computation of inverse impedance by De Morgan's theorem. N. N. Biswas. diags Electronic Eng 36:267 Ap '64

Concept of terminal admittance and impedance matrixes extended to continuous media. K. F. Sander. bibliog diags Inst E E Proc 111:1107-16 Je '64

Consideration of two ensemble methods for treating a certain class of stochastic problems. D. Martin. IEEE Proc 51:1786-7 D '63

Correlation times and spectral bandwidths for non-stationary random processes. H. Kaufman. Electronic Eng 35:813 D '63

Curve plotting. V. Rettinger. diags Audio 48:24+ S '64

Decibels debugged. H. R. Holtz. Radio-Electronics 35:44-5 Jl '64

Dynamic circuit analyzer. R. P. Balin. il diags Radio-Electronics 35:48-50 Ja '64

Easy-to-use chart for vswr; reference sheet. G. Hagn and B. Sifford. Electronics 36:38 N 22 '63

Effect of shaping and loading on distributed rc networks. M. S. Ghausi and G. J. Herskowitz. bibliog diags Franklin Inst J 278:108-23 Ag '64

Effects of error in the element values and the converter transfer characteristic on the responses of active rc filters. A. G. J. Holt and F. W. Stephenson. bibliog diags Radio & Electronic Eng 26:449-57 D '63

Expansion of arbitrary ergodic processes into infinite series of orthogonal components. A. Wolf. diag IEEE Proc 51:487-8 Mr '63; Discussion. 51:1673-5 N '63

Explicit formulas for Chebỹshev impedance-matching networks, filters and interstages. R. Levy. bibliog diags Inst E E Proc 111: 1099-106 Je '64

Finite and infinite sums of the form $\Sigma \frac{P(x)}{K^x}$ R. E. Allan. IEEE Proc 52:725 Je '64

Generalization of a Markoff envelope process. R. Esposito. IEEE Proc 51:1792 D '63

Generalized ambiguity criterion. E. D. Banta. IEEE Proc 52:976 Ag '64

Graphical solution of L networks. J. R. Johnson. diags Q S T 48:61 Je '64

Graphs aid deflection system design; reference sheets. K. W. Angel. diag Electronics 37:59+ F 7 '64

Handy log scales. T. Jaski. Radio-Electronics 34:46 D '63

How to calculate hard tube modulator fall time. G. E. Tallmadge. diags Electronic Ind 22:111-12 N '63

Immitance charts with negative real parts. A. B. McNaughton and J. G. West. diags IEEE Proc 52:102-3 Ja '64

Immittance synthesis in the non-reciprocal domain. A. W. Keen. bibliog diags Inst E E Proc 110:2118-24 D '63

Improved method of measuring aerial gain. B. Collins and B. Sykes. diag Ind Electronics 2:345-7 Jl '64

Improved methods of evaluating crystal rectifier constants. J. M. Fennell and J. G. Gissing. Electronic Eng 35:824-5 D '63

Iterative procedures. J. A. Knudson. diags Inst Radio Eng Proc 50:2377 N '62; Discussion. IEEE Proc 51:1064; 52:976-8 Jl '63, Ag '64

Linear scales show mixer harmonics; reference sheets. R. T. Stevens. Electronics 37:37+ Ja 10 '64

Matrix analysis of the Colpitts' oscillator. G. Zelinger. bibliog diags Electronic Eng 36: 394-8 Je '64

Maximum likelihood estimator for a phase comparison angle measuring system. Y. Ronen and M. Zakai. IEEE Proc 51:1669-70 N '63

Orthonormal exponentials. D. C. Ross. bibliog diag IEEE Trans Com & Electronics p 173-6 Mr '64

Power tube equations; engineer's notebook. R. A. Henderson. Electronic Ind 23:77 Ja '64

Property of binary sequences. M. Bernfeld. IEEE Proc 52:744 Je '64

Radar scattering from coated perfect conductors; application to the semi-infinite cone and use of exact eikonal. H. Überall. bibliog J Res Nat Bur Stand 68D:749-66 Je '64

Reactance tables. E. T. Thiersch. Radio-Electronics 35:33 F '64

Realisation of fourth-order rational transfer functions with adjustable coefficients. R. J. A. Paul. diags Inst E E Proc 111:877-82 My '64

Reciprocity theorem for the interaction of electromagnetic plane waves with a one-dimensional inhomogeneous slab. C. T. Swift. IEEE Proc 51:1268-9 S '63; Discussion. L. B. Felsen. 52:221-2 F '64

Reduction of an integral of the joint Rayleigh probability density to tabulated functions. W. D. Mark. bibliog IEEE Proc 52: 741-2 Je '64

Relations between time and ensemble averages for weakly nonergodic random processes. A. A. Wolf. IEEE Proc 51:1672-3 N '63

Sifting property of a common function. H. Urkowitz. Inst Radio Eng Proc 50:2505 D '62; Discussion. IEEE Proc 51:1057-8; 52:967-9 Jl '63, Ag '64

Simplified explicit solution of networks with two internal nodes. S. D. Bedrosian. diags IEEE Trans Com & Electronics p219-24 Mr '64

Simulation by a single operational amplifier of third-order transfer functions having a pole at the origin. L. K. Wadhwa. bibliog diags Radio & Electronic Eng 27:373-80 My '64

Sine waves; why do we use them? T. Roddam. diags Wireless World 70:390-2 Ag '64

Solution of linear systems as eigenvalue problems. E. V. Krishnamurthy. IEEE Proc 52:1065-6 S '64

Solving for transients in r-c networks. A. Goodman. diag Electronic Ind 23:72-4 Ja '64

Some properties of Van Atta arrays and the use of two-way amplification in the delay paths. D. E. N. Davies. bibliog diags Inst E E Proc 110:507-12 Mr '63; Discussion. 111:980-2 My '64

Tables of Chebyshev impedance-transforming networks of low-pass filter form. G. L. Matthaei. diags IEEE Proc 52:939-63 Ag '64

Thévenin and Norton. diags Wireless World 70:35-8 Ja '64; Discussion. 70:295-6, 561-2 Je, N '64

Transconductance and how to measure it. R. W. Overholts. il diags Radio-Electronics 35:74+ Ja '64

Transfer-function synthesis with nonreciprocal constant-resistance two-port networks. A. W. Keen. bibliog diags Inst E E Proc 111:883-90 My '64

ZY table for analysing a ladder network. G. K. Aggarwal. diag Inst E E Proc 111: 758-9 Ap '64

See also

Transistors—Tables, calculations, etc.

RADIO engineering—*Continued*

Terminology

Our standard abbreviations. Radio-Electronics 35:16+ Ag '64

RADIO engineers

Becoming a professional engineer. R. G. Stranix. Electronic Ind 22:159-60+ D '63

Other side of the engineer shortage. W. A. Douglas. il Electronic Ind 22:196-7+ N '63

Who is the unemployable engineer? il Electronic Ind 22:200+ N '63

RADIO facsimile. See Facsimile transmission

RADIO fading. See Radio transmission—Fading

RADIO filters

Add a super-selective mechanical filter. R. E. Berge. il diags Radio-Electronics 35:46-9, cover S '64

Band-pass filters with linear phase. R. M. Lerner. bibliog diags IEEE Proc 52:249-68 Mr '64

Black box. G. L. Countryman. il diag Q S T 48:41-3 F '64

Bridged T. J. L. Ogdin. il diags Radio-Electronics 35:28-30 F '64

Capacitor input filters. V. Wouk. IEEE Proc 52:441 Ap '64

Characteristics of broadband parametric amplifiers using filter networks. B. L. Humphreys. bibliog diags Inst E E Proc 111:264-74 F '64

Coaxial-tank v.h.f. filters. E. P. Tilton. il diags Q S T 48:11-15 O '64

Common error in fm distortion theory. L. H. Enloe and C. L. Ruthroff. IEEE Proc 51:846 My '63; Discussion. 52:186-9, 1082-4 F, S '64

Designing bandpass filters. E. C. Johnson. il diags Electronic Ind 23:86-90+ Ja '64

Effects of error in the element values and the converter transfer characteristic on the responses of active rc fiiters. A. G. J. Holt and F. W. Stephenson. bibliog diags Radio & Electronic Eng 26:449-57 D '63

Explicit formulas for Chebÿshev impedance-matching networks, filters and interstages. R. Levy. bibliog diags Inst E E Proc 111:1099-106 Je '64

Exponential rc filter. M. J. Hellstrom. diags Electro-Tech 72:62-5 D '63

Extraction of luminance from the SECAM composite signal. G. Melchior and J. P. Doury. diags Electronic Eng 36:464-5 Jl '64

Filter design a la computer. D. S. Robertson. Q S T 48:58-9 Jl '64

H-shaped ceramic filter forms miniature i-f. M. Kawakami and others. il diags Electronics 37:55-7 F 7 '64

How to specify magnetostrictive filters. C. W. Carruthers. il diag Electronic Ind 22:57-61 D '63

I.f. tracking filter for weak-signal reception. R. W. Burhans. il diags Q S T 48:11-17+ S '64

Introduction to filters. A. I. Zverev. bibliog diags Electro-Tech 734:61-90 Je '64 (reprints $1)

Noise output of a multipole filter relative to that of the ideal square-response filter. E. F. Vandivere. IEEE Proc 51:1771 D '63

Re-recording filter. H. E. Riekels, jr. diag Audio 48:35+ F '64

Survey of high power microwave filters. V. G. Price and W. A. Edson. bibliog il diag Electronic Ind 22:106-10 N '63

Synthesis of matched filters for signal recognition using magnetostrictive delay lines. F. C. Monds and A. M. Rosie. bibliog il diags Inst E E Proc 111:1630-6 O '64

Tunable filter for low frequencies using operational amplifiers. H. Sutcliffe. bibliog diags Electronic Eng 36:399-403 Je '64

Tunable solid-circuit filter suitable for an i.f. aplifier. T. E. Price and others. il diags Electronic Eng 35:806-12 D '63

YIG filters in the 50-500 mc range. R. Blau. IEEE Proc 52:1074-5 S '64

Design

Chart for the half-power frequencies of low-pass networks having Chebÿshev response. A. G. J. Holt. diag Inst E E Proc 111:1563-4 S '64

Comparison of five methods of low-pass passive filter design. A. G. J. Holt. bibliog il diags Radio & Electronic Eng 27:167-80 Mr '64

Crystal filter design considerations. F. N. Gross. diags Electronic Ind 23:58-60 Jl '64

Harmonic absorbing filters in waveguide. J. Paino and H. S. V. Reeves. diags Elec Com 39 no 2:260-4 '64

Matched-filter concept. H. M. Sierra. bibliog diags Electro-Tech 74:48-51 Ag '64

Narrow-band crystal filter design. J. Lang. diags Electro-Tech 73:116-18 Je '64

Solid-state low-frequency filter. diags Electro-Tech 74:34-7 S '64

Systematic development of Cohn structure for h.f. band-pass filters. K. E. Brown. diags Electronic Eng 36:448-52 Jl '64

RADIO frequency

Amplification of acoustic waves at microwave frequencies. E. M. Conwell. IEEE Proc 52:964-5 Ag '64

Junk-box frequency standard. R. R. Campbell. diag Q S T 48:22-4 Ja '64

Low-cost circuit measures frequency translation. S. E. Watford. diags Electronics 36:51 N 8 '63

Phase stability of signals from NBA (18 kc/s) Panama as received in New Zealand. G. J. Burtt. bibliog diag Inst E E Proc 110:1928-32 N '63

Radiofrequency beats between components of split axial modes in ruby lasers. D. Roess. il diags IEEE Proc 51:1668-9 N '63

See also

Radio resonators

Radio stations, Standard frequency

Allocation

Extraordinary administrative radio conference on frequency allocations, Geneva, Oct. 7-Nov. 8, 1963. Inst E E Proc 111:1271-80 Jl '64

ITU allocations; final list. Electronics 36:14-15 N 22 '63

Microwave band designations; table. Ind Electronics 2:394 Ag '64

Protection of radio frequencies for scientific research. R. L. Smith-Rose. IEEE Proc 52:451 My '64

Space communications; results of Geneva frequency allocation conference. Wireless World 69:583 D '63

Control

Pocket-size transmitter uses body heat to control frequency. J. G. Arnold. il diags Electronics 37:66-9 Jl 13 '64

Using varactors to extend frequency-control range. T. P. Prouty. diags Electronics 36:48-9 N 8 '63

See also

Clocks—Atomic clocks

Radio standards

RADIO frequency modulation

Beginning of broadcasting. L. Espenschied. IEEE Proc 51:1791-2 D '63

Combination of pulse compression with frequency scanning for three-dimensional radars. K. Milne. bibliog diags Radio & Electronic Eng 28:89-106 Ag '64

Common error in fm distortion theory. L. H. Enloe and C. L. Ruthroff. IEEE Proc 51:846 My '63; Discussion. 52:186-9, 1082-4 F, S '64

Decreasing the threshold in fm by frequency feedback. L. H. Enloe. bibliog diags Inst Radio Eng Proc 59:18-30 Ja '62; Discussion. IEEE Proc 52:1039-44 S '64

Demodulation circuits for PAL colour television receivers. W. Bruch. bibliog il diags Electronic Eng 36:512-18, 606-11 Ag-S '64

Demodulation of fm signals at high noise levels. P. Frutiger and J. S. Vogel. IEEE Proc 51:1615-19 N '63

Demodulation of wideband, low-power fm signals. S. Darlington. bibliog diags Bell System Tech J 43:339-74 pt 2 Ja '64

Error rate in a multiple-frequency-shift system. H. Akima. bibliog Inst E E Proc 111:547-55 Mr '64

F-m feedback stabilizes airborne solid-state vhf transponder. J. C. Wright and W. L. Blair. il diags Electronics 36:66-8 D 6 '63

Frequency or phase modulation with a noise carrier. H. E. Rowe. bibliog IEEE Proc 52:396-408 Ap '64

Frequency swept nuclear magnetic resonance absorption circuit. G. V. H. Wilson. diags J Sci Instr 41:436-9 Jl '64

How to measure fm deviation frequency. R. Leffler. diag Electronic Ind 23:148-9 Ag '64

Hyperselective limiter. D. R. Jackson and R. W. Orth. IEEE Proc 52:1245 O '64

Interchannel interference in fm systems produced by continuous random mode conversion in circular electric waveguide. L. H. Enloe. bibliog Bell System Tech J 42:2765-86 N '63

Intermodulation distortion in analog fm troposcatter systems. E. D. Sunde. bibliog diags Bell System Tech J 43:399-435 pt 2 Ja '64

RADIO frequency modulation—*Continued*

Laser experiments involving in-cavity modulation with electro-optic crystals. A. D. Rugari and P. E. Nordborg. diag IEEE Proc 52:852 Jl '64

Low-noise performance of photo diode envelope detectors in the megacycle range. D. J. Roulston. diags IEEE Proc 52:1067 S '64

Measurement of frequency deviation by a simulated frequency-modulated radar technique. B. S. Rao and D. E. N. Davies. Electronic Eng 36:100-2 F '64

One circuit; phase modulation, frequency multiplication. D. O. Fairley. diags Electronics 37:71-4 N 2 '64

Pilot phase monitor for fm stereophonic broadcasting. J. F. Dias and J. Rypkema. bibliog il diags Audio Eng Soc J 12:132-9 Ap '64

Priori information and noise immunity in modulation systems. G. Battail. bibliog IEEE Proc 52:1059-60 S '64

Pulse-tie modulation and frequency modulation using the step recovery diode. K. Husimi and T. Inamura. il diag IEEE Proc 52:76 Ja '64

Simple fm subcarrier oscillator suitable for physiological telemetry. N. Z. Lupu. diags IEEE Proc 51:1621-2 N '63

Three-dimensional radar of frequency- modulated pulse system. T. Makimoto and T. Sueta. diags IEEE Proc 52:727-8 Je '64

Utilization of the inherent short period time diversity in wideband fm for interference filtering. N. B. Chakrabarti. diags IEEE Proc 52:1248-9 O '64

See also

Radio receiving apparatus—Frequency modulation receivers

Radio transmitters—Frequency modulation transmitters

RADIO generators

Audio signal generator. il diags Wireless World 69:530-6, 614-16 N-D '63

Charge storage varactors boost harmonic power. G. Schaffner. diags Electronics 37:42-7 Jl 13 '64

Comeback for wireless power? G. V. Novotny. bibliog diags Electronics 37:86-90 S 21 '64

Constant-current source controls sweep rate. J. J. Collins. diag Electronics 37:82 S 7 '64

Efficient transport of energy by microwave beam. W. C. Brown. il diags Space/Aeronautics 42:68-9 S '64

Four-layer diodes form staircase generator. H. W. Wieder. diags Electronics 37:55-7 Jl 13 '64

Harmonic generation with a capacitor exhibiting an abrupt capacitance change. R. M. Scarlett. diags IEEE Proc 52:612-13 My '64

Highly-efficient generation of a specified harmonic or sub-harmonic by means of switches. D. G. Tucker. bibliog il diags Radio & Electronic Eng 28:25-32 Jl '64

Lab-quality audio generator. J. Idestam-Almquist. il diags Radio-Electronics 35:22-4 My '64

Millimeter-wave generators. L. Nichols and others. il diags Electro-Tech 74:63+ bibliog (p83-4) S '64 (reprints $1)

Noise generators for 420 mc. and up. H. Olson and G. Lehman. il diags Q S T 48:33-5 F '64

Roundup of low-cost fm stereo generators. L. Feldman. il Radio-Electronics 35:50-2 N '64

Slow linear voltage-sweep generator for the automatic plotting of response curves. D. E. Vaughan. diags Electronic Eng 35:757 N '63

Staircase generator triggers a unijunction transistor. J. J. Panico. diags Electronics 37:80-2 S 7 '64

Submillimeter-wave generators. E. P. Gaines. jr. bibliog diags Electro-Tech 73:11-12 Mr '64

Technique for broad-band harmonic generation. W. B. Ribbens. IEEE Proc 52:987-8 Ag '64

Texas crystals alignment generator model TC-3. J. Darr. il Radio-Electronics 35:71 Ag '64

Tunnel diode generates two microwave frequencies. D. R. Revall and others. bibliog diag Electronics 37:62-4 Ag 24 '64

Unique current-controlled negative resistance generator. A. H. Marshak. bibliog il diags IEEE Trans Com & Electronics p182-4 Mr '64

Versatile triangular sweep generator. W. D. Weir and C. G. Enke. diags R Sci Instr 35:833-7 Jl '64

V.h.f. noise generator. J. A. Huie. il diags Q S T 48:23-8 F '64

See also

Pulse generators

RADIO instruments

All-purpose mixer. R. L. Ives. il diag Radio-Electronics 35:51-3 My '64

Analysis of stagger-tuned pulse receiver systems with special reference to n.m.r. relaxation-time measurements. H. Pursey. bibliog il diag Radio & Electronic Eng 28:17-24 Jl '64

Auditory meter dial. J. Davis. Q S T 48:60-1 Je '64

Automatic plotting of spin-wave instability threshold data. T. G. Purnhagen. diags R Sci Instr 35:558-61 My '64

Conductivity probe measurements in flames. R. A. Olson and E. C. Lary. bibliog il diag AIAA J 1:2513-16 N '63

Direct-reading capacitance meter. D. F. Bailey. diags Wireless World 70:204-7 Ap '64; Discussion. 70:401-2 Ag '64

Eico IM/Harmonic distortion meter, model 902. il Audio 48:40 F '64

Hickok 235A vhf/uhf field strength meter. J. Darr. il Radio-Electronics 35:79 S '64

In-circuit capacitance checker (Olsen KB-147). E. C. Carlson. il diags Radio-Electronics 35:78 Ja '64

Knight Ten-2 cb checker. H. O. Maxwell. il (p66) diag Radio-Electronics 35:67-8 My '64

Lafayette TE-60 30,000 ohms/volt multitester. E. C. Carlson. il Radio-Electronics 35:59 Jl '64

Mercury 501 component substitutor. E. C. Carlson. il diag Radio-Electronics 35:60 Jl '64

Meters from junkbox. H. J. Weber. il diags Radio-Electronics 35:50 My '64

Microwave magnetics. diags Electronics 37:74-7 Je 29 '64

Microwave moisture meter. il Mech Eng 86:70-1 Mr '64

Monimatch and s.w.r. S. C. Shallon. diags Q S T 48:54-6 Ag '64

Monimatch, Mark III and Mark IV. L. G. McCoy. il diag Q S T 48:20-2 S '64

Olson TE-179 30,000-ohm-per-volt multitester. E. C. Carlson. il diag Radio-Electronics 35:78 S '64

Picometer; a direct-reading capacitance meter of simple design. D. A. Blakeslee. il diags Q S T 48:47-9 O '64

Pilot phase monitor for fm stereophonic broadcasting. J. F. Dias and J Rypkema. bibliog il diags Audio Eng Soc J 12:132-9 Ap '64

Precise power-lab models 711-713. E. C. Carlson. il Radio-Electronics 35:70 O '64

Simple inductance bridge checks unknown coils. J. A. Dewar. il diags Radio-Electronics 35:46-7 Jl '64

Six-inch-meter vom (Lafayette TE-900). E. C. Carlson. il Radio-Electronics 35:66-7 My '64

Spectrum analyzer provides 2-gc display. il Electronics 37:97 Jl 13 '64

Status of rectifier-type meters. L. W. Pignolet. il diag Electronic Ind 23:192-4+ Je '64

Transistor radio tester. R. F. Scott. il Radio-Electronics 35:78+ Ja '64

Updating the I-177 surplus tube tester. W. T. Bradley. il diags Q S T 48:21-3 N '64

Using the Q meter. D. E. Bowen. il diags Radio-Electronics 35:40-3 S '64

Waters Little Dipper. E. L. Campbell. il diag Q S T 47:57-8 D '63

See also

Frequency meters

Oscillators

Radar

Radio measurements

Radio meteorographs

Wavemeters

Testing

Intermodulation distortion measurement. D. E. O. Waddington. il diags Wireless World 70:271-4 Je '64

RADIO interferometers

Microwave interferometer for studying rapidly fluctuating plasmas. L. C. Robinson. il diag R Sci Instr 35:226 F '64

Radio interferometry. M. G. Kaufman. diag IEEE Proc 52:421-3 Ap '64

Spectrographic interferometer. R. H. Lee and J. W. Warwick. il diags J Res Nat Bur Stand 68D:807-11 Jl '64

RADIO laboratories

Measurements standards and calibration laboratories in the United States. C. E. White. bibliog J Res Nat Bur Stand 68D:542-6 My '64

RADIO laws and regulations

Audio aids and commission policy. R. L. Cutts. Audio Eng Soc J 12:15-20 Ja '64

Look inside petition RM-499. W. I. Orr. Q S T 48:28-30 Je '64

See also

Radio frequency—Allocation

RADIO lines

Bistable distributed line. S. Yoshizawa and J. Nagumo. IEEE Proc 52:308 Mr '64

Characteristic impedance of coaxial lines of circular inner and rectangular outer conductors. E. G. Cristal. diag IEEE Proc 52:1265-6 O '64

Characteristic impedance of two special forms of transmission line. J. B. Izatt. bibliog diags Inst E E Proc 111:1551-5 S '64

Design and construction of high magnetic field traveling wave lines. L. M. Lidsky and D. J. Rose. il diags R Sci Instr 34:1223-7 N '63

Dominant cutoff wavelength of a Tseptate lunar line. A. Y. H. Wang. bibliog diags Inst E E Proc 111:1262-6 Jl '64

Effect of differential loss on approximate solutions to the coupled line equations. D. T. Young. Bell System Tech J 42:2787-93 N '63

Flat cable shrinks microcircuit modules. il Electronics 37:44 F 21 '64

High-temperature wire and cable. D. Binch. il Electronic Ind 23:91-3+ Je '64

Imperfections in active transmission lines. H. E. Rowe. diags Bell System Tech J 43:261-92 Ja '64

Monimatch and s.w.r. S. C. Shallon. diags Q S T 48:54-6 Ag '64

Narrow pulse generation by nonlinear transmission lines. J. R. Alday. IEEE Proc 52:739 Je '64

New nonreciprocal transmission line device. R. J. Mohr. diags IEEE Proc 52:612 My '64

Periodic discontinuities in a transmission line. J. Perini. il IEEE Proc 52:85 Ja '64

Relationships between different kinds of network parameters, not assuming reciprocity or equality of the waveguide or transmission line characteristic impedances. R. W. Beatty and D. M. Kerns. diags IEEE Proc 52:84 Ja '64

Relationships of corona to life and reliability of polyethylene insulated cable: new test methods for cable. W. T. Starr and J. P. Agrios. il IEEE Trans Com & Electronics p88-97; Discussion. 97-8 Ja '64

Stability of active transmission lines with arbitrary imperfections. H. E. Rowe. bibliog diags Bell System Tech J 43:293-328 Ja '64

Standard answer to confusion; standards for radio frequency coaxial connectors. C. Camillo. diags Mag of Stand 35:262-4 S '64

Synthesis of a transmission-line resonator with a specified frequency spectrum. D. B. Large. IEEE Proc 52:633-4 My '64

Tr switch for use at 200 mc/s in air-filled coaxial line. W. I. Moore and D. T. O'Dell. diags Inst E E Proc 111:1625-9 O '64

Variationally minimum reflection coefficient for nonuniform transmission lines. I. Sugai. bibliog IEEE Proc 51:1789-90 D '63

V.h.f. antenna facts and fallacies. E. P. Tilton. diags Q S T 48:52-6 Ja; 50-3 F; 29-33 Mr '64

See also

Wave guides

Manufacture

Fixtures form semirigid coax. il Electronics 37:48-9 F 28 '64

Testing

Transient analysis of transmission lines with nonlinear terminations. C. R. Pendred. diags IEEE Proc 52:190 F '64

RADIO masts

Movable masts made of extruded aluminum tube. il Mod Metals 20:70 Ag '64

RADIO measurements

Absolute measurement of GaAs diodes radiation using solar cells. E. J. Schiel and J. J. Bolmarcich. IEEE Proc 51:1780-1 D '63

Accuracy of s.w.r. measurements. J. Hall. Q S T 48:50-3 N '64

Air-core primary radio frequency permeameter for reversible permeability measurements. C. A. Hoer and R. D. Harrington. il diag IEEE Proc 51:1795-6 D '63

Angular-momentum wattmeter for the 8mm waveband. D. H. Steven and A. L. Cullen. bibliog diags Inst E E Proc 110:1968-74 N '63

Conference on precision electromagnetic measurements. Boulder, Colo. June 23-25. J Sci Instr 41:585-8 O '64

Definition and measurement of field effect transistors pinchoff voltage. L. G. Cowles. IEEE Proc 52:200 F '64

Detection of sample inhomogeneities by their effect on dielectric measurements at microwave frequencies. C. P. Aron. il Inst E E Proc 111:310-11 F '64

Diurnal phase variation of vlf waves at medium distances. H. Volland. bibliog diags J Res Nat Bur Stand 68D:225-38 F '64

Extension of cosmic noise absorption measurements to lower frequencies, using polarized antennas. C. G. Little and others. bibliog J Res Nat Bur Stand 68D:859-65 Ag '64

Field intensity measurements at 10.2 kc/s over reciprocal paths. J. C. Hanselman and others. bibliog map J Res Nat Bur Stand 68D:11-14 Ja '64

Focused microwave technique for measurement of the ionization rate and collision frequency. W. Scharfman and T. Morita. bibliog il diag J Ap Phys 35:2016-20 Jl '64

Free-space microwave techniques for plasma measurements. M. P. Bachynski and G. G. Cloutier. bibliog il diags RCA R 25:168-99 Je '64

Frequency analysis of noise. E. F. Feldman. bibliog il diags Electro-Tech 73:36-42 Je '64

Graphical aids to noise figure measurement. M. D. Wood. diags Wireless World 70:258-9 My '64

How to measure fm deviation frequency. R. Leffler. diag Electronic Ind 23:148-9 Ag '64

Improved experimental accuracy with a simplified two-port transformation. J. R. Williams. IEEE Proc 52:211-12 F '64

Induction measurement of semiconductor and thin-film resistivity. T. O. Poehler and W. Liben. IEEE Proc 52:731-2 Je '64

Inductive telemetry improves spin-system measurements. H. Baumann. il diags Electronics 36:41-2 N 15 '63

Intermodulation distortion measurement. D. E. O. Waddington. il diags Wireless World 70:271-4 Je '64

Low-cost circuit measures frequency translation. S. E. Watford. diags Electronics 36:51 N 8 '63

Making accurate microwave power measurements. R. F. Pramann. il diags Electronic Ind 23:126-32 Ap '64

Maximum likelihood estimator for a phase comparison angle measuring system. Y. Ronen and M. Zakai. IEEE Proc 51:1669-70 N '63

Means of determining plasma density distribution. L. C. Robinson. bibliog il diag J Ap Phys 35:458-9 F '64

Measurement of microwave shot-noise reduction factor by laser light induced photoemission. S. Saito and Y. Fujii. diag IEEE Proc 52:980 Ag '64

Measurement of phase shift at audio frequencies using a magslip as a calibrated reference standard. A. G. J. Holt. diags Radio & Electronic Eng 26:305-8 O '63

Measurement of power at short millimeter wavelengths. Q. V. Davis and others. il diags R Sci Instr 35:561-5 My '64

Measurements at millimeter and submillimeter wavelengths. R. G. Fellers. bibliog J Res Nat Bur Stand 68D:538-40 My '64

Measurements of shock tube ionization phenomena by a new microwave method. R. A. Brandewie and E. M. Williams. bibliog il diags J Ap Phys 35:2299-308 Ag '64

Measurements of the extent to which round-the-world hf propagation follows a great circle. R. B. Fenwick and others. il IEEE Proc 52:418-19 Ap '64

Method for determining the threshold of laser materials. A. Lempicki and R. L. Martin. IEEE Proc 51:1778-9 D '63

Method for measuring impurity distributions in semiconductor crystals. N. I. Meyer and T. Guldbrandsen. diags IEEE Proc 51:1631-7 N '63

Method for the remote measurement of force in a moving machine member. K. D. Broadfoot and R. E. Belin. diags J Sci Instr 40:589-91 D '63

Method of measuring the dielectric constant at microwave frequencies by means of the perturbation method. I. Falkvik. IEEE Proc 52:203 F '64

Microwave measurement of conductivity and dielectric constant of semiconductors. B. R. Nag and others. diags IEEE Proc 51:962 Je '63; Discussion. D. A. Holmes and D. L. Feucht. 52:100 Ja '64

RADIO measurements—*Continued*

Microwave measurement of surface conductance of semiconductors. C. K. Chatterji and others. diag IEEE Proc 52:873-4 Jl '64

Microwave measurement of the complex permittivity of semiconductors. M. W. Gunn. diag IEEE Proc 52:185 F '64

Microwave studies of niobium stannide. B. Rosenblum and others. bibliog diag RCA R 25:491-509 S '64

Microwave techniques in the study of semiconductors. J. N. Bhar. bibliog diags IEEE Proc 51:1623-31 N '63; Discussion. 52:630, 1247 My, O '64

Mixer and tangential sensitivity measurements on evaporated metal semiconductor diodes at one and ten gc. M. Herndon and A. C. Macpherson. IEEE Proc 52:975-6 Ag '64

New method of measuring small radar cross sections by digital vector-field subtraction. P. C. Fritsch and F. E. Heart. diag IEEE Proc 52:628-9 My '64

New sensitive method for gain measurements. K. Hasegawa and O. Nishino. diags IEEE Pros 52:74-5 Ja '64

One-man multifrequency transmission measurements. E. H. B. Bartelink and others. il diags IEEE Trans Com & Electronics 83:238-44 My '64

Plasma microwave power density detector. N. H. Farhat. IEEE Proc 52:1053-4 S '64

Polarity coincidence detector for the measurement of very small signal-to-noise ratios. M. Raether and D. Bitzer. bibliog diag R Sci Instr 35:837-41 Jl '64

Polarization of radar echoes, including aircraft, precipitation and terrain. H. Gent and others. il diags Inst E E Proc 110: 2139-48 D '63

Power spectra measurements on ultralow-noise beams. J. M. Hammer. bibliog diags J Ap Phys 35:1147-53 Ap '64

Precise method for measuring dielectric loss. F. Jones. diags Electronic Eng 35:733-6 N '63

Precise phase and amplitude measurements on vlf signals propagated through the Arctic zone. F. H. Reder and others. diags J Res Nat Bur Stand 68D:275-81 Mr '64

Probability density function for phase-difference estimates obtained from the envelopes of the sum and difference of two sine waves. W. B. Kendall. diag IEEE Proc 52:1072 S '64

Pulsed and cw sinusoidal voltage and current measurements. M. C. Selby. bibliog J Res Nat Bur Stand 68D:533-6 My '64

Rf and microwave power measurements. G. F. Engen and N. T. Larsen. bibliog J Res Nat Bur Stand 68D:527-8 My '64

Radio noise measurement methods and standards. W. W. Mumford. bibliog J Res Nat Bur Stand 68D:536-8 My '64

Sky noise measurements at millimeter wavelengths. K. N. Wulfsberg. IEEE Proc 52: 321-2 Mr '64

Some comparisons of power-measuring standards at 300 and 400 mc/s. I. A. Harris and C. S. Fowler. bibliog diags Inst E E Proc 111:1597-601 S '64

Standards and measurements of attenuation, impedance, and phase shift; period covered, Sept. 1960-Dec. 1962. R. W. Beatty. bibliog J Res Nat Bur Stand 68D:529-33 My '64

Technique for measuring the spectral density matrix of two signals. D. R. Brillinger. diag IEEE Proc 52:103-4 Ja '64

Thermoelectric cooling applied to the absolute measurement of microwave power. A. G. Heaton. diags Inst E E Proc 111:642-6 Ap '64

Transient analysis of transmission lines with nonlinear terminations. C. R. Pendred. diags IEEE Proc 52:190 F '64

Transistors and voltage measurements. D. R. Anderson. il diags Radio-Electronics 35:38-9 Ag '64

Transmission-loss measurements and diversity tests made on two knife-edge diffraction paths in Europe. R. E. Gray. il map Elec Com 38: no 4:457-64 '63

Ultrahigh frequency measurements. M. Magid. diags Electro-Tech 74:67+ bibliog(p87-8) O '64 (reprints $1)

V.h.f. noise generator. J. A. Huie. il diags Q S T 48:23-8 F '64

West Ford antenna and feed system. B. F. LaPage and others. bibliog il diags IEEE Proc 52:589-98 My '64

What do meters measure? diags Wireless World 70:132 Mr '64

Zenith 58.3-gc radiation from the earth's atmosphere between the altitudes of 5 and 100 thousand feet. C. W. Tolbert and A. W. Straiton. il IEEE Proc 52:867 Jl '64

See also
Multivibrators
Oscillators
Radio instruments
Voltmeters, Vacuum tube

RADIO meteorographs

Propagation of radio waves with frequency 99.9 Mhz as a function of the vertical structure of the atmosphere derived from daily radiosonde observations. G. P. A. Braam. bibliog map J Res Nat Bur Stand 68D:257-60 F '64

Radiometeorological study; analysis of vhf field strength variations and refractive index profiles. B. R. Bean and others. bibliog map diag J Res Nat Bur Stand 67D:597-604 N '63

Radiometeorological study; existing radio-meteorological parameters. J. A. Lane and B. R. Bean. bibliog diag J Res Nat Bur Stand 67D:589-95 N '63

Radiometeorological study; new turbulence parameter. B. R. Bean and others. J Res Nat Bur Stand 67D:605-8 N '63

Weather readout is automated. il diag Electronics 36:42-3 D 27 '63

RADIO modulation

Absorption edge modulator utilizing a p-n junction. G. Racette. bibliog diag IEEE Proc 52:716 Je '64

Amplitude modulation with a noise carrier. H. E. Rowe. bibliog diags IEEE Proc 52: 389-95 Ap '64

Antenna pattern smoothing by phase modulation. S. Kazel. IEEE Proc 52:435 Ap '64

Balanced modulators for v.h.f. and u.h.f. sideband. J. V. O'Hern and T. L. Sly. il diags Q S T 48:11-15 N '64

Brelonix MP-40 modulator kit. E. L. Campbell. il Q S T 48:56-7 Je '64

Carrier-voltage control for improved dynamic range in rectifier modulators. D. P. Howson. bibliog diags Radio & Electronic Eng 26:495-500 D '63

Code in the head. T. Roddam. diags Wireless World 70:309-12 Je '64

Comparison of modulation methods for multiple-access synchronous satellite communication systems. J. A. Stewart and E. A. Huber. bibliog Inst E E Proc 111:535-46 Mr '64

Cross modulation of optical, rf, and microwave signals with optical pumping. B. W. Harned and others. diag IEEE Proc 52:632 My '64

Delta modulation. R. H. Maschhoff. bibliog diags Electro-Tech 73:91-7 Ja '64

Digital troposcatter transmission and modulation theory. E. D. Sunde. bibliog diags Bell System Tech J 43:143-214 Ja '64

Frequency or phase modulation with a noise carrier. H. E. Rowe. bibliog IEEE Proc 52: 396-408 Ap '64

How to calculate hard tube modulator fall time. G. E. Tallmadge. diags Electronic Ind 22:111-12 N '63

Influence of minority-carrier storage on performance of semiconductor-diode modulator. J. G. Gardiner and D. P. Howson. bibliog diags Inst E E Proc 111:1393-400 Ag '64

Microwave electro-optic modulator which overcomes transit time limitation. S. M. Stone. IEEE Proc 52:409-10 Ap '64

Modulation broadening of nmr and esr line shapes. G. V. H. Wilson. bibliog J Ap Phys 34:3276-85 N '63

New uses for Hall-effect modulators. A. R. Hilbinger. bibliog il diags Electronics 37: 30-2 Ja 17 '64

OR circuit amplitude modulator. J. Furlan. il diags IEEE Proc 52:311-12 Mr '64

Phase modulation data transmission system for use over the telephone network. A. P. Clark. bibliog diags Radio & Electronic Eng 27:181-95 Mr '64

Power spectra of waves with multiple angle modulations. J. W. Goodman. IEEE Proc 52:418 Ap '64

Pulse modulation application of the gallium arsenide light emitting diode. C. R. Seashore. il diag IEEE Proc 51:1781 D '63

Sideband scope patterns. G. Grammer. diags Q S T 48:28-32 Ag '64

Sweeping carrier signals through interference. W. H. Chiles and H. G. Lafuse. diags Electronics 37:94-6 My 18 '64

Two-state modulation system. A. G. Bose. diags Electro-Tech 74:42-7 Ag '64

Unity bit coding method by negative feedback. H. Inose and Y. Yasuda. bibliog il diags IEEE Proc 51:1524-35 N 63

See also
Radio frequency modulation
Radio pulse code modulation

RADIO noise. See Radio communication—Interference; Radio receiving apparatus—Noise

RADIO operators, Amateur

Alaska story. G. Hart. il Q S T 48:46-53+ Jl '64

Amateur radio emergency corps. G. Hart. plan Q S T 48:32-5 My '64

Amateur radio public service corps. G. Hart. diag Q S T 48:49-51+ Ap '64

ARRL and International amateur radio. il diags Q S T 48:64-79 My '64

Armed forces day, 1964. Q S T 48:56-7+ S '64

Cb chatter. diags Radio-Electronics 35:39 Ap '64

Intruders in the amateur bands. P. F. Williams. Q S T 48:26-8 Mr '64

June v.h.f. party results. il Q S T 48:60-3+ S '64

Look inside petition RM-499. W. I. Orr. Q S T 48:28-30 Je '64

1963 Geneva space conference. Q S T 48:60-1+ Ja '64

1964 ARRL international DX competition. Q S T 48:57-9 Ja '64

Organizing your local Emergency corps. G. Hart. Q S T 48:34-7 S '64

Prescription for lid-itis. E. Sturges. Q S T 48:24-5+ My '64

Resolve to build something. F. M. Yancey. il Q S T 48:49+ Mr '64

Second phone; ticket to cz service profits. J. Kyle. il Radio-Electronics 35:52-3 Je '64

Simulated emergency test, 1963. G. Hart. il Q S T 48:50-6 Mr '64

Some fine points in message handling. G. Hart. Q S T 48:88-90+ O; 32-5 N '64

30th ARRL sweepstakes. E. White, comp. il Q S T 48:80-92+ My '64

Your emergency obligation. J. Loesch. Q S T 48:54+ Je '64

See also

American radio relay league

RADIO pulse code modulation

Army talk goes digital. Electronics 37:40+ S 7 '64

Error rate in a multiple-frequency-shift system. H. Akima. bibliog Inst E E Proc 111:547-55 Mr '64

Experiment in pcm transmission of multiplexed channels. W. G. Bender. il diags Bell Lab Rec 42:240-6 Jl-Ag '64

Experimental broadband pcm terminal. J. S. Mayo. il diags Bell Lab Rec 42:152-7 My '64

High-speed pcm coding tube. H. G. Cooper and others. il diags Bell Lab Rec 42:266-72 S '64

Local area integrated pcm telephone network. C. Dumousseau. diags IEEE Trans Com & Electronics p 158-62 Mr '64

Pcm instrumentation. S. Wald. diags Instruments & Control Systems 37:93-6 Ap '64

Tank level telemetering. H. Dickinson. il diags Instruments & Control Systems 37:105-7 Ap '64

RADIO pulse modulation. See Radio pulse time modulation

RADIO pulse time modulation

Measuring communications intelligibility. diags Mag of Stand 35:207-8 Jl '64

Pulse modulator. J. Kontos. diag IEEE Proc 52:726-7 Je '64

Pulse-time modulation and frequency modulation using the step recovery diode. K. Husimi and T. Inamura. il diag IEEE Proc 52:76 Ja '64

RADIO receiving apparatus

Asymptotic performance characteristics for the adaptive coherent multireceiver and noncoherent multireceiver operating through the Rician fading multichannel. W. C. Lindsey. bibliog diags IEEE Trans Com & Electronics p67-73 Ja '64

Galaxy III transceiver. D. A. Blakeslee and E. L. Campbell. il diags Q S T 48:60-2 O '64

Private brands, who makes 'em? L. A. James. il Radio-Electronics 35:32-3 Jl '64

Transistor c.w. station for seven mc. W. Hayward. il diags Q S T 48:11-16 Ag '64

See also

Amplifiers, Vacuum tube

Radio circuits

Design

Applying modular design to receivers. W. W. Gonder. il Electronic Ind 23:76-8 F '64

Intermodulation analysis of crystal mixer. L. M. Orloff. diag IEEE Proc 52:173-9 F '64; Discussion. bibliog 52:984-5 Ag '64

Receiver design technique cuts synchronization time. M. F. Wolff. diags Electronics 37:74+ F 7 '64

Frequency modulation receivers

Analysis of a super wide-band fm line discriminator. C. W. Lee. diags IEEE Proc 52:1034-8 S '64

Bell Imperial fm-stereo receiver, model 1000. il Audio 48:46+ My '64

Case of the built-in motorboat. H. Kenner. diags Radio-Electronics 35:39 N '64

Crystal-controlled transistor f.m. tuner. il diags Wireless World 70:326-33 Jl '64; Discussion. 70:460-1, 523 S-O '64

Eico 2536 fm stereo receiver. P. E. Sutheim. il Radio-Electronics 35:62-3 Je '64

Fisher 75-watt fm-stereo receiver, model 500-C. il Audio 47:44 D '63

F-m discriminator without tuned circuits. H. D. Crawford and A. B. Hale. diags Electronics 36:36 N 29 '63

Fm stereo receiver performance as a function of pilot circuit design. A. Csicsatka and R. M. Linz. il diags Audio Eng Soc J 12:192-8 Jl '64

Fm stereo tuner and a speaker system. J. Marshall. il Radio-Electronics 35:60+ F '64

Fm stereotuner. P. Sutheim. il diag Radio-Electronics 35:74+ Ap '64

H. H. Scott fm-stereo tuner-amplifier, model 340-B. il Audio 48:45-6 Ja '64

H. H. Scott solid-state fm-stereo tuner, model 312. il Audio 48:32 Jl '64

Harman-Kardon solid-state fm-stereo receiver, model SR900. il Audio 48:88+ O '64

Improve fm reception with a wide-band detector. L. Vincent. diags Radio-Electronics 35:41-3 F '64

Improvising an fm tuner. O. E. Wilson. il diag Radio-Electronics 35:42 Mr '64

Low-frequency discriminator of improved linearity. U. Gangopadhayay. bibliog diags Inst E E Proc 111:31-5 Ja '64; Discussion. 111:1561-3 S '64

McIntosh fm-stereo tuner, model MR67. il Audio 48:38+ F '64

Roundup of low-cost fm stereo generators. L. Feldman. il Radio-Electronics 35:50-2 N '64

Sensitivity improvement from threshold extension techniques. J. Wakeley, jr. bibliog diag IEEE Proc 51:1770 D '63

Servicing fm stereo circuits. L. Feldman. il diags Radio-Electronics 35:30-3 Je '64

Sherwood fm-stereo tuner, model S-3000V. il Audio 47:44+ D '63

Solid-state ultra-linear wideband fm demodulator. R. Glasgal. diags Audio 48:25-6+ My '64

Study of SCA interference in stereo fm receivers. D. J. Popp. diags Audio Eng Soc J 12:45-50 Ja '64

Super wide-band fm line discriminator. C. W. Lee and W. Y. Seo. diag IEEE Proc 51:1675-6 N '63

Threshold extension capability of the phase locked loop and the frequency demodulator using feedback. D. L. Schilling and J. Billing. IEEE Proc 52:621-2 My '64

Transistor fm squelch. K. E. Springer. diags Audio 48:21+ Mr '64

Tuner alignment for quality fm reception. A. L. Boynton. il diags Audio 48:19-21+ Jl '64

Wide-band fm line discriminators. P. L. W. Gibbons. diags IEEE Proc 52:633 My '64

Installation on automobiles

Nuvistor goes mobile on 50 mc. H. A. Blodgett. il diag Q S T 48:16-17 Jl '64

Shielded ignition systems. Q S T 48:60 Ag '64

Maintenance and repair

Bench supply for transistor radios. W. Lemons. il diag Radio-Electronics 35:38-9 My '64

Case of the built-in motorboat. H. Kenner. diags Radio-Electronics 35:39 N '64

Servicing fm stereo circuits. L. Feldman. il diags Radio-Electronics 35:30-3 Je '64

Technotes. Published in monthly numbers of Radio-electronics

Transistor alignment the easy way. E. C. Carlson. il diags Radio-Electronics 35:68-9 Ja '64

Try sweep on am. H. J. Weber. il diags Radio-Electronics 35:34-5 Ap '64

What happens to picture tubes? J. Darr. il diags Radio-Electronics 35:44-6 Mr '64

Miniaturization

Radios for all. il Engineering 197:528 Ap 10 '64

Noise

Effect of converter gain on receiver noise figure. J. A. Hall. Q S T 48:16-17 O '64

RADIO receiving apparatus—Noise—*Continued*

Noise diode caper. H. Olson. il diags Q S T 48:28-33 F '64
Noise factor at optical frequencies. C. C. Eaglesfield. bibliog diags Inst E E Proc 111: 1241-4 Jl '64
Phase-locked loop dynamics in the presence of noise by Fokker-Planck techniques. A. J. Viterbi. bibliog diags IEEE Proc 51:1737-53 D '63
Post-amplifier noise temperature contribution in a low-noise receiving system. C. T. Stelzried. diag IEEE Proc 52:76-7 Ja '64
Priori information and noise immunity in modulation systems. G. Battail. bibliog IEEE Proc 52:1059-60 S '64
Study of SCA interference in stereo fm receivers. D. J. Popp. diags Audio Eng Soc J 12:45-50 Ja '64
Threshold extension capability of the phase locked loop and the frequency demodulator using feedback. D. L. Schilling and J. Billig. IEEE Proc 52:621-2 My '64

Short wave

Add a super-selective mechanical filter. R. E. Berge. il diags Radio-Electronics 35:46-9, cover S '64
Communication receiver for satellite ground station. M. Sassler and R. Surenian. il diags Elec Com 39 no 1:89-97 '64
Completely flexible transmatch for one watt to 1000. L. G. McCoy: il diags Q S T 48:39-42 Je '64
Ever use an audio limiter? L. G. McCoy. il diags Q S T 48:62-3 Jl '64
HBR-11 to date. T. Crosby. diags Q S T 48: 35-40 Ap '64; Correction. 48:59-60 Jl '64
Heathkit HR-20 mobile receiver. il diag Q S T 48:58-9 Mr '64
Heathkit one-band s.s.b. transceivers. E. L. Campbell. il diags Q S T 48:48-51 Ja '64
Heathkit SB-300 communications receiver. D. H. Mix. il diags Q S T 48:82-5 Jl '64
High-performance two-meter converter. G. S. Gibbs. il diags Q S T 48:50-3 Je '64
How to fight your image battle. L. G. McCoy. il diags Q S T 47:18-19 D '63
Instantaneous break-in with the Collins S-line. H. R. Hildreth. il diags Q S T 47: 50-2 D '63
Low-drain 6-meter mobile receiver. H. J. Hanson. il diags Q S T 48:19-22 Je '64
Low-noise two-meter converter. J. Balogh. il diags Q S T 48:22-7 Ap '64
Lumped-constant converter front end for 432 mc. N. J. Foot. il diags Q S T 48:50-3 O '64
New approach to receiver front-end design. W. K. Squires. il diags Q S T 47:31-4 S '63; Discussion. R. K. Jeffers. 48:58-9 Je '64
New cb circuit features. R. F. Scott. il diags Radio-Electronics 35:40-2 Ja '64
Noise diode caper. H. Olson. il diags Q S T 48:28-33 F '64
Nuvistor goes mobile on 50mc. H. A. Blodgett. il diag Q S T 48:16-17 Jl '64
Parks two-meter converter, model 144-1. E. P. Tilton. il diag Q S T 48:85-6 Jl '64
Product detectors for the HRO. W. M. Rowe, jr. and L. G. Windom. diags Q S T 48: 47-9 My '64
Receiver front-end attenuator. D. Talley. diag Q S T 48:30 Ja '64
Satellite-tracking receiver. W. Janeff. bibliog diags Elec Com 39 no 1:98-112 '64
SB-33 single-sideband transceiver. E. L. Campbell. il diags Q S T 48:52-5 Ap '64
7360 mixers in the 75A-4. J. H. Diehl. diags Q S T 48:18-20 Jl '64
Sideband transceiver, VU2 style. B. A. N. Raju. il diag Q S T 48:19-22 Mr '64
Signal checking with phone-bandwidth receivers. G. Grammer. diags Q S T 47:62-5 D '63
Simple low-frequency converter. G. H. Wilson. il diags Q S T 48:17-19 Ap '64
Solid achievement. Electronics 37:29-30 My 18 '64
Some results on the use of a tunnel-diode amplifier on a radio astronomy receiver. T. V. Seling. IEEE Proc 52:423-4 Ap '64
Squires-Sanders SS-1R receiver. il diag Q S T 48:54-6 My '64
Superregen monitors fire and police radio. R. L. Hawbaker. il diag Radio-Electronics 35: 45-7 Ja 64

Single sideband receivers

Clegg Venus 50-mc. s.s.b. transceiver. E. P. Tilton. il diag Q S T 48:84-6 S '64
Heathkit one-band s.s.b. transceivers. E. L. Campbell. il diags Q S T 48:48-51 Ja '64
SB-33 single-sideband transceiver. E. L. Campbell. il diags Q S T 48:52-5 Ap '64
Sideband transceiver, VU2 style. B. A. N. Raju. il diag Q S T 48:19-22 Mr '64
Single-sideband marine radio. il Engineer 217:1099 Je 19 '64
Squires-Sanders SS-1R receiver. il diag Q S T 48:54-6 My '64

Stereophonic receivers

Bell Imperial fm-stereo receiver, model 1000. il Audio 48:46+ My '64
Bogen RT 1000 transistor am-fm stereo receiver. P. E. Sutheim. il Radio-Electronics 35:66 Ag '64
Eico 2536 fm stereo receiver. P. E. Sutheim. il Radio-Electronics 35:62-3 Je '64
Fisher 75-watt fm-stereo receiver, model 500-C. il Audio 47:44 D '63
Fm stereo receiver performance as a function of pilot circuit design. A. Csicsatka and R. M. Linz. il diags Audio Eng Soc J 12:192-8 Jl '64
Fm stereo tuner and a speaker system. J. Marshall. il Radio-Electronics 35:60+ F '64
H. H. Scott fm-stereo tuner-amplifier, model 340-B. il Audio 48:45-6 Ja '64
Harman-Kardon solid-state fm-stereo receiver. model SR900. il Audio 48:88+ O '64
Heterodyne exciter for 144 mc. E. P. Tilton. il diags Q S T 48:23-7 Ag '64
Roundup of low-cost fm stereo generators. L. Feldman. il Radio-Electronics 35:50-2 N '64
Servicing fm stereo circuits. L. Feldman. il diags Radio-Electronics 35:30-3 Je '64
Stereo broadcasting over a single carrier. M. Valdez. diags IEEE Proc 52:966-7 Ag '64
Study of SCA interference in stereo fm receivers. D. J. Popp. diags Audio Eng Soc J 12:45-50 Ja '64

Superheterodyne receivers

Double-tuning simplifies superhets; reference sheets. D. B. Hoisington. diag Electronics 37:39+ Ja 24 '64
High-performance two-meter converter. G. S. Gibbs. il diags Q S T 48:50-3 Je '64
Low-noise two-meter converter. J. Balogh. il diags Q S T 48:22-7 Ap '64
Standard frequency receiver. il Engineer 216: 958 D 6 '63

Testing

Ac-dc radio voltages; pretty constant from set to set. P. Lacy. Radio-Electronics 35: 45 S '64
Transistor radio tester. R. F. Scott. il Radio-Electronics 35:78+ Ja '64

Transistor receivers

Bogen RT 1000 transistor am-fm stereo receiver. P. E. Sutheim. il Radio-Electronics 35:66 Ag '64
Five-band transistor converter; no band switches. W. L. North. il diags Q S T 48: 44-8 S '64
Low-drain 6-meter mobile receiver. H. J. Hanson. il diags Q S T 48:19-22 Je '64
Radios for all. il Engineering 197:528 Ap 10 '64
The TOT. R. Glorioso. il diags Q S T 47:29-32 D '63
Transistor alignment the easy way. E. C. Carlson. il diags Radio-Electronics 35:68-9 Ja 64
Transistor fm squelch. K. E. Springer. diags Audio 48:21+ Mr '64
Transistorized radios slash operating costs. il Gas Age 131:32-4 Ag '64

Tuning

All transistor am-fm stereo tuner Heathkit AJ-33. N. H. Crowhurst. il Radio-Electronics 35:57-8 Jl '64
By-pass capacitor built into uhf tuner shaft. il Electronics 36:88 D 6 '63
Crystal-controlled transistor f.m. tuner. il diags Wireless World 70:326-33 Jl '64; Discussion. 70:460-1, 523 S-O '64
Double-tuning simplifies superhets; reference sheets. D. B. Hoisington. diag Electronics 37:39+ Ja 24 '64
Fm stereotuner. P. Sutheim. il diag Radio-Electronics 35:74+ Ap '64
H. H. Scott solid-state fm-stereo tuner, model 312. il Audio 48:32 Jl '64
Improvising an fm tuner. O. E. Wilson. il diag Radio-Electronics 35:42 Mr '64
McIntosh fm-stereo tuner, model MR67. il Audio 48:38+ F '64
Sherwood fm-stereo tuner, model S-3000V. il Audio 47:44+ D '63
Tuner alignment for quality fm reception. A. L. Boynton. il diags Audio 48:19-21+ Jl '64

RADIO receiving apparatus—Tuning—*Cont.*

Tuner and dual i.f. system for an amateur-band receiver. D. W. Baker. il diags Q S T 48:40-3+ N '64

Wireless remote-control fm/stereo tuner (Fisher MF-320). P. E. Sutheim. il Radio-Electronics 35:72+ My '64

RADIO receiving apparatus, Portable

Bellboy switching system. E. L. O'Neal. il diags Bell Lab Rec 42:281-4 S '64

International mobile radio equipment. G. Sidow and others. il diags Elec Com 39 no 3:346-59 '64

Portable life-raft radio. Engineer 218:69 Jl 10 '64

Rescue radio. Electronics 37:31-2 S 21 '64

The TOT. R. Glorioso. il diags Q S T 47:29-32 D '63

Transistor alignment the easy way. E. C. Carlson. il diags Radio-Electronics 35:68-9 Ja '64

RADIO reception

Asymptotic performance characteristics for the adaptive coherent multireceiver and noncoherent multireceiver operating through the Rician fading multichannel. W. C. Lindsey. bibliog diags IEEE Trans Com & Electronics p67-73 Ja '64

Broad-band-signal response of a phase-steered linear receiving array. W. B. Adams. diag IEEE Proc 52:106 Ja '64

Families of distributions for hourly median power and instantaneous power of received radio signals. M. M. Siddiqui and G. H. Weiss. J Res Nat Bur Stand 67D:753-62 N '63

I.f. tracking filter for weak-signal reception. R. W. Burhans. il diags Q S T 48:11-17+ S '64

Physical nature of the Doppler-frequency spectrum from a rotating planet and its effect on detection. F. O. Willoughby. bibliog diags IEEE Proc 52:80-1 Ja '64

Super reception on short waves. H. B. Churchill. diags Radio-Electronics 35:34-7 Ja '64

Tuned-circuit temperature compensation. R. H. Decker. diags Q S T 47:24-7 D '63

Vlf utilization at NASA satellite tracking stations. C. H. Looney, jr. map diag J Res Nat Bur Stand 68D:43-5 Ja '64

See also

Radio detectors

RADIO rectifiers

Comeback for wireless power? G. V. Novotny. bibliog diags Electronics 37:86-90 S 21 '64

Efficient transport of energy by microwave beam. W. C. Brown. il diags Space/Aeronautics 42:68-9 S '64

High-power precision-stabilized rectifiers. K. Kemper. il diags Elec Com 38 no 4:542-6 '63

High voltage deuterium filled grid controlled rectifiers. B. O. Baker and R. J. Wheldon. bibliog diags Electronic Eng 36:24-9 Ja '64

Improved methods of evaluating crystal rectifier constants. J. M. Fennell and J. G. Gissing. Electronic Eng 35:824-5 D '63

Negative current bias and resistance bias for preventing turn on by dV/dt of controlled rectifiers. C. D. Root. IEEE Proc 51:1672 N '63

Now the gate turn off switch speeds up d-c switching. D. R. Grafham. diags Electronics 37:64-71 Mr 23 '64

Silicon-controlled rectifier d-c to d-c power converters. W. McMurray. diags IEEE Trans Com & Electronics p 198-203 Mr '64

Scr's for 19-inch tv. L. D. Shergalis. diags Electronics 37:97-8 Ag 24 '64

Silicon controlled rectifiers to drive guns. il diags Electronics 36:51-2 D 20 '63

Silicon rectifier controls power in either direction. J. Luscher and others. il diag Electronics 36:63-5 D 20 '63

Transistors as rectifiers. J. L. L. Hood. diag Electronic Eng 36:48 Ja '64; Discussion. 36:184 Mr '64

RADIO relay systems

Antenna illuminated by a cavity resonator. S. Jacobsen and others. bibliog diags IEEE Proc 51:1431-5 N '63

Aperture-to-medium coupling loss in tropospheric scatter systems. C. A. Parry. IEEE Proc 51:933-4 Je '63; Discussion. 52:100-1 Ja '64

Demodulation of wideband, low-power fm signals. S. Darlington. bibliog diags Bell System Tech J 43:339-74 pt 2 Ja '64

Effects of the West Ford belt on astronomical observations. D. C. MacLelland and others. bibliog IEEE Proc 52:564-70 My '64

Expected interference levels due to interactions between line-of-sight radio relay systems and broadband satellite systems. R. G. Medhurst and J. H. Roberts. bibliog Inst E E Proc 111:519-23 Mr '64

Experimental research on the behavior of passive repeaters. C. Colavito and G. D'Auria. il map diags IEEE Proc 51:1423-30 N '63

Lightning protection of microwave relay stations. D. W. Bodle. il diags IEEE Trans Com & Electronics 83:462-6 S '64

Lincoln laboratory West Ford program; an historical perspective. C. F. J. Overhage and W. H. Radford. bibliog IEEE Proc 52:452-4 My '64

Measured physical characteristics of the West Ford belt. F. E. Heart and others. bibliog diags IEEE Proc 52:519-33 My '64

Microwave telephone relay network in Mexico. H. Carl. il map Elec Com 39 no 3:379-82 '64

Mutual interference between communication satellites and terrestrial line-of-sight radio-relay systems. J. K. Chamberlain and R. G. Medhurst. Inst E E Proc 111:524-34 Mr '64

New Caribbean communications scheme. map Radio & Electronic Eng 27:336 My '64

New 12-channel carrier system for extended-area trunk and subscriber service. O. A. Jorgensen. il diags IEEE Trans Com & Electronics p643-7 N '63

Orbital properties of the West Ford dipole belt. I. I. Shapiro and others. bibliog il diags IEEE Proc 52:469-518 My '64; Correction. 52:911 Ag '64

Passive and active reflectors. J. Kaiser and I. Kay. bibliog J Res Nat Bur Stand 68D:515-17 Ap '64

Progress committee report for 1963; satellites and relay systems. il maps SMPTE J 73:387-8 My '64

Repeater system all r-f. Electronics 36:42 N 29 '63

Results of noise measurements on an operational s.h.f. radio link. D. Turner. bibliog Inst E E Proc 111:1541-5 S '64

Satellite system interference tests at Andover, Me. H. E. Curtis. il map diags Bell System Tech J 42:2715-39 N '63

SHF high-density r-f heterodyne repeater microwave system. C. I. McDowell. il diags IEEE Trans Com & Electronics p664-8 N '63

Smith-diagram display unit of small reflection coefficients using the vibrating-dummy method. S. Tsuchiya. bibliog diags IEEE Proc 51:1444-54 N '63

Some results at Pleumeur-Bodou during transmission tests using the Telstar satellite. J. P. Houssin. Inst E E Proc 111:1407-10 Ag '64

Techniques for digital communication via satellites. F. Assadourian and E. M. Bradburd. diags RCA R 25:67-84 Mr '64

Teletype relay system. Electronic Ind 23:158 Ag '64

West Ford and the scientists. J. W. Findlay. bibliog IEEE Proc 52:455-60 My '64

West Ford belt as a communications medium. I. L. Lebow and others. bibliog il diags IEEE Proc 52:543-63 My '64

West Ford experiment; an introduction to this issue. W. E. Morrow, jr. and T. F. Rogers. bibliog il diags IEEE Proc 52:461-8 My '64

West Ford payload. P. Waldron and others. il IEEE Proc 52:571-6 My '64

West Ford radar and microwave equipment. B. E. Nichols and D. Karp. bibliog il diags IEEE Proc 52:576-88 My '64

See also

Satellites, Artificial—Communication applications

Television relay systems

RADIO research

Antenna pointing system for West Ford. F. E. Heart and A. A. Mathiasen. bibliog il diags IEEE Proc 52:599-606 My '64

British institution of radio engineers annual meeting; presidential address. J. L. Thompson. bibliog Radio & Electronic Eng 27:2-10 Ja '64

Canadian programme for ionospheric research by satellite. Radio & Electronic Eng 27:208 Mr '64

Electrical properties of sea ice at 0.1 to 30 mc/s. F. L. Wentworth and M. Cohn. bibliog il diags J Res Nat Bur Stand 68D:681-91 Je '64

Experimental research on the behavior of passive repeaters. C. Colavito and G. D'Auria. il map diags IEEE Proc 51:1423-30 N '63

H-f array scans horizon. il diags Electronics 37:50 F 14 '64

RADIO research—*Continued*

Interpretation of rapid changes in the phase of horizontally polarized vlf waves recorded at night over a short path in the southwestern United States. E. E. Gossard and M. R. Paulson. bibliog diags J Res Nat Bur Stand 68D:265-74 Mr '64

Inversion of radio wave absorption data to establish ionospheric properties; nondeviative absorption. A. D. Wheelon. bibliog diags J Res Nat Bur Stand 67D:699-705 N '63

Ionosonde studies of some chemical releases in the ionosphere. J. W. Wright. bibliog il J Res Nat Bur Stand 68D:189-204 F '64

Ionosphere dynamics. G. H. Munro and L. H. Heisler. IEEE Proc 51:1475-81 bibliog(p 1480-1) N '63

Measurements on radiation reflected obliquely from a rough surface. R. H. Clarke. bibliog diags Inst E E Proc 110:1921-7 N '63

Microwave techniques in the study of semiconductors. J. N. Bhar. bibliog diags IEEE Proc 51:1623-31 N '63; Discussion. 52:630, 1247 My, O '64

Orbital properties of the West Ford dipole belt. I. I. Shapiro and others. bibliog il diags IEEE Proc 52:469-518 My '64; Correction. 52:911 Ag '64

Project West Ford. Phys Today 17:76 Je '64

Radiation from an aperture in a coated plane. C. M. Knop and G. I. Cohn. bibliog il diags J Res Nat Bur Stand 68D:363-78 Ap '64

Rf characteristics of thin dipoles. C. L. Mack, jr. and B. Reiffen. bibliog il diags IEEE Proc 52:533-42 My '64; Discussion. R. F. Harrington. 52:1736-7 D '64

Radio research at Slough. il Engineer 217:1092 Je 19 '64

Radio-star scintillations from ionospheric waves. J. W. Warwick. bibliog il diags J Res Nat Bur Stand 68D:179-88 F '64

Space-research ground station. B. Cooper and R. McClure. il diag Elec Com 39 no 1:25-36 '64

Synopsis of attenuation and emission investigations of 58 to 62 kmc frequencies in the earth's atmosphere. C. W. Tolbert and A. W. Straiton. bibliog IEEE Proc 51:1754-60 D '63

URSI national committee report, 14th general assembly, Tokyo, Sept. 9-20, 1963. bibliog J Res Nat Bur Stand 68D:523-678 My '64

West Ford radar and microwave equipment. B. E. Nichols and D. Karp. bibliog il diags IEEE Proc 52:576-88 My '64

RADIO resistors

Decade box uses power resistors. J. H. Sutton. il diags Radio-Electronics 35:28-9 Jl '64

Determining corrections for manganin resistors. R. M. Shaw. I S A J 10:69-70 O '63

Emitter to emitter feedback. S. S. Hakim. diags Electronic Eng 35:736-7 N '63

Fuses: are they resistors? F. G. Stiver. Radio-Electronics 34:84 D '63

Metal films' role in fixed resistors. W. E. McLean. il Electronic Ind 23:42-3+ Je '64

Pumping conditions for parametric gain with a nonlinear immittance element. R. A. Pucel. bibliog diags IEEE Proc 52:269-76 Mr '64; Correction. 52:769 Jl '64

Silicon controlled rectifier's to pulse radar. T. Maguire. diags Electronics 37:14-15 Ja 17 '64

Trimming resistors and capacitors. M. H. Patrick. diag Radio-Electronics 35:35 F '64

Variable r-f resistor attained with photocell. R. H. Wagner. diag Electronics 37:67 O 5 '64

Watch those shifty resistors! C. Henry. il diags Radio-Electronics 35:33-6 Ag '64

Failure

Automatic evaluation of fixed resistor reliability under simulated panclimatic conditions. G. W. A. Dummer and others. il plan diag Inst E E Proc 111:36-42 Ja '64

Manufacture

Laser beam trims resistors. il Electronics 37:46-7 F 21 '64

Miniaturization

Last breakthrough? diags Electronics 37:23 Je 1 '64

Resistors improve performance while their size decreases. C. L. Wellard. il diag Electronics 37:62-6 My 4 '64

Noise

Effects of baking on the excess noise produced by carbon composition resistors. A. G. J. Holt and others. Radio & Electronic Eng 27:384-6 My '64

Noise in silicon carbide non-linear resistors. A. G. J. Holt and others. bibliog il Radio & Electronic Eng 27:381-3 My '64

Testing

Automatic evaluation of fixed resistor reliability under simulated panclimatic conditions. G. W. A. Dummer and others. il plan diag Inst E E Proc 111:36-42 Ja '64

RADIO resonators

Antenna illuminated by a cavity resonator. S. Jacobsen and others. bibliog diags IEEE Proc 51:1431-5 N '63

Calculated divergence of laser beam from generalized spherical mirror cavities. N. Karube. diag IEEE Proc 52:327-8 Mr '64

Effect of long waveguides on the resonant frequencies of microwave cavities. H. M. Altschuler. diags R Sci Instr 34:1441-3 D '63

Electric stresses in gaseous cavities in solid dielectrics. B. Salvage. bibliog diags Inst E E Proc 111:1162-72 Je '64

Electric stresses in gaseous cavities in solid dielectrics; experiments with an electrolytic tank. M. M. Sakr and B. Salvage. diag Inst E E Proc 111:1176-9 Je '64

Microwaves analyze gas composition. G. Johansson. diag Control Eng 11:101 Ap '64

New method for constructing epr cavities. A. R. Cook and others. bibliog il R Sci Instr 35:114-15 Ja '64

Resonator influence on temporal character of laser output. M. Katzman and J. W. Strozyk. bibliog diag IEEE Proc 52:433-4 Ap '64

Some improvements in the microwave cavity method of probing decaying gaseous plasmas. R. Hackam and J. J. Lennon. bibliog diag J Sci Instr 41:388 Je '64

Synthesis of a transmission-line resonator with a specified frequency spectrum. D. B. Large. IEEE Proc 52:633-4 My '64

Two-state operation of a hollow cathode discharge within a microwave cavity. E. C. Muly and R. Frerichs. IEEE Proc 52:202 F '64

RADIO service shops

Try this one. Published in monthly numbers of Radio-electronics

Equipment

Bench supply for transistor radios. W. Lemons. il diag Radio-Electronics 35:38-9 My '64

Pick-off box and wattmeter for cb. L. E. Greenlee. il diags Radio-Electronics 35:42-3 Ag '64

RADIO servicemen

Technicians' news. Published in monthly numbers of Radio-electronics

RADIO signals

Demodulation of wideband, low-power fm signals. S. Darlington. bibliog diags Bell System Tech J 43:339-74 pt 2 Ja '64

Effects of a small local change in phase velocity on the propagation of a vlf radio signal. D. D. Crombie. diags J Res Nat Bur Stand 68D:709-15 Je '64

Envelope delay for out-of-band signals. J. Del Guercio. IEEE Proc 52:1066-7 S '64

Experimental investigation of signal strength in the area around a transmitter's antipode. R. M. Pipp and J. B. Webster. bibliog diag J Res Nat Bur Stand 68D:333-7 Mr '64

Experimental study of the phase stability of vlf signals. D. E. Hampton. J Res Nat Bur Stand 68D:19-20 Ja '64

F-region irregularities studied by scintillation of signals from satellites. K. C. Yeh and G. W. Swenson, jr. map J Res Nat Bur Stand 68D:881-94 bibliog(p892-4) Ag '64

Families of distributions for hourly median power and instantaneous power of received radio signals. M. M. Siddiqui and G. H. Weiss. J Res Nat Bur Stand 67D:753-62 N '63

Geometrical optics convergence coefficient for the whistler case. J. H. Crary. bibliog diags J Res Nat Bur Stand 68D:211-14 F '64

Home-made transistor signal source. il diag Ind Electronics 2:229 My '64

Identification of signals. J. Thorp. diags IEEE Proc 52:614-15 My '64

Ionospheric sounding using coded pulse signals. D. C. Coll and J. R. Storey. bibliog il diags J Res Nat Bur Stand 68D:1155-9 O '64

Likelihood detection of a signal obscured by first-order Markovian noise. D. S. Potter and C. D. Leedham. bibliog J Ap Phys 35:2282-4 Ag '64

Long term phase stability of the 19.8 kc/s signal transmitted from Hawaii, and received at Boulder, Colo. A. H. Brady. bibliog J Res Nat Bur Stand 68D:283-9 Mr '64

RADIO signals—*Continued*

Measurement of the attenuation of radio signals by jungles. J. W. Herbstreit and W. Q. Crichlow. bibliog J Res Nat Bur Stand 68D:903-6 Ag '64

Method for the generation of a band of discrete, harmonically related frequencies. T. W. Butler, jr. and E. M. Aupperle. diags IEEE Trans Com & Electronics p634-9 N '63

Microwave signal-to-noise performance of CdSe bulk photoconductive detectors. M. DiDomenico, jr. and L. K. Anderson. bibliog diags IEEE Proc 52:815-22 Jl '64

Optimum recovery of a continuous signal from two discrete channels. J. C. Hung. bibliog diags Franklin Inst J 277:428-43 My '64

Orthonormal exponentials. D. C. Ross. bibliog diag IEEE Trans Com & Electronics p 173-6 Mr '64

Power spectral density of random facsimile signal. L. E. Franks. IEEE Proc 52:431-2 Ap '64

Precise phase and amplitude measurements on vlf signals propagated through the Arctic zone. F. H. Reder and others. diags J Res Nat Bur Stand 68D:275-81 Mr '64

Progress in emc instrumentation. D. R. J. White. diags Electro-Tech 74:46-50 O '64

Response of nonlinear control systems to periodic input signals. I. W. Sandberg. bibliog Bell System Tech J 43:911-26 My '64

Sampling properties and bandwidth occupancy of signal envelopes. H. Voelcker. IEEE Proc 52:100 Ja '64

Signal checking with phone-bandwidth receivers. G. Grammer. diags Q S T 47:62-5 D '63

Signal distortion in nonlinear feedback systems. I. W. Sandberg. bibliog diags Bell System Tech J 42:2533-50 N '63

Sky temperature behind the moon. C. R. Somerlock. Q S T 48:38-9 O '64

Spectrum of a signal produced by harmonic generation. R. H. Pantell. IEEE Proc 52:607-8 My '64

Stray signals can't throw this desensitized switch. J. M. Gault and R. J. Sanford. bibliog il diags Electronics 37:68-71 Jl 27 '64

Summary of research on vlf and elf emissions. R. M. Gallet. bibliog J Res Nat Bur Stand 68D:615-18 My '64

Sweeping carrier signals through interference. W. H. Chiles and H. G. Lafuse. diags Electronics 37:94-6 My 18 '64

Symposium on signal statistics, Seattle, Wash. Dec. 6-7. J Res Nat Bur Stand 68D:923-1062 S '64

Technique for measuring the spectral density matrix of two signals. D. R. Brillinger. diag IEEE Proc 52:103-4 Ja '64

Turbine operation monitored continuously by radio. F. V. Long. il diag Power 108:78-9 S '64

Whistlers. D. L. Carpenter. bibliog J Res Nat Bur Stand 68D:609-15 My '64

See also

Radio beacons

Radio echoes

Time signals, Radio

RADIO standards

Electronics color codes. diags Electronics 36:37-40 N 15 '63

Junk-box frequency standard. R. R. Campbell. diag Q S T 48:22-4 Ja '64

Our standard abbreviations. Radio-Electronics 35:16+ Ag '64

Radio noise measurement methods and standards. W. W. Mumford. bibliog J Res Nat Bur Stand 68D:536-8 My '64

Some comparisons of power-measuring standards at 300 and 400 mc/s. I. A. Harris and C. S. Fowler. bibliog diags Inst E E Proc 111:1597-601 S '64

Standard answer to confusion; standards for radio frequency coaxial connectors. C. Camillo. diags Mag of Stand 35:262-4 S '64

Standards and measurements of attenuation, impedance, and phase shift; period covered, Sept. 1960-Dec. 1962. R. W. Beatty. bibliog J Res Nat Bur Stand 68D:529-33 My '64

See also

Radio broadcasting—Frequency standards

Radio stations, Standard frequency

RADIO stars. See Stars

RADIO stations

Fiberglass buildings house microwave stations. J. P. O'Donnell. il Oil & Gas J 62:97+ F 3 '64

Kling designs a round Triangle. il Prog Arch 45:85 Je '64

Medium-capacity space-communication terminal. L. Pollack and others. il Elec Com 39 no 1:37-48 '64

Satellite-communication ground station in Germany. H. Carl. map Elec Com 39 no 1:123 '64

Transportable satellite-communication ground station in Brazil. J. C. Fonseca and C. H. Moreira. Elec Com 39 no 1:124-8 '64

Transportable-station operation with Telstar and relay satellites. J. E. Drucker. Elec Com 39 no 1:113-22 '64

See also

Radio towers

Equipment

Electric drive system for a steerable aerial at a satellite-communication earth station. H. A. Prime and others. il diags Inst E E Proc 111:556-64 Mr '64

Lightning protection of microwave relay stations. D. W. Bodle. il diags IEEE Trans Com & Electronics 83:462-6 S '64

Servo-controlled variometer at Rugby radio station. Engineer 216:857 N 22 '63

Space-research ground station. B. Cooper and R. McClure. il diag Elec Com 39 no 1:25-36 '64

System configuration of transportable space-communication terminal. D. Hershberg. il plan diags Elec Com 39 no 1:49-57 '64

See also

Television antennas

RADIO stations, Amateur

Featherweight portable station for 50 mc. E. P. Tilton. il diags Q S T 48:24-30 N '64

Increasing power in the v.h.f. station. E. P. Tilton. diags Q S T 48:27-31 S '64

Power-saving conversion v.f.o. il diag Q S T 48:23-5 S '64

Puerto Rico to Europe on 432 mc. S. Harris. il Q S T 48:92-5+ Ag '64

Equipment

Antenna relay for the beginner. R. Hanes. diags Q S T 48:59-61 Ap '64

Black box. G. L. Countryman. il diag Q S T 48:41-3 F '64

Broad-band amplifiers. J. E. Jennings. il diags Q S T 48:37-42 Ja '64

Compact slow-scan tv monitor. C. Macdonald. il diags Q S T 48:43-8 Mr '64

Early manufactured gear. il Q S T 48:73-5 F '64

Early techniques and equipment. diags Q S T 48:71-3 F '64

Effect of converter gain on receiver noise figure. J. A. Hall. Q S T 48:16-17 O '64

Hammarlund HXL-1 linear amplifier. E. L. Campbell. il diag Q S T 48:55-6 Je '64

Heathkit ham-scan panoramic adapter, model HO-13. E. P. Tilton. il diag Q S T 48:54-5 N '64

High-precision permeability-tuned v. f. o. W. Horn. il diags Q S T 48:22-8 Jl '64

I.f. tracking filter for weak-signal reception. R. W. Burhans. il diags Q S T 48:11-17+ S '64

Kilowatt amplifiers for 50 and 144 mc. E. P. Tilton. il diags Q S T 48:11-17+ F '64

Lightning protection for hams, swl's and cb'ers. G. P. Oberto. il diags Radio-Electronics 35:60 Ap '64

Meet the oscilloscope. G. Grammer. diags Q S T 48:18-21 Ja '64

Noise generators for 420 mc. and up. H. Olson and G. Lehman. il diags Q S T 48:33-5 F '64

Power a-plenty for pennies! J. F. Van Detta. diags Q S T 48:28-9 Ap '64

Practical kilowatt amplifier for 432 mc. A. T. Margot. il diag Q S T 48:47-50 Ag '64

Simplified frequency synthesizer. M. R. Briggs and H. J. Morrison. il diag Q S T 48:11-17 Ja '64

Tailor-made volts. L. G. McCoy. il diags Q S T 48:36-40 F '64

Transistor c.w. station for seven mc. W. Hayward. il diags Q S T 48:11-16 Ag '64

Transistorized vox in a box. E. L. Campbell. il diags Q S T 48:11-13 Mr '64

V.h.f. antenna facts and fallacies. E. P. Tilton. diags Q S T 48:52-6 Ja; 50-3 F; 29-33 Mr '64

RADIO stations, Portable

Featherweight portable station for 50 mc. E. P. Tilton. il diags Q S T 48:24-30 N '64

RADIO stations, Standard frequency

WWV and WWVH standard frequency and time transmissions. Published in monthly numbers of Proceedings of the IEEE

RADIO symbols

Transistor cut-off frequencies; frequency symbols explained. D. N. Tilsley. diags Wireless World 69:453-5 S '63; Correction. 69:545-6 N '63

RADIO telegraph

Adapting the 20A exciter to RTTY. R. L. Anderson. il diags Q S T 47:21-3 D '63

RADIO telegraph—*Continued*
Code-O-Matic keyer. E. L. Campbell. il Q S T 48:62 Ap '64
Computer runs message center. A. A. McKenzie. il Electronics 37:64 F 7 '64
C.w. sign-off with RTTY tape. K. N. Sapp. diags Q S T 48:34-5 Mr '64
End of Roger. il Electronics 37:28 Ap 20 '64
Error detection for Telex services. il Engineer 217:626 Ap 3 '64
Frequency shift keying for the AN/ART13. J. H. Flynn, jr. diag Q S T 48:22-3 My '64
Group code-practice oscillator. J. Davis. diag Q S T 48:57 Ap '64
Magnamatic key. A. Pfeiffer. il diags Q S T 48:23-5 Mr '64
More on the filterless terminal unit for f.s.k. H. E. Davis. diag Q S T 48:18-19 F '64
New look for the old telegraph. R. K. Andres and L. P. Correard. il diags Electronics 37:85-90 Mr 23 '64
Performance of v.f. f.m. teleprinter circuits operating over a tropospheric-scatter link. H. B. Wood. diag Inst E E Proc 110:1933-40 N '63
Telegraph and data logging equipment in M.V. Centaur. il Engineer 217:236 Ja 31 '64
Telex network error detection equipment. il Engineering 197:480 Ap 3 '64
See also
Amplifiers
Amplifiers, Vacuum tube
Telegraph, Carrier current

RADIO telephone
Brelonix MP-40 modulator kit. E. L. Campbell. il Q S T 48:56-7 Je '64
Electricity, gas and coal industries operate more than 9.500 radio stations. il Engineering 198:512-13 O 23 '64
Pioneering attempt at multiplex telephony. J. Blanchard. IEEE Proc 51:1706-9 D '63
Post office tower aerials. il Engineer 218:554 O 2 '64
Radio telecommunications network links Canada's Union gas co. system. il maps Gas 40:68-73 N '64
V.f.o. and phone for the Gallon Mark II. L. G. McCoy. il diags Q S T 48:50-3+ My '64
Vibrating reed selector for Bellboy service. S. D. White. il diag Bell Lab Rec 42:134-7 Ap '64
Walkie talkies. W. K. Stevenson. Wireless World 70:247 My '64
See also
Amplifiers
Amplifiers, Vacuum tube
Telephone, Carrier current

Highway department use

Two-way radio saves miles and man-hours. il Pub Works 95:136 Mr '64

Maintenance and repair

Pick-off box and wattmeter for cb. L. E. Greenlee. il diags Radio-Electronics 35:42-3 Ag '64
Second phone: ticket to cb service profits. J. Kyle. il Radio-Electronics 35:52-3 Je '64
Test set aids two-way radio jobs. B. Barbee. il diag Radio-Electronics 35:46-8 Je '64
Which maintenance program for radio equipment? R. L. Borchardt. il Plant Eng 18:116-17 S '64

Police uses

Standby power vital to police communications. il Elec Constr & Maint 63:114+ Je '64

Power supply

Standby power vital to police communications. il Elec Constr & Maint 63:114+ Je '64

RADIO telephone, Portable
Knight-kit C-555 cb transceiver. E. C. Carlson. il diag Radio-Electronics 35:37 Jl '64
Two-way radio flexibility from silicon transistors. Eng N 173:30-1 Jl 30 '64

RADIO telephone in factories
Fast two-way communication takes legwork out of maintenance. H. Kaufman. il Plant Eng 18:124-6 Jl '64
1964 materials handling and packaging directory: plant and auxiliary equipment. il Mod Materials Handling 19:279-302 My '64
Radio paging: a bellhop in your pocket. Mod Materials Handling 19:42-3 Je '64
Staff location system. il Engineer 218:559 O 2 '64
Which maintenance program for radio equipment? R. L. Borchardt. il Plant Eng 18:116-17 S '64

RADIO telephone in mines
Some modern communication techniques having application in the mining industry. R. G. Shelley and E. Oldfield. bibliog il diag Can Min & Met Bul 57:292-7 Mr '64

RADIO telephone on automobiles
Complete mobile package. L. J. Filion. il diag Q S T 48:11-15+ Je; 54-7 Jl '64
Heathkit HR-20 mobile receiver. il diag Q S T 48:58-9 Mr '64
Heathkit HX-20 mobile s.s.b. transmitter. il diag Q S T 48:59-61 Mr '64
Low-drain 6-meter mobile receiver. H. J. Hanson. il diags Q S T 48:19-22 Je '64
Radio-telephone aids contractor. il Elec Constr & Maint 63:109 Je '64
Two-way radio does triple duty. il Eng N 172:188 Je 18 '64

RADIO telephone on motor trucks
Transistorized radios slash operating costs. il Gas Age 131:32-4 Ag '64

RADIO telephone on railroads
Communication with locomotive drivers. il Engineer 217:414-15 F 28 '64
See also
Railroads—Radio communication

RADIO telephone on ships
Don't miss the boats! J. L. Lovett. il Radio-Electronics 35:40-2, cover My '64
Multichannel vhf marine radiotelephone units. il Marine Eng/Log 68:102 N '63

RADIO telescope
Arecibo observatory. il Phys Today 17:66-7 Ja '64
Biggest telescope on earth is in the earth. E. Leslie. il diag Radio-Electronics 35:36-7, cover F '64
Broader view at Jodrell Bank. il Engineer 217:1027-8 Je 12 '64
Jodrell Bank telescope. il Phys Today 17:62 S '64
Low cost radio telescope. J. H. Taylor, jr. bibliog diags Am J Phys 32:546-50 Jl '64
New radio telescope at Jodrell Bank. il Electronic Eng 36:452-3 Jl '64
New radio telescope at Jodrell Bank. il Engineering 197:794-5 Je 12 '64
140 ft radio telescope. Engineering 198:117 Jl 24 '64
Paraboloid for the stars. il Engineering 197:399 Mr 13 '64
Radio astronomy with the Australian 210-foot telescope. J. G. Bolton. bibliog il diags IEEE Proc 51:1464-70 N '63
Some results obtained with the 22-meter radio telescope. A. E. Salomonovich. bibliog diags AIAA J 2:193-202 Ja '64
Structure designs governed by limited deformations. J. Solomon. il diags Am Soc C E Proc 89 [ST 6 no 3718]:71-99 D '63; Discussion. 90 [ST 4 no 4001]:291-6 Ag '64
Twenty-one centimeter traveling-wave maser for the Harvard radio telescope. M. L. Hensel and E. B. Treacy. bibliog il diags R Sci Instr 35:970-5 Ag '64
World's biggest radio telescope; editorial. H. Gernsback. Radio-Electronics 35:25 Je '64

RADIO time signals. See Time signals, Radio

RADIO towers
Folding a rigid tower. W. R. Angell. il diags Q S T 48:16-19 My '64
Microwave and 138-kv circuits share a tower. R. G. Meyerand. Power Eng 68:46 S '64
Plastic radio tower rises rapidly. il Eng N 172:28 Ap 9 '64
Revolving restaurant for post office tower. il diag Engineer 216:985-6 D 13 '63

RADIO transformers
Achievements and trends in transformers. R. Lee. bibliog il diag Electronic Ind 23:50-3 Je '64
Air core transformer system eliminating contact wires in the carrier frequency device of a torsion pendulum. U. Zorll. il J Sci Instr 40:529-31 N '63
Antennas and transmatches. L. G. McCoy. diag Q S T 48:18-21 O '64
Broad-band balun transformers. R. Turrin. il diags Q S T 48:33-5 Ag '64
Controlled transformer for use in magnetic film logic. J. G. Edwards. diag J Sci Instr 41:270-2 My '64
Introduction to the synchro transolver. A. E. Hayes. bibliog il diags Electronic Ind 22:69-74 D '63
Multiple cores used to simulate a variable volt-second saturable transformer for application in self-oscillating inverters. R. W. Sterling and others. diags IEEE Trans Com & Electronics 83:288-94 My '64
Self-balancing transformer ratio arm bridges. R. Calvert and J. Mildwater. diags Electronic Eng 35:782-7 D '63
Tables of Chebyshev impedance-transforming networks of low-pass filter form. G. I. Matthaei. diags IEEE Proc 52:939-63 Ag '64

RADIO transformers—*Continued*

Tailor-made volts. L. G. McCoy. il diags Q S T 48:36-40 F '64

Two-transformer d.c. to a.c. power converters. K. Pelc and P. A. Tove, bibliog diags Electronic Eng 35:742-5 N '63

Tuning

True third harmonic tuning of e.h.t. transformers. F. D. Bate. diags Electronic Eng 36:688-92 O '64

RADIO transmission

Amplitude distortion in non-linear networks with particular reference to carrier transmission systems. W. Dougharty. bibliog diags Electronic Eng 36:390-3 Je '64

Approach to tropospheric duct propagation. G. Franceschetti. bibliog flow diag IEEE Proc 51:1481-6 N '63

Characteristic impedance of two special forms of transmission line. J. B. Izatt. bibliog diags Inst E E Proc 111:1551-5 S '64

Chart for determining the effects of ionospheric tilts using an idealized model. T. A. Croft and R. B. Fenwick. diags J Res Nat Bur Stand 67D:735-45 N '63

Circular electric wave propagation in periodic structures. G. W. Luderer and H. G. Unger. bibliog diags Bell System Tech J 43:755-83 Mr '64

Comparison of observed vlf attenuation rates and excitation factors with theory. A. D. Watt and R. D. Croghan. bibliog diags J Res Nat Bur Stand 68D:1-9 Ja '64

Concerning limitations and further corrections to geometric-optical theory for lf, vlf propagation between the ionosphere and the ground. J. R. Johler. bibliog diag J Res Nat Bur Stand 68D:67-78 Ja '64

Conservative coupling between modes of propagation; a tabular summary. C. W. Barnes. bibliog diags IEEE Proc 52:64-73 Ja '64

Digital troposcatter transmission and modulation theory. E. D. Sunde. bibliog diags Bell System Tech J 43:143-214 Ja '64

Diurnal changes of transmission time in the Arctic propagation of vlf waves. W. T. Blackband. diags J Res Nat Bur Stand 68D:205-10 F '64

Easy-to-use chart for vswr; reference sheet. G. Hagn and B. Sifford. Electronics 36:38 N 22 '63

Effect of lossy earth on antenna gain. R. J. Coe and W. L. Curtis. bibliog il diags J Res Nat Bur Stand 68D:251-5, 813-18 F, Jl '64

Effects of a small local change in phase velocity on the propagation of a vlf radio signal. D. D. Crombie. diags J Res Nat Bur Stand 68D:709-15 Je '64

Experimental study of the phase stability of vlf signals. D. E. Hampton. J Res Nat Bur Stand 68D:19-20 Ja '64

Gated capacitor store for t.c.m. transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog il diags Inst E E Proc 111:669-74; Discussion. 683-4 Ap '64

Guided propagation of elf and vlf radio waves between the earth and the ionosphere. D. D. Crombie and A. G. Jean. J Res Nat Bur Stand 68D:584-8 bibliog(p586-8) My '64

Influence of irregularities of terrain and of vegetation on radio wave propagation. bibliog J Res Nat Bur Stand 68D:560-3 My '64

Interpretation of rapid changes in the phase of horizontally polarized vlf waves recorded at night over a short path in the southwestern United States. E. E. Gossard and M. R. Paulson. bibliog diags J Res Nat Bur Stand 68D:265-74 Mr '64

Long term phase stability of the 19.8 kc/s signal transmitted from Hawaii, and received at Boulder, Colo. A. H. Brady. bibliog J Res Nat Bur Stand 68D:283-9 Mr '64

Lunar semi-diurnal tides in *h'F* and their influence on transequatorial radio propagation. J. A. Thomas. bibliog J Res Nat Bur Stand 68D:419-27 Ap '64

Measurements of the extent to which round-the-world hf propagation follows a great circle. R. B. Fenwick and others. il IEEE Proc 52:418-19 Ap '64

Measurements on radiation reflected obliquely from a rough surface. R. H. Clarke. bibliog diags Inst E E Proc 110:1921-7 N '63

Meteorological parameter for radioclimatological purposes. P. Misme. J Res Nat Bur Stand 68D:851-5 Jl '64

Models of the troposphere. J Res Nat Bur Stand 68D:547-52 bibliog(p551-2) My '64

Nature of and system inferences of delay distortion due to mode conversion in multimode transmission systems. S. E. Miller. bibliog diags Bell System Tech J 42:2741-60 N '63

Oblique propagation of groundwaves across a coastline. J. R. Wait: C. M. Jackson. bibliog diags J Res Nat Bur Stand 67D: 617-30; 68D:291-6 N '63, Mr '64

Overall survey of transmission-performance planning. H. Williams. bibliog diags Inst E E Proc 111:727-43 Ap '64

Power a-plenty for pennies! J. F. Van Detta. diags Q S T 48:28-9 Ap '64

Power transmitted by a medium of complex wave impedance. H. E. M. Barlow. Inst E E Proc 110:2174-6 D '63

Precise phase and amplitude measurements on vlf signals propagated through the Arctic zone. F. H. Reder and others. diags J Res Nat Bur Stand 68D:275-81 Mr '64

Propagation of e.l.f. waves below an inhomogeneous anisotropic ionosphere. J. Galejs and R. V. Row. bibliog J Res Nat Bur Stand 68D:103-4 Ja '64

Propagation of electromagnetic waves through a continuously varying stratified anisotropic medium. G. H. Price. bibliog diag J Res Nat Bur Stand 68D:407-18 Ap '64

Propagation of radio waves with frequency 99.9 Mhz as a function of the vertical structure of the atmosphere derived from daily radiosonde observations. G. P. A. Braam. bibliog map J Res Nat Bur Stand 68D:257-60 F '64

Propagation of vlf waves over distances between 1000 and 3000 km. B. Burgess. bibliog J Res Nat Bur Stand 68D:15-16 Ja '64

Propagation of vlf waves under disturbed conditions. B. Burgess. bibliog J Res Nat Bur Stand 68D:115-16 Ja '64

Quasi-longitudinal approximation in the generalized theory of radio wave absorption. R. F. Benson. bibliog J Res Nat Bur Stand 68D:219-23 F '64

Radio propagation by reflection from meteor trails. G. R. Sugar. map diags IEEE Proc 52:116-36 bibliog(p 135-6) F '64

Simulated angular response patterns for transhorizon propagation. J. W. Strohbehn and A. T. Waterman, jr. bibliog il diags J Res Nat Bur Stand 68D:173-8 F '64

Some experimental results concerning nonreciprocal east-west vlf wave propagation. B. Burgess. bibliog J Res Nat Bur Stand 68D:17-18 Ja '64

Some observations on vlf standard frequency transmissions as received at Sydney, N.S.W. A. M. Thompson and others. bibliog il diags IEEE Proc 51:1487-93 N '63

Some particular observations on diurnal phase variations of vlf transmissions received in Paris. B. Decaux and A. Gabry. bibliog diag J Res Nat Bur Stand 68D:21-5 Ja '64

Some remarks on mode and ray theories of vlf radio propagation. J. R. Wait. bibliog J Res Nat Bur Stand 68D:79-80 Ja '64

Some statistical parameters related to the Nakagami-rice probability distribution. W. R. Burns. bibliog J Res Nat Bur Stand 68D:429-34 Ap '64

Spectra of wave-shaped binary sequences. N. Solat. IEEE Proc 52:424 Ap '64

Survey of ionospheric effects upon earth-space radio propagation. R. S. Lawrence and others. diags IEEE Proc 52:4-27 bibliog(p26-7) Ja '64

Theory of radio and hydromagnetic wave propagation in the magnetosphere. H. G. Booker. bibliog J Res Nat Bur Stand 68D: 607-8 My '64

Time-assignment speech interpolation in time-compression-multiplex transmission. J. E. E. Flood and D. I. Urquhart-Pullen. bibliog diag Inst E E Proc 111:675-83; Discussion. 683-4 Ap '64

Time-compression-multiplex transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog il diags Inst E E Proc 111:647-68; Discussion. 683-4 Ap '64

Transmission-loss measurements and diversity tests made on two knife-edge diffraction paths in Europe. R. E. Gray. il map Elec Com 38 no 4:457-64 '63

Tropo goes commercial. A. A. McKenzie. il map diags Electronics 37:88-94 Jl 27 '64

Tropospheric propagation affecting space communications. bibliog J Res Nat Bur Stand 68D:558-9 My '64

Tuned-circuit temperature compensation. R. H. Decker. diags Q S T 47:24-7 D '63

Two-dimensional treatment of mode theory of the propagation of vlf radio waves. J. R. Wait. bibliog diags J Res Nat Bur Stand 68D:81-93 Ja '64

RADIO transmission—*Continued*

Vlf propagation under the ionosphere in the lowest mode of horizontal polarization. H. A. Wheeler. bibliog diags J Res Nat Bur Stand 68D:105-13 Ja '64

Wave propagation in stratified random media. Y. M. Chen. bibliog diag J Res Nat Bur Stand 68D:743-8 Je '64

Waveguide structures for low-loss transmission around sharp bends in circular waveguide. P. A. Vuorinen and H. E. M. Barlow. bibliog diags Inst E E Proc 111:433-44 Mr '64; Discussion. 111:1417-20 Ag '64

See also
Radio echoes
Radio pulse code modulation
Radio relay systems
Radio waves—Scattering
Television transmission

Double sideband system

Double-sideband parametric conversion using non-linear resistance and capacitance. K. L. Hughes and D. P. Howson. bibliog diags Radio & Electronic Eng 27:417-24; Discussion. 439-41 Je '64

Fading

Asymptotic performance characteristics for the adaptive coherent multireceiver and noncoherent multireceiver operating through the Rician fading multichannel. W. C. Lindsey. bibliog diags IEEE Trans Com & Electronics p67-73 Ja '64

Intensity distribution $\frac{2R}{\sqrt{\alpha\beta}} \exp\left[-\frac{R^2}{2}\left(\frac{1}{\alpha}+\frac{1}{\beta}\right)\right] I_0\left(\frac{R^2}{2}\left[\frac{1}{\beta}-\frac{1}{\alpha}\right]\right)$ and its application to signal statistics. M. Nakagami. J Res Nat Bur Stand 68D:995-1003 S '64

Intermodulation distortion in analog fm troposcatter systems. E. D. Sunde. bibliog diags Bell System Tech J 43:399-435 pt 2 Ja '64

Measurement of the complex time-frequency channel correlation function. P. A. Bello. diag J Res Nat Bur Stand 68D:1161-5 O '64

Periodic fading of vlf signals received over long paths during sunrise and sunset. D. D. Crombie. bibliog diags J Res Nat Bur Stand 68D:27-34 Ja '64

Phase fluctuation statistics. J. B. Smyth. bibliog diags J Res Nat Bur Stand 68D:983-7 S '64

Phase stability of signals from NBA (18 kc/s) Panama as received in New Zealand. G. T. Burtt. bibliog diag Inst E E Proc 110:1928-32 N '63

Single sideband system

Combination a.m.-p.m. for compatible single-sideband transmission. N. B. Chakrabarti. bibliog diags Inst E E Proc 111:1245-61 Jl '64

RADIO transmitters

Cleaner break-in with the 32S-3. D. P. Shafer. diags Q S T 48:46-7 N '64

Developments in h.f. transmitting equipment. Electronic Eng 36:403 Je '64

Galaxy III transceiver. D. A. Blakeslee and E. L. Campbell. il diags Q S T 48:60-2 O '64

Marine radio transmitters. il Engineer 216:1034-5 D '63

Neon-bulb keyer. H. J. Gensler, jr. il diags Q S T 48:38-42 S '64

Upper bound of channel capacity with a peak-power limitation for small SNR. H. Akima. IEEE Proc 52:1081 S '64

Variables unreachable? use short range radio telemetry. C. H. Hoeppner. il diags Power Eng 68:T12-14 Mr '64

Control

Simple crystal-controlled f.s.k. K. N. Sapp. diag Q S T 48:18-19 S '64

Design

Getting transistors into single-sideband amplifiers. R. C. Hejhall. diags Electronics 37:72-4 Je 1 '64

Simple phase modulator. C. T. Kohn. diag Electronic Eng 36:530-3 Ag '64

Solid state vhf transmitter design. H. C. Lee and others. diags Electronic Ind 23:96-100 Ag '64

Frequency modulation transmitters

Studies of a twin-channel frequency-modulated echo-location system. D. E. N. Davies and B. S. Rao. bibliog diags Radio & Electronic Eng 28:161-72 S '64

Power supply

Remote vhf radio alarm system is solar powered. il diag Power Eng 68:47 O '64

Three-band neutralized v.f.o. amplifier. R. E. Anderson. il diag Q S T 48:40-3 Ag '64

Short wave

All-transistor 50-mc. station. E. E. Ewald, jr. il diags Q S T 48:11-15 My '64

Antenna system for the entire h-f band. S. W. Kershner. il diags Electronic Ind 23:88-90 Ag '64

Balanced modulators for v.h.f. and u.h.f. sideband. J. V. O'Hern and T. L. Sly. il diags Q S T 48:11-15 N '64

Coaxial-tank v.h.f. filters. E. P. Tilton. il diags Q S T 48:11-15 O '64

Compact 500-watt transmitter for 50 mc. W. I. Orr and R. F. Rinaudo. il diags Q S T 48:25-9 Ja '64

Complete mobile package. L. J. Fillon. il diag Q S T 48:11-15+ Je; 54-7 Jl '64

Completely flexible transmatch for one watt to 1000. L. G. McCoy. il diags Q S T 48:39-42 Je '64

Converting the Knight C-100 cb transceiver to 50 mc. E. C. Pienkowski. il diag Q S T 48:36-7 Mr '64

Experimental investigation of signal strength in the area around a transmitter's antipode. R. M. Pipp and J. B. Webster. bibliog diag J Res Nat Bur Stand 68D:333-7 Mr '64

Foreign broadcasts get a stronger voice. E. L. Chubbuck, jr. diags Electronics 37:87-90 My 4 '64

Heathkit HX-20 mobile s.s.b. transmitter. il diag Q S T 48:59-61 Mr '64

Increasing power in the v.h.f. station. E. P. Tilton. diags Q S T 48:27-31 S '64

Instantaneous break-in with the Collins S-line. H. R. Hildreth. il diags Q S T 47:50-2 D '63

Interferometer analyzes microwave transmitter. R. Robertson. il diag Electronics 37:58-60 Je 29 '64

Marine transmitter with single-sideband facility. F. Hedström. il diags Elec Com 38 no 4:465-74 '63

Medium-power band-switching v.h.f. transmitter. E. H. Adolph. il diags Q S T 47:11-17 D '63

Multicoupler puts five transmitters on one antenna. G. H. Barry and J. D. Hawkins. il diag Electronics 36:32-3 D 13 '63

New cb circuit features. R. F. Scott. il diags Radio-Electronics 35:40-2 Ja '64

Novice gallon, Mark II; 75 watts Novice, 250 watts general. L. G. McCoy. il diag Q S T 48:11-16+ Ap '64

OHS 160-meter transmitter. M. Wright. il diag Q S T 48:29-31 My '64

Portable aerial for short-wave transmitters. O. Grünberg. il Electronic Eng 36:108-9 F '64

Radio transmitter for satellite communication from Goonhilly Downs station of the British post office. E. A. Rattue. il Elec Com 39 no 1:129-31 '64

SB-33 single-sideband transceiver. E. L. Campbell. il diags Q S T 48:52-5 Ap '64

Self-tuning hf transmitter. il Electronic Ind 23:118 Jl '64

Sideband transceiver, VU2 style. B. A. N. Raju. il diag Q S T 48:19-22 Mr '64

Simple heterodyne unit for 50-mc. s.s.b. H. A. Blodgett. il diag Q S T 48:46-7 Ap '64

Solid state vhf transmitter design. H. C. Lee and others. diags Electronic Ind 23:96-100 Ag '64

Some notes on reducing power. E. L. Campbell. diags Q S T 48:20-2 F '64

Speech clipping for single sideband. W. K. Squires and E. T. Clegg. il diags Q S T 48:11-15 Jl '64

Stacked halos for omnidirectional coverage. J. Layton. il diags Q S T 48:65 Ag '64

Transmitter for satellite ground station. H. Goldman and others. il diags Elec Com 39 no 1:80-8 '64

Two-band sixty-watter for the novice. R. E. Anderson. il diag Q S T 48:15-18 Mr '64

V.f.o. and phone for the Gallon Mark II. L. G. McCoy. il diags Q S T 48:50-3+ My '64

Single sideband transmitters

Balanced modulators for v.h.f. and u.h.f. sideband. J. V. O'Hern and T. L. Sly. il diags Q S T 48:11-15 N '64

Clegg Venus 50-mc. s.s.b. transceiver. E. P. Tilton. il diag Q S T 48:84-6 S '64

Marine transmitter with single-sideband facility. F. Hedström. il diags Elec Com 38 no 4:465-74 '63

RADIO transmitters—Single sideband transmitters—*Continued*

SB-33 single-sideband transceiver. E. L. Campbell. il diags Q S T 48:52-5 Ap '64

Sideband transceiver, VU2 style. B. A. N. Raju. il diag Q S T 48:19-22 Mr '64

Simple heterodyne unit for 50-mc. s.s.b. H. A. Blodgett. il diag Q S T 48:46-7 Ap '64

Single-sideband marine radio. il Engineer 217:1099 Je 19 '64

Speech clipping for single sideband. W. K. Squires and E. T. Clegg. il diags Q S T 48:11-15 Jl '64

Testing

Interferometer analyzes microwave transmitter. R. Robertson. il diag Electronics 37:58-60 Je 29 '64

Oscilloscope setups for transmitter testing. G. Grammer. il diags Q S T 48:40-5 O '64

Transistor transmitters

All-transistor 50-mc. station. E. E. Ewald jr. il diags Q S T 48:11-15 My '64

85mc/s transistorized transmitter. A. E. Hilling. diags Electronic Eng 36:466-9 Jl '64

Solid-state transmitter ready for uhf telemetry. N. Downs and B. van Sutphin. il diags Electronics 37:76-80 Je 1 '64

The TOT. R. Glorioso. il diags Q S T 47:29-32 D '63

Transistor c.w. station for seven mc. W. Hayward. il diags Q S T 48:11-16 Ag '64

Tuning

Self-tuning 5kW linear amplifier. J. Wood. diags Electronic Eng 36:524-9 Ag '64

RADIO transmitters, Portable

All-transistor 50-mc. station. E. E. Ewald, jr. il diags Q S T 48:11-15 My '64

Babel on wheels. Electronics 37:29 Ap 20 '64

Controlling fighter planes from a jeep in battle area. T. Maguire. il Electronics 37:114-18 O 5 '64

Converting the Knight C-100 cb transceiver to 50 mc. E. C. Pienkowski. il diag Q S T 48:36-7 Mr '64

International mobile radio equipment. G. Sidow and others. il diags Elec Com 39 no 3:346-59 '64

Mobile and manpack radio equipments. il Engineer 217:144 Ja 17 '64

Mobiltrans 40 transmitter-converter. E. L. Campbell. il diag Q S T 48:58-9 O '64

Pocket-size transmitter uses body heat to control frequency. J. G. Arnold. il diags Electronics 37:66-9 Jl 13 '64

Portable life-raft radio. Engineer 218:69 Jl 10 '64

Rescue radio. Electronics 37:31-2 S 21 '64

The TOT. R. Glorioso. il diags Q S T 47:29-32 D '63

RADIO waves

Application of matrix methods to the solution of travelling-wave phenomena in polyphase systems. L. M. Wedepohl. bibliog diags Inst E E Proc 110:2200-12 D '63

Complex magnetic susceptibility of maser rubies at microwave frequencies. H. Kiemle and H. Rothe. IEEE Proc 52:1243 O '64

Concerning limitations and further corrections to geometric-optical theory for lf, vlf propagation between the ionosphere and the ground. J. R. Johler. bibliog diag J Res Nat Bur Stand 68D:67-78 Ja '64

Conservative coupling between modes of propagation; a tabular summary. C. W. Barnes. bibliog diags IEEE Proc 52:64-73 Ja '64

Diurnal changes of transmission time in the Arctic propagation of vlf waves. W. T. Blackband. diags J Res Nat Bur Stand 68D:205-10 F '64

Diurnal phase variation of vlf waves at medium distances. H. Volland. bibliog diags J Res Nat Bur Stand 68D:225-38 F '64

Effect of differential loss on approximate solutions to the coupled line equations. D. T. Young. Bell System Tech J 42:2787-93 N '63

Effect of microwave radiation on the ionized gas behind a strong normal shock wave. K. T. Yen. bibliog AIAA J 2:71-5 Ja '64

Efficient transfer of power by microwave beam. N. I. Heenan. bibliog diags IEEE Proc 52:735-6 Je '64

Efficient transport of energy by microwave beam. W. C. Brown. il diags Space/Aeronautics 42:68-9 S '64

Excitation of surface waves. W. E. Williams. Inst E E Proc 111:1693-5 O '64

Elf and vlf waves below an inhomogeneous anisotropic ionosphere. J. Galejs. bibliog J Res Nat Bur Stand 68D:693-707 Je '64

Focused microwave technique for measurement of the ionization rate and collision frequency. W. Scharfman and T. Morita. bibliog il diag J Ap Phys 35:2016-20 Jl '64

Guided propagation of elf and vlf radio waves between the earth and the ionosphere. D. D. Crombie and A. G. Jean. J Res Nat Bur Stand 68D:584-8 bibliog (p586-8) My '64

Guided waves in the troposphere. bibliog J Res Nat Bur Stand 68D:563-4 My '64

Helical line with circumferentially magnetised ferrite cylinder. K. P. Ivanov. diag Inst E E Proc 111:1692-3 O '64

Interaction of a radiating source with a plasma. K. M. Chen. bibliog diags Inst E E Proc 111:1668-78 O '64

Interpretation of rapid changes in the phase of horizontally polarized vlf waves recorded at night over a short path in the southwestern United States. E. E. Gossard and M. R. Paulson. bibliog diags J Res Nat Bur Stand 68D:265-74 Mr '64

Long waves associated with disturbances produced in plasmas. H. Bremmer. J Res Nat Bur Stand 68D:47-58 Ja '64

Measurements at millimeter and submillimeter wavelengths. R. G. Fellers. bibliog J Res Nat Bur Stand 68D:538-40 My '64

Microwave heating of a Luneberg lens. S. P. Morgan. diag Bell System Tech J 43:659-77 Mr '64

Microwave propagation in a waveguide containing a semiconductor to which is applied a steady transverse magnetic field. H. E. M. Barlow and R. Koike. bibliog diags Inst E E Proc 110:2177-81 D '63

Microwave properties of superconductors. J. I. Gittleman and B. Rosenblum. bibliog diags IEEE Proc 52:1138-47 O '64

Oblique propagation of groundwaves across a coastline. J. R. Wait; C. M. Jackson. bibliog diags J Res Nat Bur Stand 67D:617-30; 68D:291-6 N '63, Mr '64

Power spectra of waves with multiple angle modulations. J. W. Goodman. IEEE Proc 52:418 Ap '64

Power transmitted by a medium of complex wave impedance H. E. M. Barlow. Inst E E Proc 110:2174-6 D '63

Propagation of e.l.f. waves below an inhomogeneous anisotropic ionosphere. J. Galejs and R. V. Row. bibliog J Res Nat Bur Stand 68D:103-4 Ja '64

Propagation of microwave in a plasma-filled waveguide. G. S. Harman and M. Eisner. bibliog diag J Ap Phys 35:319-21 F '64

Propagation of radio waves with frequency 99.9 Mhz as a function of the vertical structure of the atmosphere derived from daily radiosonde observations. G. P. A. Braam. bibliog map J Res Nat Bur Stand 68D:257-60 F '64

Radio-star scintillations from ionospheric waves. J. W. Warwick. bibliog il diags J Res Nat Bur Stand 68D:179-88 F '64

Radio, the ionosphere, and IQSY. R. W. Knecht. bibliog J Res Nat Bur Stand 68D:578-83 My '64

Some basic microwave phase shift equations. R. W. Beatty. diag J Res Nat Bur Stand 68D:349-53 Ap '64

Some numerical results based on the theory of radio wave propagation over inhomogeneous earth. K. Furutsu and others. bibliog diags J Res Nat Bur Stand 68D:827-46 Jl '64

TE- and TM-waves in waveguides of very general cross section. H. H. Meinke and others. bibliog il diags IEEE Proc 51:1436-43 N '63

Theory and potential applications of backward waves in nonperiodic inhomogeneous waveguides. R. A. Waldron. bibliog Inst E E Proc 111:1659-67 O '64

Two-dimensional treatment of mode theory of propagation of vlf radio waves. J. R. Wait. bibliog diags J Res Nat Bur Stand 68D:81-93 Ja '64

Vlf anomalies observed at State college, Pa., during the U.S. 1962 high-altitude nuclear tests. C. F. Sechrist, jr. bibliog J Res Nat Bur Stand 68D:125-33 Ja '64

Vlf disturbances caused by trapped beta-rays from the decay of neutrons produced in high-altitude nuclear explosions. A. J. Zmuda and others. bibliog J Res Nat Bur Stand 68D:117-23 Ja '64

Watson transformation and mode theory. L. A. Berry. bibliog diags J Res Nat Bur Stand 68D:59-66 Ja '64

Waves in plasmas. A. Bers and P. Chorney. bibliog J Res Nat Bur Stand 68D:674-8 My '64

See also

Radio echoes

Wave guides

RADIO waves—*Continued*

Absorption

Discussion of the theory of ionospheric cross modulation. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1109-22 O '64
Electron collision frequency in the ionospheric *D* region. R. F. Benson. bibliog J Res Nat Bur Stand 68D:1123-6 O '64
Index of refraction of air, the absorption and dispersion of centimeter waves by gases. G. Boudouris. il diags J Res Nat Bur Stand 67D:631-84 bibliog(p681-4) N '63
Inversion of radio wave absorption data to establish ionospheric properties; nondeviative absorption. A. D. Wheelon. bibliog diags J Res Nat Bur Stand 67D:699-705 N '63
Quasi-longitudinal approximation in the generalized theory of radio wave absorption. R. F. Benson. bibliog J Res Nat Bur Stand 68D:219-23 F '64

Attenuation

Calculation of groundwave attenuation in the far diffraction region. L. E. Vogler. bibliog diags J Res Nat Bur Stand 68D:819-26 Jl '64
Comparison of observed vlf attenuation rates and excitation factors with theory. A. D. Watt and R. D. Croghan. bibliog diags J Res Nat Bur Stand 68D:1-9 Ja '64
Effect of weather on performance of an 8mm radar. O. Nourse and S. G. Nicholls. diags Inst E E Proc 111:1523-33 S '64
Field intensity measurements at 10.2 kc/s over reciprocal paths. J. C. Hanselman and others. bibliog map J Res Nat Bur Stand 68D:11-14 Ja '64
Insertion loss concepts. R. W. Beatty. bibliog diags IEEE Proc 52:663-71; Discussion. K. A. Norton. 710 Je '64
Measurement of the attenuation of radio signals by jungles. J. W. Herbstreit and W. Q. Crichlow. bibliog J Res Nat Bur Stand 68D:903-6 Ag '64
Rectangular-waveguide attenuation at millimetre wavelengths. F. A. Benson and D. H. Steven. bibliog il diags Inst E E Proc 110:1008-14 Je '63; Discussion. 111:1417-20 Ag '64
Standards and measurements of attenuation, impedance, and phase shift; period covered. Sept. 1960-Dec. 1962. R. W. Beatty. bibliog J Res Nat Bur Stand 68D:529-33 My '64
Synopsis of attenuation and emission investigations of 58 to 62 kmc frequencies in the earth's atmosphere. C. W. Tolbert and A. W. Straiton. bibliog IEEE Proc 51:1754-60 D '63

Diffraction

Application of diffractions by convex surfaces to irregular terrain situations. H. T. Dougherty and L. J. Maloney. bibliog map diags J Res Nat Bur Stand 68D:239-50 F '64
Approximate method for computing diffraction patterns caused by ionospheric irregularities. R. Gagnon. bibliog diags J Res Nat Bur Stand 68D:737-42 Je '64
Diffraction of a cylindrical surface wave by a discontinuity in surface reactance. R. W. Breithaupt. bibliog diags IEEE Proc 51:1455-63 N '63
Light-modulated scattering technique for diffraction field measurements. A. M. Vural and D. K. Cheng. bibliog diags J Res Nat Bur Stand 68D:355-62 Ap '64
Numerical approach to the solution of radio diffraction problems. J. K. Hargreaves and S. Hargreaves. bibliog diags J Res Nat Bur Stand 67D:685-98 N '63
Transmission-loss measurements and diversity tests made on two knife-edge diffraction paths in Europe. R. E. Gray. il map Elec Com 38 no 4:457-64 '63

Industrial applications

Can oil fields be found with radio waves? new look at an old method. W. M. Barrett. map Oil & Gas J 62:258-60 Ja 27 '64
Comeback for wireless power? G. V. Novotny. bibliog diags Electronics 37:86-90 S 21 '64
Microwave heating comes out of the kitchen. il Chem Eng 71:114 N 9 '64

Measurement uses

Microwaves; new vistas for gaging, testing, analysis. il Steel 155:60-1 Jl 20 '64
Radar waves bounce to gage thickness. diag Iron Age 193:74 Je 4 '64

Physiological effect

Radiation hazards in high-power radars. J. D. McCarthy. il diags Safety Maint 126:46-9+ D '63

Polarization

Polarization of radar echoes, including aircraft, precipitation and terrain. H. Gent and others. il diags Inst E E Proc 110:2139-48 D '63
Vlf propagation under the ionosphere in the lowest mode of horizontal polarization. H. A. Wheeler. bibliog diags J Res Nat Bur Stand 68D:105-13 Ja '64

Reflection

Experimental determination of the absolute phase path of radio waves reflected from the inosphere at normal incidence. N. N. Rao and others. IEEE Proc 52:858-9 Jl '64
Measurements on radiation reflected obliquely from a rough surface. R. H. Clarke. bibliog diags Inst E E Proc 110:1921-7 N '63
Microwave reflection by nonuniform plasmas with exponential electron distribution. K. T. Yen. bibliog J Ap Phys 35:290-4 F '64; Discussion. C. R. Mullin and E. D. Shane. IEEE Proc 52:1272-3 O '64
Microwave reflection probe. S. Takeda and T. Tsukishima. J Ap Phys 35:2548-9 Ag '64
Radio propagation by reflection from meteor trails. G. R. Sugar. map diags IEEE Proc 52:116-36 bibliog(p 135-6) F '64
Reflection of radio waves from undulating tropospheric layers. A. T. Waterman, jr. and J. W. Strohbehn. bibliog diags J Res Nat Bur Stand 67D:609-16 N '63
Reflection of vlf radio waves from an inhomogeneous ionosphere; exponential model with hyperbolic transition. J. R. Wait and L. C. Walters. J Res Nat Bur Stand 67D:747-52 N '63
Reflections from an exponential atmosphere. K. Bullington. bibliog diags Bell System Tech J 42:2849-67 N '63
Smith-diagram display unit of small reflection coefficients using the vibrating-dummy method. S. Tsuchiya. bibliog il diags IEEE Proc 51:1444-54 N '63
Variationally minimum reflection coefficient for nonuniform transmission lines. I. Sugai. bibliog IEEE Proc 51:1789-90 D '63
Vhf reflection from a tropospheric layer. J. R. Wait. J Res Nat Bur Stand 68D:847-8 Jl '64

Refraction

Meteorological parameter for radioclimatological purposes. P. Misme. J Res Nat Bur Stand 68D:851-5 Jl '64

Scattering

Aperture-to-medium coupling loss in tropospheric scatter systems. C. A. Parry. IEEE Proc 51:933-4 Je '63; Discussion. 52:100-1 Ja '64
Digital troposcatter transmission and modulation theory. E. D. Sunde. bibliog diags Bell System Tech J 43:143-214 Ja '64
Experimental study of mixed-path groundwave propagation. S. W. Maley and H. Ottesen. bibliog diag J Res Nat Bur Stand 68D:915-18 Ag '64
Index of refraction of air, the absorption and dispersion of centimeter waves by gases. G. Boudouris. il diags J Res Nat Bur Stand 67D:631-84 bibliog(p681-4) N '63
Influence of a circular ionospheric depression on vlf propagation. J. R. Wait. diags J Res Nat Bur Stand 68D:907-14 Ag '64
New Caribbean communications scheme. map Radio & Electronic Eng 27:336 My '64
Orbital-scatter concept proves out. T. Maguire. il Electronics 36:26-7 N 8 '63
Performance of v.f. f.m. teleprinter circuits operating over a tropospheric-scatter link. H. B. Wood. diag Inst E E Proc 110:1933-40 N '63
Rf characteristics of thin dipoles. C. L. Mack, jr. and B. Reiffen. bibliog il diags IEEE Proc 52:533-42 My '64; Discussion. R. F. Harrington. 52:1736-7 D '64
Random volume scattering. H. Bremmer. bibliog J Res Nat Bur Stand 68D:967-81 S '64
Scattering losses in a large Luneberg lens due to random dielectric inhomogeneities. S. P. Morgan. bibliog diag Bell System Tech J 43:679-96 Mr '64
Scattering of radar waves by an underdense turbulent plasma. J. Menkes. AIAA J 2:1154-6 Je '64
Theory of magnetospheric radio scattering. H. G. Booker. bibliog J Res Nat Bur Stand 68D:600 My '64
Tropo goes commercial. A. A. McKenzie. il map diags Electronics 37:88-94 Jl 27 '64

RADIO waves—Scattering—*Continued*

West Ford belt as a communications medium. I. L. Lebow and others. bibliog il diags IEEE Proc 52:543-63 My '64

RADIOACTIVE fallout

ACS Gulf Coast sections collect baby teeth. il Chem & Eng N 41:54-5 D 23 '63

Behavior of airborne fission products. L. B. Lockhart, jr. Am Scientist 52:301-5 S '64

Fallout protection for the power industry. P. J. McCoy and others. diags Power Eng 68: 53-5 My; 48-50 Je '64

Fallout studies continue at more altitudes. il Machine Design 35:10 N 21 '63

Iodine-131 in bovine thyroid glands from 1957 through 1961. C. Blincoe and others. bibliog J Agri & Food Chem 12:414-19 S '64

Measuring and monitoring fallout radioactivity. J. H. Harley. Archives Environmental Health 8:598-605 Ap '64

Radioactive fallout. M. Sonenberg. Archives Environmental Health 7:712-14 D '63

Radioactive fallout in peace and war. H. Hollister. bibliog il Archives Environmental Health 8:590-7 Ap '64

Radioactive fallout problems in food, water, and clothing. M. Eisenbud. bibliog Archives Environmental Health 8:606-12 Ap '64

See also

Atomic bomb shelters

RADIOACTIVE substances

Determination of radioactive noble gases with a liquid scintillator. D. L. Horrocks and M. H. Studier. bibliog diags Anal Chem 36:2077-9 O '64

Safety standard for operations with fissionable materials outside reactors, ASA N6.1-1964. Mech Eng 86:92 Ag '64

22 gamma spectra of short-lived nuclides; data sheet. M. Okada. Nucleonics 21:62-3 N '63

See also

Autunite
Radioactive fallout
Radioactivity
Radon
Thorium
Uraninite
Uranium

Analysis

Adaptation of a gas chromatograph for analysis of radioactive gas samples. A. D. Horton and others. diag Anal Chem 35: 1988-9 N '63

Effect of long decay chains on the counting statistics in the analysis of radium^{224} and radon ^{222}. H. F. Lucas, jr. and D. A. Woodward. bibliog J Ap Phys 35:452-6 F '64

Industrial applications

Louisville Cement weigh ahead with nuclear scale. il Rock Prod 67:71+ Ap '64

Nuclear and capacitance techniques for level measurement. L. S. Siegel. il diags Instruments & Control Systems 37:129-31 Jl '64

Peacetime atom blasts away at metalworking barriers. W. N. Redstreake. il Iron Age 193:87-90 My 14 '64

Steelmen extend nuclear gaging. diags Iron Age 193:144-5 Mr 12 '64

Standards

Availability and use of radioactivity standards; panel discussion. Anal Chem 36:sup 31A-3A+ F '64

Four new radioactivity standards issued. Franklin Inst J 278:70 Jl '64

Storage

Storage of radioactive fission product samples. W. J. Maeck and J. E. Rein. Anal Chem 36:252-3 Ja '64

RADIOACTIVE substances in the body

Biological aspects in the choice of scanning agents. M. Blau and M. A. Bender. bibliog Nucleonics 22:55-7 Ja '64

Body burden of long-lived isotopes. K. Z. Morgan. Archives Environmental Health 8: 86-99 bibliog(p98-9); Discussion. 110-14 Ja '64

Device for displaying the distribution of positron emitting nuclides *in vivo*. P. C. R. Turner and P. D. Freebrey. il diag J Sci Instr 41:276-7 My '64

Digital or analog methods for radioisotope measurement? B. Kawin and F. V. Huston. bibliog Nucleonics 22:86+ Jl '64

Measuring gamma activity with whole-body counters. G. R. Meneely and others. bibliog il Nucleonics 21:46-9 O '63

Optimization of a scanning method using Tc^{99m}. P. V. Harper and others. bibliog il Nucleonics 22:50-4 Ja '64

Planning for care of injured radiating patients. W. D. Norwood. il plan diag Archives Environmental Health 8:474-9 Mr '64

Studying organ circulation, function and structure with radioisotopes. G. V. Taplin. bibliog Nucleonics 22:58-60 Ja '64

Whole-body counters around the world; list. J. Mehl. Nucleonics 21:50-1 O '63

RADIOACTIVE tracers

Absolute determination of I^{125} in clinical applications. J. S. Eldridge and P. Crowther. Nucleonics 22:56-9 Je '64

Adsorption of inhibitive anions on iron surfaces; abstract and discussion. J. G. N. Thomas. Chem & Ind p332 F 22 '64

Analysis of pentaerythritol tetranitrate and its hydrolysis products by thin layer chromatography and radio scanning. F. J. DiCarlo and others. bibliog il Anal Chem 36:2301-3 N '64

Clean up of inert gases in a Penning discharge studied by a tracer technique. K. Kawasaki and others. bibliog il diags J Ap Phys 35:479-82 Mr '64

Criticism of radioactive tool-life testing. N. H. Cook and A. B. Lang. bibliog il diags A S M E Trans ser B 85:381-5; Discussion. 385-7 N '63

Degradation of 4-(2,4-dichlorophenoxy)-butyric acid [4-(2,4-DB)] in plants. D. L. Linscott. bibliog J Agri & Food Chem 12: 7-10 Ja '64

Deuterium tracer studies on the course of addition to norbornene. H. Kwart and J. L. Nyce. bibliog Am Chem Soc J 86:2601-6 Jl 5 '64

Deuterium tracer studies on the elimination reactions of norbornyl tosylate and bromide. H. Kwart and others. bibliog Am Chem Soc J 86:2606-11 Jl 5 '64

Digital or analog methods for radioisotope measurement? B. Kawin and F. V. Huston. bibliog Nucleonics 22:86+ Jl '64

Efficient production of biosynthetically labeled fatty acids. T. L. Mounts and H. J. Dutton. bibliog diag Am Oil Chem Soc J 41:537-9 Ag '64

Experimental study of the rate of metal mixing in an open-hearth furnace. J. Szekely. bibliog diags Iron & Steel Inst J 202:505-8 Je '64

Fate of Cd^{109} in the mouse. M. Berlin and S. Ullberg. bibliog il Archives Environmental Health 7:686-93 D '63

Gem-dihalides from α-haloamides; rearrangement of N-bromo-α-haloamides utilizing bromide-82 tracer. C. L. Stevens and others. bibliog Am Chem Soc J 85:3390-4 N 5 '63

Industrial applications of radioactive tracers. D. Taylor. il diags Ind Electronics 2:89-91 F '64

Interactions of waste feed, activated sludge, and oxygen as traced by radioactive carbon. F. J. Ludzack and others. bibliog WPCF J 36:782-8 Je '64

Kinetic study of sulfur dioxide in aqueous solution with radioactive tracers. J. C. Wang and D. M. Himmelblau. bibliog diags A I Ch E J 10:574-80 Jl '64

Measuring filter-paper performance faster with a radioiron technique. I. J. Gruverman. diags Nucleonics 21:70+ D '63

Metabolism of S-propyl-1-C^{14} n-butylethylthiocarbamate (Tillam-C^{14}) in ratts. S. C. Fang and others. J Agri & Food Chem 12: 37-40 Ja '64

Metabolism of *trans*, *trans*-octadecadienoic acid; incorporation of *trans*, *trans*-octadecadienoic acid into the C_{20} polyunsaturated acids of the rat. W. G. Knipprath and J. F. Mead. bibliog Am Oil Chem Soc J 41:437-40 Je '64

Method for the radioactive labelling of silicone oils with ^{131}I. J. A. Moss. Chem & Ind p 1952-3 D 14 '63

Modifications lead to more accuracy for count method for measuring flow rates; abstract. D. E. Hull and B. A. Fries. il Chem & Eng N 42:72 Ap 20 '64

Monochromatic ultraviolet restores DNA activity. R. B. Setlow. il Chem & Eng N 42:41 S 7 '64

Radioactive tracers in analytical chemistry. S. A. Reynolds and G. W. Leddicotte. Nucleonics 21:128-42 bibliog(p 135-42) Ag '63

Radioisotopes as aids to metallography. A. A. Cochran and V. R. Miller. il J Metals 15: 914-17 D '63

Radioisotopes as industrial tools in Canada. L. J. O'Riley. bibliog il diag Eng J 47:44-7 My '64

Radioisotopes for on-stream analysis. J. W. Haffner. bibliog il diags I S A J 11:78-82 Ap; 75-8 My '64

Radiotracer analysis of catalyst flow distribution. D. E. Hull and F. F. Ball. diags Ind & Eng Chem Proc Design 3:356-61 O '64

RADIOACTIVE tracers—*Continued*

Radiotracer studies on the incorporation of phosphorus in epitaxially grown silicon. S. Nakanuma. diag Electrochem Soc J 111:1199-200 O '64

Radiotracers in medicine; special report. bibliog il Nucleonics 22:45-60 Ja '64

Radiotracers; refinery troubleshooters. diags Oil & Gas J 62:137-8+ Ag 3 '64

Rapid routine separation and analysis of ^{14}CO and ^{14}CO$_2$ in mixtures of low activity. F. S. Feates. diag J Sci Instr 41:641-2 O '64

Sand transport studies with radioactive tracers. D. W. Hubbell and W. W. Sayre. bibliog il diag Am Soc C E Proc 90 [HY 3 no 3900]:39-68 My '64

Scintillation scanning in clinical medicine. M. B. Glos. il Nucleonics 22:72-5 Ap '64

Self-diffusion in Pb at 300°C by an absorption tracer technique. W. N. Lawless. bibliog J Ap Phys 35:3024-6 O '64

Separation of isotopic position isomers of tritium-labeled olefins by gas chromatography. E. K. C. Lee and F. S. Rowland. bibliog Anal Chem 36:2181-3 O '64

Simple technique for tritiation of aromatic insecticides. B. D. Hilton and R. D. O'Brien. bibliog diag J Agri & Food Chem 12:236-8 My '64

Studies of reactions of atomic carbon by a double tracer technique. J. Dubrin and others. Am Chem Soc J 86:959-60 Mr 5 '64

Studies on the limitations of the Schmidt degradation method by use of carbon-14 labeled compounds. J. L. Rabinowitz and B. Pritzker. bibliog Anal Chem 36:403-4 F '64

Study of electroplating addition agents by radiotracer methods; abstract and discussion. J. Edwards. Chem & Ind p331-2 F 22 '64

Synthesis of alpha-methylbenzyl 3-(dimethoxyphosphinyloxy)-crotonate labeled with phosphorus-32 and carbon-14. J. C. Potter and W. B. Burton. bibliog J Agri & Food Chem 12:439-42 S '64

Tracer diffusion coefficients of aromatic organic molecules. T. A. Miller and others. bibliog Anal Chem 36:418-20 F '64

Tracer experiments on alkaline hydrolysis of some oxalate ammonia cobalt(III) complexes. C. Andrade and H. Taube. bibliog Am Chem Soc J 86:1328-30 Ap 5 '64

Tracing flow patterns in air using a radioactive gas. E. V. Seymour. diags Engineer 218:496-8 S 25 '64

Versatile total-count method helps operations. D. E. Hull. bibliog il Hydrocarbon Process & Pet Refiner 43:151-6 O '64

RADIOACTIVE waste disposal

AEC well along on waste disposal. il Nucleonics 22:78 F '64

Calcination of radioactive liquid wastes. Engineering 197:365 Mr 6 '64

Calcination of radioactive liquid wastes. Franklin Inst J 277:380-1 Ap '64

Disposal of high-level radioactive wastes. R. Eliassen. bibliog flow sheets WPCF J 36:201-16 F '64

Exploratory studies on batch and continuous foam separation. R. B. Grieves and others. bibliog flow diags Can J Chem Eng 41:252-7 D '63

Heat generation by radioactive wastes. E. F. Gloyna and others. bibliog Am Soc C E Proc 90 [SA 1 no 3793]:43-66 F '64; Discussion. R. L. Bradshaw. 90 [SA 5 no 4097]:55-7 O '64

Liquid metal system heats fluidizing-bed waste process. Chem & Eng N 42:40-1 Ag 24 '64

Oil industry helps solve radioactive waste problem. Franklin Inst J 278:69 Jl '64

Removal of radioactive iodine from hospital sewage; abstract. T. A. Berezina and V. Y. Golikov. Pub Works 94:152-3 N '63

Treatment and storage of high-level radioactive wastes; symposium held by International atomic energy agency, Vienna, Oct. 8-12, 1962. Review, by W. H. Hardwick. Chem & Ind p223-6 F 8 '64

See also

Sewage disposal—Radioactive waste disposal

RADIOACTIVITY

Availability and use of radioactivity standards; panel discussion. Anal Chem 36:sup 31A-3A+ F '64

Decay products of radium in ceramics and their interaction with matter. A. F. Gabrysh and others. bibliog diags Materials Res & Stand 3:902-5 N '63; Discussion. 4:220-1 My '64

Half-lives of tin-119, iron-57 prolonged; Westinghouse scientists use physical means to imprison radiation. diag Chem & Eng N 42:43-4 Je 22 '64

Rapidly converging calculation of ε or 1/ε in discussion of radioactive decay. A. B. Arons. diag Am J Phys 32:570-1 Jl '64

See also

Cloud chambers
Isotopes
Neutrons
Transuranium elements
Water pollution—Radioactive pollution

Measurement

Continuous flow analyzer for recording of light absorption and radioactivity in the eluates from chromatographic columns. C. I. Sjöberg and G. Ågren. bibliog il diags Anal Chem 36:1017-21 My '64

Distribution of radioactivity in the Mosaboni copper mine, Bihar, India. E. V. Gangadharam and others. bibliog map Econ Geol 58:506-14 Je '63; Discussion. A. Mookherjee. 59:501-2 My '64

Measuring and monitoring fallout radioactivity. J. H. Harley. Archives Environmental Health 8:598-605 Ap '64

Method for the measurement of the radioactive content of wastewater. F. J. Haughey and R. M. Manganelli. bibliog WPCF J 36:88-95 Ja '64

Phosphor dosimeter gives digital readout later. Electronics 36:41-2 N 29 '63

Radioactivity in sewage disposal systems from industrial and medical wastes and fallout. T. R. Folsom and G. J. Mohanrao. bibliog diags Materials Res & Stand 4:69-73 F '64

Radioelement dispersion in a sedimentary environment and its effect on uranium exploration. R. M. Moxham. maps Econ Geol 59:309-21 bibliog(p320-1) Mr '64

Reliability of measurements of gross beta radioactivity in water. L. R. Setter. Am Water Works Assn J 56:228-36 F '64

Techniques of on-site inspection. W. H. Westphal and S. Rubin. bibliog diags Geophysics 29:250-8 Ap '64

Testing requirements for radioactive gauges. Engineering 197:165 Ja 24 '64

Physiological effect

Biological aspects in the choice of scanning agents. M. Blau and M. A. Bender. bibliog Nucleonics 22:55-7 Ja '64

Human exposure to external background radiation; population survey in northern New England. A. Segall and R. Reed. map Archives Environmental Health 9:492-9 O '64

Protection

Application of a diaphragm valve for safe glass blowing on apparatus contaminated with radioactive or toxic materials. P. S. Rudolph. diag R Sci Instr 35:1237 S '64

Cleaning radioactive parts. D. L. Collins. il diags Am Mach 108:72-3 Jl 20 '64

Compressed air in a nuclear laundry. F. Kutnewsky. il Comp Air Mag 68:24 D '63

Designing safety into a radioisotope laboratory. L. C. Schwendiman. il Mag of Stand 35:209-10 Jl '64

Inter-American conference on toxicology and occupational medicine, 4th, Miami, Aug. 24-27; with abstracts of papers. Ind Med 33:491-500 Jl '64

Mobile remote manipulator units (MRMU); in case of radioactive trouble. D. G. Jones. il diags Mech Eng 86:28-31 My '64

Safety in industrial use of radioactive sources. J. W. Kuhn. il diags Chem Eng Prog 60:41-4 Ap '64

See also

Atomic power plants—Safety measures
Radioactive waste disposal

RADIOCHEMICAL analysis

Activation analysis of high purity materials. W. J. Ross. bibliog Anal Chem 36:1114-19 My '64

Computer program to optimize times of irradiation and decay in activation analysis. T. L. Isenhour and G. H. Morrison. flow diags Anal Chem 36:1089-92 My '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Infrared determination of hydroxyl content of oxidized polyethylene. D. E. Kramm and others. Anal Chem 36:2170-1 O '64

Large volume activation analysis of organically bound iodine using istotopic neutron sources. R. Grunewald and others. bibliog diag Anal Chem 36:1138-40 My '64

New technique for assay of oxygen-18 in sulfur dioxide. T. M. Spittler and J. L. Huston. bibliog diag Anal Chem 36:575-7 Mr '64

RADIOCHEMICAL analysis—*Continued*

Ores analysed at the push of a button by radioactivation analysis. il Engineering 197:654 My 8 '64

Pulse radiolytic determination of p*K* for hydroxyl ionic dissociation in water. J. Rabani and M. S. Matheson. bibliog Am Chem Soc J 86:3175-6 Ag 5 '64

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Radiochemical determination of cerium by solvent extraction method. M. A. Awwal. bibliog Anal Chem 35:2048-50 D '63

Radiochemical determination of radium-228 and thorium-228 in biological and mineral samples. H. G. Petrow and others. Anal Chem 36:1600-3 Jl '64

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

Radiometric determination of adsorption isotherms from solution on organic substrate. J. Haberman and T. C. Castorina. bibliog Anal Chem 36:1917-20 S '64

Rapid radiochemical analysis for americium-241. M. H. Campbell. bibliog Anal Chem 36:2065-7 O '64

Rapid radiochemical separation and activation analysis of rare earth elements. K. Rengan and W. W. Meinke. bibliog diag Anal Chem 36:157-61 Ja '64

Review of fundamental developments in analysis; nucleonics. G. W. Leddicotte. Anal Chem 36 [no 5]:419R-53R bibliog (p437R-53R) Ap '64

Simultaneous determination of niobium and tantalum by neutron activation using niobium-94*m* and tantalum-182*m* and rapid radiochemical separations. C. K. Kim and W. W. Meinke. bibliog Anal Chem 35:2135-8 D '63

Simultaneous determination of radioisotope pairs by the decay constant differentiation principle. E. Inselberg. bibliog Anal Chem 36:568-75 Mr '64

Submicroanalysis by radiochromatography. G. A. Welford and others. Anal Chem 36:2350 N '64

RADIOCHEMICAL laboratories

Equipment

Ion exchange column for remote operation in a radiochemical separations plant. V. P. Caracciolo. bibliog il diags Ind & Eng Chem Proc Design 3:322-7 O '64

3M improves strontium-90 irradiator. T. N. Lahr and J. J. Keers. il Chem & Eng N 42:158 S 7 '64

RADIOCHEMISTRY

Activation analysis finds its place in the life sciences. R. E. Wainerdi. diag Nucleonics 22:57-60 F '64

Application of controlled potential electrodeposition with pyrolytic graphite electrodes to neutron activation analysis and radiochemistry. H. B. Mark, jr. and F. J. Berlandi. bibliog il diag Anal Chem 36:2062-4 O '64

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Direct nondestructive method for determination of californium-252. F. L. Moore and J. S. Eldridge. bibliog Anal Chem 36:808-11 Ap '64

Dow achievement; gamma irradiation in production of ethyl bromide. diag Chem Eng 70:234 N 11 '63

Effect of solution trace impurities on I-V characteristics of electrodeposited surface barrier diodes. G. M. Krembs and M. M. Schlacter. bibliog il diag Electrochem Soc J 111:417-20 Ap '64

Effect of substituted aromatic compounds on the radiolysis of cyclohexane. W. V. Sherman. bibliog Chem & Ind p 1266-7 Jl 11 '64

Effects of millimolar concentrations of silver(I) ion upon the γ-radiolysis of crystalline potassium nitrate. J. Cunningham. bibliog Am Chem Soc J 85:3716-18 N 20 '63

Gas phase radiolysis of pentaborane-9. V. V. Subbanna and others. bibliog Am Chem Soc J 86:1304-6 Ap 5 '64

Hydrogen transfer and energy transfer in the γ-radiolysis of benzophenone-2-propanol; effects of naphthalene and of phenyl disulfide. W. V. Sherman and S. G. Cohen. bibliog Am Chem Soc J 86:2390-2 Je 20 '64

Kinetics of ionic processes in the radiolysis of liquid cyclohexane. F. Williams. bibliog Am Chem Soc J 86:3954-7 O 5 '64

Make phenol by radiation of benzene. A. Danno. bibliog diag Hydrocarbon Process & Pet Refiner 43:131-7 Ap '64

Making chemicals via radiation; Dow's ethyl bromide process. D. E. Harmer and J. S. Beale. bibliog flow sheet il diags Chem Eng Prog 60:33-6 Ap '64

Mechanism of hydrogen formation in the radiolysis of cyclohexane and other hydrocarbons. S. Z. Toma and W. H. Hamill. bibliog Am Chem Soc J 86:1478-83 Ap 20 '64

Mechanisms given for radiolytic reactions in ice, methane. il Chem & Eng N 42:40-2 F 3 '64

Nuclear chemistry, isotopes and radioactivity. G. T. Austin and H. F. Austin. bibliog Chem Eng 71:129-32 O 26 '64

Nuclear radiation-induced cracking of *n*-hexadecane. E. O. Guernsey and others. bibliog diags A I Ch E J 9:744-50 N '63

Pulse radiolysis apparatus. J. P. Keene. bibliog il diags J Sci Instr 41:493-6 Ag '64

Pulse radiolysis of gases. M. C. Sauer, jr. and L. M. Dorfman. bibliog Am Chem Soc J 86:4218-19 O 5 '64

Radiation catalysis of ethyl bromide; six months on-stream. D. E. Harmer and J. S. Beale, jr. diag Nucleonics 21:76-7 S '63

Radiation chemistry and instrumentation in Japan. E. J. Henley. Nucleonics 21:78+ S '63

Radical and molecular yields in the γ-radiolysis of D_2O and H_2O vapor. J. H. Baxendale and G. P. Gilbert. Am Chem Soc J 86:516 F 5 '64

Radiochemical investigation of polymer unsaturation; reaction of butyl rubber with radiochlorine. I. C. McNeill. bibliog diag Rubber Chem & Tech 36:1071-80 O '63

Radiochemical study of the acetolysis of 3-phenyl-2-butyl tosylate. W. B. Smith and M. Showalter. Am Chem Soc J 86:4136-9 O 5 '64

Radiochemistry of the elements. G. T. Austin and H. F. Austin. Chem Eng 71:123-6 S 28 '64

Radiolysis and pyrolysis of polyaromatic compounds. J. Weiss and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:73-8 Je '64

Radiolysis in the adsorbed state. J. G. Rabe and others. bibliog Am Chem Soc J 86:3887-8 S 20 '64

Radiolysis of deaerated aqueous solutions of 2-propanol containing nitrous oxide. J. T. Allan and C. M. Beck. bibliog Am Chem Soc J 86:1483-8 Ap 20 '64

Radiolysis of methanol and methanolic solutions; comparison of radiolysis by Co^{60} γ-rays and by $B^{10}(n,\alpha)Li^7$ recoils. M. Imamura and others. bibliog Am Chem Soc J 85:3565-70 N 20 '63

Radiolysis of methanol and methanolic solutions; the effect of oxygen on the radiolysis of liquid methanol by ^{60}Co γ-rays and by $^{10}B(n,\alpha)^7Li$ recoils. S. U. Choi and N. N. Lichtin. bibliog Am Chem Soc J 86:3948-53 O 5 '64

Reactivities of the primary reducing species formed in the radiolysis of aqueous solutions. A. Appleby and others. bibliog Am Chem Soc J 85:3891-2 D 5 '63

Recent progress in radioactive chemical manufacture; abstract and discussion. W. P. Grove. Chem & Ind p 1032-3 Je 13 '64

Squibb opens radiopharmaceutical plant. il Chem & Eng N 42:27 Je 15 '64

Tailoring the isotope to the need. L. G. Stang, jr. and P. Richards. bibliog il Nucleonics 22:46-9 Ja '64

RADIOGRAPHY

Application of radiography to the study of the structure and operation of porous electrodes. M. Bonnemay and others. bibliog il diags Electrochem Soc J 111:265-9 Mr '64

Autoradiographic location of precipitated hydride in a Zr-two per cent Nb alloy. W. H. Erickson and D. Hardie. il Inst Metals J 92:191-2 '63-64

Autoradiography of tritium-containing thin layer chromatograms. H. Sheppard and W. H. Tsien. il Anal Chem 35:1992 N '63

Autoradiography; useful tool for examining irradiated UO_2. R. F. Boyle and others. bibliog il Nucleonics 22:76-8 Ap '64

Betatron radiographs irradiated UO_2 fuels. H. Nagami and others. il diag Nucleonics 21:66+ D '63

Evaluating coated particles of nuclear fuel. R. W. McClung and others. il Metal Prog 86:90-3 Jl '64

Gamma rays check varied parts. il Iron Age 194:65 O 15 '64

RADIOGRAPHY—*Continued*
High-speed radiography. D. J. Davis and D. C. Laval. bibliog il diags Ind Electronics 2:386-90 Ag '64
High-speed X-ray films probe parts in motion. L. A. Milton. il Am Mach 108:148F-148H Ap 13 '64
Microcracking of plain concrete and the shape of the stress-strain curve. T. T. C. Hsu and others. bibliog il maps diags Am Concrete Inst J 60:209-24 F '63; Discussion. 60: 60:1787-824 D '63
New era of X-ray analysis and control. J. S. Buhler. il diags Instruments & Control Systems 37:77-9 Ag '64
Pinch phenomena in a flash X-ray discharge. S. K. Händel. bibliog il SMPTE J 73:320-4 Ap '64
Radiography takes Nondestructive testing conference spotlight. Steel 155:47 N 2 '64
Representation of a function by its line integrals, with some radiological applications. A. M. Cormack. bibliog diag J Ap Phys 34: 2722-7; 35:2908-13 S '63, O '64
Studies in contact microradiography. R. W. McClung. bibliog il diag Materials Res & Stand 4:66-9 F '64
31mev betatron for the radiography of steel castings. il Engineer 216:779 N 8 '63
X-rays for study of internal structure and microcracking of concrete. F. O. Slate and S. Olsefski. bibliog il Am Concrete Inst J 60:575-88 My '63; Discussion. 60:1787-824 D '63
See also
Diagnosis, Radioscopic
X ray films

RADIOGRAPHY, Stereoscopic
Industrial 3-D X-rays. il Electronics 37:26-7 Je 15 '64
Stereoscopic radiography in the study of ore textures. W. K. Hamblin and C. A. Salotti. il Am Mineralogist 49:17-29 Ja '64

RADIOISOTOPES. See Isotopes; Radioactive tracers

RADIOMETERS
Effect of modulation-correlation choices on Dicke radiometer performance. W. A. Johnson. diag IEEE Proc 52:1242 O '64
High temperature ultraviolet radiometer. M. Weiss. il diags Instruments & Control Systems 37:95-9 My '64
How to improve control of paper manufacture by remote temperature measurement. C. Lueders. Tappi 47:sup 144A Mr '64
Infrared radiometer improves wire and cable production. L. C. Whitney. il diag Wire & Wire Prod 39:1619+ O '64
Microwave radio astronomy radiometer design. J. E. Kenney and E. F. McClain. il diag R Sci Instr 35:1227-9 S '64
Microwaves for remote sensing. E. O. Frye. il diags Electronics 37:66-70 N 2 '64
Optimum design of radiometer input stages. G. Evans. IEEE Proc 52:1057-8 S '64
Radiometric receiver spans 50 mc to 1.5 gc. il diag Electronics 37:115 Ap 6 '64
Superheterodyne radiometers for short millimetre wavelengths. R. Meredith and others. bibliog il diags Inst E E Proc 111: 241-56 F '64
Testing using infrared. L. E. Florant. bibliog il diags I S A J 11:61-4 Jl '64
Thermal-imaging device locates conductor hot spots visually. S. N. Bobo. il diag Power Eng 68:42-3 O '64
Versatile amplifier for precise radiometry. P. M. G. Fead. bibliog il diags R Sci Instr 35:821-8 Jl '64
See also
Bolometers

RADIOSCOPIC diagnosis. See Diagnosis, Radioscopic

RADIOTELEPHONE. See Radio telephone

RADIOTHERAPY
Radiation in the diagnosis and treatment of disease. N. Simon. bibliog Am J Pub Health 54:57-62 pt 2 Ja '64
Representation of a function by its line integrals, with some radiological applications. A. M. Cormack. bibliog diag J Ap Phys 34: 2722-7; 35:2908-13 S '63, O '64
See also
X rays—Therapeutic use

RADIUM
Decay products of radium in ceramics and their interaction with matter. A. F. Gabrysh and others. bibliog diags Materials Res & Stand 3:902-5 N '63; Discussion. 4: 220-1 My '64
Effect of long decay chains on the counting statistics in the analysis of radium^{224} and radon^{222}. H. F. Lucas, jr. and D. A. Woodward. bibliog J Ap Phys 35:452-6 F '64
See also
Radon
Uranium
Water pollution—Radioactive pollution

Isotopes
Radiochemical determination of radium-228 and thorium-228 in biological and mineral samples. H. G. Petrow and others. Anal Chem 36:1600-3 Jl '64

RADOMES
Slip cast fused silica cuts radome costs. V. A. Chase and R. L. Copeland. il Cer Ind 83:91-5+ S '64
See also
Airplanes—Radomes

Manufacture
Radome caulked with G-E silicone. il Rubber Age 94:805 F '64

RADON
Effect of long decay chains on the counting statistics in the analysis of radium^{224} and radon^{222}. H. F. Lucas, jr. and D. A. Woodward. bibliog J Ap Phys 35:452-6 F '64
Large volume scintillation chamber for radon counting. H. W. Kraner and others. bibliog il R Sci Instr 35:1259-65 O '64
Scintillation counter for the measurement of radon concentration in air. A. J. L. Collinson and A. K. M. M. Haque. bibliog diag J Sci Instr 40:521-3 N '63

RAIL joints

Welding
Analysis of rail steel bar welds by two-level factorial design. S. M. Wu. diags Welding J 43:sup 179-83 Ap '64
Continuously welded rails save money. T. H. Turner. Engineer 217:274 F 7 '64

RAILING, Harry
Obituary. por Engineer 216:700 O 25 '63

RAILINGS
Adhesive joins guard railings. il Iron Age 194:86 Jl 16 '64

RAILINGS, Bridge. See Bridge railings

RAILROAD accidents. See Railroads—Accidents

RAILROAD bridges. See Bridges, Railroad

RAILROAD crossings. See Railroads—Crossings

RAILROAD engineering
Progress in railway mechanical engineering, 1962-1963. bibliog il diags A S M E Trans ser B 86:175-82 My '64; Excerpts. Mech Eng 86:36-7 My '64
See also
Railroads—Earthwork
Railroads—Track

RAILROAD motor cars. See Motor cars (railroad)

RAILROAD research
New engineering research laboratories of British Railways. il Engineer 217:928-9 My 29 '64
Railway research looks to the future. il Engineering 197:750-2 My 29 '64

RAILROAD shops. See Railroads—Shops

RAILROAD ties
Prestressed concrete railroad ties. il Mech Eng 85:53 D '63

RAILROAD yards. See Railroads—Yards

RAILROADS
Pennsylvania railroad merger plans include Buckeye pipe line co. map Oil & Gas J 62:82-3 F 17 '64
See also
Railroad engineering

Accidents
Railway accident report. Engineer 218:221 Ag 7 '64
Railway accidents in 1962 Engineer 216:917 N 29 '63

Automatic stop and train control
Automatic traction control system. il Engineer 216:869-70 N 22 '63
Automatic train operation. il Engineer 217: 643 Ap 10 '64
Coded command signals control; crewless railway system. il diags Automation 10:43+ D '63
Commuter and computer. L. S. Gomolak. il Electronics 37:87-9 Jl 13 '64
Control techniques revitalize railroads D. H. Barlow. diags Control Eng 11:84-7 Mr '64
Convention on automatic railways, London; abstracts of papers. Engineer 218:542-3 O 2 '64

RAILROADS—Automatic stop and train control—*Continued*

How much scope for automatic railways? il Engineering 198:392-3 S 25 '64

Inactive operator stops locomotive. il diags Machine Design 36:124 Ag 13 '64

Railway automation in North America; safety and control aspects. S. W. Freeman. il Engineer 217:396 F 28 '64

Cars

See Cars; Freight cars; Motor cars (railroad)

Construction

Port and railroad unlock Liberia's iron ore deposits. il map Eng N 172:34-6 My 7 '64

See also

Railroads—Earthwork

Railroads—Relocation

Crossings

Railway dive-under for freight traffic. Engineering 196:688 N 29 '63

Warning system shortens traffic delay at railroad crossings. C. M. Steele. diag Control Eng 11:113-14 Je '64

See also

Grade crossings

Earthwork

Fast tunneling salvages blocked railroad project. il diag Eng N 172:38-40 F 27 '64

Tunnel needed fast, special lining forms to rescue. il diag Roads & Sts 107:50-1 Ap '64

See also

Trenching machinery

Electric equipment

British exports of railway equipment; illustrations with text. Engineer 217:90 Ja 10 '64

See also

Railroads—Signals

Electrification

See also

Electric locomotives

Belgium

Paris-Brussels railway electrification. il Engineer 216:712 O 25 '63

France

Paris-Brussels railway electrification. il Engineer 216:712 O 25 '63

Great Britain

Railway electrification to Bournemouth. Engineer 218:553 O 2 '64

Some aspects of railway electrification. G. J. Heighton. il map Inst Mech Eng Proc 177:1201-10 '63

India

Railway electrification in India. H. D. Awasty. map plan diags Inst E E Proc 111:833-48 Ap '64; Excerpts. il Engineer 217:816-17 My 8 '64

Electronic equipment

Train descriptions on cathode ray tubes. A. J. Mullarkey. il Engineer 217:610-11 Ap 3 '64

Employees

Training

Railway training centre. il Engineer 216:778 N 8 '63

Equipment and supplies

Mechanical aids to permanent way engineering. D. A. S. Conran. il Inst Mech Eng Proc 177 no 23:617-28; Discussion. 629-37; Reply. 637-8 '63

Single lever controls vehicle drive; snow-cleaning machine. il diag Hydraulics & Pneumatics 17:16+ Jl '64

See also

Car couplings

Locomotives

Railroads—Rolling stock

Railroads—Signals

Freight

Coal speeds from mine to mill. il Coal Age 69:26 Mr '64

Rail logistics favor big trains. J. Tierney. il Elec World 160:86-9 N 4 '63

Unit train: planning, operating, financing. R. D. Snouffer and V. D. Hanson. il diags Coal Age 69:54-61 Mr '64

Unit trains round the bend. il Rock Prod 67:132 My '64

See also

Railroads—Yards

Tank cars

Freight cars

See Freight cars

Grade crossings

See Grade crossings

Inspection

See also

Cars, Inspection

Maintenance and repair

Rail track maintenance machines. il Engineer 218:277 Ag 21 '64

Railroad car positioner cuts costs 50 per cent. il Welding Eng 49:72-3 Ja '64

See also

Car cleaning

Maintenance of way

See Railroads—Track

Management

Computer corrects wagon wastage. P. J. Robins. il map diag Ind Electronics 2:10-13 Ja '64

Medical service

See also

American association of railway surgeons

Power

See also

Locomotives

Radio communication

Railway microwave system opened. Engineer 217:1040-1 Je 12 '64

See also

Radio telephone on railroads

Rates

Chemicals

Chemicals gain as volume rail rates spread. il Chem & Eng N 42:25-6 S 28 '64

Relocation

John Day scatters road and rail traffic; unit prices. Eng N 173:40 Jl 30 '64

Repair shops

See Railroads—Shops

Rolling stock

More room in latest British railway carriages. il Engineering 197:765 Je 5 '64

New plant for the big fatigue test; British Railways fatigue laboratory. il diags Engineering 197:665-7 My 15 '64

1964 prospects for engineerings: railway engineering. il Engineering 197:118-20 Ja 17 '64

Progress in railway mechanical engineering, 1962-1963. bibliog il diags A S M E Trans ser B 86:175-82 My '64; Excerpts. Mech Eng 86:36-7 My '64

Prototype main-line rolling stock. il Engineer 217:987-8 Je 5 '64

Railroad car positioner cuts costs 50 per cent. il Welding Eng 49:72-3 Ja '64

Who makes railway rolling stock? Engineering 197:434-5 Mr 27 '64

See also

Cars

Freight cars

Locomotives

Motor cars (railroad)

Safety measures

See also

Railroads—Automatic stop and train control

Railroads—Signals

Shops

Diesel depot at March marks end of steam. il Engineering 197:175-6 Ja 24 '64

Environmental and clinical investigation of workmen exposed to Diesel exhaust in railroad engine houses. M. C. Battigelli and others. bibliog Ind Med 33:121-4 Mr '64

Major improvements for Glasgow railway works. il Engineering 197:521 Ap 10 '64

Equipment

Diesel locomotive maintenance depot. il Engineer 218:508 S 25 '64

Signals

Convention on automatic railways, London; abstracts of papers. Engineer 218:542-3 O 2 '64

Geographic relay system for railroad interlocked routing. W. Schmitz. bibliog il diags Elec Com 39 no 3:383-402 '64

RAILROADS—Signals—*Continued*

How much scope for automatic railways? il Engineering 198:392-3 S 25 '64

Pulsed track circuit. il Engineer 216:646 O 18 '63

Remote supervisory control system. Engineer 218:290 Ag 21 '64

Stand by electricity supply for railway signalling. il Engineering 196:815 D 27 '63

Train descriptions on cathode ray tubes. A. J. Mullarkey. il Engineer 217:610-11 Ap 3 '64

Warning system shortens traffic delay at railroad crossings. C. M. Steele. diag Control Eng 11:113-14 Je '64

See also

Railroads—Automatic stop and train control

Stations

British railway station improvements get architectural treatment. il Engineering 196:712 D 6 '63

New station at Cape Town. il plan Engineer 216:826-7 N 15 '63

Practical scheme for railway station rooftop parking. il Engineering 197:485 Ap 3 '64

Terminals

See also

Railroads—Yards

Track

Mechanical aids to permanent way engineering. D. A. S. Conran. il Inst Mech Eng Proc 177 no 23:617-28; Discussion. 629-37; Reply. 637-8 '63

Permanent way standardisation and maintenance. A. N. Butland. Engineer 217:230-1 Ja 31 '64

Rail flaw detector really mobile now. il Welding Eng 49:52 Je '64

See also

Railroad ties

Railroads, Single rail

Track making machinery

Rail track maintenance machines. il Engineer 218:277 Ag 21 '64

Rail track re-laying machines. il Engineer 217:479 Mr 13 '64

Trains

Bay area rapid transit district lets contract for new train design. R. R. Kay. il Iron Age 194:68 Jl 16 '64

See also

Electric railroads—Trains

Yards

Data transmission system for marshalling yards. Electronic Eng 36:549 Ag '64

Modified loaders switch railcars. il Mod Materials Handling 19:83 N '64

Strachan and Henshaw wagon handling equipment. il diag Engineering 197:634-5 My 8 '64

Africa, East

Locomotives for East Africa. Engineer 217:664 Ap 10 '64

Argentina

Railcar transmissions for Argentina. il Engineer 217:315 F 14 '64

Great Britain

British railway station improvements get architectural treatment. il Engineering 196:712 D 6 '63

British railways; illustrations with text. Engineer 217:36-7 Ja 3 '64

Diesels on British railways. R. C. Bond. Engineer 216:734-6 N 1 '63

More high-speed trains. Engineering 197:530 Ap 17 '64

Permanent way standardisation and maintenance. A. N. Butland. Engineer 217:230-1 Ja 31 '64

Prototype main-line rolling stock. il Engineer 217:987-8 Je 5 '64

Skirmish on railway conversion; the Cobham-Guilford line. T. I. Lloyd. map Engineer 217:260-2 F 7 '64; Discussion. 217:400-1, 614, 699, 996, 1140; 218:60-1, 181, 245, 307 F 28, Ap 3, 17, Je 5, 26, Jl 10, 31, Ag 14, 28 '64

Who makes railway rolling stock? Engineering 197:434-5 Mr 27 '64

History

History of the steam-driven railcar, 1903-48. R. A. S. Abbott. il Engineer 216:147-52, 188-91, 221-6, 1050 Jl 26-Ag 9, D 27 '63

India

Diesel traction progress in India. Engineer 218:73 Jl 10 '64

Japan

Japan opens fastest railroad. il Eng N 173:49 O 15 '64

Liberia

Port and railroad unlock Liberia's iron ore deposits. il map Eng N 172:34-6 My 7 '64

Northeastern states

LBJ orders study of fast rail line for Northeast. Eng N 173:26-7 Ag 20 '64

South Africa

New station at Cape Town. il plan Engineer 216:826-7 N 15 '63

South African railway developments. il Engineer 218:226-7 Ag 7 '64

RAILROADS, Industrial

See also

Locomotives, Industrial

RAILROADS, Single rail

Long Tokyo monorail opens next week. il Eng N 173:47+ S 10 '64

Monorail; can glamour rally a mass-transit revival? C. E. Wise. il diags Machine Design 35:142-8 N 7 '63

Overhead suspended rapid transit system. il Engineer 218:117-18 Jl 17 '64

RAILROADS, Suspended

Overhead suspended rapid transit system. il Engineer 218:117-18 Jl 17 '64

RAILS

Welding

See Rail joints—Welding

RAILWAY surgeons, American association of. See American association of railway surgeons

RAIN and rainfall

Effective rainfall and irrigation water requirements. D. M. Hershfield. bibliog maps Am Soc C E Proc 90 [IR 2 no 3920]:33-47 Je '64

Geological survey finds new high levels of tritium in rain water. Water & Sewage Works 110:401 N '63

Hydrology of spillway design floods; large structures, limited data. V. A. Koelzer and M. Bitoun. maps Am Soc C E Proc 90 [HY 3 no 3913]:261-93 My '64

Keeping rain out of stacks without defeating their purpose. H. H. Clarke. diags Heating-Piping 35:111-13 O '63; Discussion. 35:78+; Reply. 80+ D '63

Rainfall resistivities; IEEE committee report. map IEEE Trans Power Apparatus & Systems 83:520-3 My '64

Ratio of true to fixed-interval maximum rainfall. L. L. Weiss. diag Am Soc C E Proc 90 [HY 1 no 3758]:77-82 Ja '64

Spacing of drains by an approximate method. G. Dagan. bibliog diags Am Soc C E Proc 90 [IR 1 no 3824]:41-66 Mr '64

See also

Droughts

Floods

Run-off

Australia

Short cuts in hydrology. A. I. McCutchan. map Am Soc C E Proc 89 [HY 3 no 3522]: 203-19 My '63; Discussion. 89 [HY 6 no 3708]:289-93 N '63; 90 [HY 1 no 3783]:299-302 Ja '64; Reply. 90 [HY 4 no 3980]:237-8 Jl '64

California

Analysis of precipitation at Huntington Lake. S. M. Barnes. Am Soc C E Proc 90 [IR 1 no 3839]:77-85 Mr '64; Discussion. S. T. Harding. 90 [IR 3 no 4028]:81 S '64

Illinois

Atmospheric moisture-precipitation relations. F. A. Huff. maps Am Soc C E Proc 89 [HY 6 no 3696]:93-110 N '63

RAIN making

AgI points to new nucleating agents. A. C. Zettlemoyer. il Chem & Eng N 41:58-9 D 9 '63

Weather modification. R. A. Schleusener. il diags Am Soc C E Proc 90 [HY 1 no 3756]: 57-75 bibliog(p72-5) Ja '64; Discussion. F. A. Johnson. 90 [HY 5 no 4050]:187-96 S '64

RAISES (mine). See Mine shafts

RAISINS

Continuous raisin coater. E. Lowe and others. il diag Food Tech 17:1447-9 N '63

Sun-Maid innovates advances. F. K. Lawler. il diag Food Eng 36:46-50 Ag '64

RAMAN effect

Low temperature Raman cell. J. R. Ferraro and others. diags R Sci Instr 35:754-5 Je '64

Raman spectra of carbon-deuterated glycine in various ionic forms. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:3439-44 S 5 '64

RAMAN effect—*Continued*

Raman spectra of diamines and diammonium ions; effects of ionization on carbon-hydrogen stretching frequencies. S. A. S. Ghazanfar and others. bibliog Am Chem Soc J 86:559-64 F 20 '64

Raman spectra of small solid samples including lattice vibrations. D. C. Nelson and W. N. Mitchell. bibliog diag Anal Chem 36:555-8 Mr '64

Raman spectrum of xenic acid. H. H. Claassen and G. Knapp. Am Chem Soc J 86:2341-2 Je 20 '64

Review of fundamental developments in analysis; Raman spectrometry. A. C. Jones. Anal Chem 36 [no 5]:296R-307-R bibliog (p305R-7R) Ap '64

RAMAZZINI society

Anatomy and physiology of the industrial physician; 18 Ramazzini oration, Monterey, Calif. F. Princi. bibliog Ind Med 32:508-14 D '63

RAMIE

Intrinsic tenacities of natural cellulosic fibers. L. B. DeLuca. bibliog Textile Res J 34:110-16 F '64

RAMJET engines. See Airplane engines—Jet engines

RAMON, Gaston

Obituary. F. B. Rogers and R. J. Maloney. por Archives Environmental Health 7:723-5 D '63

RAMPS

1964 materials handling and packaging directory; plant and auxiliary equipment. il Mod Materials Handling 19:279-302 My '64

RANCIDITY

Further observations on the 2-thiobarbituric acid method for the measurement of oxidative rancidity. T. C. Yu and R. O. Sinnhuber. bibliog Am Oil Chem Soc J 41:540-3 Ag '64

Ranco method for determining rancidity in rendered pork fat. C. B. Ramsey and others. bibliog Food Tech 18:105-8 Ja '64

RAND, Gertrude

IES gold medal award; acceptance address. Illum Eng 58:sup 10A-11A N '63

RANDOM digits

Generating random numbers. C. Hammer and L. G. Green. il Instruments & Control Systems 37:149-50 My '64

RANDOM processes. See Probabilities

RANEY nickel. See Nickel—Raney nickel

RANGE finders

Airborne distance measurement. il Engineer 218:559 O 2 '64

First commercial laser rangefinder. il Engineering 197:796 Je 12 '64

Laser rangefinder. il Electronic Eng 36:482- Jl '64

RAPESEED oil

Effect of seed preparation on efficiency and oil quality in filtration extraction of rapeseed. J. R. Reynolds and C. G. Youngs. bibliog il diags Am Oil Chem Soc J 41:63-5 Ja '64

Genetic control of fatty acid biosynthesis in rapeseed (brassica napus L.) R. K. Downey and B. M. Craig. bibliog Am Oil Chem Soc J 41:475-8 Jl '64

RAPID CITY, South Dakota

Water supply

King-size auxiliary water supply. L. P. Steiling. il Water Works & Wastes Eng 1:62-3 Ap '64

RAPID construction. See Concrete construction—Rapid construction

RAPID transit

Aluminum rapid transit system. il Light Metal Age 22:29 Ag '64

Bay area rapid transit district lets contract for new train design. R. R. Kay. il Iron Age 194:68 Jl 16 '64

Boston: shaping a region. il maps Arch Forum 120:105-13 Je '64

Capacity of urban transportation modes. W. S. Rainville, jr. and W. S. Homburger. diag Am Soc C E Proc 89 [HW 1 no 3489]:37-55 Ap '63; Discussion. T. J. Owens. 90 [HW 1 no 3780]:119-20 Ja '64; Reply. 90 [HW 2 no 3997]:17-18 Ag '64

Commuter and computer. L. S. Gomolak. il Electronics 37:87-9 Jl 13 '64

Computer program to simulate rapid-transit system operation. Westinghouse Eng 24:150 S '64

Evaluating urban transportation systems. G. Halkalis and E. W. Campbell. plans Am Soc C. E. Proc 89 [CP 1 no 3626]:1-15 S '63; Discussion. J. Horowitz. diag 90 [UP 1 no 4034]:35-7 S '64

Evaluation of a new model split procedure. A. B. Sosslau and others. map diags Pub Roads 33:5-9+; Discussion. 17-19 Ap '64

Future of cities and urban areas. H. M. Mayer. Traffic Q 18:371-82 Jl '64

Future role of the automobile in urban transportation. R. E. Singer. 2pls Traffic Q 18:156-68 Ap '64

Get rolling on urban transport. Eng N 172:19-20 F 27 '64

Human side of urban transportation. P. Johnson. Traffic Q 18:321-34 Jl '64

Mass transit concept shifts into high. G. J. McManus. il Iron Age 194:30 Jl 23 '64

Mass transit suffers setbacks in Washington, New York and Boston. Eng N 171:51 D 19 '63

Metropolitan migraine. C. E. Wise. il diags Machine Design 35:142-8 N 7; 168-72 N 21 '63

Move the people we must; National conference on urban passenger transportation. Civil Eng 34:92 Mr '64

New hope for the crushed commuter. R. Sanders. il diags Mech Eng 85:29-34 N '63

Overhead suspended rapid transit system. il Engineer 218:117-18 Jl 17 '64

Planning, transportation, and the small city. R. A. Gakenheimer. Traffic Q 18:282-95 Ap '64

Research needs in urban transportation. Civil Eng 34:34-5 Ap '64

Shaping the demand for mass transportation. L. E. Keefer. Traffic Q 18:589-96 O '64

Technological aspects of urban transportation. D. S. Berry and P. W. Shuldiner. bibliog maps diags Am Soc C E Proc 90 [HW 1 no 3768]:53-78 Ja '64; Discussion. S. T. Li. 90 [HW 2 no 3997]:27-30 Ag '64

Urban transportation tasks of the future. W. S. Smith. Am Soc C E Proc 88 [HW 1 no 3120]:21-8 My '62; Discussion. 89 [HW 1 no 3504]:121-4 Ap '63; Reply. 90 [HW 1 no 3780]:105-6 Ja '64

User criteria for rapid transit planning. P. J. Claffey. bibliog Am Soc C E Proc 90 [UP 1 no 4029]:5-14 S '64

Wayside control system for mass transit. Westinghouse Eng 24:57-8 Mr '64

See also

Motor buses

also subdivision Rapid transit under names of places, e.g.

Chicago
Hamburg
Milwaukee
New York (city)
San Francisco Bay region
Stockholm
Tokyo

Costs

Test track costs $506,000 per mile; unit prices. Eng N 172:68 Je 11 '64

Finance

Demand considerations in urban transportation. G. M. Smerk. Traffic Q 18:421-32 Jl '64

Federal urban transportation demonstration program. J. C. Kohl. Traffic Q 18:299-309 Jl '64

$375-million transit aid on its way to commuters. Eng N 173:58-9 Jl 2 '64

Transit aid is on a slow track. il Eng N 173:19-21 Jl 16 '64

RAPSON, W. H.

Rapson hand in pulp bleaching. pors Can Chem Process 47:53-6+ D '63

RARE earth borates

Faraday rotation of rare-earth (III) borate glasses. C. B. Rubinstein and others. J Ap Phys 35:2338-40 Ag '64

RARE earth carbonates

See also

Bastnaesite

RARE earth compounds

Crystal growth and magnetic susceptibilities of some rare-earth sodium molybdenum scheelites. M. Schieber and L. Holmes. diag J Ap Phys 35:1004-5 pt 2 Mr '64

Differential thermal analysis and Mössbauer studies in rare-earth orthoferrites. M. Eibschütz and others. bibliog J Ap Phys 35:1071-2 pt 2 Mr '64

Ferromagnetism in rare-earth group VA and VIA compounds with Th_3P_4 structure. F. Holtzberg and others. bibliog diags J Ap Phys 35:1033-8 pt 2 Mr '64

High-temperature transitions in rare-earth niobates and tantalates. V. S. Stubičan. bibliog diags Am Cer Soc J 47:55-8 F '64

How rare earth chelate lasers work. M. Metlay. bibliog Electronics 36:67-9 N 15 '63

RARE earth compounds—*Continued*

Metamagnetism of some rare-earth copper compounds with $CeCu_2$ structure. R. C. Sherwood and others. bibliog J Ap Phys 35:1049-50 pt 2 Mr '64

New ferromagnetic 5:2 compounds in the rare-earth-palladium systems. A. E. Berkowitz and others. J Ap Phys 35:1030-1 pt 2 Mr '64

Rare-earth niobates and tantalates of defect fluorite- and weberite-type structures. H. P. Rooksby and E. A. D. White. Am Cer Soc J 47:94-6 F '64

Spin-wave excitation in cubic rare-earth compounds. N. Tsuya and Y. Ebina. bibliog J Ap Phys 35:800-1 pt 2 Mr '64

Physiological effect

Comparative toxicity of stable rare earth compounds. J. G. Graca and others. bibliog Archives Environmental Health 5:437-44; 8:555-64 N '62, Ap '64

RARE earth garnet. See Garnet

RARE earth metals

CsCl-type compounds in binary alloys of rare-earth metals with zinc and copper. C. C. Chao and others. bibliog J Ap Phys 35:257-8 Ja '64

Corrosion characteristics of the rare earth and yttrium metals. L. Lee and N. D. Green. bibliog Corrosion 20:145-9 My '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Effect of rare-earth impurities on the ferrimagnetic resonance and nuclear relaxation in yttrium iron garnet. F. Hartmann-Boutron. bibliog J Ap Phys 35:889-91 pt 2 Mr '64

Electrical properties of selected rare earth compounds and alloys. F. J. Reid and others. bibliog Electrochem Soc J 11:943-50 Ag '64

Ferrimagnetic resonance of rare-earth-doped iron garnets. J. H. Van Vleck. bibliog J Ap Phys 35:882-8 pt 2 Mr '64

Fluorescent rare earths in semiconducting thiospinels. L. Suchow and N. R. Stemple. bibliog Electrochem Soc J 111:191-5 F '64

Luminescent behavior of the rare earths in yttrium oxide and related hosts. K. A. Wickersheim and R. A. Lefever. bibliog diag Electrochem Soc J 111:47-51 Ja '64

Method for growing rare-earth single crystals. H. E. Nigh. bibliog il J Ap Phys 34:3323-4 N '63

New approach to separation of trivalent actinide elements from lanthanide elements. F. L. Moore. bibliog Anal Chem 36:2158-62 O '64

Photochemical reduction of rare earth ions in fused halides. H. L. Pinch. Am Chem Soc J 86:3167-8 Ag 5 '64

Properties of materials; rare earths; tables. Materials in Design Eng 60:163 Mid-O '64

Rare-earth-conduction electron interaction in 4*d* and 5*d* Laves phases compounds. D. Shaltiel and others. bibliog J Ap Phys 35:978-9 pt 2 Mr '64

Rare earths, 1963. S. B. Roberts. Eng & Min J 165:129 F '64

Removal of radioactive actinides and lanthanides from aqueous solutions with calcium fluoride prior to flame photometric determination of lithium. H. P. Holcomb. Anal Chem 36:2360-1 N '64

Separation of rare earths from other metal ions by anion exchange. J. S. Fritz and R. G. Greene. Anal Chem 36:1095-7 My '64

Separation of uranium, thorium, and the rare earth elements by anion exchange. J Korkisch and G. Arrhenius. bibliog Anal Chem 36:850-4 Ap '64

Spectrophotometric determination of rare earth metals with 4-(2-pyridylazo)resorcinol. K. N. Munshi and A. K. Dey. bibliog Anal Chem 36:2003-4 S '64

Stable divalent rare earths in alkaline earth halides by solid-state electrolysis. F. K. Fong. bibliog diag RCA R 25:303-7 Je '64

Study of the calcium molybdate-rare earth niobate systems. L. H. Brixner. bibliog il diag Electrochem Soc J 111:690-7 Je '64

See also

Cerium
Europium
Lanthanum
Neodymium
Thulium
Ytterbium

Analysis

Microscopical identification of the cerium group rare earth elements. F. D. Leipziger and others. bibliog il Anal Chem 36:314-15 F '64

Polarography of lanthanum(III), praseodymium(III), and ytterbium(III) in anhydrous ethylenediamine. L. C. Hall and D. A. Flanigan. bibliog diags Anal Chem 35:2108-12 D '63

Rapid radiochemical separation and activation analysis of rare earth elements. K. Rengan and W. W. Meinke. bibliog diag Anal Chem 36:157-61 Ja '64

Separation of scandium from yttrium, lanthanum, and the rare earths by cation exchange chromatography. F. W. E. Strelow and C. J. C. Bothma. bibliog Anal Chem 36:1217-20 Je '64

Spectra

Analytical applications of the flame spectra of the rare earth elements and scandium. A. P. D'Silva and others. bibliog Anal Chem 36:532-6 Mr '64

Spectral properties of rare earth oxide phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:311-17 Mr '64

RARE earth nitrides

Properties of rare-earth nitrides. N. Sclar. bibliog J Ap Phys 35:1534-8 My '64

RARE earth oxides. See Rare earths

RARE earth phosphates

Synthesis and single-crystal growth of rare-earth orthophosphates. R. S. Feigelson. bibliog Am Cer Soc J 47:257-8 My '64

RARE earth tungstates

Trivalent rare-earth tungstates of the type $M_2(WO_4)_3$. K. Nassau and others. bibliog Am Cer Soc J 47:363-4 Jl '64

RARE earths

Rare earths, 1963. S. B. Roberts. Eng & Min J 165:129 F '64

Spectral properties of rare earth oxide phosphors. R. C. Ropp. bibliog Electrochem Soc J 111:311-17 Mr '64

Variation of some rare earths in allanite. J. W. Frondel. bibliog Am Mineralogist 49:1159-77 S '64

See also

Cerium oxides
Monazite

RATCHET mechanism

Additive and subtractive ratchet mechanism. H. B. Schell. diags Mach 71:151 S '64

RATHBONE, M. J.

Jersey Standard's Rathbone wins Palladium medal. por Chem & Eng N 42:24 Mr 9 '64

RATS

Adenosine triphosphatase and ATP-P_i exchange in mitochondria of essential fatty acid-deficient rats. R. M. Johnson. bibliog J Nutrition 81:411-14 D '63

Amino acid balance and imbalance; effect of amino acid imbalance on self-selection of diet by the rat. J. C. Sanahuja and A. E. Harper. bibliog J Nutrition 81:363-71 D '63

Availability of microbially synthesized thiamine in the rat. J. Yudkin. bibliog J Nutrition 81:183-6 N '63

Chronic effects of trichloroethylene on rat behavior. K. Battig and E. Grandjean. bibliog il Archives Environmental Health 7:694-9 D '63

Dietary fat and the structure and properties of rat erythrocytes. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 81:75-80; 82:323-32 S '63, Mr '64

Dietary protein level and the turnover rate of tissue proteins in rats. K. Muramatsu and others. bibliog J Nutrition 81:427-33 D '63

Effect of arsenic on selenium metabolism in rats. O. E. Olson and others. bibliog J Agri & Food Chem 11:531-4 N '63

Effect of calcium phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Effect of dietary fat on the glyceride structure of rat carcass fat. E. G. Perkins. bibliog Am Oil Chem Soc J 41:285-9 Ap '64

Effect of dietary restriction of pregnant rats on body weight gain of the offspring. B. F. Chow and C. J. Lee. bibliog J Nutrition 82:10-18 Ja '64

Effect of egg white diets on calcium metabolism in the rat. G. W. Engstrom and H. F. DeLuca. bibliog J Nutrition 81:218-22 N '63

RATS—*Continued*

Effect of the level of dietary protein on the toxicity of dieldrin for the laboratory rat. M. Lee and others. bibliog il J Nutrition 84:136-44 O '64

Effect of the quality of dietary protein on nitrogen compounds in the urine of rats. S. Kiriyama and K. Ashida. bibliog J Nutrition 82:127-34 Ja '64

Effect of zinc toxicity on calcium, phosphorus and magnesium metabolism of young rats. A. K. Stewart and A. C. Magee. bibliog J Nutrition 82:287-95 F '64

Effects of coprophagy prevention on intestinal microflora in rats. R. J. Fitzgerald and others. J Nutrition 84:155-60 O '64

Effects of dietary supplements on young rats fed high levels of zinc. A. C. Magee and S. Spahr. bibliog J Nutrition 82:209-16 F '64

Fatty livers produced in albino rats by excess niacin in high fat diets. L. L. Rikans and others. bibliog J Nutrition 82:83-7 Ja '64

Highly specific toxicant for rats synthesized. il Chem & Eng N 42:26 My 4 '64

Influence of artifical diet on weight gain and body composition of the neonatal rat. H. A. Dymsza and others. bibliog J Nutrition 84:100-6 O '64

Influence of dried-grass silage and silage fractions on the basal metabolic rate of rats. G. A. McLaren and others. J Nutrition 83:218-24 Jl '64

Influence of gelatin on growth and liver pyridine nucleotide concentration of the rat. J. R. Savage and A. E. Harper. bibliog J Nutrition 83:158-64 Je '64

Influence of low, intermediate and high levels of dietary protein on heat production of rats. E. W. Hartsook and T. V. Hershberger. J Nutrition 81:209-17 bibliog(p216-17) N '63

Influence of nicotinic, picolinic and pyridine-3-sulfonic acids on cholesterol metabolism in the rat. D. Kritchevsky and S. A. Tepper. bibliog J Nutrition 82:157-61 Ja '64

Influences of dietary carbohydrate-fat combinations on various functions associated with glycolysis and lipogenesis in rats. C. Carroll. bibliog J Nutrition 79:93-100; 82:163-72 Ja '63, F '64

Inhibition of D-pantothenate by L-pantothenate in the rat. H. P. Sarett and J. J. Barboriak. bibliog Am J Clinical Nutrition 13:378-84 D '63

Metabolic studies of an amino acid imbalance in cold-exposed rats. G. J. Klain and R. L. Winders. bibliog J Nutrition 82:333-7 Mr '64

Metabolism of S-propyl-1-C^{14} n-butylethylthiocarbamate (Tillam-C^{14}) in rats. S. C. Fang and others. J Agri & Food Chem 12:37-40 Ja '64

Mineral utilization in the rat. R. M. Forbes. bibliog J Nutrition 80:321-6; 83:44-8, 225-33 Jl '63, My, Jl '64

Nutritional effects of dihydroxystearic acid in rats. H. Kaunitz and R. E. Johnson. bibliog Am Oil Chem Soc J 41:50-2 Ja '64

Nutritional evaluation of acetostearins in rats. R. D. Coleman and others. bibliog Am Oil Chem Soc J 40:737-42 D '63

Periodic B-vitamin supplementation of growing rats fed a vitamin-free diet. W. J. Stielau and J. H. Meyer. bibliog J Nutrition 81:330-4 D '63

Possible mechanisms for dietary molybdenum toxicity in the rat. H. L. Johnson and R. F. Miller. bibliog J Nutrition 81:271-8 N '63

Protein-energy relationship in adult rats. P. A. Garcia and C. E. Roderuck. bibliog J Nutrition 82:224-36 F '64

Rat liver storage of vitamin A from fortified nonfat dried milk. R. A. Rasmussen and others. bibliog J Agri & Food Chem 12:413-14 S '64

Relative potency of diets containing amino acids and proteins for promoting growth of rats. W. D. Salmon. J Nutrition 82:76-82 Ja '64

Some biochemical lesions associated with liver fat accumulation in threonine-deficient rats. D. Arata and others. bibliog J Nutrition 82:150-6 Ja '64

Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog il J Nutrition 81:312-20 D '63

Studies of rat liver and kidney enzymes. J. H. Hutchinson and others. bibliog Am J Clinical Nutrition 14:291-309 My '64

Studies on the metabolism of linoelaidic acid in the essential fatty acid-deficient rat. O. S. Privett and M. L. Blank. bibliog il diag Am Oil Chem Soc J 41:292-7 Ap '64

Tissue distribution of α-aminoisobutyric acid and nitrogen metabolism in the rat; effects of environmental temperature and dietary imbalance. L. A. Bavetta and M. E. Nimni. J Nutrition 82:379-84 Mr '64

Urolithiasis in the rat; influence of amino acid supplements on the occurrence of citrate calculi. R. Van Reen and others. bibliog J Nutrition 83:358-64 Ag '64

RAUWOLFIA

Deserpideine, a new yohimbinoid type alkaloid. E. Smith and others. Am Chem Soc J 86:2083-4 My 20 '64

Rauwolfia alkaloids; the oxidative demethylation and rearrangement of some ajmaline derivatives. M. F. Bartlett and others. bibliog Am Chem Soc J 86:729-31 F 20 '64

RAW materials

Engineer looks at foreign aid. I. B. Joralemon. Min Eng 16:25+ Ap '64

Material specifications tailored to strip processes. il Automation 11:75 My '64

Raw materials for Ashland. J. L. Brady and others. il J Metals 16:635-6 Ag '64

Tailoring raw materials to suit the processor. A. W. Brant and R. C. Pearl. il Food Tech 18:1339-44 S '64

See also

Ceramic materials
Metals
Minerals
Mines and mineral resources

RAWSON, Valentin Stratford

Obituary. S. E. Livingstone. por Chem & Ind p30-1 Ja 4 '64

RAYON

Manufacture

Rayon's latest push into fibers; process flowsheet. A. H. Burkholder and E. Siegman. Chem Eng 71:110-12 Jl 6 '64

RAYON cords

Firestone introduces radial-ply tires. il Chem & Eng N 42:70+ N 9 '64

Importance of small particles in tire yarn viscose. K. L. Gray and others. bibliog Tappi 46:735-9 D '63

Radial-ply tires blur tire cord picture. il Chem & Eng N 42:48+ O 19 '64

RAYON fabrics

Technical development of Corval and Prestwick. K. H. Tauss. bibliog Am Dyestuff Rep 53:171-7 Mr 2 '64

Cotton mixtures

Avril-cotton slacks tested in actual use. Mod Textiles Mag 44:27 N '63

Lirelle; Courtaulds' new high modulus rayon; fiber, yarn and fabric properties. Mod Textiles Mag 45:113-19 Ja '64

Creasing

Effect of relative humidity on the crease recovery of some modified rayon and cotton fabrics. R. A. Gill and R. Steele. bibliog Textile Res J 32:338-49 Ap '62; Discussion. 33:958-9 N '63

ORF develops treatment for cellulosics. Can Chem Process 47:68-9 D '63

RAYON fibers

Determination of the refractive indices, birefringence, and tensile properties of normal viscose rayon fibers. N. Barakat and A. M. Hindeleh. bibliog il Textile Res J 34:581-4 Jl '64

Laboratory-spun rayon fibers from birch pulp. B. Hackman and others. il diag Tappi 46:722-6 D '63

Lirelle; Courtaulds' new high modulus rayon; fiber, yarn and fabric properties. Mod Textiles Mag 45:113-19 Ja '64

New staple fiber types; panel discussion. diags Tappi 46:sup 140A-6A D '63

Technical development of Corval and Prestwick. K. H. Tauss. bibliog Am Dyestuff Rep 53:171-7 Mr 2 '64

Tensile strength distribution and creep failure of cellulosic filaments. H. C. Cheung. bibliog Textile Res J 34:597-604 Jl '64

RAYON finishing

Courtaulds W-63 is a high wet modulus rayon; wet processing in blends with cotton. E. Attle. Mod Textiles Mag 45:116-18 Ja '64

Effect of graft polymerization on crease resistance of cellulosic fabrics. G. N. Richards and E. F. T. White. bibliog Textile Res J 34:810-12 S '64

Single-fiber resin finishing treatments of viscose rayon; effects of tension. L. Rebenfeld. Textile Res J 34:168-71 F '64

RAYON straps
Cut strapping costs 30 per cent; new method of baling grey goods. il Textile Ind 128:87-8 F '64
Rayon cord strapping is fast, by machine. il Mod Materials Handling 18:76 D '63

RAYON yarn
Electron microscope observations on the fine structure of rayon. W. M. Kaeppner. bibliog il Tappi 46:637-44 N '63
Lirelle; Courtaulds' new high modulus rayon; fiber, yarn and fabric properties. Mod Textiles Mag 45:113-19 Ja '64
New uses for high tenacity viscose rayon yarns. B. Sutcliffe. Tappi 46:sup86A+ N '63

RAYS
See also
Cosmic rays

RAYS, Absorption of. See Absorption of rays

RAZOR blades
Shaving. Drug & Cosmetic Ind 94:110 Ja '64
Shaving facts and figures. Drug & Cosmetic Ind 94:341 Mr '64

Manufacture

How they stamp those new stainless steel razor blades. il Am Mach 108:72-3 Je 8 '64
Razor blade press cuts 525 times a minute. il Engineering 197:297 F 21 '64

RAZORS
Shaving facts and figures. Drug & Cosmetic Ind 94:341 Mr '64

REA, Henry Carter
Memorial. R. M. Thompson. por Am Assn Pet Geologists Bul 48:1601-3 S '64

REACTANCE
Commutation reactance of the transformer in a static power convertor. R. Feinberg and W. Y. Chen. bibliog diags Inst E E Proc 111:135-42 Ja '64
Electrical constants and relative capabilities of bundled-conductor transmission lines. A. F. Gabrielle and others. bibliog diags IEEE Trans Power Apparatus & Systems p78-88; Discussion. p89-91; Reply. 91-2 Ja '64
End component of armature leakage reactance of turbine generators. J. A. Tegopoulos. bibliog diags IEEE Trans Power Apparatus & Systems 83:632-7 Je '64
Reactance of a symmetrical pair of strips in rectangular waveguide. L. Lewin. diag Inst E E Proc 111:1382-4 '64
Reactance tables. E. T. Thiersch. Radio-Electronics 35:33 F '64
Unidirectional parametric converter using nonlinear reactances. D. P. Howson. diag IEEE Proc 52:1068-9 S '64

REACTION, Chemical. See Chemical reaction

REACTION time
Electromagnetic brake activated by eyebrow muscles. L. Vodovnik. il Electronic Eng 36:694-5 O '64

REACTORS
Fault-current limitation for large transformers using reactors in the tertiary winding. M. J. Lantz and M. T. Yee. diags IEEE Trans Power Apparatus & Systems 83:637-40; Discussion. 658 Je '64
Suppression of ground-fault arcs on single-pole-switched ehv lines by shunt reactors. E. W. Kimbark. diags IEEE Trans Power Apparatus & Systems 83:285-90 Mr '64
Time ratio control with combined scr and sr commutation. R. E. Morgan. bibliog diags IEEE Trans Com & Electronics 83:366-71 Jl '64

REACTORS, Chemical
Application of contacting studies to the analysis of reactor performance. E. V. Murphree and others. bibliog diags Ind & Eng Chem Proc Design 3:381-6 O '64
Axial mixing in a tubular high pressure reactor. D. Carter and W. G. Bir. bibliog diags Chem Eng Prog 58:40-3 Mr '62; Discussion. K. B. Bischoff. A I Ch E J 10:584+ Jl '64
Characterization of multiple variable linear systems from random inputs. R. M. Angus and L. Lapidus. bibliog A I Ch E J 9:810-20 N '63
Effect of feedback control on chemical reactor stability. J. S. Berger and D. D. Perlmutter. diags A I Ch E J 10:238-45 Mr '64
Explosive bonding gets biggest job yet; Nooter corp. has completed fabrication of four chemical process vessels for Amoco. il Chem & Eng N 42:46 Ag 31 '64
Mass transfer and contactor efficiency in a stirred liquid-liquid reactor. A. J. Engel and O. A. Hougen. bibliog diag A I Ch E J 9:724-9 N '63
Operating characteristics of transfer-line reactors; abstract and discussion. W. Smith and A. Poll. Chem & Ind p 1976 D 21 '63
Production of uranium dioxide by flame denitration. W. H. Hedley and others. bibliog flow diag diags Ind & Eng Chem Proc Design 3:11-14 Ja '64
Rate of isomerization of cyclopropane in a flow reactor. B. R. Davis and D. S. Scott. bibliog diag Ind & Eng Chem Fundamentals 3:20-3 F '64
Reinforced fiberglas polyester solves corrosion problem. F. D. Johnson. il Can Chem Process 48:76-7 F '64
Semibatch operation of a recirculation reactor for the hydrogenation of ethylene. J. P. Leinroth, jr. and T. K. Sherwood. bibliog diag A I Ch E J 10:524-9 Jl '64
Simulation and optimal control of chemical processes. E. B. Dahlin and J. M. Nelson. diags Chem Eng Prog 60:49-56 Mr '64
Simulation of a stirred tank reactor. diags Instruments & Control Systems 37:146-7 Je '64
Terminal and averaging control of pyrolysis in a tubular reactor. S. M. Roberts. bibliog Ind & Eng Chem Proc Design 3:14-18 Ja '64
Tubular reactor stability. L. R. Raymond and N. R. Amundson. bibliog Can J Chem Eng 42:173-7 Ag '64
Variable density effects and axial dispersion in chemical reactors. J. M. Douglas and K. B. Bischoff. bibliog Ind & Eng Chem Proc Design 3:130-3 Ap '64
Venting of high pressure fixed-bed catalytic reactors. D. Basmadjian. Can J Chem Eng 42:104-6 Je '64
Yield studies in packed tubular reactors. H. S. Mickley and R. W. M. Letts. bibliog Can J Chem Eng 41:273-9; 42:21-7 D '63-F '64

Control

New approach to the stability and control of nonlinear processes. J. F. Leathrum and others. bibliog diags A I Ch E J 10:16-25 Ja '64

Design

Chemical reactor analysis; morphological approach. R. Aris. bibliog diags Ind & Eng Chem 56:22-7 Jl '64
Chemical reactor stability by Liapunov's direct method. J. S. Berger and D. D. Perlmutter. bibliog diags A I Ch E J 10:233-8 Mr '64
Contacting efficiency in hydrocarbon synthesis. H. Grekel and others. diags Chem Eng Prog 60:56-60 Ja '64
Designing laboratory catalytic reactors. J. J. Carberry. bibliog il diags Ind & Eng Chem 56:39-46 N '64
Optimization of backmix reactors in series for a single reaction. S. Szépe and O. Levenspiel. bibliog diags Ind & Eng Chem Proc Design 3:214-17 Jl '64
Residence time distribution of a complex reactor. T. B. Metcalfe. bibliog flow diag il diags Chem Eng Prog 60:71-4 F '64

REACTORS, Nuclear. See Nuclear reactors

READING
Technical literature in continued education. R. J. Schwarz. IEEE Proc 52:755 Jl '64

READING machines
New optical device sees and reads. Franklin Inst J 277:288-9 Mr '64
Philco corp print reader systems will read typed or printed (not script) pages without the use of stylized or magnetic ink letters. il Product Eng 34:39 D 23 '63
System reads three type fonts. J. M. Carroll. il Electronics 36:49 D 20 '63
See also
Perceptrons

READY-mixed concrete. See Concrete mixing—Ready-mixed concrete

REAL estate business
See also
Land values

REAL property
See also
Land values

REAMERS
50 ways to do special jobs with standard tools; reamers; drawings with text. E. Rolnick. Am Mach/Metalworking Manuf 107:115-18 O 14 '63
Fundamentals of HSS cutting tools. il Am Mach 108:154 Ap 13 '64
Gun reaming precision aluminum die castings. H. Gregg. il Mach 70:126-7 N '63

REAMING
Interest booms for gun machining. R. H. Eshelman. il Iron Age 192:57 N 21 '63

REASONING
See also
Problem solving
Thought and thinking

REBOILERS. See Evaporators

RECEIVING departments
Receiving, industry's biggest bottleneck; symposium. il diags Mod Materials Handling 19:40-74 Ja '64
Receiving system teams trucks and tow tractors; McCall's printing plant. il Mod Materials Handling 19:77 Ja '64
Thanks to pneumatic tubes, paperwork flow is fast; Allis-Chalmers mfg. co. il Mod Materials Handling 19:76 Ja '64

RECEPTACLES, Electric. See Electric wiring

RECIPROCITY theorem
Onsager reciprocal principle. L. T. Fan and C. H. Chan. Ind & Eng Chem Fundamentals 3:181-2 My '64
Reciprocity principle in the theory of magnetic recording. J. A. Geurst. bibliog diags IEEE Proc 51:1573-7 N '63; Discussion. 52: 626-7 My '64
Reciprocity theorems and irreversible processes. H. B. G. Casimir. bibliog IEEE Proc 51:1570-3 N '63

RECLAMATION of land
Consol reclamation; trees, farms, recreation areas. il Coal Age 69:147-53 O '64
Flexible mountaintop surface mining; Hardburly mine, Caperton coal co. il diags Coal Age 69:118-21 Ap '64
Gravel pits go on to greater things. E. W. Stearn. il Rock Prod 67:89-91 Jl '64
Land conservation in Pennsylvania open pit mines. W. G. Jones. il Min Cong J 49:52-6 O '63
Landfill; from eyesore to asset. H. V. Mailey. il Pub Works 95:95-6 N '64
Need more real estate for substation growth? P. Naney. plan Power Eng 68:52 My '64
Operation green earth; its importance to power field; strip-mined coal, producers reclaim land areas. il Power Eng 68:48-9 Jl '64
Reclamation program of Ohio power co. R. R. Krause. il Min Cong J 50:78-80 Ag '64
Surface-mine reclamation; continuing research challenge. R. F. May. il Coal Age 69:98-9+ Mr '64
Surface mine reclamation; why and how. A. E. Lamm. il Min Cong J 50:23-7 Mr '64
United electric coal companies land-use program. P. N. Seastrom. il Min Cong J 49:26-8+ D '63
University expands into Lake Michigan. il Eng N 173:58 O 8 '64
See also
Chinampas

RECOMBINATION of electrons. See Electrons—Recombination

RECOMBINATION of ions. See Ions—Recombination

RECONNAISSANCE, Military. See Military reconnaissance

RECONSTITUTED milk. See Milk, Reconstituted

RECORD changers. See Phonograph—Record changers

RECORDING instruments
Inks for instrumentation. Gas 40:101+ F; 121+ Mr '64
Instrument pens. Gas 40:81+ Ap; 107+ My '64
Radio-linked tide gauges in the Thames estuary. il diags Engineer 216:849-50 N 22 '63
Recording instruments prove out for Cascade. il Gas 40:62-3 S '64
See also
Oscillographs
Oscillographs, Cathode ray
Smoke recorders
Spectrometers, Recording

RECORDING instruments, Electric
Adapt multi-point recorder for vibration analysis. R. Hantzsch and J. Peters. diag Elec World 161:72 Ap 6 '64
Airborne wire recorder. il Engineer 217:799 My 1 '64
Automatic frequency marker. M. E. Crandell and others. diags R Sci Instr 35:414-15 Mr '64
Automatic recording of wide-range strain or displacement data. M. L. Rudee and others. diag Materials Res & Stand 4:61-2 F '64
Breaking a design tradition in strip-chart recorders. il Product Eng 35:44 Ja 20 '64
Combination recording sorption balance and extensometer. H. Roper and J. G. Bryden. diags J Sci Instr 41:84-7 F '64
Convert recorder for strain-gage readout. R. Hantzsch and J. Peters. il Elec World 161: 99-100 Ap 6 '64
Data acquisition system. flow chart diag Aircraft Eng 36:147 My '64
Data logger's growing role in power industry telemetry. W. C. Shook. il diag Power Eng 68:T10-11 Mr '64
Developments in recording. R. C. Nelson. il diag Instruments & Control Systems 36: 120-3 Ag; 124-7 S; 102-5 O; 122-3 N '63
For telemetry, advantages of storing data before detection. J. D. Williamson. Electronic Ind 23:61-3 Ag '64
Gears for variable-speed strip recorders. il diags Products Eng 35:63 Jl 20 '64
Graphic recorder survey. Instruments & Control Systems 37:91-6 Jl '64
Improved recording vacuum balance. M. R. Harris. diags J Sci Instr 41:163-6 Mr '64
Let's weigh those wells automatically. C. C. Boggus. il Oil & Gas J 62:78+ F 3 '64
Log recorder improves trawler efficiency. il Ind Electronics 2:321-2 Jl '64
Logarithmic pen recording of mass peaks for an AEI type MS2H mass spectrometer. J. J. Wijnbergen and others. diag J Sci Instr 41:574-5 S '64
Modification of a Bruel & Kjaer graphic level recorder. J. Willis and F. T. Dietz. il diag R Sci Instr 35:233-4 F '64
Motor tests using X-Y recorders. B. Hall. diags Electro-Tech 73:116+ My '64; Abstract. Instruments & Control Systems 37: 107 F '64
Near-field plotter; design tool for millimeter-wave antennas. P. Wolfert. il diags Electronics 36:29-31 D 27 '63
Pre-amplifier for use with micro-electrodes. I. D. Pugsley. bibliog il diags Electronic Eng 35:788-91 D '63
Recorder recentering circuit for magnetic resonance. D. R. Torgeson and W. A. Rhinehart. diag R Sci Instr 34:1447-8 D '63
Recording gas calorimeter. il Engineer 217: 218 F 14 '64
Records gas measurement readings. il Pet Management 36:128+ F '64
Simple remotely operated quartz spring recording balance. A. Landsberg. diag J Sci Instr 41:337-8 My '64
Time-controlled multipoint recorder. N. K. Person, jr. il diag Instruments & Control Systems 37:113 Jl '64
Time-sharing data-acquisition system. B. Brentnall and W. H. Horton. il diags Instruments & Control Systems 37:115-18 Je '64
Valve and transistor characteristic tracer. A. W. Gooder and M. H. N. Potok. il diags Electronic Eng 35:722-5 N '63
Vehicle performance recording. A. L. Alexander. il diags Automobile Eng 53:526-31 D '63
Velocity controlled electrolytic tank field plotter. J. M. Richards and J. C. H. Geisow. bibliog diags J Sci Instr 41:28-33 Ja '64
Versatile X-Y recorders. B. Hall. il diags Res/Develop 14:22-4 D '63
Water wave recording instrument for use in hydraulic models. J. B. Moore. diags J Sci Instr 41:321-3 My '64
See also
Demand meters

RECORDING spectrophotometers. See Spectrophotometers, Recording

RECORDS
Bradford Hills Quarry keeps a close eye on cost by using meticulous record-keeping system. flow sheet il Rock Prod 67:66-8+ F '64
What do engineers think of paperwork? R. D. Stevens. Pet Management 36:82-5 O '64
See also
Files and filing (documents, etc.)
Inventories
Machine shops—Records
Maintenance departments—Records
Printing offices—Records
Production control
Public utilities—Records
Punched card system

RECORDS, Phonograph. See Phonograph records

RECORDS, Preservation of
These features are essential in fire-safe vaults. G. M. Betz. il Plant Eng 18:148-9 S '64

RECREATION
Recreation; key to good employee relations. il Textile World 114:56-9 O '64
See also
Leisure
Playgrounds

RECREATION areas
Greenbelt setting helps make this steam station a showplace. il Elec World 160:26 D 16 '63

RECREATION areas—*Continued*

How a waterway improvement changed environment. R. B. Nichols. il map Am Soc C E Proc 89 [WW 4 no 3690]:1-12 N '63; Discussion. 90 [WW 1 no 3814]:171-2 F; [WW 2 no 3917]:33-4 My '64

Landscaping to conserve the countryside. il Engineering 197:613-16 My 1 '64

Relationship of recreational use to bacterial densities of Forrest Lake. D. A. Rosebery. bibliog il Am Water Works Assn J 56:43-59 Ja '64

Soil stabilizer helps create recreational areas. il Pub Works 95:101-3 Ap '64

See also

Reservoirs—Recreational use

RECREATION buildings

Administrative offices and recreation center for YWCA. il plans Arch Rec 135:159-64 Mr '64

See also

Clubhouses

Skis and skiing—Stations, lodges, etc.

RECTIFIERS, Electric. See Electric rectifiers

RECTIFIERS, Radio. See Radio rectifiers

RED beds. See Rocks, Sedimentary

RED blood cells. See Erythrocytes

RED shift theorem. See Stars—Reddening

REDUCTION, Chemical

Calcium is built up as a reducing agent. F. J. Starin. il Iron Age 192:30 D 26 '63

Chemical reduction of nitrate in water. G. K. Young and others. bibliog WPCF J 36:395-8 Mr '64

Chemistry of the autocatalytic reduction of copper by alkaline formaldehyde. R. M. Lukes. bibliog Plating 51:1066-8 N '64

Clemensen reduction of 1,3-diketones. N. J. Cusack and B. R. Davis. Chem & Ind p 1426-7 Ag 8 '64

Deuterium-hydrogen exchange during the catalytic deuteration of methyl oleate. W. K. Rohwedder and others. bibliog Am Oil Chem Soc J 41:33-6 Ja '64

Dialkyl peroxide-induced reductions of aromatic ketones. E. S. Huyser and D. C. Neckers. bibliog Am Chem Soc J 85:3641-4 N 20 '63

Direct reduction experiments using a small Kaldo converter. T. F. Pearson and others. bibliog il diags Iron & Steel Inst J 202:1-10 Ja '64

Epitaxial deposition of silicon and germanium layers by chloride reduction. E. F. Cave and B. R. Czorny. bibliog il diags RCA R 24:523-45 D '63

Epitaxial p-type germanium and silicon films by the hydrogen reduction of GeBr$_4$, SiBr$_4$, and BBr$_3$. K. J. Miller and M. J. Grieco. bibliog diag Electrochem Soc J 110:1252-6 D '63

External symmetry of cobalt particles produced by hydrogen reduction of CoBr$_2$. M. A. Gedwill and others. il J Ap Phys 35:2266-7 Jl '64

Hydroxy-1,2,5-thiadiazoles; formation of substituted aminomethanesulfonates by aqueous bisulfite reduction. J. M. Ross. bibliog Am Chem Soc J 86:2869-74 Jl 20 '64

Iron ore reduction by the Echeverria process. C. F. Jeffries. flow sheet il plan diag J Metals 16:805-8 O '64

Kinetic inhibition of cerium(IV) reduction by oxalic acid. G. A. Rechnitz and Y. A. El-Tantawy. Anal Chem 36:2361 N '64

Kinetics of hydrogen reduction of ferrous oxide in a batch fluidized bed; effects of mass velocity and pressure. W. D. Ahner and J. Feinman. bibliog diags A I Ch E J 10:652-5 S '64

Kinetics of hydrogen reduction of iron ore in a batch-fluidized bed. J. Feinman. bibliog diags Ind & Eng Chem Proc Design 3:241-7 Jl '64

Latest developments of the H-iron process. P. C. Keith and others. Iron & Steel Eng 40:95-8; Discussion. 98-100 N '63

Mechanism for the autocatalytic reduction of nickel by hypophosphite ion. R. M. Lukes. bibliog Plating 51:969-71 O '64

Mechanism of reduction of alkyl halides by organotin hydrides. L. W. Menapace and H. G. Kuivila. bibliog Am Chem Soc J 86:3047-51 Ag 5 '64

Metal-ammonia reduction of an allene. J. M. Brown. bibliog Chem & Ind p 1689 O 19 '63

New method for the reduction of aldehydes and ketones to CH$_2$ under mild conditions. L. Caglioti and P. Grasselli. Chem & Ind p 153 Ja 25 '64

Oxidation-reduction equilibria in iron-containing glass. W. D. Johnston. bibliog Am Cer Soc J 47:198-201 Ap '64

Photoreduction of 2,2-diphenyl-1-picrylhydrazyl (DPPH) in hydrocarbons. J. N. Pitts, jr. and others. bibliog Am Chem Soc J 86:296-7 Ja 20 '64

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Polarographic and chronopotentiometric behavior of o-phthalic acid in acidic solutions. R. P. Buck. bibliog diag Anal Chem 35:1853-9 N '63

Pre-reduction of blast furnace burdens using the S-L process. F. J. Pearce. diag Can Min & Met Bul 57:429-33 Ap '64

Rapid determination of percent reduction of iron ore. E. Price. Eng & Min J 165:118-20 Je '64

Rate-controlling step and rate equation for the reduction of haematite with hydrogen in a fluidised bed. G. R. Venkitakrishnan and G. N. Bhat. bibliog J Ap Chem 14:141-7 Ap '64

Rates of oxidation-reduction reactions between ketyls and ketones. N. Hirota and S. I. Weissman. bibliog Am Chem Soc J 86:2537-8 Jl 5 '64

Redox-initiated polymerisation of *N*-vinylcarbazole and 4-vinylpyridine by metal ions. C. H. Wang. Chem & Ind p751-2 My 2 '64

Reducibility measurement of blast furnace burdens. T. B. Beeton. bibliog diag Iron & Steel Inst J 201:913-22 N '63

Reduction by iron(II), equilibrium, and rate of isomerization in the *cis-trans*-Co(NH$_3$)$_4$(OH$_2$)N$_3^{+2}$ system. A. Haim. bibliog Am Chem Soc J 86:2352-6 Je 20 '64

Reduction of aromatic disulfides with triphenylphosphine. R. E. Humphrey and J. M. Hawkins. bibliog Anal Chem 36:1812-14 Ag '64

Reverse-current chronopotentiometric study of the catalytic reduction of titanium(IV) in the presence of hydroxylamine. J. H. Christie and G. Lauer. bibliog Anal Chem 36:2037-8 S '64

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators. B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

Selective reductions. H. C. Brown and others. bibliog Am Chem Soc J 86:1079-95 Mr 20 '64

Simplified modification of Wolff-Kishner reduction for hindered or masked carbonyl groups. W. Nagata and H. Itazaki. bibliog Chem & Ind p 1194-5 Je 27 '64

Stereochemistry of the lithium-ammonia reduction of α-β-unsaturated ketones. G. Stork and S. D. Darling. bibliog Am Chem Soc J 86:1761-8 My 5 '64

Synthesis of flavan-3-ols. P. N. Verma and M. M. Bokadia. bibliog Chem & Ind p807-8 My 9 '64

Two-stage Meerwein-Ponndorf-Verley reduction. R. D. Hoffsommer and others. Chem & Ind p482 Mr 21 '64

Use of the similarity principle in predicting the optimum performance of iron reduction kilns. N. J. Themelis and others. bibliog diags Can Min & Met Bul 57:434-42 Ap '64

Versatile ketone synthesis: the reduction of α-diketones and α-ketols by hydriodic acid. W. Reusch and R. LeMahieu. bibliog Am Chem Soc J 86:3068-72 Ag 5 '64

See also

Hydrogenation

REDUCTION, Electrolytic

Cathodic reduction of manganese dioxide in alkaline electrolyte. G. S. Bell and R. Huber. bibliog Electrochem Soc J 111:1-6 Ja '64

Controlled potential reduction of vitamin B$_{12a}$ (aquocobalamin). H. A. O. Hill and others. bibliog Chem & Ind p 197 F 1 '64

Deposition of thin metallic coatings by use of surface reduction techniques. T. C. Franklin and N. F. Franklin. bibliog diag Plating 51:890-2 S '64

Effect of lithium ion on the mechanism of the polarographic reduction of benzil in dimethylformamide. R. H. Philp, jr. and others. Electrochem Soc J 111:1189-90 O '64

Electrochemical behavior of nickel compounds; anodic dissolution and oxygen reduction in perchlorate solutions. A. K. M. Shamsul Huq and others. bibliog Electrochem Soc J 111:278-86 Mr '64

Electrolytic reductive coupling. M. M. Baizer and J. D. Anderson. bibliog diag Electrochem Soc J 111:215-28 F '64

Electrolytic stibine formation. L. Tomlinson. bibliog Electrochem Soc J 111:592-6 My '64

Electrooxidation or reduction of organic compounds into aqueous solutions using carbon paste electrode. T. Kuwana and W. G. French. Anal Chem 36:241-2 Ja '64

REDUCTION, Electrolytic—*Continued*

Formation of polynuclear species during the electroreduction of chromic acid. J. Levitan. bibliog Electrochem Soc J 111:286-9 Mr '64

Improvement of iron bleaching in clays through potentiometric control of sodium dithionite addition. R. F. Conley and others. bibliog Ind & Eng Chem Proc Design 3:183-8 Ap '64

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

Kinetics of redox reactions on passive electrodes. A. C. Makrides. bibliog Electrochem Soc J 111:392-400 Ap '64

Magnetic field measurement of high-amperage aluminum cells. W. E. Capitaine and W. H. Schmidt-Hatting. il diags J Metals 16:42-5 Ja '64

Mechanism of electrochemical reduction of alkyl bromides. J. W. Sease and others. Am Chem Soc J 86:3154-5 Ag 5 '64

Model for current reversal chronopotentiometry with second-order kinetic complications. S. W. Feldberg and C. Auerbach. bibliog Anal Chem 36:505-9 Mr '64

Polarographic reduction of some aryl diketones. R. H. Philip, jr. and others. bibliog diags Electrochem Soc J 111:328-34 Mr '64

Polarographic studies in acetonitrile and dimethylformamide. S. Wawzonek and others. bibliog Electrochem Soc J 111:74-8 Ja '64

Stable divalent rare earths in alkaline earth halides by solid-state electrolysis. F. K. Fong. bibliog diag RCA R 25:303-7 Je '64

Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63

REDWOOD

Methods of measuring and estimating tracheid wall thickness of redwood (sequoia sempervirens [D. Don] Endl.). D. M. Smith and R. B. Miller. bibliog il Tappi 47:599-604 O '64

REED indicators

Rotating-reed accelerometer. J. V. Fitzgerald and F. J. Matusik. diags Instruments & Control Systems 36:89 D '63

Vibrating reed electrometers. W. R. Williams and R. C. Hawes. il diags Instruments & Control Systems 36:112-15 N '63

Vibrating reed selector for Bellboy service. S. D. White. il diag Bell Lab Rec 42:134-7 Ap '64

REEFS

How useful a tool are reef-building studies? Oil & Gas J 62:220 Je 8 '64

Petrography and evolution of Niagaran (Silurian) reefs, Indiana. D. A. Textoris and A. V. Carozzi. bibliog il map diags Am Assn Pet Geologists Bul 48:397-426 Ap '64

REEFS, Coral. See Coral reefs and islands

REELS

Roll in savings with industrial reels G. Berkwitt. il diags Mill & Factory 74:118-21 My '64

REELS, Electric cable. See Electric cable reels

REFERENCE books

See also

Dictionaries

REFINERIES, Petroleum. See Petroleum refineries

REFLECTION (optics)

Effect of surface roughness on the total hemispherical and specular reflectance of metallic surfaces. R. C. Birkebak and others. bibliog il diags A S M E Trans ser C 86:193-9 My '64

Errors of reflectivity measurements and of calculations of refractive index n and absorption coefficient k. H. Piller and K. v. Gehlen. bibliog Am Mineralogist 49:867-82 Jl '64

Field investigation of flux contrast; small offices. J. A. Walick and R. R. French. bibliog diags Illum Eng 59:365-71; Discussion. 371-3 My '64

Interreflections in mirrored rooms. P. F. O'Brien and R. P. Bobco. bibliog il diags Illum Eng 59:337-44 My '64

Multiple reflection cells for internal reflection spectrometry. N. J. Harrick. bibliog diags Anal Chem 36:188-91 Ja '64

Optical absorption and diffuse reflectance of powders. P. D. Johnson. J Ap Phys 35:334-6 F '64

Optical systems for observing surface topography by frustrated total internal reflection and by interference. C. W. McCutchen. bibliog il diags R Sci Instr 35:1340-5 O '64

Polarized light; discussion. il diag Illum Eng 59:sup 13A Ap; sup 10A-11A sec 2 My; sup28A-9A Ag '64

Proposed working reflectivity standards for opaque ore minerals. G. J. Jansen. bibliog diag Econ Geol 59:1153-8 S '64

Variable impedance power meter, and adjustable reflection coefficient standard. G. F. Engen. bibliog diags J Res Nat Bur Stand 68C:7-24 Ja '64

REFLECTION of sound. See Sound—Reflection

REFLECTION of waves. See Wave motion, Theory of

REFLECTION spectra. See Spectrum—Reflection spectra

REFLECTOMETERS

Three port tuned microwave reflectometer. M. Brady. bibliog diags J Sci Instr 41:440-4 Jl '64

REFLECTORS

100-ft. dia. reflector to focus the sun's rays may be one way to greater power in space. il Product Eng 34:61 N 25 '63

Sun power from Sunflower; aluminum and silicon-oxide films deposited in same vacuum cycle. L. W. Collins, jr. il Mach 70:95-100 Ja '64

REFRACTION

Extinction measurements for the determination of 2V with the universal stage. N. Joel and I. D. Muir. bibliog diags Am Mineralogist 49:286-96 Mr '64

Linear deviation, or translation, of light rays. R. Isakower. Product Eng 35:109-10 Jl 6 '64

Nonmechanical scanning of light using acoustic waves. R. Lipnick and others. diag IEEE Proc 52:853-4 Jl '64

REFRACTION, Double

Application of thermodynamics to thermomechanical, fracture, and birefringent phenomena in viscoelastic media. R. A. Schapery. bibliog J Ap Phys 35:1451-65 My '64

Birefringence of plant fibrous cellulose and microcrystalline cellulose in human stools freezer-stored immediately after evacuation. T. W. Tusing and others. bibliog il J Agri & Food Chem 12:284-7 My '64

Concentric cylinder viscometer for the measurement of flow birefringence and viscosity in concentrated polymer solutions. A Kaye and D. W. Saunders. bibliog diags J Sci Instr 41:139-44 Mr '64

Control of laser radiation with birefringent crystals; the microwave circuit viewpoint. M. R. Wohlers and K. G. Leib. diags J Ap Phys 35:2311-12 Ag '64

Correlation of molecular orientation parameters derived from optical birefringence and sonic velocity methods. I. M. Ward. Textile Res J 34:806-7 S '64

Demodulation of phase-modulated light using birefringent crystals. S. E. Harris. bibliog diags IEEE Proc 52:823-31 Jl '64

Determination of the refractive indices, birefringence, and tensile properties of normal viscose rayon fibers. N. Barakat and A. M. Hindeleh. bibliog il Textile Res J 34:581-4 Jl '64

Effective thickness of two birefringent crystals for the study of natural birefringence. M. Ziauddin and T. S. Narasimhamurty. bibliog il diags R Sci Instr 35:303-5 Mr '64

Interferometric determination of the refractive indices and birefringence of mohair wool fibers. N. Barakat and A. M. Hindeleh. bibliog il diags Textile Res J 34:357-62 Ap '64

Optical network and filter synthesis using the theory of distributions. G. W. Stroke. bibliog IEEE Proc 52:855 Jl '64

Optical network synthesis using birefringent crystals. S. E. Harris and E. O. Ammann. diags IEEE Proc 52:411-12 Ap '64

Relationship of polypropylene fiber orientation as determined by optical birefringence and sonic velocity measurements. S. E. Ross. bibliog Textile Res J 34:565-71 Jl '64

Shear wave propagation in a birefringent viscoelastic medium. G. B. Thurston and J. L. Schrag. bibliog il diags J Ap Phys 35:144-51 Ja '64

Structural properties of cotton fibers; birefringence and structural reversals in relation to mechanical properties. S. M. Betrabet and others. bibliog Textile Res J 33:720-7 S '63; Correction. 34:171 F '64

REFRACTIVE index

Accurate determination of the ordinary-ray refractive index in $BaTiO_3$. W. N. Lawless and R. C. DeVries. bibliog J Ap Phys 35:2638-9 S '64

REFRACTIVE index—*Continued*

Change of the refractive index of ruby during optical pumping. U. J. Schmidt. J Ap Phys 35:259-60 Ja '64

Changes in relation between refractive index and Young's modulus as the result of successive heat treatments E. H. Hamilton. bibliog Am Cer Soc J 47:167-70 Ap '64

Determination of the refractive indices, birefringence, and tensile properties of normal viscose rayon fibers. N. Barakat and A. M. Hindeleh. bibliog il Textile Res J 34:581-4 Jl '64

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Errors of reflectivity measurements and of calculations of refractive index n and absorption coefficient k. H. Piller and K. v. Gehlen. bibliog Am Mineralogist 49:867-82 Jl '64

Gas lenses show promise for long distance laser communication. il diags Bell Lab Rec 42:294-5 S '64

Gas mixture lens measurements. A. C. Beck. il diag Bell System Tech J 43:1821-5 pt 2 Jl '64

Immersion liquids of relatively strong dispersion in the low refractive index range (1.46 to 1.52). R. E. Wilcox. bibliog Am Mineralogist 49:683-8 My '64

Index of refraction of air, the absorption and dispersion of centimeter waves by gases. G. Boudouris. il diags J Res Nat Bur Stand 67D:631-84 bibliog(p681-4) N '63

Index of refraction of ice. G. W. Horton. Am J Phys 32:320 Ap '64

Interferometric determination of the refractive indices and birefringence of mohair wool fibers. N. Barakat and A. M. Hindeleh. bibliog il diags Textile Res J 34:357-62 Ap '64

Lasers; gases will guide light without absorbing or reflecting it. il diag Product Eng 35:74 Ag 3 '64

Lens or light guide using convectively distorted thermal gradients in gases. D. W. Berreman. il diags Bell System Tech J 43:1469-75 Jl '64

Physical properties of fatty acid methyl esters; refractive index and molar refraction. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:426-9 Je '64

Physical properties of synthetic biotites on the join phlogopite-annite. D. R. Wones. bibliog Am Mineralogist 48:1300-21 N '63

Radiometeorological study: analysis of vhf field strength variations and refractive index profiles. B. R. Bean and others. bibliog map diag J Res Nat Bur Stand 67D:597-604 N '63

Refractive index monitor employing Fresnel's principle. R. D. Conlon. diags R Sci Instr 34:1418-20 D '63

Refractive index of GaAs. D. T. F. Marple. bibliog J Ap Phys 35:1241-2 Ap '64

Refractive index of ZnSe, ZnTe, and CaTe. D. T. F. Marple. bibliog diag J Ap Phys 35:539-42 Mr '64

Relationship of optical axial angle with the three principal refractive indices. J. McAndrew. bibliog Am Mineralogist 48:1277-85 N '63

Thermal gas lens measurements. A. C. Beck. diag Bell System Tech J 43:1818-20 pt 2 Jl '64

Use of gratings producing moiré patterns for measuring refractive index gradients. C. J. van Oss. bibliog il diag J Sci Instr 41:227-8 Ap '64

Use of index of refraction liquids for the measurement of the refractive index of thin transparent films on silicon. A. E. Lewis. Electrochem Soc J 111:1007-9 Ag '64

See also

Refractometers

REFRACTOMETERS

Field kit for determining the spirit strength of wines. B. E. Dixon and others. il diag Chem & Ind p 1873-4 N 23 '63

Layer structure of the troposphere; simultaneous radar and microwave refractometer investigations. J. A. Saxton and others. bibliog il Inst E E Proc 111:275-83 F '64

Monitoring countercurrent distribution with a recording refractometer. R. O. Butterfield and H. J. Dutton. bibliog diags Anal Chem 36:903-6 Ap '64

Practical double-prism cell for differential refractometry. A. Rosenberg and others. diags Anal Chem 36:1168 My '64

REFRACTORY concrete. See Concrete, Refractory

REFRACTORY materials

Aluminum casting problems solved by fiber refractories. T. R. Tate. il Mod Metals 20:44+ My '64

Curing refractory castables: it isn't the heat, it's the humidity. J. F. Wygant and M. S. Crowley. Am Cer Soc Bul 43:1-5 Ja '64

Designing monolithic refractory vessel linings. J. F. Wygant and M. S. Crowley. bibliog diags Am Cer Soc Bul 43:173-82 Mr '64

Fused cast refractories. R. W. Brown. diags Glass Ind 45:536-8+ O '64

Future refractories and steelmaking. R. E. Birch. bibliog il J Metals 16:512-15 Je '64

Gunning machine for refractories. il Engineer 218:338 Ag 28 '64

High-alumina plastics and ramming mixes. K. K. Kappmeyer and others. il Am Cer Soc Bul 43:452-6 Je '64

High-temperature behavior of $MoSi_2$ and Mo_5Si_3. G. B. Cherniack and A. G. Elliot. bibliog il Am Cer Soc J 47:136-41 Mr '64

High-temperature thermal expansion behavior of refractory materials. B. R. Miccioli and P. T. B. Shaffer. bibliog diags Am Cer Soc J 47:351-6 Jl '64; Correction. 47:536 O '64

Lockheed reveals new fiber composite. Steel 153:47+ N 25 '63

Microstructure of chromite-periclase at 1650° to 2310°C. P. E. Scheerer and others. bibliog il Am Cer Soc J 47:297-305 Je '64

Microstructure of periclase. W. S. Treffner. bibliog il Am Cer Soc J 47:401-9 Ag '64

Nonmetallic materials for high-temperature structural applications. E. G. Kendall and J. D. McClelland. Machine Design 36:208+ O 22 '64

Pneumatic placement of castable refractories. M. V. Probst. il diags Iron & Steel Eng 41:151-3 S '64

Pneumatic placement of refractory castables. M. D. Cook and others. bibliog il Am Cer Soc Bul 42:486-9, 694-7; 43:380-2 S, N '63, My '64

Refractories in Italy's steel industry. F. Savioli. il map Am Cer Soc Bul 43:214-15 Mr '64

Refractories make the difference in incinerator construction. R. A. Cotton. il Plant Eng 17:118-19 N '63

Refractory coatings. N. A. Tiner. il Chem Eng Prog 60:56-8 F '64

Refractory fiber composites for aerospace applications. diags Materials in Design Eng 60:137+ S '64

Refractory for hard-driven blast furnaces. Engineer 216:703 O 25 '63

Refractory lining stops erosion in pulverized coal supply line. E. W. Schwarm and W. J. Mayberry. il Power Eng 67:73 N '63

Theory and technology of refractory coatings. S. W. Bradstreet. bibliog Chem Eng 70:77-80 D 23 '63

Transient thermal diffusivity technique for refractory solids. J. A. Cape and others. bibliog diags J Ap Phys 34:3550-5 D '63

See also

Fire brick
Forsterite
Kyanite
Pyrophyllite
Silicon carbide
Zirconium oxides

Analysis

Laser in refractories research. il Glass Ind 45:556+ O '64

Polarized reflected light in microscopic examination of refractories. H. A. Freeman. bibliog il Am Cer Soc Bul 43:448-51 Je '64

Rapid chemical and chrome-bearing refractories. C. S. Richards and E. C. Boyman. bibliog Anal Chem 36:1790-3 Ag '64

Manufacture

General refractories co. modernizes Warren plant. il Iron & Steel Eng 41:162 Mr '64

Testing

Carbon monoxide disintegration of calcium aluminate cements in refractory castables. W. H. Gitzen and others. bibliog il diag Am Cer Soc Bul 43:518-22 Jl '64

Chemical resistance of refractories to Al and Al-Mg alloys. J. G. Lindsay and others. bibliog il Am Cer Soc J 47:90-4 F '64

Correlation of slag resistance with the pore structure of an alumina-silica refractory. T. Vojnovich and others. bibliog diag Am Cer Soc Bul 43:514-17 Jl '64

REFRACTORY materials—Testing—*Continued*

Device for determining pressure distribution in dry-pressing refractories. F. H. McRitchie. diags Am Cer Soc Bul 43:501-4 Jl '64

Evaluation of five commercial calcium-aluminate cements. J. T. Shapland and A. F. Livovich. il Am Cer Soc Bul 43:510-13 Jl '64

Measuring deformation of refractories under load. J. R. Kreglo, jr. il Am Cer Soc Bul 43:122-4 F '64

Rubbing contact materials for face type mechanical seals. J. W. Abar. il diag Lub Eng 20:381-6 O '64

Special refractories association load test. T. J. Taylor. il diags Am Cer Soc Bul 42:741-4 D '63

Thermal expansion of certain group IV and group V carbides at high temperatures. C. R. Houska. bibliog Am Cer Soc J 47:310-11 Je '64

Thermocouple for the measurement of gas temperatures up to 2000°C. R. J. Bertodo. bibliog il diag Inst Mech Eng Proc 177 no 22:603-14; Discussion. 615-16 '63

REFRACTORY metals. See Metals, Heat resisting

REFRACTORY research

Effect of flue-gas contaminants on refractory structures at elevated temperatures; abstract. G. H. Criss and R. R. Schneider. Combustion 35:46 F '64

REFRIGERANTS

Adiabatic single and two-phase flow in small bore tubes. E. P. Mikol. bibliog il diags ASHRAE J 5:75-86 N '63

Chemical reactions of refrigerant 22. H. O. Spauschus and G. C. Doderer. bibliog ASHRAE J 6:54-8 O '64

Determining pressure drop and refrigerant flow capacities of liquid line driers. E. Jones. diags ASHRAE J 6:70-4+ F '64

Evaluation of refrigerant 502 in integral horsepower commercial refrigeration compressors. H. Soumerai. bibliog diags ASHRAE J 6:31-40 Ja '64

Experimental investigation of boiling heat transfer and pressure-drop characteristics of Freon 11 and Freon 113 refrigerants. T. A. Blatt and R. R. Adt, jr. bibliog flow diag A I Ch E J 10:369-73 My '64

Flow resistance with boiling refrigerants. B. Pierre. diags ASHRAE J 6:58-65 S; 73-7 O '64

Heat transfer pressure drop of refrigerants evaporating in horizontal tubes. R. C. Johnston, jr. and J. B. Chaddock. ASHRAE J 6:91-2 My '64

Purify hydrogen by auto-refrigeration. R. G. Graven and S. G. Greco. diag Hydrocarbon Process & Pet Refiner 43:243-4 S '64

R-502-newest refrigerant for transport cooling. E. E. Melby. S A E J 72:39 Ap '64

Refrigerant vapor heating-cooling system. O. S. Lieberg. il diag Air Cond Heat & Ven 61:62-4 S '64

Ups efficiency of nitrogen as transport refrigerant. diag Food Eng 36:101 Ag '64

Viscosity of oil-refrigerant mixtures at evaporator conditions. H. M. Parmelee. ASHRAE J 6:46 O '64

See also

Ammonia
Butane
Chlorodifluoromethane
Chlorofluoromethanes
Dichlorodifluoromethane
Dry ice

REFRIGERATING industries

Europe

Future development of household refrigerators in Europe. W. Pichel. ASHRAE J 6:76-9 Jl '64

REFRIGERATING plants

See also

Cold storage warehouses
Piping (refrigerating plants)
Refrigeration and refrigerating machinery

REFRIGERATION and refrigerating machinery

Air conditioning and refrigeration; growing market for aluminum. il Mod Metals 20:50+ My '64

Air conditioning memos. il Dom Eng 204:132-4 O '64

Air replaces nitrogen, CO_2 in freeze deflashing. R. S. Walker. il Rubber World 149:33-5 F '64

Annual equipment specification digest: air conditioning. il Air Cond Heat & Ven 61:43-4+ Ja '64

Evaluation of refrigerant 502 in integral horsepower commercial refrigeration compressors. H. Soumerai. bibliog diags ASHRAE J 6:31-40 Ja '64

Food freezing plant at Grimsby. il Engineer 218:341 Ag 28 '64

Food precooling symposium. il ASHRAE J 5:33-49 N '63

Hallflake ice making machines. il Engineering 196:786-7 D 20 '63

Lithium chromate; corrosion inhibitor for lithium bromide absorption refrigeration systems. R. H. Krueger and others. il ASHRAE J 6:40-4 F '64

Mobile system freezes on site. il Food Eng 36:96 Ag '64

Multi-purpose refrigeration plant serves modern bakery. R. C. Dannenberg. il Gas 40:101-3 Jl '64; Same. Food Eng 36:95-7 S '64

New energy systems for building services. R. G. Meschino. diags Gas 40:107-11 F '64

Parts and products. Published in monthly numbers of ASHRAE journal

Pressure drop across regenerator of a Stirling cycle machine. G. Walker. diags Engineer 216:1063-6 D 27 '63

Pulse-tube refrigeration. W. E. Gifford and R. C. Longsworth. bibliog il diags A S M E Trans ser B 86:264-8 Ag '64

Reformer hydrogen purified by novel autorefrigeration system. R. G. Graven and S. G. Greco. diag Oil & Gas J 62:120 Jl 6 '64

Refrigeration at cryogenic temperatures. H. M. Long. diags Machine Design 36:206+ Ja 16 '64

Refrigeration in cable making. il Engineer 216:771 N 8 '63

Report on causes underlying refrigeration system accidents. Heating-Piping 35:59-60 N '63

Temperature control for helium refrigerator. Engineering 196:767 D 13 '63

Total turbine energy refrigeration. il diag Gas Age 131:23-6 Je '64

Viscosity of oil-refrigerant mixtures at evaporator conditions. H. M. Parmelee. ASHRAE J 6:46 O '64

Your own ice plant may be a good investment. W. H. Miller. il diag ASHRAE J 6:42-4 Mr '64

See also

Compressors
Cooling
Cooling equipment
Gas in refrigeration
Piping (refrigerating plants)
Refrigerants
Refrigerators
Temperature, Low

Design

By-pass factor in its place! M. Ramsey. Air Cond Heat & Ven 61:105-7 O '64

Cryogenic refrigerator. W. H. Hogan and R. W. Stuart. bibliog il diags Mech Eng 86:18-20 O '64

Introduction to cryogenics. R. W. Vance. bibliog flow diag il diags Machine Design 36:169-92 O 8 '64

Sizing pressure regulating valves. C. D. Orth. ASHRAE J 6:72-5 Ap '64

Exhibitions

National air-conditioning, heating and refrigeration exposition. 13th. Chicago. Jan. 20-23; with floor plan and list of exhibitors. Heating-Piping 36:201-4 Ja '64

WACIA show. Los Angeles, Feb. 12-15; ARI show, Chicago, Jan. 20-23; with floor plan and lists of exhibitors. Air Cond Heat & Ven 61:11-18 Ja '64

Lubrication

Lubricant selection for refrigeration compressors. R. T. Divers. diags Power 107:66-8 D '63

System contamination and cleanup. E. F. Wojtkowski. il ASHRAE J 6:49-52 Je '64

Manufacture

Employ quality control in the fabrication of refrigerant piping. H. L. Mayers. Heating-Piping 35:92-4 D '63

Instantaneous braze heating-cooling makes new design practical; McIntire co. E. S. Chatlos. il diag Mach 70:121-2 Ag '64

Moisture problem

Dehydrating refrigerant piping systems. H. L. Mayers. il diag Heating-Piping 36:124-8 Ja '64

REFRIGERATION on cars, trucks, etc.

Cooling foods in-transit. Food Eng 36:92 Jl '64

REFRIGERATION on cars, trucks, etc.—*Continued*

Guaranteed performance marks advance in insulated trailers. G. Chieger and K. W. Tantlinger. S A E J 72:65 Je '64

Lower costs, better product achieved by mechanized spray-up system. il diag Plastics World 21:35 N '63

New cryogenic system cools mobile cargoes. Chem & Eng N 42:51 Jl 20 '64

R-502-newest refrigerant for transport cooling. E. E. Melby. S A E J 72:39 Ap '64

Ups efficiency of nitrogen as transport refrigerant. diag Food Eng 36:101 Ag '64

REFRIGERATION on ships

Data logging on board ship. A. J. Boseley. il diag Ind Electronics 2:259-62 Je '64

Freezing of fish at sea. G. Vortselas. bibliog flow diag il ASHRAE J 6:42-5 O '64

National marine reefer barges have 5000-ton payload. il Marine Eng/Log 69:43 Je '64

Refrigerated cargo ship North Isle. il Engineer 217:632 Ap 3 '64

World's first refrigerated ammonia tanker delivered by Verolme's Rotterdam shipyard. il Marine Eng/Log 69:62-3 O '64

REFRIGERATION research

ASHRAE project to study evaporator response. W. F. Stoecker. diags ASHRAE J 6:79 S '64

REFRIGERATORS

Refrigerator additions. il Engineering 197:176 Ja 24 '64

Shop-built icebox aids subzero machining. il diags Plant Eng 18:112-13 Ag '64

See also

Refrigeration and refrigerating machinery

Design

Which plastics for refrigerators? R. E. Deaux. il Materials in Design Eng 59:98-9 Ja '64

Manufacture

Competition spurs production innovations in the manufacture of refrigerators. C. R. Morris. il diags Automation 11:81-4 Ag '64

Refrigerator liner. il Plastics World 22:20 O '64

Urethane foam-steel panels produced at 40 to 50 per cent savings; Sherer-Gillett co. il Mod Plastics 41:108 F '64

Welds by thousands in fabrication line for refrigeration units. il diags Welding Eng 48:34-6 D '63

Which conveyor where? B. Curry. il Plant Eng 18:108-11 Je '64

Noise

Fan and fan motor noise in domestic refrigerators. A. C. Potter. diags ASHRAE J 6:37-41 O '64

Painting and finishing

Westinghouse refrigerator finish. J. C. Kerr. il Ind Finishing 40:24-8 F '64

REFUGEES

Chemically trained refugees doing well. il Chem & Eng N 52:56-7 Je 1 '64

REFUSE, Utilization of

Disposal system makes cash from trash. diag Eng N 172:32 Mr 26 '64

Plant for reclaiming refuse. diag Ind & Eng Chem 56:57-8 Ap '64

Process unit wins marketable goods from garbage. il diag Chem Eng 71:90-2 Ap 13 '64

Reclamation of refuse. H. G. Furlow and H. A. Zollinger. il diags Westinghouse Eng 24:80-5 My '64

Refuse reclamation plants. Civil Eng 34:104+ My '64

Turn-key composting plants. flow diag il Pub Works 95:86-7 My '64

Waste, not want, pays off for new industry. il Gas 39:132-3 D '63

See also

Refuse as fertilizer

REFUSE as fertilizer

Composting plants for reclaiming refuse. il diag Engineer 217:974-7 My 29 '64

Composting process considered as waste disposal solution. Chem & Eng N 42:46 Je 29 '64

Composting process developed for reclaiming refuse. Chem & Eng N 42:52+ Mr 2 '64

New look at refuse composting. W. J. Wicker. diag Pub Works 95:131-2 O '64

REFUSE collection

Big problem of a small city. F. Edmonds. Pub Works 95:99 Je '64

Bulk storage and mechanized collection of combined refuse. C. F. Fehn and others. il Pub Works 95:130-1 S '64

Colwyn Bay's paper sack scheme gives useful data; abstract. A. G. Davies. Pub Works 95:160+ Je '64

Kentucky fights litterbugs. il Pub Works 95:103 O '64

Modified catch basin cleaner makes an effective leaf loader. J. A. Lee. il Pub Works 95:121 Ap '64

New approach to rural refuse collection. W. T. Garrison and others. il map Pub Works 95:121-3 Je '64

Planned refuse vehicle replacement for better service, lower maintenance. W. M. Kunsch. il Pub Works 95:105-6 Mr '64

Refuse collection train improves service. C. B. Tyson. il Pub Works 95:99-100 Ja '64

Reorganization cuts refuse collection costs. D. J. Pedo. il Pub Works 95:110-11+ Jl '64

Second community adopts the paper bag refuse system il Pub Works 95:117 My '64

REFUSE disposal

Composting plants for reclaiming refuse. il diag Engineer 217:974-7 My 29 '64

Composting process considered as waste disposal solution. Chem & Eng N 42:46 Je 29 '64

Disposal of bulk wastes. F. J. Lucia. il Pub Works 95:100-2 O '64

Disposal system makes cash from trash. diag Eng N 172:32 Mr 26 '64

Gas production in a sanitary landfill. R. C. Merz and R. Stone. diag Pub Works 95:84-7+ F '64

Landfill; from eyesore to asset. H. V. Mailey. il Pub Works 95:95-6 N '64

Measuring gas escape from a landfill. Pub Works 95:163 S '64

Paper bag disposal system finds ready acceptance. G. G. Fox. il Pub Works 95:71-2 N '64

Planning for incineration; abstracts of papers. il diags Civil Eng 34:35-41 S '64

Seek bulk outlets for fly ash. diag Elec World 161:45-6 F 10 '64

Turn-key composting plants. flow diag il Pub Works 95:86-7 My '64

Whale of a problem. J. Creisler. Pub Works 95:80-1 Ja '64

See also

Refuse, Utilization of

Refuse as fertilizer

Refuse incinerators

Trade waste disposal

Waste paper

Bibliography

Sewerage and refuse digest. Published in monthly numbers of Public works

Costs

Finding the lowest cost for refuse disposal. J. S. Baker. map Pub Works 94:84-6 N '63

REFUSE incinerators

Automated waste disposal. il diag Safety Maint 128:55-6 S '64

Clearing refuse from storage pit corners. G. Pascoe and R. E. Lapar. il diag Pub Works 95:131 Je '64

Costs less to burn it. il Textile Ind 128:131+ Ja '64

Incinerator model convinces public. J. L. Hayden. il Pub Works 95:94-5 Jl '64

Memphis' salvage operations prove profitable. N. Sanders. il Elec World 161:103 Ap 6 '64

Municipal incineration of refuse; foreword and introduction progress report. Am Soc C E Proc 90 [SA 3 no 3942]:13-26 Je '64

Planning for incineration; abstracts of papers. il diags Civil Eng 34:35-41 S '64

Design

Unique incinerator develops power and provides salt water conversion. C. R. Velzy and C. O. Velzy. il diag Pub Works 95:90-5 Ap '64

Heat utilization

Barrel-grate incinerator rounds out third test year. il diag Power 108:74 My '64

Squeezing heat from garbage with modern municipal incinerators. diags Power 108:68-70 Mr '64

Steam generation from incineration. E. R. Shequine. diags Pub Works 95:92-4 Ag '64

REFUSE incinerators, Domestic

Gas the garbageman. il Gas Age 131:30-3 S '64

REFUSE receptacles

Are your waste cans fire-safe? il Safety Maint 127:34-5 My '64

Fire tests rule out combustible containers. il Safety Maint 128:35-6 S '64

Polyethylene litter baskets. il Plastics World 22:19 Ag '64

REGENERATIVE furnaces. See Furnaces, Recuperative and regenerative

REGGE, Tullio

Heineman prize. por Phys Today 17:50 Je '64

REGIONAL planning

Architecture as total community. A. Mayer and C. Stein. il maps plans Arch Rec 135: 137-44 Mr; 169-78 Ap; 145-52 My; 141-6 Je; 136:157-62 Jl; 129-38 Ag; 197-206 S; 139-48 O '64

Boston; shaping a region. il maps Arch Forum 120:105-13 Je '64

New York state plans for regional development. maps Arch Rec 136:23+ Ag '64

Relationship of health agencies and planning agencies. L. S. Goerke. bibliog Am J Pub Health 54:713-20 My '64

Suggestions for possible policy statement on highway planning; report of the committee on land use aspects of highway location. Am Soc C E Proc 90 [UP 1 no 4024]:1-4 S '64

See also

Metropolitan districts

REGRESSION (statistics)

Dynamic stability of rotating shafts in viscous fluids. W. H. Walston and others. bibliog il diags A S M E Trans ser E 31:291-9 Je '64

Error statistics for reinforced concrete beams. T. Zsutty. bibliog Am Soc C E Proc 89 [ST 6 no 3732]:235-70 D '63; Discussion. 90 [ST 4 no 4001]:321-3 Ag '64

Regression analysis of reinforced concrete columns. H. C. Shah. bibliog diags Am Soc C E Proc 90 [ST 1 no 3785]:37-59 F '64

Statistical solutions by the numbers. E. F. Taylor. diags Ind Quality Control 20:51-2 Je '64

Ultimate strength behavior study by regression analysis of beam test data. T. C. Zsutty. bibliog Am Concrete Inst J 60:635-54 My '63; Discussion. 60:1835-8; Reply. 1838-41 D '63

REGULATORS. See Flow regulators; Pressure regulators

REGULATORS, Voltage. See Voltage regulators

REHABILITATION. See Disabled—Rehabilitation

REHABILITATION centers

Courts and classrooms aid rehabilitation; Casa Colina rehabilitation center. il plan Arch Rec 135:202-3 Ap '64

Retraining center exploits a sloping site; Caruth center. il plans Arch Rec 135:200-1 Ap '64

REICH, Eli Thomas

1963 ASNE medal award and acceptance speech. pors Naval Eng J 76:338-41 Je '64

REID, William Edward

New president of the American textile manufacturers institute. Mod Textiles Mag 45: 20-2 Ap '64

REINFORCED concrete. See Concrete, Reinforced

REINFORCED plastics. See Plastics—Reinforcement

REINFORCING steel. See Steel, Reinforcing

RELATIVITY (physics)

Classical analog for relativistic contraction. L. Epstein. diag Am J Phys 31:913-15 D '63

Derivation of the expression for the relativistic mass of a particle. F. W. Sears. Am J Phys 32:60 Ja '64

Derivation of the Lorentz-transformation equations without a linearity assumption. R. Weinstock. bibliog Am J Phys 32:260-4 Ap '64

Detection of the transverse Doppler effect with laser light. R. Gerharz. IEEE Proc 52:218 F '64

Geometrical representation of relations between changes in mass, energy, and momentum in special relativity. F. W. Sears. Am J Phys 32:59-60 Ja '64

Henri Poincaré and the principle of relativity. C. Scribner, jr. bibliog Am J Phys 32:672-8 S '64

Orbital motion in the theory of general relativity. J. D. Anderson and J. Lorell. bibliog AIAA J 1:1372-4 Je '63; Discussion. 2:1869-70 O '64

Redshift and deflection of photons by gravitation; comparison of relativistic and Newtonian treatments. A. J. O'Leary. bibliog Am J Phys 32:52-5 Ja '64

Second postulate of special relativity. W. R. Haseltine. bibliog Am J Phys 32:173 F '64

Speed and kinetic energy of relativistic electrons. W. Bertozzi. il diags Am J Phys 32:551-5 Jl '64

See also

Light—Velocity

Space and time

RELAXATION methods (mathematics)

Matrix solution of force relaxation method. C. C. Feng. diags Am Soc C E Proc 89 [ST 3 no 3532]:1-19 Je '63; Discussion. S. Shore. 90 [ST 1 no 3812]:229-30 F '64; Reply. 90 [ST 3 no 3940]:377 Je '64

RELAXATION time (physics)

Analysis of stagger-tuned pulse receiver systems with special reference to n.m.r. relaxation-time measurements. H. Pursey. bibliog il diag Radio & Electronic Eng 28: 17-24 Jl '64

Chemical and vibrational relaxation of an inviscid hypersonic flow. A. D. Wood and others. bibliog diag AIAA J 2:1697-705 O '64

Creep and relaxation. R. L. Taylor. bibliog AIAA J 2:1659-60 S '64

Dependence of mechanical relaxation on morphology in isotactic polypropylene. E. Passaglia and G. M. Martin. bibliog il J Res Nat Bur Stand 68A:519-27 S '64

Dielectric, dynamic mechanical and nuclear resonance properties of polyethylene oxide as a function of molecular weight. T. M. Connor and others. bibliog J Ap Chem 14:74-81 F '64

Dissociative relaxation in viscous hypersonic shock layers. C. Park. bibliog diag AIAA J 2:1202-7 Jl '64

Effect of rare-earth impurities on the ferrimagnetic resonance and nuclear relaxation in yttrium iron garnet. F. Hartmann-Boutron. bibliog J Ap Phys 35:889-91 pt 2 Mr '64

Effects of species diffusion and heat conduction on nonequilibrium flows behind strong shocks. W. E. Gibson and J. D. Buckmaster. bibliog AIAA J 2:1681-8 O '64

Electromagnetic acceleration correction to the Debye relaxation time. R. W. Schmieder. diag Am J Phys 31:885-6 N '63

Experiments concerning nonequilibrium conductivity in a seeded plasma. E. E. Zukoski and others. bibliog diags AIAA J 2:1410-17 Ag '64

Ferrimagnetic resonance of rare-earth-doped iron garnets. J. H. Van Vleck. bibliog J Ap Phys 35:882-8 pt 2 Mr '64

Ferrimagnetic resonance relaxation in rare-earth iron garnets; abstract. P. E. Seiden. J Ap Phys 35:891 pt 2 Mr '64

Ferromagnetic resonance relaxation, wide spin-wave coverage by ellipsoids. A. S. Risley and H. E. Bussey. J Ap Phys 35: 896-7 pt 2 Mr '64

Influence of ferromagnetic elastic modulus relaxation on the determination of magnetic specific heat of Fe, Ni, and Co. J. L. Lytton. bibliog diag J Ap Phys 35:2397-406 Ag '64

Investigation of relaxation oscillations in the output from a ruby laser. D. D. Bhawalkar and others. bibliog il diag Radio & Electronic Eng 27:285-91 Ap '64

Microwave resonance and relaxation of manganese iron ferrites B. H. Clarke and R. W. Teale. bibliog J Ap Phys 35:892-3 pt 2 Mr '64

Nondimensional solutions of flows with vibrational relaxation. R. Phinney. bibliog AIAA J 2:240-4 F '64

Nuclear and ferromagnetic relaxation in $MnFe_2O_4$. A. J. Heeger and others. J Ap Phys 35:840-1 pt 2 Mr '64

Relative contributions of viscoelasticity and aging to the relaxation of cured rubber. P. Thirion and R. Chasset. bibliog il Rubber Chem & Tech 37:617-26 Jl '64

Relaxation modes of trapped crystal point defects; the three-neighbor shells model in NaCl. A. D. Franklin and others. bibliog J Res Nat Bur Stand 68A:425-38 S '64

Relaxation of pearlitic cast iron. V. D. Davies and others. bibliog diags Iron & Steel Inst J 202:343-6 Ap '64

Relaxation spectra of ribonuclease; the interaction of ribonuclease with cytidine 3′-phosphate. R. E. Cathou and G. G. Hammes. bibliog il Am Chem Soc J 86:3240-5 Ag 20 '64

Short-time relaxation test for spring materials. C. L. Carlson. il diags Materials in Design Eng 59:110-11 Je '64

Slow surface relaxation of germanium. M. H. Pilkuhn. bibliog J Ap Phys 34:3302-5 N '63

Stress relaxation in crosslinked poly(ethylene tetrasulfide). R. B. Beevers. bibliog J Colloid Sci 19:40-9 Ja '64

Ultrasonic relaxation near the Curie temperature of ferroelectric triglycine sulfate. E. J. O'Brien and T. A. Litovitz. bibliog il diag J Ap Phys 35:180-6 Ja '64

Use of stress relaxation tests to characterize time dependencies of a composite solid propellant. J. H. Stoker. diags AIAA J 2: 1816-18 O '64

RELAXATION time (physics)—*Continued*

Vibrational relaxation in air. D. R. White and R. C. Millikan. bibliog il AIAA J 2: 1844-6 O '64

RELAYS

Antenna relay for the beginner. R. Hanes. diags Q S T 48:59-61 Ap '64

Application of protective relays and devices to distribution circuits; IEEE committee report. bibliog IEEE Trans Power Apparatus & Systems 83:1034-41; Discussion. 1041-2 O '64

Arcing-fault relays for low-voltage systems. L. E. Fisher. bibliog il diags IEEE Trans Applications & Ind p317-20; Discussion. 320-1 N '63

Automatic digital computer program for setting transmission line directional overcurrent relays. H. Y. Tsien. flow charts diags IEEE Trans Power Apparatus & Systems 83:1048-53 O '64

Choosing relays or solid-state switching. J. A. Pfingsten. il Electronic Ind 23:99+ Je '64

Computer program applies, sets, checks relays. R. E. Albrecht and others. flow diag Elec World 161:92-3 My 18 '64

Converting digital data to voice. J. R. Rawley. diag Electronic Ind 23:84-6 Ap '64

Frequency relay. il Engineer 216:1033 D 20 '63

Fused nylon coat. il Plastics World 22:47 F '64

Generalized circle diagrams and their application to protective gear. P. Mathews and B. D. Nellist. bibliog diags IEEE Trans Power Apparatus & Systems p 165-73 F '64

Geographic relay system for railroad interlocked routing. W. Schmitz. bibliog il diags Elec Com 39 no 3:383-402 '64

Keyed antenna relay. G. Grammar. il diags Q S T 48:29-31 Jl '64

Magnetic latching wire spring relays. T. G. Grau and A. K. Spiegler. il Bell Lab Rec 42:139-40 Ap '64

Microwave relaying extended with high-frequency cable. V. A. Nosko and E. W. Downer. bibliog il diags IEEE Trans Power Apparatus & Systems 83:1058-63 O '64

New concepts solve ehv relaying. il diags Elec World 161:52-3+ Ja 27 '64

Protection of power transformers; 1962 relays committee survey of practices. IEEE Trans Power Apparatus & Systems p 1040-4 D '63

Protective relaying for ehv systems. J. L. Blackburn. diags Westinghouse Eng 24:72-7 My '64

Recent developments in Bell System relays; particularly sealed contact and miniature relays. A. C. Keller. bibliog il diags Bell System Tech J 43:15-44 Ja '64; Same. IEEE Trans Com & Electronics p79-87 Ja '64

Relay conference, Atlanta, Ga. Elec World 161:102 Je 15 '64

Relay reliability is increased by chromium diffusion coating. E. Krieger. Electro-Tech 74:110 O '64

Relays that challenge semiconductors. W. Holcombe. il diags Electronics 37:56-60 Mr 23 '64

Ruggedizing the wire spring relay. F. P. Balacek. il diag Bell Lab Rec 41:363-4 O '63

Selective load shedding system. G. D. Rockefeller. il diags Westinghouse Eng 23:187-9 N '63

Single digit counting relay. il Engineer 216: 646 O 18 '63

Static relay for protecting transmission lines. il Engineer 217:910 My 22 '64

Static relaying devices using magnetic cores and silicon-controlled rectifiers. G. R. Slemon and S. D. T. Robertson. bibliog diags IEEE Trans Com & Electronics 83:553-7 S '64

Supplement to Recent practices and trends in protective relaying; IEEE committee report. bibliog IEEE Trans Power Apparatus & Systems 83:1064-7; Discussion. 1067-9 O '64

Transistorised relay. il Engineer 217:145 Ja 17 '64

Very low voltage relay operation. R. L. Ives. il diag Audio 48:36 Ja '64

Testing

How to field test electrical protective relays. E. R. Redlhammer and D. E. Gross. il diags Coal Age 69:90-4 Jl '64

Measuring relay contact-bounce. T. Erickson. diags Electronic Ind 23:206-7+ Je '64

Portable set tests all relays in place. R. Zimering and others. il diag Elec World 160:126-8 O 21 '63

Relay tests focus on contact performance. F. J. Oliver. diags Electro-Tech 74:91-2+ Jl '64

RELAYS, Time limit

Extending relay release time. W. T. Maloney. diags Electronic Eng 35:731-2 N '63

RELIABILITY control. See Quality control

RELIGION and industry

One-week industrial leadership course organized by the Roman Catholic church. J. J. Henderson. Engineering 196:511-12 O 18 '63

RELUCTANCE motors. See Electric motors, Synchronous

REMODELED buildings. See Buildings, Remodeled

REMODELING (architecture)

Deft, economical remodeling; Warren bank, Mich. il plan Arch Rec 135:126-7 Ja '64

Dramatic renewal on campus. il plans diag Arch Forum 121:114-17 Jl '64

Gallery for pop art in a remodeled store. il plan Arch Forum 120:114-15 Mr '64

Handsome showroom from an old garage. il Arch Forum 120:117 Mr '64

Leaving behind a steel skeleton; stripping the facade from Times Tower building in New York City. R. L. Moxey. il Comp Air Mag 69:4-10 Ap '64

Long shop with a wide look. il plan Arch Rec 135:173 Je '64

Remodeling the existing laboratory. P. J. Johnson, jr. Res/Develop 15:37-9 Mr '64

Renovation saves $5 million. il Eng N 173:33 O 15 '64

Sausalito apartment remodeled. il plans diags Prog Arch 45:156-7 Mr '64

Sleek gallery out of an ancient paint shop. il Arch Forum 120:116 Mr '64

Split-level showcase in Manhattan; Design research, inc. il diag Arch Forum 120:118-21 Ap '64

Theatre reconstructed within original shell. il Engineering 197:459 Mr 27 '64

See also

Buildings, Remodeled

Houses, Remodeled

Plumbing trade—Remodeling

RENDERING

By-products

Studies on improved recovery of protein from rendering-plant raw materials and products. L. G. Criswell and others. bibliog flow sheet diag Food Tech 18:1489-97 S '64

RENDEZVOUS (space). See Orbital rendezvous (space flight)

RENE 41. See Nickel alloys

RENO, Nevada

Hotels, restaurants, etc.

Reno towers to embrace gaming casino. il plans Prog Arch 45:86 Je '64

REOVIRUS. See Viruses

REPAIR parts

Inside an injection rebuild shop; trip through Korody Marine's KEW div. il Diesel Equip Supt 42:64-5 Ap '64

REPAIR shops

Economy highlights county building expansion. il Pub Works 95:110-11 Je '64

Mason and Dixon lines; new shop incorporates many new ideas. il Diesel Equip Supt 42:30-3 My '64

Winter shop, not fancy but served purpose. il Roads & Sts 107:104 My '64

See also

Automobile service stations

Electric shops (repair)

Electrical apparatus service association

Railroads—Shops

Equipment

Central overhauling shop best for today's equipment. il Roads & Sts 107:40-5 Ap '64

Maintenance shop design; Spector freight system's West Richfield, Ohio, shop. il plan Diesel Equip Supt 41:26-9 D '63

Wiring an automotive service complex. il plan Elec Constr & Maint 63:77-81 Jl '64

REPLACEMENT (geology). See Metamorphism

REPLICA technique

See also

Electron microscope—Replica technique

REPORTS

Let your customers look over your shoulder; reporting system for Atols Tool & Mold. il Mill & Factory 73:54-5 D '63

Refinery performance reported via computerized reports. R. T. O'Neil and W. E. Stanley, jr. il Oil & Gas J 62:96-100 O 19 '64

See also

Business reports

Scientific writing

REPORTS, Engineering. See Engineering reports

REPRODUCTION
Photoperiodic control of reproductive cycles in birds. D. S. Farner. il diags Am Scientist 52:137-56 bibliog (p154-6) Mr '64
Reproduction and lactation in rats fed excessive iodine. C. B. Ammerman and others. bibliog J Nutrition 84:107-12 O '64
Reproductive performance of rats receiving various levels of dietary protein and fat. L. R. Richardson and others. bibliog J Nutrition 82:257-82 F '64
See also
Spermatozoa

REPTILES, Fossil
See also
Dinosauria

RESEARCH
Forecasting ahead for research. Engineering 197:334 F 28 '64
See also
Aeronautic research
Agricultural research
Air pollution—Research
Automobile research
Building research
Cement research
Ceramic research
Chemical research
Coal research
Coke research
Colleges and universities—Research
Combustion research
Concrete research
Corrosion research
Dye research
Electric research
Electronics research
Engineering research
Food research
Forestry research
Foundry research
Gas research
Glass research
Government research
Heating research
Highway research
Industrial research
Lighting research
Lubrication research
Metallurgical research
Military research
Mineralogical research
Mining research
Oceanographic research
Operations research
Paper research
Petroleum research
Pharmaceutical research
Physiological research
Plastics research
Printing research
Public health research
Radio research
Rubber research
Sanitary engineering research
Scientific research
Soil research
Space research
Textile research
Wool research

RESEARCH, Cooperative
Joint research programs save time and money; Dow-Westinghouse program on nuclear fuels typifies some of the why's and how's of cooperative research. il Chem & Eng N 42:34-5 N 2 '64

RESEARCH, Naval. See Naval research

RESEARCH departments
Administration of interdisciplinary research. M. A. Williamson. Res/Develop 15:31-2 Ag '64
Can management handle research and development? C. A. Thomas. Pet Management 35:42-3 D '63
Centralization streamlines research services. W. P. Metzner. il Anal Chem 36:sup29A-32A+ Mr '64
Contracted r&d begets benefits. F. L. Bonem. il diags Res/Develop 15:24-7 Ap '64
Getting research results applied. il Engineering 196:697 N 29 '63
How to measure the effectiveness of research operations. M. A. Williamson. Res/Develop 15:24-5 F '64
Inventions profit in byproducts. Product Eng 35:35 Mr 2 '64
Machine tool firm's r&d, and products; Charles Churchill companies. il Engineering 198:30-1 Jl 3 '64
Organizing r&d for the smaller company. H. J. Strauss. il Res/Develop 15:20-2 Jl; 22-5 Ag; 30-3 S '64
Planning the dynamic research and development facility. il plans Res/Develop 15:22-52 Mr '64
Productivity in research symposium, London, Dec. 11-12; abstracts of papers. flow diags Engineering 197:30-1 Ja 3 '64
℞ for industrial laboratory productivity. M. Abrahamson. Res/Develop 15:18-21 Ag '64
Research and development. H. Clausen. Engineer 217:616-17 Ap 3 '64
Saga of a proposal. A. J. Strassman. Res/Develop 15:23 Jl '64
Self-fulfilling prophecy in r&d management. M. A. Williamson. Res/Develop 15:92-3 Mr '64
Trends in r&d management. G. A. Whittington. Res/Develop 14:25-9 D '63
What's different in managing research? il Engineering 198:162-3 Ag 7 '64

Records

Realistic look at invention records. N. L. Wilson. Res/Develop 15:25-6 Jl '64

RESEARCH foundations
See also
Ontario research foundation

RESEARCH institutions
Allen Clark research centre; Plessey group extensions opened. il Metallurgia 69:218-22 My '64
Fat research institute of Seville. J. M. Martinez Moreno. il Chem & Ind p 1850-5 N 23 '63
Fortress think tank for Pittsburgh. il diag Prog Arch 45:84 Je '64
High mountain monastery for research. il plan Arch Forum 120:82-5 Ja '64
New campus for science. il diags Arch Forum 120:85 F '64
New research facilities added to Danish meat research institute. il plan Food Tech 18:853-4 Je '64
Torfinstitut and the Torfforschung. G.m.b.H. M. Gordon. il Chem & Ind p682-9 Ap 25 '64

RESEARCH workers
Creativity and the physical environment. H. L. Hemmingway. il Res/Develop 15:49-52 Mr '64
Do we need another professional society? M. A. Williamson. Res/Develop 14:33-5 D '63
Electronics for r&d. H. V. Malmstadt and C. G. Enke. il Res/Develop 15:88 Mr '64
Growth and dispersion of industrial research manpower. J. B. Parrish. maps Res/Develop 15:32-6 My '64
How to succeed in r&d without really dying. H. A. Singer. Res/Develop 15:38-40 Ap '64
S vs. D mind and its significance. M. A. Williamson. Res/Develop 15:50-1 My '64

RESERVATIONS. See Airlines—Reservation systems

RESERVOIRS
Aging of waters in reservoirs of the Piedmont plateau. R. D. Wilroy and R. S. Ingols. bibliog maps Am Water Works Assn J 56:886-90 Jl '64
Boston digs a hole for 50 per cent more water. il Water Works & Wastes Eng 1:53 F '64
Effects of conservation techniques on yield. U. Stephens. bibliog Am Water Works Assn J 56:991-1000 Ag '64
Fifty per cent more water for Hong Kong. il map diags Engineering 196:820-1 D 27 '63
Hong Kong stores water in sea. il map Eng N 172:26-8 Ja 9 '64
Hygienic principles underlying the determination of allowable concentration limits of flotoreagents in water basins; abstract. Y. T. Loshakov. Pub Works 94:148+ N '63
Low water can be friend or foe to algae. il Water & Sewage Works 110:404 N '63
Lucky Seattle; another treatment-free supply; Tolt River project. E. W. Ott. il map Water Works & Wastes Eng 1:36-40, cover Ap '64
Model for river regulation. L. L. Sheerar. map diags Am Soc C E Proc 89 [WW 4 no 3693]:13-27 N '63
Portable dredge solves problem of silting in remote reservoir. il diag Power Eng 68:46-7 F '64
Prediction of temperature in rivers and reservoirs. J. M. Raphael. bibliog Am Soc C E Proc 88 [PO 2 no 3200]:157-81 Jl '62; Discussion. P. B. Boyer. 89 [PO 1 no 3652]:129-32 S '63; Reply. 90 [PO 2 no 3977]:13 Jl '64
Rappbode reservoir. il Engineer 216:1041 D 20 '63
Reservoir key to area's growth. E. Thomas. il map Eng N 173:40+ Ag 20 '64
Reservoir topography by shoreline plotting. D. L. Crandall. il maps Am Soc C E Proc 90 [SU 1 no 3874]:39-56 Ap '64
Reservoirs prevent $290-million damage. il Eng N 172:51 Mr 19 '64

RESERVOIRS—*Continued*

Sediment movement and deposition patterns in Illinois impounding reservoirs. J. B. Stall. bibliog diags Am Water Works Assn J 56:755-66 Je '64

60 mg reservoir can be cleaned while in service. H. W. Tyler. il Pub Works 94:90-1 N '63

Solving winter algae problems. il Water Works & Wastes Eng 1:84 F '64

Taste and odor production in reservoirs by blue-green algae. A. R. Gaufin. bibliog Am Water Works Assn J 56:1345-50 O '64

Thirsty Hong Kong gets some relief. il map Eng N 171:50 D 12 '63

Volume-weight of reservoir sediment. H. G. Heinemann. il maps diags Am Soc C E Proc 88 [HY 5 no 3274]:181-97 S '62; Discussion. 89 [HY 3 no 3529]:347-8 My '63; Reply. 90 [HY 1 no 3783]:253-4 Ja '64

Water quality changes in Elephant Butte reservoir. J. H. Bliss. Am Soc C E Proc 89 [IR 3 no 3637]:53-76 S '63; Discussion. 90 [IR 1 no 3848]:131-8 Mr '64

See also

Water tanks

Costs

Outlet job faces flood threat all year; unit prices. Eng N 173:134 Jl 2 '64

Design

Optimum design of a multiple-purpose reservoir. W. A. Hall. Am Soc C E Proc 90 [HY 4 no 3972]:141-9 Jl '64

Reservoirs for the Metropolitan water board. Engineer 217:441, 482 Mr 6-13 '64

Evaporation control

Action of waves on monolayers simulated; abstract. V. K. La Mer and T. W. Healy. Chem & Eng N 42:60+ Ap 13 '64

Chemical sunscreens would cut reservoir evaporation. Water Works Eng 116:901 N '63

Photochemistry of long-chain fatty alcohols for evaporation control. A. Golden and others. bibliog Am Water Works Assn J 56:784-92 Je '64

Retardation of water evaporation by the monolayers of octadecyl alcohol and of its condensation products with ethylene glycol. R. N. Shukla and others. bibliog J Ap Chem 14:236-9 Je '64

Suspension process for reservoir evaporation control. R. G. Dressler. bibliog Ind & Eng Chem 56:36-9 Jl '64

Failure

Aftermath of an emergency; Los Angeles' Baldwin Hills reservoir failure. B. R. Paris; N. B. Hume. il Pub Works 95:103-7 My '64

Earth shifts wrecked reservoir. Eng N 172:22-3 F 27 '64

Health department role in the Los Angeles reservoir failure. C. L. Senn. il Pub Works 95:116-17 Ap '64

Land subsidence caused failure of Baldwin Hills reservoir. Eng N 173:60 Jl 2 '64

Reservoir failure under study. il Water Works & Wastes Eng 1:82 Ja '64

Vaiont reservoir disaster; geologic causes of tremendous landslide and flood wave. G. A. Kiersch. bibliog il map diags Civil Eng 34:32-9 Mr '64

Lining

Butyl sheeting lines Hawaii reservoir. il Eng N 173:51 O 22 '64

Eastern reservoir designers borrow western lining ideas. il map diag Eng N 173:28-30 N 5 '64

Reservoir rehabilitated with butyl rubber lining. il Pub Works 95:116-17 Mr '64

Sealing reservoirs with vinyl sheet. il Engineering 197:692-3 My 22 '64

Protection

Reservoir covered with 20 tons of aluminum sheet. il Mod Metals 20:86 F '64

Recreational uses

Indiana gets another reservoir for public recreation. J. W. Behee. il Water Works & Wastes Eng 1:34-6 Ag '64; Abstract. Pub Works 95:184-6 O '64

Watershed management and reservoir use; panel discussion. bibliog Am Water Works Assn J 56:149-68, 1083-6 F, Ag '64

RESERVOIRS, Concrete

Maintenance and repair of concrete reservoirs. F. E. Harem. Am Water Works Assn J 56:1160-6 S '64

RESIDUAL stresses. See Strains and stresses—Residual stresses

RESIN acids

Resin acids of ricinocarpus stylosus. C. A. Henrick and P. R. Jefferies. bibliog Chem & Ind p 1801-2 N 9 '63

Synthesis of some resin acids. E. Wenkert and others. bibliog Am Chem Soc J 86:2038-43 My 20 '64

RESINOUS products

Acetal parts protect cruisers and inboard runabouts. il Plastics World 21:31 D '63

Barr offers new hair spray resin polymer. il Soap & Chem Spec 49:134 F '64

Blow molding polycarbonate. C. G. McCubbin and R. L. Berwick. il diags Mod Plastics 41:130+ Je '64

Briefs on materials progress. Published in monthly numbers of Plastics world

Chemical resistance of epoxy resins. H. G. Cooke and others. Ind & Eng Chem 56:38-41 My '64

Cycloaliphatic epoxides; their synthesis and properties. H. Batzer. bibliog il diag Chem & Ind p 179-89 F 1 '64

Determination of cure of epoxy resins by infrared analysis. S. M. Lee and S. Brelant. bibliog Mod Plastics 41:150-1 D '63

Developing ABS resin technology brings forth new varieties. il Chem & Eng N 42:42-3 Mr 30 '64

Dry-bright shine on hardwood floors. il Can Chem Process 48:53-5 O '64

End-use evaluation of some copolymers and terpolymers of vinyl ethers of linseed conjugated fatty alcohols. R. H. Dent and others. bibliog Am Oil Chem Soc J 40:713-16 D '63

Epoxies economize plane parts, plumb disks. il Materials in Design Eng 59:130+ Ja '64

Epoxy cement repairs nitrogen tank. il Safety Maint 126:61-2 D '63

Epoxy/coal tar cement prevents cold-weather deck failures. il Roads & Sts 107:75-6 My '64

Epoxy resin; formulation features low water absorption. il Plastics World 21:112 N '63

Epoxy resins continue growth pattern. R. L. Van Boskirk. Mod Plastics 41:200+ My '64

Epoxy tube plates for heat exchangers. il diag Engineering 196:620-1 N 15 '63

Fluorocarbon resins in corrosion prevention. C. A. Homsy. bibliog il(cover) diags Ind & Eng Chem 56:20-8 Mr '64

Gentle ride for sensitive bulk; newest in pneumatics. il diag Mod Materials Handling 19:50-1 Ap '64

Here are five practical epoxy casting formulations. R. N. Wood. Plastics Tech 10:37-8 F '64

How epoxy resins benefit the oil industry. H. C. Bozeman. il Oil & Gas J 62:120-3+ O 5 '64

Improving chemical resistant polyesters. E. J. Kerle. Plastics World 21:22-5 D '63

Mobay optimistic about polycarbonates. il Chem & Eng N 41:19 D 30 '63

New corrosion-resistant polyester. Plastics Tech 10:14 Mr '64

New epoxies are stronger, more heat resistant. Plastics Tech 10:13 Ap '64

New epoxies shatter tensile, heat limits. Materials in Design Eng 60:115+ Jl '64

New EVA copolymers. Plastics Tech 10:11 Ap '64

New flexible polyesters resist corrosion, impact. il Materials in Design Eng 59:178+ Ap '64

Painless polycarbonate processing. R. J. Kunze. diag Plastics Tech 10:32-6 F '64

Phosphorus-containing unsaturated polyester resins from trialkyl phosphites. R. R. Hindersinn and N. E. Boyer. bibliog Ind & Eng Chem Product Res & Develop 3:141-5 Je '64

Plastic checks die profiles. M. K. Young. il Iron Age 193:80-1 F 27 '64

Polyamide resin series developed by General Mills; Versalon. Chem & Eng N 41:58 N 25 '63

Polycarbonate resins. Mod Plastics 41:99 Ja '64

Polycarbonates begin assault on market. il Can Chem Process 48:48-9 F '64

Polyester-based X-ray film. il Plastics Tech 10:23 Jl '64

Polyester for every purpose. il Mod Plastics 41:80-5+ F '64

Polyester resins post strong output gains. il Chem & Eng N 41:22-3 D 30 '63

Polyimide polymers under development. il Chem & Eng N 42:24-5 Ag 24 '64

Prepreg from phenolic resin blend for better molding. il Mod Plastics 41:107 F '64

Progress report on a new family of engineering plastics; polyimides. il Machine Design 36:228-37 Ap 23 '64

RESINOUS products—*Continued*

Properties of materials; acetal, polycarbonate; molded, extruded; tables. Materials in Design Eng 60:233 Mid-O '64

Properties of materials; acrylics; cast, molded, extruded; tables. Materials in Design Eng 60:212 Mid-O '64

Properties of materials; ABS resins; molded, extruded; tables. Materials in Design Eng 60:211 Mid-O '64

Properties of materials; alkyds; molded; tables. Materials in Design Eng 60:213 Mid-O '64

Properties of materials; chlorinated polyether, phenoxy, polyallomer; tables. Materials in Design Eng 60:217 Mid-O '64

Properties of materials; epoxies; cast, molded; tables. Materials in Design Eng 60: 219 Mid-O '64

Properties of materials; polyesters; cast; tables. Materials in Design Eng 60:228 Mid-O '64

Rapid gain is prospect for bridge-repair epoxies. Chem & Eng N 42:52+ My 4 '64

Resin compound locks bolts in rock. il Eng N 172:40 Je 4 '64

Resin crushing; mesh sized phenolic coating resins. il Plastics World 22:66 Ja '64

Resins used in rubber. P. O. Powers. Rubber Chem & Tech 36:1542-70 bibliog(p 1569-70) D '63

Sealants evolve from flexible epoxies. C. V. Wittenwyler. il Chem & Eng N 42:52+ Mr 16 '64

Semiannual inventory of new plants and facilities: plastics, resins and synthetic fibers. Chem Eng 71:156-7 Ap 27; 122-3 O 26 '64

Small metallised-polycarbonate capacitors. il Engineer 216:658 O 18 '63

Sorting out the fluorocarbon plastics. S. Ricklin. il Machine Design 36:149-51 My 7 '64

Stabilizers, pigments, antioxidants give you better polyolefin uv resistance. R. J. Martinovich. Plastics Tech 9:45-8 N '63

Thermosets; alkyds. T. W. Beers. il Machine Design 36:107-8 S 17 '64

Thermosets; allylics. H. H. Beacham and J. L. Thomas. il Machine Design 36:109-11 S 17 '64

Thermosets; aminos. G. B. Sunderland and A. Nufer. il Machine Design 36:112-15 S 17 '64

Thermosets; epoxies. H. B. Reese. Machine Design 36:116-18 S 17 '64

Thermosets; polyesters. R. E. Carpenter and W. J. Connolly. Machine Design 36:123-5 S 17 '64

Thixotropic epoxy resin. Engineering 198:62 Jl 10 '64

Ultrahigh vacuum leak sealing material. J. R. Young. R Sci Instr 35:116 Ja '64

Unsaturated polyester resins from epoxides and anhydrides. H. G. Waddill and others. bibliog Ind & Eng Chem Product Res & Develop 3:53-5 Mr '64

Viscoelastic composite curbs noise, cuts fatigue. il Chem Eng 71:40+ Ag 31 '64

See also

Chlorotrifluoroethylene
Difluoroethylene
Melamine
Methacrylates
Phenol condensation products
Plasticizers
Plastics
Plastisols
Polyethylene
Polypropylene
Rubber, Artificial—Mixing with resins
Silicones
Styrene (and polymers)
Teflon
Thermoplastics
Vinyl chloride
Vinyl compounds

Adhesives

Additives make polyethylene stick. Plastics Tech 9:59 N '63

Adhesive applications seen spreading. il Materials in Design Eng 58:153-5 N '63

Adhesive bonding aluminum mast. il diag Light Metal Age 22:11 Je '64

Adhesive bonds stainless parts. il Iron Age 192:86-7 D 19 '63

Adhesive cold bonds steel to paper honeycomb core. R. H. Lindbloom. il Iron Age 193:84-5 Mr 19 '64

Adhesive joins guard railings. il Iron Age 194:86 Jl 16 '64

Adhesive triggers high-speed laminating. il Plastics Tech 10:14-15 Je '64

Adhesives seal windshield and rear window. diags Product Eng 35:69 Ag 3 '64

Blendable polymers for polyvinyl acetate adhesives; Daratak. Chem Eng 71:90 Ag 17 '64

Bonding epoxies and fluorocarbon polymers. il Engineering 198:157 Jl 31 '64

Bonding vinyl-foam protective padding. il Plastics World 22:48-9 Ap '64

Correlation of some thermal properties of epoxy adhesives and shear strength of steel bonds. G. J. Barenholtz and others. Ind & Eng Chem Product Res & Develop 2:270-2 D '63

Dry film adhesive strengthens honeycombs. il Steel 154:52 Mr 23 '64

Epoxy adhesives. il Chem Eng 70:112+ D 9 '63

Epoxy film adhesive. il Plastics World 22: 48 My '64

Epoxy joins welding in tough build-up job. il diag Welding Eng 49:45 Jl '64

Epoxy repair putty sticks strongly. il Engineering 196:646 N 22 '63

Epoxy resin seals to copper and nylon for cryogenic applications. J. C. Wheatley. bibliog diags R Sci Instr 35:765-7 Je '64

Hot melt adhesives. Engineering 197:249 F 14 '64

Industrial adhesives as market for synthetic resins. P. W. Sherwood. Brit Plastics 37: 550-7 O '64

Locked threaded fastener. H. G. Dacey. il Materials in Design Eng 59:120-1 Ap '64

New epoxy film adhesive. il Plastics Tech 10:15 Ap '64

New polymers get a grip on adhesives. il Can Chem Process 48:49-51+ S '64

One-part epoxy does singular joining job. il diag Materials in Design Eng 59:146+ Mr '64

Polyamide resins; hot melt adhesives. il Plastics World 22:36 F '64

Polymer dispersions used in the building and allied industries. I. Llewellyn and L. Tasker. il Brit Plastics 37:563-6 O '64

Silicone adhesive sealant. il Plastics World 21:106-7 N '63

Structural adhesives; their promising future in materials joining. S. B. Twiss. il Res/Develop 15:26-30 Ag '64

Structural bonding of concrete piling. il Am Concrete Inst J 61:sup32 S '64

Structural joints formed between epoxies and fluorocarbon polymers. il Bell Lab Rec 42: 320 O '64

Synthetic adhesives: abstract. W. Wilson. Chem & Ind p 156 Ja 25 '64

Three new polyamide resins. il Plastics Tech 9:9 D '63

Tungsten carbide solves tough wear problems; epoxy resin adhesives in hard surfacing. J. M. Stokes. il Power 107:67 N '63

What makes an adhesive stick? il Iron Age 194:84-6 S 17 '64

Analysis

Analysis of polyester resins by gas chromatography. C. C. Luce and others. il diag Anal Chem 36:482-6 Mr '64

Identification of polyester resins by nuclear magnetic resonance. D. F. Percival and M. P. Stevens. Anal Chem 36:1574-6 Jl '64

Infrared determination of hydroxyl content of epoxy resins. M. R. Adams. Anal Chem 36:1688-9 Jl '64

Binding materials

Effect of conventional lubricants upon resin-bonded solid film lubricants. R. L. Young. Lub Eng 20:222-4 Je '64

Elastomeric sealer shows promise. il diag Eng N 172:182 Je 18 '64

Influence of two wet-strength resins on fibers and fiber-fiber contacts. J. Russell and others. bibliog il Tappi 47:22-5 Ja '64

Mill experience using polyvinyl alcohol as a coating binder. G. P. Colgan and J. J. Latimer. il diags Tappi 47:sup 146A-50A Jl '64

New bridge deck protected with synthetic resin. il Roads & Sts 106:54-5 D '63

Nonwoven fabric studies; dependence of fabric stiffness and drape on the properties of the constituent fiber and binder. J. W. S. Hearle and others. bibliog diags Textile Res J 34:275-82 Ap '64

Paper coating binder has high water retention. Chem & Eng N 42:45-6 F 24 '64

Polyimide binder solutions. F. E. Schweitzer. il Machine Design 36:235-7 Ap 23 '64

Polymer dispersions used in the building and allied industries. I. Llewellyn and L. Tasker. il Brit Plastics 37:563-6 O '64

Properties of nonwoven fabrics bonded with acrylate emulsion polymers. V. J. Moser. bibliog Am Dyestuff Rep 53:406-11 My [illegible] '64

RESINOUS products—Binding materials—*Continued*

Sand consolidation with epoxy-resin solutions. I. Havenaar and F. H. Meijs. bibliog il Inst Pet J 49:392-7 D '63
Stabilization of sand dunes at Vandenberg air force base. J. Peters and J. Sciandrone. il plan Am Soc C E Proc 90 [SM 4 no 3976]: 97-106 Jl '64
Use of resins in mine roof support. D. C. McLean. diags Min Eng 16:36-40 Ja '64
Use of self-curing binder increases tonnage 40 per cent. E. F. Thomas. il Foundry 92:121-2+ Ag '64

Electric properties

See also
Plastics—Electric properties

Finishing materials

Aero-engine finishes. C. Butler and F. Cork. il Aircraft Eng 36:281-5 S '64
Catalyzed finishes; silicones; solvents. E. A. Zahn. Ind Finishing 40:78+ Ja '64
Conversion coating has desirable features. B. C. O'Keefe. Ind Finishing 40:105-6 Je '64
Epoxy coatings are solvent-free. R. J. Fabian. il Materials In Design Eng 58:94-6 D '63
Epoxy coatings protect Douglas-built bomb racks. G. Bright. il Ind Finishing 40:44-6+ Ja '64
Epoxy resin coatings. S. Kut. Ind Finishing 40:64+ O '64
Exotic coatings. H. J. Rosen. Prog Arch 45:188 Ap '64
First Electrocoat plant in full production. il Metallurgia 69:180 Ap '64
Hardness in the finish. K. Schreiber. Ind Finishing 40:75-7 My '64
One-part urethane coatings are tough and attractive. R. P. Stout. il Materials in Design Eng 59:87-9 Mr '64
Organic finishing in review. H. G. Booker. bibliog il diags Plating 51:777-87 Ag '64
Paint industry as a user of heavy organic chemicals. H. G. Rains. Chem & Ind p 1047-58 Je 20 '64
Paint is too simple, you must select organic coating systems. W. L. Boyer. diags Product Eng 35:79-83 S 28 '64
Plastisols; their formulation and application. W. H. McKnight. Ind Finishing 40:32+ F '64
Polyester finish; veneered doors. J. E. Crowe. il Ind Finishing 40:62-4+ Je '64
Polyvinyl butyral resins in metal finishing. M. D. Kellert. il Metal Finishing 62:61-2+ Ag '64
Problems in refinishing. G. Conrad. Ind Finishing 40:107-10 Mr '64
Properties of materials; organic coatings; tables. Materials in Design Eng 60:394-8 Mid-O '64
Radiation curing of finishes a possibility; editorial. G. Evans. Ind Finishing 40:72-3 O '64
Solvent retention can be a problem. Ind Finishing 40:82 Mr '64
Space heater finish had to stand 400° to 500°F. Ind Finishing 40:104-5 Ag '64
Strip coating on the West Coast. il diag Metal Finishing 62:54-5+ Mr '64
Synthetic resins, the backbone of modern finishes (cont). H. P. Preuss. bibliog il Metal Finishing 61:58-64 N; 59-65 D '63; 62:72-5 Mr; 54-6 Ap; 87-91+ My; 75-81+ Je; 43-7 Jl; 63-5 Ag; 76-8 S; 70-3 O; 57-9 N; 69-72+ D '64
Thermoplastic phenoxy coatings match many thermosets. P. West. il Materials in Design Eng 60:86-8 Jl '64
Unique contracting service solves underwater maintenance and repair and surveying problems. G. C. Wiswell, jr. il diags Elec World 160:54-5+ D 16 '63
Urethane coatings for industrial finishers. K. G. Meades. Ind Finishing 40:54+ Je '64
Vinyl organosols used in Revere camera products. H. R. Gleason. il Ind Finishing 40:54-6+ My '64
Water emulsion paints and adhesives. B. C. O'Keefe. Ind Finishing 40:108-9 S '64
Zinc rich epoxy coatings offer cathodic protection. W. R. Ahrberg. diags Plant Eng 18:132-3 S '64

See also
Plastic coating

Insulating materials

Breakdown by treeing in epoxy resins. M. Olyphant, jr. bibliog il IEEE Trans Power Apparatus & Systems p 1106-12 D '63
Cast-coil transformers. il diags Plant Eng 18:134-5 Jl '64
Designing with fluorocarbons for electrical applications. J. Swiss. il Mod Plastics 42:141-4 O '64
Double insulated portable power tools. il Plastics World 22:58-60 Ja '64
Epoxy coating solves 4.16-kv switchgear insulation problems. W. R. Pascoe. il diag Elec World 161:51 Mr 9 '64
Foaming FEP for wire insulation. S. K. Randa. diag Plastics Tech 10:42-4 Ap '64
Insulating power tools and appliances with plastics. J. E. Hauck. il diags Materials in Design Eng 60:100-3 O '64
Insulation resistance changes in polyethylene when exposed to high temperature and humidity. W. D. Paist. diags Wire & Wire Prod 39:1587-90+ O '64
New polyethylenes for wire and cable. A. J. Houston and others. bibliog diag Rubber World 149:40-5 Mr '64
New technique for the measurement of dielectric properties of plastics. J. C. Pais and V. S. Griffiths. bibliog diags Inst E E Proc 111:1775-7 O '64
Polymer insulator for high-voltage transmission lines. F. C. Vose and F. S. Nichols. il Elec Eng 82:684-8 N '63
Tandem wire drawing and plastic insulation extruding. P. N. Delves-Broughton. il diags Elec Com 39 no 3:435-43 '64
Utilities buy polymer insulators for tests. il Elec World 160:105 N 18 '63

Ion exchange

Anion exchange separations of iron(II) and iron(III) in tartrate medium. G. P. Morie and T. R. Sweet. bibliog Anal Chem 36:140-2 Ja '64
Anion resin characteristics and forecasting of optimum replacement interval. J. H. Griffin, jr. Am Water Works Assn J 56:616-20 My '64
Chromatographic separation of *cis* and *trans* fatty esters by argentation with a macroreticular exchange resin. E. A. Emken and others. bibliog diag Am Oil Chem Soc J 41:388-90 My '64
Coefficient of kinetic friction for Dowex 50 ion exchange resin moving down a glass column. D. Hershey and F. N. Peebles. bibliog diags Ind & Eng Chem Proc Design 3:1-4 Ja '64
Comparative study of recovery of zinc and nickel by ion exchange media and chemical precipitation. D. Kantawala and H. D. Tomlinson. bibliog diag Water & Sewage Works 111:192-7 Ap '64
Contour map of anion exchange resin properties. R. E. Anderson. bibliog Ind & Eng Chem Product Res & Develop 3:85-9 Je '64
Determination of moisture in ion exchange resins by Karl Fischer reagent. F. X. Pollio. Anal Chem 35:2164-5 D '63
Fluorescent components of ion exchange resins. M. J. Saxby. Chem & Ind p 1725 O 26 '63
Ion exchangers for gas solid chromatography. G. Urbach. Anal Chem 36:2368 N '64
New deionization techniques based upon weak electrolyte ion exchange resins. R. Kunin and B. Vassiliou. bibliog flow sheet Ind & Eng Chem Proc Design 3:404-9 O '64
Resolution of neomycin and catenulin antibiotic complexes by ion exchange resin chromatography. H. Maehr and C. P. Schaffner. bibliog il Anal Chem 36:104-8 Ja '64
Sorption of nonionic solutes on ion exchange resins bearing amphiphilic counter ions. H. Small and D. N. Bremer. bibliog diag Ind & Eng Chem Fundamentals 3:361-7 N '64
Systems recover chromate from cooling tower water discharge. il Chem & Eng N 42:43-4+ Mr 30 '64
Ultratrace analysis of metals with a curved crystal X-ray milliprobe. C. L. Luke. Anal Chem 36:318-22 F '64

Manufacture

Acceleration of glycidyl epoxy resin-anhydride reactions. R. J. Arnold. bibliog Mod Plastics 41:149-50+ Ap '64
Dianhydride curing agent betters epoxy properties. Chem Eng 71:98+ My 25 '64
Dow and Shell expand epoxy resin capacity. il Chem & Eng N 42:25 My 25 '64
Formulation and cure cycle study for an anhydride-cured epoxy-novolac system. A. C. Mack. bibliog diag Ind & Eng Chem Product Res & Develop 3:213-17 S '64
Long-range market is basis for big expansion in epoxies. il Chem Eng 71:88 Jl 6 '64

RESINOUS products—Manufacture—*Continued*

Pilot synthetic resin plant. il Engineer 218: 284 Ag 21 '64

Spray drying today. il Plastics World 22:12-13 Jl '64

Paper uses

Degradation of cured paper-epoxy resulting from lamination. E. C. Jubb, jr. il diags Mod Plastics 41:115-17+ D '63

Impact of polymers in the paper industry. F. L. Hudson. bibliog Chem & Ind p 13-15 Ja 4 '64

Which wet strength for you? E. R. Woodward. Paper Ind 45:543-5 Ja '64

Physiological effect

Hazards from thermodecomposition of epoxy resins. K. J. Leong and H. N. MacFarland. bibliog il Archives Environmental Health 7:675-81 D '63

Temperature effect

Heat stability of brominated epoxy resins. B. J. Bremmer. Ind & Eng Chem Product Res & Develop 3:55-60 Mr '64

Thermal degradation of melamine-formaldehyde resins. W. R. Moore and E. Donnelly. bibliog J Ap Chem 13:537-43 D '63

Thermomechanical studies of amorphous and crystalline polymers. A. V. Sidorovich and E. V. Kuvshinskii. bibliog diags Rubber Chem & Tech 37:355-64 Ap '64

Testing

Attaining equilibrium in water absorption tests of epoxy casting resins. H. Lee. bibliog Materials Res & Stand 3:910-13 N '63

Effects of glass surfaces on laminating resins. P. W. Erickson and others. bibliog Mod Plastics 41:141-2+ Ag '64

Textile uses

Delayed-cure resins steal the show at Chemical finishing conference. Textile World 113: 86-7 N '63

Effects of tension during cross-linking treatments of cotton fabrics. R. S. Orr and others. bibliog diags Textile Res J 34:192-8 Mr '64

Enhanced fading of dyes caused by crease-resist resins; a proposed mechanism. W. Ingamells. bibliog Soc Dyers & Col J 79: 651-9; Discussion. 659-60 D '63

Preferential deposition of resins on wool fiber tips. R. J. Hine and others. bibliog il Textile Res J 34:734-6 Ag '64

Single-fiber resin finishing treatments of viscose rayon; effects of tension. L. Rebenfeld. Textile Res J 34:168-71 F '64

Wet soiling of cotton; effect of thermoplastic finishes. J. Berch and others. Textile Res J 34:844-9 O '64

Woven fabrics; their properties and uses. S. Ehlers. il diags Materials in Design Eng 59:88-91 My '64

Water treatment

Water treatment records help diagnose trouble. R. Hetherington and F. Zunino. diags Plant Eng 18:121-3 F '64

RESINS, Synthetic. See Resinous products

RESISTANCE, Electric. See Electric resistance

RESISTORS, Electric. See Electric resistors

RESOLVING power (optics)

Electron microscope shows five angstrom resolution. il Steel 155:97-8 O 26 '64

Evaluation of photographic image quality and resolving power. O. H. Schade. bibliog il diags SMPTE J 73:81-119 F '64

Performance studies of a quadrupole mass filter. W. M. Brubaker and J. Tuul. bibliog diags R Sci Instr 35:1007-10 Ag '64

Photography, stellar astronomy, and resolution. J. H. Waddell. Res/Develop 15:9 Je; 14-15 Jl '64

RESONANCE

Dipole resonances of a plasma in a magnetic field. F. W. Crawford and others. bibliog diags J Ap Phys 34:3158-75 N '63

Electron density measurement of a plasma column by surface wave resonances. Y. Akao and Y. Ida. bibliog diags J Ap Phys 35:2565-70 S '64

Mechanism of resonance probe. T. Dote and T. Ichimiya. IEEE Proc 52:1240-1 O '64

Optical observation of elastic resonances in $NH_4H_2PO_4$. D. J. A. Gainon and others. bibliog il diag J Ap Phys 35:1166-8 Ap '64

Resonant detection of light pressure by a torsion pendulum in air; experiment for underclass laboratories. R. E. Pollock. Am J Phys 31:901-4 D '63

Sonic testing, a simple nondestructive test for verifying casting quality; abstract. A. G. Fuller and others. diag Metal Prog 7:675-81 D '63

Surface-wave resonance phenomena on dielectric tubes. A. L. Cullen and others. bibliog diags Inst E E Proc 111:215-21 F '64

Temperature dependence of the magneto-optic effect and resonance phenomena in oriented MnBi films. D. Chen and Y. Gondō. bibliog J Ap Phys 35:1024-5 pt 2 Mr '64

Viscous fluid flow under the influence of a resonant acoustic field. K. R. Purdy and others. bibliog il diags A S M E Trans ser C 86:97-106 F '64

RESONANCE, Magnetic. See Magnetic resonance

RESONATORS

Jet-driven resonance tube. P. A. Thompson. bibliog il diag AIAA J 2:1230-3 Jl '64

RESONATORS, Radio. See Radio resonators

RESORCINOL

Nuclear hydrogen-deuterium exchange in resorcinols and related compounds in weakly alkaline solution. E. S. Hand and R. M. Horowitz. bibliog Am Chem Soc J 86:2084-5 My 20 '64

Spectrophotometric determination of rare earth metals with 4-(2-pyridylazo)resorcinol. K. N. Munshi and A. K. Dey. bibliog Anal Chem 36:2003-4 S '64

RESORTS

Resort hotel forms own environment. il plans Arch Rec 136:168-9 O '64

Winter resort for year-round use. il plan Prog Arch 45:87 Je '64

RESPIRATION

Breath analysis of chemical exposures. il Safety Maint 128:40-2 Jl '64

Spirometric measurements in welders. T. N. Hunnicutt, jr. and others. bibliog Archives Environmental Health 8:661-9 My '64

See also

Asphyxia

RESPIRATORY apparatus

Compressed air breathing apparatus. il Engineer 218:254 Ag 14 '64

Instant air; mobile unit replenishes air supplies for breathing apparatus on-the-spot. il Safety Maint 128:36-7 O '64

Keeping up with respiratory protection developments. il Safety Maint 128:22 Ag '64

Masking the man with the average face. W. Reach. il Safety Maint 127:12-16+ Je '64

New supplied-air masks now approved. Safety Maint 128:14-15 Jl '64

Storage life of self-rescuer cartridges. E. J. Kloos. il Min Cong J 49:97-9 O '63

See also

Oxygen apparatus

RESPIRATORY organs

SO_2 absorption in the respiratory tract. L. G. Strandberg. bibliog diags Archives Environmental Health 9:160-6 Ag '64

Diseases

Air sampling in viral respiratory disease. M. S. Artenstein and F. C. Cadigan, jr. bibliog Archives Environmental Health 9:58-60 Jl '64

Atmospheric ionization in allergic respiratory diseases. G. I. Blumstein and others. Archives Environmental Health 8:818-19 Je '64

Chronic respiratory disease in Great Britain. C. B. McKerrow. bibliog Archives Environmental Health 8:174-9; Discussion. 180-1 Ja '64

Community approach to respiratory disease. L. J. Taubenhaus. bibliog Archives Environmental Health 8:746-51 My '64

Los Angeles air pollution and respiratory disease. T. Oelsner and others. Archives Environmental Health 8:182-3; Discussion. 188-9 Ja '64

Respiratory irritation from toluene diisocyanate. F. C. Maxon, jr. Archives Environmental Health 8:755-8 My '64

Respiratory symptoms, lung function, and smoking habits in an adult population. M. Payne and M. Kjelsberg. bibliog Am J Pub Health 54:261-77 F '64

Respiratory virus vaccines; abstract. J. Holper. Ind Med 33:709 O '64

Role of mycoplasma in human respiratory disease; abstract. W. A. Clyde, jr. Ind Med 33:713 O '64

See also

Asthma

Influenza

RESPIROMETERS

Automated BOD respirometer. R. M. Arthur. bibliog il Water Works & Wastes Eng 1: 35-8+ O '64

RESPONSIBILITY
Art of delegating responsibility. G. H. Rand. Paper Ind 46:295-6 Jl '64
Disappearance of the obvious. W. F. De Loache. Tappi 46:sup34A+ D '63
Professional responsibility of engineering. R. B. Smith. Mech Eng 86:18-20 Ja '64; Discussion. M. B. Richardson. 86:79 Je '64
Responsibility of the individual. P. Morton. Coal Age 69:130+ Jl '64
Science and responsibility. E. Hutchinson Am Scientist 52:sup40A-2A+ Mr '64

RESTAURANTS
Control for grease duct fires. Safety Maint 128:36-7 S '64
High style for a campus eatery. il plan Prog Arch 44:132-5 D '63
Lower operating costs from restaurant safety. Safety Maint 128:20 Jl '64
Restaurants. il plans Arch Rec 136:207-16 S '64
Revolving restaurant for post office tower. il diag Engineer 216:985-6 D 13 '63
Works restaurant on clay layer. il Engineering 198:211 Ag 14 '64

Air conditioning
Service hot water from air conditioning waste heat. J. A. Bedingfield. il diag Air Cond Heat & Ven 60:77-80 N '63

Equipment
Commercial water heater rental for restaurant dishwashing machines. il Gas Age 131:35+ Mr '64

Heating and ventilation
Heat ball park's open air restaurants. il Heating-Piping 36:198-9 S '64

Lighting
Dramatics with simple sources. il Illum Eng 59:433-5 Je '64
Lighting to dine by. M. Cohen. il diags Illum Eng 59:392-3 sec 2 My '64

RETAIL trade
Insights into some retail opinions. il Drug & Cosmetic Ind 94:28-30+ Ja '64
See also
Display of merchandise
Drug stores
Supermarkets

RETAINING rings. See Locking devices

RETAINING walls
Not so much piling for town underpass. il diag Engineering 196:622 N 15 '63
Pile foundations for retaining structures. K. R. Patel. diags Civil Eng 33:43 D '63
Slope stabilized by anchored retaining wall. G. A. Reti. il diags Civil Eng 34:49-53 Ap '64

RETAINING walls, Concrete
Retaining wall has precast panels. R. C. Kenmir. il diag Eng N 172:162-4 Je 18 '64

RETARDED children. See Children, Backward

RETARDERS, Car. See Car retarders

RETARDERS, Motor truck. See Motor trucks—Retarders

RETHI, Lili
Construction's artist goes to the Fair. por Eng N 173:74-5 Jl 2 '64

RETINA
Elusive pigments. Sci Am 209:68+ D '63
Measurement, specification and prediction of transient states of adaptation. G. A. Fry. bibliog diag Illum Eng 59:453-60 Je '64
Painless photocoagulation by laser. il Engineering 197:591 Ap 24 '64
Visual cortex of the brain. D. H. Hubel. il diags Sci Am 209:54-62 N '63

RETIREMENT
If there's a shortage of engineering talent, why retire the leaders? E. Raudsepp. Machine Design 35:134-8 N 7 '63
Pensions prod early retirement. il Chem & Eng N 42:34-6 My 11 '64
Planning for retirement: seven-point program. D. H. Robinson. Rubber Age 94:927-8 Mr '64
See also
Income tax—Retirement credit deduction

RETORTS, Canning. See Canneries—Equipment

REVERBERATION. See Echo

REVERBERATORY furnaces. See Furnaces, Reverberatory

REWARDS, prizes, etc.
Acceptance of the Nicholas Appert award. K. F. Meyer. Food Tech 17:1488+ D '63
Alcoa's 1964 student design merit awards. il Product Eng 35:84-5 Je 22 '64
AAOM award of honor to George Franklin Wilkins. L. C. McGee. Archives Environmental Health 9:290-1 S '64
ACS award for creative work in synthetic organic chemistry to Lewis H. Sarett. Chem & Eng N 42:120 Mr 2 '64
ACS award for nuclear applications in chemistry to I. Perlman. Chem & Eng N 42:158 Ja 27 '64
ACS award in biological chemistry to B. N. Ames. Chem & Eng N 42:156 Ja 27 '64
ACS award in chemical education to Alfred B. Garrett. Chem & Eng N 42:108 Mr 9 '64
American chemical society award in chemical instrumentation to R. Homer Cherry. Chem & Eng N 42:81 Mr 16 '64
ACS award in chromatography and electrophoresis to Waldo E. Cohn. Chem & Eng N 42:116 F 3 '64
ACS award in chromatography and electrophoresis to William H. Stein and Stanford Moore. Chem & Eng N 42:80 F 10 '64
American chemical society award in industrial and engineering chemistry to Bruce H. Sage. Chem & Eng N 42:84 Mr 23 '64
American chemical society award in inorganic chemistry to Fred Basolo. Chem & Eng N 42:86 Mr 23 '64
American chemical society award in petroleum chemistry to George A. Olah. Chem & Eng N 42:72 Mr 30 '64
American chemical society award in polymer chemistry to Carl S. Marvel. Chem & Eng N 42:70 Mr 30 '64
ACS award in pure chemistry to Marshall Fixman. Chem & Eng N 42:78 F 10 '64
ACS award in the chemistry of milk to J. Robert Brunner. Chem & Eng N 42:117 F 3 '64
ACS names 24 award winners. Chem & Eng N 42:178-9 S 7 '64
ACI awards; six honored at 60th convention. Am Concrete Inst J 61:sup 18-19+ Ap '64
AES paper awards go to nine authors. Plating 51:707 Jl '64
AFS awards for 1964. Foundry 92:134-6 Ap '64
AIA jury selects four buildings for honor awards. il Eng N 172:18-19 Je 25 '64
AIME announces award winners. J Metals 16:64-7 Ja '64
ASM materials application competition awards. il Metal Prog 84:73-80 D '63
ASTM 1964 photographic exhibit awards. Materials Res & Stand 4:562-3 O '64
AWWA honors "better men" at record Toronto conference. Water Works & Wastes Eng 1:40-1 Jl '64
Anselme Payen award to Dr Harold M. Spurlin. Chem & Eng N 42:105-6 Ap 20 '64
Applied lighting competition 1963; 4th residential winner. M. L. Gale. il diags Illum Eng 59:24-30 Ja '64
Applied lighting competition 1963; three entries, winners all. il diags Illum Eng 58:649-63 N '63
Bachner award; water conditioner wins. il Plastics World 22:45 Ja '64
Bell receives Southern Chemist award. Chem & Eng N 42:78 N 2 '64
Book of remodeling wins top editorial award for DE. il Dom Eng 203:96-7+ Ja '64
CMRA award to John R. Riley. Chem & Eng N 42:90 My 4 '64
CCDA honor award goes to Nesty. Chem & Eng N 42:118 Mr 2 '64
Design centre awards for 1964. il Engineering 197:628 My 8 '64
Donald L. Katz receives 1964 John Franklin Carll award. il J Pet Tech 16:1019 S '64
Dr S. Donald Stookey, 1964 Toledo glass and ceramic award winner; with list of his patents and published works. F. S. Child. il Glass Ind 45:13-16+ Ja '64
Engineering motivation; compliments, medals, and publicity. Machine Design 36:132-4 Mr 12 '64
Erich Baer receives first AOCS award in lipid chemistry. Am Oil Chem Soc J 41:sup 13+ S '64
F. G. Will to receive Battery division research award for 1963-1964. Electrochem Soc J 111:sup245C O '64
Fourth Combustion industrial power plant award to Mead corp. A. W. Hindenlang. flow diag il diags Combustion 36:17-25 Ag '64
Frederic Stanley Kipping award in organosilicon chemistry to Dr Colin Eaborn. Chem & Eng N 42:130 Ap 13 '64
G. E. Archie to receive Lester C. Uren award at Houston. J Pet Tech 16:1020-1 S '64
Harrison Howe award to Townes. Chem & Eng N 41:109 N 18 '63
Heineman prize. Phys Today 17:50 Je '64
Honors and awards presented at annual meeting luncheon. il Materials Res & Stand 4:442-52 Ag '64

REWARDS, prizes, etc.—*Continued*

HHFA announces design awards. il Eng N 173:24 O 22 '64

Industrial design at Wescon; awards in 6th annual industrial design competition. il Machine Design 36:22-3 S 10 '64

IFT achievement recipients announced. Food Tech 18:824-6 Je '64

Introducing ASTME's 1964 honor award winners. Tool & Manuf Eng 52:95-6 My '64

James Drummond Moody; recipient of Matson award. Am Assn Pet Geologists Bul 48:1442 Ag '64

James Morris Forgotson, recipient of presidents award. W. R. Walton. Am Assn Pet Geologists Bul 48:1441-2 Ag '64

James T. Grady award to Nate Haseltine. Chem & Eng N 42:126 Ap 13 '64

Joseph H. Jones to be 6th recipient of Harold C. Chapin award. Am Dyestuff Rep 53:776 Ag 31 '64

Kendall company award in colloid chemistry to Dr Karol J. Mysels. Chem & Eng N 42:108 Ap 20 '64

Kenichi Koyanagi ASQC Edwards medalist for 1963. Ind Quality Control 21:60 Ag '64

Kirkpatrick award for chemical engineering achievement to American potash & chemical corp. flowsheet il diags Chem Eng 70:225-36 N 11 '63

National academy of sciences awards. Phys Today 17:50-1 Je '64

New designs, handsome and humble, win awards. il Machine Design 35:22-3 N 21 '63

Night in the spotlight for the best in class; Industrial photography's Indys presented to the winners of the 1963 in-plant industrial film competition. il Ind Phot 12:52-3 N '63

1962 Daniel W. Mead prize for associate members; report of the committee on younger members. ASCE. Am Soc C E Proc 90 [PP 1 no 3757]:35-6 Ja '64

1963 Kelly award winners; T. E. Dancy and D. H. Miller. Iron & Steel Eng 41:154 O '64

1963 Pan Pacific citation awarded to Japan's Kikutake. il Arch Rec 135:14-15 Mr '64

1964 ADR award. Am Dyestuff Rep 53:912 O 26 '64

Outstanding civil engineering achievement of the year; Glen Canyon dam project. il Am Concrete Inst J 61:sup23 Ap '64

Parsons & Whittemore honored with E for export excellence at gala capitol luncheon. L. D. Farrar. Paper Ind 45:411 N '63

Peter Debye award in physical chemistry to Henry Eyring. Chem & Eng N 42:76 F 24 '64

Pfizer Paul-Lewis award in enzyme chemistry to Marshall W. Nirenberg. Chem & Eng N 42:78 F 24 '64

Practicality and appearance win industrial design awards. il Machine Design 36:22-3 Ap 9 '64

Presentation of the 1963 Mineralogical society of America award to Nobuo Morimoto and acceptance speech. J. D. H. Donnay. Am Mineralogist 49:459-63 Mr '64

Product Engineering fifth annual master design awards. il diags Product Eng 35:103-18 Ap 27 '64

Professor Carl F. Kayan receives E. K. Campbell award of merit. Heating-Piping 36:44 Ap '64

Reinforced plastics products SPI award winners for 1964. il Plastics World 22:20-1 Mr '64

Seven winners picked in gray iron design contest. il Foundry 91:139-40 D '63

SRRL researchers win 13th ADR award. Am Dyestuff Rep 52:900+ N 11 '63

Southwest regional award to Sacks. il Chem & Eng N 41:51 D 30 '63

Teenagers win ACS awards at Science fair. il Chem & Eng N 42:92-3 Je 1 '64

Tribute to chemical engineering achievement. Chem Eng 71:36+ Ja 6 '64

Winners of Machinery's ingenious mechanisms competition. Mach 70:124 Jl '64

Worshipful society of apothecaries' award to F. P. Doyle and G. N. Rolinson. Chem & Ind p425 Mr 7 '64

See also

Fisher award
Fritzsche award
Medals
Nobel prizes
Packaging awards
Peele, Robert, award
Perkin medal
Public health awards
Safety contests and awards
Sedgwick memorial award

REYNOLDS number. See Fluids

RHENIUM

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Exotic metals challenge to heat treaters. il Steel 153:115 D 9 '63

Rhenium and rhenium alloys. Engineer 216:949 D 6 '63

Studies on the tungsten-rhenium thermocouple to 2000°C. D. B. Thomas. bibliog J Res Nat Bur Stand 67C:337-52 O '63

Analysis

Determination of rhenium in tungsten and molybdenum alloys. T. M. Cotton and A. A. Woolf. Anal Chem 36:248-9 Ja '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Spectrophotometric determination of rhenium using *syn*-phenyl-2-pyridyl ketoxime. J. Guyon and R. K. Murmann. bibliog Anal Chem 36:1058-61 My '64

Spectrophotometric determination of rhenium with alpha-pyridildioxime. F. Trusell and R. J. Thompson. Anal Chem 36:1870-1 Ag '64

RHENIUM alloys

Electrodeposition of rhenium-nickel alloy; ammonium perrhenate electrolyte. L. Domnikov. bibliog Metal Finishing 62:49-51 Ja '64

Rhenium and rhenium alloys. Engineer 216:949 D 6 '63

Room-temperature resistivity of Mo-Nb and Mo-Re alloys containing one percent iron. M. P. Sarachik. J Ap Phys 35:1094-5 pt 2 Mr '64

Tungsten-rhenium alloy has room temperature ductility. Steel 155:55 S 21 '64

Work function in the system thorium-rhenium. E. P. Gyftopoulos. J Ap Phys 35:464 F '64

RHENIUM bromides

Occurrence of the Re_3Br_9 group in compounds derived from rhenium(III) bromide. F. A. Cotton and S. J. Lippard. bibliog Am Chem Soc J 86:4497-8 O 20 '64

RHENIUM chlorides

Friedel-Crafts reaction by rhenium pentachloride. J. Tsuji and others. Chem & Ind p543 Mr 28 '64

RHEOLOGY

Application of adhesives. R. R. Myers. bibliog diags Tappi 46:745-50 D '63

Applying rheological data to the design of rubber extrusion dies. J. R. A. Pearson and F. E. Devine. bibliog diags Rubber World 149:49-52 N '63

Deborah number. M. Reiner. Phys Today 17:62 Ja '64

Flow properties of polyethylene whole polymers and fractions. J. Ferguson and others. bibliog diags J Ap Chem 14:53-63 F '64

Mechanical behavior of plastics. Plastics Tech 10:51 Jl '64

Polymer association: solution behavior and rheology of neutralized styrene-methacrylic acid copolymers. N. Z. Erdi and H. Morawetz. bibliog J Colloid Sci 19:708-21 O '64

Rheological behavior of the lubricant in the contact zone of a rolling contact system. J. C. Bell and others. bibliog diags A S M E Trans ser D 86:423-32; Discussion. 432-4; Reply. 434-5 S '64

Rheological equations of state. W. R. Schowalter. bibliog il diags Chem Eng Prog 60:52-6 Ag '64

Rheological factors for bentonite suspensions. W. F. Gabrysh and others. bibliog diags Am Cer Soc J 46:523-9 N '63

Rheological properties of two unvulcanized rubber compounds as determined on an extrusion and a rotational viscometer. F. E. Devine and J. A. Ross. bibliog il Rubber Chem & Tech 37:491-502 Ap '64

Rheological study of high-solids calcium carbonate slurries using high-shear rotational viscometers. C. W. Leaf and I. C. MacGugan. il Tappi 47:162-7 Mr '64

Rheological unit in a high polymer under continuous shear. M. Mooney. bibliog diags Rubber Chem & Tech 37:503-10 Ap '64

Rheology of emulsions and suspensions. J. G. Oldroyd. bibliog Am Perfumer 79:85-7 Je '64

Rheology of paper in terms of its molecular structure. D. H. Page. bibliog Tappi 46:750-6 D '63

RHEOLOGY—*Continued*

Time dependent rheology of the tetrahydrofuran-hydrogen sulphide gas hydrate slurry. K. L. Pinder. bibliog il diag Can J Chem Eng 42:132-8 Je '64

See also

Plasticity

Thixotropy

RHEOMETERS. See Viscosimeters

RHEUMATIC fever

Experiences with a controlled community rheumatic fever prophylaxis program. C. G. Alexson and others. bibliog Am J Pub Health 54:1580-7 S '64

Public health program for children with heart disease or rheumatic fever; Manhattan cardiac program. K. D. Brownell and R. K. Stix. Am J Pub Health 53:1587-93 O '63

RHODAMINE B

Fading of rhodamine B in aqueous acetone solutions. B. Stevens and W. S. W. Bingham. bibliog Soc Dyers & Col J 79:632-5; Discussion. 636 D '63

Fluorometric determination of uranium with rhodamine B. N. R. Andersen and D. M. Hercules. bibliog Anal Chem 36:2138-41 O '64

Freeze-concentration of dilute aqueous solutions. S. Kobayashi and G. F. Lee. Anal Chem 36:2197-8 O '64

RHODE ISLAND

See also

Roads—Rhode Island

RHODESIA

See also

Sewerage—Rhodesia

Telephone—Rhodesia

RHODESIA, Northern. See Zambia

RHODIUM

Electrochemical study of thin adsorbed oxygen films on rhodium in oxygen-saturated acid solution. J. P. Hoare. bibliog Electrochem Soc J 111:232-6 F '64

Analysis

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

RHODIUM alloys

Exchange inversion in ternary modifications of iron rhodium. P. H. L. Walter. bibliog J Ap Phys 35:938-9 pt 2 Mr '64

Reference tables for platinum 20 per cent rhodium/platinum 5 per cent rhodium thermocouples. R. E. Bedford. bibliog diags R Sci Instr 35:1177-90 S '64

Reference tables for thermocouples of iridium-rhodium alloys versus iridium. G. F. Blackburn and F. R. Caldwell. bibliog J Res Nat Bur Stand 68C:41-59 Ja '64

RHODIUM compounds

Alkyliridium and alkylrhodium dihalocarbonylbis(trialkyl- or triarylphosphines). R. F. Heck. bibliog Am Chem Soc J 86:2796-9 Jl 20 '64

Electronic structures of square-planar metal complexes; a square-planar rhodium(II) complex. E. Billig and others. bibliog Am Chem Soc J 86:926-7 Mr 5 '64

Five-coordinate hydrido-carbonyl complexes of rhodium and iridium and their analogy with $CoH(CO)_4$. S. S. Bath and L. Vaska. bibliog Am Chem Soc J 85:3500-1 N 5 '63

Isomerization of 1,3-cyclooctadiene to 1,5-cyclooctadiene via the rhodium(I) π-complex. R. E. Rinehart and J. S. Lasky. bibliog Am Chem Soc J 86:2516-18 Je 20 '64

New cyclopentadienyl complexes of rhodium. R. J. Angelici and E. O. Fischer. bibliog Am Chem Soc J 85:3733-5 D 5 '63

Olefin coordination compounds of rhodium; the barrier to rotation of coordinated ethylene and the mechanism of olefin exchange. R. Cramer. bibliog diags Am Chem Soc J 86:217-22 Ja 20 '64

Studies of the metal-hydrogen bond; structure of $HRh(CO)(P(C_6H_5)_3)_3$. S. J. LaPlaca and J. A. Ibers. bibliog diag Am Chem Soc J 85:3501-2 N 5 '63

RHYTHM

See also

Periodicity

RIBITOL

1,2:4,5-Di-*O*-isopropylidene-ribitol. K. W. Buck and others. Chem & Ind p 1623-4 S 19 '64

RIBOFLAVIN. See Vitamins—Vitamin B_2

RIBOFURANOSIDES

Reaction of methyl 2,3-anhydro-D-ribofuranosides with thiocyanate ion. L. Goodman. bibliog Am Chem Soc J 86:4167-71 O 5 '64

RIBONUCLEASE

Chemical interactions between lysine and dehydroalanine in modified bovine pancreatic ribonuclease. A. Patchornick and M. Sokolovsky. bibliog Am Chem Soc J 86:1860-1 My 5 '64

Relaxation spectra of ribonuclease; the interaction of ribonuclease with cytidine 3′-phosphate. R. E. Cathou and G. G. Hammes. bibliog il Am Chem Soc J 86:3240-5 Ag 20 '64

Role of the methionine-13 sulfur in pancreatic ribonuclease. J. M. Parks and others. bibliog Am Chem Soc J 85:3519-21 N 5 '63

Structural studies of ribonuclease; kinetics of denaturation. R. A. Scott and H. A. Scheraga. bibliog Am Chem Soc J 85:3866-73 D 5 '63

RIBONUCLEIC acid

Chromosome puffs. W. Beermann and U. Clever. il diags Sci Am 210:50-8 Ap '64

Effect of protein intake on the ribonucleic acid of liver cell sap. H. N. Munro and others. bibliog J Nutrition 83:186-92 Jl '64

Mitochondrion. D. E. Green. il diags Sci Am 210:63-6+ Ja '64; Discussion. 210:10+ Ap '64

Photolysis of pseudouridine 3′-phosphate and sRNA. M. Tomasz and R. W. Chambers. bibliog Am Chem Soc J 86:4216-17 O 5 '64

RIBONUCLEOTIDES. See Nucleotides

RIBOSE

Estimation of pyridine nucleotides in a crude tissue extract by color reaction of nucleotide ribose with orcinol and ferric chloride. A. Devi and U. Srivastava. bibliog Anal Chem 36:882-4 Ap '64

RIBOSOMES. See Nucleoproteins

RICE

Fatty acid composition of rice lipids by gas-liquid chromatography. J. C. Lugay and B. O. Juliano. bibliog Am Oil Chem Soc J 41:273-5 Ap '64

Organic acids of rice and some other cereal seeds. D. F. Houston and others. bibliog J Agri & Food Chem 11:512-17 N '63

Studies on the physiochemical properties of rice. B. O. Juliano and others. bibliog J Agri & Food Chem 12:131-8 Mr '64

RICHLAND, Washington

Water supply

New water treatment methods serve Richland. R. L. Culp. il diag Pub Works 95:86-90 Jl '64

RICHMOND, Indiana

Water supply

Indiana gets another reservoir for public recreation. J. W. Behee. il Water Works & Wastes Eng 1:34-6 Ag '64; Abstract. Pub Works 95:184-6 O '64

RICINIDINE

Structure of nudiflorine, a naturally occurring isomer of ricinidine. R. Mukherjee and A. Chatterjee. bibliog Chem & Ind p 1524-5 Ag 29 '64

RICINOLEATES

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

RICINOLEIC acid

Hydrogenolysis of saturated, oleic and ricinoleic acids to the corresponding alcohols. A. J. Pantulu and K. T. Achaya. bibliog Am Oil Chem Soc J 41:511-14 Jl '64

RICKETS

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

RICKETTS, Claude V.

Obituary. por Naval Eng J 76:653 Ag '64

RICKETTSIA

Diagnosis of viral and rickettsial diseases; abstract. M. Schaeffer. Ind Med 33:705 O '64

Occupational hazards of Q fever. H. G. Stoenner. Ind Med 33:296-300 My '64

Rickettsial diseases other than Q fever as occupational hazards. J. P. Fox. Ind Med 33:301-5 My '64

RIFLES

Carbide bullet makes rifling. il diags Am Mach/Metalworking Manuf 107:71-2 N 25 '63

Rifle magazine; plastics replace metal. il Plastics World 22:19 Jl '64

Manufacture

Rifle parts; ABS plastics components reduce recoil shock. il Plastics World 22:21 Ap '64

RIFLES—*Continued*

Standards

U.S. musket. contract of 1822 officer's presentation model. L. E. Snodgrass. il Ind Quality Control 20:4-8 Mr '64

Testing

Three buildings are cheaper than one. il Eng N 173:78-9 Jl 2 '64

RIGGS, Elmer S.

Memorial; with bibliography of his publications. C. C. Gregg. por Geol Soc Bul 75:sup 129-31 S '64

RIGHT of privacy. See Privacy, Right of

RIGHT of way

Custom made for West Virginia. J. F. Skinner. il Gas 40:76-9 S '64

Evaluation of partial taking of property for right-of-way. G. V. Broderick and F. I. Thiel. Pub Roads 33:38-44 Je '64

Hottest right-of-way hassle in court. il Elec World 161:19-20 My 11 '64

Photogrammetry and highway law. M. M. Abrams. bibliog Am Soc C E Proc 90 [SU 2 no 3989]:153-68 Jl '64

Slenderize 230-kv. H-frames to fit narrow rights-of-way. il diags Elec World 161:66-9 F 24 '64

Utility execs ask Congress to change right-of-way rules. Elec World 160:47 O 21 '63

What's the best way to keep right-of-way cleared? il Power Eng 68:46 Ja '64

See also

Pipe lines—Right of way

RILEY, John R.

CMRA award. por Chem & Eng N 42:90 My 4 '64

RIMMED steel. See Steel—Rimmed steel

RINGS

Brazing rings perform to rigid specifications. il Welding J 43:692-3 Ag '64

Buckling of a prestressed circular ring. J. E. Goldberg and J. L. Bogdanoff. diags Am Soc C E Proc 90 [ST 4 no 4018]:235-50 Ag '64

Deflection of hinged rings under uniform pressure. J. A. Cheney. diags Am Soc C E Proc 89 [EM 6 no 3721]:161-76 D '63; Discussion. 90 [EM 3 no 3936]:291-4 Je; [EM 4 no 4000]:171-4 Ag '64

Distortion of circular rings; data sheet. H. D. Tabakman and H. P. Valentijn. diags Machine Design 36:201-7 O 22 '64

Frequency cross-over of simply-supported circular ring segments. F. C. Nelson. diags Franklin Inst J 278:20-7 Jl '64

New design formulas for varying section rings. T. H. Lee. diags Product Eng 35:74-8 Jl 6 '64

Noncircular rings under radial load. F. Romano and D. Ranlet. bibliog diags Franklin Inst J 277:444-63 My '64

Parametric expansions for oval reinforcing rings. W. P. Vafakos and N. Nissal. diags Am Soc C E Proc 90 [EM 5 no 4062]:1-26 O '64

Plastic seals loaded by O-rings. diags Hydraulics & Pneumatics 17:26 S '64

Rotary milling slashes cost of producing Polaris rings. il diags Mach 70:133-4 Je '64

Stress in radially loaded thick rings; data sheet. J. W. Walker. bibliog diag Machine Design 36:115-18 Jl 30 '64

Unusual applications for O-rings; drawings with text. R. O. Parmley. Product Eng 34:78-9 N 25; 102-3 D 9 '63

Vibration of a thick ring in its own plane. B. S. Seidel and E. A. Erdelyi. bibliog diags A S M E Trans ser B 86:240-4 Ag '64

See also

Seals

RINGS, Rubber. See Rubber goods, Mechanical

RINGS, Steel

Natural frequencies of clamped ring segments; data sheet. I. U. Ojalvo and M. Newman. diags Machine Design 36:219-22 My 21 '64

Manufacture

Roll-formed ring replaces 13 parts. il Am Mach 108:62 Ja 6 '64

Weldless forged and rolled steel rings. il Engineering 197:578-80 Ap 24 '64

RINGWORM

Control of tinea capitis among indigent populations. L. Friedman and others. bibliog Am J Pub Health 54:1588-98 S '64

RIO DE JANEIRO

Sewerage

Beginning of waste treatment. E. B. Bessellevre. Pub Works 95:72+ F; 74+ Mr '64

Water supply

Allis-Chalmers International receives contract to equip Lameirao pumping station in Brazil. Water & Sewage Works 111:131 Mr '64

RIO GRANDE VALLEY

Sediment investigations; Middle Rio Grande. E. L. Pemberton. bibliog il maps Am Soc C E Proc 90 [HY 2 no 3833]:163-85 Mr '64; Discussion. C. F. Nordin, jr. 90 [HY 5 no 4050]:273-5 S '64

RIPENING of fruit. See Fruit, Ripening of

RISK

Risk criteria. L. E. Borgman. bibliog Am Soc C E Proc 89 [WW 3 no 3607]:1-35 Ag '63; Discussion. C. A. Cornell. 90 [WW 1 no 3814]:167-70 F '64

Road to new profits; is it worth the risk? C. Pacifico. il Chem Eng Prog 60:19-21 My '64

RIVER traffic

Reality of inland navigation; abstract. J. Aubert. Engineer 216:750-1 N 1 '63

See also

St Lawrence waterway and power project

RIVERMINES, Missouri

Water supply

Automation of the pumping station. P. W. Green. il Water Works & Wastes Eng 1:52-3 Jl '64

RIVERS

Annual variation of stream water temperature. J. C. Ward. flow diag map Am Soc C E Proc 89 [SA 6 no 3710]:1-16 D '63; Discussion. 90 [SA 4 no 4006]:87-100 Ag '64

Billion-dollar river clean-up. E. J. Cleary. Am Soc C E Proc 88 [SA 6 no 3333]:97-104 N '62; Discussion. 89 [SA 3 no 3556]:89-93 Je; [SA 4 no 3618]:133-4 Ag '63; Reply. 90 [SA 1 no 3813]:155-8 F '64

An electric-powered vehicle for large river measurements. H. H. Stevens, jr. and G. R. Dempster, jr. il Civil Eng 34:74 Je '64

Geometry of river channels. W. B. Langbein. bibliog Am Soc C E Proc 90 [HY 2 no 3846]:301-12 Mr '64; Discussion. W. W. Emmett and L. B. Leopold. 90 [HY 5 no 4050]:277-85 S '64

Hyacinth removal creates biological conditions; Hillsborough River. C. P. Roddy. il Water & Sewage Works 110:382-4 N '63

Practical regime analysis of river slopes. T. Blench and M. A. Qureshi. bibliog Am Soc C E Proc 90 [HY 2 no 3826]:81-98 Mr '64; Discussion. G. Lacey. 90 [HY 5 no 4050]:257-60 S '64

Prediction of temperature in rivers and reservoirs. J. M. Raphael. bibliog Am Soc C E Proc 88 [PO 2 no 3200]:157-81 Jl '62; Discussion. P. B. Boyer. 89 [PO 1 no 3652]:129-32 S '63; Reply. 90 [PO 2 no 3977]:13 Jl '64

Radial collector wells adjacent to the river bank. M. Milojevic. bibliog diags Am Soc C E Proc 89 [HY 6 no 3704]:133-51 N '63; 90 [HY 4 no 3980]:329 Jl '64

Soluble-adsorbed zinc equilibrium in natural waters. J. T. O'Connor and C. E. Renn. Am Water Works Assn J 56:1055-61 Ag '64

Zinc concentrations in rivers of the Chesapeake Bay region. J. T. O'Connor and others. bibliog Am Water Works Assn J 56:280-6 Mr '64

See also

Alluvium
Arkansas River
Colorado River
Columbia River
Congo River
Danube River
Delaware River
Drainage (physical geography)
Erosion
Floods
Ice on rivers, lakes, etc.
Indus River
Mississippi River
Missouri River
Potomac River
Snake River
Stream flow
Susquehanna River
Tennessee River
Thames River

Bank protection

See also

Mattresses (hydraulic engineering)

Covering

Mid-city stream burial; three contractors, three methods. il diag Roads & Sts 107:32-5 Jl '64

RIVERS—*Continued*

Regulation

California will divert Eel River. map Eng N 172:64-5 Mr 19 '64
Major river use and control projects. il map Eng N 172:97-8+ Ja 23 '64
Model for river regulation. L. L. Sheerar. map diags Am Soc C E Proc 89 [WW 4 no 3693]:13-27 N '63
See also
Dams
Flood control

RIVETED joints
Designing for semitubular riveting. T. C. Buchanan. il diags Machine Design 36:150-5 Mr 12 '64

RIVETING
Firm hikes riveting output 320 per cent. il Steel 154:44-5 Je 1 '64
Steerable fixture speeds riveting. il Am Mach 108:78 Jl 6 '64
Suggestions for riveting vinyl-metal laminates. il Steel 153:81 D 16 '63
See also
Rivets

RIVETS
Choosing the best structural fastener. H. J. Stetina. il diags Civil Eng 33:50-3 N '63
How to fasten ceramics with tubular rivets; drawings with text. Materials in Design Eng 59:108-9 Ap '64
New formulas for fasteners loaded off center. T. R. Higgins. diags Eng N 172:102-4 My 21 '64
Riveted and bolted joints; truss-type tensile connections. E. Chesson, jr. and W. H. Munse. bibliog il diags Am Soc C E Proc 89 [ST 1 no 3412]:67-106 F '63; Discussion. A. J. Francis. 89 [ST 5 no 3688]:329-30 O '63; Reply. 90 [ST 2 no 3886]:351-2 Ap '64
Self-piercing rivet cuts production time, costs. il Steel 155:113 N 2 '64
Semi-tubular rivets; reference book sheet. diags Am Mach 108:135+ My 11 '64
Window makers solve design problems with special rivets. il diags Mod Metals 20:52 Ag '64

ROAD accidents
Are these cases motor vehicle fleet accidents? Mag of Stand 35:81-3 Mr '64
Interstate system accident research. S. R. Byington. maps Pub Roads 32:256-66 D '63
Road accidents and resulting injuries; abstracts of papers. Engineer 217:580 Mr 27 '64
Traffic accident outlook. J. O. Mattson. Traffic Q 18:310-20 Jl '64
See also
Automobile accidents

ROAD builders association, American. See American road builders association

ROAD contractors
Ballenger's latest score; 127 contract jobs. il Roads & Sts 107:79 Ap '64
Better bidding is contractor association theme. Roads & Sts 107:62-3 Jl '64
Contractor group pushes for better company management. Roads & Sts 107:78-9 Ja '64
Contractors build specialty grading business around self-loading scrapers. il Roads & Sts 107:48-9+ Ap '64
Contractor's field staff must help with cost control. J. P. apRoberts. Roads & Sts 107:43+ F '64
New firm expands through planned bidding and close job control; Macon construction and engineering corp. il Roads & Sts 106:56-7+ N '63
Record-busters Schultz & Lindsay; a story of employee loyalty. H. K. Glidden. il Roads & Sts 107:72-4+ Ap '64

ROAD guards. See Roads—Safety guards

ROAD making machinery
Better tooling for better welding. J. D. Brown. il Am Mach/Metalworking Manuf 107:123-4 O 14 '63
Developments and trends in highway maintenance equipment. H. A. Radzikowski and J. J. Laing. Pub Works 95:144+ Jl '64
Huber redesigns its large graders. il Eng N 172:58 Je 11 '64
Machines form joints in pavement. il Eng N 173:44 N 5 '64
Paired travel-plants mixed the cement treated base. il Roads & Sts 107:64-8, cover Je '64
See also
Road rollers
Road scrapers
Roads—Construction equipment
Roads, Concrete—Construction equipment

Cleaning

Steam cleaning tips shorten back-to-work time. M. K. Dugener. il Roads & Sts 106:36-7+ D '63

Control

Automatic blade angle control for motor graders. A. T. Macdonald. il diags Ind Electronics 1:755-8 D '63
Phased cylinders rotate grader blade. il Machine Design 36:150-1 Ja 16 '64

Maintenance and repair

Central overhauling shop best for today's equipment. il Roads & Sts 107:40-5 Ap '64
Controlled maintenance plan for contractors' equipment. il Roads & Sts 107:79 Je '64
Cost cutting track shoe rebuilder. il Roads & Sts 107:72+ Mr '64
Don't scrap it, hard surface it. il Roads & Sts 107:103+ Je '64
Good record keeping key to Mashuda's machine care. il Roads & Sts 107:48-51 F '64
Our equipment maintenance pays dividends. J. F. Steelman. Pub Works 95:167+ Ag '64
Systems specialists, new International Harvester training concept. il Roads & Sts 107:98 Je '64
Winter shop, not fancy but served purpose. il Roads & Sts 107:104 My '64

ROAD materials
Automatic grading equipment from Woolwich. il Engineering 196:825 D 27 '63
Road materials and construction problems bearing on road safety. W. Glanville. Chem & Ind p407-9; Discussion. 409-10 Mr 7 '64
Slag makes a big highway fill. il Eng N 173:43 Jl 16 '64
Stanton slag treatment plant. il Metallurgia 68:167-8 O '63
Statistical approach to aggregate gradation; abstract. H. A. Radzikowski. Pub Works 95:176 Ap '64
See also
Aggregates
Asphalt
Gravel
Stone, Crushed
Tar

Specifications

Latest thinking on contractor job quality control; discussion. Roads & Sts 106:73-4 Ag; 57+ S; 70-1 O; 53 N '63
Some ripe observations on bituminous plant operation and control. J. E. Ward. Roads & Sts 106:72-6 D '63

Testing

Natural weathering of concrete specimens prepared with cements used in the long-time study. W. E. Grieb and G. Werner. bibliog il diags Pub Roads 33:57-67 O '64
Road research in Great Britain; abstract. Pub Works 95:112+ N '64

ROAD rollers
Diesel road roller. il Engineer 217:530 Mr 20 '64
Hydrokinetic transmission for rollers. il Engineering 197:428 Mr 20 '64
Pneumatic-tyred roller. il Engineer 217:874 My 15 '64
Triple-axle road roller. il Engineer 218:519 S 25 '64

ROAD scrapers
Apron powers down to load better. il Eng N 173:109 Ag 6 '64
Contractors build specialty grading business around self-loading scrapers. il Roads & Sts 107:48-9+ Ap '64
Elevating scraper needs no pusher help. il Eng N 173:98 Jl 2 '64
Faster dirt with tandem scrapers and other ideas. H. K. Glidden. il Roads & Sts 107:56-8 Mr '64
40 cu yd scraper-digger with electric drive. il Engineering 198:153 Jl 31 '64
Self-loading elevating scrapers; when, why and how they pay. K. W. Guenther. il diag Roads & Sts 107:64-8 My '64
Self-loading scrapers move high hourly yardage per machine. il Roads & Sts 107:65+ Ja '64
Three engines drive scraper. il Eng N 173:110 Ag 6 '64
Top performance from mixed scrapers. il Roads & Sts 107:94-5+ Ap '64

ROAD signs
New alphabet spells safety. Safety Maint 128:13+ O '64
See also
Traffic signs

Cleaning

Converted utility ladder truck facilitates sign washing. il Pub Works 95:92 My '64
Sign cleaner. il Pub Works 95:132 Ap '64

ROAD simulators

Dowty Rotol vibration equipment. il diag Automobile Eng 54:57-9 F '64

Rough road simulator for wheeled vehicles. H. M. Forkois. bibliog il diags Naval Eng J 75:971-6 D '63

Static road testing of motor cars. il Engineer 217:137 Ja 17 '64

Traffic simulator tests road surfaces. il Engineering 198:153 Jl 31 '64

ROAD traffic

Coming to terms with the private car. Engineering 196:675 N 29 '63

Developments in traffic simulation and control. R. F. Baker. il diag Pub Works 95: 98-101 Mr '64

Estimated travel by motor vehicles in 1962. T. S. Dickerson. Pub Roads 32:268 D '63

Evaluating urban transportation systems. G. Haikalis and E. W. Campbell. plans Am Soc C E Proc 89 [CP 1 no 3626]:1-15 S '63; Discussion. J. Horowitz. diag 90 [UP 1 no 4034]:35-7 S '64

Improving transportation on Long Island. il Pub Works 94:88-9 N '63

Mathematical car-following theory of traffic flow. D. C. Gazis and others. bibliog il diag Am Soc C E Proc 89 [EM 6 no 3724]:29-46 D '63

New idea in urban transportation. E. H. Harlow. il Pub Works 94:119-20 D '63

South Africa's approach to urban traffic and freeways. S. S. Morris. 3pls Traffic Q 18: 202-18 Ap '64

Technological aspects of urban transportation. D. S. Berry and P. W. Shuldiner. bibliog maps diags Am Soc C E Proc 90 [HW 1 no 3768]:53-78 Ja '64; Discussion. S. T. Li. 90 [HW 2 no 3997]:27-30 Ag '64

Vehicular traffic flow. R. Herman and K. Gardels. il diags Sci Am 209:35-43, cover D '63

See also

Street traffic

Traffic regulations

ROADS

Major transportation projects. il map Eng N 172:75+ Ja 23 '64

World highway development review; 1963 staff report. Pub Works 95:130+ My '64

See also

Automobiles and roads

Curbs

Driveways

Expressways

Highway administration

Highway engineering

Highway research

Highway transportation

Motor trucks and roads

Mountain roads

Pan American highway

Streets

Underpasses

Cleaning

Kentucky fights litterbugs. il Pub Works 95:103 O '64

Construction

A-blast asked for route excavation. map Eng N 171:52 D 19 '63

Aggregate production speed record set at Curtis Construction. il Rock Prod 66:68-70 D '63

Big Boston turnpike job shifts into high. H. J. McKeever. il Roads & Sts 107:56-9 My '64

Big rigs solve a rocky problem. il Eng N 173: 39+ Jl 16 '64

Blast control engineering pays on large interchange. il Roads & Sts 107:32-6 Mr '64

Contractors blast hard rock to build vital road interchange. il Eng N 173:26-8 Jl 16 '64

Contractors rush biggest asphalt paving job. il Eng N 173:30-2 Ag 13 '64

86-mile methods workshop for cement treated subbase. H. K. Glidden. il Roads & Sts 106: 32-5+ D '63

Highway through the Smokies. A. Lewis-Morgan. il map Comp Air Mag 69:18-20 O '64

Highways then and now. W. E. Willey. pl Traffic Q 18:561-75 O '64

New firm expands through planned bidding and close job control; Macon construction and engineering corp. il Roads & Sts 106: 56-7+ N '63

Oklahoma City bypass; short in miles, big in mix-tonnage. methods interest. H. K. Glidden. il diags Roads & Sts 106:70-2+ N '63

One bridge supports another. il Eng N 171:180 D 19 '63

Paired travel-plants mixed the cement treated base. il Roads & Sts 107:64-8, cover Je '64

Precarious work on Pan-American highway link continues through the Ecuadorian Andes. J. L. Murphy. il Comp Air Mag 69: 4-7, cover Ja '64

Ribbon cutting spotlights fast expressway construction. il Roads & Sts 107:52-5+ Ja '64

Road maintenance and construction in fast growing San Luis Obispo County. R. Gallagher. il Pub Works 95:82-5 Ap '64

Rolling surcharge stabilizes highway fills on marshy land. il diag Eng N 173:76-7 Jl 2 '64

Rulings divided on blast damages. A. W. Gray. Roads & Sts 107:91-3 Jl '64

Soil-cement road on marshland. A. R. Pagan and C. H. Billings. il Pub Works 95:93-4 My '64

State road work at record high. Roads & Sts 107:82-3 F '64

Step-by-step; bum's rush for a 40-ton rock. il Roads & Sts 107:98-9 Mr '64

Use of surcharges in highway construction. W. F. Kleiman. bibliog map diags Am Soc C E Proc 90 [SM 5 no 4048]:331-48 S '64

Construction equipment

Big equipment speeds work on Interstate 95. il Diesel Equip Supt 42:62 O '64

Coaxing top production from a rock-and-dirt spread. H. K. Glidden. il Roads & Sts 107: 44-7+ F '64

Equipment maker opens unique test lab. il Roads & Sts 107:56 Ag '64

Mathematical models aid equipment managers. il Eng N 171:106-7 N 14 '63

Modern equipment speeds road work. il Pub Works 94:140 D '63

New products. Published in monthly numbers of Roads and streets

Contracts

State highway contracts will rise. map Eng N 172:13-15 Mr 26 '64

Costs

Alabama interstate highway; unit prices. Eng N 172:44 Ja 9 '64

Big spread in Alabama road bids; unit prices. Eng N 172:41 Mr 26 '64

Chicago interchange project; unit prices. Eng N 172:120 Mr 19 '64

Contractor's field staff must help with cost control. J. P. apRoberts. Roads & Sts 107: 43+ F '64

Critical Path required on highway job; unit prices. Eng N 172:49 Je 4 '64

El Salvador repair work; unit prices. Eng N 173:52 N 5 '64

Excavation bid wins Pennsylvania road; unit prices. Eng N 173:131 Ag 6 '64

Interstate costs will rise slightly. Eng N 173: 30 O 15 '64

John Day scatters road and rail traffic; unit prices. Eng N 173:40 Jl 30 '64

Low bid on concrete wins bridge and road award. Eng N 173:48 S 3 '64

Nevada interstate road job; unit prices. Eng N 172:53 Mr 12 '64

New Hampshire highway extension; unit prices. Eng N 173:71 S 10 '64

Record-breaking Illinois job; unit prices. Eng N 171:49 N 28 '63

Short seasons at remote Alaska highway project; unit prices. Eng N 172:130+ Mr 19 '64

Texas interstate road job; unit prices. Eng N 172:58 F 20 '64

Three bids obtained on Florida road project; unit prices. Eng N 172:54 F 27 '64

Curves

Vertical curve plotting. J. W. O. Baker. il diags Am Soc C E Proc 89 [HW 1 no 3476]:1-11 Ap '63; Discussion. 90 [HW 1 no 3780]:113-15 Ja '64; Reply. 90 [HW 2 no 3997]:13-14 Ag '64

Design

In-service training for pre-engineering technicians. R. B. MacIndoe. il Pub Works 95: 107-8 F '64

Land use planning and highway engineering. F. W. Hurd. Pub Works 95:150+ Je '64

Safety is top priority for roadbuilders. Eng N 172:22-3 Je 25 '64

Three-dimensional approach to highway design. R. A. Abbott. il Pub Works 95:102-4 N '64

Various simultaneous equations for interzonal divergences and link assignments. L. F. Butas. diags Traffic Q 18:383-405 Jl '64

ROADS—*Continued*

Federal aid

Cities warned to finish highway planning by summer. Eng N 173:64-5 Ag 6 '64
Concern deepens over federal role. W. O. Wright. Roads & Sts 106:30+ N '63
Highways asked as aid for Appalachians. map Eng N 171:23 N 21 '63

Finance

Financing street and highway improvements in urban areas. T. R. Todd. Traffic Q 18:502-22 O '64
State highway contracts will rise. map Eng N 172:13-15 Mr 26 '64
$30-million loan to help build roads in Venezuela. il map Eng N 173:35 N 5 '64
Toll facilities in the '60s and '70s. L. A. Rubin. il Pub Works 95:85-6+ N '64
See also
Roads—Federal aid
Toll roads

Foundations

Adolescence of nuclear testing. W. R. Brown. Roads & Sts 107:46 My '64
Combined base for a large interstate project. il diags Roads & Sts 107:40-2+ My '64
Crawlerway will support moon rocket from assembly to launch. il Eng N 173:26-7 Jl 23 '64
Freeways across marshy low country; how it's done in Louisiana. il diag Roads & Sts 107:60-3+ My '64
Hydrated lime stabilizes a clay fill in Florida. il Eng N 172:40-2 My 14 '64
Lime-fly ash base stabilization tested. Roads & Sts 106:71 D '63
Local sand chief aggregate for freeway base and shoulder mix. il Roads & Sts 107:44-8 Mr '64
Nuclear gages control slag fill compaction. il Eng N 173:50-1 O 15 '64
Nuclear testing; how it worked on freeway project. il Roads & Sts 107:64-7 Ap; 50-1+ Je '64
Properties of roadbeds. I. B. Mullis. bibliog Am Soc C E Proc 89 [HW 1 no 3500]:81-111 Ap '63; Discussion. 90 [HW 1 no 3780]:125-9 Ja '64; Reply. 90 [HW 2 no 3997]:21-6 Ag '64
Rolling surcharge stabilizes highway fills on marshy land. il diag Eng N 173:76-7 Jl 2 '64
Salt stabilization improves county roads. il Pub Works 95:135 S '64
Sand-cement and sand-asphalt conserve aggregates and money; Wisconsin state highway. il Eng N 172:32-4 Ja 30 '64

Bituminous materials

Stabilized base in municipal street construction. C. W. Beagle. il Pub Works 95:64-6 Ja '64

Soil cement

86-mile methods workshop for cement treated subbase. H. K. Glidden. il Roads & Sts 106:32-5+ D '63
Paired travel-plants mixed the cement treated base. il Roads & Sts 107:64-8, cover Je '64
Soil-cement road on marshland. A. R. Pagan and C. H. Billings. il Pub Works 95:93-4 My '64

Frost damage

Insulate pavement to prevent frost heave. il Eng N 172:38 Je 25 '64

Grading

Attachment speeds grading work. il Eng N 172:47 My 28 '64
Belt loader and dozers eat through 900,000 yard shale cut. il Roads & Sts 107:56-9 F '64
Coaxing top production from a rock-and-dirt spread. H. K. Glidden. il Roads & Sts 107:44-7+ F '64
Contractors build specialty grading business around self-loading scrapers. il Roads & Sts 107:48-9+ Ap '64
Freeways across marshy low country; how it's done in Louisiana. il diag Roads & Sts 107:60-3+ My '64
Planning a grading operation for least total cost. L. R. Shaffer. diags Am Soc C E Proc 89 [EM 6 no 3734]:47-66 D '63
Portable water towers load 10,000 gallon sprinklers. il Roads & Sts 107:59+ Ja '64
Problems and methods in grading a mountain freeway. il Roads & Sts 107:44-9+ Je '64
Self-loading scrapers move high hourly yardage per machine. il Roads & Sts 107:65+ Ja '64
Slag makes a big highway fill. il Eng N 173:43 Jl 16 '64
Special drill-blast techniques notch mountain for urban freeway. il Roads & Sts 107:36-40 Ja '64
Top performance from mixed scrapers. il Roads & Sts 107:94-5+ Ap '64
Triplex vibrators pack hard, fast. il Eng N 172:99 My 21 '64

Guard rails

See Roads—Safety guards

Ice control

See also
Pavements—Heating

Inspection

See Highway inspection

Interchange

Blast control engineering pays on large interchange. il Roads & Sts 107:32-6 Mr '64
Contractors blast hard rock to build vital road interchange. il Eng N 173:26-8 Jl 16 '64
For a motorway viaduct; a steel spine. il plan diag Engineering 198:151-2 Jl 31 '64
One bridge supports another. il Eng N 171:180 D 19 '63
Seattle plans reversible traffic lanes. plan Eng N 173:97 Jl 2 '64

Intersection

Consider the four-way stop. S. H. Conner. il Pub Works 95:104-5 N '64

Lighting

Detroit's avant garde expressway lighting. il Illum Eng 59:118-19 F '64
Development of a new American standard practice for roadway lighting. W. H. Edman. il diags Illum Eng 58:687-94 N '63; Discussion. 58:742-4 D '63
For safer night driving. C. L. Crouch and L. J. Buttolph. il diags Mag of Stand 35:234-6 Ag '64
Higher luminaire mounting for highway lighting systems; abstract. R. C. Hobson and A. Ketvirtis. plan Illum Eng 59:585-6 S '64
How Dale's mobile squads install freeway lighting. il Roads & Sts 107:92-4+ My '64
Lighting an intersection; lighting data sheet. H. T. Brazil. il Illum Eng 59:274 Ap '64
Roadway lighting. T. J. Sebrun. il Civil Eng 34:56-7 O '64
Roadway lighting luminaire distributions; effect of the new standard practice; abstract. T. Summers, jr. and W. M. Waldbauer. Illum Eng 59:578 S '64
Visibility and illumination variables in roadway visual tasks. H. R. Blackwell and others. bibliog il diags Illum Eng 59:277-308 My '64
Visibility distance as affected by roadway lighting parameters; abstract. G. G. Bonvallet and others. il Illum Eng 59:583-4 S '64
See also
Street lighting

Location

Archeological reconnaissance and highway location. L. F. Erickson. il Pub Works 95:104-6 Ag '64
Punched cards replace survey notebook. P. D. Spindel. il Eng N 173:166 S 17 '64
Suggestions for possible policy statement on highway planning; report of the committee on land use aspects of highway location. Am Soc C E Proc 90 [UP 1 no 4024]:1-4 S '64
See also
Roads—Surveying

Maintenance and repair

Developments and trends in highway maintenance equipment. H. A. Radzikowski and J. J. Laing. Pub Works 95:144+ Jl '64
Expressway maintenance. C. H. Lang. il Civil Eng 34:42-4 S '64
Guardrail maintenance. R. W. Kress. Pub Works 95:120 N '64
How a county uses CPM. W. H. Metzler and S. C. Bucher. diags Pub Works 95:92-4 Mr '64
In-service training for maintenance supervisors. B. C. Parker. Pub Works 95:142-4 Ag '64
Legal liability for ice and water on the highway; abstract. H. C. Rockey. Pub Works 94:124 N '63
Push button programming for the county engineer. il Pub Works 94:97-8 D '63
Road breaking equipment made less noisy. il Engineering 197:734 My 29 '64

ROADS—Maintenance and repair—*Continued*

Road maintenance and construction in fast growing San Luis Obispo County. R. Gallagher. il Pub Works 95:82-5 Ap '64

Soil erosion and highway maintenance. H. J. Rathfoot. il Pub Works 95:108-9 Je '64

Steel deck temporary road. il Engineer 217:1102 Je 19 '64

This loader is our all-purpose tool. J. F. Martin. il Pub Works 95:102 F '64

Tollway requires well-planned maintenance program. R. W. Kress. il Pub Works 94:92-5 N '63

Turf management stretches maintenance dollars. W. L. Hottenstein. il Pub Works 95:76-9 Jl '64

See also

Roads—Surface treatment

Roads—Winter maintenance

Models

Three-dimensional approach to highway design. R. A. Abbott. il Pub Works 95:102-4 N '64

Resurfacing

City streets and the seal coat problem. C. H. McDonald. il Pub Works 95:98-100 Jl '64

Epoxy surfacer can be colored. Eng N 172:196 Je 18 '64

Leveling was exacting task in turnpike resurface job. H. K. Glidden. il Roads & Sts 107:91-2+ Ja '64

Overlay program stepped up in Wisconsin. Roads & Sts 106:77 D '63

Pennsylvania Avenue gets new surface. W. F. Reynolds. il Pub Works 95:92-4 Ja '64

Rapid gain is prospect for bridge-repair epoxies. Chem & Eng N 42:52+ My 4 '64

Surface dressings; their lives investigated. Engineering 197:519 Ap 10 '64

227 mile asphalt sealing contract. il plan Roads & Sts 107:73-4+ F '64

Two methods combined to reclaim embrittled asphalt. E. Lynch. il Pub Works 94:114-16 D '63

See also

Pavements—Resurfacing

Safety guards

Aluminium lifting barriers for road traffic control. il Engineering 197:20 Ja 3 '64

Etudes sur différents genres de glissières de sécurité boulevard Métropolitain Montréal. G. G. Henault. il diags Eng J 46:21-7; Discussion. 40, 62 D '63

Galvanizing program cuts guard rail costs. il Roads & Sts 106:63-4 N '63

Guardrail maintenance. R. W. Kress. Pub Works 95:120 N '64

Major guide rail galvanizing program. J. A. Robertson. il Pub Works 95:114-17 O '64

Median guard rail saves lives. il Pub Works 95:114-16 My '64

Mile-a-day guard rail construction. il Eng N 172:91 Ap 2 '64

Safety fences. R. L. Moore and V. J. Jehu. Engineer 217:1031 Je 12 '64

Two-part ceramic stucco preserves guard rails. il Materials in Design Eng 59:164+ Ap '64

Safety measures

Cooperation for greater traffic safety. W. F. Tempest. 2pls Traffic Q 18:275-81 Ap '64

Devices for reducing road hazards. il Engineering 198:442 O 2 '64

Electronic guidance for highway safety. J. J. O'Mara. Civil Eng 34:38-40 O '64

Help for the stranded motorist; adapting the impedance measuring techniques. J. Bacon and R. L. Cosgriff. diag Control Eng 11:99+ Ap '64

Highway safety; for the other eighty percent; abstract. R. M. Whitton. Pub Works 95:138+ Je '64

Land use planning and highway engineering. F. W. Hurd. Pub Works 95:150+ Je '64

Landscape development and maintenance for traffic safety. E. C. Eckert. il Pub Works 95:106-8 Ap '64

Parking areas enhance highway safety. il Pub Works 95:134 S '64

Police; pivot for highway safety efforts. Q. Tamm. Traffic Q 18:250-64 Ap '64

Priority needs in highway research. K. A. Stonex. bibliog il Pub Works 95:113-15 Ap '64

Road laboratory and the road user. il diags Engineering 198:169-70 Ag 7 '64

Road materials and construction problems bearing on road safety. W. Glanville. Chem & Ind p407-9; Discussion. 409-10 Mr 7 '64

Road officials give cattle bum steer. il Eng N 173:50-1 O 15 '64

Safety is top priority for roadbuilders. Eng N 172:22-3 Je 25 '64

Street lighting and public safety. P. C. Box. il Pub Works 95:118-20 Je '64

Stud welding for highway safety. R. J. Walsh. il Pub Works 94:88-9 D '63

Three driving safety research projects. Safety Maint 128:16-17 Jl '64

Work area protection on highways. G. W. Adrian. il diags Am Water Works Assn J 55:1414-22 N '63

See also

Traffic signals

Shoulders

Local sand chief aggregate for freeway base and shoulder mix. il Roads & Sts 107:44-8 Mr '64

Sand-cement and sand-asphalt conserve aggregates and money; Wisconsin state highway. il Eng N 172:32-4 Ja 30 '64

Sealing pavement edge joints. F. C. Staib. il Pub Works 95:127-8 Je '64

Sealing the joint between concrete slab and bituminous shoulder. S. F. Cryderman and W. A. Weinbrauck. il Pub Works 95:116-17 S '64

Slurry seal used on turnpike shoulders. il Pub Works 95:87 Mr '64

Slipperiness

Locating pavement skid areas. il Pub Works 95:96 F '64

Specifications

Argument for better and more uniform specifications; abstract. A. E. Johnson. Pub Works 95:120+ Jl '64

How to specify reasonable conformity. Roads & Sts 107:88 Je '64

New AASHO guide specs near final vote. Roads & Sts 106:49-51 D '63

Wisconsin updates its specs. Roads & Sts 106:66 N '63

Subgrades

Three jobs show lime's versatility. il diag Roads & Sts 107:52-4+ Ap '64

Surface treatment

Effect of linseed oil coatings on resistance of concrete to scaling. W. E. Grieb and R. Appleton. il Pub Roads 33:1-4 Ap '64

Rehabilitation of light traffic roads with tar stabilization; abstract. J. E. Dowling. Pub Works 95:134+ My '64

Surfaces

Electronic road roughness indicator. il Engineering 198:261 Ag 28 '64

Locating pavement skid areas. il Pub Works 95:96 F '64

Traffic simulator tests road surfaces. il Engineering 198:153 Jl 31 '64

See also

Pavements

Surveying

Highway plans from photogrammetrically-compiled maps. L. E. Parker. Am Soc C E Proc 90 [SU 1 no 3859]:31-8 Ap '64

See also

Roads—Location

Testing

AASHO road test; three years later. Eng N 172:19-21 Ap 9 '64

Moisture-density check at three mph. Eng N 172:112 My 21 '64

Toll plazas

Snow melting system keeps Skyway's toll plaza clear. J. Ross. il diags Heating-Piping 36:99-103 Mr '64

Tolls

See Toll roads

Traffic lines

See Traffic lines

Widening

Famed scenic highway undergoes shelf widening. il Roads & Sts 107:82-3+ Je '64

Simple way to widen at four miles a day. il Roads & Sts 107:135 Je '64

Winter maintenance

Covered storage for salt supplies prevents leaching of chlorides. il Pub Works 95:78 N '64

Pennsylvania turnpike's war on winter. J. M. Jakubac. il Pub Works 95:104-6+ S '64

Skiers want snow, but not on the highway. L. W. Brownell. il Pub Works 95:76-8 N '64

Township grader mounts a snowblower. C. L Mehlenbacher. il Pub Works 94:95-6 D '6

ROADS—Winter maintenance—*Continued*

Turnpike extension poses unusual maintenance problems. G. G. Hyland. il plans Pub Works 95:82-3 Ag '64

Versatile loader doubles as snow plow on town road work. il Pub Works 95:114 Ja '64

We don't have a lot of snow but, what we get can be a problem. A. N. Ault. il Pub Works 95:136-8+ O '64

Winter maintenance in the Rockies. T. H. Ratchford. il Pub Works 95:84 Ag '64

Winter maintenance responsibility. L. G. Byrd. Pub Works 95:161+ O '64

See also

Pavements—Heating

Snow removal

Alabama

Special drill-blast techniques notch mountain for urban freeway. il Roads & Sts 107:36-40 Ja '64

Appalachian region

Highways asked as aid for Appalachians. map Eng N 171:23 N 21 '63

Arizona

Highways then and now. W. E. Willey. pl Traffic Q 18:561-75 O '64

When a canyon job is really tough. il Roads & Sts 107:52-5+ Mr '64

Austria

Alpine tunnel will serve Austrian town. il plan Eng N 173:40 S 24 '64

California

Consultants want California road work. Eng N 173:59-60 S 17 '64

New route conquers historic pass; Donner Summit. il Eng N 173:23 O 22 '64

Paving interstate 80 in the Sierra Nevada. A. S. Hart. il map diag Civil Eng 33:62-4 N '63

Road maintenance and construction in fast growing San Luis Obispo County. R. Gallagher. il Pub Works 95:82-5 Ap '64

Roadside planting in California. W. L. Warren. il Civil Eng 34:67-9 Ag '64

Canada

Etudes sur différents genres de glissières de sécurité boulevard Métropolitain Montréal. G. G. Henault. il diags Eng J 46:21-7; Discussion. 40, 62 D '63

Central America

See also

Pan American highway

Colorado

Famed scenic highway undergoes shelf widening. il Roads & Sts 107:82-3+ Je '64

Pilot bore is laboratory for twin road tunnels. il diag Eng N 173:38-9 Ag 13 '64

Tunnel under Rockies designed from record site studies. il diags Roads & Sts 106:26-8 N '63

Ecuador

Precarious work on Pan-American highway link continues through the Ecuadorian Andes. J. L. Murphy. il Comp Air Mag 69:4-7, cover Ja '64

Florida

Hydrated lime stabilizes a clay fill in Florida. il Eng N 172:40-2 My 14 '64

Great Britain

Building along the lines of Buchanan. il maps Engineering 196:771-2 D 20 '63

Concrete construction techniques on British project; Newark by-pass; abstract. Pub Works 95:158+ S '64

Elevated road opened in north London. il Engineering 197:229 F 7 '64

Fylde junction higher bridge. il plan Engineer 218:125-6 Jl 24 '64

National road programme, 1963; illustrations with text. Engineer 217:24-5 Ja 3 '64

New signs for Britain's highways. Engineer 217:650 Ap 10 '64

1¾ mile motorway viaduct nears completion. il Engineering 198:465 O 9 '64

Preston-Lancaster motorway. il diag Engineer 218:123-5 Jl 24 '64

Skirmish on railway conversion; the Cobham-Guilford line. T. I. Lloyd. map Engineer 217:260-2 F 7 '64; Discussion. 217:400-1, 614, 699, 996, 1140; 218:60-1, 181, 245, 307 F 28, Ap 3, 17, Je 5, 26, Jl 10, 31, Ag 14, 28 '64

Soil stabilizing in the Dartford tunnel. il maps diags Engineering 196:686-7 N 29 '63

Idaho

Archeological reconnaissance and highway location. L. F. Erickson. il Pub Works 95:104-6 Ag '64

Floods intensify county work load. il Pub Works 95:160 Ap '64

Illinois

Tollway requires well-planned maintenance program. R. W. Kress. il Pub Works 94:92-5 N '63

Indiana

Progress in county highway administration in Indiana; abstract. E. S. Ward. Pub Works 95:136+ Ap '64

Italy

Alps' first big highway tunnel opens. map Eng N 172:19 Mr 26 '64

Opening of Great St Bernhard road tunnel. il map plan Engineer 217:588-90 Mr 27 '64

Switzerland to Italy under the mountains. il map diag Engineering 197:619-20 My 1 '64

Kansas

Contractors rush biggest asphalt paving job. il diag Eng N 173:30-2 Ag 13 '64

Washers and screens pace big Kansas hot-mix job. H. K. Glidden. il diags Roads & Sts 107:44-7+ Ag '64

World's biggest hot-mix job. H. K. Glidden. il diag Roads & Sts 107:76-9+ Jl '64

Kentucky

Belt loader and dozers eat through 900,000 yard shale cut. il Roads & Sts 107:56-9 F '64

Maryland

Red tape cutters keep freeway jobs on schedule. il Roads & Sts 107:69-71 Je '64

Michigan

Landscape development and maintenance for traffic safety. E. C. Eckert. il Pub Works 95:106-8 Ap '64

Soil erosion and highway maintenance. H. J. Rathfoot. il Pub Works 95:108-9 Je '64

Mississippi

Mississippi builds super-smooth pavement. Pub Works 95:146-7 Ag '64

New Jersey

560,000 tons of hot-mix in 13 weeks; Atlantic City expressway. il Roads & Sts 107:84+ Ag '64

New Mexico

Efficiency trio on freeway paving job. il Roads & Sts 107:41-4+ Ja '64

North Carolina

Highway through the Smokies. A. Lewis-Morgan. il map Comp Air Mag 69:18-20 O '64

Problems and methods in grading a mountain freeway. il plan Roads & Sts 107:44-9+ Je '64

North Dakota

We don't have a lot of snow but, what we get can be a problem. A. N. Ault. il Pub Works 95:136-8+ O '64

Northwest Territories, Canada

Road to open new arctic frontiers. map Oil & Gas J 62:129 S 28 '64

Oklahoma

Coaxing top production from a rock-and-dirt spread. H. K. Glidden. il Roads & Sts 107:44-7+ F '64

86-mile methods workshop for cement treated subbase. H. K. Glidden. il Roads & Sts 106:32-5+ D '63

Oklahoma City bypass; short in miles, big in mix-tonnage, methods interest. H. K. Glidden. il diags Roads & Sts 106:70-2+ N '63

Oregon

Oregon sets the pace on the interstate. C. S. Larson. il diag Civil Eng 34:32-3 Ap '64

Pennsylvania

Pennsylvania turnpike's war on winter. J. M. Jakubac. il Pub Works 95:104-6+ S '64

Rhode Island

Little Rhode Island is solving big highway problems fast. il Eng N 173:34-6 O 15 '64

ROADS—*Continued*

Rocky Mountain region

Effect of moisture on bituminous pavements in Rocky Mountain areas. W. L. Eager. bibliog il Pub Roads 33:48-54 Ag '64

Saudi Arabia

15-year desert road plan starts. map Eng N 172:25 My 7 '64

South Africa

South Africa's approach to urban traffic and freeways. S. S. Morris. 3pls Traffic Q 18: 202-18 Ap '64

Spain

Spanish pierce a high traffic barrier. E. A. Soast. il map Eng N 171:86-8 N 14 '63

Switzerland

Alps' first big highway tunnel opens. map Eng N 172:19 Mr 26 '64

Opening of Great St Bernhard road tunnel. il map plan Engineer 217:588-90 Mr 27 '64

Switzerland to Italy under the mountains. il map diag Engineering 197:619-20 My 1 '64

Tennessee

Combined base for a large interstate project. il diags Roads & Sts 107:40-2+ My '64

United States

Interstate program must pick up speed to meet the 1972 deadline. map Eng N 172: 20-1 My 28 '64

Road report from Washington. R. M. Monahan. Published in monthly numbers of Public works

State road work at record high. Roads & Sts 107:82-3 F '64

Warns slow states; get going on interstate highway system. R. Whitton. Roads & Sts 106:61-2 D '63

See also

Roads—Federal aid

United States—Public roads, Bureau of

Venezuela

$30-million loan to help build roads in Venezuela. il map Eng N 173:35 N 5 '64

Wisconsin

Comprehensive transportation planning. W. J. Burmeister. il Pub Works 95:78-80 Ja '64

Overlay program stepped up in Wisconsin. Roads & Sts 106:77 D '63

Sand-cement and sand-asphalt conserve aggregates and money; Wisconsin state highway. il Eng N 172:32-4 Ja 30 '64

Yugoslavia

Yugoslav roads near completion. map Eng N 171:138 D 19 '63

ROADS, Asphalt

German gussasphalt worth considering for our roads. Roads & Sts 107:93-4 F '64

See also

Pavements, Asphalt

ROADS, Bituminous

Detachment of the stone from the binder under the influence of water in road surface dressings. H. Karius and G. L. Dalton. bibliog Inst Pet J 50:1-14 Ja '64

Impact mixing. H. G. Nevitt. Roads & Sts 106:76-7 D '63

Oklahoma City baypass; short in miles, big in mix-tonnage, methods interest. H. K. Glidden. il diags Roads & Sts 106:70-2+ N '63

227 mile asphalt sealing contract. il plan Roads & Sts 107:73-4+ F '64

Washers and screens pace big Kansas hot-mix job. H. K. Glidden. il diags Roads & Sts 107:41-7+ Ag '64

World's biggest hot-mix job. H. K. Glidden. il diag Roads & Sts 107:76-9+ Jl '64

Maintenance and repair

After-dark freeway repaving. il Roads & Sts 107:112-15 My '64

Leveling was exacting task in turnpike resurface job. H. K. Glidden. il Roads & Sts 107:91-2+ Ja '64

Surfacing repair and rehabilitation. H. G. Nevitt. Roads & Sts 107:118+ My; 140+ Je; 70-1 O '64

Two methods combined to reclaim embrittled asphalt. E. Lynch. il Pub Works 94:114-16 D '63

Rubber mixtures

Elasticity of rubber-bitumen binders for use in roads. J. de Merlier and others. bibliog il diags Rubber Chem & Tech 37:457-76 Ap '64

ROADS, Bituminous concrete

560,000 tons of hot-mix in 13 weeks; Atlantic City expressway. il Roads & Sts 107:84+ Ag '64

Mississippi builds super-smooth pavement. Pub Works 95:146-7 Ag '64

Oregon sets the pace on the interstate. C. S. Larson. il diag Civil Eng 34:32-3 Ap '64

Ribbon cutting spotlights fast expressway construction. il Roads & Sts 107:52-5+ Ja '64

Study points way to better asphalt lane joints. diags Roads & Sts 107:128-9 Ap '64

See also

National bituminous concrete association

ROADS, Concrete

Insulate pavement to prevent frost heave. il Eng N 172:38 Je 25 '64

See also

Pavements, Concrete

Roads, Bituminous concrete

Construction

Central mixing of paving concrete. G. Maxon and A. E. Miller. diags Roads & Sts 107: 36-7+ Jl '64

Concrete construction techniques on British project; Newark by-pass; abstract. Pub Works 95:158+ S '64

Contractors speed Beltway paving. il map Eng N 172:32-3 Je 11 '64

Four 34Es abreast pave on narrow fill platform. il diags Roads & Sts 107:74-8 Je '64

General Motors builds a circular, high-speed test track of concrete. il diag Eng N 172: 68-9 My 21 '64

Laying a three lane roadway in one pass. il diag Engineering 198:243 Ag 21 '64

Machines simplify placing of continuous reinforcing. il Eng N 172:20-1 Ja 9 '64

New developments in concrete road construction; illustrations with text. Engineer 217: 96 Ja 10 '64

Paving interstate 80 in the Sierra Nevada. A. S. Hart. il map diag Civil Eng 33:62-4 N '63

Preston-Lancaster motorway. il diag Engineer 218:123-5 Jl 24 '64

Retarding agent helped pave in hot, dry wind. il Roads & Sts 107:86+ Ap '64

Road building faster by concrete train. il diag Engineering 198:120 Jl 24 '64

Sand-cement and sand-asphalt conserve aggregates and money; Wisconsin state highway. il Eng N 172:32-4 Ja 30 '64

Special rigs speed continuous-steel paving. il Roads & Sts 107:68-9+ Ap '64

Two-course reinforced concrete pavement built without forms. il Eng N 173:38-40 S 10 '64

Welded mats replace hand tying. il Eng N 172:104 F 13 '64

Construction equipment

Efficiency trio on freeway paving job. il Roads & Sts 107:41-4+ Ja '64

Fine grade, pave in one pass with Koehring's experimental slipform paver. il Eng N 172:25 Ja 2 '64

Mobile boom-up units cut fabric handling cost. il Roads & Sts 107:40-1+ Mr '64

Mobile plant mixes 500 cu yd per hour. il Eng N 172:107 My 21 '64

What's new in concrete paving. E. C. Lokken. il Civil Eng 34:54-7 Mr '64

Joints

Machines form joints in pavement. il Eng N 173:44 N 5 '64

Sealing pavement edge joints. F. C. Staib. il Pub Works 95:127-8 Je '64

Sealing the joint between concrete slab and bituminous shoulder. S. F. Cryderman and W. A. Weinbrauck. il Pub Works 95:116-17 S '64

Tandem diamond saws kept pace on record job. il Roads & Sts 107:63 Je '64

Tandem saws speed joint cutting. il Eng N 172:36 F 6 '64

Maintenance and repair

Effect of linseed oil coatings on resistance of concrete to scaling. W. E. Grieb and R. Appleton. il Pub Roads 33:1-4 Ap '64

ROADS, County

Push button programming for the county engineer. il Pub Works 94:97-8 D '63

ROADS, Elevated

Bored 'n poured piles, Texas style. il Roads & Sts 107:60-1+ Mr '64

Britons go for three-level traffic segregation. Eng N 172:35 F 6 '64

Elevated road opened in north London. il Engineering 197:229 F 7 '64

ROADS, Elevated—*Continued*

Etudes sur différents genres de glissières de sécurité boulevard Métropolitain Montréal. G. G. Henault. il diags Eng J 46:21-7; Discussion. 40. 62 D '63

For a motorway viaduct; a steel spine. il plan diag Engineering 198:151-2 Jl 31 '64

New piers for old while deck raised on blocks. il diags Roads & Sts 107:48-9+ Jl '64

1¾ mile motorway viaduct nears completion. il Engineering 198:465 O 9 '64

Pre-planning helped set big girders across track jungle. il plans Roads & Sts 107:52-5+ Je '64

Reusable forms solve pier variables. il Roads & Sts 107:64-7 F '64

Seattle viaduct redesigned using CMP. R. W. Morse and others. il diag Civil Eng 34:46-7 O '64

ROADS, Experimental

Circular track will test roads. il Eng N 171:185 D 19 '63

Road research in Great Britain; abstract. Pub Works 95:112+ N '64

ROADS, Military

Track-laying truck carries flexible metal road track in a coil on its back. il Eng N 172:51 Ap 16 '64

ROADS, Steel

Steel deck temporary road. il Engineer 217:1102 Je 19 '64

ROADS, Toll. See Toll roads

ROADSIDE planting

Check list for planting and maintaining highway slopes. Pub Works 95:186 Ap '64

Roadside planting in California. W. L. Warren. il Civil Eng 34:67-9 Ag '64

ROADSIDES

Big mower provides better service at less cost. il Pub Works 95:97 F '64

Chemical control of vegetation on roads overseas. K. E. Clare. bibliog il Chem & Ind p215-22 F 8 '64

Equipment needs changing for interstate highway mowing. J. E. Bell. S A E J 72:89 N '64

Establishing slope vegetation. E. F. Button. il Pub Works 95:73-5 Ja '64

Landscape development and maintenance for traffic safety. E. C. Eckert. il Pub Works 95:106-8 Ap '64

Priority needs in highway research. K. A. Stonex. bibliog il Pub Works 95:113-15 Ap '64

Reach out and cut! H. McCutchen. il Pub Works 95:91-2 Jl '64

Rotary mower has a long reach. il Eng N 172:37 Ja 9 '64

Safe mechanical methods for vegetation control; abstract. J. E. Bell. Pub Works 95:144 Je '64

Turf management stretches maintenance dollars. W. L. Hottenstein. il Pub Works 95:76-9 Jl '64

ROBERTS, Marion Stanton

Memorial. R. L. Denham and K. L. Cockerham, jr. por Am Assn Pet Geologists Bul 48:1210-11 Jl '64

ROBOTS. See Automatons

ROCHESTER, New York

Architecture

Midtown Plaza promotes a building boom. il Arch Forum 121:8 Jl '64

ROCK drills

Does anyone have a Burleigh? il Eng & Min J 165:91 Mr '64

High-capacity remote control drill. il Coal Age 69:126 F '64

Loffland is drilling a 72-in., 3200-ft. shaft. il Eng & Min J 165:104 Ag '64

See also

Augers

Drills, Oil well

Noise

Noise suppression on rock drills. J. E. Gordon. Can Min & Met Bul 56:835-8 N '63

Rock drill noise; an approach. A. W. Wallace. diags Can Min & Met Bul 57:1038-41 O '64

Sound mufflers for pneumatic rock drills. il Product Eng 35:66 F 17 '64

ROCK dust

See also

Mine dust

ROCK dusting. See Coal mines and mining—Rock dusting

ROCK phosphate. See Phosphate rock

ROCK products

See also

Aggregates

Storage

Storage area measurements; tabulations. C. W. Matthews. diag Rock Prod 67:56 Je; 46 Ag; 62 S '64

Transportation

Unit trains round the bend. il Rock Prod 67:132 My '64

ROCK products industry

B. K. Powers looks at the lightweight aggregate industry today; interview. Rock Prod 67:78-9+ O '64

New peaks of prosperity for rock producers. P. B. B. Andrews. il Rock Prod 67:52-6 Ja '64

1964 forecast; special report. il Rock Prod 67:57-67 Ja '64

Review and forecast of the nonmetallic minerals industries; special report. il map Pit & Quarry 56:91-122 Ja '64

See also

Motor trucks in rock products industry

Exhibitions

NSGA-NRMCA-NCSA 1964 combined biennial show, Chicago, Feb. 24-27; list of exhibitors and floor plan. Pit & Quarry 56:136-9 Ja '64

1964 Biennial exposition of the NSGA, NRMCA and NCSA, Chicago, Feb. 24-27; list of exhibitors and equipment on display. Rock Prod 67:68-76+ Ja '64

Finance

How to stretch your working capital. L. L. Kohn. Rock Prod 67:125-6+ My '64

Industrial mineral investment; fact and fantasy. R. M. Dreyer. Pit & Quarry 57:133+ O '64

Need to boost your balance sheet out of the doldrums? E. W. Stearn. Rock Prod 67:68-9+ S '64

Laws and regulations

Civil rights; eternal battlefield; interview with Herbert Hill. E. W. Stearn. Rock Prod 67:52-7 Ag '64

Legal decisions. L. T. Parker. Published in monthly numbers of Pit and quarry

Overtime penalty bill; interview. E. W. Stearn. Rock Prod 67:99-102+ My '64

Taxation

Need to boost your balance sheet out of the doldrums? E. W. Stearn. Rock Prod 67:68-9+ S '64

Worried about income tax filing? perhaps you should be. H. J. Ashe. Pit & Quarry 57:131-2 O '64

Your 1963 income tax return. H. J. Ashe. Pit & Quarry 56:151-4 Ja '64

Bermuda

Bermuda's beauty based on coral rock. W. E. Trauffer. il Pit & Quarry 56:137-8+ Ap '64

Denmark

Danish lightweight aggregate sweeps Europe. R. Ironman. il diag Rock Prod 67:82+ O '64

ROCK products plants

Galloway limestone co. B. C. Herod. il Pit & Quarry 56:131-3 My '64

Control equipment

Automated gravel plant adds tv. il Rock Prod 67:96+ F '64

Automatic crusher control means no human errors. J. E. Doyen. flow diags diag Rock Prod 67:64-6 S '64

Electric equipment

Electrical safety machinery control switches. Pit & Quarry 57:105-6 S '64

You can predict electrical equipment failures. R. W. Inman. il diags Rock Prod 67:87-9 Je '64

Employees

Civil rights; eternal battlefield; interview with Herbert Hill. E. W. Stearn. Rock Prod 67:52-7 Ag '64

Ever-expanding field of fringe benefits. E. W. Stearn. Rock Prod 66:73-4+ D '63

Head off employee grumbling about underwithholding of income taxes. H. J. Ashe. Pit & Quarry 57:126 S '64

Labor developments. S. H. Unterberger. Published in monthly numbers of Pit and quarry

Shop training at B. R. DeWitt, inc. assures supply of qualified mechanics. R. Dyment. il Pit & Quarry 57:70-1 Jl '64

ROCK products plants—*Continued*

Equipment

All about screw conveyors. J. D. Bush. diags Rock Prod 67:67-71+ Jl '64

Alnore mineral co. provides specialized grinding service. B. C. Herod. il Pit & Quarry 56:90-1+ Je '64

Art of recuperative cooling. W. G. Bauer. diags Pit & Quarry 56:164-6+ My; 110-12+ Je; 57:66-9+ Jl '64

Boosting screening capacity within existing floorspace. diags Pit & Quarry 56:141-2 Ap '64

Compact plant processes coral rock. R. J. Mitchell. il diag Rock Prod 67:70-1 Je '64

Craighead Limestone's Tennessee agstone plant. W. E. Trauffer. il Pit & Quarry 56:115-18 Mr '64

Crushed granite blending installation in British plant. il Pit & Quarry 56:105+ N '63

Crushed stone plant increases facilities to meet stringent specifications; Dolese bros. Oklahoma plant. S. Levine. il Rock Prod 67:92-5 S '64

Crushing roundup. R. J. Mitchell. il diags Rock Prod 67:59-92 Mr '64

Davon, inc. operates two adjacent quarries and plants. W. E. Trauffer. il Pit & Quarry 57:84-8+ Ag '64

Eastern Rock Products adds new plant. B. C. Herod. flow diag il Pit & Quarry 56:118-22+ D '63

Expanded shale production climbs at Kenlite. il diags Rock Prod 67:78-82 F '64

Georgia marble company's new Adams, Mass., plant. W. E. Trauffer. il Pit & Quarry 57:106-8+ O '64

Hints and helps; profit-making ideas developed by operating men. Published in monthly numbers of Rock products

How to increase screening capacity in limited areas. diags Rock Prod 67:57 Ap '64

Industry leader adds to market service; American aggregates corp. B. C. Herod. flow diag il diag Pit & Quarry 56:118-23 F '64

Is a roller mill the answer to your grinding problem? E. J. Karges. diags Rock Prod 67:82-4 S '64

Minimum stockpiling equals maximum savings for American Aggregates' South Springfield, Ohio plant. S. Levine. flow sheet il diag Rock Prod 67:82-5 Ap '64

New American Agricultural Chemical phosphate washer features two major operating improvements. W. E. Trauffer. flow diag il Pit & Quarry 56:108-9+ F '64

New machinery. Published in monthly numbers of Rock products

New machinery and equipment. Published in monthly numbers of Pit and quarry

New plant of Acton limestone quarries, ltd. of Toronto. W. E. Trauffer. il plan Pit & Quarry 56:76-84+ N '63

New radial stockpiling system; Asbury rock products co. R. S. Torgerson. il Rock Prod 66:78-9+ D '63

New super-lightweight aggregate yields high-strength concrete. H. F. Utley. il Pit & Quarry 56:160-1+ My '64

New Virginia crushed stone plant. W. E. Trauffer. il diags Pit & Quarry 57:88-90+ O '64

Pace-setting Oklahoma crushing plant. flow diag il Rock Prod 67:108-10 My '64

Pipe system squelches noxious fumes from kiln stacks; McNear co. il Rock Prod 66:95 D '63

Plowing up profits in Florida's soft rock valley. A. J. Kent. il Rock Prod 67:97+ Ap '64

Prolonging the life of your equipment. E. W. Fair. Rock Prod 67:138+ My '64

Racing conveyors, barges form speed-bridge between Kosmos Portland's quarry and plant. il Rock Prod 66:66-8 N '63

Road contractor adds crushed stone plant, then agstone and pulverizing setup; Hodges and co. W. E. Trauffer. il Pit & Quarry 56:145-7 My '64

St Eustache quarries ltd., operates outstanding crushed stone plant. W. E. Trauffer. il Pit & Quarry 57:123-5+ S '64

Screening roundup. J. H. Bergstrom. il diags Rock Prod 66:69-103 N '63

Separate plants supplying 150,000,000 cu. yd. of aggregate for new California dams. H. F. Utley. il Pit & Quarry 56:132-5+ Ap '64

Stockbridge Stone's fourth plant in Atlanta area. W. E. Trauffer. flow diag il plan Pit & Quarry 56:78-83+ D '63

Superior's Pomona, N.C., crushed granite plant. W. E. Trauffer. il diags Pit & Quarry 56:84-9+ Je '64

Television comes of age in the lime and cement industries. P. L. Gantt. il diag Rock Prod 67:99-100+ S '64

Tucson Rock grows with the growing Southwest. R. S. Torgerson. il diag Rock Prod 67:64-6 Jl '64

Turn waste into sales. il Rock Prod 67:121-2 My '64

Tyrone Rock captures an expanding market. R. J. Mitchell. il diag Rock Prod 67:76-9 Jl '64

Underground operations supply cement mill stone; Marquette's West Virginia mine. B. C. Herod. il Pit & Quarry 56:106-10+ Mr '64

Unique stone plant designed around conveyors and surge piles. il diag Roads & Sts 107:48-53 Ag '64

Varied markets readily served by expanded carbon limestone operations. B. C. Herod. il Pit & Quarry 57:76-81 Jl '64

What you should know about feeders; special report. S. Levine. il diags Rock Prod 67:61-73+ Ag '64

When should you think about shaft-mounted drives? C. W. Dorman. il diags Pit & Quarry 56:129-30 Ja '64

Wyandot Dolomite turns on the heat to beat a screen blinding problem. il Rock Prod 67:90-1 Je '64

Maintenance and repair

Lube survey racks up big savings. il Rock Prod 67:86+ O '64

Maintenance costs slashed with automatic welder. R. S. Torgerson. il Rock Prod 67:78-9 Je '64

Management

Bradford Hills Quarry keeps a close eye on cost by using meticulous record-keeping system. flow sheet il Rock Prod 67:66-8+ F '64

Don't invite insolvency; protect your capital base! H. J. Ashe. Pit & Quarry 56:121-2 Je '64

Electronic dispatching cuts loading time. il Pit & Quarry 57:72+ Jl '64

I went into receivership because. H. J. Ashe. Pit & Quarry 57:111-13 Ag '64

Managing and motivating for safety. C. F. Schlueter. Pit & Quarry 57:95-7+ Ag '64

Study courses air quarry management. B. G. Fish. il Pit & Quarry 57:89-92 Ag '64

Safety measures

Managing and motivating for safety. C. F. Schlueter. Pit & Quarry 57:95-7+ Ag '64

Safety achievement awards won by 32 operations in 1962 NLA competition. Pit & Quarry 56:97 D '63

What's new in safety equipment for the rock products industry. il Rock Prod 67:53 O '64

Winners announced for six groups in 1962-63 NSGA safety contest. Pit & Quarry 56:147-8 Ja '64

ROCK salt. See Salt

ROCK wool. See Mineral wool

ROCKET engines

Apollo's propulsion system. il Product Eng 35:54 My 11 '64

Arcjet engine performance; experiment and theory. R. R. John and others. bibliog il diags AIAA J 1:2517-25 N '63

Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63

Driving mechanism for high frequency combustion instability in liquid fuel rocket engines. P. D. McCormack. bibliog il Roy Aeronautical Soc J 68:633-7 S '64

Dual electric-nuclear engine. M. Levoy. bibliog diags AIAA J 1:298-302, 2676 Je, N '63

Engineering and the national space program. E. N. Hall. Astronautics & Aeronautics 2:74-8 Ja '64

GM researchers using rocket engine to test crosswind stability of car. Automotive Ind 129:97 D 15 '63

Hybrid propulsion. D. D. Ordahl. bibliog il diags Space/Aeronautics 41:108-13 Ap '64

Launch vehicles and missiles. M. W. Hunter, 2d and others. il Astronautics & Aerospace Eng 1:46-53 N 63

Lewis type bombardment ion engine; d.c. and pulsed operation. H. J. King and B. S. Quintal. il diag AIAA J 1:2661-3 N '63

Plasma behavior in an oscillating-electron ion engine. J. W. Davis and others. bibliog diag AIAA J 1:2497-504 N '63

Propulsion; liquid rockets. R. Beichel. diags Space/Aeronautics 42 no 4:39-43 '64-65

Propulsion; solid rockets. E. Kirchner. Space/Aeronautics 42 no4:44-7 '64-65

ROCKET engines—*Continued*

Rocket motor for engineering schools. il diag Engineering 196:628 N 15 '63

Rocket system for space tugs. il Engineering 197:495 Ap 3 '64

Rubber liner insulates rocket. Chem Eng 71:88 My 25 '64

Shipyard uses jet rockets to slow a launching. il Marine Eng/Log 68:32A D '63

Solar-hydrogen rocket passes first tests. il Machine Design 35:6+ N 21 '63

Theory of low-frequency combustion instability in solid rocket motors. R. Sehgal and L. Strand. bibliog diags AIAA J 2:696-702 Ap '64

Control

Hydraulic controls for gimbaling Saturn V engines. R. F. Church and J. Hadel. diags Hydraulics & Pneumatics 16:72-4 D '63

Solid-propellant rockets getting easier to control. Chem Eng 71:26 Ag 31 '64

Sonic combustion control. I. Elias. bibliog diags Sound 2:8-12 N '63

Cooling

Cooling solid rocket nozzles. S. E. Colucci. diags Chem Eng Prog 60:52-4 F '64

Effects of selected gas stream parameters and coolant properties on liquid film cooling. C. F. Warner and D. L. Emmons. bibliog diags A S M E Trans ser C 86:271-8 My '64

Liquid propellant rocket motor has integral cooling passages. S. Fialkoff and others. il diag Space/Aeronautics 42:67-8 O '64

Optimum geometric factors for semicircular fins in radiation-cooled nozzles. R. Jaroudi and D. E. Heard. diag AIAA J 2:146-8 Ja '64; Correction. 2:1168 Je '64

Radiation cooling. C. D. Coulbert. il Chem Eng Prog 60:48-50 F '64

Regenerative cooling. J. D. Seader and W. R. Wagner. diags Chem Eng Prog 60:50-2 F '64

Transpiration and film cooling combined with external cooling. E. Mayer and D. Divoky. bibliog AIAA J 2:578-80 Mr '64

Design

Approximate method for plug nozzle design. G. Angelino. diags AIAA J 2:1834-5 O '64

Backside temperatures of an internal insulator in a solid-propellant motor. J. W. Kordig. diag AIAA J 2:1475-6 Ag '64

British rocket research. il Engineer 217:1023-5 Je 12 '64

Correlation of motor and strand composite propellant burning rate. L. E. Herrington. AIAA J 2:1671-3 S '64

High-energy rocket engines. il diags Engineer 218:364-6, 415-17 S 4-11 '64; Discussion. 218:510, 763 S 25, N 6 '64

Liquid engines for advanced launch vehicles. H. Burlage, jr. il diags Astronautics & Aeronautics 2:42-8 Jl '64

Natural frequencies of meridional vibration in thin conical shells. R. E. Keeffe. diag AIAA J 2:1825-7 O '64

Pressure gradients in a liquid propellant rocket motor. W. T. Peschke and S. S. Hammer. AIAA J 2:1467-9 Ag '64

Saturn propulsion improvements. B. K. Heusinger. il diags Astronautics & Aeronautics 2:20-5 Ag '64

Solving mechanical problems in ion-engine design. R. A. Terselic. diags Space/Aeronautics 41:116-18+ Ap '64

Staying up-to-date in rocket research. il Engineering 197:842-3 Je 19 '64

Time for a totally wetting liquid to deform from a gravity-dominated to a nulled-gravity equilibrium state. H. L. Paynter. bibliog diags AIAA J 2:1627-30 S '64

Velocity effects in transverse mode liquid propellant rocket combustion instability. F. H. Reardon and others. bibliog diags AIAA J 2:1631-41 S '64

Exhaust

Chemical kinetic analysis of rocket exhaust temperature measurements. F. P. Boynton. AIAA J 2:577-8 Mr '64

Exact kinetic and approximate nozzle recombination losses. D. Migdal and A. Goldford. bibliog AIAA J 2:1457-8 Ag '64

Exhaust gas pictures. il Electronics 37:51-2 Mr 6 '64

Flow field of an exhaust plume impinging on a simulated lunar surface. D. W. Eastman and L. P. Radtke. diag AIAA J 1:1430-1 Je '63; Discussion. L. Roberts and J. C. South, jr. 2:971-4 My '64

Normal shock location in underexpanded gas and gas-particle jets. C. H. Lewis, jr. and D. J. Carlson. bibliog il AIAA J 2:776-7 Ap '64

Nozzle contours for minimum particle-lag loss. F. E. Marble. AIAA J 1:2793-801 D '63

Particle damping of a plane acoustic wave in solid propellant combustion gases. D. W. Blair. bibliog AIAA J 1:2625-6 N '63

Rapid estimation of the far-field in an axisymmetric compressible jet. R. S. Rosler. AIAA J 2:1489-91 Ag '64

Technique for the experimental determination of the electrical conductivity of plasmas. D. D. Hollister. bibliog diags AIAA J 2:1568-71 S '64

Vernier exhaust perturbations on radar and altimeter systems during a lunar landing. P. Molmud. bibliog diag AIAA J 1:2816-19 D '63

Failure

Ion engine reliability as affected by corrosion of materials. P. M. Winslow. il AIAA J 2:42-5 Ja '64

Low pressure rocket extinction. F. A. Anderson and others. bibliog diags AIAA J 1:2668-71 N '63

Optimization of system reliability. D. H. Silvern. AIAA J 1:2872-3 D '63

Relation of mechanical properties to solid rocket motor failure. K. W. Bills, jr. and J. H. Wiegand. bibliog il diags AIAA J 1:2116-23 S '63; Same. Rubber Chem & Tech 37:524-41 Ap '64

Surface strains in case-bonded models of rocket motors. D. J. Bynum and others. bibliog il diags AIAA J 2:343-7 F '64

Fuel consumption

Minimum fuel control of a second-order linear process with a constraint on time-to-run. H. O. Ladd, jr. and B. Friedland. bibliog diags A S M E Trans ser D 86:160-8 Mr '64

Orbital transfer with minimum fuel. W. E. Bleick and F. D. Faulkner. AIAA J 2:113-15 Ja '64

Fuel feeding

Calculated temperature histories of vaporizing droplets to the critical point. P. R. Wieber. bibliog AIAA J 1:2764-70 D '63

Design comments and experimental results for cavitation-resistant inducers up to 40,000 suction specific speed. M. K. Wright. il diags A S M E Trans ser A 86:176-80 Ap '64

Explosive forming of thin-wall tubing. T. W. Black. il diags Tool & Manuf Eng 53:59-61 S '64

Floturn makes fuel lines for Saturn. il Tool & Manuf Eng 52:77 F '64

High pressure fluid control in aircraft. il Engineering 198:265 Ag 28 '64

In-line power pack on X-15 rocket plane. il diag Hydraulics & Pneumatics 17:127-8 S '64

Mechanism of head breakdown in cavitating inducers. J. K. Jakobsen. bibliog diags A S M E Trans ser D 86:291-305 Je '64

Moon stroller. il diags Product Eng 35:79-80 Je 22 '64

New machine shear spins long missile fuel tubes. il Steel 153:47+ D 9 '63

Positive expulsion devices. J. Green and others. Chem Eng Prog 60:60-1 F '64

Rolls shear-form giant tubes. il Iron Age 192:89-91 D 12 '63

Silver brazing for spacecraft fuel lines. il Welding J 43:46-7 Ja '64

Stainless tubes 100 feet long. il Am Mach/Metalworking Manuf 107:88-9 D 9 '63

Manufacture

Development of weld fabrication techniques for the S-IC Saturn V vehicle. D. M. Daley, jr. and D. C. Jefferys. il Welding J 43:34-41 Ja '64

Fabricating titanium for aerospace applications. L. M. Limbach. il Mod Metals 20:53-4 S '64

Filament wound glass reinforced staves for large rocket cases. A. Hegarty. Brit Plastics 37:196 Ap '64

Hobbed buttress thread holds closure on rocket motor case. L. W. Collins, jr. il diag Mach 70:93-5 Ag '64

How to weld Ti-6Al-4V rocket cases. G. L. Vonnegut and others. il diags Metal Prog 86:119-23 S '64

Manufacturing solid rockets; Thiokol space booster div. il Product Eng 35:49-50 Je 8 '64

Producing motor cases for the Titan III-C. il Metal Prog 85:122 F '64

ROCKET engines—Manufacture—*Continued*

Review and comparison of alloys for future solid-propellant rocket-motor cases; abstract. Metal Prog 85:184+ Je '64

Rocket blastoff depends on welded motor cases. il Welding Eng 49:46-8 My '64

Rocket engine manufacture; illustrations with text. Engineer 218:416-17 S 11 '64

Rocket motor case facility goes on stream in record time. il Mach 70:130 D '63

Rocket nozzle manufacturing requires huge equipment and unusual techniques. R. A. Whitaker. il diag Mach 70:79-83 Ag '64

Ten ft rockets now on production line. Steel 155:155-6 O 12 '64

Three I's tool Titan cases; ingenuity, interchangeability, and inspection. il Am Mach/Metalworking Manuf 107:78-9 N 25 '63

Two new insulations for rocket motors developed. il Steel 153:33 D 16 '63

Welding from the inside out. il diag Am Mach 108:60-1 My 25 '64

Noise

Acoustic absorption coefficients of combustion gases. D. W. Blair and others. AIAA J 2:392-3 F '64

Combustion instability in solid propellant rockets; AIAA conference, Palo Alto, Calif., Jan. 29-31; texts of papers. bibliog il diags AIAA J 2:1100-34, 1270-306 Je-Jl '64

How much noise can people take? diag Safety Maint 127:47-8 Je '64

Meteorological focusing of acoustic energy. R. N. Tedrick. bibliog diags Sound 2:24-7 N '63

Statistical methods in vibration analysis. R. H. Lyon and G. Maidanik. bibliog diags AIAA J 2:1015-24 Je '64

Testing

Acoustic verification of structural integrity of Polaris chambers. A. T. Green and others. il diags Mod Plastics 41:137-9+ Jl '64

Air conditioning a nuclear rocket engine testing facility. A. R. Jahelka and N. Zamuner. flow diags il diags Air Cond Heat & Ven 60:81-90 N '63

Experimental results in high-specific-impulse thermo-ionic acceleration. A. C. Ducati and others. diag AIAA J 2:1452-4 Ag '64

Full-size solid rocket passes first test. il Machine Design 36:12 Je 18 '64

Gemini engines given tests in near vacuum. Steel 153:75 N 11 '63

Glass-fiber motor cases test out stronger than expected. il Machine Design 36:12 Jl 30 '64

Ground and flight testing. B. H. Goethert. il Astronautics & Aerospace Eng 1:54-62 N '63

Massive weight holds rockets down for testing. il Product Eng 35:51 Ag 31 '64

Saturn propulsion improvements. B. K. Heusinger. il diags Astronautics & Aeronautics 2:20-5 Ag '64

Sea Horse, scaled-down rocket begins underwater firings. il Machine Design 35:6 D 19 '63

Solid-propellant technology; new dimensions. il Chem & Eng N 42:50-3 S 28 '64

SERT-1 experiment proves ion engines will work in space. diags Machine Design 36:10 Jl 30 '64

Statistical design and analysis of qualification test program for a small rocket engine. S. R. Wood and D. E. Hartvigsen. bibliog Ind Quality Control 20:14-18 Je '64

Surface effects in a pulsed plasma accelerator. W. J. Guman and W. Truglio. il AIAA J 2:1342-3 Jl '64

Surface strains in case-bonded models of rocket motors. D. J. Bynum and others. bibliog il diags AIAA J 2:343-7 F '64

Test system uses beta ray, microwave, and corona devices. il Automation 11:80 Jl '64

Underground silo for rocket tests built by caisson method. il Eng N 172:70-2 My 21 '64

Thrust control

Designing a 5500 F gas valve. J. T. Herbert. il diags Hydraulics & Pneumatics 17:81-4 Ag '64

Electronic controls for aerospace propulsion. C. B. Brahm. il diags Astronautics & Aeronautics 2:44-9 Ap '64

Experimental evaluation of plug cluster nozzles. D. Migdal and others. diag AIAA J 2:1325-7 Jl '64

Hot-gas valve passes flow-control tests. il Machine Design 36:10 My 21 '64

Integral approach to an approximate analysis of thrust vector control by secondary injection. K. Karamcheti and H. T. S. Hsia. diags AIAA J 1:2538-44 N '63; Discussion. W. Simon. 2:1358-9 Jl '64

Large facility checks out rocket booster injector valves. R. D. Witter. il diags Control Eng 11:111 Je '64

Optimal variable-thrust transfer of a power-limited rocket between neighboring circular orbits. F. W. Gobetz. bibliog diags AIAA J 2:339-43 F '64

Radiation cooling. C. D. Coulbert. il Chem Eng Prog 60:48-50 F '64

Regenerative cooling. J. D. Seader and W. R. Wagner. diags Chem Eng Prog 60:50-2 F '64

Secondary injection of gases into a supersonic flow. E. E. Zukoski and F. W. Spaid. bibliog il diags AIAA J 2:1689-96 O '64

Thrust effectiveness of oxidizer injection in a convergent-divergent nozzle. G. R. Hall. diag AIAA J 2:1434-6 Ag '64

Toward the variable-thrust liquid-rocket engine. D. E. Welton and others. diag Astronautics & Aerospace Eng 1:77-81 D '63

ROCKET propulsion

Aerospace in perspective; advanced research. il diags Space/Aeronautics 41:156-9+ Ja '64

Colloidal electrohydrodynamic energy converter. A. L. Cox. bibliog il diags AIAA J 1:2491-7 N '63

Comparison of commercial, spherical powder, and wire bundle tungsten ionizers. G. Kuskevics and B. L. Thompson. bibliog il diags AIAA J 2:284-94 F '64

Computer experiments on ion-beam neutralization with initially cold electrons. D. A. Dunn and I. T. Ho. bibliog diags AIAA J 1:2770-7 D '63

Computer simulation of the electron mixing mechanism in ion propulsion. O. Buneman and G. Kooyers. bibliog diags AIAA J 1:2525-8 N '63

Current distributions in large-radius pinch discharges. R. G. Jahn and W. von Jaskowsky. il diag AIAA J 2:1749-53 O '64

Electric propulsion. R. G. Jahn. bibliog il diags Am Scientist 52:207-17 Je '64

Electric propulsion. W. R. Mickelsen. Space/Aeronautics 42 no 4:50-3 '64-65

Electric propulsion; an introduction. G. F. Watson. bibliog il diags Electro-Tech 73:39-43+ Ap '64

Electric propulsion characteristics of a pulsed plasma rail accelerator. D. H. Winicur. bibliog AIAA J 2:1673-5 S '64

Electric propulsion, 1964. E. Stuhlinger. bibliog diags Astronautics & Aeronautics 2:26-31 Ag '64

Electrical propulsion for space travel. il Mech Eng 86:61 My '64

Evaluation and analysis of thrust units for power-limited propulsion systems. R. D. Shelton and others. AIAA J 2:682-5 Ap '64

Experiments with an electron cyclotron resonance plasma accelerator. D. B. Miller and E. F. Gibbons. bibliog diags AIAA J 2:35-41 Ja '64

Formation of ion beams from plasma sources. J. Hyman, jr. and others. bibliog il diags AIAA J 2:1739-48 O '64 (to be cont)

Getting about in space; Modular maneuvering unit. il Product Eng 35:57 S 28 '64

Hall current plasma accelerator. G. L. Cann and G. L. Marlotte. bibliog diag AIAA J 2:1234-41 Jl '64

Hot-wire calorimeter study of ion production and acceleration. V. A. Sandborn and L. V. Baldwin. bibliog diags AIAA J 2:660-6 Ap '64

Impulse bit in pulsed rockets. V. D. Agosta and G. Kraus. Chem Eng Prog 60:38-40 F '64

International conference on electron and ion beam science and technology, Toronto, May 4-7; abstracts of papers. J Metals 16:659-61 Ag '64

Investigation of Hall propulsor characteristics. H. E. Brandmaier and others. bibliog diags AIAA J 2:674-81 Ap '64

Ion engines. diag Product Eng 35:75 Ag 3 '64

MGD space propulsion system for lunar missions. F. Spindler and K. Wang. AIAA J 2:152-3 Ja '64

MX-324; step to manned rocket flight. il Astronautics & Aeronautics 2:55 O '64

Metals burning nitrogen; atmosphere of the planet Mars should be considered for propulsion purposes. J. Q. Weber and K. H. Mueller. Chem Eng Prog 60:40-1 F '64

Minimum-length MHD accelerator with constant enthalpy and magnetic field. H. Mirels and others. AIAA J 2:1141-3 Je '64

ROCKET propulsion—*Continued*

New hot electron propulsion technique. Franklin Inst J 277:373-4 Ap '64

Photomicrography of electrically sprayed heavy particles. C. D. Hendricks, jr. and others. bibliog il diags AIAA J 2:733-7 Ap '64

Plasma propulsion for spacecraft. il Product Eng 35:29 Mr 2 '64

Plasma-vehicle interaction in a plasma stream. D. F. Hall and others. bibliog diags AIAA J 2:1032-9 Je '64

Propulsion application of the modified Penning arc plasma ejector. W. D. Kilpatrick and others. bibliog il diags AIAA J 1:806-13 Ap '63; Discussion. E. A. Pinsley and others. 2:401-3 F '64

Pulsed electromagnetic acceleration of metal plasmas. T. L. Rosebrock and others. bibliog il diags AIAA J 2:328-34 F '64

Push-producing electrons bounce out of space engine. il Machine Design 36:6 F 27 '64

Recent results of studies of the traveling wave pump. E. E. Covert and others. bibliog diag AIAA J 2:1040-6 Je '64

Rocket recombination losses. R. R. Koppang and others. Chem Eng Prog 60:41-3 F '64

Semitoroidal reflex discharge as a propulsion device. D. Pigache. bibliog diag AIAA J 2:1332-3 Jl '64

Space power system; state of the art, 1963. J. M. Teem and G. C. Szego. Astronautics & Aerospace Eng 1:98-103 N '63

Third stage of European launcher development organization. R. Gaedke. Engineer 218:578-9 O 9 '64

Zero thrust velocity vector control for interstellar probes: Lorentz force navigation and circling. R. L. Forward. bibliog diag AIAA J 2:885-9 My '64

See also

Rockets, Atomic powered

ROCKET sleds

Sled separation tests. Franklin Inst J 276:456 N '63

Spike monorail sleds. Franklin Inst J 276:456-7 N '63

ROCKET trajectories. See Trajectories

ROCKETS

Analysis of the yawing motion of a rocket with a varying mass. W. J. Byrne, jr. and S. Raynor. AIAA J 2:962-3 My '64

Angular momentum equations for a swivel-nozzle rocket. H. W. Butler. diag A S M E Trans ser E 31:355-6 Je '64

First stabilised Skylark launched. il Engineer 218:336 Ag 28 '64

Rocket travel, new air cargo methods explored. R. R. Kay. Iron Age 194:48 O 15 '64

Rockets; flight from danger. il Product Eng 35:61 Ag 17 '64

Saturns. B. Kovit. il diags Space/Aeronautics 42:40-52 Ag '64

U.S. boosters for aerospace projects; chart. Space/Aeronautics 41:88-9 Ja '64

See also

Satellites, Artificial
Space vehicles

Astronomical applications

X-ray astronomy. H. Friedman. il diags Sci Am 210:36-45 Je '64

Control

All-gas control directs rockets. J. Campagnuolo and L. M. Sieracki. il diag Control Eng 11:127+ O '64

Attitude control for sounding rockets. diag Space/Aeronautics 40:101+ N '63

Control through digital filtering by signal decomposition with application to highly elastic boosters. J. Zaborszky and others. bibliog diags IEEE Trans Applications & Ind p87-98 Mr '64

Fluid-flow flight control needs no electronics. W. J. Lewis. diags Space/Aeronautics 41:125+ Ap '64

New approach to steepest-ascent trajectory optimization. R. T. Stancil. bibliog diag AIAA J 2:1365-70 Ag '64

Optimal trajectories and linear control of nonlinear systems. A. H. Jazwinski. bibliog AIAA J 2:1371-9 Ag '64

Simple control directs free-flight rockets. V. Kerner and F. Doerr. diags Control Eng 11:99 Ja '64

Design

Mode shape effects on winged booster stability. R. L. Swaim. AIAA J 1:2840-2 D '63

Nexus concept. K. A. Ehricke and F. D'Vincent. il diags Astronautics & Aeronautics 2:18-23+ Ja '64

Redesigning the Saturn V/Apollo moon rocket. il diag Product Eng 35:59-60 Jl 20 '64

Relative variation of rocket vehicle specific impulse and structural weight fraction for constant burnout velocity. R. E. Forrette. AIAA J 2:188-9 Ja '64

Electronic equipment

Rocket aerial system. il Engineer 217:105 Ja 10 '64

Fuel tanks

Controlling the liquid-vapor interface under weightlessness. D. A. Petrash and E. W. Otto. diags Astronautics & Aeronautics 2:56-9+ Mr '64

Deformations and stresses in axially loaded and heated cylindrical shells. K. Fung and others. AIAA J 1:2654-5 N '63

Digital capacitance system for mass, volume, and level measurements of liquid propellants. R. L. Blanchard and A. E. Sherburne. il diags AIAA J 1:2590-6 N '63

Explosive forming Saturn V tank ends. il Am Mach 108:70-1 Ja 6 '64

Fluid-particle motion during rotary sloshing. R. E. Hutton. bibliog diags A S M E Trans ser E 31:123-30 Mr '64

Fuel containment in the gaseous-core nuclear rocket by MHD-driven vortices. J. B. Romero. bibliog diags AIAA J 2:1092-9 Je '64

How Martin makes honeycomb contours; fill it with wax, then blast it. il diags Steel 154:52-3 F 17 '64

Insulated storage controls helium pressure. diag Space/Aeronautics 40:94-5 N '63

Linearized analysis of the pressure waves in a tank undergoing an acceleration. F. E. Ehlers. AIAA J 2:110-12 Ja '64

Liquid sloshing in a cylindrical quarter tank. H. F. Bauer. bibliog diags AIAA J 1:2601-6 N '63

Liquid sloshing in a 45° sector compartmented cylindrical tank. H. F. Bauer. AIAA J 2:768-70 Ap '64

Milling waffle pattern in Saturn tank skins. H. D. Adams. il Mach 70:116-18 Mr '64

Oxidizer additive passes compatibility tests. il Machine Design 36:8 Ja 30 '64

Pressure variation in a tank undergoing an acceleration. R. C. Progelhof. diags AIAA J 2:1505-7 Ag '64

Semitoroidal tank. J. F. Blumrich. diags Astronautics & Aeronautics 2:64-8 F '64

Simplified calculation of the jet-damping effects. N. Rott and L. Pottsepp. diags AIAA J 2:764-6 Ap '64

Space-fuel gauge. Electronics 37:33 S 21 '64

Standard welding gear passes rocket test. il Steel 155:63 Jl 20 '64

Stratification in a pressurized container with sidewall heating. J. M. Ruder. bibliog diag AIAA J 2:135-7 Ja '64

Surface waves on a rotating fluid. R. Skalak and J. F. Conly. bibliog AIAA J 2:306-12 F '64

Launching

Activation of the Blue Streak launching site at Woomera and the first Blue Streak flight trial. C. R. Hume. il Roy Aeronautical Soc J 68:663-9 O '64

Advanced rocket concepts. P. Bono. il diags Mech Eng 86:21-5 Ja '64

Coning effects caused by separation of spin-stabilized stages. M. Dwork. diags AIAA J 1:2639-40 N '63; Discussion. R. O. Wilke. 2:1358 Jl '64

Maximum rendezvous launch window characteristics. S. Kass. diags AIAA J 2:580-2 Mr '64

Motion of a spinner rocket inside a smooth-bore launcher. W. J. Harrington and R. C. Bullock. bibliog diag Franklin Inst J 277:552-65 Je '64

Postbuckling behavior of orthotropic cylinders under axial compression. B. O. Almroth. bibliog AIAA J 2:1795-9 O '64

Sea Horse, scaled-down rocket begins underwater firings. il Machine Design 35:6 D 19 '63

Third stage of European launcher development organization. R. Gaedke. Engineer 218:578-9 O 9 '64

Timing of space separation studied in high-altitude chamber. il Space/Aeronautics 40:95-6 N '63

See also

Guided missiles—Launching
Satellites, Artificial—Launching

Manufacture

Electron beam welding of large structures. W. A. Wilson and others. il Metal Prog 85:84-7 Mr '64

High-energy-rate forming is a big producer at North American Aviation. il Mach 70:116-20 Jl '64

ROCKETS—Manufacture—*Continued*

Skate tool machines massive forming die. T. W. Black. il Tool & Manuf Eng 52:113-15 Ap '64

Stage for the Saturn; the tooling story. J. R. Franks. il Tool & Manuf Eng 53:51-2 Jl '64

Materials

Ablative cooling. M. M. Fein and others. diags Chem Eng Prog 60:54-6 F '64

Aerojet seeks better rocket case fibers. Steel 153:92-3 N 18 '63

Compatibility of cesium vapor with selected materials at temperatures to 1200 F; abstract. J. M. Lamberti and N. T. Saunders. Metal Prog 85:191-2 Mr '64

Forming 22′ aluminum panels. il Light Metal Age 21:5 O '63

Glass cases for the biggest solids. E. E. Morris. bibliog diags Astronautics & Aeronautics 2:28-36+ Jl '64

Impregnated tungsten for rocket nozzles. A. Eisenlohr. Metal Prog 85:94-5 Ap '64

New tungsten process produces tougher structural material. il Space/Aeronautics 40:97 D '63

Progress in high temperature technology; newer materials; symposium abstracts. Metal Prog 86:212+ Ag '64

Refractory coatings. N. A. Tiner. il Chem Eng Prog 60:56-8 F '64

Refractory metals. S. I. Bocarsly. Chem Eng Prog 60:58-60 F '64

Semiquantitative prediction of the erosion of graphite nozzle inserts. L. J. Delaney and others. bibliog AIAA J 2:1428-33 Ag '64

Thermal problems of ablative materials. R. Lurie and others. Chem Eng Prog 60:62-3 F '64

Plastics

Cheaper way to squeeze exit cones during cure. il Space/Aeronautics 41:86-7 F '64

Filament winding is coming of age. M. L. Chazottes. il diags Can Chem Process 48:90+ Ap '64

Glass-fiber pieces form large rocket-motor cases. il Machine Design 35:8 D 5 '63

Plastic materials. L. Isenberg. Chem Eng Prog 60:63-4 F '64

Meteorological use

Dynamic stratosphere. W. L. Webb. bibliog il Astronautics & Aeronautics 2:62-8 Mr '64

Meteorological rocket firings. Engineering 197:206 Ja 31 '64

Rocket soundings in the mesosphere. W. Nordberg. bibliog il maps diags Astronautics & Aeronautics 2:48-58 My '64

Models

Countdown in Colorado: Estes model rockets. G. R. Douthit. il Comp Air Mag 69:26 Je '64

Nose cones

Pararescuemen. B. Kofoed. il Comp Air Mag 69:22-3 O '64

Propellants

See Propellants

Recovery

Advanced rocket concepts. P. Bono. il diags Mech Eng 86:21-5 Ja '64

Aerospace in perspective; advanced research. il diags Space/Aeronautics 41:156-9+ Ja '64

Astro concept. M. W. Root and G. M. Fuller. il diags Astronautics & Aeronautics 2:42-9+ Ja '64

Effect of mass loss on the transient response of a shallow spherical sandwich shell. J. Tasi. bibliog diag AIAA J 2:58-63 Ja '64

Pararescuemen. B. Kofoed. il Comp Air Mag 69:22-3 O '64

Potential of recoverable booster systems for orbital logistics. R. A. Bailey and D. L. Kelly. diags Astronautics & Aeronautics 2:54-7+ Ja '64

Re-entry wake in an earth-fixed coordinate system. J. H. Klaimon. bibliog AIAA J 2:745-7 Ap '64

Rombus concept. P. Bono. bibliog il diags Astronautics & Aeronautics 2:28-34 Ja '64

Re-entry

See Rockets—Recovery

Testing

Activation of the Blue Streak launching site at Woomera and the first Blue Streak flight trial. C. R. Hume. il Roy Aeronautical Soc J 68:663-9 O '64

Blue Streak static firings: summary of progress October 1960 to October 1962. C. R. Hume. il diags Roy Aeronautical Soc J 68:35-44 Ja '64

Data acquisition system expects the unexpected. L. D. Shergalis. il diags Electronics 37:57-61 Je 1 '64

Space center houses test labs. il Eng N 171:22 N 21 '63

Strain gaging studs for Saturn. W. B. Cruise. il I S A J 10:70-1 D '63

Testing toward the moon; illustrations with text. E. J. Kompass. Control Eng 11:74-7 Ap '64

Tracking

Black Knight electronic flash installation for optical tracking. R. L. Aspden. il diag Electronic Eng 36:88-91 F '64

New twist in space tracking; the vehicle tracks the ground. J. A. Strasser. il diags Electronics 36:10-11 N 15 '63

Range and angle prediction tracking of objects with definable trajectories. T. T. Kumagai. diags AIAA J 2:557-9 Mr '64

Trajectories

See Trajectories

ROCKETS, Atomic powered

Aerospace in perspective; advanced research. il diags Space/Aeronautics 41:156-9+ Ja '64

Air conditioning a nuclear rocket engine testing facility. A. R. Jahelka and N. Zamuner. flow diags il diags Air Cond Heat & Ven 60:81-90 N '63

Atomic power; reactors for propulsion. C. E. Wise. il diags Machine Design 36:199-205 Ap 23 '64

Development of nuclear rocket propulsion in the United States. W. C. House. flow diags il Engineer 216:910-11 N 29 '63

Dual electric-nuclear engine. M. Levoy. bibliog diags AIAA J 1:1298-302, 2676 Je, N '63

Fuel containment in the gaseous-core nuclear rocket by MHD-driven vortices. J. B. Romero. bibliog diags AIAA J 2:1092-9 Je '64

Gaseous nuclear rocket with MHD vortex fuel containment. K. O. Kessey and R. A. Gross. AIAA J 2:1461-4 Ag '64

Magnetohydrodynamic species separation in a gaseous nuclear rocket. R. A. Gross and K. O. Kessey. bibliog diags AIAA J 2:295-301 F '64

Nuclear propulsion. R. H. Fox. diag Astronautics & Aerospace Eng 1:104-6 N '63

Nuclear rockets. J. E. Morrissey. il Space/Aeronautics 42 no 4:47-50 '64-65

Pneumatic fluid-power control for high temperature operation. N. Saslove. diag Space/Aeronautics 41:119+ Je '64

Progress in direct conversion of nuclear fission to electricity. il diags Space/Aeronautics 41:91-2+ My '64

Radionuclide power for space. H. L. Davis; F. Schulman. bibliog il diag Nucleonics 21:61-5 Mr; 56-9 Ap; 54-8 S '63

Rotating electrically conducting fluids in a long cylinder. K. O. Kessey. bibliog diags AIAA J 2:864-71 My '64

Sizing nuclear orbital launch vehicles for interplanetary missions. J. F. McLaughlin. bibliog il Astronautics & Aeronautics 2:70-6 F '64

Specific impulse of a liquid-core nuclear rocket. W. L. Barrett, jr. bibliog diags AIAA J 1:2649-50 N '63

ROCKS

Altitude, lithology, and the fall zone in Connecticut. R. F. Flint. bibliog maps diag J Geol 71:683-97 N '63

Block caving, nuclear style. D. D. Rabb. il diags Min Eng 16:48-52 Mr '64

Geological engineering. R. F. Goodman. bibliog il Min Eng 16:78-80 F '64

International conference on strata control and rock mechanics, 4th, New York; abstracts of papers. Eng & Min J 165:75-9 Jl '64

Magnetic anomalies due to prism-shaped bodies with arbitrary polarization. B. K. Bhattacharyya. diags Geophysics 29:517-31 Ag '64

Magnetic anomalies over thin sheets. M. S. Reford. bibliog diags Geophysics 29:532-6 Ag '64

Magnetic fabrics of certain rocks. M. D. Fuller. bibiog map diags J Geol 72:368-76 My '64

Magnetization of a rock containing magnetite and hemoilmenite. C. M. Carmichael. bibliog il diags Geophysics 29:87-92 F '64

Rock bolts stabilize cut slope. il Eng N 172:150 Mr 19 '64

Rock of British Columbia. il maps Min Eng 15:44-9 D '63

ROCKS—*Continued*

Rock stresses induced by block caving. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:401-3 Ap '64

Rock stresses induced by shrinkage stoping. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:506-8 My '64

Water recovery in lunar environment. R. N. Rickles. diags Space/Aeronautics 41:103+ Mr '64

See also

Folds (geology)
Geochemistry
Geology
Gneiss
Granite
Inclusions (mineralogy and petrology)
Laterite
Limestone
Metamorphism
Mineralogy
Quarries and quarrying
Sedimentation and deposition
Shale
Weathering (rocks)

Age

Age and composition of a Bounty Islands granite and age of a Seychelles Islands granite. G. J. Wasserburg and others. bibliog map J Geol 71:785-9 N '63

Age and stratigraphic implications of major fault in Llano region, central Texas. T. Freeman and G. L. Wilde. bibliog il maps diag Am Assn Pet Geologists Bul 48:714-18 My '64

Age-dating studies on Precambrian rocks at Jasper, Alberta. C. R. Evans and others. bibliog map Can Min & Met Bul 57:33-6 Ja '64

Age of basal mesozoic redbeds in north-central Texas. B. Watson. bibliog Am Assn Pet Geologists Bul 48:1726-7 O '64

Age of pyroxene-hornblende granitic gneiss of the eastern Adirondacks by the rubidium-strontium whole-rock method. A. Hills and P. W. Gast. bibliog maps Geol Soc Bul 75:759-66 Ag '64

Age of the Roberts Mountains formation (Silurian?) in the Great Basin. D. L. Clark and R. L. Ethington. bibliog maps Geol Soc Bul 75:677-82 Jl '64

Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64

Ages of zircon and feldspar concentrates from North American beach and river sands. D. Ledent and others. bibliog map J Geol 72:112-22 Ja '64

Cincinnati arch; mineralogical-statistical evidence of post-Ordovician origin. D. M. Scotford. bibliog diags Am Assn Pet Geologists Bul 48:427-36 Ap '64

Geochronologic studies in the eastern Mojave Desert, Calif. M. A. Lanphere. maps J Geol 72:381-99 bibliog(p398-9) Jl '64

Geologic significance of fluviodetrital glauconite. E. G. Wermund. bibliog maps J Geol 72:470-6 Jl '64

Influence of depth, temperature, and geologic age on porosity of quartzose sandstone. J. C. Maxwell. bibliog Am Assn Pet Geologists Bul 48:697-709 My '64

Paleogeographic reconstructions by absolute age determinations of sand particles. A. B. Vistelius. map J Geol 72:483-6 Jl '64

Petrology and isotopic-mineral age relations of a contact zone in the Front Range, Colo. S. R. Hart. bibliog maps J Geol 72:493-525 S '64

Potassium-argon age determinations of cenozoic volcanic rocks from British Columbia. W. H. Mathews. bibliog map Geol Soc Bul 75:465-8 My '64

Potassium-argon ages from lavas of the Hawaiian Islands. I. McDougall. map Geol Soc Bul 75:107-27 bibliog(p 123-4) F '64

Potassium-argon dates of three pleistocene interglacial basalt flow from the Sierra Nevada, California. G. B. Dalrymple. bibliog map Geol Soc Bul 75:753-7 Ag '64

K-Ar dating of rocks and tectonic events in the Piedmont of southeastern Pennsylvania. D. M. Lapham and W. A. Bassett. bibliog map diag Geol Soc Bul 75:661-7 Jl '64

Preliminary age study and initial Sr^{87}/Sr^{86} of Nova Scotia granitic rocks by the Rb-Sr whole-rock method. H. W. Fairbairn and others. bibliog Geol Soc Bul 75:253-7 Mr '64

Relations of middle Ordovician time and rock units in basin ranges, western United States. R. J. Ross, jr. maps diags Am Assn Pet Geologists Bul 48:1526-54 bibliog(p 1552-4) S '64

Review of age determinations from Northern Rhodesia. N. J. Snelling and others. map Econ Geol 59:961-81 bibliog(p980-1) S '64

Rubidium-strontium ages from Antarctica. C. Craddock and others. bibliog map Geol Soc Bul 75:237-40 Mr '64

Undulatory extinction in quartz grains of some Chilean granitic rocks of different ages. S. M. DeHills and J. Corvalán. Geol Soc Bul 75:363-6, pl 1-2 Ap '64

X-ray fluorescence lead-uranium ratio measurements in allanite, Bankura District, India. S. B. Bhattacherjee and M. N. Kumar. bibliog Anal Chem 36:1400 Je '64

Analysis

Atomic absorption spectrophotometry and the analysis of silicate rocks for copper and zinc. C. B. Belt, jr. bibliog diag Econ Geol 59:240-58 Mr '64

Biotite mica effect in X-ray spectrographic analysis of pressed rock powders. A. Volborth. bibliog Am Mineralogist 49:634-43 My '64

Combined rock and thin section modal analysis. R. W. Nesbitt. bibliog Am Mineralogist 49:1131-6 Jl '64

Determination of microgram amounts of total sulfur in rocks; combustion method. J. G. Sen Gupta. bibliog diag Anal Chem 35:1971-3 N '63

Determination of the zinc-68—zinc-64 ratio in rocks and minerals by neutron activation analysis. R. H. Filby. bibliog Anal Chem 36:1597-600 Jl '64

Distribution of radioactivity in the Mosaboni copper mine, Bihar, India. E. V. Gangadharam and others. bibliog map Econ Geol 58:506-14 Je '63; Discussion. A. Mookherjee. 59:501-2 My '64

Heavy media column separation; a new technique for petrographic analysis. C. C. Woo. bibliog il Am Mineralogist 49:116-26 Ja '64

Metamorphic aureole of the peridotite at the Lizard, Cornwall. D. H. Green. bibliog maps diags J Geol 72:543-63 S '64

Modal variations within granitic outcrops. D. O. Emerson. Am Mineralogist 49:1224-33 S '64

Normalization of the thermoluminescence data. W. L. Medlin. bibliog Am Mineralogist 49:53-60 Ja '64

Process-response models based on heavy-mineral content of the San Isabel Granite, Colorado. E. H. T. Whitten and R. E. Boyer. bibliog maps diags Geol Soc Bul 75:841-62 S '64

Quantitative mineral analysis of kaolin-bearing rocks by X-ray diffraction. E. Niskanen. bibliog Anal Chem 36:1268-71 Je '64

Rapid analysis of rocks by X-ray fluorescence. P. R. Hooper. bibliog Anal Chem 36:1271-6 Je '64

Revised composition of two olivines from the Skaergaard intrusion, East Greenland; discussion. E. A. Vincent and others. Am Mineralogist 49:805-6 My '64

Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64

See also

Mineralogical analysis

Bibliography

Bibliography of Canadian contributions in the field of rock mechanics. Can Min & Met Bul 57:540-5 My '64

Classification and nomenclature

Rock magnetism and dike classification. D. W. Strangway. bibliog maps J Geol 72:648-63 S '64

Deformation

Cross fold deformation by simple shear. E. S. O'Driscoll. bibliog il diags Econ Geol 59:1061-93 S '64

Deformation of the Ross Ice Shelf, Antarctica. R. O. Kehle. map diags Geol Soc Bul 75:259-86, pl 1 bibliog(p285-6) Ap '64

Experimental study of crater formation in limestone at elevated pressures. N. E. Garner and others. bibliog il diags J Pet Tech 15:Trans 1356-64 D '63

Ice-thrust ridges in western Canada. W. O. Kupsch. bibliog maps diags J Geol 70:582-94, pl 1 S '62; Discussion. J. R. Mackay and W. H. Mathews. 72:378-80 My '64

Olivine shear strength at high pressure and room temperature. R. E. Riecker and K. E. Seifert. bibliog Geol Soc Bul 75:571-3 Je '64

ROCKS—Deformation—*Continued*

Pleistocene volcanism and deformation of the Truckee area, north of Lake Tahoe, California. P. W. Birkeland. bibliog maps Geol Soc Bul 74:1453-63 D '63

Shock deformation of rocks. M. R. H. Ramez and P. B. Attewell. bibliog il diags Geophysics 28:1020-36 D '63

Use of induction heating in rock deformation apparatus. R. E. Riecker. il diag R Sci Instr 35:1234-6 S '64

Testing

Conductivity spectra of rocks from the Craigmont ore environment. D. C. Fraser and others. bibliog map diag Geophysics 29:832-47 O '64

Contractor's view on unlined tunnels. A. M. Petrofsky. bibliog Am Soc C E Proc 90 [PO 3 no 4086]:91-104 O '64

Detailed response of some rock targets to jets from lined-cavity shaped charges. C. F. Austin and J. K. Pringle. bibliog il diags J Pet Tech 16:41-9 Ja '64

Example of the influence of remanent magnetization on magnetic intensity measurements. W. W. Hays and L. Scharon. bibliog map diags Geophysics 28:1037-48 D '63

Foundation modulus tests for Karadj arch dam. W. A. Waldorf and others. bibliog il diags Am Soc C E Proc 89 [SM 4 no 3576]:91-126 Jl '63; Discussion. 90 [SM 1 no 3781]:157-61 Ja; [SM 2 no 3850]:187-204 Mr '64

How permeable are fissured rocks? il diags Engineering 198:58 Jl 10 '64

Inexpensive rock stress techniques. Eng N 171:184-5 D 19 '63

Measurement of *in-situ* rock stresses. il Engineer 216:1051-2 D 27 '63

Measuring rock stresses faster and cheaper. N. Landon. il Coal Age 69:26+ F '64

Olivine shear strength at high pressure and room temperature. R. E. Riecker and K. E. Seifert. bibliog Geol Soc Bul 75:571-3 Je '64

Overcoming the weaknesses of dams. il diags Engineering 197:776-7 Je 5 '64

Remote measurement of rock stress under development in South Africa. E. R. Leeman. bibliog il diags Eng & Min J 165:104-7 S '64

Rock mechanics, new advances in the art. il diags Engineering 197:170 Ja 24 '64

Study of strength characteristics of an andesite. G. Zahary. bibliog il diags Can Min & Met Bul 56:874-6 D '63

Tumut 2 underground power plant. I. L. Pinkerton and E. J. Gibson. bibliog il maps plans diags Am Soc C E Proc 90 [PO 1 no 3835]:33-58 Mr '64; Discussion. 90 [PO 3 no 4063]:135-46 O '64

Use of induction heating in rock deformation apparatus. R. E. Riecker. il diag R Sci Instr 35:1234-6 S '64

ROCKS, Crystalline and metamorphic

Chemical aspects of hydrothermal alteration with emphasis on hydrogen metasomatism. J. J. Hemley and W. R. Jones. Econ Geol 59:538-69 bibliog(p567-9) Je '64

Clinopyroxenes from eclogites and basic granulites. A. J. R. White. bibliog plan Am Mineralogist 49:883-8 Jl '64

Crystalline klippen in the Index District, Cascade Range, Washington. R. S. Yeats. bibliog maps Geol Soc Bul 75:549-61, pl 1-3 Je '64

Diagenetic aspects of lower Morrowan, Pennsylvanian, sandstones, northwestern Oklahoma. W. L. Adams. bibliog il maps diags Am Assn Pet Geologists Bul 48:1568-80 S '64

Distribution of magnesium and iron between orthopyroxene and calcic pyroxene in natural mineral assemblages. R. Kretz. bibliog J Geol 71:773-85 N '63

Geology of a part of the south-central Cascade Mountains, Wash. M. L. Stout. maps diag Geol Soc Bul 75:317-34, pl 1 bibliog (p333-4) Ap '64

Metamorphic aureole of the peridotite at the Lizard, Cornwall. D. H. Green. bibliog maps diags J Geol 72:543-63 S '64

Mineralogical relations in some pelitic hornfelses from the southern Sierra Nevada, Calif. M. G. Best and L. E. Weiss. il maps diags Am Mineralogist 49:1240-66 bibliog (p 1264-6) S '64

Petrology and isotopic-mineral age relations of a contact zone in the Front Range, Colo. S. R. Hart. bibliog maps J Geol 72:493-525 S '64

Stability relations of carbon mineral assemblages in the southern California batholith. R. F. Mueller and K. C. Condie. bibliog maps J Geol 72:400-11, pl 1-2 Jl '64

See also

Amphibolites
Peridotite
Schists

ROCKS, Igneous

Alkali feldspars of the Tatoosh pluton in Mount Rainier national park. T. L. Wright. bibliog il maps diags Am Mineralogist 49:715-35 My '64

Clinopyroxenes from alkaline rocks of Japan. K. I. Aoki. diags Am Mineralogist 49:1199-223 bibliog(p 1221-3) S '64

Clinopyroxenes of a monzonitic complex at Mount Dromedary, New South Wales. R. S. Boesen. il diags Am Mineralogist 49:1435-57 bibliog(p 1456-7) S '64

Crystallization P_{O_2} of syenite porphyry from Navajo Mountain, southern Utah. K. C. Condie. bibliog map Geol Soc Bul 75:359-62 Ap '64

Experimental study on the leucite-pseudoleucite problem. Y. Seki and G. C. Kennedy. Am Mineralogist 49:1267-80 bibliog (p 1278-80) S '64

Geochemical and structural studies in batholithic rocks of southern California; structural geology of Rattlesnake Mountain pluton. R. S. MacColl. bibliog map diags Geol Soc Bul 75:805-22, pl 1-7 S '64 (to be cont)

Geology and mineralogy of the Buena Vista iron ores, Churchill County, Nevada. A. S. Radtke. bibliog maps diags Econ Geol 59:279-90 Mr '64

Geology of the part of the south-central Cascade Mountains, Wash. M. L. Stout. maps diags Geol Soc Bul 75:317-34, pl 1 bibliog(p333-4) Ap '64

Glass-bead silica determination for a suite of volcanic rocks from the Owyhee Plateau, Oregon. L. R. Kittleman, jr. bibliog Geol Soc Bul 74:1405-9 N '63

Interaction of chemistry and mechanics in magmatism. R. F. Mueller. bibliog J Geol 71:759-72, pl 1 N '63

Iron-rich serpentine and chamosite from Ely, Minn. A. P. Ruotsala and others. bibliog il map diag Am Mineralogist 49:993-1001 Jl '64

La Cueva intrusive complex and dome, northern Coahuila, Mexico. F. W. Daugherty. bibliog maps diags Geol Soc Bul 74:1429-38 pl 1 D '63

Mineralogy and paragenesis of amphiboles from Gibson Peak pluton, northern California. P. W. Lipman. Am Mineralogist 49:1321-30 S '64

Pleistocene volcanism and deformation of the Truckee area, north of Lake Tahoe, California. P. W. Birkeland. bibliog maps Geol Soc Bul 74:1453-63 D '63

Potassium-argon age determinations of cenozoic volcanic rocks from British Columbia. W. H. Mathews. bibliog map Geol Soc Bul 75:465-8 My '64

Study of strength characteristics of an andesite. G. Zahary. bibliog il diags Can Min & Met Bul 56:874-6 D '63

Volatiles in volcanic glasses and their stability relations. C. S. Ross. bibliog Am Mineralogist 49:258-71 Mr '64

Wall-rock alteration in the Goldfield district, Nevada. R. D. Harvey and C. J. Vitaliano. bibliog map J Geol 72:564-79, pl 1 S '64

See also

Basalt
Batholiths
Dikes (geology)
Diorite
Gneiss
Granite
Lava
Pegmatites

ROCKS, Metamorphic. See **Rocks, Crystalline and metamorphic**

ROCKS, Sedimentary

Age of basal mesozoic redbeds in north-central Texas. B. Watson. bibliog Am Assn Pet Geologists Bul 48:1726-7 O '64

Age of the grabens in southeastern Utah. I. J. Witkind. bibliog maps Geol Soc Bul 75:99-105 F '64

Basal Tuscaloosa sediments, east-central Louisiana. H. V. Spooner, jr. bibliog maps diags Am Assn Pet Geologists Bul 48:1-21 Ja '64

Direct method for the determination of organic carbon in sediments. J. L. Ellingboe and J. E. Wilson. bibliog Anal Chem 36:434-5 F '64

ROCKS, Sedimentary—*Continued*

Early Pennsylvanian history of Ely Basin, Nevada. A. H. Coogan. bibliog map diags Am Assn Pet Geologists Bul 48:487-95 Ap '64

Ely, Arcturus, and Park City groups (Pennsylvanian-Permian) in eastern Nevada and western Utah. H. J. Bissell. il map diags Am Assn Pet Geologists Bul 48:565-636 bibliog(p634-6) My '64

Garnet isograd in pelitic rocks and its relation to metamorphic facies. M. P. Atherton. maps diags Am Mineralogist 49:1331-49 bibliog(p 1348-9) S '64

Late Mississippian rhythmic sediments of Mississippi Valley. D. H. Swann. bibliog maps diags Am Assn Pet Geologists Bul 48:637-58 My '64

Lower Carboniferous sedimentary rocks in southwestern Newfoundland and their relations to similar strata in western Cape Breton Island. D. M. Baird and P. R. Cote. bibliog maps diag Can Min & Met Bul 57: 509-20 My '64

Mineralogical relations in some pelitic hornfelses from the southern Sierra Nevada, Calif. M. G. Best and L. E. Weiss. il maps diags Am Mineralogist 49:1240-66 bibliog (p 1264-6) S '64

Mud cracks in the Ordovician Maysville group. H. J. Hofmann. bibliog maps diag J Geol 72:638-41, pl 1 S '64

Origin of the limestone-shale rhythm in the Blue Lias of England: a composite theory. A. Hallam. bibliog diags J Geol 72:157-69 Mr '64

Paleomagnetic results from Precambrian sedimentary rocks in the western United States. S. K. Runcorn. bibliog maps Geol Soc Bul 75:687-704 Ag '64

Paleosalinity in upper Visean Yoredale formation of England; geochemical method for locating porosity. C. T. Walker. bibliog map diags Am Assn Pet Geologists Bul 48:207-20 F '64

Paleozoic facies from the miogeosynclinal to the eugeosynclinal belt in thrust slices, central Nevada. M. Kay and J. P. Crawford. maps diags Geol Soc Bul 75:425-54, pl 1-6 bibliog(p452-4) My '64

Paleozoic rocks in northwestern Montana; a newly recognized occurrence. J. W. Keim and R. J. Rector. bibliog maps Geol Soc Bul 75:575-8 Je '64

Petroleum in carbonate rocks. E. W. Owen. Am Assn Pet Geologists Bul 48:1727-30 O '64

Petrological significance of illite polymorphism in paleozoic sedimentary rocks. B. Velde and J. Hower. bibliog Am Mineralogist 48:1239-54 N '63

Petrology of Pennsylvanian rocks, Bighorn Basin, Wyoming. T. W. Todd. bibliog maps diags Am Assn Pet Geologists Bul 48:1063-90 Jl '64

Pore geometry as related to carbonate stratigraphic traps. J. L. Stout. bibliog il Am Assn Pet Geologists Bul 48:329-37 Mr '64

Radioelement dispersion in a sedimentary environment and its effect on uranium exploration. R. M. Moxham. maps Econ Geol 59:309-21 bibliog(p320-1) Mr '64

Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72: 477-83 Jl '64

Subdivision of San Lorenzo formation (Eocene-Oligocene) west-central California. E. E. Brabb. bibliog map diag Am Assn Pet Geologists Bul 48:670-9 My '64

Symmetry, stratigraphy, and petrography of cyclic cretaceous deposits in San Juan Basin. F. F. Sabins, jr. bibliog il maps diags Am Assn Pet Geologists Bul 48:292-316 Mr '64

See also
Conglomerate
Graywacke
Limestone
Salt deposits
Sandstone
Stratification

ROCKY MOUNTAIN region

See also
Gas, Natural—Rocky Mountain region
Petroleum—Rocky Mountain region
Roads—Rocky Mountain region

ROCKY MOUNTAINS

Late cenozoic uplift and exhumed Rocky Mountains of central western Montana. P. E. Wolfe. bibliog maps diag Geol Soc Bul 75:493-502, pl 1-4 Je '64

ROCKY RIVER, Ohio

Sewerage

Cleaning program updates sewer system. D. R. Patton. il Pub Works 95:174 Ap '64

RODENTICIDES

New selective rodenticide. il Soap & Chem Spec 40:103-4 O '64

RODENTS

Extermination

See also
Rodenticides

RODS

Heat transfer to mercury flowing in-line through a bundle of circular rods. M. W. Maresca and O. E. Dwyer. bibliog flow sheet diags A S M E Trans ser C 86:180-6 My '64

Longitudinal impact on viscoplastic rods; linear stress-strain rate law. T. C. T. Ting and P. S. Symonds. bibliog diags A S M E Trans ser E 31:199-207 Je '64

Manufacture of ⅜" diameter EC redraw rod by the slit strip process. C. W. Siltanen. il diags Wire & Wire Prod 38:1712-13+ N '63

Method for making multiple glass-tungsten rod seals. H. A. Kamphausen. diags J Sci Instr 40:605 D '63

Temperature distribution in a cylindrical rod moving from a chamber at one temperature to a chamber at another temperature. G. Horvay and M. Dacosta. bibliog diag A S M E Trans ser C 86:265-70 My '64

Torsion of bars with isosceles triangular and diamond sections. N. A. Gloumakoff and Y. Y. Yu. diags A S M E Trans ser E 31:332-4 Je '64

RODS, Aluminum

Continuous aluminum rod. D. B. Cofer. il diags Wire & Wire Prod 38:1858-61+ D '63

Extrusion of aluminium rod at the Prescot works of B.I.C.C. ltd. W. J. Bannister. il Wire & Wire Prod 38:1706-9+ N '63

Olin conductors' method of EC redraw rod production. T. E. Colston and C. M. Fredrickson. il diags Wire & Wire Prod 39:67-8+ Ja '64

Twin reel coiler for continuous wire rod production. J. Tranier. il Wire & Wire Prod 39:719-20+ My '64

RODS, Copper

Continuous casting and processing of copper base alloy wire and rod. J. D. Berwick. il Wire & Wire Prod 39:1340-2+ S '64

Continuous casting and rolling of copper rod. J. A. Bell and D. B. Cofer. bibliog il diags Wire & Wire Prod 39:1031-4+ Jl '64

Continuous casting of copper rod announced. Iron & Steel Eng 40:171+ N '63

Continuous copper rod casting and rolling installation in Georgia. il diags Engineer 217: 252-4 Ja 31 '64

Dip-formed copper rod-pilot to production. R. P. Carreker, jr. and R. Hurst. il diags Wire & Wire Prod 39:1161-3+ Ag '64

Dip-forming: a continuous casting process. R. P. Carreker, jr. bibliog il diag J Metals 15:774-80 O '63

Hot rodders. il Mech Eng 86:60 S '64

RODS, Glass. See Glass rods

RODS, Steel

Carbon steel rods: reference book sheets. Am Mach 108:97+ Mr 2 '64

Decarburisation-free steel wire and rod. il Engineer 218:191 Jl 31 '64

Handbook on steel wire; chapter two. il diags Wire & Wire Prod 39:701-2+, 862-7+, 1017-23+, 1168-72+, 1316-19+, 1802-3+ My-S, N '64

Processing rod and wire in a specialty steel plant. J. R. Mills. il diag Wire & Wire Prod 38:1835-6+ D '63

Rod profile gauge. B. Quartermain and J. A. Harrison. il diags Iron & Steel Inst J 202: 527-30 Je '64

Roll grinder finishes rod while mounted on the mill. il Iron & Steel Eng 41:157-8 Je '64

Stelmor process for controlled cooling of rod. bibliog il diags Wire & Wire Prod 39:1605-15+ O '64

ROEBLING medal

Presentation of the Roebling medal to J. Frank Schairer and acceptance speech; with bibliography of his publications. H. S. Yoder, jr. Am Mineralogist 49:453-9 Mr '64

ROGERS, Ray

Contractor Ray Rogers: president of the Associated general contractors of America. pors Eng N 172:48-50 Mr 12 '64

ROLINSON, G. N.

Worshipful society of apothecaries, award. por Chem & Ind p425 Mr 7 '64

ROLLER bearings. See Bearings, Roller

ROLLER chains. See Chain gear

ROLLERS

Effect of angle between direction of sliding and line of contact on friction and wear of a roller. F. Hirano and others. bibliog diags Lub Eng 20:57-64 F '64

ROLLERS (earthwork)

Triplex vibrators pack hard, fast. il Eng N 172:99 My 21 '64

ROLLERS, Road. See Road rollers

ROLLING (metal work)

Analysis of plastic deformation in rolling contact. J. E. Merwin and K. L. Johnson. bibliog diags Inst Mech Eng Proc 177 no 25: 676-85; Discussion. il 686-90 '63

British develop one-pass pendulum rolling mill. Steel 154:30 Ja 20 '64

CBS contact bend stretch rolling. il diag Light Metal Age 22:4 Ap '64

Contact-bend-stretch rolling. il diag Mech Eng 86:65 Jl '64

Developments in metal melting and rolling; Imperial metal industries (Kynoch) ltd. il Engineer 216:840-2 N 22 '63

Effect of cold rolling on magnetization reversal of high-purity nickel tapes. A. A. Hirsch. J Ap Phys 35:909-10 pt 2 Mr '64

Elastic behaviour in cold strip rolling at the onset of plasticity. F. J. Loss and others. bibliog diags Inst Metals J 92:104-10 '63-64

How we'll make metals tomorrow. il diags Steel 154:88-97 F 10 '64

Mill rolls circular steel plate. C. L. Kobrin. il Iron Age 193:80-1 F 6 '64

Plastic flow in rollers loaded above the yield point. G. M. Hamilton. diags Inst Mech Eng Proc 177 no 25:667-75, pl 1-4; Discussion. il 686-90 '63

Plating teams up with rolling to clad nickel onto steel. J. E. Sandford. il Iron Age 193:63-5 My 28 '64

Powder metallurgy gets rolling. C. L. Kobrin. il Iron Age 193:89-91 Ap 23 '64

Precision shape rolling expanded by Universal-Cylops Steel. Steel 155:104 S 28 '64

Properties and applications of cobalt strip. R. W. Fraser and others. il diags Metal Prog 86:80-4 Jl '64

Rollability of stainless steels; reference book sheet. D. F. Griffin. il Am Mach/Metalworking Manuf 108:115+ Je 22 '64

Rolling uranium; abstract. N. Davies. Metal Prog 85:182-3 My '64

Sandwich builders eye roll bonding. il diag Steel 155:46-7 Ag 24 '64

Sendust sheet-processing techniques and magnetic properties. H. H. Helms, jr. and E. Adams. J Ap Phys 35:871-2 pt 2 Mr '64

Top pouring ingots for direct rolling seamless tubes. J. A. Petroskas. il Iron & Steel Eng 41:111-15 O '64

United States steel corp. to develop contact-bend-stretch rolling technique. diag Iron & Steel Eng 41:180 Ap '64

Upper-bound approach to cold-strip rolling. B. Avitzur. bibliog diags A S M E Trans ser B 86:31-45; Discussion. 46-7; Reply. 47-8 F '64

Wide mill rolls refractory metals. il Steel 154:54+ F 3 '64

See also

Rolling mills

Steel, Strip

Thread rolling

Tables, calculations, etc.

Math model guides strip rolling. diag Iron Age 193:64-5 Je 4 '64

Simplified hot-rolling calculations. H. Ford and J. M. Alexander. bibliog diags Inst Metals J 92:397-404 '63-64

ROLLING mills

Bethlehem marks Century Two by unveiling new 12 and 14-in. bar mill. il Iron & Steel Eng 41:196 O '64

British iron and steel research association develop cantilever rolling mill. il Engineering 198:409 S 25 '64

Cable Street mills ltd. puts bar and section mill into operation. Iron & Steel Eng 41: 243 S '64

Extended shops of a rolling mill maker. il Engineering 197:778-9 Je 5 '64

Incandescent rolling mill. R. B. Fischer. bibliog il diag J Metals 15:840-2 N '63

Making steel in a hot climate; Portugal's first cold rolling steel mill. il Engineering 198:364 S 18 '64

Metal rolling, 1963; illustrations with text. Engineer 217:46-7 Ja 3 '64

New technology of iron and steel; product and process improvements. F. C. Price. il Chem Eng 71:193-4 S 14 '64

Park Gate expansion completed; new steelmaking plant and rolling mills. il Metallurgia 70:64-70 Ag '64

Park gate iron and steel co. ltd. installs 42 X 104-in. reversing blooming mill. il Iron & Steel Eng 41:142 Ag '64

Pittsburgh Steel's mill conversion takes one-third of normal time. il Steel 155:38-41 Ag 24 '64

Progress in the new metals at I.M.I. il diags Metallurgia 68:249-55 D '63

Sendzimir mills used widely for low-carbon steel. M. G. Sendzimir. il Iron & Steel Eng 41:253-4 S '64

Some new light on Matthew Boulton. R. A. Pelham. il diag Engineer 217:503-5 Mr 20 '64

U.S. Steel gives go-ahead for hot strip mill and continuous casting unit at Gary. il Iron & Steel Eng 41:153 Je '64

See also

Rolls (rolling mills)

Tubes, Steel—Manufacture

Control

Applying digital techniques to thin tin automatic gage control. T. E. Bryan and P. L. McMath. il diags Iron & Steel Eng 40:91-7; Discussion. 97-8 D '63

Automatic system logs length of sections in hot mill. il diag Iron Age 193:104-6 Mr 26 '64

Computer to control plate mill. il Engineering 198:451 O 9 '64

Different approach to the problems of shear and runout table kickoff control on a merchant mill. J. A. Berg. il plan diags Iron & Steel Eng 41:124-7 Je '64

Fundamentals of strip mill automatic gage control systems. J. W. Wallace. diags Iron & Steel Eng 41:193-202 S '64

Mechanical/magnetic control of gauge in hot rolling. il Engineer 216:918 N 29 '63

Rolling exotic materials. il Tool & Manuf Eng 51:85 N '63

Simulator assessment of tandem cold-rolling-mill automatic gauge-control systems. G. F. Bryant and M. H. Butterfield. bibliog diags Inst E E Proc 111:393-405 F '64; Discussion. 111:1615-18 S '64

Six-stand rolling mill steps up coil stock production rates; U.S. Steel's Fairfield district works. il Iron Age 192:82-3 D 19 '63

Strip-mill automatic gauge-control systems. J. W. Wallace. il diags Westinghouse Eng 24:34-40 Mr '64

Systems requirements for thin tin mills. P. L. McMath and T. E. Bryan. il diags Iron & Steel Eng 41:145-51 Je '64

Take a color tour through automated hot strip mill. il Steel 155:132-4 S 14 '64

Universal structural sections are produced on automated rolling mill. W. C. Davidson. il Iron & Steel Eng 41:137-8+ Ag '64

Design

Foil mill features hydro-mechanical design. il Light Metal Age 21:19 D '63

Prestressed rod mill stand. R. H. Sims and others. bibliog il diags Engineer 218:407-10 S 11 '64

Electric equipment

Bar mills expand production with fast induction heaters. D. G. Hatchard. il Iron Age 194:156-7 S 24 '64

Electric systems design for metal processing lines. R. K. Bennett and J. E. Peebles. bibliog il diags Iron & Steel Eng 41:69-88 Ag '64

Electrical equipment for continuous processing lines at Fairless works. R. W. Sheffler. il diag Iron & Steel Eng 40:111-15; Discussion. 115-16 N '63

Elongation per pass recorded by system. Steel 153:100 N 25 '63

Furnishes electricals for new cold mill; English electric co. ltd. Iron & Steel Eng 41: 198 Ap '64

Impact torsional vibration of direct-current hot strip mill drive motors. S. R. Petersen. diags Iron & Steel Eng 41:105-10 O '64

Planned preventive electrical maintenance of rolling mills. J. F. Trenner. il Iron & Steel Eng 41:106-11; Discussion. 111-12 S '64

Revision of AISE d-c mill motor standard proposed. il Iron & Steel Eng 41:161 O '64

Unit detects welds in strip. il Iron & Steel Eng 41:174 Ap '64

See also

Electric driving—Rolling mills

ROLLING mills—*Continued*

Equipment

Adaptable bar and section mill. il plan Engineer 217:206-8 Ja 31 '64
Adjustable speed hydraulic drives. L. G. Jordan. il diags Iron & Steel Eng 41:91-7 Ap '64
Automatic continuous billet mill. G. W. Pate. il diags Engineer 217:942-8 My 29 '64
Automatic gauge control of Tandem cold-rolling mills. Engineer 217:139 Ja 17 '64
Bar and rod rolling plant and practice for special steels at Samuel Fox & co. E. A. Hanselman. il diags Iron & Steel Inst J 202:42-50 Ja '64
Bar mill modernization to meet market demand. W. W. Clark and J. J. Rados. il plan diag Iron & Steel Eng 41:119-23; Discussion. 124 Ap '64
Can steel's suppliers shift with time? G. J. McManus. Iron Age 192:62-3 N 28 '63
Columbia-Geneva starts two new units at Pittsburg works. il Iron & Steel Eng 40:147-8 N '63
Continuous copper rod casting and rolling installation in Georgia. il diags Engineer 217:252-4 Ja 31 '64
Copper processing gets new look. G. J. McManus. il Iron Age 194:30 Jl 30 '64
Description of U.S. Steel's new 46-in. slabbing mill. K. E. Norris. il plan diags Iron & Steel Eng 40:85-90 D '63
Developments at Park Gate. flow diag il plan Engineer 218:43-8, 83-6 Jl 10-17 '64
Digital counters used in length measurement. G. Cooper. il diags Ind Electronics 2:369-72 Ag '64
Diversifying a merchant bar mill to section and shape rolling. A. F. Rupp and others. diags Iron & Steel Eng 41:121-30 O '64
Efficiency of cold-reduction mills in the rolling of steel strip. R. J. Bentz and W. L. Roberts. bibliog il Iron & Steel Eng 41:101-6 Mr '64
Equipment news. Published in monthly numbers of Iron and steel engineer
Hot strip coiler maintenance; a history of problems and solutions at Sparrows Point. H. J. Leubecker. diags Iron & Steel Eng 41:93-103; Discussion. 103-5 S '64
Improving screw nut performance. W. Loecher. il diags Iron & Steel Eng 40:173-4 D '63
Increased capacity for cold-rolled steel strip. il diag Engineer 217:551-2 Mr 27 '64
Maintenance of gear-type couplings. T. W. Chase and J. J. Kimmel. il diags Iron & Steel Eng 41:72-80; Discussion. 80-4 O '64
Mill holds tight rod tolerances. diags Iron Age 194:82 Jl 16 '64
Modern air cleaning for a rolling mill. S. P. Adkins. il Iron & Steel Eng 41:176+ Mr '64
New USS strip mill fed by continuous casting. Iron Age 193:47 My 7 '64
Parallel wide flange mill; the Colorado fuel and iron corp. C. W. Renberg. il plans diags Iron & Steel Eng 40:117-25; Discussion. 125-6 N '63
Rod mill developments in Britain. E. A. Hanselman. il plan Iron & Steel Eng 41:57-66; Discussion. 67-8 Ag '64
Rolling program for Ashland's market. H. P. Jones and C. Gunter, jr. il diag J Metals 16:654-8 Ag '64
Some outstanding features in new Swedish rolling mill installations. E. Norlindh. il diags Iron & Steel Inst J 202:261-76 Mr '64; Discussion. 202:762-9 S '64
Steel at the Sault; story of the Algoma steel corp. T. J. Ess. il plans Iron & Steel Eng 41:A2-31 Ag '64
Steel in Portugal. il Engineer 218:466-8 S 18 '64
Steel plate levelling line at Patent shaft steel works. il Engineer 216:906-7 N 29 '63
Stelmor process for controlled cooling of rod; mechanical aspects. J. H. Hitchcock. diags Wire & Wire Prod 39:1622-3+ O '64
Strain gages. il Iron & Steel Eng 40:232+ N '63
Strip galvanizing line allows many variations. il Steel 153:35-6 D 30 '63
23-stand combination rod and merchant mill. E. E. Brayshaw. flow diag il plan Iron & Steel Eng 41:101-9; Discussion. 109 F '64
See also
Furnaces, Heating
Grinding machines

Heating and ventilation

Gas-fired infrared units heat ten million cu ft plant. il Heating-Piping 36:116-19 My '64

Layout

Bar and rod rolling plant and practice for special steels at Samuel Fox & co. E. A. Hanselman. il diags Iron & Steel Inst J 202:42-50 Ja '64
Description of U.S. Steel's new 46-in. slabbing mill. K. E. Norris. il plan diags Iron & Steel Eng 40:85-90 D '63
Rod mill developments in Britain. E. A. Hanselman. il plan Iron & Steel Eng 41:57-66; Discussion. 67-8 Ag '64
23-stand combination rod and merchant mill. E. E. Brayshaw. flow diag il plan Iron & Steel Eng 41:101-9; Discussion. 109 F '64

Lubrication

Coolant debris goes into tailspin. il Iron Age 194:136-7 O 29 '64
Fog lubrication wins steel mill jobs. il Steel 154:69-70 My 11 '64
Inorganic thickened greases in the steel industry. A. G. Brewer and P. C. Jarvis. il Iron & Steel Eng 41:144-9 Mr '64
Oversize drums; broaden bulk grease handling. D. W. Twomey. il diag Iron & Steel Eng 41:105-8 Je '64

Maintenance and repair

Hot strip coiler maintenance; a history of problems and solutions at Sparrows Point. H. J. Leubecker. diags Iron & Steel Eng 41:93-103; Discussion. 103-5 S '64
Planned preventive electrical maintenance of rolling mills. J. F. Trenner. il Iron & Steel Eng 41:106-11; Discussion. 111-12 S '64
Vapor degreaser speeds mill maintenance. il Steel 154:62 Je 22 '64

Numerical control

Automated steel facility has two-lines-in-one mill layout design. il Elec Eng 82:740-1 D '63
Automatic continuous billet mill. G. W. Pate. il diags Engineer 217:942-8 My 29 '64
Computer calculates mill settings during rolling. il Automation 11:59-61 Je '64
Computer control for plate mill. Engineer 218:588 O 9 '64
Computer takes charge of hot strip mill; Great Lakes steel corp. il Steel 155:52+ O 26 '64
Development of a computer planning procedure for a three stand high speed rolling mill. H. B. Lit. flow diag il Wire & Wire Prod 39:88-90+ Ja '64
Differential encoder tells position and direction. D. H. Hartke. diag Control Eng 11:19 Mr '64
Great Lakes Steel puts new facilities into full operation. il diags Iron & Steel Eng 40:103-9 D '63
Hot strip steel mills; computer control begins to pay out. diags Control Eng 10:24-5 D '63
Logicon building-block system. R. E. Young. il Ind Electronics 2:161-2 Ap '64
On-line computer control of a hot strip finishing mill for steel. R. G. Beadle. il diags Iron & Steel Eng 41:71-8; Discussion. 78-80 Jl '64
Programming of a stretch-reducing mill at TAMSA, Mexico. R. Raimondi. bibliog il diags Iron & Steel Eng 41:131-43 My '64
Some applications of automatic control in the manufacture of rolled products. G. A. Forster. il diags Inst Metals J 92:97-104 '63-64
Speedy steel strip mill. il diag Mech Eng 86:64-5 Mr '64
Wheeling Steel's 80-in. hot strip mill to be computer controlled. diag Iron & Steel Eng 41:204-5 O '64

Power

Veteran steam drive. Engineer 217:1156 Je 26 '64
See also
Electric driving—Rolling mills

Quality control

Extensometers on mills help improve quality control. Iron & Steel Eng 40:151 D '63
Nondestructive testing of pipes in hot blooms by gammascopic inspection; abstract. A. Kohn. Metal Prog 85:172-4 Mr '64

Waste

Process for the reclamation of cold strip mill rolling oils for reuse. B. W. Funk and R. C. Allen. bibliog Iron & Steel Eng 41:87-91; Discussion. il 91-3 F '64

ROLLS

Air power keeps roll machines moving. il Comp Air Mag 69:22 Mr '64
Fully-hardened forged steel rolls. il Engineer 217:755 Ap 24 '64

ROLLS—*Continued*

Hardness conversion for forged steel rolls; with data sheet. A. A. Bradd and W. F. Shore. il Metal Prog 85:102+ Je '64

How we refinish rubber mill rolls. F. A. Kellner. il Rubber World 150:51-3 My '64

New facilities for finishing forged steel rolls. il Engineering 197:585 Ap 24 '64

Temperature variation closely controlled in roll hardening operation. E. Walton and L. A. Begley. il diag Iron & Steel Eng 41:189-90 O '64

Wear-resistant facing of rolls. il Engineer 217:355 F 21 '64

ROLLS (paper machinery)

Automating a roll grinder. R. H. Hale. diag Tappi 47:sup 155A-7A Je '64

Calender roll crown compensation by the swimming roll method. C. H. Hillman. diags Tappi 47:sup 141A-3A Ag '64

Calender stack installation and operation using deflecting bottom roll. G. F. Schreiner. diags Paper Ind 46:299-301 Jl '64

Comparison of hydrofoils with table rolls on a Fourdrinier machine. J. Lettenberger. bibliog diags Tappi 47:sup 192A-5A O '64

Drive requirements for coaters. R. J. Farrell. bibliog diags Tappi 46:sup 124A-33A D '63

Dynamics of heat flow in paper machine calendar rolls. W. C. Sawyer. Tappi 47:sup 145A-6A Mr '64

Evaluation of the Madeleine felt drying system. E. W. Ramsdell. diag Paper Ind 46:402-6 Ag '64

FEP coated rollers cut down time. il Plastics World 21:68 N '63

Madeleine hot air felt drier roll system. F. W. Cassirer. il diags Tappi 47:sup 175A-9A S '64

Nip region pressure gradient measurement. J. C. Hintermaier and S. J. McNamara. bibliog il diags Tappi 47:199-204 Ap '64

Observed crushing in press roll nips. J. D. Lyall. diags Tappi 47:119-21 F '64

Some problems in performance of rubber coverings on paper machine rolls; second report of CA 4026. L. L. Smith. il Tappi 47:sup 118A-21A Ag '64

Swimming rolls. G. Cupernall. il Paper Ind 46:400-1 Ag '64

Table roll drainage as a boundary layer problem. H. Meyer. bibliog diag Tappi 47:114-19 F '64

ROLLS (rolling mills)

Advancement in scratch brushing aluminum work rolls. il diags Light Metal Age 22:18-19 Ag '64

Application of rubber covered rolls to pinch rolls and bridles. A. R. Foreman. il diags Iron & Steel Eng 41:111-20 Ag '64

Predictions of roll spalling in four-high mills based on fatigue strength of roll materials and wear pattern of rolls. K. N. Tong and M. K. Chakko. bibliog il diags Iron & Steel Eng 41:143-72; Discussion. 172-3 Jl '64

Roll grinder finishes rod while mounted on the mill. il Iron & Steel Eng 41:157-8 Je '64

Roll hardening method. il Iron & Steel Eng 40:243-4+ N '63

Vertical radiant furnace heats rolls uniformly for hardening. R. E. Buckholdt. il Iron & Steel Eng 41:157-8 Ap '64

Maintenance and repair

Automated roll grinder for the steel mill. A. T. Parrella. il diag Iron & Steel Eng 41:92-4 My '64

Manufacture

Cast roll production; Johnsons rolls ltd. il Engineer 216:1020-1 D 20 '63

Crush grinding contours rolls, detours costs. il Steel 154:102-3 Je 8 '64

Machine finishes, mills rolls vertically. il Steel 155:30 O 5 '64

Machining large roll ends. il Engineer 217:835 My 8 '64

Structural straightener rolls; do-it-yourself approach. J. L. Lindberg. il diags Iron & Steel Eng 41:139-46 S '64

Tape-controlled lathe machines five-ft diameter cast-steel rolls. A. R. Kommel. il Iron & Steel Eng 41:147-8 Ag '64

ROLLS (textile machinery)

Developments in roller printing. R. J. Verlik. Am Dyestuff Rep 53:859-61 S 28 '64

Slasher rolls need tender loving care. il Textile Ind 128:73-5+ Jl '64

ROLLS, Paper. See Paper rolls

ROLLS, Rubber

Application of rubber covered rolls to pinch rolls and bridles. A. R. Foreman. il diags Iron & Steel Eng 41:111-20 Ag '64

Rubber rolls out cylinders. il diag Iron Age 194:74-5 Ag 13 '64

ROMAN glassware. See Glassware, Roman

ROOF bolting. See Mine roof bolting

ROOFING

Application of a one-ply roofing system. E. G. Long. il Arch Rec 136:263-4 S '64

Fluid roofing systems of synthetic rubber. il diags Arch Rec 135:177-8 Ja; 179-80 F; 215-16+ Mr '64

See also

Roofs

Specifications

Built-up roofing. H. J. Rosen. Prog Arch 45:250 O '64

ROOFING, Asphalt

Paving roof decks and industrial floors. L. Tuttle. il diags Civil Eng 34:58-61 Jl '64

Testing

Projection X-ray microscopy of roofing materials. S. B. Newman and S. H. Greenfeld. bibliog il diags Materials Res & Stand 3:893-8 N '63; Discussion. G. L. Oliensis. 4:486 S '64

ROOFING, Copper

Long strip copper roofing mechanized. il Engineering 198:57 Jl 10 '64

ROOFS

Build a roof over cities and save fuel. Eng N 172:20-1 F 6 '64

Built-up roof systems studied. ASHRAE J 6:91 Mr '64

Monolithic slab for roof decks. il diags Prog Arch 45:97 Ap '64

Panelized plywood reduces roof erection time. il Plant Eng 18:124-5 F '64

Plywood; new shapes yield new strength. il diags Arch Forum 120:126-31 Ap '64

Stress analysis of prestressed suspended roofs. A. Siev and J. Eidelman. Am Soc C E Proc 90 [ST 4 no 4008]:103-21 Ag '64

See also

Domes
Factories—Roofs
Parapets
Shells (structural engineering)
Skylights

Drainage

Drainage details for buildings using standard steel components. il diags Arch Rec 134:149-50 D '63

Failure

Rain collapses wood roof girders. il Eng N 172:14 Ja 30 '64

ROOFS, Aluminum

Aluminum school roofs are attractive, economical. il Mod Metals 19:87 N '63

Corrugated aluminum domes shelter open-air classrooms. il Eng N 172:90 F 13 '64

Multi-purpose covers built of extrusions. il Mod Metals 20:64+ Ap '64

Twelve year evaluation of painted aluminium buildings. W. H. Ailor. il diags Metallurgia 68:151-4 O '63

ROOFS, Concrete

Analysis of prestressed cylindrical shell roofs. R. Dabrowski. bibliog diags Am Soc C E Proc 89 [ST 5 no 3668]:91-116 O '63; Discussion. 90 [ST 3 no 3940]:385-91 Je '64

Beams cast atop lift-slab roof. il Eng N 172:67 F 13 '64

Cantilever roof spans 197 ft; (Alitalia's) new service hangars at Fiumicino airport. il Eng N 173:29 O 29 '64

Concrete catenary roofs arena. diags Eng N 172:24 Je 4 '64

Contractor casts roof on rolling forms mounted on crane brackets. il diag Eng N 172:78-9 F 13 '64

Engineering features of free-form concrete thin shell for Eastman Kodak pavilion. L. Zetlin. il diags Am Concrete Inst J 61:1249-59 O '64

Expanding cement prevents roof cracks. il Eng N 172:32 Ja 16 '64

Hyperbolic-paraboloid cantilevers roof stadium. il Eng N 172:22 Mr 12 '64

Hyperbolic-paraboloid shells form clerestories and cantilevered canopies. il Eng N 172:152 Je 18 '64

Jack poles lift concrete roof. il Eng N 173:41 Ag 27 '64

No formwork for concrete shell roof. il Engineering 198:121 Jl 24 '64

ROOFS, Concrete—*Continued*
Phase one report on folded plate construction; report of the task committee. il diags Am Soc C E Proc 89 [ST 6 no 3741]:365-406 bibliog(p401-6) D '63; Discussion. 90 [ST 2 no 3886]:421-6 Ap; [ST 3 no 3940]:421-2 Je '64
Plastic forms build concrete umbrellas. il Eng N 172:86 My 21 '64
Post-tensioned shallow roof shells. W. E. Riley. il plan diags Civil Eng 34:64-6 Jl '64
Precast concrete toroidal vault. R. R. Bradshaw. il diags Am Concrete Inst J 61:257-64 Mr '64
Precast folded plates become standard products. W. C. Harry. il diags Am Concrete Inst J 60:1375-87 O '63; Discussion. R. M. Goodwin and J. Chini. 61:2031-2 pt 2 Je '64
Precast members reduce roof costs. il Eng N 172:16 Ja 30 '64
Precast TTs form pyramidal roof. il Eng N 172:33 My 28 '64
Precast tension roof wins award. il Eng N 173:24 Ag 13 '64
Precasting cuts cost of shells. il Eng N 172:23 Ja 9 '64
Prestressed slabs, 3/4-in. thick span 14-ft-sq school shelters. il Eng N 172:174 Je 18 '64
Saddle shell roof for theater. il plan diag Arch Rec 135:155-8 Mr '64
Shells cast for Met opera house. il Eng N 173:27 O 15 '64
Tractors shuttle big Ts on site. il Eng N 172:33 My 7 '64
Tripod supports bandshell roof. il Eng N 172:30 F 6 '64
Undulating slab follows stress. il plan diag Eng N 172:43-4 Je 25 '64
See also
Shells (structural engineering)

ROOFS, Plastic
New designs in giant reinforced plastic roof. il Mod Plastics 41:108-9+ Ag '64
Steel cables suspend 220-ft-dia roof from concrete cantilevers. il Eng N 172:40-1 Je 11 '64
Suspension roof frees arena from column obstructions. il diag Arch 135:185 Je '64

ROOFS, Steel
Metal deck in big panels cuts cost of arched roof. Eng N 172:104 F 13 '64
Plant roof replaced under mobile shelters. il Eng N 172:18-19 Ja 2 '64
Roof deck supports itself. il diag Eng N 173:48+ Ag 13 '64
Stainless steel roofs cathedral. il Eng N 172:88 Ap 2 '64
Swedes use new rw seam welder at New York world's fair. il Welding Eng 49:56 My '64
Welded stainless steel roofs. il Engineer 218:147 Jl 24 '64

ROOM acoustics. See Acoustics, Architectural

ROOMS
See also
Kitchens
Lounges (rooms)

ROOMS, Conference. See Conference rooms

ROOT-locus method. See Graphic methods

ROOTS of equations. See Equations, Roots of

ROPE, Plastic
Polypropylene rope passes three year service test. G. S. Heylin. il Elec World 161:104-5 F 24 '64
Special synthetic rope permits longer line pull. G. C. Daggett. il Elec World 160:109 O 21 '63
Synthetic lines offer mooring advantages. R. J. Laureti. Marine Eng/Log 70:49-51 My '64

ROSIN
Chemical nature of rosin sizing. R. W. Davison. bibliog il diag Tappi 47:609-16 O '64
Fractionation of West Coast tall oil. W. J. Janes, jr. Tappi 47:sup 122A-4A My '64
Photosensitized oxidation of pine gum to yield peroxides. W. H. Schuller and others. bibliog Ind & Eng Chem Product Res & Develop 3:97-100 Je '64
Rosin sizing. R. G. Mispley. bibliog Tappi 47:sup58A+ O '64

ROSS, Clarence S.
Ten-year supplement to the bibliographies of Clarence S. Ross and Waldemar T. Schaller. M. Hooker. Am Mineralogist 48:1410-12 N '63

ROTAMETERS
Measuring flow? consider these rotameter designs. L. S. Harris. diags Plant Eng 17:114-17 D '63

ROTATING disks. See Disks, Rotating

ROTATION
Backflows in rotating fluids moving axially through expanding cross sections. R. W. Gore and W. E. Ranz. bibliog il diags A I Ch E J 10:83-8 Ja '64
Droplet formation from a liquid film over a rotating cylinder. S. I. Cheng and J. Cordero. il AIAA J 1:2597-601 N '63
Dynamic response of a solid, viscoelastic sphere to translational and rotational excitation. R. M. Christensen and W. G. Gottenberg. bibliog diag A S M E Trans ser E 31:273-8 Je '64
Extension of Euler's theorem to Minkowski space. H. M. Schwartz. Am J Phys 31:864-7 N '63
Flow in the three-dimensional boundary layer on a spinning body of revolution. O. Parr. bibliog AIAA J 2:361-3 F '64
Fundamentals of the theory of rotating fluids. L. N. Howard. bibliog A S M E Trans ser E 30:481-5 D '63
Rotating cylinder flaps for v/s.t.o.l. aircraft. A. A. Calderón. il diags Aircraft Eng 36:304-9 O '64
Solution to Euler's gyrodynamics. C. F. Harding. diag A S M E Trans ser E 31:325-8 Je '64
Stresses in the vicinity of boundary discontinuities in bodies of revolution. A. R. Zak. diag A S M E Trans ser E 31:150-2 Mr '64
Wave propagation in rotating elastic media. R. L. Huston. AIAA J 2:575-6 Mr '64
Zonal flow inside an impulsively started rotating sphere. E. R. Benton. AIAA J 2:1840-1 O '64
See also
Magnus effect

ROTATION, Optical. See Optical rotation

ROTATION of molecules. See Molecules—Rotation

ROTOGRAVURE
Gravure is on threshold of rapid expansion; interview with W. R. Daum. J. N. Pannullo. il Inland Ptr/Am Lithogr 153:64-5 My '64
Rotogravure. G. H. Carl. Tappi 46:sup 168A-70A D '63
Web-offset versus letterpress and gravure. O. E. Freedman. il Inland Ptr/Am Lithogr 153:35-7+ Jl '64

ROTORS
Air-turbine rotor spins on gas bearings at 73,600 rpm. il Machine Design 36:8 My 21 '64
Comparison between theories and experiments for the threshold of instability of rigid rotor in self-acting, plain-cylindrical journal bearings. C. H. T. Pan and B. Sternlicht. bibliog diags A S M E Trans ser D 86:321-7 Je '64
Dynamics of synchronous-precessing turborotors with particular reference to balancing. T. M. Tang and P. R. Trumpler. diags A S M E Trans ser E 31:115-22 Mr '64
Effect of the 150-degree partial bearing on rotor-unbalance vibration. P. C. Warner and R. J. Thoman. A S M E Trans ser D 86:337-45; Discussion. 345-7 Je '64
Gas turbine aero engine rotor balance and vibration. K. S. Hodgkinson. il diags Aircraft Eng 36:218-20 Jl '64
High-speed rotor suspension formed by fully floating hydrodynamic radial and thrust bearings. J. Dworski. il diags A S M E Trans ser A 86:149-60 Ap '64
Impeller bars for the rotor of an impact breaker. P. Stephenson. il diags Engineer 217:524-5 Mr 20 '64
Load capacity and stability of rotors in self-acting gas lubricated plain cylindrical journal bearings. B. Sternlicht and L. W. Winn. bibliog il diags A S M E Trans ser D 85:503-11; Discussion. 511-12 D '63
Machine speeds balancing of turbine rotors. il Marine Eng/Log 69:22L Ja '64
On-the-line balancing of rotating machines. J. Vande Vegte. diags Control Eng 11:91-4 Mr '64
Prevention of cyclic thermal-stress cracking in steam-turbine rotors. W. R. Berry and I Johnsson. bibliog diags A S M E Trans ser A 86:361-7; Discussion. 367-8 Jl '64
Shaft whirl induced by rotor internal damping. F. F. Ehrich. diags A S M E Trans ser E 31:279-82 Je '64
Simple graphical method of determining torsional critical speeds of doubly overhung rotors; data sheet. N. F. Rieger. diags Machine Design 35:207-9 N 21 '63
Some recent research on the balancing of large flexible rotors. A. L. G. Lindley and R. E. D. Bishop. bibliog il diags Inst Mech Eng Proc 177 no 30:811-26; Discussion. 827-38; Reply. 839-41 '63

ROTORS—*Continued*

Thermal cracks in rotor crucial in large-turbine cyclic operation. W. R. Berry and I. Johnsson. diags Elec World 161:94-7+ Je 15 '64

ROTORS (electric machinery)

Capacitor motor with Alnico bars in the rotor. P. L. Alger and others. diags IEEE Trans Power Apparatus & Systems 83:989-97 O '64

Cogging in slow-speed servos. diag Control Eng 11:59-60 Jl '64

Effect of rotor eccentricity on the magnetic field in the air-gap of a non-salient-pole machine. S. A. Swann. diags Inst E E Proc 110:903-15 My '63; Discussion. 110:2030-1 N '63

Equivalent circuits with transformer elements for eddy current rotor induction motors derived from field equations. W. H. Koch. bibliog diags IEEE Trans Power Apparatus & Systems 83:567-83 Je '64

Magnetic bearings. J. W. Beams. diags Machine Design 36:204+ Mr 12 '64

Method for determination of magnetic moment in small spinning rotors. J. D. Nixon and D. J. Kenney. diags R Sci Instr 35:1365-6 O '64

Operational impedances of turbogenerators with solid rotors. P. Bharali and B. Adkins. bibliog diags Inst E E Proc 110:2185-99 D '63

Rotor windings for induction motors with arc-shaped stators. E. R. Laithwaite. diags Inst E E Proc 111:315-21 F '64

Manufacture

Cold-forming of generator rotor segments. il Mach 70:95-6 D '63

Small electric motor rotors are pressure cast; question and answer. diags Foundry 92:80 My '64

ROTPROOFING of textiles

Rotproofing of cellulosic fibers by a modified dry cure resin treatment. R. J. Boyle. bibliog Textile Res J 34:319-24 Ap '64

Some microbial-resistant compounds of zirconium and their effect on cotton. C. J. Conner and others. bibliog il Textile Res J 34:347-57 Ap '64

Use of 1-(perfluoroacyl)aziridines on wool. A. G. Pittman. Textile Res J 33:953-5 N '63

ROTTERDAM

Subways

Concrete tubes float through a city to make a subway. il Eng N 173:46-8 O 15 '64

ROUGHNESS measurement. See Surfaces—Smoothness testing

ROUS sarcoma virus. See Viruses

ROUTING systems

Conveyor dispatch systems. J. B. Hewitt. il diags Automation 10:67-74 D '63

How to lay out communications circuits. J. F. Holmes. Control Eng 10:87-9 D '63

ROW houses. See Houses, Row

ROYAL aeronautical society

Annual report of the council, 99th, 1963-1964. Roy Aeronautical Soc J 68:246-69 Ap '64

ROYAL Canadian navy. See Canada—Navy

ROYAL institution of naval architects

Joint meeting with North East Coast institution of engineers, Newcastle upon Tyne, Nov. 25-26; with abstracts of papers. Engineer 216:953-4 D 6 '63

Meeting, Bath, England, Oct. 24; abstracts of papers. Engineer 216:743 N 1 '63

Spring meeting, London, March 24-26; with abstracts of papers. Engineer 217:609-10 Ap 3 '64

Summer meeting, Sept. 21-25; with abstracts of papers Engineer 218:555, 588 O 2-9 '64

ROYAL jelly

Chinese royal jelly. Food Tech 18:521 Ap '64

ROYAL society of London

Conversazione, May 7. Chem & Ind p886-7 My 23 '64

Presidential address. H. Florey. Chem & Ind p 1992-5 D 28 '63

RUBBER

Application of finite elastic theory to the behavior of rubberlike materials. P. J. Blatz. bibliog il diags Rubber Chem & Tech 36:1459-96 D '63

Comparisons of materials: hardness of plastics, rubber and nonmetallics; tables. Materials in Design Eng 60:33 Mid-O '64

Compressibility of natural rubber at pressures below 500 kg/cm^2. L. A. Wood and G. M. Martin. J Res Nat Bur Stand 68A:259-68 bibliog(p267-8) My '64

Fortschritte der chemie organischer naturstoff, generalregister I-XX, 1938-1962 and vol. XXI. L. Zechmeister, ed. Review, by C. A. Finch. Chem & Ind p 1793-4 O 24 '64

Fraction of effective sulfur crosslinking in high sulfur-natural rubber vulcanizers. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37:225-8 Ja '64

Properties of materials; rubber; molded, extruded; tables. Materials in Design Eng 60:247-9 Mid-O '64

Society of aerospace materials and process engineers rubber symposium. Rubber World 150:88 Ag '64

Southern rubber group 22d meeting, Jackson, Miss. Nov. 1-2. Rubber Age 94:464-5 '63

Use of rubber columns for the chromatographic separation of triglycerides and other non-polar compounds. J. R. Trowbridge and others. bibliog Am Oil Chem Soc J 41:306-8 Ap '64

See also

Ebonite
International rubber study group
Rubber industry and trade

Accelerators

See Vulcanization—Accelerators

Aging

Age resisters for rubber; a general study. T. Kempermann. Rubber Chem & Tech 37:720-32 Jl '64

Antioxidants and antiozonants for general purpose elastomers. J. C. Ambelang and others. Rubber Chem & Tech 36:1497-541 bibliog(p 1538-41) D '63

Chemistry of thiazoles and dithiocarbamates as antioxidants. L. A. Brooks. bibliog Rubber Chem & Tech 36:887-910 O '63

Effect of network structure on aging of natural rubber vulcanizates. C. R. Parks and O. Lorenz. bibliog Ind & Eng Chem Product Res & Develop 2:279-84 D '63

Influence of chemical modifications on the oxidizability of natural rubber. J. de Merlier and J. Le Bras. bibliog diags Ind & Eng Chem Product Res & Develop 2:22-6 Mr '63; Same. Rubber Chem & Tech 36:1043-53 O '63

Relative contributions of viscoelasticity and aging to the relaxation of cured rubber. P. Thirion and R. Chasset. bibliog il Rubber Chem & Tech 37:617-26 Jl '64

Volatility of antioxidants and antiozonants; pure compounds in absence of rubber. R. B. Spacht and others. diag Rubber Chem & Tech 37:210-20 Ja '64

Analysis

Iodimetric determination of milligram amounts of rubber hydrocarbon. K. R. Middleton. bibliog Rubber Chem & Tech 37:733-40 Jl '64

Rapid determination of relative proportions of natural and SBR rubber in manufactured articles. M. Lerner and R. C. Gilbert. Anal Chem 36:1382 Je '64

Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63

Bibliography

Books. Published in monthly numbers of Rubber world

New books and other publications (cont). Rubber Chem & Tech 36:sup xv-xxii D '63; 37:sup xx-xxvii Ja; sup xviii-xxiii Ap; sup xvii-xix Jl '64

Reviews. Published in monthly numbers of Rubber age

Chemistry

Cyclization of diene polymers. I. A. Tutorskii and others. bibliog Rubber Chem & Tech 36:1019-23 O '63

Cyclization of natural rubber. D. F. Lee and others. bibliog Rubber Chem & Tech 36:1005-18 O '63

Effect of deformation on the crystallization of supercooled cured and uncured rubbers. M. F. Bukhina. bibliog Rubber Chem & Tech 37:404-7 Ap '64

Effect of piperidine on rubber solutions. A. Soininen and others. bibliog Rubber Chem & Tech 37:477-85 Ap '64

Estimation, from swelling, of the structural contribution of chemical reactions to the vulcanization of natural rubber. B. Ellis and others. bibliog diag Rubber Chem & Tech 37:563-80; Discussion. 580-2 Ap '64

Gel phase in natural rubber. P. W. Allen and G. M. Bristow. bibliog il diags Rubber Chem & Tech 36:1024-34 O '63

RUBBER—Chemistry—*Continued*

Influence of chemical modifications on the oxidizability of natural rubber. J. de Merlier and J. Le Bras. bibliog diags Ind & Eng Chem Product Res & Develop 2:22-6 Mr '63; Same. Rubber Chem & Tech 36:1043-53 O '63

Proton magnetic resonance in natural rubber; comparison with dielectric measurements. H. Kusumoto and H. S. Gutowsky. bibliog Rubber Chem & Tech 37:268-84 Ja '64

Some changes in double-bond structure during the vulcanization of natural rubber. F. J. Linnig and others. bibliog J Res Nat Bur Stand 68A:499-511 S '64

Studies of the hard rubber reaction; heat of reaction. M. L. Bhaumik and others. bibliog diags Rubber Chem & Tech 36:1059-70 O '63

Tetracyclosqualene and its bearing on the structure of cyclized rubber. M. A. Golub and J. Heller. bibliog Rubber Chem & Tech 37:486-90 Ap '64

Thermomechanical characterization of the molecular weight of linear polymers exemplified by natural rubber. B. Y. Teitelbaum and E. F. Gubanov. Rubber Chem & Tech 37:99-102 Ja '64

Vulcanization; a model and treatment for scorch delay kinetics. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:689-97 Jl '64

Vulcanization; rapid methods for characterizing rubber networks. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:668-72 Jl '64

Vulcanization; the effects of compounding variables on the nature of rubber networks. A. Y. Coran. bibliog diag Rubber Chem & Tech 37:673-8 Jl '64

Vulcanization; the formation of crosslinks in the system: natural rubber-sulfur-MBT-zinc ion. A. Y. Coran. bibliog Rubber Chem & Tech 37:679-88 Jl '64

Vulcanizing efficiency during the scorch period. R. H. Gerke. bibliog Rubber Chem & Tech 36:1153-8 O '63

See also
Isoprene
Rubber—Reclaiming

Curing

See Vulcanization

Cutting

See Rubber cutting

Electric properties

Internal field emission in carbon black-loaded natural rubber vulcanizates. L. K. H. van Beek and B. I. C. F. van Pul. il Rubber Chem & Tech 37:348-54 Ap '64

Fillers

Black magic. D. Walker. Rubber World 151:92-5 O '64

Dispersant-free aqueous slurries of carbon black: viscosity, techniques of handling, and use in latex masterbatching. A. I. Medalia and E. Hagopian. bibliog diags Ind & Eng Chem Product Res & Develop 3:120-5 Je '64

Internal field emission in carbon black-loaded natural rubber vulcanizates. L. K. H. van Beek and B. I. C. F. van Pul. il Rubber Chem & Tech 37:348-54 Ap '64

Low-volatile coal fines as a filler-extender. W. J. Mueller and others. Rubber Age 95:407-12 Je '64

Service-induced diffusion and nodule formation in rubber stocks. R. W. Smith and A. L. Black. bibliog il Rubber Chem & Tech 37:338-47 Ap '64

Joining

Guide to military and federal specifications for rubber-bonding adhesives. I. Katz. Rubber Age 95:78-86 Ap '64

Manufacture

ASTM committee D-24 on carbon black meeting. Rubber World 150:86+ Ag '64

Are rubber processing techniques outmoded? A. Kennaway; J. R. A. Pearson and F. E. Devine. bibliog diags Rubber World 149:43-52 N '63

Compounding by computer. J. C. Fritz. flow chart diag Rubber Age 94:286-9 N '63

Dry liquid concentrates. Rubber World 150:30 Ag '64

Variable speed mixing. S. E. Perlberg. diag Rubber World 150:27-31 My '64

See also
Rubber—Reclaiming
Vulcanization

Mixing with resins

Resins used in rubber. P. O. Powers. Rubber Chem & Tech 36:1542-70 bibliog(p 1569-70) D '63

Oxidation

See also
Rubber—Aging

Ozone effect

Antioxidants and antiozonants for general purpose elastomers. J. C. Ambelang and others. Rubber Chem & Tech 36:1497-541 bibliog(p 1538-41) D '63

Studies of ozone attack of vulcanizates in a closed system. J. C. McCool. bibliog il diags Rubber Chem & Tech 37:583-605 Jl '64

Volatility of antioxidants and antiozonants; pure compounds in absence of rubber. R. B. Spacht and others. diag Rubber Chem & Tech 37:210-20 Ja '64

Patents

Patent review. Published in monthly numbers of Rubber age

Recent rubber patents. diags Rubber World 150:17-18 Jl; 16-18 Ag; 6-8 S; 151:45-6 O '64

Reclaiming

Large rubber reclaim factory in operation. il Engineer 216:945-7 D 6 '63

New method of reclaiming scrap rubber. S. Ficker and A. Stieler. il Rubber Age 95:890-3 S '64

Recent advances in reclaimed rubber. W. J. Fritton. il Rubber Age 94:282-5 N '63

Reclaiming rubber from old tyres. il Engineering 197:16 Ja 3 '64

See also
Rubber, Artificial—Reclaiming

Reinforcement

Elasticity of carbon black networks. A. R. Payne. bibliog diag J Colloid Sci 19:744-54 O '64

Esso chemically bonds glass-to-rubber. il Rubber Age 95:616-17 Jl '64

Glass-fiber cords in rubber. A. Marzocchi. il Mech Eng 86:38-9 Je '64

Glass fibers reinforce tires. il Ind & Eng Chem 56:12 Ag '64

Glass reinforcement upgrades rubber and plastics. il Chem Eng 71:98+ Jl 20 '64

Low structure blacks. H. J. Collyer. Rubber World 150:43-8 Ap '64

Standards

Natural rubber standards. Rubber World 150:90 Ag '64

Stretching

Thermodynamics of elasticity of natural rubber. G. Allen and others. bibliog diag Rubber Chem & Tech 37:606-16 Jl '64

Swelling

Estimation, from swelling, of the structural contribution of chemical reactions to the vulcanization of natural rubber. B. Ellis and others. bibliog diag Rubber Chem & Tech 37:563-80; Discussion. 580-2 Ap '64

Experimental findings on the abnormal freezing point depression of swelled cured natural rubber. G. Butenuth and H. Westlinning. bibliog diags Rubber Chem & Tech 37:311-25 Ap '64

Swelling studies of filled and unfilled vulcanizates. G. Butenuth. bibliog il Rubber Age 94:737-43 F '64; Same. Rubber Chem & Tech 37:326-37 Ap '64

Temperature effect

Comparisons of materials; maximum service temperatures of plastics and rubber; tables. Materials in Design Eng 60:22 Mid-O '64

Effect of deformation on the crystallization of supercooled cured and uncured rubbers. M. F. Bukhina. bibliog Rubber Chem & Tech 37:404-7 Ap '64

Experimental findings on the abnormal freezing point depression of swelled cured natural rubber. G. Butenuth and H. Westlinning. bibliog diags Rubber Chem & Tech 37:311-25 Ap '64

Thermal liquid heating of molding presses. A. H. Bellac. il diags Rubber World 149:31-5 Mr '64

Thermomechanical characterization of the molecular weight of linear polymers exemplified by natural rubber. B. Y. Teitelbaum and E. F. Gubanov. Rubber Chem & Tech 37:99-102 Ja '64

Testing

Effect of pressure on Young's modulus and the glass transition in rubbers. M. S. Paterson. bibliog J Ap Phys 35:176-9 Ja '64

RUBBER—Testing—*Continued*

Indenter hysteresimeter for testing dynamic properties. G. Tangorra. il diags Rubber Chem & Tech 36:1107-18 O '63
Mechanism of abrasion of vulcanized rubber. A. P. Rudakov and E. V. Kuvshinskii. bibliog diags Rubber Chem & Tech 37:291-6 Ja '64
NBS determines compressibility of rubber. il diag Rubber Age 95:618-19 Jl '64
New type of tackmeter. O. K. F. Bussemaker and W. V. C. van Beek. bibliog diags Rubber Chem & Tech 37:28-37 Ja '64
Relation between the friction and viscoelastic properties of rubber. K. A. Grosch. bibliog diags Rubber Chem & Tech 37:386-403 Ap '64
Rheological properties of two unvulcanized rubber compounds as determined on an extrusion and a rotational viscometer. F. E. Devine and J. A. Ross. bibliog il Rubber Chem & Tech 37:491-502 Ap '64
Stress-strain curves of rubbers in simple shear. M. Mooney. bibliog J Ap Phys 35:23-6 Ja '64
Testing rubber. A. E. Juve. bibliog il diag Rubber Chem & Tech 37:sup xxiv-xxxiv Ap '64
Viscurometer, an instrument to assess processing characteristics. A. E. Juve and others. bibliog il diags Rubber World 149:42-9 D '64; Same. Rubber Chem & Tech 37:434-45 Ap '64
See also
Rubber goods, Mechanical—Testing
Rubber laboratories

Transportation

Should you roll your own? A. J. Schoen. Rubber Age 95:906-7 S '64

Uses

Rubber and the 1965 automobile. F. Olmstead. il diags Rubber Age 95:879-84 S '64

Vulcanization

See Vulcanization

RUBBER, Artificial

Acrylic elastomers. M. A. Mendelsohn and H. F. Minter. Rubber Age 95:403-6, 584-8 Je-Jl '64
ASTM D-11 subcommittees reports. Rubber World 149:93-8 Mr '64
Application of finite elastic theory to the behavior of rubberlike materials. P. J. Blatz. bibliog il diags Rubber Chem & Tech 36:1459-96 D '63
Approaches to three new polymers worked out; symposium. Chem & Eng N 41:42-7 D 16 '63
Big changes coming in rubber industry. Can Chem Process 48:62+ Ap '64
Boston rubber group annual spring meeting, Boston, March 20; with abstracts of papers. Rubber Age 95:468 Je '64
Butadiene-styrene block copolymer for molded and extruded goods. H. E. Railsback and others. Rubber Age 94:583-9 Ja '64
Chemical market research association. annual meeting. Chicago. Feb. 18-20; abstracts of papers. Rubber Age 95:114-15+ Ap '64
Companies scramble for EPT rubber market. il Chem & Eng N 41:9-10 D 23 '63
Comparisons of materials; hardness of plastics, rubber and nonmetallics; tables. Materials in Design Eng 60:33 Mid-O '64
Construction joints for elastomeric sealants. W. F. Koppes. diags Prog Arch 45:163-7 Mr '64
Cure system may overcome EPR problems. L. P. Lenas. Chem & Eng N 42:150-1 S 7 '64
Developments in polyisoprene; Buffalo rubber group meeting, Oct. 8. Rubber World 149:98 N '63
DuPont marketing Nordel EPT rubber. il Rubber Age 94:630 Ja '64
Economics of synthetic rubber. E. R. Bridgwater. bibliog Rubber World 149:53-6 F '64
Elastomeric coatings. il Materials in Design Eng 60:99-106 Ag '64 (reprints 35c)
Elastomers broaden plastics market base. il Mod Plastics 41:86-90+ Je '64
Electroforming from rtv patterns or molds. il Plating 51:998-9 O '64
Ethylene-propylene elastomers can now invade tires. L. Critides. il Ind & Eng Chem 56:9-10 F '64
EPT elastomer, the crackless rubber. J. E. Hauck. il Materials in Design Eng 60:79-81 Ag '64
Films, permeable and selective; silicone polymers. il diags Product Eng 35:58-9 O 12 '64
Fluid roofing systems of synthetic rubber. il diags Arch Rec 135:177-8 Ja; 179-80 F; 215-16+ Mr '64
Fraction of effective sulfur crosslinking in SBR vulcanizates. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37:221-4 Ja '64
Functionality of elastomers. W. J. Sparks. bibliog Rubber Chem & Tech 36:sup xxiii-xxviii D '63
International institute of synthetic rubber producers 5th, annual meeting, Tokyo, May 14-15; with abstracts of papers. Rubber Age 95:451-5 Je '64
Mechanism of autoxidation of three vinyl polymers; polypropylene, ethylene-propylene rubber, and poly(ethyl acrylate). A. V. Tobolsky and others. bibliog Am Chem Soc J 86:3925-30 O 5 '64
Modified acrylic elastomers and their vulcanization with a peroxide-coagent system. M. A. Mendelsohn. bibliog Ind & Eng Chem Product Res & Develop 3:67-72 Mr '64
New corona- and heat-resistant cable insulation based on ethylene propylene rubber. R. B. Blodgett and R. G. Fisher. bibliog IEEE Trans Power Apparatus & Systems p980-8; Discussion. il 988-90 D '63
New family of tough, rubber-like plastics. il Materials in Design Eng 59:96-7 My '64
New materials. Published in monthly numbers of Rubber world
New plastic develops rubber-like traits; Ultrathene. il Iron Age 193:110 Mr 26 '64
New polymer developments; December technical session of the Akron rubber group meeting. Rubber World 149:74+ Ja '64
New products. Y. Yoshida. il Rubber World 150:55-6 Jl '64
New rubber derived from propylene oxide. E. E. Gruber and others. bibliog Ind & Eng Chem Product Res & Develop 3:194-9 S '64
New sulfur-curable ethylene-propylene rubber. H. E. Haxo, jr. and others. bibliog il Rubber Age 94:255-67 N '63
New synthetic to invade rubber market; ethylene-propylene rubber. H. S. Pylant. il Oil & Gas J 62:64-5 Jl 6 '64
New York rubber group held a symposium on ethylene-propylene rubber, Oct. 18. Rubber Age 94:292-4 N '63
Next steps for rubber. G. Cyriax. Rubber World 150:38-47 Je '64
Nitrile rubber. W. Hofmann. bibliog il diags Rubber Chem & Tech 37:1-261 pt 2 Ap '64
Perbunan and its use. C. A. Klebsattel. Rubber World 150:53-60+ Ap '64
Phenolic resins cure EPT rubber. il Chem & Eng N 41:50-3 D 16 '63
Philadelphia rubber group symposium on EPT, Jan. 24; abstracts of papers. Rubber Age 95:129-30 Ap '64
Polyacrylate elastomers attract new interest. il Chem & Eng N 41:27-8 N 18 '63
Polymeric materials. C. H. Adams. bibliog il diags Chem Eng 71:83-90 Ja 6 '64
Polyolefin elastomers. G. Natta and others. diags Rubber Chem & Tech 36:1583-668 bibliog(p 1667-8) D '63
Polypropylene glycol cuts urethane polymer cost. il Chem Eng 71:108 S 14 '64
Polyurethane elastomers set for growth. H. W. Holly. Chem & Eng N 42:34-5 Mr 2 '64
Positive expulsion devices. J. Green and others. Chem Eng Prog 60:60-1 F '64
Processing and fabrication of a high-temperature fluid-resistant fluorocarbon elastomer. D. A. Stivers and P. D. Lanin. Ind & Eng Chem Product Res & Develop 3:61-7 Mr '64
Properties of a new unsaturated ethylene-propylene elastomer. H. H. Waddell and others. bibliog Rubber Age 94:427-37 D '63
Recent studies on synthetic rubber. S. Kambara. bibliog Rubber World 150:52-4 Jl '64
Representation of the mechanical damping possessed by rubberlike materials and structures. J. C. Snowdon. bibliog diags Rubber Chem & Tech 37:370-85 Ap '64
Reviewing briefly the more conventional silicones, fluids, elastomers and resins. R. L. Bass. Chem & Ind p699-700; Discussion. 700 Ap 25 '64
Room temperature-curing polyurethane casting compounds. L. Montesano. il Ind & Eng Chem Product Res & Develop 3:133-7 Je '64
Room temperature vulcanizing silicone rubber patterns extend Shaw process. D. Giles. il Tool & Manuf Eng 53:69-70 Jl '64
Self-curing acrylics. J. Steusse. Rubber World 150:78-82 My '64
Silicone property improvement. T. J. Gair. Rubber World 150:49-51 Je '64
Silicone rubber; new properties for design engineers. G. S. Irby, jr. and others. il Rubber World 150:61-5 My '64

RUBBER, Artificial—*Continued*

Soft denture liner and lab mold release are silicone elastomers. Plastics World 21:13 N '63
Southern rubber group meeting, Atlanta, June 19-20; with abstracts of papers. Rubber Age 95:791 Ag '64
Southern rubber group panel symposiums on silicone rubber and mixing, Houston, Feb. 14-15; with abstracts of papers. Rubber Age 95:121-4 Ap '64
Special methods improve missile insulation. Rubber Age 95:893 S '64
Specialty rubber made from propylene oxide. D. A. Meyer. Chem & Eng N 42:57-8 My 11 '64
Status of elastomer technology; annual review. G. Alliger and F. C. Weissert. Ind & Eng Chem 56:36-42 bibliog(p41-2) Ag '64
Stereo rubber use to grow 36 per cent in 1964. il Chem & Eng N 42:27 F 17 '64
Stress relaxation in crosslinked poly(ethylene tetrasulfide). R. B. Beevers. bibliog J Colloid Sci 19:40-9 Ja '64
Structure-property relationships in one-step urea-urethane elastomers. K. W. Rausch and others. bibliog Ind & Eng Chem Product Res & Develop 3:125-9 Je '64
Sulfur vulcanizable ethylene-propylene rubbers. G. Natta and others. bibliog diags Rubber Chem & Tech 36:988-99 O '63
Synthetic resins; the backbone of modern finishes; butyl rubber and polysulfide polymers. H. P. Preuss. il Metal Finishing 62:87-91+ My '64
Synthetic resins the backbone of modern finishes; cyclized and chlorinated rubber. H. P. Preuss. bibliog il Metal Finishing 62:72-5 Mr '64
Synthetic resins; the backbone of modern finishes; polychloroprene and chlorosulfonated polyethylene elastomers. H. P. Preuss. il Metal Finishing 62:54-6 Ap '64
Synthetic rubber steals the show. G. Corfield. Gas 40:15 S '64
Terpolymer rubber now ready for market. il Chem Eng 71:56+ F 3 '64
Urethane elastomers prepared from dipropylene glycol-tolylene diisocyanate adducts. H. R. Bylsma. bibliog il Ind & Eng Chem Product Res & Develop 3:204-9 S '64
Use of self-sealing elastomer septums for quantitative operations with volatile solvents. N. Adler. diags Anal Chem 36:2291-5 N '64
Wide range of parts from new elastomer family. il Materials in Design Eng 58:135-6+ D '63

See also
Neoprene
Polymers
Urethans

Aging

Accelerated air-aging studies with nitrile rubber stocks. L. E. Trimble and A. Cosgarea, jr. Rubber Age 94:910-15 Mr '64
Antioxidants and antiozonants for general purpose elastomers. J. C. Ambelang and others. Rubber Chem & Tech 36:1497-541 bibliog(p 1538-41) D '63
EPT improves aging in blends; New York rubber group meeting, Oct. 18. Rubber World 149:64-5 D '63
Heat-aging capabilities of today's silicone rubber stocks. W. J. Bobear. bibliog Rubber Age 95:71-7 Ap '64
Practical aging of rubber. J. R. Cloutier. bibliog Rubber Age 95:245-50 My '64

Analysis

Analysis of elastomers by gas chromatography. H. Hulot and P. Lebel. bibliog diags Rubber Chem & Tech 37:297-309 Ja '64
Determination of the structure and composition of nitrile rubber. W. Hofmann. diags Rubber Chem & Tech 37:107-26 bibliog(p 124-6) pt 2 Ap '64
Identification of elastomers by gas chromatography applied to pyrolyzates. A. Fiorenza and G. Bonomi. bibliog diags Rubber Chem & Tech 37:741-57 Jl '64
Identification of elastomers by infrared spectrophotometry. A. Fiorenza and G. Bonomi. bibliog diags Rubber Chem & Tech 36:1129-47 O '63
NBS analyzes ethylene-propylene copolymers. il diags Rubber Age 94:790-1 F '64
Radiochemical investigation of polymer unsaturation; reaction of butyl rubber with radiochlorine. I. C. McNeill. bibliog diag Rubber Chem & Tech 36:1071-80 O '63
Rapid determination of relative proportions of natural and SBR rubber in manufactured articles. M. Lerner and R. C. Gilbert. Anal Chem 36:1382 Je '64
Spectrophotometric determination of vanadium in ethylene-propylene rubber solutions with 3,3′-diaminobenzidine. A. J. Smith. Anal Chem 36:944-5 Ap '64
Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63

Bibliography

Books. Published in monthly numbers of Rubber world
New books and other publications (cont). Rubber Chem & Tech 36:sup xv-xxii D '63; 37:sup xx-xxvii Ja; sup xviii-xxiii Ap; sup xvii-xix Jl '64
Reviews. Published in monthly numbers of Rubber age

Chemistry

Crosslinking reactions of carboxylic elastomers. H. P. Brown. Rubber Chem & Tech 36:931-62 bibliog(p961-2) O '63
Crosslinking study of millable polyurethane elastomers with phenolic resins. O. C. Elmer and A. E. Schmucker. bibliog Rubber Age 94:438-45 D '63
Determination of the molecular weight of SKI-2 rubber. I. N. Burak. Rubber Chem & Tech 36:1042 O '63
Evaluation of cross-linking coagents in ethylene-propylene rubber. L. P. Lenas. Ind & Eng Chem Product Res & Develop 2:202-8 S '63; Same. Rubber Chem & Tech 37:229-45 Ja '64
Molecular structure and properties of polybutadiene rubbers. H. Blümel. bibliog il diags Rubber Chem & Tech 37:408-33 Ap '64
Molecular theory of filler reinforcement based on the concept of internal deformation. Y. Sato and J. Furukawa. diags Rubber Chem & Tech 35:857-76; 36:1081-106 O '62, O '63
Synthesis of nitrile rubber. W. Hofmann. il diag Rubber Chem & Tech 37:46-106 bibliog(p99-106) pt 2 Ap '64
Vulcanization of elastomers; experiments to determine the Huggins interaction parameter. K. Hummel. bibliog Rubber Chem & Tech 37:446-50 Ap '64
Vulcanization of elastomers; the kinetics of crosslinking. W. Scheele and K.-H. Hillmer. bibliog Rubber Chem & Tech 37:698-708 Jl '64
Vulcanization of fluoroelastomers with difluorodiazine. J. F. Smith and J. R. Albin. bibliog diags Ind & Eng Chem Product Res & Develop 2:284-6 D '63

Curing

See Vulcanization

Electric properties

Electrical properties of elastomers and related polymers. A. T. McPherson. il Rubber Chem & Tech 36:1230-302 bibliog(p 1298-302) D '63
Ethylene-propylene rubber for wire and cable insulation. W. C. Smith and others. bibliog il Rubber World 149:54-65 Mr '64
Optimizing electrical properties of ethylene-propylene terpolymers. J. R. Wolfe, jr. and I. D. Roche. Rubber World 149:62-6 N '63

Fillers

Extenders for ethylene-propylene rubbers. R. M. White. bibliog il Rubber Age 94:897-909 Mr '64
Identification of rubber compounding ingredients by electron microscopy. E. B. Prestridge. il Rubber Age 94:916-18 Mr '64
Low-volatile coal fines as a filler-extender. W. J. Mueller and others. Rubber Age 95:407-12 Je '64
Vinylpyridine rubber (PBR)-filler interactions. W. F. Brucksch, jr. bibliog diag Rubber Chem & Tech 36:975-87 O '63

Joining

Guide to military and federal specifications for rubber-bonding adhesives. I. Katz. Rubber Age 95:78-86 Ap '64

Latex

Cement mortars modified by SB latexes with variable bound styrene. Y. Ōhama and others. bibliog Rubber Chem & Tech 37:758-69 Jl '64
Determination of latex particle size distribution by analytical ultracentrifugation. H. W. McCormick. bibliog il J Colloid Sci 19:173-84 F '64
Elastomeric diaphragm for automotive seating. T. Seather. il Automotive Ind 130:50-2 Je 1 '64

RUBBER, Artificial—Latex—*Continued*

Latex consumption to rise 50 per cent. Rubber World 150:95 Jl '64
Latex market will grow by three per cent a year. il Chem & Eng N 42:32-3 F 3 '64
Latex preparation. C. B. Westerhoff and others. bibliog Rubber Age 94:446-50 D '63
New techniques of particle-size analysis. D. W. Montgomery. Rubber Age 94:759-61 F '64
Polyisoprene latex. L. Critides. il Ind & Eng Chem 56:11-12 My '64
Shell expands polyisoprene latex capacity. il Chem & Eng N 42:37-8 Ap 13 '64
Soil stabilization by latex-and-oil spraying. Engineering 197:83 Ja 17 '64
Stabilization of sand and soil. Engineer 217:140 Ja 17 '64
Symposium on latex. Rubber Age 95:778-9 Ag '64
Technology of nitrile rubber latexes. W. Hofmann. il Rubber Chem & Tech 37:234-52 pt 2 Ap '64

Manufacture

Are rubber processing techniques outmoded? A. Kennaway; J. R. A. Pearson and F. E. Devine. bibliog diags Rubber World 149:43-52 N '63
Blends of chlorobutyl and nitrile rubbers. L. Evans and E. G. Partridge. bibliog Rubber Age 94:272-81 N '63
EPT plant now producing. il Oil & Gas J 62:116 F 10 '64
Improved catalyst is key to synthetic rubber. il Oil & Gas J 62:88 N 2 '64
Magnesium oxides in elastomers. W. H. Deis and L. F. Heneghan. Rubber World 150:64-73 S '64
New butyl-rubber plant operating. H. S. Pylant. il diag Oil & Gas J 61:132-3 D 2 '63
New silicones eliminate oven cure. S. d'Adolf. il Rubber World 149:37-40 D '63
New synthetic rubbers from copolymerization of butadiene and ene-yne diols. V. I. Nikitin. Rubber Chem & Tech 37:774-5 Jl '64
Poly(alkylene oxide) rubbers. J. G. Hendrickson and others. bibliog Rubber Chem & Tech 37:1-5 Ja '64
Selected process flow sheets for petrochemicals; polydiene rubbers. Oil & Gas J 62:114 S 7 '64
U.S. Rubber to double capacity of new ethylene-propylene rubber plant. H. S. Pylant. il diag Oil & Gas J 62:94-5 Ag 3 '64
See also
Vulcanization

Mixing with resins

Formulating a urethane casting compound. L. I. Johnson. bibliog Rubber Age 94:268-71 N '63
Plastic-like rubbers blend strength and molding ease. il Materials in Design Eng 59:155+ Ap '64
Resins used in rubber. P. O. Powers. Rubber Chem & Tech 36:1542-70 bibliog(p 1569-70) D '63

Oil effect

Effect of oils on ethylene-propylene terpolymer. Rubber World 149:54-9 Ja '64
Oil-extended ethylene-propylene terpolymer breakthrough. W. G. Whitehouse and others. Rubber World 150:39-42 My '64
Predicting elastomer-fluid compatibility for hydraulic systems. A. Beerbower and others. bibliog Rubber Chem & Tech 37:246-60 Ja '64
Quantitative relationship between mineral oil composition and elastomer-extender interaction parameter. M. Bruzzone and G. Modini. Rubber Chem & Tech 37:451-6 Ap '64
Terpolymer rubber now in oil-extended form. il Chem Eng 71:96+ Je 22 '64
Which oil extends EPT rubbers best? W. G. Whitehouse and others. Hydrocarbon Process & Pet Refiner 43:235-8 S '64

Ozone effect

Antioxidants and antiozonants for general purpose elastomers. J. C. Ambelang and others. Rubber Chem & Tech 36:1497-541 bibliog(p 1538-41) D '63
Ozone-resistant rubber. il Mech Eng 86:59 F '64
Studies of ozone attack of vulcanizates in a closed system. J. C. McCool. bibliog il diags Rubber Chem & Tech 37:583-605 Jl '64

Patents

Great General Tire patent suit. O. J. Scott. il Rubber World 151:32-9 O '64
Patent review. **Published in monthly numbers** of Rubber age
Recent rubber patents. diags Rubber World 150:17-18 Jl; 16-18 Ag; 6-8 S; 151:45-6 O '64

Radiation effect

Effects on elastomers of gamma irradiation and high vacuum. C. A. Cassola and A. F. Bonanni. il Rubber Age 95:414-19 Je '64

Reclaiming

Large rubber reclaim factory in operation. il Engineer 216:945-7 D 6 '63

Reinforcement

Improving reinforcement of ethylene-propylene elastomers. K. A. Burgess and others. bibliog il Rubber World 149:34-41 Ja '64
Low structure blacks. H. J. Collyer. Rubber World 150:43-8 Ap '64
Microscopy of pigment-elastomer systems. W. M. Hess and F. P. Ford. il Rubber Chem & Tech 36:1175-229 bibliog(p 1227-9) D '63
Molecular theory of filler reinforcement based on the concept of internal deformation. Y. Sato and J. Furukawa. diags Rubber Chem & Tech 35:857-76; 36:1081-106 O '62. O '63
Reinforcement of butyl with carbon black. A. M. Gessler. bibliog Rubber Age 94:598-610, 750-8 Ja-F '64
Role of adhesion in the reinforcement of elastomers. S. S. Voyutskii and others. bibliog diag Rubber Age 95:729-35 Ag '64
Swelling of filler-reinforced vulcanizates. G. Kraus. bibliog Rubber Chem & Tech 37:6-13 Ja '64

Strength

Molecular theory for the tensile strength of gum elastomers. F. Bueche and J. C. Halpin. bibliog J Ap Phys 35:36-41 Ja '64

Swelling

Solvent resistance of silicone elastomers; solvent-polymer interactions. K. B. Yerrick and H. N. Beck. bibliog Rubber Chem & Tech 37:261-7 Ja '64
Swelling of filler-reinforced vulcanizates. G. Kraus. bibliog Rubber Chem & Tech 37:6-13 Ja '64

Temperature effect

Comparisons of materials; maximum service temperatures of plastics and rubber; tables. Materials in Design Eng 60:22 Mid-O '64
Heat-aging capabilities of today's silicone rubber stocks. W. J. Bobear. bibliog Rubber Age 95:71-7 Ap '64
Heat resistance of neoprene vulcanizates. R. O. Becker. Rubber Chem & Tech 37:76-87 Ja '64; Rubber World 149:49-53 Ja '64
Linear thermal expansion of elastomers in the range 300° to 76° K. R. F. Robbins and others. bibliog diag Rubber Chem & Tech 37:154-68 Ja '64
Thermal insulative tests for silicone rubber. W. J. Bobear and T. J. Gair. il diags Rubber World 150:35-40 Jl '64
Thermomechanical study of polyisobutylene by stretching and indentation. B. A. Fomenko and others. bibliog Rubber Chem & Tech 37:365-9 Ap '64

Testing

Accelerated thermomechanical testing of vulcanizates. G. J. Briggs and others. diags Rubber Chem & Tech 37:134-45 Ja '64
Blends of Royalene with other polymers. M. S. Sutton. il Rubber World 149:62-8 F '64
Compact test instrument for determining the indentation failure of elastomers. D. I. Livingston and L. E. Hildenbrand. il diag Rubber Chem & Tech 37:14-27 Ja '64
Curing environment and homogeneity of diisocyanate-linked elastomers. A. J. Havlik. bibliog il diag Materials Res & Stand 4:358-63 Jl '64
Delayed action accelerators in polybutadiene/SBR blends. A. R. Davis and R. A. Naylor. Rubber World 149:54-7 D '63
Development and testing of elastomeric materials for fluid sealing applications. C. M. Blow. Aircraft Eng 36:208-12 Jl '64
Effect of pressure on Young's modulus and the glass transition in rubbers. M. S. Paterson. bibliog J Ap Phys 35:176-9 Ja '64
Flexcracking of polymers. F. H. D. Akkerman. il diags Rubber Chem & Tech 37:186-98 Ja '64
Identification of rubber compounding ingredients by electron microscopy. E. B. Prestridge. il Rubber Age 94:916-18 Mr '64

RUBBER, Artificial—Testing—*Continued*

Indenter hysteresimeter for testing dynamic properties. G. Tangorra. il diags Rubber Chem & Tech 36:1107-18 O '63

Measurement of milling behavior. W. H. Embree and others. il Rubber Age 95:563-6 Jl '64

Mechanism of abrasion of vulcanized rubber. A. P. Rudakov and E. V. Kuvshinskii. bibliog diags Rubber Chem & Tech 37:291-6 Ja '64

Nonhomogeneous straining and fracture mechanism in a filled elastomer. M. Ronay. il diag J Ap Phys 35:629-36 Mr '64

Permanence properties of flexible urethan foams. S. Steingiser and others. bibliog il Rubber Chem & Tech 37:38-75 Ja '64

Polyethylene-butyl blends. J. J. Danic and others. Rubber World 149:36-47 F '64

Practical aging of rubber. J. R. Cloutier. bibliog Rubber Age 95:245-50 My '64

Predicting the transfer forming characteristics of butyl using the Mooney viscometer. J. F. Quirk and H. F. Minter. il diags Rubber Age 95:251-5 My '64

Thermal insulative tests for silicone rubber. W. J. Bobear and T. J. Gair. il diags Rubber World 150:35-40 Jl '64

Ultimate tensile properties of elastomers; comparison of failure envelopes for unfilled vulcanizates. T. L. Smith. bibliog J Ap Phys 35:27-36 Ja '64

Tire use

Factors affecting skid resistance of polybutadiene. G. J. Briggs and others. bibliog il Rubber World 150:41-53 S '64

Great General Tire patent suit. O. J. Scott. il Rubber World 151:32-9 O '64

New high-damping SBR for the tire industry. H. K. deDecker. Rubber Age 94:590-3 Ja '64

Now they're making tires without natural rubber. il Oil & Gas J 62:142-3 Ag 17 '64

Solution-polymerized SBR gains in stereo rubber uses. Chem & Eng N 42:48 Je 1 '64

Solution-polymerized SBR makes bid for tire market; Solprene X-30. Chem & Eng N 42:54 Mr 16 '64

Thermostability of sulfenamide accelerators in tire compounds. W. Kleeman and G. Erben. bibliog Rubber Chem & Tech 37:204-9 Ja '64

Uses

Cool and comfortable; Nordel seats. il Product Eng 35:79 O 26 '64

EPT for automotive sponge. L. Spenadel. il Rubber World 150:69-77 Ag '64

New rubbers vie for general-purpose jobs. Chem Eng 71:50+ Mr 30 '64

Use of synthetic rubber is expanding. Oil & Gas J 62:92 Mr 9 '64

Which elastomer for your sealing problem? R. W. Malcolmson. Machine Design 36:196+ O 8 '64

Vulcanization

See Vulcanization

RUBBER, Foamed

Acoustical covering; urethane in nursery helps keep babies germ-free as well as quiet. il Plastics World 21:63 N '63

Cellular elastomers. R. C. Bascom. bibliog il diags Rubber Age 95:576-81 Jl '64

EPT for automotive sponge. L. Spenadel. il Rubber World 150:69-77 Ag '64

Foam absorbs pavement expansion. il Eng N 171:55 D 5 '63

New machinery for urethane foams. R. C. Hosford. il Plastics Tech 9:36-41 N '63

Permanence properties of flexible urethan foams. S. Steingiser and others. bibliog il Rubber Chem & Tech 37:38-75 Ja '64

Properties of materials; plastics and rubber foams; tables. Materials in Design Eng 60:244-5 Mid-O '64

Sealer foams into tight spots. il Iron Age 193:85 Je 25 '64

RUBBER, Reclaimed. See Rubber—Reclaiming

RUBBER accelerators. See Vulcanization—Accelerators

RUBBER balls. See Balls, Rubber

RUBBER bands

Undergraduate experiment on elasticity of rubber bands. E. P. Papadakis. Am J Phys 31:938-9 D '63

RUBBER chemicals

New materials. Published in monthly numbers of Rubber world

Rubber industry's chemical needs expanding. Chem & Eng N 42:30-1 F 24 '64

Use of dry liquid concentrates proposed by John-Manville; Micro-Cel E. Chem & Eng N 42:53 Jl 6 '64

See also

Vulcanization—Accelerators

RUBBER coating

Elastomeric coatings. il Materials in Design Eng 60:99-106 Ag '64 (reprints 35c)

Epoxy-encapsulated electronic modules. G. R. Bretts and others. il Plastics Tech 10:32-4 Ja '64

New blimp rises high. il Rubber Age 95:885 S '64

RUBBER containers. See Containers, Rubber

RUBBER cutting

Cutter slices costs; Acushnet process co. N. Randolph. il Rubber World 149:60-1 D '63

Cutting technique aids gasket production. Rubber Age 95:412 Je '64

Urethane tooling. H. S. Achler. il diags Mach 70:135-47 Je '64

RUBBER dies. See Dies, Rubber

RUBBER factories

See also

Rubber—Reclaiming

Control equipment

Compound by computer. J. C. Fritz. flow chart diag Rubber Age 94:286-9 N '63

Rubber looks at the lure of automation. il Can Chem Process 48:57-8+ Ap '64

Employees

Does your plant need a medical program? D. H. Robinson. Rubber Age 94:611-12 Ja '64

How to set up a health program. D. H. Robinson. Rubber Age 95:262-3 My '64

Moonlighting; a regional case study. A. N. Wecksler. Mill & Factory 75:71-3 Ag '64

Sports for employees; is the cost justifiable? Rubber Age 95:94 Ap '64

See also

United rubber, cork, linoleum and plastic workers of America

Equipment

Automated liner tables improve calendering. Rubber Age 95:753 Ag '64

B. F. Goodrich introduces bulk handling systems. diag Rubber Age 95:286 My '64

How we refinish rubber mill rolls. F. A. Kellner. il Rubber World 150:51-3 My '64

Large rubber reclaim factory in operation. il Engineer 216:945-7 D 6 '63

New equipment. Published in monthly numbers of Rubber age

New equipment. Published in monthly numbers of Rubber world

U.S. Rubber to double capacity of new ethylene-propylene rubber plant. H. S. Pylant. il diag Oil & Gas J 62:94-5 Ag 3 '64

See also

Rubber machinery

Management

CPM in rubber goods manufacture. D. J. Bencin. diag Rubber Age 95:426-8 Je '64

Safety measures

In case of accident. il Rubber World 150:36-9 Ap '64

Safety in rubber. W. R. Mulligan. Rubber World 151:103-6 O '64

RUBBER goods

Forms and shapes of materials; plastics and rubber forms; tables. Materials in Design Eng 60:465-71 Mid-O '64

New goods. Published in monthly numbers of Rubber age

New products. il Rubber World 150:120-1 Je; 126 Jl; 151:150+ O '64

Rapid determination of relative proportions of natural and SBR rubber in manufactured articles. M. Lerner and R. C. Gilbert. Anal Chem 36:1382 Je '64

Rubber goes to sea. il Rubber World 151:111 O '64

Rubber industry products much in evidence at New York World's fair. il Rubber Age 95:470-2 Je '64

Rubber's newest competitor. S. d'Adolf. il Rubber World 150:80-4 Je '64

See also

Balls, Rubber

Molds (for rubber)

Printing plates, Rubber

Manufacture

Akron rubber group symposium on recent development in the molding and curing of rubber, April 2; with abstracts of papers. Rubber Age 95:290-1 My '64

RUBBER goods—Manufacture—*Continued*

Are rubber processing techniques outmoded? A. Kennaway; J. R. A. Pearson and F. E. Devine. bibliog diags Rubber World 149:43-52 N '63

Butadiene-styrene block copolymer for molded and extruded goods. H. E. Railsback and others. Rubber Age 94:583-9 Ja '64

Cold feed extrusion process for rubber. il Engineering 197:779 Je 5 '64

Controlled dipping. il Rubber Age 95:260-1 My '64

CPM in rubber goods manufacture. D. J. Bencin. diag Rubber Age 95:426-8 Je '64

Distribution of data; how to meet specifications in manufacture of rubber goods. R. H. Gerke. bibliog Rubber Age 95:256-9 My '64

Injection molding of rubber. P. Y. Masson. diag Rubber Chem & Tech 37:88-98 Ja '64

Mechanical rubber deflashing. F. D. Watson. il diags Rubber Age 95:88-93 Ap '64

Mold release agents in the rubber industry. H. H. Bertram. bibliog Rubber Chem & Tech 36:1148-52 O '63

Talc dusting by electrostatic spray. il Rubber World 150:99 My '64

Techniques of silicone rubber processing. D. C. Youngs and G. M. Konkle. bibliog il diags Rubber Age 95:736-45, 894-905 Ag-S '64

RUBBER goods, Mechanical

Application of rubber covered rolls to pinch rolls and bridles. A. R. Foreman. il diags Iron & Steel Eng 41:111-20 Ag '64

Automotive V-belt. C. C. Gates, jr. il diags Materials in Design Eng 59:124-5 Ap '64

Elastomeric bearing pads. E. E. Thielker. il diags Rubber World 150:62-8 Je '64

Erasing the bumps with rubber springs. il Product Eng 35:57 Ja 6 '64

EPT elastomer, the crackless rubber. J. E. Hauck. il Materials in Design Eng 60:79-81 Ag '64

Extrusions + synthetic rubber make versatile tools for press brakes. il diags Mod Metals 20:84-5 Jl '64

Fiat 850 stresses silence by using rubber to isolate engine, suspension from body. D. Scott. il diag Automotive Ind 130:55-6 My 15 '64

General's Indiana unit manufacturing "quiet." il Rubber Age 95:624 Jl '64

Getting the most out of transfer molding. D. J. Chovan. il diags Rubber World 150:72-6 My '64

Girders rest on elastomeric pads. il diag Eng N 172:101 Ap 2 '64

Glass-fiber cords in rubber. A. Marzocchi. il Mech Eng 86:38-9 Je '64

How soft balls can simplify design; drawings. R. O. Parmley. Product Eng 35:102-3 Je 22 '64

Man-made seal materials challenge natural rubber for tough jobs. B. C. Vandermar and R. W. Malcolmson. diags S A E J 72:76-84 Jl '64

Molded rubber accessories provide new flexibility in 15-kv shielded cable systems. R. C. Ruete. il Elec World 161:126-7 Mr 23 '64

Molding thermoset plastics. G. DeGroat. il Am Mach 108:66-7 Ag 3 '64

New rotary seal for high-speed and high-pressure applications. T. J. McCuistion. diags Rubber World 149:73-7 Mr '64

New White suspension. Diesel Equip Supt 42:40 Ja '64

O-rings solve design problems; drawings with text. R. O. Parmley. Product Eng 35:68-9 My 11; 104-5 My 25 '64

Precast outside drop manholes use rubber gasket joints. D. F. Hanley. il diag Pub Works 95:93 Jl '64

Rubber air mounts smooth shaky machines. il Materials in Design Eng 60:149-52 O '64

Rubber and plastics in road transport. Engineer 217:686 Ap 17 '64

Rubber spring boosts driveline flexibility; abstract. W. Trisler. diag S A E J 71:88-9 D '63

Rubber tool spares anodized finish. il Mod Metals 20:38 Mr '64

Rubber tooling bulges hollow-ware shells. M. J. Goldstein. il diags Mach 70:135-7 Ap '64

Science of selecting elastomers. N. M. Lloyd. il Automotive Ind 130:44-9 Ja 1 '64

Seal for oil well pump polish rods. J. Sneed. il Materials in Design Eng 59:130 Ap '64

Silicone rubber mechanical goods; with no postcure. C. W. Roush and others. Rubber Age 94:744-7 F '64

Slippery-surface rubber reduces friction and wear. H. M. Gladstone and others. il Product Eng 35:96-8 Jl 20 '64

Synthetic rubber steals the show. G. Corfield. Gas 40:15 S '64

Unusual applications for O-rings; drawings with text. R. O. Parmley. Product Eng 34:78-9 N 25; 102-3 D 9 '63

Urethane tooling. H. S. Achler. il diags Mach 70:135-47 Je '64

Which elastomer for your sealing problem? R. W. Malcolmson. Machine Design 36:196+ O 8 '64

Wide range of parts from new elastomer family. il Materials in Design Eng 58:135-6+ D '63

Manufacture

Air replaces nitrogen, CO_2 in freeze deflashing. R. S. Walker. il Rubber World 149:33-5 F '64

Predicting the transfer forming characteristics of butyl using the Mooney viscometer. J. F. Quirk and H. F. Minter. il diags Rubber Age 95:251-5 My '64

Thermal liquid heating of molding presses. A. H. Bellac. il diags Rubber World 149:31-5 Mr '64

Testing

Carbon black effect on engine mount compounds. T. A. Knurek and R. P. Salisbury. il diags Rubber World 150:46-57 Ag '64

Microbiologic degradation of rubber. K. W. H. Leeflang. bibliog il map diag Am Water Works Assn J 55:1523-35 D '63

RUBBER industry and trade

Akron rubber group symposium, April 2. il Rubber World 150:83-4 My '64

Big five look at natural rubber. Rubber World 150:29-33 Ap '64

Chemical market research association, annual meeting, Chicago, Feb. 18-20; abstracts of papers. Rubber Age 95:114-15+ Ap '64

Companies scramble for EPT rubber market. il Chem & Eng N 41:9-10 D 23 '63

Division of rubber chemistry spring meeting, Detroit. Rubber World 150:88-90+ Je '64

Economics of synthetic rubber. E. R. Bridgwater. bibliog Rubber World 149:53-6 F '64

International rubber study group sets new rubber use at 4,517,000 long tons in 1963. Rubber Age 94:632 Ja '64

Next steps for rubber. G. Cyriax. Rubber World 150:38-47 Je '64

Rubber firms filing in economic censuses. Rubber Age 94:300 N '63

Rubber industry's chemical needs expanding. Chem & Eng N 42:30-1 F 24 '64

What's ahead for the rubber industry in 1964. Rubber World 149:29-31 Ja '64

See also

United States rubber company

History

Akron and Detroit; tale of two cities. S. V. d'Adolf. il Rubber World 151:52-7 O '64

History of nitrile rubber. W. Hofmann. bibliog Rubber Chem & Tech 37:6-11 pt 2 Ap '64

Seventy-five year stretch. R. F. Wolf. bibliog Rubber World 151:64-72+ O '64 (reprints $1)

Statistics

Big growth in rubber rubs off on oil. Oil & Gas J 62:74-5 F 24 '64

1963-1964 review and preview. Rubber Age 94:567-82 Ja '64

Asia

Reflections and observations; the rubber industry in the Far East. M. E. Lerner. Rubber Age 95:527-30 Jl '64

Canada

1963 review/64 preview: rubber industry. il Can Chem Process 48:58 Ja '64

Rubber industry's profits climb again. Can Chem Process 48:51-4 Ap '64

Japan

Japanese rubber situation. R. S. Walker. il Rubber World 150:45-50 Jl '64

Recent studies on synthetic rubber. S. Kambara. bibliog Rubber World 150:52-4 Jl '64

RUBBER laboratories

How to light a rubber lab. L. C. Ridgway. il Rubber Age 94:454-5 D '63

Rubber Age visits Sheller laboratories. il Rubber Age 95:590-1 Jl '64

Equipment

Compact test instrument for determining the indentation failure of elastomers. D. I. Livingston and L. E. Hildenbrand. il diag Rubber Chem & Tech 37:14-27 Ja '64

Determination of cure time with the Curometer. A. R. Payne. bibliog il diags Rubber Chem & Tech 36:922-30 O '63

RUBBER laboratories—Equipment—*Continued*

Methods of predicting the processing characteristics of rubber and plastics. A. D. Varenelli. bibliog diags Wire & Wire Prod 39:1598-603+ O '64

New type of tackmeter. O. K. F. Bussemaker and W. V. C. van Beek. bibliog il diags Rubber Chem & Tech 37:28-37 Ja '64

RUBBER latex

Gel phase in natural rubber. P. W. Allen and G. M. Bristow. bibliog il diags Rubber Chem & Tech 36:1024-34 O '63

Symposium on latex. Rubber Age 95:778-9 Ag '64

See also

Rubber, Artificial—Latex

RUBBER lining

Butyl sheeting lines Hawaii reservoir. il Eng N 173:51 O 22 '64

Pipe chemicals for treating city's water. W. R. Stevens. il Heating-Piping 36:122-5 S '64

Reservoir rehabilitated with butyl rubber lining. il Pub Works 95:116-17 Mr '64

Rubber liner insulates rocket. Chem Eng 71:88 My 25 '64

RUBBER machinery

New equipment. Published in monthly numbers of Rubber world

See also

Rubber mixers

RUBBER manufacturers association

Annual meeting, 48th, New York, Nov. 21; with abstracts of papers. Rubber Age 94:456-8 D '63

RUBBER mixers

Southern rubber group panel symposiums on silicone rubber and mixing, Houston, Feb. 14-15; with abstracts of papers. Rubber Age 95:121-4 Ap '64

Special blender consolidates mixing jobs. il Rubber Age 95:581 Jl '64

Variable speed mixing. S. E. Perlberg. diag Rubber World 150:27-31 My '64

RUBBER models. See Models, Rubber

RUBBER molds. See Molds (for plastics)—Rubber molds

RUBBER oil tanks. See Oil tanks, Rubber

RUBBER printing plates. See Printing plates, Rubber

RUBBER reclaiming. See Rubber—Reclaiming

RUBBER research

Canadian research lag. G. F. Plummer. Rubber World 150:92 Je '64

Increasing importance of plastics in the work of the Rubber and plastics research association. W. F. Watson. il diags Brit Plastics 37:374-7 Jl '64

See also

Rubber laboratories

RUBBER rings. See Rubber goods, Mechanical

RUBBER rolls. See Rolls, Rubber

RUBBER science hall of fame. See Akron university—Rubber science hall of fame

RUBBER study group, International. See International rubber study group

RUBBER tanks. See Tanks, Rubber

RUBBER tires. See Tires, Rubber

RUBBER tubes. See Tubes, Rubber

RUBBER waste

See also

Rubber—Reclaiming

RUBBER workers

See also

Rubber factories—Employees

RUBBERIZED fabrics

Adhesion between polymers and textile fabrics; abstract and discussion. W. C. Wake. Chem & Ind p61-2 Ja 11 '64

Coated fabrics survey shows need for tests. Rubber Age 94:796-7 F '64

Evolution of substrate fabrics. G. W. Ewald. il Rubber Age 95:754-8 Ag '64

See also

Nylon fabrics—Coating

Rugs, Rubber-backed

Tire fabrics

Testing

How to evaluate coated fabrics; digest of tests. E. C. Hemes. Materials in Design Eng 60:92-6 Jl '64

Tests of elastomer-coated fabrics. C. B. Schuder. Rubber Age 95:87 Ap '64

RUBEANIC acid. See Dithiooxamide

RUBEY, William Walden

Citation for the 34th Penrose medal; with acceptance address. J. Rodgers. por Geol Soc Bul 74:sup 155-9 D '63

RUBIDIUM

Efficiency of a ^{85}Rb filter in optical pumping of ^{87}Rb. P. Davidovits and N. Knable. diags R Sci Instr 35:857-8 Jl '64

Self-oscillating rubidium vapour magnetometer for geomagnetic measurements. M. J. Usher and others. bibliog diags J Sci Instr 41:544-7 S '64

Studies of a high-gain pulsed ^{87}Rb microwave maser. P. Davidovits and N. Knable. bibliog il J Ap Phys 35:3042 O '64

Analysis

Determination of cesium and rubidium after extraction with 4-sec-butyl-2(α-methylbenzyl)phenol. W. J. Ross and J. C. White. bibliog Anal Chem 36:1998-2000 S '64

X-ray fluorescence spectrometric analysis of rubidium(I) and cesium(I) salts of 5-nitrobarbituric acid. K. E. Daugherty and others. Anal Chem 36:2372-3 N '64

RUBIDIUM compounds

Mn^{55} nuclear magnetic resonance in antiferromagnetic $RbMnF_3$. A. J. Heeger and D. T. Teaney. bibliog J Ap Phys 35:846-7 pt 2 Mr '64

RUBY

Anomalous absorption in ruby. F. A. Brand and others. il diag IEEE Proc 52:417 Ap '64

Cathodoluminescence of ruby. A. K. Kamal and others. bibliog IEEE Proc 52:329 Mr '64

Change of the refractive index of ruby during optical pumping. U. J. Schmidt. J Ap Phys 35:259-60 Ja '64

Competition between internal and external modes of a ruby laser. A. Korpel and J. Free. il diag IEEE Proc 52:619-20 My '64

Determination of R_1 linewidths in ruby using a pulsed ruby laser. R. L. Aagard. bibliog J Ap Phys 34:3631-2 D '63

Direct observation of axial mode beating in Q-switched ruby lasers. L. Waszak. il diag IEEE Proc 52:428 Ap '64

Distribution of the emission from a rectangular laser rod (ruby). H. Hora and others. il diag IEEE Proc 52:611-12 My '64

Effect of diffraction on the output beam of a ruby laser. M. Birnbaum and others. bibliog il IEEE Proc 52:746-7 Je '64

Effects of scatter and diffraction on the spiking period of a ruby laser. C. K. Campbell and J. P. Van Nest. IEEE Proc 52:210-11 F '64

Fluorescence lifetimes of ruby. G. C. Brown, jr. bibliog J Ap Phys 35:3062-3 O '64

Gamma irradiation effects in ruby. V. R. Johnson and R. W. Grow. IEEE Proc 52:185-6 F '64

Influence of optical quality on ruby laser oscillators and amplifiers. D. P. Bortfeld and others. il J Ap Phys 35:2267-9 Jl '64

Laser action in a flux-grown ruby. D. F. Nelson and J. P. Remeika. bibliog il diag J Ap Phys 35:522-9 Mr '64

Measurement of intermodulation and a discussion of dynamic range in a ruby traveling-wave maser. W. J. Tabor and others. bibliog diags IEEE Proc 52:656-63 Je '64

Plasma pinch excitation of a ruby laser. R. A. Brandewie and others. il J Ap Phys 34:3415-16 N '63

Power-dependent splitting of axial modes in ruby lasers. W. Heinlein and D. Roess. il IEEE Proc 51:1667-8 N '63

Radiofrequency beats between components of split axial modes in ruby lasers. D. Roess. il diags IEEE Proc 51:1668-9 N '63

Regular and irregular spiking in a multimode spherical ruby laser. M. Katzman and J. W. Strozyk. il diag J Ap Phys 35:725-7 Mr '64

Ruby laser with mode-selective etalon reflector. D. Roess. bibliog IEEE Proc 52:196-7 F '64

Ruby superradiation. D. Roess. il diag IEEE Proc 52:853 Jl '64

Spectrophotometric determination of chromium concentration in ruby. D. M. Dodd and others. bibliog diag J Ap Phys 35:1183-6 Ap '64

13-inch ruby oscillator-amplifier chain. H. G. Heard. il IEEE Proc 51:1664 N '63

Time dependence of ruby laser emission at 78°K. A. Szabo. bibliog il J Ap Phys 35:2263-4 Jl '64

RUBY, Artificial

Dislocation structures in single-crystal Al_2O_3. D. L. Stephens and W. J. Alford. bibliog il diag Am Cer Soc J 47:81-6 F '64

RUDDERS

Active rudder aids ship maneuverability. Naval Eng J 76:218 Ap '64

RUDOLPH, Paul

Yale's school of art and architecture; the architect. por Arch Forum 120:84-9 F '64

RUFF, Arthur W.

A. W. Ruff wins Robert Peele award. por Min Eng 16:70 Ja '64

RUGS, Rubber-backed

Latex-held urethane rug backing. il Textile Ind 128:91+ My '64

RUMANIA

See also

Chemical industries—Rumania
Hydroelectric plants—Rumania

RUMEN

In vitro destruction of vitamin A by abomasal and ruminal contents. F. J. Klatte and others. bibliog J Agri & Food Chem 12:420-1 S '64

Metabolic aspects of urea utilization by ruminant animals. W. Chalupa and others. bibliog J Nutrition 84:77-82 S '64

RUN-OFF

Analysis of precipitation at Huntington Lake. S. M. Barnes. Am Soc C E Proc 90 [IR 1 no 3839]:77-85 Mr '64; Discussion. S. T. Harding. 90 [IR 3 no 4028]:81 S '64

Areal variations of mean annual runoff. A. G. Hely. Am Soc C E Proc 90 [HY 5 no 4030]:61-8 S '64

Effects of conservation techniques on yield U. Stephens. bibliog Am Water Works Assn J 56:991-1000 Ag '64

Factors affecting Sr-85 and I-131 removal by runoff water. E. R. Graham. Water & Sewage Works 110:407-10 N '63

Urban land runoff as a factor in stream pollution. S. R. Weibel and others. bibliog il map WPCF J 36:914-24 Jl '64

RUNWAYS. See Airports—Runways

RURAL electric cooperative association, National. See National rural electric cooperative association

RURAL sewage disposal. See Sewage disposal, Rural

RURAL water supply. See Water supply, Rural

RUSSIA

See also subdivision Russia under special subjects, e.g.

Automation
Automobile industry and trade
Chemical industries
Coal trade
Cosmetic industry and trade
Electric lines
Electric plants (central stations)
Electricity supply
Engineering
Gas, Natural
Gas, Natural—Pipe lines
Geology
Hydroelectric plants
Machine tool industry
Magnesium industry and trade
Merchant marine
Metal working industries
Moving picture industry
Petroleum
Petroleum industry and trade
Petroleum pipe lines
Plastics industries
Science
Scientific education
Scientific literature
Scientific research
Space research
Standards
Steel works
Technical education
Technology
Textile industry

Capitol

Air conditioning of the Kremlin palace of congresses. W. Pichel. diags ASHRAE J 6:83-5 My '64

Commerce

United States

Business urges review of trade with U.S.S.R. il Chem & Eng N 42:23 My 25 '64

Should U.S. companies trade with the Communists? N. P. Chopey. il Chem Eng 71:92-4 Mr 16 '64

Should we sell to the Russians? Electronics 37:105-6+ Ap 20 '64

Trade activity with reds picking up, so is smuggling through iron curtain. il Electronics 37:79-81 N 2 '64

U.S. policy on trade with U.S.S.R. may get new look. Chem & Eng N 42:23-5 Mr 16 '64

Defenses

Design considerations of the Russian Intercontinental ballistic missile and its asociated space booster. D. J. Ritchie. il plans diags Aircraft Eng 36:286-91 S '64

Soviet ballistic missile ground support equipment. D. J. Ritchie. il diags Naval Eng J 76:275-9 Ap '64

Industries and resources

Race going on in Russia between creeping capitalism and the electronic computer. Electronics 37:121-2 N 2 '64

RUSSIAN language

Russian-English dictionary. M. Lambert, comp. Review, by A. L. Baudains. Chem & Ind p645-6 Ap 18 '64

Translation project on Soviet lecture demonstrations in physics. H. A. Robinson. Am J Phys 32:56-8 Ja '64

RUST. See Corrosion and anti-corrosives

RUTGERS university

Rutgers marks dual celebration; dedication of engineering center and centennial. il Mech Eng 86:93 Jl '64

RUTHENIUM

Vapor pressures of ruthenium and osmium. N. J. Carrera and others. bibliog J Res Nat Bur Stand 68A:325-30 My '64

RUTHENIUM alloys

Ferromagnetism and incipient superconductivity in a $CeRu_2$+7.3 per cent $GdRu_2$ alloy. J. J. Drautman and others. bibliog J Ap Phys 35:974-5 pt 2 Mr '64

RUTHENIUM compounds

Carboxylates of palladium, platinum and ruthenium. S. M. Morehouse and others. Chem & Ind p544-5 Mr 28 '64

Ruthenium 2,2′-bipyridine complexes as fluorescent oxidation-reduction indicators. B. Kratochvil and D. A. Zatko. bibliog Anal Chem 36:527-9 Mr '64

RUTHERFORD, Ernest Rutherford, 1st baron

Rutherford and his alpha particles. T. H. Osgood and H. S. Hirst. bibliog Am J Phys 32:681-6 S '64

RUTILE

Adsorption of some organic surfactants on rutile surfaces; electron microscope studies. G. D. Cheever and E. G. Bobalek. bibliog il Ind & Eng Chem Fundamentals 3:89-94 My '64

Decoration of dislocations in rutile. O. W. Johnson. il J Ap Phys 35:3049-50 O '64

Effect of chemisorbed oxygen on photovoltaic and photoconductive processes in rutile. R. Keezer. bibliog diags J Ap Phys 35:1866-7 Je '64

Experimental analysis of the Schottky barrier layer model for reduced rutile diodes. R. Bechtel. diags J Ap Phys 35:2142-4 Jl '64

New rutile mine in Sierra Leone announced; Sherbro minerals ltd. flow diag il Min Eng 16:50-1 Ag '64

New rutile source is world's largest; Sherbo minerals ltd. diag Eng & Min J 165:103 Ag '64

Photovoltaic effects in rutile. R. Keezer and others. bibliog diag J Ap Phys 35:1868-9 Je '64

Pittsburgh Plate Glass mines world's largest rutile reserves in Sierra Leone. il Chem & Eng N 42:41-2 Jl 13 '64

Rutile; zircon mining on East Coast surfing beaches in Australia. il Min Eng 16:109-10 O '64

Traveling-wave masers employing iron-doped rutile. L. C. Morris and D. J. Miller. IEEE Proc 52:410 Ap '64

U.S. company spearheads an African rutile venture. map Chem Eng 71:84 Ag 17 '64

See also

Struverite

RUZICKA, Rudolph

R. Ruzicka brings back memories of typographic greats. por Inland Ptr/Am Lithogr 152:65 Ja '64

RYE

Amino acid composition of rye flour and the influence of amino acid supplementation of rye flour and bread on growth, nitrogen efficiency ratio and liver fat in the growing rat. R. Kihlberg and L.-E. Ericson. J Nutrition 82:385-94 bibliog(p392-4) Mr '64

S

SACCHARIDES

A, B, and H blood-group substances yield highly active fragments. Chem & Eng N 42:38-9 Ja 13 '64

Applications of instrumental techniques in structural monosaccharide chemistry. R. J. Ferrier and N. R. Williams. Chem & Ind p 1696-707 bibliog(p 1706-7) O 10 '64

SACCHARIMETERS

Field kit for determining the spirit strength of wines. B. E. Dixon and others. il diag Chem & Ind p 1873-4 N 23 '63

SACCHARIN
Maumee moves closer to optimum process to make saccharin. il Chem & Eng N 41:76-8 D 9 '63

SACKS, Jacob
Southwest regional award. por Chem & Eng N 41:51 D 30 '63

SACRAMENTO RIVER
Oxygen relationships in the Sacramento River. C. G. Gunnerson and T. E. Bailey. bibliog map Am Soc C E Proc 89 [SA 4 no 3619]:95-124 Ag '63; Discussion. 90 [SA 1 no 3813]:175-83 F; [SA 2 no 3884]:47-50 Ap '64; Reply. 90 [SA 4 no 4006]:79-85 Ag '64

SAFETY at sea
Electric circuits for hazardous spaces. J. M. Dorsey. il Marine Eng/Log 69:56-7 Ag '64
Fire safety at sea is coast guard's business. il Safety Maint 128:32-4 Ag '64
Foam dispenser; injects 250 lbs per minute to make ships virtually unsinkable. il Plastics World 21:96 N '63
National safety council Marine section annual meeting, 51st. Marine Eng/Log 69:49-50 Ja '64
Safety and seamanship are synonymous. R. H. Smith. Safety Maint 128:10-12+ O '64
Safety; from messman to management. Marine Eng/Log 69:39-40 Je '64
See also
International ice patrol
Life preservers
Ships—Fires and fire protection

SAFETY awards. See Safety contests and awards

SAFETY belts
Some do's and don'ts on safety belts and straps. il Elec World 160:130-2+ O 21 '63
See also
Automobiles—Seat belts

SAFETY campaigns
AWO launches new safety campaign to cut injuries and costs. Marine Eng/Log 68:93 D '63
Are safety meetings worthwhile? T. K. Lawson. Safety Maint 128:26-7 Jl '64
High cost of not having an off-the-job safety program. M. Hamilton. Safety Maint 127:17-19+ Je '64
How you can change the accident tune. G. Andrews. Safety Maint 127:17+ Ap '64
Safety; how to communicate it. il Safety Maint 128:8-11 Jl '64
Sampling in the field evaluates safety program. V. R. Wietzke. il Elec World 161:106-7 Ap 6 '64

SAFETY clothing. See Clothing, Protective

SAFETY codes
1963 editions of fire safety standards issued by the National fire protection association. Safety Maint 127:34 Ja '64
Plus values of the new American standard safety code for abrasive wheels. J. C. Arndt. il diags Mag of Stand 35:240-2 Ag '64
Safety code issued for hose and hose assemblies. Iron & Steel Eng 41:159-60 Mr '64
What progress toward uniform safety codes? R. D. Gidel. Mag of Stand 35:174-8 Je '64
See also
Electric codes

SAFETY committees
Safety committees are a detour from the direct line to safety. D. C. Duncan. Safety Maint 126:8-11 D '63

SAFETY congresses
National safety council Pulp and paper section. 51st annual meeting, Chicago, Oct. 28-31. Paper Ind 45:436-8 N '63
President's conference on occupational safety, 9th, Washington, June 23-25. Ind Med 33:547-8 Ag '64
World congress on the prevention of occupational accidents and diseases, 4th, London, with program and abstracts of papers. Engineering 198:34-5, 78-9 Jl 10-17 '64
See also
National safety council

SAFETY contests and awards
A.G.A. Monthly wins NSC public interest award. il Am Gas Assn Mo 46:6 Je '64
Achievements and awards. Published in monthly numbers of Safety maintenance
AIME announces award winners. Min Eng 15:86-9 D '63
Bellefonte mine of National gypsum company receives sentinels of safety awards. il Min Cong J 49:79 O '63
National safety council honors A.G.A. Am Gas Assn Mo 45:35 N '63
National safety council Pulp and paper section 51st annual meeting, Chicago, Oct. 28-31. Paper Ind 45:436-8 N '63
No time lost; Port Inland quarry and Peter Mitchell mine employees receive Sentinels of safety from director of U.S. Bureau of mines. il Min Cong J 50:40-1 Jl '64
Safety achievements awards won by 32 operations in 1962 NLA competition. Pit & Quarry 56:97 D '63
Sentinels of safety trophy presented to Karen mine employees. il Min Cong J 50:45 S '64
Trading in on safety. il Safety Maint 128:17-19+ O '64
Twelve companies honored for safety. Am Gas Assn Mo 45:32 N '63
U.S. Bureau of mines names winners in quarries-mines safety contest. Pit & Quarry 56:30 N '63
Winners announced for six groups in 1962-63 NSGA safety contest. Pit & Quarry 56:147-8 Ja '64
Winners of the 1963 national safety competition. il Min Cong J 50:34-7 My '64
Winning operations cited in 1962 NCSA-Mines bureau safety contest. Pit & Quarry 56:144-5+ Ja '64
Winning sand-gravel plants cited in 1962 Bureau of mines safety contest. Pit & Quarry 56:46+ N '63

SAFETY devices and measures
Designing for safety; design engineer's viewpoint. A. Gilbert. Chem Eng 71:147-50 Jl 20 '64
Fifty years of accident prevention. E. Peterson. Archives Environmental Health 8:363-7 Mr '64
Keeping up with warning equipment developments. il Safety Maint 128:20-6 S '64
Machinery and the white collar worker. R. M. Patton. il Safety Maint 127:10-12+ My '64
Making safety motivate; the personal importance of accident prevention. H. A. Rusk. Ind Med 33:631-2 S '64
Manufacturers and distributors of safety equipment. Am Water Works Assn J 55:sup50+ N '63
Responsibility for safety of working conditions. B. Tomson and N. Coplan. Prog Arch 45:170 Ag '64
Safety devices for boilers. J. H. Griffith. il diag Instruments & Control Systems 37:123-4 Ap '64
Safety equipment for safer utilities. J. B. Stevens. bibliog il Am Water Works Assn J 55:1423-32 N '63; Abstract. Pub Works 95:152+ F '64
Safety in operating powder-actuated tools; abstract. E. W. Wheeler. Pub Works 95:76 F '64
Salute to a safety idea. Published in monthly numbers of Safety maintenance
Static electricity; industry's invisible hazard. D. J. Doyle. il diags Safety Maint 128:45-50+ N '64
Twenty safety ideas. P. Lockwood. Pit & Quarry 56:139-40 N '63
Water works buyers' guide of safety equipment. Am Water Works Assn J 55:sup40+ N '63
World congress on the prevention of occupational accidents and diseases, 4th, London. Engineering 198:78-9 Jl 17 '64
See also
Brakes
Electric protective apparatus
Eye—Protection
Fire protection
First aid in illness and injury
Gas detectors
Goggles
Inflammable liquids
Inflammable mixtures
Lightning protection
Machinery—Safety devices
National safety council
Poisons, Industrial
Presses—Safety devices
Railroads—Signals
Safety at sea
Safety contests and awards
Safety engineering
Safety instructions and training
Safety movement
Safety signs
Safety standards
Safety valves
Traffic lines
Traffic signals
also subdivision Safety measures under special subjects, e.g.
Airplane factories
Atomic power plants
Automobiles
Aviation
Bakers and bakeries
Boiler plants
Building

SAFETY devices and measures—See also—*Cont.*
Chemical plants
Chemicals
Coal mines and mining
Cranes, derricks, etc.
Electric equipment
Electric lines
Electric tools, Portable
Electric utilities
Excavation
Explosives
Gas burners
Gas companies
Grinding wheels
Liquefied petroleum gas
Loading and unloading
Machine shops
Metallurgical plants
Mining engineering
Motor trucks
Nuclear reactors
Paper and pulp mills
Petroleum industry and trade
Petroleum refineries
Power plants
Printing offices
Quarries and quarrying
Roads
Rock products plants
Rubber factories
Sand and gravel plants
Sewage disposal plants
Steam plants
Steel works
Swimming pools
Textile mills
Waterworks
Welding

SAFETY education
Case for off-the-job safety and how to start a program in your mill. C. L. Henkel. Textile Ind 128:100 F '64
Center for safety education of New York university's Division of general education, celebrating its twenty-fifth anniversary this fall. Safety Maint 126:11 D '63
How a state cut construction accidents. R. Oslen. il Eng N 173:35 O 1 '64
25th year of Center for safety education. Safety Maint 128:12 Ag '64
What is this human element in safety? H. W. Cruise. Safety Maint 128:17-18 Ag '64
See also
Moving pictures in safety education
National safety council

SAFETY engineering
Designing for safety; contractor's viewpoint. E. Jenett. il diags Chem Eng 71:136-43 Jl 20 '64
Norair's plus factor; built-in and maintained safety. L. B. Johnson. il Plant Eng 18:121-4 Ja '64
Reemphasize the human element in fire prevention. A. B. Kelly. il Safety Maint 128:32-5+ O '64
Safety belongs in your standard operating procedures. G. S. Ennis. Safety Maint 128:8-9 S '64
Safety shelf. Published in monthly numbers of Safety maintenance
See also
Chemical plants—Safety measures
Machinery—Safety devices
Mining engineering—Safety measures
Petroleum refineries—Safety measures
Safety inspection

SAFETY engineers
Designing for safety; safety director's viewpoint. G. F. Korkmas. Chem Eng 71:143-5 Jl 20 '64
He gets paid to sing the blues. il Safety Maint 127:8-12 F '64
Hygiene training for the safety engineer. il Safety Maint 127:48-50 Ap '64
Open letter to insurance safety engineers; what are you supposed to do? R. W. Brandt. Safety Maint 127:17-18 Ja '64

SAFETY equipment
Designing for safety; safety equipment vendor's viewpoint. J. E. White, jr. Chem Eng 71:145-6 Jl 20 '64
Should the ASA test and certify safety equipment? Mag of Stand 35:136-8 My '64
What's new. Published in monthly numbers of Safety maintenance
What's new in safety equipment for the rock products industry. il Rock Prod 67:53 O '64
See also
Respiratory apparatus
Safety nets

SAFETY exhibits
International industrial equipment exhibition, London, July 13-17. il Engineering 198:112 Jl 24 '64

SAFETY glass. See Glass, Safety

SAFETY glasses. See Goggles

SAFETY gloves. See Gloves, Safety

SAFETY hats. See Hats, Safety

SAFETY inspection
Inspection of wire rope boom supports for operating safety. R. O. Kasten. il diags Wire & Wire Prod 39:1179-80+ Ag '64
We, too, tried safety sampling; Tappan co. J. E. McKinley. il Safety Maint 128:10-12 Ag '64

SAFETY instructions and training
Accident prevention for the younger worker. H. Huntley. il Safety Maint 127:10-13+ Ap '64
Are safety meetings worthwhile? T. K. Lawson. Safety Maint 128:26-7 Jl '64
Bethlehem's next step to zero program. J. F. Wildey. il Min Cong J 50:41-4 My '64
Classrooms in the mines. E. W. Stearn. il Rock Prod 67:91-2+ Ap '64
Dravo's safety program aims for the individual. E. W. Stearn. il Rock Prod 67:67-9 Je '64
Let employees help in accident prevention. A. J. Webb. Water & Sewage Works 111:222-3 My '64
Make them see what blindness means. L. S. Milley. Safety Maint 127:12-13 Ja '64

SAFETY labels
Read directions; may save life. Pet Management 36:189 Mr '64

SAFETY lamps, Electric
Davis M-L pneumatic electric lamps. il diags Engineering 196:564-5 N 1 '63

SAFETY laws and regulations
Safety rules or safety laws? E. W. Kosin. Safety Maint 127:15+ F '64
See also
Fire protection—Laws and regulations
Traffic regulations

SAFETY movement
Big benefits for the little employer. Safety Maint 128:16-17 N '64
Panorama of safety. il diag Safety Maint 127:33-40 Ap '64
State safety programs. E. M. Boggs. Safety Maint 128:10 S '64
See also
National safety council

SAFETY nets
Safety nets make safe business. il Eng N 172:76-7 Mr 19 '64
Safety nets on Narrows bridge. Eng N 171:21 D 12 '63
Steel net saves money as well as lives repairing the Bourne bridge over Cape Cod canal. il Eng N 173:34-6+ Ag 20 '64

SAFETY organization
Business man's view of this safety business. S. Learned. Safety Maint 127:8-11 Ja '64
Does an off-the-job safety program pay? M. B. Hamilton. Pet Management 36:184-8 Mr '64
Effective municipal eye safety program. A. J. Sziarto. Pub Works 95:170 F '64
Foreman's view of safety. G. B. Elliott. Safety Maint 127:10-11+ Mr '64
Freshen up your safety program with continuing reviews. Oil & Gas J 62:112-13 F 17 '64
Function and value of an automotive safety program. O. W. Summers. Am Water Works Assn J 55:1407-13 N '63
How a safety program can protect your investment. J. V. Otter. il Roads & Sts 107:90+ Je '64
How to motivate hand safety. il Safety Maint 127:20-2 Mr '64
Industrial hygiene for the safety specialist. E. D. Salle. il Safety Maint 128:52-7 N; 44-8 D '64
Less than a 100 per cent program is unsafe to eyes. W. A. Barnes. il Safety Maint 127:16-19 F '64
Lower operating costs from restaurant safety. Safety Maint 128:20 Jl '64
Medical-safety team. J. P. Ferguson. Safety Maint 128:40-2 S '64
Safety in building maintenance. J. Pagano. il Safety Maint 127:58-61 Mr '64
Safety ranks with production at Graniteville. R. P. Timmerman. il Textile Ind 128:138-9+ My '64
Safety rules or safety laws? E. W. Kosin. Safety Maint 127:15+ F '64
Safety via pragmatic idealism. A. W. Turner. il Am Gas Assn Mo 45:2-4+ D '63
Teamwork for safety; the industrial nurse. L. Roche. Safety Maint 128:44-6+ O '64
Try this route to industrial safety. D. F. Tyer. Hydrocarbon Process & Pet Refiner 43:131-4 Ja '64

SAFETY organization—*Continued*
What's a safety record worth? il Safety Maint 127:10-11+ Je '64
See also
Safety committees

SAFETY posters
Dramatizing the annual accident toll. diag Safety Maint 127:18 Ja '64

SAFETY shoes. See Shoes, Safety

SAFETY signs
Alerting employees to danger. il Mag of Stand 35:143 My '64
Are you ruining your safety signs? diags Safety Maint 128:13+ Ag '64
New alphabet spells safety. Safety Maint 128:13+ O '64
Safety; how to communicate it. il Safety Maint 128:8-11 Jl '64

SAFETY standards
British standard for safety glass. H. J. H. Starks. Engineer 218:505 S 25 '64
Contributions of American standards to mine safety. L. H. Harrison. il Mag of Stand 35:14-16 Ja '64
Employee committee sets safety standards. Safety Maint 128:26-7 S '64
How safety standards help industry. C. H. Elsby. il Mag of Stand 35:271-3 S '64
How safety standards help manufacturers of equipment. J. C. Arndt. il Mag of Stand 35:304-6 O '64
Occupational panel says scientists must sell safety. Chem & Eng N 42:54 Jl 6 '64
Pipeline safety controversy to be aired at hearings this week. Chem Eng 71:86 Je 22 '64
Protection against lightning. W. W. Lewis. il Mag of Stand 35:76-7 Mr '64
Safety in pulp and paper mills. J. E. Jones. Mag of Stand 35:172-3 Je '64
Should the ASA test and certify safety equipment? Mag of Stand 35:136-8 My '64
What progress toward uniform safety codes? R. D. Gidel. Mag of Stand 35:174-8 Je '64
See also
Safety codes

SAFETY valves
Designing vapor relief systems. J. Conison. bibliog diags I S A J 11:51-8 Je '64
Relief-valve reaction force; data sheet. F. Caplan. Power 108:87 My '64
Safety relief valves. G. F. Bright. diags Oil & Gas J 62:174 S 7; 79 S 28; 203 O 12 '64
Valve provides three-way safety. il Eng N 172:50 Mr 5 '64

SAGE, Bruce H.
ACS award in industrial and engineering chemistry. por Chem & Eng N 42:84 Mr 23 '64

SAHARA DESERT
See also
Petroleum—Sahara Desert

SAILBOATS
Challenge; all-welded auxiliary keel sloop. E. Gunnell and R. A. Hay. il Welding J 43:205-7 Mr '64
Sparlight extruded aluminium masts. il diags Engineering 196:626-7 N 15 '63
See also
Masts and rigging

SAILING vessels
See also
Yachts and yachting

ST LAWRENCE waterway and power project
Great Lakes and Seaway news. Published in monthly numbers of Marine engineering/log

ST LOUIS

Architecture

Arch along the Mississippi; St Louis Gateway arch. il diags Comp Air Mag 69:14-17 O '64
Gateway arch halfway to the top. il Eng N 173:13 Jl 30 '64

Bridges

Artistic orthotropic design also saves money. E. J. Shields. il diags Eng N 171:26-8+ N 21 '63

Sewerage

Drainage and best use of urban land. L. H. Antoine, jr. il Pub Works 95:88-90 F '64

Streets

It's meet me in St Louis where the lights are bright. il Elec World 162:102-3 O 19 '64

ST PAUL

Sanitary affairs

Minneapolis-Saint Paul sanitary district incinerates scum. J. C. Sager. il diag Water & Sewage Works 111:393-6 S '64

Sewerage

Sewer planning for a metropolitan area. G. E. Bodien. map Pub Works 95:87-90 N '64

SALAD dressing
Formulation becomes simpler, faster, more economical; Mayonnaise and salad dressing manufacturers association 30th annual meeting, Chicago. Food Eng 35:91-5 D '63

SALARIES
1963 metallurgical salary survey. W. J. Geroulo. J Metals 16:731-4 S '64
See also
Wages
also subdivision Salaries under special subjects, e.g.
Civil engineers
Engineers
Executives
Government employees
Petroleum engineers

SALES estimates
Use of cumulative sum (cusum) techniques for the control of routine forecasts of product demand. P. J. Harrison and O. L. Davies. bibliog Op Res 12:325-33 Mr '64

SALES forecasting. See Sales estimates

SALES management
Local sales information now secured quickly. flow chart Elec World 162:156+ O 19 '64
New way to forecast sales. F. C. Wilson and W. W. Hines. bibliog Textile World 114:63-8 O '64
Ten errors sales supervisors make. Elec World 161:31-4 Ja 20 '64
See also
Display of merchandise
Employees as sales promoters

SALES policies
Market-oriented sales gain momentum. Chem & Eng N 42:30-1 Ja 20 '64
See also
Private brands

SALES promotion
Anatomy of a promotion; Inter-Oil promotion exhibit. C. B. O'Neal. il Pet Management 36:130+ Ap '64
Arkansas Power & Light promotion boosts school lighting. E. L. Linebarger. il Elec World 161:162+ My 18 '64
Company technical meetings promote sales. il Chem & Eng N 42:32-3 N 2 '64
Electric heating survey; personal calls, testimonials are leading sales tools. J. D. Damon. Elec World 160:92-4 N 18 '63
Farm exhibitions promote total-electric concept. il Elec World 162:91-2 Ag 24 '64
Lestoil flask promotion under way. il Soap & Chem Spec 40:113 Jl '64
Picture window cooking; Minneapolis gas co. F. Eng. il Am Gas Assn Mo 45:19-21 D '63
Selling in the sixties. Elec World 161:92-3 Ap 20; 18 Ap 27; 56-7+ My 4; 21 My 11; 88-9+ My 18; 22 My 25; 46-7 Je 1; 21 Je 8; 90-1 Je 15; 61 Je 29 '64
Swatched sample cards help clinch the sale. il Mod Textiles Mag 45:46-7 Jl '64
Top management takes leadership in sales. il Elec World 162:55-66 Ag 24 '64
Utility ad men rap promotion payments. Elec World 161:20 My 25 '64
See also
Employees as sales promoters

SALESMANSHIP

Demonstrations

Are cosmetic demonstrators necessary? L. V. Talamini. Drug & Cosmetic Ind 94:182+ F '64
Demonstrate performance to sell equipment. Ind Finishing 40:101-2 O '64

Visual aids

$805 screen success; Delta air lines first in-plant-produced movie. il Ind Phot 13:40-1 Mr '64
First film; fast $500 feat. il Ind Phot 13:34+ Mr '64
Industrial audio-visuals. il plan Ind Phot 13:57-8+, 62-5, 67-72 Ja '64
Light versus light; setting up an effective rear screen presentation. il Ind Phot 13:62 Mr '64
Marketing lawn, garden products. R. M. Staples. Soap & Chem Spec 40:83-4 Ap '64
These Dunlop chaps put on a smashing good show. il Ind Phot 13:44-5 Ja '64

SALESMEN
Smooth selling. G. N. Kahn. I S A J 11:74-5 Ap; 85-6 My; 69-70 Je; 73-4 Jl; 59-60 Ag; 75-6 S '64; Same. Paper Ind 45:602-4, 660-2; 46:34-5, 113-14, 207-8, 308-9 F-Jl '64 (to be cont)
See also
Chemical industries—Salesmen
Engineers as salesmen
Paint industry and trade—Salesmen

SALESMEN—*Continued*

Expenses

Algorithm for the traveling salesman problem. J. D. C. Little and others. bibliog flow chart diags Op Res 11:972-89 N '63

Training

Importing sales training from the USA. Engineering 197:211 F 7 '64

Technical sales jobs require training. Chem & Eng N 42:36-7 Ja 27 '64

SALESMENS equipment

See also

Salesmanship—Visual aids

SALICYLANILIDE

Brominated salicylanilides. Drug & Cosmetic Ind 95:429-30 S '64

Two new stable polybrominated salicylanilides for antibacterial use in soap and detergent products. N. M. Molnar and S. Baron. bibliog Am Oil Chem Soc J 41:478-80 Jl '64

SALICYLATES

Physiological effect

Salicylate intoxication and congenital anomalies. A. S. Goldman and W. C. Yakovac. bibliog il Archives Environmental Health 8:648-56 My '64

SALICYLIC acid

Determination of salicylsalicylic acid in salicylic acid using thin layer chromatography. R. W. Bailey. il Anal Chem 36:2021 S '64

Salicylic acid absorption; abstract. F. Gstioner and R. Elsner. Drug & Cosmetic Ind 95:123 Jl '64

Spectrophotometric determination of titanium using salicylic acid in H_2SO_4 medium. A. E. Hultquist. Anal Chem 36:149-51 Ja '64

SALICYLIDENE aniline

Piezoelectricity in salicylidene aniline crystals. A. Aharoni and D. Sapoznikov. bibliog diag J Ap Phys 35:1906-9 Je '64

SALINE water. See Water, Saline

SALINE water conversion. See Water purification—Desalting

SALK vaccine. See Poliomyelitis—Vaccines

SALMON

Astacene pigment loss occurring in freeze-dried shrimp and salmon during storage. G. Lusk and others. bibliog Food Tech 18:751-2 My '64

Avoidance of copper-zinc solutions by young salmon in the laboratory. J. B. Sprague. il diags WPCF J 36:990-1004 bibliog(p 1003-4) Ag '64

Nutrition of salmonoid fishes. A. N. Woodall and others. bibliog il J Nutrition 82:475-82; 83:177-85; 84:125-35 Ap, Jl, O '64

Proximate composition of silver salmon. N. L. Karrick and C. E. Thurston. J Agri & Food Chem 12:282-4 My '64

Sub-lethal copper-zinc pollution in a salmon river, a field and laboratory study; abstract. J. B. Sprague and others. WPCF J 36:273 Mr '64

SALMONELLA

Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K. Ijichi and others. bibliog Food Tech 18:1628-32 O '64

Influence of dietary factors upon salmonella typhimurium infection in the guinea pig. D. P. Nabb and B. L. O'Dell. bibliog J Nutrition 84:191-9 O '64

SALT

Behavior of casing subjected to salt loading. J. B. Cheatham, jr. and J. W. McEver. bibliog il diags J Pet Tech 16:Trans 1069-75 S '64

Bulk system is fast for unloading salt. il Mod Materials Handling 18:59 N '63

Calcium chloride versus sodium chloride. J. Geschelin. Automotive Ind 130:47 F 1 '64; Abstract. Metal Prog 85:161-2 Ap '64

Covered storage for salt supplies prevents leaching of chlorides. il Pub Works 95:78 N '64

Degradation of synthetic polypeptides; degradation of poly-α,L-glutamic acid by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86:3913-18 O 5 '64

Degradation of synthetic polypeptides; degradation of poly-α,L-lysine by proteolytic enzymes in 0.20 *M* sodium chloride. W. G. Miller. bibliog Am Chem Soc J 86:3918-22 O 5 '64

Device to prepare sodium chloride of high reactivity and surface area by vacuum sublimation. R. J. Adams and L. G. Harrison. diag R Sci Instr 34:1410-11 D '63

Diamond mills salt for highly soluble product. Chem & Eng N 42:57 Mr 2 '64

Effect of grain boundaries on plastic deformation of sodium chloride. S. A. Long and T. D. McGee. bibilog il Am Cer Soc J 46:583-7 D '63

Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64

Electrical conductivity of the melts in the system Na_3AlF_6-Al_2O_3-NaCl. K. Matiasovsky and others. bibliog Electrochem Soc J 111:973-6 Ag '64

Equilibrium solubility of calcium sulphate hemihydrate in sodium chloride-magnesium sulphate solutions at elevated temperatures. J. B. Clampett and R. T. Fowler. bibliog diags J Ap Chem 14:81-6 F '64

Excluded volume of polyelectrolyte in salt solutions. A. Takahashi and M. Nagasawa. bibliog Am Chem Soc J 86:543-8 F 20 '64

Iodization of crude salt for the prophylaxis of goiter. C. Hunnikin. il diag Food Tech 18:1544-7 O '64

Measurement of the total transmittance of rock salt samples. S. M. DeCorso and J. W. Coltman. diag A S M E Trans ser A 86:495-6 O '64

Penetration of water into plastically deformed NaCl. A. T. Kellogg and R. O. Pohl. bibliog J Ap Phys 35:1359-60 Ap '64

Power for a salt jetslinger. il diag Elec Constr & Maint 63:98-101 Je '64

Preliminary studies on the significance of tissue moisture in determining the control of sodium chloride in processed meats. E. Karmas and J. E. Thompson. bibliog il Food Tech 18:571-3 Ap '64

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Refining salt products. il diag Automation 10:60-2 N '63

Relaxation modes of trapped crystal point defects; the three-neighbor shells model in NaCl. A. D. Franklin and others. bibliog J Res Nat Bur Stand 68A:425-38 S '64

Salt companies sued again. Chem & Eng N 42:38+ O 26 '64

Salt effects and medium effects on indicator acid-base equilibria in a methanol-water solvent. D. Rosenthal and others. bibliog Am Chem Soc J 86:549-54 F 20 '64

Salt transport across cell membranes. S. B. Hendricks. il diags Am Scientist 52:306-33 bibliog(p332-3) S '64

Sintering of sodium chloride. C. S. Morgan and others. Am Cer Soc J 46:559-60 N '63

Solar salt production control by flame photometry. H. P. Rothbaum and W. Kitt. Chem & Ind p 1392 Ag 1 '64

Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63

Vapor deposition of sodium chloride whiskers. E. G. Bylander. il J Ap Phys 35:1988 Je '64

X-ray-induced dislocation generation in sodium chloride. R. L. Wolfe and C. L. Bauer. bibliog il J Ap Phys 35:658-63 Mr '64

See also

Brine

Petroleum refining—Salt removal

Salt deposits

SALT, Iodized

Iodization of crude salt for the prophylaxis of goiter. C. Hunnikin. il diag Food Tech 18:1544-7 O '64

SALT deposits

Collapse structures related to evaporites of the Prairie Formation, Saskatchewan. G. De Mille and others. maps diags Geol Soc Bul 75:307-16, pl 1 Ap '64

Salt anticlines shine in a new light. F. J. Gardner. map Oil & Gas J 61:135 D 16 '63

SALT domes

Another dry salt dome yields oil. map Oil & Gas J 61:56 D 16 '63

Mathematical formulation of salt-dome dynamics. Z. F. Daneš. bibliog diags Geophysics 29:414-24 Je '64

New Texas salt-dome play cools off. R. J. Enright. map Oil & Gas J 62:193+ Ap 27 '64

Structure of Winnfield salt dome, Winnfield Parish, Louisiana. R. B. Hoy and R. Kühn. bibliog Am Assn Pet Geologists Bul 48:360-1 Mr '64

SALT LAKE County, Utah

See also

Water supply—Salt Lake County, Utah

SALT mines and mining

Great Lakes region

- New Cleveland mine of International salt co. was designed for mass recovery of salt. W. C. Bleimeister. flow sheet il diags Eng & Min J 165:86-93 Ag '64

SALT water. See Sea water; Water, Saline

SALT water conversion. See Water purification —Desalting

SALTERS company

- History of the Salters' company. J. S. Watson. Review, by A. R. J. P. Ubbelohde. Chem & Ind p 1863-4 N 23 '63

SALTS

- Cellulose-epichlorohydrin reaction in the presence of neutral salt and salt-alkali solutions. J. B. McKelvey and others. bibliog Textile Res J 34:759-67 S '64
- Inorganic salts for gas-solid chromatography. J. A. Favre and L. R. Kallenbach. Anal Chem 36:63-5 Ja '64
- Magnetic susceptibilities of several salts at liquid-He^3 temperatures. S. A. Friedberg and J. T. Schriempf. bibliog J Ap Phys 35:1000-1 pt 2 Mr '64
- Separation of some inorganic salts in aqueous solution by flow, under pressure, through porous cellulose acetate membranes. S. Sourirajan. bibliog diags Ind & Eng Chem Fundamentals 3:206-10 Ag '64

See also

Chlorides
Halides
Salt

SALTS, Fused

- Apparatus for the determination of diffusion coefficients in fused salts ($NaNO_3$) at high pressure. S. B. Tricklebank and others. bibliog diags R Sci Instr 35:807-10 Jl '64
- Ceramic double cell for crystal growth by fused salt electrolysis. W. Kunnmann and A. Ferretti. diag R Sci Instr 35:465-6 Ap '64
- Controlled potential coulometry of metals in fused lithium chloride-potassium chloride eutectic. R. D. Caton, jr. and H. Freund. bibliog diags Anal Chem 36:15-19 Ja '64
- Direct current measurement of fused salt conductivity. L. A. King and others. bibliog diags Electrochem Soc J 111:712-19 Je '64
- Electric conductivity of fused $LiNO_3$-$NaNO_3$-KNO_3 eutectic. L. A. King and others. Electrochem Soc J 111:720-1 Je '64
- Electrode potentials in fused systems; effect of ion size on membrane potentials. K. H. Stern and J. A. Stiff. bibliog Electrochem Soc J 111:893-7 Ag '64
- Fused organic salts; bromohydroxy- and nitrohydroxydebromination and other reactions of organic halides with molten quaternary ammonium nitrates. J. E. Gordon. bibliog Am Chem Soc J 86:4492-3 O 20 '64
- Halide fusion reprocesses reactor fuels; abstract. G. A. Bennett and others. Chem & Eng N 42:78 S 14 '64
- Infrared techniques for fused salts. A. Bandy and others. bibliog diags R Sci Instr 35:1206-7 S '64
- Molar volume and surface tension of fused metaphosphate-sulfate systems. B. B. Owens and S. W. Mayer. bibliog Am Cer Soc J 47:347-51 Jl '64
- Photochemical reduction of rare earth ions in fused halides. H. L. Pinch. Am Chem Soc J 86:3167-8 Ag 5 '64
- Polarography in fused alkali metaphosphates. R. D. Caton and H. Freund. bibliog Anal Chem 35:2103-8 D '63
- Study of the nitrate ion dissociation in fused nitrates. R. N. Kust and F. R. Duke. Am Chem Soc J 85:3338-40 N 5 '63
- Use of glass reference electrode in potentiometric titration of halides with silver nitrate in $LiNO_3$-KNO_3 eutectic melt. H. T. Tien. Anal Chem 36:929-30 Ap '64

SALTS, Molten

- Anode gas reactions in aluminum electrolysis. J. Thonstad. bibliog diags Electrochem Soc J 111:955-65 Ag '64
- Cation-exchange between molten salts and a special porcelain of high sodium content. R. J. Labrie. bibliog Electrochem Soc J 111:473-6 Ap '64
- Electrical conductivity, and the thermodynamic and structural properties of molten AgCl-Ag_2S mixtures. M. C. Bell and S. N. Flengas. bibliog diags Electrochem Soc J 111:569-81 My '64
- Electrical conductivity of the melts in the system Na_3AlF_6-Al_2O_3-NaCl. K. Matiasovsky and others. bibliog Electrochem Soc J 111:973-6 Ag '64
- Molten salt bath strips excess enamel from fixtures. J. Dykstra. il Plant Eng 17:143 N '63
- Molten salt reactor could cut power costs. diags Elec World 162:60+ O 5 '64
- Molten salt reactor experiment. E. S. Bettis and W. B. McDonald. il diags Nucleonics 22:67-70 Ja '64
- Polarization studies of molten carbonate fuel cell electrodes. I. Trachtenberg. il diag Electrochem Soc J 111:110-13 Ja '64
- Probes for high temperature nuclear magnetic resonance. S. Hafner and N. H. Nachtrieb. diags R Sci Instr 35:680-2 Je '64
- Salt baths minimize distortion in hardening thin-wall cylinders. il Am Mach 108:66-7 Mr 30 '64
- Soft nitriding. F. M. Giordano. il Tool & Manuf Eng 52:121-4 Ap '64
- Solutions of solids in molten reciprocal salt systems. M. Blander and E. B. Luchsinger. bibliog Am Chem Soc J 86:319-22 F 5 '64
- Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63
- Tetrahedral tetrachlorocopper(II) complex in molten salt solutions. G. P. Smith and T. R. Griffiths. bibliog Am Chem Soc J 85:4051-2 D 20 '63
- Transport numbers in pure molten $AgNO_3$ and AgCl by a simplified weighting method. P. Duby and H. H. Kellogg. bibliog diag Electrochem Soc J 111:1181-3 O '64
- Visible absorption spectra of lithium, sodium, and potassium in molten lithium chloride-potassium chloride. J. Greenberg and I. Warshawsky. diag Am Chem Soc J 86:3572-4 S 5 '64
- Windowless spectrophotometric cell for use with corrosive liquids. J. P. Young. il diags Anal Chem 36:390-2 F '64

SALVAGE

- How to handle a huge foaming job. il Mod Plastics 42:92-4+ O '64
- To salvage a Texas tower. il Plastics World 22:22-3 O '64
- Urethane foam helps to salvage a Texas tower. Chem Eng 71:108 O 12 '64

SALVAGE (waste, etc.)

- Memphis' salvage operations prove profitable. N. Sanders. il Elec World 161:103 Ap 6 '64

See also

Refuse, Utilization of
Scrap metal

SAMARIUM compounds

- Slow neutron capture gamma rays from samarium and gadolinium. D. L. Sastry and S. Jnanananda. bibliog diags J Sci Instr 41:497-500 Ag '64
- Thermogravimetric analysis of five salts of praseodymium, neodymium, and samarium. R. L. Wilfong and others. bibliog Am Cer Soc J 47:240-1 My '64

SAMPLES (merchandising)

- Paint samples ethical and unethical practices. Ind Finishing 40:52+ D '63
- What happens to that sample? G. Graham. Ind Finishing 40:78+ D '63

SAMPLES, Textile. See Textile samples

SAMPLING

- Automatic capillary gas chromatography and sampling of distillation products. D. W. Grant. flow diag diag Anal Chem 36:1519-22 Jl '64
- Bibliography on sampling of raw materials and products in bulk. C. A. Bicking. Tappi 47:sup 147A-68A My '64
- Effect of sampling and job curing procedures on compressive strength of concrete. W. K. Wagner. bibliog Materials Res & Stand 3:629-34 Ag '63; Discussion. 4:355-7 Jl '64
- Principles of cryometric impurity determination as applied to samples of small sizes. C. P. Saylor and G. S. Ross. il diags J Res Nat Bur Stand 68C:35-9 Ja '64
- Problems in glass batch sampling. P. Close, jr. bibliog il Cer Ind 83:48-51 Ag; 84-7 S '64
- Sampling devices. N. L. Johnson. il diags Food Tech 17:1516-20 D '63
- Sampling of fillers and pigments; new suggested method T 657 su-63. Tappi 46:sup 136A N '63
- Sampling paper and paperboard. Tappi 47:sup 135A-6A Mr '64
- Sampling ten million words a second. A. Hakimoglu and R. D. Kulvin. il diags Electronics 37:52-4 F 7 '64
- Semi-automatic sequential sampling instrument. J. V. West. il Ind Quality Control 20:10-15 Mr '64

See also

Air sampling
Gas sampling
Sewage sampling

SAMPLING—See also—*Continued*
Steam sampling
Water sampling
Wood sampling

SAMPLING (statistical methods)
Bayesian operating characteristic curves for reliability and quality sampling plans. R. E. Schafer. Ind Quality Control 21:118-22 S '64
Cost breakeven point in attribute sampling. C. A. Martin. bibliog Ind Quality Control 21:137-44 S '64
Hazard rate sampling plans for the Weibull distribution. H. P. Goode and J. H. K. Kao. bibliog Ind Quality Control 20:30-9 F '64
International standard for attribute sampling. O. A. Cocca. bibliog Ind Quality Control 21:249-53 N '64
Introductory statistics and sampling concepts applied to radar evaluation. R. J. Ortenzio. bibliog diags RCA R 25:116-47 Mr '64; Correction. 25:319 Je '64
Mil-Std-105D. W. R. Pabst. jr. bibliog Ind Quality Control 20:4-9 N '63
Modal variations within granitic outcrops. D. O. Emerson. Am Mineralogist 49:1224-33 S '64
Outgoing quality probability limit (OQPL) sampling plan. R. C. Rhodes. Ind Quality Control 21:122-31 S '64
Percentage sampling. E. F. Taylor. Ind Quality Control 20:13 Ap '64
Selecting sample rates. L. W. Gardenhire. bibliog diags I S A J 11:59-64 Ap '64
Surveillance; theory and practice. J. Mandelson. Ind Quality Control 20:20-2+ Je '64
Take samples, make predictions, but at what confidence levels? R. G. Chamberlain. Product Eng 35:76-8 S 28 '64
Telemetry sampling phenomena. S. Poole. diags Electronic Eng 36:296-9 My '64
Use complimentary error function to find product per cent defective; with nomograph. R. A. Dewberry. Elec World 161:76-7 My 4 '64
We, too, tried safety sampling; Tappan co. J. E. McKinley. il Safety Maint 128:10-12 Ag '64
$X00,000 saving by sampling paperwork. W. J. Hickey, jr. Ind Quality Control 20:6-9 Je '64
See also
Work sampling

SAN ANTONIO, Texas

Water supply

Command post for complex water system. B. E. Sasse and R. P. Van Dyke. il Pub Works 95:102-4 Je '64

SAND
Ages of zircon and feldspar concentrates from North American beach and river sands. D. Ledent and others. bibliog map J Geol 72:112-22 Ja '64
Carbonate sands of Isla Perez, Alacran Reef complex, Yucatán. R. L. Folk and R. Robles. bibliog il maps diags J Geol 72:255-92, pl 1-4 My '64
Columns of sand may stabilize Alaskan sites. Eng N 173:20 Jl 23 '64
Consolidation test for undisturbed sands. W. B. Bull. il diag Materials Res & Stand 4:347-51 Jl '64
Effects of pressure and fluid saturation on the attenuation of elastic waves in sands. G. H. F. Gardner and others. bibliog diag J Pet Tech 16:Trans 189-98 F '64
Elastic wave velocities in granular soils. B. O. Hardin and F. E. Richart, jr. bibliog diags Am Soc C E Proc 89 [SM 1 no 3407]:33-65 F '63; Discussion. 89 [SM 5 no 3654]:103-18 S '63; Reply. 90 [SM 1 no 3781]:109-17 Ja '64
Fill settlement despite vertical sand drains. G. F. Sowers. plan Am Soc C E Proc 90 [SM 5 no 4044]:289-302 S '64
Geometrical properties of sand waves. M. S. Yalin. bibliog diags Am Soc C E Proc 90 [HY 5 no 4055]:105-19 S '64
Gravity-feed classifying system pulls sand costs down; Brown County stone co. R. J. Mitchell. il diags Rock Prod 66:54-5+ D '63
Heat curing of sand, lime, fly ash mixtures. M. Mateos. Materials Res & Stand 4:212-17 My '64
Laminar and turbulent flow of water through sand. M. Anandakrishnan and G. H. Varadarajulu. bibliog diags Am Soc C E Proc 89 [SM 5 no 3631]:1-15 S '63; Discussion. 90 [SM 2 no 3850]:205-7 Mr; il [SM 3 no 3907]:171-6 My '64
Local sand chief aggregate for freeway base and shoulder mix. il Roads & Sts 107:44-8 Mr '64
Origin of the silica sand deposits of the Lake Wales Ridge area of Florida. E. C. Pirkle and others. bibliog il maps Econ Geol 59:1107-39 S '64
Particle-size analysis of sand containing friable fragments. W. B. Bull. Materials Res & Stand 4:407-10 Ag '64
Periglacial structures in the Saskatchewan gravels and sands of central Alberta, Canada. J. A. Westgate and L. A. Bayrock. bibliog map diags J Geol 72:641-8, pl 1-2 S '64
Replacement of lightweight aggregate fines with natural sand in structural concrete. J. A. Hanson. bibliog Am Concrete Inst J 61:779-93 Jl '64
Sand consolidation with epoxy-resin solution. I. Havenaar and F. H. Meijs. bibliog il Inst Pet J 49:392-7 D '63
Sand-fly-ash bricks. M. Mateos. bibliog Materials Res & Stand 4:427-30 Ag '64
Sand movement in horizontal fractures. H. A. Wahl and J. M. Campbell. bibliog il J Pet Tech 15:Trans 1239-46 N '63
Wind-driven sand in Coachella Valley, Calif. R. P. Sharp. bibliog map diags Geol Soc Bul 75:785-803, pl 1-2 S '64
Yielding and locking of confined sand. R. V. Whitman and others. bibliog diags Am Soc C E Proc 90 [SM 4 no 3966]:57-84 Jl '64
See also
Aggregates
Bituminous sand
Concrete—Aggregate
Oil sand
Sandstone
Silica

SAND, Foundry
Core and molding sand: AFS congress; abstracts of papers. Foundry 92:186+ Je '64
Effect of dry strength on shakeout properties. B. C. Yearley. Foundry 92:58-9 O '64
Effect of inert material on dry strength. B. C. Yearley and J. D. Hedberg. il Foundry 92:62-5 Ag; 106-9 S '64
Gray iron foundry cuts molding sand cost. R. H. Herrmann. il Foundry 92:107-8 Jl '64
How clay and water affect dry strength. B. C. Yearley and J. D. Hedberg. Foundry 92:76-9 Je; 60-2 Jl '64
How high should you go in high pressure molding? C. A. Sanders. il diag Foundry 92:51-5 Ag '64
How to benefit from a limited sand system. R. W. McIlvaine. il Foundry 91:134-5+ N '63
Jolting and squeezing green sand molds. B. C. Yearley and R. R. Schaaf. diags Foundry 91:62-5 D '63; 92:45-7 Ja '64
Lifting properties of green molding sand. B. C. Yearley and R. R. Schaaf. il diags Foundry 92:62-5 F; 57-9 Mr '64
Modernized foundry has automatic sand system, close metal control. R. H. Herrmann. il Foundry 92:66-9 N '64
Sand castings take shape fast with consumable patterns. A. W. Young. il Iron Age 194:82-3 N 5 '64
Sands required for high pressure molding. B. C. Yearley. Foundry 92:61-5 My '64
Steel belt conveyors distribute molding sand. il Foundry 91:146 D '63
Using catalyzed dextrose binder in dry sand molds. F. H. Hohn. il Foundry 92:186+ O '64
Winter weather can cause scrap castings. C. A. Sanders. il Foundry 92:48-50 F '64

Moisture content

Influence of clay and water on expansion defects. B. C. Yearley. il diags Foundry 92:73-7 N; 49-53 D '64
Saves money with sand core driers. N. F. Wood. il Foundry 92:124 Jl '64

SAND and gravel association, National. See National sand and gravel association

SAND and gravel industry
NSGA reveals 1963 sand and gravel data. Rock Prod 67:98 O '64
1964 forecast: sand and gravel. il Rock Prod 67:60-1 Ja '64
Production and value of sand and gravel in 1963. V. P. Ahearn, jr. and D. K. Charney. Pit & Quarry 57:92-3 O '64
Sand and gravel; a substitute for gold? I. L. Jennings. Can Min & Met Bul 57:759-62 Jl '64

SAND and gravel plants
Dry gravel pit means more efficient extraction. il Engineering 198:441 O 2 '64
Gravel pits go on to greater things. E. W. Stearn. il Rock Prod 67:89-91 Jl '64

Employees

Injury experience, related employment data for sand and gravel industry in 1961. Pit & Quarry 56:39 Ja '64

SAND and gravel plants—*Continued*

Equipment

Baxter Sand and Gravel. B. C. Herod. il Pit & Quarry 56:134-6 N '63
Busy firm with unique deposit serves widely varied markets. B. C. Herod. il Pit & Quarry 56:133-5 Mr '64
Can a small operation afford good truck maintenance? C. Cunningham. il Rock Prod 67:110-12 O '64
Compact new Australian plant produces 40 tph concrete sand, 15 tph gravel. il diag Pit & Quarry 57:119-20 S '64
Defeating deleterious material. il Rock Prod 67:84-5 Je '64
Denver paving contractor operates integrated gravel-asphalt plants. W. E. Trauffer. il Pit & Quarry 56:124-8+ Ja '64
Deposit change calls for versatile operation design. B. C. Herod. il Pit & Quarry 57:193-6+ Jl '64
Dual dredging-screening system used in Louisiana sand and gravel operation. W. E. Trauffer. il Pit & Quarry 56:126-30 F '64
Eight job aggregates from one novel crushing site. il diags Roads & Sts 107:68-72 F '64
Georgia sand plant; L. C. Curtis & son, inc. W. E. Trauffer. il Pit & Quarry 57:101-2+ O '64
Glaser gravel proves that a hilltop mine pays off. il Rock Prod 66:82+ D '63
Gravity-feed classifying system pulls sand costs down; Brown County stone. co. R. J. Mitchell. il diags Rock Prod 66:54-5+ D '63
Hoosier firm expands service; Western Indiana aggregate corp. B. C. Herod. il Pit & Quarry 57:118-21 O '64
Jahncke adds silica sand, industrial sand, and crushed shell plants to extensive operations. W. E. Trauffer. il Pit & Quarry 56:78-81+ My '64
Jigs clean up dirty gravel. il Rock Prod 67:88-9 Ap '64
King-size sand plant; Sayre & Fisher's new plant. J. H. Bergstrom. il Rock Prod 67:90-2 Ja '64
Large loader can save you money; big savings for Becker County Sand & Gravel. il Rock Prod 67:106-7 O '64
Lowering the boom on lignite; Stewart sand & material co. R. J. Mitchell. il Rock Prod 67:128-31 My '64
New gravel plant supplies Mississippi; ready-mix, products firms; Jackson Ready-Mix Concrete. W. E. Trauffer. il Pit & Quarry 56:156-9 My '64
New Hampshire gravel plant built to supply one customer. W. E. Trauffer. il Pit & Quarry 56:124-7+ Mr '64
New larger loader brings changes to plant operation; Becker county sand & gravel co. il Roads & Sts 107:52-5 My '64
New sand section ups efficiency at Mission Rock's Santa Paula, Calif. plant. il Rock Prod 67:100-1 Ja '64
Ninety screens produce precision grading; Wedron silica co. S. Levine. il Rock Prod 67:72-4+ F '64
Plant complex in high Sierra; Clements rock products, inc. H. F. Utley. il Pit & Quarry 57:124-6+ O '64
Quality, efficiency build three-state market for Woolcotville Sand and Gravel. A. Swenson. il diag Rock Prod 67:102-4 Mr '64
Small operator builds for specific service; Forrest City ready mix. B. C. Herod. il Pit & Quarry 56:98-100+ F '64
Stewart's new sand plant serves Kansas City metropolitan area. W. E. Trauffer. il Pit & Quarry 56:121-3+ N '63
Stone plant that backed the record pavers. H. K. Glidden. il plan Roads & Sts 107:72+ Je '64
Texas construction material co. readies additional pit and plant. flow diag il diag Rock Prod 67:78-80 S '64
This month's equipment superintendent: Bill Crose, Azusa rock & sand co. il Diesel Equip Supt 42:24-7 Je '64
Two-in-one sand and gravel plant; L. C. Smith co. R. S. Torgerson. il diag Rock Prod 66:63-5 N '63
Unworkable deposit yields specification sand. J. H. Bergstrom. il diag Rock Prod 67:86-9 S '64
Wash and rewash for paving sand. il Roads & Sts 107:100-1+ F '64
Washers and screens pace big Kansas hot-mix job. H. K. Glidden. il diags Roads & Sts 107:44-7+ Ag '64

Layout

Quality, efficiency build three-state market for Woolcotville Sand and Gravel. A. Swenson. il diag Rock Prod 67:102-4 Mr '64

Safety measures

Dravo's safety program aims for the individual. E. W. Stearn. il Rock Prod 67:67-9 Je '64
Winning sand-gravel plants cited in 1962 Bureau of mines safety contest. Pit & Quarry 56:46+ N '63

SAND and gravel plants, Floating

California firm uses dredge-barge setup to dredge and deliver sand. il Pit & Quarry 57:44 S '64
Floating plant solves problem of operational restrictions. B. C. Herod. il Pit & Quarry 57:98-100+ Ag '64
Ohio river sand & gravel div.'s flexible processing system meets tri-state requirements. S. Levine. il diag Rock Prod 67:74-6 O '64
Southern Materials' latest floating crushing and screening plant. W. E. Trauffer. il diags Pit & Quarry 57:86-93+ S '64

SAND blast

Grit blasting cabinet. il Engineer 218:289 Ag 21 '64
Sand blast corroded conductors for good connections. il Elec World 162:100-1 Ag 10 '64
Why pay more for blast cleaning? W. J. Bradley. il Eng N 171:103 N 14 '63

SAND dunes

Barchan-dune movement in Imperial Valley, Calif. J. T. Long and R. P. Sharp. bibliog map diags Geol Soc Bul 75:149-56 F '64
Stabilization of sand dunes at Vandenberg air force base. J. Peters and J. Sciandrone. il plan Am Soc C E Proc 90 [SM 4 no 3976]: 97-106 Jl '64

SAND washing

Lowering the boom on lignite; Stewart sand & material co. R. J. Mitchell. il Rock Prod 67:128-31 My '64
Wash and rewash for paving sand. il Roads & Sts 107:100-1+ F '64

SANDERSON, James Owen Gresham

Memorial. M. B. B. Crockford. por Am Assn Pet Geologists Bul 48:246-7 F '64

SAN DIEGO

Sewerage

Pipe, valve and vortex drop bubble-free effluent to outfall. il Eng N 171:42-3+ D 5 '63
Pipelining with air and television. J. L. Russell. il Comp Air Mag 69:24-6 S '64

SANDING machines

Sanding contour shapes. Ind Finishing 40:111-12 Mr '64
Versatile low-cost sander/grinder. il Mach 71:196+ S '64

SANDSTONE

Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64
Diagenetic aspects of lower Morrowan, Pennsylvanian, sandstones, northwestern Oklahoma. W. L. Adams. bibliog il maps diags Am Assn Pet Geologists Bul 48:1568-80 S '64
Early Pennsylvanian currents in the southern Appalachian Mountains. J. Schlee. bibliog maps diags Geol Soc Bul 74:1439-51 pl 1 D '63
Effect of bacteria on sandstone permeability. P. J. Kalish and others. diags J Pet Tech 16:Trans805-14 Jl '64
Influence of depth, temperature, and geologic age on porosity of quartzose sandstone. J. C. Maxwell. bibliog Am Assn Pet Geologists Bul 48:697-709 My '64
Isotopic fractionation of uranium related to roll features in sandstone, Shirley Basin, Wyo. J. N. Rosholt and others. bibliog diags Econ Geol 59:570-85 Je '64
Mancos-Mesaverde (upper cretaceous) intertonguing relations southeast Piceance Basin, Colorado. D. L. Warner. bibliog il maps diags Am Assn Pet Geologists Bul 48:1091-107 Jl '64
Matrix acidizing corrects formation damage in sandstones. W. M. Ross and others. il Pet Management 35:64-9 N '63
Measured sections of sandstones and shales. J. W. Shelton. diag Am Assn Pet Geologists Bul 47:2047-50 D '63
Paleogeographic reconstructions by absolute age determinations of sand particles. A. B. Vistelius. map J Geol 72:483-6 Jl '64
Shoestring sandstones in cretaceous bearpaw shale in central Montana. G. R. Wulf. bibliog il map Am Assn Pet Geologists Bul 48:1196-8 Jl '64
Study in induced polarization. L. A. Anderson and G. V. Keller. bibliog diag Geophysics 29:848-64 O '64
Unmetamorphosed sandstone in northern Labrador. E. P. Wheeler, 2d. Geol Soc Bul 75:569-70 Je '64
See also
Graywacke

SANDWICH construction. See Laminated construction

SAN FRANCISCO

See also

Building—San Francisco

Architecture

Powerful cathedral for San Francisco. il Prog Arch 45:69 Mr '64

San Francisco downtown plan. il plan Prog Arch 44:75 N '63

San Francisco renewal; Laguna/Eichler apartment building. il plans Arch Forum 120:72-3 Mr '64

Water supply

Program to increase San Francisco's water supply. il Water & Sewage Works 111:66 Ja '64

SAN FRANCISCO BAY bridges

California's orthotropic bridge set to go; San Mateo-Hayward bridge. il diags Eng N 173:22-3+ O 29 '64

SAN FRANCISCO BAY region

See also

Water supply—San Francisco Bay region

Rapid transit

Designing the San Francisco Bay area rapid transit system. W. A. Bugge and L. Irvin. il map diags Civil Eng 34:58-63 O '64

SANITARY chemicals

New chlorine sanitizing system in plastic pouch; Chlor-O-Sac. il Soap & Chem Spec 40:185 Mr '64

New trade marks. Published in monthly numbers of Soap and chemical specialties

See also

Disinfection and disinfectants

SANITARY engineering

Beginning of waste treatment. E. B. Besselievre. Pub Works 95:72+ F; 74+ Mr '64

Nine decades of sanitary engineering. E. S. Chase. Water Works & Wastes Eng 1:57+ Ap; 58-9+ Je; 48-9+ Jl; 49-50+ Ag; 60-1 O '64

Sanitary engineering in Alaska. A. J. Alter. il diags Civil Eng 34:48-51 Mr '64

Subsurface investigations for lateral sewer systems. J. F. Larkin. WPCF J 36:880-3 Jl '64

See also

County engineering
Mosquitoes—Extermination
Pipe laying
Plumbing
Refuse collection
Refuse disposal
Sanitation
Sewage disposal
Sewage disposal, Rural
Sewerage
Ships—Sanitation
Water pollution
Water purification
Water supply engineering

Study and teaching

Education for sanitary engineers. E. S. Chase. Am Soc C E Proc 90 [PP 2 no 3894]:15-21 My '64

Tables, calculations, etc.

Graphical use of first-stage bod equation. Y. Fujimoto. bibliog WPCF J 36:69-71 Ja '64

Population forecasting by sanitary engineers. F. E. McJunkin. Am Soc C E Proc 90 [SA 4 no 3993]:31-58 bibliog(p56-8) Ag '64

SANITARY engineering research

British pollution research. Pub Works 95:176+ My; 180+ Je '64

Instrumentation and automation; preview of future developments based on current college research. Water Works & Wastes Eng 1:84-5 S '64

Research at Newcastle. D. A. Okun. flow sheet Pub Works 95:174+ S '64

SANITARY engineers

Development of the sanitary engineer. E. R. Pershe. WPCF J 35:1552-6 D '63

SANITARY products industry

Keeping up with sanitation product developments. il Safety Maint 128:52-6 Jl '64

1964 Blue Book catalog; buyers' guide and trade directory. Soap & Chem Spec Blue Book p 13-218 '64

SANITARY ware

Manufacture

Casting conveyor cuts costs. K. Shaw. il Cer Ind 83:52-3+ O '64

Pressure casting sanitary ware. T. M. Gainer and J. A. Carter. diags Am Cer Soc Bul 43:9-12 Ja '64

SANITATION

Criteria for evaluation of environmental health programs. H. J. Dunsmore. bibliog Am J Pub Health 54:7-10 Ja '64

Local health department's responsibility for environmental health programs. W. J. Peeples. Am J Pub Health 54:632-7 Ap '64

State health department's responsibility for environmental health programs. M. H. Thompson. Am J Pub Health 54:627-31 Ap '64

Use of time and cost data in environmental health program planning. J. A. Locke. Am J Pub Health 54:501-5 Mr '64

Uses and misuses of environmental health standards. H. I. Shuval. bibliog Am J Pub Health 54:1319-29 Ag '64

See also

Air pollution
Food factories—Sanitation
Hygiene
Hygiene, Industrial
Plumbing
Poultry farms—Sanitation
Refuse disposal
Sanitary engineering
Sewage disposal
Sewerage
Trade waste disposal
United States—Army—Medical and sanitary affairs
Water purification

SANITATION, Rural

See also

Sewage disposal, Rural

SAN JOSE, California

Sewerage

San Jose-Santa Clara Kraus process plant copes with variable canning load. L. F. Rehm and F. N. Van Kirk. il plan Water Works & Wastes Eng 1:32-6+ Jl '64; Abstract. Pub Works 95:150+ S '64

SAN JUAN MOUNTAINS

Pollen analyses of surface materials from the southern San Juan Mountains, Colorado. L. J. Maher, jr. bibliog map Geol Soc Bul 74:1485-503 D '63

SAN MATEO-HAYWARD bridge. See San Francisco Bay bridges

SANTA ANA, California

Water supply

Santa Ana's control system. W. D. Schraub. bibliog il plan Water Works & Wastes Eng 1:42-5+ Jl '64

SANTA CLARA, California

Sewerage

San Jose-Santa Clara Kraus process plant copes with variable canning load. L. F. Rehm and F. N. Van Kirk. il plan Water Works & Wastes Eng 1:32-6+ Jl '64; Abstract. Pub Works 95:150+ S '64

SANTA MONICA, California

Streets

Citizen-government cooperation spurs residential street lighting. B. L. Kennedy. il Pub Works 95:123 My '64

SANTONIN

Conversion of (-)-α-santonin into (-)-β-santonin. M. Nakazaki and K. Naemura. Chem & Ind p 1708 O 10 '64

SAPOGENINS

Isomerisation of keto-ethers to spiroketals; synthesis of 26-alkyl steroidal sapogenins. R. D. Youssefyeh and others. bibliog Chem & Ind p421-3 Mr 7 '64

SAPONIFICATION

Comparison of two saponification methods. L. D. Williams and others. Am Oil Chem Soc J 41:336 Ap '64

Fat splitting and soapmaking go continuous; process flowsheet. H. W. Ladyn. il Chem Eng 71:106-8 Ag 17 '64

Protection of milk fat tocopherols during saponification with ascorbic acid. V. N. Krukovsky. bibliog J Agri & Food Chem 12:289-92 My '64

Quantitative saponification of highly hindered esters by perchlorate anion catalysis. D. E. Jordan. bibliog Anal Chem 36:2134-8 O '64

Review of several available continuous saponification processes. A. L. Schulerud. diags Am Oil Chem Soc J 40:609-15 N '63

SAPPHIRES

Chemical mechanisms contributing to wear of single-crystal sapphire on steel. W. R. Brown and others. bibliog il diags Am Cer Soc J 47:157-62 Ap '64

SAPPHIRES—*Continued*
Dissolution in ceramic systems; molecular diffusion, natural convection, and forced convection studies of sapphire dissolution in calcium aluminum silicate. A. R. Cooper, jr. and W. D. Kingery. bibliog diags Am Cer Soc J 47:37-43 Ja '64
Effect of gaseous environment on fracture behavior of Al_2O_3. A. J. Mountvala and G. T. Murray. bibliog il Am Cer Soc J 47:237-9 My '64
Single-crystal silicon on a sapphire substrate. H. M. Manasevit and W. I. Simpson. il J Ap Phys 35:1349-51 Ap '64

SAPPHIRES, Artificial
Czochralski growth of sapphire. A. E. Paladino and B. D. Roiter. il Am Cer Soc J 47:465 S '64
Dislocation structures in single-crystal Al_2O_3. D. L. Stephens and W. J. Alford. bibliog il diag Am Cer Soc J 47:81-6 F '64
Standard sapphire windows available for optical system. il Electronics 37:64+ F 14 '64

SAPPHIRINE. See Silicates

SARAN
Saran-coated paper for flexible food packaging. Paper Ind 46:379 Ag '64
Saran latex fills barrier gap. S. Moss. Food Eng 36:66-8 Mr '64
Teams performance with economy; polyethylene-foil combinations. il Food Eng 36:108 Mr '64

SARCOIDOSIS
Sarcoidosis and other masqueraders. H. S. Van Ordstrand. il Ind Med 33:209-12 Ap '64

SARDINES
Phospholipids of the South African pilchard (sardina ocellata jenyns). M. H. Silk and A. J. De Koning. bibliog Am Oil Chem Soc J 41:619-22 S '64

SARDINIA
See also
Electricity supply—Sardinia

SARETT, Lewis H.
ACS award for creative work in synthetic organic chemistry. por Chem & Eng N 42:120 Mr 2 '64

SASKATCHEWAN
See also subdivision Saskatchewan under special subjects. e.g.
Geology
Iron ores
Mines and mineral resources
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Potash mines and mining

SATELLITES
Dynamical model for Kordylewski cloud satellites. F. V. Pohle. bibliog diags AIAA J 2:1818-20 O '64

SATELLITES, Artificial
Aerospace in perspective; investigation. il diags Space/Aeronautics 41:90-105 Ja '64
Effects of radiation forces on the attitude of an artificial earth satellite. T. F. Clancy and T. P. Mitchell. bibliog diags AIAA J 2:517-24 Mr '64
Explorers. I. Stambler. il diags Space/Aeronautics 41:38-46 F '64
F-region irregularities studied by scintillation of signals from satellites. K. C. Yeh and G. W. Swenson, jr. map J Res Nat Bur Stand 68D:881-94 bibliog(p892-4) Ag '64
Spacecraft and life systems. P. K. Eckman and W. M. Helvey. il diag Astronautics & Aerospace Eng 1:20-8 N '63
See also
Space stations

Astronomical applications
Control system for an orbiting observatory. Electro-Tech 73:12-13 My '64
Nutation damper for OSO. B. D. Craig. il diags Astronautics & Aerospace Eng 1:50-5 D '63
Orbiting observatories. I. Stambler. il diags Space/Aeronautics 42:34-42 S '64
Orbiting observatory to measure stars' dim light. R. Cuikay and T. Callahan. il diags Electronics 37:28-31 F 28 '64
Ultraviolet spectrometer for orbiting solar observatory. il diags Space/Aeronautics 41:121+ Ap '64

Auxiliary power
First satellite powered by nuclear energy. il Engineering 196:541 O 25 '63
High-efficiency voltage regulator. C. Andren. diags Electronics 37:64-5 Ag 24 '64
Radioactive material generates electricity for new satellite signals. Franklin Inst J 276:540-1 D '63
Satellite powered by nuclear energy is launched. Elec Eng 82:739 D '63

Communication applications
Aerospace in perspective; utilization. il diags Space/Aeronautics 41:122-37 Ja '64
Antenna system for transportation space-communication terminal. E. Singer and T. J. Vaughan. il diags Elec Com 39 no 1:58-72 '64
Application of dynamic programming to optimizing the orbital control process of a 24-hour communication satellite. J. A. Burkhart and F. T. Smith. bibliog diags AIAA J 1:2551-7 N '63
Bell System ground station receives tv via Syncom II. Bell Lab Rec 41:362 O '63
British participation in satellite system. Engineer 218:220 Ag 7 '64
Calculation of the spin-axis orientation of the Telstar satellites from optical data. D. W. Hill. diags Bell System Tech J 42:2943-60 N '63
Canadian programme for ionospheric research by satellite. Radio & Electronic Eng 27:208 Mr '64
Communicating through Oscar III. R. Tellefsen and H. Gabrielson. il Q S T 48:26-7+ My '64
Communication receiver for satellite ground station. M. Sassler and R. Surenian. il diags Elec Com 39 no 1:89-97 '64
Communication systems using satellites. W. J. Bray. il maps diags Engineering 198:344-6 S 11 '64
Communications. S. Metzger. il Astronautics & Aerospace Eng 1:110-13 N '63
Communications satellites in space. il Bell Lab Rec 42:179 My '64
Communications with and via spacecraft. H. P. Hutchinson. diag Space/Aeronautics 42 no 4:70-2 '64-65
Comparison of modulation methods for multiple-access synchronous satellite communication systems. J. A. Stewart and E. A. Huber. bibliog Inst E E Proc 111:535-46 Mr '64
Comsat comes on strong with a really big show; the Olympics. L. D. Shergalis. il diags Electronics 37:60-3 O 5 '64
Early Bird, a bigger and better communications satellite. J. Strasser. il map diags Electronics 37:90-8 Ag 10 '64
Effects of Arctic nuclear explosions on satellite radio communication. P. R. Arendt and H. Soicher. bibliog maps IEEE Proc 52:672-6 Je '64
Establishment and replenishment comparison of synchronous and medium altitude satellite systems. G. C. Sponsler and others. bibliog IEEE Proc 52:756-69 Jl '64
Expected interference levels due to interactions between line-of-sight radio relay systems and broadband satellite systems. R. G. Medhurst and J. H. Roberts. bibliog Inst E E Proc 111:519-23 Mr '64
Experiments with Oscar III. H. Gabrielson and R. Tellefsen. diags Q S T 48:39-42 Jl '64
Germany begins satellite communications. R. Mikton. il Electronics 36:74+ D 6 '63
Graphic methods for calculating coverage attainable with communication satellites. R. Heppe. Elec Com 39 no 1:132-43 '64
Highlights of progress on satellite devices. C. C. Cutler and J. R. Pierce. bibliog J Res Nat Bur Stand 68D:673-4 My '64
International agreements put focus on satellite tv. A. G. Haley. il Astronautics & Aeronautics 2:82-5 S '64
Lincoln laboratory West Ford program; an historical perspective. C. F. J. Overhage and W. H. Radford. bibliog IEEE Proc 52:452-4 My '64
Measured physical characteristics of the West Ford belt. F. E. Heart and others. bibliog diags IEEE Proc 52:519-33 My '64
Medium-capacity space-communication terminal. L. Pollack and others. il Elec Com 39 no 1:37-48 '64
Military vs. commercial Comsat design. W. L. Pritchard and N. MacGregor. bibliog maps diag Astronautics & Aeronautics 2:70-7 O '64
Mobile ground terminal for satellites communications. G. V. Kedrowsky. il Space/Aeronautics 42:85+ Ag '64
Multifrequency high-power cassegrainian antenna-feed systems for satellite ground stations. H. Scheiner and others. il Elec Com 39 no 1:73-9 '64
Mutual interference between communication satellites and terrestrial line-of-sight radio-relay systems. J. K. Chamberlain and R. G. Medhurst. Inst E E Proc 111:524-34 Mr '64
NASA Relay I experimental communication satellite. J. D. Kiesling. il diags RCA R 25:232-61 Je '64
New comsats. B. Kovit. il diags Space/Aeronautics 42:32-41 O '64

SATELLITES, Artificial—Communication applications—*Continued*

Olympic telecasts. Electronics 37:151 O 19 '64

Orbital properties of the West Ford dipole belt. I. I. Shapiro and others. bibliog il diags IEEE Proc 52:469-518 My '64; Correction. 52:911 Ag '64

Oscar III; technical description. A. M. Walters. il diags Q S T 48:16-18 Je '64

Passive communications satellites; review, 1960-1962. J. R. Burke. bibliog il J Res Nat Bur Stand 68D:511-14 Ap '64

Plotting coverage circles for satellite communications. D. Levine and W. H. Welch. map diag Electronics 37:27-9 Ja 24 '64

Progress committee report for 1963; satellites and relay systems. il maps SMPTE J 73:387-8 My '64

Radio transmitter for satellite communication from Goonhilly Downs station of the British post office. E. A. Rattue. il Elec Com 39 no 1:129-31 '64

Rotating pair; Relay II and Echo 2 balloon. Product Eng 35:62 F 3 '64

Satellite-communication ground station in Germany. H. Carl. map Elec Com 39 no 1:123 '64

Satellite communications. H. P. Hutchinson. map diags Electro-Tech 73:44-52 Ap '64

Satellite scatter for 50-mc. DX. R. Soifer. Q S T 47:34+ D '63

Satellite system interference tests at Andover, Me. H. E. Curtis. il map diags Bell System Tech J 42:2715-39 N '63

Satellite-tracking receiver. W. Janeff. bibliog diags Elec Com 39 no 1:98-112 '64

Shadows produced by spin-stabilized communication satellites. B. Paul. bibliog diags AIAA J 2:924-31 My '64

Some properties of Van Atta arrays and the use of two-way amplification in the delay paths. D. E. N. Davies. bibliog diags Inst E E Proc 110:507-12 Mr '63; Discussion. 111:890-2 My '64

Some results at Pleumeur-Bodou during transmission tests using the Telstar satellite. J. P. Houssin. Inst E E Proc 111:1407-10 Ag '64

Spacecraft technology for satellite communication systems. M. E. Brady. Elec Com 39 no 1:144-54 '64

Space-research ground station. B. Cooper and R. McClure. il diag Elec Com 39 no 1:25-36 '64

Stage set for U.S.-Soviet space tests. J. A. Strasser. il Electronics 37:10-11 Ja 17 '64

Syncom design changing. Electronics 37:49 Mr 6 '64

Syncom; stationary orbit. il maps diag Product Eng 35:39-40 Ag 31 '64

Syncom's time delay; no great problem. J. Strasser. Electronics 36:11 N 8 '63

System configuration of transportable space-communication terminal. D. Hershberg. il plan diags Elec Com 39 no 1:49-57 '64

Technical aspects of the design of communication-satellite systems. W. J. Bray. bibliog maps diags Inst E E Proc 111:744-58 Ap '64

Techniques for digital communication via satellites. F. Assadourian and E. M. Bradburd. diags RCA R 25:67-84 Mr '64

Telstar communications satellite experiment plan. S. B. Bennett and L. C. Thomas. diags IEEE Trans Com & Electronics p54-60 Ja '64

Telstar design and construction and early results of the scientific space experiments. H. I. Maunsell and J. W. Stafford. il diags IEEE Trans Com & Electronics p28-37 Ja '64

Telstar experiment. bibliog il maps diags Bell System Tech J 47:739-1934 pts 1-3 Jl '63; Abstract. SMPTE J 72:986-92 D '63

Terrestrial navigation by artificial satellites. P. C. Sandretto. bibliog il diags Elec Com 39 no 1:155-67 '64

Thermal design of Telstar. P. Hrycak. bibliog il diags Astronautics & Aerospace Eng 1:44-9 D '63

Transmitter for satellite ground station. H. Goldman and others. il diags Elec Com 39 no 1:80-8 '64

Transportable satellite-communication ground station in Brazil. J. C. Fonseca and C. H. Moreira. Elec Com 39 no 1:124-8 '64

Transportable-station operation with Telstar and relay satellites. J. E. Drucker. Elec Com 39 no 1:113-22 '64

Using the Oscar III v.h.f. communication satellite. W. I. Orr. diags Q S T 48:17-21 Ag '64

West Ford and the scientists. J. W. Findlay. bibliog IEEE Proc 52:455-60 My '64

West Ford experiment: an introduction to this issue. W. E. Morrow, jr. and T. F. Rogers. bibliog il diags IEEE Proc 52:461-8 My '64

West Ford payload. P. Waldron and others. il IEEE Proc 52:571-6 My '64

World of the communications satellite. A. C. Clarke. bibliog Astronautics & Aeronautics 2:45-8 F '64

Control

Attitude control for an orbiting observatory; OGO. D. D. Otten. bibliog diags Control Eng 10:81-5 D '63

Control of a synchronous satellite by continuous radial thrust. R. S. H. Toms and B. E. Kalensher. bibliog maps diags AIAA J 2:1179-88 Jl '64

Control system for an orbiting observatory. Electro-Tech 73:12-13 My '64

Damping of a gravitationally stabilized satellite. R. R. Newton. AIAA J 2:20-5 Ja '64

Drag-free satellite. B. Lange. bibliog diags AIAA J 2:1590-606 S '64

Dynamics of gravity-oriented orbiting systems with application to passive stabilization. B. Etkin. bibliog diags AIAA J 2:1008-14 Je '64

Equilibrium orientations of gravity-gradient satellites. I. Michelson. AIAA J 1:493 F '63; Discussion. 2:1357-8 Jl '64

Flight control. C. L. Seacord. diags Space/Aeronautics 42 no 4:66-9 '64-65

Gravity-gradient stabilization. R. J. Katucki. il diags Space/Aeronautics 42:42-7 O '64

Gravity gradient stabilization system successfully flown. Franklin Inst J 277:381 Ap '64

High-capacity reaction-wheel attitude control. M. L. Dertouzos and J. K. Roberge. bibliog il diags IEEE Trans Applications & Ind p99-104 Mr '64

Longitude positioning and orbit control of the 24-hour equatorial satellite. G. Kang and M. F. Kenehan. bibliog diags AIAA J 2:991-9 Je '64

Minimal-fuel satellite attitude controls. J. S. Meditch. bibliog diags IEEE Trans Applications & Ind p 120-8 Mr '64

Nutation damper for OSO. B. D. Craig. il diags Astronautics & Aerospace Eng 1:50-5 D '63

Satellites; Syncom control system. il Product Eng 34:83 N 11 '63

Spacecraft technology for satellite communication systems. M. E. Brady. Elec Com 39 no 1:144-54 '64

Spherical flywheel for attitude control. F. K. Mueller and H. C. Rothe. il Space/Aeronautics 40:96 D '63

Testing OGO's attitude controls. N. H. Beachley and others. il diags Control Eng 11:93-7 O '64

Yagi and a helix for Topsi. il Engineering 197:399 Mr 13 '64

Design

Establishment and replenishment comparison of synchronous and medium altitude satellite systems. G. C. Sponsler and others. bibliog IEEE Proc 52:756-69 Jl '64

Orbiting geophysical observatory. diags Product Eng 35:55-6 S 28 '64

Relative magnitudes of the space-environment torques on a satellite. L. E. Wiggins. bibliog diag AIAA J 2:770-1 Ap '64

Steadiest spectator: Orbiting astronomical observatory. il Mech Eng 85:56 D '63

Thermal design of Telstar. P. Hrycak. bibliog il diags Astronautics & Aerospace Eng 1:44-9 D '63

Electronic equipment

Dolling up a space probe. A. B. Mickelwait and E. R. Spangler. il diags Electronics 37:80-4 Mr 23 '64

Dumbbell concept aids space electronics design. J. A. Strasser. il diag Electronics 37:112-17 My 18 '64

Military satellites. il Electronics 37:36-7 S 7 '64

Monostable circuits need power only when they work. L. L. Kleinberg. diags Electronics 37:56-9 Ag 24 '64

Multichip circuits get off the ground. J. Eimbinder. il diag Electronics 37:105-7 S 21 '64

NASA Relay I experimental communication satellite. J. D. Kiesling. il diags RCA R 25:232-61 Je '64

Tapered tubes for radio research in space. il Engineering 196:702 N 29 '63

Telstar design and construction and early results of the scientific space experiments. H. I. Maunsell and J. W. Stafford. il diags IEEE Trans Com & Electronics p28-37 Ja '64

UK-2/S-52 international satellite program. E. W. Hymowitz and H. M. Watson. il diags Westinghouse Eng 23:162-6 N '63

SATELLITES, Artificial—*Continued*

Launching

Black Knight satellite launcher. Engineer 218:458 S 18 '64
Blue Streak static firings; summary of progress October 1960 to October 1962. C. R. Hume. il diags Roy Aeronautical Soc J 68:35-44 Ja '64
European co-operation in space vehicle development. M. H. Stephens. il map diags Roy Aeronautical Soc J 68:289-300; Discussion. 300-2 My '64
Prelaunch dynamic loads on space vehicles launched from ships. D. H. Mitchell. bibliog il diags Naval Eng J 76:45-55 F '64
Saturn I sets weight-lifting record. il diags Machine Design 36:126-9 F 27 '64

Libration

Bounds on the librations of a symmetrical satellite. R. Pringle, jr. bibliog diags AIAA J 2:908-12 My '64
Damping of a gravitationally stabilized satellite. R. R. Newton. AIAA J 2:20-5 Ja '64
Dumbbell liberations in elliptic orbits. H. B. Schechter. bibliog AIAA J 2:1000-3 Je '64
Euler angles for libration analysis. I. Michelson. AIAA J 2:1469-70 Ag '64
Long-term coupling effects between librational and orbital motions of a satellite. E. Y. Yu. bibliog AIAA J 2:553-5 Mr '64
Solar influence on satellite motion near the stable earth-moon libration points. B. D. Tapley and J. M. Lewallen. bibliog diags AIAA J 2:728-32 Ap '64

Meteorological applications

Aerospace in perspective; utilization. il diags Space/Aeronautics 41:122-37 Ja '64
Automatic picture transmission tv camera system for meteorological satellites. R. A. Stampfl and W. G. Stroud. il diags SMPTE J 73:130-4 F '64
Homemade ground stations to receive weather pictures from Nimbus satellite. J. A. Strasser. il diag Electronics 37:99-101 Jl 27 '64
Nimbus. diags Product Eng 35:65-6 S 14 '64
Nimbus aftermath. Electronics 37:29-30 O 5 '64
Nomss choice is made official but Nimbus flight may upset things. il Space/Aeronautics 41:17 Mr '64
Nuclear Nimbus. il Electronics 37:37-8 S 7 '64
Receiving stations have computers that determine the longitude and latitude of Tiros satellite. il Product Eng 35:40-1 Mr 2 '64
Space electronics; birds-eye view of the weather. C. M. Hunter and E. Rich, jr. il diags Electronics 37:81-7 Jl 27 '64
Weather satellite developments; automatic picture transmission from Tiros 8. C. E. Goodison. il Wireless World 70:411-12 Ag '64
Weathermen plan data-satellite net. J. A. Strasser. il diag Electronics 37:14-15 F 21 '64
World-wide weather watcher; TIROS, the world's first weather satellite. il Ind Phot 12:18-19 N '63

Military applications

Military satellites. il Electronics 37:36-7 S 7 '64
Military vs. commercial Comsat design. W. L. Pritchard and N. MacGregor. bibliog maps diag Astronautics & Aeronautics 2:70-7 O '64
New comsats. B. Kovit. il diags Space/Aeronautics 42:32-41 O '64
Space surveillance. J. A. Fusca. il diags Space/Aeronautics 41:92-103 Je '64

Navigation applications

GE proposes worldwide navigation system based on satellites. Marine Eng/Log 70:80+ My '64
New concept for a navigation satellite system. E. S. Keats. il diags Westinghouse Eng 24:105-9 Jl '64

Orbits

Application of dynamic programming to optimizing the orbital control process of a 24-hour communication satellite. J. A. Burkhart and F. T. Smith. bibliog diags AIAA J 1:2551-7 N '63
Approximate distribution of nearly circular orbits. R. E. Beckwith. bibliog AIAA J 2:913-16 My '64
Astrodynamics; bibliography of general perturbation solutions of earth-satellite motion. T. Gabbard, jr. and E. Levin. Astronautics & Aerospace Eng 1:121-3+ bibliog(p 122-3+) N '63
Attitude determination and prediction of spin-stabilized satellites. L. C. Thomas and J. O. Cappellari. bibliog diags Bell System Tech J 43:1657-726 pt 2 Jl '64
Comparison of error transfer matrices for circular orbits. A. H. Greene and W. F. Jaros. jr. diag AIAA J 1:2623-5 N '63
Determination of the preliminary orbits of artificial lunar and planetary satellites. P. E. Koskela. bibliog diags AIAA J 2:917-24 My '64
Drag displacements and decay of near-circular satellite orbits. F. T. Geyling. bibliog diag AIAA J 2:1174-8 Jl '64
Drag-free satellite. B. Lange. bibliog diags AIAA J 2:1590-606 S '64
Dumbbell librations in elliptic orbits. H. B. Schechter. bibliog AIAA J 2:1000-3 Je '64
Dynamics of gravity-oriented orbiting systems with application to passive stabilization. B. Etkin. bibliog diags AIAA J 2:1008-14 Je '64
Effects of charged particles on the motion of an earth satellite. C. L. Brundin. bibliog AIAA J 1:2529-38 N '63
Experimental investigation of electric drag on satellites. E. D. Knechtel and W. C. Pitts. diags AIAA J 2:1148-51 Je '64
Location of catch-up point in a ΔV perturbed circular orbit. A. H. Milstead. AIAA J 2:940-1 My '64
Long-term coupling effects between librational and orbital motions of a satellite. E. Y. Yu. bibliog AIAA J 2:553-5 Mr '64
Longitude positioning and orbit control of the 24-hour equatorial satellite. G. Kang and M. F. Kenehan. bibliog diags AIAA J 2:991-9 Je '64
Magnetic control of satellite attitude. G. E. Lynn and others. bibliog diags IEEE Trans Com & Electronics 83:570-5 S '64
Methods of orbit refinement. R. B. Blackman. bibliog Bell System Tech J 43:885-909 My '64
Modifications in method of improving the orbits of artificial earth satellites. A. S. Sochilina. bibliog AIAA J 1:2909-11 D '63
Motion of an artificial earth satellite in an orbit of small eccentricity. G. A. Chebotarev. AIAA J 2:203-8 Ja '64
Nodal period of an earth satellite. L. Blitzer. bibliog AIAA J 2:1459-60 Ag '64
Optimal variable-thrust transfer of a power-limited rocket between neighboring circular orbits. F. W. Gobetz. bibliog diags AIAA J 2:339-43 F '64; Correction. 2:2236-7 D '64
Orbit determination by angular measurements. P. O. Bell. AIAA J 2:1862-4 O '64
Orbital transfer with minimum fuel. W. E. Bleick and F. D. Faulkner. AIAA J 2:113-15 Ja '64
Out-of-plane perturbations of a circular satellite orbit. T. T. Soong. AIAA J 1:2862-3 D '63
Passive system for determining the attitude of a satellite. H. D. Black. AIAA J 2:1350-1 Jl '64
Perturbation methods for satellite orbits. F. T. Geyling. bibliog diags Bell System Tech J 43:847-84 My '64
Preliminary orbit determination from self-contained data. R. H. Gersten and Z. E. Schwarzbein. bibliog AIAA J 2:751-3 Ap '64
Satellite dynamics for small eccentricity including drag and thrust. K. Forster. bibliog AIAA J 1:2621-3 N '63
Satellite gravity measurements. Sci Am 210:60-1 Ja '64
Satellite tracking and orbit prediction. A. J. Claus and F. T. Geyling. il diags Bell Lab Rec 42:78-83 Mr '64
Shadows produced by spin-stabilized communication satellites. B. Paul. bibliog diags AIAA J 2:924-31 My '64
Solar radiation pressure and the motion of earth satellites. Y. N. Polyakhova. bibliog diags AIAA J 1:2893-909 D '63
Stationary earth orbits. F. C. Hoyt. AIAA J 2:1470-1 Ag '64
Syncom; stationary orbit. il maps diag Product Eng 35:39-40 Ag 31 '64
Umbra and penumbra eclipse factors for satellite orbits. S. Z. Fixler. bibliog diags AIAA J 2:1455-7 Ag '64
Zonal harmonic perturbations of an accurate reference orbit of an artificial satellite. J. P. Vinti. bibliog J Res Nat Bur Stand 67B:191-222 O '63

Rotation

Attitude determination and prediction of spin-stabilized satellites. L. C. Thomas and J. O. Cappellari. bibliog diags Bell System Tech J 43:1657-726 pt 2 Jl '64

SATELLITES, Artificial—Rotation—*Continued*

Equations of motion for spin stabilization analysis in terms of Euler angles. P. S. Carroll. diag AIAA J 2:1483-5 Ag '64

Scientific applications

Alouette, the Canadian ionospheric satellite. Wireless World 70:419 Ag '64

Ariel II; scientific experiments being undertaken. il Wireless World 70:233 My '64

Ariel 2; second Anglo-American satellite. il diag Electronics Eng 36:312-14 My '64

Attitude control for an orbiting observatory; OGO. D. D. Otten. bibliog diags Control Eng 10:81-5 D '63

Auroral measurements and upper atmospheric physics. R. E. Meyerott and J. E. Evans. bibliog il map diags AIAA J 2:1169-74 Jl '64

Biosatellites; another chapter in the struggle for reliability. il Space/Aeronautics 41:15+ F '64

Dolling up a space probe. A. B. Mickelwait and E. R. Spangler. il diags Electronics 37:80-4 Mr 23 '64

Eccentric-orbiting Imp fills gap in space-radiation data. il Machine Design 35:12 D 19 '63

Electron densities from satellite antenna impedance. O. C. Haycock and K. D. Baker. il diags IEEE Trans Com & Electronics 83:458-62 S '64

Elektron I and II study radiation in space. Product Eng 35:40 Mr 2 '64

Experiences with the impedance probe on satellites. O. C. Haycock and others. bibliog il diag IEEE Proc 52:1029-33 S '64

Future scientific spacecraft. T. L. Branigan and D. P. LeGalley. il Phys Today 17:21-8 Ap '64

Meteoroid detection satellite uses capacitor detector panels. Electro-Tech 73:11 My '64

Multichip circuits get off the ground. J. Eimbinder. il diag Electronics 37:105-7 S 21 '64

NASA's new Advanced technological satellite. il Space/Aeronautics 41:17+ Je '64

New Pioneer satellites. I. Stambler. il diags Space/Aeronautics 40:58-64 N '63

New satellite space photography system. Franklin Inst J 277:97-8 Ja '64

Orbiting geophysical observatory. diags Product Eng 35:55-6 S 28 '64

Orbiting observatories. J. Stambler. il diags Space/Aeronautics 42:34-42 S '64

Processing satellite data. il Engineer 217:691 Ap 17 '64

Satellite reveals new radiation facts. Franklin Inst J 278:225 S '64

Sensors for detecting micro-meteoroids. il diag Product Eng 35:51 Ag 17 '64

Slow sampling saves time. il Electronics 36:40-1 N 29 '63

Solar radiation collector in orbit. Engineering 196:733 D 6 '63

Space surveillance. J. A. Fusca. il diags Space/Aeronautics 41:92-103 Je '64

Taking pictures of earth from 100 miles in space. B. Sherman. diag Mod Phot 28:14-15 Je '64

Twin satellites to probe radiation belts. Engineering 197:301 F 21 '64

UK-2/S-52 international satellite program. E. W. Hymowitz and H. M. Watson. il diags Westinghouse Eng 23:162-6 N '63

Tracking

Antenna system for transportable space-communication terminal. E. Singer and T. J. Vaughan. il diags Elec Com 39 no 1:58-72 '64

Calculation of the spin-axis orientation of the Telstar satellites from optical data. D. W. Hill. diags Bell System Tech J 42:2943-60 N '63

Development at Goonhilly. Engineer 217:1001 Je 5 '64

Different satellite-tracking antenna system. J. D. McMechan and C. D. Clifford. il diags Q S T 48:34-7 O '64

Early Bird, a bigger and better communications satellite. J. A. Strasser. il map diags Electronics 37:90-8 Ag 10 '64

Graphic methods for calculating coverage attainable with communication satellites. R. Heppe. Elec Com 39 no 1:132-43 '64

How computers align phased-array radars. A. G. Kramer and A. Slocum. diags Electronics 36:29-33 N 15 '63

Machining a parabolic curve. H. C. Emerson. il Am Mach 108:57-9 My 25 '64

Multifrequency high-power cassegrainian antenna-feed systems for satellite ground stations. H. Scheiner and others. il Elec Com 39 no 1:73-9 '64

Orbit determination by angular measurements. P. O. Bell. AIAA J 2:1862-4 O '64

Paramp system achieves high stability. R. L. Sleven and R. J. Domchick. il diags Electronics 37:34-7 F 28 '64

Photography, stellar astronomy, and resolution. J. H. Waddell. Res/Develop 15:9 Je; 14-15 Jl '64

Processing data from N.A.S.A. satellites. Radio & Electronic Eng 28:54 Jl '64

Processing UK2's findings. il Engineering 197:558 Ap 17 '64

Receiving stations have computers that determine the longitude and latitude of Tiros satellite. il Product Eng 35:40-1 Mr 2 '64

Satellite tracking and orbit prediction. A. J. Claus and F. T. Geyling. il diags Bell Lab Rec 42:78-83 Mr '64

Satellite-tracking receiver. W. Janeff. bibliog diags Elec Com 39 no 1:98-112 '64

Southern comfort. T. Maguire. il diags Electronics 37:90-2 Je 1 '64

Space electronics; birds-eye view of the weather. C. M. Hunter and E. Rich, jr. il diags Electronics 37:81-7 Jl 27 '64

System configuration of transportable space-communication terminal. D. Hershberg. il plan diags Elec Com 39 no 1:49-57 '64

Transportable satellite-communication ground station in Brazil. J. C. Fonseca and C. H. Moreira. Elec Com 39 no 1:124-8 '64

Transportable-station operation with Telstar and relay satellites. J. E. Drucker. Elec Com 39 no 1:113-22 '64

Vlf utilization at NASA satellite tracking stations. C. H. Looney, jr. map diag J Res Nat Bur Stand 68D:43-5 Ja '64

SAUCES, Frozen

Low-methoxyl pectin used as thickening agent for frozen gravies. R. H. Waters and M. P. Hood. bibliog Food Tech 18:1074-7 Jl '64

SAUDI ARABIA

See also

Mines and mineral resources—Saudi Arabia

Petroleum industry and trade—Saudi Arabia

Roads—Saudi Arabia

SAUSAGE

Continuous "frank" processing. il diag Food Eng 36:55-7 Jl '64

Continuous processing machine makes franks by the mile. il diag Machine Design 36:148-9 O 8 '64

Determining nitrite in sausage. M. Z. Barakat and I. Sadek. bibliog Food Tech 18:242-4 F '64

Forms franks with 10,000-cycle current. il Food Eng 36:61 F '64

High-frequency jolt puts the bite on skinless dogs. il diags Machine Design 35:128-9 D 5 '63

New automatic frankfurter processing machine. il Food Tech 18:1577-8 O '64

New concept in self-service packaging; Slotkowski sausage co. L. P. Slotkowski. il Food Eng 36:86-8 Mr '64

Processing skinless frankfurters. il diag Automation 11:76-8 F '64

Producing frankfurters continuously. il diag Automation 10:66-7 N '63

Slashes smokehouse cure time; glucono delta lactone permits higher smoking temperature to accelerate formation of cured-meat color in wieners. Food Eng 36:152 S '64

Small companies underwrite unique frankfurter machine. il Automation 11:35 Jl '64

Some aspects about using bacterial pure cultures in the manufacture of fermented sausages. F. P. Niinivaara and others. bibliog il diags Food Tech 18:147-53 F '64

SAWMILLS

Electric equipment

Series capacitor ends voltage dips. R. C. Miller. il diag Elec World 161:59+ Ja 13 '64

SAWS, Metal working

Automatically square-cut aluminium plate. il Engineer 216:959 D 6 '63

Blade changing time cut to five minute maximum. il Steel 155:30 Ag 24 '64

Faster cutoff of alloy and stainless-steel billets. il Mach 70:152 My '64

Flying saw crisscrosses extruded stock. il diag Tool & Manuf Eng 51:84 N '63

Friction sawing machine. il Engineer 218:253 Ag 14 '64

Fundamentals of HSS cutting tools; saws. il diags Am Mach 108:156 Ap 13 '64

Power saw cuts aluminum extrusions. il Mod Metals 20:66 Ag '64

Versatility feature of cutoff saw. il Steel 154:255-6 Ja 6 '64

What's new in sawing? Am Mach/Metalworking Manuf 107:131-2 N 11 '63

Control

Hydraulic power and control circuit for a cutoff saw. diag Hydraulics & Pneumatics 17:24 Ap '64

SAWS, Metal working—Control—*Continued*
Wells king-sized band saws. il Mach 70:143 D '63

Numerical control

Hot saw automatic measuring stop features digital control system. il Iron & Steel Eng 41:136 Ja '64
Simple computer cuts billets five ways. J. P. Clyne. diags Control Eng 11:81-4 F '64

SCAFFOLDING
Geared motors synchronize telescoping cylinders. G. A. Grappo. il diags Hydraulics & Pneumatics 17:102-3 S '64

Safety measures

Eight steps to steel scaffolding safety. W. J. McClure. il Safety Maint 127:60-2 Ap '64

SCAFFOLDING, Steel
Lightweight one-man building cradle. il Engineering 198:244 Ag 21 '64
Scaffold reaches under bridges. il Eng N 173:46 Ag 13 '64
Tall scaffold makes Tower demolition safe. il Eng N 172:24-5 Ap 30 '64
Unit frame system for trestling. il Engineering 196:688 N 29 '63

SCALES
Soap plant observer; substitution weighing. diags Soap & Chem Spec 40:176+ Ap '64
See also
Balances

SCALES (markings)
Mathematical method for the automatic scaling of a function. T. Giammo. Assn for Computing Mach J 11:79-83 Ja '64

SCALES, Electronic
Calibrating load cells. il Engineer 216:957 D 6 '63
High-speed electronic checkweighing and grading. il Ind Electronics 2:479 O '64
Louisville Cement weigh ahead with nuclear scale. il Rock Prod 67:71+ Ap '64
Magneto elastic load cell squeezes into tight spaces. A. L. Mozina. il diags Control Eng 10:69-70 D '63
Production line electronic checkweighers. il Ind Electronics 2:138-9 Mr '64
Scale weighs 82 cars in nine minutes. il Coal Age 68:139 D '63
Semiconductor load cells; new weighing component. M. Green. Automation 11:152-5 O '64

SCALP

Diseases

See also
Ringworm

SCANDINAVIA
See also
Plastics industries—Scandinavia

SCANDIUM
Analytical applications of the flame spectra of the rare earth elements and scandium. A. P. D'Silva and others. bibliog Anal Chem 36:532-6 Mr '64
Separation of scandium from yttrium, lanthanum, and the rare earths by cation exchange chromatography. F. W. E. Strelow and C. J. C. Bothma. bibliog Anal Chem 36:1217-20 Je '64

SCAPOLITE
Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Angino. bibliog Am Mineralogist 49:387-94 Mr '64

SCATTERING of light. See Light, Scattering of

SCATTERING of particles and rays
Consequences of neutron-proton mass difference in the kinematics of neutron-proton scattering. A. K. Ghatak. diag Am J Phys 32:163-6 F '64
Distortion and spurious scattering in nuclear emulsions. P. K. Aditya and R. K. Puri. bibliog diags J Sci Instr 41:529-34 S '64
Incoming waves in final states in matrix elements for scattering problems. I. Adawi. bibliog Am J Phys 32:211-15 Mr '64
Introduction to dispersion relations. C. H. Holbrow and W. C. Davidon. bibliog diags Am J Phys 32:762-74 O '64
Levinson's theorem (an elementary derivation). M. Wellner. Am J Phys 32:787-9 O '64
See also
Compton effect
also subdivision Scattering under special subjects, e.g.
Electromagnetic waves
Electrons
Gamma rays
Neutrons
Radio waves
X-rays

SCAVENGING (internal combustion engines). See Internal combustion engines—Scavenging

SCHAIRER, J. Frank
Presentation of the Roebling medal and acceptance speech; with bibliography of publications. H. S. Yoder, jr. por Am Mineralogist 49:453-9 Mr '64

SCHALLER, Waldemar T.
Ten-year supplement to the bibliographies of Clarence S. Ross and Waldemar T. Schaller. M. Hooker. Am Mineralogist 48:1410-12 N '63

SCHEDULES
Achievement in a warehouse; how Goodyear gets output. D. Paxton. il Mod Materials Handling 19:36-40, cover Je '64
Advancing state-of-the-art. L. Smith. il Astronautics & Aeronautics 2:56-8 Je '64
Algorithm for the sequential solution of schedule networks. C. R. Goldberg. diags Op Res 12:499-502 My '64
Algorithms and analog computers for the most reliable route through a network. G. R. Shorack. bibliog Op Res 12:632-3 Jl '64
Application of digital computer techniques to the economic scheduling of marginal generating units for the Pennsylvania-New Jersey-Maryland interconnection. L. T. Anstine and others. flow diag IEEE Trans Power Apparatus & Systems 83:316-20 Ap '64
Approximate solutions to the three-machine scheduling problem. R. J. Giglio and H. M. Wagner. Op Res 12:305-24 Mr '64
Automated job shop; the computer lends a hand. D. B. Dallas. il Tool & Manuf Eng 52:77-80 Mr '64
Best planned bridge project shows value of sequence charting. il diags Roads & Sts 107:40-3+ Ag '64
Choosing a Critical-Path scheduling program. B. O. Szuprowicz. Eng N 172:78-80 Je 18 '64
Computer schedules four product pipelines. S. K. Pringle and J. O. Rogers. il diags Oil & Gas J 62:152-4+ My 18 '64
Computer streamlines pipelaying schedule. J. J. Kennedy. il Pub Works 95:67-9 Ja '64
Computerized system improves machinery maintenance efficiency. L. W. Collins, jr. il diags Mach 70:101-10 My '64
Craft scheduling program boosts maintenance efficiency to 90 per cent. M. D. O'Hern. Plant Eng 18:111-13 My '64
Critical Path analyses via chance constrained and stochastic programming. A. Charnes and others. bibliog diags Op Res 12:460-70 My '64
Critical Path control of four-speed standard transmission program; abstract. E. J. Hughes. Automation 11:151-3 Je '64
CPM; a new management tool for mechanical contractors. diags Dom Eng 203:74-8+ Je; 204:80-7 Jl '64
CPM: how it fits into overall system of project control. E. J. Mark. diag Heating-Piping 36:118-22 Mr '64
Critical-path method (CPM) in electrical construction; relation of subcontractor to plan. J. J. O'Brien. plan Elec Constr & Maint 63:70-3 Ja '64
CPM in rubber goods manufacture. D. J. Bencin. diag Rubber Age 95:426-8 Je '64
CPM lowers risk of high penalties. il diag Eng N 173:24-5 Jl 23 '64
Critical path method of job planning. Engineering 196:591 N 8 '63
Critical path method simply described. diag Roads & Sts 106:25+ N '63
Critical path method tracks profitable maintenance overhaul. W. F. Ashley. diags Mill & Factory 74:70-3 Ja '64
C.P.M. what factors determine its success? F. A. Sando. diags Arch Rec 135:211-16 Ap; 202-4 My '64
Critical Path or bar chart; which is better for maintenance control? B. Carson. Plant Eng 18:129-31 O '64
Critical-Path planning assures safe turnarounds for Marathon Oil. D. H. Stormont. il Oil & Gas J 62:68-71 Ja 13 '64
Critical Path planning in the pulp and paper industry. L. H. Nutter, jr. diags Tappi 47:sup 175A-9A F '64
Critical Path required on highway job; unit prices. Eng N 172:49 Je 4 '64
Critical Path scheduling for maintenance of steam turbine-generators. M. W. Cone. diags Combustion 36:36-43 Jl '64
Critical Paths and true productivity. S. L. Kochanski. diags Engineering 198:2-3 Jl 3 '64

SCHEDULES—*Continued*

Critical planning pays off. W. F. Boone. il Chem Eng Prog 60:25-7 Jl '64

Detroit Edison levels workload on men and resources with CPM and MARS. L. W. Coombe and C. M. Baer. il Elec World 162:110-12 S 21 '64

Development of M-stage decision rule for scheduling n jobs through M machines. R. A. Dudek and O. F. Teuton, jr. bibliog Op Res 12:471-97 My '64

Device expedites CPM scheduling. diag Eng N 171:105 N 14 '63

Digital computer schedules Colonial operations from startup. R. Techo and others. diags Oil & Gas J 62:94-100 Ap 13 '64

Earlier payout through tight project scheduling and control. H. M. Betzig. Am Oil Chem Soc J 41:sup58+ Mr '64

Even-Steven work schedule is good 365 days a year. R. G. Crosby. diag Power 108:166 F '64

Exploit your peak energy periods. A. Uris. il Chem Eng 71:154+ F 17 '64

Feasibility of simultaneous flows in a network. T. C. Hu. diag Op Res 12:359-60 Mr '64

First five years of the Critical-path method. W. J. Gleason, jr. and J. J. Ranieri. bibliog Am Soc C E Proc 90 [CO 1 no 3832]:27-36 Mr '64

Geometric model and a graphical algorithm for a sequencing problem. W. W. Hardgrave and G. L. Nemhauser. diags Op Res 11:889-900 N '63

How a county uses CPM. W. H. Metzler and S. C. Bucher. diags Pub Works 95:92-4 Mr '64

How CPM was used on a large bridge project. J. C. Bullard. il Roads & Sts 106:22-5 N '63

How to boost open-pit productivity; materials scheduling and engineering. B. R. Henderson. Eng & Min J 164:88 N '63

How to use a CPM diagram. C. Howerton. Dom Eng 203:79-82 Je '64

How useful are Critical-path methods? interview with R. L. Martino. H. Popper. Chem Eng 71:220+ S 14 '64

How utilities use Critical Path scheduling. Elec World 161:31-4 Ap 13 '64

Introduction to CPM. E. Van Krugel. diags Arch Rec 136:337+ S '64

Maintenance shop scheduling at Lukens steel co. K. E. Buffington. Iron & Steel Eng 41:126-31 S '64

Manpower by Critical path method. J. A. Keane and J. D. Trawick. Civil Eng 34:42-3 Jl '64

Massey-Ferguson's new North American combine plant. il Automotive Ind 130:89-90 Je 15 '64

Maximum payloads per unit time delivered through an air network. G. B. Dantzig and D. L. Johnson. bibliog diags Op Res 12:230-6 Mr '64

Method for economic scheduling of a combined pumped hydro and steam generating system. P. J. Benard and others. IEEE Trans Power Apparatus & Systems p23-30 Ja '64

Methods of project scheduling as a tool for lowering costs. R. Marsh. diag Tappi 47:sup 136A-7A Ag '64; Excerpts. Automation 11: 137-9 F '64

Ministry of public building and works now sponsors Critical Paths. diag Engineering 197:403 Mr 20 '64

Models for scheduling a papermaking machine. M. H. Gotterer and D. Zaniker. bibliog Tappi 47:435-9 Jl '64

New Critical Path approach to small unit turnaround scheduling. C. L. Newton. diags Hydrocarbon Process & Pet Refiner 43:239-41 S '64

New development in Critical path method for turnarounds. J. J. O'Brien and others. diags Hydrocarbon Process & Pet Refiner 43:133-8 F '64

Optimality properties of a special assignment problem. S. C. Parikh and R. Wets. diags Op Res 12:139-42 Ja '64

Pipe-laying speed halves Critical path method schedule. J. S. Miller. il diag Civil Eng 34: 52-3 Ap '64

Predicting test-program failures. R. H. Carlson. il Machine Design 36:134-7 Ja 16 '64

Preparation of an overhaul schedule for use after a heavy landing. B. Decomps and De Caumont. plans diags Aircraft Eng 36:132-6 My '64

Preventive maintenance and controlled lubrication systems. G. Capel and E. Nozewski. Lub Eng 20:265-71; Discussion. 272 Jl '64

Probability problem arising in reliability and traffic studies. D. P. Gaver, jr. Op Res 12: 534-42 Jl '64

Product planning and evaluation; PERT/CPM network. R. D. Archibald and R. L. Villoria. diags Mech Eng 86:48-51 Je '64

PERT, a question unanswered; which job first? D. R. Taylor. diags Product Eng 35: 130-1 Ap 27 '64

PERT and CPM techniques in project management. R. M. Aras and J. Surkis. diags Am Soc C E Proc 90 [CO 1 no 3823]:1-25 Mr '64; Discussion. J. S. Keller. 90 [CO 2 no 4051]:75 S '64

Reviewing a paper machine installation Critical Path. R. H. Gerstenberger. Tappi 47:sup34A+ Ag '64

Revolving sleeve keeps schedule board current; Automatic machinery engineering section at Colgate-Palmolive co. il diag Plant Eng 18:136-7 Je '64

Safer operation of processing units through arrow diagraming. O. M. Allen and L. H. Vautrain. diag Chem Eng 71:74-5 Jl 6 '64

Scheduling of vehicles from a central depot to a number of delivery points. G. Clarke and J. W. Wright. diags Op Res 12:568-81 Jl '64

Seattle viaduct redesigned using CPM. R. W. Morse and others. il diag Civil Eng 34:46-7 O '64

Sensitivity analysis of multiterminal flow networks. S. E. Elmaghraby. diags Op Res 12:680-8 S '64

Some observations on the longest path problem. S. N. N. Pandit. bibliog Op Res 12: 361-4 Mr '64

Some properties of schedules for large projects with limited resources. J. D. Wiest. bibliog diags Op Res 12:395-418 My '64

Statistical evaluation rounds out ehv line design. J. G. Anderson and L. O. Barthold. diag Elec World 161:70-2 F 24 '64

Stone age production control works in the space age. R. B. Heldt. Mill & Factory 74:89-90 Ap '64

Switching network analysis methods. R. M. De Baun. bibliog diags Chem & Eng N 42:84-91 Je 22 '64

Use of the Critical-path method in a pollution control project. R. D. Vaughan. bibliog Am Water Works Assn J 56:1092-6 S '64; Excerpts. Pub Works 95:138+ N '64

Visualize CPM schedules by calendar. L. F. Checketts. diag Hydrocarbon Process & Pet Refiner 43:133-4 Je '64

What's going on in the tool room? W. C. Cooling. flow chart diags Mill & Factory 73:44-9 D '63

See also

Production control

SCHEELITE

Crystal growth and magnetic susceptibilities of some rare-earth sodium molybdenum scheelites. M. Schieber and L. Holmes. diag J Ap Phys 35:1004-5 pt 2 Mr '64

SCHIFF bases

Concerning the mechanism of the hydrolysis and aminolysis of Schiff bases. K. Koehler and others. bibliog Am Chem Soc J 86:2413-19 Je 20 '64

Metal ion induced rearrangements of bisbenzthiazolines to Schiff-base chelates. H. Jadamus and others. bibliog Am Chem Soc J 86:3056-9 Ag 5 '64

Nuclear magnetic resonance study of aqueous pyruvate-glycinate-zinc(II) and related systems. D. Leussing and C. K. Stanfield. bibliog Am Chem Soc J 86:2805-10 Jl 20 '64

Oxime tosylates react with Grignards; abstract. S. S. Pelosi, jr. and R. E. Lyle. Chem & Eng N 42:45 Ap 20 '64

Spectrophotometric determination of calcium in milk using 2,2′-(ethanediylidenedinitrilo) diphenol [glyoxal bis(2-hydroxyanil)]. T. A. Nickerson and others. bibliog Anal Chem 36:1676-7 Jl '64

Spectroscopic studies of keto-enol equilibria; nitrogen-15 substituted Schiff bases. G. O. Dudek and E. P. Dudek. bibliog Am Chem Soc J 86:4283-7 O 20 '64

Transition metal complexes with aliphatic Schiff bases; compounds formed by the reaction of copper(II) and nickel(II) ethylenediamine and triethylenetetramine complexes with some aliphatic aldehydes. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:1331-4 Ap 5 '64

Transition metal complexes with aliphatic Schiff bases; copper(II) and nickel(II) complexes of 1,3-propanediamine and their reactions with acetone. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86: 223-5 Ja 20 '64

SCHISTOSOMIASIS

Pararosaniline acts on specific sites. E. Bueding and others. il Chem & Eng N 42:45 Jl 6 '64

SCHISTS

Coexistent muscovite and paragonite in pelitic schists. E. A. Zen and A. L. Albee. diags Am Mineralogist 49:904-25 bibliog(p923-5) Jl '64

Coexisting albite and oligoclase in some schists from New Zealand. B. W. Evans. bibliog il diag Am Mineralogist 49:173-9 Ja '64

Layered mylonite from Beartooth Mountains, Montana. M. Prinz and A. Poldervaart. bibliog map Geol Soc Bul 75:741-4, pl 1 Ag '64

Significance of phengitic micas from low-grade schists. W. G. Ernst. Am Mineralogist 48:1357-73 bibliog(p 1371-3) N '63

SCHIZOPHRENIA

Differential rates of schizophrenia in Croatia, Yugoslavia. G. M. Crocetti and others. maps Am J Pub Health 54:196-206 F '64

SCHLIEREN apparatus

Amateur scientist; how to photograph air currents in color and build an accurate Foucault pendulum. il diags Sci Am 210:132-3+ F '64

Mach 8 to 22 studies of flow separations due to deflected control surfaces. D. S. Miller and others. bibliog il AIAA J 2:312-21 F '64

Multiple simultaneous imaging schlieren system. J. E. Creeden and J. S. King. il diag Roy Aeronautical Soc J 68:199 Mr '64

Stroboscopic schlieren system for the visual observation of pulsed ultrasonic waves. H. H. Hunter and others. il IEEE Proc 52:744-5 Je '64

SCHNEIDER, George William

Memorial. D. D. Utterback. por Am Assn Pet Geologists Bul 48:365-6 Mr '64

SCHOELLKOPF medal

Prahl is Schoellkopf medalist. Chem & Eng N 42:90 My 25 '64

SCHOLARSHIPS and fellowships

Financial assistance for educational purposes comes in many shapes and sizes. A. F. Scott. il Chem & Eng N 42:81-7 Ja 27 '64

Postdoctoral teaching internships set up; Great Lakes colleges association. il Chem & Eng N 42:46 Mr 9 '64

SCHOOL buildings

Corrugated aluminum domes shelter open-air classrooms. il Eng N 172:90 F 13 '64

Four schools. il plans Arch Forum 120:115-23 My '64

Geometry of space in schools. il plans diags Prog Arch 45:134-47 F '64

Johnson dedicates school enclosed with 20-ton panels. il Eng N 173:20-1 Ag 13 '64

Midwest preparatory school in a monastic mood. il plans Arch Forum 119:108-13 D '63

Prefabricated school components; better but cheaper. il diags Eng N 172:22-4 Ja 30 '64

School has total energy system. il Power Eng 68:43 F '64

Schools; building types study. il plans Arch Rec 135:145-64 F '64

Search for architectural principles; Lillibridge elementary school addition, Detroit. il plans diags Prog Arch 45:182-5 S '64

Team compressed air with steam to control school's water heaters. E. F. Gibbon. il Heating-Piping 36:246-7 My '64

Water and sewage flow rates in public schools. M. E. Reeder and W. J. Fogarty. bibliog Pub Works 95:80-2 N '64

See also

Classrooms

Music schools

Air conditioning

Air-conditioning, architecture and education. H. Wright. Arch Rec 135:146-50 F '64

Air-conditioning for a 12-month program; South Terrebonne high school, Houma, La. il plans Arch Rec 135:151-3 F '64

Air conditioning today's schools. S. P. Goethe. diags Air Cond Heat & Ven 61:73-82 Je '64; Discussion. 61:8+ Ag '64

Ceiling units for school air conditioning. il plan Arch Rec 136:163-4 Ag '64

Conditioned school is Hawaii's first. F. H. Kohloss. flow chart il diag Heating-Piping 36:116-21 Je '64

Lighting approach for air-conditioned schools. C. Whitehead, jr. il diags Illum Eng 59:417-19 Je '64

Packaged chiller, engine-generator linked for economy in windowless school. R. Brentzel and T. W. Rawlings. il diag Heating-Piping 36:133-6 Mr '64

Pooled school construction spurs development of air conditioning system. N. Rutgers; C. Arnold. diag Heating-Piping 36:143-5 My '64

School air conditioning. W. J. McGuinness. Prog Arch 45:174 Mr '64

School costs cut by new components; air conditioning; modular rooftop units. B. P. Spring. il diags Arch Forum 120:116 F '64

To compact is to air condition. Air Cond Heat & Ven 61:66-9 Ap '64

Costs

School component designs, costs revealed. il diags Arch Rec 135:166-72 F '64

Utility job is 32 per cent under estimate; unit prices. Eng N 173:61 Jl 16 '64

Designs and plans

City tries hexagons and circles for efficient school layouts. il plans Eng N 172:34-6 Ap 9 '64

Compact school design cuts air conditioning costs. D. L. Gusler. il diags Heating-Piping 35:95-9 D '63

Components program for California schools. plans diags Arch Rec 135:167-9 Ja '64

Construction of a buttressed dome segment; Culver City high school auditorium. A. R. Nasser. il diag Am Concrete Inst J 61:509-20 My '64

Master plan for consolidated public school: Sarasota, Fla. il Arch Rec 135:154-5 F '64

New kind of city school for Providence. il Arch Forum 119:11 D '63

New York state offers stock school plans. Arch Rec 134:36 N '63

145th building committee meeting or how one school was built. R. H. Mutrux. Prog Arch 45:185-7 Ap '64

P/A eleventh annual design awards; Junior high school for school board, Little Rock, Ark. il plans diags Prog Arch 45:138-41 Ja '64

Prototype school passes mid-term test. il Eng N 173:66-7 S 17 '64

Providence education center. il Arch Rec 135:12 Ja '64

School costs cut by new components. B. P. Spring. il plans diags Arch Forum 120:112-17 F '64

Total energy for Canadian school. G. N. Campbell. plan diag Am Gas Assn Mo 46:32-3+ Ja '64

Where the schoolhouse goes from here; building types study. il plans diags Arch Rec 136:225-48 S '64

Electric equipment

All-electric school gets high marks from teachers. Elec World 162:163 Ag 10 '64

1964 energy systems design survey; all-electric buildings. Power 108:sup29-33 O '64

Toledo high schools modernize with versatile power distribution. il diags Elec Constr & Maint 62:97-9 N '63

Total energy for school. W. J. McGuinness. Prog Arch 44:148 D '63

Equipment

Time system features versatile school facilities programing at multi-building Eden Sawyer junior high school in Cincinnati. J. P. Goode and G. W. Archiable. il diags Elec Constr & Maint 63:91-3 Ag '64

Heating and ventilation

Air conditioned education. Gas Age 131:31 Ag '64

Architect's viewpoint on total energy. Z. Rike. il Gas 40:103-5 Je '64

Engineering study points up expense of excessive ventilation. D. Harper. Heating-Piping 35:133-4 D '63

Heat pumps solve problem in mobile schools. il Elec World 161:148 Je 1 '64

High temperature water from steam boilers serves single-building high school. J. Richardson. il diag Air Cond Heat & Ven 61:69-70 F '64

Lights, people heat a Wisconsin school. il plan diag Arch Rec 134:194-5 N '63

Packaged chiller, engine-generator linked for economy in windowless school. R. Brentzel and T. W. Rawlings. il diag Heating-Piping 36:133-6 Mr '64

Pipe htw through classrooms. il Heating-Piping 36:107-9 Jl '64

Total energy for Canadian school. G. N. Campbell. plan diag Am Gas Assn Mo 46:32-3+ Ja '64; Excerpts. Gas 40:121-2 Ja '64

Total energy school. il Gas Age 131:27 Ap '64

Lighting

Arkansas Power & Light promotion boosts school lighting. E. L. Linebarger. il Elec World 161:162+ My 18 '64

SCHOOL buildings—Lighting—*Continued*

Canada's school-in-the-round features total energy concept. G. Campbell. il Gas 40: 121-2 Ja '64

Effects of lighting system geometry, distribution and polarization on typical pencil tasks. F. K. Sampson and B. F. Jones. bibliog il diags Illum Eng 59:170-7; Discussion. 177-81; Reply. 181-2 Mr '64

Experimental model classroom with double recommended levels. il Illum Eng 59:223-5 Ap '64

Lighting a high-ceiling classroom; installation at school no. 2, Ridgefield, N.J. lighting data sheet. F. Thurkauf, jr. il Illum Eng 58:685-6 N '63

Lighting approach for air-conditioned schools. C. Whitehead, jr. il diags Illum Eng 59:417-19 Je '64

Luminaire brightness limitations. Illum Eng 59:390-1 sec 2 My '64

Rehabilitating school lighting. il Illum Eng 59:443-5 Je '64

School costs cut by new components; integrated ceilings; versatile coffers. B. P. Spring. il diags Arch Forum 120:115 F '64

Static inverter used in school emergency lighting system. il diag Elec Constr & Maint 63:122-4 S '64

SCHOOL buses. See Motor bus lines, School

SCHOOL children

Teacher ratings in psychiatric case-finding. A. Goldfarb. bibliog Am J Pub Health 53: 1919-27 D '63

SCHOOL hygiene

School health workers and the American public health association. C. C. Wilson. Am J Pub Health 54:1333-4 Ag '64

SCHOOLS

See also
Day nurseries
Kindergarten
Textile schools

SCHOTTKY effect. See Shot effect

SCHRÖDINGER equation. See Wave mechanics

SCHULER, Fred G.

Man of the year; General Extrusions' F. Schuler. pors Mod Metals 19:31-2+ Ja '64

SCIADOPITYS verticillata

Structure of methyl sciadopate. M. Sumimoto and others. Chem & Ind p 1928-9 D 7 '63

SCIENCE

Criteria for scientific choice. A. M. Weinberg. Phys Today 17:42-8 Mr '64; Discussion. V. F. Weisskopf. 17:46-7; Reply. 47 Je '64

Invention: vital third dimension of science; editorial. W. J. Sparks. Ind & Eng Chem Product Res & Develop 3:1-2 Mr '64; Chem & Ind p690-2 Ap 25 '64

Partnership between science and electrical and electronics engineering. W. Jackson. IEEE Proc 52:115 F '64

Science and responsibility. E. Hutchinson. Am Scientist 52:sup40A-2A+ Mr '64

Science is everybody's business. J. T. Wilson. Am Scientist 52:sup266A+ S '64

See also
Biology
Geology
Physics
Scientific research

Bibliography

Bibliography. Published in monthly numbers of Scientific American

Book reviews and notes. Published in monthly numbers of Journal of the Franklin institute

Books received for review. Published in quarterly numbers of American scientist

Scientists' bookshelf. Published in quarterly numbers of American scientist

Exhibitions

How Expo '67 could present the earth sciences: earth science exhibits proposed for the 1967 World's fair in Montreal. A. N. Deland. Can Min & Met Bul 57:1073-6 O '64

Teenagers wins ACS awards at Science fair. il Chem & Eng N 42:92-3 Je 1 '64

Philosophy

Science: the glorious entertainment. J. Barzun. Review. by H. Harvey. Chem & Ind p 1480-1 Ag 22 '64

Social aspects

Science and the citizen. Published in monthly numbers of Scientific American

Study and teaching

Audio visual aids into the breach. il Engineering 197:438 Mr 27 '64

College manner placed on high school science. il Chem & Eng N 42:44-5 My 11 '64

Georgetown university strives to become major science center. il Chem & Eng N 42:46-7 Mr 2 '64

One school's applied science lab. il Engineering 198:136 Jl 31 '64

Product Engineering fifth annual master design awards; microscopes for science teaching. il diags Product Eng 35:106-7 Ap 27 '64

Science is part of all human activity. W. H. C. Rueggeberg and R. H. Crist. Chem & Eng N 42:60+ O 26 '64

Some reflections on science and the humanities. J. Ashmore. bibliog Phys Today 16: 46-8+ N '63

See also
Science students
Science teachers

Great Britain

See also
British association for the advancement of science

Russia

Science in Russian culture. J. H. Billington. Am Scientist 52:274-80 Je '64

SCIENCE advisory committee. See United States—Presidents science advisory committee

SCIENCE and civilization

Science in Russian culture. J. H. Billington. Am Scientist 52:274-80 Je '64

SCIENCE and literature. See Literature and science

SCIENCE and state

Legacy of Merlin. D. E. Marlowe. Mech Eng 86:26-9 F '64

Look at national scientific policy. M. A. Williamson. Res/Develop 15:25-6 Je '64

OECD, catalyst of international science. Engineering 196:537 O 25 '63

Science and research; problems of small states. D. Tabor. Phys Today 16:38-40+ Ag '63; Discussion. J. Naghizadeh. 17:72+ Jl '64

Science and the government. F. Seitz. Phys Today 16:28-30+ D '63

See also
National academy of sciences
National science foundation

Great Britain

Organisation of civil science. Engineer 216: 773 N 8 '63

Overhaul of British research proposed. Chem & Eng N 41:83 N 18 '63

Pursuing the point of the Trend report. Engineering 196:578 N 8 '63

Science through civil service eyes. Engineering 197:306 F 28 '64

United States

Congress has few scientific problems. Chem & Eng N 42:22 Ag 24 '64

Congress lacks science advisers. Chem & Eng N 41:24-6 D 30 '63

See also
Scientific research—Federal aid

SCIENCE and technology, Office of. See United States—Science and technology, Office of

SCIENCE foundation, National. See National science foundation

SCIENCE students

Industry lends a helping hand to budding engineers and scientists. Mech Eng 86:160-1+ Ap '64

SCIENCE teachers

Engineering, science teachers paid best. Chem & Eng N 42:44-5 Mr 23 '64

Postdoctoral teaching internships set up; Great Lakes colleges association. il Chem & Eng N 42:46 Mr 9 '64

SCIENTIFIC apparatus and instruments

Absolute velocity gauge for nuclear particle beams. J. D. Seagrave and others. bibliog diags R Sci Instr 35:1290-6 O '64

Acoustical liquid drop holder. A. R. Hanson and others. bibliog il R Sci Instr 35:1031-4 Ag '64

Analysis instrumentation. E. M. Wilson. bibliog diags Instruments & Control Systems 37:138-9 My '64

Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64

Apparatus for measurement of Peltier coefficients. F. N. Lancia and J. D. McGervey. diags R Sci Instr 35:1302-4 O '63

SCIENTIFIC apparatus and instruments—*Continued*

Apparatus for measuring magnetothermodynamic properties to high fields at low temperatures. W. F. Giauque and others. bibliog il diags R Sci Instr 35:213-25 F '64
Apparatus to measure the thermal conductivity of powders in vacuum from 120 to 350°K. K. Watson and C. A. Bauman. diags R Sci Instr 34:1235-8 N '63
Around the world in scientific product sales. N. E. Kern. Res/Develop 15:32-4 Ap '64
Cesium vapor dispenser. A. L. Eichenbaum and M. E. Moi. diags R Sci Instr 35:691-3 Je '64
Construction of hemispherical grids. P. W. Palmberg and others. diags R Sci Instr 35:244-5 F '64
Deep-sea buoy systems. S. C. Daubin. bibliog il diags I S A J 11:49-53 Mr '64
Device for the stabilization of the vapour pressure above a liquid helium bath. H. M. Gijsman and P. J. Meeusen. diag J Sci Instr 41:56 Ja '64
Diaphragm scriber for use with shock tube devices. H. S. Greenfield. il diag J Sci Instr 41:341-2 My '64
Drop size sensor. L. Bennett and J. Stalder. diags R Sci Instr 35:17-21 Ja '64
Dynamic flexural rigidity apparatus with electrostatic excitation. B. Hsu. bibliog diags J Sci Instr 41:153-6 Mr '64
Efficiency in a tetrahedral-anvil press as related to anvil and pyrophyllite size. M. D. Banus and S. D. Nye. bibliog il R Sci Instr 35:1319-23 O '64
Externally heated cold-seal pressure vessels for use to 10,000 bars and 750°C. W. C. Luth and O. F. Tuttle. diags Am Mineralogist 48:1401-3 N '63
Financing the expansion of instrument sales. H. L. Goldstein. I S A J 11:76-7 Ap '64
High intensity supersonic molecular beam apparatus. R. Campargue. bibliog diag R Sci Instr 35:111-12 Ja '64
How missile/space helps instrumentation. J. S. Gilmore and others. I S A J 11:47-50 Ja '64
Hydraulic bridge for measuring small temperature difference. A. A. R. El Agib. diags J Sci Instr 41:596-8 O '64
Improved technique for generating mechanical waves in the frequency range 600-1200 mc/s. H. J. Maris. diag J Sci Instr 41:344-5 My '64
Instrument for determining crushing strength of fuel particles. G. Hallerman and R. J. Gray. il diags R Sci Instr 35:850-2 Jl '64
Instrument for measuring low fluid velocities. B. R. Clayton and E. G. Farmer. il diags J Sci Instr 40:579-82 D '63
Jig for the orientation of small crystals. S. Rofe. diag J Sci Instr 41:573 S '64
Megampere, high vacuum, low inductance current feedthrough. R. S. Lowder and R. W. Waniek. diag R Sci Instr 35:1070-1 Ag '64
New developments in scientific instruments. il Ind Chem 40:74-8 F '64
New shear apparatus for temperatures of 1000°C and pressures of 50 kilobars. R. E. Riecker. il diags R Sci Instr 35:596-9 My '64
Novel insert for the Varian V-4331A nmr probe. W. C. Lawrence. diags R Sci Instr 35:752-3 Je '64
Plasma camera. F. H. Coensgen and others. il diag R Sci Instr 35:1072-4 Ag '64
Plasma waveguide cell for afterglow measurements. E. H. Holt and K. C. Stotz. il R Sci Instr 34:1285 N '63
Precision controlled thermoelectric temperature chamber. A. L. Wennerberg. diag R Sci Instr 35:1191-3 S '64
Search for life; instrument that will collect and analyze a few grams of Martian soil or dust for signs of microbial life. il diag Product Eng 35:41-2 Je 8 '64
Simple cylindrical wire-grid. H. G. Franke. diags J Sci Instr 41:348-50 My '64
Simple device for measuring the thermal conductivity of liquids with moderate accuracy. D. T. Jamieson and J. S. Tudhope. bibliog diags Inst Pet J 50:150-3 Je '64
Superconductors in instrumentation. D. H. Parkinson. bibliog diags J Sci Instr 41:68-77 F '64
Thermal precipitator. W. P. Hendrix and C. Orr, jr. bibliog il diag R Sci Instr 35:1373-4 O '64
Ultrasonic specimen holder with two degrees of freedom. J. B. Ketterson and Y. Eckstein. bibliog diags R Sci Instr 35:1368-9 O '64

See also
Astronomical instruments
Chemical apparatus
Chemical laboratories—Equipment
Electron microscope
Medical apparatus and instruments
Oceanographic instruments
Physical apparatus and instruments
Pycnometers
Spectrograph
Spectrometers
Surveying instruments

Bibliography

Selected abstracts of publications of the National bureau of standards (cont). bibliog J Res Nat Bur Stand 67C:353-9; 68C:61-72, 125-34 O '63-Ap '64

Exhibitions

Exhibition of scientific instruments and apparatus. bibliog il diags J Sci Instr 41:245-89 My '64
Institute of physics and the Physical society annual exhibition of scientific apparatus and instruments, 48th, London. il diags Engineering 197:70-1, 92 Ja 17 '64
Research development production exhibition, London. il diags Engineer 217:858-9 My 15 '64

SCIENTIFIC conferences
See also
Gordon research conferences

SCIENTIFIC education
See also
Technical education

Great Britain

Proposed changes in Britain's higher education stress science. il(cover) Chem & Eng N 41:40-2 N 11 '63

Latin America

Latin American education probed. Chem & Eng N 42:59 N 9 '64

Russia

Soviets still pushing enrollments in science. il Chem & Eng N 42:15-17 Ag 31 '64

SCIENTIFIC film association, International. See International scientific film association

SCIENTIFIC information
Information explosion. Sci Am 209:72+ N '63
Scientific and technical information of the Soviet Union; review. P. Greene. Chem & Ind p738-40 My 2 '64

SCIENTIFIC literature
Science library system gets mixed reaction. Chem & Eng N 42:21-2 Je 15 '64
Translations for the U.S. scientist. K. Gingold. bibliog Chem & Eng N 42:88-9+ Ag 17 '64
See also
Chemical literature

Russia

Abstracts (cont). Geophysics 28:1100-1; 29:145-8, 332-3, 472-7, 657-9, 909-12 D '63-O '64
Digest of translated Russian literature (cont). il diags AIAA J 1:2710-20, 2917-24 N-D '63

SCIENTIFIC photography. See Photography—Scientific applications

SCIENTIFIC research
Aspects of research; interview with Sir Owen Wansbrough-Jones. Chem & Ind p 1200-3 Jl 4 '64
International co-operation for scientific research. Chem & Ind p268 F 15 '64
President's special assistant for science and technology addresses the American physical society. D. F. Hornig. Phys Today 17:34-8 Jl '64
Productivity in research; symposium abstracts. Chem & Ind p 140-5 Ja 25 '64
Protection of radio frequencies for scientific research. R. L. Smith-Rose. IEEE Proc 52:451 My '64
Research technology and public policy. J. F. Kennedy. Phys Today 16:23-6 D '63
Science and research; problems of small states. D. Tabor. Phys Today 16:38-40+ Ag '63; Discussion. J. Naghizadeh. 17:72+ Jl '64
Significance of materials science. C. Herring. Electro-Tech 72:11-12 D '63
Ten years of cryogenic research in USA. il Engineering 198:534 O 23 '64
Therefore, let us be tolerant of each other's research. C. Hyman. bibliog Am Scientist 51:367A+ D '63
See also
Aeronautic research
Agricultural research
Atomic research
Biological research
Ceramic research
Chemical research
Colleges and universities—Research
Combustion research

SCIENTIFIC research—See also—*Continued*
Electric research
Electron microscope
Electronics research
Engineering research
Foundry research
Government research
Great Britain—National physical laboratory, Teddington
Industrial research
Laboratories
Medical research
Metallurgical laboratories
Metallurgical research
Mining research
National science foundation
Oceanographic research
Petroleum research
Pharmaceutical research
Physical research
Physiological research
Radio research
Refrigeration research
Rubber research
Scholarships and fellowships
Textile research

Federal aid

Government support of university research. M. A. Williamson. Res/Develop 14:32-5 N '63
Government-university basic research relations. M. A. Williamson. Res/Develop 15: 11-12 Jl '64
National academy of sciences drafts guidelines for research support. Chem & Eng N 42:27-8 Mr 23 '64
National trends in r&d funds 1953-1962; review. M. A. Williamson. Res/Develop 15: 47-8 Ja '64

Finance

National trends in r&d funds 1953-1962; review. M. A. Williamson. Res/Develop 15: 47-8 Ja '64
Scientific and industrial research. Engineer 218:107 Jl 17 '64
See also
Scientific research—Federal aid

Antarctic regions

Antartic bases build for 30 years of research. S. Payne. il Eng N 172:22-3 Ja 16 '64

Australia

Division of textile industry of the Commonwealth scientific and industrial research organisation, Geelong, Australia. M. Lipson. il Chem & Ind p208-14 F 8 '64

Europe

Research establishments in Europe (cont). bibliog il Chem & Ind p 1702-13, 1778-84, 1850-5, 1936-43 O 26, N 9, 23, D 14 '63; p4-12, 168-78, 252-8, 296-305, 560-8, 682-9, 782-93, 946-52, 1508-11, 1564-70 Ja 4, F 1, 15-22 Ap 4, 25, My 9, Je 6, Ag 29, S 12 '64

Great Britain

Meteorological office; its history and activities. G. Sutton. il Chem & Ind p296-305 F 22 '64
Morgan's Northfields laboratories. il Metallurgia 68:175-7 O '63
Overhaul of British research proposed. Chem & Eng N 41:83 N 18 '63
Science, research and development under Mr Hogg. Engineering 197:242 F 14 '64

Russia

Organisation and control of research in the U.S.S.R.; discussion. Chem & Ind p 1681-2 O 3 '64
Soviet industrial research. Chem & Ind p 1910-17 D 7 '63

SCIENTIFIC societies
See also
American chemical society
Audio engineering society
British association for the advancement of science
National academy of sciences
Royal society of London
Society of the sigma xi

SCIENTIFIC writing
Is the scientific paper a fraud? P. B. Medawar. Tappi 47:sup30A+ Jl '64
Presentation of scientific papers; abstract. J. D. Nisbet. Chem & Ind p 201; Discussion. 201-2 F 1 '64
See also
Technical writing

SCIENTISTS
Another look at manpower. Chem Eng Prog 60:24-5 S '64
Changing role of scientists in international affairs. B. L. Johnson. Am Scientist 52: sup 138A+ Je '64
Dilemma of the professional in industry. C. F. Rassweiler. Chem & Eng N 41:98-101 D 9 '63
Engineer vs. scientist. J. D. Coutinho. Mech Eng 86:78 Je '64; Discussion. E. E. Drucker. 86:74-5 S '64
Facts needed on scientific manpower. Chem & Eng N 42:47-8 Jl 13 '64
Fifty engineering schools employed most academic r&d scientists and engineers. Chem & Eng N 41:46 D 2 '62
How best to utilize scientists and engineers? il Chem Eng Prog 60:20-3 S '64
New demand study changes line-up but not the number. I S A J 11:22+ Mr '64
℞ for industrial laboratory productivity. M. Abrahamson. Res/Develop 15:18-21 Ag '64
Responsibilities of scientists to their nation and the world. G. T. Seaborg. Chem & Eng N 41:55-7 D 23 '63
Responsibilities of scientists toward technical aspects of political problems. F. A. Long. Chem & Eng N 41:76+ D 16 '63
Scientist and society. L. J. Haworth. Franklin Inst J 277:382-92 Ap '64
Scientist: professional or skilled craftsman? J. W. Zabor. Chem & Eng N 41:74+ N 25 '63
Shell agrees to make available to scientists leaves of absence without pay for educational purposes. Product Eng 35:51 Ja 20 '64
69 per cent more scientists and engineers needed by 1970. Chem & Eng N 41:13-14 D 23 '63
See also
Bunting, Mary Ingraham
Employment
Geologists
Research workers
Women as scientists

SCINTILLATION camera. See Gamma ray cameras

SCINTILLATION counter. See Counters (electrons, ions, etc.)

SCINTILLATORS, Plastic. See Counters (electrons, ions, etc.)

SCLEROSIS, Multiple
Geographic and climatic aspects of multiple sclerosis; review of current hypotheses. L. T. Kurland and D. Reed. bibliog map Am J Pub Health 54:588-97 Ap '64

SCOOTERS, Motor. See Motor scooters

SCOTLAND
See also subdivision Scotland under special subjects, e.g.
Airports
Atomic power plants
Bridges
Electricity supply
Electronics industry
Gas industry
Hydroelectric plants

Industries and resources

Developing Scotland and the North East. Engineering 197:75 Ja 17 '64
Enterprise Scotland; Diesels American; Cummins engine company plant, Shotts, Lanarkshire. il Engineering 198:280-1 Ag 28 '64
How and why of gas in Scottish industry. il Engineering 196:698-700 N 29 '63

SCOURING of textiles
See also
Wool scouring

SCRAP material
See also
Refuse, Utilization of
Scrap metal

SCRAP metal
Blast-furnace for melting copper scrap. il Engineering 198:179 Ag 7 '64
Memphis' salvage operations prove profitable. N. Sanders. il Elec World 161:103 Ap 6 '64
Miami Copper mechanizes can handling. il diag Eng & Min J 164:97 N '63
Ore-scrap magnetic roasting; a new basis for the beneficiation of iron ore. M. M. Fine and N. B. Melcher. bibliog diags J Metals 16:709-14 S '64
Precipitation of copper on iron. F. M. Monninger. il Min Cong J 49:48-51 O '63
Scrap and sinter; new bedfellows. il Iron Age 193:97-9 Mr 26 '64
Smelting industry leader predicts bright outlook for secondary aluminum. W. A. Singer. Mod Metals 19:54-5 Ja '64
Tiny blast furnace feeds on scrap. il diag Iron Age 194:140-1 O 29 '64

SCRAP metal—*Continued*

Turnings, borings strengthen sintered ore. il Steel 154:54+ Mr 23 '64

X ray unit speeds scrap analysis. M. S. Plant. il Iron Age 193:59 Ap 23 '64

See also

Metal waste

Ships—Scrapping

Steel waste

SCRAP metal handling

Barbed-rod conveyor keeps chips on the move. il Plant Eng 18:155 Ja '64

Chip conveyor helps to boost production. il Mod Materials Handling 19:63 F '64

Newest in scrap handlers looks good for other jobs, too. il Mod Materials Handling 19:48-9 F '64

Remove chips automatically. il diag Safety Maint 127:58-9 F '64

Scrap line chews up auto in 15 seconds. Steel 154:22 Ja 13 '64

SCRAP metal industry

Low-grade iron ore, scrap get a boost. il Iron Age 193:57 Mr 19 '64

SCRAPERS

All-electric-drive coal scraper. il Engineer 217:185 Ja 24 '64

Diesel electric coal scraper. il Engineering 197:169 Ja 24 '64

For long haul jobs: when scraper-to-wagon transfer? H. K. Church. il diag Roads & Sts 107:29-31+ Jl '64

New positive steering system. D. R. Buerschinger and J. H. Hyler. il diags S A E J 72:80-1 Mr '64

Rubber tyred self-loading 8 cu. yd. scraper. il Engineering 197:428 Mr 20 '64

Self-loading scraper. il Engineer 217:408-9 F 28 '64

Self-loading scrapers dig deep. il Eng N 172:44 Je 25 '64

Three-engine, tandem scraper. il Coal Age 69:116 S '64

Three innovations embraced in new scraper design. J. G. Johnson and J. H. Creighton. il S A E J 72:81 F '64

Wheel-type scrapers, loaders optimize stockpiling. il Elec World 161:109-10 Je 1 '64

See also

Road scrapers

SCREEN printing. See Silk screen printing

SCREENING

Accuracy and precision in industrial screen analysis. B. J. Wahl and P. Larouche. diags Am Cer Soc Bul 43:377-9 My '64

Boosting screening capacity within existing floorspace. diags Pit & Quarry 56:141-2 Ap '64

How to increase screening capacity in limited areas. diags Rock Prod 67:57 Ap '64

Rotating combs size materials. il diag Iron Age 193:79 F 6 '64

Screening roundup. J. H. Bergstrom. il diags Rock Prod 66:69-103 N '63

SCREENS

Cutting the costs of assembly. il Mod Plastics 42:100-3+ S '64

Grader's screen is adjustable. il Food Eng 36:100 Ag '64

Gravity works when the chips are down. R. H. Eshelman. il Iron Age 194:137 S 24 '64

Industrial cloth: woven of 100 FEP monofilament for a variety of applications. il Plastics World 21:76 N '63

Iowa mfg. co. gives operating hints for horizontal vibrating screens. diag Eng & Min J 165:112+ Ag '64

Ninety screens produce precision grading; Wedron silica co. S. Levine. il Rock Prod 67:72-4+ F '64

Passage of a turbulent stream through honeycomb of large length-to-diameter ratio. J. L. Lumley. A S M E Trans ser D 86:218-20 Je '64

Proper installation and maintenance mean top performance. J. H. Bergstrom. il diags Rock Prod 66:91-4+ N '63

Wyandot Dolomite turns on the heat to beat a screen blinding problem. il Rock Prod 67:90-1 Je '64

See also

Sieves

Wire cloth

SCREENS (architecture)

Nested hurricane screens shield windows. il diags Arch Rec 135:186 Je '64

SCREENS, Moving picture. See Moving picture screens

SCREW drivers. See Screwdrivers

SCREW machines

Cams multiply low pressure input forces. K. P. Schubert. diags Hydraulics & Pneumatics 16:86-7 N '63

High-speed heading presses. il Engineer 217:143 Ja 17 '64

SCREW threads

Art and science of stud driving. W. S. Brown. diags Mach 70:107-16 Je '64

Choice of screw threads for strength. A. C. Hutchinson. bibliog Engineer 218:213-14 Ag 7 '64; Discussion. J. E. Field. 218:370 S 4 '64

Class 5 threads interference fit; reference sheet. Tool & Manuf Eng 52:83-4 Ja '64

Duplication of fine screw threads by electroforming. K. Raman and others. J Sci Instr 41:340-1 My '64

Hobbed buttress thread holds closure on rocket motor case. L. W. Collins, jr. il diag Mach 70:93-5 Ag '64

New developments in threaded fasteners. F. M. Giordano. diags Tool & Manuf Eng 52:65-7 Ja; 66-8 F '64

Pitch-Lok and Perma-Thread inserts. il diags Mach 70:142 Jl '64

Screw-thread fits. R. B. Belford. diags Machine Design 35:186-8 N 7 '63

Screwy screw threads; discussion. Engineer 216:1024; 217:312, 575, 826 D 20 '63, F 14, Mr 27, My 8 '64

Wire inserts for threads. diags Mech Eng 86:61 Ag '64

See also

Pipe threads

Thread cutting

SCREWDRIVERS

Fastener design prevents camout. il Iron Age 193:76-7 F 6 '64

SCREWDRIVING machines

Redesign for automation pays off. il Steel 154:69 Je 15 '64

Torque operates sensing device. il diag Tool & Manuf Eng 52:76 F '64

SCREWS

Application criteria for evaluating ball screw drive mechanisms. J. A. Hope. il Automation 11:49-54 Ja '64

Ball bearing screws simplify lift mechanism design. diags Mod Materials Handling 19:59 Ap '64

Correct fastener tightening prevents unscheduled downtime. T. Green. il diags Plant Eng 18:118-21 O '64

Fastener design prevents camout. il Iron Age 193:76-7 F 6 '64

Fasteners keep their heads. il diag Iron Age 193:156 Je 11 '64

Improved recessed-head screw design. il diag Engineering 197:43 Ja 10 '64

Mechanical fasteners in the National design specification. J. G. Shope. Wire & Wire Prod 39:891-3+ Je '64

Pan heads to replace round, truss, and binding screws; reference sheet. diags Tool & Manuf Eng 53:71 Jl '64

Phillips screws superseded. il diag Automobile Eng 54:73 F '64

Recessed-head screw. il diags Engineer 217:108 Ja 10 '64

Screws aid in repairing castings. il Welding Eng 49:60+ F '64

Screws permit minute adjustments on cams. J. Waller. diags Am Mach 108:102 Mr 2 '64

Sheet-metal fastener drills its own hole; Shakeproof div., Illinois tool works inc. il Machine Design 35:10 N 7 '63

Threaded fasteners have come a long way. il Mill & Factory 75:56-7 Jl '64

See also

Leadscrews

Screw machines

Manufacture

Socket head screw factory. il Engineer 218:380 S 4 '64

SCRUBBERS

Effective scrubber to remove chlorine from aluminium-factory gaseous effluents. W. E. Race and R. Lewis. il diags Inst Metals J 92:205-7 '63-64

Fume scrubber catches escaping acid fumes. E. F. Buonanno. diag Chem Eng 71:146 O 26 '64

Pollution control in a phosphoric acid plant. H. O. Grant. il diag Chem Eng Prog 60:53-5 Ja '64

SCULPTURE

Environmental sculpture. F. Kiesler. il Arch Forum 121:118 Jl '64

Man above matter. A. Price. il Foundry 92:118-19 Je '64

New sculptural techniques: Pierre du Fayet and Suzanne Sable. il Prog Arch 45:160-2 Mr '64

Popular space-age art provided by gas welding torch. L. D. Richardson. il Welding Eng 49:48-9 Je '64

See also

Memorials

Monuments

SCULPTURE, Architectural
Oxyacetylene cutting and welding; techniques used by the metal sculptor. il Welding J 43:208-9 Mr '64

SEA food
Irradiation nears reality: pilot plant pioneers processing, shipping, and marketing of irradiated seafoods. J. W. Slavin and P. Miller. diags Food Eng 36:92+ Ja '64
Preservation of fresh unfrozen fishery product by low-level radiation. R. O. Brooke and others. bibliog Food Tech 18:1056-64 Jl '64

See also
Crabs
Fish as food
Shellfish

SEA food, Frozen
Designs production for flexibility and QC: Blue water seafoods, inc. J. V. Ziemba. flow sheet il Food Eng 36:64-7 Jl '64
Freezing of crabmeat. S. V. Gangal and N. G. Magar. bibliog Food Tech 17:1573-8 D '63
Time-temperature tolerance of frozen seafoods. J. P. Lane. Food Tech 18:1100-6 bibliog(p 1105-6) Jl '64

SEA level
Late pleistocene glacial events and relative sea-level changes in the northern Puget Lowland, Washington. D. J. Easterbrook. maps Geol Soc Bul 74:1465-83 pl 1-3 bibliog(p 1482-3) D '63
Late quaternary sea-level change and crustal rise at Boston, Mass., with notes on the autocompaction of peat. C. A. Kaye and E. S. Barghoorn. il diags Geol Soc Bul 75: 63-80 bibliog(p79-80) F '64
Late recent rise of sea level. J. M. Coleman and W. G. Smith. bibliog map diag Geol Soc Bul 75:833-40 S '64
Upper limit of barnacles as an index of sea-level change on the New England Coast during the past 100 years. C. A. Kaye. bibliog J Geol 72:580-600, pl 1-3 S '64

SEA water
Capacitance probe fights seawater pollution. Power 108:75 Ap '64
Chemical observations in some anoxic, sulfide-bearing basins and fjords; abstract. F. A. Richards. WPCF J 36:324 Mr '64
Coliform standards for recreational waters; progress report. Am Soc C E Proc 89 [SA 4 no 3617]:57-94 bibliog(p91-4) Ag '63; Discussion. 89 [SA 6 no 3745]:77-8 D '63; 90 [SA 1 no 3813]:173 F; [SA 2 no 3884]:39-46 Ap '64; Reply. 90 [SA 5 no 4097]:47-9 O '64
Correlation of coliform and fecal streptococcus indices with the presence of salmonella and enteric viruses in polluted seawater and shellfish; abstract. L. W. Slanetz and others. WPCF J 36:310-11 Mr '64
Determination of dissolved oxygen by the Winkler method and the solubility of oxygen in pure water and sea water. H. A. C. Montgomery and others. bibliog diags J Ap Chem 14:280-96 Jl '64
Fungi and sea water. Drug & Cosmetic Ind 95:619 O '64
Ion-exchange equilibrium data in the design of a cyclic sea water softening process. G. Klein and others. bibliog Ind & Eng Chem Proc Design 3:280-7 Jl '64
Model simulation of salinity intrusion in tidal estuaries. D. I. H. Barr. bibliog diags Engineer 216:885-93 N 29 '63
Paleosalinity in upper Visean Yoredale formation of England; geochemical method for locating porosity. C. T. Walker. bibliog map diags Am Assn Pet Geologists Bul 48: 207-20 F '64
Problems in using seawater for condenser cooling in thermal power stations; abstract. M. Yamazaki. WPCF J 36:317 Mr '64
Production of hypochlorite by direct electrolysis of sea water: electrode materials and design of cells for the process. A. F. Adamson and others. diags J Ap Chem 13:483-95 N '63
Removal of scale-forming elements from sea water. M. G. Dunseth and M. L. Salutsky. bibliog flow sheet Ind & Eng Chem 56: 56-61 Je '64
Stainless steel tubes hold sea water coolant. il Elec World 162:36 N 9 '64
Water quality for sea bathing; abstract. M. Flynn. WPCF J 36:308-9 Mr '64

See also
Water supply—Salt water intrusion

Analysis

Rapid volumetric determination of sulfide in estuarine and sea waters. C. R. Johnson and others. il Anal Chem 36:300-2 F '64

Desalting

Advances in conversion of sea water to fresh water. J. G. Muller. bibliog il Chem Eng Prog 59:53-8 D '63
Aruba gets more fresh water. Chem & Eng N 42:57 N 2 '64
Coal producers hit desalination proposal. Chem & Eng N 42:29 Ag 10 '64
Converting sea water to fresh by reverse osmosis. il Product Eng 35:53-4 Je 8 '64
Desalination of sodium halide electrolytes by a different redox method. E. I. Onstott. bibliog diag Electrochem Soc J 111: 966-73 Ag '64
Desalination with reinforced plastic pipe cuts cost to 15c/1000 gal. il diags Mod Plastics 41:111 Ag '64
Desalinization by osmosis. diags Pub Works 95:140 Jl '64
Desalinization could be new nuclear industry. Steel 153:128 D 9 '63
Desalting plants for the developing countries? Chem Eng 71:98+ S 14 '64
Direct contact heat transfer for sea water evaporation. C. R. Wilke and others. bibliog flow sheet il diags Chem Eng Prog 59:69-75 D '63
Dual-purpose plant to desalt water, generate electricity. Chem & Eng N 42:50 Jl 20 '64
Economics of reactors for power and desalination. S. Baron. bibliog Nucleonics 22: 67-71 Ap '64
Feed pretreatment to enhance water desalting. Chem Eng 71:94+ S 14 '64
Freeze-desalting of seawater goes into operation; process flowsheet. J. F. Houle. il Chem Eng 71:64-6 Ja 6 '64
Gas turbine will desalt seawater. Eng N 171: 55 N 14 '63
High tide for equipment makers as water needs keep mounting. K. W. Bennett. il Iron Age 194:23-5 S 10 '64
Improved process to convert saline water. diags Chem & Eng N 42:50-1 Je 22 '64
Incinerator's waste heat to be used in sea water conversion. Chem & Eng N 42:46 Ja 13 '64
Interior and AEC spell out desalting plans. Chem & Eng N 42:42+ N 9 '64
Key West may get new power, desalting plant. Water Works Eng 116:891 N '63
Large sea water distillation plants for Hong Kong. Engineer 217:793 My 1 '64
Many processes are being tried in search for economical route to convert sea water to fresh water for widespread use. Can Chem Process 48:72-3 O '64
Minerals from sea salt. J. A. Tallmadge and others. bibliog il Ind & Eng Chem 56:44-65 Jl '64
Navy readies Cuba water plant. il Eng N 173:27 Jl 9 '64
New OSW desalination plant. il Ind & Eng Chem 56:13-14 Jl '64
Nuclear power-water desalting combinations possible by 1975. Chem & Eng N 42:86+ Ap 13 '64
Nuclear reactors applied to water desalting. J. T. Ramey and others. Combustion 36:33-7 O '64
One-billion-gallon A-desalter predicted. Eng N 172:28 Ap 9 '64
PCEA hears sea-water use scheme. il Elec World 161:27-8 Ap 27 '64
Production of fresh water from sea water without metallic transfer surfaces: thermodynamic analysis of a flash distillation method. E. L. Knuth. bibliog diags Ind & Eng Chem Proc Design 3:55-60 Ja '64
Reverse osmosis enters desalination picture. il diag Chem & Eng N 42:48+ Jl 20 '64
Reverse osmosis gains in water-desalting stature. W. Smith. flow sheet il Chem Eng 71:72-4 Ag 17 '64
Reverse osmosis promises cheap fresh water. diags Machine Design 36:12 Ag 27 '64
Solar energy in distillation of sea water. E. Keller. Ind & Eng Chem 56:10+ F '64
Sophisticated heat transfer upgrades solar water-desalting. Chem Eng 71:79-80 Je 22 '64
U.S., Soviets to cooperate in desalting research. Chem & Eng N 42:33 Jl 27 '64
Vacuum-freezing and vapor-compression for desalting seawater; process flowsheet. R. R. Bridge. il Chem Eng 71:114-16 Je 22 '64
Water conversion shows promise of growing at a faster pace. il diag Power Eng 68:39-42 Ag '64
Water-desalting; a roundup of late news. il Chem Eng 71:82+ Jl 20 '64
Water-desalting projects exploit cheap energy. Chem Eng 71:70 F 17 '64
Water in a desalination fluidized bed. J. Kanyok and R. S. Brodkey. il diags Ind & Eng Chem 56:34-7 Ap '64

SEABEES. See United States—Navy—Construction battalions

SEALANTS. See Sealing compositions

SEALING

Design criteria for sealing gasketed joints. E. M. Smoley. diag Machine Design 35:174-7 N 21 '63

Foaming bulkheads may plug punctures in spacecraft. il Machine Design 36:14 Jl 30 '64

Sealing methods for bolted and screwed connections. H. W. Hamm. diags Chem Eng 71:122 Ag 3 '64

Sealing techniques for rotation in vacuum. W. Courtney and others. bibliog diags Astronautics & Aeronautics 2:40-4 F '64

Types of adhesives used. diags Tappi 47:sup 134A-5A My '64

Ultrasonic sealing. il Plastics World 22:52 S '64

World's largest impregnator safeguards die-cast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

See also

Adhesive tape

SEALING compositions

Chemically stable joint sealer; asphalt-impregnated polyurethane foam. il diag Plastics World 21:98-9 N '63

Construction joints for elastomeric sealants. W. F. Koppes. diags Prog Arch 45:163-7 Mr '64

Epoxy cement repairs nitrogen tank. il Safety Maint 126:61-2 D '63

Guide to joint sealants. R. C. Scott. il Product Eng 35:73-84 Mr 16 '64

Locking liquids; what they are; what they can do. diags Tool & Manuf Eng 52:68 Ja '64

New chemical makes press fits stronger. il diags Materials in Design Eng 59:120+ Ja '64

Novel package for aerosol tire inflator-sealant. il Soap & Chem Spec 40:133-4 S '64

Plastic fixtures for little parts. C. A. Eaves and others. il Am Mach 108:76-7 Mr 2 '64

Renewing services without street openings at the main; Epi-SEAL system. F. C. Shaughnessy. il diag Gas 40:82-7 O '64

Rubber and plastic adhesive and sealant manufacturers' council adhesives and sealants seminar. Cherry Hill, N.J.; abstracts of papers. Rubber World 150:81-2 Ap '64

Sealants. D. M. Spinell. il diags Machine Design 36:102-14 Je 11 '64

Sealants evolve from flexible epoxies. C. V. Wittenwyler. il Chem & Eng N 42:52+ Mr 16 '64

Sealer foams into tight spots. il Iron Age 193:85 Je 25 '64

Silicone, braze make tight feed-through seals. il Materials in Design Eng 60:124+ Ag '64

Silicones stretch scope of sealants. il Iron Age 194:70-1 O 22 '64

Tin plating wins a fresh outlet in oil. il Chem Eng 70:96+ D 9 '63

Ultrahigh vacuum leak sealing material. J. R. Young. R Sci Instr 35:116 Ja '64

Urethane sealant has bright promise; Isosealz. il diag Can Chem Process 48:71-2 Mr '64

SEALING machines

Machine seals random variety of box sizes. il Automation 11:68 Ja '64

SEALS

Causes and cures of mechanical shaft seal failures in water pumps. S. Sussman. il diag Heating-Piping 35:141-8 S '63; Discussion. 36:108+ Ja '64

Centrifugal force keeps fluid in groove; liquid shaft seals. S. B. Rothberg. diags Product Eng 34:85-7 N 11 '63

Centrifugal types of dynamic shaft seals. G. M. Wood and others. il diags Machine Design 36:129-30+ Ja 30 '64

Compatibility; matching seals to fire-resistant fluids. J. N. Smith. Hydraulics & Pneumatics 17:112+ S '64

Compressor control seals with rolling diaphragms. J. F. Taplin and G. W. Fobian. diag Hydraulics & Pneumatics 16:106-7 N '63

Contactless piston seal for internal combustion engines. L. Strach. il diag Engineer 217:969-70 My 29 '64

Convenient break seal for the transfer of gases particularly suited to spectrometer samples. D. R. Llewellyn and C. J. O'Connor. diag Chem & Ind p52 Ja 11 '64

Electrical lead seals for cryogenic applications. W. R. Roach and others. bibliog il diags R Sci Instr 35:634-6 My '64

Epoxy resin seals to copper and nylon for cryogenic applications. J. C. Wheatley. bibliog diags R Sci Instr 35:765-7 Je '64

Feedthroughs for uhv systems; their research, development and application. H. Schwartz. diags Res/Develop 15:42-4 Ag '64

Fibrous composite materials for extreme environment seals. L. L. Smith. diags Lub Eng 20:99-105 Mr '64

Fluid seal end dam. R. R. Growdon and A. J. Pelletier. il Tappi 47:sup 179A-84A F '64

Fluorocarbon tape serves as seal and bearing. il Materials in Design Eng 59:132+ My '64

Frictionless hydraulic seals for rotating shafts. H. W. Hamm. diag Chem Eng 71:160 F 17 '64

Fuelling method of bell joint sealing. J. V. Roegiers. bibliog il Gas 40:59-67 Jl '64

How can we improve pump seal life? answers. Power 108:170-1 S '64

How to lubricate single seals. diag Oil & Gas J 61:160 N 11 '63

Just a detail; seal for electron optical instrument. J. M. Sturrock. diags Engineer 218:546-7 O 2 '64

Just a detail; standpipe seal for Dungeness nuclear power-station. S. C. F. Wills. diags Engineer 218:217-19 Ag 7 '64

Leak-resistant rotation seal for vacuum applications. F. L. Howard. diags J Res Nat Bur Stand 67C:335-6 O '63

Man-made seal materials challenge natural rubber for tough jobs. B. C. Vandermar and R. W. Malcolmson. diags S A E J 72:76-84 Jl '64

Materials and designs for nonlube applications. W. C. Arnold and W. J. Eser, jr. diags Machine Design 36:134+ Jl 2 '64

Materials for ultrahigh pressure sealing in Bridgman anvil devices. R. J. Vaisnys and P. W. Montgomery. diags R Sci Instr 35:985-9 Ag '64

Materials in end-face mechanical seals. K. Schoenherr. diags Machine Design 36:130+ Ja 2 '64

Mechanical seals. diag Engineer 217:148 Ja 17 '64

Mechanical shaft seal protection. il Engineer 218:460 S 18 '64

Metal-to-ceramic seals for high temperature service; abstract. R. S. Kiwak. Metal Prog 86:250+ O '64

Method for making multiple glass-tungsten rod seals. H. A. Kamphausen. diags J Sci Instr 40:605 D '63

Method of sealing evacuated wide bore silica tubing. D. E. Hill and G. D. King. diags J Sci Instr 41:187-8 Mr '64

Molecular pumps back up SNAP-8 shaft seals. diag Machine Design 36:14-15 O 22 '64

New glass-ceramics for insulator seals. P. W. McMillan and B. P. Hodgson. il diags Materials in Design Eng 59:85-6 Ja '64

New rotary seal for high-speed and high-pressure applications. T. J. McCuistion. diags Rubber World 149:73-7 Mr '64

New techniques up seal life 50 times. il Welding Eng 49:50 Mr '64

Plastic seals loaded by O-rings. diags Hydraulics & Pneumatics 17:26 S '64

Positive seal for pistons and axially moving rods. J. A. Rietdijk. diags Engineer 218:346-7 Ag 28 '64

Predicting elastomer-fluid compatibility for hydraulic systems. A. Beerbower and others. bibliog Rubber Chem & Tech 37:246-60 Ja '64

Preparation and application of a perfluorocarbon vacuum sealant. C. R. Wellman. il Anal Chem 36:697-8 Mr '64

Profiting by mechanical-seal advances. diags Chem Eng 71:83-90 Mr 2 '64

Protection of labyrinth seals from flexural vibration. J. S. Alford. bibliog il diags A S M E Trans ser A 86:141-7; Discussion. 148 Ap '64

Removable plugs seal pipe ends; drawings with text. Product Eng 35:76-7 Ja 6; 88-9 F 3 '64

Rotary seal for chemical plant. il Engineering 198:198 Ag 14 '64

Rubbing contact materials for face type mechanical seals. J. W. Abar. il diag Lub Eng 20:381-6 O '64

Saving seal for unsafe, leaking tanks. il diag Engineering 197:556-7 Ap 17 '64

Seal for oil well pump polish rods. J. Sneed. il Materials in Design Eng 59:130 Ap '64

Sealing of large bore pressure vessels. R. H. Cornish and B. W. Abbott. diags A S M E Trans ser D 86:637-8 S '64

Seals; references issue handbook; design data; product directory. il diags Machine Design 36:1-242 Je 11 '64

SEALS—*Continued*

Seals, scrapers and back-up rings; fluid power component selection charts. Hydraulics & Pneumatics 17:116-18 Ja '64

These packer pointers can aid pump operation. diags Oil & Gas J 62:152 My 25 '64

Unique way to seal rotating shafts. A. L. Decker. diags Chem Eng 71:170+ Jl 20 '64

Use of automated hinged closures for capping stationary batch digesters. A. C. Wicker. il diags Paper Ind 46:609-11 O '64

Use of self-sealing elastomer septums for quantitative operations with volatile solvents. N. Adler. diags Anal Chem 36:2291-5 N '64

Use of silver chloride seals for cesium vapor devices. A. L. Eichenbaum and others. il R Sci Instr 35:1056-7 Ag '64

Valve design permits sealing despite misalignment. diag Oil & Gas J 62:73 Ag 31 '64

Wet tantalytic capacitor seals. Franklin Inst J 276:458 N '63

Which elastomer for your sealing problem? R. W. Malcolmson. Machine Design 36:196+ O 8 '64

Testing

Development and testing of elastomeric materials for fluid sealing applications. C. M. Blow. Aircraft Eng 36:208-12 Jl '64

Experimental techniques in testing liquid sealing face seals. O. E. Teichmann and others. il diags Lub Eng 20:345-51 S '64

New approach to realistic wear testing. R. M. Voitik. il diags Lub Eng 19:490-4 D '63

Pneumatic gauging machine checks lip seals. il diag Hydraulics & Pneumatics 16:90-1 D '63

SEALS, Oil. See Oil seals

SEAM welding. See Electric welding

SEAMEN

Training

Task force trains ashore. J. M. Carroll. il Electronics 36:40-1 N 22 '63

SEARCHLIGHTS

Comparison between the optical systems of searchlights and solar radiation simulators. J. P. Latil. il diags Ilum Eng 59:67-71 Ja '64

SEASONAL industries

See also

Winter construction

SEASONS

Seasonal variation of adrenal cortex activity. G. I. Watanabe. bibliog Archives Environmental Health 9:192-200 Ag '64

SEAT belts. See Automobiles—Seat belts

SEATS

Cat's cradle carries catenary. il Prog Arch 44:156-9 N '63

New furniture group employs catenary suspension system. il Arch Rec 134:151 D '63

Products for Tyrone Guthrie theater. il Prog Arch 44:69 D '63

Stadium seating; a potential in the millions. il Mod Plastics 42:110-13+ S '64

See also

Airplanes—Seats
Tractors—Seats

SEATTLE

Architecture

New work, a new style; fortress for Seattle. il plans Arch Forum 121:140-1 Ag-S '64

Sewerage

Metropolitan Seattle's Renton treatment plant. W. R. Uhate. flow diag il map diags WPCF J 36:475-94 Ap '64

Receiving water monitoring. C. V. Gibbs. il map Water Works & Wastes Eng 1:52-5 S '64

Water supply

Lucky Seattle; another treatment-free supply; Tolt River project. E. W. Ott. il map Water Works & Wastes Eng 1:36-40, cover Ap '64

SEBACEOUS glands

Sebaceous gland hormone. Drug & Cosmetic Ind 94:448 Mr '64

SEBORRHEA capitis. See Dandruff

SECONDARY emission. See Electrons—Secondary emission

SECURININE. See Alkaloids

SECURITIES

See also

Chemical industries—Securities
Electronics industry—Securities
Gas companies—Securities
Petroleum industry and trade—Securities

SEDGWICK memorial award

Sedgwick memorial medal for 1963 to Gaylord W. Anderson; with acceptance address. Am J Pub Health 53:2011-13 D '63

SEDIMENTARY rocks. See Rocks, Sedimentary

SEDIMENTATION

Analysis of thickener operation. V. C. Behn and J. C. Liebman. bibliog Am Soc C E Proc 89 [SA 3 no 3535]:1-15 Je '63; Discussion. J. L. Alderton. 89 [SA 6 no 3745]:57-9 D '63; Reply. 90 [SA 3 no 3935]:133-4 Je '64

Batch and continuous thickening. P. T. Shannon and others. bibliog diag Ind & Eng Chem Fundamentals 2:203-11 Ag '63; Correction. 3:184 My '64

Inclined settling of dispersed suspensions of spherical particles in square-section tubes. D. R. Oliver and V. G. Jenson. bibliog diags Can J Chem Eng 42:191-5 O '64

Sedimentation equilibrium in reacting systems; extensions of the theory to several types of association phenomena. E. T. Adams, jr. and J. W. Williams. bibliog Am Chem Soc J 86:3454-61 S 5 '64

Sedimentation of monodisperse polystyrene latex spheres in water. D. H. Woodward. J Colloid Sci 19:238-44 Mr '64

See also

Particles

SEDIMENTATION and deposition

Analysis of relief bridge scour. E. M. Laursen. bibliog diags Am Soc C E Proc 89 [HY 3 no 3516]:93-118 My '63; Discussion. S. V. Chitale. 90 [HY 1 no 3783]:287 Ja '64

Application of statistical time-series analysis of a limestone-shale sequence. W. Schwarzacher. bibliog J Geol 72:195-213, pl 1 Mr '64

Baselevel, lithosphere surface, and time-stratigraphy. H. E. Wheeler. bibliog diags Geol Soc Bul 75:599-609 Jl '64

Carbonate sands of Isla Perez, Alacran Reef complex, Yucatan. R. L. Folk and R. Robles. bibliog il maps J Geol 72:255-92, pl 1-4 My '64

Chemical puts mud to rout; Zimmite. il Iron Age 194:124-5 O 8 '64

Copper distribution patterns in soils and drainage in central Chile. A. De Grys. Econ Geol 59:636-46 Je '64

Depositional topography and cyclic deposition in west-central Texas. W. E. Jackson. bibliog maps diags Am Assn Pet Geologists Bul 48:317-28 Mr '64

Development of clay mineral zones during deltaic migration. G. M. Griffin and B. S. Parrott. map diags Am Assn Pet Geologists Bul 48:57-69 Ja '64

Early Pennsylvanian currents in the southern Appalachian Mountains. J. Schlee. bibliog maps diags Geol Soc Bul 74:1439-51 pl 1 D '63

Electric-powered vehicle for large river measurements. H. H. Stevens, jr. and G. R. Dempster, jr. il Civil Eng 34:74 Je '64

Friction factors in open channels: progress report. bibliog Am Soc C E Proc 89 [HY 2 no 3464]:97-143 Mr '63; Discussion. diag 89 [HY 4 no 3580]:283-93 Jl; [HY 5 no 3656]:169-70 S; [HY 6 no 3708]:265-76 N '63; Reply. 90 [HY 4 no 3980]:223-7 Jl '64

Geologic significance of fluviodetrital glauconite. E. G. Wermund. bibliog maps J Geol 72:470-6 Jl '64

Geometrical properties of sand waves. M. S. Yalin. bibliog diags Am Soc C E Proc 90 [HY 5 no 4055]:105-19 S '64

Mathematical formulation of salt-dome dynamics. Z. F. Daneš. bibliog diags Geophysics 29:414-24 Je '64

Origin of continental slopes. R. S. Dietz. bibliog diags Am Scientist 52:50-69 Mr '64

Origin of Pennsylvanian underclays in the Illinois Basin. N. R. O'Brien. bibliog diags Geol Soc Bul 75:823-32 S '64

Origin of the silica sand deposits of the Lake Wales Ridge area of Florida. E. C. Pirkle and others. bibliog il maps Econ Geol 59:1107-39 S '64

Paleogeographic significance of quartz clasticity measurements. K. M. Towe. bibliog diag J Geol 71:790-3 N '63

Petrography and evolution of Niagaran (Silurian) reefs, Indiana. D. A. Textoris and A. V. Carozzi. bibliog il map diags Am Assn Pet Geologists Bul 48:397-426 Ap '64

Pollen analyses of surface materials from the southern San Juan Mountains, Colorado. L. J. Maher, jr. bibliog map Geol Soc Bul 74:1485-503 D '63

Practical computations of bed-material discharge. B. R. Colby. bibliog Am Soc C E Proc 90 [HY 2 no 3843]:217-46 Mr '64

SEDIMENTATION and deposition—*Continued*

Pre-Trenton sedimentation and dolomitization. Cincinnati Arch province; theoretical considerations. W. L. Calvert. bibliog maps Am Assn Pet Geologists Bul 48:166-90 F '64

Regional implications of triassic paleocurrents, Maritime Provinces, Canada. G. D. Klein. bibliog pl maps J Geol 71:801-8 N '63

Review of fossil floras and nonmarine deposits of west Greenland. B. E. Koch. map diags Geol Soc Bul 75:535-48, pl 1 bibliog(p547-8) Je '64

Sand transport studies with radioactive tracers. D. W. Hubbell and W. W. Sayre. bibliog il diag Am Soc C E Proc 90 [HY 3 no 3900]:39-68 My '64

Sediment investigations; Middle Rio Grande. E. L. Pemberton. bibliog il maps Am Soc C E Proc 90 [HY 2 no 3833]:163-85 Mr '64; Discussion. C. F. Nordin, jr. 90 [HY 5 no 4050]:273-5 S '64

Sediment movement and deposition patterns in Illinois impounding reservoirs. J. B. Stall. bibliog diags Am Water Works Assn J 56:755-66 Je '64

Sediment transport capability in erodible channels. S. W. Mao and L. Rice. bibliog diag Am Soc C E Proc 89 [HY 4 no 3569]: 69-95 Jl '63; Discussion. 90 [HY 1 no 3783]: 337-47 Ja; [HY 2 no 3853]:367-77 Mr '64; Reply. 90 [HY 4 no 3980]:249-55 Jl '64

Sediment transportation mechanics; density currents; progress report. bibliog il diags Am Soc C E Proc 89 [HY 5 no 3639]:77-87 S '63; Discussion. 90 [HY 1 no 3783]:365-6 Ja; [HY 4 no 3980]:267-8 Jl '64; Reply. 90 [HY 5 no 4050]:159-60 S '64

Sediment transportation mechanics; suspension of sediment; progress report. diags Am Soc C E Proc 89 [HY 5 no 3636]:45-76 bibliog(p74-6) S '63; Discussion. 90 [HY 1 no 3783]:361-3 Ja; [HY 4 no 3980]:257-65 Jl '64; Reply. 90 [HY 5 no 4050]:155-7 S '64

Shells sub for sand in tests. il Eng N 172: 46 My 14 '64

Study of channel erosion and sediment transport. C. F. Nordin, jr. bibliog il map diags Am Soc C E Proc 90 [HY 4 no 3984]:173-92 Jl '64

Study of sediment ripple formation. A. J. Raudkivi. bibliog il Am Soc C E Proc 89 [HY 6 no 3692]:15-33 N '63; Discussion. diags 90 [HY 2 no 3853]:397-400 Mr; [HY 4 no 3980]:279-95 Jl '64

Upper tertiary surficial deposits near Cedar City, Iron County, Utah. bibliog map diags Geol Soc Bul 75:37-44, pl 1-2 Ja '64

Uptake and release of radio-nuclides by stream sediments; abstract. T. D. Reynolds and E. F. Gloyna. WPCF J 36:279-80 Mr '64

Volume-weight of reservoir sediment. H. G. Heinemann. il maps diags Am Soc C E Proc 88 [HY 5 no 3274]:181-97 S '62; Discussion. 89 [HY 3 no 3529]:347-8 My '63; Reply. 90 [HY 1 no 3783]:253-4 Ja '64

See also

Alluvium
Marine deposits
Rocks, Sedimentary
Silt
Stratification

SEDIMENTATION apparatus

See also

Thickeners

SEDIMENTATION basins. See Settling basins

SEDIMENTATION tanks. See Settling tanks

SEDIMENTS. Marine. See Marine deposits

SEEBECK effect

Hall effect-Seebeck effect sign anomaly in semiconducting glasses. A. D. Pearson. bibliog il Electrochem Soc J 111:753-5 Je '64

Semiconducting behavior of substituted tungsten diselenide and its analogues. W. T. Hicks. bibliog diag Electrochem Soc J 111: 1058-65 S '64

SEED dormancy. See Dormancy (plants)

SEEDS

Oxazolidinethiones and volatile isothiocyanates in enzyme-treated seed meals from 65 species of cruciferae. M. E. Daxenbichler and others. bibliog J Agri & Food Chem 12:127-30 Mr '64

See also

Germination

SEEPAGE

Auxiliary potential function for seepage. B. B. Schimming and R. L. Kondner. diags Am Soc C E Proc 90 [IR 2 no 3930]:21-32 Je '64

Domain variations in channel seepage flow. H. J. Morel-Seytoux. diags Am Soc C E Proc 90 [HY 2 no 3822]:55-79 Mr '64

Seepage from parallel trapezoidal channels. A. El Nimr. diags Am Soc C E Proc 89 [EM 4 no 3582]:1-11 Ag '63; Discussion. H. Bouwer. 90 [EM 2 no 3882]:241-2 Ap '64

Waste water units for individual buildings and houses. A. P. Bernhart. bibliog il diags Eng J 47:19-25 Jl '64; Discussion. 47: 94+ O '64

SEGREGATION of Negroes. See Negroes—Segregation

SEISMOGRAPHS

Detection of *P*-waves from weak sources at great distances. J. F. Claerbout. diags Geophysics 29:197-211 Ap '64

Fargo field, a case history. L. Y. Faust. il maps Geophysics 28:990-1000 D '63

Moving-time-window signal-spectra process. A. McGarr and others. diags Geophysics 29:212-20 Ap '64

Refraction seismograph in sewer and pipeline construction. G. C. Carpenter and D. R. Bassarab. il diags Water & Sewage Works 111:198-202 Ap '64

Refraction seismograph with oscilloscope. il Engineering 196:704 N 29 '63

Seismograph speeds subsurface investigation. N. Bigelow, jr. il diag Pub Works 95:98-9 S '64

SEISMOLOGICAL stations

Operational magnification and physical environment of seismograph stations. S. A. Alsup and J. W. Guyton. maps Geophysics 29:188-96 Ap '64

SEISMOMETRY

Bonding of layers in two-dimensional seismic modeling. M. N. Toksöz and F. Schwab. bibliog diags Geophysics 29:405-13 Je '64

Collection and analysis of Pacific Ocean-bottom seismic data. W. A. Schneider and others. bibliog il maps diags Geophysics 29:745-71 O '64

Converted waves in refraction surveys over markers with variable depth. D. H. Hall. bibliog diags Geophysics 29:733-44 O '64

Elusive first arrival. J. G. Hagedoorn. Geophysics 29:806-13 O '64

Energy and vector record-sections. V. Baranov and C. H. Picou. il diags Geophysics 29:17-37 F '64

Man-made earthquakes test a dam. H. B. Hemborg and W. O. Keightley. il Eng N 172:48-9 Ap 16 '64

Motion product seismograms. J. E. White. il diags Geophysics 29:288-98 Ap '64

MURAC, a multiple reflection analog computer. D. Silverman and others. il diags Geophysics 28:975-89 D '63

New data-processing technique for the elimination of ghost arrivals on reflection seismograms. W. A. Schneider and others. diags Geophysics 29:783-805 O '64

Principles of digital filtering. E. A. Robinson and S. Treitel. bibliog diags Geophysics 29:395-404 Je '64

Response of an elastic plate submerged in a liquid half-space to explosive sound. J. H. Rosenbaum. bibliog diags Geophysics 29:370-94 Je '64

Seismic boats head northwest to Pacific Coast. il Oil & Gas J 62:128 Je 15 '64

Seismic method tested in Illinois fluorspar district. R. B. Johnson. diags Min Eng 16:55-6 Ja '64

Seismic propagation paths, regional travel-times, and crustal structure in the western United States. D. J. Stuart and others. bibliog maps diag Geophysics 29:178-87 Ap '64

Seismic refraction profiles, Narragansett Bay, Rhode Island. J. W. Berg, jr. bibliog maps Geol Soc Bul 74:1305-12 N '63

Seismic signal enhancement with three-component detectors. M. Shimshoni and S. W. Smith. Geophysics 29:664-71 O '64

Sensitive well takes earthquake's pulse. E. E. Rexin. il diags Plant Eng 18:122-3 O '64

Shear waves from explosive sources. J. E. White and R. L. Sengbush. diags Geophysics 28:1001-19 D '63

Signal and noise in deep wells. E. J. Douze. Geophysics 29:721-32 O '64

Study of a three-dimensional seismic detection system. R. A. Broding and others. bibliog il plans diags Geophysics 29:221-49 Ap '64

Techniques of on-site inspection. W. H. Westphal and S. Rubin. bibliog diags Geophysics 29:250-8 Ap '64

Theoretical prediction of seismic noise in a deep borehole. R. L. Sax and R. A. Hartenberger. bibliog Geophysics 29:714-20 O '64

Three-dimensional filtering with an array of seismometers. J. P. Burg. diags Geophysics 29:693-713 O '64

Underground explosion detection. Franklin Inst J 276:573-4 D '63

SEISMOMETRY—*Continued*

Wide-band extraction of mantle *P* waves from ambient noise. M. Backus and others. diags Geophysics 29:672-92 O '64

Wide-band velocity filtering, the Pie-Slice process. P. Embree and others. diags Geophysics 28:948-74 D '63

SELENIC acid

Advances in electroplating decorative, microcracked chromium. W. H. Safranek and H. R. Miller. bibliog il Plating 51:543-50 Je '64

SELENIDES

Exchange of parts between molecules at equilibrium; alkyl-terminated chain polysulfides and polyselenides. D. Grant and J. R. Van Wazer. bibliog Am Chem Soc J 86:3012-17 Ag 5 '64

Some properties of GaSb-Ga_2Se_3 and GaSb-Ga_2Te_3 alloys. J. C. Woolley and K. W. Blazey. bibliog Electrochem Soc J 111:951-4 Ag '64

See also

Lead selenide

Zinc selenide

SELENIUM

Analysis of mixtures of antimony and bismuth tellurides containing selenium and iodine. K. L. Cheng and B. L. Goydish. Anal Chem 35:1965-7 N '63

Catalytic activity of selenium. V. Kollonitsch and C. H. Kline. il diag Ind & Eng Chem 55:18-26 bibliog(p25-6) D '63

Diffusion of sulfur, selenium, and tellurium in gallium arsenide. T. H. Yeh. bibliog il Electrochem Soc J 111:253-5 F '64

Effect of oxygen and other factors in selenium catalyzed isomerization of unsaturated fatty acid esters. V. V. R. Subrahmanyam and F. W. Quackenbush bibliog Am Oil Chem Soc J 41:275-9 Ap '64

Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64

Negative resistance in Al-Al_2O_3-Se-Au sandwich cells. T. Mukerjee and J. Allan, 3d. diags J Ap Phys 35:2270-1 Jl '64

Reaction of sulphur, selenium and tellurium halogenated compounds with Wittig reagents. N. Petragnani and M. D. Campos. Chem & Ind p 1461 Ag 15 '64

Selenium, 1963. C. E. Allen. Eng & Min J 165:130 F '64

Selenium; possible Rankine-cycle fluid. C. F. Bonilla and G. Shulman. bibliog Nucleonics 22:58+ Mr '64

Vapor-liquid equilibria at high temperatures; the selenium-tellurium system. J. C. Yannopoulos and N. J. Themelis. bibliog diag Can J Chem Eng 42:219-21 O '64

Voltage decay measurement of photoexcitation and trapping of carriers in selenium. P. J. Regensburger. diag J Ap Phys 35:1863-5 Je '64

Analysis

Determination of submicrogram amounts of selenium in biological materials. W. H. Allaway and E. E. Cary. bibliog Anal Chem 36:1359-62 Je '64

Microdetermination of selenium with 3.3′-diaminobenzidine by the ring oven technique and its application to air pollution studies. P. W. West and C. Cimerman. bibliog Anal Chem 36:2013-16 S '64

Rapid method for the determination of micro amounts of sulfur in selenium. L. Acs and S. Barabas. bibliog diag Anal Chem 36:1825-9 Ag '64

Rapid method for the determination of selenium in biological material. L. M. Cummins and others. bibliog Anal Chem 36:382-4 F '64

Isotopes

Selenium-75 metabolism in the gestating ewe and fetal lamb: effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64

SELENIUM alloys

Optical and electrical properties of selenium-tellurium alloys. H. P. D. Lanyon. bibliog J Ap Phys 35:1516-23 My '64

SELENIUM compounds

Investigation of the dissociation phenomena of quinoline-8-selenol in water and aqueous dioxane. E. Sekido and others. bibliog Anal Chem 36:1768-71 Ag '64

SELENIUM in the body

Effect of arsenic on selenium metabolism in rats. O. E. Olson and others. bibliog J Agri & Food Chem 11:531-4 N '63

Effect of selenium, sulfur and sulfur amino acids on nutritional muscular dystrophy in the lamb. H. F. Hintz and D. E. Hogue. bibliog J Nutrition 82:495-8 Ap '64

SELENIUM sulfides

Selenium disulfide shampoo. Drug & Cosmetic Ind 95:278 Ag '64

SELF inductance. See Inductance

SELSYN apparatus

Brushless synchros for long life. il Engineering 196:814 D 27 '63

Dynamic testing of resolver error. S. Harac. il diag Control Eng 10:123 N '63

Finding synchro position from voltage measurements: data files. B. H. Robinson. diags Control Eng 11:107-8 O '64

SEMICARBAZONES

Structural studies by nuclear magnetic resonance; ring-substituted phenylhydrazones, semicarbazones, and thiosemicarbazones. G. J. Karabatsos and others. Am Chem Soc J 86:3351-7 Ag 20 '64

SEMICONDUCTORS

Absorption edge modulator utilizing a *p-n* junction. G. Racette. bibliog diag IEEE Proc 52:716 Je '64

Alloyed germanium-silicon hetero junctions. J. Brownson. J Ap Phys 35:1356-7 Ap '64

Ambipolar diffusion in semiconductors. F. E. Geiger, jr. and F. G. Cunningham. bibliog Am J Phys 32:336-42 My '64

Analysis of gate-controlled space-charge-limited emission processes in semiconductors. R. C. Williams. bibliog diags RCA R 25:262-302 Je '64

Analytical formulation of incremental electrical conductivity in semiconductors arising from an accumulation space-charge layer. V. J. Lee and D. R. Mason. bibliog diag J Ap Phys 35:1557-62 My '64

Analyze power transients to protect semiconductor equipment. N. Peach. il diags Power 108:183-8 Ag '64 (reprints 25c)

Anodic oxide films for device fabrication in silicon; controlled incorporation of phosphorus into anodic oxide films on silicon. P. F. Schmidt and A. E. Owen. bibliog il Electrochem Soc J 111:682-8 Je '64

Application of semiconductor optical radiators to space communication. B. S. Goldstein and J. D. Welch. bibliog diags IEEE Trans Com & Electronics 83:470-3 S '64

Bigger scr drives. B. Berman. il diags Product Eng 35:59-61 My 11 '64

Calculation of the potential distribution at the surface of an intrinsic semiconductor. R. B. McQuistan. J Ap Phys 34:3626-8 D '63

Charge carrier inertia in semiconductors. K. S. Champlin and others. bibliog diags IEEE Proc 52:677-85 Je '64

Chemicals affect oscillistor output. D. C. T. Shang. bibliog il diag Electronics 36:46+ D 13 '63

Coaxial chamber for measurement of frequency-dependent conductivity in powdered semiconductors. D. P. Snowden and H. Saltsburg. diag R Sci Instr 34:1263-4 N '63

Collective elastic waves in piezoelectric semiconductors. R. W. Damon and others. bibliog il diags IEEE Proc 52:912-21 Ag '64

Common occurrence of artifacts or ghost peaks in semiconductor injection electroluminescence spectra. W. N. Carr and J. R. Biard. bibliog diag J Ap Phys 35:2776-7 S '64

Comparative anatomy of models for double injection of electrons and holes into solids. A. Rose. bibliog diags J Ap Phys 35:2664-78 S '64

Components of the two-band resistivity tensor in semiconductors. R. G. Moore and J. A. Stamper. bibliog J Ap Phys 35:1545-9 My '64

Correlated energy and time-of-flight measurements of fission fragments with semiconductor detectors; system design and performance. C. W. Williams and others. bibliog diags R Sci Instr 35:1116-23 S '64

Coupled modes of acoustic waves and drifting carriers in piezoelectric crystals. K. Blötekjær and C. F. Quate. bibliog diags IEEE Proc 52:360-77 Ap '64

Demodulation of low-level broad-band optical signals with semiconductors. H. S. Sommers, jr. bibliog diags IEEE Proc 51:140-6; 52:144-53 Ja '63, F '64

Determination of conductivity type from MOS-capacitance measurements. F. P. Heiman and others. IEEE Proc 52:863-4 Jl '64

Developments in semiconductor devices in the United States for the period 1960-1963. A. van der Ziel. bibliog J Res Nat Bur Stand 68D:660-1 My '64

SEMICONDUCTORS—*Continued*

Differing results obtained in the doping of semiconductors by energetic ions. J. O. McCaldin and A. E. Widmer. bibliog J Ap Phys 35:1985-6 Je '64

Diffusion of impurities during epitaxy. W. Rice. bibliog diags IEEE Proc 52:284-99 Mr '64

Doping semiconductors by neutron transmutations. R. H. Müller. Anal Chem 36: sup 121A Je '64

Double injection in deep-lying impurity semiconductors. K. L. Ashley and A. G. Milnes. bibliog J Ap Phys 35:369-74 F '64

Effect of crystal orientation on Ge-GaAs heterojunctions. F. F. Fang and W. E. Howard. bibliog diags J Ap Phys 35:612-17 Mr '64

Effect of mechanical stress on *p-n* junction device characteristics. J. J. Wortman and others. bibliog diags J Ap Phys 35:2122-31 Jl '64

Effects of an electric field on epitaxial vapor growth. Y. Tarui and others. il diag Electrochem Soc J 110:1167-9 N '63

Einstein relationship and Boltzmann boundary conditions in degenerate semiconductors. R. W. Lade. IEEE Proc 52:743-4 Je '64

Electrical conductivity cell for organic semiconductors. P. M. LaFlamme. bibliog diags R Sci Instr 35:1193-6 S '64

Electrochemical nerve models as neuristors. R. M. Stewart. bibliog IEEE Proc 52:78-9 Ja '64

Electrochemical society meeting, Toronto, May 3-7; abstracts of papers. Electrochem Soc J 111:sup 153C-6C Jl '64

Electrode assembly for anodization of semiconductors. E. A. Benjamini and E. F. Duffek. il R Sci Instr 35:237-8 F '64

Electronic materials, research, and education; panel discussion. J Metals 16:595-6+ Jl '64

Epitaxy of compound semiconductors by flash evaporation. J. L. Richards and others. il J Ap Phys 34:3418-20 N '63

Evaluation of concentration distributions by test diffusion and junction delineation. K. M. Busen and others. il diags Electrochem Soc J 111:256-9 F '64

Fluorescent rare earths in semiconducting thiospinels. L. Suchow and N. R. Stemple. bibliog Electrochem Soc J 111:191-5 F '64

Fundamental limitations in rf switching and phase shifting using semiconductor diodes. M. E. Hines. bibliog diags IEEE Proc 52: 697-708 Je '64

Hall effect in semiconducting glasses. W. F. Peck, jr. and J. F. Dewald. bibliog diag Electrochem Soc J 111:561-3 My '64

Hall-effect reinforcement of high-frequency fields in semiconductors. H. E. M. Barlow. diags Inst E E Proc 111:231-4 F '64

Hall effect-Seebeck effect sign anomaly in semiconducting glasses. A. D. Pearson. bibliog Electrochem Soc J 111:753-5 Je '64

How to achieve majority and threshold logic with semiconductors. W. A. Sauer. bibliog diags Electronics 36:23-5 N 29 '63

Impurity states in semiconducting masers. H. J. Zeiger. bibliog J Ap Phys 35:1657-67 Je '64

Induction measurement of semiconductor and thin-film resistivity. T. O. Poehler and W. Liben. IEEE Proc 52:731-2 Je '64

Influence of minority-carrier storage on performance of semiconductor-diode modulator. J. G. Gardiner and D. P. Howson. bibliog diags Inst E E Proc 111:1393-400 Ag '64

Infrared monitoring of semiconductor epitaxial process gas streams. M. J. Rand. bibliog Anal Chem 36:1112-14 My '64

IEEE electron devices meeting, Oct. 31-Nov. 1; abstracts of papers. Electronics 36:57-8 N 15 '63

Integrated circuits today and tomorrow. C. L. Hogan. il diags Electronic Ind 23:58-61+ Je '64

Internal pulse amplification in silicon p-n junction radiation detection junctions. G. C. Huth and others. diag R Sci Instr 35: 1220-2 S '64

Killing the parasitics; isolated integrated circuits. diags Electronics 37:29-30 Ap 6 '64

Large-signal photoconductive effect. A. R. Beattie and R. W. Cunningham. bibliog diags J Ap Phys 35:353-9 F '64

Laser techniques for metals joining. W. N. Platte and J. F. Smith. bibliog il diags Welding J 42:sup481-9 N '63

Low-pressure marvels: solid-state transducers. J. C. Sanchez. bibliog il diags Astronautics & Aeronautics 2:50-3 Ap '64

Magnetoresistance; better than Hall-effect multipliers. S. F. Sun. il diags Electronics 37:66-70 Ap 6 '64

Measurement of X-ray quality with solidstate detectors. G. Kramer. diags R Sci Instr 35:607-8 My '64

Method for Hall mobility and resistivity measurements on thin layers. J. Lange. diags J Ap Phys 35:2659-64 S '64

Microelectronics; unlocking the treasure chest. W. Liben. bibliog il diags Astronautics & Aeronautics 2:20-8 Ap '64

Microwave measurement of conductivity and dielectric constant of semiconductors. B. R. Nag and others. diags IEEE Proc 51:962 Je '63; Discussion. 52:100, 1061-2 Ja, S '64

Microwave measurement of surface conductance of semiconductors. C. K. Chatterji and others. diag IEEE Proc 52:873-4 Jl '64

Microwave propagation in a waveguide containing a semiconductor to which is applied a steady transverse magnetic field. H. E. M. Barlow and R. Koike. bibliog diags Inst E E Proc 110:2177-81 D '63

Microwave techniques in the study of semiconductors. J. N. Bhar. bibliog diags IEEE Proc 51:1623-31 N '63; Discussion. 52:630, 1247 My, O '64

Miniature p-i-n junctions for in-vivo dosimetry. N. A. Baily and A. Norman. bibliog il Nucleonics 21:64-5 O '63

Miscibility of III-V semiconductors studied by flash evaporation. E. K. Müller and J. L. Richards. il diags J Ap Phys 35:1233-41 Ap '64

Modules by the millions. A. Ashburn. il Am Mach 108:66-7 Ap 27 '64

Neuristor realization. R. H. Mattson. diags IEEE Proc 52:618-19 My '64

Neutron transmutations dope semiconductors. C. N. Klahr and M. S. Cohen. il diags Nucleonics 22:62-5 Ap '64

New semiconductors and tubes. Published in monthly numbers of Radio-electronics

New ultrasonic transducers offer increased bandwidth. N. F. Foster. Chem & Eng N 42:46 Mr 30 '64

Non-linear cr circuits using silicon carbide varistors. W. G. P. Lamb. diags Electronic Eng 36:692-3 O '64; Discussion. 36:849 D '64

Now the gate turn off switch speeds up d-c switching. D. R. Grafham. diag Electronics 37:64-71 Mr 23 '64

Optical dispersion of zinc selenide. W. R. Rambauske. J Ap Phys 35:2958-9 O '64

Organometallic semiconductors; derivatives of oximes of 1,5-diacyl-2,6-dihydroxynaphthalenes. M. J. S. Dewar and A. M. Talati. bibliog diag Am Chem Soc J 86:1592-5 Ap 20 '64

Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64

Plasmas in solids. R. Bowers. diags Sci Am 209:46-53 N '63

Plating on semiconductor and electronic devices. E. F. Duffek. bibliog il diags Plating 51:877-83 S '64

Population inversion in *p-n* junctions. J. E. Nordman. IEEE Proc 52:724-5 Je '64

Preparation and semiconducting properties of Cd_3P_2. G. Haacke and G. A. Castellion. bibliog diag J Ap Phys 35:2484-7 Ag '64

Preparation, optical properties, and band structure of boron monophosphide. C. C. Wang and others. bibliog diag RCA R 25: 159-67 Je '64

Proposal for a two-stage semiconductor laser through tunneling and injection. S. Wang. bibliog diags J Ap Phys 34:3443-50 D '63

Protecting scr's and silicon rectifiers. E. K. Howell. bibliog il diags Control Eng 10:63-7 D '63

Relays that challenge semiconductors. W. Holcombe. il diags Electronics 37:56-60 Mr 23 '64

Resource letter Scr-1 on semiconductors. P. Handler. Am J Phys 32:329-33 My '64

Semiconducting behavior of substituted tungsten diselenide and its analogues. W. T. Hicks. bibliog diag Electrochem Soc J 111: 1058-65 S '64

Semiconducting oxide glasses; general principle for preparation. J. D. Mackenzie. bibliog diag Am Cer Soc J 47:211-14 My '64

Semiconducting properties of peritectic compounds from the pseudo-binary system of $CdTe-In_2Te_3$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 110:1132-6 N '63

Semiconducting properties of $AgIn_3Te_5$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 111:546-9 My '64

Semiconductor cathode preparation for field emission microscopy. W. R. Savage. bibliog diag R Sci Instr 35:605-6 My '64

SEMICONDUCTORS—*Continued*

Semiconductor-cooled laser achieves first all-solid-state laser system. Franklin Inst J 278:154 Ag '64

Semiconductor integrated circuits; a producer's view of design problems. F. J. Van Poppelen, jr. il diags Astronautics & Aeronautics 2:59-65 Ap '64

Semiconductor networks. il Electronic Ind 23:65 F '64

Semiconductor strain gauges. Engineering 198:474 O 9 '64

Semiconductor time-delay circuits. J. J. Pinto. diags Electronic Eng 36:166-9 Mr '64

Semiconductors. J. P. Mize and J. W. Lathrop. il diags Space/Aeronautics 42 no 4:84-6 '64-65

Semiconductors are circuits. L. Stern. il diags Radio-Electronics 35:24-5 Ja '64

Semiconductors at cryogenic temperatures. A. K. Jonscher. bibliog diags IEEE Proc 52:1092-104 O '64

Simple physical model for the space-charge capacitance of metal-oxide-semiconductor structures. A. S. Grove and others. diags J Ap Phys 35:2458-60 Ag '64

Solid-state photodetection; comparison between photodiodes and photoconductors. M. DiDomenico, jr. and O. Svelto. bibliog diags IEEE Proc 52:136-44 F '64

Space-charge effects in the insulated-gate field-effect triode. J. Winslow. IEEE Proc 52:618 My '64

Stray signals can't throw this desensitized switch. J. M. Gault and R. J. Sanford. bibliog il diags Electronics 37:68-71 Jl 27 '64

Studies in impure semiconductors. A. J. Giarola. IEEE Proc 52:1079 S '64

Substrates for low temperatures. A. R. Hoffman. R Sci Instr 34:1430-1 D '63

Superconducting semiconductors. Sci Am 210:56+ Je '64

Technical conference on solid-solid interfaces, electronic properties, preparation, and applications, Boston, Aug. 31-Sept. 2; program. J Metals 16:549-50 Jl '64

Telemetry transducers to be solid-state. J. C. Sanchez. il Space/Aeronautics 41:88+ F '64

Theory of direct transitions in semiconductors. R. H. Pantell and others. bibliog Bell System Tech J 43:805-16 Mr '64

Thermal decomposition of some substituted barium titanyl oxalates and its effect on the semiconduction properties of the doped materials. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 46:567-73 D '63

Thermoelectric peaks in off-stoichiometric $CuInTe_2$. S. M. Zalar. J Ap Phys 35:1988-90 Je '64

Today's semiconductors; special report. bibliog il diags Electronics 36:37-60 D 6 '63

Transmission and reflection properties of an inhomogeneous semiconductor slab in rectangular waveguide. D. A. Holmes. IEEE Proc 52:201-2 F '64

Ultrapurification by distillation. W. R. Wilcox. bibliog diag Ind & Eng Chem Fundamentals 3:81-3 F '64

Ultra-stable semiconductor reference diodes. R. H. Murphy. diag Electronic Eng 36:40-3 Ja '64

Use of close spacing in chemical-transport systems for growing epitaxial layers of semiconductors. F. H. Nicoll. il diag Electrochem Soc J 110:1165-7 N '63

Use of *P-L-N* structures in investigations of transient recombination from high injection levels in semiconductors. L. W. Davies. bibliog diags IEEE Proc 51:1637-42 N '63

Validity of the Boltzmann boundary conditions at semiconductor interfaces. R. W. Lade and C. G. Poncelet. IEEE Proc 52:629-30 My '64

Web growth of semiconductors. S. O'Hara and A. I. Bennett. bibliog il diags J Ap Phys 35:686-93 Mr '64

Who needs transistors? A. Lujic. diags Product Eng 35:96-101 Mr 16 '64

See also

Cadmium selenide
Cadmium sulfide
Gallium arsenide
Germanium
Indium antimonide
Silicon
Transistors

Control uses

Bidirectional static switch simplifies ac control. M. P. Southworth. il diags Control Eng 11:75-6 Mr '64

Threshold switch; new component for ac control. M. P. Southworth. il diags Control Eng 11:69-72 Ap '64

Cooling

Beating the heat in semiconductor devices. J. C. McAdam. bibliog il diags Electronics 37:92-8 S 7 '64

Long-pin approach to dissipator design. J. H. Jacoby. il diags Electronics 37:99-101 S 7 '64

Failure

Studying gross abuse of semiconductor devices. D. C. Porter. il diags Space/Aeronautics 42:78-9 Ag '64

Manufacture

Chemical know-how is key to production of semiconductors; process flowsheet. P. Goundry. il Chem Eng 71:110-12 Ja 20 '64

Resistance heater for semiconductor wafer processing. R. Talcott. il diags R Sci Instr 35:915-16 Jl '64

Semiconductor technology. D. M. van Winkle. il Electronic Ind 23:68-71 Je '64

Ultraclean furnace utilizing radiation heating. T. Kinsel. bibliog diags R Sci Instr 35:1004-7 Ag '64

Measurement uses

Commercially available semiconductor detectors and preamplifiers; charts. Nucleonics 22:62-7 My '64

Recent advances in strain gauges. G. R. Higson. bibliog diags J Sci Instr 41:405-14 Jl '64

Semiconductor counters for nuclear radiations. G. Dearnaley and C. D. Northrop. Review, by G. L. Miller. diags Nucleonics 22:104-5 My '64

Semiconductor detectors of nuclear radiations. W. Abson. diags R Sci Instr 41:272-4 My '64

Semiconductor detectors; their properties and applications. F. S. Goulding. bibliog diags Nucleonics 22:54-61 My '64

Semiconductor load cells; new weighing component. M. Green. Automation 11:152-5 O '64

Semiconductor strain-gage pressure sensors. J. C. Sanchez. bibliog il Instruments & Control Systems 36:117-20 N '63

Semiconductors, scintillators and data analysis. M. B. Glos. il diags Nucleonics 22:50-3+ My '64

Noise

Noise in single-crystal tellurium from thermal or optical excitation. V. A. Vis. bibliog J Ap Phys 35:365-8 F '64

1/f noise in thin films of semiconductors. K. M. Kiser. bibliog il Electrochem Soc J 111:556-60 My '64

See also

Transistors—Noise

Protection

How to suppress rate effect in pnpn devices. R. A. Stasior. diags Electronics 37:30-3 Ja 10 '64

Radiation effect

Effect of radiation damage on the response of semiconductor detectors to fission fragments. H. C. Britt and G. C. Benson. bibliog R Sci Instr 35:842-6 Jl '64

Effects of impurities on radiation damage of silicon solar cells. J. Mandelkorn and others. bibliog J Ap Phys 35:2258-60 Jl '64

Field effect transistors under nuclear radiation. A. B. Kaufman. bibliog il diag Electronic Ind 23:94-7 Mr '64

Gamma irradiation of silicon; levels in *n*-type float-zone material. E. Sonder and L. C. Templeton. bibliog J Ap Phys 34:3295-301 N '63

Radiation damage effects in semiconductor detectors. G. Dearnaley. bibliog diags Nucleonics 22:78+ Jl '64

Trading off radiation resistance and second-breakdown performance. B. Reich and E. B. Hakim. il Electronics 37:48-51 O 19 '64

Will nuclear irradiation dope integrated circuits? Electronics 36:96 D 6 '63

Standards

Electronics color codes. diags Electronics 36:37-40 N 15 '63

Testing

Build this semiconductor checker. K. Sueker. il diags Plant Eng 18:109-11 Mr '64

Method for measuring impurity distributions in semiconductor crystals. N. I. Meyer and T. Guldbrandsen. diags IEEE Proc 51:1631-7 N '63

Microwave measurement of the complex permittivity of semiconductors. M. W. Gunn. diag IEEE Proc 52:185 F '64

Non-contact resistivity meter. A. C. Brown. diags J Sci Instr 41:472-3 Jl '64

Precision over-under four-point probe with a small probe spacing. P. A. Shumann, jr. and L. S. Sheiner. bibliog il diags R Sci Instr 35:959-62 Ag '64

SEMIQUINONES. See Quinones

SENSES and sensation

Early concepts of the senses and the mind. A. C. Crombie. diags Sci Am 210:108-16 My '64

See also

Perception
Smell
Taste
Touch

SEPARATION

Analysis of the equilibrium stage separations problem, formulation of convergence. J. R. Friday and B. D. Smith. bibliog diag A I Ch E J 10:698-707 S '64

Anion exchange behavior of alkali and alkaline earth elements in dioxane-mineral acid media. R. R. Ruch and others. bibliog Anal Chem 36:2311-15 N '64

Anion exchange separation of gallium, indium, and aluminum. J. Korkisch and I. Hazan. bibliog Anal Chem 36:2308-11 N '64

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Application of an analog computer in analytical chromatographic and electrophoretic separations. K. Abel and F. W. Noble. bibliog diags Anal Chem 36:1855-6 Ag '64

Automatic method for separation, hydrolysis, and detection of peptides. G. N. Catravas. flow diags Anal Chem 36:1146-8 My '64

Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64

Characterization and separation of amines by gas chromatography. W. J. A. Vanden Heuvel and others. bibliog Anal Chem 36:1550-60 Jl '64

Chromatographic separations of acetylated sugars. C. D. Hurd and H. T. Miles. bibliog Anal Chem 36:1375-8 Je '64

Comparison of the theoretical limit of separating ability in gas and liquid chromatography. J. C. Giddings. Anal Chem 36:1890-2 S '64

Continuous foam fractionation; the effect of operating variables on separation. R. B. Grieves and R. K. Wood. bibliog flow diag A I Ch E J 10:456-60 Jl '64

Continuous separation by the method of thin layer chromatography. S. Turina and others. il diags Anal Chem 36:1905-7 S '64

Countercurrent separation process. M. Souders. bibliog flow diag diag il Chem Eng Prog 60:75-82 F '64

Determination of iron(III) by (ethylenedinitrilo) tetraacetic acid replacement titrimetry following selective separation by column extraction. S. S. Yamamura. Anal Chem 36:1858-61 Ag '64

Effect of pore size of silica gels on the separation of hydrocarbons. A. V. Kiselev and others. bibliog Anal Chem 36:1526-33 Jl '64

Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64

Exploratory studies on batch and continuous foam separation. R. B. Grieves and others. bibliog flow diags Can J Chem Eng 41:252-7 D '63

Fractionation of mixed solids by high-voltage electrophoresis. G. Todd and G. A. Wild. bibliog il Anal Chem 36:1025-8 My '64

Gas chromatographic separation of 2,4-dinitrophenylhydrazone derivatives of carbonyl compounds. R. J. Soukup and others. bibliog Anal Chem 36:2255-6 N '64

Gas chromatographic separation of hydrocarbons (C_1 to C_8) by carbon number using packed capillary columns. W. Schneider and others. bibliog Anal Chem 36:1533-40 Jl '64

Gas separations with permeable membranes. il Ind & Eng Chem 56:11 N '64

Ion exchange separation of acetamide from ammonium acetate and its determination. P. King and J. R. Simmler. bibliog Anal Chem 36:1837-8 Ag '64

Ion exchange separation of microgram quantities of osmium from large amounts of base metals. J. C. Van Loon and F. E. Beamish. Anal Chem 36:1771-3 Ag '64

Np^{237} and Pu^{238} separation at the Savannah River plant. W. L. Poe and others. bibliog flow sheets diags Ind & Eng Chem Proc Design 3:314-22 O '64

New approach to separation of trivalent actinide elements from lanthanide elements. F. L. Moore. bibliog Anal Chem 36:2158-62 O '64

Optimization of multistage separation processes by dynamic programming. L. G. Mitten and G. L. Nemhauser. diags Can J Chem Eng 41:187-94 O '63; Correction. 42:142 Je '64

Progress in centrifugal separations. S. Danatos. diag Chem Eng 71:205-6 O 12 '64

Quantitative analysis of low-boiling phenols by capillary column separation of trimethylsilyl ethers. R. W. Freedman and G. O. Charlier. bibliog Anal Chem 36:1880-1 Ag '64

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

Rapid method for the quantitative separation without alteration of ether-soluble acidic and neutral materials. D. F. Zinkel and J. W. Rowe. Anal Chem 36:1160-1 My '64

Rapid routine separation and analysis of ^{14}CO and $^{14}CO_2$ in mixtures of low activity. F. S. Feates. diag J Sci Instr 41:641-2 O '64

Revamp of glycol separator cuts costs. G. E. Brooks. diags Oil & Gas J 62:98-9 Jl 20 '64

Reversed-phase partition chromatographic separation of several alkaline earths from each other and from yttrium. J. W. O'Laughlin and others. bibliog Anal Chem 36:2110-12 O '64

Selective separation of polycyclic aromatic compounds by countercurrent distribution with a solvent system containing tetramethyluric acid. J. D. Mold and others. bibliog Anal Chem 35:2071-4 D '63

Semiautomatic machine for group separation of radioelements by cation exchange. W. G. Mathers and C. W. K. Hoelke. diags Anal Chem 35:2064-8 D '63

Separation and analysis of alkylpolynitrates by gas chromatography. E. Camera and D. Pravisani. bibliog Anal Chem 36:2108-9 O '64

Separation and analysis of nonylphenoxy polyethylene glycol ether adducts by programmed temperature gas chromatography. H. G. Nadeau and others. bibliog Anal Chem 36:1914-17 S '64

Separation and determination of trace quantities of uranium in presence of plutonium. R. J. Baltisberger. Anal Chem 36:2369-70 N '64

Separation and determination of uranium in high zirconium alloys. R. F. Rolf. Anal Chem 36:1398-400 Je '64

Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64

Separation and identification of the steam volatile phenols present in cigarette smoke condensate by capillary column gas liquid chromatography. G. A. L. Smith and D. A. King. bibliog Chem & Ind p540-1 Mr 28 '64

Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64

Separation and spectrophotometric determination of technetium in fissium. R. J. Meyer and others. bibliog diag Anal Chem 36:1975-9 S '64

Separation, identification, and spectra of the anionic chromium(III)-thiocyanate complexes. S. Kaufman and L. S. Keyes. Anal Chem 36:1777-8 Ag '64

Separation of americium from curium with calcium fluoride. H. P. Holcomb. bibliog diag Anal Chem 36:2329-32 N '64

Separation of butene isomers and butadiene by gas liquid chromatography. C. E. Higgins and W. H. Baldwin. bibliog Anal Chem 36:473-5 Mr '64

Separation of calcium and strontium by liquid ion exchange; determination of total radiostrontium in milk. F. E. Butler. bibliog Anal Chem 35:2069-71 D '63

Separation of certain cations from mixtures of various cations on ion-exchange papers; arsenic, barium, cadmium, tin, and zinc. J. Sherma. Anal Chem 36:690-1 Mr '64

Separation of H_2 and D_2 by moving-bed adsorption; corroboration of adsorber design equations. D. Basmadjian. bibliog diag Can J Chem Eng 41:269-72 D '63

Separation of isomeric xylidine by gas liquid chromatography. W. Funasaka and others. Anal Chem 36:2214-15 O '64

Separation of isotopic position isomers of tritium-labeled olefins by gas chromatography. E. K. C. Lee and F. S. Rowland. bibliog Anal Chem 36:2181-3 O '64

Separation of lead by anion exchange. J. Korkisch and F. Feik. Anal Chem 36.1793-6 Ag '64

SEPARATION—*Continued*
Separation of lignin sulfonates from hemicelluloses by electrophoresis-convection. W. Q. Yean and D. A. I. Goring. bibliog il diags Tappi 47:16-19 Ja '64
Separation of molybdenum in steels by reversed-phase chromatography. J. S. Fritz and C. E. Hedrick. bibliog Anal Chem 36:1324-6 Je '64
Separation of rare earths from other metal ions by anion exchange. J. S. Fritz and R. G. Greene. Anal Chem 36:1095-7 My '64
Separation of scandium from yttrium, lanthanum, and the rare earths by cation exchange chromatography. F. W. E. Strelow and C. J. C. Bothma. bibliog Anal Chem 36:1217-20 Je '64
Separation of scandium from yttrium, rare earths, thorium, zirconium, uranium, and other elements by anion exchange chromatography in ammonium sulfate media. H. Hamaguchi and others. bibliog Anal Chem 36:2304-6 N '64
Separation of some inorganic salts in aqueous solution by flow, under pressure, through porous cellulose acetate membranes. S. Sourirajan. bibliog diags Ind & Eng Chem Fundamentals 3:206-10 Ag '64
Separation of some pairs of inorganic ions by column electrophoresis. T. B. Pierce and P. F. Peck. diag Chem & Ind p 1202-3 Jl 20 '63; Discussion. p 1724 O 26 '63
Separation of technetium from mixed fission products by solvent extraction with tributyl phosphate. M. H. Campbell. bibliog Anal Chem 35:2052-4 D '63
Separation of triglycerides by column chromatography on silica impregnated with silver nitrate. B. de Vries. bibliog Am Oil Chem Soc J 41:403-6 Je '64
Separation of various cations by reversed-phase partition chromatography using neutral organophosphorus compounds. J. W. O'Laughlin and C. V. Banks. bibliog diags Anal Chem 36:1222-9 Je '64
Separations using solvent extraction. H. Green. bibliog Metallurgia 70:143-9. 201-4 S-O '64 (to be cont)
Some aspects of gas separation. W. H. Granville. bibliog diags Ind & Eng Chem 56: 32-7 My '64
Studies on improved recovery of protein from rendering-plant raw materials and products; liquid cyclone separation with carbon tetrachloride. L. G. Criswell and others. bibliog flow sheet diag Food Tech 18:1489-93 S '64
Theoretical and experimental investigation of the effects of horizontal barriers in thermal diffusion columns. J. R. Fleming and J. E. Powers. bibliog diags A I Ch E J 9:730-40 N '63
Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow discharge mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:844-53 Jl '64
Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow electrochemical desorption mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:853-8 Jl '64
Theoretical calculations of the separation factors in the hydrogen evolution reaction for the slow recombination mechanism. J. O. Bockris and S. Srinivasan. bibliog Electrochem Soc J 111:858-63 Jl '64
Thermal diffusion of salt solutions in single-stage cells and in continuous horizontal columns; the system copper sulfate-cobalt sulfate-water. G. T. Fisher and others. bibliog diags A I Ch E J 9:786-93 N '63
Thermal diffusion recovers helium-3 isotope. il diag Chem Eng 70:64+ N 25 '63
Total flow rates in an isotope separation system. A. Apelblat and G. Pery. bibliog diag Ind & Eng Chem Fundamentals 3:83-5 F '64
Zone melting considered as a chromatographic separation technique. W. G. Pfann. bibliog diag Anal Chem 36:2231-4 N '64
See also
Adsorption
Centrifugation
Crystallization
Dialysis
Extraction apparatus
Extraction processes
Flotation process (non-metals)
Hydrocarbons—Separation processes
Ion exchange
Magnetic separation of ores
Ore treatment
Precipitation (chemistry)
Sedimentation
Sink and float process
Sublimation
Vaporization

SEPARATORS
Application and use of cyclones in deinking systems. S. Fahlgren. Tappi 47:sup 166A-7A Mr '64
Compact shipboard device designed to end inshore pollution by oily ballast and bilge water. diag Marine Eng/Log 68:118 D '63
Cyclone contactor speeds up solvent extraction. il diag Chem Eng 71:24-5 Ag 31 '64
Cyclones with plain water for fine-coal cleaning. W. L. Chen. bibliog diags Coal Age 69:90-2 Ag '64
Evaluating the effective resistances of diaphragms or electrolytic separators. R. E. Meredith and C. W. Tobias. bibliog il diag Electrochem Soc J 110:1257-60 D '63
Hot cyclone development improves lime yield. M. Shafer. flow sheet il diag Chem Eng Prog 59:95-9 N '63
Infra-sonic effect of liquid separation in gas pulsation dampeners. W. S. Everett. il diag Gas 40:72+ Je '64
Mechanical shaft seal protection. il Engineer 218:460 S 18 '64
Novel separator efficiently removes impurities from gases. diag Chem Eng 71:96 Ag 17 '64
Use nomographs to size horizontal vapor-liquid separators. A. D. Scheiman. bibliog diags Hydrocarbon Process & Pet Refiner 43:155-60 My '64
Use of cyclones in modern coal preparation plants. G. L. Reynolds. flow diags Min Cong J 50:85-9 Je '64
Using graded sand to test grit removal apparatus. A. H. Chasick and T. B. Burger. flow diag il diags WPCF J 36:884-94 Jl '64
Wet separator developed by Professor Wultsch. diags Paper Ind 45:654-6 Mr '64
See also
Air separators
Centrifuges
Classifiers
Concentrators
Crystallizers
Dust collectors
Evaporators
Thickeners

SEPARATORS, Magnetic. See Magnetic separators

SEPTIC tanks
Equipment for disposal of agricultural effluents. C. Culpin. Chem & Ind p350-3 F 29 '64
Health-zoned lots; Maryland tightens up its septic tank regulations. Eng N 172:24 F 20 '64
Honey wagon sludge disposal. V. J. Rotondo. flow diag il Water Works & Wastes Eng 1:59-60 Ag '64
Neighbors spared: why does this home get sewer odors? answer. diag Dom Eng 203:92 My '64
Skeptics and the septic tanks. E. B. Besselievre. Pub Works 95:70+ Ap '64
Studies of the failure of septic tank percolation systems. P. H. McGauhey and J. H. Winneberger. bibliog il diags WPCF J 36: 593-606 My '64
Summary report on causes and prevention of failure of septic tank percolation systems. P. H. McGauhey and J. H. Winneberger. diag Pub Works 95:134+ Ja '64
Test compares detergent degradabilities. S. A. Klein and P. H. McGauhey. Chem & Eng N 42:44 Jl 27 '64
Will water softener rinse upset the performance of a septic tank? Dom Eng 203:106 My '64

SEQUENCING problems
Sequencing a one state-variable machine; solvable case of the traveling salesman problem. P. C. Gilmore and R. E. Gomory. bibliog diags Op Res 12:655-79 S '64

SEQUENTIAL analysis
Accelerated convergence, divergence, iteration, extrapolation, and curve fitting. J. R. MacDonald. bibliog J Ap Phys 35:3034-41 O '64
Reliability sequential testing. E. L. Eagle. diag Ind Quality Control 20:48-52 My '64
SCAT (simple capability acceptance test); sequential test on ranges. H. M. Wies, jr. and I. W. Burr. Ind Quality Control 21: 266-8 N '64
Simple sequential detection tests. R. F. Baum. bibliog IEEE Proc 52:1251-2 O '64
Time-varying sequential machines. A. Gill. bibliog diags Franklin Inst J 276:519-39 D '63

SEQUENTIAL functions. See Logic, Symbolical and mathematical

SEQUESTERING agents

New deflocculant and sequestrant; Dequest. R. R. Irani and C. F. Callis. Manuf Chem 35:43-5 Jl '64

New phosphorus based sequestrant, deflocculant. R. R. Irani and C. F. Callis. Soap & Chem Spec 40:64-6+ Ap '64

SERIES (mathematics)

ALPAK system for nonnumerical algebra on a digital computer; rational functions of several variables and truncated power series with rational-function coefficients. W. S. Brown and others. Bell System Tech J 43:785-804 Mr '64

Improved Glauert series for certain airfoil problems. M. D. Greenberg. bibliog AIAA J 2:1666-7 S '64

Integral $\int_0^1 s^{\nu}(1-s)^{\nu}\,|\sin xs|\,ds$ with an application to Schlomilch series. M. L. Glasser. bibliog J Math & Phys 43:158-62 Je '64

Iterative and power series solutions for the large deflection of an annular membrane. A. B. Pifko and M. A. Goldberg. AIAA J 2:1340-2 Jl '64

Series solution of equations for re-entry vehicles with variable lift and drag coefficients. Y. C. Shen. bibliog diag AIAA J 1:2487-90 N '63

SERINE

Lipid-protein interactions. D. G. Therriault and J. F. Taylor. bibliog Am Oil Chem Soc J 41:490-4 Jl '64

Nonenzymatic cleavages of peptide chains at the cysteine and serine residues through their conversion into dehydroalanine. A. Patchornik and others. bibliog Am Chem Soc J 86:1206-17 Mr 20 '64

Serine peptides as carriers of cytoactive groups. M. Szekerke and others. bibliog Chem & Ind p 1385-6 Ag 1 '64

SERPENTINE

Iron-rich serpentine and chamosite from Ely, Minn. A. P. Ruotsala and others. bibliog il map diag Am Mineralogist 49:993-1001 Jl '64

Nickeliferous serpentines, chlorites, and related minerals found in two lateritic ores. J. W. Montoya and G. S. Baur. bibliog Am Mineralogist 48:1227-38 N '63

Structural patterns associated with the serpentines of southeastern Pennsylvania. D. M. Lapham and H. L. McKague. bibliog diags Geol Soc Bul 75:639-59, pl 1 Jl '64

SERUM

Alterations in serum proteins during pregnancy and lactation in urban and rural populations in Guatemala. G. H. Beaton and others. bibliog il Am J Clinical Nutrition 14:269-79 My '64

Determinants of serum antirachitic activity; special reference to involutional osteoporosis. R. W. Smith, jr. and others. bibliog Am J Clinical Nutrition 14:98-108 F '64

Effect of polyunsaturated fat diet on serum lipids of hypercholesteremic patients with peptic ulcer. G. McHardy and others. bibliog Am J Clinical Nutrition 15:229-34 O '64

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Effects of food restriction and realimentation on serum proteins; complement levels and electrophoretic patterns. H. E. Weimer and others. bibliog J Nutrition 81:405-10 D '63

Estimation of linoleate intake of men from serum lipid analysis. R. T. Holman and others. Am J Clinical Nutrition 14:193-6 Ap '64

Fatty acids of serum and adipose tissue in six groups eating natural diets containing 7 to 40 per cent fat. R. F. Scott and others. bibliog Am J Clinical Nutrition 14:280-90 My '64

Influence of diet on blood serum lipids in pregnant women and newborn infants. A. E. Hansen and others. bibliog Am J Clinical Nutrition 15:11-19 Jl '64

Lipid-protein interactions. D. G. Therriault and J. F. Taylor. bibliog Am Oil Chem Soc J 41:490-4 Jl '64

Serum amino acids in kwashiorkor. R. G. Whitehead and R. F. A. Dean. bibliog Am J Clinical Nutrition 14:313-30 Je '64

Serum and aortic lipids in rabbits fed cholesterol and linoleic acid stereoisomers. B. I. Weigensberg and G. C. McMillan. bibliog J Nutrition 83:314-24 Ag '64

Serum iron and iron-binding capacity in adolescents. C. C. Seltzer and others. bibliog Am J Clinical Nutrition 13:343-61 D '63

Serum vitamin B_{12} and folic acid activity in lactovegetarian and nonvegetarian healthy adult Indians. B. M. Mehta and others. Am J Clinical Nutrition 15:77-84 bibliog(p83-4) Ag '64

Trace metal levels in human serum and blood. E. M. Butt and others. bibliog Archives Environmental Health 8:52-7; Discussion. 110-14 Ja '64

Analysis

Essential fatty acid requirement of infants and the assessment of their dietary intake of linoleate by serum fatty acid analysis. R. T. Holman and others. bibliog Am J Clinical Nutrition 14:70-5 F '64

Serum lipids in breast-fed infants and in infants fed evaporated milk. C. W. Woodruff and others. bibliog Am J Clinical Nutrition 14:83-90 F '64

Some factors affecting mobility measurements in paper electrophoresis. R. H. Hackman and M. Goldberg. bibliog Anal Chem 36:1220-2 Je '64

SERUM albumin. See Albumin

SERVICE (in industry)

E flat. A. D. Sullivan. Heating-Piping 35:157-9 N '63

Rolls-Royce initiates unique production-service plan for Diesel generators. Marine Eng/Log 69:76+ Ja '64

Total energy sites on the increase. Gas 39:134+ D '63

See also

Electric utilities—Service

SERVICE pipes. See Water pipes—Service pipes

SERVICE stations. See Gasoline service stations

SERVOMECHANISMS

A-c power servomotors. G. Kiesel. il diags Machine Design 36:157-62 F 27 '64

Analysis of dynamic performance of induction motors in control systems. J. C. West and others. bibliog diags Inst E E Proc 111:1468-78 Ag '64; Discussion. 111:1949-50 N '64

Analysis of halfwave magnetic servoamplifier with biased-rectifier control. B. K. Bose. bibliog diags Inst E E Proc 111:869-76 Ap '64

Basic types of self-adaptive control systems. D. R. Towill. bibliog diags Engineer 216:1066-8 D 27 '63

Boiler control. C. H. Smoot and F. J. Karlov. il diags Electronics 37:85-93 Je 15 '64

Chieftain gun control equipment. R. N. Evans. il diag Engineer 218:170-1 Jl 31 '64

Choppers compensate ac servos. E. R. Schlesinger. diags Control Eng 11:113-14 S '64

Cogging in slow-speed servos. diag Control Eng 11:59-60 Jl '64

Contour polishing with servo control. F. R. Whitcomb. il diag Hydraulics & Pneumatics 16:102-3 N '63

Counterbalance system for dynamic testing of equipment designed to operate in a zero-g field. J. C. Nicklas. diags A S M E Trans ser D 89:91-6 Mr '64

Designing a pneumatic pressure programmer. T. S. Neprud. il diag Hydraulics & Pneumatics 17:69 Ap '64

Designing servocompensators graphically; data file. L. Q. Pena. diags Control Eng 11:79-81 Ja '64

Designing the servo drive for a rocking table. H. R. Martin and J. E. Carrington. il diags Hydraulics & Pneumatics 17:84-9 Jl '64

Digital servo actuator. il diag Electro-Tech 73:100 Ja '64

Electric motors; servomotors. A. N. Mea. diags Machine Design 36:116-20 Mr 19 '64

Eyebrow controls arm via servo. diag Control Eng 11:30 O '64

Hydraulic servovalves. D. R. Sweeney and A. H. Delmedge. diags Machine Design 35:81-8 D 12 '63

Lower-cost servo valve easier to service. il diag Product Eng 35:100 Ag 17 '64

Method of analysing the properties of 2-phase servo-motors and a.c. tachometers. D. E. Hesmondhalgh and E. R. Laithwaite. bibliog diags Inst E E Proc 110:2039-54 N '63

Motorized microscope: from surgery to assembly. il Engineering 198:248 Ag 21 '64

$(N)(N\pm1)$ pole generator. Y. Yamamoto. diags IEEE Proc 52:310 Mr '64

Peak-holding optimalizing servo. R. L. Maybach. diags Instruments & Control Systems 36:76-9 O '63

SERVOMECHANISMS—*Continued*

Pneumatic servo regulators control pressure and flow. J. F. Taplin. diags Automation 11:89-92 Je '64

Precise power control utilizing a new actuator concept embodying all-mechanical power flow. J. L. Harned and others. il diags A S M E Trans ser D 86:121-31 Mr '64

Selecting ac servomotor compensation. A. F. Clarke, jr. diags Control Eng 11:99-105 O '64

Sensing and control of tape slack level. B. D. Jimersen. diags Electronic Ind 22:65-6 D '63

Servo actuator stacks slugs of hydraulic fluid to produce an accurate digital readout. il diag Product Eng 34:36 D 23 '63

Servo comparator amplifier handles high voltages. J. S. MacDougall. diags Electronics 37:75-6 Ag 10 '64

Servo control equipment factory. il Engineer 217:871 My 15 '64

Servo-controlled testing machine. Product Eng 35:31-2 Mr 2 '64

Servo-controlled variometer at Rugby radio station. Engineer 216:857 N 22 '63

Servo problems and techniques in large antennas. D. V. Stallard. bibliog diags IEEE Trans Applications & Ind p 105-114 Mr '64

Servosystem controls tension in winding machine. Hydraulics & Pneumatics 17:32 Je '64

Servo system steers lift truck. diag Hydraulics & Pneumatics 17:90 Mr '64

Servovalves: fluid power component selection charts. Hydraulics & Pneumatics 17:119 Ja '64

Silicon controlled rectifiers to drive guns. il diags Electronics 36:51-2 D 20 '63

Sources of errors in ac servos: data file. J. B. Heaviside. diag Control Eng 11:85-6 F '64

Stability analysis of incremental servos. J. M. Holtzman and A. K. Rue. bibliog diags IEEE Trans Applications & Ind p 114-20 Mr '64

Standard analogue digital elements. il Engineer 217:623 Ap 3 '64

Synchronizing conveyor lines with servo controlled drives. il diag Automation 11:84-5 O '64

Torque motor as a separate servovalve component. N. D. Trbovich. il diags Hydraulics & Pneumatics 17:103-4+ My '64

Transfer functions from frequency response; data file. N. G. Meadows. diags Control Eng 11:95-6 Je '64

Transient response characteristics of an a-c servomotor excited nonsinusoidally and through nonlinear source impedances. J. Law, jr. and N. L. Schmitz. flow diag il IEEE Trans Power Apparatus & Systems 83:584-8 Je '64

Velocity servo drive for a high precision Mössbauer spectrometer. P. A. Flinn. bibliog diags R Sci Instr 34:1422-6 D '63

Vibration-proof indicator for severe environments. diags Space/Aeronautics 42:77+ S '64

See also
Automation

SESAME oil

Recent research on sesamin, sesamolin, and related compounds. P. Budowski. Am Oil Chem Soc J 41:280-5 bibliog(p284-5) Ap '64

SESQUITERPENES

Aromatin and aromaticin, new sesquiterpene lactones isolated from helenium aromaticum. J. Romo and others. Chem & Ind p 1839 N 16 '63

Constitution and synthesis of neo-intermedeol. V. B. Zalkow and others. Chem & Ind p 194-5 F 1 '64

Rapid method for isolation and identification of sesquiterpene hydrocarbons in cold-pressed grapefruit oil. G. L. K. Hunter and W. B. Brogden, jr. bibliog Anal Chem 36:1122-3 My '64

Structure of ylangene, a new type of tricyclic sesquiterpene. O. Motl and others. Chem & Ind p 1759-60 N 2 '63

Synthesis of some drimanic sesquiterpenes. E. Wenkert and D. P. Strike. bibliog Am Chem Soc J 86:2044-50 My 20 '64

Total synthesis of dihydrocostunolide. E. J. Corey and A. G. Hortmann. bibliog Am Chem Soc J 85:4033-4 D 20 '63

See also
Thujopsene

SETTLEMENT of foundations. See Foundations—Settlement

SETTLING basins

Coagulation and sedimentation equipment. J. W. Pratt. Tappi 47:sup 148A-51A Ja '64

Design criteria for sedimentation basins. H. C. Bramer and R. D. Hoak. diags Ind & Eng Chem Proc Design 1:185-9 Jl '62; 3:46-8 Ja '64

SETTLING tanks

Fiber-glass-covered settling tanks reduce odor problems. il Water Works & Wastes Eng 1:57 Ja '64

Operation of sedimentation tanks. A. E. Sparr. WPCF J 36:760-6 Je '64

Settling tank maintenance at Hyperion. G. W. Thwaytes. WPCF J 34:1235-43; 35:1486-8 D '62, N '63

Volume analysis for an equalization tank. H. A. Dombeck. il Pub Works 95:83-5 Jl '64

Waste disposal systems: how they shape up today; settling and cascading. il Textile World 114:110 Je '64

See also
Sewage tanks

SEWAGE

Electromobility values of particulate matter in domestic wastewater. S. D. Faust and M. C. Manger. bibliog Water & Sewage Works 111:73-5 F '64

Analysis

Analysis of volatile fatty acids in sewage by gas chromatography. E. Hindin and others. bibliog Water & Sewage Works 111:92-5 F '64

Determination of carbon in wastewaters by high-temperature wet oxidation. W. J. Weber, jr. and J. C. Morris. bibliog il diag WPCF J 36:573-86 My '64

New techniques in use of microflash equipment in the analysis of water and wastewater. M. Mayer. il WPCF J 36:263-4 F '64

Infrared determination of alkyl branching in detergent ABS. C. D. Frazee and R. O. Crisler. Am Oil Chem Soc J 41:334-5 Ap '64

Organic acids by column chromatography. F. G. Pohland and B. H. Dickson, jr. bibliog Water Works & Wastes Eng 1:54-5+ Jl '64

Organic acids in digester liquor by chromatography. A. F. Westerhold. WPCF J 35:1431-3 N '63

Rapid solids determination using glass fiber filters. B. M. Wyckoff. il Water & Sewage Works 111:277-80 Je '64

Spectrographic analysis of air-dried sewage sludge. R. N. Thompson and others. bibliog WPCF J 36:752-9 Je '64

Use of infrared analyzer for total carbon determination. C. E. Van Hall and V. A. Stenger. il Water & Sewage Works 111:266-70 Je '64

Bibliography

Review of the literature of 1963 on wastewater and water pollution control. WPCF J 36:535-45 bibliog(p540-5) My '64

Bacteriology

Attenuated polioviruses in sewage. S. Kelly and W. W. Sanderson. bibliog WPCF J 36:905-13 Jl '64

Comparison of membrane filter counts and most probable numbers of coliform in San Diego's sewage and receiving waters. D. A. Hoffman and others. map WPCF J 36:109-17 Ja '64

Health aspects of wastewater treatment. F. R. Dixon and L. J. McCabe. WPCF J 36:984-9 bibliog(p988-9) Ag '64

Rapid carbon test for sewage bacteria. R. M. Scott and others. bibliog Am J Pub Health 54:834-44 My '64

Nitrogen content

Nitrogen and phosphorus extraction from domestic waste-water treatment plant effluents by controlled algal culture. W. E. Gates and J. A. Borchardt. diag WPCF J 36:443-62 bibliog(p461-2) Ap '64

Nitrogen removal by nitrification and denitrification. W. K. Johnson and G. J. Schroepfer. bibliog flow diags il diags WPCF J 36:1015-36 Ag '64; Excerpts. Pub Works 95:130-1 N '64

Phosphorus content

Nitrogen and phosphorus extraction from domestic waste-water treatment plant effluents by controlled algal culture. W. E. Gates and J. A. Borchardt. diag WPCF J 36:443-62 bibliog(p461-2) Ap '64

SEWAGE—*Continued*

Testing

Automated bod respirometer. R. M. Arthur. bibliog il Water Works & Wastes Eng 1: 35-8+ O '64

Bod data retrieval through frozen storage. W. J. Fogarty and M. E. Reeder. bibliog Pub Works 95:88-90 Mr '64

Biochemical oxygen demand reduction sulfite waste liquor. S. A. Zieminski and B. T. Coyle. bibliog diag Tappi 47:138-42 Mr '64

Cod method suitable for the analysis of highly saline waters. J. M. Cripps and D. Jenkins. WPCF J 36:1240-6 O '64

Death in a hole. Heating-Piping 35:155-6 N '63

Effect of air-flow rate on response of activated sludge to quantitative shock loading. A. F. Gaudy, jr. and B. G. Turner. bibliog WPCF J 36:767-81 Je '64

Effect of dilution media on the bod of algae. M. M. Allen and others. bibliog WPCF J 36:1049-56 Ag '64

Eight-hour biological oxygen demand test using mass culture aeration and COD. L. L. Hiser and A. W. Busch. bibliog WPCF J 36:505-16 Ap '64

Graphical use of first-stage bod equation. Y. Fujimoto. bibliog WPCF J 36:69-71 Ja '64

Interactions of waste feed, activated sludge, and oxygen as traced by radioactive carbon. F. J. Ludzack and others. bibliog WPCF J 36:782-8 Je '64

Preserving domestic waste samples by freezing. P. E. Morgan and E. F. Clarke. Pub Works 95:73-5 N '64

Radioactivity in sewage disposal systems from industrial and medical wastes and fallout. T. R. Folsom and G. J. Mohanrao. bibliog diags Materials Res & Stand 4:69-73 F '64

See also
Sewage sampling

SEWAGE, Utilization of

Economics of waste-water distillation studied. Chem & Eng N 42:57 My 18 '64

Effluent reuse investigated. Water Works & Wastes Eng 1:91 Mr '64

From pollution prevention to effluent reuse. H. H. Stanbridge. bibliog Water & Sewage Works 111:446-51 O '64 (to be cont)

Lost River system, a water quality management study. G. T. Orlob and P. C. Woods. bibliog flow diags map plan Am Soc C E Proc 90 [HY 2 no 3815]:1-22 Mr '64

Need for water reuse. J. L. Clouse. Tappi 47:sup 182A-3A Ja '64

Oxidation ponds and re-use. D. A. Okun. diag Pub Works 95:166+ Mr '64

Reuse and reduction of paper mill water. E. N. Ross. Tappi 47:sup 180A-2A Ja '64

Solvent extraction may be way to purify sewage effluents; abstract. M. A. Zeitoun. Chem & Eng N 42:74+ Ap 20 '64

Ten-year program of fiber loss reduction and water reuse. G. Hawkins. diags Tappi 47: sup 158A-60A Mr '64

Waste studies shed new light on treatment. diag Chem Eng 71:90+ My 25 '64

Waste treatment for groundwater recharge; abstract. A. Amramy. WPCF J 36:296-8 Mr '64

Waste-water renovation gets a thorough airing; AIChE symposium. il Chem Eng 70: 124-5 N 11 '63

Water renovation; what it means to you. bibliog il Chem Eng Prog 59:19-40 N '63

Whittier Narrows water reclamation plant. il map Water & Sewage Works 111:34-6 Ja '64; Excerpts. Pub Works 95:170+ Ap '64

See also
Sewage irrigation

SEWAGE disposal

Advanced treatment of wastewaters for reuse. F. M. Middleton. il diag Water & Sewage Works 111:401-9 S '64

Application of Reten 205 in sewage treatment. Water & Sewage Works 111:64-6 Ja '64

Designing an ocean outfall for North Miami Beach. J. W. Greenleaf, jr. and B. A. McAdams. map diags WPCF J 36:1107-15 S '64

Effluent treatment and stream pollution: abstract and discussion. L. Klein. Chem & Ind p 115 Ja 18 '64

Electrical stimulation of bacteria. G. Spohr. il Water Works & Wastes Eng 1:41-3 Ap '64

Electrodialysis treatment of secondary effluents evaluated. H. Gregor and others. Chem & Eng N 42:155-6 S 7 '64

Equilibria and capacities for adsorption on carbon. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 90 [SA 3 no 3952]: 79-107 Je '64

Exploratory studies on batch and continuous foam separation. R. B. Grieves and others. bibliog flow diags Can J Chem Eng 41:252-7 D '63

Green lagoon. S. E. Kappe. bibliog Water & Sewage Works 110:385-6, 433-5 N-D '63

Honey wagon sludge disposal. V. J. Rotondo. flow diag il Water Works & Wastes Eng 1:59-60 Ag '64

Joint vs. separate treatment of municipal and industrial wastes; symposium. bibliog WPCF J 36:345-61 Mr '64

Kinetics of adsorption on carbon from solution. W. J. Weber, jr. and J. C. Morris. bibliog Am Soc C E Proc 89 [SA 2 no 3483]: 31-59 Ap; [SA 6 no 3745]:53-5 D '63

Law of the underground. J. H. Krieger. Civil Eng 34:52-3 Mr '64

Parasites in sewage and the possibilities of their extinction; abstract. H. Liebmann. WPCF J 36:304 Mr '64

Pilot plant testing for domestic and industrial waste treatment. R. H. Culver. WPCF J 35:1455-63 N '63

Public meeting on joint municipal-industrial waste treatment. WPCF J 36:135-67 F '64

Quality aspects of waste water reclamation. P. R. Bonderson. bibliog Am Soc C E Proc 90 [SA 5 no 4104]:1-8 O '64

Recent developments in wastewater treatment; abstract. M. P. Koch. WPCF J 36:287-8 Mr '64

Sewer in hog-fattening house clogs: is interceptor the answer? answer. diags Dom Eng 203:85-7 My '64

Sludge disposal vessel Sir Joseph Bazalgette. il Engineer 216:915 N 29 '63

South African studies; National institute for water research, Council for scientific and industrial research report. Pub Works 95: 178+ Ap '64

System for evaluation of contamination potential of some waste disposal sites. H. E. LeGrand. diags Am Water Works Assn J 56:959-74 Ag '64; Abstract. Pub Works 95: 176 O '64

System of sanitation for low-cost, high density housing. L. J. Vincent and others. Pub Works 95:166+ F '64

Trends in sewage treatment. Pub Works 95:78+ Je '64

Use of copper sulfate in water and waste treatment. A. A. Hirsch. bibliog Pub Works 95:95-7 Ja '64

Waste dispersion in receiving waters. L. L. Falk. bibliog il diags WPCF J 35:1464-73 N '63

Waste disposal and the future at Lake Tahoe. H. F. Ludwig and others. flow diag maps diag Am Soc C E Proc 90 [SA 3 no 3947]: 27-51 Je '64

Waste disposal in space vessels. C. F. Emanuel. bibliog il diags WPCF J 36:1229-39 O '64

Waste disposal in tidal waters. A. N. Diachishin. Am Soc C E Proc 89 [SA 4 no 3602]:23-43 Ag '63; Discussion. J. S. Gladwell. 90 [SA 1 no 3813]:167-72 F '64; Reply. 90 [SA 5 no 4097]:39-45 O '64

Waste water reclamation; a practical approach for many water-short areas. R. H. Marks. il diag Power 107:47-50 N '63

Wastewater treatment at McClennan air force base. R. V. Daigh. il map WPCF J 36:895-900 Jl '64

See also
Refuse disposal
Settling basins
Sewage incinerators
Sewage pumping
Sewage sludge
Sewage tanks
Sewer pipes
Sewerage
Trade waste disposal
Water pollution

Activated sludge method

Activated sludge in one tank. diag Eng N 172: 110 Ap 2 '64

Activated sludge metabolism of certain quaternary carbon compounds; abstract. G. J. Mohanrao and R. E. McKinney. WPCF J 36:303 Mr '64

Activated sludge process variations; the complete spectrum. M. J. Stewart. bibliog flow diags diags Water & Sewage Works 111: 153-8, 246-9, 295-7 Ap-Je '64

SEWAGE disposal—Activated sludge method —*Continued*

Anaerobiosis in the activated sludge process; abstract. W. C. Westgarth and others. WPCF J 36:290 Mr '64; Same. Pub Works 95:188+ O '64
Analysis of flotation thickening of waste activated sludge. diags Water & Sewage Works 111:68-9 Ja '64
Belleville licks sludge bulking; abstract. I. G. Knoebel. Pub Works 94:132+ N '63
Clean air for activated sludge plant; abstract. I. Withnell. Pub Works 95:174+ My '64
Comparison of activated sludge and trickling filter plants at Tucson. E. O. Dye. WPCF J 35:1414-18 N '63
Complete mixing; something for nothing. R. E. McKinney. il Civil Eng 34:48-50 S '64
Determining the efficiency of air filters. A. H. Chasick and R. L. Bootes. il Water Works & Wastes Eng 1:50-4 Ja '64
Dual secondary treatment plant licks Willmar's permanent and temporary population boom. A. W. Banister and A. D. Cloud. il diag Water Works & Wastes Eng 1:32-5+ Ap '64
Effect of air-flow rate on response of activated sludge to quantitative shock loading. A. F. Gaudy, jr. and B. G. Turner. bibliog WPCF J 36:767-81 Je '64
High-rate digestion tamed. C. J. Suhr and J. M. Brown. il Water Works & Wastes Eng 1:44-6+ Ag '64
Influence of loading and chemical composition of substrate on the performance of activated sludge. E. J. Genetelli and H. Heukelekian. bibliog il diag WPCF J 36:643-9 My '64
Interactions of waste feed, activated sludge, and oxygen as traced by radioactive carbon. F. J. Ludzack and others. bibliog WPCF J 36:782-8 Je '64
Kinetics of aerobic removal of organic wastes. K. Keshaven and others. il diags Am Soc C E Proc 90 [SA 1 no 3808]:99-126 bibliog(p 124-5) F '64; Discussion. 90 [SA 4 no 4006]: 107-13 Ag; [SA 5 no 4097]:59-62 O '64
Measurement of dehydrogenase activity of activated sludges; abstract. G. Lenhard and others. WPCF J 36:294 Mr '64
Minimal solids aeration activated sludge. M. W. Tenney and others. bibliog diags Am Soc C E Proc 90 [SA 1 no 3790]:23-42 F '64; Discussion. R. E. McKinney. 90 [SA 5 no 4097]:51-3 O '64
Mixing model for activated sludge. R. B. Grieves and others. bibliog diags WPCF J 36:619-35 My '64
New developments in the activated sludge process; abstract. R. Benedek. WPCF J 36:307 Mr '64
San Jose-Santa Clara Kraus process plant copes with variable canning load. L. F. Rehm and F. N. Van Kirk. il plan Water Works & Wastes Eng 1:32-6+ Jl '64; Abstract. Pub Works 95:150+ S '64
Thermodynamic aspects of biological oxidation and synthesis. J. A. Servizi and R. H. Bogan. WPCF J 36:607-18 bibliog(p617-18) My '64
Whittier Narrows water reclamation plant. il map Water & Sewage Works 111:34-6 Ja '64; Excerpts. Pub Works 95:170+ Ap '64

Aeration

Aerobic sludge digestion studies. G. W. Lawton and J. D. Norman. bibliog diag WPCF J 36:495-504 Ap '64
Design and maintenance of extended aeration sewage treatment plants. E. P. Monn. il diag Pub Works 95:70-2 Ja '64
Fundamentals of aerobic biological treatment of waste water. R. F. Weston. bibliog Pub Works 94:77-83 N '63
In-plant conversion triples capacity. J. M. Valdespino and T. Kuby. il WPCF J 36: 587-92 My '64
Industry's idea clinic; stabilization ponds. il WPCF J 36:931-48 Ag '64
Minimal solids aeration activated sludge. M. W. Tenney and others. bibliog diags Am Soc C E Proc 90 [SA 1 no 3790]:23-42 F '64; Discussion. R. E. McKinney. 90 [SA 5 no 4097]:51-3 O '64
Oxygen consumption and reaeration in sewers; abstract. B. Gustafsson and N. Westberg. WPCF J 36:283 Mr '64
Oxygenation from diffused air in aeration tanks. J. K. Bewtra and W. R. Nicholas. bibliog il diags WPCF J 36:1195-224 O '64
Shipboard extended-aeration waste-water treatment plant design. M. J. Stewart and H. F. Ludwig. bibliog il Naval Eng J 75:985-92 D '63
Study of a rotating cylinder sludge collector in the dissolved-air flotation process. A. Geinopolos and W. J. Katz. il diag WPCF J 36:712-21 Je '64
Suds control and transfer. il diag Mech Eng 85:64-5 N '63
Surface turbine aerators for water and waste treatment. P. J. Webber. il Water & Sewage Works 111:452-4 O '64

Bibliography

Review of the literature of 1963 on waste-water and water pollution control. bibliog WPCF J 36:535-72, 659-711, 791-863 My-Jl '64
Reviews and abstracts (cont). WPCF J 35: 550-1, 678-9, 1085-6, 1224; 36:658, 1060 Ap-My, Ag-S '63, My, Ag '64

Biological treatment

Accelerated sludge digestion. W. E. Garrison and others. il Water Works & Wastes Eng 1:58-63 F '64
Air pollution from aerobic waste treatment. J. O. Ledbetter. bibliog Water & Sewage Works 111:62-3 Ja '64
Anaerobic waste treatment fundamentals. P. L. McCarty. bibliog diags Pub Works 95: 107-12 S; 123-6 O; 91-4 N '64 (to be cont)
Biological oxidation in self-operating, continuously recording manometers; abstract. M. X. V. Snaddon and S. H. Jenkins. WPCF J 36:305-6 Mr '64
Comparison of respiration and metabolism of biological slimes using radiophosphorus. M. M. Varma and G. W. Reid. diags WPCF J 36:176-200 bibliog(p 199-200) F '64
Degradation of aromatic compounds by phenol-adapted bacteria. C. W. Chambers and others. bibliog WPCF J 35:1517-28 D '63
Determination of volatile acids by gas chromatography. J. F. Andrews and others. bibliog Water & Sewage Works 111:206-10 Ap '64
Dynamics of continuous mixed cultures. Pub Works 95:192+ O '64
Free energy as a parameter in biological treatment. J. A. Servizi and R. H. Bogan. bibliog Am Soc C E Proc 89 [SA 3 no 3539]: 17-40 Je '63; Discussion. 89 [SA 6 no 3745]: 61-75 D '63; Reply. 90 [SA 2 no 3884]:33-7 Ap '64
Fundamentals of aerobic biological treatment of waste water. R. F. Weston. bibliog Pub Works 94:77-83 N '63
High-rate digestion. F. G. Pohland. diags Water & Sewage Works 111:262-5 Je '64
How to keep oxidation ponds aerobic. I. Nusbaum and L. Burtmen. diags Water Works & Wastes Eng 1:106-7+ My '64
Individual volatile acids in anaerobic treatment. P. L. McCarty and others. bibliog diags WPCF J 35:1501-16 D '63
Investigation of the dewatering of biological sludge with a new centrifugal apparatus. W. Bischofsberger and V. Stalmann. il diag Water & Sewage Works 110:411-14 N '63
Kinetics of aerobic removal of organic wastes. K. Keshaven and others. il diags Am Soc C E Proc 90 [SA 1 no 3808]:99-126 bibliog (p 124-5) F '64; Discussion. 90 [SA 4 no 4006]:107-13 Ag; [SA 5 no 4097]:59-62 O '64
Nitrogen removal by nitrification and denitrification. W. K. Johnson and G. J. Schroepfer. bibliog flow diags il diags WPCF J 36:1015-36 Ag '64; Excerpts. Pub Works 95:130-1 N '64
Power dissipation in biological flocculation; abstract. G. M. Fair and R. S. Gemmell. WPCF J 36:301 Mr '64
Thermal effects on completely mixed anaerobic digestion. J. F. Malina, jr. bibliog diag Water & Sewage Works 111:52-6 Ja '64
Thermodynamics of biological synthesis and growth; abstract. P. L. McCarty. WPCF J 36:299-300 Mr '64

Chlorination

Chlorine disinfection in primary sewage treatment: a review of the literature. G. Walton and G. L. Culp. bibliog Water & Sewage Works 110:415, 438-9; 111:37-8, 80-1 N '63-F '64
Residual chlorine analyzer paces dosage. L. S. Pope. il diag Water Works & Wastes Eng 1:56-8 S '64
Solving odor problems by prechlorination of flow, paced by automatic continuous monitoring of H_2S content of atmosphere. G. Chanin. il Water Works & Wastes Eng 1:42-4+ Ja '64
Treatment of Long Island duck farm wastes. C. D. Gates. bibliog il WPCF J 35:1569-79 D '63

SEWAGE disposal—*Continued*

Cleaning compositions effect

Activated sludge metabolism of certain quaternary carbon compounds; abstract. G. J. Mohanrao and R. E. McKinney. WPCF J 36:303 Mr '64
Biodegradation of nonionics. F. A. Blankenship and V. M. Piccolini. bibliog Soap & Chem Spec 39:75-8+ D '63
British synthetic detergent report. Soap & Chem Spec 39:48-51+ N '63
Chemistry of surfactant biodegradation. R. D. Swisher. bibliog Am Oil Chem Soc J 40:648-56 N '63
Destruction of linear alkylate sulfonates in biological waste treatment by field test. C. E. Renn and others. il diag WPCF J 36:864-79 Jl '64
Development of a biologically degradable alkyl benzene sulfonate; abstract. R. C. Tarring. WPCF J 36:278 Mr '64
Factors influencing the design and operation of soil systems for waste treatment. G. G. Robeck and others. diag WPCF J 36:971-83 Ag '64; Excerpts. Pub Works 95:122+ N '64
Foreign requirements and developments in biodegradability. C. A. Houston. bibliog Am Oil Chem Soc J 40:659-61 N '63
LAS syndets pass degradability field test. Soap & Chem Spec 40:183 Mr '64
Measuring biodegradability. Soap & Chem Spec 40:84 O '64
Miniature plant assists biodegradability studies. il Chem Eng 71:76 O 26 '64
Polyelectrolytes as ABS suppressors. G. A. Rhame. Water & Sewage Works 111:44-5 Ja '64
Rapid, accurate test for surfactant aerobic biodegradability. W. A. Sweeney and J. K. Foote. il diag WPCF J 36:14-37 bibliog(p27-8) Ja '64
Sanitary engineer's approach to biodegradation of nonionics. C. A. Vath. bibliog Soap & Chem Spec 40:56-8+ F; 55-8+ Mr '64
Studies on detergent foaming, its effects on plant processes, and its control. J. J. Wirts. WPCF J 36:418-20; Discussion. 420-3 Ap '64
Study of detergent biodegradability as shown by various analytical techniques. R. C. Allred and others. bibliog Am Oil Chem Soc J 41:13-17 Ja '64
Suds control and transfer. diags Pub Works 94:107 N '63
Syndet problem after five years of progress. C. E. Keefer. bibliog flow diag il diag Pub Works 95:82-91+ Ja '64

Coagulation

Economics of coagulants. E. B. Besselievre. Water Works & Wastes Eng 1:39-41 O: 57-8+ N '64 (to be cont)

Sewage plant precipitates waste. Eng N 172: 32 Ja 9 '64

Filtration

Comparison of activated sludge and trickling filter plants at Tucson. E. O. Dye. WPCF J 35:1414-18 N '63

Functional design of rapid sand filters. H. E. Hudson, jr. diags Am Soc C E Proc 89 [SA 1 no 3384]:17-28 Ja '63; Discussion. 89 [SA 3 no 3556]:99-108 Je; [SA 4 no 3618]: 135-8 Ag; [SA 5 no 3685]:45-8 O '63; Reply. 90 [SA 1 no 3813]:159-63 F '64

Heavy loadings on trickling filters. J. H. Sorrels and P. J. A. Zeller. WPCF J 35: 1184-94 S '63; Abstract. Pub Works 94:146 D '63

Performance of a high rate trickling filter using selected media. W. W. Eckenfelder, jr. and E. L. Barnhart. bibliog diag WPCF J 35:1535-51 D '63

Supernatant on trickling filters. J. H. Sorrels and P. J. A. Zeller. bibliog WPCF J 35:1419-30 N '63

Two-township sewerage authority; Ewing-Lawrence sewage authority, Mercer County, New Jersey. W. H. Higgins. diag Water Works & Wastes Eng 1:48-50 Je '64

Vacuum filter cloths; a guide to selection and care. W. L. Shedden. il Water Works & Wastes Eng 1:46-51+ Ap '64; Same. flow diag Water & Sewage Works 111:168-72, 211-13 Ap-My '64

See also
Trade waste disposal—Filtration

Flotation process

Analysis of flotation thickening of waste activated sludge. diags Water & Sewage Works 111:68-9 Ja '64
Study of a rotating cylinder sludge collector in the dissolved-air flotation process. A. Geinopolos and W. J. Katz. il diag WPCF J 36:712-21 Je '64
Use of dissolved-air flotation in a wastewater treatment plant. W. J. Katz. flow diag WPCF J 36:407-16; Discussion. 416-18 Ap '64

Laws and regulations

Health-zoned lots; Maryland tightens up its septic tank regulations. Eng N 172:24 F 20 '64

Odor removal

Fiber-glass-covered settling tanks reduce odor problems. il Water Works & Wastes Eng 1:57 Ja '64
Solving odor problems by prechlorination of flow, paced by automatic continuous monitoring of H_2S content of atmosprere. G. Chanin. il Water Works & Wastes Eng 1:42-4+ Ja '64
Waste line odors jeopardize country club's posh image; what's the solution? diag Dom Eng 204:99+ Jl '64

Radioactive waste disposal

Method for the measurement of the radioactive content of wastewater. F. J. Haughey and R. M. Manganelli. bibliog WPCF J 36:88-95 Ja '64
Radioactivity in sewage disposal systems from industrial and medical wastes and fallout. T. R. Folsom and G. J. Mohanrao. bibliog diags Materials Res & Stand 4:69-73 F '64

Zimmermann process

Oxidation process picked for another Chicago sewage plant. Chem & Eng N 42:30 My 11 '64
Wet air oxidation. G. H. Teletzke. flow diags il diags Chem Eng Prog 60:33-8 Ja '64
Wet combustion of sewage sludge solves disposal problems; process flowsheet. E. Guccione. Chem Eng 71:118-20 My 25 '64

SEWAGE disposal, Rural

Equipment for disposal of agricultural effluents. C. Culpin. Chem & Ind p350-3 F 29 '64
Packaged sewage plant for remote sites. il Engineering 197:876 Je 26 '64
Pollution prevention in relation to agricultural effluents. H. Fish. Chem & Ind p354-6 F 29 '64
Problems of wastewater disposal in suburbia. J. A. Salvato. bibliog Pub Works 95:120-1+ Mr '64
Treatment of farm effluents. A. B. Wheatland and B. J. Borne. bibliog Chem & Ind p357-62 F 29 '64
Waste water units for individual buildings and houses. A. P. Bernhart. bibliog il diags Eng J 47:19-25 Jl '64; Discussion. 47:94+ O '64

See also
Lagoons, Manure
Septic tanks

SEWAGE disposal plants

Analysis of sewage treatment systems by simulation. M. M. Montgomery and W. R. Lynn. bibliog diag Am Soc C E Proc 90 [SA 1 no 3807]:73-97 F '64; Discussion. M. B. Fiering. 90 [SA 4 no 4006]:105-6 Ag '64

Deeds and data; operational data from the annual reports. WPCF J 36:517-19, 1159-63 Ap, S '64

Expansion by duplication. W. H. Kuhrt, jr and A. E. O'Neall. il diag Water Works & Wastes Eng 1:102-4 My '64

Half-century later, sewage construction nears completion in Philadelphia. il map Eng N 173:34-5 S 24 '64

In-plant conversion triples capacity. J. M. Valdespino and T. Kuby. il WPCF J 36:587-92 My '64

Industrial water and effluents group; visit to Norway. Chem & Ind p 1551-2 S 5 '64

Joint municipal-industrial treatment of combined wastes. J. F. Byrd and J. H. Walter. bibliog il diag Chem Eng Prog 60:44-8 Ja '64

London county council's Southern outfall works at Crossness; illustrations with text. Engineer 217:93 Ja 10 '64

Missile base water and waste facilities. E. E. Halmos, jr. il plan Water & Sewage Works 111:176-9 Ap '64

Modernization and expansion; from septic tanks to primary, to secondary treatment in 24 years. H. A. Linke, jr. il diag Water Works & Wastes Eng 1:98-101 My '64

1963 operators' forum. flow diag il diag WPCF J 36:401-33 Ap '64

SEWAGE disposal plants—*Continued*

Ohio's first privately owned, independently operated plant. il Water Works & Wastes Eng 1:101 Mr '64

Packaged sewage plant for remote sites. il Engineering 197:876 Je 26 '64

Sewage treatment plant effluent for water reuse. L. K. Cecil. il Water & Sewage Works 111:421-3 S '64

Unexpected population growth speeds Brigham City expansion. G. E. Torgersen. il diag Water Works & Wastes Eng 1:36-8+ Mr '64

Wastes round table. Published in monthly numbers of Water works and wastes engineering

Water and wastes school. Published in monthly numbers of Water works and wastes engineering

Whittier Narrows water reclamation plant. J. D. Parkhurst and W. E. Garrison. il Civil Eng 34:60-3 S '64

See also

Settling basins

Sewage incinerators

Costs

Cost of safety. U. T. Mann and G. E. Griffin. il diags WPCF J 36:168-75 F '64

Merrillville, Ind., sewage treatment system; unit prices. Eng N 171:112+ D 19 '63

Treatment plant built on piling; unit prices. Eng N 172:136 Je 18 '64

Design

Adapting yesterday's construction to tomorrow's needs. J. R. Lehmann. il diags Water Works & Wastes Eng 1:60-3 Mr '64

Century old site has new plant. il Eng N 173:50 Ag 20 '64

City plans to treat storm water. il map Eng N 172:36-7 My 28 '64

Design and maintenance of extended aeration sewage treatment plants. E. P. Monn. il diag Pub Works 95:70-2 Ja '64

Dual secondary treatment plant licks Willmar's permanent and temporary population boom. A. W. Banister and A. D. Cloud. il diag Water Works & Wastes Eng 1:32-5+ Ap '64

Highway location prompts consolidation of county sewer districts. K. W. Hotz and W. W. Anderson. flow diag il map Pub Works 95:99-102+ My '64

Hydraulic design of slurry pipes; nomograph. A. L. Simon. Water & Sewage Works 111:98-9 F '64

Lawrenceburg, Indiana, replaces WPA-built plant with modern facilities. il Water Works & Wastes Eng 1:71 F '64

Louisville launches sewerage plan. map Eng N 173:36 S 24 '64

Metropolitan Seattle's Renton treatment plant. W. R. Uhte. flow diag il map diags WPCF J 36:475-94 Ap '64

Modesto's pollution explosion. J. O. Cessna. il diag Water Works & Wastes Eng 1:50-2 F '64

New Glasgow sewage plant starts work. il Engineering 198:59 Jl 10 '64

New ideas in concrete give treatment plants a modern look. E. P. Sellner. il Pub Works 95:124-6 Je '64

Orange County goes automatic; abstract. L. M. Nelson. Pub Works 94:150-1 D '63

Pipe, valve and vortex drop bubble-free effluent to outfall. il Eng N 171:42-3+ D 5 '63

Ranch-style treatment plant serves Toledo suburb. J. E. Frook and others. il Water Works & Wastes Eng 1:56-7 Ja '64

Sewage plant in center of town is ozonized and soundproofed. il Eng N 172:34-6 Je 11 '64

Small sewage works design construction and maintenance; abstract. G. Rogers. Pub Works 95:162+ Ap '64

Stage development of wastewater treatment works. W. R. Lynn. bibliog WPCF J 36:722-51 Je '64

Two-township sewerage authority; Ewing-Lawrence sewage authority, Mercer County, New Jersey. W. H. Higgins. diag Water Works & Wastes Eng 1:48-50 Je '64

Waste treatment plant designed for odor control. R. L. Smith and L. Lammer. il plan Pub Works 95:116-17 F '64

Electric equipment

Electrical design considerations in wastewater treatment plants. J. J. Salvatorelli. il diags WPCF J 36:362-79 Mr '64

Preventive maintenance of electrical equipment. W. Schneider. WPCF J 36:118-22 Ja '64

Employees

Cooperative effort to educate wastewater treatment plant operators. WPCF J 35:1386-95 N '63

Health aspects of wastewater treatment. F. R. Dixon and L. J. McCabe. WPCF J 36:984-9 bibliog(p988-9) Ag '64

Operator; today's unforgotten man. H. F. Seidel. WPCF J 36:1063-8 S '64

Operator training and certification in Michigan. M. S. Richmond and D. M. Pierce. WPCF J 35:1529-34 D '63

Personnel relations in wastewater treatment plant operation. A. E. Sparr. bibliog WPCF J 35:1443-54 N '63

Report of the committee on personnel advancement, 1963. WPCF J 36:217-39 F '64

So you want to be an operator! G. Chanin. WPCF J 36:901-4 Jl '64

Suggested basic operator training course outline. WPCF J 36:1069-81, 1293-302 S-O '64 (to be cont)

Equipment

Annual photo review; new equipment and installations for 1964. Water & Sewage Works 111:1-33 Ja '64

Buyers' guide to pollution control equipment and supplies and directory of manufacturers. Water Works & Wastes Eng 1:93-108 S '64

Chemical conveyors cut waste treatment costs. flow diag il Pub Works 95:102-3 Ap '64

Chemical distributor trough for Parshall flume. A. A. Hirsch. il diags Water Works & Wastes Eng 1:56+ Jl '64

Clean air for activated sludge plant; abstract. I. Withnell. Pub Works 95:174+ My '64

Complete wastewater treatment at Greensboro, N.C. il map Water & Sewage Works 111:118-21 Mr '64

Control juggles levels to save money for Muscatine. H. W. Alexander and W. McElwee. il diags Water & Sewage Works 111:411-13 S '64

Cooling down hot cooling water. H. B. Hester. il diag Water Works & Wastes Eng 1:62-3 Je '64

Determining the efficiency of air filters. A. H. Chasick and R. L. Bootes. il Water Works & Wastes Eng 1:50-4 Ja '64

Equipment and supplies (cont). WPCF J 35: sup650a, sup707a; 36:sup 111a; sup 157a, sup345a, sup413a, sup479a, sup570a, sup637a N-D '63, F-Mr, Je-O '64

Equipment news. Published in monthly numbers of Water and sewage works

Evolution of a treatment plant; Moscow, Idaho. K. E. Stokes. il Water Works & Wastes Eng 1:46-7+ O '64

Flood control prompts sewerage construction. C. A. Lessig. il Pub Works 95:115-16 Ag '64

Glass-lined pipe stops grease build-up problem. R. E. Pailthorp. il Pub Works 95:95-7 Mr '64

Industry's idea clinic; sludge separation and handling; instrumentation. il WPCF J 36:948-70 Ag '64

Instrumentation and automation; Ft Lauderdale pollution control system. F. C. Funnell. il Water Works & Wastes Eng 1:64-5+ S '64

Instrumentation and automation in pollution control at Boulder, Colo. E. M. Hamilton. il Water Works & Wastes Eng 1:91-2+ S '64

Instrumentation and automation; its role in pollution control as seen by equipment manufacturers. Water Works & Wastes Eng 1:86-8+ S '64

Instrumentation in Lebanon (Pa.) wastewater treatment plant. G. G. Brinckerhoff, jr. il Water Works & Wastes Eng 1:77-8+ S '64

Karachi gets sewage treatment. il Water Works & Wastes Eng 1:57 Je '64

Manufacturers' news. Published in monthly numbers of Water works and wastes engineering

Massillon, Ohio, sewage treatment plant. J. L. Smith. il Water & Sewage Works 110:459-61 D '63

Metropolitan Seattle's Renton treatment plant. W. R. Uhte. flow diag il map diags WPCF J 36:475-94 Ap '64

New works help to keep Thames clean. il Engineering 197:874 Je 26 '64

Plant growth and operating experiences at Columbia, S.C. H. O. Bellinger. il Pub Works 95:117 Ag '64

SEWAGE disposal plants—Equipment—*Cont.*
Remote supervisory control. H. Bernstein. diags Water Works & Wastes Eng 1:116-17+ My; 64-6 Je; 130 S; 65-6+ O '64
Residual chlorine analyzer paces dosage. L. S. Pope. il diag Water Works & Wastes Eng 1:56-8 S '64
Review of current improvements in drag type sludge collectors. il Water & Sewage Works 111:471-2 O '64
San Jose-Santa Clara Kraus process plant copes with variable canning load. L. F. Rehm and F. N. Van Kirk. il plan Water Works & Wastes Eng 1:32-6+ Jl '64; Abstract. Pub Works 95:150+ S '64
Sewage disposal plants. il Diesel Equip Supt 42:34-5 Je '64
Sewage plant doubles as a test lab. il Eng N 173:40+ O 15 '64
Treatment plant located on former landfill site. G. Groff and W. A. Taylor. flow diag il Pub Works 95:105-7 Je '64
Trends in sewage bed spanning conveyors. il Engineering 197:734 My 29 '64
Value rating system, a systematic approach to product buying. Water Works & Wastes Eng 1:54-7 F '64

See also
Sewage pumps
Sewage tanks

Experimental plants

Nitrogen removal by nitrification and denitrification. W. K. Johnson and G. J. Schroepfer. bibliog flow diags il diags WPCF J 36:1015-36 Ag '64; Excerpts. Pub Works 95:130-1 N '64
Pilot plant testing for domestic and industrial waste treatment. R. H. Culver. WPCF J 35:1455-63 N '63

Grit chambers

Operation of aerated grit chambers. T. W. Cooper. il WPCF J 36:401-5; Discussion. 405-7 Ap '64
Using graded sand to test grit removal apparatus. A. H. Chasick and T. B. Burger. flow diag il diags WPCF J 36:884-94 Jl '64

Maintenance and repair

Design and maintenance of extended aeration sewage treatment plants. E. P. Monn. il diag Pub Works 95:70-2 Ja '64
How Middlesex County ended three of its clogging problems. S. Seid. il Water Works & Wastes Eng 1:86+ Mr '64
Proper protective coating techniques for water and sewage works structures. W. R. Hafling Water Works & Wastes Eng 1:72-3 F; 70-1 Mr; 66-7 Ap '64
Removing a rotary distributor for routine maintenance. R. Thomas. il Water Works & Wastes Eng 1:80 Ja '64
Repair of corroded concrete in a wastewater treatment plant. J. M. Betz. bibliog il WPCF J 36:332-41 Mr '64
Severe operating conditions and their effect on lubricants. S. L. McDoniel. WPCF J 35:1474-9 N '63
Solving lubrication problems at a sewage treatment plant. il Pub Works 95:103-4 Jl '64

Safety measures

Cost of safety. U. T. Mann and G. E. Griffin. il diags WPCF J 36:168-75 F '64

SEWAGE incinerators
Atomized suspension adapted for sludge; Permutit process. T. Helfgott and E. Weisberg. diag Chem & Eng N 42:79 S 14 '64
Minneapolis-Saint Paul sanitary district incinerates scum. J. C. Sager. il diag Water & Sewage Works 111:393-6 S '64
Small plant sludge incinerator. Eng N 172:50 My 14 '64

SEWAGE irrigation
Nine decades of sanitary engineering; back to the land. E. S. Chase. il Water Works & Wastes Eng 1:48-9+ Jl '64

See also
Trade waste irrigation

SEWAGE lagoons
Algae problem prompts sewage treatment study. R. L. Smith and D. Miller. il diag Pub Works 95:130 O '64
Atmospheric emissions from oxidation ponds; abstract. R. Y. Nelson and J. O. Ledbetter. Air Cond Heat & Ven 60:36 D '63
Break it up! M. D. Gunderson. il Water & Sewage Works 111:281 Je '64
Ducks on the wastewater pond. J. N. Dornbush and J. R. Anderson. bibliog il Water & Sewage Works 111:271-6 Je '64
Function of cladocera in oxidation ponds; abstract. C. L. Loedolff. WPCF J 36:286 Mr '64
Green lagoon. S. E. Kappe. bibliog Water & Sewage Works 110:385-6, 433-5 N-D '63
How to keep oxidation ponds aerobic. I. Nusbaum and L. Burtmen. diags Water Works & Wastes Eng 1:106-7+ My '64
Industry's idea clinic; stabilization ponds. il WPCF J 36:931-48 Ag '64
Nitrogen and phosphorus extraction from domestic waste-water treatment plant effluents by controlled algal culture. W. E. Gates and J. A. Borchardt. diag WPCF J 36:443-62 bibliog(p461-2) Ap '64
Oxidation ponds and re-use. D. A. Okun. diag Pub Works 95:166+ Mr '64
Sewage lagoons and man's environment. J. H. Svore. Civil Eng 34:54-6 S '64
Stabilization ponds for a small African urban area. H. T. Hodgson. bibliog plan WPCF J 36:51-68 Ja '64
Waste stabilization ponds in Iowa; a survey. D. C. Stouse. il Water Works & Wastes Eng 1:52-6+ Ag '64; Abstract. Pub Works 95:164+ O '64

See also
Trade waste disposal—Lagoons

SEWAGE pumping
Electrical plant in Heathwall pumping station. il Engineer 217:106-7 Ja 10 '64
That attractive house may be a pumping station. L. W. Weller. il map Pub Works 95:86-8 Ap '64

SEWAGE pumps
Centrifugal pump control. I. J. Karassik. diags Water Works & Wastes Eng 1:42-5 Je; 37-8+ Jl; 57-8+ Ag; 111-13 S; 57-9 O; 54-5 N '64
Control juggles levels to save money for Muscatine. H. W. Alexander and W. McElwee. il diags Water & Sewage Works 111:411-13 S '64
How to specify non-overloading pump motors. J. A. Cable. Water Works & Wastes Eng 1:58-60 Ap '64
Industry's idea clinic; sludge separation and handling; instrumentation. il WPCF J 36:948-70 Ag '64
Laboratory tests and sludge pump counter control sludge digestion. J. N. Jones. diag Water Works & Wastes Eng 1:42 O '64
More automatic sewage pumps in London. il diag Engineering 197:292 F 21 '64

Control

Primary clarifier operation at Ogden, Utah. diag Water & Sewage Works 111:191 Ap '64
Variable speed drives for sewage pumps. S. W. Williams, jr. and A. W. Kubik. diags WPCF J 35:1393-500 D '63
Why should adjustable-speed drives be used in lift stations? O. A. Bush. diags Water Works & Wastes Eng 1:52-5 Mr '64

Maintenance and repair

Pump wearing ring lubrication. C. E. Keefer and H. S. M. Becker. il Water & Sewage Works 110:400-1 N '63

SEWAGE sampling
Preserving domestic waste samples by freezing. P. E. Morgan and E. F. Clarke. Pub Works 95:73-5 N '64
Project sample; Virginia state water control board. M. Lieb. il Pub Works 94:110-11 D '63

SEWAGE sludge
Aerobic sludge digestion studies. G. W. Lawton and J. D. Norman. bibliog diag WPCF J 36:495-504 Ap '64
Analysis of thickener operation. V. C. Behn and J. C. Liebman. bibliog Am Soc C E Proc 89 [SA 3 no 3535]:1-15 Je '63; Discussion. J. L. Alderton. 89 [SA 6 no 3745]:57-9 D '63; Reply. 90 [SA 3 no 3935]:133-4 Je '64
Application of Reten 205 in sewage treatment. Water & Sewage Works 111:64-6 Ja '64
Atomized suspension adapted for sludge; Permutit process. T. Helfgott and E. Weisberg. diag Chem & Eng N 42:79 S 14 '64
Determination of volatile acids by gas chromatography. J. F. Andrews and others. bibliog Water & Sewage Works 111:206-10 Ap '64
Industry's idea clinic; sludge separation and handling; instrumentation. il WPCF J 36:948-70 Ag '64
Review of current improvements in drag type sludge collectors. il Water & Sewage Works 111:471-2 O '64
Sludge disposal vessel Sir Joseph Bazalgette. il Engineer 216:915 N 29 '63

SEWAGE sludge—*Continued*

Spectrographic analysis of air-dried sewage sludge. R. N. Thompson and others. bibliog WPCF J 36:752-9 Je '64

Study of a rotating cylinder sludge collector in the dissolved-air flotation process. A. Geinopolos and W. J. Katz. il diag WPCF J 36:712-21 Je '64

Wet combustion of sewage sludge solves disposal problems; process flowsheet. E. Guccione. Chem Eng 71:118-20 My 25 '64

See also

Sewage disposal—Activated sludge method
Sewage tanks

Drying

Centrifugal dewatering of paper mill waste. R. A. Bamford. il Tappi 47:sup 187A-8A Ja '64

Investigation of the dewatering of biological sludge with a new centrifugal apparatus. W. Bischofsberger and V. Stalmann. il diag Water & Sewage Works 110:411-14 N '63

Solids dewatering at Downingtown paper co. J. A. MacNeal. Tappi 47:sup 189A-91A Ja '64

Vacuum filter cloths; a guide to selection and care. W. L. Shedden. il Water Works & Wastes Eng 1:46-51+ Ap '64; Same. flow diag Water & Sewage Works 111:168-72, 211-13 Ap-My '64

Gas production

Accelerated sludge digestion. W. E. Garrison and others. il Water Works & Wastes Eng 1:58-63 F '64

Gas production in a sanitary landfill. R. C. Merz and R. Stone. diag Pub Works 95:84-7+ F '64

High-rate digestion tamed. C. J. Suhr and J. M. Brown. il Water Works & Wastes Eng 1:44-6+ Ag '64

Properties and detection of sludge gas. S. G. Burgess and L. B. Wood. Pub Works 95:160+ Ag '64

Sewage gas used to fuel Los Angeles steam plant. Elec World 161:97 Ja 13 '64

Testing

Rapid, accurate test for surfactant aerobic biodegradability. W. A. Sweeney and J. K. Foote. il diag WPCF J 36:14-37 bibliog(p27-8) Ja '64

SEWAGE sludge as fertilizer

See also

Sewage irrigation

SEWAGE tanks

Laboratory tests and sludge pump counter control sludge digestion. J. N. Jones. diag Water Works & Wastes Eng 1:42 O '64

See also

Septic tanks
Settling basins
Settling tanks

Cleaning

Cleaning a large diameter digester. J. B. Hanlon. il diag WPCF J 36:423-31; Discussion. 431-3 Ap '64

Magic number for digester cleaning-repair; 21 days. W. I. Huges. il Water Works & Wastes Eng 1:105+ My '64

Maintenance and repair

Magic number for digester cleaning-repair; 21 days. W. I. Hughes. il Water Works & Wastes Eng 1:105+ My '64

SEWAGE tanks, Concrete

Engineers study rise and fall of four-mg sewage tank. Eng N 173:22 Jl 23 '64

Repair of corroded concrete in a wastewater treatment plant. J. M. Betz. bibliog il WPCF J 36:332-41 Mr '64

Sealing concrete digester covers. Water Works & Wastes Eng 1:93 F '64

SEWER cleaning

Marine outfall cleaning. R. N. Galloway. il WPCF J 36:80-3 Ja '64

Sewer in hog-fattening house clogs; is interceptor the answer? question and answer. diags Dom Eng 203:85-7 My '64

What's best way to clean pipelines? question and answers. diag Power 108:124-5 Ja '64

SEWER design

Fundamentals of sewer design. W. O. Seppa. diags Hydrocarbon Process & Pet Refiner 43:171-6 O '64

Highway location prompts consolidation of county sewer districts. K. W. Hotz and W. W. Anderson. flow diag il map Pub Works 95:99-102+ My '64

Hydrogen sulfide in sewers. I. W. Santry, jr. bibliog il diag WPCF J 35:1580-8 D '63

Interceptor route chosen to stay in rock formations. R. E. Curtis. il map diag Pub Works 95:88-91 My '64

Leaves won't clog this catch basin. R. E. Lapar. il diags Pub Works 95:90-1 Mr '64

New concepts in industrial sewage collection. E. D. Munson. WPCF J 36:1146-51 S '64

One way to bypass a large sewer; novel plug valve permits overflow, prevents infiltration and tampering. C. A. Manganaro. il plan diag Water Works & Wastes Eng 1:46-7 Jl '64

Private utility builds sewage works for undeveloped areas; abstract. S. R. Kennedy. Pub Works 94:134 N '63

Subsurface investigations for lateral sewer systems. J. F. Larkin. WPCF J 36:880-3 Jl '64

Tunnel eliminates open cut along hillside. R. R. Cook. il Water & Sewage Works 111:82-3 F '64

Use sewage ejectors, where required. A. Koral. diags Air Cond Heat & Ven 61:75-6+ Mr '64

SEWER inspection

Low pressure air test for sanitary sewers. R. E. Ramseler and G. C. Riek. diags Am Soc C E Proc 90 [SA 2 no 3883]:1-29 Ap '64; Discussion. 90 [SA 5 no 4097]:65-7 O '64

Sewer pipe documentaries please tv audience, get top ratings. il Eng N 173:26-8 Ag 13 '64

SEWER pipes

Installing building sewers in unstable soils. H. N. Eaton. bibliog diags Water & Sewage Works 111:140-3 Mr '64

Interstate, underwater sewer line. M. A. Haynes. il Pub Works 95:108-9+ Jl '64

Sewer pipe documentaries please tv audience, get top ratings. il Eng N 173:26-8 Ag 13 '64

Sewer within a sewer; installation of small sanitary lines inside old combined system tunnels saves Ottawa construction dollars. il Water Works & Wastes Eng 1:36-7 F '64

Temporary flow measurement in sewers and drains. M. H. Diskin. diags Am Soc C E Proc 89 [HY 4 no 3574]:141-59 Jl '63; Discussion. 90 [HY 2 no 3853]:383-7 Mr; [HY 6 no 4130]:241-4; Reply. 245-7 N '64

See also

Sewer cleaning

Lining

Epoxy-lined pipe reduces cost of trunk sewer. A. J. Hotz, jr. il map Civil Eng 34:64-6 S '64

Testing

Infiltration in sanitary sewers. I. W. Santry, jr. bibliog WPCF J 36:1256-62 O '64

SEWER pipes, Asbestos cement

Epoxy-lined pipe reduces cost of trunk sewer. A. J. Hotz, jr. il map Civil Eng 34:64-6 S '64

SEWER pipes, Concrete

Forcing large bore pipes underground by two methods. il Engineering 197:621 My 1 '64

Garner, N.C. pumps sewage to metropolitan plant. il Water & Sewage Works 110:417 N '63

Gravity flow reinforced concrete pipe design. H. F. Peckworth and J. G. Hendrickson. diags Am Soc C E Proc 90 [PL 1 no 3771]:33-48 Ja '64

Pipelining with air and television. J. L. Russell. il Comp Air Mag 69:24-6 S '64

Sewer restored by gunite process. J. D. McDonald. il map Pub Works 95:103-4 F '64

SEWER pipes, Pitch fiber

Manufacture and use of pitch fibre pipe. P. B. Caplin. bibliog il diags Chem & Ind p44-9 Ja 11 '64

SEWER pipes, Plastic

Corrugated PVC pipe for land drainage. il Engineering 196:563 N 1 '63

Flow characteristics of PVC sewer pipe. L. C. Neale and R. E. Price. il diags Am Soc C E Proc 90 [SA 3 no 3955]:109-29 Je '64; Discussion. L. L. Sphar. 90 [SA 5 no 4097]:69-71 O '64

Installation of PVC for sewers proves highly successful. W. Martin. il Pub Works 95:101-3 Ag '64

Plastic drainage pipe wins Ministry approval. il Engineering 197:581 Ap 24 '64

SEWER pipes, Vitrified clay

Case for glazed clay pipe. J. Mason. il Pub Works 95:124 Ja '64

Testing

Low pressure air test for sanitary sewers. R. E. Ramseler and G. C. Riek. diags Am Soc C E Proc 90 [SA 2 no 3883]:1-29 Ap '64; Discussion. 90 [SA 5 no 4097]:65-7 O '64

SEWERAGE

Another job for cryogenics; construction of a sewage main necessitated freezing waterlogged ground with liquid nitrogen. il diags Comp Air Mag 69:16-17 Ja '64

Major water supply and sanitation projects. il map Eng N 172:118+ Ja 23 '64

Private utility builds sewage works for undeveloped areas; abstract. S. R. Kennedy. Pub Works 94:134 N '63

Refraction seismograph in sewer and pipeline construction. G. C. Carpenter and D. R. Bassarab. il diags Water & Sewage Works 111:198-202 Ap '64

Water and sewage flow rates in public schools. M. E. Reeder and W. J. Fogarty. bibliog Pub Works 95:80-2 N '64

See also
Pipe laying
Sewage disposal
Sewer cleaning
Sewer design
Sewer pipes
Water pollution
also subdivision Sewerage under names of places, e.g.
Boston
Boulder, Colorado
Brigham City, Utah
Cicero, Illinois
Columbia, South Carolina
Eustis, Florida
Ford City, Pennsylvania
Fort Lauderdale, Florida
Fort Worth, Texas
Foster City, California
Garner, North Carolina
Glasgow
Houston, Texas
Karachi, Pakistan
Lawrenceburg, Indiana
Lebanon, Pennsylvania
Little Falls, Minnesota
London
Los Angeles
Louisville, Kentucky
Magna, Utah
Massillon
Mexico (city)
Minneapolis
Miramar, Florida
Missoula, Montana
Modesto, California
New Orleans
New York (city)
Newton, Ohio
Ottawa
Philadelphia
Portland, Maine
Rio de Janeiro
Rocky River, Ohio
St Louis
St Paul
San Diego
San Jose, California
Santa Clara, California
Seattle
South Charleston, West Virginia
Springfield, Massachusetts
Toledo, Ohio

Bibliography

Sewerage and refuse digest. Published in monthly numbers of Public works

Costs

Chicago interceptor sewer tunnel; unit prices. Eng N 172:45 Ja 30 '64

Clay pipe bid wins a sewer job; unit prices. Eng N 173:51 Jl 23 '64

Complete sewerage system; unit prices. Eng N 171:57 N 21 '63

Elmhurst, Ill. separates sewer system; unit prices. Eng N 173:47 O 1 '64

High discount wins sewer jobs; unit prices. Eng N 172:55 Ap 9 '64

Missouri interceptor sewer work; unit prices. Eng N 173:40 O 29 '64

New Jersey sewer job gets eight bids; unit prices. Eng N 172:161 My 21 '64

North Carolina sewage system; unit prices. Eng N 172:38 Ja 2 '64

Three Texas outfall sewer jobs; unit prices. Eng N 173:55 O 15 '64

Two-sewer job requires discount; unit prices. Eng N 173:56 Ag 13 '64

Failure

Infiltration in sanitary sewers. I. W. Santry, jr. bibliog WPCF J 36:1256-62 O '64

Sewer fails, undermines highway. il Eng N 173:14 Jl 30 '64

Finance

Interstate, underwater sewer line. M. A. Haynes. il Pub Works 95:108-9+ Jl '64

Joint municipal-industrial treatment of combined wastes. J. F. Byrd and J. H. Walter. bibliog il diag Chem Eng Prog 60:44-8 Ja '64

Sewer planning for a metropolitan area. G. E. Bodien. map Pub Works 95:87-90 N '64

Water-sewage bond market. Published in monthly numbers of Water works and wastes engineering

Maintenance and repair

Aftermath of an emergency; restoration of sewer service. N. B. Hume. il Pub Works 95:106-7 My '64

Cleaning program updates sewer system. D. R. Patton. il Pub Works 95:174 Ap '64

Closed circuit tv inspects underground sewage pipe. il Water & Sewage Works 110:387-8 N '63

Mending sewers without stopping traffic. il diag Engineering 196:548 N 1 '63

Sewer pipe documentaries please tv audience, get top ratings. il Eng N 173:26-8 Ag 13 '64

Sewer relining. il Engineer 217:446 Mr 6 '64

Sewer repairs by travelling mole with tv camera. diag Engineering 197:427 Mr 20 '64

Alaska

Sanitary engineering in Alaska. A. J. Alter. il diags Civil Eng 34:48-51 Mr '64

Argentina

Skeptics and the septic tanks. E. B. Besselievre. Pub Works 95:70+ Ap '64

Bergen County, New Jersey

One way to bypass a large sewer; novel plug valve permits overflow, prevents infiltration and tampering. C. A. Manganaro. il plan diag Water Works & Wastes Eng 1:46-7 Jl '64

Florida

In-plant conversion triples capacity. J. M. Valdespino and T. Kuby. il WPCF J 36:587-92 My '64

Hawaii

Oceanographic study of sewage discharge into Kailua (Hawaii) Bay. R. M. Belt. il maps Water & Sewage Works 111:368-72 Ag '64

Johnson County, Kansas

Staged development of sewerage facilities for a suburban area. L. W. Weller. flow diag il map Pub Works 94:90-4 D '63

Los Angeles County, California

Metropolitan drainage planning in Los Angeles County. M. E. Salsbury. maps Am Soc C E Proc 89 [SA 6 no 3739]:37-46 D '63; Discussion. D. Van Sickle. 90 [SA 4 no 4006]:101-2 Ag '64

Medina County, Ohio

Highway location prompts consolidation of county sewer districts. K. W. Hotz and W. W. Anderson. flow diag il map Pub Works 95:99-102+ My '64

New York (state)

New York state municipal water and sewage. R. D. Hennigan. map Water & Sewage Works 110:448-52 D '63

Norway

Industrial water and effluents group; visit to Norway. Chem & Ind p 1551-2 S 5 '64

Orange County, California

Orange County goes automatic; abstract. L. M. Nelson. Pub Works 94:150-1 D '63

Puerto Rico

Pollution abatement in Puerto Rico. J. Labadie-Eurite. il Water Works & Wastes Eng 1:66-8 S '64; Abstract. Pub Works 95:128+ N '64

Rhodesia

Stabilization ponds for a small African urban area. H. T. Hodgson. bibliog plan WPCF J 36:51-68 Ja '64

SEWERS. See Sewerage

SEWERS, Concrete

See also
Sewer pipes, Concrete

SEYCHELLES ISLANDS

See also
Geology—Seychelles Islands

SHADOWS

Umbra and penumbra eclipse factors for satellite orbits. S. Z. Fixler. bibliog diags AIAA J 2:1455-7 Ag '64

SHAFT sinking

Anaconda sinks shaft to sample Banner orebody. il Eng & Min J 165:116 S '64

Application of European shaft-sinking techniques to the Blairmore formation. J. R. O. Walli. diags Can Min & Met Bul 57:139-46 F '64

Blair's five mining devices speed deep-shaft sinking. il Eng & Min J 164:92-3 D '63

Deepest 72-in diameter rotary drilled shaft sunk for AEC by Loffland bros. il Min Eng 16:68-70 S '64

Grouting the prairie sediments. L. A. York. diags Can Min & Met Bul 57:63-7 Ja '64

See also

Mine shafts

SHAFTING

Cross-catenary double-loop coupling. il Electro-Tech 73:132 Ap '64

Deflections of straddle-mounted shafts; nomographs. R. L. Peters. diag Product Eng 35:103-4 Ap 13 '64

Design and application of metallic flexures for equipment with specific life requirements. N. B. Rothfuss and others. il diags Machine Design 36:218+ S 10 '64

Displaced-shaft coupling. il Mech Eng 86:68 Mr '64

Flexible shaft solves TCC-unit flow-measurement problem. il Oil & Gas J 62:94 Ja 13 '64

Interconnected propellers give French transport stol capability. M. D. Marks and A. A. Lischer. bibliog il diags S A E J 72:90-3 My '64

Space crank mechanisms to transmit angular motion between two skewed shafts. L. Harrisberger. diags Machine Design 36:170-5 S 10 '64

When should you think about shaft-mounted drives? C. W. Dorman. il diags Pit & Quarry 56:129-30 Ja '64

See also

Power transmission

Sheaves

SHAFTS

Causes and cures of mechanical shaft seal failures in water pumps. S. Sussman. il diag Heating-Piping 35:141-8 S '63; Discussion. 36:108+ Ja '64

Centrifugal force keeps fluid in groove; liquid shaft seals. S. B. Rothberg. diags Product Eng 34:85-7 N 11 '63

Centrifugal types of dynamic shaft seals. G. M. Wood and others. il diags Machine Design 36:129-30+ Ja 30 '64

Combination boiler feed pumps drive economical for big unit. A. W. Rankin. diags Elec World 160:90-2 N 4 '63

Composite steel shaft design. il Mech Eng 85:57 D '63

Coupling for varying the displacement between parallel shafts. il Mach 70:145-6 F '64

Coupling operates while varying displacement between parallel shafts. il Iron & Steel Eng 41:163-4 Ap '64

Critical frequency of vertical shafts. G. Strazzabosco and A. Primak. diags Machine Design 35:122-8 D 19 '63

Critical speeds of torsional oscillation of geared-shaft systems due to the presence of displacement excitation. B. Porter. bibliog diags A S M E Trans ser E 31:25-8 Mr '64

Curves aid in determining critical speeds of stepped shafts; data sheet. N. F. Rieger. diag Machine Design 36:213-16 S 10 '64

Deformation of nonuniform sections and natural frequencies of shafts. S. Kravitz. diags Product Eng 35:141-4 F 3 '64

Digital shaft position indicator. S. G. Smith and C. J. U. Roberts. diags Electronic Eng 36:72-9 F '64

Dynamic stability of rotating shafts in viscous fluids. W. H. Walston and others. bibliog il diags A S M E Trans ser E31:291-9 Je '64

Flexible drives suppress heat; new power shafts ease grinding and milling chores. W. N. Redstreake. il Iron Age 193:62-3 Ap 2 '64

Formulas for angular deflection of nonuniform shafts. diags Product Eng 35:125-6 Ag 17 '64

Frictionless hydraulic seals for rotating shafts. H. W. Hamm. diag Chem Eng 71:160 F 17 '64

Noncircular shafts in torsion; data sheet. L. W. Singleton. Machine Design 36:183-6 S 24 '64

Sealing techniques for rotation in vacuum. W. Courtney and others. bibliog diags Astronautics & Aeronautics 2:40-4 F '64

Shaft oil leaks can be stopped. F. J. Charhut. diags Plant Eng 17:114-17 N '63

Shaft whirl induced by rotor internal damping. F. F. Ehrich. diags A S M E Trans ser E 31:279-82 Je '64

Stuffing boxes and glands for rotating shafts. L. C. Nuttall. diags Engineer 217:957-8 My 29 '64

Tubing and solid shafts of equal strength; nomogram; data sheet. H. W. Hamm. Power 108:86 Ag '64

When should you consider shaft-mounted drives? C. W. Dorman. il Chem Eng 71:120 Ag 3 '64

Wrap-around insert couples shafts. il Product Eng 35:108-9 O 12 '64

See also

Crankshafts

Shafting

Manufacture

One-stroke splining paces line. il diag Iron Age 194:58-9 S 3 '64

SHAFTS, Mine. See Mine shafts

SHALE

Application of statistical time-series analysis of a limestone-shale sequence. W. Schwarzacher. bibliog J Geol 72:195-213. pl 1 Mr '64

Arkoma drillers tame sloughing shales. R. W. Ruhe, jr. il diag Oil & Gas J 62:84-6 Ag 24 '64

Expanded shale production climbs at Kenlite. il diags Rock Prod 67:78-82 F '64

Extraction of potassium from adularia shale. D. A. Everest and others. Chem & Ind p 1684-5 O 3 '64

Measured sections of sandstones and shales. J. W. Shelton. diag Am Assn Pet Geologists Bul 47:2047-50 D '63

Oahe dam; geology, embankment, and cut slopes. D. K. Knight. bibliog il plans diags Am Soc C E Proc 89 [SM 2 no 3466]:99-125 Mr '63; Discussion. 89 [SM 6 no 3701]: 123-4 N '63; Reply. 90 [SM 3 no3907]:165-7 My '64

Origin of the limestone-shale rhythm in the Blue Lias of England; a composite theory. A. Hallam. bibliog diags J Geol 72:157-69 Mr '64

Prospecting for expansible shale. J. L. Burnett. bibliog Min Eng 16:50-1 Ja '64

Shoestring sandstones in cretaceous bearpaw shale in central Montana. G. R. Wulf. bibliog il map Am Assn Pet Geologists Bul 48:1196-8 Jl '64

See also

Oil shales

SHAMPOOS

Antiseborrheic effect of a shampoo. A. Bjornberg and L. Hellgren. Drug & Cosmetic Ind 95:347-8 S '64

Comparative differences in formulations between professional products and consumer products. A. Shansky. bibliog Am Perfumer 79:31-3 S '64

Selenium disulfide shampoo. Drug & Cosmetic Ind 95:278 Ag '64

Shampoos. Drug & Cosmetic Ind 93:713-14, 882 N-D '63

SHARKS

Shark shocking. B. Kofoed. il Comp Air Mag 69:26-7 My '64

SHATTUCKITE. See Copper silicates

SHAVERS, Electric. See Electric shavers

SHAVING cream

Barbasol comeback; case study. T. M. Cooney. il Drug & Cosmetic Ind 94:366-7+ Mr '64

SHAVING lotions

Will sippin' whiskey rival Bay Rum? Drug & Cosmetic Ind 94:750 My '64

SHAW process. See Molds (for casting)—Ceramic molds

SHEAR. See Strains and stresses

SHEAR spinning. See Metal spinning

SHEARS (machines)

Furnace feeds hot billet shear. il Iron Age 194:155 S 24 '64

Heavy shear for automatic slitting line. il Engineering 198:248 Ag 21 '64

How to cut accidents on guillotine shears. il Safety Maint 128:18-20 N '64

Hydraulic plate shear. il Engineer 217:1006 Je 5 '64

Shear cuts hot logs into billets at the extrusion press. il Mod Metals 20:54-5 Ag '64

Slabbing mill shears casting failure; Metalock repair effected in fortnight. il diags Metallurgia 70:81-2 Ag '64

SHEARS (machines)—*Continued*

Spencer works' shear breakage, and repair. il Engineering 198:91 Jl 17 '64

Use motorized shear to cut insulation. il Elec Constr & Maint 63:136 Jl '64

SHEAVES

V-belt drives, sheaves. il Machine Design 36:188-9 Ja 16 '64

Manufacture

V-slot gaging device insures belt transmission efficiency. W. H. Morson. diags Mach 70:126-7 Ag '64

SHEEP

Heat of combustion values of the protein and fat in the body and wool of sheep. O. L. Paladines and others. bibliog J Nutrition 82:145-9 Ja '64

Placental transfer and fetal tissue iron utilization in sheep. F. H. Hoskins and S. L. Hansard. bibliog J Nutrition 83:10-14 My '64

Selenium-75 metabolism in the gestating ewe and fetal lamb; effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64

Diseases and pests

Effect of selenium, sulfur and sulfur amino acids on nutritional muscular dystrophy in the lamb. H. F. Hintz and D. E. Hogue. bibliog J Nutrition 82:495-8 Ap'64

Feeding

Effect of magnesium and sulfur upon cellulose digestion of purified rations by cattle and sheep. J. E. Martin and others. bibliog J Nutrition 83:60-4 My '64

Effects of feeding and implanting diethylstilbestrol on characteristics of the meat from lamb carcasses. J. L. Hall and others. bibliog Food Tech 18:886-8 Je '64

Energy utilization by sheep as influenced by the physical form, composition and level of intake of diet. O. L. Paladines and others. bibliog J Nutrition 83:49-59 My '64

Phosphorus metabolism in lambs fed varying phosphorus intakes. R. L. Preston and W. H. Pfander. bibliog J Nutrition 83:369-78 Ag '64

Suggestions for wool in new forms; abstract. A. Johnson. Am Dyestuff Rep 53:169 Mr 2 '64

Zinc deficiency syndrome in the young lamb. E. A. Ott and others. bibliog il J Nutrition 82:41-50 Ja '64

SHEET metal

Air cushion annealing furnace produces fine grained aluminum sheet. diag Mod Metals 19:42-3 N '63

Aluminum sheet from finely divided particles. T. S. Daugherty. il diag J Metals 16:827-30 O '64

Bridgeport brass co.'s new coil coating line paints aluminum sheet. G. C. Close. il Ind Finishing 40:40-2+ My '64

Crystallographic texture variations through rolled aluminium and copper sheet. I. L. Dillamore and W. T. Roberts. bibliog diags Inst Metals J 92:193-9 '63-64

Custom finishing of sheet metal products. E. V. Lindstrom. il plan Ind Finishing 40:64-6+ D '63

Forming 22' aluminum panels. il Light Metal Age 21:5 O '63

Forms and shapes of materials; metal mill forms; tables. Materials in Design Eng 60:460-1 Mid-O '64

High temperature vacuum furnace with metallic sheet resistance elements. J. F. Bacon and others. bibliog il diag R Sci Instr 34:1200-1 N '63

How strong is molybdenum sheet? A. K. Hegedus. il Metal Prog 85:115-17 My '64

How to specify and fabricate prepainted aluminum sheet. H. E. Wegner. il Mod Metals 20:36+ Je '64

Lead sheet formed from melt on cooled roll. il Steel 154:144+ Ja 6 '64

New superalloy sheets feature high-temperature strength. H. Greenewald, jr. and T. J. Riley. S A E J 71:56-8 D '63

PVC covered metal sheet on the move. il Brit Plastics 37:542-5 O '64

Sheet-metal fastener drills its own hole; Shakeproof div., Illinois tool works inc. il Machine Design 35:10 N 7 '63

Strip coating on the West Coast. il diag Metal Finishing 62:54-5+ Mr '64

Tantalum alloy sheet in pilot production. D. J. Maykuth and others. il J Metals 16:180-4 F '64

Tungsten granules make strong sheet. D. J. Maykuth and others. il Metal Prog 85:109-12 Je '64

See also

Metals, Laminated

Sheet steel

Failure

Rectangular tensile sheet with symmetric edge cracks. O. L. Bowie. bibliog diags A S M E Trans ser E 31:208-12 Je '64

Testing

Axial fatigue testing of sheet materials down to —423 F. R. D. Keys and F. R. Schwartzberg. il diag Materials Res & Stand 4:222-4 My '64

Fatigue crack propagation in sheet specimens. H. Grover. diags Materials Res & Stand 4:430-2 Ag '64

Kahn-type tear tests and crack toughness of aluminum alloy sheet. J. G. Kaufman and A. H. Knoll. il diags Materials Res & Stand 4:151-5 Ap '64

New ultra sonic method for inspecting thin sheet. il Light Metal Age 22:16 F '64

SHEET metal, Architectural

Roof deck supports itself. il diag Eng N 173:48+ Ag 13 '64

SHEET metal, Corrugated

Economical bridge replacement. A. R. Pagan. il Pub Works 95:105-7 Jl '64

Track-laying truck carries flexible metal road track in a coil on its back. il Eng N 172:51 Ap 16 '64

SHEET metal, Enameled

Aluminum inner shells for freezers handled in new finishing system. H. D. White. il Metal Finishing 62:65-7 Ap '64

Home appliances provide growing market for thermosetting acrylic enamels. il Chem & Eng N 42:42 Ap 13 '64

How Ingram-Richardson solved a PE copper problem. A. C. Allen. il Cer Ind 83:56-7 O '64

Hydrogen peroxide aid in enameling process. Steel 155:59 Jl 6 '64

Low-carbon steels; new analyses improve enameling traits. Iron Age 193:66-7 Je 4 '64

New aluminum extrusion alloys for porcelain enameling. F. L. Church. il Mod Metals 20:38+ My '64

Select right finish for galvanized metal. Ind Finishing 40:86-8 F '64

SHEET metal, Expanded

Expanded aluminum. A. Rosenthal. il Mod Metals 20:28+ Ag '64

Expanded cobalt. il Ind Electronics 2:425 S '64

Expanded metal; how it's finished. P. Cathey. il Ind Finishing 40:28-31 Jl '64

SHEET metal, Perforated

Dual stainless sheets make filter medium. il Steel 154:127+ Mr 30 '64

How to perforate a shell rim. M. J. Goldstein. il diags Am Mach 108:80-1 S 14 '64

SHEET metal handling

Pushbuttons cue sheet handling. il Iron Age 192:99 D 12 '63

SHEET metal shops

Equipment

Going in circles boosts production. L. J. Githens. il diag Mill & Factory 74:112-13 My '64

See also

Sheet metal working machinery

SHEET metal work

Axial bulge forming slims Boeing's costs. il Steel 153:99 D 9 '63

Boeing bulge-forms turbine engine parts. il Am Mach/Metalworking Manuf 107:239 N 11 '63

Changing big dies in an hour. il Am Mach 108:60-1 Ja 6 '64

Chemical blanking; what it is; what it can do. G. D. Woodring and R. R. C. Benton. il diags Tool & Manuf Eng 52:87-90 My '64

CBS contact bend stretch rolling. il diag Light Metal Age 22:4 Ap '64

Controlling spring back in forming stainless. E. L. Fowler and J. J. Moran. il diag Metal Prog 86:111-14 Ag '64

Deformable dies. il diags Automobile Eng 54:451 O '64

Designing four-slide parts. J. J. Skelskey, jr. il diags Machine Design 36:92-7 Jl 30; 136-9 Ag 13 '64

Development and testing of an explosive-anchored rockbolt. E. W. Parsons. il diags Min Cong J 50:28-32 Je '64

Die life still problem in high energy forming. Steel 155:137+ O 19 '64

SHEET metal work—*Continued*

Effect of anisotropy on instability in sheet-metal forming. G. G. Moore and J. F. Wallace. bibliog diags Inst Metals J 93:33-8 '64-65

Electrohydraulic forming machine. il Automation 11:87 Ag '64

Electro hydraulic metal forming. J. J. Erhart. Light Metal Age 22:6-7 Ag '64

Electro magnetic forming plasma jet cutting. D. G. Scorgie. Light Metal Age 22:8 Ag '64

Experimental and theoretical development of the high-energy rate forming processes. T. Z. Blazynski. bibliog il diags Engineer 217:1117-24 Je 26 '64

Explosive forming of thin-wall tubing. T. W. Black. il diags Tool & Manuf Eng 53:59-61 S '64

Explosive forming Saturn V tank ends. il Am Mach 108:70-1 Ja 6 '64

Five urethane blocks take place of 300 females dies; Dahlstrom mfg. co. il Steel 154:75 Je 15 '64

Floturn makes fuel lines for Saturn. il Tool & Manuf Eng 52:77 F '64

For better looking sheetmetal joints; drawings. F. W. Wood. Product Eng 35:80-1 Je 8 '64

Formability of sheet metals for product design. W. W. Wood. diags Materials in Design Eng 59:89-104 Je '64 (reprints 35c)

Forming of tubular aircraft parts simplified by electrohydraulic shot. K. F. Smith. il diags Mach 71:114-17 S '64

Forming with a lightning flash. il diags Steel 154:52-5 F 24 '64

Forms and shapes of materials; patterned sheet metal; tables. Materials in Design Eng 60:464 Mid-O '64

Four-slide forming for speed and economy. I. J. Doell and E. A. Connell. il Tool & Manuf Eng 52:51-2 Ja '64

High energy rate forming electro hydraulic process. J. J. Erhart. diags Light Metal Age 22:16-18 Ap '64

High-energy-rate forming is a big producer at North American Aviation. il Mach 70:116-20 Jl '64

High energy rate forming makes impossible tubing. J. L. Bird. il Am Mach 108:74 Jl 20 '64

High-energy-rate forming's technological explosion. Am Mach 108:87 O 12 '64

High-production hydroforming cuts tooling and finishing costs. il Mach 70:100-1 D '63

High-strength steel blasted to shape. il Iron Age 192:160 D 5 '63

Hot stretching shapes cylinders. A. W. Young. il Iron Age 194:64-5 Jl 2 '64

How Martin makes honeycomb contours; fill it with wax, then blast it. il diags Steel 154:52-3 F 17 '64

How to apply explosive forming. il diags Iron Age 193:150-2 Je 11 '64

How to calculate blanks. J. Benson. diags Am Mach 108:84-5 Ag 17 '64

How to design stiffening ribs for sheet-metal stampings. F. Strasser. diags Iron Age 193:90-1 Mr 19 '64

How to lay out split dies. P. Dryere. diags Am Mach 108:52-5 Ag 3 '64

Ideas from space research for the petroleum industry; ASME petroleum mechanical engineering conference, Los Angeles, Sept. 23. Hydrocarbon Process & Pet Refiner 43:118-19 O '64

Industry warms up to cold-forming. R. H. Eshelman. il Iron Age 192:143 N 14 '63

Instant blanking methods shortcut conventional costs. il diags Steel 153:105-6 D 9 '63

Low cost way to form big parts. il Steel 154:48-9 Je 29 '64

Magnetic forming goes on the line. il Am Mach 108:62-3 Mr 30 '64

Magnetic forming machine provides double the energy output of previous model. il Am Mach/Metalworking Manuf 107:174 O 14 '63

Portable electric slotting shears and nibbler. il Engineer 217:595 Mr 27 '64

Production aspects of explosive forming. il Metallurgia 69:177-80 Ap '64

Recent trends in metal-forming processes. H. A. J. Dennison. il diags Engineering 196:602-3 N 8 '63

Rx: Siamese twin four slide. R. M. Henry and B. Schneider. il diags Am Mach 108:60-1 Jl 6 '64

Roll forming of stainless strip. il Metal Prog 86:170+ Ag '64

Rolls contour tough alloys. il Iron Age 193:94-5 Ap 23 '64

Science shapes new dimensions in technology of forming. il Steel 154:52-9 Je 22 '64

Shear forming; how it affects properties. diag Am Mach 108:57-9 Jl 6 '64

Sheet-metal shapes tighten up in step-by-step roll forming. il Iron Age 194:148-9 S 24 '64

Simple forming process needs no dies. E. Leszak. il Steel 155:86-7 Jl 27 '64

Stretching for space; segments for Saturn. J. B. Devine. il diags Tool & Manuf Eng 52:61-3 My '64

Students design curvilinear forming machine for sheets. il Steel 154:26-7 Je 1 '64

Ultrasonics; an aid to metal forming? B. Langenecker and others. il diags Metal Prog 85:97-101 Ap '64

Urethane tooling. H. S. Achler. il diags Mach 70:135-47 Je '64

Versatile cut-to-length line uses digital positioning controls. D. E. Bush and R. T. Mercer. il diags Automation 11:76-9 My '64

Welding plays production role in custom-designed lines. R. R. Irving. il diags Iron Age 192:147-9 D 5 '63

When a progressive die won't do. R. M. Henry and B. Schneider. diags Am Mach/Metalworking Manuf 107:86-7 D 9 '63

Which way to form sheet metal? Iron Age 193:82-4 Je 25 '64

Will it stretch form? C. J. Sawey and T. P. Jolly. il diags Am Mach 108:105-8 O 26 '64

Working ss-clad aluminum sheet. W. M. Rogerson and J. K. Wareham. diags Am Mach/Metalworking Manuf 107:80-4 N 25 '63

You can cut joining costs as much as 50 per cent. il Steel 154:43-51 Ap 27 '64

See also

Air conditioning equipment
Air pipes
Cylinders
Dies
Lubrication and lubricants (sheet metal work)
Metal drawing
Metal spinning
Pipes
Presses
Punching
Rolling mills
Sheet metal, Enameled
Shells (metal work)
Stamping
Stretching

SHEET metal work, Architectural

See also

Aluminum, Structural
Flashing
Roofing, Copper
Walls, Steel

SHEET metal working machinery

Automatic mill takes wrinkles out of roll forming. il Steel 155:50-1 O 26 '64

Designing four-slide parts. J. J. Skelskey, jr. il diags Machine Design 36:92-7 Jl 30; 136-9 Ag 13 '64

Egan combination straightener and cradle. il Mach 70:146 F '64

Electrohydraulic machine for forming tubular metal parts by controlled explosions. il Mach 70:138+ Ag '64

Extrusions + synthetic rubber make versatile tools for press brakes. il diags Mod Metals 20:84-5 Jl '64

Numerically controlled sheet metal fabricator. il Automation 11:95 Je '64

130-ton press brake. il Engineer 217:707 Ap 17 '64

Rubber rolls out cylinders. il diag Iron Age 194:74-5 Ag 13 '64

See also

Punching machinery
Shears (machines)
Sheet metal shops—Equipment
Stretching machines

SHEET piling

PE rod sheath. il Plastics World 22:42 Ag '64

Vibratory driver successful for sheetpile cells. E. W. Boggs. il diags Civil Eng 34:58-60 Ap '64

SHEET steel

Adhesive cold bonds steel to paper honeycomb core. R. H. Lindbloom. il Iron Age 193:84-5 Mr 19 '64

Allegheny Ludlum makes bright annealed sheets. Steel 153:33 N 11 '63

Australian firm claims new sheet galvanizing technique. il Steel 153:129 D 9 '63

Coating of steel with PVC powder compounds. D. W. A. Farmer. bibliog il diag Brit Plastics 37:558-62 O '64

SHEET steel—*Continued*

Comparison of processes for welding ultra-high strength sheet steels. R. E. Travis and others. il diags Welding J 42:sup9-17 Ja '63; Abstract. Metal Prog 85:181-2 My '64

Economics of alternate methods of distributing flat rolled steel. E. E. Jones. il Iron & Steel Eng 41:105-12 Ja '64

Effects of cold-straining on structural sheet steels. A. Chajes and others. bibliog diags Am Soc C E Proc 89 [ST 2 no 3477]:1-32 Ap '63; Discussion. 89 [ST 5 no 3688]:333-5 O; [ST 6 no 3743]:435-44 D '63; Reply. 90 [ST 3 no 3940]:373-4 Je '64

Evaluation of maraging steel sheet. D. L. Corn. bibliog il J Metals 16:814-20 O '64

Finishing steel building panels. R. Lambert. il diag Ind Finishing 40:72-5+ N '63

Graphical method of appraising sheet steel drawing performance. J. Steen. Iron & Steel Eng 41:128-32 Je '64

How to determine formability of low carbon steel sheet and strip. S A E J 72:62-5 O '64

Innovations in blank preparation save waste in time and steel. V. C. Rice. il Mach 70:132-3 D '63

New market for sheet steel. il Metallurgia 70:17 Jl '64

Phosphorus and the weldability of high strength steel sheet; abstract. H. V. Huxley. Metal Prog 85:160+ Mr '64

Pressed steel building panels. il Engineering 197:840 Je 19 '64

Pressing and clamping laminated cores. J. H. Walker and others. diags Inst E E Proc 111:565-77 Mr '64

Punching small holes in heavy stock. F. Strasser. diags Mach 70:136-7 N '63

Pushbuttons cue sheet handling. il Iron Age 192:99 D 12 '63

Tolerances for cold-rolled sheets; reference book sheet. Am Mach 108:107 Je 8 '64

Tolerances for hot-rolled sheets; reference book sheet. Am Mach 108:91+ Ap 27 '64

Ultrasonic contour gaging inspects sheet at 3200 fpm. diag Steel 154:29 Je 29 '64

Watch for the difference between sheet and strip steel. D. H. W. Allan. bibliog il diags Product Eng 35:75-80 Mr 30 '64

What to know and what to do about galvanized steel's new image. C. M. Parker. il Am Mach 108:65-9 Mr 2 '64

Where to use galvanized and aluminum coated steel sheets. K. G. Coburn. il Metal Prog 86:184-5+ O '64

See also

Steel, Strip

Steel plates

Testing

Comparison of fracture toughness of high-strength sheet steel as determined by compliance-gage and fracture-appearance methods. H. W. Maynor, jr. and R. E. Blair. bibliog il Welding J 43:sup358-60 Ag '64

SHEETING

See also

Plastic sheeting

SHEFFIELD, England

Environment and Sheffield. L. du Garde Peach. Iron & Steel Inst J 202:801-3 O '64

SHELL molding. See Foundry practice—Shell molding

SHELL oil company

Shell buys outlets, plants in southwest. il Oil & Gas J 62:80 Mr 16 '64

Shell's Spaght bullish for '64. Oil & Gas J 62:106-7 Ja 27 '64

SHELLAC

Shellac in hair sprays. J. W. Martin. Drug & Cosmetic Ind 94:828-30+ Je '64

SHELLFISH

Correlation of coliform and fecal streptococcus indices with the presence of salmonella and enteric viruses in polluted seawater and shellfish: abstract. L. W. Slanetz and others. WPCF J 36:310-11 Mr '64

Determination of butoxyethanol ester of 2,4-dichlorophenoxyacetic acid in shellfish and fish. J. E. Coakley and others. bibliog J Agri & Food Chem 12:262-5 My '64

Irradiation preservation of Pacific Coast shellfish. D. Miyauchi and others. bibliog Food Tech 18:928-37 Je '64

See also

Crabs

Shrimps

SHELLS

Comparison of the composition of fossil and recent mollusk shells. O. H. Pilkey and H. G. Goodell. bibliog map Geol Soc Bul 75:217-28, pl 1 Mr '64

U.S. Gypsum calcines Lake Ponchartrain clam shells. il plan Rock Prod 67:72-4 Jl '64

SHELLS (metal work)

Digital computer program for the general axially symmetric thin-shell problem. W. K. Sepetoski and others. diags A S M E Trans ser E 29:655-61 D '62; Discussion. 31:154-5 Mr '64

Drawing an octagon-shaped shell. M. J. Goldstein. il diags Mach 70:126-7 Ja '64

Drillpress serves to trim drawn shells. C. McLaughlin. diag Am Mach 108:80 F 3 '64

Energy solution for simply supported oval shells. W. P. Vafakos and others. bibliog diag AIAA J 2:555-7 Mr '64

How to perforate a shell rim. M. J. Goldstein. il diags Am Mach 108:80-1 S 14 '64

Rubber tooling bulges hollow-ware shells. M. J. Goldstein. il diags Mach 70:135-7 Ap '64

Scatter of observed buckling loads of pressurized shells. F. W. Niedenfuhr. bibliog diags AIAA J 1:1923-5 Ag '63; Discussion. 2:1165-6 Je '64

See also

Cones

Cylinders

Spheres

SHELLS (structural engineering)

Analysis of prestressed cylindrical shell roofs. R. Dabrowski. bibliog diags Am Soc C E Proc 89 [ST 5 no 3668]:91-116 O '63; Discussion. 90 [ST 3 no 3940]:385-91 Je '64

Axisymmetric deflections of shallow conical shells. G. R. Wempner. bibliog diags Am Soc C E Proc 90 [EM 2 no 3877]:181-93 Ap '64

Breakthrough in plastic design aim of studies. Steel 153:116 N 25 '63

Collapse loads of orthotropic cylindrical shells under radial pressures. B. Venkatraman and R. Sankaranarayanan. diags Franklin Inst J 278:183-94 S '64

Computer analysis of cylindrical shells. A. C. Scordelis and K. S. Lo. bibliog diags Am Concrete Inst J 61:539-61 My '64

Concrete dinosaur is a service station. il Eng N 172:26-7 Ap 16 '64

Concrete shell structures practice and commentary. Am Concrete Inst J 61:1091-108 bibliog(p 1105-7) S '64

Continuity of prismatic northlight sheds through their window planes. A. Ghali. diags Am Concrete Inst J 61:1009-20 Ag '64

Creep deformations in membrane shells. F. A. Cozzarelli and S. A. Patel. bibliog diags Franklin Inst J 278:45-60 Jl '64

Deformation of a ring-stiffened cylindrical shell. C. T. F. Ross. Engineer 217:568 Mr 27 '64

Direct design of plate and shell structures. J. F. Brotchie. bibliog diags Am Soc C E Proc 88 [ST 6 no 3345]:127-48 D '62; Discussion. 89 [ST 3 no 3560]:203-5 Je; [ST 5 no 3688]:279-83 O '63; Reply. 90 [ST 3 no 3940]:339-47 Je '64

Engineering features of free-form concrete thin shell for Eastman Kodak pavilion. L. Zetlin. il diags Am Concrete Inst J 61:1249-59 O '64

Experimental buckling of thin shells of revolution. J. J. Burns, jr. il diags Am Soc C E Proc 90 [EM 3 no 3946]:171-93 Je '64

Experiments on stability on spherical caps. T. C. Loo and R. M. Evan-Iwanowski. bibliog diags Am Soc C E Proc 90 [EM 3 no 3956]:255-70 Je '64

Hyperbolic-paraboloid cantilevers roof stadium. il Eng N 172:22 Mr 12 '64

Hyperbolic-paraboloid shells form clerestories and cantilevered canopies. il Eng N 172:152 Je 18 '64

Influence of initial stress on the vibrations of simply supported circular cylindrical shells. A. E. Armenàkas. bibliog AIAA J 2:1607-12 S '64

Linear strain hardening of cylindrical shells. B. J. Thorn and S. L. Lee. bibliog diags Am Soc C E Proc 90 [EM 4 no 4007]:97-122 Ag '64

Membrane stresses in laminated anisotropic shells. S. B. Dong. bibliog Am Soc C E Proc 90 [EM 3 no 3931]:53-69 Je '64; Discussion. G. Wempner. 90 [EM 5 no 4093]:463 O '64

Membrane stresses of parabolic conoid shells. R. Aschenbrenner. diags Am Concrete Inst J 60:1415-27 O '63; Discussion. M. Soare. 61:2033-4 pt 2 Je '64

New work, a new style; shells soar in Formosa. il diags Arch Forum 121:136-9 Ag-S '64

Parametric expansions for oval reinforcing rings. W. P. Vafakos and N. Nissel. diags Am Soc C E Proc 90 [EM 5 no 4062]:1-26 O '64

SHELLS (structural engineering)—*Continued*

Plywood; new shapes yield new strength. il diags Arch Forum 120:126-31 Ap '64

Post-tensioned shallow roof shells. W. E. Riley. il plan diags Civil Eng 34:64-6 Jl '64

Precasting cuts cost of shells. il Eng N 172:23 Ja 9 '64

Saddle shell roof for theater. il plan diag Arch Rec 135:155-8 Mr '64

Shell shelters aluminum smelter. il Eng N 172:23 Ja 2 '64

Shells cast for Met opera house. il Eng N 173:27 O 15 '64

Tests of cylindrical shells in the plastic range. G. Augusti and S. d'Agostino. bibliog il diags Am Soc C E Proc 90 [EM 1 no 3802]:69-81 F '64; Discussion. 90 [EM 3 no 3936]:295-301 Je; [EM 5 no 4093]:433-42 O '64

Thin shells for free-form plans. K. Saether. il diags Prog Arch 44:138-42 D '63

See also

Domes

SHELLS, Elastic

Analysis of elastic-plastic shells of revolution containing discontinuities. D. A. Spera. bibliog diags AIAA J 1:2583-9 N '63

Analysis of slightly anisotropic shells. R. G. Dong and S. B. Dong. bibliog AIAA J 1:2565-9 N '63

Asymptotic expansions for circular cylindrical shells. E. Reissner. A S M E Trans ser E 31:245-52 Je '64

Bond stress in cylindrical shells subjected to an end velocity step. R. G. Payton. bibliog diags J Math & Phys 43:169-90 S '64

Buckling of a thin-walled circular cylindrical shell heated along an axial strip. N. J. Hoff and others. diags A S M E Trans ser E 31:253-8 Je '64

Collapse of cylindrical elastic shells under wind loading. R. F. Rish. il Engineer 216:669-72 O 25 '63

Computer analysis of asymmetrical deformation of orthotropic shells of revolution. G. A. Cohen. bibliog diag AIAA J 2:932-4 My '64; Correction. 2:2231 D '64

Derivation of the theory of thin elastic shells. E. Reissner. bibliog J Math & Phys 42:263-77 D '63

Elastic cylindrical shell under nearly uniform radial impulse. J. N. Goodier and I. K. McIvor. bibliog diags A S M E Trans ser E 31:259-66 Je '64

Elastic stability of conical shells under axisymmetric pressure band loadings. J. C. Serpico. diag AIAA J 2:389-91 F '64

Elastic stability of near-perfect shallow spherical shells. M. A. Krenzke and T. J. Kiernan. bibliog diag AIAA J 1:2855-7 D '63

Finite element solution for axisymmetrical shells. E. P. Popov and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4085]:119-45 O '64

Form of variationally derived shell equations. E. Reissner. bibliog diags A S M E Trans ser E 31:233-8 Je '64

Large elastic, plastic, and creep deflections of curved beams and axisymmetric shells. J. A. Stricklin and others. bibliog diags AIAA J 2:1613-20 S '64

Membrane solution for axisymmetric heating of dome-shaped shells of revolution. H. E. Williams. diag AIAA J 2:1491-2 Ag '64

Numerical analysis of unsymmetrical bending of shells of revolution. B. Budiansky and P. P. Radkowski. diags AIAA J 1:1833-42 Ag '63; Discussion. G. A. Greenbaum. 2:590-2 Mr '64

Outer and inner bounds on Tresca limit loads of cylindrical shells. S. L. Lee and B. J. Thorn. bibliog diags Franklin Inst J 277:517-33 Je '64

Sandwich shells of arbitrary shape. R. Schmidt. diag A S M E Trans ser E 31:239-44 Je '64

Solution for the thin elastic shell with surface loads. C. R. Steele. bibliog diags A S M E Trans ser E 31:91-6 Mr '64

Stresses in an elastic-plastic cylinder due to a dilatational phase transformation. H. G. Landau and J. H. Weiner. diag A S M E Trans ser E 31:148-50 Mr '64

Stresses in an incompressible viscoelastic-plastic thick-walled cylinder. M. Shinozuka. bibliog AIAA J 2:1800-4 O '64

Stresses in nonhomogeneous elastic thick-walled cylinders. J. Mahig. diag A S M E Trans ser E 31:343-4 Je '64

Thermal stresses in a viscoelastic cylinder with temperature dependent properties. K. C. Valanis and G. Lianis. AIAA J 2:1642-4 S '64

Transient axisymmetric thermoelastic problem for the hollow sphere. W. E. Warren. bibliog AIAA J 1:2569-76 N '63

Transient axisymmetric thermoelastic problem for the solid sphere. W. E. Warren. bibliog diags A S M E Trans ser E 31:348-50 Je '64

Useful solution for short cylindrical shells and other applications. S. E. Moore. bibliog diags Franklin Inst J 276:490-506 D '63

Vibrations of elastic spherical shells. P. M. Naghdi and A. Kalnins. bibliog A S M E Trans ser E 29:65-72 Mr '62; Correction. 31:331 Je '64

SHELLS, Fossil

Comparison of the composition of fossil and recent mollusk shells. O. H. Pilkey and H. G. Goodell. bibliog map Geol Soc Bul 75:217-28 pl 1 Mr '64

SHELTERS

Man turning turtle; shelters made from foamed plastics may soon be carried in a packroll. il Plastics World 22:55 Je '64

SHELTERS, Atomic bomb. See Atomic bomb shelters

SHELVING

Painting flat stock with a curtain coater. C. M. Smith. il Ind Finishing 40:64-6 Ap '64

SHELVING (for books)

Compact book storage in libraries. F. F. Leimkuhler and J. G. Cox. diags Op Res 12:419-27 My '64

SHELVING, Steel

Painting steel shelving and similar products. B. Snider. il Ind Finishing 40:56-8+ Ja '64

SHERRINGTON, Sir Charles Scott

Latinity of Sir Charles Sherrington. F. P. Jones. bibliog il Am Scientist 51:403-7 D '63

SHIELDING (heat)

Ablation-products radiation from cones. W. C. Davy and others. bibliog il diag AIAA J 2:1583-9 S '64

Ablative cooling. M. M. Fein and others. diags Chem Eng Prog 60:54-6 F '64

Charring ablator test. Mech Eng 86:44 Ja '64

Choosing optical properties of noncharring ablators. L. E. Hooks. AIAA J 1:2640-2 N '63

Effect of gas composition on the ablation behavior of a charring material. N. S. Vojvodich and R. B. Pope. bibliog diags AIAA J 2:536-42 Mr '64

Effect of mass loss on the transient response of a shallow spherical sandwich shell. J. Tasi. bibliog diag AIAA J 2:58-63 Ja '64

Effective heat of ablation of graphite. E. P. Bartlett. AIAA J 2:171-3 Ja '64

Epoxy resin loses a round in aerospace. il Chem Eng 71:38 Mr 2 '64

Mechanical spallation of charring ablators in hyperthermal environments. R. D. Mathieu. bibliog diag AIAA J 2:1621-7 S '64

Nonequilibrium sodium ionization in laminar boundary layers. J. J. Kane. AIAA J 2:1651-3 S '64

Plastic materials. L. Isenberg. Chem Eng Prog 60:63-4 F '64

Polymeric heat shields in space; abstract. C. K. Chicklis. Rubber World 149:82 F '64

Project FIRE blazes trail for Apollo re-entry. F. D. Linzer and E. Kaplan. il diag S A E J 71:76-8 D '63

Thermal problems of ablative materials. R. Lurie and others. Chem Eng Prog 60:62-3 F '64

Three-layer dimples shield spacecraft from heat. il Machine Design 35:10 D 19 '63

SHIELDING, Electromagnetic. See Electromagnetic shielding

SHIFT registers

Performance of the core-equivalent of the transfluxor shift register. G. W. Dick. bibliog diags IEEE Trans Com & Electronics 83:566-70 S '64

SHIP models

See also

Ships—Model testing

SHIP plates

Butt welding of plates from one side. il Engineer 217:762 Ap 24 '64

SHIP propellers. See Propellers

SHIP propulsion

Application of free-piston machinery to marine propulsion. C. W. Herbert and G. F. Milne. Naval Eng J 76:203-6 Ap '64

Automation in marine engineering applications. E. C. Mericas. il diags Naval Eng J 75:897-908 D '63

Captured air bubble over-water vehicle concept. A. G. Ford. bibliog il diags Naval Eng J 76:223-30 Ap '64

Deflection tests on a thrust block for a prototype set of marine propulsion machinery of 22 000 s.h.p. H. E. C. Hims. plans diags Engineer 217:1128-31 Je 26 '64

SHIP propulsion—*Continued*
Design and powering of cable ship Long Lines. J. H. Butler and others. plans diags Bell System Tech J 43:1435-59 Jl '64
Hydro-jet propulsion reduces vibration. M. R. Hale and D. H. Vorrie. diags Engineering 198:118-19 Jl 24 '64
Improved overspeed trip governor for marine turbines. H. E. C. Hims. il diags Engineer 218:499-500 S 25 '64
Integrated powerplants for automated ships. C. M. Fixman and R. R. Peterson. il diags Naval Eng J 76:67-75 F '64
Machinery layout saves steps and dollars; SS Mormacargo. il plans Marine Eng/Log 69:72-5 S '64
Maritime administration surface effect ship. S. Rethorst and W. T. Potter. diags Naval Eng J 76:241-7 Ap '64
More ship per man; by automation. J. D. Deal, jr. and C. L. Long. diag Naval Eng J 76:257-64 Ap '64
Naval propulsion machinery post World war II. G. M. Boatwright and others. bibliog il diags Naval Eng J 75:877-90 D '63
Navy's prototype 30,000-hp jet-gas turbine plant in proving-out stage. il Marine Eng/Log 69:98 Ap '64
New efficiency from old tug achieved when engine is replaced. il Marine Eng/Log 69:78A Ag '64
Performance of centrally pivoted sector trust-bearing pads; sea trials aboard USS Barry (DD 993). R. C. Elwell and others. bibliog il diags A S M E Trans ser D 86:483-96; Discussion. 496-7 S '64
Slow speed versus high speed Diesel engines for ship propulsions. W. A. Kilchenmann. il diags Naval Eng J 76:425-37 Je '64
Underwater propulsion. S. Barnes. il diags Machine Design 36:140-5 Ag 27 '64
Use of reversing systems for stopping of turbine-powered ships. G. Broersma and G. G. Maclennan. bibliog Naval Eng J 75:909-13 D '63
See also
Boilers, Marine
Diesel engines, Marine
Gas turbines, Marine
Marine engines
Motor ships
Ship resistance
Steam turbines, Marine
Steamboats

SHIP propulsion, Atomic
Are nuclear merchantmen here to stay? il diag Engineering 198:68-9 Jl 17 '64
Atomic power; reactors for propulsion. C. E. Wise. il diags Machine Design 36:199-205 Ap 23 '64
Consolidated nuclear steam generator for marine application. diags Engineer 218:297-300 Ag 21 '64
CNSG-3; most advanced pwr for merchant marine use. diags Nucleonics 22:23-5 Jl '64
Economic nuclear ship reactor. Naval Eng J 76:542 Ag '64
Marine nuclear power. Engineer 217:907-8 My 22 '64
New concept in marine transportation utilizing a nuclear-powered tug. P. N. Garay. diags Naval Eng J 75:955-63 D '63
1963 progress report on the nuclear navy; list. Nucleonics 21:28 S '63
Nuclear aircraft carrier operations. V. P. de Poix. il Naval Eng J 76:387-96 Je '64
Nuclear-powered passenger-cargo liner Savannah. il Engineer 218:96-7 Jl 17 '64
Quality control and non-destructive testing in the construction of marine nuclear power plant. W. H. Samson. bibliog il Naval Eng J 76:753-69 O '64
Reactors advanced; customers few; Virginia polytechnic institute's conference on nuclear marine propulsion. Marine Eng/Log 69:64-5 O '64
Submarines; Dace is the newest addition to the Atlantic fleet. il diag Product Eng 35:48-9 My 11 '64
Two atomic ships for Europe. Chem Eng 71:100+ S 14 '64
USS Dace, portrait of a killer. J. M. Carroll. il plans diag Electronics 37:99-104 Je 15 '64

SHIP propulsion, Electric
Constant current propulsion for trawler. il Engineering 198:88 Jl 17 '64
Improved submarine Diesel engine run-in procedure. A. M. Woolley. Naval Eng J 76:439-42 Je '64
McAllister twins have lots of pull. il Marine Eng/Log 69:72-3 O '64
MV Tor; Sweden's semi-automated icebreaker. il Marine Eng/Log 70:52-3 My '64
Trends in naval shipboard electrics. A. A. Bergson and J. W. Thornbury. il diags Naval Eng J 76:13-20 F '64

SHIP refrigeration. See Refrigeration on ships

SHIP resistance
Survey of hull and propeller roughness data. F. Wellman. bibliog diags Naval Eng J 76:101-8 F '64

SHIPBUILDING
Assembly-line hydrofoil ferries. il Marine Eng/Log 69:48-9 Ag '64
Quality control in shipbuilding. O. R. Goode and J. F. Dallinger. il diags Naval Eng J 76:397-407 Je '64
Ship construction and repair news. Published in monthly numbers of Marine engineering/log
Special report; distinctive ships; seventeen of the most noteworthy vessels completed during the past 12 months. il Marine Eng/Log 68:63-92+ D '63
World shipbuilding; cautious optimism; with tables. il Marine Eng/Log 69:105-7+ Je 15 '64
See also
Freight ships
Ships—Reconstruction
Shipyards
Tank ships

Materials

Aluminaut, first all aluminum submarine. il Light Metal Age 22:22 Ap '64
Putting the pressure on aluminum. R. A. Coccola. il Am Mach 108:104-5 My 11 '64
Reynolds unveils aluminum sub for deep sea exploration; Aluminaut. il Steel 154:44 Mr 16 '64
Use of scale models in predicting the behavior of complex structures. J. C. Braithwaite and R. Williams. Naval Eng J 75:937-40 D '63

Plastics

Marine applications. il Brit Plastics 36:674-8 D '63

Statistics

Fiscal '65 navy shipbuilding program. il Marine Eng/Log 69:159+ Je 15 '64
Shipbuilding outlook in the United States. il Marine Eng/Log 69:7+ Je 15 '64
U.S. interests buy 55 ships in Europe, Far East. il Marine Eng/Log 69:151-2+ Je 15 '64
U.S. shipbuilding crests out in 1963; with tables. Marine Eng/Log 69:135-49+ Je 15 '64
U.S. shipbuilding report. Published in monthly numbers of Marine engineering/log
World tanker total rises, U.S. slips. Oil & Gas J 62:58-9 Ag 24 '64

Welding operations

Butt welding of plates from one side. il Engineer 217:762 Ap 24 '64
Challenge; all-welded auxiliary keel sloop. E. Gunnell and R. A. Hay. il Welding J 43:205-7 Mr '64
Electroslag welding of submarine bulkheads. il diag Am Mach 108:96-7 Mr 16 '64
Shipbuilding welding development. il Engineer 217:910 My 22 '64

Denmark

Burmeister & Wain has busy year. Marine Eng/Log 69:40N Je 15 '64

France

Shipbuilding in France, a setback in '63. il Marine Eng/Log 70:48 My '64

Germany

Exclusive report on German shipyards. il Marine Eng/Log 69:57-8 F; 49-51 Mr '64

Great Britain

British and Japanese ships compared. il Engineering 198:347 S 11 '64
British Mariner, largest tanker completed in the U.K. il Engineering 196:655 N 22 '63
Fight for the future in UK shipyards. il map plans Engineering 197:645-7 My 8 '64
Industrial diversification by a shipbuilder; Thornycroft and co. il Engineer 217:129 Ja 17 '64
1964 prospects for all engineerings. il Engineering 197:121-3 Ja 17 '64
Reorganisation and reconstruction of shipyard at Govan. il plan Engineer 217:950-2 My 29 '64
Shipbuilding and marine engineering in 1963. il Engineer 217:9-12, 69-72 Ja 3-10 '64
Technical progress in shipbuilding during 1963. bibliog diag Naval Eng J 76:409-15 Je '64

SHIPBUILDING—Great Britain—*Continued*

UK; orders, freight market strong. Marine Eng/Log 69:48 Ja '64

UK; ship orders, Q4, automation, turbine test facilities, and hydrofoils. Marine Eng/Log 68:64 N '63

Japan

British and Japanese ships compared. il Engineering 198:347 S 11 '64

Design and construction of large tankers in Japan. M. Yoshiki. bibliog il plan diags Inst Mech Eng Proc 177:1147-71 '63

Present status of ship automation in Japan. N. Hamada. il diags Naval Eng J 76:359-64+ Je '64

Shipbuilders of Japan. Engineering 198:254 Ag 28 '64

Netherlands

Newsletter from the Netherlands. il Marine Eng/Log 69:45 Ja; 56 Mr; 72 Ap; 41 Je '64

Sweden

Mark 25th anniversary for Götaverken. il Marine Eng/Log 69:40F+ Je 15 '64

Twenty-five years of Diesel engine building at Götaverken. il Engineer 217:539 Mr 20 '64

United States

Fiscal '65 navy shipbuilding program. il Marine Eng/Log 69:159+ Je 15 '64

Output of U.S. yards climbed in 1963. il Marine Eng/Log 69:51-4 F '64

Shipbuilding outlook in the United States. il Marine Eng/Log 69:7+ Je 15 '64

U.S. shipbuilding crests out in 1963; with tables. Marine Eng/Log 69:135-49+ Je 15 '64

U.S. shipyards' outlook: some optimism. E. M. Hood. il Marine Eng/Log 69:55-6 F '64

West Coast: shipbuilding spotty, operators expand. il Marine Eng/Log 69:44A-44B+ Je 15 '64

SHIPMENT of goods

Have marine containers made the grade? N. K. Rogers. il Marine Eng/Log 69:51-3 Ag '64

How Du Pont attacks distribution costs. il maps diags Mod Materials Handling 19:36-43 S '64

Loads must arrive intact. W. H. Gribble. il Mod Materials Handling 19:52-9 Ja '64

Pneumatic dunnage. C. E. Davis. il Comp Air Mag 68:26-8 N '63

Transport and shipping of plastics. il Brit Plastics 37:291-3 Je '64

See also

Chemicals—Transportation
Containers (for shipping)
Conveying machinery (long distance)
Crates
Packing for shipment
Petroleum—Transportation
Shipping departments
Steel—Transportation

SHIPPING

Highway and air taxes are no argument for waterway charges. il Marine Eng/Log 69:65 F '64

ICC regulation extension to water carriers dangerous. B. B. Carr. Marine Eng/Log 68:68 N '63

Port engineer's role in management; 12th annual Fort Schuyler forum. Marine Eng/Log 70:57-8 My '64

See also

Ore ships
Ports
Terminals
Train ferries

Rates

New concept in marine transportation utilizing a nuclear-powered tug. P. N. Garay. diags Naval Eng J 75:955-63 D '63

Statistics

U.S. and world shipping is back to normal. il Marine Eng/Log 69:93-7+ Je 15 '64

Australia

Australians adopt container shipping. il Marine Eng/Log 69:134 S '64

Great Britain

Chamber of shipping report. Engineer 217:439 Mr 6 '64

Great Lakes

Great Lakes and Seaway news. Published in monthly numbers of Marine engineering/log

Low water is decimating our Great Lakes iron-ore fleet. J. A. Hirshfield. Marine Eng/Log 69:86 S '64

See also

St Lawrence waterway and power project

Netherlands

Amsterdam's $365 million improvement plan. il Marine Eng/Log 69:40L Je 15 '64

Newsletter from the Netherlands. il Marine Eng/Log 69:45 Ja '64

Pacific Coast

Pacific marine review. Published in monthly numbers of Marine engineering/log

Russia

Growth of the Soviet merchant marine. Naval Eng J 76:309 Ap '64

United States

Study spotlights plight of U.S. tankers. Marine Eng/Log 69:59 O '64

Thriving U.S. ports look to the future. il Marine Eng/Log 69:77-8+ Je 15 '64

SHIPPING containers. See Containers (for shipping)

SHIPPING departments

Building-block system cuts distribution costs. J. A. Eaton. il diags Mod Materials Handling 19:44-7 Mr '64

Getting orders out; a systems focus on service; Louis Zahn drug co. J. A. Eaton. il plan diag Mod Materials Handling 19:40-5 Ap '64

Machines talk to machines to speed distribution. il Mod Materials Handling 19:52 Ap '64

SHIPS

Diving vessel Carl Straat. il diag Engineer 216:1005-6 D 13 '63

Economics of cathodic protection on ships' hulls. diag Naval Eng J 76:190 Ap '64

Have the Japanese found something? Epochal hull form. Naval Eng J 76:646-8 Ag '64

Hull protection by impressed current. il plan Marine Eng/Log 69:58-9 Ag '64

NSF opposes an intermediate drill ship for Mohole. Oil & Gas J 61:97 N 11 '63

Offshore supply boats for offshore oil drillers. il Marine Eng/Log 69:50 Jl '64

Sludge disposal vessel Sir Joseph Bazalgette. il Engineer 216:915 N 29 '63

Sprayed, molten aluminum or zinc coatings protect steel plate. il Marine Eng/Log 68:90 N '63

See also

Airplane carriers
Cable laying and supply ships
Dredges
Ferryboats
Freight ships
Hatch covers
Ice breaking vessels
Landing craft
Lightships
Loading and unloading—Ships
Masts and rigging
Motor ships
Navigation
Ore ships
Radio telephone on ships
Salvage
Ship resistance
Shipbuilding
Steamboats
Steering gear
Submarine boats
Tank ships
Towboats
Train ferries
Warships

Bow thrusters

See Steering gear

Cargo

See also

Freight ships

Collisions

See Collisions at sea

Electric equipment

Adjustable-voltage electric drive for cargo-ship winches. Westinghouse Eng 24:58-9 Mr '64

Brushless generators give fast recovery time, need little maintenance. Marine Eng/Log 69:82+ S '64

Electric deck auxiliaries. il Engineer 217:486 Mr 13 '64

Electrical shore supplies to ships in HM dockyards; abstract. L. J. N. Kirkby. Inst E E Proc 111:373 F '64

Evolution of thermosets for the navy's ships. H. P. Walker. bibliog il Plastics World 22:30-3 My '64

High-voltage a.c. power systems in ships. Engineer 217:52 Ja 3 '64

SHIPS—Electric equipment—*Continued*

Oceanographic survey ship has integrated electric system. Westinghouse Eng 24:151-3 S '64
Resistive earthing of electrical distribution systems in ships and similar installations. D. Jones. diags Inst E E Proc 111:1729-35 O '64
Review of marine a.c. installations. D. Gray. il diags Inst E E Proc 111:361-70 F '64
Trends in naval shipboard electrics. A. A. Bergson and J. W. Thornbury. il diags Naval Eng J 76:13-20 F '64
Vacuum pump can replace steam jet. I. H. Rolih and R. C. Angell. Marine Eng/Log 69:70-1+ Ap '64
Voltage regulator; what it is; what it does. il diag Marine Eng/Log 69:83 S '64

See also
Ship propulsion, Electric

Electronic equipment

Automate or capitulate. il I S A J 11:51-2 Ag '64
Automated Yankee Clipper; SS Louise Lykes. diag Product Eng 35:58-9 F 17 '64
Automatic controls in ship operation. Engineer 216:642 O 18 '63
Automatic nautical navigator. Franklin Inst J 277:178-9 F '64
Automation and the regulations. A. G. Stirling. Naval Eng J 76:795-801 O '64
Automation in marine engineering applications. E. C. Mericas. il diags Naval Eng J 75:897-908 D '63
Big in remote controls; Regent Pembroke. il Marine Eng/Log 69:71 O '64
Boiler automation. il diags Marine Eng/Log 69:43-6 Jl '64
Canadian ships fight from electronic bridge. J. M. Carroll. il Electronics 37:38-9 Ja 31 '64
Central engine-room control for cargo ships. R. E. Stillwagon. diags Westinghouse Eng 24:86-9 My '64
Data logging on board ship. A. J. Boseley. il diag Ind Electronics 2:259-62 Je '64
Don't miss the boats! J. L. Lovett. il Radio-Electronics 35:40-2, cover My '64
Electronic positioning systems. H. W. Bigelow. diags Naval Eng J 76:802-7 O '64
Electronics and engine rooms. P. T. C. Wilkenson. il diag Naval Eng J 76:786-8 O '64
First automated freighter. il Electronics 37:23 Je 29 '64
Frontier of the deep. J. M. Carroll and H. C. Hood. il Electronics 37:70-7 Jl 13 '64
Gulf's automated tanker slices costs. il Oil & Gas J 62:84-5 My 18 '64
Integrated bridge control console. Engineer 217:182 Ja 24 '64
Integrated powerplants for automated ships. C. M. Fixman and R. R. Peterson. il diags Naval Eng J 76:67-75 F '64
Marine electronics sail on a high but rough wave. E. Valentine. Electronics 37:42-4 Ja 24 '64
Money in electronics afloat. R. C. Beard. il diags Radio-Electronics 35:60-1 S; 46-8 O '64
Practical approach to ship automation. C. T. Clayton. bibliog il diags Naval Eng J 76:109-16 F '64
Present status of ship automation in Japan. N. Hamada. il diags Naval Eng J 76:359-64+ Je '64
Ship strike settled. Electronics 37:36 S 7 '64
Single engineer controls 19,000-shp main propulsion plant and auxiliary machinery; SS Mormacargo. il Marine Eng/Log 69:74-5 S '64
Telegraph and data logging equipment in M.V. Centaur. il Engineer 217:236 Ja 31 '64
Versatile system for ship control. il Engineering 197:42-3 Ja 10 '64

Engine rooms

Electronics and engine rooms. P. T. C. Wilkenson. il diag Naval Eng J 76:786-8 O '64
Machinery layout saves steps and dollars; SS Mormacargo. il plans Marine Eng/Log 69:72-5 S '64

Equipment

Automated cargoliner, American Racer. il Marine Eng/Log 69:48-9 Jl '64
Automation in ships. A. C. Grover. Automation 10:137-8 N '63
Coast guard cutters to have HY-80 flight decks. il Welding Eng 49:75 Ap '64
Compact shipboard device designed to end inshore pollution by oily ballast and bilge water. diag Marine Eng/Log 68:118 D '63
Controlling 18,000 bhp from the bridge. il Marine Eng/Log 70:46-7 My '64
Danforth patent anchor. il Engineering 198:174-5 Ag 7 '64
Danish ship for English travellers, MV England. il Engineering 197:830 Je 19 '64
Distinctive ships; Grace line's combo Santa Magdalena. il Marine Eng/Log 68:64-5+ D '63
Electro-hydraulic cranes for handling ship's cargo. il Engineer 218:418-19 S 11 '64
Engine-mounted marine pumps. il Engineer 217:449 Mr 6 '64
EquipmenTalk. Published in monthly numbers of Marine engineering/log
Fast ferry in UK-Denmark service is wonderful way to travel. il Marine Eng/Log 69:16F-16H Ag '64
German control has back-up systems. il Marine Eng/Log 70:18F-18H My '64
How silencers made dredge's invisible smokestacks possible. Marine Eng/Log 69:112+ S '64
Hydraulic winches on dredger. il Engineer 217:908 My 22 '64
MV Centaur. il plans Marine Eng/Log 69:37-45 Mr '64
Mattress maker modernized for deep river beds. diag Marine Eng/Log 69:58 Jl '64
Mechanical, fluid, and gas vibrations; their generation, transmission, and suppression. R. E. W. Harrison. il diags Naval Eng J 75:1023-34 D '63
Merchant marine pipes controls aboard. D. Aronson. il Control Eng 11:20-2 Mr '64
Merit of maintainability (a light discussion on why it must prosper). R. L. Hess. Naval Eng J 76:63-6 F '64
Molybdenum disulfide; modern lubricant for modern ships. il Marine Eng/Log 69:90 Ag '64
More ship per man; by automation. J. D. Deal, jr. and C. L. Long. diag Naval Eng J 76:257-64 Ap '64
Multi-purpose ship for Blue Funnel line; Centaur. il plan Engineering 197:78-9 Ja 17 '64
New Finnish flagship; Mv Ilmatar. Marine Eng/Log 69:28F+ O '64
New star shines in American shipping; SS Mormacargo. il plans Marine Eng/Log 69:68-78 S '64
Passenger/car ferry M.V. England. G. W. Tripp. il Engineer 218:12-13 Jl 3 '64
Pilot ladder hoist. il Engineer 217:447 Mr 6 '64
Ralph O. Rhoades; a rung on the ladder. il Marine Eng/Log 69:54-5 Jl '64
Self-tensioning winches. il Engineer 217:486 Mr 13 '64
Shave installation costs via use of molded insulation. diags Marine Eng/Log 69:102+ O '64
Ship automation to what extent. L. A. Harlander. diags Naval Eng J 76:265-74 Ap '64
Shipboard sleeping comfort. S. R. Heller, jr. Naval Eng J 76:729-32 O '64
Simplified fastener sharply reduces cost of cable installation. il Marine Eng/Log 69:84+ Mr '64
So long, Stavangerfjord. il Marine Eng/Log 69:22C Ja '64
SS Avalon, British railways' newest Channel ferry. il plans Marine Eng/Log 68:47-53 N '63
SS Shalom. il plans Marine Eng/Log 69:27-33 Je '64
Towboat John H. MacMillan jr. il Marine Eng/Log 69:56-7 Jl '64
Trojan sea-horse, the 17-knot LSL. il Marine Eng/Log 69:40B+ Je 15 '64
Twin-screw passenger-cargo liner Centaur. il plan Engineer 217:163-6 Ja 24 '64
Two-hold, heavy-lift boom. il Marine Eng/Log 69:50 Ag '64
U.K.-built Norwegian tanker has unusual appearance. il Marine Eng/Log 69:63-6 Ap '64
Unusual; from bow bulb to stern tube; SS Liryc. il Marine Eng/Log 69:28D O '64
Wave-compensating hoist smooths rough-sea lifting. Naval Eng J 76:177 Ap '64

See also
Boilers, Marine
Refrigeration on ships
Winches

Failure

Determination of the end drafts of a ship after damage. W. Muckle. diags Naval Eng J 75:993-7 D '63

Fires and fire protection

Fire safety at sea is coast guard's business. il Safety Maint 128:32-4 Ag '64
Fume-neutralizing chemical helps put out ship fire. Marine Eng/Log 68:92+ N '63
Research ship uses exotic fire system. il Safety Maint 128:35-6 Jl '64

SHIPS—*Continued*

Hydraulic equipment

Bulk ship's hatch cover drive; five advantages at no extra cost. il Marine Eng/Log 69:109 S '64

Launching

See Launching

Model testing

Science and the small boat builder. Engineering 196:733 D 6 '63

Use of scale models in predicting the behavior of complex structures. J. C. Braithwaite and R. Williams. Naval Eng J 75: 937-40 D '63

Painting

See also
Paint, Anti-fouling

Piping

Solid consumable insert rings improve ship ride weld quality. H. Thielsch. il Naval Eng J 76:147-9 F '64

Radio apparatus

See Radio apparatus on ships

Reconstruction

Two ship conversions; S.S. Falaise and S.S. Normannia to car ferries. G. W. Tripp. il Engineer 217:953 My 29 '64

Refrigeration

See Refrigeration on ships

Registration and transfer

Ship sales to foreign flags increase; with tables. il Marine Eng/Log 69:203-4+ Je 15 '64

Repair

Nicoverken's flying work teams gain. Marine Eng/Log 69:24J F '64

Ship repair costs appear to be lowest in Sweden; Japan runs up. Marine Eng/Log 69:60-1 Ap '64

Safety measures

See Safety at sea

Sanitation

Shipboard extended-aeration waste-water treatment plant design. M. J. Stewart and H. F. Ludwig. bibliog il Naval Eng J 75: 985-92 D '63

Scrapping

Ship scrapping rate increases sharply. il Marine Eng/Log 69:210+ Je 15 '64

Speed

Effect of shallow water on ship speed. H. Lackenby. Naval Eng J 76:21-6 F '64

Stability

Determination of the end drafts of a ship after damage. W. Muckle. diags Naval Eng J 75:993-7 D '63

Sperry builds first automatic stabilization system for commercial hydrofoil. Marine Eng/Log 69:98+ Ap '64

Steering gear

See Steering gear

Stern tubes

Improved bronze tubes for stern bearings. il Engineering 196:775-6 D 20 '63

Testing

Atlantic voyage of a guinea-pig tanker. il Engineering 198:18-20 Jl 3 '64

Seagoing data transmitted to London. Engineering 197:303 F 21 '64

See also
Ships—Model testing

Vibration

Deflection tests on a thrust block for a prototype set of marine propulsion machinery of 22 000 s.h.p. H. E. C. Hims. plans diags Engineer 217:1128-31 Je 26 '64

Hydro-jet propulsion reduces vibration. M. R. Hale and D. H. Vorrie. diags Engineering 198:118-19 Jl 24 '64

SHIPS, Aluminum

Extensive aluminum fabrication used in new coast guard integrated tow. il Marine Eng/Log 69:42 Je '64

High-speed aluminum crew boat. il Marine Eng/Log 69:46 Mr '64

SHIPS, Atomic powered. See Ship propulsion, Atomic

SHIPS, Missile tracking. See Guided missiles—Tracking

SHIPS, Oil well drilling

Distinctive ships; drilling ship Discoverer has auto-positioning. il Marine Eng/Log 68:87 D '63

Drill ship sinks in Gulf; two dead, 18 missing. Oil & Gas J 62:65 Jl 6 '64

Marine drilling and well completions from floating platforms. C. M. Shields. bibliog diag J Pet Tech 16:605-9 Je '64

New drilling ship going to work for Union off California. Oil & Gas J 61:89 D 30 '63

This drill ship can operate in 26 ft of water. L. C. Rogers. il diag Oil & Gas J 62:162+ Je '64

SHIPWRECKS

See also
Salvage

SHIPYARDS

Principal shipbuilding and ship repair yards of the United States. map Marine Eng/Log 69:130-1 Je 15 '64

Reduced-scale lofting system cuts storage space to $^{1}/_{6}$. il Product Eng 35:58 Mr 16 '64

Equipment

Dock crane installation. il Engineer 218:595 O 9 '64

Exclusive report on German shipyards. il Marine Eng/Log 69:57-8 F; 49-51 Mr '64

Fight for the future in UK shipyards. il map plans Engineering 197:645-7 My 8 '64

Reorganisation and reconstruction of shipyard at Govan. il plan Engineer 217:950-2 My 29 '64

Shipyard universal boring mill. il Engineering 197:745 My 29 '64

Unusual vehicle handles heavy prefab sections in shipyard. il Marine Eng/Log 69: 90 F '64

Quality control

Path to quality control. R. R. Hart. Naval Eng J 76:691-6 O '64

Quality control in shipbuilding. O. R. Goode and J. F. Dallinger. il diags Naval Eng J 76:397-407 Je '64

SHOCK absorbers

Pneumatic dunnage. C. E. Davis. il Comp Air Mag 68:26-8 N '63

Shock absorbers stop 2000-lb. test bars. il Hydraulics & Pneumatics 17:23 O '64

Structural damping. il diag Plastics World 22:46 S '64

Viscoelastic composite curbs noise, cuts fatigue. il Chem Eng 71:40+ Ag 31 '64

SHOCK tube

Ames hypervelocity free-flight research. A. Seiff. bibliog il diags Astronautics & Aerospace Eng 1:16-23 D '63

Application of a piezoelectric bar gauge to shock tube studies. D. H. Edwards and others. bibliog diags J Sci Instr 41:609-13 O '64

Area change with a free-piston shock tube. R. J. Stalker. AIAA J 2:396-7 F '64

Chemical reactions in shock tubes; symposium. Phys Today 17:52-4 S '64

Diaphragm scriber for use with shock tube devices. H. S. Greenfield. il diag J Sci Instr 41:341-2 My '64

Effect of gage material on convective heat transfer. D. J. Collins and J. M. Spiegel. AIAA J 2:777-8 Ap '64

Hypersonic test facilities at the Royal aircraft establishment. J. M. Shaw. bibliog il diags Roy Aeronautical Soc J 68:179-88 Mr '64

Injection of liquid hydrocarbons into a chemical shock tube. G. M. Kimber and others. diags Chem & Ind p 1683-4 O 3 '64

Laminar heat transfer to a two-dimensional backward facing step from the high-enthalpy supersonic flow in the shock tube. J. Rom and A. Seginer. bibliog il AIAA J 2:251-5 F '64

Luminous front thickness in electric shock tubes. J. P. Barach and J. A. Sivinski. bibliog J Ap Phys 35:1426-8 My '64

Measurement of uniform flow duration in a chambered, buffered shock tube. S. G. Chapin and W. F. Rumpel. bibliog il AIAA J 2:1499-500 Ag '64

Measurements of shock tube ionization phenomena by a new microwave method. R. A. Brandewie and E. M. Williams. bibliog il diags J Ap Phys 35:2299-308 Ag '64

Measurements of test time in the GALCIT 17-inch shock tube. A. Roshko and J. A. Smith. AIAA J 2:186-7 Ja '64

Nanosecond pulse technique for multiple front studies in shock tubes. M. J. Lubin. il diags R Sci Instr 34:1408-9 D '63

SHOCK tube—*Continued*

Shock tube test time limitation due to turbulent-wall boundary layer. H. Mirels. bibliog diags AIAA J 2:84-93 Ja '64

Studies with a single-pulse shock tube; the thermal isomerization of methyl isocyanide. A. Lifshitz and others. Am Chem Soc J 86:1488-91 Ap 20 '64

Temperature measurement in a chemical shock tube by sodium-line reversal and C_2 reversal methods. D. H. Napier and others. bibliog AIAA J 2:1136-8 Je '64

Unstable species and the isotope effect in the pyrolysis of diborane in a shock tube. T. P. Fehlner and W. S. Koski. bibliog diags Am Chem Soc J 86:1012-18 Mr 20 '64

Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63

Wide aperture valve for evacuating shock tubes. R. H. Collins and D. H. Napier. diags J Sci Instr 41:567-8 S '64

SHOCK waves

Acoustic probe for hypersonic air data sensing. R. R. Berlot. bibliog AIAA J 1:2646-8 N '63

Analytical approach to hypervelocity impact. S. W. Yuan and A. M. Bloom. bibliog AIAA J 2:1667-9 S '64

Anisentropic gas flow. C. N. Kaul. AIAA J 2:1145 Je '64

Blast wave density gauge using beta-radiation. J. M. Dewey and W. A. Anson. bibliog diags J Sci Instr 40:568-72 D '63

Calculation of cylindrical blast wave propagation with counterpressure. B. Steginsky. AIAA J 2:175-8 Ja '64

Calculation of oblique shock waves; discussion. J. L. Briggs. AIAA J 2:974 My '64

Crushing technique uses shock waves in liquid. Chem & Eng N 42:61 S 21 '64

Decay of a magnetohydrodynamic shock wave produced by a piston. R. M. Gundersen. bibliog AIAA J 1:2844-5 D '63

Decay of elastic precursor waves. P. Harris. J Ap Phys 34:3405 N '63

Decay of shock waves in stationary flows. O. S. Ryzhov. bibliog AIAA J 1:2911-15 D '63

Defining the sonic-boom problem. H. A. Hutchinson. bibliog Astronautics & Aerospace Eng 1:56-61 D '63

Describing shock. T. S. Neprud. diags Machine Design 36:142-6 Ap 9 '64

Determination of the maximum transmitted shock at the interface between two condensed media. P. K. Salzman. bibliog AIAA J 2:359-60 F '64

Dissociative relaxation in viscous hypersonic shock layers. C. Park. bibliog diag AIAA J 2:1202-7 Jl '64

Effect of argon addition on shock-layer radiance of CO_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64

Effect of microwave radiation on the ionized gas behind a strong normal shock wave. K. T. Yen. bibliog AIAA J 2:71-5 Ja '64

Effect of shock curvature on turbulent heating of sphere-cones. C. T. Edquist. AIAA J 2:1486-7 Ag '64

Effects of sonic boom and other shock waves on buildings. W. H. Mayes and P. M. Edge, jr. diags Materials Res & Stand 4:588-92; Discussion. 593 N '64

Effects of species diffusion and heat conduction on nonequilibrium flows behind strong shocks. W. E. Gibson and J. D. Buckmaster. bibliog AIAA J 2:1681-8 O '64

Equivalence of nonequilibrium flows behind normal and oblique shock waves. C. W. Chu. AIAA J 2:1833 O '64

Extinction of gas-shock luminosity against transparent surfaces. R. A. Plauson and H. D. Mallory. bibliog il diag J Ap Phys 35:502-7 Mr '64

Far-flow approximations for precursor ionization profiles. L. Wetzel. bibliog AIAA J 2:1208-14 Jl '64

Geomagnetic effects of explosions in the lower atmosphere. K. G. Ivanov. bibliog AIAA J 1:2703-8 N '63

Hypersonic area rule. M. D. Ladyzhenskii. diags AIAA J 1:2696-8 N '63

Hypersonic flow field around a hemisphere in a CO_2-N_2A gas mixture. J. H. Klaimon. bibliog AIAA J 2:953-4 My '64

Influence of stress history on time-dependent spall in metals. B. M. Butcher and others. il diags AIAA J 2:977-90 bibliog (p989-90) Je '64

Instrumentation for shock testing. D. B. Arlidge and R. F. Morse. bibliog diags Electro-Tech 72:96-101 D '63

Interaction between the solar plasma wind and the geomagnetic cavity. L. Lees. bibliog diags AIAA J 2:1576-82 S '64

Investigation of cylindrical starting flows. J. D. Buckmaster. il diags AIAA J 2:1649-50 S '64

Inviscid hypersonic flow past smooth symmetric bodies. S. H. Maslen. bibliog diag AIAA J 2:1055-61 Je '64

Jet-driven resonance tube. P. A. Thompson. bibliog il diag AIAA J 2:1230-3 Jl '64

Lift contribution to the sonic boom. G. A. Bird and C. J. Wetherall. bibliog diags AIAA J 2:582-3 Mr '64

Maximum total pressure recovery across a system of *n* shock waves. L. F. Henderson. AIAA J 2:1138-40 Je '64

Measured temperatures of strong shock waves in argon. J. Roth. bibliog il diags J Ap Phys 35:1429-33 My '64

Measuring the sonic boom and its effect on buildings. C. W. Newberry. il diags Materials Res & Stand 4:601-11 N '64

Metal shaped by shock waves. Naval Eng J 76:295 Ap '64

Method of Belotserkovskii for asymmetric blunt-body flows. E. A. Brong and D. C. Leigh. diag AIAA J 2:1852-3 O '64

Method of continuous shock front position measurement. M. Heusinkveld and F. Holzer. bibliog il diags R Sci Instr 35:1105-7 S '64

Nature of the sonic boom. H. N. C. Lyster. bibliog diags Materials Res & Stand 4:582-7 N '64

Nonequilibrium blunt-body flow using the method of integral relations. W. C. L. Shih and J. R. Baron. bibliog AIAA J 2:1062-71 Je '64

Nonlinear response of a beam to shock pulse. A. B. Schultz. bibliog diags Franklin Inst J 276:385-93 N '63

Normal shock location in underexpanded gas and gas-particle jets. C. H. Lewis, jr. and D. J. Carlson. bibliog il AIAA J 2:776-7 Ap '64

Preliminary estimates of radiative transfer effects on detached shock layers. R. Goulard. bibliog diags AIAA J 2:494-502 Mr '64

Pressure gauge with one-tenth microsecond risetime for shock reflection studies. D. Baganoff. bibliog il diags R Sci Instr 35:288-95 Mr '64

Propagation of shock waves in the ground. T. Ginsburg. bibliog diags Am Soc C E Proc 90 [ST 1 no 3800]:125-63 F '64

Pros and cons of supersonic aviation in relation to gains or losses in the combined time/comfort consideration. B. K. O. Lundberg. bibliog il diags Roy Aeronautical Soc J 68:611-28; Discussion. 628-30 S '64

Real-gas hypersonic blunt-body flows. R. J. Swigart. bibliog AIAA J 1:2642-4 N '63

Reflections on shock and vibration technology. C. T. Morrow. Machine Design 36:208+ Je 18 '64

Response of a thermocouple junction to shock waves in copper. E. P. Palmer and G. H. Turner. diag J Ap Phys 35:3055-6 O '64

Secondary injection of gases into a supersonic flow. E. E. Zukoski and F. W. Spaid. bibliog il diags AIAA J 2:1689-96 O '64

Selecting instruments for monitoring shock. E. S. Charkey. il diag Machine Design 36:136-41 Jl 16 '64

Shock curvature effect on the outer edge conditions of a laminar boundary layer. I. Rubin. AIAA J 1:2850-2 D '63

Shock deformation of rocks. M. R. H. Ramez and P. B. Attewell. bibliog il diags Geophysics 28:1020-36 D '63

Shock detachment distance for blunt bodies in argon at low Reynolds number. A. B. Bailey and W. H. Sims. bibliog il AIAA J 1:2867-8 D '63

Shock dynamics of hypervelocity impact of metals. Y. K. Huang and N. Davids. bibliog diags Franklin Inst J 276:39-50 Jl '63; Same. Naval Eng J 76:577-82 Ag '64

Shock-induced combustion with oblique shocks; comparison of experiment and kinetic calculations. P. M. Rubins and R. P. Rhodes, jr. bibliog il diags AIAA J 1:2778-84 D '63

Shock interaction in a hypersonic flow. F. R. Tepe, jr. and W. Tabakoff. bibliog diag AIAA J 2:1478-80 Ag '64

Shock-layer radiation for sphere-cones with radiative decay. J. H. Chin and L. F. Hearne. bibliog AIAA J 2:1345-7 Jl '64

SHOCK waves—*Continued*
Shock protect mechanical systems in office building-fallout shelter. R. G. Vanderweil. diags Heating-Piping 36:124-8 Jl '64
Shock wave model of unstable rocket combustors. W. A. Sirignano and L. Crocco. bibliog AIAA J 2:1285-96 Jl '64
Shock wave valves. J. C. Muirhead and W. A. Jones. diags R Sci Instr 35:119-20 Ja '64
Shock waves in xenon flashtubes and tube deterioration. K. R. Lang and F. S. Barnes. il diag J Ap Phys 35:107-10 Ja '64
Simple glow discharge probe for detecting weak shock waves at high pressure. J. Wadsworth and F. E. Stokes. J Sci Instr 41:52 Ja '64
Some results of the Oklahoma City sonic boom tests. J. K. Power. il Materials Res & Stand 4:617-23 N '64
Sonic boom comes home. il Astronautics & Aeronautics 2:70-2+ S '64
Sonic boom is no threat to buildings. il Eng N 173:55 Jl 2 '64
Supersonic transport climb path optimization including a constraint on sonic boom intensity. M. Falco. bibliog AIAA J 1:2859-62 D '63
Theoretical penetration of hypervelocity projectiles into massive targets. J. K. Wall. bibliog AIAA J 2:1242-6 Jl '64
Thermal choking of partially ionized gases. K. T. Yen. AIAA J 1:2171-2 S '64; Discussion. 2:1866-8 O '64
Thermal ionization behind strong shock waves. R. W. Truitt. AIAA J 1:2175-6 S '63; Discussion. K. N. C. Bray. 2:1161-2; Reply. 1162 Je '64
Transonic experiment at hypersonic speed. S. C. Traugott. bibliog diag AIAA J 2:1521-7 S '64
Transonic flow past two-dimensional aerofoils. D. W. Holder. il diags Roy Aeronautical Soc J 68:501-16 bibliog(p515-16) Ag '64
Transonic similarity correlation of the terminal shock jump on aerofoils. D. G. Mabey. bibliog diags Roy Aeronautical Soc J 68:199-203 Mr '64
Use of photographic triangulation in determining the positions of objects in large-scale experiments. D. E. Phillips. flow chart il diags SMPTE J 72:869-71 N '63
Vibrational relaxation in air. D. R. White and R. C. Millikan. bibliog il AIAA J 2:1844-6 O '64
See also
Photography of shock waves
Shock tube

SHOE industry and trade
See also
Shoe stores

SHOE stores
Chilean shoes on Fifth avenue. il plan Prog Arch 45:172-3 Ap '64

Lighting

Interior brightness for a glass front store. il Illum Eng 59:124-5 F '64

SHOES
See also
Heels, Plastic

SHOES, Rubber, plastic, etc.
Du Pont brings out leather-like synthetic called Corfam. il Mod Textiles Mag 44:58 N '63
Plastic shoe leather tries industrial jobs. Machine Design 36:10 Je 18 '64
Wide plastics usage in footwear. il Brit Plastics 37:472-9 S '64

SHOES, Safety
Keeping up with foot protection developments. il Safety Maint 127:29-30 My '64
Safety shoe store's a sleeper. il Safety Maint 127:15 Mr '64
We use safety shoes as safety incentives. J. F. Markel. il Safety Maint 127:14-16 Ap '64

SHOP management
See also
Plumbing shops—Management

SHOPPING centers
Casual elegance in a shopping center; Garden Kitchen restaurant. il plan Arch Rec 136:210-11 S '64
Caution advised on shopping centers. il Arch Forum 120:9 Mr '64
Color and texture brighten a compact shopping center. il plan Arch Rec 135:174-6 Je '64
New signs ease traffic snarls at shopping centers. il Pub Works 95:107-8 Mr '64
P/A eleventh annual design awards; Washington Park shopping center, Boston. il plans diags Prog Arch 45:118-21 Ja '64
Swiss cover-up shopping center. il Eng N 173:154 S 17 '64
Unified variety on a fountained mall. il plan Arch Rec 135:166-9 Je '64

Air conditioning

See Store buildings—Air conditioning

Electric equipment

All-electric department store; 7½ acre shopping center in Sherman Oaks, Calif. G. B. Karr. il plan diags Elec Constr & Maint 62:70-4 D '63
Annual on-site generation savings exceed $23,000 at J M. Fields shopping center. il diag Power 108:74-5 Ag '64
Do-all power system for shopping center. B. Sterrett. il Gas 40:114-17 F '64
Utilities set on the roof of Phoenix shopping center. il plan diags Arch Rec 134:136-8 D '63

Heating and ventilation

See Store buildings—Heating and ventilation

Lighting

Lighting a shopping center parking area; data sheet. L. Odry. il diag Illum Eng 59:410-11 sec 2 My '64
Shopping district rejuvenated with light. il Illum Eng 59:432 Je '64

SHOPS, Railroad. See Railroads—Shops

SHORE lines
Oblique propagation of groundwaves across a coastline. J. R. Wait; C. M. Jackson. bibliog diags J Res Nat Bur Stand 67D:617-30; 68D:291-6 N '63, Mr '64
Reservoir topography by shoreline plotting. D. L. Crandall. il maps Am Soc C E Proc 90 [SU 1 no 3874]:39-56 Ap '64
Retreat of lakeshore bluffs. H. J. Pincus. bibliog il diags Am Soc C E Proc 90 [WW 1 no 3809]:115-34 F '64
See also
Coast changes
Continental shelf

SHORE protection
Model tests of coastal protective structures in USSR. O. W. Kabelac. diags Am Soc C E Proc 89 [WW 1 no 3433]:21-34 F '63; Discussion. P. P. Goldstern. 89 [WW 4 no 3703]:99-102 N '63; Reply. 90 [WW 2 no 3917]:29-32 My '64
See also
Breakwaters

SHORING and underpinning
Drilled caissons cut underpinning cost. V. C. Sloane. il diags Eng N 173:36+ S 3 '64
Field observation of structures damaged by settlement. D. McKinley. bibliog il diags Am Soc C E Proc 90 [SM 5 no 4054]:249-68 S '64
New piers for old while deck raised on blocks. il diags Roads & Sts 107:48-9+ Jl '64
Old method with new twist solves bank shoring problem. H. R. Gould. il diag Civil Eng 34:50-2 F '64
Old walls take new roots. diag Eng N 172:51 Ap 16 '64

SHORT circuits
Circuit protects amplifier against short circuit. E. Segatis. diags Electronics 37:61-2 Ag 24 '64
Short-time annealing characteristics of electrical conductors. L. F. Roehmann and E. Hazan. bibliog il IEEE Trans Power Apparatus & Systems p 1061-7; Discussion. 1067-8 D '63

SHORTENING
Determination of lactic acid in shortening containing lactylated glycerides, by liquid-liquid partition chromatography. R. J. Buswell. Am Oil Chem Soc J 41:457-9 Jl '64
Rapid oxygen bomb method for evaluating the stability of fats and shortenings. W. D. Pohle and others. Am Oil Chem Soc J 40:603-5 N '63
Some aspects of the edible fat industry in the United Kingdom. A. A. McKerrigan. Am Oil Chem Soc J 41:sup56+ Ap '64
Studies of the oxygen bomb method for determining shortening stabilities. J. E. Bennett and M. J. Byer. Am Oil Chem Soc J 41:505-7 Jl '64

SHOT blasting
Blast cleaner combines core knockout. il Steel 153:31-2 D 23 '63
Blast cleaning of metal castings. P. C. Bardin. Ind Finishing 40:70 Ja '64

SHOT blasting—*Continued*

Properties and applications of cut wire. W. Zieler and P. U. Schmithals. bibliog il Wire & Wire Prod 38:1842-51+ D '63

Shot blasting of wire rods in coils. T. Strand. il diags Wire & Wire Prod 39:211+ F '64

Shotblasting vanes take new angles. diags Iron Age 194:69 O 22 '64

See also
Shot peening

SHOT effect

Experimental analysis of the Schottky barrier layer model for reduced rutile diodes. R. Bechtel. diags J Ap Phys 35:2142-4 Jl '64

Photoelectric determination of the image force dielectric constant for hot electrons in Schottky barriers. S. M. Sze and others. bibliog J Ap Phys 35:2534-6 Ag '64

Relationship between the Schottky emission mechanism and the energy bands of thin-film metal-insulator-metal configuration. M. Hacskaylo. bibliog diag J Ap Phys 35:2943-7 O '64

SHOT peening

Peening increases fatigue strength of welded aluminum. G. E. Nordmark. il diag Metal Prog 84:101-3 N '63

SHOVELING machines

Big backhoe travels on crawlers. il Eng N 172:45 Mr 12 '64

Crawler-tractor shovel. il Engineer 218:254 Ag 14 '64

Excavator with its own firm base. il diag Engineering 197:217 F 7 '64

Hydraulic backhoe telescopes. il Eng N 172:50 F 27 '64

Hydraulic hoe built for open pit work. il Coal Age 69:124 Je '64

Improved casting bay operations; Steel company of Wales ltd. il Engineer 218:139 Jl 24 '64

Mobile excavator/loader machine. il Engineer 217:270 F 7 '64

New bucket wheel to shock Chalk Point coal. il Elec World 161:66 Je 1 '64

Pullshovel with hydraulic wrist improves selective mining at Lucky Mc. il diags Eng & Min J 165:158-60 Je '64

Second largest shovel ups tonnage and life at mine 19. il diags Coal Age 69:96-100+ F '64

Texas operator boosts production with blasting change, mobile loader. il Pit & Quarry 56:44 D '63

Two 60-cu yd draglines up Pittsburgh & Midway coal mining co. uncovering capacity. il Coal Age 69:78-81 Ag '64

When a canyon job is really tough. il Roads & Sts 107:52-5+ Mr '64

See also
Buckets

Maintenance and repair

Epoxy joins welding in tough build-up job. il diag Welding Eng 49:45 Jl '64

Epoxy repairs worn deck plate, extends life of veteran shovel. il diag Coal Age 69:120+ Je '64

Rubber-tired tractor shovel maintenance; lube and service. H. C. Burt. il Pit & Quarry 56:131 F '64

SHOW windows

Lighting

Nighttime street scenes; smartly lighted stores. il Illum Eng 59:120-2 F '64

SHOWER baths

Gas heating for showers. il diag Engineering 197:848 Je 19 '64

Safety equipment in the lab. W. A. S. Denham. il Res/Develop 15:24-8 S '64

SHOWROOMS

See also
Automobile sales buildings

Lighting

Many faces of Yardley's showroom. il Illum Eng 59:428-31 Je '64

Technique for a photographic studio. il Illum Eng 59:31 Ja '64

SHRIMPS

Astacene pigment loss occurring in freeze-dried shrimp and salmon during storage. G. Lusk and others. bibliog Food Tech 18:751-2 My '64

Preservation of shrimp. A. F. Novak. ASHRAE J 6:37-9 My '64

SHRIMPS, Frozen

Preservation of shrimp. A. F. Novak. ASHRAE J 6:37-9 My '64

SHRINKAGE of ceramic materials. See Ceramic materials—Expansion and contraction

SHRINKAGE of concrete. See Concrete—Expansion and contraction

SHRINKAGE of metals

Shrinkage test for gray iron. J. F. Wallace. il diag Foundry 92:40-3 Ja '64

SHRINKAGE of plastics. See Plastics—Expansion and contraction

SHRINKPROOFING. See Wool—Shrinkproofing

SHRUBS

See also
Boxwood

SHUTTERS (photography). See Camera shutters

SHUTTLES

Better shuttle check? il Textile Ind 128:109-10+ Ag '64

SICILY

See also
Chemical industries—Sicily
Petroleum—Sicily

SICKNESS benefit plans

Sick absence in certain western countries. P. E. Enterline. bibliog Ind Med 33:738-41 O '64

SIDERITE

Cationic flotation of silica from algoma siderite. J. G. Morrow and others. Can Min & Met Bul 56:868-73 D '63

Geochemical studies at the Helen iron range. A. M. Goodwin. bibliog il maps diags Econ Geol 59:684-718 Je '64

SIDEWALKS

Lighting

Lighting a sidewalk and building facade sign; data sheet. T. P. Ferris and G. T. Anderson, jr. il Illum Eng 59:132 F '64

SIDING (building)

Grounding of metal-clad buildings. il Safety Maint 127:37+ My '64

Home improvement show; smaller turnout was no reflection on expectations of record sales. F. Shires. il Mod Metals 20:46+ Ap '64

Noninsulated metal siding provides saving of more than $80,000. L. V. Gibney. diags Power Eng 68:48-9 O '64

Prime coating, drying new cedar siding. il Ind Finishing 40:35 O '64

Siding fastener is hidden. il Eng N 173:52 Ag 20 '64

Steel siding; how great is the threat? F. L. Church. diag Mod Metals 19:58+ D '63

Trim truck aids siding operation. il Mod Metals 20:66 F '64

Vinyl house siding. il Plastics World 22:72-3 Ap '64

Vinyl siding makers gear for battle. il Chem & Eng N 42:26-7 O 19 '64

Why paint failures on aluminum siding; question and answer. Ind Finishing 40:100+ S '64

SIERRA LEONE

See also
Mines and mineral resources—Sierra Leone

SIERRA NEVADA

Geophysical studies of basin structures along the eastern front of the Sierra Nevada, California. J. H. Healy and F. Press. bibliog maps Geophysics 29:337-59 Je '64

Mineralogical relations in some pelitic hornfelses from the southern Sierra Nevada, Calif. M. G. Best and L. E. Weiss. il maps diags Am Mineralogist 49:1240-66 bibliog (p 1264-6) S '64

Potassium-argon dates of three pleistocene interglacial basalt flows from the Sierra Nevada, Calif. G. B. Dalrymple. bibliog map Geol Soc Bul 75:753-7 Ag '64

SIEVES

Correcting sieve results to nominal values. E. R. Goffaux. Materials Res & Stand 4:157-8 Ap '64

Sieve techniques for obtaining small amounts of narrowly classified particles. C. M. Hunt and A. R. Woolf. il diag Materials Res & Stand 4:364-5 Jl '64

Sifter design cuts costs. il Food Eng 36:104 Ap '64

SIGHT

Seeing a satellite from a satellite. I. Schmidt. bibliog diags Astronautics & Aeronautics 2:31-8 My '64

Stereoscopy in space. J. H. Waddell. il Res/Develop 15:30-1 My '64

Taking advantage of man's vision in space. W. B. Clark and others. Space/Aeronautics 41:99+ Mr '64

SIGHT—*Continued*

Visibility of small luminance perturbations in television displays. G. F. Newell and W. K. E. Geddes. bibliog il Inst E E Proc 110:1979-84 N '63

Visual cortex of the brain. D. H. Hubel. il diags Sci Am 209:54-62 N '63

See also

Blindness
Visibility

SIGNALS, Railroad. See Railroads—Signals

SIGNALS and signalling

See also

Electric signals
Railroads—Signals

SIGNS

Lighting a sidewalk and building facade sign; data sheet. T. P. Ferris and G. T. Anderson, jr. il Illum Eng 59:132 F '64

Shopping center sign arc welded. il Welding Eng 48:64 D '63

Sign lighting as an integral part of a structure. D. W. King. il Illum Eng 59:126 F '64

See also

Road signs
Safety signs
Traffic signs

SIGNS, Plastic

Finishing and decorating molded plastics. R. H. Hollis. il Ind Finishing 40:24-7 Mr '64

SILAGE

Influence of dried-grass silage and silage fractions on the basal metabolic rate of rats. G. A. McLaren and others. J Nutrition 83:218-24 Jl '64

SILANES

Addition of silicon hydrides to olefinic double bonds; the addition of trichlorosilane-*d*. J. W. Ryan and J. L. Speier. bibliog Am Chem Soc J 86:895-8 Mr 5 '64

Determination of mercaptosilanes by perchloric acid-catalyzed acetylation and with mercuric acetate. A. Berger and J. A. Magnuson. Anal Chem 36:1156-7 My '64

Epitaxial deposition of silicon by thermal decomposition of silane. S. R. Bhola and A. Mayer. bibliog il diag RCA R 24:511-22 D '63

Epitaxial deposition of silicon layers by pyrolysis of silane. S. E. Mayer and D. E. Shea. bibliog diags Electrochem Soc J 111:550-6 My '64

Intramolecular interactions between nonbonded chromophores; the spectra of some phenylsilanes and siloxanes. J. F. Brown, jr. and P. I. Prescott. bibliog Am Chem Soc J 86:1402-9 Ap 5 '64

Linear Si-N polymers prepared. Chem & Eng N 42:26-7 Ja 6 '64

Preparation and characterization of the lower equilibrated phenylsilsesquioxanes. J. F. Brown, jr. and others. bibliog Am Chem Soc J 86:1120-5 Mr 20 '64

Preparation of a pentasilacyclooctane. H. Gilman and S. Inoue. Chem & Ind p74-5 Ja 11 '64

Preparation of tris(trimethylsilyl)- and tris(trimethylstannyl)amines. W. L. Lehn. Am Chem Soc J 86:305 Ja 20 '64

Reactions and structure of decaphenylcyclopentasilane. H. Gilman and G. L. Schwebke. bibliog Am Chem Soc J 86:2693-9 Jl 5 '64

Role of dissolved lithium in the reaction between triethylsilane and ethylamine. A. Viste and H. Taube. bibliog Am Chem Soc J 86:1691-3 My 5 '64

Stereochemistry of asymmetric silicon; relative and absolute configurations of optically active α-naphthylphenylmethylsilanes. L. H. Sommer and others. bibliog Am Chem Soc J 86:3271-6 Ag 20 '64

Tetrakis(trimethylsilyl)silane. H. Gilman and C. L. Smith. Am Chem Soc J 86:1454 Ap 5 '64

Ultraviolet properties of some polysilanes. H. Gilman and others. Chem & Ind p 1063 Je 20 '64

Ultraviolet spectra of phenyldisilicon derivatives. D. N. Hague and R. H. Prince. Chem & Ind p 1492 Ag 22 '64

SILANOL. See Silicols

SILENCERS

Gas turbine silencers. il Mech Eng 86:62-8 S '64

Gas turbine silencers. O. C. Eckel. bibliog A S M E Trans ser A 86:57-62 Ja '64

How silencers made dredge's invisible smokestacks possible. Marine Eng/Log 69:112+ S '64

Silencing equipment for industrial gas turbines. il Engineer 218:37-8 Jl 3 '64

SILICA

Adsorption of colloidal silica on alumina and of colloidal alumina on silica. R. K. Iler. bibliog il Am Cer Soc J 47:194-8 Ap '64

Anodic oxide films for device fabrication in silicon; controlled incorporation of phosphorus into anodic oxide films on silicon. P. F. Schmidt and A. E. Owen. bibliog il Electrochem Soc J 111:682-8 Je '64

Cationic flotation of silica from algoma siderite. J. G. Morrow and others. Can Min & Met Bul 56:868-73 D '63

Correlation of slag resistance with the pore structure of an alumina-silica refractory. T. Vojnovich and others. bibliog diag Am Cer Soc Bul 43:514-17 Jl '64

Dehydration series in the system $CaSiO_3$-SiO_2-H_2O. R. I. Harker. bibliog il Am Cer Soc J 47:521-9 O '64

Dissolution in ceramic systems; dissolution of alumina, mullite, anorthite, and silica in a calcium-aluminum-silicate slag. B. N. Samaddar and others. il diag Am Cer Soc J 47:249-54 My '64

Effect of silica on transformations of fibrillar colloidal boehmite and gamma alumina. R. K. Iler. bibliog Am Cer Soc J 47:339-41 Jl '64

Effects of γ-radiation on the surface properties of silica as studied by the infrared spectra of adsorbed molecules. D. J. C. Yates and P. J. Lucchesi. bibliog Am Chem Soc J 86:4258-65 O 20 '64

Electron optical observations of fine-grained silica minerals. E. A. Monroe. bibliog il Am Mineralogist 49:339-47 Mr '64

Epic process isolates integrated circuit elements with silicon dioxide. diags Electro-Tech 74:136 Jl '64

Filtration and electrophoretic mobility studies of flocculated silica suspensions. J. C. Kane and others. bibliog Am Chem Soc J 86:3450-3 S 5 '64

Glass-bead silica determination for a suite of volcanic rocks from the Owyhee Plateau, Ore. L. R. Kittleman, jr. bibliog Geol Soc Bul 74:1405-9 N '63

High-temperature phase equilibria for the partial system $3CaO.MgO.2SiO_2$-$MgO.Al_2O_3$-$2CaO.Al_2O_3.SiO_2$ in the quaternary system CaO-SiO_2-Al_2O_3-MgO. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64

Hydrogen induced surface states at a Si-SiO_2 interface. K. H. Zaininger and G. Warfield. IEEE Proc 52:972-3 Ag '64

Hydrothermal preparation of a gehlenite hydrate. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:449-52 S '64

Influence of silica on the hydration of $3CaO,SiO_2$. H. N. Stein and J. M. Stevels. bibliog il J Ap Chem 14:338-46 Ag '64

Ion exchange properties of a crystalline hydrated silica. R. K. Iler. bibliog J Colloid Sci 19:648-57 S '64

Lightweight thermal insulation for furnaces; Refrasil. il Chem Eng 71:56 Mr 30 '64

Method for vacuum evaporation of silicon oxide films. F. Nesh. diag R Sci Instr 34:1437 D '63

Method of sealing evacuated wide bore silica tubing. D. E. Hill and G. D. King. diags J Sci Instr 41:187-8 Mr '64

Moon's photometric properties matched by man-made material. W. I. Dobar. il Space/Aeronautics 42:76-7 Jl '64

1010° and 800° isothermal sections in the system Na_3AlF_6-Al_2O_3-SiO_2. D. F. Weill and W. S. Fyfe. bibliog Electrochem Soc J 111:582-5 My '64

Origin of the silica sand deposits of the Lake Wales Ridge area of Florida. E. C. Pirkle and others. bibliog il maps Econ Geol 59:1107-39 S '64

Phase equilibria in the system NiO-Al_2O_3-SiO_2. B. Phillips and others. bibliog Am Cer Soc J 46:579-83 D '63

Radiation-induced stress relaxation in quartz and vitreous silica. W. Primak. bibliog diags J Ap Phys 35:1342-7 Ap '64

Rates of formation of thermal oxides of silicon. H. C. Evitts and others. diag Electrochem Soc J 111:688-90 Je '64

Relation between *E′* centers and hydroxyl bonds in silica. R. A. Weeks and E. Lell. bibliog diag J Ap Phys 35:1932-8 Je '64

Silica-alumina catalysis theory unfolds. M. R. Basila and others. Chem & Eng N 42:42-4 O 5 '64

Silica reduction reaction in the blast-furnace. D. A. R. Kay and J. Taylor. Iron & Steel Inst J 201:67-70; 202:420-3 Ja '63, My '64; Discussion. 202:221-4 Mr '64

SILICA—*Continued*

Silicon dioxide films grown at low temperatures. il Bell Lab Rec 42:205 Je '64

Silicon dioxide films grown at low temperatures. Franklin Inst J 278:68-9 Jl '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

Successive growth of Si and SiO_2 in epitaxial apparatus. W. Steinmaier and J. Bloem. bibliog diag Electrochem Soc J 111:206-9 F '64

Surface properties and flow behavior of kaolinite; flow of kaolinite sols through a silica column. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:846-62 D '63

Surface properties of silica; abstract and discussion. J. A. Hockey. Chem & Ind p984 Je 6 '64

Ultrasonic relaxation loss in OH-free SiO_2. R. E. Strakna and H. T. Savage. J Ap Phys 35:1363 Ap '64

Ultrasonic relaxation loss in SiO_2 GeO_2 B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64

Use of low-temperature deposited silicon dioxide films as diffusion masks in GaAs. S. W. Ing, jr. and W. Davern. il Electrochem Soc J 111:120-2 Ja '64

Viscosities in silicate slag systems. P. M. Bills. bibliog Iron & Steel Inst J 201:133-40 F '63; Discussion. 202:221-4 Mr '64

See also

Cristobalite
Quartz
Quartzite

Analysis

Design and performance of a high-temperature X-ray diffractometer furnace. R. K. Scott and E. Ruh. bibliog il diag Am Cer Soc J 46:513-15 N '63

Determination of silica in the presence of phosphate and fluoride. F. W. Czech and others. bibliog Anal Chem 36:2026-7 S '64

SILICA, Fibrous

Tensile strength of a silica fibre reinforced aluminium alloy. D. Cratchley and A. A. Baker. bibliog il diags Metallurgia 69:153-9 Ap '64

SILICA, Fused

Fused silica optics for solar simulator. Franklin Inst J 278:71 Jl '64

Orientation of cristobalite formed on the surface of amorphous silica plates. R. F. Hochman and J. D. Fleming. il diag Am Cer Soc J 47:104 F '64

Room-temperature dielectric properties of fast-neutron-irradiated fused silica and α alumina. J. B. MacChesney and G. E. Johnson. bibliog J Ap Phys 35:2784-5 S '64

Second Stratoscope II flight uses fused silica mirror. Franklin Inst J 277:185-6 F '64

Simple laboratory device for winding fused quartz springs and an improved design of spring for use in sorption balances. C. T. Hawkins and J. W. G. Musty. diags J Sci Instr 40:544-5 N '63

Slip cast fused silica cuts radome costs. V. A. Chase and R. L. Copeland. il Cer Ind 83:91-5+ S '64

Ultrasonic loss in fused silica below 100°K. J. T. Krause. Am Cer Soc J 47:103 F '64

SILICA gel

Adsorption of colloidal silica on alumina and of colloidal alumina on silica. R. K. Iler. bibliog il Am Cer Soc J 47:194-8 Ap '64

Economic balance shows when to change out desiccant. Oil & Gas J 62:116 O 19 '64

Effect of pore size of silica gels on the separation of hydrocarbons. A. V. Kiselev and others. bibliog Anal Chem 36:1526-33 Jl '64

Keeps powders free-flowing. il Food Eng 36:102 Ag '64

Kinetics of *n*-butane adsorption on various particle sizes of silica gel by gas-solid chromatography. P. E. Eberly, jr. bibliog J Ap Chem 14:330-7 Ag '64

More insight into adsorption design. J. M. Campbell and others. bibliog diags Hydrocarbon Process & Pet Refiner 42:89-96 D '63

Novel preparation of finely divided colloidal silica. A. F. Sirianni and I. E. Puddington. bibliog Can J Chem Eng 42:42-3 F '64

Practical way to predict silica gel performance. E. A. Simpson and W. P. Cummings. bibliog flow diag diags Chem Eng Prog 60:57-60 Ap '64

Separation of triglycerides by column chromatography on silica impregnated with silver nitrate. B. de Vries. bibliog Am Oil Chem Soc J 41:403-6 Je '64

Synthetic silicas. il Plastics World 21:20-1 D '63

Thorium interaction with the silanol group, water, and nitrate in the pores of silica gel. J. Stanton and R. W. Maatman. bibliog J Colloid Sci 18:878-85 D '63

SILICATES

Cross-linking of borate polymer chains by means of silicates. J. Krogh-Moe. bibliog Am Cer Soc J 47:307 Je '64

Direct spectrophotometric microdetermination of high-level magnesium in silicate minerals; a Clayton yellow procedure. R. Meyrowitz. Am Mineralogist 49:769-77 My '64

Preparation of organic silicates from silicon tetrachloride vapour. H. G. Emblem and others. bibliog il diags Ind Chem 39:576-9, 641-8 N-D '63

Sapphirine bearing rock, Val Codera, Italy. F. Barker. bibliog diags Am Mineralogist 49:146-52 Ja '64

Static stress fatigue and strength of a vitreous silicate. W. C. Levengood. bibliog il diags J Ap Phys 35:424-33 F '64

Structure of borosilicate and borogermanate melts at 1300°C; a viscosity and density study. E. F. Riebling. bibliog Am Cer Soc J 47:478-83 O '64

Theoretical solubility of H_2O in silicate melts: quasi-crystalline models. H. R. Shaw. J Geol 72:601-17 bibliog(p617) S '64

X-ray powder data for aminoffite. J. A. Mandarino. Am Mineralogist 49:212-14 Ja '6

See also

Albite
Alkali metal silicates
Allanite
Aluminum silicates
Amphiboles
Barium silicates
Calcium silicates
Copper silicates
Glass
Glauconite
Kaolin
Lapis lazuli
Lead silicates
Manganese silicates
Mica
Pectolite
Pegmatites
Peridotite
Potassium silicates
Pyroxenes
Scapolite
Serpentine
Sillimanite
Sodium silicates
Talc
Vermiculite
Wollastonite
Zeolites
Zinc silicate
Zircon

Analysis

Silicate sample preparation for light-element analyses by X-ray spectrography. E. E. Welday and others. bibliog Am Mineralogist 49:889-903 Jl '64

Spectrophotometric determination of silicon in ethyl and polyethyl silicates by the molybdovanadate method. R. B. Lew and W. Oyung. Anal Chem 36:1857-8 Ag '64

SILICIC acid

Silicic acid-silver nitrate chromatography as an enrichment technique in fatty acid analysis. M. K. Bhatty and B. M. Craig. Am Oil Chem Soc J 41:508-10 Jl '64

SILICIDES

Cementation coatings for refractory metals. B. S. Payne, jr. il Am Cer Soc Bul 43:567-71 Ag '64

SILICOLS

Thorium interaction with the silanol group, water, and nitrate in the pores of silica gel. J. Stanton and R. W. Maatman. bibliog J Colloid Sci 18:878-85 D '63

SILICON

About silicon diodes and dc frame grounds. il Coal Age 69:98-100 Ag '64

Activities of silicon in metals and alloys. P. J. Bowles and others. bibliog diags Iron & Steel Inst J 202:113-21 F '64

Activity of silicon in liquid iron solutions. G. Smith and J. Taylor. bibliog Iron & Steel Inst J 202:577-80 Jl '64

SILICON—*Continued*

Alkali ion doping of silicon. J. O. McCaldin and A. E. Widmer. bibliog IEEE Proc 52:301-2 Mr '64

All silicon tape playback preamps and recording circuit. J. Abajian, jr. and D. V. Jones. il diags Audio 48:22-8+ O '64

Anodic oxide films for device fabrication in silicon; controlled incorporation of phosphorus into anodic oxide films on silicon. P. F. Schmidt and A. E. Owen. bibliog il Electrochem Soc J 111:682-8 Je '64

Application of silicon planar p-n-p-n switches. S. Lukens. diags Ind Electronics 2:438-40 S '64

Chemical polishing of silicon with anhydrous hydrogen chloride. G. A. Lang and T. Stavish. il RCA R 24:488-98 D '63

Comparison of the photoelectric properties of cleaved, heated, and sputtered silicon surfaces. F. G. Allen and G. W. Gobeli. bibliog diags J Ap Phys 35:597-605 Mr '64

Degradation of planar junctions during reoxidation. F. Barson and others. bibliog il Electrochem Soc J 111:1263-6 N '64

Dependence on deposition conditions of the dopant concentration of epitaxial silicon layers. R. Nuttall. bibliog flow diag Electrochem Soc J 111:317-23 Mr '64

Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64

Diffusion-induced dislocations in silicon. J. Washburn and others. bibliog il diags J Ap Phys 35:1909-14 Je '64

Dislocations in webs of germanium and silicon. S. O'Hara. bibliog il diag J Ap Phys 35:409-13 F '64

Effect of growth rate on stacking-fault density in epitaxial silicon layers. M. R. Notis and G. P. Conrad. bibliog il J Ap Phys 35:695-7 Mr '64

Effect of heat treatment on the optical properties of heavily doped silicon and germanium. W. G. Spitzer and others. bibliog J Ap Phys 35:206-11 Ja '64

Effects of impurities on radiation damage of silicon solar cells. J. Mandelkorn and others. bibliog J Ap Phys 35:2258-60 Jl '64

Elastic moduli of silicon vs hydrostatic pressure at 25.0°C and -195.8°C. H. J. McSkimin and P. Andreatch, jr. J Ap Phys 35:2161-5 Jl '64

El cheapo 2-30. R. R. Moore. il diags Audio 48:19-21+ N '64

Electrical properties of heavily doped silicon. P. W. Chapman and others. bibliog J Ap Phys 34:3291-5 N '63

Electrode reactions and mechanism of silicon anodization in N-methylacetamide. E. F. Duffek and others. bibliog il diags Electrochem Soc J 111:1042-6 S '64

Electron extinction distance in silicon. D. R. Frankl. bibliog il J Ap Phys 35:217-19 Ja '64

Electron microscope study of the precipitation of M_3Si and σ-phase formation in a 12 per cent Cr-4 per cent Ni steel. J. V. Hardy and G. T. Brown. il Iron & Steel Inst J 202:437-40 My '64

Ellipsometer investigation of vapor adsorption on etched silicon. B. H. Claussen. bibliog Electrochem Soc J 111:646-52 Je '64

Energy dependence of proton irradiation damage in silicon. W. Rosenzweig and others. bibliog J Ap Phys 35:2707-11 S '64

Epitaxial deposition of silicon and germanium layers by chloride reduction. E. F. Cave and B. R. Czorny. bibliog il diags RCA R 24:523-45 D '63

Epitaxial deposition of silicon by thermal decomposition of silane. S. R. Bhola and A. Mayer. bibliog il diag RCA R 24:511-22 D '63

Epitaxial deposition of silicon layers by pyrolysis of silane. S. E. Mayer and D. E. Shea. bibliog diags Electrochem Soc J 111:550-6 My '64

Epitaxial growth of silicon by vacuum sublimation. E. T. Handelman and E. I. Povilonis. bibliog il diags Electrochem Soc J 111:201-6 F '64

Epitaxial growth of silicon from the pyrolysis of monosilane on silicon substrates. B. A. Joyce and R. R. Bradley. bibliog il diag Electrochem Soc J 110:1235-40 D '63

Epitaxial p-type germanium and silicon films by the hydrogen reduction of $GeBr_4$, $SiBr_4$, and BBr_3. K. J. Miller and M. J. Grieco. bibliog diag Electrochem Soc J 110:1252-6 D '63

Epitaxial silicon varactors at low temperatures and microwave frequencies. H. J. Fink and R. L. Rulison. bibliog diag IEEE Proc 52:420 Ap '64

Evaluation of passivated integrated circuits using the scanning electron microscope. T. E. Everhart and others. bibliog il diags Electrochem Soc J 111:929-36 Ag '64

Evidence for existence of dimethylsilene found by U.S. and U.S.S.R. chemists. Chem & Eng N 42:40-1 Ap 6 '64

Evidence for oxidation growth at the oxide-silicon interface from controlled etch studies. W. A. Pliskin and R. P. Gnall. Electrochem Soc J 111:872-3 Jl '64

Formation of silicon whiskers. R. W. Roberts and others. il J Ap Phys 35:248 Ja '64

Frequency response of the surface inversion layer in silicon. S. R. Hofstein and others. diag IEEE Proc 52:971-2 Ag '64

Gamma irradiation of silicon; levels in *n*-type float-zone material. E. Sonder and L. C. Templeton. bibliog J Ap Phys 34:3295-301 N '63

Gold-epitaxial silicon high-frequency diodes. D. Kahng and L. A. D'Asaro. bibliog diags Bell System Tech J 43:225-32 Ja '64

Growth of lattice defects in silicon during oxidation. H. J. Queisser and P. G. G. van Loon. il J Ap Phys 35:3066-7 O '64

High-frequency properties of epitaxial silicon *p-n* junctions at low temperatures. H. J. Fink. bibliog J Ap Phys 35:1883-9 Je '64

High photovoltages in silicon and silicon carbide films and their origin from a trap-induced space charge. H. W. Brandhorst, jr. and A. E. Potter, jr. bibliog J Ap Phys 35:1997-2003 Jl '64

High-power epitaxial silicon varactor diodes. H. Kressel and M. A. Klein. bibliog diags RCA R 24:616-26 D '63

Hydrogen induced surface states at a $Si\text{-}SiO_2$ interface. K. H. Zaininger and G. Warfield. IEEE Proc 52:972-3 Ag '64

Incorporation of boron into epitaxially grown silicon. Y. Matukura and others. diag Electrochem Soc J 111:491-2 Ap '64

Induced anisotropy in YIG with Si and Mn additions. E. M. Gyorgy and F. J. Schnettler. J Ap Phys 35:1067-8 pt 2 Mr '64

Iron-rich hard spots formed by silicon and boron in brasses. D. A. Hudson. bibliog il diag Inst Metals J 92:280-8 '63-64

Kinetics of epitaxial growth of silicon from the trichlorosilane-hydrogen reaction. A. M. Stein. bibliog diag Electrochem Soc J 111:483-4 Ap '64

Large-area silicon solar power cell. il Engineering 197:288 F 21 '64

Low temperature passivation of silicon devices using evaporated lead film. T. Tokuyama. IEEE Proc 52:723-4 Je '64

Lowering the breakdown voltage of silicon *p-n* junctions by stress. A. Goetzberger and R. H. Finch. il diag J Ap Phys 35:1851-4 Je '64

Luminescence during the anodic oxidation of silicon. W. Waring and E. A. Benjamini. bibliog il Electrochem Soc J 111:1256-9 N '64

Measurement of the resistivity of epitaxial vapor grown films of silicon by an infrared technique. T. G. R. Rawlins. bibliog diags Electrochem Soc J 111:810-14 Jl '64

Mechanism of gold diffusion into silicon. W. R. Wilcox and T. J. LaChapelle. bibliog J Ap Phys 35:240-6 Ja '64

Multiple slice epitaxial deposition of silicon in resistance heated furnace. B. A. Lombos and T. R. Somogyi. bibliog diags Electrochem Soc J 111:1097-9 S '64

Multiplication and division using silicon diodes. H. L. Kahn. diags R Sci Instr 33:235-8 F '62; Discussion. L. Eisenberg. 34:592-3 My '63; Reply. 35:135 Ja '64

Mutual interaction between microplasmas in silicon *p-n* junctions. I. Ruge and G. Keil. bibliog il diags J Ap Phys 34:3306-8 N '63

Negative transfer resistance effect in *p*-type silicon. E. M. Suden and others. diag IEEE Proc 52:1051 S '64

Nondestructive method for revealing stacking faults in epitaxial silicon. R. H. Dudley. il J Ap Phys 35:1360-1 Ap '64

Nuclear pulse enhancement in silicon p-n junction radiation detectors. R. J. Grainger and N. A. Baily. R Sci Instr 35:232-3 F '64

Oxygen adsorption on silicon surfaces observed via electron spin resonance. K. A. Müller and others. bibliog J Ap Phys 35:2254-6 Jl '64

SILICON—*Continued*

Polycrystalline silicon films on foreign substrates. W. J. McAleer and others. il Electrochem Soc J 111:877-8 Jl '64

Precision density measurement of silicon. I. Henins. bibliog diag J Res Nat Bur Stand 68A:529-33 S '64

Quenched-in defects in *p*-type silicon. G. Bemski and C. A. Dias. bibliog J Ap Phys 35:2983-5 O '64

Radiotracer studies on the incorporation of phosphorus in epitaxially grown silicon. S. Nakanuma. diag Electrochem Soc J 111:1199-200 O '64

Recent developments in silicon radar crystals. H. V. Shurmer. diags Inst EE Proc 111:257-63 F '64

Redistribution of acceptor and donor impurities during thermal oxidation of silicon. A. S. Grove and others. bibliog diags J Ap Phys 35:2695-701 S '64

Role of the competing etching process in determining the quality of pyrolytically grown silicon and germanium films. E. G. Bylander. bibliog J Ap Phys 35:1358-9 Ap '64

Silicon controlled switches resist transients. il Electronics 37:101 Je 29 '64

Si epitaxial growth by iodide transport between piled-up pellets. R. M. A. Lieth and A. G. M. Eggels. il diags J Ap Phys 35:3015-16 O '64

Silicon insulated-gate field-effect transistor. S. R. Hofstein and F. P. Heiman. bibliog diags IEEE Proc 51:1190-202 S '63; Discussion. 52:414-15 Ap '64

Silicon phosphide precipitates in diffused silicon. P. F. Schmidt and R. Stickler. bibliog il Electrochem Soc J 111:1188-9 O '64

Silicon replacing germanium as power transistors get bigger. S. Levine. il diags Electronics 37:42-9 N 2 '64

Silicon solar cells for ground-level use. H. Crystal. il diags Inst E E Proc 111:173-7 Ja '64; Discussion. 111:1369-70 Jl '64

Simple technique for making an electric contact on silicon. J. M. Flores. il diag R Sci Instr 35:112-13 Ja '64

Simultaneous observation of diffusion-induced dislocation slip patterns in Si with electron beam scanning and optical means. W. Czaja and G. H. Wheatley. bibliog il J Ap Phys 35:2782-3 S '64

Single-carrier injection in silicon at 76° and 300°K. B. L. Gregory and A. G. Jordan. J Ap Phys 35:3046-7 O '64

Single-crystal boron films on silicon. A. F. Armington and others. il J Ap Phys 35:730-1 Mr '64

Single-crystal silicon on a sapphire substrate. H. M. Manasevit and W. I. Simpson. il J Ap Phys 35:1349-51 Ap '64

Small particles in silicon. G. R. Booker and R. Stickler. il Electrochem Soc J 111:1011-12 Ag '64

Stacking fault nucleation in epitaxial silicon on variously oriented silicon substrates. S. Mendelson. bibliog il diags J Ap Phys 35:1570-81 My '64

Stereochemistry of asymmetric silicon. L. H. Sommer and others. bibliog Am Chem Soc J 85:3712-13; 86:3271-83 N 20 '63, Ag 20 '64

Study of the filamentary growth of silicon crystals from the vapor. R. S. Wagner and others. bibliog il diags J Ap Phys 35:2993-3000 O '64

Successive growth of Si and SiO_2 in epitaxial apparatus. W. Steinmaier and J. Bloem. bibliog diag Electrochem Soc J 111:206-9 F '64

Thin silicon film growth on polycrystalline alumina ceramic. V. Y. Doo. il Electrochem Soc J 111:1196-8 O '64

Three-dimensional X-ray topographic studies of internal dislocation sources in silicon. A. Authier and A. R. Lang. bibliog diags J Ap Phys 35:1956-9 Je '64

Transmission electron microscope investigation of removal of mechanical polishing damage on Si and Ge by chemical polishing. R. Stickler and G. R. Booker. bibliog il diags Electrochem Soc J 111:485-8 Ap '64

Transmission electron microscopy of cleaved silicon. D. R. Frankl. bibliog il J Ap Phys 34:3514-16 D '63

Transmitted phonon drag measurements in epitaxial silicon. R. Gereth and C. Stephens. bibliog diag Electrochem Soc J 111:1012-13 Ag '64

Ultra-pure silicon at Ruabon. il Ind Chem 40:148 Mr '64

Use of index of refraction liquids for the measurement of the refractive index of thin transparent films on silicon. A. E. Lewis. Electrochem Soc J 111:1007-9 Ag '64

Water vapor as an etchant for silicon. T. L. Chu and R. L. Tallman. bibliog Electrochem Soc J 111:1306-7 N '64

X-ray diffraction analyses and etch patterns of faults in epitaxial silicon. M. Lauriente and R. W. Armstrong. il J Ap Phys 35:3061-2 O '64

X-ray investigation of the perfection of silicon. J. R. Carruthers and others. bibliog J Ap Phys 34:3389-93 N '63

Analysis

Determination of nitrogen in silicon by solid source mass spectrometry. P. R. Kennicott. il Electrochem Soc J 111:1101-2 S '64

Diffusion method for the determination of silicon in inorganic materials. R. Householder and R. G. Russell. bibliog Anal Chem 36:2279-82 N '64

Effect of sodium on the spectrographic determination of silicon in aluminum-silicon alloys. F. W. Smith and S. J. Williams. Metallurgia 70:45-7 Jl '64

Indirect ultraviolet spectrophotometric determination of silicon. L. Trudell and D. F. Boltz. Anal Chem 35:2122-4 D '63

Ion exchange separation and determination of silicon in silver-infiltrated tungsten. C. H. Toy and R. T. Van Santen. bibliog diag Anal Chem 36:151-3 Ja '64

Simultaneous determination of oxygen and silicon in meteorites and rocks by nondestructive activation analysis with fast neutrons. J. Wing. bibliog diag Anal Chem 36:559-64 Mr '64

Spectrophotometric determination of silicon in ethyl and polyethyl silicates by the molybdovanadate method. R. B. Lew and W. Oyung. Anal Chem 36:1857-8 Ag '64

Spectrophotometric determination of silicon in gallium phosphide. C. L. Luke. Anal Chem 36:2036-7 S '64

SILICON alloys

Alloyed germanium-silicon heterojunctions. J. Brownson. J Ap Phys 35:1356-7 Ap '64

Effect of alternating strain upon the internal oxidation of some copper-silicon alloys. J. A. Kilpatrick and J. W. Martin. bibliog il Metallurgia 70:21-3 Jl '64

Effect of sodium on the spectrographic determination of silicon in aluminium-silicon alloys. F. W. Smith and S. J. Williams. Metallurgia 70:45-7 Jl '64

Factors affecting the modification of the aluminium-silicon eutectic. V. D. Davies and J. M. West. bibliog il diags Inst Metals J 92:175-80 '63-64

Fundamentals of modification in the aluminium-silicon system. C. B. Kim and R. W. Heine. bibliog il Inst Metals J 92:367-76 '63-64

Germanium-silicon alloy heterojunctions. J. Schewchun and L. Y. Wei. bibliog il Electrochem Soc J 111:1145-9 O '64

Ge-Si thermoelectric power generator. B. Abeles and R. W. Cohen. J Ap Phys 35:247-8 Ja '64

Giant ferroalloy furnace with interchangeable hearths puts Interlake in silicon market. il Iron & Steel Eng 41:137-8+ F '64

Influence of small additions of sodium on the surface tension of aluminium and aluminium-silicon alloys. V. D. Davies and J. M. West. bibliog diag Inst Metals J 92:208-10 '63-64

Preparation of single crystals of V_3Si. E. S. Greiner and H. Mason, jr. il J Ap Phys 35:3058-9 O '64

Thermal and electrical properties of heavily doped Gl-Si alloys up to 1300°K. J. P. Dismukes and others. bibliog diag J Ap Phys 35:2899-907 O '64

See also

Iron alloys—Silicon alloys

SILICON borides

Physical properties of polycrystalline silicon borides. R. S. Feigelson and W. D. Kingery. bibliog il Am Cer Soc Bul 42:688-93 N '63

SILICON carbide

Ceramographic preparation of silicon carbide. G. W. Robinson, jr. and R. E. Gardner. il Am Cer Soc J 47:201-2 Ap '64

Economic evaluation of silicon carbide suction box covers. N. G. Holtz and C. A. Schauer. Tappi 47:sup 133A-5A Ag '64

Effect of crystal orientation on hardness of silicon carbide. P. T. B. Shaffer. il Am Cer Soc J 47:466 S '64

Epitaxial growth of silicon carbide. R. W. Brander. bibliog il diag Electrochem Soc J 111:881-3 Jl '64

SILICON carbide—*Continued*

Growth of α-SiC single crystals from chromium solution. L. B. Griffiths and A. I. Mlavsky. bibliog il diags Electrochem Soc J 111:805-10 Jl '64

High photovoltages in silicon and silicon carbide films and their origin from a trap-induced space charge. H. W. Brandhorst, jr. and A. E. Potter, jr. bibliog J Ap Phys 35:1997-2003 Jl '64

High-temperature sintering upgrades silicon carbide; process flowsheet. P. Braas. il Chem Eng 71:160-2 N 9 '64

Noise in silicon carbide non-linear resistors. A. G. J. Holt and others. bibliog il Radio & Electronic Eng 27:381-3 My '64

Non-linear cr circuits using silicon carbide varistors. W. G. P. Lamb. diags Electronic Eng 36:692-3 O '64; Discussion. 36:849 D '64

Orientation of stacking faults and dislocation etch pits in β-SiC. W. K. Liebmann. bibliog il Electrochem Soc J 111:885-6 Jl '64

Phase equilibria in the system boron carbide-silicon carbide. D. R. Secrist. il Am Cer Soc J 47:127-30 Mr '64; Discussion. P. T. B. Shaffer and A. L. Hannam. 47:594-5 N '64

Photoluminescence and polytypism in boron doped silicon carbide. A. Addamiano. Electrochem Soc J 111:1294 N '64

Silicon carbide diode laser. R. N. Hall. bibliog IEEE Proc 52:91 Ja '64

SILICON chlorides

Kinetic study of the system Si-SiCl$_4$. R. R. Monchamp and others. bibliog diag Electrochem Soc J 111:879-81 Jl '64

Preparation of organic silicates from silicon tetrachloride vapour. H. G. Emblem and others. bibliog il diags Ind Chem 39:576-9, 641-8 N-D '63

Analysis

Spectrophotometric determination of traces of boron in silicon tetrachloride utilizing an extractive separation. C. S. Haas and others. Anal Chem 36:245-6 Ja '64

Spectrophotometric determination of traces of phosphorus in silicon tetrachloride utilizing an extractive separation. W. A. Lancaster and M. R. Everingham. diag Anal Chem 36:246-7 Ja '64

SILICON compounds

Biologically active organosilicons found. R. J. Fessenden and M. D. Coon. il Chem & Eng N 42:60 S 14 '64

Bond dissociation energies and ion energetics in organosilicon compounds by electron impact. G. G. Hess and others. bibliog Am Chem Soc J 86:3174-5 Ag 5 '64

Dimethylsilene; CH$_3$SiCH$_3$. P. S. Skell and E. J. Goldstein. Am Chem Soc J 86:1442-3 Ap 5 '64

Identification of the major polyunsaturated C$_{16}$ acids of marine oils by GLC separation factors on normal and organosilicone polyesters. R. G. Ackman and P. M. Jangaard. bibliog Am Oil Chem Soc J 40:744-5 D '63

New synthetics have jet lube properties. P. M. Kerschner. il Chem & Eng N 42:80 S 14 '64

Nuclear magnetic resonance spectroscopy and ($p \rightarrow d$) π-bonding in silicon compounds. E. A. V. Ebsworth and S. G. Frankiss. bibliog Am Chem Soc J 85:3516-17 N 5 '63

Pentacoordinate silicon derivatives; salts of bis(*o*-arylenedioxy)organosiliconic acids. C. L. Frye. Am Chem Soc J 86:3170-1 Ag 5 '64

Preparation and reactions of some 7-silanorbornadienes; an approach to dimethylsilylene. H. Gilman and others. bibliog Am Chem Soc J 86:1596-9 Ap 20 '64

Silacyclopropanes. P. S. Skell and E. J. Goldstein. Am Chem Soc J 86:1442 Ap 5 '64

Small-ring organosilicon compounds; a comparison of the reactivities of 1,1,2-triphenyl-1-silacyclobutane and 1,1,2-triphenyl-1-silacyclopentane. H. Gilman and W. H. Atwell. bibliog Am Chem Soc J 86:2687-93 Jl 5 '64

Stauffer enters organosilicon market. Chem & Eng N 41:27 N 25 '63

Synthesis of cyclic silicon systems. R. A. Benkeser and others. bibliog Am Chem Soc J 86:2446-51 Je 20 '64

Triphenyl(bipyridyl) siliconium ion. J. Y. Corey and R. West. bibliog Am Chem Soc J 85:4034-5 D 20 '63

See also

Silica
Silicates
Silicones

SILICON dioxide. See Silica

SILICON fluorides

Thermoanalysis of some inorganic fluorides and silicofluorides. E. S. Freeman and V. D. Hogan. bibliog Anal Chem 36:2337-40 N '64

SILICON halides

Silicon forms carbonium ion analogs. R. West and J. Y. Corey. Chem & Eng N 41:32-3 D 30 '63

Analysis

Purity examination of silicon and germanium halides by long-path infrared spectrophotometry. M. J. Rand. bibliog Anal Chem 35:2126-31 D '63

SILICON nitride

First uses of silicon nitride. Engineering 196: 589 N 8 '63

Industrial ceramic for high temperatures. Engineer 216:819 N 15 '63

SILICON phosphide

Silicon phosphide precipitates in diffused silicon. P. F. Schmidt and R. Stickler. bibliog il Electrochem Soc J 111:1188-9 O '64

SILICON rectifiers. See Electric rectifiers

SILICON steel

Anomalous iron losses in cold-reduced grain-oriented transformer steel. F. Brailsford and R. Fogg. bibliog diags Inst E E Proc 111:1463-7 Ag '64

Grain-oriented silicon iron produced by an oxide decarburizing process. P. N. Richards. bibliog Iron & Steel Inst J 202:647-54 Ag '64

Grain size effects in silicon steels upon the ac core loss components. R. E. Lenhart. J Ap Phys 35:861-2 pt 2 Mr '64

Influence of decarburization on the fatigue properties and the propagation of cracks in silicon steels. B. Spiegler and others. bibliog il diag Iron & Steel Inst J 202: 509-17 Je '64

Metallurgy of oriented silicon steels. G. W. Wiener. bibliog il diags J Ap Phys 35:856-60 pt 2 Mr '64

SILICONE rubber. See Rubber, Artificial

SILICONES

Aspects of recent research into silicones. M. J. Newlands. Chem & Ind p701-3 Ap 25 '64

Capacitors; encased in silicone. il Plastics World 21:97 N '63

Effect of silicone quenching and acid polishing on the strength of glass. P. C. Fletcher and J. J. Tillman. bibliog Am Cer Soc J 47:379-82 Ag '64

Environmental protection for electrical equipment; silicone grease compounds. D. A. Barsness and J. H. Wright. il Elec Constr & Maint 63:75-7 Ja '64

F. S. Kipping (1863-1949); his life and work. F. Challenger. Chem & Ind p697-9; Discussion. 700 Ap 25 '64

How to use silicones for lube oil antifoams; abstract. R. W. Awe. S A E J 72: 110 Ja '64

Maintenance painting with silicones. R. N. Thomas. il Pub Works 95:108-11 My '64

Many silicones available. E. Grant. Ind Finishing 40:75-6 S '64

Material for making resilient light pipes to be mounted without silicon grease. A. Strub. diag R Sci Instr 35:1268-9 O '64

Method for the radioactive labelling of silicone oils with ^{131}I. J. A. Moss. Chem & Ind p 1952-3 D 14 '63

New silicone-packaged transistor battles heat and moisture. il Machine Design 36:14 Mr 12 '64

New silicones eliminate oven cure. S. d'Adolf. il Rubber World 149:37-40 D '63

Paintable releases; silicone parting agents render smooth finish to molded plastics products. il Plastics World 21:26 N '63

Properties and applications of silicone fluids; abstract and discussion. D. R. Goddard. Chem & Ind p 1977-8 D 21 '63

Properties of materials; silicones; molded; tables. Materials in Design Eng 60:237 Mid-O '64

Reviewing briefly the more conventional silicones, fluids, elastomers and resins. R. L. Bass. Chem & Ind p699-700; Discussion. 700 Ap 25 '64

Silicone adhesive sealant. il Plastics World 21:106-7 N '63

Silicone, braze make tight feed-through seals. il Materials in Design Eng 60:124+ Ag '64

Silicone-ceramic adds vigor to Marquette Cement. il Rock Prod 66:98+ D '63

Silicone lube. il Plastics World 22:38 Mr '64

Silicone property improvement. T. J. Gair. Rubber World 150:49-51 Je '64

SILICONES—*Continued*

Silicones. M. Kin. il Machine Design 36:126-9 S 17 '64

Silicones; production aids, too. F. L. Dennett. il Textiles Ind 128:137+ Je '64

Silicones stretch scope of sealants. il Iron Age 194:70-1 O 22 '64

Soft denture liner and lab mold release are silicone elastomers. Plastics World 21:13 N '63

Southern rubber group panel symposiums on silicone rubber and mixing. Houston, Feb. 14-15; with abstracts of papers. Rubber Age 95:121-4 Ap '64

Special silicone treatments of anodized aluminum surfaces. Y. Tsuji. bibliog Metal Finishing 62:53-5 Jl '64

Spray gun on stick applies silicone to hot pole-top equipment. W. S. Waeckerle. il Elec World 161:76 Ap 6 '64

Use hollow hot stick to spray silicone. il Elec World 161:75 Ap 6 '64

Analysis

Spectrophotometric determination of iron and aluminum in silicone polymers. S. Fujiwara and H. Narasaki. bibliog Anal Chem 36:206-7 Ja '64

SILICOSIS

Approach to the clinical problem of anthracosilicosis. P. A. Theodos. il Archives Envinronmental Health 8:866-72 Je '64

Biochemistry of lungs in relation to silicosis; effect of quartz dust on the protein amino acids of guinea pig lung tissue. P. Bailey and others. bibliog Archives Environmental Health 8:547-54 Ap '64

Carcinoma and anthracosilicosis. T. F. Nealon, jr. bibliog Archives Environmental Health 8:882-5 Je '64

Chemical analysis in silicosis research. J. S. Harington and T. A. Kilroe-Smith. bibliog Archives Environmental Health 9:395-7 S '64

Comparative pulmonary function studies; coal miner's silicosis vs nonsilicotic emphysema and fibrosis. H. L. Motley. bibliog Archives Environmental Health 8:850-65 Je '64

Evaluation of analyses of dust samples in the prophylaxis of silicosis. A. Winkel. Ind Med 33:134-5 Mr '64

Response to treatment in silicotuberculosis. K. S. Howlett, jr. and F. C. Warring, jr. bibliog il Archives Environmental Health 9:343-54 S '64

Silicosis and other industrial pulmonary diseases; McIntyre research foundation conference. 12th. Toronto. Ind Med 33:43-97 F '64

Silicosis and tuberculosis. G. W. H. Schepers. Ind Med 33:381-99 Je '64

Study of silicotic lung ashes. C. M. Jephcott and others. Ind Med 33:220-1 Ap '64

SILK screen printing

Accurate location of chemically etched areas. J. W. Tunwall. il Tool & Manuf Eng 53:61-3 N '64

Automatic screen printing growing, growing, growing. il diags Textile Ind 127:83-4+ N '63

Breakthrough in printing; development of the seamless rotary screen. G. H. Dockray and S. M. Suchecki. il Textile Ind 127:88+ N '63

New Long Island plant is tailor-made for screen printing. il Am Dyestuff Rep 53:446-9 Je 8 '64

No U-turns for fabrics printed here; Bernard screen printing corp. il Textile Ind 128:136-7+ Ag '64

Programming for automatic screen printing of large designs. F. Perutz. il Am Dyestuff Rep 53:542-6 Je 22 '64

Review of the most important automatic screen printing machines. F. Raff. il Am Dyestuff Rep 53:550-6 Je 22 '64

Screen printing today. R. W. Pinault. il Textile World 114:102-4+ S '64

Silk screen on foil proves successful for car cards. il Inland Ptr/Am Lithogr 153:45 Jl '64

Silk sreen printing machine. il Engineer 217:241 Ja 31 '64

SILLIMANITE

Studies on zircons from some garnetiferous sillimanite gneisses (khondalites) from Orissa and Andhra Pradesh, India. M. V. N. Murthy and H. N. Siddiquie. bibliog map J Geol 72:123-7, pl 1 Ja '64

SILOS

Dynamic pressure of granular material in deep bins. A. M. Turitzin. bibliog diags Am Soc C E Proc 89 [ST 2 no 3479]:49-73 Ap '63; Discussion. 89 [ST 5 no 3688]:337-46 O; [ST 6 no 3743]:451-2 D '63

See also

Silage

SILOXANES

Configuration of the poly-(dimethylsiloxane) chain. J. E. Mark and others. bibliog Am Chem Soc J 86:138-52 Ja 20 '64

Contribution to the chemistry of the polymetallosiloxanes. J. M. C. Thompson. Chem & Ind p700-1 Ap 25 '64

Exchange of parts between molecules at equilibrium; α,ω-disubstituted polydimethylsiloxanes. K. Moedritzer and J. R. Van Wazer. bibliog Am Chem Soc J 86:802-7 Mr 5 '64

Intramolecular interactions between nonbonded chromophores; the spectra of some phenylsilanes and siloxanes. J. F. Brown, jr. and P. I. Prescott. bibliog Am Chem Soc J 86:1402-9 Ap 5 '64

Radiation stabilities of arylmethylsiloxanes. A. A. Miller. bibliog Ind & Eng Chem Product Res & Develop 3:252-6 S '64

SILOXY group

Stereochemistry of asymmetric silicon; alkoxy and siloxy leaving groups. L. H. Sommer and others. diags Am Chem Soc J 86:3276-9 Ag 20 '64

SILT

Alteration of Chinle siltstone and uranium emplacement, Arizona and Utah. A. M. Abdel-Gawad and P. F. Kerr. maps diags Geol Soc Bul 74:23-46, pl 1-2 bibliog(p44-6) Ja '63; Discussion. H. S. Johnson, jr. 75:775-6; Reply. 777-80 Ag '64

Dredge rids river of silt from irrigation water. il Eng N 172:38-9 My 14 '64

Model studies of beams resting on a silt subgrade. A. B. Vesić and W. H. Johnson. bibliog il diags Am Soc C E Proc 89 [SM 1 no 3406]:1-31 F '63; Correction. 89 [SM 4 no 3578]:237 Jl '63; Discussion. H. Grasshoff. 89 [SM 5 no 3654]:101-2 S '63; Reply. 90 [SM 3 no 3907]:159-61 My '64

Portable dredge solves problem of silting in remote reservoir. il diag Power Eng 68:46-7 F '64

Unwatering Akosombo cofferdams. D. J. Bleifuss. il diags Am Soc C E Proc 90 [SM 2 no 3842]:111-25 Mr '64

SILURIAN period. See Geology, Stratigraphic—Silurian

SILVER

Apparatus for chemical polishing of silver. C. B. Gilpin and F. J. Worzala. il diags R Sci Instr 35:229-30 F '64

Binding of silver ion by adenine and substituted adenines. K. Gillen and others. bibliog Am Chem Soc J 86:2792-6 Jl 20 '64

Chromatographic separation of *cis* and *trans* fatty esters by argentation with a macroreticular exchange resin. E. A. Emken and others. bibliog diag Am Oil Chem Soc J 41:388-90 My '64

Effect of internal oxidation on the plastic deformation of silver-aluminum single crystals. M. J. Marcinkowski and D. F. Wriedt. bibliog il diags Electrochem Soc J 111:92-100 Ja '64

Effects of millimolar concentrations of silver(I) ion upon the γ-radiolysis of crystalline potassium nitrate. J. Cunningham. bibliog Am Chem Soc J 85:3716-18 N 20 '63

Factors affecting the transport of silver in silver-alkaline batteries. T. P. Dirkse and L. A. Vander Lugt. diags Electrochem Soc J 111:629-32 Je '64

High-rate, high-energy thermal battery system. S. M. Selis and others. diags Electrochem Soc J 111:6-13 Ja '64

Incorporation of uranium and silver by hydrothermally synthesized galena. J. J. Hutta and H. D. Wright. bibliog il Econ Geol 59:1003-24 S '64

Influence of small additions of silver on the ageing of aluminum alloys; further observations on Al-Zn-Mg alloys. J. T. Vietz and others. bibliog il Inst Metals J 92:327-33 '63-64

Ion exchange on single-crystal silver and zinc. C. V. King and others. bibliog Electrochem Soc J 110:1261-4 D '63

Mercury and silver interrelationships with copper. C. H. Hill and others. J Nutrition 83:107-10 Je '64

Silver(III) from AgO exists in solution; abstract. G. L. Cohen. il diag Chem & Eng N 42:52 Ap '64

SILVER—*Continued*

Ag ion migration in α quartz. E. L. Milne and P. Gibbs. bibliog J Ap Phys 35:2364-7 Ag '64

Sputtering of polycrystalline copper and silver by 30-170 kev argon ions. C. E. Ramer and others. bibliog diag J Ap Phys 35:1673-80 Je '64

Analysis

Anodic stripping voltammetry of gold and silver with carbon paste electrodes. E. S. Jacobs. il diag Anal Chem 35:2112-15 D '63

Application of stripping analysis to the determination of silver(I) using graphite electrodes. S. P. Perone. bibliog Anal Chem 35:2091-4 D '63

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Polarographic behavior of silver in cyanide solutions. R. F. Large and E. P. Przybylowicz. bibliog Anal Chem 36:1648-52 Jl '64

Radiochemical separation of carrier-free silver, cadmium, and rhodium from each other by solvent extraction. L. Wish and S. C. Foti. Anal Chem 36:1071-2 My '64

Corrosion

Silver corrosion by aviation turbine fuel. S. A. W. Thompson and others. il plan diag Inst Pet J 50:61-8; Discussion. 68-72 Mr '64

Industrial applications

Multiple station die forms pure silver parts. il Steel 154:50+ Mr 9 '64

See also

Silver solder

SILVER alloys

Annealing spectrum of cold-worked silver-cadmium alloys. R. Kamel and E. A. Attia. bibliog Inst Metals J 92:270-4 '63-64

Comparison of the creep and fracture behaviour of pure nickel, nickel-0·1 at.-per cent gold, and nickel-0·1 at.-per cent silver alloys at 500 and 600°C. J. P. Dennison and B. Wilshire. bibliog Inst Metals J 92:360-3 '63-64

Detection of lattice deformation and recovery in epsilon phase silver-tin alloys. R. M. Waterstrat and G. E. Hicho. bibliog il J Res Nat Bur Stand 68A:317-23 My '64

Some physical and chemical properties of sprayed silver alloy catalysts. G. L. Osberg and others. bibliog il Can J Chem Eng 41:260-4 D '63

Stacking fault probabilities of some alloys of copper and silver with zinc and cadmium. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3398-402 N '63

Tensile behaviour of the intermetallic compound AgMg at low temperatures. J. C. Terry and R. E. Smallman. bibliog Inst Metals J 92:334-6 '63-64

Whisker-metal composites stay strong at high temperatures. W. H. Sutton. Space/Aeronautics 40:98+ N '63

See also

Silver solder

SILVER as money

Industry battles coins for silver supply. Chem & Eng N 42:26-7 Ag 24 '64

Silver. T. H. Kiilsgaard. Min Cong J 50:60-4 S '64

Silver and money, 1963. W. F. Bennett. il Min Cong J 50:112-14+ F '64

Silver, 1963. F. H. Wemple. Eng & Min J 165:96-7 F '64

SILVER brazing. See Silver solder

SILVER bromides

Interaction of macromolecules with silver bromide sols. S. Kratohvil and others. bibliog J Colloid Sci 19:373-83 Ap '64

Number of particles in colloidal suspensions of silver bromide. E. J. Meehan and G. Chiu. Am Chem Soc J 86:1443-4 Ap 5 '64

Surface structures and epitaxial growth on AgBr microcrystals. C. R. Berry and D. C. Skillman. bibliog il diag J Ap Phys 35:2165-9 Jl '64

Twinning and growth of silver bromide microcrystals. J. F. Hamilton and L. E. Brady. bibliog il diags J Ap Phys 35:414-21 F '64

SILVER chloride

Electrical conductivity, and the thermodynamic and structural properties of molten $AgCl-Ag_2S$ mixtures. M. C. Bell and S. N. Flengas. bibliog diags Electrochem Soc J 111:569-81 My '64

High-rate, high-energy thermal battery system. S. M. Selis and others. diags Electrochem Soc J 111:6-13 Ja '64

Silver chloride disk technique for infrared spectra of aqueous polymer suspensions. R. K. Metzler. bibliog Anal Chem 36:2378-9 N '64

Transport numbers in pure molten $AgNO_3$ and AgCl by a simplified weighing method. P. Duby and H. H. Kellogg. bibliog diag Electrochem Soc J 111:1181-3 O '64

Use of silver chloride seals for cesium vapor devices. A. L. Eichenbaum and others. il R Sci Instr 35:1056-7 Ag '64

SILVER coating

Silver sprayed cylindrical mesh packing in a fluidized bed. A. E. McIlhinney and G. L. Osberg. Can J Chem Eng 42:232-3 O '64

SILVER halides

High pressure microscopy of the silver and cuprous halides. A. Van Valkenburg. bibliog il J Res Nat Bur Stand 68A:97-103 Ja '64

Silver halide microcrystals are basis for photochromic glass. S. D. Stookey. Chem & Eng N 42:43 F 3 '64

Studies on the electrokinetic behavior of monodisperse silver halide sols. R. H. Ottewill and R. F. Woodbridge. bibliog J Colloid Sci 19:606-20 S '64

SILVER industry and trade

Silver. T. H. Kiilsgaard. Min Cong J 50:60-4 S '64

Silver and money, 1963. W. F. Bennett. il Min Cong J 50:112-14+ F '64

Silver market to remain stable this year. Chem & Eng N 42:28 Ja 27 '64

Silver, 1963. F. H. Wemple. Eng & Min J 165:96-7 F '64

SILVER iodide

Polymorphism of silver iodide. G. Burley. bibliog diag Am Mineralogist 48:1266-76 N '63

AgI points to new nucleating agents. il A. C. Zettlemoyer. Chem & Eng N 41:58-9 D 9 '63

Thermogalvanic cells with silver iodide as a solid electrolyte. J. L. Weininger. bibliog il diags Electrochem Soc J 111:769-74 Jl '64

X-ray investigation of strain in cold-worked silver iodide. G. Burley. bibliog J Res Nat Bur Stand 68A:355-8 Jl '64

SILVER metallurgy

L-D floats electrum, gold, silver. flow sheet Eng & Min J 165:69 Ja '64

SILVER mines and mining

Idaho

Lateral driving at the Sunshine mine. H. W. Schulze. il diags Min Cong J 49:34-7 D '63

SILVER nitrate

Molecular structure of humulene; X-ray analysis of the silver nitrate adduct. J. A. Hartsuck and I. C. Paul. Chem & Ind p977-8 Je 6 '64

Separation of triglycerides by column chromatography on silica impregnated with silver nitrate. B. de Vries. bibliog Am Oil Chem Soc J 41:403-6 Je '64

Silicic acid-silver nitrate chromatography as an enrichment technique in fatty acid analysis. M. K. Bhatty and B. M. Craig. Am Oil Chem Soc J 41:508-10 Jl '64

Substrates containing silver nitrate for gas chromatography. A. Zlatkis and others. Anal Chem 36:2354 N '64

Transport numbers in pure molten $AgNO_3$ and AgCl by a simplified weighing method. P. Duby and H. H. Kellogg. bibliog diag Electrochem Soc J 111:1181-3 O '64

SILVER ores

Silver mineralization in the Mineral district, Washington County, Idaho. A. L. Anderson. bibliog il map Econ Geol 58:1195-217 D '63

SILVER oxides

Charging the silver oxide electrode with periodically varying current. C. P. Wales. Electrochem Soc J 111:131-5 F '64

Determination of aldehydes in the presence of acids, acetals, and ketones, using a silver oxide-*tert*-butylamine complex. J. A. Mayes and others. Anal Chem 36:934-5 Ap '64

Silver(III) from AgO exists in solution; abstract. G. L. Cohen. il diag Chem & Eng N 42:52 Ap 20 '64

SILVER plating

Electroplating and deplating of silver. J. J. Becker. bibliog il Electrochem Soc J 111:480-2 Ap '64

Precious Metal Depositors silver plated helicopter engine bearings. il Metallurgia 69:83-4 F '64

Trouble plating magnesium? J. W. Natwick. il diag Am Mach 108:104-6 F 17 '64

SILVER polish

Antitarnish silver polish. C. S. Glickman. il Manuf Chem 35:57+ S '64

SILVER selenide

Electrical and thermal properties of electron-bombarded silver selenide powders. A. S. Epstein. J Ap Phys 34:3641-2 D '63

Thermoelectric figure of merit in silver selenide powders. A. S. Epstein. bibliog diag J Ap Phys 34:3587-90 D '63

SILVER solder

Brazing faucets with silver alloy. il Metal Prog 85:124 Mr '64

High silver-copper braze shows good creep strength. W. P. McQuillan. Materials in Design Eng 59:146+ Ja '64

Instantaneous braze heating-cooling makes new design practical; McIntire co. E. S. Chatlos. il diag Mach 70:121-2 Ag '64

Silicone, braze make tight feed-through seals. il Materials in Design Eng 60:124+ Ag '64

Silver alloy brazing rings seal aircraft spark plugs. il Welding Eng 49:56 F '64

Silver brazing for 100 g's. il Welding J 43:429-30 My '64

Silver brazing, for spacecraft fuel lines. il Welding J 43:46-7 Ja '64

SILVER sulfide

Electrical conductivity, and the thermodynamic and structural properties of molten $AgCl-Ag_2S$ mixtures. M. C. Bell and S. N. Flengas. bibliog diags Electrochem Soc J 111:569-81 My '64

SILVER telluride

Empressite and stuetzite redefined. R. M. Honea. bibliog diags Am Mineralogist 49:325-38 Mr '64

Semiconducting properties of $AgIn_3Te_5$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 111:546-9 My '64

SILYLAMINE

Addition of silylamines and silazanes to isocyanates. J. F. Klebe and others. bibliog Am Chem Soc J 86:4400-6 O 20 '64

SILYL group

Electronic and steric effects in monosubstituted ferrocenes as determined by relative site reactivities and desilylation. R. A. Benkeser and others. bibliog Am Chem Soc J 86:3742-6 S 20 '64

New silyl donors. J. F. Klebe. bibliog Am Chem Soc J 86:3399-400 Ag 20 '64

SIMILARITY, Theory of

Frictional pressure drop in two-phase flow; an approach through similarity analysis. A. E. Dukler and others. bibliog A I Ch E J 10:44-51 Ja '64

Methods of similarity. R. E. Schilson. diags J Pet Tech 16:877-9 Ag '64

SIMPLEX method

Seven configurations for real-time computer systems. R. V. Head. diags Control Eng 11:104-8 Je '64

SIMULATION, System. See System simulation

SIMULATORS, Automobile driving. See Automobile driving simulators

SIMULATORS, Flight. See Flight simulators

SIMULATORS, Road. See Road simulators

SIMULTANEOUS equations. See Equations, Simultaneous

SINGEWALD, Joseph Theophilus, Jr

Memorial. J. B. Eby. por Am Assn Pet Geologists Bul 48:732-5 My '64

SINK and float process

Heavy media column separation; a new technique for petrographic analysis. C. C. Woo. bibliog il Am Mineralogist 49:116-26 Ja '64

Three-product separation in a dense media vessel; Greenwood mining co. J. Fauzio. il Min Cong J 50:36-8 Jl '64

SINKS

Sink variations. il Engineering 196:736 D 6 '63

SINTERING

Ceramographic preparation of silicon carbide. G. W. Robinson, jr. and R. E. Gardner. il Am Cer Soc J 47:201-2 Ap '64

Continuous measurement of moisture in sinter-plant raw materials. P. M. Berry. bibliog il diag Iron & Steel Inst J 202:569-76 Jl '64

Diffusion mechanism for tungsten sintering kinetics. T. Vasilos and J. T. Smith. bibliog J Ap Phys 35:215-17 Ja '64

Diffusion sintering. D. L. Johnson and I. B. Cutler. bibliog diags Am Cer Soc J 46:541-50 N '63

Effect of Al_2O_3 on the mineral constitution of self-fluxing sinters. E. Mazanek and S. Jasieńska. bibliog il Iron & Steel Inst J 202:319-24 Ap '64

Effects of pressing on metal powders. M. J. Donachie, jr. and M. F. Burr. bibliog il J Metals 15:849-54 N '63

High-temperature sintering upgrades silicon carbide; process flowsheet. P. Braas. il Chem Eng 71:160-2 N 9 '64

Hot-pressing mixed carbides of Ta, Hf, and Zr. J. J. Fischer. bibliog il Am Cer Soc Bul 43:183-5 Mr '64

Nitriding, sintering and brazing by glow discharge. C. K. Jones and S. W. Martin. il diag Metal Prog 85:94-8 F '64

Powder metallurgy; a way to make almost any part. il Steel 153:49-64 D 2 '63

Pressure sintered alumina bicrystals. M. P. Davis. bibliog il Am Cer Soc J 47:463-4 S '64

Pressure-sintered nickel oxide. R. M. Spriggs and others. bibliog il diags Am Cer Soc Bul 43:572-7 Ag '64

Role of solute segregation at grain boundaries during final-stage sintering of alumina. P. J. Jorgensen and J. H. Westbrook. bibliog il diags Am Cer Soc J 47:332-8 Jl '64

Sampling controllers pace Japanese sintering mill. K. Togino. il diags Control Eng 11:86-94 My '64

Scrap and sinter; new bedfellows. il Iron Age 193:97-9 Mr 26 '64

Sintering alumina-urania compositions. I. Amato and others. bibliog il Am Cer Soc Bul 43:125-7 F '64

Sintering of sodium chloride. C. S. Morgan and others. Am Cer Soc J 46:559-60 N '63

Sintering of titanium dioxide. A. G. Grotyohann and K. Herrington. il Am Cer Soc J 47:53-4 Ja '64

Strength constant specification for bronze sinterings. H. R. Biehl. diags Materials Res & Stand 4:422-5 Ag '64

To add sinter plant at Monessen works. Iron & Steel Eng 41:194+ Ap '64

SIPHONS

Siphon transfers molten aluminum; system prevents oxidation during semicontinuous casting. il diag Iron Age 193:68-9 Mr 5 '64

SIRUPS

Enzymed syrups save dollars. J. V. Ziemba and others. Food Eng 36:93-5 My '64

See also

Corn sirup
Maple sirup

SISAL hemp

Hemicelluloses of sisal fiber (agave sisalana). P. P. Mukherjee. bibliog Textile Res J 34:179 F '64

SITOSTEROL

Magnitude of the hypocholesterolemic effect of dietary sitosterol in man. J. M. R. Beveridge and others. bibliog J Nutrition 83:119-22 Je '64

SIZE of particles. See Particles—Size determination

SIZING (textiles)

Review of slashing methods for filament and spun yarns. G. D. Mangum, jr. Mod Textiles Mag 44:52-3 D '63

Size cooking tips. diag Textile Ind 127:83+ D '63

Sizing filament yarns. L. M. Calhoun. il diags Textile Ind 128:136-8+ S '64

Slashing powwow at Jamestown; Northern N.C.-Va. div., Southern Textile assn. spring meeting. Textile Ind 128:123+ Ag '64

See also

Desizing (textiles)
Slashers (textile mills)

SIZING of paper. See Paper sizing

SKIM milk. See Milk, Skimmed

SKIN

Analysis of skin oils from soiled clothing. K. H. Bey. bibliog Am Perfumer 79:35-8+ Ag '64

Improved technique for measuring skin resistance. L. E. H. Lindahl and others. diag Electronic Eng 36:245-6 Ap '64

Medicated make-up. F. Sardo and J. J. Goodman. bibliog Am Perfumer 79:37-40 O '64

Skin research. Published in monthly numbers of Drug and cosmetic industry

Study of the activity on the skin of sugar esters, sucroglycerides and derivatives when used as detergents and emulsifiers in cosmetics. L. Nobile and others. bibliog Am Perfumer 79:19-28 Jl '64

Diseases

Cancer of the skin; abstract. J. J. Eller. Ind Med 33:482-3 Jl '64

Cosmetic elegance in dermatologic therapy. V. H. Witten and C. H. March. Drug & Cosmetic Ind 93:794+ D '63

SKIN—Diseases—*Continued*

Court decisions; druggist's remedy causes discoloration. H. N. Morse. Drug & Cosmetic Ind 94:537 Ap '64

Cutaneous larva migrans. P. C. Beaver. bibliog il Ind Med 33:319-21 My '64

Dermatological vehicles; abstract. P. Lazar. Drug & Cosmetic Ind 94:284 F '64

Effects of dietary cholesterol on skin lesions of rats with subacute magnesium deficiencies. E. J. Olson and H. E. Parker. bibliog J Nutrition 83:73-8 My '64

Irritant effect of industrial hand cleaners on guinea pig and human skin. E. Skog. bibliog Archives Environmental Health 7:682-5 D '63

No dishpan hands; abstract. R. R. Suskind and others. Drug & Cosmetic Ind 94:283 F '64

Severe reaction to cement; case report. R. J. Rowe and G. H. Williams. il Archives Environmental Health 7:709-11 D '63

Skin-blistering agents identified; pink-rot celery blisters pickers' hands. Food Tech 17:1423 N '63

See also

Acne

Ringworm

Protection

Experimental studies on skin protection and skin cleansing. H. Ippen and others. diags Am Perfumer 79:27-9 S '64

How to use barrier creams. Safety Maint 128:50 O '64

SKIN diving. See Diving, Submarine

SKIN friction

Experimental investigation of electric drag on satellites. E. D. Knechtel and W. C. Pitts. diags AIAA J 2:1148-51 Je '64

Skin friction of slender cones in hypersonic flow. J. Raat. AIAA J 2:755-6 Ap '64

Some effects of planform modification on the skin friction drag. E. J. Hopkins. AIAA J 2:413-14 F '64

SKIS and skiing

Aluminum skins make skis top performers. il Mod Metals 20:56 Je '64

See also

Water skis

Stations, lodges, etc.

It's always go when gas makes snow. il Am Gas Assn Mo 46:8-9 S '64

Newest thing in sports resorts; floodlighted golf and ski center. il Illum Eng 59:486-8 Jl '64

Snow making in Scotland. il Engineer 217: 685 Ap 17 '64

SKROTZKI, Ben G. A.

Obituary. por Power 107:55 D '63

SKYLIGHTS

Prefabricated windows in roof insulation. H. E. B. Anderson. il Plant Eng 17:88 N '63

Progress in moulding. il Brit Plastics 37:248-51 My '64

Skylighted column; First national bank in Loveland; selected detail. Prog Arch 45:133 Jl '64

Window on the sky; more daylight via acrylic domes. il Plastics World 22:31 F '64

SLABS

Monolithic slab for roof decks. il diags Prog Arch 45:97 Ap '64

Theory of buckling of a porous slab and its thermoelastic analogy. M. A. Biot. diags A S M E Trans ser E 31:194-8 Je '64

SLABS, Concrete. See Concrete slabs

SLABS, Steel. See Steel slabs

SLAG

Activity of silicon in liquid iron solutions. G. Smith and J. Taylor. bibliog Iron & Steel Inst J 202:577-80 Jl '64

Controlling the sulphur content of iron. V. Giedroyc and others. bibliog Iron & Steel Inst J 202:11-21 Ja '64

Correlation of slag resistance with the pore structure of an alumina-silica refractory. T. Vojnovich and others. bibliog diag Am Cer Soc Bul 43:514-17 Jl '64

Dissolution in ceramic systems: dissolution of alumina, mullite, anorthite, and silica in a calcium-aluminum-silicate slag. B. N. Samaddar and others. il diag Am Cer Soc J 47:249-54 My '64

Does the sulphur content of blast furnace slag backfills render them corrosive? J. C. Hudson. bibliog Iron & Steel Inst J 201: 702-4 Ag '63; Discussion. G. M. Wagstaffe and A. M. Edwards. 202:374 Ap '64

Equilibrium between $\mathrm{FeO\text{-}MnO\text{-}MgO\text{-}SiO_2}$ slags and molten iron at 1550°C. H. B. Bell. bibliog Iron & Steel Inst J 201:116-21 F '63; Discussion. 202:221-4 Mr '64

Heavy duty trailer rig hauls, dumps molten slag. il Steel 154:50-1 Ja 20 '64

High-temperature phase equilibria for the partial system $\mathrm{3CaO.MgO.2SiO_2\text{-}MgO.Al_2O_3\text{-}2CaO.Al_2O_3.SiO_2}$ in the quaternary system $\mathrm{CaO\text{-}SiO_2\text{-}Al_2O_3\text{-}MgO}$. W. Gutt. bibliog il Iron & Steel Inst J 202:770-4 S '64

1964 forecast. Rock Prod 67:67 Ja '64

Nuclear gages control slag fill compaction. il Eng N 173:50-1 O 15 '64

Slag blanket melting means workable steel. Steel 154:60 F 17 '64

Slag makes a big highway fill. il Eng N 173: 43 Jl 16 '64

Slag-metal equilibrium during stainless steel melting. C. W. McCoy and F. C. Langenberg. bibliog diag J Metals 16:421-4 My '64

Stanton slag treatment plant. il Metallurgia 68:167-8 O '63

Transfer of sulphur from gas to molten oxide systems. A. S. Alwan and P. M. Bills. bibliog Iron & Steel Inst J 202:367-72 Ap '64

Uses of the electroslag remelting process. A. C. Williams. bibliog il Iron & Steel Inst J 202:581-7 Jl '64

Viscosities in silicate slag systems. P. M. Bills. bibliog Iron & Steel Inst J 201:133-40 F '63; Discussion. 202:221-4 Mr '64

Analysis

Analysis of slag inclusions in plain carbon steels by the electron-probe microanalyser. R. Kiessling and others. bibliog il Iron & Steel Inst J 200:914-21; 201:509-15, 965-7 N '62, Je, N '63

Silica reduction reaction in the blast-furnace. D. A. R. Kay and J. Taylor. bibliog Iron & Steel Inst J 201:67-70; 202:420-3 Ja '63, My '64; Discussion. 202:221-4 Mr '64

SLAG association, National. See National slag association

SLASH pine. See Pine

SLASHERS (textile mills)

Fact file 1964; slashing. diag Textile World 114:72 Jl '64

Putting a new model slasher to work. il Textile World 113:124-6 N '63

Review of slashing methods for filament and spun yarns. G. D. Mangum, jr. Mod Textiles Mag 44:52-3 D '63

Slasher rolls need tender loving care. il Textile Ind 128:73-5+ Jl '64

SLASHING. See Sizing (textiles)

SLATE

Hudson's lightweight slate aggregate plant. W. E. Trauffer. il Pit & Quarry 56:124-5+ N '63

SLAUGHTERING and slaughter houses

Economies of scale in California cattle-slaughtering plants. S. H. Logan. bibliog Food Tech 18:634+ My '64

SLEDS, Rocket. See Rocket sleds

SLIDE films

Filmstrip seminar. il Ind Phot 12:59+ S; 51+ N '63

New method of visual aids preparation. R. H. Sullivan. il Pub Works 95:188 Je '64

Preparing slides for lecture use. Food Tech 18:27+ Ja '64

Slides are something special in G.E.'s Lamp division. T. Knowles. il Ind Phot 13:60-1+ Mr '64

Sound/slides: new recorders make it easier. M. A. Matzin. il Mod Phot 28:92+ S '64

12,000 slides in nine days; efficiency gets the job done at the John Hancock company's photographic dept. R. Astra. il Ind Phot 12: 60-1 N '63

See also

Transparencies

Projectors

Are you getting enough light on the screen to show your color slides to best advantage? J. Wolbarst. Mod Phot 28:17+ Ap '64

Electronic slide changer. W. G. Landriew. Radio-Electronics 35:29 Je '64

Slide projection in a box. J. Molnar. diag Plant Eng 18:125 Mr '64

SLIDE rule

Calculator helps minimize heat rate loss. H. Ferguson. il diag Power 108:64-5 Ag '64

New look at sliderule operations. A. Hisler and A. Marhefka. Product Eng 35:143-4 Ag 3 '64

Slide chart is applicable for equations up to the seventh degree. Product Eng 35: 59-60 Mr 16 '64

SLIDE rule—*Continued*
Slide rule allocates optimum loads. J. W. Young. il Elec World 161:112 Je 15 '64
Slide rule method for indexing electron diffraction patterns. W. R. Roser and G. Thomas. il diag R Sci Instr 35:613-15 My '64
Two-dimensional slide rule for computing pipe networks. E. Kaddy. diags Water & Sewage Works 111:235-9 My '64

SLIDE valves
Hard surfacing the world's largest slide valve. il Welding J 43:520 Je '64

SLIME
Comparison of respiration and metabolism of biological slimes using radiophosphorus. M. M. Varma and G. W. Reid. diags WPCF J 36:176-200 bibliog(p 199-200) F '64
See also
Paper making—Slime problem

SLINGS and hitches
First choice for soft slings; the new test tube fibres. il diags Mod Materials Handling 18:48-53 N '63
What about those good old days? R. W. Duncan. Safety Maint 126:25-6+ D '63

SLIP forms (concrete construction). See Concrete construction—Forms

SLIP rings
Lubricants; water does the trick. il diag Product Eng 35:34 Mr 2 '64

SLIPS (ceramics)
Dense slip cast magnesia-magnesium titanate ware. R. S. Rosenfels. Am Cer Soc Bul 43:566 Ag '64
Fabrication of high-density calcium oxide ceramics. M. A. Hepworth and J. Rutherford. Am Cer Soc Bul 43:18 Ja '64
Paper pulp linings for mold release. D. P. James and L. S. Williams. bibliog il Am Cer Soc Bul 42:712-13 N '63
Pressure casting sanitary ware. T. M. Gainer and J. A. Carter. diags Am Cer Soc Bul 43:9-12 Ja '64
Slip cast fused silica cuts radome costs. V. A. Chase and R. L. Copeland. il Cer Ind 83:91-5+ S '64
Slip casting calcium fluoride and lime-stabilized zirconia. C. R. Masson and others. bibliog Am Cer Soc Bul 42:745-7 D '63

SLITTING machines
Innovations in blank preparation save waste in time and steel. V. C. Rice. il Mach 70:132-3 D '63
Review of rotary sheeting. L. J. Zielinski. Paper Ind 46:624-5 O '64

SLOPES
Oahe dam; geology, embankment, and cut slopes. D. K. Knight. bibliog il plans diags Am Soc C E Proc 89 [SM 2 no 3466]: 99-125 Mr '63; Discussion. 89 [SM 6 no 3701]:123-4 N '63; Reply. 90 [SM 3 no 3907]: 165-7 My '64
Practical regime analysis of river slopes. T. Blench and M. A. Qureshi. bibliog Am Soc C E Proc 90 [HY 2 no 3826]:81-98 Mr '64; Discussion. G. Lacey. 90 [HY 5 no 4050]:257-60 S '64
Rock bolts stabilize cut slope. il Eng N 172: 150 Mr 19 '64
Slope stabilized by anchored retaining wall. G. A. Reti. il diags Civil Eng 34:49-53 Ap '64
Soil-cement as slope protection for earth dams. W. G. Holtz and F. C. Walker. bibliog il maps diags Am Soc C E Proc 88 [SM 6 no 3361]:107-34 D '62; Discussion. 89 [SM 3 no 3528]:189-92 My; [SM 4 no 3578]:219-22 Jl '63; Reply. 90 [SM 2 no 3850]: 159-62 Mr '64
Stability of cuts in soft soils. T. C. Kenney. bibliog diags Am Soc C E Proc 89 [SM 5 no 3647]:17-37 S '63; Discussion. 90 [SM 3 no 3907]:177-8 My; [SM 4 no 3979]:183-9 Jl '64
Stress-dilatancy, earth pressures, and slopes. P. W. Rowe. diags Am Soc C E Proc 89 [SM 3 no 3507]:37-61 My '63; Discussion. 89 [SM 6 no 3701]:127-33 N '63; 90 [SM 1 no 3781]:133-53 Ja '64; Reply. 90 [SM 4 no 3979]:145-80 Jl '64

SLOTTING
Internal grinder cuts slots with spin-slide motion. il diags Iron Age 194:64-5 Jl 9 '64

SLUDGE, Sewage. See Sewage sludge

SLUMS
God's own junkyard; review. P. Blake. il Arch Forum 120:94-7 Ja '64

SLURRY
Batch and continuous thickening. P. T. Shannon and others. bibliog il Ind & Eng Chem Fundamentals 3:250-60 Ag '64
Bench-scale feeder keeps slurries in suspension. R. Lee and J. D. King. diag Chem Eng 71:150+ S 28 '64
Dispersant-free aqueous slurries of carbon black; viscosity, techniques of handling, and use in latex masterbatching. A. I. Medalia and E. Hagopian. bibliog diags Ind & Eng Chem Product Res & Develop 3:120-5 Je '64
Economics now key to solids pipelines. W. A. Doble. il Can Chem Process 47:50-2 D '63
Guide to the selection of control valves for slurry and viscous services. B. G. Liptak. diags Chem Eng 71:185-92 Ap 13 '64
One pass lays a slurry seal. il Eng N 173: 44 Jl 16 '64
Pumping solid-liquid mixtures. A. J. Stepanoff. bibliog diags Mech Eng 86:29-35 S '64; Discussion. 86:79-80 D '64
Rheological study of high-solids calcium carbonate slurries using high-shear rotational viscometers. C. W. Leaf and I. C. MacGugan. il Tappi 47:162-7 Mr '64
Sand movement in horizontal fractures. H. A. Wahl and J. M. Campbell. bibliog il J Pet Tech 15:Trans 1239-46 N '63
Setting of a slurry. K. Schiller. J Ap Chem 13:572-5 D '63
Slurries multiply pump requirements. I. Dalstad. Mill & Factory 74:82-4 F '64
Slurry measurement and control. H. L. Cook. diags I S A J 11:59-62 Je '64
Time dependent rheology of the tetrahydrofuran-hydrogen sulphide gas hydrate slurry. K. L. Pinder. bibliog il diag Can J Chem Eng 42:132-8 Je '64
Unique International Mineral & Chemical tailing line solves freezing problem. J. Mitchell and R. Beach. il Eng & Min J 165:94-6 Ag '64

SMALL business. See Business—Small business

SMALL business administration. See United States—Small business administration

SMALLPOX
Smallpox drug. Drug & Cosmetic Ind 94:271-2 F '64
See also
Vaccination

SMELL
Odor psychology and successful perfuming. E. Paukner. Am Perfumer 79:37-41 F '64
Odor stimulus. R. W. Moncrieff. bibliog Am Perfumer 78:37-9 D '63
Stereochemical theory of odor. J. E. Amoore and others. il diags Sci Am 210:42-9 F '64

SMELTING
Cadmium purification practice in zinc smelting: a survey of producers in the Western Hemisphere. R. E. Lund and R. E. Sheppard. il J Metals 16:724-30 S '64
Carbothermic smelting of aluminum: an alternative to the traditional Bayer-Hall processes? P. T. Stroup. bibliog diag J Metals 16:703-8 S '64
Chemical smelter can separate minerals. H. L. Hazen. plan Chem & Eng N 42:52+ F 17 '64
Reduction of iron ore by the flame-smelting process. T. W. Johnson and J. Davison. bibliog flow sheet diags Iron & Steel Inst J 202:406-19 My '64
See also
Blast furnaces
Slag

SMELTING, Electric
See also
Electric furnaces, Metallurgical

SMELTING works
New areas, new commodities highlight this year's E&MJ operations survey. il diags Eng & Min J 165:58-65 Ja '64
See also
Metallurgical plants

Employees

See Metal workers

Equipment

How applied research at Josephtown stimulated production and markets. flow sheet il diags Eng & Min J 165:109-14 Ap '64
Port Pirie leads way in lead smelting. il Min Eng 16:76-8 O '64
Silicon rectifier gives plant more reliable d-c power in less space. E. Vettel. il Power Eng 68:44-5 Ja '64

SMILES
Smiles of men and monkeys. Sci Am 210:56+ Ja '64

SMITHSONIAN institution

Civil engineering goes on exhibition at Smithsonian institution. il Eng N 173:22 Jl 16 '64

Smithsonian institution opens a new Hall of civil engineering. R. M. Vogel. il Civil Eng 34:84-5 Jl '64

SMOG

Alky-gasoline proposed as smog cure, but it would be costly. Oil & Gas J 62:56-7 My 25 '64

Anti-smog rule raises fuel worries. Elec World 161:19 F 17 '64

Approval seen for smog control units. R. R. Kay. Iron Age 193:44 Mr 5 '64

Particulate or photochemical; it's still smog. L. Raymond. il diags S A E J 72:48-54 Ag '64

Race is on in smog control. Product Eng 35:39 Jl 6 '64

Smog attacks; abstract. Am Dyestuff Rep 53:110-11 F 3 '64

Smog control. diag Product Eng 35:63-4 Mr 16 '64

Smog control confusion: Chrysler device being tested on Coast. J. Dunne. il Automotive Ind 131:19-20 Ag 1 '64

SAE seeks solution to smog. H. F. Jones. Iron Age 193:75 Je 18 '64

SMOKE

See also

Fumes

Smog

Soot

SMOKE recorders

Photoelectric smoke density measuring instrument. Engineer 216:831 N 15 '63

Smoke, a growing problem. il Diesel Equip Supt 42:23-5 My '64

SMOKED fish. See Fish, Smoked

SMOKED meat. See Meat, Smoked

SMOKING

Cigarette smoking and health; editorial. Am J Pub Health 54:322-4 F '64

Dr. Quitsmoke, or how I stopped smoking and learned to love lobeline. R. Goldman. bibliog Drug & Cosmetic Ind 94:497-8+ Ap '64

Is smoking a process. W. D. Mohr. diags Control Eng 11:83-5 Ap '64

Legal restrictions on minors' smoking. C. H. Hawkins. Am J Pub Health 54:1741-4 O '64

New evidence on the effects of smoking. E. C. Hammond. bibliog Archives Environmental Health 7:506-8 N '63

No immediate antismoking campaign ahead. Chem & Eng N 42:24 Ja 20 '64

Personality differences between smokers and nonsmokers. E. J. Salber and J. E. Rochman. bibliog Archives Environmental Health 8:459-65 Mr '64

Respiratory symptoms, chronic bronchitis, and ventilatory lung function. I. T. T. Higgins. Archives Environmental Health 9:262-3 Ag '64

Respiratory symptoms, lung function, and smoking habits in an adult population. M. Payne and M. Kjelsberg. bibliog Am J Pub Health 54:261-77 F '64

Senator Ribicoff attacks smoking report. Chem & Eng N 42:37 Mr 2 '64

Shortage may develop in smoking deterrent compound. Chem & Eng N 42:29 F 3 '64

Smoke of death; editorial. Am J Pub Health 54:1330-1 Ag '64

Smoking and the health of older men. K. R. Boucot and others. bibliog Archives Environmental Health 4:65-72; 7:538-47, Ja '62, N '63

Smoking report. Sci Am 210:66-7 F '64

Survey of the smoking habits of students of Newton high school: a cooperative project. L. Bajda. Am J Pub Health 54:441-6 Mr '64

SMOOTHNESS testing. See Surfaces—Smoothness testing

SNAILS

Controlling importation of Mediterranean snails. R. H. Vincent. Pub Works 95:86+ O '64

SNAKE RIVER

Instead of Udall plan, California utility says Southwest should tap the Snake River. map Eng N 171:56-7 N 14 '63

Power utilization

FPC gives the nod to private power in Snake River ruling. map Eng N 172:47 F 13 '64

Investor utility wins Mountain Sheep. il Elec World 161:17-18 F 17 '64

SNOW

It's always go when gas makes snow. il Am Gas Assn Mo 46:8-9 S '64

Oxygen-isotope ratios in Antarctic snow, firn, and ice. S. Epstein and others. map J Geol 71:698-720 bibliog(p718-20) N '63

Snow making in Scotland. il Engineer 217:685 Ap 17 '64

SNOW plows

Single lever controls vehicle drive; snow-cleaning machine. il diag Hydraulics & Pneumatics 17:16+ Jl '64

Temperature 85°? start now on snow plow maintenance! E. T. Meyer. il Pub Works 95:124-6 S '64

Township growth calls for better snow clearing. O. F. Gingrich. il Pub Works 95:100 Ag '64

Versatile loader doubles as snow plow on town road work. il Pub Works 95:114 Ja '64

SNOW removal

Big city snow melting; abstract. F. J. Lucia. Pub Works 95:156+ S '64

Can we use waste steam in snow melting coil? answer. H. B. Wayne. diag Heating-Piping 36:95 S '64

Chicago's plan: bare streets for peak traffic loads. E. Garrity. il Pub Works 95:110-11+ Ag '64

Design requirements for infrared snow melting systems. J. P. Frier. bibliog il diags Illum Eng 59:686-93 O '64; Discussion. 59:814-15 D '64

Detroit faces new battle against rust. il Steel 154:79-80 Mr 2 '64

A first; snow-melting installation uses plastic-coated steel pipe. il Dom Eng 203:68-9 Ja '64

Hard-to-get-at snow removed by suction. F. Matthews. il Pub Works 95:119-20 S '64

Ice-free truck ramp features automatic snow melting system. il Safety Maint 127:61 F '64

Mobile melting units for snow disposal. il Engineering 197:54 Ja 10 '64

Problem of the parked car. il Pub Works 95:78-80 Ag '64

Skiers want snow, but not on the highway. L. W. Brownell. il Pub Works 95:76-8 N '64

Snow problem is no problem at GE's Nela Park. il Plant Eng 17:102-3 D '63

Three-way snow fighting. H. Echard. il Pub Works 95:81 Ag '64

Township grader mounts a snowblower. C. L. Mehlenbacher. il Pub Works 94:95-6 D '63

Township growth calls for better snow clearing. O. F. Gingrich. il Pub Works 95:100 Ag '64

Turnpike extension poses unusual maintenance problems. G. G. Hyland. il plans Pub Works 95:82-3 Ag '64

Underbody blades redesigned for high speed snow removal. R. W. Kress. il Pub Works 95:114 Ag '64

We don't have a lot of snow but, what we get can be a problem. A. N. Ault. il Pub Works 95:136-8+ O '64

Winter maintenance in the Rockies. T. H. Ratchford. il Pub Works 95:84 Ag '64

See also

Pavements—Heating

SNOW storms

Effective dielectric constant of the atmosphere during snowstorms and its influence upon corona losses. A. S. Timascheff. bibliog diags IEEE Trans Power Apparatus & Systems 83:492-5 My '64

SNOW surveys

Pillow tanks measure snowpack. il Eng N 172:92 Ap 2 '64

SOAKING pits. See Furnaces, Heating

SOAP

Coacervating soap-electrolyte solutions. I. Cohen and A. Libackyj. bibliog J Colloid Sci 19:560-70 Ag '64

From Latin sapo to modern soap. H. R. Galleymore. bibliog Soap & Chem Spec 39:83+ D '63

Lectures of the 1963 short course on advances in soaps and detergents. bibliog flow diag il diags Am Oil Chem Soc J 40:609-98 N '63

Light scattering by soap films. A. Vrij. bibliog diags J Colloid Sci 19:1-27 Ja '64

Soap departments profitable. il Soap & Chem Spec 40:79-80+ O '64

Travelers' preferences in hotel and motel bar soaps. il Soap & Chem Spec 40:76-8+ O '64

Viscosity and solubilization studies on weak anionic polysoaps in nonaqueous solvents. K. Ito and Y. Yamashita. bibliog J Colloid Sci 19:152-64 F '64

SOAP—*Continued*

Viscosity and solubilization studies on weak anionic polysoaps in water; effect of the counter-ion. K. Ito and others. bibliog J Colloid Sci 19:28-39 Ja '64

See also

Bath preparations

Analysis

Temperature studies of coacervating cationic soap solutions. I. Cohen and P. Economou. bibliog Am Oil Chem Soc J 41:461-4 Jl '64

True molecular weight of sulfonate soaps. G. Metzger. bibliog Am Oil Chem Soc J 41:495-6 Jl '64

Specifications

Germicidal cake toilet soap; proposed federal specification P-S-619. Soap & Chem Spec 40:53-4+ Je '64

SOAP, Antiseptic

Dial comes to UK; big promotion for deodorant soap. il Manuf Chem 35:41 F '64

Germicidal cake toilet soap; proposed federal specification P-S-619. Soap & Chem Spec 40:53-4+ Je '64

Two new stable polybrominated salicylanilides for antibacterial use in soap and detergent products. N. M. Molnar and S. Baron. bibliog Am Oil Chem Soc J 41:478-80 Jl '64

SOAP, Metallic

Autoxidation of the lead soaps of the linseed oil fatty acids. J. E. O. Mayne and E. H. Ramshaw. bibliog diag J Ap Chem 13:553-60 D '63

Inorganic thickened greases in the steel industry. A. G. Brewer and P. C. Jarvis. il Iron & Steel Eng 41:144-9 Mr '64

Polarographic behaviour of the palmitates and myristates of copper and cobalt. W. U. Malik and R. Haque. bibliog Am Oil Chem Soc J 41:411-13 Je '64

SOAP and detergent association

Annual meeting, 37th. New York, Jan. 22-24; with program and abstracts of papers. Soap & Chem Spec 39:79-80+ D '63; 40: 45-8 Ja; 45-50+ F '64

SOAP factories

New look at Bradford. il Soap & Chem Spec 40:72-4+ My '64

Equipment

Day at Duveen; major producer of private label soap. il Soap & Chem Spec 40:72-5+ O '64

Modern soap dryer. flow diag diag Soap & Chem Spec 40:145+ Jl '64

New Armour Dial soap plant. flow chart il Soap & Chem Spec 40:67-9 My '64

SOAP industry and trade

Now it can be told: how Lever almost hired a new toilet soap supervisor and Frank Countway blew his stack, 25 years ago. Soap & Chem Spec 40:54-5+ F '64

Statistics

European trade in cosmetics and soap. Manuf Chem 35:90 S '64

World soap production. Manuf Chem 35:48 Ap '64

SOAP manufacture

Armour opens continuous automatic dial plant. Soap & Chem Spec 40:173 Ap '64

Day at Duveen; major producer of private label soap. il Soap & Chem Spec 40:72-5+ O '64

Fat splitting and soapmaking go continuous; process flowsheet. H. W. Ladyn. il Chem Eng 71:106-8 Ag 17 '64

Manufacture of soap from fatty acids. A. B. Herrick and E. Jungermann. bibliog diags Am Oil Chem Soc J 40:615-18 N '63

Modern soap dryer. flow diag diag Soap & Chem Spec 40:145+ Jl '64

Now it can be told: how Lever almost hired a new toilet soap supervisor and Frank Countway blew his stack, 25 years ago. Soap & Chem Spec 40:54-5+ F '64

Potash soap manufacture from tall oil. Soap & Chem Spec 40:199 O '64

SOAP materials

See also

Tall oil

SOAP packages

Colgate soaps in improved foil wrapper. il Soap & Chem Spec 40:127 Je '64

SOCIAL conditions

Economic and social forces are related. Automation 11:79 Ap '64

Socioeconomic and family characteristics of patients admitted to psychiatric services. E. S. Pollack and others. bibliog Am J Pub Health 54:506-18 Mr '64

SOCIAL problems

Social adaptation in chronic illness; a study of hemophilia. A. H. Katz. Am J Pub Health 53:1666-75 O '63

Urbanization and human needs. L. J. Duhl. Am J Pub Health 54:721-8 My '64

See also

Alcoholism

SOCIAL sciences

Behavioral science and criminal law. E. J. Sachar. il Sci Am 209:39-45 N '63; Discussion. 210:8-9 Ja '64

Human behavior; an inventory of scientific findings. B. Berelson and G. A. Steiner. Review, by J. Henry. Sci Am 211:129-30+ Jl '64

Mathematics in the social sciences. R. Stone. diags Sci Am 211:168-72+ S '64

Problems encountered in behavioral science research in epidemiological studies. W. I. Wardwell and C. B. Bahnson. bibliog Am J Pub Health 54:972-81 Je '64

Psychology of supervision. G. A. Lessells. bibliog Chem Eng 71:176+ My 11; 152+ My 25 '64

SOCIAL welfare

Significance of welfare status in the care of indigent patients. M. Olendzki and others. Am J Pub Health 53:1676-84 O '63

SOCIAL work

Social work in the southern Appalachians. T. J. Herlihy. bibliog Am J Pub Health 53:1770-9 N '63

SOCIETIES

See also

Engineering societies

Trade associations

SOCIETY buildings

Floodlighting progress at the National Geographic building. il Illum Eng 59:484-5 Jl '64

National geographic society's new headquarters in Washington, D.C. il Eng N 172:20 Ja 30 '64

Views of the new ASTM building. il Materials Res & Stand 4:378-9 Jl '64

SOCIETY of automotive engineers

Aeronautic and space engineering and manufacturing meeting, Los Angeles, Oct. 5-9; with program. S A E J 72:98-9 Ag '64

Annual report, 1963. S A E J 72:105-20 F '64

Committee A.6 spring semi-annual conference, Phoenix, Ariz., April 13-17. Hydraulics & Pneumatics 17:79-81 Je '64

Engineering automotive exposition and congress, Detroit, Jan. 14-18; program and product preview. Automotive Ind 130:54-5+ Ja 1 '64

International automotive engineering congress, Detroit, Jan. 11-15; program. S A E J 72:100-5 N '64

Report from the Board of directors. S A E J 71:102-3 D '63; 72:99-101 Ap; 88-90 S '64

SAE aeronautic and space engineering and manufacturing meeting. S A E J 71:104-7 D '63

SAE automotive engineering congress and exposition, Detroit, Jan. 13-17; preview, program, and list of exhibitors. S A E J 72:33-52 Ja '64

SAE combined national powerplant and transportation meetings. S A E J 71:112-13 D '63

SAE engineering congress and exposition, Detroit, Jan. 13-17. Steel 153:33-4 D 30 '63

SAE national fuels and lubricants meeting, Tulsa, Oct. 30-31. S A E J 71:110-12 D '63

Summer meeting, Chicago. S A E J 72:102-4 Ag '64

SOCIETY of chemical industry

Annual general meeting, 82d, New York, Sept. 23-25. Chem & Ind p 1774-7 N 9 '63

Annual general meeting, 83d, Manchester, July 14-18; with Manchester section officers, history of section, program, conference visits and abstracts of papers. Chem & Ind p 1096-110, 1136-91, 1401-11 Je 27, Ag 8 '64

Annual general meeting of the corrosion group, April 15. Chem & Ind p 1614-15 S 19 '64

Annual general meeting of the microbiology group, London, April 2. Chem & Ind p 1613-14 S 19 '64

Annual report of council, 83d, year ended Dec. 31, 1963; general funds. Chem & Ind p 1111-35 Je 27 '64

Corrosion group conversazione, London, March 17. Chem & Ind p829-31 My 16 '64

Presidential address. S. Barrat. Chem & Ind p 1398-400 Ag 8 '64

SOCIETY of cosmetic chemists

Annual meeting, 19th, New York, Dec. 3; with abstracts of papers. Drug & Cosmetic Ind 94:38+ Ja '64; Soap & Chem Spec 40:53-6+ Ja '64

Annual seminar, 10th, Boston, Sept. 24-25; abstracts of papers. Am Perfumer 78:120-2+ O '63; Drug & Cosmetic Ind 93:675+ N '63; Soap & Chem Spec 39:47+ N '63

SOCIETY of die casting engineers

National die casting exposition and congress, 3d, Detroit, Nov. 17-20; with program and list of exhibitors. il Foundry 92:148-53 N '64

SOCIETY of dyers and colourists

Annual general meeting and dinner, 80th, Harrogate, April 24. Soc Dyers & Col J 80: 298-311 Je '64

Commemorative issue of the Journal of the society of dyers and colourists. il Soc Dyers & Col J 79:1-20 '63

Presentation of medals and diplomas. 4pls Soc Dyers & Col J 80:149-50 Mr '64

SOCIETY of mining engineers. See American institute of mining, metallurgical and petroleum engineers—Society of mining engineers

SOCIETY of motion picture and television engineers

Directory for members. SMPTE J 73:1-108 pt 2 Je '64

Meeting, 95th, Los Angeles, April 12-17; with program and abstracts of technical papers. SMPTE J 73:224-39+, 502-6 Mr, Je '64

Papers committee activities abroad. il SMPTE J 73:31-5 Ja '64

Progress committee report for 1963. il maps diag SMPTE J 73:369-410 bibliog(p408-10) My '64

Semi-annual meeting, 94th, Boston, Oct. 13-18. SMPTE J 72:961-6+ D '63

Technical conference and equipment exhibit, 96th, New York, Sept. 27-Oct. 2; program, floor plan, abstracts of papers and exhibit directory. SMPTE J 73:586-8, 679-84+ Jl-Ag '64

This is the Society of motion picture and television engineers. il diags SMPTE J 73:37-44 Ja '64

SOCIETY of naval architects and marine engineers

Annual meeting, 71st, New York, Nov. 13-16; with abstracts of papers. Marine Eng/Log 69:40-4 Ja '64

SOCIETY of petroleum engineers. See American institute of mining, metallurgical and petroleum engineers—Society of petroleum engineers

SOCIETY of photographic instrumentation engineers

Annual technical symposium, Los Angeles. Ind Phot 12:25+ O; 12-13 N '63

SOCIETY of plastics engineers

Annual technical conference, 20th, Atlantic City, Jan. 27-30; abstracts of papers. Plastics World 22:50-5 Ja '64

Technical conference, 20th, Atlantic City, Jan. 27-30; program. Mod Plastics 41:152+ D '63; Plastics Tech 9:19-20 D '63

SOCIETY of the plastics industry

Annual conference. Mod Plastics 41:102-5 D '63

SPI test methods for plastics parts in refrigerators. diag Plastics World 21:11 N '63

SOCIETY of the sigma xi

Proceedings of the 64th annual convention, Cleveland, Ohio, Dec. 30. Am Scientist 52: sup 8A+ Mr '64

Report of the treasurer for 1963. Am Scientist 52:157-62 Mr '64

SODA ash

Effects of synthetic detergents on lime-soda ash treatment. J. F. Malina, jr. and S. Tiyaporn. bibliog Am Water Works Assn J 56:727-38 Je '64

SODA process. See Paper making—Soda process

SODIUM

Cation-exchange between molten salts and a special porcelain of high sodium content. R. J. Labrie. bibliog Electrochem Soc J 111:473-6 Ap '64

Dependence of the optical-maser threshold on neodymium concentration in sodium-compensated calcium tungstate. A. E. Paladino and others. J Ap Phys 35:249-50 Ja '64

Effect of sodium on the spectrographic determination of silicon in aluminum-silicon alloys. F. W. Smith and S. J. Williams. Metallurgia 70:45-7 Jl '64

Influence of small additions of sodium on the surface tension of aluminium and aluminium-silicon alloys. V. D. Davies and J. M. West. bibliog diag Inst Metals J 92:208-10 '63-64

Mechanism of the formation of di-*t*-butylnitroxide from *t*-nitrobutane and sodium metal. A. K. Hoffmann and others. Am Chem Soc J 86:639-46 F 20 '64

Nonequilibrium sodium ionization in laminar boundary layers. J. J. Kane. AIAA J 2:1651-3 S '64

Single-particle studies of ion exchange in packed beds; cupric ion-sodium ion system. M. Gopala Rao and M. M. David. bibliog A I Ch E J 10:213-19 Mr '64

Sodium vapor pressure to 25 atmospheres; data sheet. E. S. Sowa. Nucleonics 21:76-7 O '63

Visible absorption spectra of lithium, sodium, and potassium in molten lithium chloride-potassium chloride. J. Greenberg and I. Warshawsky. diag Am Chem Soc J 86:3572-4 S 5 '64

Analysis

Determination of carbon in sodium by isotope dilution mass spectrometry. K. Y. Eng and others. diag Anal Chem 36:1832-4 Ag '64

Determination of hydrogen in sodium by isotopic dilution with tritium. C. Evans and J. Herrington. diags Anal Chem 35: 1907-10 N '63

Determination of total carbon and sodium carbonate in sodium metal. S. Kallmann and R. Liu. bibliog diags Anal Chem 36: 590-2 Mr '64

Gas chromatographic determination of microgram amounts of carbon in sodium metal. T. G. Mungall and others. diags Anal Chem 36:70-2 Ja '64

Simple method checks sodium content of boiler water. W. B. Gurney. il diag Elec World 161:125 Mr 23 '64

Isotopes

Nebraska ready to sell commercial radiation. Chem & Eng N 42:27 F 3 '64

SODIUM azide

Determination of some heavy metal ions by complexometric titration with sodium azide indicator. F. G. Sherif and B. I. Raafat. bibliog Anal Chem 35:2116-17 D '63

SODIUM borohydride

Reactions of lignin during sulfate cooking. J. Gierer and others. bibliog Tappi 47:233-9 Ap '64

Reduction of nitroaromatic compounds with sodium borohydride. L. A. Kaplan. bibliog Am Chem Soc J 86:740-1 F 20 '64

Retention of polysaccharides in kraft pulping; the effect of borohydride addition to kraft liquor on pulp yield, chemical characteristics and papermaking properties of pinus radiata pulps. A. Meller and E. L. Ritman. bibliog Tappi 47:55-64 Ja '64

Na borohydride; can cost be lowered? Can Chem Process 47:57-8+ D '63

SODIUM bromate

Zeeman effect of nuclear quadrupole resonance in single crystals of sodium bromate and *p*-dibromobenzene. P. Bucci and others. bibliog Am Chem Soc J 86:2513-14 Je 20 '64

SODIUM carbonates

Determination of total carbon and sodium carbonate in sodium metal. S. Kallmann and R. Liu. bibliog diags Anal Chem 36: 590-2 Mr '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

See also

Soda ash

Trona

SODIUM carboxymethylcellulose

How cellulose gum can work for you. J. B. Batdorf. il Food Eng 36:66-8 Ag '64

SODIUM chloride. See Salt

SODIUM chlorite

Practical aspects of the bleaching of cellulosic materials. C. Garrett. Soc Dyers & Col J 80:117-23 Mr '64

Tritium-labeled compounds; mechanism for the oxidation of aldehydes and aldoses-1-*t* with sodium chlorite. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:301-4 My '64

SODIUM chromates

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

SODIUM compounds

Buffer solutions of potassium dihydrogen phosphate and sodium succinate at 25°C. M. Paabo and others. bibliog J Res Nat Bur Stand 67A:573-6 N '63

Disproportionation of monosodium tetraphenylethylene. J. F. Garst and others. bibliog Am Chem Soc J 86:2257-61 Je 5 '64

Sodium compounds in water and waste treatment. G. E. Symons. bibliog Pub Works 94:105-9 D '63

Soil stabilization with cement and sodium additives. Z. C. Moh. bibliog Am Soc C E Proc 88 [SM 6 no 3356]:81-105 D '62; Discussion. 89 [SM 3 no 3528]:181-7 My; [SM 4 no 3578]:217-18 Jl '63; Reply. 90 [SM 1 no 3781]:103-5 Ja '64

SODIUM cyanide

Preparation of nitriles from α-chloroethers and sodium cyanide in dipolar aprotic media. P. A. Argabright and D. W. Hall. bibliog Chem & Ind p 1365 Jl 25 '64

Standard sodium cyanide solutions. J. P. Leftin. bibliog Metal Finishing 61:69-71 N '63

SODIUM dodecyl sulfate

Influence of the state of aggregation on the specific acid-catalyzed hydrolysis of sodium dodecyl sulfate. V. A. Motsavage and H. B. Kostenbauder. bibliog J Colloid Sci 18:603-15 S '63

SODIUM fluoride

Phosphate, halide systems. M. K. Murthy and A. Mueller. bibliog Am Cer Soc J 46:530-5, 558-9 N '63

SODIUM halides

Desalination of sodium halide electrolytes by a differential redox method. E. I. Onstott. bibliog diag Electrochem Soc J 111:966-73 Ag '64

SODIUM hydride

Reaction of sodium hydride with boron trichloride to form diborane. H. D. Batha and others. diag J Ap Chem 14:257-61 Je '64

SODIUM hydroxide

Caustic soda for corrosion control. J. A. Hosty. il Water Works & Wastes Eng 1:44-5 Ap '64

Caustic soda in water treatment. J. Hosty. Water Works Eng 116:898 N '63

Mechanisms of α-elimination: nitrobenzylsulfonium, -ammonium, and -phosphonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. Am Chem Soc J 86:3296-301 Ag 20 '64

Mechanisms of α-elimination; *p*-nitrobenzylsulfonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. bibliog Am Chem Soc J 86:3302-6 Ag 20 '64

Ozone is stabilized by strong bases. L. J. Heidt and V. R. Landi. diag Chem & Eng N 42:38-9 Jl 27 '64

Study of the fritting reaction of zircon sand with sodium hydroxide using differential thermal analysis and X-ray techniques. H. S. Choi and H. Cross. bibliog il Can Min & Met Bul 57:966-72 S '64

Unsteady state absorption of carbon dioxide by dilute sodium hydroxide solutions. T. R. Rehm and others. bibliog diag A I Ch E J 9:760-5 N '63

SODIUM hypochlorite

Alkaline hypochlorite oxidation of cellulose analogs. M. L. Wolfrom and W. E. Lucke. bibliog Tappi 47:189-92 Ap '64

Practical aspects of the bleaching of cellulosic materials. C. Garrett. Soc Dyers & Col J 80:117-23 Mr '64

SODIUM hyponitrite

Electrolytic preparation of sodium hyponitrite. C. N. Polydoropoulos. diag Chem & Ind p 1686 O 19 '63

SODIUM iodide

Gamma-ray detection efficiency and image resolution in sodium iodide. H. O. Anger and D. H. Davis. R Sci Instr 35:693-7 Je '64

Gasometric analysis of alkyl azides with sodium iodide-trichloroacetic acid. W. R. Carpenter. bibliog Anal Chem 36:2352-3 N '64

Iodides in mercury arcs, for improved color and efficacy. E. C. Martt and others. il diags Illum Eng 59:34-8; Discussion. 39-42 Ja '64

SODIUM niobate

Metastable ferroelectric sodium niobate. R. H. Dungan and R. D. Golding. bibliog diags Am Cer Soc J 47:73-6 F '64

SODIUM nitrate

Apparatus for the determination of diffusion coefficients in fused salts ($NaNO_3$) at high pressure. S. B. Tricklebank and others. bibliog diags R Sci Instr 35:807-10 Jl '64

SODIUM nitrite

Determining nitrite in sausage. M. Z. Barakat and I. Sadek. bibliog Food Tech 18:242-4 F '64

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

Electric conductivity of fused $LiNO_3$-$NaNO_3$-KNO_3 eutectic. L. A. King and others. Electrochem Soc J 111:720-1 Je '64

Reversible internal indicator for sodium nitrite titrations. A. A. Schilt and J. W. Sutherland. bibliog Anal Chem 36:1805-7 Ag '64

Sodium nitrite as a corrosion inhibitor for mild steel. R. A. Legault and M. S. Walker. bibliog Corrosion 20:282-8 S '64

SODIUM oxide

Studies in germanium oxide systems; phase equilibria in the system Na_2O-GeO_2. M. K. Murthy and J. Aguayo. bibliog Am Cer Soc J 47:444-7 S '64

SODIUM phosphates

Phosphate- halide systems. M. K. Murthy and others. bibliog Am Cer Soc J 46:530-5, 558-9; 47:375-8 N '63, Ag '64

Sodium dialkyl phosphates; surfactant properties and use in heavy duty detergents. R. S. Cooper and A. D. Urfer. Am Oil Chem Soc J 41:337-40 My '64

Sodium tri(poly)phosphate in the kaolinite-water system. J. W. Lyons. bibliog J Colloid Sci 19:399-412 Je '64

SODIUM salicylate

Sodium salicylate discoloration. Drug & Cosmetic Ind 94:916 Je '64

SODIUM silicates

Effect of sodium silicate on the filtration rate of asbestos fiber. E. Martinez. Can Min & Met Bul 57:1042-4 O '64

Use of acid-treated sodium silicate in coagulation. J. R. Baylis and A. E. Mrva. diag Am Water Works Assn J 55:1536-52 D '63

SODIUM succinate

Reaction between sodium succinate and acetylacetone. G. H. Suverkropp and H. Wynberg. bibliog Chem & Ind p 1803-4 N 9 '63

SODIUM sulfates

Production of potassium sulphate from naturally occurring sodium sulphate and potassium chloride. B. Gunn. flow sheet bibliog Can J Chem Eng 42:187-90 Ag '64

See also

Paper making—Sulfate process

SODIUM sulfides

Solubility of cinnabar in Na_2S solutions at 50-250°C and 1-1,800 bars, with geologic applications. F. W. Dickson. bibliog diag Econ Geol 59:625-35 Je '64

SODIUM sulfites

Absorption of oxygen by sodium sulphite on a sieve plate. I. J. Harris and G. H. Roper. bibliog diag Can J Chem Eng 42:34-7 F '64

See also

Paper making—Sulfite process

SODIUM tartrates

Crystallinity and the solubility of cellulose in iron-sodium tartrate solution. R. E. Glegg and others. Tappi 47:574-9 S '64

SODIUM tetraborate

Hydrolysis of sodium tetrahydroborate; identification of an intermediate. J. A. Gardiner and J. W. Collat. bibliog Am Chem Soc J 86:3165-6 Ag 5 '64

Use of Karl Fischer reagent for the determination of water in condensates of sodium tetraborate and diols. C. B. Jordan. Anal Chem 36:424-5 F '64

SODIUM tungstate

Thermal expansion of a cubic sodium tungsten bronze. T. Takamori and M. Tomozawa. Am Cer Soc J 47:472 S '64

SODIUM vanadate

Occurrence and properties of barnesite: $Na_2V_6O_{16}.3H_2O$, a new hydrated sodium vanadate mineral from Utah. A. D. Weeks and others. bibliog Am Mineralogist 48:1187-95 N '63

SODIUM vapor lamps. See Electric lamps, Sodium vapor

SOFTENING points

Analyzer measures softening points: Materiaphone. il Chem & Eng N 42:48+ Ag 31 '64

Ring-and-ball softening point test for asphalts, pitches, and tars. Materials Res & Stand 4:417-21 Ag '64

Softening-range tester for powdered samples. C. D. Doyle. il Materials Res & Stand 3:915-17 N '63

SOIL analysis

Conversion of 4-(2,4-DB) to 2,4-dichlorophenoxycrotonic acid (2,4-DC) and production of 2,4-D from 2,4-DC in soil. W. H. Gutenmann and D. J. Lisk. J Agri & Food Chem 12:322-3 Jl '64

Degradation of organomercury fungicides in soil. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:253-7 My '64

Determination of soil carbonates by a rapid gasometric method. M. W. M. Leo. bibliog il map J Agri & Food Chem 11:452-5 N '63

Effect of temperature on water solubility of phorate and disulfoton. K. A. Lord and P. E. Burt. bibliog Chem & Ind p 1262-3 Jl 11 '64

Estimation and determination of sulphate in soils and various other siliceous and calcareous materials. C. J. Keattch. bibliog J Ap Chem 14:218-20 My '64

Factors influencing the design and operation of soil systems for waste treatment. G. G. Robeck and others. diag WPCF J 36:971-83 Ag '64; Excerpts. Pub Works 95:122+ N '64

Fixed-position device for sampling soil solution in depth. E. E. Haskell, jr. and W. C. Bianchi. il Am Water Works Assn J 56:664-6 My '64

Modifications in the curcumin procedure for the determination of boron in soil extracts. A. S. Baker. bibliog J Agri & Food Chem 12:367-70 Jl '64

Trace element determinations in soils and stream sediments by an internal standard spectrographic procedure. E. F. Cruft. bibliog il Econ Geol 59:458-64 My '64

Treatise on soil science (Pochvovedenie); 4th ed. K. D. Glinka, and Chemical analysis of soils (Khimicheskii analiz pochvy); 4th ed. K. K. Gedroits. Review, by B. T. Bunting. bibliog Chem & Ind p 1339-41 Jl 25 '64

SOIL cement mixtures

Soil cement alternate bid wins dam job; unit prices. Eng N 172:138+ Je 18 '64

Soil-cement as slope protection for earth dams. W. G. Holtz and F. C. Walker. bibliog il map diags Am Soc C E Proc 88 [SM 6 no 3361]:107-34 D '62; Discussion. 89 [SM 3 no 3528]:189-92 My; [SM 4 no 3578]:219-22 Jl '63; Reply. 90 [SM 2 no 3850]:159-62 Mr '64

See also
Roads—Foundations—Soil-cement

SOIL conservation

Soil conservation program replaces county bridges. C. P. Mayhugh. il Pub Works 95:100-1 N '64

SOIL consolidation. See Soils—Consolidation

SOIL erosion. See Erosion

SOIL mechanics

Allowable bearing capacity of initially bent piles. B. E. Broms. bibliog diags Am Soc C E Proc 89 [SM 5 no 3651]:73-90 S '63; Correction. 90 [SM 3 no 3907]:179 My '64

Analysis of pile groups with flexural resistance. A. J. Francis. bibliog diags Am Soc C E Proc 90 [SM 3 no 3887]:1-32 My '64

Basic experiment into soil-structure interaction. R. V. Whitman and U. Luscher. bibliog il diags Am Soc C E Proc 88 [SM 6 no 3366]:135-67 D '62; Discussion. 89 [SM 4 no 3578]:223-7 Jl; [SM 5 no 3654]:95-100 S '63; Reply. 90 [SM 2 no 3850]:163-4 Mr '64

Bearing capacity of piles in cohesionless soils. R. L. Norlund. bibliog diags Am Soc C E Proc 89 [SM 3 no 3506]:1-35 My '63; Discussion. 89 [SM 6 no 3701]:125-6 N '63; 90 [SM 1 no 3781]:127-31 Ja '64; Reply. 90 [SM 4 no 3979]: 139-43 Jl '64

Blast loading of small buried arches. J. R. Allgood. bibliog diags Am Soc C E Proc 90 [ST 5 no 4095]:39-61 O '64

Boundary value problems of soil mechanics. W. D. L. Finn. bibliog diags Am Soc C E Proc 89 [SM 5 no 3648]:39-72 S '63; Discussion. T. H. Wu. 90 [SM 2 no 3850]:211-12 Mr '64; Reply. 90 [SM 4 no 3979]:191-2 Jl '64

Design of tile drainage for arid regions. H. Y. Hammad. bibliog diag Am Soc C E Proc 90 [IR 3 no 4036]:1-15 S '64

Development and use of the Modpares device. bibliog il diags Am Soc C E Proc 90 [PL 1 no 3782]:155-78 Ja '64

Disintegration of bodies of (granular) materials governed by the Coulomb rule. H. H. Bleich. diags A S M E Trans ser E 31:1-4 Mr '64

Effective stress theory of soil compaction. R. E. Olson. bibliog Am Soc C E Proc 89 [SM 2 no 3457]:27-45 Mr '63; Discussion. 89 [SM 4 no 3578]:247-50 Jl; [SM 5 no 3654]:133-7 S; [SM 6 no 3701]:101-8 N '63; Reply. 90 [SM 2 no 3850]:171-84 Mr '64

Elastic wave velocities in granular soils. B. O. Hardin and F. E. Richart, jr. bibliog diags Am Soc C E Proc 89 [SM 1 no 3407]:33-65 F '63; Discussion. 89 [SM 5 no 3654]:103-18 S '63; Reply. 90 [SM 1 no 3781]:109-17 Ja '64

Electric analogs in time-settlement problems. P. Domenico and G. Clark. bibliog diags Am Soc C E Proc 90 [SM 3 no 3892]:33-51 My '64

Expansion of a cavity in a saturated clay medium. B. Ladanyi. bibliog diags Am Soc C E Proc 89 [SM 4 no 3577]:127-61 Jl '63; 90 [SM 4 no 3979]:181-2 Jl '64

Foundation behavior of iron ore storage yards. R. B. Peck and T. Raamot. bibliog diags Am Soc C E Proc 90 [SM 3 no 3902]:85-122 My '64

Ground displacements from air-blast loading. S. D. Wilson and E. A. Sibley. bibliog diags Am Soc C E Proc 88 [SM 6 no 3346]:1-31 D '62; Discussion. 89 [SM 4 no 3578]:207-10 Jl '63; Reply. 90 [SM 1 no 3781]:99-100 Ja '64

Hyperbolic stress-strain response; cohesive soils. R. L. Kondner. bibliog diags Am Soc C E Proc 89 [SM 1 no 3429]:115-43 F '63; Discussion. 89 [SM 3 no 3528]:203-4 My; [SM 4 no 3578]:241-2 Jl '63; Reply. 90 [SM 1 no 3781]:121-6 Ja '64

Importance of free ends in triaxial testing. P. W. Rowe and L. Barden. bibliog il diags Am Soc C E Proc 90 [SM 1 no 3753]:1-27 Ja '64; Discussion. A. Fagnoul. 90 [SM 4 no 3979]:203-5 Jl '64

Karl Terzaghi's last writings on soils. Eng N 171:39-40 N 21 '63

Laboratory shear testing of soils symposium, Ottawa, Sept. 9-11. Materials Res & Stand 3:1008 D '63

Land subsidence problems. R. F. Dawson. il maps diags Am Soc C E Proc 89 [SU 2 no 3531]:1-12 Je '63; Discussion. 89 [SU 3 no 3684]:217-23 O '63; 90 [SU 1 no 3885]:73-9 Ap '64

Lateral resistance of piles in cohesionless soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 3 no 3909]:123-56 My '64

Lateral resistance of piles in cohesive soils. B. B. Broms. bibliog diags Am Soc C E Proc 90 [SM 2 no 3825]:27-63 Mr '64

Load transfer in a step-taper pile. E. D'Appolonia and J. A. Hribar. bibliog diags Am Soc C E Proc 89 [SM 6 no 3700]:57-77 N '63; Discussion. K. V. Swaminathan. 90 [SM 4 no 3979]:199-202 Jl '64

Load transfer in end-bearing steel H-piles. E. D'Appolonia and J. P. Romualdi. bibliog il diags Am Soc C E Proc 89 [SM 2 no 3450]:1-25 Mr '63: Discussion. 89 [SM 5 no 3654]:127-32 S; [SM 6 no 3701]:97-100 N '63; Reply. 90 [SM 3 no 3907]:163-4 My '64

Mechanics of inclined filters in earth dams. V. J. Patel and others. bibliog diags Am Soc C E Proc 90 [SM 2 no 3840]:87-110 Mr '64

Methods of estimating settlement. T. W. Lambe. diags Am Soc C E Proc 90 [SM 5 no 4060]:43-67 bibliog(p65-7) S '64

Model studies of beams resting on a silt subgrade. A. B. Vesić and W. H. Johnson. bibliog il diags Am Soc C E Proc 89 [SM 1 no 3406]:1-31 F '63; Correction. 89 [SM 4 no 3578]:237 Jl '63; Discussion. H. Grasshoff. 89 [SM 5 no 3654]:101-2 S '63; Reply. 90 [SM 3 no 3907]:159-61 My '64

Plastic limit as a binary packing phenomenon. G. E. H. Ballard. bibliog diag Materials Res & Stand 4:366-74 Jl '64

Pore pressures and bearing capacity of layered clays. T. C. Kenney. bibliog diags Am Soc C E Proc 90 [SM 4 no 3960]:27-55 Jl '64

Problems of off-road transportation. L. J. Goodman and R. A. Liston. il diags Am Soc C E Proc 90 [HW 1 no 3761]:1-18 Ja '64

Propagation of shock waves in the ground. T. Ginsburg. bibliog diags Am Soc C E Proc 90 [ST 1 no 3800]:125-63 F '64

Seismic analysis of bridges on long piles. J. Penzien and others. diags Am Soc C E Proc 90 [EM 3 no 3953]:223-54 Je '64

Shear strength of a soil after freezing and thawing. B. B. Broms and L. Y. C. Yao. bibliog diag Am Soc C E Proc 90 [SM 4 no 3958]:1-25 Jl '64

Shearing resistance of soils as a rate process. J. K. Mitchell. bibliog Am Soc C E Proc 90 [SM 1 no 3773]:29-61 Ja '64

SOIL mechanics—*Continued*

Steady gravity flow of frictional-cohesive solids in converging channels. A. W. Jenike. bibliog diags A S M E Trans ser E 31:5-11 Mr '64

Stress-dilatancy, earth pressures, and slopes. P. W. Rowe. diags Am Soc C E Proc 89 [SM 3 no 3507]:37-61 My '63; Discussion. 89 [SM 6 no 3701]:127-33 N '63; 90 [SM 1 no 3781]:133-53 Ja '64; Reply. 90 [SM 4 no 3979]:145-80 Jl '64

Stress-strain modulus of clay in undrained shear. C. C. Ladd. diags Am Soc C E Proc 90 [SM 5 no 4039]:103-32 bibliog(p 128-30) S '64

Study of failure envelope of soils. T. H. Wu and others. bibliog diags Am Soc C E Proc 89 [SM 1 no 3430]:145-81 F '63; Discussion. 89 [SM 4 no 3578]:243-5 Jl; [SM 5 no 3654]: 119-20 S '63; Reply. 90 [SM 2 no 3850]:165-6 Mr '64

Subsurface investigations for lateral sewer systems. J. F. Larkin. WPCF J 36:880-3 Jl '64

Use of surcharges in highway construction. W. F. Kleiman. bibliog map diags Am Soc C E Proc 90 [SM 5 no 4048]:331-48 S '64

Variable-factors theory of bearing capacity. G. C. Y. Hu. bibliog diag Am Soc C E Proc 90 [SM 4 no 3969]:85-95 Jl '64

Vibrational transfer from shear buildings to ground. L. S. Jacobsen. bibliog diags Am Soc C E Proc 90 [EM 3 no 3924]:21-38 Je '64

See also

Landslides

Soil stabilization

SOIL moisture

Adolescence of nuclear testing. W. R. Brown. Roads & Sts 107:46 My '64

Characteristics of soil affecting cable ratings. A. G. Milne and K. Mochlinski. bibliog il map diags Inst E E Proc 111:1017-39 My '64

Effective stress theory of soil compaction. R. E. Olson. bibliog Am Soc C E Proc 89 [SM 2 no 3457]:27-45 Mr '63; Discussion. 89 [SM 4 no 3578]:247-50 Jl; [SM 5 no 3654]: 133-7 S; [SM 6 no 3701]:101-8 N '63; Reply. 90 [SM 2 no 3850]:171-84 Mr '64

Influence of soil-moisture migration on power rating of cables in h.v. transmission systems. A. N. Arman and others. bibliog plan diags Inst E E Proc 111:1000-16 My '64

Nuclear density/moisture testing results reviewed at WASHO conference, Denver, Sept. 15-20. Roads & Sts 106:67 D '63

Nuclear testing; how it worked on freeway project. il Roads & Sts 107:64-7 Ap; 50-1+ Je '64

Optimization of a neutron scattering water content gauge for soils or concretes. K. Preiss and P. J. Grant. bibliog diags J Sci Instr 41:548-51 S '64

Plastoponics: plastics foam takes over functions of good soil. il Plastics World 22:28 Mr '64

Separation of evapotranspiration and deep percolation. L. S. Willardson and W. L. Pope. bibliog Am Soc C E Proc 89 [IR 3 no 3638]:77-88 S '63; Discussion. 90 [IR 1 no 3848]:139-41 Mr; [IR 2 no 3941]:55-7 Je '64

SOIL permeability

Effect of voids and permeability on groundwater flow condition. M. Suter. Water Works & Wastes Eng 1:41-5 F '64

Studies of the failure of septic tank percolation systems. P. H. McGauhey and J. H. Winneberger. bibliog il diags WPCF J 36: 593-606 My '64

SOIL research

Plastic limit as a binary packing phenomenon. G. E. H. Ballard. bibliog diag Materials Res & Stand 4:366-74 Jl '64

Review of adsorption and desorption of organic pesticides by soil colloids, with implications concerning pesticide bioactivity. G. W. Bailey and J. L. White. J Agri & Food Chem 12:324-32 bibliog(p331-2) Jl '64

Soil fertility and nutrient turnover; abstracts of papers. Chem & Ind p618-19 Ap 11 '64

Soil lime research at Iowa state university. M. Mateos. Am Soc C E Proc 90 [SM 2 no 3847]:127-53 bibliog(p 151-3) Mr '64

SOIL resistivity

Evaluation of resistivity tests for design of station grounds in nonuniform soil. J. Endrenyi. bibliog diags IEEE Trans Power Apparatus & Systems p966-70 D '63

SOIL stabilization

Columns of sand may stabilize Alaskan sites. Eng N 173:20 Jl 23 '64

Fill settlement despite vertical sand drains. G. F. Sowers. plan Am Soc C E Proc 90 [SM 5 no 4044]:289-302 S '64

Further economies in soil stabilization with pulverized fuel ash. Engineering 198:171 Ag 7 '64

High-speed mixer has hydrostatic drive. il Eng N 173:44 N 5 '64

Hydrated lime stabilizes a clay fill in Florida. il Eng N 172:40-2 My 14 '64

Salt stabilization improves county roads. il Pub Works 95:135 S '64

Self-unloading trailers expedite lime stabilization. il Roads & Sts 107:55 My '64

Soil lime research at Iowa state university. M. Mateos. Am Soc C E Proc 90 [SM 2 no 3847]:127-53 bibliog(p 151-3) Mr '64

Soil stabilization by latex-and-oil spraying. Engineering 197:83 Ja 17 '64

Soil stabilization: Coherex. F. S. Rostler and W. M. Kunkel, jr. bibliog il diags Ind & Eng Chem 56:27-33 Ap '64

Soil stabilization with cement and sodium additives. Z. C. Moh. bibliog Am Soc C E Proc 88 [SM 6 no 3356]:81-105 D '62; Discussion. 89 [SM 3 no 3528]:181-7 My; [SM 4 no 3578]:217-18 Jl '63; Reply. 90 [SM 1 no 3781]:103-5 Ja '64

Soil stabilizer helps create recreational areas. il Pub Works 95:101-3 Ap '64

Soil stabilizing in the Dartford tunnel. il map diags Engineering 196:686-7 N 29 '63

Stability of cuts in soft soils. T. C. Kenney. bibliog diags Am Soc C E Proc 89 [SM 5 no 3647]:17-37 S '63; Discussion. 90 [SM 3 no 3907]:177-8 My; [SM 4 no 3979]:183-9 Jl '64

Stabilization of sand and soil. Engineer 217:140 Ja 17 '64

Stabilization of sand dunes at Vandenberg air force base. J. Peters and J. Sciandrone. il plan Am Soc C E Proc 90 [SM 4 no 3976]: 97-106 Jl '64

Stabilizing the subsoil by vibro-replacement. il Engineering 198:466 O 9 '64

Subgrade stabilization under an existing runway. S. C. Dearstyne and G. J. Newman. plan diags Am Soc C E Proc 89 [AT 1 no 3473]:1-8 Ap '63; Discussion. 89 [AT 2 no 3686]:47-9 O '63; 90 [AT 1 no 3916]:75-6 My '64

Subsurface stabilization of organic silty clay by precompression. E. Jonas. il Am Soc C E Proc 90 [SM 5 no 4031]:363-76 S '64

Three jobs show lime's versatility. il diag Roads & Sts 107:52-4+ Ap '64

See also

Roads—Foundations—Soil-cement

SOIL sterilization

Chemical control of plant parasitic nematodes in the United Kingdom. J. E. Peachey. bibliog Chem & Ind p 1736-40 N 2 '63

SOILING of textiles

Analysis of skin oils from soiled clothing. K. H. Bey. bibliog Am Perfumer 79:35-8+ Ag '64

Correlation of detergency with physiochemical factors. A. M. Mankowich. bibliog Am Oil Chem Soc J 40:674-9 N '63

Neutron activation method for soil removal measurements; a comparison of the reflectance method and the neutron activation method. D. A. Netzel and others. bibliog il Am Oil Chem Soc J 41:678-83 O '64

New physical evaluation techniques. M. E. Ginn. bibliog il diags Am Oil Chem Soc J 40:662-9 N '63

Polysaccharides used as soil suspending agents; abstract. A. Jeanes. Chem & Eng N 42:70 S 14 '64

Soil redeposition. H. B. Trost. bibliog Am Oil Chem Soc J 40:669-74 N '63

Soil removal as a rate process. L. Loeb and others. bibliog Am Oil Chem Soc J 41:120-4 F '64

Wet soiling of cotton. J. Berch and others. bibliog Textile Res J 33:137-45; 34:29-34, 844-9 F '63, Ja, O '64

SOILS

Channel stability in undisturbed cohesive soils. E. M. Flaxman. bibliog diags Am Soc C E Proc 89 [HY 2 no 3462]:87-96 Mr '63; Discussion. 89 [HY 6 no 3708]:259-64 N '63; Reply. 90 [HY 3 no 3911]:317-19 My '64

Clay mineralogical aspects of the Atterberg limits. H. B. Seed and others. bibliog Am Soc C E Proc 90 [SM 4 no 3983]:107-31 Jl '64

Fate of 3-amino-1,2,4-triazole in soils. C. D. Ercegovich and D. E. H. Frear. bibliog J Agri & Food Chem 12:26-9 Ja '64

Review of disappearance of substituted urea herbicides from soil. T. J. Sheets. bibliog J Agri & Food Chem 12:30-3 Ja '64

SOILS—*Continued*

Treatise on soil science (pochvovedenie); 4th ed. K. D. Glinka, and Chemical analysis of soils (Khimicheskii analiz pochvy); 4th ed. K. K. Gedroits. Review. by B. T. Bunting. bibliog Chem & Ind p 1339-41 Jl 25 '64

See also
Clay
Drainage
Foundation soils
Highway engineering
Irrigation
Silt
Soil mechanics
Soil moisture

Analysis

See Soil analysis

Boron content

Modifications in the curcumin procedure for the determination of boron in soil extracts. A. S. Baker. bibliog J Agri & Food Chem 12:367-70 Jl '64

Chemical consolidation

Soil stabilization with cement and sodium additives. Z. C. Moh. bibliog Am Soc C E Proc 88 [SM 6 no 3356]:81-105 D '62; Discussion. 89 [SM 3 no 3528]:181-7 My; [SM 4 no 3578]:217-18 Jl '63; Reply. 90 [SM 1 no 3781]:103-5 Ja '64

Vibration controlled by chemical grouting. G. P. Tschebotarioff. plan diags Civil Eng 34:34-5 My '64

Consolidation

Analysis of primary and secondary consolidation. H. E. Wahls. bibliog diags Am Soc C E Proc 88 [SM 6 no 3373]:207-31 D '62; Discussion. 89 [SM 3 no 3528]:193-201 My; [SM 4 no 3578]:233-6 Jl; [SM 6 no 3701]:95-6 N '63; Reply. 90 [SM 6 no 4122]:161-4 N '64

Consolidation coefficient; cohesive soil mixtures. R. L. Kondner and J. R. Vendrell, jr. Am Soc C E Proc 90 [SM 5 no 4021]:31-42 S '64

Consolidation of nonhomogeneous clay layers. R. L. Schiffman and R. E. Gibson. bibliog diags Am Soc C E Proc 90 [SM 5 no 4043]:1-30 S '64

Consolidation test for undisturbed sands. W. B. Bull. il diag Materials Res & Stand 4:347-51 Jl '64

Consolidation testing with back pressure. J. Lowe, 3d and others. il diag Am Soc C E Proc 90 [SM 5 no 4058]:69-86 S '64

Effective stress theory of soil compaction. R. E. Olson. bibliog Am Soc C E Proc 89 [SM 2 no 3457]:27-45 Mr '63; Discussion. 89 [SM 4 no 3578]:247-50 Jl '63; [SM 5 no 3654]:133-7 S; [SM 6 no 3701]:101-8 N '63; Reply. 90 [SM 2 no 3850]:171-84 Mr '64

Flexibility of clay and cracking of earth dams. G. A. Leonards and J. Narain. il diags Am Soc C E Proc 89 [SM 2 no 3460]:47-98 bibliog(p96-7) Mr '63; Discussion. 89 [SM 6 no 3701]:109-22 N '63; Reply. 90 [SM 4 no 3979]:135-7 Jl '64

Hyperbolic stress-strain response; cohesive soils. R. L. Kondner. bibliog diags Am Soc C E Proc 89 [SM 1 no 3429]:115-43 F '63; Discussion. 89 [SM 3 no 3528]:203-4 My; [SM 4 no 3578]:241-2 Jl '63; Reply. 90 [SM 1 no 3781]:121-6 Ja '64

Interpretation of the consolidation test. C. B. Crawford. bibliog Am Soc C E Proc 90 [SM 5 no 4056]:87-102 S '64

Soil compaction to get intense study. Eng N 173:30 O 15 '64

Soil solidification sinks elevator shaft. diag Eng N 172:170+ Je 18 '64

See also
Rollers (earthwork)

Freezing

Another job for cryogenics; construction of a sewage main necessitated freezing waterlogged ground with liquid nitrogen. il diags Comp Air Mag 69:16-17 Ja '64

Frozen earth storage: how Phillips built it. P. S. Massey. il diag Hydrocarbon Process & Pet Refiner 43:147-9 Mr '64; Same cond. Oil & Gas J 62:102-3 Mr 16 '64

International conference on permafrost, Lafayette, Ind. Nov. 11-15. Civil Eng 34:61 Ja '64

Shear strength of a soil after freezing and thawing. B. B. Broms and L. Y. C. Yao. bibliog diag Am Soc C E Proc 90 [SM 4 no 3958]:1-25 Jl '64

Thawing of wells in frozen ground by electrical means. E. R. Eaton. diags Water & Sewage Works 111:350-3 Ag '64

See also
Frost heaving

Lead content

Natural occurrence of lead. R. T. P. de Treville. Archives Environmental Health 8:212-21 bibliog(p220-1) F '64

Mineral content

Copper distribution patterns in soils and drainage in central Chile. A. De Grys. Econ Geol 59:636-46 Je '64

Environmental factors involved in studying the relationship between soil elements and disease. R. W. Armstrong. bibliog diag Am J Pub Health 54:1536-44 S '64

Minor element release from organic-N fertilizer materials in laboratory and field studies. J. G. Fiskell and others. bibliog J Agri & Food Chem 12:363-7 Jl '64

Phillipsite of saline lakes and soils. R. L. Hay. bibliog map diags Am Mineralogist 49:1366-87 S '64

Role of the biochemical cycle in the development of copper cobalt anomalies in the freely drained soils of the Northern Rhodesian Copperbelt. J. S. Tooms and J. R. Jay. bibliog Econ Geol 59:826-34 Ag '64

Nitrogen content

Loss of 2-chloro-6-(trichloromethyl)-pyridine from soil. C. T. Redemann and others. J Agri & Food Chem 12:207-9 My '64

Testing

Adolescence of nuclear testing. W. R. Brown. Roads & Sts 107:46 My '64

Comparisons of one and two-specimen cohesion-friction-strain tests. J. H. Schmertmann. bibliog diag Am Soc C E Proc 88 [SM 6 no 3372]:169-205 D '62; Discussion. T. H. Wu. 89 [SM 4 no 3578]:229-31 Jl '63; Reply. 90 [SM 1 no 3781]:107-8 Ja '64

Consolidation test for undisturbed sands. W. B. Bull. il diag Materials Res & Stand 4:347-51 Jl '64

Dissipation of elastic wave energy in granular soils. J. R. Hall, jr. and F. E. Richart, jr. bibliog il diags Am Soc C E Proc 89 [SM 6 no 3698]:27-56 N '63; Discussion. 90 [SM 3 no 3907]:181-3 My; [SM 4 no 3979]:195-7 Jl '64

Importance of free ends in triaxial testing. P. W. Rowe and L. Barden. bibliog il diags Am Soc C E Proc 90 [SM 1 no 3753]:1-27 Ja '64; Discussion. A. Fagnoul. 90 [SM 4 no 3979]:203-5 Jl '64

Instrumented wheels pinpoint soil strength characteristics: Bevameter. il Machine Design 36:10 F 27 '64

Nuclear density/moisture testing results reviewed at WASHO conference, Denver. Sept. 15-20. Roads & Sts 106:67 D '63

Nuclear testing: how it worked on freeway project. il Roads & Sts 107:64-7 Ap; 50-1+ Je '64

Rig gages soil traffic ability. il Eng N 172:157 Mr 19 '64

Seismograph speeds subsurface investigation. N. Bigelow, jr. il diag Pub Works 95:98-9 S '64

Shortcut for grain-size analysis. D. O. Ehrenburg. Materials Res & Stand 3:987 D '63

Soil engineering saves elevated tank costs. D. Newton and J. B. Thompson. il Pub Works 94:86-7 D '63

Surface area measurements and adsorption of soils. M. J. Suess. bibliog il Am Soc C E Proc 90 [IR 1 no 3841]:87-108 Mr '64

California

Nickeliferous laterites in southwestern Oregon and northwestern California. P. E. Hotz. map Econ Geol 59:355-96 bibliog(p394-6) My '64

Idaho

Patterned ground in the western Snake River Plain, Idaho, and its possible cold-climate origin. H. E. Malde. maps diag Geol Soc Bul 75:191-207, pl 1-4 bibliog(p205-7) Mr '64

Oregon

Nickeliferous laterites in southwestern Oregon and northwestern California. P. E. Hotz. map Econ Geol 59:355-96 bibliog(p394-6) My '64

SOLAR batteries
Absolute measurement of GaAs diodes radiation using solar cells. E. J. Schiel and J. J. Bolmarcich. IEEE Proc 51:1780-1 D '63
Advanced solar cells. L. D. Massie. bibliog il diags Space/Aeronautics 42:60-5 S '64
Effects of impurities on radiation damage of silicon solar cells. J. Mandelkorn and others. bibliog J Ap Phys 35:2258-60 Jl '64
Evaluation of solar cells by means of spectral analysis. H. K. Gummel and F. M. Smits. diags Bell System Tech J 43:1103-21 My '64
Improvements in photovoltaic energy converters. K. S. Tarneja and R. K. Riel. bibliog il diags Westinghouse Eng 23:179-83 N '63
Large-area silicon solar power cell. il Engineering 197:288 F 21 '64
Look at light-sensitive devices. I. Rubin. il Electronic Ind 23:50-2 Ag '64
Optimization of window-type filters for silicon solar cells. R. J. Romagnoli. AIAA J 2:101-3 Ja '64
Remote vhf radio alarm system is solar powered. il diag Power Eng 68:47 O '64
Silicon solar cells for ground-level use. H. Crystal. il diags Inst E E Proc 111:173-7 Ja '64; Discussion. 111:1369-70 Jl '64
Solar cell; radiant to electrical energy. M. F. Amsterdam. diags Electro-Tech 74:54-6 S '64

SOLAR cells. See Solar batteries

SOLAR corona. See Sun—Corona

SOLAR energy. See Solar power; Solar radiation

SOLAR flares. See Sun—Prominences

SOLAR heating
Experimental analysis of solar heat gain through insulating glass with indoor shading. C. W. Pennington and others. bibliog il diag ASHRAE J 6:27-39 F '64
Heat pumps and solar units maintain glasshouse temperatures. il diag Plant Eng 18:126-8 Mr '64
Selective reflectance: new approach to solar heat control. J. I. Yellott. bibliog il diags ASHRAE J 6:87-106 Ja '64
Solar heat gain factors and shading coefficients. D. J. Vild. ASHRAE J 6:47-50 O '64
Solar heat gain through double glass with between-glass shading. W. A. Smith and C. W. Pennington. bibliog ASHRAE J 6:50-3 O '64
Theoretical method for determining the apparent radiation properties for materials in sinusoidal configuration. E. A. Farber and P. Valandani. bibliog diags A S M E Trans ser A 86:472-4 O '64

SOLAR power
Advanced solar plates are cheaper, more compact. il diag Space/Aeronautics 41:101 My '64
Dish-inflating technique makes large reflectors feasible. il Machine Design 35:8 N 21 '63
For space; the solar concentrator. T. J. McCusker. il diag Mech Eng 86:44-7 Je '64
Solar collector. Franklin Inst J 277:91 Ja '64
Solar energy. G. Corfield. Gas 40:15 Ja '64
Solar energy progress report, 1963. J. I. Yellott. bibliog il diags A S M E Trans ser A 86:475-84 O '63; Abstract. Mech Eng 86:42-3 O '64
Solar-hydrogen rocket passes first tests. il Machine Design 35:6+ N 21 '63
Solar power via a botanical process. W. J. Oswald and C. G. Golueke. diag Mech Eng 86:40-3 F '64
Solar radiation collector in orbit. Engineering 196:733 D 6 '63
Solar salt production control by flame photometry. H. P. Rothbaum and W. Kitt. Chem & Ind p 1392 Ag 1 '64
Sun power from Sunflower: aluminum and silicon-oxide films deposited in same vacuum cycle. L. W. Collins, jr. il diag Mach 70:95-100 Ja '64
Sun-powered laser. il Electronics 37:33 S 21 '64
Sun-powered laser generates meaningful signals at room temperature. il diag Machine Design 36:10 S 10 '64
See also
Solar batteries

SOLAR radiation
Comparison between the optical systems of searchlights and solar radiation simulators. J. P. Latil. il diags Illum Eng 59:67-71 Ja '64
Estimating evaporation from insolation. R. K. Lane. bibliog Am Soc C E Proc 90 [HY 5 no 4025]:33-41 S '64
Estimating evapotranspiration from solar radiation. M. E. Jensen and H. R. Haise. bibliog Am Soc C E Proc 89 [IR 4 no 3737]: 15-41 D '63; Discussion. J. E. Christiansen. 90 [IR 2 no 3941]:63-4 Je '64
Influence of conduction on spacecraft skin temperatures. P. Hrycak. bibliog AIAA J 1:2619-21 N '63
Solar energy progress report, 1963. J. I. Yellott. bibliog il diags A S M E Trans ser A 86:475-84 O '64; Abstract. Mech Eng 86:42-3 O '64
Solar radiation pressure and the motion of earth satellites. Y. N. Polyakhova. bibliog diags AIAA J 1:2893-909 D '63
Solar simulation for testing. A. E. Mann and F. N. Benning. diags Electro-Tech 74:60-4 O '64
Theoretical method for determining the apparent radiation properties for materials in sinusoidal configuration. E. A. Farber and P. Valandani. bibliog diags A S M E Trans ser A 86:472-4 O '64
See also
Solar heating
Solar power
Sunspots

SOLAR system
Future unmanned exploration of the solar system. M. W. Hunter, 2d. bibliog Astronautics & Aeronautics 2:16-26 My '64
Origin of the solar system. A. G. W. Cameron. il Astronautics & Aeronautics 2:16-19 Ag '64
See also
Meteors
Planets

SOLBERG, Thorwald Arthur
Obituary. por Naval Eng J 76:489-90 Je '64

SOLDER and soldering
Alum-A-Lead: new compound of aluminum powder and liquid resin produces an improved solder. il Light Metal Age 22:5 F '64
Cadmium solder preforms join manifold tubes. il Materials in Design Eng 60:146 O '64
Cold tip puts solder where it counts. il Iron Age 194:80 N 5 '64
Design for solder preforms: with nomographs. H. Manko. il diag Materials in Design Eng 59:96-8 Mr '64
Electrical terminations: soldered connections. H. H. Manko. il Machine Design 36:190-5 My 21 '64
Gold plating to improve solderability on tin-nickel. A. W. Castillero. bibliog Metal Finishing 62:61 F '64
Guide to today's circuit interconnections; with tables. il diags Electronic Ind 23:48-9+ My '64
Iron or machine can solder printed cables. il Electronics 36:74-6 N 15 '63
Joining and fastening; typical solder metals; tables. Materials in Design Eng 60:536-7 Mid-O '64
R-f heating reduces soldering costs. Engineering 198:155 Jl 31 '64
Soft solder joins tube to plate. il Iron Age 193:103 Je 18 '64
Solderability of printed circuits. J. P. Fabish. bibliog il diags Welding J 43:sup400-7 S '64
Soldering aluminum without flux. il Iron Age 194:135 O 29 '64
Soldering and brazing; automation speeds operations, ups quality. il Steel 155:48-9 S 21 '64
Soldering of beryllium metal. E. E. Weismantel and K. C. Taber. il Welding J 43: sup57-62 F '64
Soldering to gold plating. W. B. Harding and H. B. Pressly. diag Metal Prog 86: 155+ Jl '64
Technique in the use of two low-melting-point solders. E. Catalano and E. W. Wrenn. R Sci Instr 34:1260-1 N '63
What makes a solder joint good? J. D. Keller. il diags Electronics 36:50-1 N 29 '63
See also
Brazing
Silver solder
Welding

SOLDERING apparatus
Cold soldering. il Electronics 37:30+ O 19 '64
Getting 1000 hours' use from soldering irons. R. Nichelson. il Plant Eng 18:115-17 F '64

Control

Soldering circuit board components. A. H. Streccius. il diags Automation 11:55-7 Ag '64

SOLENOIDS

Analysis of degradation effects in superconductive niobium stannide solenoids. E. R. Schrader and F. Kolondra. bibliog diag RCA R 25:582-95 S '64

Application of the Garrett method to calculation of coil geometries for generating homogeneous magnetic fields in superconducting solenoids. H. L. Marshall and H. E. Weaver. diags J Ap Phys 34:3175-8 N '63

Computation of self- and mutual-inductance of axially symmetric coils using resistance network simulation. T. Okoshi. diag IEEE Proc 52:1241-2 O '64

Generating high magnetic fields. il Electronics 37:83-4 Je 29 '64

How and why of strong magnetic fields. N. Kurti. bibliog il diags Inst Metals J 93:1-10 '64-65

Magnetization and a superconducting solenoid. P. R. Aron. bibliog diags R Sci Instr 35:33-9 Ja '64

100-kilogauss practical field. W. E. Shoupp. il Machine Design 36:12 Mr 26 '64

Pressure helps operate solenoid valve. il diags Product Eng 35:99 Ag 17 '64

Simple safety interlock stops vacuum upsets. F. J. Krawiec, jr. diag Chem Eng 71:156 Jl 6 '64

Solenoid with a nearly uniform axial magnetic field. K. J. Overshott and I. R. Smith. J Sci Instr 41:507-8 Ag '64

Some characteristics of solenoidal electric field. C. W. Schultz. il diag IEEE Proc 51:1677 N '63

Stored energy or solenoid; which circuit breaker closing mechanism should you use? S. E. Zocholl. il diags Plant Eng 18:130-3 Ap '64

Superconducting magnet has uniform field. Chem & Eng N 42:55-6 Je 8 '64

Supercooled magnet yields repeatable 100 kilogauss. W. T. Reynolds. Electronics 37:47 F 28 '64

Superposition of semi-infinite solenoids for calculating magnetic fields of thick solenoids. G. V. Brown and L. Flax. diags J Ap Phys 35:1764-7 Je '64

SOLES, Plastic

Wide plastics usage in footwear. il Brit Plastics 37:472-9 S '64

SOLID propellant rockets. See Propellants

SOLID solutions. See Solutions, Solid

SOLID state phenomena. See Solids

SOLIDS

Acoustic instability; influence of and on the solid phase. N. W. Ryan and R. L. Coates. bibliog diags AIAA J 2:1130-4 Je '64

Analysis of contained plastic flow in plane solids. A. H. S. Ang and G. N. Harper. bibliog flow diag diags Am Soc C E Proc 90 [EM 5 no 4113]:397-418 O '64

Applicability of minimum rate of entropy production to the solidification of lamellar eutectics. W. A. Tiller. diags J Ap Phys 34:3615-17 D '63

Chart determines pressure drops for pneumatic systems of conveying solids; data sheet. J. D. Constance. Heating-Piping 36:151-2 O '64

Chemical reactivity of solids; symposium preview. Ind & Eng Chem 56:37-8 N '64

Coefficient of thermal expansion and Young's modulus for a one-dimensional model of a solid. J. Mazur and R. J. Rubin. bibliog Am J Phys 31:835-6 N '63

Control designer's guide to solid state photosensors. J. R. McDermott. il diags Control Eng 11:71-84 O '64

Crystalline polymers; solid-state deformation. T. F. Jordan. bibliog diags Mech Eng 86:40-3 S '64

Decay of elastic waves in solids with dislocations. P. Harris and R. F. Greene. bibliog J Ap Phys 35:2170-3 Jl '64

Diffusion today. F. R. Winslow and K. H. Osthagen. J Metals 15:855-60 bibliog (p859-60) N '63

Double-cantilever cleavage mode of crack propagation. P. P. Gillis and J. J. Gilman. bibliog diags J Ap Phys 35:647-58 Mr '64

Effects of solid thermal properties on heat transfer to gas fluidized beds. E. N. Ziegler and others. bibliog il diag Ind & Eng Chem Fundamentals 3:324-8 N '64

Fractionation of mixed solids by high-voltage electrophoresis. G. Todd and G. A. Wild. bibliog il Anal Chem 36:1025-8 My '64

Gas-solid suspensions at high temperatures. E. M. Barston. J Ap Phys 35:2550-1 Ag '64

Gravity unit efficiently blends solids. diag Chem Eng 71:98+ Jl 6 '64

High pressure polymorphic transitions studied by audio- and radio-frequency techniques. A. A. Giardini and others. il diags R Sci Instr 35:713-19 Je '64

Interaction between particles and a solid-liquid interface. D. R. Uhlmann and others. bibliog il diags J Ap Phys 35:2986-93 O '64

International conference on physics of non-crystalline solids, Delft, Netherlands, July 6-10. Am Cer Soc Bul 43:632 S '64

International solid-state circuits conference, Philadelphia, Feb. 19-21. Electronic Ind 23:56-8+ F '64

Introduction of particle-size distribution into kinetics of solid-state reaction. H. Sasaki. bibliog diag Am Cer Soc J 47:512-16 O '64

Investigation of trace impurities in solids by electron paramagnetic resonance; distribution of manganese in calcium carbonate. S. Fujiwara. bibliog Anal Chem 36:2259-61 N '64

Lateral solids mixing in fluidized-packed beds. J. D. Gabor. bibliog diags A I Ch E J 10:345-50 My '64

Modern study of solids. J. D. Patterson. bibliog diags Am J Phys 32:269-78 Ap '64

Monolayer capacity in the physical adsorption of gases on solids. K. S. W. Sing. bibliog Chem & Ind p321-2 F 22 '64

Nonlinear optical properties of solids. P. S. Pershan. bibliog J Res Nat Bur Stand 68D:671-2 My '64

Novel method of measuring elastic and anelastic properties of solids. D. B. Fraser and R. C. LeCraw. il diags R Sci Instr 35:1113-15 S '64

Now you can have solid-state trips for low-voltage circuit breakers. E. G. Kaczkowski. il diags Power 108:64-8 Jl '64

Plasma effects in solids. R. Bowers and M. C. Steele. bibliog IEEE Proc 52:1105-12 O '64

Rapid estimation of minimum solubility of solids in gases. R. B. Hinckley and R. C. Reid. bibliog A I Ch E J 10:416-17 My '64

Redistribution of solute during phase transformations. W. A. Tiller and R. F. Sekerka. J Ap Phys 35:2726-9 S '64

Reflection and refraction of mechanical waves at solid-liquid boundaries. W. G. Mayer. J Ap Phys 34:3286-8 N '63

Resistance probe method for determining local solid particle mixing rates in a batch fluidized bed. T. Hayakawa and others. bibliog diag Can J Chem Eng 42:99-103 Je '64

Second sound may carry energy through solids. Machine Design 36:10 Jl 16 '64

Significance of the term zone length and the ratio of density of solid to liquid in the mathematics of zone melting. W. G. Pfann. bibliog J Ap Phys 35:258-9 Ja '64

Solid-state detectors for beta-ray spectroscopy below 4.2°K. J. Chin and others. bibliog diag R Sci Instr 34:1258-9 N '63

Solidification of lamellar eutectic systems. W. A. Tiller and R. Mrdjenovich. bibliog il J Ap Phys 34:3639-40 D '63

Sputtering ion source for solids. H. J. Liebl and R. F. K. Herzog. bibliog diag J Ap Phys 34:2893-6 S '63; Discussion. H. P. Smith, jr. 35:3067 O '64

Superconductivity and solid-state devices. Electro-Tech 72:13 N '63

Theoretical approach helps explain surface tension of solids. G. C. Benson and K. S. Yun. Chem & Eng N 42:44+ S 7 '64

Third-order elastic moduli of anisotropic solids. N. G. Einspruch and R. J. Manning. J Ap Phys 35:560-7 Mr '64

Variable-state methods of measuring the thermal properties of solids. T. Z. Harmathy. bibliog diags J Ap Phys 35:1190-200 Ap '64

See also

Crystals
Expansion (heat)
Particles
Solutions, Solid
Surface phenomena

SOLOMON, Charles

Yale's school of art and architecture; the builder. por Arch Forum 120:80-3 F '64

SOLS. See Colloids

SOLUBILITY

Crystallinity and the solubility of cellulose in iron-sodium tartrate solution. R. E. Glegg and others. Tappi 47:574-9 S '64

Determination of dissolved oxygen by the Winkler method and the solubility of oxygen in pure water and sea water. H. A. C. Montgomery and others. bibliog diags J Ap Chem 14:280-96 Jl '64

SOLUBILITY—*Continued*

Determination of solubility of several phosphine oxides in aqueous solutions using a new spectrophotometric procedure. J. W. O'Laughlin and others. Anal Chem 36:224-6 Ja '64

Diffusion and solubility of copper in extrinsic and intrinsic germanium, silicon, and gallium arsenide. R. N. Hall and J. H. Racette. bibliog il diag J Ap Phys 35:379-97 F '64

Diffusion and solubility of zinc in gallium phosphide single crystals. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:374-8 F '64

Effect of inorganic polyphosphates on the solubility and extractability of myosin B. T. Yasui and others. bibliog J Agri & Food Chem 12:392-9 S '64

Effect of temperature on water solubility of phorate and disulfoton. K. A. Lord and P. E. Burt. bibliog Chem & Ind p 1262-3 Jl 11 '64

Equilibrium solubility of calcium sulphate hemihydrate in sodium chloride-magnesium sulphate solutions at elevated temperatures. J. B. Clampett and R. T. Fowler. bibliog diags J Ap Chem 14:81-6 F '64

Hydrotropes; solubilising agents for detergent powders; manufacture of sodium p-toluene sulphonate. M. A. Phillips. bibliog diags Manuf Chem 34:575-7 D '63

Low pressure solubility of *n*-butane in water. J. G. LeBreton and J. J. McKetta. Hydrocarbon Process & Pet Refiner 43:136-8 Je '64

Phosphate rock solubilization by repeated extractions with citrate solutions. W. M. Hoffman and H. J. Breen. J Agri & Food Chem 12:344-6 Jl '64

Rapid estimation of minimum solubility of solids in gases. R. B. Hinckley and R. C. Reid. bibliog A I Ch E J 10:416-17 My '64

Solubilities of certain divalent metal complexes of 8-quinolinol and substituted 8-quinolinols in aqueous media. J. Fresco and H. Freiser. bibliog Anal Chem 36:372-5 F '64

Solubilities of vapours in relatively involatile liquids. G. Burrows and F. H. Preece. bibliog diag J Ap Chem 13:430-43 O '63

Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64

Solubility of carbon dioxide and variation of oxygen ion activity in soda-silica melts. M. L. Pearce. bibliog diag Am Cer Soc J 47:342-7 Jl '64

Solubility of gold under inorganic supergene conditions. P. L. Cloke and W. C. Kelly. bibliog il diags Econ Geol 59:259-70 Mr '64

Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64

Solubility relationships in liquid fertilizer systems based on superphosphoric acid. A. V. Slack and others. diags J Agri & Food Chem 12:154-7 Mr '64

Solubilization concepts broaden. S. Kaufman. Chem & Eng N 42:38-9 Je 29 '64

Solvent resistance of silicone elastomers: solvent-polymer interactions. K. B. Yerrick and H. N. Beck. bibliog Rubber Chem & Tech 37:261-7 Ja '64

Some remarks apropos solubilization. A. V. Tobolsky and B. J. Ludwig. Am Scientist 51:400-2 D '63

Theoretical solubility of H_2O in silicate melts: quasi-crystalline models. H. R. Shaw. J Geol 72:601-17 bibliog(p617) S '64

Thermodynamics of gas solubility in mixed solvents. J. P. O'Connell and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:347-51 N '64

Thermodynamics of polymer solubility in polar and nonpolar systems. R. F. Blanks and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:1-8 F '64

Use of interdiffusion to determine crystalline solubility in alkali halide systems. J. M. Short and R. Roy. diags Am Cer Soc J 47:149-51 Mr '64

Versatile solubility apparatus. R. L. Coffin and others. diag Anal Chem 36:699 Mr '64

See also

Solution (chemistry)

SOLUTION (chemistry)

Absolute light scattering photometer: direct determination of scattered light from solutions. D. McIntyre. bibliog diags J Res Nat Bur Stand 68A:87-96 Ja '64

Activity of silicon in liquid iron solutions. G. Smith and J. Taylor. bibliog Iron & Steel Inst J 202:577-80 Jl '64

Adsorption from solutions of non-electrolytes. J. J. Kipling. bibliog Chem & Ind p 1007-11 Je 13 '64

Aggregation in aqueous solutions; Solochrome black WDFA. E. Coates and others. bibliog Soc Dyers & Col J 79:465-71 O '63

Apparatus for the measurement of optical rotation of solutions at high pressure. S. J. Gill and R. L. Glogovsky. bibliog diags R Sci Instr 35:1281-3 O '64

Argentometric titration of sulfide in alkaline solutions. C. H. Liu and S. Shen. bibliog Anal Chem 36:1652-4 Jl '64

Behavior and nature of thin oxide films on some metals in gaseous media and in electrolyte solutions. V. V. Andreeva. bibliog il Corrosion 20:35-46 F '64

Cage effect in solution and gas phase with application to the determination of rate constants. R. K. Lyon. bibliog Am Chem Soc J 86:1907-11 My 20 '64

Cage effects in thermal decomposition reactions in solution. H. P. Waits and G. S. Hammond. bibliog Am Chem Soc J 86:1911-18 My 20 '64

Carbon dioxide and ammonia in aqueous ammonium nitrate solutions. D. F. Othmer and G. J. Frohlich. bibliog diags Ind & Eng Chem Proc Design 3:270-9 Jl '64

Carbonium ions in solution. N. C. Deno. diags Chem & Eng N 42:88-94+ O 5 '64

Characterization of divalent xenon in aqueous solution. E. H. Appelman and J. G. Malm. bibliog Am Chem Soc J 86:2297-8 Je 5 '64

Charge-transfer complexes in solution; spectrophotometric studies of aromatic hydrocarbon-aromatic nitro compounds dissolved in carbon tetrachloride. N. B. Jurinski and P. A. D. de Maine. bibliog Am Chem Soc J 86:3217-22 Ag 20 '64

Coacervating soap-electrolyte solutions. I. Cohen and A. Libackyj. bibliog J Colloid Sci 19:560-70 Ag '64

Composition of the surface film on aqueous solutions of aliphatic alcohols. J. J. Kipling. bibliog J Colloid Sci 18:502-11 Ag '63

Concentric cylinder viscometer for the measurement of flow birefringence and viscosity in concentrated polymer solutions. A. Kaye and D. W. Saunders. bibliog diags J Sci Instr 41:139-44 Mr '64

Coordination in solutions; acid strengths of 5- and 7-hydroxy-1-indanone and nitro derivatives; hydrogen bonding in *o*-carbonyl phenols. L. B. Magnusson and others. bibliog Am Chem Soc J 86:3958-61 O 5 '64

Correlation of thermodynamic properties of amine-water solutions with molecular structure. R. R. Davison and others. bibliog A I Ch E J 10:471-4 Jl '64

Corrosion of uranium, zirconium, and some alloys in alkaline solutions. J. S. L. Leach and A. Y. Nehru. bibliog Electrochem Soc J 111:781-7 Jl '64

Crystallization from aqueous solution. T. P. Melia and W. P. Moffitt. J Colloid Sci 19:433-47 Je '64

Determination of *dl*- and *meso*-dibromosuccinic acids in aqueous solutions. R. Annino and D. J. Manzo. Anal Chem 36:1343-5 Je '64

Determination of quaternary ammonium compounds and similar biocides in alkaline solution. A. M. Upperton. Chem & Ind p 192 F 1 '64

Difference effect on magnesium dissolving in acids. W. J James and others. bibliog Electrochem Soc J 110:1117-20 N '63

Diffusion of a polyelectrolyte in aqueous solution in the absence of added salt. M. Nagasawa and H. Fujita. bibliog il Am Chem Soc J 86:3005-12 Ag 5 '64

Diffusivity of ammonium dihydrogen phosphate in aqueous solutions. J. W. Mullin and T. P. Cook. bibliog il diags J Ap Chem 13:423-9 O '63

Dimensions of polymer molecules in concentrated solutions. M. Fixman and J. M. Peterson. bibliog Am Chem Soc J 86:3524-9 S 5 '64

Disintegration of iron and steel while dissolving in acids. M. E. Straumanis and others. bibliog il Electrochem Soc J 111:1292-3 N '64

Dissolution and assay of elemental boron. A. R. Eberle and others. Anal Chem 36:1282-5 Je '64

Dissolution behavior of microporous glass. R. J. Charles. il Am Cer Soc J 47:154-5 Mr '64

Dissolution in ceramic systems. A. R. Cooper, jr. and W. D. Kingery. bibliog il diags Am Cer Soc J 47:37-43, 249-54 Ja, My '64

SOLUTION (chemistry)—*Continued*

Dissolution of calcium tungstate with an acid-hydrogen peroxide mixture. R. H. Curry and J. R. Carter. Anal Chem 36:926-7 Ap '64

Dissolution of elemental boron. A. R. Eberle and M. W. Lerner. Anal Chem 36:674-5 Mr '64

Dissolution of elemental boron. J. M. Donaldson and F. Trowell. Anal Chem 36:2202 O '64

Dissolution of iron whiskers. R. M. Shemenski and others. bibliog Corrosion 20:203-4 Je '64

Dissolution of wood components under different conditions of sulfite pulping. K. Forss and K. E. Fremer. bibliog Tappi 47: 485-93 Ag '64

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111: 610-15 My '64

Einstein viscosity-concentration relationship; application to true solutions of the large spherical molecule tetrakis (trimethylsilyl) methane. R. L. Merker and M. J. Scott. bibliog J Colloid Sci 19:245-51 Mr '64

Electrochemical behavior of nickel compounds; anodic dissolution and oxygen reduction in perchlorate solutions. A. K. M. Shamsul Huq and others. bibliog Electrochem Soc J 111:278-86 Mr '64

Electrochemical study of thin adsorbed oxygen films on rhodium in oxygen-saturated acid solution. J. P. Hoare. bibliog Electrochem Soc J 111:232-6 F '64

Electrochemistry of the dissolution of zirconium in aqueous solutions of hydrofluoric acid. R. E. Meyer. bibliog diag Electrochem Soc J 111:147-55 F '64

Electron ejection and fluorescence in aqueous β-naphthol solutions. M. Ottolenghi. bibliog Am Chem Soc J 85:3557-62 N 20 '63

Electron exchange kinetics of the NO_3 free radical in solution. T. W. Martin and others. bibliog diags Am Chem Soc J 86:2595-600 Jl 5 '64

Experimental investigation on the freezing of droplets of water and of aqueous solutions, with particular reference to the influence of the solute. Y. Uzu and others. bibliog diags J Colloid Sci 18:697-704 O '63

Extraction of uranium (VI) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Facilitated reversible formation of amides from carboxylic acids in aqueous solutions; intermediate production of acid anhydride. T. Higuchi and others. Am Chem Soc J 85:3655-60 N 20 '63

Flocculation of pinacyanol chloride in alkali silicate solutions. M. A. McGarry and J. F. Hazel. J Colloid Sci 19:294-301 Ap '64

Formation of dissolved atomic hydrogen by electrochemical polarization. H. H. Uhlig and R. Krutenat. bibliog Electrochem Soc J 111:1303-6 N '64

Freeze-concentration of dilute aqueous solutions. S. Kobayashi and G. F. Lee. Anal Chem 36:2197-8 O '64

Gas chromatographic head space techniques for the quantitative determination of volatile components in multicomponent aqueous solutions. R. E. Kepner and others. bibliog Anal Chem 36:77-82 Ja '64

Growth of α-SiC single crystals from chromium solution. L. B. Griffiths and A. I. Mlavsky. bibliog il diags Electrochem Soc J 111:805-10 Jl '64

Heat requirements for processing solutions; calculation of heating surfaces. M. J. Reidt. diags Metal Finishing 62:60-6 O '64

Helix-coil transition in solutions of polyglutamic acid. M. Nagasawa and A. Holtzer. bibliog Am Chem Soc J 86:538-43 F 20 '64

Hydrogen absorption by and dissolution rate of low-carbon steel in sulfuric, hydrochloric, phosphoric and nitric acids. R. M. Hudson. bibliog Corrosion 20:245-51 Ag '64

Hydrogen bonding effects on triplet energy transfer in solution. H. H. Richtol and F. H. Klappmeier. bibliog Am Chem Soc J 86:1255-6 Mr 20 '64

Hydrogen exchange of azulenes; acid-base equilibria in aqueous solutions. F. A. Long and J. Schulze. bibliog Am Chem Soc J 86:327-31 F 5 '64

Hydrolysis of xenon hexafluoride and the aqueous solution chemistry of xenon. E. H. Appelman and J. G. Malm. bibliog Am Chem Soc J 86:2141-8 Je 5 '64

Influence of hydrogen and hydrophobic bonds on the stability of the carboxylic acid dimers in aqueous solution. E. E. Schrier and others. bibliog Am Chem Soc J 86: 3444-9 S 5 '64

Interaction and association of bases and nucleosides in aqueous solutions. P. O. P. Ts'o and S. I. Chan. bibliog Am Chem Soc J 86:4176-88 O 5 '64

Investigation of the morphology associated with the dissolution process of polymer single crystals. V. F. Holland. bibliog il J Ap Phys 35:59-63 Ja '64

Ionization of substituted phenols in aqueous solution. H. C. Ko and others. bibliog Am Chem Soc J 86:1003-4 Mr 20 '64

Isothermal unfolding of globular proteins in aqueous urea solutions. C. Tanford. bibliog diag Am Chem Soc J 86:2050-9 My 20 '64

Kinetic study of sulfur dioxide in aqueous solution with radioactive tracers. J. C. Wang and D. M. Himmelblau. bibliog diags A I Ch E J 10:574-80 Jl '64

Kinetics of anodic dissolution of germanium. P. J. Boddy. bibliog il diags Electrochem Soc J 111:1136-41 O '64

Kinetics of anodic oxidation of iron in neutral solution. N. Sato and M. Cohen. bibliog Electrochem Soc J 111:512-22 My '64

Kinetics of the anodic dissolution of nickel in sulfuric acid solutions. N. Sato and G. Okamoto. bibliog Electrochem Soc J 111: 897-903 Ag '64

Light scattering measurements on solutions of some quaternary ammonium salts. S. P. Wasik and W. D. Hubbard. bibliog J Res Nat Bur Stand 68A:359-65 Jl '64

Limiting hydrogen absorption by and dissolution of steel during pickling. R. M. Hudson and K. J. Riedy. bibliog Metal Finishing 62:48-52 Jl '64

Measurement of the diffusion coefficients of sucrose in very dilute aqueous solutions using Jamin interference optics at 25°. A. Chatterjee. bibliog Am Chem Soc J 86:793-5 Mr 5 '64

Mechanism of hydrogen evolution on iron in acid solutions by determination of permeation rates. M. A. V. Devanathan and Z. Stachurski. bibliog diags Electrochem Soc J 111:619-23 My '64

Mechanisms of photochemical reactions in solution; photochemical *cis-trans* isomerization. G. S. Hammond and others. bibliog Am Chem Soc J 86:3197-217 Ag 20 '64

Mechanisms of photochemical reactions in solution; photodimerization of methyl β-naphthyl ether. J. S. Bradshaw and G. S. Hammond. bibliog Am Chem Soc J 85: 3953-5 D 20 '63

Mechanisms of photochemical reactions in solution; photosensitized decomposition of azo compounds. J. R. Fox and G. S. Hammond. bibliog Am Chem Soc J 86:4031-5 O 5 '64

Mechanochemical anodic dissolution of austenitic stainless steel in hot chloride solution at controlled electrode potential. T. P. Hoar and J. C. Scully. bibliog diag Electrochem Soc J 111:348-52 Mr '64

Mercuration of aniline in acidic solution; mercury(II) complexes with mercurated aniline derivatives. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4318-22 O 20 '64

Nonionic surface active compounds; interfacial tensions of solutions of nonionic surface-active agents. P. Becher. bibliog diag J Colloid Sci 18:665-73 S '63

Non-Newtonian viscosity of polybutadiene solutions. G. R. Seely. bibliog A I Ch E J 10:56-60 Ja '64

N.m.r. spectra of polyoxymethylenes in solution. G. Allen and others. Chem & Ind p623-4 Ap 11 '64

Nucleophilic displacement reactions at the thiolester bond; hydrazinolysis and morpholinolysis in aqueous solution. L. R. Fedor and T. C. Bruice. bibliog Am Chem Soc J 86:4117-23 O 5 '64

Phase equilibria in sugar solutions; the ternary system sucrose-butanol-water. F. H. C. Kelly and J. M. Rolls. J Ap Chem 13: 496-8 N '63

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86:3434-8 S 5 '64

Polarographic behavior of silver in cyanide solutions. R. F. Large and E. P. Przybylowicz. bibliog Anal Chem 36:1648-52 Jl '64

SOLUTION (chemistry)—*Continued*

Polarographic cell for continuous analysis of flowing solutions. W. J. Blaedel and J. H. Strohl. diags Anal Chem 36:445-6 F '64

Polymer association; solution behavior and rheology of neutralized styrene-methacrylic acid copolymers. N. Z. Erdi and H. Morawetz. bibliog J Colloid Sci 19:708-21 O '64

Potentiometric titration of free acid and uranium in uranium(VI) solutions with alkali. K. Motojima and K. Izawa. bibliog Anal Chem 36:733-5 Ap '64

Precision burette for use in concentration-conductance calibration. S. Martin and others. diags J Sci Instr 41:237-8 Ap '64

Pressure changes during passage of a solute through a theoretical plate in gas liquid chromatography. R. P. W. Scott. bibliog diag Anal Chem 36:1455-61 Jl '64

Pulse apparatus for the measurement of ultrasonic absorption in solutions from 1 to 60 mc. G. Atkinson and others. bibliog diags R Sci Instr 35:1270-3 O '64

Radiolysis of deaerated aqueous solutions of 2-propanol containing nitrous oxide. J. T. Allan and C. M. Beck. bibliog Am Chem Soc J 86:1483-8 Ap 20 '64

Reaction of formohydroxamic acid with acyl derivatives in neutral aqueous solution. S. A. Bernhard and others. bibliog Am Chem Soc J 86:4406-14 O 20 '64

Reactivities of the primary reducing species formed in the radiolysis of aqueous solutions. A. Appleby and others. bibliog Am Chem Soc J 85:3891-2 D 5 '63

Resistance compensation in polarography; application to high-resistance non-aqueous systems and to high current-density aqueous systems. W. B. Schaap and P. S. McKinney. bibliog diag Anal Chem 36:1251-8 Je '64

Revised theory of high polymer solutions. M. L. Huggins. bibliog Am Chem Soc J 86:3535-40 S 5 '64

Scavenging action in γ-irradiated aqueous cysteine solutions. A. El Samahy and others. bibliog Am Chem Soc J 86:3177-8 Ag 5 '64

Secondary nucleation from aqueous solution. T. P. Melia and W. P. Moffitt. bibliog Ind & Eng Chem Fundamentals 3:313-17 N '64

Separation of some inorganic salts in aqueous solution by flow, under pressure, through porous cellulose acetate membranes. S. Sourirajan. bibliog diags Ind & Eng Chem Fundamentals 3:206-10 Ag '64

Silver(III) from AgO exists in solution; abstract. G. L. Cohen. il diag Chem & Eng N 42:52 Ap 20 '64

Solutions of alkali metal carboxylate mixtures in hydrocarbons. E. Kissa. bibliog J Colloid Sci 19:279-89 Mr '64

Some properties of concentrated solutions of invert sugar and urea. H. H. Hatt and A. C. K. Triffett. bibliog J Ap Chem 14:195-202 My '64

Some variables affecting the rate of crystal growth in aqueous solutions. J. A. Palermo and C. S. Grove, jr. bibliog A I Ch E J 10:351-6 My '64

Specific determination of monomethyl hydrazine in dilute aqueous solutions containing other hydrazine derivatives. E. W. Neumann and H. G. Nadeau. Anal Chem 36:640-1 Mr '64

Specific retentions of monofunctional organic solutes in monofunctional hexadecyl derivatives. A. B. Littlewood. bibliog Anal Chem 36:1441-51 Jl '64

Spectrophotometric determination of the dissolution of lignin during sulfite cooking. E. Sjöstrom and P. Haglund. Tappi 47:286-91 My '64

Spectrophotometric method for determination of tetranitromethane in solution and in air. D. J. Glover and S. G. Landsman. bibliog Anal Chem 36:1690-1 Jl '64

Standard sodium cyanide solutions. J. P. Leftin. bibliog Metal Finishing 61:69-71 N '63

Studies of the chemistry of mercury in aqueous solution. T. H. Wirth and N. Davidson. bibliog Am Chem Soc J 86:4314-18, 4322-5 O 20 '64

Study of isopolymolybdates in aqueous solution with the aid of the quinhydrone electrode. J. P. Schwing. bibliog Am Chem Soc J 86:1879-80 My 5 '64

Trivalency of gallium ions formed during the dissolutions of the metal in acids. M. E. Straumanis and K. A. Poush. bibliog il diags Electrochem Soc J 111:795-8 Jl '64

Viscosity and solubilization studies on weak anionic polysoaps in nonaqueous solvents. K. Ito and Y. Yamashita. bibliog J Colloid Sci 19:152-64 F '64

Viscosity and solubilization studies on weak anionic polysoaps in water; effect of the counter-ion. K. Ito and others. bibliog J Colloid Sci 19:28-39 Ja '64

Viscosity reduction of cellulose esters in aliphatic acid-anhydride solution with free and combined sulfuric acid catalyst. C. J. Malm and others. bibliog Tappi 47:533-9 S '64

X-ray diffraction studies of the conformation of polymer molecules in solution; *p*-iodopolystyrene. G. W. Brady and R. Salovey. bibliog Am Chem Soc J 86:3499-503 S 5 '64

See also
Electrolysis
Ions
Solubility

SOLUTION, Heat of

Heat-of-solution calorimeter for inorganic building materials. H. G. McAdie. bibliog il diags Materials Res & Stand 4:413-17 Ag '64

Heats of solution, transition, and formation of three crystalline forms of metaboric acid. M. V. Kilday and E. J. Prosen. bibliog il diag J Res Nat Bur Stand 68A:127-37 Ja '64

Solutions of solids in molten reciprocal salt systems. M. Blander and E. B. Luchsinger. bibliog Am Chem Soc J 86:319-22 F 5 '64

SOLUTION mining. See Hydraulic mining

SOLUTIONS, Solid

Action of water on calcium aluminoferrites E. T. Carlson. bibliog J Res Nat Bur Stand 68A:453-63 S '64

Conduction properties of $Cd_2Nb_2O_7$ and $Pb_{1.5}Nb_2O_{6.5}$. R. Mazelsky and W. E. Kramer. diag Electrochem Soc J 111:528-33 My '64

Constitution of solid tin-rich aluminium-cadmium-tin alloys. A. J. Perry and H. J. Bray. Inst Metals J 92:152 '63-64

Crystalline solubility in the muscovite and phlogopite groups. M. S. Crowley and R. Roy. bibliog diags Am Mineralogist 49:348-62 Mr '64

Densities of cadmium-rich cadmium-magnesium solid solutions. N. Ridley. bibliog Inst Metals J 93:46-7 '64-65

Effect of vacancy distributions caused by elastic interaction on the growth of Guinier-Preston zones. W. B. Grupen and G. Sines. bibliog diag J Ap Phys 35:3001-8 O '64

Fabrication and plastic behavior of single-crystal MgO-NiO and MgO-MnO solid-solution alloys. T. S. Liu and others. bibliog il Am Cer Soc J 47:276-9 Je '64

Initial temperatures of zirconia phase changes and solid-solution reactions. T. W. Smoot and J. R. Ryan. bibliog Am Cer Soc J 46:597-600 D '63

Ionic conductivity of cubic solid solutions in the system $CaO\text{-}Y_2O_3\text{-}ZrO_2$. D. W. Strickler and W. G. Carlson. bibliog Am Cer Soc J 47:122-7 Mr '64

Iron and its dilute solid solutions. C. W. Spencer and F. E. Werner, eds. Review, by W. E. Duckworth. Chem & Ind p 146-8 Ja 25 '64

Lattice spacings and densities of some tin solid solutions. N. Ridley. Inst Metals J 92:123-4 '63-64

Magnetic and structural properties of metastable Fe-Cu solid solutions. E. F. Kneller. J Ap Phys 35:2210-11 Jl '64

Metastable solid solution relations in the system $FeS_2\text{-}CoS_2\text{-}NiS_2$. G. Springer and others. bibliog il diags Econ Geol 59:475-91 My '64

Microstructure of chromite-periclase at 1650° to 2310°C. P. E. Scheerer and others. bibliog il Am Cer Soc J 47:297-305 Je '64

Miscibility of III-V semiconductors studied by flash evaporation. E. K. Müller and J. L. Richards. il diags J Ap Phys 35:1233-41 Ap '64

Photoelectronic properties of imperfections in cadmium sulfo-selenide solid solutions. R. H. Bube. bibliog diag J Ap Phys 35:586-96 Mr '64

Possible solution to the paradox of the sedimentary bornite. E. Gaucher. bibliog il Econ Geol 59:303-8 Mr '64

Range in solid solution and structure of naturally occurring troilite and pyrrhotite. R. H. Carpenter and G. A. Desborough. bibliog diags Am Mineralogist 49:1350-65 S '64

Solid solubility and amphoteric behavior of tin in solution grown gallium phosphide. F. A. Trumbore and others. bibliog Electrochem Soc J 111:748-50 Je '64

SOLUTIONS, Solid—*Continued*

Solid solubility and lattice parameter of NiO-MnO. C. A. Barrett and E. B. Evans. Am Cer Soc J 47:533 O '64

Solid solutions in antiferroelectric region of the system $PbHfO_3$-$PbTiO_3$-$PbSnO_3$-$PbNb_2O_6$. C. A. Hall and others. bibliog Am Cer Soc J 47:259-64 Je '64

Solid solutions in the system Zn_3As_2-Cd_3As_2. H. J. Naake and S. C. Belcher. J Ap Phys 35:3064-5 O '64

Some properties of GaSb-Ga_2Se_3 and GaSb-Ga_2Te_3 alloys. J. C. Woolley and K. W. Blazey. bibliog Electrochem Soc J 111:951-4 Ag '64

Superconducting properties of the $(Nb,Ta,V)_3Sn$ system. G. D. Cody and others. diags RCA R 25:338-41 S '64

Synthetic solid solutions in the systems $MgCO_3$-$FeCO_3$ and $MnCO_3$-$FeCO_3$. P. E. Rosenberg. Am Mineralogist 48:1396-400 N '63

Thermoelectric properties of uranium monosulfide, thorium monosulfide, and US-ThS solid solutions. M. Tetenbaum. J Ap Phys 35:2468-72 Ag '64

Tridymite-cristobalite relations and stable solid solutions. D. M. Roy and R. Roy. bibliog diags Am Mineralogist 49:952-62 Jl '64

Use of interdiffusion to determine crystalline solubility in alkali halide systems. J. M. Short and R. Roy. Am Cer Soc J 47:149-51 Mr '64

SOLVENT extraction. See Extraction processes

SOLVENTS

Acidity function and reaction rates in mixed solvents. G. Corsaro. bibliog Chem & Ind p75-6 Ja 11 '64

Applying chemical cleaning solvents. C. M. Loucks. bibliog il Heating-Piping 36:171-86 S '64

Aromatic extraction process uses DMSO. il Chem & Eng N 42:50-1 O 5 '64

Chemical reactions in nonaqueous solvents. G. T. Austin and H. F. Austin. Chem Eng 71:81-3 Ag 31 '64

Chlorination studies of unsaturated materials in nonpolar media; solvent effects on radical addition of chlorine to chloroethylenes. M. L. Poutsma and R. L. Hinman. bibliog Am Chem Soc J 86:3807-14 S 20 '64

Configuration of the poly-(dimethylsiloxane) chain; unperturbed dimensions and specific solvent effects. V. Crescenzi and P. J. Flory. bibliog Am Chem Soc J 86:141-6 Ja 20 '64

Determination of optimum solvent systems for countercurrent distribution from paper chromatographic data. E. Soczewiński and others. bibliog diags Anal Chem 36:1903-5 S '64

Determination of residual solvents in solvent extracted meals. Y. S. Lewis and S. Nelakantan. diag Am Oil Chem Soc J 41:211-12 Mr '64

Differential dielectric apparatus for determining water added to solvents. W. C. Wolfe. bibliog diag Anal Chem 35:1884-7 N '63

Distribution of ion pairs between immiscible nonaqueous solvents. G. W. Latimer, jr. Anal Chem 35:1983 N '63

Dual drain pipes separate acids, save solvents; Hughes Aircraft's Semiconductor division. il Plant Eng 18:134-5 Je '64

Effect of input resistance on potentiometric titrations in nonaqueous solvents. M. L. Cluett. Anal Chem 36:2199 O '64

Effects of nonpolar solvents on an ionic reaction; the ionic decomposition of *tert*-butylperoxy formate. R. E. Pincock. bibliog Am Chem Soc J 86:1820-6 My 5 '64

Effects of solvents and structure on the low intensity ($n \rightarrow \pi^*$) electronic transition of carboxylate esters. W. D. Closson and P. Haug. bibliog Am Chem Soc J 86:2384-9 Je 20 '64

Electron spin resonance spectra of different solvates of *m*-nitrophenol negative ion in a mixed solvent. C. Corvaja and G. Giacometti. Am Chem Soc J 86:2736 Jl 5 '64

Equations for the average solvent composition and the interstitial column volume in column fractional precipitation methods. W. W. Schulz and W. C. Purdy. diag Anal Chem 35:2222-3 D '63

Equilibrium studies on the solvent extraction of some transition metals with naphthenic acid. A. W. Fletcher and D. S. Flett. bibliog J Ap Chem 14:250-7 Je '64

Fluor solvent process plants; how they are working. P. A. Buckingham. bibliog Hydrocarbon Process & Pet Refiner 43:113-16 Ap '64

Fresh look at solvent decarbonizing. P. T. Atteridg. diags Oil & Gas J 61:72-7 D 9 '63

Growth of GaP crystals and *p-n* junctions by a traveling solvent method. M. Weinstein and A. I. Mlavsky. bibliog il diag J Ap Phys 35:1892-4 Je '64

Interpretation of potentiometric titrations of weak acids in methanol-water solvents. K. C. Ong and others. bibliog Anal Chem 36:1971-2 S '64

Medium effects on the dissociation of weak acids in methanol-water solvents. E. E. Sager and others. bibliog J Res Nat Bur Stand 68A:305-12 My '64

Mixed solvents in gas liquid chromatography. R. A. Keller and G. H. Stewart. bibliog Anal Chem 36:1186-91 Je '64

New refinery for Carless, Capel & Leonard ltd. il Chem & Ind p 1235 Jl 4 '64

New solvent system for improved extraction of activated charcoal. C. E. Hamilton. Water & Sewage Works 110:422-3 D '63

Petroleum fractions as DDT solvents. A. M. Thomas, jr. bibliog J Agri & Food Chem 12:442-7 S '64

Positive halogen compounds; solvent effects in the reactions of *t*-butoxy radicals. C. Walling and P. J. Wagner. bibliog Am Chem Soc J 86:3368-75 Ag 20 '64

Prevent loss of solvent; keep viscosity right. Ind Finishing 40:98-9 My '64

Proton transfers in dipolar aprotic solvents; transfers to fluorenyl and trityl anions in dimethyl sulfoxide solution. C. D. Ritchie and R. Uschold. bibliog Am Chem Soc J 86:4488-9 O 20 '64

Rate extractive distillation solvents. M. R. Sheets and J. M. Marchello. bibliog Hydrocarbon Process & Pet Refiner 42:99-103 D '63

Recovery of organic solvents from polluted air; abstract. N. R. Rowe. Air Cond Heat & Ven 60:35-6 D '63

Safety in solvent plant operation and miscella refining. G. C. Cavanagh. Am Oil Chem Soc J 41:sup4+ O '64

Scale-up problems in a solvent-water fractionator. H. W. Martin. bibliog diags Chem Eng Prog 60:50-4 O '64

Second solvent improves extraction. D. G. Hutton. bibliog diag Hydrocarbon Process & Pet Refiner 43:138-40 Ag '64

Selectivity and solvency in aromatics recovery. C. H. Deal and E. L. Derr. bibliog Ind & Eng Chem Proc Design 3:394-9 O '64

Separations using solvent extraction. H. Green. bibliog Metallurgia 70:143-9, 201-4 S-O '64 (to be cont)

Solubilities of vapours in relatively involatile liquids. G. Burrows and F. H. Preece. bibliog diag J Ap Chem 13:430-43 O '63

Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D. I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64

Solvation of chromium(III) ion in acidic water-methanol mixed solvents. J. C. Jayne and E. L. King. bibliog Am Chem Soc J 86:3989-94 O 5 '64

Solvent deuterium isotope effects on acid-base equilibria. P. Salomaa and others. bibliog Am Chem Soc J 86:1-7 Ja 6 '64

Solvent effect on the electronic spectra of ion pairs; ketyls in ethers. J. F. Garst and others. bibliog diag Am Chem Soc J 86:412-18 F 5 '64

Solvent effects in organic chemistry; solvation of stable carbonium and ammonium ions in water; the temperature coefficient of the H_R acidity scale. E. M. Arnett and R. D. Bushick. bibliog Am Chem Soc J 86:1564-71 Ap 20 '64

Solvent effects in organic chemistry; sulfolane, a weakly basic aprotic solvent of high dielectric constant. E. M. Arnett and C. F. Douty. bibliog Am Chem Soc J 86:409-12 F 5 '64

Solvent effects in organic chemistry; the failure of tertiary aromatic amines as Hammett bases. E. M. Arnett and G. W. Mach. bibliog Am Chem Soc J 86:2671-7 Jl 5 '64

Solvent effects in the reactions of free radicals and atoms; effect of solvent polarity on the reactions of peroxy radiicals. D. G. Hendry and G. A. Russell. bibliog Am Chem Soc J 86:2368-71 Je 20 '64

Solvent effects on the C^{13} chemical shift of the substituted carbon atom of phenol. G. E. Maciel and R. V. James. bibliog Am Chem Soc J 86:3893-4 S 20 '64

Solvent extraction engineering and design. K. W. Becker. Am Oil Chem Soc J 41:sup8+ O '64

SOLVENTS—*Continued*

Solvent extraction of platinum and palladium with derivatives of dithiocarbamic acid. J. T. Pyle and W. D. Jacobs. bibliog Anal Chem 36:1796-9 Ag '64

Solvent extraction; rotating disc contactor. P. J. King and E. Rhodes. bibliog diags Manuf Chem 35:51-5 Je '64

Solvent resistance of silicone elastomers; solvent-polymer interactions. K. B. Yerrick and H. N. Beck. bibliog Rubber Chem & Tech 37:261-7 Ja '64

Solvent retention can be a problem. Ind Finishing 40:82 Mr '64

Solvents for cleaning; selection and control. Ind Finishing 40:99-101 Ag '64

Solvents for phosphorimetry. J. D. Winefordner and P. A. St John. Anal Chem 35:2211-12 D '63

Solvents of low nucleophilicity; the effect of remote substituents in the addition of trifluoroacetic acid to substituted alkenes. P. E. Peterson and G. Allen. bibliog Am Chem Soc J 85:3608-13 N 20 '63

Specific solvation in binary solvent mixtures; the solvolysis of *o*-, *m*-, and *p*-methyl and nitrobenzyl chlorides in ethanol-water mixtures. J. B. Hyne and R. Wills. Am Chem Soc J 85:3650-5 N 20 '63

Spectrophotometric determination of traces of peroxides in organic solvents. D. K. Banerjee and C. C. Budke. bibliog diag Anal Chem 36:792-6 Ap '64

Steps for chemical cleaning of piping systems. C. M. Loucks. bibliog il Heating-Piping 36:179-94 My '64

Thermodynamic cycles for recovery of water by solvent extraction. R. R. Davison and D. W. Hood. bibliog flow sheet diag Ind & Eng Chem Proc Design 3:399-404 O '64

Thermodynamics of gas solubility in mixed solvents. J. P. O'Connell and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:347-51 N '64

Three approaches to chemical cleaning. diags Oil & Gas J 61:136-8 D 2 '63

Titration characteristics of hexahydro-1,3,5-trinitro-*s*-triazine and octahydra-1,3,5,7-tetranitro-*s*-tetrazine in non-aqueous solvents. M. I. Fauth and others. Anal Chem 36:380-2 F '64

Use of self-sealing elastomer septums for quantitative operations with volatile solvents. N. Adler. diags Anal Chem 36:2291-5 N '64

Vapor pressures of solvents and propellant mixtures. L. T. Flanner and R. L. Risacher. diags Soap & Chem Spec 40:108+ Ja '64

Viscosity and solubilization studies on weak anionic polysoaps in nonaqueous solvents. K. Ito and Y. Yamashita. bibliog J Colloid Sci 19:152-64 F '64

See also

Acetonitrile
Alcohol
Benzene
Chloroform
Cleaning compositions
Extraction processes
Furfural

Physiological effect

Free radical mechanism for solvent toxicity. Z. T. Wirtschafter and M. W. Cronyn. bibliog Archives Environmental Health 9:186-91 Ag '64

Solvent danger? use enough ventilation. G. Gehl. Ind Finishing 40:76-7 Je '64

SOLVOLYSIS

Acidic solvolytic transformations of an iodinated nucleoside, the antiviral 5-iodo-2′-deoxyuridine. E. R. Garrett and others. bibliog Am Chem Soc J 86:4460-8 O 20 '64

Allylic fluorides; solvolysis of 1,3,5,7,7,7-hexafluoro-1-heptene. T. J. Dougherty. bibliog Am Chem Soc J 86:2236-40 Je 5 '64

Bridged polycyclic compounds; the solvolysis of some 4-chlorodibenzobicyclo[3.2.1]octadienes. S. J. Cristol and D. D. Tanner. bibliog Am Chem Soc J 86:3122-6 Ag 5 '64

Cationic cyclization involving olefinic bonds; solvolysis of *cis*-5,9-decadienyl *p*-nitrobenzenesulfonate. W. S. Johnson and J. K. Crandall. Am Chem Soc J 86:2085-6 My 20 '64

Cationic cyclizations involving olefinic bonds; solvolysis of 5-hexenyl and *trans*-5,9-decadienyl *p*-nitrobenzenesulfonates. W. S. Johnson and others. bibliog Am Chem Soc J 86:1959-66 My 20 '64

Comparison of the rates of solvolysis of representative norbornyl and cyclopentyl derivatives; a critical examination of rates as a basis for the postulated nonclassical structure of norbornyl cations. H. C. Brown and others. bibliog Am Chem Soc J 86:1247-8 Mr 20 '64

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the deamination of 3,3,3-d_3-1-aminopropane. A. A. Aboderin and R. L. Baird. bibliog Am Chem Soc J 86:2300-1 Je 5 '64

Concerning the role of protonated cyclopropane intermediates in solvolytic reactions; the solvolysis of cyclopropane in deuteriosulfuric acid. R. L. Baird and A. A. Aboderin. bibliog diags Am Chem Soc J 86:252-5 Ja 20 '64

Conformational dependence of secondary deuterium isotope effects in solvolytic reactions. V. J. Shiner, jr. and J. G. Jewett. Am Chem Soc J 86:945-6 Mr 5 '64

Conformational equilibria and solvolyses of six-membered ring sulfoxide derivatives. J. C. Martin and J. J. Uebel. Am Chem Soc J 86:2936-7 Jl 20 '64

Correlation of solvolysis rates and estimation of rate enhancements. C. S. Foote. Am Chem Soc J 86:1853-4 My 5 '64

Cyclopentane conformations; solvolysis of 3-substituted tosylates. I. Lillien and K. Khaleeluddin. bibliog Chem & Ind p 1028-9 Je 13 '64

Dicarbonium ion as a solvolysis intermediate. W. P. Giddings and R. F. Buchholz. Am Chem Soc J 86:1261-3 Mr 20 '64

Effects of deuterium substitution on the rates of organic reactions; the solvolyses of 4-chloro-4-methyl-2-pentyne and its deuterated analogs. V. J. Shiner, jr. and G. S. Kriz, jr. bibliog Am Chem Soc J 86:2643-5 Jl 5 '64

Estimation of nonassisted solvolysis rates. P. von Ragué Schleyer and others. bibliog Am Chem Soc J 86:1854-6, 2722-3 My 5, Jl 5 '64

Evaluation of the relative importance of charge-dipole interactions and steric strain acceleration in conformationally mobile systems. H. Kwart and T. Takeshita. bibliog diags Am Chem Soc J 86:1161-6 Mr 20 '64

Isotope effects for solvolysis of *t*-butyl chloride and *t*-butyl-d_9 chloride in solvent mixtures of constant ionizing power. G. J. Frisone and E. R. Thornton. Am Chem Soc J 86:1900-1 My 5 '64

Nature of ion-pair intermediates involved in the solvolysis of *p*-chlorobenzhydryl *p*-nitrobenzoate. H. L. Goering and J. F. Levy. Am Chem Soc J 86:120-1 Ja 5 '64

Proximity effects; proximity effects in the solvolysis of 1-octene oxide. A. C. Cope and others. bibliog Am Chem Soc J 85:3752-3 D 5 '63

Proximity effects; solvolyses of deuterium-labeled cyclooctyl brosylate. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3747-52 D 5 '63

Proximity effects; solvolysis of *cis*-bicyclo [6.1.0]nonane. A. C. Cope and G. L. Woo. bibliog Am Chem Soc J 85:3601-8 N 20 '63

Quadricyclic carbonium ion; solvolysis of 7-quadricyclo[2.2.1.^{2,6}.0^{3,5}]heptane derivatives. P. R. Story and S. R. Fahrenholtz. bibliog diags Am Chem Soc J 86:527-8 F 5 '64

Racemization in the solvolysis of *exo*-2-benznorbornenyl brosylate. W. P. Giddings and J. Dirlam. bibliog Am Chem Soc J 85:3900-1 D 5 '63

Rates of solvolysis of the *p*-nitrobenzoates of *exo-endo* tertiary norborneols; a critical examination of the *exo-endo* rate ratio as a basis for the postulated nonclassical structure of the norbornyl cation. H. C. Brown and others. bibliog diags Am Chem Soc J 86:1248-50 Mr 20 '64

Ring closure to the bicyclooctyl system in the solvolysis of 3-(Δ^2-cyclopentenyl) propyl brosylate. W. D. Closson and G. T. Kwiatkowski. Am Chem Soc J 86:1887-8 My 5 '64

Small-ring, spiroalkyl cations; solvolysis studies on 4- and 5-chlorospirohexane; the vapor phase chlorination of spirohexane and spiro[2.4]heptane. D. E. Applequist and J. A. Landgrebe. bibliog Am Chem Soc J 86:1543-9 Ap 20 '64

Small-ring, spiroalkyl cations; solvolysis studies on some 1-halospiroalkanes. J. A. Landgrebe and D. E. Applequist. bibliog Am Chem Soc J 86:1536-42 Ap 20 '64

Solvolysis of 7-*anti*-bromo-2-*exo*-benzenesulfonamidobicyclo[2.2.1]heptane; an example of solvolytic ring opening. L. H. Zalkow and A. C. Oehlschlager. bibliog Am Chem Soc J 86:4208-9 O 5 '64

SOLVOLYSIS—*Continued*

Solvolysis of arylphenylmethyl chlorides in 90 per cent acetone. L. Verbit and E. Berliner. bibliog Am Chem Soc J 86:3307-12 Ag 20 '64

Solvolysis of tricyclopropylcarbinyl benzoate. H. Hart and P. A. Law. bibliog Am Chem Soc J 86:1957-9 My 20 '64

Solvolysis reactions in chlorine trifluoride and bromine pentafluoride; preparation of the tetrafluorochlorates and hexafluorobromates of potassium, rubidium, and cesium. E. D. Whitney and others. bibliog Am Chem Soc J 86:2583-6 Jl 5 '64

Solvolysis with t-alkyl hydroperoxides of t-alkyl and aryl chlorides and polychloro-compounds activated by aromatic rings. N. A. Milas and others. bibliog Chem & Ind p423-4 Mr 7 '64

Specific solution in binary solvent mixtures; the solvolysis of *o*-, *m*-, and *p*-methyl and nitrobenzyl chlorides in ethanol-water mixtures. J. B. Hyne and R. Wills. Am Chem Soc J 85:3650-5 N 20 '63

Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64

Synthesis and rates of ethanolysis of 2-phenyl-*exo*-norbornyl chloride; the question of a nonclassical 1- and 2-phenylnorbornyl cation. H. C. Brown and others. bibliog Am Chem Soc J 86:1246-7 Mr 20 '64

SONAR

Automatic nautical navigator. Franklin Inst J 277:178-9 F '64

Clear-seeing sonar sketches in ocean bottoms. il Machine Design 36:14 Ja 30 '64

Doppler sonar plots ship's course. T. Maguire. il Electronics 36:14-15 N 22 '63

Effect of ice on long range underwater sound propagation. J. D. Macpherson. map Radio & Electronic Eng 26:293-7 O '63

Natural undersea laboratory tests navy's new weapons. J. F. Mason. il map diag Electronics 37:106-7+ Ap 6 '64

Non-collinear and cylindrical multiplicative arrays. E. D. R. Sherman. bibliog diags Radio & Electronic Eng 26:481-4 D '63

Nuclear navigational beacon. diags Mech Eng 86:57 F '64

Optimum processing for acoustic arrays. W. Vanderkulk. Radio & Electronic Eng 26: 285-92 O '63

Photographing the sea bed by sound. Engineering 197:239-40 F 7 '64

Polaris sonar system. Electronics 37:32+ My 18 '64

Propagation of sound in shallow water. D. E. Weston. bibliog Radio & Electronic Eng 26:329-37 O '63

Raytheon automatic nautical navigator. il Product Eng 34:76-7 D 9 '63

Side-looking sonar provides new eyes for Trieste. il Machine Design 36:10 S 10 '64

Signal processing in radar and sonar directional systems; symposium abstracts. Radio & Electronic Eng 27:327-30 My '64

Simulating tactical radar and sonar. R. G. Hundley. il diags Electronics 36:25-31 D 13 '63

Sonar; ear to the ground. il Product Eng 35: 59 F 17 '64

Sonar shows ocean bottom. il Westinghouse Eng 24:79 My '64

Sonar; topography at the bottom. il Product Eng 35:52-3 Ag 31 '64

Symposium on Signal processing in radar and sonar directional systems; program and abstracts of papers. Radio & Electronic Eng 27:442-5 Je '64

Use of an effective transmission pattern to improve the angular resolution of within-pulse sector-scanning radar or sonar systems. D. C. Cooper. bibliog diags Radio & Electronic Eng 28:153-60 S '64

SONIC boom waves. See Shock waves

SOOT

Problems of soot emission and low temperature corrosion in domestic oil-fired boilers. J. Vaerman. bibliog diags Inst Pet J 50: 155-62; Discussion. 163-8 Jl '64

SOOT blowers

Soot blower systems using steam or air. C. R. Genck. il diags Combustion 35:36-40 Ja '64

SORBIC acid

Extension of poultry shelf life by processing with sorbic acid. G. A. Perry and others. bibliog Food Tech 18:891-7 Je '64

Homogeneous catalytic hydrogenation of sorbic acid with pentacyanocobaltate II. A. F. Mabrouk and others. bibliog Am Oil Chem Soc J 41:153-8 F '64

SORPTION. See Adsorption

SORTING devices

Carton handling system sorts by brand and size. T. M. Comella. il diag Automation 11:58-61 Jl '64

Character readers for mail sorting pushed by Post Office. il Control Eng 11:19-20 F '64

Electronics in golf-club shaft production. il diag Ind Electronics 2:445 S '64

Handling system sorts sawed lumber. il diags Automation 11:58 Ja '64

Mechanized and automated warehousing. H. A. Zollinger. il diags Westinghouse Eng 24:24-9 Ja '64

Memory unit for a sorting machine. G. R. Bound. il diag Engineer 217:658-9 Ap 10 '64

New photocell-conveyor concept tested on crushed rock sorting. diag Pit & Quarry 56:38 Ap '64

Optical filters sort fresh product. V. Harris. il Control Eng 11:114 Je '64

Scanning the mails. W. Kornberg. il diag Electronics 37:115-16+ Je 15 '64

Simple deflectors make it easy to sort boxes by size. S. Worth. diags Mod Materials Handling 19:63 N '64

SOUND

Audio-frequency characterization of radar-absorbing material. L. C. Lynnworth. bibliog il IEEE Proc 52:98-9 Ja '64

Optical-acoustic effects in solid films. A. V. Houghton and R. U. Acton. bibliog il AIAA J 2:120-1 Ja '64

Weinreich relation in the presence of dc electric and magnetic fields. H. N. Spector. J Ap Phys 34:3628 D '63

What is a decibel? D. A. King. il diags Radio-Electronics 35:30-1 Ja '64

See also

Acoustics, Architectural
Amplifiers
Echo
Electroacoustics
Hearing
Soundproofing
Speech
Tones
Vibration
Voice

Absorption

Acoustic absorption coefficients of combustion gases. D. W. Blair and others. AIAA J 2:392-3 F '64

FHA joins the tenants' war against noise. diags Arch Forum 120:96-7 Mr '64

Noise control at the Sullivan mine. J. W. Reynolds. il Can Min & Met Bul 57:115-18 F '64

Noise suppression on rock drills. J. E. Gordon. Can Min & Met Bul 56:835-8 N '63

Sound in air; absorption and dispersion. M. C. Henderson. bibliog diags Sound 2:28-36 N '63

See also

Sound absorbent materials
Ultrasonic waves—Absorption

Apparatus

Acoustical generation by optical masers. V. A. Suprynowicz. IEEE Proc 52:849 Jl '64

Audio aids and commission policy. R. L. Cutts. Audio Eng Soc J 12:15-20 Ja '64

Bridging and mixing techniques. C. E. Wood. diags Audio Eng Soc J 12:55-65 Ja '64

Controlling sound-reinforcement systems automatically. D. L. Klepper. il diag Audio 48:22+ Ap '64

New approach to the spectrum analysis of nonstationary signals. W. W. Wierwille. bibliog diags IEEE Trans Applications & Ind p322-7 N '63

New solid-state sound-mixing equipment for television. D. B. Manning. il diags SMPTE J 73:788-91 S '64

Pneumatic sound generator. il diag Ind Electronics 2:7 Ja '64

Sonalert; audible signal generator. E. L. Campbell. il Q S T 48:49 O '64

Sonic combustion control. I. Elias. bibliog diags Sound 2:8-12 N '63

Tape and disc accessories; a directory. R. F. Scott. il Radio-Electronics 35:48-50 Mr '64

SOUND—Apparatus—*Continued*

Upgrade your home recording setup. E. C. Carlson. il diags Radio-Electronics 35:34-5 My '64

See also
Audiometers
Earphones
Headphones
Hydrophone
Loud speaking apparatus
Microphones
Phonograph
Sonar
Tuning forks

Attenuation

Effect of flow on the attenuation of lined ducts. H. R. Mull. bibliog il ASHRAE J 5:75-8 D '63

Effects of pressure and fluid saturation on the attenuation of elastic waves in sands. G. H. F. Gardner and others. bibliog diag J Pet Tech 16:Trans 189-98 F '64

Geometric acoustic attenuation at gigacycle frequencies in single crystals of quartz. E. Gates. bibliog il diags IEEE Proc 52:1129-37 O '64

Measurements of particulate acoustic attenuation. R. A. Dobbins and S. Temkin. bibliog diags AIAA J 2:1106-11 Je '64

Microwave acoustics. S. W. Tehon and S. Wanuga. il diags IEEE Proc 52:1113-27 bibliog(p 1125-7) O '64

Theoretical prediction of seismic noise in a deep borehole. R. L. Sax and R. A. Hartenberger. bibliog Geophysics 29:714-20 O '64

Measurement

Acoustic noise measurement and analysis. W. V. Richings. bibliog il Wireless World 70:51-6 Ja '64

Analysis of radio noise from high-voltage lines. O. Nigol. bibliog IEEE Trans Power Apparatus & Systems 83:524-41; Discussion. 554-7; Reply. 557-8 My '64

Audible noise and vibration measurement. J. A. Jensen. diags Electro-Tech 74:101+ O '64

Automatic statistical analysis. W. E. Mason. il diag Ind Electronics 2:58-60 F '64

Errors in noise measurements due to the finite amplitude range of the measuring instrument. C. E. Cohn. R Sci Instr 35:701-3 Je '64

Influence of mismatch error in noise performance measurements. M. M. Brady. IEEE Proc 52:1075-6 S '64

Instruments for noise measurement. H. J. Purkis. bibliog diags J Sci Instr 41:284-9 My '64

Jungle sounds. il Electronics 37:32 S 21 '64

Linear detectors for noise measurements. C. E. Cohn. diag R Sci Instr 35:638-9 My '64

Measurements of particulate acoustic attenuation. R. A. Dobbins and S. Temkin. bibliog diags AIAA J 2:1106-11 Je '64

Method for detecting weak sound waves in a low pressure gas. J. A. Dayton, jr and others. R Sci Instr 34:1451-2 D '63

Method of evaluationg corona noise generation from measurements on short test lines. M. C. Perz. bibliog IEEE Trans Power Apparatus & Systems p833-9; Discussion. 839-43; Reply. 843-4 D '63

Portable sound level meters. il Engineer 217:582 Mr 27 '64

Power level measurements on a representative group of room air conditioners. D. B. Smith. il ASHRAE J 6:29-34 Ag '64

Problems and activities in the development of room air conditioner noise standards. P. E. Kolb. ASHRAE J 6:34-7 Ag '64

Radio noise studies on power lines with the coronaphone. J. R. Leslie and H. O'Beirne. il IEEE Trans Power Apparatus & Systems 83:495-500 My '64; Discussion. 83:646 Je '64

Rock drill noise: an approach. A. W. Wallace. diags Can Min & Met Bul 57:1038-41 O '64

Setting standards for machine noise. A. J. King. Engineering 198:93-5 Jl 17 '64

See also
Sound—Velocity

Recording and reproducing

About music. H. Lawrence. Published in monthly numbers of Audio

Bad sound from great composers. L. A. Harlow. Audio 48:21-2+ F '64

Basic course in commercial sound. N. H. Crowhurst. diags Audio 48:33-6 Ap; 41-4 My; 33-6 Je '64

Controlling sound-reinforcement systems. D. L. Klepper. il diags Audio 47:19-23+ D '63

Controlling sound-reinforcement systems automatically. D. L. Klepper. il diag Audio 48:22+ Ap '64

Current publications on audio. Audio Eng Soc J 12:262 Jl '64

Digital computer system for dynamic analysis of speech and sound feedback mechanisms. K. U. Smith and others. il diags Assn for Computing Mach J 11:240-51 Ap '64

How industry designs toys with sound and fury; Mattel, inc. W. B. Wallace. il Product Eng 35:108-11 S 14 '64

Interrelation of speaker and amplifier design. V. Brociner and D. R. von Recklinghausen. diags Audio Eng Soc J 12:124-8 Ap '64

Larry the lion speaks. il Product Eng 35:54 Ap 13 '64

Loudspeaker polarity. A. M. Wooller and others. Wireless World 70:297 Je '64; Discussion. 70:399-400, 523-4 Ag, O '64

RCA Victor Dynagroove system. H. F. Olson. bibliog il diags Audio Eng Soc J 12:98-114 Ap '64

Recording a community music festival. G. Daney. il plan Audio 48:19-20+ Mr '64

Re-recording filter. H. E. Riekels, jr. diag Audio 48:35+ F '64

Reverberation and ambiophony. G. A. Briggs. il Radio-Electronics 35:42-4 O '64

Upgrade your home recording setup. E. C. Carlson. il diags Radio-Electronics 35:34-5 My '64

See also
High fidelity sound systems
Moving picture sound recording
Sound—Stereophonic recording and reproducing

Magnetic recording

Advanced tape mastering system. J. T. Mullin; K. Clunis. il diags Audio Eng Soc J 12:298-307 O '64

Build yourself a flutter meter. J. Wagner. il diags Radio-Electronics 35:24-6 Mr '64

Calculation of the field of a magnetic recording head. L. E. Fay, 3d. bibliog diag IEEE Proc 52:623-4 My '64

Checking out tape recorders. H. Burstein. il diags Radio-Electronics 35:35-7 Mr '64

Cipher Denon 800 tape recorder. il Audio 48:46 Ja '64

Concord model 884 stereo tape recorder. il Audio 48:50+ Mr '64

Custom studio recording console. W. G. Dilley. il diags Audio Eng Soc J 12:330-4 O '64

Dynamic range limitations in tape recording. R. Z. Langevin. Audio Eng Soc J 12:294-7 O '64

Good many tape recorder ills can be cured, or better yet prevented, with a few simple maintenance procedures. L. Zide. Mod Phot 28:56+ S '64

Hook up your recorder to an external speaker system for instant better sound. H. A. Manoogian. Mod Phot 28:54+ My '64

Hot mikes will record air crew's conversation. A. A. McKenzie. il Electronics 36:53-4 N 15 '63

Light listening. C. Santon. Published in monthly numbers of Audio

Little dictator. W. D. Rexroad. il diags Radio-Electronics 35:30-2 Ag '64

Magnetic tape cartridges. A. Knox. il Audio Eng Soc J 12:32-5 Ja '64

Magnetic-tape head for frequency-spectrum determination. J. L. Douce and P. J. Parr. diags Inst E E Proc 111:693-9 Ap '64

Magnetic tape recording and reproducing of atmospheric noise with a wide dynamic range. E. C. Bolton. diags R Sci Instr 35:377-80 Mr '64

Mechanical damping in tape transports. J. G. McKnight. bibliog il diags Audio Eng Soc J 12:140-6 Ap '64

New multi-deck broadcast audio tape cartridge system. K. R. Smith, 2d. il diag Audio Eng Soc J 12:327-9 O '64

Noise in audio amplifiers. P. Tharma. bibliog diags Wireless World 69:447-52 S '63; Discussion. R. G. T. Warren. 69:546-7 N '63

Noise limitations in tape reproducers. E. P. Skov. bibliog diags Audio Eng Soc J 12:280-93 O '64

Notes from a tape recorder service book; illustrations with text. S. P. Dow. Radio-Electronics 35:30-1 Jl '64

Novel type of magnetic recording head. J. C. Barton and C. T. Stockel. il diags Radio & Electronic Eng 27:11-15; Discussion. 15-17; Reply. 18 Ja '64

Parametric input stages in electroacoustics; low-noise playback amplifier in magnetic recording. E. de Niet. bibliog diags Audio Eng Soc J 12:21-7 Ja '64

SOUND—Recording and reproducing—Magnetic recording—*Continued*

Performance and reliability requirements for a master tape recorder. R. Narma and W. M. Fujii. il diags Audio Eng Soc J 12:274-9 O '64
Preliminary analysis of surface-induced tape noise. E. D. Daniel. diags IEEE Trans Com & Electronics 83:250-3 My '64
Product preview section; tape recorders. il Audio 48:58+ Ag '64
Radio-Electronics guide to test tapes and records. R. F. Scott. il Radio-Electronics 35:46-7 Mr '64
Recorder increases dynamic range of high-fidelity recordings. diags Electronics 37:25 Je 29 '64
Recording aircraft noise to 100 kc. A. R. Soffel. il diags Audio Eng Soc J 12:214-20 Jl '64
R&d for the tape industry. R. Angus. il Audio 48:26+ S '64
Reversible continuous-loop-tape cartridge. diag Electro-Tech 73:127-8 Mr '64
Sony tape recorder TC-600. N. H. Crowhurst. il Radio-Electronics 35:62 Je '64
Sound/slides; new recorders make it easier. M. A. Matzkin. il Mod Phot 28:92+ S '64
Tape and disc accessories; a directory. R. F. Scott. il Radio-Electronics 35:48-50 Mr '64
Tape guide. H. Burstein. Published in monthly numbers of Audio
Tape recorder breakthrough; cross field head. R. N. Angus. diags Mod Phot 28:93+ S '64
Tape recorder problems. H. Burstein. il diags Radio-Electronics 35:40-2 Mr; 29-31 Ap '64 (to be cont)
Tape recorder threads, rewinds, and changes automatically. il diags Machine Design 36:88-9 Jl 30 '64
Tape recorders (Ampex F44 series). J. Marshall. il Radio-Electronics 35:71-2 My '64
Tape recorders and the copyright law. E. Darmstaedter. il Audio 48:50+ My '64
Tape recording amplifier. G. P. Hobbs. diags Wireless World 70:47-50 Ja '64
Tape transports; inside out. L. Zide. diags Mod Phot 28:95+ O '64
Techniques for achieving wide dynamic range from magnetic recorders. K. O. Johnson. diags Audio Eng Soc J 12:308-11 O '64
Three new trends in tape recording and how far they've gotten. R. N. Angus. Mod Phot 28:62+ Je '64
Transistors, videotape, highlight the 1963 N.Y. high fidelity show. R. N. Angus. Mod Phot 28:98+ Ja; 90+ F '64
Uher 4000 Report-S portable recorder. il Audio 48:38+ Ap '64
Why keep old 78 records around when you can tape them conveniently, inexpensively? R. N. Angus. Mod Phot 28:46+ Ag '64

See also

Moving picture sound recording—Magnetic recording

Standards

Report on the proposed NAB disc playback standard. J. J. Bubbers. Audio Eng Soc J 12:51-4 Ja '64

Reflection

Meteorological focusing of acoustic energy. R. N. Tedrick. bibliog diags Sound 2:24-7 N '63
New data-processing technique for the elimination of ghost arrivals on reflection seismograms. W. A. Schneider and others. diags Geophysics 29:783-805 O '64

Stereophonic recording and reproducing

ADC Point Four stereo pickup. il diags Audio 48:52+ Mr '64
All silicon tape playback preamps and recording circuit. J. Abajian, jr. and D. V. Jones. il diags Audio 48:22-8+ O '64
All-transistor stereo amplifier KLH model sixteen. P. E. Sutheim. il Radio-Electronics 35:57 Jl '64
Altec Lansing Royal II solid-state stereo amplifier, model 360A. il diag Audio 48:40+ Ap '64
Ampex portable stereo tape recorder, model 2070. il Audio 48:46 S '64
Audio etc. E. T. Canby. Published in monthly numbers of Audio
Better stereo reproduction with 15° stylus. A. B. Grundy, jr. il diags Radio-Electronics 35:32-4, cover Mr '64
Black box; stereo analyzer. B. White. il diags Radio-Electronics 35:38-9 Mr '64
Center bass channel for stereo. R. F. Scott. il diags Radio-Electronics 35:48-9 Jl '64
Concord model 884 stereo tape recorder. il Audio 48:50+ Mr '64
David Clark stereo headphones, model 100. il Audio 48:40 F '64
Dyna stereo 35 amplifier. J. Marshall. il diag Radio-Electronics 35:70+ Ja '64
Dynagroove system. H. F. Olson. bibliog il diags Audio 48:22-3+ N; 44+ D '64
15° stereo pickup. J. Marshall. il Radio-Electronics 35:74 Ap '64
Harman-Kardon 1000 series amplifier, AlOOOT, and tuner, FlOOOT. il Audio 48:37+ Je '64
Improved method of audio level control for broadcasting and recording. J. F. Lawrence, jr. diags SMPTE J 73:661-3 Ag '64
Integrated treatment of tracing and tracking error. D. H. Cooper. bibliog diags Audio Eng Soc J 12:2-7 Ja '64
Knight KN999 all-transistor integrated stereo amplifier. J. Marshall. il Radio-Electronics 35:74 S '64
Korting Mozart model 3000. il Audio 47:38+ D '63
Lafayette LA-200 transistor stereo amplifier. P. E. Sutheim. il diag Radio-Electronics 35:72 S '64
Measurement of distortions due to vertical tracking angle errors in Stereodisk systems. J. B. Halter and J. G. Woodward. il Audio Eng Soc J 12:8-14; Discussion. 66-7 Ja '64; Reply. 12:162+ Ap '64
Method for raising the load capability of stereo cutters. H. Redlich and H. J. Klemp. diags Audio Eng Soc J 12:231-5 Jl '64
Modern hi-fi stereo cartridges. A. Grundy. il Radio-Electronics 35:40-1, cover O '64
Music with a bounce; Columbia stereo 360. il Electronics 37:31 S 21 '64
Professional stereo line amplifier. H. Reed. il diag Radio-Electronics 35:44-5 F '64
Purist tackles room acoustics. J. W. Linsley. il Audio 48:19-21+ Ap '64
Reducing distortion in stereo phonograph systems. J. G. Woodward. bibliog il diags Audio 48:23-4+ F; 28+ Mr '64
Ribbon microphone for stereo. E. R. Madsen. il diags Audio 48:26+ Ap '64
Stanton stereotable system, model 800B. il diag Audio 48:44-5 Ja '64
Stereo amplifier (Heathkit all-transistor AA-22). N. H. Crowhurst. il Radio-Electronics 35:62 Mr '64
Stereo cartridge (euphonics ceramics). J. Marshall. il Radio-Electronics 35:62+ Mr '64
Stetho stereo. G. D. Curtis. il diags Radio-Electronics 35:64 Ja '64
3-watt transistor audio amplifier. T. D. Towers. il diags Wireless World 69:598-602+ D '63
Ton-and-a-quarter of sound. W. Wysoczanski. il(cover) diags Audio 48:19-23+ Ja '64
Unitized stereophonic loudspeaker with acoustically augmented separation of the sound sources. H. F. Olson. diags Audio Eng Soc J 12:40-4 Ja '64
University Tri-Planar speaker system. N. Crowhurst. il diag Radio-Electronics 35:60+ O '64
Westrex 3D StereoDisk system. C. S. Nelson and J. W. Stafford. il diags Audio Eng Soc J 12:178-85 Jl '64

See also

Phonograph records—Stereophonic records
Radio broadcasting—Stereophonic programs

Transmission thru sea water

Effect of ice on long range underwater sound propagation. J. D. Macpherson. map Radio & Electronic Eng 26:293-7 O '63
Optimum processing for acoustic arrays. W. Vanderkulk. Radio & Electronic Eng 26:285-92 O '63
Propagation of sound in shallow water. D. E. Weston. bibliog Radio & Electronic Eng 26:329-37 O '63
Response of an elastic plate submerged in a liquid half-space to explosive sound. J. H. Rosenbaum. bibliog diags Geophysics 29:370-94 Je '64
Underwater acoustics; abstract. B. H. Venning. Inst E E Proc 111:309 F '64

See also

Sonar

Velocity

Converted waves in refraction surveys over markers with variable depth. D. H. Hall. bibliog diags Geophysics 29:733-44 O '64
Correlation of molecular orientation parameters derived from optical birefringence and sonic velocity methods. I. M. Ward. Textile Res J 34:806-7 S '64
Measurement of the velocity of sound in gases. H. J. Wintle. bibliog Am J Phys 31:942-3 D '63
Newton's derivation of the velocity of sound. H. Whiteside. bibliog Am J Phys 32:384 My '64

SOUND—Velocity—*Continued*

Relationship of polypropylene fiber orientation as determined by optical birefringence and sonic velocity measurements. S. E. Ross. bibliog Textile Res J 34:565-71 Jl '64

Sound in air; absorption and dispersion. M. C. Henderson. bibliog diags Sound 2:28-36 N '63

Speed of sound and Mach number effects. S. L. Bragg and S. F. Smith. Roy Aeronautical Soc J 67:669-70 O '63; Discussion. bibliog diags 67:797-8; 68:62-3, 485-92 D '63-Ja, Jl '64

See also
Ultrasonic waves—Velocity

SOUND absorbent materials

Acoustic urethane. il Plastics World 22:62 Ja '64

Acoustical covering; urethane in nursery helps keep babies germ-free as well as quiet. il Plastics World 21:63 N '63

Air conditioning ceiling panels. il Engineering 197:840 Je 19 '64

Concrete panels soak up sound. il Eng N 172:49 F 27 '64

For confined areas, here's how to design for noise control. R. D'Agostino. diag Product Eng 35:84-6 Ag 17 '64

Insulation exhibition and convention, London, Feb. 25-28. Chem & Ind p570 Ap 4 '64

Shave installation costs via use of molded insulation. diags Marine Eng/Log 69:102+ O '64

Sound insulating pads coated with neoprene. Engineering 197:601 My 1 '64

SOUND absorption. See Sound—Absorption

SOUND laboratories

Acoustic enclosures; how researchers quiet noisy machinery. A. Oppenheim and S. Wasserman. il Res/Develop 15:26-8 My '64

Acoustical test room converts from soft to hard. il diag Plant Eng 17:146+ N '63

Understanding acoustic enclosure systems; anechoic chambers. A. Oppenheim and S. Wasserman. il diags Electronic Ind 23:78-81 Ja '64

SOUND production by animals

Sound communication in honeybees. A. M. Wenner. il diags Sci Am 210:116-22+ Ap '64

SOUND waves

Acoustoelectric effect. S. G. Eckstein. bibliog J Ap Phys 35:2702-7 S '64

Amplification of acoustic waves at microwave frequencies. E. M. Conwell. IEEE Proc 52:964-5 Ag '64

Application of acoustics in air pollution problems. J. C. F. Chow. bibliog Am Soc C E Proc 90 [SA 4 no 4005]:59-75 Ag '64

Collective elastic waves in piezoelectric semiconductors. R. W. Damon and others. bibliog il diags IEEE Proc 52:912-21 Ag '64

Coupled modes of acoustic waves and drifting carriers in piezoelectric crystals. K. Blötekjær and C. F. Quate. bibliog diags IEEE Proc 52:360-77 Ap '64

Effect of acoustic turbulence on mass transfer at a column wall. D. I. R. Low and J. W. Hodgins. bibliog diag Can J Chem Eng 41:241-5 D '63

Nonmechanical scanning of light using acoustic waves. R. Lipnick and others. diag IEEE Proc 52:853-4 Jl '64

Parametric excitation of acoustic wave instabilities in ferromagnets. R. E. Tokheim and others. diag J Ap Phys 35:1010-11 pt 2 Mr '64

Possibilities of amplification of sound waves at microwave frequencies. H. J. E. H. Pauwels. IEEE Proc 52:300 Mr '64

Second sound may carry energy through solids. Machine Design 36:10 Jl 16 '64

Techniques in processing large quantities of audio spectrum analysis data. M. R. Weiss and C. M. Harris. il diags Audio Eng Soc J 12:147-52 Ap '64

See also
Resonance
Shock waves
Ultrasonic waves
Vibration

Industrial applications

Acoustic detection of crack initiation in sharply notched specimens. M. H. Jones and W. F. Brown, jr. bibliog il diags Materials Res & Stand 4:120-7; Discussion. 127-9 Mr '64

Acoustic verification of structural integrity of Polaris chambers. A. T. Green and others. il diags Mod Plastics 41:137-9+ Jl '64

Effect of high-frequency sound on displacement of water by air. R. E. White. diag Tappi 47:496-8 Ag '64

Infra-sonic effect of liquid separation in gas pulsation dampeners. W. S. Everett. il diag Gas 40:72+ Je '64

SOUNDPROOFING

Barrier walls cut transformer noise. A. R. Compton and A. L. Trice. il diags Elec World 160:82-3+ N 18 '63

Better soundproofing in demand, because residential density will increase. Eng N 171:16 N 28 '63

Residential noise control. W. J. McGuinness. Prog Arch 45:182 Jl '64

Sewage plant in center of town is ozonized and soundproofed. il Eng N 172:34-6 Je 11 '64

See also
Sound—Absorption
Sound absorbent materials

SOUP, Dried

Home-use test by consumers of the flavor effects of disodium inosinate in dried soup. J. F. Caul and S. A. Raymond. Food Tech 18:353-7 Mr '64

SOUTH

See also
Electric lines—Southern states

SOUTH AFRICA

See also subdivision South Africa under special subjects, e.g.
Aeronautic research
Chemical industries
Diamond mines and mining
Irrigation
Mines and mineral resources
Moving picture industry
Railroads
Roads

Native races

Magnesium balance studies in South African Bantu children with kwashiorkor. P. J. Pretorius and others. bibliog Am J Clinical Nutrition 13:331-9 N '63

SOUTH AMERICA

See also
Building—South America

SOUTH CHARLESTON, West Virginia

Sewerage

Municipality and industry join in sewerage project. flow diag il Pub Works 95:112 Ap '64

SOUTH DAKOTA

See also subdivision South Dakota under special subjects, e.g.
Gas, Natural
Mines and mineral resources
Petroleum
Petroleum industry and trade
Petroleum products pipe lines

SOUTHAMPTON, England

Harbor

Southampton water; conflicting demands. J. P. M. Pannell. il maps Engineering 198:430-3 O 2 '64

SOUTHEAST

See also
Electricity supply—Southeastern states
Mines and mineral resources—Southeastern states
Petroleum industry and trade—Southeastern states

SOUTHEASTERN electric exchange

Engineering and operating section meeting, Washington; with abstracts of papers. Elec World 161:94-5 My 18 '64

SOUTHER, John Barron

Memorial. K. A. Simmons. Am Assn Pet Geologists Bul 48:1603 S '64

SOUTHWEST

See also
Electric utilities—Southwestern states

SOXHLET extractor. See Extraction apparatus

SOYBEAN flour

Production and nutritional evaluation of extrusion-cooked full-fat soybean flour. G. C. Mustakas and others. bibliog flow sheet diags Am Oil Chem Soc J 41:607-14 S '64

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

SOYBEAN meal
Advanced countries offer market potential for vegetable proteins. Food Tech 18:702+ My '64
Anti-rachitic effects of soybean preparations for turkey poults. C. W. Carlson and others. bibliog J Nutrition 82:366-70 Mr '64
Soybean and mixed-feed plant processing wastes. R. S. Engelbrecht and others. flow diag il plan diag WPCF J 36:434-42 Ap '64

SOYBEAN oil
Catalysts for selective hydrogenation of soybean oil. C. H. Riesz and H. S. Weber. flow diag diag Am Oil Chem Soc J 41:380-3, 400-3, 464-8 My-Jl '64
Partial hydrogenation and winterization of soybean oil. C. D. Evans and others. biblig Am Oil Chem Soc J 41:260-3 Ap '64
Soybean unsaponifiables; chromatographic investigation of shell drain condensate from a commercial deodorizer. R. L. Hoffman and others. Am Oil Chem Soc J 41:116-19 F '64

SOYBEANS
Effect of soybean trypsin inhibitor on methionine and cystine utilization. E. Kwong and R. H. Barnes. bibliog J Nutrition 81:392-8 D '63
Exclusion of the exocrine pancreatic secretion; effect on digestibility of soybean and milk protein by baby pigs at various ages. J. C. Pekas and others. bibliog J Nutrition 82:277-86 F '64
Improvement in the protein efficiency of soybean concentrates and isolates by heat treatment. J. B. Longenecker and others. bibliog J Agri & Food Chem 12:411-12 S '64
Nutritional value of proteins of oriental soybean foods. B. R. Standal. bibliog J Nutrition 81:279-85 N '63
Overcoming the inhibition of intestinal proteolytic activity caused by raw soybean in chicks of different ages. Z. Nitsan and E. Alumot. bibliog J Nutrition 84:179-84 O '64
Rachitogenic activity of soybean fractions. C. W. Carlson and others. bibliog J Nutrition 82:507-11 Ap '64
Research widens soy protein uses. Food Eng 36:72+ Jl '64
70 per cent-protein soy concentrate offers low-cost enrichment. il Food Eng 35:114 N '63
Simple test for trypsin inhibitors in soybeans. J. Ilany-Feigenbaum. bibliog Food Tech 18:884-5 Je '64
Soybean unsaponifiables; hydrocarbons from deodorizer condensates. C. D. Evans and others. bibliog flow sheet Am Oil Chem Soc J 41:406-11 Je '64
Stable foams from unhydrolyzed soybean protein. A. C. Eldridge and others. bibliog Food Tech 17:1592+ D '63
Studies on the digestion of soybeans. H. J. H. de Muelenaere. bibliog J Nutrition 82:197-205 F '64
Studies on the utilization of tempeh protein by weanling rats. L. R. Hackler and others. bibliog J Nutrition 82:452-6 Ap '64
Tempeh fermentation; package and tray fermentations. A. Martinelli and others. bibliog il diags Food Tech 18:761-5 My '64
Vitamin A activity of acidulated soybean soapstocks in chicks. P. Budowski and others. bibliog Am Oil Chem Soc J 41:441-5 Je '64
See also
Soybean flour

SPACE, Outer
Toward international cooperation in space. F. Fiorio. il Astronautics & Aeronautics 2:47-9 Mr '64

Law

See Space law

SPACE and time
Coordinate transformation to an accelerated frame of reference. J. E. Romain. bibliog Am J Phys 32:279-85 Ap '64
Extension of Euler's theorem to Minkowski space. H. M. Schwartz. Am J Phys 31:864-7 N '63
Magnetic symmetry and forbidden effects. R. R. Birss. bibliog diags Am J Phys 32:142-52 F '64
Spatial and time frequency relations in the direction of motion of linear scanners. E. J. Smura. IEEE Proc 51:1666-7 N '63
Third revolution in 20th century physics. A. W. Stern. bibliog Phys Today 17:42-5 Ap '64

SPACE chambers. See **Testing laboratories—Vacuum chambers**

SPACE charge
Analogue multiplication with the space-charge-limited surface-channel triode. G. T. Wright. bibliog il Radio & Electronic Eng 28:13-15 Jl '64
Analysis of gate-controlled space-charge-limited emission processes in semi-conductors. R. C. Williams. bibliog diags RCA R 25:262-302 Je '64
Analytical formulation of incremental electrical conductivity in semiconductors arising from an accumulation space-charge layer. V. J. Lee and D. R. Mason. bibliog diag J Ap Phys 35:1557-62 My '64
Diocotron gain reduction and space charge smoothing in crossed-field guns. R. P. Wadhwa. IEEE Proc 52:315-16 Mr '64
Effect of space charge upon the transport of charge carriers. A. L. Ward. bibliog J Ap Phys 35:469-74 Mr '64
Effects of negative ion space charge formation on nonuniform air gaps. W. A. Hixson and R. L. Hoffman. diag Elec Eng 82:710-16 D '63
High photovoltages in silicon and silicon carbide films and their origin from a trap-induced space charge. H. W. Brandhorst, jr. and A. E. Potter, jr. bibliog J Ap Phys 35:1997-2003 Jl '64
New method of simulating space charge in the electrolytic tank. B. C. Gregory and K. F. Sander. bibliog diags Inst E E Proc 111:1766-70 O '64
Scheme for increasing the effectiveness of space-charge neutralization in electron-ion systems. R. P. Wadhwa. diags IEEE Proc 52:728-9 Je '64
Simple physical model for the space-charge capacitance of metal-oxide-semiconductor structures. A. S. Grove and others. diags J Ap Phys 35:2458-60 Ag '64
Single-carrier injection in silicon at 76° and 300°K. B. L. Gregory and A. G. Jordan. J Ap Phys 35:3046-7 O '64
Space charge and electrode polarization in glass. P. M. Sutton. bibliog diag Am Cer Soc J 47:188-94, 219-30 Ap-My '64
Space-charge effects in the insulated-gate field-effect triode. J. Winslow. IEEE Proc 52:618 My '64
Space-charge equations with negative ion emission in collisionless diodes. C. H. Skeen. bibliog J Ap Phys 35:2262-3 Jl '64
Space-charge-limited solid-state devices. G. T. Wright. diags IEEE Proc 51:1642-52 bibliog(p 1651-2) N '63
Theory of one-carrier, space-charge-limited currents including diffusion and trapping. M. A. Lampert and F. Edelman. bibliog diags J Ap Phys 35:2971-82 O '64

SPACE flight
Aerospace in perspective. il fold chart diags Space/Aeronautics 41:60-182 Ja '64
Dynamics and structures; space dynamics. R. M. L. Baker, jr. diag Space/Aeronautics 42 no 4:11-13 '64-65
End of the race? Sci Am 209:64-5+ D '63
Engineering and the national space program. E. N. Hall. Astronautics & Aeronautics 2:74-8 Ja '64
Flight control for manned spacecraft. C. L. Seacord. il diags Space/Aeronautics 40:72-80 N '63
Future unmanned exploration of the solar system. M. W. Hunter, 2d. bibliog Astronautics & Aeronautics 2:16-26 My '64
Manned planetary flight; where are we today? H. H. Koelle. Astronautics & Aerospace Eng 1:131-3 N '63
Simulating manned space flight. O. Romaine. il diags Space/Aeronautics 40:68-72 D '63
Sizing nuclear orbital launch vehicles for interplanetary missions. J. F. McLaughlin. bibliog il Astronautics & Aeronautics 2:70-6 F '64
Spacecraft and life systems. P. K. Eckman and W. M. Helvey. il diag Astronautics & Aerospace Eng 1:20-8 N '63
Stereoscopy in space. J. H. Waddell. il Res/Develop 15:30-1 My '64
Television from space. F. Leary. il Space/Aeronautics 41:70-9 Mr '64
Tv warns astronauts of solar-flare eruptions. Machine Design 36:15 Je 18 '64
Voskhod, Russia's three-in-one satellite. Product Eng 35:82-3 O 26 '64
Water recovery from fuel cells and lunar minerals. F. J. Hendel. bibliog diags Ind & Eng Chem 56:29-31 Mr '64
See also
Orbital rendezvous (space flight)
Rocket propulsion
Space flight centers
Trajectories
United States—National aeronautics and space administration

SPACE flight—*Continued*

Bibliography

Astrodynamics; bibliography of general perturbation solutions of earth-satellite motion. T. Gabbard, jr. and E. Levin. Astronautics & Aerospace Eng 1:121-3+ bibliog(p 122-3+) N '63

In print. Astronautics & Aerospace Eng 1:153 F; 131 S; 5 N '63; [cont as] Astronautics & Aeronautics 2:5 F; 14-15 Je; 87 Jl; 18 O '64

Food problems

Algae as food for space travel; a review. R. P. Casey and J. A. Lubitz. il Food Tech 17:1386-90+ bibliog(p 1393-4) N '63

Cafeteria for chimps. il diag Product Eng 35:42-3 Je 8 '64

Libby pioneers food for space feeding. il Food Eng 36:62-4 F '64

Lunar flights

Aerospace in perspective; exploration. il diags Space/Aeronautics 41:106-21 Ja '64

Apollo can maintain men on the moon. G. L. Mitcham. diags S A E J 72:72-3 F '64

Apollo capabilities. G. E. Mueller. il diags Astronautics & Aeronautics 2:26-9 Je '64

Apollo date becomes less clear the more NASA talks about it. Space/Aeronautics 41:10-11 Mr '64

Communication and tracking equipment for Apollo and its lunar excursion module. Electronics 37:32 O 19 '64

Computer to count on; hybrid integrated circuits are making the guidance computer for Saturn V. il diags Electronics 37:82-4 N 2 '64

Conversion of coordinates; latitude-longitude to cislunar. F. E. Council, jr. bibliog diags AIAA J 2:551-3 Mr '64

Design analysis of earth-lunar trajectories; launch and transfer characteristics. J. E. Michaels. bibliog diags AIAA J 1:1342-50 Je '63; Discussion. R. L. Robertson. 2:969-71 My '64

Dynamic analysis for lunar alightment. A. P. Cappelli. il diags AIAA J 1:1119-25 My '63; Discussion. R. E. Lavender. 1:2196-7 S '63; Reply. 2:412-13 F '64

Earth illumination will aid explorers of moon. N. C. Wells and D. H. Armsby. diag Space/Aeronautics 41:255-6 Ja '64

Earth radius/kilometer conversion factor for the lunar ephemeris. V. C. Clarke, jr. bibliog AIAA J 2:363-4 F '64

Flight plan for Apollo. C. H. Cossette and C. A. Moosbrugger. diags S A E J 72:94-5 My '64

Flow field of an exhaust plume impinging on a simulated lunar surface. D. W. Eastman and L. P. Radtke. diag AIAA J 1:1430-1 Je '63; Discussion. L. Roberts and J. C. South, jr. 2:971-4 My '64

In-plane lunar injection opportunities from an orbiting space station. W. R. Wells. AIAA J 2:383-4 F '64

Jet propulsion laboratory's record defended in wake of Ranger 6 failure. il Space/Aeronautics 41:13+ Mr '64

LEM; first true spaceship. S. Barnes. il diags Machine Design 36:112-17 Je 4 '64

Lunar gap narrowed by Centaur success. il diags Machine Design 36:88-93 Ja 2 '64

Lunar landing research vehicle simulates moon-gravity descent. il Space/Aeronautics 42:73+ S '64

MGD space propulsin system for lunar missions. F. Spindler and K. Wang. AIAA J 2:152-3 Ja '64

Manned spacecraft material problems. J. N. Kotanchik. il diags Astronautics & Aeronautics 2:12-17 Jl '64

Mapping the course for the moon trip. R. F. Hoelker and N. J. Braud. il diags Astronautics & Aeronautics 2:16-23 F '64

Moon operations here on earth. D. E. Hewes and A. A. Spady, jr. il diags Astronautics & Aeronautics 2:24-9 F '64

Moon probes. I. Stambler. il diags Space/Aeronautics 41:52-61 Mr '64

Optimum translation and the brachistochrone. R. K. Cheng and D. A. Conrad. AIAA J 1:2845-7 D '63

Plane-change requirements associated with rendezvous in a lunar satellite orbit. J. M. Deerwester. bibliog diags AIAA J 2:890-5 My '64

Pressurized armor provides mobility on the moon. il Machine Design 36:6 Ap 23 '64

Project FIRE blazes trail for Apollo reentry. F. D. Linzer and E. Kaplan. il diags S A E J 71:76-8 D '63

Ranger VII success story. il Product Eng 35:59-60 Ag 17 '64

Role of unmanned systems in lunar exploration. H. A. Lassen and R. A. Park. bibliog il map diags Astronautics & Aeronautics 2:12-19 Mr '64

Saturn and Apollo move. il Astronautics & Aeronautics 2:30-3 Je '64

Saturn/Apollo spaceport grows. K. H. Debus. il diag Astronautics & Aeronautics 2:34-8 Je '64

Terminal guidance technique for lunar landing. S. J. Citron and others. bibliog diags AIAA J 2:503-9 Mr '64

Testing toward the moon; illustrations with text. E. J. Kompass. Control Eng 11:74-7 Ap '64

Together to the moon? D. W. Cox. Astronautics & Aeronautics 2:50-3 Mr '64

Toward a reusable earth-moon transportation system. H. H. Koelle and C. H. Rutland. bibliog diags Astronautics & Aeronautics 2:14-17 Ja '64

26 steps to the moon. J. A. Strasser. il map Electronics 37:93-4+ Je 29 '64

Vernier exhaust perturbations on radar and altimeter systems during a lunar landing. P. Molmud. bibliog diag AIAA J 1:2816-19 D '63

Mars flights

Entry vehicles. J. V. Becker. il diags Astronautics & Aerospace Eng 1:70-4 N '63

Interplanetary probes. I. Stambler. il diags Space/Aeronautics 42:36-45 Jl '64

Manned Mars missions. B. Kovit. il diags Space/Aeronautics 40:65-71 N '63

Mariners buddy-up for the first trip to Mars. il Machine Design 36:6 S 10 '64

Mars flight sketched for the 1975 to '85 decade. il Machine Design 36:8 Jl 16 '64

Mars nonstop round-trip trajectories. R. W. Luidens. diags AIAA J 2:368-70 F '64

Odd vehicle proposed for landing crew from Mars. il Machine Design 36:6 Ja 30 '64

Prospects of stereo tv from Mars orbiter. V. J. Young. diag Space/Aeronautics 42:66-7 O '64

Radiative vs. convective heat fluxes for Martian entry. M. G. Boobar and R. M. Foster. bibliog Astronautics & Aerospace Eng 1:30-5 D '63

Medical aspects

In-flight health check for astronauts practical. T. B. Weber. il diag Chem & Eng N 42:58+ Ap 20 '64

Physiological aspects

Bioastronautics; the state of the art, 1963. C. E. Goshen. bibliog diags Ind Med 32:500-7 D '63

Drinking water in a space capsule. il Engineering 196:672 N 22 '63

Environmental physiology of submarines and spacecraft. K. E. Schaefer. Archives Environmental Health 9:320-31 bibliog(p330-1) S '64

How much noise can people take? diag Safety Maint 127:47-8 Je '64

Seeing a satellite from a satellite. I. Schmidt. bibliog diags Astronautics & Aeronautics 2:31-8 My '64

Space capsule waste treatment and potable water recovery. W. T. Ingram and others. diags WPCF J 36:38-50 bibliog(p49-50) Ja '64

Taking advantage of man's vision in space. W. B. Clark and others. Space/Aeronautics 41:99+ Mr '64

Waste disposal in space vessels. C. F. Emanuel. bibliog il diags WPCF J 36:1229-39 O '64

What can the body take? il Product Eng 35:49-50 F 3 '64

Venus flights

Entry vehicles. J. V. Becker. il diags Astronautics & Aerospace Eng 1:70-4 N '63

SPACE flight centers

Gemini data will come in rivers to Houston. M. J. Murphy. il Control Eng 11:21-2 Jl '64

Space age structure to use huge amount of aluminum. il Mod Metals 20:36 Ag '64

Space center houses test labs. il Eng N 171:22 N 21 '63

Trends in space-vehicle test ranges. F. A. Speer. bibliog il diags Astronautics & Aeronautics 2:50-7 Jl '64

SPACE heaters. See Heaters

SPACE law

Aerospace law; progress in the UN. J. C. Cooper. Astronautics & Aeronautics 2:42-6 Mr '64

SPACE research

Aerospace in perspective; advanced research. il diags Space/Aeronautics 41:156-9 Ja '64

Aerospace in perspective; Johnson at the helm, Congress probes r&d. Space/Aeronautics 41:10-11+ Ja '64

Aerospace program: U.S. missions and projects as of December 1963; fold chart Space/Aeronautics 41:71-86 Ja '64

Aerospace technology; symposium. il diags Chem Eng Prog 60:33-64 F '64

Atmosphere and near space. F. S. Johnson and W. L. Webb. bibliog diag Astronautics & Aerospace Eng 1:81-5+ N '63

Douglas Aircraft elects to purchase chilled and ht water, compressed air. flow diag il plan Air Cond Heat & Ven 60:69-71 D '63

Drop tower for free fall study. il Product Eng 35:36-7 Mr 2 '64

Effect of the space age on the engineering profession. R. W. Johnson. Am Soc C E Proc 90 [PP 1 no 3747]:1-7 Ja '64

Engineering a ultra high vacuum system for space simulation. B. Kietzman and L. Patrucci. il diag Res/Develop 15:46-9 My '64

Engineering problems in space research. H. Massey. diags Inst Mech Eng Proc 177:1125-32, pl 1-3 '63

Flight acceleration facility for studying gravitational forces. il Comp Air Mag 69:18 Ag '64

Fused silica optics for solar simulator. Franklin Inst J 278:71 Jl '64

Future of flexible fibrous materials. J. H. Ross. il diags Am Dyestuff Rep 53:178-92 Mr 2 '64

Grid concept unifies plan for today-tomorrow building; Douglas space systems center. il plan Plant Eng 18:118-19 Jl '64

How missile/space helps instrumentation. J. S. Gilmore and others. I S A J 11:47-50 Ja '64

Linguistic problems in extraterrestrial communication. R. F. W. Smith. Audio Eng Soc J 12:154+ Ap '64

The moon: we look before we leap. J. A. Strasser. il diag Electronics 37:14-15 Ja 24 '64

NASA designs that merit reward. il Product Eng 35:44-5 Jl 6 '64

NASA's in the cold, cold ground: 500 ft hole duplicates outer space. diag Eng N 172:21 Mr 5 '64

New Aerospace research center combines many disciplines; General Precision. il Anal Chem 36:sup87A-9A Ja '64

New Pioneer satellites. I. Stambler. il diags Space/Aeronautics 40:58-64 N '63

Radar's new partner: space probe. L. D. Shergalis. diag Electronics 37:24-5 Ja 3 '64

Radio research at Slough. il Engineer 217:1092 Je 19 '64

Rating performance of a space-simulation chamber. R. L. Chuan. diags Res/Develop 15:44-6 Ja '64

Reactionary reacts QED. J. U. Daly. Product Eng 34:58 D 23 '63

Research model to study re-entry problems. Engineering 196:831 D 27 '63

Science of near space. E. Appleton. Engineering 197:495 Ap 3 '64

Showdown nears on search for life on Mars. il Chem & Eng N 42:24-8 Ap 27 '64

Simulating space radiation. E. A. Burrill. il diags Space/Aeronautics 41:78-87 My '64

Space/Aeronautics research and development technical handbook. 1964/1965. Space/Aeronautics 42 no 4:1-252 '64-65 ($5)

Space astronomy and the slow-scan vidicon. L. R. Malling. bibliog il diags SMPTE J 72:872-5 N '63

Space center marks new energy concept. il Gas 40:131-4 Mr '64

Space congress, 1st, Cocoa Beach, Fla, April 20-23; abstracts of papers. Mech Eng 86:86-7 Je '64

Von Karman research center. L. Critides. il Ind & Eng Chem 55:13-14 D '63

Why race for space? space program affects the world market. E. Rechtin. Am Gas Assn Mo 45:27-8 N '63

Engineering applications

Commercial use of space research and technology. J. E. Webb. il Astronautics & Aeronautics 2:74-7 Je '64

Fringe benefits from space. diags Mech Eng 86:133 Ap '64

Getting the need and know together: NASA experiment in Cleveland brought together industrial executives and NASA researchers. il Steel 154:60-2 Je 15 '64

Hitchhiking on space technology. il Steel 153.26-30 D 23 '63

Ideas from space research; special report. il diags Hydrocarbon Process & Pet Refiner 43:117-34 O '64

Industry gets chance to profit from space science. diag Steel 154:64 Ap 6 '64

NASA offers space ideas with commercial potential. diags Steel 155:109 Ag 10 '64

NASA offers space ideas with industrial potential. Steel 155:151+ O 12 '64

New flexible honeycomb structure with multiple pleats can bend to fit compound curves. diags Welding Eng 49:68 Ag '64

Process-pump design draws on aerospace know-how. il Chem Eng 71:78-9 Je 22 '64

Space innovations offer industrial potential. diags Steel 155:90 Jl 27 '64

Space technology; new problems and benefits. W. T. Olson. Steel 154:107+ F 10 '64

International aspects

Committee on space research (COSPAR) 7th plenary meeting and 5th international space science symposium, Florence, May 8-20. Astronautics & Aeronautics 2:70-3 Jl '64

IQSY: attack on the sun. M. A. Pomerantz. bibliog il Astronautics & Aeronautics 2:60-5 Ja '64

Stage set for U.S.-Soviet space tests. J. A. Strasser. il Electronics 37:10-11 Ja 17 '64

Europe

Europe and space research. Phys Today 17:60+ Ag '64

European co-operation in space vehicle development. W. H. Stephens. il map diags Roy Aeronautical Soc J 68:289-300; Discussion. 300-2 My '64

Space programme for Europe? A. V. Cleaver. bibliog Roy Aeronautical Soc J 68:374-82 Je '64

Germany

Astronautics in Germany. D. E. Koelle. il diags Astronautics & Aeronautics 2:66-70 My '64

Great Britain

Space technology in Great Britain. K. W. Gatland. bibliog il diags Astronautics & Aeronautics 2:18-23+ Jl '64

Russia

Voskhod, Russia's three-in-one satellite. Product Eng 35:82-3 O 26 '64

SPACE stations

Aerospace in perspective; exploration. il diags Space/Aeronautics 41:106-21 Ja '64

Air levitates maneuvering astronauts. il Comp Air Mag 69:20 Ja '64

Aluminum, titanium studied for space platform. Mod Metals 20:82 Ap '64

Gravity-gradient excitation of a rotating cable-counterweight space station in orbit. V. Chobotov. bibliog diags A S M E Trans ser E 30:547-54 D '63

In-plane lunar injection opportunities from an orbiting space station. W. R. Wells. AIAA J 2:383-4 F '64

Laboratory in space. C. M. Hanson and C. A. Gilbert. il diags Mech Eng 85:56-60 N '63

Manned orbital laboratory and beyond. il diags Space/Aeronautics 41:52-75 Je '64

Manned space station: its future. J. A. Strasser and S. Payne. il Electronics 36:10-11 D 20 '63

Rocket system for space tugs. il Engineering 197:495 Ap 3 '64

Space station design parameter effects on artificial *g* field. C. A. Larson. diags AIAA J 2:1454-5 Ag '64

Space station uncertainty. J. Stevenson. il diag Machine Design 36:128-31 Jl 16 '64

36-man orbiting laboratory wrings benefits out of zero gravity. il Machine Design 36:8 Ap 9 '64

Maintenance and repair

Challenge: ways to work metals in rigors of outer space. R. H. Eshelman. il diags Iron Age 193:79-81 Mr 19 '64

SPACE vehicle crews

DOD space programs. H. Brown. il Astronautics & Aeronautics 2:68-71 Je '64

Getting about in space: Modular maneuvering unit. il Product Eng 35:57 S 28 '64

In-flight health check for astronauts practical. T. B. Weber. il diag Chem & Eng N 42:58+ Ap 20 '64

Man in orbit. B. Kovit. il diags Space/Aeronautics 41:76-83 Je '64

SPACE vehicle crews—*Continued*

Moon operations here on earth. D. E. Hewes and A. A. Spady, jr. il diags Astronautics & Aeronautics 2:24-9 F '64

Three men in a sphere try the cramped life of an astronaut. il Machine Design 36:8 Mr 12 '64

Clothing

Dummies with muscles will pass judgment on spacesuits. il Machine Design 35:6 D 5 '63

Hard suit on the moon. il Comp Air Mag 69:22 Jl '64

Pressurized armor provides mobility on the moon. il Machine Design 36:6 Ap 23 '64

Space suits. il Product Eng 35:98 Ap 27 '64

Space suits. il Product Eng 35:80 O 26 '64

Training

Air levitates maneuvering astronauts. il Comp Air Mag 69:20 Ja '64

SPACE vehicles

Communications. S. Metzger. il Astronautics & Aerospace Eng 1:110-13 N '63

Deep space communication. J. W. Thatcher. bibliog diags Space/Aeronautics 42:54-63 Jl '64

Dynamics and structures; space dynamics. R. M. L. Baker, jr. diag Space/Aeronautics 42 no 4:11-13 '64-65

Future scientific spacecraft. T. L. Branigan and D. P. LeGalley. il Phys Today 17:21-8 Ap '64

Gemini status; three months and counting. S. Barnes. il diags Machine Design 35:156-62 N 21 '63

Influence of conduction on spacecraft skin temperatures. P. Hrycak. bibliog AIAA J 1: 2619-21 N '63

Launch vehicles and missiles. M. W. Hunter, 2d and others. il Astronautics & Aerospace Eng 1:46-53 N '63

LEM; first true spaceship. S. Barnes. il diags Machine Design 36:112-17 Je 4 '64

Space-vehicle service system. Franklin Inst J 276:454 N '63

Spacecraft and life systems. P. K. Eckman and W. M. Helvey. il diag Astronautics & Aerospace Eng 1:20-8 N '63

Spacecraft; Grumman's LEM (Lunar Excursion Module). il diags Product Eng 35:47-8 Ap 13 '64

Auxiliary power

Accessory systems; fluid power. R. J. Dawson. diags Space/Aeronautics 42 no 4:109-12 '64-65

Accessory systems; power supplies. F. Schulman and others. Space/Aeronautics 42 no 4: 101-5 '64-65

Advanced solar cells. L. D. Massie. bibliog il diags Space/Aeronautics 42:60-5 S '64

Advanced solar plates are cheaper, more compact. il diag Space/Aeronautics 41:101 My '64

Advanced technology for space reactors; special report. bibliog il diags Nucleonics 22: 33-48 Mr '64

Aerospace in perspective; advanced research. il diags Space/Aeronautics 41:156-9+ Ja '64

Bioelectric power sources. S. Barnes. il diags Machine Design 35:120-4 D 5 '63

Colloid engines designed to push substantial loads for long distances through space. il Product Eng 35:41 Ja 20 '64

First MHD motor pushes plasma around a circle. il Machine Design 36:8 Jl 30 '64

For space: the solar concentrator. T. J. McCusker. il diag Mech Eng 86:44-7 Je '64

Fuel cells. P. Roman. il diags Space/Aeronautics 42:70-5 Ag '64

Fuel cells for use in space have solid electrolyte. il Westinghouse Eng 24:31 Ja '64

High power and endurance prime needs for spacecraft auxiliaries. W. E. Crane and others. il diags S A E J 72:63-9 Ag '64

Magnetocaloric power. E. L. Resler, jr. and R. E. Rosensweig. diags AIAA J 2:1418-22 Ag '64

Mapping Mars. il Mech Eng 85:66 N '63

New production of non-weapon material. Franklin Inst J 276:541-2 D '63

Optimization of window-type filters for silicon solar cells. R. J. Romagnoli. AIAA J 2:101-3 Ja '64

Re-examination of gas-cycle nuclear-electric space powerplants. J. Grey and P. M. Williams. bibliog diags AIAA J 1:2801-11 D '63

Regenesis. diags Comp Air Mag 69:16-17 My '64

Safety for nuclear-powered space vehicles. A. J. Clark, jr. il Mech Eng 86:36-9 S '64

Small three-element fuel-cell space battery produces more than two watts. il Elec Eng 82:740 D '63

SNAP-8 materials. C. M. Scheuermann and others. bibliog il diags Astronautics & Aerospace Eng 1:40-3 D '63

SNAP-50/SPUR model passes spinning-in-potassium tests. diag Machine Design 36: 12 S 24 '64

Solar cell; radiant to electrical energy. M. F. Amsterdam. diags Electro-Tech 74:54-6 S '64

Space nuclear reactor safety. il Mech Eng 85:66-7 N '63

Space power system; state of the art, 1963. J. M. Teem and G. C. Szego. Astronautics & Aerospace Eng 1:98-103 N '63

Sun power from Sunflower; aluminum and silicon-oxide films deposited in same vacuum cycle. L. W. Collins, jr. il diag Mach 70:95-100 Ja '64

Vapor pressures of Rankine-cycle fluids. G. C. Szego. Nucleonics 21:158 Ag '63

Control

Aerospace in perspective: control. il diags Space/Aeronautics 41:138-55 Ja '64

All-attitude display for Apollo command module. il Space/Aeronautics 41:99 My '64

All-mechanical actuator for high temperatures. E. P. Tomaszek. diag Space/Aeronautics 41:261 Ja '64

Apollo guidance and navigation nears production. il Control Eng 10:23-4 N '63

Digital techniques for an attitude-control system. C. S. Burlingham and H. C. Daubert, jr. diags Electro-Tech 73:34-8 Ap '64

Docking dynamics for rigid-body spacecraft. C. Grubin. bibliog diags AIAA J 2:5-12 Ja '64

Explicit guidance concept. E. E. Markson. AIAA J 1:2630-1 N '63

Flight control. C. L. Seacord. diags Space/Aeronautics 42 no 4:66-9 '64-65

Flight control for manned spacecraft. C. L. Seacord. il diags Space/Aeronautics 40:72-80 N '63

Gemini data will come in rivers to Houston. M. J. Murphy. il Control Eng 11:21-2 Jl '64

Gemini rendezvous radar. B. H. Vester. il diags Westinghouse Eng 24:19-23 Ja '64

Guidance and control. R. C. Langford. il diags Astronautics & Aerospace Eng 1:114-17 N '63

High-capacity reaction-wheel attitude control. M. L. Dertouzos and J. K. Roberge. bibliog il diags IEEE Trans Applications & Ind p99-104 Mr '64

Interrogator circuit can tell good data from bad. M. Merlen and D. Grossman. diags Electronics 37:58-9 Jl 13 '64

Longitudinal maneuvers in supercircular reentry. T. G. Sanial. diags Astronautics & Aerospace Eng 1:70-6 D '63

Mach 8 to 22 studies of flow separations due to deflected control surfaces. D. S. Miller and others. bibliog il AIAA J 2:312-21 F '64

New approach to gravitational gradient determination of the vertical. J. W. Diesel. bibliog diags AIAA J 2:1189-96 Jl '64

Optimal control of self-adjoint systems. M. Athans and others. bibliog diags IEEE Trans Applications & Ind 83:161-6 My '64

Optimal measurement and velocity correction programs for midcourse guidance. W. F. Denham and J. L. Speyer. bibliog AIAA J 2:896-907; Discussion. R. J. Fitzgerald. 2: 968-9 My '64

Results of space docking tests. Engineering 196:768 D 13 '63

Second variation test for singular extremals. H. J. Kelley. bibliog AIAA J 2:1380-2 Ag '64

Simulation of space vehicle with reaction jet control system. J. P. Landauer. il diags Instruments & Control Systems 37:130-4 F '64

Some thoughts on guidance systems. W. H. Pickering. il map Astronautics & Aeronautics 2:70-3 Ja '64

Terminal guidance technique for lunar landing. S. J. Citron and others. bibliog diags AIAA J 2:503-9 Mr '64

Velocity sensing for spacecraft docking. R. Zito, jr. diags Space/Aeronautics 40:90-3 D '63

Zero angle-of-attack sensor. A. E. Fuhs and J. A. Kelly. diag AIAA J 2:1492-3 Ag '64

Cooling

Optimization study of space radiators. I. Rubin and M. Imber. bibliog diags AIAA J 2:353-8 F '64

Thermal emittance of materials for spacecraft radiator coatings. R. J. Hayes and W. H. Atkinson. il Am Cer Soc Bul 43:616-21 S '64

SPACE vehicles—*Continued*

Design

Dynamics and structures; spacecraft and missile structure. C. C. Gage. diags Space/Aeronautics 42 no 4:20-1 '64-65
Entry into planetary atmospheres. L. Roberts. bibliog il diags Astronautics & Aeronautics 2:22-9 O '64
Flight control for manned spacecraft. C. L. Seacord. il diags Space/Aeronautics 40:72-80 N '63
Long-life space designs are out of this world. bibliog il diags S A E J 72:76-85 N '64
Maneuverable spacecraft. il Mech Eng 86:45 Ja '64
Mariners buddy-up for the first trip to Mars. il Machine Design 36:6 S 10 '64
New lubricants. R. L. Adamczak and others. diags Space/Aeronautics 41:104-8 Je '64
Radiation heat transfer in semigray enclosures with specularly and diffusely reflecting surfaces. R. P. Bobco. bibliog diags A S M E Trans ser C 86:123-30 F '64
Reusable launch vehicles. W. G. Osmun. il diags Space/Aeronautics 42:43-51 S '64
Sealing techniques for rotation in vacuum. W. Courtney and others. bibliog diags Astronautics & Aeronautics 2:40-4 F '64
Structural dynamics. W. R. Laidlaw. bibliog Astronautics & Aerospace Eng 1:118-20 N '63
Structural synthesis capability for integrally stiffened waffle plates. L. A. Schmit, jr. and others. bibliog diags AIAA J 1:2820-36 D '63
Structures and materials. R. R. Heldenfels and A. Hurlich. il diags Astronautics & Aerospace Eng 1:75-8 N '63

Electric equipment

Cobalt-base alloys for space-power systems. J. C. Freche and others. bibliog il J Metals 15:928-34 D '63
Computer to count on; hybrid integrated circuits are making the guidance computer for Saturn V. il diags Electronics 37:82-4 N 2 '64
Integrating spacecraft electronics. A. B. Whitaker and C. Schuhlein. bibliog diags Space/Aeronautics 42:53-9 Ag '64
Power generation and conditioning for SNAP. N. W. Bucci and R. W. Briggs. diags Nucleonics 22:51-4 Je '64
Quality defects; principal cause of failure. G. A. Raymond. il Space/Aeronautics 42:80+ Ag '64
Ranger VII success story. il Product Eng 35:59-60 Ag 17 '64
Reliability. P. Alelyunas. bibliog il diags Space/Aeronautics 42:48-55 O '64
Space-borne recorder triples packing density. A. S. Katz. il diags Electronics 37:84-8 Ag 24 '64
Superconducting coils. R. H. Levy and Z. J. J. Stekly. bibliog il Astronautics & Aeronautics 2:30-8 F '64
Wire and cable insulation problems of space vehicles. L. D. Walker. Wire & Wire Prod 39:401+ Mr '64

Electronic equipment

Bringing microelectronics to spacecraft. C. Husson. il Astronautics & Aeronautics 2:29-33 Ap '64
Drive-brake circuit positions ultraviolet spectrometer in spacecraft. T. Callahan and A. Vuozzo. diags Electronics 37:47-9 Mr 13 '64
Electronic design for nuclear space vehicles. D. J. Niehaus and F. Larin. bibliog diags Nucleonics 22:85-6+ My '64 (to be cont)
New displays for space flight. R. Lovell. il diags Electronics 37:42-3 F 21 '64
Tape speed matches data rate in stepping tape recorder. diag Space/Aeronautics 42:85 Jl '64
26 steps to the moon. J. A. Strasser. il map Electronics 37:93-4+ Je 29 '64
Using microcircuits in high-resolution range counters. L. C. Drew. il diags Electronics 36:31-3 N 22 '63

Environmental control systems

Accessory systems; environmental control. B. H. Rowlett and R. H. Lee. Space/Aeronautics 42 no 4:106-9 '64-65
Apollo's drinking water. il Comp Air Mag 69:18 S '64
Clean air in space; subs show how; abstract. J. R. Kinsey and J. M. Wissel. S A E J 72:86 F '64
Device to automatically control atmosphere. Franklin Inst J 277:183-4 F '64
Environmental control system for Apollo uses pure oxygen at five psia. R. C. Nonoshita. diag Space/Aeronautics 42:69-70+ S '64
Humans are the subjects in aerospace life-support test. Chem Eng 71:102 My 11 '64
Life support; next generation. M. G. Del Duca and others. il diags Space/Aeronautics 41:84-91 Je '64
Linear programming for life support optimization. N. W. O'Rourke. AIAA J 1:2852-3 D '63
Living in space. S. Barnes. il diags Machine Design 36:90-4 Ja 30 '64
Man, space, and life support systems. il diags Chem & Eng N 42:78-82+ Ap 27 '64
Monitoring spacecraft atmospheres by spectrophotometry. E. S. Watson. diags Space/Aeronautics 41:94-6+ Mr '64
Space capsule waste treatment and potable water recovery. W. T. Ingram and others. diags WPCF J 36:38-50 bibliog(p49-50) Ja '64
Space environment. P. D. Gray. Chem Eng Prog 60:35-6 F '64

Equipment

Aerospace pushes, is pushed by instruments; American institute of aeronautics and astronautics. 1st meeting, Washington. I S A J 11:22+ Ag '64
Application of semiconductor optical radiators to space communication. B. S. Goldstein and J. D. Welch. bibliog diags IEEE Trans Com & Electronics 83:470-3 S '64
Automatic checkout. O. T. Carver. Space/Aeronautics 42 no 4:229-31 bibliog(p239) '64-65
Auxiliary equipment (cont). il Aircraft Eng 36:152, 224, 256, 294 My, Jl-S '64
Boiling potassium reactor for space. A. P. Fraas. diag Nucleonics 22:72+ Ja '64; Discussion. H. R. Kroeger. 22:6-7 Mr '64
Cafeteria for chimps. il diag Product Eng 35:42-3 Je 8 '64
Counterbalance system for dynamic testing of equipment designed to operate in a zero-g field. J. C. Nicklas. diags A S M E Trans ser D 86:91-6 Mr '64
Cryogenic storage system for space vehicles. Franklin Inst J 277:98-9 Ja '64
Dry film lubrication of highly loaded bearings in vacuum. E. C. McKannan and K. E. Demorest. il Lub Eng 20:134-41 Ap '64
Expeller bladders for space vehicles. J. Vanderbur. il diag Space/Aeronautics 41:95+ My '64
First meteoroid-penetration data for SNAP designers. C. T. O'Aiutolo. bibliog il diags Nucleonics 21:51-5 N '63
Information storage for Apollo. il Product Eng 35:57 S 28 '64
Long-life space designs are out of this world. bibliog il diags S A E J 72:76-85 N '64
Miniature closed-cycle cooler produces 25°K reliably. C. R. Whetstone. il diags Electronics 36:46-7 D 27 '63
Nuclear space projects face up to safety problems. H. L. Davis. bibliog Nucleonics 21:41-5 D '63
Propellant gaging system for Apollo spacecraft. E. Ulicki. il diags Space/Aeronautics 42:68+ O '64
Radionuclide power for space; generator performance and mission prospects. F. Schulman. bibliog il diag Nucleonics 21:54-8 S '63
Review of techniques for investigation of friction and wear in aerospace ball and roller bearings. L. C. Lipp and E. N. Klemgard. bibliog il Lub Eng 19:495-502 D '63
Sectioned pole unfolds into space. il diags Machine Design 36:170-1 Je 18 '64
Shielding isotopic power sources for space missions. J. P. Nichols and E. D. Arnold. bibliog Nucleonics 22:52-6 F '64
Space tool corrals bucking torque. diags Iron Age 193:57 Ja 23 '64
Technique for minimizing the specific weight of a finned beryllium space radiator. B. S. Leo. diag AIAA J 1:2847-8 D '63
Temperature control of a space vehicle instrument unit. F. Huneidi. diag ASHRAE J 6:80-2 My '64
See also
Radio apparatus on space vehicles

Failure

Annual aerospace reliability and maintainability conference. 3d, Washington. S A E J 72:100-3 S '64

Hydraulic equipment

New flared tube fitting cuts leakage. R. E. Robertson and W. F. Britt. S A E J 72:85 Ap '64
Saturn V fueldraulic gimbal system. J. B. Gayle. il diags Hydraulics & Pneumatics 16:69-71 D '63

SPACE vehicles—*Continued*

Landing

Dynamic analysis for lunar alightment. A. P. Cappelli. il diags AIAA J 1:1119-25 My '63; Discussion. R. E. Lavender. 1:2196-7 S '63; Reply. 2:412-13 F '64

Four-beam landing radar set for LEM. J. A. Strasser. il diags Electronics 37:70-2 F 7 '64

Lunar landing research vehicle simulates moon-gravity descent. il Space/Aeronautics 42:73+ S '64

Lunar landing will be made at Langley. il diag Machine Design 36:6 Jl 2 '64

Minimum lift-drag ratio required for global landing coverage. R. A. Wallace and W. A. Gray. diags AIAA J 1:2635-6 N '63

New Mars-atmosphere data changes thinking on landing-vehicle design. Machine Design 36:12 Mr 12 '64

Optimum translation and the brachistochrone. R. K. Cheng and D. A. Conrad. AIAA J 1:2845-7 D '63

Terminal guidance technique for lunar landing. S. J. Citron and others. bibliog diags AIAA J 2:503-9 Mr '64

Vernier exhaust perturbations on radar and altimeter systems during a lunar landing. P. Molmud. bibliog diag AIAA J 1:2816-19 D '63

Launching

Aluminum room protects spacecraft. il Mod Metals 20:63 Ag '64

Aluminum white room protects Gemini space capsule from contamination. il Light Metal Age 22:27 Ag '64

Assessing reusable space vehicles. H. H. Koelle. il Astronautics & Aeronautics 2:48-52 Je '64

Blue Streak static firings; summary of progress October 1960 to October 1962. C. R. Hume. il diags Roy Aeronautical Soc J 68:35-44 Ja '64

Casting properties tailored for job. il Steel 155:78+ Jl 13 '64

Design analysis of earth-lunar trajectories; launch and transfer characteristics. J. E. Michaels. bibliog diags AIAA J 1:1342-50 Je '63; Discussion. R. L. Robertson. 2:969-71 My '64

ELDO launcher. Engineer 216:856 N 22 '63

Future unmanned exploration of the solar system. M. W. Hunter, 2d. bibliog Astronautics & Aeronautics 2:16-26 My '64

Hydraulic ground support for Saturn V. R. M. Arther. diags Hydraulics & Pneumatics 16:75-7 D '63

In-plane lunar injection opportunities from an orbiting space station. W. R. Wells. AIAA J 2:383-4 F '64

Launch vehicle support. G. Von Tiesenhausen. Space/Aeronautics 42 no 4:225-7 bibliog(p234+) '64-65

Liquid engines for advanced launch vehicles. H. Burlage, jr. il diags Astronautics & Aeronautics 2:42-8 Jl '64

Lunar gap narrowed by Centaur success. il diags Machine Design 36:88-93 Ja 2 '64

Mapping the course for the moon trip. R. F. Hoelker and N. J. Braud. il diags Astronautics & Aeronautics 2:16-23 F '64

Nexus concept. K. A. Ehricke and F. D'Vincent. il diags Astronautics & Aeronautics 2:18-23+ Ja '64

Optimum launching to hyperbolic orbit by two impulses. S. Lubard. diag AIAA J 1:2858-9 D '63

Reliability. P. Alelyunas. bibliog il diags Space/Aeronautics 42:48-55 O '64

Reusable launch vehicles. W. G. Osmun. il diags Space/Aeronautics 42:43-51 S '64

Saturn V launch environment and ground support equipment design. D. D. Buchanan. bibliog il plans diags Astronautics & Aeronautics 2:30-9 Mr '64

Saturn propulsion improvements. B. K. Heusinger. il diags Astronautics & Aeronautics 2:20-5 Ag '64

Sizing nuclear orbital launch vehicles for interplanetary missions. J. F. McLaughlin. bibliog il Astronautics & Aeronautics 2:70-6 F '64

Spaceport spawns superlatives. A. H. Bagnulo. il diags S A E J 72:36-7 Je '64

Steel sand castings capture aerospace applications. il Foundry 92:72-5 My '64

Load

Dynamic loads due to wind shear. B. E. Clingan. bibliog diags AIAA J 2:76-83 Ja '64

Maintenance and repair

Astronaut tool's floating motor minimizes reaction torque. il diags Machine Design 36:154-5 F 13 '64

In-space support. S. I. Firstman. Space/Aeronautics 42 no 4:227-9 '64-65

Space tools come down to earth. T. Murray. il diags Am Mach 108:148E Ap 13 '64

Unmanned tender would handle general maintenance in space. il Machine Design 36:8 O 22 '64

Manufacture

Advanced welding for space. W. S. Jones and W. D. Matthews. il Am Mach 108:90-2 O 12 '64

Improvement of gas metal-arc spot welds. S. A. Agnew and W. N. Canulette. il diags Welding J 43:sup 184-92 Ap '64

Stretching for space; segments for Saturn. J. B. Devine. il diags Tool & Manuf Eng 52:61-3 My '64

Materials

Bearings for space. Product Eng 35:50 S 28 '64

Beryllium structures. R. N. Kelly. il diag Space/Aeronautics 42:64-73 Jl '64

Ceramics for space application; symposium abstracts. Am Cer Soc Bul 43:331+ Ap '64

Charring ablator test. Mech Eng 86:44 Ja '64

Cobalt-base alloys for space-power systems. J. C. Freche and others. bibliog il J Metals 15:928-34 D '63

Cryogenics plus demands of outer space trigger new insulation systems. S. Elonka. il diag Power 108:sup 14-15 Mr '64

Cutting the space age metals down to size. C. J. Vlahos. il Mill & Factory 75:75-8 O '64

Development of weld fabrication techniques for the S-IC Saturn V vehicle. D. M. Daley, jr. and D. C. Jefferys. il Welding J 43:34-41 Ja '64

Ductile beryllium-aluminum alloys broaden potential uses. R. W. Fenn, jr. and D. D. Crooks. Space/Aeronautics 42:73+ O '64

Gelatin: new space age material. Plastics Tech 10:58 F '64

Grease lublicants and their potential in aerospace applications. H. Schwenker. bibliog Lub Eng 20:260-4 Jl '64

Heat treatment of René 41. J. T. Stacy. il Metal Prog 85:92-5 Mr '64

High-temperature materials. I. Stambler. diags Space/Aeronautics 40:81-7 N '63

Manned spacecraft material problems. J. N. Kotanchik. il diags Astronautics & Aeronautics 2:12-17 Jl '64

Materials. bibliog Space/Aeronautics 42 no 4:147-65+ '64-65

Materials and processing, what does the aerospace industry need? R. G. Dermott. Metal Prog 85:74-83 Mr '64

Matrix reinforced thermal protective system. S. Rovin and others. bibliog il diags Welding J 43:sup329-36 Jl '64

Methods for determining thermal radiation properties of materials developed. Franklin Inst J 276:544-5 D '63

NASA outlines its toughest space materials problems; seeks solutions. diags Steel 153:70-2 N 18 '63

New materials; aircraft, missile or space vehicle applications (cont). il Aircraft Eng 36:154, 225, 258 My, Jl-Ag '64

Nuclear and space ceramic research; special report. A. C. Allen. il Cer Ind 83:31-43 O '64

Refractory metals for thermal-protection systems. E. E. Mathauser. bibliog il Astronautics & Aeronautics 2:66-9 Jl '64

Society of aerospace materials and process engineers rubber symposium. Rubber World 150:88 Ag '64

Solar simulation for testing. A. E. Mann and F. N. Benning. diags Electro-Tech 74:60-4 O '64

Space age machining breaks size barrier. R. H. Eshelman. il Iron Age 194:103 Ag 27 '64

Stress-strain distribution during transient heating of a transversely anisotropic material. B. H. Suzuki and J. Frisch. bibliog il A S M E Trans ser D 85:569-78 D '63

Structures and materials. R. R. Heldenfels and A. Hurlich. il diags Astronautics & Aerospace Eng 1:75-8 N '63

Thermal emittance of materials for spacecraft radiator coatings. R. J. Hayes and W. H. Atkinson. il Am Cer Soc Bul 43:616-21 S '64

Wood for spacecraft nose cones. D. C. Hollman. diag Space/Aeronautics 40:97-8 D '63

SPACE vehicles—Materials—*Continued*

Plastics

Applications of plastic materials in aerospace; symposium series abstracts. il Chem Eng Prog 60:72+ Ap '64

Behavior of plastics in space environments. A. F. Ringwood. Mod Plastics 41:173-4+ Ja '64

Mechanical spallation of charring ablators in hyperthermal environments. R. D. Mathieu. bibliog diag AIAA J 2:1621-7 S '64

Plastics. E. J. Zeilberger. Space/Aeronautics 42 no 4:159-62 '64-65

State-of-the-art and new developments in transparent materials. R. E. Wittman. Machine Design 36:286+ Ap 23 '64

Thermal stability of polymers for space. il Engineering 197:462-3 Mr 27 '64

Orbits

Aerospace in perspective; exploration. il diags Space/Aeronautics 41:106-21 Ja '64

Analysis of two-impulse orbital transfer. G. Lee. bibliog diags AIAA J 2:1767-73 O '64

Error propagation in astro-inertial guidance systems for low-thrust missions. H. M. Dusek. bibliog AIAA J 2:879-84 My '64

Exact two-body error sensitivity coefficients. K. C. Kochi. AIAA J 2:1502-4 Ag '64

Extension of *f* and *g* series to non-two-body forces. R. M. L. Baker, jr. AIAA J 2:1337-9 Jl '64

Matrix methods in the calculation and analysis of orbits. J. M. A. Danby. AIAA J 2:13-16 Ja '64

Optimal variable-thrust transfer of a power-limited rocket between neighboring circular orbits. F. W. Gobetz. bibliog diags AIAA J 2:339-43 F '64; Correction. 2:2236-7 D '64

Optimum launching to hyperbolic orbit by two impulses. S. Lubard. diag AIAA J 1:2858-9 D '63

Optimum planar circular orbits transfer. A. H. Jazwinski. AIAA J 1:2674-5 N '63

Property of cotangential elliptical transfer orbits. N. X. Vinh. diags AIAA J 2:1841-4 O '64

Solution of variational problems by means of a generalized Newton-Raphson operator. R. McGill and P. Kenneth. bibliog diag AIAA J 2:1761-6 O '64

See also
Trajectories

Protection

Analysis of an electrostatic shield for space vehicles. F. H. Vogler. bibliog diags AIAA J 2:872-8 My '64

Dust wall helps shield spacecraft from meteoroids. Franklin Inst J 276:575 D '63

Effective heat of ablation of graphite. E. P. Bartlett. AIAA J 2:171-3 Ja '64

Foaming bulkheads may plug punctures in spacecraft. il Machine Design 36:14 Jl 30 '64

Matrix reinforced thermal protective system. S. Rovin and others. bibliog il diags Welding J 43:sup329-36 Jl '64

Plasma radiation shielding. R. H. Levy and G. S. Janes. bibliog diags AIAA J 2:1835-8 O '64

Polymeric heat shields in space; abstract. C. K. Chicklis. Rubber World 149:82 F '64

Probability of meteoroidal penetration. F. B. Shaffer. bibliog AIAA J 2:738-42 Ap '64

Proton fluxes along low-acceleration trajectories through the Van Allen belt. F. J. Hrach. bibliog AIAA J 2:762-4 Ap '64

Thermal insulations for manned spacecraft. J. O. Collins and E. F. Briggs. Space/Aeronautics 41:95 F '64

Three-layer dimples shield spacecraft from heat. il Machine Design 35:10 D 19 '63

Recovery

Advanced orbital payload recovery techniques studied; abstract. F. R. Gross and K. M. King. S A E J 72:104-5 Ja '64

Analysis of air arc-tunnel heat-transfer data. D. E. Rosner. bibliog AIAA J 2:945-8 My '64

Angle of attack from body-fixed rate gyros. E. O. Nelson. diag AIAA J 2:1324-5 Jl '64

Assessing reusable space vehicles. H. H. Koelle. il Astronautics & Aeronautics 2:48-52 Je '64

Astro concept. M. W. Root and G. M. Fuller. il diags Astronautics & Aeronautics 2:42-9+ Ja '64

Astroplane concept. J. C. Moise and others. il Astronautics & Aeronautics 2:35-9+ Ja '64

Blown-up fairing passes wind-tunnel tests. il Machine Design 36:14 Ag 27 '64

Brazing of columbium D36 honeycomb structures. A. H. Freedman and E. B. Mikus. bibliog il diag Welding J 43:sup385-92 S '64

Capsule enters atmosphere at home-from-the-moon speed. diag Machine Design 36:14 My 7 '64

Centrifugal hypersonic wind tunnel facility for investigating effects of inertia on ablating bodies. J. S. Ford, 2d and W. H. Horton. bibliog flow diag il diags Roy Aeronautical Soc J 67:745-53 D '63

Chemical and vibrational relaxation of an inviscid hypersonic flow. A. D. Wood and others. bibliog diag AIAA J 2:1697-705 O '64

Choosing optical properties of noncharring ablators L. E. Hooks. AIAA J 1:2640-2 N '63

Determination of extreme entry angles into a planetary atmosphere. J. Warga and W. C. Hailey. diags AIAA J 2:335-8 F '64

Dynamics and structures; re-entry. W. A. Page. Space/Aeronautics 42 no 4:13-16 '64-65

Effect of argon addition on shock-layer radiance of Co_2-N_2 gas mixtures. F. Wolf and T. Horton. bibliog AIAA J 2:1472-4 Ag '64

Entry-communications problem. P. W. Huber and T. E. Sims. bibliog il diags Astronautics & Aeronautics 2:30-8+ O '64

Entry into planetary atmospheres. L. Roberts. bibliog il diags Astronautics & Aeronautics 2:22-9 O '64

Entry vehicles. J. V. Becker. il diags Astronautics & Aerospace Eng 1:70-4 N '63

Equilibrium electron density on Mars. E. D. Shane. AIAA J 2:1497-9 Ag '64

Experimental heat-transfer studies of hypervelocity flight in planetary atmospheres. J. S. Gruszczynski and W. R. Warren, jr. bibliog il diags AIAA J 2:1542-50 S '64

Experimental study of radiative transport from hot gases simulating in composition the atmospheres of Mars and Venus. C. S. James. bibliog il diags AIAA J 2:470-5 Mr '64

General theory on space and re-entry similar trajectories. L. Broglio. bibliog diags AIAA J 2:1774-81 O '64

Insulation requirements for long-time low-heat rate environments. D. M. Tellep and T. D. Sheppard. AIAA J 1:1670-1, 2872 Jl. D '63

Longitudinal maneuvers in supercircular re-entry. T G. Sanial. diags Astronautics & Aerospace Eng 1:70-6 D '63

Manned maneuverable reentry. I. Stambler. il diags Space/Aeronautics 41:44-52 My '64

Metal fabrics for the deceleration of re-entry vehicles. W. D. Freeston and J. W. Gardella. il Am Dyestuff Rep 53:370-5 My 11 '64

New communication system to penetrate plasma sheath. Franklin Inst J 276:574 D '63

Nonequilibrium, nonsimilar solutions of the laminar boundary-layer equations. A. J. Pallone and others. bibliog AIAA J 2:1706-13 O '64

Odd vehicle proposed for landing crew from Mars. il Machine Design 36:6 Ja 30 '64

Paraglider lift nears ideal. C. R. Faulders and G. M. Minott. diags S A E J 72:82 F '64

Passive insulations for reentry vehicles. M. L. Minges. Space/Aeronautics 42:78+ Jl '64

Potential of recoverable booster systems for orbital logistics. R. A. Bailey and D. L. Kelly. diags Astronautics & Aeronautics 2:54-7+ Ja '64

Production of intense radiation heat pulses. J. F. Louis and others. bibliog il diag AIAA J 2:156-9 Ja '64

Project FIRE blazes trail for Apollo re-entry. F. D. Linzer and E. Kaplan. il diags S A E J 71:76-8 D '63

Radiative and convective heating during hypervelocity re-entry. R. M. Nerem and G. H. Stickford. bibliog AIAA J 2:1156-8 Je '64

Radiative vs. convective heat fluxes for Martian entry. M. G. Boobar and R. M. Foster. bibliog Astronautics & Aerospace Eng 1:30-5 D '63

Re-entry heat conduction of a finite slab with a nonconstant thermal conductivity. W. R. Wells. AIAA J 2:379-81 F '64

Reentry plasma sheath. diag Space/Aeronautics 41:53-7 My '64

Research model to study re-entry problems. Engineering 196:831 D 27 '63

Rotary-wing recovery systems are feasible; abstract J. J. Barzda and E. R. Schultz. S A E J 72:104 Ja '64

SPACE vehicles—Recovery—*Continued*

Series solution of equations for re-entry vehicles with variable lift and drag coefficients. Y. C. Shen. bibliog diag AIAA J 1:2487-90 N '63

Shock-layer radiation for sphere-cones with radiative decay. J. H. Chin and L. F. Hearne. bibliog AIAA J 2:1345-7 Jl '64

Skip-impact criteria of a re-entry trajectory with negative lift. C. J. Ruger. AIAA J 2:585-7 Mr '64

Speed and heat of re-entry simulated in NASA chamber. il diag Steel 154:110 Ap 20 '64

Zero angle-of-attack sensor. A. E. Fuhs and J. A. Kelly. diag AIAA J 2:1492-3 Ag '64

Re-entry

See Space vehicles—Recovery

Safety measures

Nuclear space projects face up to safety problems. H. L. Davis. bibliog Nucleonics 21:41-5 D '63

Safety for nuclear-powered space vehicles. A. J. Clark, jr. il Mech Eng 86:36-9 S '64

Stability

Liquid sloshing in a cylindrical quarter tank. H. F. Bauer. bibliog diags AIAA J 1:2601-6 N '63

Liquid sloshing in a 45° sector compartmented cylindrical tank. H. F. Bauer. AIAA J 2:768-70 Ap '64

Plasma sheath transducer for axisymmetric re-entry vehicles. A. E. Fuhs and O. L. Gibb. bibliog il AIAA J 2:773-5 Ap '64

Stabilizing flexible vehicles. R. E. Andeen. bibliog diags Astronautics & Aeronautics 2:38-44 Ag '64

Testing

Automatic checkout. O. T. Carver. Space/Aeronautics 42 no 4:229-31 bibliog(p239) '64-65

Centaur's third flight. il Machine Design 36:10 Jl 2 '64

Exploring new manned spacecraft concepts. V. W. Horton and others. il diags Astronautics & Aeronautics 2:42-7 My '64

Failure analysis system. il Product Eng 35:52-3 Ag 17 '64

Fluoroscoping spacecraft flaws. Mach 71:136 O '64

High-speed X-ray films probe parts in motion. L. A. Milton. il Am Mach 108:148F-148H Ap 13 '64

Man-made lightning. Franklin Inst J 276:574 D '63

Solar simulation for testing. A. E. Mann and F. N. Benning. diags Electro-Tech 74:60-4 O '64

Space simulator tests manned-flight craft. il Iron Age 192:50 N 21 '63

Testing and instrumentation. bibliog diags Space/Aeronautics 42 no 4:187-202+ '64-65

Testing for 100 per cent reliability. R. H. Eshelman. il Iron Age 193:66-7 My 28 '64

Thermocouple for vacuum tests minimizes errors. R. C. Turner and G. D. Gordon. diag Space/Aeronautics 41:256 Ja '64

Tracking

Atmospheric chemistry and aerodynamic flow. G. S. Canetti and H. Cheung. diag Chem Eng Prog 60:36-8 F '64

Automatic spacetracking era begins. T. Maguire. il Electronics 37:24-5 F 14 '64

C-band radarbeacon tracking for Project Mercury. B. H. Labitt. bibliog diags IEEE Trans Com & Electronics p647-56 N '63

Estimation of the autocorrelation functions of radio tracking errors. R. R. Hunziker. AIAA J 2:1135-6 Je '64

Injection-laser systems for communications and tracking. C. M. Johnson. bibliog il diags Electronics 36:34-9 D 13 '63

Laser lighthouses for satellites and space vehicles in outer space. Electronics 37:28+ Ag 24 '64

Nerve center for space probes. R. Lovell. il Electronics 37:95-7 Ag 24 '64

Saturn launch will trigger biggest tracking test. J. A. Strasser. il Electronics 36:10-11 D 6 '63

Tracking and surveillance. R. Cheetham and W. Weinstock. Space/Aeronautics 42 no 4:72-5 '64-65

Tracking performance of the Mercury quad-helix acquisition aid. J. G. Barry and G. F. Dalrymple. bibliog il diags IEEE Trans Com & Electronics p657-63 N '63

Trends in space-vehicle test ranges. F. A. Speer. bibliog il diags Astronautics & Aeronautics 2:50-7 Jl '64

Vibration

Vibration and shock testing. M. Gertel. diags Space/Aeronautics 42 no 4:191-6 '64-65

Vibrational characteristics of thin-wall conical frustum shells. J. D. Watkins and R. R. Clary. diags AIAA J 2:1815-16 O '64

SPACECRAFT. See Space vehicles

SPAIN

See also subdivision Spain under special subjects, e.g.

Architecture
Chemical industries
Hydroelectric plants
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Roads
Textile industry

SPALLING (metals). See Metals—Wear

SPANISH WEST AFRICA

See also

Geology—Spanish West Africa

SPARK, Electric. See Electric spark

SPARK chambers

Cold-cathode gas tubes switch high voltage fast. R. E. Daniels and A. D. Cook. il diag Electronics 37:72-3 Ap 20 '64

Electron attachment in a neon spark chamber. J. U. Burnham and M. G. Thompson. J Sci Instr 41:108-10 F '64

High voltage pulse probe of fast rise time for spark chambers. J. Fischer. il R Sci Instr 35:125-6 Ja '64

Recent progress in spark chamber technology. A. Roberts. bibliog il Nucleonics 22:68-71 My '64

Spark chamber and magnet system for photographing cosmic-ray tracks at balloon altitudes. J. A. DeShong, jr. and others. bibliog il diags R Sci Instr 35:1035-9 Ag '64

Spark chamber data-handling system using television cameras. H. L. Anderson and A. Barna. il diags R Sci Instr 35:492-5 Ap '64

Spark chamber finds antiparticle electrons. P. Meyer. Electronics 37:78 F 7 '64

Spark chamber techniques at CERN. Engineering 197:591-2 Ap 24 '64

SPARK cutting. See Electric cutting

SPARK gap

Analysis of pre-breakdown current pulses in gas discharge gaps. D. T. A. Blair and others. bibliog diags Inst E E Proc 110:2073-81 N '63

Application of predischarge currents of parallel electrode gaps. C. F. Wagner. bibliog diags IEEE Trans Power Apparatus & Systems 83:931-44 S '64

Effect of gas flow on post-arc gap recovery. A. B. Shaw and D. Whittaker. bibliog diags Inst E E Proc 111:193-202 Ja '64

Effects of negative ion space charge formation on nonuniform air gaps. W. A. Hixson and R. L. Hoffman. diag Elec Eng 82:710-16 D '63

Electric breakdown of long gaps in transformer oil. A. M. Sletten and T. W. Dakin. diags IEEE Trans Power Apparatus & Systems 83:457-9 My '64

Exploding wire triggered spark gap. R. A. Harraway. diag J Sci Instr 41:399 Je '64

Improved high voltage spark gap, requiring zero energy to trigger. O. E. Smith. diags R Sci Instr 35:134 Ja '64

Public service co. of Indiana trying pipe gap arresters on 230 kv. T. G. Burton. il diags Power Eng 68:41-2 Ap '64

Spark-gap trigger system. G. Schrank and others. diags R Sci Instr 35:1326-31 O '64

Sparkover characteristics of large gap spaces and long insulation springs. T. Udo. il diags IEEE Trans Power Apparatus & Systems 83:471-83 My '64

Triggered spark gap; abstract. H. Farber and others. Electronics 37:159 Je 15 '64

SPARK plugs

Another spark plug entry to save gas. Steel 155:190 O 19 '64

Arc chooses its path in a new type of spark plug. diag Machine Design 36:10 O 22 '64

Powder plus extrusion equals duplex electrode. il diags Steel 153:82+ D 16 '63

Resistance welding machines cut downspout elbow costs; speed spark plug production. il Welding Eng 49:77 N '64

Silver alloy brazing rings seal aircraft spark plugs. il Welding Eng 49:56 F '64

Surface gap ignition opens way to raise bmep of 2-stroke-cycle engines; abstract. G. H. Millar. il diag S A E J 71:85 D '63

Manufacture

Cold-forming of spark-plug shells provides 70 per cent material saving. il Mach 70:92-3 D '63

SPARKS, William J.
Esso's Sparks named Priestley medalist. por Chem & Eng N 42:28 S 7 '64
Perkin medal goes to W. J. Sparks. por Chem & Eng N 42:76 F 10 '64
Sparks awarded 1964 Perkin medal. por Rubber Age 94:948 Mr '64

SPEARMINT oil
Spearmint oil ingredients. Drug & Cosmetic Ind 95:427 S '64

SPECIALIZATION in industry
Industry is interdisciplinary. R. H. Wilcox. il Mill & Factory 74:60-73 Mr '64

SPECIALTY printing. See Printing, Specialty

SPECIES
Animal species and evolution. E. Mayr. Review, by G. L. Stebbins. bibliog Am Scientist 51:362-70 S '63; Discussion. 51:380A; Reply. 382A+ D '63

SPECIFIC gravity
Anatomical factors influencing wood specific gravity of slash pines and the implications for the development of a high-quality pulpwood. J. P. van Buijtenen. bibliog Tappi 47:401-4 Jl '64
Apparent cell-wall density of wood and pulp fibers. P. N. Yiannos. bibliog diag Tappi 47:468-71 Ag '64
Ballista or ball-throwing device for momentum and density measurements in a rotating plasma. J. G. Bannenberg and F. G. Insinger. il diags R Sci Instr 35:792-5 Jl '64
Calculations of the partial specific volumes of the constituents of ternary systems from density measurements. G. E. Molau. bibliog Anal Chem 36:2004-8 S '64
Calibration of density-measuring instruments. F. R. Gilmer and C. M. Drummond. I S A J 11:91-3 My '64
Comparisons of materials; specific gravity; tables. Materials in Design Eng 60:16-17 Mid-O '64
Densimetric method for characterizing asphalt. L. W. Corbett. bibliog diag Anal Chem 36:1967-71 S '64
Densimetry in aerosol products. W. G. Gorman and G. D. Hall. bibliog Soap & Chem Spec 40:213-14+ My '64
Densities of cadmium-rich cadmium-magnesieum solid solutions. N. Ridley. bibliog Inst Metals J 93:46-7 '64-65
Density and moisture gauges for the inventory of coal in storage. F. F. Rieke and R. A. Semmler. Combustion 35:25-7 Mr '64
Density measurement and its application to orifico metering. A. B. Hubbard. il Gas 40:72-3+ Ap '64
Density of gaseous hydrogen chloride; nomograph. A. M. P. Tans. Ind Chem 39:597 N '63
Density of wool in hydrocarbons. P. Larose. bibliog Textile Res J 34:80-1 Ja '64
Determination of the density of spherical submicrogram specimens by the terminal velocity method. R. C. Wrigley and C. E. Gleit. bibliog diag Anal Chem 36:307-9 F '64
Determination of the density of Ta, Nb, and anodically formed Ta_2O_5 and Nb_2O_5. A. J. Schrijner and A. Middelhoek. bibliog diag Electrochem Soc J 111:1167-9 O '64
Disintegration of wool at low temperature and its fractionation by density difference. J. J. Bartulovich. bibliog il Textile Res J 34:461-3 My '64
Easy way to characterize lube stocks. R. A. Woodle. Hydrocarbon Process & Pet Refiner 43:149-52 Ag '64
Effect of density on air-tunnel measurements. E. Naudascher. diag Roy Aeronautical Soc J 68:419-20 Je '64
Find propylene liquid density; nomograph. A. M. P. Tans. Hydrocarbon Process & Pet Refiner 43:126 Ag '64
High-precision density determination of natural diamonds. R. Mykolajewycz and others. bibliog diags J Ap Phys 35:1773-8 Je '64
Inheritance of specific gravity in two and three-year-old seedlings of loblolly pine. R. Stonecypher and others. Tappi 47:405-7 Jl '64
Measuring the density of polyolefins with an improved gradient column. N. Payne and C. E. Stephenson. bibliog diags Materials Res & Stand 4:3-7 Ja '64
Natural spectrum of polycrystalline YIG as a function of density. J. D. Holm and A. H. Morrish. bibliog il J Ap Phys 35:894-5 pt 2 Mr '64
Patterns of variation in specific gravity of southern pines and other coniferous species. H. L. Mitchell. bibliog il maps Tappi 47:276-83 My '64
Precision density measurement of silicon. I. Henins. bibliog diag J Res Nat Bur Stand 68A:529-33 S '64
Principles of absolute interferometry and absolute densimetry. V. T. Pillon. diag Anal Chem 36:907-12 Ap '64
Relationship between density and specific weight. R. E. Schilson and T. A. Pollard. J Pet Tech 16:657-8 Je '64
Technique for determining density distribution in low pressure, high temperature gases. C. A. Ziegler and others. il diags R Sci Instr 35:450-6 Ap '64
Variable density effects and axial dispersion in chemical reactors. J. M. Douglas and K. B. Bischoff. bibliog Ind & Eng Chem Proc Design 3:130-3 Ap '64
Volume-weight relation in frozen dessert mixes. C. Vanderzant and others. bibliog Food Tech 17:1454-7 N '63
What is specific gravity of petroleum waxes? W. L. Nelson. Oil & Gas J 62:149 My 11 '64
See also
Gravimeters
Pycnometers

SPECIFIC heat
Alternate method for vapor heat capacity. M. S. Kothari and L. K. Doraiswamy. bibliog Hydrocarbon Process & Pet Refiner 43:133-7 Mr '64
Comparisons of materials; specific heat; tables. Materials in Design Eng 60:23 Mid-O '64
Constant-volume heat capacity of gaseous tetrafluoromethane. Y. T. Hwang and J. J. Martin. bibliog A I Ch E J 10:89-91 Ja '64
Determination of specific heat and heat of fusion by differential thermal analysis. D. J. David. bibliog diags Anal Chem 36:2162-6 O '64
Dynamic method for measuring total emissivities and specific heats of electrical conductors. R. A. Pasternak and others. J Ap Phys 34:3416-17 N '63
Electronic specific heat associated with localized states in actinide metals. W. R. Scott and others. J Ap Phys 35:1092-3 pt 2 Mr '64
Estimate heat capacity for liquids: nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:115-19 F '64
Estimate heat capacity for vapors; with nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:129-32 Mr '64
High-temperature heat capacity of ferromagnets having first- and second-neighbor exchange; application to EuS. P. J. Wojtowicz. J Ap Phys 35:991-3 pt 2 Mr '64
Isothermal changes of enthalpy, entropy, and heat capacity based on modified reduced Berthelot equation. C. T. Hsu. bibliog A I Ch E J 9:854-5+ N '63
Ovalbumin's heat capacity determined. G. C. Kresheck and L. Benjamin. il Chem & Eng N 42:56+ O 26 '64
Short cut method checks specific heat at low temperatures. J. O. Thieme and R. L. Every. diag Hydrocarbon Process & Pet Refiner 43:168+ Ag '64
Specific heat and longitudinal correlation function for the Heisenberg ferromagnet. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35:946-7 pt 2 Mr '64
Specific heats of materials at low temperatures; nomographs. R. L. Peters. Materials in Design Eng 59:87 My '64
Temperature variation of gamma for various gases; a student experiment. D. J. Cronin. diag Am J Phys 32:700-4 S '64
Thin heater calorimeter. N. E. Hager, jr. diags R Sci Instr 35:618-24 My '64

SPECIFIC surface
Studies in adsorption: measurement of external specific surface of fibres by solution adsorption. C. H. Giles and A. H. Tolia. bibliog J Ap Chem 14:186-95 My '64

SPECIFIC volume
Calculations of the partial specific volumes of the constituents of ternary systems from density measurements. G. E. Molau. bibliog Anal Chem 36:2004-8 S '64

SPECIFICATIONS
ASTM specs don't restrain trade. Eng N 173:16 Jl 30 '64
Cross-indexing industry and military specifications and standards. Published in monthly numbers of Magazine of standards
Improved specifications for gypsum plastering. E. M. Lurie. il Mag of Stand 35:299-302 O '64
Military plating specifications: data sheets. Metal Prog 84:106 Ag; 106 S '63; Same cond. Mach 70:149-50 D '63; 151-2 F; 153-4 Mr '64

SPECIFICATIONS—*Continued*

Specification characteristics of pressure transducers. H. N. Norton. Instruments & Control Systems 36:91-5 D '63

Specification guardian of the public purse; editorial. V. W. Langworthy. Water & Sewage Works 111:376-7 Ag '64

Specification standards and their value. E. P. Rossman. Air Cond Heat & Ven 61:79-81 O '64

What we need is more realism in welding specs. H. Thielsch. il Welding Eng 48:48+ N '63

Writing metal finishing process specifications. W. B. Harding. bibliog Plating 51:125-8 F '64

See also
American society for testing and materials
Standards, Engineering
also subdivision Specifications under special subjects, e.g.
Air compressors
Airplane engines
Automobiles
Bituminous materials
Castings
Concrete
Construction equipment
Diesel engines
Diesel engines, Automotive
Gas turbines, Aircraft
Gearing
Hydraulic machinery
Internal combustion engines
Motor boat engines, Outboard
Motor buses
Motor trucks
Motor vehicles
Paint
Pipes, Steel
Plastics
Pneumatic machinery
Roads
Roofing
Soap
Steel, Stainless
Steel, Structural
Tubes

Bibliography

Guide to governmental assurance documentation; data sheet. W. B. Rossnagel. Machine Design 36:157-61 Ap 9 '64

SPECIFICATIONS, Government

Guide to military and federal specifications for rubber-bonding adhesives. I. Katz. Rubber Age 95:78-86 Ap '64

SPECTACLES

Allyl ester lenses. il Plastics World 22:14-15 S '64

Do you wear eyeglasses? standards for ophthalmic lenses. G. A. Fry. il diag Mag of Stand 35:259-61 S '64

Men of vision. il Plastics World 22:56 Ja '64

SPECTROGRAPH

Line shift in a spectrograph due to variations of atmospheric pressure, and a compensation method. C. G. Carlsson. diag J Sci Instr 41:475-6 Jl '64

Magnesium fluoride polarizing prism for the vacuum ultraviolet. W. C. Johnson, jr. bibliog il R Sci Instr 35:1375-6 O '64

Portable survey spectrograph. R. J. Exton and W. M. Houghton. il diag R Sci Instr 35:1370 O '64

Pyrolytic graphite spectrographic electrodes. J. B. Mooney and others. il diags Anal Chem 36:703-4 Mr '64

Safety device for variable aperture; Hilger spectrograph slits. E. Minshall. il Chem & Ind p 1270-1 Jl 11 '64

See also
Monochromators
Spectrophotometers

SPECTROGRAPHY

Amine extraction-spectrographic determination of tantalum in plutonium. R. Ko. bibliog Anal Chem 36:1290-1 Je '64

Automatic data processing, interpreting, and reporting of results of emission spectrographic analyses. D. D. Tunnicliff and J. R. Weaver. Anal Chem 36:2318-21 N '64

Automatic X-ray determination of lead and zinc in the tailings of an ore dressing plant. G. J. Sundkvist and others. diags Anal Chem 36:2091-4 O '64

Biotite mica effect in *X*-ray spectrographic analysis of pressed rock powders. A. Volborth. bibliog Am Mineralogist 49:634-43 My '64

Effect of sodium on the spectrographic determination of silicon in aluminium-silicon alloys. F. W. Smith and S. J. Williams. Metallurgia 70:45-7 Jl '64

Emission spectrographic determination of americium in plutonium. C. E. Pietri and A. W. Wenzel. bibliog Anal Chem 36:1937-9 S '64

Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64

Emission spectrographic determination of lead in powder samples with spark excitation. D. C. Hargis and G. W. Smith. bibliog Anal Chem 36:824-6 Ap '64

Emission spectrometric determination of beryllium in oilfield waters using plasma arc. A. G. Collins and C. A. Pearson. bibliog Anal Chem 36:787-9 Ap '64

Investigation of the physical properties of gases at high temperatures. K. C. Lapworth. bibliog il diags Roy Aeronautical Soc J 68:189-97 Mr '64

Laser in refractories research. il Glass Ind 45:556+ O '64

Problems of direct determination of trace nickel in oil by X-ray emission spectrography. E. L. Gunn. bibliog Anal Chem 36:2086-90 O '64

Rapid analysis of rocks by X-ray fluorescence. P. R. Hooper. bibliog Anal Chem 36:1271-6 Je '64

Rapid direct-reading spectrochemical method for the determination of trace metals in the ash from catalytic feed stocks. D. Hoggan and others. Anal Chem 36:1955-7 S '64

Silicate sample preparation for light-element analyses by X-ray spectrography. E. E. Welday and others. bibliog Am Mineralogist 49:889-903 Jl '64

Spectrochemical standards for aluminum alloys. G. P. Koch and others. il Anal Chem 36:1957-61 S '64

Spectrographic analysis of air-dried sewage sludge. R. N. Thompson and others. bibliog WPCF J 36:752-9 Je '64

Spectrographic method for determination of trace elements in milk. J. L. Voth. Anal Chem 35:1957-8 N '63

Spectrographic monitoring of inert-gas shields for atmospheric contaminants. E. L. Grove and others. bibliog il diags Welding J 43:sup 282-8 Je '64

Technique for measuring self-absorption of spectral lines in plasmas. P. J. Dickerman and R. W. Deuel. bibliog diags R Sci Instr 35:978-80 Ag '64

Trace element determinations in soils and stream sediments by an internal standard spectrographic procedure. E. F. Cruft. bibliog il Econ Geol 59:458-64 My '64

Variation of some rare earths in allanite. J. W. Frondel. bibliog Am Mineralogist 49:1159-77 S '64

X-ray spectrographic analysis of raw materials for the cement industry. J. M. M. Robinson and E. P. Gertiser. bibliog Materials Res & Stand 4:228-31 My '64

X ray unit speeds scrap analysis. M. S. Plant. il Iron Age 193:59 Ap 23 '63

SPECTROMETERS

Amplitude control in cathode follower circuit. S. Y. Feng. diags R Sci Instr 35:763-4 Je '64

Automatic frequency control for klystrons and a calibrator for microwave spectrometers. E. A. Faulkner. diag J Sci Instr 41:347-8 My '64

Conference on electron probe microanalysis, Reading, Sept. 26-27; recent advances in the instrumentation and technique of electron probe microanalysis. T. Mulvey. bibliog il diags J Sci Instr 41:61-5 F '64

Convenient break seal for the transfer of gases particularly suited to spectrometer samples. D. R. Llewellyn and C. J. O'Connor. diag Chem & Ind p52 Ja 11 '64

Direct reading vacuum spectrometer. il diags Metallurgia 69:197-9 Ap '64

Double beam spectrometer with 10-msec recording time. W. Niesel and others. diag R Sci Instr 35:579-81 My '64

Drive-brake circuit positions ultraviolet spectrometer in spacecraft. T. Callahan and A. Vuozzo. diags Electronics 37:47-9 Mr 13 '64

Epr spectrometer for studying crystals under high hydrostatic pressure. A. F. Clark and D. F. Wait. bibliog diags R Sci Instr 35:863-6 Jl '64

Fabry-Perot spectrometer for high-resolution spectroscopy and laser work. K. D. Mielenz and others. bibliog il diags J Res Nat Bur Stand 68C:1-6 Ja '64

SPECTROMETERS—*Continued*

Fluorescent compounds for calibration of excitation and emission units of spectrofluorometer. R. J. Argauer and C. E. White. bibliog Anal Chem 36:368-71 F '64

Frequency swept nuclear magnetic resonance absorption circuit. G. V. H. Wilson. diags J Sci Instr 41:436-9 Jl '64

^{3}He neutron spectrometer using pulse rise-time discrimination. A. Sayres and M. Coppola. bibliog diags R Sci Instr 35:431-7 Ap '64

Low frequency ferromagnetic resonance spectrometer. P. V. Lenzo. diags R Sci Instr 34:1374-6 D '63

Measurement and control of the magnetic field in a beta spectrometer. A. A. Bartlett and others. R Sci Instr 35:1072 Ag '64

Neutron decay spectrometer. R. A. Karam and T. F. Parkinson. diags R Sci Instr 35:600-5 My '64

New scanning spectrometer. Franklin Inst J 276:453 N '63

New type of Michelson interference spectrometer. R. S. Sternberg and J. F. James. il diags J Sci Instr 41:225-6 Ap '64

Novel millimetre wave magnetic resonance spectrometer. P. R. Elliston and others. diags J Sci Instr 40:586-8 D '63

Nmr and epr. il diags Instruments & Control Systems 36:97-102 N '63

Pulsed nuclear resonance apparatus. W. G. Clark. bibliog diags R Sci Instr 35:316-33 Mr '64

Rapid scanning infrared-gas chromatography instrument. A. M. Bartz and H. D. Ruhl. diag Anal Chem 36:1892-6 S '64

Signal enhancement of the Varian A-60 nmr spectrometer. R. E. Mayo and J. H. Goldstein. il diag R Sci Instr 35:1231-2 S '64

Spectrometer cells for single and multiple internal reflection studies in ultraviolet, visible, near infrared, and infrared spectral regions. W. N. Hansen and J. A. Horton. bibliog il diags Anal Chem 36:783-7 Ap '64

Spectrometer for laser analysis. diag Electro-Tech 73:13 Mr '64

Spectrometer for laser analysis. Franklin Inst J 277:372-3 Ap '64

Spectrometer for laser analysis. il diag Glass Ind 45:473+ S '64

Spectrometer for light beam analysis. il diag Engineering 197:398 Mr 13 '64

Spectrometer for optical studies of ultra-thin films. A. G. Tweet. bibliog diags R Sci Instr 34:1412-17 D '63

Synchrocyclotron 200-meter flight path neutron velocity spectrometer. J. Rainwater and others. bibliog diags R Sci Instr 35:263-75 Mr '64

Time-averaging units make nmr and epr systems more sensitive. Chem & Eng N 42:48 Mr 23 '64

Transistorized high current stabilizer and field sweep for an electromagnet. J. B. Cook and others. diags J Sci Instr 41:390-2 Je '64

Ultrahigh vacuum system for use with a polarizing spectrometer. J. F. Dettorre and others. bibliog il diags R Sci Instr 35:503-6 Ap '64

Ultraviolet spectrometer for orbiting solar observatory. il diags Space/Aeronautics 41:121+ Ap '64

Velocity servo drive for a high precision Mössbauer spectrometer. P. A. Flinn. bibliog diags R Sci Instr 34:1422-6 D '63

Velocity spectrometer for Mössbauer experiments. E. Kankeleit. diags R Sci Instr 35:194-7 F '64

Wideband feedback coherence control for superregenerative NQR spectrometers. G. E. Peterson and P. M. Bridenbaugh. diags R Sci Instr 35:698-700 Je '64

SPECTROMETERS, Gamma ray

Activation analysis by absolute gamma-ray counting and direct calculation of weights from nuclear constants. F. Girardi and others. bibliog diag Anal Chem 36:1588-94 Jl '64

Activation analysis of antimony by sum-coincidence spectrometry. F. Adams and J. Hoste. bibliog diag Nucleonics 22:55-7 Mr '64

Direct nondestructive method for determination of californium-252. F. L. Moore and J. S. Eldridge. bibliog Anal Chem 36:808-11 Ap '64

Gamma-ray pair spectrometry from 20-650 mev. G. D. Mead and others. diags R Sci Instr 35:708-12 Je '64

Germanium diodes are doped with lithium. Chem & Eng N 42:91 Ap 13 '64

Nuclear highlights in spectrometry and activation analysis. V. P. Guinn. bibliog Nucleonics 22:70+ Mr '64

Slow neutron capture gamma rays from samarium and gadolinium. D. L. Sastry and S. Jnanananda. bibliog diags J Sci Instr 41:497-500 Ag '64

SPECTROMETERS, Mass. See Mass spectrometers

SPECTROMETERS, Recording

Inexpensive automatic recording Mössbauer spectrometer. J. Lipkin and others. diags R Sci Instr 35:1336-9 O '64

SPECTROMETERS, X ray

Analytical techniques for determining the composition of niobium stannide. K. L. Cheng and E. P. Bertin. bibliog RCA R 25:379-92 S '64

Automated determination of elements in organic samples using X-ray emission spectrometry. C. W. Dwiggins, jr. bibliog Anal Chem 36:1577-82 Jl '64

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

Determination of microgram quantities of chloride in high purity titanium by X-ray spectrochemical analysis. J. S. Rudolph and R. J. Nadalin. Anal Chem 36:1815-17 Ag '64

Device for coupling a pulse height discriminator to a scanning X-ray spectrometer. K. Weber and J. Marchal. bibliog diags J Sci Instr 41:15-22 Ja '64

Hilger & Watts X-ray spectrometers. il plan diag Engineering 198:76-7 Jl 17 '64

Intensity ratio technique for X-ray spectrometric analysis of binary samples. E. P. Bertin. bibliog Anal Chem 36:826-32 Ap '64

New X-ray fluorescence spectrometers. il Engineer 217:245 Ja 31 '64

Optimum conditions for chemical analysis by X-ray absorption-edge spectrometry. C. G. Dodd and D. J. Kaup. bibliog Anal Chem 36:2325-9 N '64

Portable fluorescent X-ray instrument utilizing radioisotope sources. J. O. Karttunen and others. bibliog il diags Anal Chem 36:1277-82 Je '64

Scanning single-crystal multichannel X-ray spectrometer. N. Spielberg and J. Ladell. bibliog il diag R Sci Instr 34:1208-12 N '63

Simplified routine method for X-ray absorption edge spectrometric analysis. E. P. Bertin and others. bibliog il Anal Chem 36:641-55 Mr '64

Some industrial aspects of X-ray fluorescence spectroscopy; symposium abstracts. Chem & Ind p832-3 My 16 '64

Speed, low costs are major attractions of X-ray analyses. F. W. Shultz. il Min Eng 16:48-9 Ja '64

Windowless X-ray tube spectrometer for light element analysis. R. W. G. Wyckoff and F. D. Davidson. il R Sci Instr 35:381-3 Mr '64

X-ray analyses of fuels and lubricants. R. F. Haycock. il Engineer 218:179 Jl 31 '64

X-ray analysis; potent weapon in the battle for quality. il Rock Prod 67:116-19 My '64

X-ray fluorescence determination of cobalt, zinc, and iron in organic matrices. S. A. Bartkiewicz and E. A. Hammatt. bibliog Anal Chem 36:833-6 Ap '64

X-ray fluorescence spectrometric analysis of iron(III), cobalt(II), nickel(II), and copper(II) chelates of 8-quinolinol. K. E. Daugherty and others. Anal Chem 36:1869-70 Ag '64

X-ray fluorescence spectrometric analysis of rubidium(I) and cesium(I) salts of 5-nitrobarbituric acid. K. E. Daugherty and others. Anal Chem 36:2372-3 N '64

X-ray probe with slit aperture in the secondary beam. E. P. Bertin. bibliog il diag Anal Chem 36:441-3 F '64

X-ray spectrometric analysis of noble metal dental alloys. B. W. Mulligan and others. bibliog il J Res Nat Bur Stand 68A:5-8 Ja '64

SPECTROMETRY

Analysis for deuterium in organic compounds by combustion; infrared spectrometry. J. L. Lambert and others. bibliog diags Anal Chem 36:2148-51 O '64

Analysis of alcohols, hydroxy esters, glycerides, and glyceryl ethers as nitrates by thin layer chromatography and infrared spectrometry. D. C. Malins and others. bibliog Anal Chem 36:658-61 Mr '64

Atomic fluorescence spectrometry as a means of chemical analysis. J. D. Winefordner and T. J. Vickers. bibliog diag Anal Chem 36:161-5 Ja '64

SPECTROMETRY—*Continued*

Calculation of the limit of detectability in atomic absorption flame spectrometry. J. D. Winefordner and T. J. Vickers. bibliog Anal Chem 36:1947-54 S '64
Calculation of the limit of detectability in atomic emission flame spectrometry. J. D. Winefordner and T. J. Vickers. bibliog Anal Chem 36:1939-46 S '64
Characterization of lignosulfonates by ultraviolet spectrometry. A. S. Wexler. bibliog Anal Chem 36:213-21 Ja '64
Determination of active hydrogen by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. Anal Chem 36:1721-3 Ag '64
Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64
Determination of functional groups in copolymers by infrared spectrometry. F. D. Brako and A. S. Wexler. Anal Chem 35:1944-7 N '63
Determination of phenolic substances by ultraviolet difference spectrometry. A. S. Wexler. Anal Chem 35:1936-43 N '63
Determination of polychloroprene isomers by high resolution infrared spectrometry. R. C. Ferguson. Anal Chem 36:2204-5 O '64
Determination of propylene in ethylene-propylene copolymers by infrared spectrometry. J. E. Brown and others. bibliog diag Anal Chem 35:2172-6 D '63
Determination of thermal radiation properties of materials. il Engineer 216:656-8 O 18 '63
Determination of zinc, cadmium, and mercury by atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. Anal Chem 36:165-8 Ja '64
Developments in atomic absorption spectrometry. R. H. Müller. Anal Chem 36:sup 147A-8A F '64
Effects of aliphatic acids and their salts on the flame spectrometric emission of calcium. A. C. West. bibliog Anal Chem 36:310-14 F '64
Electrode reactions of aromatic compounds in strong acid solutions; chronopotentiometric and spectrometric studies of the p-hydroquinone-H_2SO_4 system at platinum electrodes. H. B. Mark, jr. and C. L. Atkin. bibliog Anal Chem 36:514-20 Mr '64
Instrumental reduction of background signal of fuel-rich oxyacetylene flames used in atomic absorption spectrometry. J. D. Winefordner and C. Veillon. diag Anal Chem 36:943-4 Ap '64
Metallographic characterization of an NBS spectrometric low-alloy steel standard. R. E. Michaelis and others. bibliog il J Res Nat Bur Stand 68A:343-54 Jl '64
Multiple reflection cells for internal reflection spectrometry. N. J. Harrick. bibliog diags Anal Chem 36:188-91 Ja '64
New tool explores atomic structure. il Engineering 197:367 Mr 6 '64
180° Compton scattered-annihilation gamma-ray sum peak observed in gamma-ray spectrometry. W. S. Lyon. bibliog Anal Chem 36:682-3 Mr '64
Premixed, fuel-rich, oxyacetylene flame in flame emission spectrometry. A. P. D'Silva and others. diags Anal Chem 36:1287-9 Je '64
Quantitative determination of hydrogen and fluorine in organic compounds by nuclear magnetic resonance spectrometry. P. J. Paulsen and W. D. Cooke. bibliog diags Anal Chem 36:1713-21 Ag '64
Review of fundamental developments in analysis; emission spectrometry. B. F. Scribner and M. Margoshes. Anal Chem 36 [no 5]:329R-43R bibliog(p338R-43R) Ap '64
Review of fundamental developments in analysis; infrared spectrometry. J. C. Evans. Anal Chem 36 [no 5]:240R-55R bibliog(p251R-5R) Ap '64
Review of fundamental developments in analysis; light absorption spectrometry. D. F. Boltz and M. G. Mellon. Anal Chem 36 [no 5]:256R-66R bibliog(p262R-6R) Ap '64
Review of fundamental developments in analysis; magnetic resonance spectrometry. H. Foster. Anal Chem 36 [no 5]:266R-78R bibliog(p276R-8R) Ap '64
Review of fundamental developments in analysis; Raman spectrometry. A. C. Jones. Anal Chem 36 [no 5]:296R-307R bibliog(p305R-7R) Ap '64
Review of fundamental developments in analysis; ultraviolet spectrometry. R. C. Hirt and J. M. Vandenbelt. Anal Chem 36 [no 5]:308R-12R bibliog(p311R-12R) Ap '64
Separation and infrared spectrometric determination of ester polymer additives in distillate fuel oils. N. Feldman. Anal Chem 36:347-8 F '64
Simplified routine method for X-ray absorption edge spectrometric analysis. E. P. Bertin and others. bibliog il Anal Chem 36:641-55 Mr '64
Spectrofluorometric study of (2-methyl-8-quino-linolato)zinc(11) chelates in absolute ethyl alcohol. D. A. Carter and W. E. Ohnesorge. bibliog Anal Chem 36:327-30 F '64
Spectrometric identification of organic compounds. R. M. Silverstein and G. C. Bassler. Review, by J. C. Roberts. Chem & Ind p 1676-7 O 19 '63
Study of experimental parameters in atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. bibliog Anal Chem 36:1367-9 Je '64
Submicrodetermination of oxygen-18-benzophenone by infrared spectrometry. I. Laulicht and S. Pinchas. Anal Chem 36:1980-1 S '64
Thickness measurement of polymer films for infrared spectrometry by beta-ray absorption. T. A. Veerkamp and others. Anal Chem 36:2277-8 N '64
Ultraviolet spectrometric determination of mixtures of arylsulfonic acids. J. M. Arends and others. bibliog Anal Chem 36:1802-5 Ag '64
X-ray fluorescence spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daugherty and others. bibliog Anal Chem 36:1098-100 My '64
X-ray fluorescence spectrometric determination of zirconium and molybdenum in the presence of uranium. E. A. Hakkila and others. Anal Chem 36:2094-6 O '64

SPECTROPHOTOFLUOROMETRY

Combined fluorometer and double-beam spectrophotometer for reflectance measurements. B. Chance and others. bibliog il diags R Sci Instr 34:1307-11 D '63
Factors influencing spectrofluorometry of phenothiazine drugs. T. J. Mellinger and C. E. Keeler. bibliog Anal Chem 36:1840-7 Ag '64
Fluorescent detection and spectrophotofluorometric characterization and estimation of carbazoles and polynuclear carbazoles separated by thin-layer chromatography. D. F. Bender and others. bibliog Anal Chem 36:1011-17 My '64
Spectrofluorometric measurement of phenothiazines. J. B. Ragland and V. J. Kinross-Wright. bibliog Anal Chem 36:1356-9 Je '64
Spectrophotofluorometry. R. E. Haughton. il diag Instruments & Control Systems 36:104-5 N '63
Unit helps construct stereofluorograph. Chem & Eng N 41:44-5 N 11 '63

SPECTROPHOTOMETERS

Adaptation of an Optica CF 4 spectrophotometer for spectral measurements over a range of temperature. F. M. Hall and I. H. Reece. diags J Sci Instr 41:240-1 Ap '64
Assembly and performance of a double-beam microscope spectrophotometer from commercial instruments H. C. Duecker and E. R. Lippincott. bibliog il diag R Sci Instr 35:1108-12 S '64
B & L 505 spectrophotometer modifications for measuring spectral response of photodetectors. S. Licht. il diags R Sci Instr 35:1027-31 Ag '64
Combined fluorometer and double-beam spectrophotometer for reflectance measurements. B. Chance and others. bibliog il diags R Sci Instr 34:1307-11 D '63
Construction and performance of an infrared chromatographic fraction analyzer. P. A. Wilks, jr. and R. A. Brown. bibliog diag Anal Chem 36:1896-9 S '64
Fast mixing apparatus for studying rapid reaction kinetics. R. Thompson and G. Gordon. bibliog diags J Sci Instr 41:480-1 Jl '64
Flashing-light spectrophotometer for studying the fast reactions occurring during photosynthesis. B. Ke and others. diags R Sci Instr 35:296-300 Mr '64
Infrared analysis of suspended particulates with millipore filters and attentuated total reflection. R. W. Hannah and J. L. Dwyer. il Anal Chem 36:2341-4 N '64
Infrared microcell. R. M. Chrenko. diags Anal Chem 36:1883-5 Ag '64
Infrared spectrophotometer. Engineering 196:767 D 13 '63
Instruments for color matching of paper products. Paper Ind 45:493-4 D '63

SPECTROPHOTOMETERS—*Continued*
Low temperature Raman cell. J. R. Ferraro and others. diags R Sci Instr 35:754-5 Je '64
Photometric method for trace mercury determination using a Beckman DU Spectrophotometer. R. E. Mansell and E. J. Hunemorder. diag Anal Chem 35:1981 N '63
Plating baths checked quick as a flash. il Iron Age 194:71 O 1 '64
Radiofrequency plasma emission spectrophotometer. C. D. West and D. N. Hume. diags Anal Chem 36:412-15 F '64
Rapid-scan far ultraviolet spectrophotometer for monitoring gas chromatograph effluent. W. Kaye and F. Waska. Anal Chem 36:2380-1 N '64
Sliding photometer head for the microspectrophotometer. W. L. Evans. bibliog il diags R Sci Instr 35:305-6 Mr '64
Spectrophotometer uses gas laser as exciter. il Chem & Eng N 42:43 Ag 10 '64
Spectrophotometer wavelength reliability. M. E. Auerbach and others. Ind Quality Control 20:45-7 My '64
Vacuum spectrophotometer lowers ultraviolet range. Chem & Eng N 42:57-8 S 21 '64
Windowless spectrophotometric cell for use with corrosive liquids. J. P. Young. il diags Anal Chem 36:390-2 F '64

SPECTROPHOTOMETERS, Recording
General application of near-infrared moisture analysis to fruit and vegetable materials. H. J. Gold. Food Tech 18:586-7 Ap '64
X-ray spectrophotometer for simultaneous analysis of several elements. B. Jacobson and B. Lindberg. diags R Sci Instr 35:1316-19 O '64

SPECTROPHOTOMETRY
Analysis of bound styrene-butadiene content of copolymers by infrared absorbance ratio method. A. S. Wexler. Anal Chem 36:1829-31 Ag '64
Application of di-β-naphthylthiocarbazone as a quantitative trace heavy metal spectrophotometric reagent. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1316-20 Je '64
Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64
Assay of phosphatase activity by direct spectrophotometric determination of phenolate ion. L. L. Salomon and others. bibliog Anal Chem 36:1162-4 My '64
Atomic absorption spectra of europium, thulium, and ytterbium using a flame as line source. R. K. Skogerboe and R. A. Woodriff. Anal Chem 35:1977 N '63
Atomic absorption spectrophotometry and the analysis of silicate rocks for copper and zinc. C. B. Belt, jr. bibliog diag Econ Geol 59:240-58 Mr '64
Catalytic determination of vanadium in water. M. J. Fishman and M. W. Skougstad. bibliog Anal Chem 36:1643-6 Jl '64
Charge-transfer complexes in solution; spectrophotometric studies of aromatic hydrocarbon-aromatic nitro compounds dissolved in carbon tetrachloride. N. B. Jurinski and P. A. D. de Maine. bibliog Am Chem Soc J 86:3217-22 Ag 20 '64
Colorimetric detection and spectrophotometric determination of vanadium using a specific reaction. P. L. Sarma. bibliog Anal Chem 36:1076-8 My '64
Colorimetric determination of *o*-isopropoxyphenyl-N-methylcarbamate. P. Bracha. bibliog J Agri & Food Chem 12:461-3 S '64
Column extraction-spectrophotometric determination of iron. M. A. Wade and S. S. Yamamura. Anal Chem 36:1861-2 Ag '64
Considerations of the spectral characteristics of papers and inks for use with optical character recognition units. R. W. Detrick and D. J. Lasky. bibliog Tappi 46:sup 175A-8A D '63
Corrections for background in spectrophotometry using difference-in-absorbance values; application to vitamin-A. J. B. Wilkie. bibliog Anal Chem 36:896-900 Ap '64
Critical study of two procedures for the determination of piperine in black and white pepper. C. Genest and others. bibliog J Agri & Food Chem 11:508-12 N '63
Determination of cure of epoxy resins by infrared analysis. S. M. Lee and S. Brelant. bibliog Mod Plastics 41:150-1 D '63
Determination of furaltadone in milk. P. L. Cox and J. P. Heotis. J Agri & Food Chem 11:499-501 N '63
Determination of narcotic analgesics in human biological materials; application of ultraviolet spectrophotometry, thin layer and gas liquid chromatography. S. J. Mulé. bibliog Anal Chem 36:1907-14 S '64
Determination of niobium in mild steels. N. Jenkins. bibliog Metallurgia 70:95-8 Ag '64
Determination of polyphenyls in working environments of organic reactors by spectrophotometric methods. C. Testa and G. Masi. bibliog diag Anal Chem 36:2284-7 N '64
Determination of serum creatinine by ion exchange chromatography and ultraviolet spectrophotometry. W. S. Adams and others. bibliog diags Anal Chem 36:2209-11 O '64
Determination of small amounts of manganese by oxidation of 8-aminoquinoline, extraction, and spectrophotometry. V. L. Gustin and T. R. Sweet. bibliog Anal Chem 36:1674-6 Jl '64
Determination of solubility of several phosphine oxides in aqueous solutions using a new spectrophotometric procedure. J. W. O'Laughlin and others. Anal Chem 36:224-6 Ja '64
Determination of trace quantities of alcohols by ultravilet spectrophotometry of alkyl nitrobenzoates. M. W. Scoggins. Anal Chem 36:1152-4 My '64
Determination of traces of alkaline earths in alkali halides by spectrophotometric titration in the ultraviolet. E. P. Parry and G. W. Dollman. bibliog Anal Chem 36:1783-6 Ag '64
Direct spectrophotometric microdetermination of high-level magnesium in silicate minerals; a Clayton yellow procedure. R. Meyrowitz. Am Mineralogist 49:769-77 My '64
Experimental use of the spectrophotometric method in determining water purification efficiency at water works stations; abstract. A. V. Bogolyubova. Pub Works 94:164 D '63
Extraction and spectrophotometric determination of molybdenum and tungsten with 2-thenoyltrifluoroacetone; application to alloy steels. A. K. De and M. S. Rahaman. bibliog Anal Chem 36:685-7 Mr '64
Extraction of titanium with dioctyl methylenebisphosphonic acid and direct spectrophotometric determination of titanium in the organic phase. H. Gorican and D. Grdenic. bibliog Anal Chem 36:330-2 F '64
Flame photometric microdetermination of boron in organoboron compounds. T. Yoshizaki. Anal Chem 35:2177-9 D '63
Fluorometric and spectrophotometric determination of aluminum in industrial water. C. A. Noll and L. J. Stefanelli. Anal Chem 35:1914-16 N '63
Identification of elastomers by infrared spectrophotometry. A. Fiorenza and G. Bonomi. bibliog diags Rubber Chem & Tech 36:1129-47 O '63
Improvement in spectrophotometric determination of palladium with excess iodide. J. J. Morrow and J. J. Markham. Anal Chem 36:1159 My '64
Indirect spectrophotometric determination of ammonia. J. H. Howell and D. F. Boltz. bibliog Anal Chem 36:1799-802 Ag '64
Indirect ultraviolet spectrophotometric determination of silicon. L. Trudell and D. F. Boltz. Anal Chem 35:2122-4 D '63
Infrared monitoring of semiconductor epitaxial process gas streams. M. J. Rand. bibliog Anal Chem 36:1112-14 My '64
Machine computation of association constants from spectrophotometric data; an analysis of errors. K. Conrow and others. bibliog Am Chem Soc J 86:1025-9 Mr 20 '64
Methods for determination of cyclopropenoid fatty acids; infrared absorption method. F. C. Magne and others. Anal Chem 36:681-2 Mr '64
Monitoring spacecraft atmospheres by spectrophotometry. E. S. Watson. diags Space/Aeronautics 41:94-6+ Mr '64
New spectrophotometric determination of unsaturated 3-keto steroids using 4-aminoantipyrine hydrochloride reagent. E. P. Schulz and others. Anal Chem 36:1624-7 Jl '64
New spectrophotometric method for the determination of (ethylenedinitrilo)tetraacetic acid. C. J. Parker, jr. Anal Chem 36:236-7 Ja '64
Ortho-(*p*-toluenesulfonamido) aniline (T-sulfonamidine) as a new type of analytical reagent; spectrophotometric determination of cupric ion. J. H. Billman and R. Chernin. bibliog Anal Chem 36:552-4 Mr '64

SPECTROPHOTOMETRY—*Continued*

Paper disk method for the spectrophotometric microestimation of inorganic fluoride. J. G. Aldous and others. bibliog il Anal Chem 36:335-7 F '64

Practical exploitation of instrumental match prediction. J. V. Alderson and others. diags Soc Dyers & Col J 79:723-9; Discussion. 729-30 D '63

Purity examination of silicon and germanium halides by long-path infrared spectrophotometry. M. J. Rand. bibliog Anal Chem 35:2126-31 D '63

Quantitative infrared analysis of some water-soluble acids and salts. M. Dolinsky and C. H. Wilson. Anal Chem 36:1383-5 Je '64

Rapid chemical analysis of refractory chrome ores and chrome-bearing refractories. C. S. Richards and E. C. Boyman. bibliog Anal Chem 36:1790-3 Ag '64

Rapid spectrophotometric method for the determination of lead in bone ash. F. H. Ilcewicz and others. bibliog Anal Chem 36:1132-5 My '64

Recalibration of the NBS glass standards of spectral transmittance. H. J. Keegan and others. bibliog J Res Nat Bur Stand 67A:577-84 N '63

Sensitive and selective spectrophotometric reaction for determination of trace amounts of calcium. M. Herrero-Lancina and T. S. West. bibliog Anal Chem 35:2131-5 D '63

Sensitive new methods for autocatalytic spectrophotometric determination of nitrite through free-radical chromogens. E. Sawicki and others. bibliog Anal Chem 35:2183-91 D '63

Separation and determination of iron(II) and iron(III) with anthranilic acid using solvent extraction and spectrophotometry. D. L. Dinsel and T. R. Sweet. bibliog Anal Chem 35:2077-81 D '63

Separation and spectrophotometric determination of submilligram quantities of aluminum in aluminum-plutonium alloys. H. B. Evans and H. Hashitani. bibliog diag Anal Chem 36:2032-4 S '64

Separation and spectrophotometric determination of technetium in fissium. R. J. Meyer and others. bibliog diag Anal Chem 36:1975-9 S '64

Separation of hexachlorophene from organic matter prior to spectrophotometric estimation. V. D. Johnston and P. J. Porcaro. bibliog Anal Chem 36:124-6 Ja '64

Separation of traces of zinc with triisooctylamine and its spectrophotometric determination in electrolytic nickel. W. L. Ott and others. bibliog Anal Chem 36:363-4 F '64

Simultaneous spectrophotometric determination of calcium and magnesium with chlorophosphonazo III. J. W. Ferguson and others. bibliog Anal Chem 36:796-9 Ap '64

Simultaneous spectrophotometric determination of palladium and platinum with 2,3-quinoxalinedithiol. H. F. Janota and G. H. Ayres. Anal Chem 36:138-40 Ja '64

Some properties of the trace heavy metals spectrophotometric reagent, di-β-naphthylthiocarbazone. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1313-16 Je '64

Specific spectrophotometric determination of ozone in the atmosphere. H. A. Bravo and J. P. Lodge, jr. bibliog diag Anal Chem 36:671-3 Mr '64

Spectrophotometric determination of alpha-hydroxy carboxylic acids; application to citric acid. R. M. Matulis and J. C. Guyon. bibliog Anal Chem 36:118-20 Ja '64

Spectrophotometric determination of ammonia as rubazoic acid with bispyrazolone reagent. L. Procházková. bibliog Anal Chem 36:865-71 Ap '64

Spectrophotometric determination of calcium in milk using 2,2′-(ethanediylidenedinitrilo) diphenol [glyoxal bis(2-hydroxyanil)]. T. A. Nickerson and others. bibliog Anal Chem 36:1676-7 Jl '64

Spectrophotometric determination of cerium with thenoyltrifluoroacetone. H. Onishi and C. V. Banks. Anal Chem 35:1887-9 N '63

Spectrophotometric determination of cerium with thenoyltrifluoracetone after cupferron-chloroform extraction. H. Onishi and Y. Toita. Anal Chem 36:1867-9 Ag '64

Spectrophotometric determination of chromium concentration in ruby. D. M. Dodd and others. bibliog diag J Ap Phys 35:1183-6 Ap '64

Spectrophotometric determination of copper and iron in red phosphorus. G. Norwitz and others. Anal Chem 36:142-4 Ja '64

Spectrophotometric determination of copper in tellurium and related thermoelectric compounds of the bismuth telluride type with 2,9-dimethyl-1,10-phenanthroline. B. Nebesar. bibliog Anal Chem 36:1961-5 S '64

Spectrophotometric determination of dithiocarbamate residues on food crops. T. E. Cullen. bibliog diag Anal Chem 36:221-4 Ja '64

Spectrophotometric determination of ethyl-, diethyl-, and triethylamine in aqueous solution. G. Dahlgren. bibliog Anal Chem 36:596-9 Mr '64

Spectrophotometric determination of fluoride by zirconium-eriochrome cyanine R. P. L. Sarma. bibliog Anal Chem 36:1684-5 Jl '64

Spectrophotometric determination of glycyrrhizic acid in licorice extract. R. H. Cundiff. Anal Chem 36:1871-3 Ag '64

Spectrophotometric determination of hydrogen content in heavy water. G. Gordon and H. Yamatera. Anal Chem 36:1866-7 Ag '64

Spectrophotometric determination of 8-hydroxypenillic acid. D. A. Hull and others. bibliog Anal Chem 36:599-602 Mr '64

Spectrophotometric determination of iron and aluminum in silicone polymers. S. Fujiwara and H. Narasaki. bibliog Anal Chem 36:206-7 Ja '64

Spectrophotometric determination of iron in ethylene amines with phenyl-2-pyridyl ketoxime. R. Chernin and E. R. Simonsen. Anal Chem 36:1093-5 My '64

Spectrophotometric determination of nanogram amounts of total cholesterol in microgram quantities of tissue or microliter volumes of serum. D. Glick and others. bibliog Anal Chem 36:1119-21 My '64

Spectrophotometric determination of 1-naphthol. G. A. Pearse, jr. bibliog Anal Chem 35:1954-5 N '63

Spectrophotometric determination of nickel with 4-*tert*-butyl-1,2-cyclohexanedionedioxime. M. M. Barling and C. V. Banks. bibliog Anal Chem 36:2359-60 N '64

Spectrophotometric determination of nitrate with 4-methylumbelliferone. J. J. Skujins. Anal Chem 36:240-1 Ja '64

Spectrophotometric determination of nitrogen in total micro-Kjeldahl digests. L. T. Mann, jr. bibliog Anal Chem 35:2179-82 D '63

Spectrophotometric determination of organic peroxides in unsaturates. D. K. Banerjee and C. C. Budke. Anal Chem 36:2367-8 N '64

Spectrophotometric determination of *p*-chloroacetanilide in phenacetin-acid hydrolysis method. W. B. Crummett and others. bibliog Anal Chem 36:1834-7 Ag '64

Spectrophotometric determination of *p*-phenylenediamines and *p*-aminophenols with ninhydrin. R. Suffis and others. Anal Chem 36:636-7 Mr '64

Spectrophotometric determination of perchlorate. J. S. Fritz and others. Anal Chem 36:2123-6 O '64

Spectrophotometric determination of 2-phenylindole with *p*-dimethylaminobenzaldehyde. M. V. Gillio-Tos and others. bibliog Anal Chem 36:425-6 F '64

Spectrophotometric determination of platinum with 2,3-quinoxalinedithiol. G. H. Ayres and R. W. McCrory. bibliog Anal Chem 36:133-8 Ja '64

Spectrophotometric determination of primary amines in aqueous solution with copper-(ethylenedinitrilo)tetraacetic acid. I. M. Citron and A. Mills. Anal Chem 36:208-10 Ja '64

Spectrophotometric determination of rare earth metals with 4-(2-pyridylazo)resorcinol. K. N. Munshi and A. K. Dey. bibliog Anal Chem 36:2003-4 S '64

Spectrophotometric determination of rhenium using *syn*-phenyl-2-pyridyl ketoxime. J. Guyon and R. K. Murmann. bibliog Anal Chem 36:1058-61 My '64

Spectrophotometric determination of rhenium with alpha-pyridildioxime. F. Trusell and R. J. Thompson. Anal Chem 36:1870-1 Ag '64

Spectrophotometric determination of silicon in ethyl and polyethyl silicates by the molybdovanadate method. R. B. Lew and W. Oyung. Anal Chem 36:1857-8 Ag '64

Spectrophotometric determination of silicon in gallium phosphide. C. L. Luke. Anal Chem 36:2036-7 S '64

Spectrophotometric determination of small amounts of 1-monoglycerides in fats. C. Szonyi and K. Sparrow. bibliog Am Oil Chem Soc J 41:535-7 Ag '64

Spectrophotometric determination of streptozotocin. A. A. Forist. bibliog Anal Chem 36:1338-9 Je '64

SPECTROPHOTOMETRY—*Continued*

Spectrophotometric determination of sulfur dioxide suitable for atmospheric analysis. B. G. Stephens and F. Lindstrom. diag Anal Chem 36:1308-12 Je '64

Spectrophotometric determination of the dissolution of lignin during sulfite cooking. E. Sjöstrom and P. Haglund. bibliog Tappi 47:286-91 My '64

Spectrophotometric determination of tin(IV) by extraction of stannic iodide into ethyl iodide. A. D. Paul and J. A. Gibson, jr. bibliog Anal Chem 36:2321-4 N '64

Spectrophotometric determination of titanium using salicylic acid in H_2SO_4 medium. A. E. Hultquist. Anal Chem 36:149-51 Ja '64

Spectrophotometric determination of tocopherol in milk and milk lipides. D. R. Erickson and W. L. Dunkley. bibliog Anal Chem 36:1055-8 My '64

Spectrophotometric determination of total nitrogen dioxide and nitrogen tetroxide in air. S. W. Comer and A. V. Jensen. bibliog Anal Chem 36:799-800 Ap '64

Spectrophotometric determination of trace amounts of zirconium, titanium, and molybdenum in tungsten using anion exchange separations. K. F. Sugawara. Anal Chem 36:1373-4 Je '64

Spectrophotometric determination of trace concentrations of carbonyl compounds. D. E. Jordan and F. C. Veatch. Anal Chem 36:120-4 Ja '64

Spectrophotometric determination of trace fluoride in organic compounds following combustion in oxyhydrogen flame-quartz combustion tube. D. E. Willis and W. T. Cave. bibliog diags Anal Chem 36:1821-5 Ag '64

Spectrophotometric determination of traces of acetic acid in acetic anhydride. B. C. Mitra and others. Anal Chem 36:673-4 Mr '64

Spectrophotometric determination of traces of boron in silicon tetrachloride utilizing an extractive separation. C. S. Haas and others. Anal Chem 36:245-6 Ja '64

Spectrophotometric determination of traces of peroxides in organic solvents. D. K. Banerjee and C. C. Budke. bibliog diag Anal Chem 36:792-6 Ap '64

Spectrophotometric determination of traces of phosphorus in silicon tetrachloride utilizing an extractive separation. W. A. Lancaster and M. R. Everingham. diag Anal Chem 36:246-7 Ja '64

Spectrophotometric determination of tungsten in iron and steel. C. L. Luke. Anal Chem 36:1327-9 Je '64

Spectrophotometric determination of unsymmetrical dimethylhydrazine employing chromotropic acid. N. V. Sutton. bibliog Anal Chem 36:2120-1 O '64

Spectrophotometric determination of urea-formaldehyde with anthrone. R. G. Westenhouse. Anal Chem 36:1875-6 Ag '64

Spectrophotometric determination of urea, thiourea, and certain of their substitution products with *p*-dimethylaminobenzaldehyde and diacetylmonoxime. R. C. Hoseney and K. F. Finney. bibliog Anal Chem 36:2145-8 O '64

Spectrophotometric determination of vanadium in ethylene-propylene rubber solutions with 3,3′-diaminobenzidine. A. J. Smith. Anal Chem 36:944-5 Ap '64

Spectrophotometric estimation of copper(I) using rubeanic acid. A. Paul. bibliog Anal Chem 35:2119-21 D '63

Spectrophotometric method for determination of tetranitromethane in solution and in air. D. J. Glover and S. G. Landsman. bibliog Anal Chem 36:1690-1 Jl '64

Spectrophotometric method for molybdenum determination. L. Balabanoff K. Eng & Min J 165:120-1 Je '64

Spectrophotometric method for studying the oxidation of lubricating oils. J. R. Barceló and C. Otero. Inst Pet J 50:15-21 Ja '64

Spectrophotometric micro and submicro determination of sulfar in organic substances with barium chloranilate. P. Stoffyn and W. Keane. Anal Chem 36:398-400 F '64

Spectrophotometric microdetermination of Lebaycid, *O,O*-dimethyl-*O*-[4-(methylthio)-*m*-tolyl]-phosphorothioate. Y. Hirano and T. Tamura. bibliog Anal Chem 36:800-2 Ap '64

Spectrophotometric microdetermination of nitrate with chromotropic acid reagent. J. J. Batten. Anal Chem 36:939-40 Ap '64

Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of certain 5- and 6- halogenouracils and -cytosines. I. Wempen and J. J. Fox. bibliog Am Chem Soc J 86:2474-7 Je 20 '64

Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of 3-methylcytosine. T. Ueda and J. J. Fox. bibliog Am Chem Soc J 85:4024-8 D 20 '63

Spectrophotometric study of the reactions of *p*-nitrotoluene in basic solution. J. M. Miller and H. Pobiner. Anal Chem 36:238-9 Ja '64

Spectrophotometric study of the system $I_2 + Br^-$. E. Eyal and A. Treinin. bibliog Am Chem Soc J 86:4287-90 O 20 '64

Spectrophotometric test for xanthopterin. W. S. McNutt. Anal Chem 36:912-14 Ap '64

Spectrophotometric titration of primary aliphatic amides. W. R. Post and C. A. Reynolds. bibliog Anal Chem 36:781-3 Ap '64

Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63

Study of the cerium(IV)-oxalate reaction in acidic sulfate media. Y. A. El-Tantawy and G. A. Rechnitz. bibliog Anal Chem 36:1774-7 Ag '64

System of instrumental colour control for the textile industry. H. R. Davidson and others. bibliog il diags Soc Dyers & Col J 79:577-89; Discussion. 601-3 D '63

Two improved and simplified methods for the spectrophotometric determination of hydroxyproline. I. Bergman and R. Loxley. bibliog Anal Chem 35:1961-5 N '63

Ultramicrodetermination of iodine by a rapid automatic reaction-rate method. H. V. Malmstadt and T. P. Hadjiioannou. bibliog Anal Chem 35:2157-61 D '63

Ultraviolet spectrophotometric determination of an indicator as a measure of basic impurities in dimethylformamide. H. E. Zaugg and A. D. Schaefer. Anal Chem 36:2121-3 O '64

Ultraviolet spectrophotometric determination of copper as dipyrophosphatocuprate(II). M. L. Nebel and D. F. Boltz. bibliog Anal Chem 36:144-6 Ja '64

Use of light transmission in wax emulsion analysis. L. D. Queen and others. il Soap & Chem Spec 40:99+ Mr '64

Visible absorption characteristics of the bis(2-9-dimethyl-1,10-phenanthroline)—and bis(4,4′,6,6′-tetramethyl-2,2′-bipyridine)—copper (I) ions. J. R. Hall and others. bibliog Anal Chem 35:2124-6 D '63

SPECTROPOLARIMETER. See Polariscope

SPECTRORADIOMETERS

Chromaticity and color rendition of light sources. L. Thorington and others. diags Illum Eng 59:607-10 S '64

SPECTROSCOPY

Adjustable burner mount for use in atomic absorption spectroscopy. C. P. Eickhoff and B. J. Sykes. il diag J Sci Instr 41:113-14 F '64

Annual Mid-America symposium on spectroscopy. 15th. Chicago. June 2-5; program. Anal Chem 36:sup47A-52A My '64

Apparatus for high field magneto-optical absorption spectroscopy of solids. M. V. Hobden. diag J Sci Instr 41:95-7 F '64

Applications of instrumental techniques in structural monosaccharide chemistry. R. J. Ferrier and N. R. Williams. Chem & Ind p 1696-707 bibliog(p 1706-7) O 10 '64

Applications of nuclear magnetic resonance spectroscopy in the fat and oil industry. J. W. Harlan. il Am Oil Chem Soc J 41:sup4+ S '64

Applying magnetic resonance to continuous process analysis. F. A. Nelson. diags I S A J 11:55-9 Ja '64

Atomic absorption spectroscopy. il diag Engineer 216:912 N 29 '63

Breath analysis of chemical exposures. il Safety Maint 128:40-2 Jl '64

Carbonium ions in solution. N. C. Deno. diags Chem & Eng N 42:88-94+ O 5 '64

Cataphoresis in helium-neon mixtures. A. L. Schmeltekopf, jr. bibliog diags J Ap Phys 35:1712-17 Je '64

Chemical nature of rosin sizing. R. W. Davison. bibliog il diag Tappi 47:609-16 O '64

Complementary methods of polymer analysis by infra-red spectroscopy and gas-phase chromatography. G. Guiochon and J. Henniker. bibliog Brit Plastics 37:74-81 F '64

Conformations; conformational analysis of 2-bromocyclohexanone by nuclear magnetic resonance spectroscopy. E. W. Garbisch, jr. bibliog Am Chem Soc J 86:1780-2 My 5 '64

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

SPECTROSCOPY—*Continued*

Determination of trace elements in electroplating solutions by atomic absorption spectroscopy. C. M. Whittington and J. B. Willis. bibliog il Plating 51:767-73 Ag '64; Discussion. 51:1197 D '64

Emission spectroscopy as an elective for science majors and engineers. J. T. Peters. il Am J Phys 32:802-4 O '64

End-group analysis and number-average molecular weight determination of some polyalkylene glycols and glycol polyesters using nuclear magnetic resonance spectroscopy. T. F. Page, jr. and W. E. Bresler. bibliog Anal Chem 36:1981-5 S '64

Evaluation of solar cells by means of spectral analysis. H. K. Gummel and F. M. Smits. diags Bell System Tech J 43:1103-21 My '64

Fabry-Perot spectrometer for high-resolution spectroscopy and laser work. K. D. Mielenz and others. bibliog il diags J Res Nat Bur Stand 68C:1-6 Ja '64

Fast-neutron spectroscopy. L. Cranberg. il diags Sci Am 210:79-86+ Mr '64

Future of spectroscopy in organic chemistry; review of four books. D. H. Whiffen. Chem & Ind p967-9 Je 6 '64

Identification of organic pollutants by infrared spectroscopy. F. A. Voege and H. L. Vanesche. Am Water Works Assn J 56:1351-6 O '64

Improving the convergence of least-squares fits to multichannel analyzer spectra. R. K. Hobbie and L. Pinsonneault. R Sci Instr 34:1445-6 D '63

Industrial spectroscopy takes in microwaves. il Chem & Eng N 42:90 S 14 '64

Infrared spectroscopy of fats and oils. F. L. Kauffman. Am Oil Chem Soc J 41:sup4+ Ag '64

Laser used in atomic absorption spectroscopy. Franklin Inst J 277:288 Mr '64

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in acetylated lignins. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1196-202 Mr 20 '64

Lignin; the high resolution nuclear magnetic resonance spectroscopy of protons in compounds related to lignin. C. H. Ludwig and others. bibliog Am Chem Soc J 86:1186-96 Mr 20 '64

Measurement of solids in triglycerides using nuclear magnetic resonance spectroscopy. J. R. Taylor and others. Am Oil Chem Soc J 41:177-80 Mr '64

Nuclear magnetic resonance spectroscopy; the effect of structure on magnetic nonequivalence due to molecular asymmetry. G. M. Whitesides and others. bibliog Am Chem Soc J 86:2628-34 Jl 5 '64

Solid-state detectors for beta-ray spectroscopy below 4.2°K. J. Chin and others. bibliog diags R Sci Instr 34:1258-9 N '63

Some industrial aspects of X-ray fluorescence spectroscopy; symposium abstracts. R. J. Newcombe. Chem & Ind p832-3 My 16 '64

Spectroscopic analysis of high-temperature species comparatively simple. A. Snelson. il Res/Develop 15:16-18 F '64

Spectroscopic studies of keto-enol equilibria; nitrogen-15 substituted Schiff bases. G. O. Dudek and E. P. Dudek. bibliog Am Chem Soc J 86:4283-7 O 20 '64

Structural characteristics of vulcanized cellulose by infrared spectroscopy. L. T. C. Lee and J. J. Griffith. Tappi 47:42-3 Ja '64

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

Tritium nuclear magnetic resonance spectroscopy; observation of high-resolution signals from the methyl and methylene groups of ethylbenzene; the nonradiochemical use of tritium as a tracer. G. V. D. Tiers and others. bibliog Am Chem Soc J 86:2526-7 Je 20 '64

Ultraviolet absorption spectroscopy in the study of vulcanization. D. W. Huke and C. E. Kendall. Rubber Chem & Tech 37:709-13 Jl '64

Uranium isotope investigations by atomic absorption. J. A. Goleb. diag Anal Chem 35:1978 N '63

Versatile stark waveguide for microwave spectroscopy. D. R. Lide, jr. diag R Sci Instr 35:1226 S '64

Wide-range microwave spectroscopy of noise radiation from magnetoplasmas. C. D. Lustig and others. bibliog diags R Sci Instr 35:869-71 Jl '64

X-ray spectroscopy; its role in process stream analysis. R. H. Munch. bibliog il diags I S A J 11:49-54 F '64

SPECTRUM

Iterative unfolding procedure. R. P. Uhlig. bibliog J Res Nat Bur Stand 68A:401-7 Jl '64

See also

Light
Mass spectra
Raman effect
Spectrum analysis
Stark effect
Zeeman effect

also subdivision Spectra under special subjects, e.g.

Antimony compounds
Asphalt
Garnet
Hydrogen
Olivine
Polymers

Absorption spectra

Approximate theoretical calculation of continuum opacities. S. S. Penner and M. Thomas. bibliog diag AIAA J 2:1572-5 S '64

Calculation of the limit of detectability in atomic absorption flame spectrometry. J. D. Winefordner and T. J. Vickers. bibliog Anal Chem 36:1947-54 S '64

Characterization of flavonoids and coumarins by their absorption spectra on paper chromatograms. M. J. Saxby. Anal Chem 36:1145-6 My '64

Correction of luminescence spectra and calculation of quantum efficiencies using computer techniques. H. V. Drushel and others. bibliog Anal Chem 35:2166-72 D '63

Developments in atomic absorption spectrometry. R. H. Müller. Anal Chem 36:sup 147A-8A F '64

Fluorescence and stimulated emission from trivalent europium in yttrium oxide. N. C. Chang. bibliog il J Ap Phys 34:3500-4 D '63

Observation of absorption spectra of short-lived species. D. J. Dyson and M. A. Slifkin. diag J Sci Instr 40:599-600 D '63

Spectra confirm energy level for U(V); abstract. D. G. Karraker. Chem & Eng N 42:58+ Ap 13 '64

Visible absorption characteristics of the bis-(2,9-dimethyl-1,10-phenanthroline)—and bis-(4,4,'6,6'-tetramethyl-2,2'-bipyridine)—copper (I) ions. J. R. Hall and others. bibliog Anal Chem 35:2124-6 D '63

Visible absorption spectra of lithium, sodium, and potassium in molten lithium chloride-potassium chloride. J. Greenberg and I. Warshawsky. diag Am Chem Soc J 86:3572-4 S 5 '64

See also

Spectrum, Infrared—Absorption spectra
Spectrum, Microwave—Absorption spectra

Band spectra

Annealing spectrum of cold-worked silver-cadmium alloys. R. Kamel and E. A. Attia. bibliog Inst Metals J 92:270-4 '63-64

Franck-Condon factors to high vibrational quantum numbers; CN. R. W. Nicholls. bibliog diags J Res Nat Bur Stand 68A:75-8 Ja '64

Multiple charge-transfer bands in complexes involving aromatic donors. E. M. Voigt. bibliog diags Am Chem Soc J 86:3611-17 S 20 '64

Separation, identification, and spectra of the anionic chromium(III)-thiocyanate complexes. S. Kaufman and L. S. Keyes. Anal Chem 36:1777-8 Ag '64

Spectrum of shock-heated gases simulating the Venus atmosphere. A. R. Fairbairn bibliog il AIAA J 2:1004-7 Je '64

Fine structure

C^{13} hyperfine splittings in the 7,7,8,8-tetracyanoquinodimethane anion radical. M. T. Jones and W. R. Hertler. Am Chem Soc J 86:1881-2 My 5 '64

Hyperfine coupling constants and rates of exchange for $C^{13}N^-$ with the axial and equatorial positions in $Cr(CN)_5NO^{-3}$. J. B. Spencer and R. J. Myers. bibliog Am Chem Soc J 86:522-3 F 5 '64

Liquid crystals' spectra show fine structure. A. Saupe and others. il Chem & Eng N 42:42-4+ Mr 16 '64

Results of magneto-optical investigation of rare-earth iron garnets. G. S. Krinchik and G. K. Tjutneva. bibliog J Ap Phys 35:1014-17 pt 2 Mr '64

Variations in the hyperfine splitting of benzene negative ion and on the value of Q. R. W. Fessenden and S. Ogawa. bibliog Am Chem Soc J 86:3591-2 S 5 '64

SPECTRUM—*Continued*

Fluorescence spectra

Atomic fluorescence spectrometry as a means of chemical analysis. J. D. Winefordner and T. J. Vickers. bibliog diag Anal Chem 36:161-5 Ja '64

Excited state pK's. H. H. Jaffé and others. bibliog diag Am Chem Soc J 86:2932-5 Jl 20 '64

Fluorescence lifetimes of ruby. G. C. Brown, jr. bibliog J Ap Phys 35:3062-3 O '64

Fluorescent compounds for calibration of excitation and emission units of spectrofluorometer. R. J. Argauer and C. E. White. bibliog Anal Chem 36:368-71 F '64

Fluorescent detection and spectrophotofluorometric characterization and estimation of carbazoles and polynuclear carbazoles separated by thin-layer chormatography. D. F. Bender and others. bibliog Anal Chem 36:1011-17 My '64

Reflectance fluorescence spectra of aromatic compounds in potassium bromide pellets. B. L. Van Duuren and C. E. Bardi. bibliog diag Anal Chem 35:2198-202 D '63

X-ray fluorescence spectrometric analysis of the copper(II) and mercury(II) complexes of 6-chloro-2-methoxy-9-thiolacridine. K. E. Daughtery and others. bibliog Anal Chem 36:1098-100 My '64

Forbidden lines

Transition probabilities of forbidden lines. R. H. Garstang. bibliog J Res Nat Bur Stand 68A:61-73 Ja '64

Line breadth

Antiferromagnetic resonance linewidth in MnF_2 near the transition temperature. J. C. Burgiel and M. W. P. Strandberg. bibliog J Ap Phys 35:852-3 pt 2 Mr '64

Corrections to the moments of modulation broadened magnetic resonance line shapes. G. V. H. Wilson. J Sci Instr 41:98-9 F '64

Correlation of nuclear spin resonance line widths with formation constants of weak complexes. G. A. Rechnitz and S. B. Zamochnick. Am Chem Soc J 86:2953-4 Jl 20 '64

Determination of R_1 linewidths in ruby using a pulsed ruby laser. R. L. Aagard. bibliog J Ap Phys 34:3631-2 D '63

Effect of surface polishing on the linewidth and high-power properties of single-crystal spheres of ZnY. S. Dixon, jr. bibliog J Ap Phys 34:3441-2 D '63

Ferromagnetic resonance linewidths of nickel ferrite. A. J. Pointon and others. bibliog diags Inst E E Proc 110:2267-70 D '63

Improvement of the ferromagnetic resonance linewidth of single-crystal ZnY ($Ba_2Zn_2Fe_{12}O_{22}$) by a new growth technique. A. Tauber and others. J Ap Phys 35:1008-9 pt 2 Mr '64

Intrinsic ferromagnetic resonance linewidth in metal single crystals. Z. Frait and B. Heinrich. bibliog J Ap Phys 35:904-5 pt 2 Mr '64

Line width alternation in the electron spin resonance spectrum of the alkali radical-ion complex of pyracene. E. de Boer and E. L. Mackor. bibliog Am Chem Soc J 86:1513-16 Ap 20 '64

Linewidths in ferromagnetic thin films; abstract. P. E. Wigen and M. R. Shanabarger. J Ap Phys 35:804 pt 2 Mr '64

Magnetic field quenching of the Suhl-Nakamura width in antiferromagnets. P. Pincus. J Ap Phys 35:839-40 pt 2 Mr '64

Magnetoacoustic resonance in lithium ferrite. R. L. Comstock and J. P. Remeika. bibliog J Ap Phys 35:1018-19 pt 2 Mr '64

Modulation broadening of nmr and esr line shapes. G. V. H. Wilson. bibliog diag J Ap Phys 34:3276-85 N '63

Modulation effects in magnetic resonance; widths and amplitudes for Lorentzian and Gaussian lines. G. W. Smith. bibliog J Ap Phys 35:1217-21 Ap '64

Nuclear and ferromagnetic relaxation in $MnFe_2O_4$. A. J. Heeger and others. J Ap Phys 35:840-1 pt 2 Mr '64

Rates of rapid ligand exchange reactions by nuclear magnetic resonance line broadening studies. R. G. Pearson and R. D. Lanier. bibliog Am Chem Soc J 86:765-71 Mr 5 '64

Theory of line widths in electron spin resonance spectra; motion of methyl groups. J. H. Freed and G. K. Fraenkel. bibliog Am Chem Soc J 86:3477-84 S 5 '64

X-ray investigation of strain in cold-worked silver iodide. G. Burley. bibliog J Res Nat Bur Stand 68A:355-8 Jl '64

Pressure effects

Line shift in a spectrograph due to variations of atmospheric pressure, and a compensation method. C. G. Carlsson. diag J Sci Instr 41:475-6 Jl '64

Reflection spectra

Gradient method, a contribution to metameric colour formulation on the basis of colour-difference measurements. U. Gugerli and P. Buchner. Soc Dyers & Col J 79:637-48; Discussion. 648-50 D '63

Quantitative measurements of reflectivity. P. Ramdohr. bibliog Econ Geol 59:502-9 My '64; Discussion. I. M. Gray and A. P. Millman. 59:1394-5 N '64

Vibrational spectra

Franck-Condon factors to high vibrational quantum numbers; NO band systems. R. W. Nicholls. bibliog J Res Nat Bur Stand 68A:535-40 S '64

Infrared study of the C=N stretching vibration in azine derivatives of aldehydes and ketones. L. D. Frederickson, jr. bibliog Anal Chem 36:1349-55 Je '64

Raman spectra of small solid samples including lattice vibrations. D. C. Nelson and W. N. Mitchell. bibliog diag Anal Chem 36:555-8 Mr '64

Vibrational assignment for *cis*- and *trans*-1, 2-dichloro-1-fluoroethylenes; FClC=CClH and FClC=CClD. N. C. Craig and others. bibliog diags Am Chem Soc J 86:3232-9 Ag 20 '64

Vibrational spectra and structures of digermyl ether and digermyl sulfide. T. D. Goldfarb and S. Sujishi. bibliog Am Chem Soc J 86:1679-83 My 5 '64

SPECTRUM, Infrared

Analysis for deuterium in organic compounds by combustion; infrared spectrometry. J. L. Lambert and others. bibliog diags Anal Chem 36:2148-51 O '64

Antiferromagnetic resonance in CoF_2, NiF_2, and $MnCO_3$. P. L. Richards. bibliog J Ap Phys 35:850-1 pt 2 Mr '64

Construction and performance of an infrared chromatographic fraction analyzer. P. A. Wilks, jr. and R. A. Brown. bibliog diag Anal Chem 36:1896-9 S '64

Determination of functional groups in copolymers by infrared spectrometry. F. D. Brako and A. S. Wexler. Anal Chem 35:1944-7 N '63

Effects of γ-radiation on the surface properties of silica as studied by the infrared spectra of adsorbed molecules. D. J. C. Yates and P. J. Lucchesi. bibliog Am Chem Soc J 86:4258-65 O 20 '64

Far-infrared spectra of some tetrahalo metal complexes. A. Sabatini and L. Sacconi. bibliog Am Chem Soc J 86:17-20 Ja 5 '64

Far-infrared studies of intermolecular forces; dipole-dipole complexes. R. J. Jakobsen and J. W. Brasch. bibliog Am Chem Soc J 86:3571-2 S 5 '64

Far infrared study of metal-pyridine complexes. R. J. H. Clark and C. S. Williams. Chem & Ind p 1317-18 Jl 18 '64

Glauconites; cation exchange capacities and infrared spectra. M. H. Manghnani and J. Hower. bibliog Am Mineralogist 49:586-98 My '64

Identification of organic pollutants by infrared spectroscopy. F. A. Voege and H. L. Vanesche. Am Water Works Assn J 56:1351-6 O '64

Infrared analysis of suspended particulates with millipore filters and attenuated total reflection. R. W. Hannah and J. L. Dwyer. il Anal Chem 36:2341-4 N '64

Infrared determination of alkyl branching in detergent ABS. C. D. Frazee and R. O. Crisler. Am Oil Chem Soc J 41:334-5 Ap '64

Infrared determination of hydroxyl content of epoxy resins. M. R. Adams. Anal Chem 36:1688-9 Jl '64

Infrared determination of hydroxyl content of oxidized polyethylene. D. E. Kramm and others. Anal Chem 36:2170-1 O '64

Infra-red methods in inorganic analysis. R. J. Magee. bibliog Ind Chem 40:209-11, 286-8 Ap-My '64

Infrared monitoring of semiconductor epitaxial process gas streams. M. J. Rand. bibliog Anal Chem 36:1112-14 My '64

Infrared spectra of asphalts; some aspects of the changes caused by photooxidation. P. G. Campbell and J. R. Wright. bibliog J Res Nat Bur Stand 68C:115-23 Ap '64

Infrared spectra of reactant monomers. J. V. Simonian. Am Dyestuff Rep 53:248-57 Mr 30 '64

SPECTRUM, Infrared—*Continued*

Infrared spectra of transition metal alkoxides. C. T. Lynch and others. bibliog Anal Chem 36:2332-7 N '64

Infrared spectral studies of Grignard solutions. R. M. Salinger and H. S. Mosher. bibliog Am Chem Soc J 86:1782-6 My 5 '64

Infrared spectroscopy of fats and oils. F. L. Kauffman. Am Oil Chem Soc J 41:sup4+ Ag '64

Infrared techniques for fused salts. A. Bandy and others. bibliog diags R Sci Instr 35:1206-7 S '64

Methyl oct-*cis*-2-enoate; its synthesis, GLC behaviour and infrared spectra. O. Mercuri and others. bibliog Am Oil Chem Soc J 41:89-92 F '64

Phosphate-halide systems; infrared spectra of glasses in the system $NaPO_3$-NaF. M. K. Murthy. Am Cer Soc J 46:558-9 N '63

Quantitative infrared analysis of some water-soluble acids and salts. M. Dolinsky and C. H. Wilson. Anal Chem 36:1383-5 Je '64

Quantitative infrared microanalysis of high-boiling aliphatic neutral oil fractions. P. A. Estep and C. Karr, jr. bibliog Anal Chem 36:2215-18 O '64

Review of fundamental developments in analysis; infrared spectrometry. J. C. Evans. Anal Chem 36 [no 5]:240R-55R bibliog (p251R-5R) Ap '64

Sample preparation for infrared spectra of agar supported aqueous solutions of amino acids. M. L. Tarver and L. M. Marshall. Anal Chem 36:1401-2 Je '64

Silver chloride disk technique for infrared spectra of aqueous polymer suspensions. R. K. Metzler. bibliog Anal Chem 36:2378-9 N '64

Spectrometer cells for single and multiple internal reflection studies in ultraviolet, visible, near infrared, and infrared spectral regions. W. N. Hansen and J. A. Horton. bibliog il diags Anal Chem 36:783-7 Ap '64

Absorption spectra

Absorptivities for infrared determination of peroxyacyl nitrates. E. R. Stephens. Anal Chem 36:928-9 Ap '64

Analysis of bound styrene-butadiene content of copolymers by infrared absorbance ratio method. A. S. Wexler. Anal Chem 36:1829-31 Ag '64

Correlations between infrared spectrum and chemical composition of mica. W. Vedder. diags Am Mineralogist 49:736-68 bibliog(p766-8) My '64

Infrared absorption spectrum of nitrous oxide (N_2O) from 1830 cm^{-1} to 2270 cm^{-1}. E. K. Plyler and others. bibliog J Res Nat Bur Stand 68A:79-86 Ja '64

Infrared analysis of alpha-olefins. E. L. Saier and others. Anal Chem 35:2219-20 D '63

Infrared investigation of the olivine group minerals. D. A. Duke and J. D. Stephens. bibliog diags Am Mineralogist 49:1388-406 S '64

Infrared microcell. R. M. Chrenko. diags Anal Chem 36:1883-5 Ag '64

Infrared spectra of hydrolysis products of cottons reacted with typical nitrogenous crosslinking agents. S. H. Miles and others. Am Dyestuff Rep 53:440-4 Je 8 '64

Infrared spectra of phosphate minerals; symmetry and substitutional effects in the pyromorphite series. H. H. Adler. bibliog diag Am Mineralogist 49:1002-15 Jl '64

Infrared spectra of some 2-ketoses. L. M. J. Verstraeten. bibliog Anal Chem 36:1040-4 My '64

Infrared spectra of the crystalline inorganic borates. C. E. Weir and R. A. Schroeder. bibliog J Res Nat Bur Stand 68A:465-87 S '64

Infrared spectra-structure correlations of aliphatic amides in the 700- to 250-cm.$^{-1}$ region. J. E. Katon and others. bibliog Anal Chem 36:2126-30 O '64

Integrated absorption standardization for infrared determination of ester content in oxidized polyethylene. J. N. Lomonte. bibliog Anal Chem 36:192-4 Ja '64

O-2 transition of CO in condensed oxygen, nitrogen, and argon. S. Abramowitz and H. P. Broida. bibliog J Res Nat Bur Stand 68A:331-3 My '64

Purity examination of silicon and germanium halides by long-path infrared spectrophotometry. M. J. Rand. bibliog Anal Chem 35:2126-31 D '63

Rapid scanning infrared-gas chromatography instrument. A. M. Bartz and H. D. Ruhl. diag Anal Chem 36:1892-6 S '64

Results of magneto-optical investigation of rare-earth iron garnets. G. S. Krinchik and G. K. Tjutneva. bibliog J Ap Phys 35:1014-17 pt 2 Mr '64

Thermal radiation of methane gas. R. H. C. Lee and J. Happel. bibliog diag Ind & Eng Chem Fundamentals 3:167-76 My '64

Thickness measurement of polymer films for infrared spectrometry by beta-ray absorption. T. A. Veerkamp and others. Anal Chem 36:2277-8 N '64

Band spectra

Effect of nonuniform distribution of absorbing material on the quantitative measurement of infrared band intensities. J. L. Koenig. diag Anal Chem 36:1045-6 My '64

Molecular orbitals apply to adsorption. G. Blyholder. il Chem & Eng N 42:42-3 Je 22 '64

SPECTRUM, Microwave

Ferromagnetic resonance linewidth and internal biasing field in Ni-Fe films as a function of dispersion in the anisotropy field magnitude. R. H. Nelson. bibliog J Ap Phys 35:808-9 pt 2 Mr '64

Fine-grained ferrites; $Ni_{1-x}Co_xFe_2O_4$; high-power microwave and rf properties. W. W. Malinofsky and R. W. Babbitt. J Ap Phys 35:1012-14 pt 2 Mr '64

Industrial spectroscopy takes in microwaves. il Chem & Eng N 42:90 S 14 '64

Low frequency superregenerative oscillator design for the detection of broad-line nuclear magnetic resonances. A. Narath and others. bibliog diags R Sci Instr 35:476-80 Ap '64

Mass and microwave spectra, structures, and dipole moments of the isomers of sulfur monofluoride. R. L. Kuczkowski. bibliog diags Am Chem Soc J 86:3617-21 S 20 '64

Microwave spectrum, structure, dipole moment, and quadrupole coupling constants of 1,2,5-thiadiazole. V. Dobyns and L. Pierce. bibliog Am Chem Soc J 85:3553-6 N 20 '63

Versatile stark waveguide for microwave spectroscopy. D. R. Lide, jr. diag R Sci Instr 35:1226 S '64

Absorption spectra

Microwave absorption and density variation in moving striations. S. F. Paik and others. bibliog il diags J Ap Phys 35:2573-7 S '64

Microwave absorption and molecular structure in liquids. A. A. Antony and others. bibliog Am Chem Soc J 86:152-8, 3474-7 Ja 20, S 5 '64

SPECTRUM, Ultraviolet

Characterization of lignosulfonates by ultraviolet spectrometry. A. S. Wexler. bibliog Anal Chem 36:213-21 Ja '64

Determination of phenolic substances by ultraviolet difference spectrometry. A. S. Wexler. Anal Chem 35:1936-43 N '63

Determination of traces of alkaline earths in alkali halides by spectrophotometric titration in the ultraviolet. E. P. Parry and G. W. Dollman. bibliog Anal Chem 36:1783-6 Ag '64

Indirect ultraviolet spectrophotometric determination of silicon. L. Trudell and D. F. Boltz. Anal Chem 35:2122-4 D '63

Organic quantum chemistry; calculation of the near-ultraviolet spectra of polyolefins. N. L. Allinger and M. A. Miller. bibliog Am Chem Soc J 86:2811-19 Jl 20 '64

Rapid-scan far ultraviolet spectrophotometer for monitoring gas chromatograph effluent. W. Kaye and F. Waska. Anal Chem 36:2380-1 N '64

Review of fundamental developments in analysis; ultraviolet spectrometry. R. C. Hirt and J. M. Vandenbelt. Anal Chem 36 [no 5]:308R-12R bibliog(p311R-12R) Ap '64

Spectrometer cells for single and multiple internal reflection studies in ultraviolet, visible, near infrared, and infrared spectral regions. W. N. Hansen and J. A. Horton. bibliog il diags Anal Chem 36:783-7 Ap '64

Study of free energy relationships in hindered phenols; correlation of spectral properties with substituent constants. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3402-6 N 5 '63

Study of the gas-stabilized arc as an emission source for the measurement of oscillator strengths: determination of some relative *gf*-values for Fe I. M. Margoshes and B. F. Scribner. bibliog diag J Res Nat Bur Stand 67A:561-8 N '63

Ultraviolet properties of some polysilanes. H. Gilman and others. Chem & Ind p 1063 Je 20 '64

SPECTRUM, Ultraviolet—*Continued*

Ultraviolet spectra of phenyldisilicon derivatives. D. N. Hague and R. H. Prince. Chem & Ind p 1492 Ag 22 '64

Ultraviolet spectra of sulphoximines; ***d***-orbital interactions. M. Barash. Chem & Ind p 1261-2 Jl 11 '64

Ultraviolet spectrophotometric determination of an indicator as a measure of basic impurities in dimethylformamide. H. E. Zaugg and A. D. Schaefer. Anal Chem 36:2121-3 O '64

Ultraviolet spectrophotometric determination of copper as dipyrophosphatocuprate(II). M. L. Nebel and D. F. Boltz. bibliog Anal Chem 36:144-6 Ja '64

Vacuum spectrophotometer lowers ultraviolet range. Chem & Eng N 42:57-8 S 21 '64

Absorption spectra

New linear law and effects relating the ultraviolet spectra of substituted benzenes and the migration (spectroscopic) moment. M. Ballester and others. bibliog Am Chem Soc J 86:4276-82 O 20 '64

Statistical methods and Beer's law; ultraviolet absorption study of binary solutions containing a nitroparaffin. R. L. Foley and others. bibliog Anal Chem 36:1100-3 My '64

Steric effects on the near-ultraviolet absorption (Soret band) of porphyrins. A. W. Corwin and others. bibliog Am Chem Soc J 85:3621-4 N 20 '63

Steric enhancement of resonance; absorption spectra of N-alkyl- and N,N-dialkyl-2,4-dinitroanilines. M. J. Kamlet and others. bibliog Am Chem Soc J 86:4018-21 O 5 '64

Ultraviolet absorbancy of volatiles as a measure of oxidative flavor deterioration in egg powders. O. S. Privett and others. bibliog diags Food Tech 18:1485-8 S '64

Ultraviolet absorption spectroscopy in the study of vulcanization. D. W. Huke and C. E. Kendall. Rubber Chem & Tech 37:709-13 Jl '64

Ultraviolet spectra of native and denatured deoxyribonucleic acid. M. Falk. bibliog Am Chem Soc J 86:1226-8 Mr 20 '64

SPECTRUM, X ray

Automatic X-ray determination of lead and zinc in the tailings of an ore dressing plant. G. J. Sundkvist and others. diags Anal Chem 36:2091-4 O '64

Biotite mica effect in *X*-ray spectrographic analysis of pressed rock powders. A. Volborth. bibliog Am Mineralogist 49:634-43 My '64

Excitation of characteristic X rays by protons, electrons, and primary X rays. L. S. Birks and others. diags J Ap Phys 35:2578-81 S '64

Review of fundamental developments in analysis; X-ray absorption and emission. W. J. Campbell and J. D. Brown. Anal Chem 36 [no 5]:312R-28R bibliog(p323R-8R) Ap '64

Shake-up in spectrum analyzers. L. Dulberger. il Electronics 37:102+ O 19 '64

Silicate sample preparation for light-element analyses by X-ray spectrography. E. E. Welday and others. bibliog Am Mineralogist 49:889-903 Jl '64

Soft X-rays used to detect light elements. Chem & Eng N 41:40-1 N 25 '63

X-ray spectrographic analysis of raw materials for the cement industry. J. M. M. Robinson and E. P. Gertiser. bibliog Materials Res & Stand 4:228-31 My '64

X-ray spectrophotometer for simultaneous analysis of several elements. B. Jacobson and B. Lindberg. diags R Sci Instr 35:1316-19 O '64

X-ray spectroscopy; its role in process stream analysis. R. H. Munch. bibliog il diags I S A J 11:49-54 F '64

SPECTRUM analysis

Infra-red methods in inorganic analysis. R. J. Magee. bibliog Ind Chem 40:209-11, 286-8 Ap-My '64

See also

Mass spectrometric analysis
Spectrophotometers

SPEECH

Digital computer system for dynamic analysis of speech and sound feedback mechanisms. K. U. Smith and others. il diags Assn for Computing Mach J 11:240-51 Ap '64

Filming of speech therapy clinic sessions via tape-to-film process. L. J. Schram. SMPTE J 73:774 S '64

Method for time compression of instructional television materials. J. Loper. il SMPTE J 73:753-5 S '64

Some bandwidth compression systems for speech transmission. J. S. Williams. bibliog diags Radio & Electronic Eng 27:459-71; Discussion. 471-2 Je '64

Spectral characteristics of digit-simulating speech sounds. D. P. Borenstein. diag Bell System Tech J 42:2839-47 N '63

Speech immunity of push-button tone signaling systems employing tone receivers with guard circuits. L. Gasser and E. Ganitta. bibliog diags Elec Com 39 no 2:220-43 '64

Spoken digit recognizer for the Japanese language. K. Nagata and others. bibliog il diags Audio Eng Soc J 12:336+ O '64

Statistical properties of speech signals. D. L. Richards. bibliog Inst E E Proc 111:941-9 My '64

Talk your way to success. Mod Materials Handling 18:77 N '63; 19:83-4 Mr '64

Techniques in processing large quantities of audio spectrum analysis data. M. R. Weiss and C. M. Harris. il diags Audio Eng Soc J 12:147-52 Ap '64

Time-assignment speech interpolation in time-compression-multiplex transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog diag Inst E E Proc 111:675-83; Discussion. 683-4 Ap '64

Wideband spectrum analyser-synthesizer for the prediction and smoothing of interrupted speech. P. V. Indiresan. bibliog diags Radio & Electronic Eng 28:55-60 Jl '64

See also

Public speaking

SPEED

Critical speeds of torsional oscillation of geared-shaft systems due to the presence of displacement excitation. B. Porter. bibliog diags A S M E Trans ser E 31:25-8 Mr '64

Curves aid in determining critical speeds of stepped shafts; data sheet. N. F. Rieger. diag Machine Design 36:213-16 S 10 '64

Load capacity of short journal bearings with oscillating effective speed. B. K. Gupta and R. M. Phelan. bibliog diags A S M E Trans ser D 86:348-53; Discussion. 353-4 Je '64

See also

Velocity

SPEED indicators

See also

Accelerometers
Tachometers

SPEED variation

Adjustable speed dc drives. G. J. Thaler and M. L. Wilcox. bibliog diags Control Eng 10:75-99 N '63

Adjustable speed drive system. il diag Automation 11:197 Ap '64

Adjustable speed drives: match them to today's mechanical equipment. L. R. Tresino. il diags Plant Eng 18:106-11 Ag '64

Adjustable speed hydraulic drives. L. G. Jordan. il diags Iron & Steel Eng 41:91-7 Ap '64

Advances in mechanical power transmission; speed reducers, variable speed drive. Plant Eng 17:102 N '63

Application guide for the use of d-c motors on rectified power. N. Kaufman. IEEE Trans Power Apparatus & Systems 83:1006-9 O '64

Available adjustable speed dc drives; table lists drives designed as packaged units, motor plus speed control. R. J. Barber. Control Eng 10:103-6 N '63

Commutatorless variable speed motor for a.c. supplies. C. St J. Lamb. diag Engineer 216:954-5 D 6 '63

Compact coaxial reduction gear. il diag Engineer 218:424 S 11 '64

Dodge adjustable-speed reducer. il Mach 70:186 F '64

Drive ends pulley lubrication. il Mech Eng 86:63 Mr '64

Electric motors; adjustable speed. J. Campbell. diags Machine Design 36:41-8 Mr 19 '64

Electric motors; adjustable-speed drives. C. W. MacMeans and W. W. Moore. il diags Machine Design 36:134-43 Mr 19 '64

Electric motors; multispeed motors. L. P. Gregory. diags Machine Design 36:90-2 Mr 19 '64

Electrical, fluid, and mechanical adjustable-speed drives. F. D. Yeaple. bibliog diags Product Eng 35:139-50 Ap 27 '64

Guide to variable-speed mechanical drives. D. Z. Dvorak. il diags Product Eng 34:63-74 D 23 '63; 35:90-3 F 3 '64

High-hardness gears; key to compact reducers. I. Koenig. il diags Plant Eng 18:122-8 S '64

SPEED variation—*Continued*

High power variable ratio epicyclic gear; Margam B power station of the Steel company of Wales. il diag Engineering 196: 681 N 29 '63

How to evaluate the suitability of variable-speed pumping to the particular plumbing installation; guide for designers. J. E. McGinness, jr. Air Cond Heat & Ven 60: 71-6 N '63

Hydrodifferential transmission; new designs for variable speed. M. Schacter. diags Hydraulics & Pneumatics 17:65-8 Ap; 65-7 Ag '64

Picking a mechanical variable speed drive. R. L. Hatschek. il Mill & Factory 74:70-3 F '64

Planetary speed reducer. il diag Automation 11:99 F '64

Planetary variable speed reducer. il diags Plant Eng 18:145-6 F '64

Pole-change motors using phase-mixing technique. J. F. Eastham and E. R. Laithwaite. bibliog diags Inst E E Proc 109 pt A:397-409 O '62; Discussion. 110:1479-82; 111:321-3 Ag '63. F '64

Reducer varies speed infinitely. Eng N 172:45 F 6 '64

Shaft-mounted reducers; thrifty road to speed control. il Mill & Factory 75:54-5 Jl '64

Should we use variable speed pumps? answers. il diags Power 108:134-6 Jl '64

Smooth speed regulator for a.c. series motors. diag Engineer 216:746 N 1 '63

Speed reducers by swashplate. il Product Eng 35:62 S 14 '64

Three-speed single-winding induction motors. diags Engineer 217:399 F 28 '64

Thyristor control of Ward Leonard drives. B. J. Hodgskiss. il diags Ind Electronics 2:105-9 Mr '64

Thyristor variable-speed drives for machine tools. il Engineer 218:262-4 Ag 14 '64

Unique speed reducer offers infinitely adjustable ratios. il diags Food Eng 36:96 F '64

Variable-speed drives. il diag Engineer 216: 958 D 6 '63

Variable speed drives for sewage pumps. S. W. Williams, jr. and A. W. Kubik. diags WPCF J 35:1493-500 D '63

Variable speed fluid drives. il diag Automation 11:85 Ja '64

We flopped our gears after 30 years. L. Smith. il Power 108:166 Mr '64

When to consider using shaft-mounted drives. C. W. Dorman. il diags Foundry 92:141-2 F '64

See also

Electric motors—Control

SPEEDOMETERS

Cold flow replaces soldering. il diags Am Mach 108:74-5 Mr 2 '64

SPENDING. See Consumption (economics)

SPERMATOZOA

Electronic analyzer for measuring velocities and the concentration of spermatozoa. R. Rikmenspoel. bibliog diags R Sci Instr 35: 52-7 Ja '64

Microscopic chamber for simultaneous measurement of motility and respiration of spermatozoa. R. Rikmenspoel. il diags R Sci Instr 35:49-51 Ja '64

SPHERES

Accelerated motion of a sphere in a viscous fluid. L. M. Brush, jr. and others. bibliog Am Soc C E Proc 90 [HY 1 no 3764]:149-60 Ja '64; Discussion. 90 [HY 4 no 3980]: 365-9 Jl '64

Asymmetrical buckling of spherical caps under uniform pressure. G. A. Thurston. bibliog AIAA J 2:1832-3 O '64

Collapse of pressure-loaded spherical shells. B. Klein. bibliog AIAA J 1:482 F '63; [cont in] Roy Aeronautical Soc J 68:631-3 S '64

Contact stress problem for an elastic sphere indenting an elastic layer. L. M. Keer. bibliog A S M E Trans ser E 31:143-5 Mr '64

Direct analogy between mass and heat transfer to beds of spheres. A. Sen Gupta and G. Thodos. bibliog diag A I Ch E J 9:751-4 N '63

Distribution of specular points on a rough spherical surface. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1039-47 S '64

Drag minimization using exact methods. S. A. Powers. bibliog AIAA J 2:941-3 My '64

Drag of spheres in rarefied hypervelocity flow. M. Kinslow and J. L. Potter. bibliog il diags AIAA J 1:2467-73 N '63

Dynamic response of a solid, viscoelastic sphere to translational and rotational excitation. R. M. Christensen and W. C. Gottenberg. bibliog diag A M S E Trans ser E 31:273-8 Je '64

Electromagnetic scattering coefficients for concentric spheres and the problem of interference free enclosures. R. A. Eldred and others. diag J Res Nat Bur Stand 68D:1145-54 O '64

First approximation to magnetization curling in a chain of spheres. A. Aharoni. bibliog J Ap Phys 35:347-9 F '64

Growth of the turbulent inner wake behind 3-in.-diam. spheres. R. Knystautes. AIAA J 2:1485-6 Ag '64

Heat transfer between a gas and a spherical surface with the combined action of free and forced convection. L. S. Klyachko. A S M E Trans ser C 85:355-7 N '63

Heat transfer to a sphere for free molecule flow of a nonuniform gas. K. J. Touryan and G. Maise. diag AIAA J 1:2644-6 N '63

Hydromagnetics of a spherical conductor. G. S. S. Ludford and M. P. Singh. AIAA J 1:2660 N '63

Hypersonic wake characteristics behind spheres and cones. Z. J. Levensteins. bibliog il AIAA J 1:2848-50 D '63

Mass transfer from solid spheres. R. B. Keey and J. B. Glen. bibliog il Can J Chem Eng 42:227-32 O '64

Multiphase flow in pipelines; sphere use proves economical. A. E. McDonald and O. Baker. diag Oil & Gas J 62:118-19 Jl 6 '64

Multiphase flow in pipelines; spheres up capacity 30 to 70 per cent. A. E. McDonald and O. Baker. bibliog diags Oil & Gas J 62: 68-71 Je 15 '64

Nonsymmetric bending deformation of spherical shells. D. E. Johnson. bibliog A S M E Trans ser E 31:334-5 Je '64

Oscillating sphere in a rotating viscous fluid. M. P. Singh. AIAA J 2:1513-14 Ag '64

Quasi-one-dimensional treatment of chemical reactions in turbulent wakes of hypersonic objects. S. C. Lin and J. E. Hayes. bibliog AIAA J 2:1214-22 Jl '64

Scattering by a sphere. T. B. A. Senior and R. F. Goodrich. bibliog Inst E E Proc 111: 907-16 My '64

Sphere grinding and polishing. H. S. Belson. bibliog diags R Sci Instr 35:234-6 F '64

Stress and total strain rate distribution in spherical pressure vessels. A. E. Johnson and J. Henderson. Engineer 217:729-39 Ap 24 '64

Tooling to machine spheres. B. C. Brosheer. il Am Mach 108:98-100, cover Mr 16 '64

Transient axisymmetric thermoelastic problem for the hollow sphere. W. E. Warren. bibliog AIAA J 1:2569-76 N '63

Transitional behavior for the simultaneous mass and heat transfer of gases flowing through packed and distended beds of spheres. A. Sen Gupta and G. Thodos. bibliog Ind & Eng Chem Fundamentals 3: 218-20 Ag '64

Upper and lower bounds on the drug coefficient of a sphere in a power-model fluid. M. L. Wasserman and J. S. Slattery. bibliog A I Ch E J 10:383-8 My '64

Vibrations of elastic spherical shells. P. M. Naghdi and A. Kalnins. bibliog A S M E Trans ser E 29:65-72 Mr '62; Correction. 31:331 Je '64

Viscous and boundary effects on virtual mass. N. L. Ackermann and A. Arbhabhirama. diag Am Soc C E Proc 90 [EM 4 no 4014]:123-30 Ag '64

Visualisation of mass transfer rate around a sphere. K. Lee and others. il Roy Aeronautical Soc J 68:137-9 F '64

Welding rigid spheres; good application for ultrasonic bonding. il diag Plastics Tech 10: 11 My '64

Zonal flow inside an impulsively started rotating sphere. E. R. Benton. AIAA J 2: 1840-1 O '64

SPHEROIDS

Axial echo area of the prolate spheroid. E. M. Kennaugh and D. L. Moffatt. IEEE Proc 52:1252-3 O '64

Particle behavior in shear and electric fields: rigid spheroids and discs. C. E. Chaffey and S. G. Mason. bibliog diags J Colloid Sci 19: 525-48 Ag '64

SPHERULITES

Relationship between molecular weight, radial-growth rate, and the width of the extinction bands in polyethylene spherulites. P. H. Lindenmeyer and V. F. Holland. bibliog il J Ap Phys 35:55-8 Ja '64

SPHINGOLIPIDES
Synthetic studies of sphingolipids; synthesis of psychosine. D. Shapiro and others. bibliog Am Chem Soc J 86:4472-6 O 20 '64

SPICES
Expansion by design; Wm. J. Stange co. il Food Eng 36:78-9 F '64
Formulation becomes simpler, faster, more economical; Mayonnaise and salad dressing manufacturers association 30th annual meeting, Chicago. Food Eng 35:91-5 D '63
Short and accurate metering; of spices. il Engineering 198:179 Ag 7 '64
See also
Pepper

SPIDERS
Danger from loxoscleles reclusus. Archives Environmental Health 7:716 D '63

SPILLWAYS
Design of a small flood control spillway. A. R. Pagan. plan diag Pub Works 95:112-14 Ag '64
Energy dissipators for spillways and outlet works; progress report. bibliog diags Am Soc C E Proc 90 [HY 1 no 3762]:121-47 Ja '64; Discussion. il 90 [HY 4 no 3980]:359-63 Jl; [HY 5 no 4050]:201-22 S '64
Hydrology of spillway design. H. O. Banks and others. bibliog maps Am Soc C E Proc 90 [HY 3 no 3912]:235-310 My '64
New tainter gate hoist. H. S. Green. il diags Am Soc C E Proc 90 [PO 2 no 3970]:1-9 Jl '64
Spillway cage is no greenhouse. il Eng N 171:24 D 12 '63
See also
Stilling basins

SPIN, Nuclear. See Atomic nuclei—Spin

SPIN of electrons. See Electrons—Spin

SPIN of protons. See Protons—Spin

SPINACH
Effect of pH adjustment and high-temperature short-time processing on color and pigment retention in spinach purée. S. M. Gupte and F. J. Francis. bibliog Food Tech 18:1645-8 O '64

SPINDLES (machine tools)
Drills make drills that make drills. il Am Mach/Metalworking Manuf 107:73 N 25 '63
Maintenance of ball bearing machine tool spindles. S. V. Swanson, jr. il Mill & Factory 74:104-7 My '64
Spindle noses; reference book sheet. diags Am Mach 108:159 Ap 13 '64
Stiff spindle speeds cutting. R. H. Eshelman. il diag Iron Age 193:78-9 Je 25 '64

SPINE
Designing vehicle seats for greater comfort. J. J. Keegan and A. O. Radke. diags S A E J 72:50-5 S '64

SPINELS
Cathodoluminescence of Mn^{2+}- and Fe^{3+}-activated magnesium aluminate spinel. F. A. Hummel and J. F. Sarver. Electrochem Soc J 111:252-3 F '64
Cationic distribution in cobalt spinels. J. T. Richardson. bibliog diags J Ap Phys 35:664-8 Mr '64
Electrical conductivity in the spinel system $Co_{1-x}Li_xV_2O_4$. D. B. Rogers and others. bibliog J Ap Phys 35:1069-70 pt 2 Mr '64
Fluorescent rare earths in semiconducting thiospinels. L. Suchow and N. R. Stemple. bibliog Electrochem Soc J 111:191-5 F '64
Greigite, the thio-spinel of iron; a new mineral. B. J. Skinner and others. bibliog Am Minerologist 49:543-55 My '64
High-power effects in flame-sprayed and hot-pressed nickel-aluminum-gallium spinels. J. E. Zneimer and others. diags J Ap Phys 35:1020-2 pt 2 Mr '64
Magnesium spinel coating electrochemically formed on magnesium; HAE (modified) H. W. Huggins. Plating 51:317-23 Ap '64
Magnetic structures in $FeCr_2S_4$ and $FeCr_2O_4$. G. Shirane and others. bibliog J Ap Phys 35:954-5 pt 2 Mr '64
Phase equilibria in the spinel region of the system $FeO-Fe_2O_3-Al_2O_3$. B. D. Roiter. bibliog Am Cer Soc J 47:509-11 O '64
Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64
Spinel-type ferrites containing fluorine. M. Schieber. bibliog J Ap Phys 35:1072-3 pt 2 Mr '64
See also
Magnesium aluminate

SPINNING
Art and science of fibre-making. M. M. Zwick. bibliog flow sheets il diags Chem & Ind p953-60 Je 6 '64
Double your miniature spinning tests. il Textile Ind 128:167-8+ Ag '64
Effect of fiber-forming conditions on the microstructure of acrylic fiber. M. Takahashi and others. bibliog il Textile Res J 34:87-97 F '64
Everyday spinning and spooling problems. il Textile Ind 128:105-6 Je '64
Fact file 1964. Textile World 114:60+ Jl '64
Some break drafts to avoid. diags Textile Ind 128:169-71 My '64
Velocity, temperature, and concentration distributions during fiber spinning. R. M. Griffith. diags Ind & Eng Chem Fundamentals 3:245-50 Ag '64
Waste at roving; how much is too much? F. C. Wilson. il Textile World 114:78-9 S '64
Wet spinning of high-strength, low-elongation polyvinyl alcohol fibers. M. M. Zwick and C. van Bochove. bibliog il diags Textile Res J 34:417-30 My '64
See also
Bobbins
Cotton spinning
Nylon spinning

SPINNING, Metal. See Metal spinning

SPINNING machinery
Apron sag kayoed. il Textile Ind 128:64-6+ F '64
At Roberts the key word is responsiveness; maker of yarn processing machinery. Mod Textiles Mag 44:29-30+ N '63
Automation, bale to cone. H. J. Jones. il diags Textile Res J 33:1036-41 D '63
Block creeler's hero; slubber lay counter. il Textile Ind 128:69-70 F '64
Draper's approach to automatic doffing of filling spinning frames. J. C. Huff, jr. Textile Res J 33:1046-8 D '63
Heany's new ceramic guides. il diag Mod Textiles Mag 45:87-8+ O '64
How to spin stretch yarns. J. L. Clements. il diags Textile Ind 128:85-9 Ag '64
Long time no change; Morgan mills' Springfield plant replaced the nickel-plated ring traveler with a surface-treated traveler. il Textile Ind 128:73-4 F '64
New method for processing coarse count yarns. il Mod Textiles Mag 44:26 D '63
New mill keeps expanding; Federal spinning corp. il Textile World 113:63-5 D '63
Nix on yarn handling. il Textile Ind 128:76-7 Mr '64
Platt's new automated spinning system. G. J. Bradley. il Mod Textiles Mag 45:25+ My '64
Ringless spinning updated. G. J. Kyame and H. R. Copeland. il diag Textile World 114:48-51 Mr '64
See also
Drawing frames
Twisting machines

Cleaning

Automated cleaning. R. H. Hocutt. Textile Res J 33:1049-54 D '63

SPINOCHROME M. See Pigments, Biological

SPIRAL gearing. See Gearing, Spiral

SPIRES
Gas-metal-arc welding used to fabricate aluminum church steeple. il Welding J 43:690-1 Ag '64
Welded aluminum steeple subs for concrete. il Welding Eng 49:86 Jl '64

SPIRO compounds
Isomerisation of keto-ethers to spiroketals; synthesis of 26-alkyl steroidal sapogenins. R. D. Youssefyeh and others. bibliog Chem & Ind p421-3 Mr 7 '64
Photolysis of spiro[2.5]octa-1,4-dien-3-one in ethyl ether; a note on the mechanism of photolysis of 2,5-cyclohexadienones. D. I. Schuster and C. J. Polowczyk. bibliog Am Chem Soc J 86:4502-3 O 20 '64
Small-ring, spiroalkyl cations. J. A. Landgrebe and D. E. Applequist. bibliog Am Chem Soc J 86:1536-49 Ap 20 '64

SPLICES. See Knots and splices

SPLINES. See Keys and keyways (machinery)

SPONTANEOUS combustion
Bunker fires can be prevented with this CO_2 inerting system. H. M. Rayner. diag Power Eng 68:49-51 My '64
Determination of self-heating rates of coal. J. F. Cudmore. diags Chem & Ind p 1720-1 O 10 '64
How hazardous are hot metal surfaces? H. W. Husa and E. Runes. il Oil & Gas J 61:180+ N 11 '63

SPOOLING
Everyday spinning and spooling problems. il Textile Ind 128:105-6 Je '64

SPORTS
See also
Golf

SPOT tests. See Microanalysis

SPOT welding. See Electric welding

SPRAY booths. See Paint spraying—Booths

SPRAY cooling ponds. See Cooling ponds

SPRAY guns. See Spraying apparatus

SPRAY painting. See Paint spraying

SPRAY residues on fruits and vegetables
- Colorimetric determination of 6-methyl-2,3-quinoxalinedithiol cyclic carbonate (Morestan) residues in apples and pears. R. Havens and others. J Agri & Food Chem 12:247-8 My '64
- Determination of amiben in tomatoes by electron affinity gas chromatography. C. A. Bache and others. bibliog J Agri & Food Chem 12:185-7 Mr '64
- Determination of residues of *O,O*-dimethyl-*S*-(*N*-methylcarbamoylmethyl) phosphorodithioate (dimethoate) in fruits and forage. H. F. Enos, jr, and D. E. H. Frear. bibliog diag J Agri & Food Chem 12:175-7 Mr '64
- Extraction and determination of karathane residues in fruits. W. W. Kilgore and K. W. Cheng. J Agri & Food Chem 11:477-9 N '63
- Modified analytical method for microgram amounts of metaldehyde in plant material. Y. Kimura and V. L. Miller. bibliog J Agri & Food Chem 12:249-50 My '64
- Pest control, chemical residues, and the quality of the finished product. E. F. Stier. Food Tech 18:168-71 F '64

SPRAYING and dusting
- Cockroach spray method; evaluating liquid household insecticides against crawling insect pests, latest revision. Soap & Chem Spec Blue Book p231-2 '64
- Exposure to Guthion during spraying and formulating. Z. Jegier. bibliog Archives Environmental Health 8:565-9 Ap '64
- Factors affecting the application of low-volume sprays: aerial crop spraying. R. C. Amsden. bibliog Roy Aeronautical Soc J 68:535-9 Ag '64
- Health hazards in insecticide spraying of crops. Z. Jegier. bibliog Archives Environmental Health 8:670-4 My '64
- Legal liabilities arising out of crop spraying operation. J. L. Brooks. Roy Aeronautical Soc J 68:553-9 Ag '64
- Night spraying. W. E. Ripper. Roy Aeronautical Soc J 67:758-60 D '63
- Polyvinyl chloride coated garments safeguard workers in spraying and dusting operations. il Safety Maint 127:13-14 F '64
- Protective clothes; PVC coated rayon safeguards men who spray and dust insecticides. il Plastics World 21:56 N '63
- Research and development of chemical distribution equipment for agricultural aircraft in California. N. B. Akesson and W. E. Yates. bibliog il diags Roy Aeronautical Soc J 67:760-7 D '63
- Some current ideas regarding the rotating distributor. D. R. Johnstone. bibliog il diags Roy Aeronautical Soc J 67:767-70 D '63

See also
Airplanes in agriculture

SPRAYING apparatus
- Disinfectant fogging techniques. R. J. McGray and others. il Soap & Chem Spec 40:75-8+ Mr '64
- Flame sprayed nickel aluminide coatings; how and where to use them. D. H. Sitzer. il Metal Prog 86:128+ S '64
- How to control fungi in cooling towers. C. W. Brown. il diags Hydrocarbon Process & Pet Refiner 43:146-8 Ag '64
- Pipe system squelches noxious fumes from kiln stacks; McNear co. il Rock Prod 66:95 D '63
- Plasma jet spraying. Engineer 217:1005 Je 5 '64
- Plasma jet spraying torch. il diag Metallurgia 70:79-80 Ag '64
- Plating with a metal mist. D. J. Levy. il diag Iron Age 194:59-61 O 22 '64
- Precise oxide spray coats computer memory disc. G. Close. il Mach 70:112-14 N '63
- Spray gun on stick applies silicone to hot pole-top equipment. W. S. Waeckerle. il Elec World 161:76 Ap 6 '64
- Spraying speeds wall partition plastering. il Eng N 173:83 O 8 '64
- Talc dusting by electrostatic spray. il Rubber World 150:99 My '64
- Thickness distribution in a sheet formed by impinging jets. D. Hasson and R. E. Peck. bibliog diags A I Ch E J 10:752-4 S '64

See also
Containers, Pressurized

Manufacture
- Mechanization cuts costs for producing paint spray guns. W. A. Delger. flow diag il Automation 11:68-9 S '64

SPRAYING of metals. See Metal coating

SPRAYING of plastics. See Plastic spraying

SPRINGBACK in metals. See Bending

SPRINGFIELD, Massachusetts

Sewerage
- Sewer restored by gunite process. J. D. McDonald. il map Pub Works 95:103-4 F '64

SPRINGS
- Mineral waters of Quebec. R. Paquet. Can Min & Met Bul 57:939-44 S '64

See also
Mineral waters

SPRINGS (mechanism)
- Annual conference, Coil spring federation and Spring manufacturers research association, Torquay, England, May 7-9. Metallurgia 69:257-8 Je '64
- Austempering of carbon steel springs. E. S. Harwood. il diag Metallurgia 69:82-3 F '64
- Die forms spring clip in one stroke. P. Cady. diag Am Mach 108:87 Jl 6 '64
- Effect of third harmonic vibratory force on a linear spring-mass system. C. L. Kirk. diags Roy Aeronautical Soc J 67:799-803 D '63
- Elastica supported at midpoint by a spring. G. E. Sliter and A. P. Boresi. bibliog diags Am Soc C E Proc 90 [EM 2 no 3854]:1-15 Ap '64; Discussion. R. L. de Neufville. 90 [EM 4 no 4000]]:193-4 Ag '64
- Elastomeric-and-steel sandwich spring dampens helicopter vibrations. il diag Product Eng 35:64-5 Jl 20 '64
- Flat springs hold panels and doors; drawings with text. F. W. Wood, jr. Product Eng 35:88-9 Mr 30 '64
- Free-wheel transmission. P. Tout-Kowsky. il diags Engineer 216:924-5 N 29 '63
- How to stiffen bellows with springs; drawings with text. R. O. Parmley. Product Eng 35:100-1 O 26 '64
- Mechanical properties of beryllium copper wire and springs. R. D. Crooks and W. R. Johnson. Metal Prog 85:89-91 My '64
- Metal selector; spring alloys. Steel 155:sup S20-2 O 12 '64
- Packaging holds down customer costs. il Steel 155:45 S 21 '64
- Reinforced epoxy outperforms hardened steel in springs. il Mod Plastics 42:127 S '64
- Rocket wire springs and musicians problem. il Steel 154:72+ Ja 27 '64
- Simple laboratory device for winding fused quartz springs and an improved design of spring for use in sorption balances. C. T. Hawkins and J. W. G. Musty. diags J Sci Instr 40:544-5 N '63
- Spring-mass correction in uniform circular motion. R. Weinstock. Am J Phys 32:370-6 My '64
- Spring performance of electrical contact alloys. C. S. Barker. il Product Eng 35:62-6 My 11 '64
- Springs; new life for old reliables. il Steel 154:96-101 Mr 16 '64
- Stored energy or solenoid; which circuit breaker closing mechanism should you use? S. E. Zocholl. il diags Plant Eng 18:130-3 Ap '64
- Unique way to seal rotating shafts. A. L. Decker. diags Chem Eng 71:170+ Jl 20 '64
- Wire needed for springs; nomographs; reference book sheet. J. W. Diachenko. Am Mach 108:73 F 3 '64

See also
Automobiles—Springs and suspension
Motor trucks—Springs and suspension

Design
- Compression springs for spring-return mechanisms; data sheet. R. D. Chandler. diags Machine Design 36:159-62 Ag 13 '64
- Computer analysis of leaf springs. R. J. Allwood. diags Automobile Eng 54:393-5 S '64
- Design and application of metallic flexures for equipment with specific life requirements. N. B. Rothfuss and others. il diags Machine Design 36:218+ S 10 '64
- Design formulas and procedure for U-shaped torsion springs. R. E. Hanslip. bibliog diags Product Eng 35:77-82 Ag 3 '64
- Designing hairsprings quickly and accurately; with nomographs. R. L. Peters. Product Eng 35:161-2 Je 22 '64

SPRINGS (mechanism)—Design—*Continued*
How to design plastics springs. R. L. Peters. diags Mod Plastics 41:115-19+ Jl '64
Spring design. K. Weiss. Automobile Eng 54:268-71 Je '64
Storing energy in springs. J. T. Gwinn, jr. diags Machine Design 36:166-72 Mr 26 '64

Tables, calculations, etc.

Nomograph to establish tolerances for compression and extension wire springs. R. L. Peters. Wire & Wire Prod 38:1718+ N '63
Short-time relaxation test for spring materials. C. L. Carlson. diags Materials in Design Eng 59:110-11 Je '64
Storing energy in springs. J. T. Gwinn, jr. diags Machine Design 36:166-72 Mr 26 '64

Testing

Falling weight simulates nuclear blast. il diags Machine Design 36:166-7 S 10 '64
Life estimation radiation effects nomograph. R. L. Peters. Wire & Wire Prod 39:1339+ S '64
Nomograph for the maximum stress for extension and compression spring wire. R. L. Peters. Wire & Wire Prod 39:565+ Ap '64
Pilot tests doublecheck long runs. il Am Mach 108:107 F 17 '64
Technique for determining the stress-relaxation properties of spring materials. P. J. Howard and P. M. G. Silvester. diags Metallurgia 69:293-5 Je '64
Testing large coil springs. il Engineer 218: 143 Jl 24 '64

SPRINKLERS
Nonuniformity and sprinkler application efficiency. D. T. Howell. bibliog diags Am Soc C E Proc 90 [IR 3 no 4052]:41-53 S '64
Portable water towers load 10,000 gallon sprinklers. il Roads & Sts 107:59+ Ja '64
Sprinkler nonuniformity characteristics and yield. D. T. Howell. diag Am Soc C E Proc 90 [IR 3 no 4053]:55-67 S '64
Sprinklers. il diags Product Eng 35:78-9 Je 22 '64

SPRINKLING systems
Improved test for water-spray fire system. E. T. Woznicki. il Elec World 161:75 Je 29 '64

SPRUCE
Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64
Isolation and properties of a glucomannan from a white spruce pulp. J. M. Vaughan and E. E. Dickey. bibliog Tappi 47:142-3 Mr '64
Variation in growth characteristics and wood properties of Norway spruce. F. Mergen and others. bibliog Tappi 47:499-504 Ag '64

SPURLIN, Harold M.
Anselme Payen award. por Chem & Eng N 42:105-6 Ap 20 '64

SPUTTERING. See Surface phenomena

SQUALENE
Influence of dietary phytol, isophytol, and squalene on the tocopherol content of liver tissue. W. J. Pudelkiewicz and others. J Nutrition 83:111-14 Je '64
Tetracyclosqualene and its bearing on the structure of cyclized rubber. M. A. Golub and J. Heller. bibliog Rubber Chem & Tech 37:486-90 Ap '64

SQUIRREL cage motors. See Electric motors, Induction

STABILITY, Airplane. See Airplane stability and stabilizers

STABILITY, Chemical. See Chemical stability

STABILITY, Electric. See Electric distribution —Stability

STABILITY, Ship. See Ships—Stability

STABILITY of systems
Concept of stability. W. J. Cunningham. bibliog diags Am Scientist 51:425-36 D '63
How to check linear systems stability. C. H. Hoffman. diags Control Eng 11:75-80 Ag '64
Method for the determination of the domain of stability of second-order nonlinear autonomous systems. E. F. Infante and L. G. Clark. bibliog diags A S M E Trans ser E 31:315-20 Je '64
Real-frequency stability criteria for linear time-varying systems. J. J. Bongiorno, jr. diags IEEE Proc 52:832-41 Jl '64; Correction. 52:1127-8 O '64
Relative stability via the direct method of Lyapunov. W. G. Vogt. A S M E Trans ser D 86:87-90 Mr '64
Stability study of pulse-width-modulated feedback systems. E. I. Jury and T. Nishimura. bibliog diags A S M E Trans ser D 86:80-6 Mr '64

STABILIZING agents
Chromatographically homogeneous egg lecithin as stabilizer of emulsions for intravenous nutrition. H. J. Zeringue and others. bibliog Am Oil Chem Soc J 41:688-91 O '64
Fatty amine oxides. E. Jungermann and M. E. Ginn. bibliog Soap & Chem Spec 40:59-62 S '64
See also
Plastics—Stabilizers

STACKING machines
Books offset in stacks by counter control. il diag Automation 10:89-90 N '63
Buying a stacker crane? W. R. Platte. il diags Plant Eng 18:126-8 F '64
Magnets speed sheet stacking. il diag Iron Age 192:150-1 D 5 '63
Offers pushbutton storage. il Food Eng 36:142 My '64
Pushbuttons cue sheet handling. il Iron Age 192:99 D 12 '63
Scottish use for a stacker crane. il Engineering 196:764 D 13 '63
Self-guiding platform ups picker's productivity. B. A. Hammann. diag Mod Materials Handling 19:44-5 S '64
Six cylinders stack concrete blocks. diags Hydraulics & Pneumatics 17:18+ S '64
Stacker crane is key to increased efficiency. il Mod Materials Handling 19:78 Mr '64
Stacker cranes. Iron & Steel Eng 41:197 F '64

STACKS. See Chimneys

STADIUMS
Build stadium now, roof it later. il Eng N 171:57 N 14 '63
Cantilevered stands carry round arena's long-span roof. il diag Eng N 173:26-7 O 29 '64
Concrete catenary roofs arena. diags Eng N 172:24 Je 4 '64
CPM lowers risk of high penalties. il diag Eng N 173:24-5 Jl 23 '64
Hyperbolic-paraboloid cantilevers roof stadium. il Eng N 172:22 Mr 12 '64
Large timber-built hall. il Engineer 217:538 Mr 20 '64
New designs in giant reinforced plastic roof. il Mod Plastics 41:108-9+ Ag '64
Plastic turf wins football tryout to oppose the rain. il Chem Eng 71:96 N 9 '64
Record-span dome roofs air-conditioned stadium. il diag Eng N 172:26-8+ F 27 '64
Several significant southern stadia. il diag Prog Arch 45:64-5 My '64
Skewed arches span Berlin arena. il diag Eng N 172:137 Mr 19 '64
Space frames span sports arena. il diag Eng N 172:56 Mr 19 '64
Stadium domed roof completed. il Eng N 173: 64 Ag 6 '64
Stadium seating; a potential in the millions. il Mod Plastics 42:110-13+ S '64
Steel cables suspend 220-ft-dia roof from concrete cantilevers. il Eng N 172:40-1 Je 11 '64
Stimulating structures at Crystal Palace. il diags Engineering 198:85 Jl 17 '64
Suspension roof frees arena from column obstructions. il diag Arch Rec 135:185 Je '64
Tokyo's Olympic buildings reach last lap. il Eng N 173:24-5 S 24 '64
Welded steel frames world's largest clear-span domed stadium. T. B. Jefferson. il diags Welding Eng 49:55-7 Je '64
World's largest domed stadium takes shape in Texas. il Civil Eng 34:74 Ja '64

Lighting

Assembly hall lighting. il diag Prog Arch 45:176-80 Ap '64

STAGE mechanism
Movable structures for stages. O. Sööt. il Prog Arch 45:196-200 S '64

STAGE setting and scenery. See Theaters—Stage setting and scenery

STAINED glass
Fused stained glass. il Glass Ind 45:552 O '64

STAINLESS steel. See Steel, Stainless

STAINS and staining (microscopy)
Fading effect in methylene blue staining of wool fiber sections. J. L. Davies. Textile Res J 33:400-2, 1028-9 My, D '63
Identifying colorless transparent particles by microscopy. W. C. McCrone and J. S. Martin. il diags Res/Develop 15:28-31 N '64
Some interactions of anionic dyes used in medical and biological research and teaching. E. Gurr. bibliog Soc Dyers & Col J 79: 461-4 O '63

STAIRWAYS
Staircase lighting. il Illum Eng 59:490-1 Jl '64

STAIRWAYS, Concrete
Analysis and design of a cantilever staircase. P. L. Gould. il diags Am Concrete Inst J 60:881-99 Jl '63; Discussion. 61:1945-8 Mr '64

STAIRWAYS, Concrete—*Continued*

Free-standing stairs. F. Sauter. bibliog diags Am Concrete Inst J 61:847-70 Jl '64

Helicoidal staircase study. A. R. Cusens and S. Trirojna. bibliog il diags Am Concrete Inst J 61:85-102 Ja '64; Discussion. 61:1191-4; Reply. 1195-6 S '64

STAMPING

Die stamps and stacks in sequence. C. L. Kobrin. il diags Iron Age 193:122-3 F 20 '64

Electrical discharge machining trims stamping costs, holds 0.0015 in. tolerance. il Steel 154:105 Ap 20 '64

Gaged press avoids overloading. R. A. Gibbons. il Iron Age 192:164-5 N 14 '63

How they stamp those new stainless steel razor blades. il Am Mach 108:72-3 Je 8 '64

How to design stiffening ribs for sheet-metal stampings. F. Strasser. diags Iron Age 193:90-1 Mr 19 '64

Long, short work runs justified on heavy-duty stamping line. il Iron Age 193:84-6 F 13 '64

Minster line of eccentric geared presses. il Mach 70:162 Je '64

New features incorporated in Baird multi-slide machines. il Mach 70:135-6 Ja '64

Press line switches dies quickly. il Iron Age 193:83 My 7 '64

Press stamps burr-free parts. R. H. Eshelman. il diags Iron Age 194:84-5 Jl 16 '64

Progressive dies make miniaturized parts. J. H. van der Burgt. diags Tool & Manuf Eng 53:53-5 O '64

Rx for stamping problems. M. F. Carter. il diags Am Mach 108:110-11 O 26 '64

Rx; Siamese twin four slide. R. M. Henry and B. Schneider. il diags Am Mach 108:60-1 Jl 6 '64

Same line stamps families of parts. il Steel 154:68 My 11 '64

Savings with stampings. R. E. Kreger. diags Product Eng 35:93-9 O 26 '64

Stamped countersinks cost less to make. E. Loeffel and J. Zug. il diags Am Mach/Metalworking Manuf 107:92 N 25 '63

Stamping and welding Pontiac chassis frames. J. Geschelin. il Automotive Ind 130:59-62 Ja 15 '64

Stamping wins redesign award. il diag Steel 154:65 Ap 27 '64

STAMPS, Trading. See Trading stamps

STANDARD cells

Testing

Measurement of standard cells at the National bureau of standards. il diag Engineer 217:416-18 F 28 '64

Standardizing standard reference cells. il Engineering 197:93-4 Ja 17 '64

STANDARD frequency radio stations. See Radio stations, Standard frequency

STANDARD oil company (Kentucky)

Decision nearing in Esso-Kyso suit. Oil & Gas J 61:88-9 D 30 '63

STANDARD oil company (New Jersey)

How Standard selects its overseas managers. Pet Management 36:60-1 Jl 15 '64

Jersey centralizes services for its New York affiliates. G. T. Kinney. Oil & Gas J 62:110-11 O 5 '64

STANDARD oil company of Ohio

Sohio gets back on road to growth. il Chem & Eng N 42:40-3 Ag 17 '64

Sohio prospers despite its handicaps. C. E. Spahr. Oil & Gas J 62:50-1 Ag 24 '64

STANDARDIZATION

Acceptance standards for nondestructive tests. H. Migel. diags Mech Eng 86:118-20 Ap '64

Aggregate economy through universal standardization. D. L. Bloem. Pit & Quarry 57:118-20 Ag '64

ASTM's administrative committee on standards. G. H. Harnden. Materials Res & Stand 3:923-4 N '63

Antitrust laws and standardization. Mag of Stand 34:368-71 D '63

Antitrust laws and standardization of future design or performance. Mag of Stand 35:166-8 Je '64

Better equipment, simpler methods widening air cargo future. il S A E J 72:74-5 O '64

How standardization solves punch problems, cuts costs. il Steel 153:58-9 N 11 '63

Impact of standardization. A. S. Schultz, jr. Mag of Stand 34:340-3 N '63

Improvement of mining practice by standardization; Star mine. W. Dunphy. diags Min Cong J 50:39-43 Ap '64

India's industries study standards. il Mag of Stand 34:331-3 N '63

Long-range problems in standardization; National conference on standards report. Mag of Stand 35:106-7 Ap '64

Problem; standardizing instruments, solution; digital systems. D. Gertz and L. Leavitt. il diags Electronics 37:65-70 O 19 '64

Proposed changes to standardize fluid power symbols. J. J. Pippenger. diags Plant Eng 18:119-21+ My '64

Some important problems of standardizing societies. T. A. Marshall, jr. Materials Res & Stand 4:303-4 Je '64

Specification standards and their value. E. P. Rossman. Air Cond Heat & Ven 61:79-81 O '64

Standardization and the development of trade. A. Y. Viatkine. Mag of Stand 35:237 Ag '64

Standardization in the Republic of Korea. il Mag of Stand 35:195-7 Jl '64

Standardization of gas well tests. L. D. Galloway and H. L. Kendrick. bibliog J Pet Tech 16:1113-16 O '64

Standardization + modernization boosts sales 50 per cent. W. J. Davidson. il Mach 71:129-32 S '64

Standardizing the design of draw dies. diags Mach 70:117-22 My '64

Standardizing the design of forming dies. diags Mach 70:90-4 Ja '64

Standardizing the design of progressive and transfer dies. diags Mach 70:86-91 Ag '64

Standardizing the design of punching dies. diags Mach 70:90-3 N '63

Standards featured on radio in Washington. Mag of Stand 34:378-80; 35:17-19 D '63-Ja '64

World viewpoints on standardization; National conference on standards report. Mag of Stand 35:108-9 Ap '64

See also

American standards association
Electric standards
Fits (machinery)
Lumber—Standards
Safety codes
Standards, Engineering

STANDARDIZATION, International organization for. See International organization for standardization

STANDARDS

Actions on standards (cont). Materials Res & Stand 3:1019-21; 4:42+, 87-92, 139-40, 199-200, 338-9, 385, 564-70, 627-9 D '63-Ap, Je-Jl, O-N '64

Cross-indexing industry and military specifications and standards. Published in monthly numbers of Magazine of standards

NBS and measurement standards. il Electro-Tech 74:91-9 O '64

Product certification: putting standards to work. G. B. Tebo. il Mag of Stand 35:131-5 My '64

Standards laboratory; a unique structural design problem. J. C. O'Neal. bibliog il I S A J 10:66-70 N '63

Tire makers adopt uniform standards. Rubber Age 95:786 Ag '64

See also

Electric standards
National conference on standards
Quality of products
Radio standards
Safety standards
Standards engineers society
Television standards

also subdivision Standards under special subjects, e.g.

Amplifiers
Boilers
Concrete, Reinforced
Concrete construction
Control equipment
Drafting room practice
Electric apparatus and appliances
Electric conduits
Electric equipment
Electric motors
Electric motors, Direct current
Electric substations
Electric wiring
Electronic apparatus and instruments
Electronics
Gas appliances
Gearing
Household products
Hygiene, Industrial
Lenses
Lighting
Lubrication and lubricants
Lumber

STANDARDS—See also—*Continued*

Machine tools
Machinery
Magnetic tape
Metals
Moving picture cameras
Moving picture films
Moving picture machines
Moving picture sound recording
Nuclear engineering
Petroleum—Well tubing
Petroleum products
Photography
Piping (power plants)
Plastics
Plumbing
Pressure vessels
Radioactive substances
Rifles
Rubber
Semiconductors
Sound—Recording and reproducing
Steel
Valves
Water
Water pipes, Asbestos cement
Water supply
Weights and measures

Bibliography

Guide to governmental assurance documentation; data sheet. W. B. Rossnagel. Machine Design 36:157-61 Ap 9 '64

Newly published American standards (cont). Mag of Stand 35:59-62, 122-4, 188-9, 253-4, 314-17 F, Ap, Je, Ag, O '64

Standards from other countries (cont). Mag of Stand 34:352-3, 386; 35:23-4, 88, 149-50, 182-3, 215-16, 247-8, 278-9 N '63-Ja, Mr, My-S '64

Brazil

Regime of weights and measures in Brazil. P. Sá. Mag of Stand 35:39-40 F '64

Germany

DIN standards: the work of the German standards association. A. Zinzen. il Mag of Stand 34:363-7 D '63

Great Britain

Machine tool standards: users' needs. Engineering 197:307 F 28 '64

New and revised British standards. Metallurgia 69:232 My '64

Shape of British standards to come. C. D. Woodward. Engineer 217:7-9 Ja 3 '64

Will Britain go metric? Mag of Stand 35:78 Mr '64

India

India's industries study standards. il Mag of Stand 34:331-3 N '63

Korea

Standardization in the Republic of Korea. il Mag of Stand 35:195-7 Jl '64

Russia

Measurement experts report on Soviet visit. Mag of Stand 35:45-7 F '64

STANDARDS, Chemical. See Chemical standards

STANDARDS, Engineering

British standard recommendations for temperature units. Y. R. Mayhew and G. F. C. Rogers. Engineer 216:997 D 13 '63; Discussion. 217:178, 313 Ja 24, F 14 '64

DIN standards: the work of the German standards association. A. Zinzen. il Mag of Stand 34:363-7 D '63

Mechanical impedance; the language of shock and vibration. S. Levy. il Mag of Stand 35:198-201 Jl '64

Should government set standards? Eng N 173:30-1 Ag 20 '64

See also

American standards association
Building—Standards
Electric standards
Fits (machinery)
Standardization

STANDARDS, Government

Meeting government packaging standards. R. H. Thomas. Drug & Cosmetic Ind 94:31-2+ Ja '64

Should government set standards? Eng N 173:30-1 Ag 20 '64

STANDARDS, International

Are participants in international standards work violating government regulations? S. D. Hoffman. Mag of Stand 34:345-7 N '63

Character recognition, information interchange headed for world standardization. Mag of Stand 35:217-18 Jl '64

Common language of quality; new international standard for inspection by attributes. W. R. Pabst, jr. Mag of Stand 35:41-4 F '64

Electrical industry benefits from IEC participation. Mag of Stand 35:265-8 S '64

International freight container sizes. Engineer 218:137 Jl 24 '64

International progress on mechanical vibration and shock. il Mag of Stand 35:232-3 Ag '64

International standards meeting on plastics pipes, Wiesbaden, Nov. 4-8. Brit Plastics 37:27 Ja '64

International standards work on dentistry. Mag of Stand 35:80 Mr '64

International system of units adopted by National bureau of standards; engineering data sheet. Welding Eng 49:59 Jl '64

Meeting of the sub-committee on units of the International gas union, 4th, Paris. Gas 40:89-90+ Ag '64

NBS adopts International system of units. Electro-Tech 73:13 My '64

NBS adopts International system of units. Instruments & Control Systems 37:131 Ap '64

Progress report on international standardization relating to coal and coke. R. L. Coryell and W. H. Ode. il Min Cong J 49:49-51 D '63

Proposed code of practice for reinforced concrete. Engineer 217:172 Ja 24 '64

Significance of extra-high-voltage standards around the world. L. O. Barthold and E. M. Hunter. bibliog il Mag of Stand 34:372-7 D '63

Standardization and the development of trade. A. Y. Viatkine. Mag of Stand 35:237 Ag '64

Towards an international code of practice for reinforced concrete. Engineering 197:197 Ja 31 '64

See also

International organization for standardization

STANDARDS, Military

Geometric and positional tolerance symbol system. H. A. Pohs. diags Machine Design 36:102-8 Ja 30 '64

How Chevrolet 283 cubic in. engines were adapted to meet military specifications. il Automotive Ind 129:52-3 D 1 '63

International standard for attribute sampling. O. A. Cocca. bibliog Ind Quality Control 21:249-53 N '64

Maintainability index verification. E. P. O'Connell. bibliog Ind Quality Control 20:14-17 Ap '64

Military standard engine program means huge savings for armed forces. W. E. Schulz. Automotive Ind 129:36-7+ D 1 '63

Mil-Std-105D. W. R. Pabst, jr. bibliog Ind Quality Control 20:4-9 N '63

Muffler makers aid army r&d in military standards program; abstract. I. J. Schumacher and others. diag S A E J 72:106 Ja '64

STANDARDS association, American. See American standards association

STANDARDS engineers society

Annual meeting, 12th, Washington, Sept. 23-25. Mag of Stand 34:334-8 N '63

STANDARDS manuals. See Instruction manuals

STANDLEY, William H.

Obituary. por Naval Eng J 75:1050+ D '63

STANDPIPES

Just a detail; standpipe seal for Dungeness nuclear power-station. S. C. F. Wills. diags Engineer 218:217-19 Ag 7 '64

STANDPIPES, Steel

Standpipe extension increases pressure. L. K. Parker. il Water Works & Wastes Eng 1:52-3 O '64

STANNANES. See Tin compounds

STANNATES

Crystal and molecular structure of a carbonium ion: 3-chloro-1,2,3,4-tetraphenylcyclobutenium pentachlorostannate. R. F. Bryan. diags Am Chem Soc J 86:733-4 F 20 '64

See also

Lead stannate

STANNIC iodide. See Tin iodides

STAPHYLOCOCCI

Experimental mixed infections in mice; staphylococcus aureus and candida albicans. M. H. Lepper and others. bibliog il Archives Environmental Health 8:570-83 Ap '64

Survival of staphylococci on hospital surfaces. P. Skaliy and G. W. Sciple. bibliog Archives Environmental Health 8:636-41 My '64

STAPLES

Power-driven, magazine-loaded staple, T-nail and special fastener. L. K. Grimes. Wire & Wire Prod 39:885-7+ Je '64

STAPLING machines
Anvil attachment speeds stapling of aluminum. il diag Light Metal Age 22:23 Ag '64
Power-driven, magazine-loaded staple, T-nail and special fastener. L. K. Grimes. Wire & Wire Prod 39:885-7+ Je '64
Stitcher eliminates a bottleneck. il Am Mach 108:55 Ag 3 '64

STARCH
Bulk starch handling and automatic mixing. F. W. Velguth. il diags Tappi 47:sup 148A-52A Ap '64
Cationic dispersions of dialdehyde starch. P. J. Borchert and J. Mirza. bibliog Tappi 47:525-8, 583-6 S '64
Cold water-soluble starches marketed by A. E. Staley. Chem & Eng N 42:45-6 Ja 13 '64
Determination of hydroxyethyl group in hydroxyethyl starch by pyrolysis: gas chromatography technique. H. Tai and others. diags Anal Chem 36:108-10 Ja '64
Dialdehyde starch promising in glue for plywood industry. F. B. Weakley and C. L. Mehltretter. Chem & Eng N 42:58+ S 21 '64
Economics and design of a bulk starch handling system. J. C. Coulter. diags Tappi 47:sup 143A-6A Ag '64
Enzyme conversion of starch. J. E. Maryanski. diags Paper Ind 46:209-12 Je '64
Laboratory method for comparing the effects of starches in white water. W. S. Davis, jr. Tappi 47:sup 129A-30A Ag '64
Nonstop route to a better finish; continuous starch cooker. il Textile Ind 128:205+ O '64
Oxidation of wheat starch. B. H. Thewlis. bibliog J Ap Chem 13:464-6 O '63
Starch vinylation; determination of optimum conditions by response surface designs. J. W. Berry and others. bibliog Ind & Eng Chem Proc Design 2:318-22 O '63; Discussion. I. Klein and D. I. Marshall. 3:287-8 Jl '64
Structure, properties and amylolytic degradation of starch. C. T. Greenwood. bibliog il diags Food Tech 18:732-8 My '64
Thresholds shown by the iodine-starch and iodide-iodate-starch calibration lines. R. E. A. Drey. bibliog Anal Chem 36:2200 O '64
Upgrades product and process; new milo starch cuts preparation time for pie fillings. W. H. Minkema. il Food Eng 36:94 Ap '64
Xanthation of starch by a continuous process. C. L. Swanson and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:22-7 Mr '64
See also
Amyloses
Cornstarch
Potato starch

STARK effect
Stark effect of phenol blue (electrochromism). J. C. Powers, jr. and others. bibliog Am Chem Soc J 86:1004-8 Mr 20 '64

STARS
Broadband radio-star scintillations. D. G. Singleton. bibliog il maps diags J Res Nat Bur Stand 68D:867-79, 1095-108 Ag, O '64
Discovery of stellar aberration. A. B. Stewart. diags Sci Am 210:100-8 Mr '64
Origin of the elements. W. A. Fowler. bibliog il Chem & Eng N 42:90-104 Mr 16 '64 (reprints $1)
Quasar hypotheses. Sci Am 211:38-9 Ag '64
See also
Galactic systems
Magellanic clouds
Meteors
Stars, New

Distance

Quasi-stellar radio sources. J. L. Greenstein. il diag Sci Am 209:54-62 D '63

Reddening

Redshift and deflection of photons by gravitation; comparison of relativistic and Newtonian treatments. A. J. O'Leary. bibliog Am J Phys 32:52-5 Ja '64

Temperature

Star temperatures found low by infrared telescope. Franklin Inst J 276:575 D '63

STARS, New
Supernova electrons. Sci Am 210:71 F '64

STARS, Variable
Radio-emitting flare stars. B. Lovell. il Sci Am 211:13-19 Ag '64

STARVATION
Hypertension and cardiovascular abnormalities in starved-refed swine. G. S. Smith and others. bibliog il J Nutrition 82:173-82 F '64
Nutrition and biochemistry of survival during Newcastle disease virus infection; relation of clinical symptoms and starvation to nucleic and free amino acids of avian liver. R. L. Squibb. bibliog J Nutrition 82:422-6 Ap '64
Starvation diets. Drug & Cosmetic Ind 94:271 F '64

STATE buildings
See also
Capitols

STATE highway officials, American association of. See American association of state highway officials

STATE highway officials, Western association of. See Western association of state highway officials

STATE parks and reserves
Graveyard of ships; John Pennekamp coral reef state park, Florida. B. Kofoed. il Comp Air Mag 68:22-4 N '63

STATIC control. See Electric control

STATIC electricity. See Electricity, Static

STATIC relays. See Relays

STATICS
Engineering mechanics. S. K. Fenster. bibliog diags Electro-Tech 74:63+ Ag '64 (reprints $1)
Graphical method for determining reactions and bending moments in beams; data sheet. R. Feng. diag Machine Design 36:191-4 F 13 '64
See also
Dynamics
Electrostatics
Hydrostatics

STATION wagons. See Automobiles

STATISTICAL mechanics
Coefficient of thermal expansion and Young's modulus for a one-dimensional model of a solid. J. Mazur and R. J. Rubin. bibliog Am J Phys 31:835-6 N '63
Hydrates at high pressures; application of statistical mechanics to the study of the hydrates of methane, argon, and nitrogen. S. Saito and others. bibliog A I Ch E J 10:734-40 S '64
Microcanonical ensemble. A. V. Tobolsky. Am J Phys 32:799-802 O '64
Quantum statistics and lasers. J. P. Gordon. bibliog J Res Nat Bur Stand 68D:1031-3 S '64
Statistical mechanics of a quantum system of hard lines. D. Henderson. bibliog Am J Phys 32:795-8 O '64
Work of T. H. Berlin in statistical mechanics. M. Kac. Phys Today 17:40-2 O '64
See also
Distribution function
Phase space

STATISTICAL methods
Adding statistics to measurement. H. Locher. il diags Control Eng 11:88-90 Ap '64
Automatic statistical analysis. W. E. Mason. il diag Ind Electronics 2:58-60 F '64
Bayesian statistics. L. G. Locke. Ind Quality Control 20:18-22 Ap '64
Comparison of probability distributions in the analysis of drought flows. D. J. O'Connor. bibliog map Water & Sewage Works 111:180-5 Ap '64
Determination of service life of mass plant items. J. C. Adams, jr. Am Water Works Assn J 56:881-5 Jl '64
Determinations based on duplication of readings. J. A. Speckman. J Res Nat Bur Stand 68B:49-53 Ap '64
Determining data system accuracy. W. J. Irwin and D. E. Korsch. bibliog I S A J 11:55-60 S '64
Development of testing techniques for evaluating high temperature coatings systems. J. C. Wurst. bibliog il Plating 51:978-83 O '64
Drawability of type 301 stainless. C. K. Divers. il Metal Prog 86:115-18 Ag '64
Effect of long decay chains on the counting statistics in the analysis of $radium^{224}$ and $radon^{222}$. H. F. Lucas, jr. and D. A. Woodward. bibliog J Ap Phys 35:452-6 F '64
Error analysis. P. K. Stein. Instruments & Control Systems 37:136-8 Je '64
Estimating Weibull-distribution parameters. J. V. J. Ravenis, 2d. bibliog Electro-Tech 73:46-54 Mr '64
Evaluating performance of automatic gaging machines. R. L. Esken. il diags Tool & Manuf Eng 52:85-8 Mr '64

STATISTICAL methods—*Continued*

Evaluation of a new modal split procedure. A. B. Sosslau and others. map diags Pub Roads 33:5-9+; Discussion. 17-19 Ap '64

Extrapolating component life tests. C. Toye. diags Electro-Tech 74:36-9 O '64

Fitting $y\beta x$ when the variance depends on x. J. Van Dyke. J Res Nat Bur Stand 68B: 67-72 Ap '64

General application of Youden's rank sum test for outliers and tables of one-sided percentage points. T. A. Willke. J Res Nat Bur Stand 68B:55-8 Ap '64

Generalization of Rennie's inequality. A. J. Goldman. bibliog J Res Nat Bur Stand 68B: 59-63 Ap '64

How to solve non-compatible simultaneous equations. R. M. Ingels. Chem Eng 71:133-6 O 26 '64

In-process gaging brings out machine capability. F. Giordano. il diags Tool & Manuf Eng 52:65-7 Je '64

Interpretation of truncated sequential life tests. H. Ginsburg and D. H. Shaffer. bibliog Ind Quality Control 21:186-91 O '64

Introduction to statistical methods used in the mineral industries. A. C. Dorenfeld. bibliog diags Eng & Min J 165:179-85 Je '64

Investigation of the statistics of wave heights. R. C. Goodknight and T. L. Russell. bibliog maps diag Am Soc C E Proc 89 [WW 2 no 3524]:29-54 My '63; Discussion. C. L. Bretschneider. 90 [WW 1 no 3814]:153-66 F '64; Reply. 90 [WW 4 no 4117]:135-9 N '64

Laboratory method for evaluating chemicals as bird repellents. R. I. Starr and others. bibliog J Agri & Food Chem 12:342-4 Jl '64

Linearisation of backlash in control systems with random inputs. W. A. Brown. bibliog diags Inst E E Proc 11:379-86 F '64

Long-term immunity to tetanus; a statistical evaluation and its clinical implications. S. Gottlieb and others. bibliog Am J Pub Health 54:961-71 Je '64

Make statistics an engineering tool. diags S A E J 72:30-7 Mr '64

Measurement error propagation. J. R. Miller, 3d. Instruments & Control Systems 37:133-4 Je '64

METIFOR, a statistical method for insulation design of ehv lines. J. G. Anderson and L. O. Barthold. bibliog flow chart diags IEEE Trans Power Apparatus & Systems 83:271-80 Mr '64; Discussion. 83: 437-40; Reply. 440-1 Ap '64

Mean time between failure confidence limits. T. A. Simonds. Ind Quality Control 20:21-7 D '63

New-product decision making. E. D. Wang. bibliog Machine Design 36:112-15 Ag 13 '64

Optimal periodic inspection programs for randomly failing equipment. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:223-8 O '63

Optimization of engineering problems. C. Zener and R. Duffin. diag Westinghouse Eng 24:154-60 S '64

Orientation distribution function of statistical segments in deformed polymer networks. R. J. Roe and W. R. Krigbaum. bibliog J Ap Phys 35:2215-19 Jl '64

Overflow traffic from a trunk group with balking. P. Linhart. bibliog Bell System Tech J 43:45-89 Ja '64

Permutation decoding of system codes. J. MacWilliams. Bell System Tech J 43:485-505 pt 2 Ja '64

Phase unbalance in low-voltage distribution systems. M. Davies and R. G. Paterson. bibliog diags Inst E E Proc 109 pt A:535-41; 111:145-6 D '62, Ja '64

Predicting compressive strength from properties of the fresh concrete. V. M. Malhotra. bibliog Materials Res & Stand 3:483-5 Je '63; Discussion. 4:296-7 Je '64

Predicting system checkout error. W. D. Moon. diags Electro-Tech 73:46-50 Ja '64

Primer for supervisors on quality control statistics. F. Vogel. Textile Ind 128:148-50 Ap; 119+ Jl; 157-8 S '64

Probing active systems statistically for faults. A. A. Wolf. diags IEEE Proc 52:443-4 Ap '64

Proposed revision of recommended practice for evaluation of compression test results of field concrete [ACI 214-57]. Am Concrete Inst J 61:1057-72 S '64

Prospecting: statistical and quality control techniques. E. R. Ott. bibliog Ind Quality Control 20:13-14+ N '63

Quality control by three-bracket testing. J. M. McCormick and F. W. Preston. il Am Cer Soc Bul 43:439-42 Je '64

Quick and easy method of analysis on organoleptic data. K. I. Hayakawa and E. F. Stier. bibliog Food Tech 18:1470-3 S '64

Random-sample audit verifies stores. il Elec World 162:109 S 21 '64

Ranking laboratories and evaluating methods of measurement in round-robin tests. T. W. Lashof. bibliog Materials Res & Stand 4:397-407 Ag '64

Role of topography in the cutting performance of abrasive tools. H. T. McAdams. bibliog diags A S M E Trans ser B 86:75-81 F '64

Some applications of statistical extreme value theory to yarn breakage. R. I. Slinger. bibliog Textile Res J 34:5-10 Ja '64

Some reliability problems in the chemical industry. H. Smith and S. D. Dubey. bibliog il diag Ind Quality Control 21:64-70 Ag '64

Stage development of wastewater treatment works. W. R. Lynn. bibliog WPCF J 36: 722-51 Je '64

Statistical analysis of fatigue limits using the logistic function. A. H. Soni and R. E. Little. bibliog Materials Res & Stand 4:471-4 S '64

Statistical analysis of lung trace element levels. I. H. Tipton and J. J. Shafer. bibliog Archives Environmental Health 8:58-67; Discussion. 110-14 Ja '64

Statistical analysis of some aeromagnetic maps from the northwestern Canadian shield. C. W. Horton and others. bibliog maps diags Geophysics 29:582-601 Ag '64

Statistical analysis of the distribution of substituents for soluble and insoluble hydroxyethyl cellulose. J. J. Stratta. bibliog Tappi 46:717-22 D '63

Statistical and numerical methods in chemical engineering; symposium series abstracts. Chem Eng Prog 60:84+ My '64

Statistical aspects of double isotope liquid scintillation counting by internal standard technique. R. J. Herberg. Anal Chem 36: 1079-82 My '64

Statistical control in the small foundry. K. L. Edmondson. Foundry 92:249+ Ap '64

Statistical correlation of the efficiency of perforated trays. R. N. Finch and M. Van Winkle. bibliog diag Ind & Eng Chem Proc Design 3:106-16 Ap '64

Statistical design and analysis of geochemical exploration surveys. M. P. Nackowski and others. diags Min Cong J 50:56-9 My '64

Statistical distribution of stress corrosion endurance. F. F. Booth and others. Corrosion 19:390-5 N '63

Statistical evaluation of blasting tests in longwall slashing. G. Anders. Can Min & Met Bul 57:49-51 Ja '64

Statistical evaluation of concrete strength tests. P. D. Cady. bibliog Am Soc C E Proc 89 [CO 1 no 3453]:19-31 Mr '63; Discussion. 89 [CO 2 no 3653]:131-5 S '63; 90 [CO 1 no 3851]:61-2 Mr '64; Reply. 90 [CO 2 no 4051]:51-2 S '64

Statistical evaluation of recurrent medical examinations. T. L. Lincoln and G. H. Weiss. bibliog Op Res 12:187-205 Mr '64

Statistical evaluation rounds out ehv line design. J. G. Anderson and L. O. Barthold. diag Elec World 161:70-2 F 24 '64

Statistical evaluations based on weighted averages from non-normal distributions; problem 14-63; question and answer. C. F. Schach. Ind Quality Control 20:45-6 D '63

Statistical methods and Beer's law; ultraviolet absorption study of binary solutions containing a nitroparaffin. R. L. Foley and others. bibliog Anal Chem 36:1100-3 My '64

Statistical methods applied to mineral exploration. M. F. Ayler. map diags Min Cong J 49:41-5 N '63

Statistical methods for computing over-all system accuracy. C. S. Zalkind and F. G. Shinskey. diags I S A J 10:63-6 O '63

Statistical methods in radar astronomy; determination of surface roughness. H. S. Hayre. bibliog J Res Nat Bur Stand 67D: 763-4 N '63

Statistical methods in vibration analysis. R. H. Lyon and G. Maidanik. bibliog diags AIAA J 2:1015-24 Je '64

Statistical polyhedron model of abrasive grain. H. T. McAdams. bibliog diags A S M E Trans ser B 85:388-93; Discussion. 393-4 N '63

Statistical problems in electromagnetics; rough surface. W. S. Ament. bibliog J Res Nat Bur Stand 68D:451-4 Ap '64

STATISTICAL methods—*Continued*
Statistical properties of speech signals. D. L. Richards. bibliog Inst E E Proc 111:941-9 My '64
Statistical quality evaluation of out-turn samples. P. F. Pratte. diag Tappi 47:sup 156A-9A S '64
Statistical study of twins; methods. A. Gittelsohn and S. Milham. Am J Pub Health 54:286-94 F '64
Statistical surface thermodynamics of simple liquid mixtures. C. A. Eckert and J. M. Prausnitz. bibliog A I Ch E J 10:677-83 S '64
Statistical tables for testing random orientations of cubic crystals. J. W. Weymouth and J. H. Epstein. bibliog J Ap Phys 33: 2523-6; 35:3008-12 Ag '62; O '64
Statistical treatment of data and extreme-value theory in relation to fatigue in textiles. D. Prevorsek and others. bibliog diags Textile Res J 33:963-73 D '63
Symposium on signal statistics, Seattle, Wash. Dec. 6-7. J Res Nat Bur Stand 68D:923-1062 S '64
Theoretical deduction of fatigue scatter factor for structures. I. M. K. Malik. Aircraft Eng 36:223 Jl '64
Timing errors in a chain of regenerative repeaters. B. K. Kinariwala. bibliog Bell System Tech J 41:1769-97; 43:1481-504 N '62, pt 2 Jl '64
Two years of statistical quality control enforcement under article 5, California weights and measures code. H. N. Couden. Food Tech 18:156+ F '64
Type I and type II errors; question and answer. Ind Quality Control 20:26 Ap '64
Use of statistics in radar astronomy. I. Kay. J Res Nat Bur Stand 68D:849-50 Jl '64
Use these statistical tools for random vibrations. P. H. Wirsching. diags Product Eng 35:104-9 Je 22 '64
Volume analysis for an equalization tank. H. A. Dombeck. il Pub Works 95:83-5 Jl '64
X chart control limits based on a small number of subgroups. F. S. Hillier. bibliog Ind Quality Control 20:24-9 F '64
See also
Control charts
Correlation (statistics)
Curve fitting
Experimental design
Frequency distribution (statistics)
Games, Theory of
Geology—Statistical methods
Graphic methods
Interpolation
Least squares
Linear programming
Monte Carlo method
Operations research
Probabilities
Punched card system
Quality control
Sampling (statistical methods)
Sequential analysis
System simulation
Variance analysis

STATISTICAL quality control. See Quality control

STATISTICIANS
Biostatistician and health administration. M. Tayback. Am J Pub Health 54:603-8 Ap '64
Health statisticians and the American public health association. F. E. Linder. Am J Pub Health 54:1005-6 Je '64
Some responsibilities of the statistician. W. E. Deming. Ind Quality Control 20:8-10 Mr '64
Statistician and institutional policy. L. I. Dublin. Am J Pub Health 54:875-9 Je '64

STATISTICS
Principles of geostatistics. G. Matheron. diags Econ Geol 58:1246-66 D '63
Statistics of random surfaces. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1035-47 S '64
Statistics of time in photomultiplication. R. Euling. bibliog diags J Ap Phys 35:1391-403 My '64
See also
Medical statistics
Regression (statistics)
Variance analysis
Vital statistics
also subdivision Statistics under special subjects, e.g.
Accidents
Accidents, Industrial
Building
Coke industry
Cotton trade
Electric apparatus industry
Electric plants (central stations)
Electric utilities
Electricity supply
Gas, Natural
Gas industry
Lime industry
Liquefied petroleum gas
Metal working industries
Mortality
Petroleum industry and trade
Petroleum products
Plastics industries
Rubber industry and trade
Shipping
Telephone
Textile industry
Waterworks

STATUES
See also
Monuments

STEAK. See Beef

STEAM
Catalytic control of carbon deposition in steam-hydrocarbon reforming. J. M. Fox and J. C. Yarze. il Ind Chem 40:65-9 F '64
Condensing heat transfer in steam-air mixtures in turbulent flow. P. B. Stewart and others. bibliog flow diag diag Ind & Eng Chem Proc Design 3:48-54 Ja '64
Effect of dissolved oxygen on the oxidation of Zircaloy-2 by steam. B. Cox and B. R. Harder. bibliog Electrochem Soc J 110: 1110-13 N '63
Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64
International conference on the properties of steam, 6th, New York. Engineer 217:654-7 Ap 10 '64
International conference on the properties of steam, 6th, New York. Mech Eng 85:87-9 D '63
Low pressure steam curing. Am Concrete Inst J 60:953-86 bibliog(p984-5) Ag '63; Discussion. 61:1957-63; Reply. 1963-4 Mr '64
Nomograph solves valve sizing formulas for saturated steam; data sheet. F. Caplan. Heating-Piping 36:151-2 S '64
Quiet noise over steam flooding. J. E. Kastrop. il diag Pet Management 36:82-6 F; 80-1+ Mr '64
Relation between steam quality and void fraction in two-phase flow. H. Fujie. bibliog diag A I Ch E J 10:227-32 Mr '64
Size reduction of emulsion globules by steam injection. V. A. Jones and others. bibliog diags Food Tech 18:1463-6 S '64
Steam cleaning tips shorten back-to-work time. M. K. Dugener. il Roads & Sts 106: 36-7+ D 63
Steam is propellant in novel missile-launch idea. il Chem Eng 71:94 N 9 '64
World of Carnot. W. L. Cisler. Mech Eng 85:40-1 D '63
See also
Boilers
Evaporators
Steam flow
Steam heating
Steam sampling
Steam turbines
Superheated steam

Analysis

What is the best way to determine steam quality? question and answers. diag Power 108:180-1 Ap '64

Tables, calculations, etc.

Estimation of steady-state steam void-fraction by means of the principle of minimum entropy production. S. M. Zivi. bibliog A S M E Trans ser C 86:247-51; Discussion. 251-2 My '64
How much steam is required to heat water; data sheet with nomograph. F. Caplan. Heating-Piping 36:169-70 Ja 64

STEAM, Natural
Economic appraisal of geothermal power. A. Kaufman. il Min Eng 16:62-6 S '64
Geothermal heat shows possible use in the Fiji Islands. J. N. Monro. il Min Eng 16: 66-7 S '64
Interest in steam wells perks up in the Salton Sea area of extreme southern California. map Oil & Gas J 61:100-1 N 11 '63
Mexico pushes geothermal development. il map Oil & Gas J 62:39 Je 1 '64
New geysers to harness. il map Elec World 160:15-16+ D 9 '63
Pilot plant planned for developing geothermal brine. il Chem & Eng N 42:20 Ag 31 '64

STEAM, Natural—*Continued*

Pure Oil, magma power complete steam well. Chem & Eng N 42:24 Ja 13 '64

Soviets eye geothermal development. map Oil & Gas J 62:122-4 Jl 27 '64

Steam-well drilling pace is picking up along California's Salton Sea. il Oil & Gas J 62:66-7 Ap 20 '64

Two California wells tap rich steam. Oil & Gas J 62:58 Ja 13 '64

What's involved in the new steam play. C. J. Lawrence. il maps Oil & Gas J 62:60-3 F 10 '64

STEAM baths. See Baths, Vapor

STEAM boilers. See Boilers

STEAM condensers. See Condensers (steam)

STEAM distribution

See also

Steam pipe lines

STEAM engineering

Abstracts from the technical press, abroad and domestic. Published in monthly numbers of Combustion

See also

Boiler plants
Steam pipe lines
Steam plants
Steam turbines
Steamboats

STEAM engines

Veteran steam drive. Engineer 217:1156 Je 26 '64

See also

Flywheels
Steam plants
Steam turbines

History

Origins of the steam engine. E. S. Ferguson. il diags Sci Am 210:98-107 Ja '64

STEAM flow

Adiabatic, evaporating, two-phase flow of steam and water in horizontal pipe. R. W. Pike and H. C. Ward. bibliog diags A I Ch E J 10:206-13 Mr '64

Critical flow function for superheated steam. J. W. Murdock and J. M. Bauman. bibliog A S M E Trans ser D 86:507-16 S '64; Abstract. Combustion 36:23-4 Ja '63; Discussion. A S M E Trans ser D 86:517-18 S '64

Film boiling of steam-water mixtures in annular flow at 800, 1100, and 1400 psi. E. E. Polomik and others. bibliog il diags A S M E Trans ser C 86:81-7; Discussion. 87-8 F '64

Selection, installation and care of steam pressure reducing valves. W. R. Kelley. il diags Plant Eng 18:136-40 O '64

Trend toward increased velocities in central station steam and water piping. H. M. Soldan and E. J. Siegel. bibliog il plan diags Combustion 35:18-24 My '64

STEAM generators. See Boilers

STEAM hammers

Huge hammer base repair welded. il Welding Eng 48:52+ D '63

STEAM heating

Congregation listens to anvil chorus from heating system instead of sermon; what to do? question and answer. il diags Dom Eng 203:90-2 F '64

How to pipe, trap and troubleshoot steam heating systems. B. G. Dolven. diags Plant Eng 18:115-18 My '64

Poor steam circulation; its causes and cures; reference data. R. E. Bolaffio. diags Air Cond Heat & Ven 61:85-6 Jl '64

See also

Boilers, Heating
Heating from central stations
Steam flow

Return systems

Where to locate vacuum breakers for air heating coils. J. M. Thompson. diags Heating-Piping 35:140-1 N '63

Tables, calculations, etc.

Unit heater performance factors; reference data. J. D. Constance. Air Cond Heat & Ven 61:107-8 Ja '64

STEAM heating, Industrial

Can we use waste steam in snow melting coil? answer. H. B. Wayne. diag Heating-Piping 36:95 S '64

STEAM jets

Characteristics of the steam-jet vacuum pump; abstract. L. S. Harris and A. S. Fischer. Combustion 35:24-5 Ja '64

How to specify, evaluate and operate steam-jet air ejectors. R. B. Power. bibliog diag Hydrocarbon Process & Pet Refiner 43:121-6 F; 138-42 Mr; 149-52 Ap '64

Vacuum pump can replace steam jet. I. H. Rolih and R. C. Angell. Marine Eng/Log 69:70-1+ Ap '64

Vacuum pumping with steam jets. L. S. Harris. il diags Res/Develop 15:53-6 Ap '64

STEAM locomotives. See Locomotives

STEAM meters

Dual meters in series for wider range accuracy. diags Power 108:75 My '64

Dual-range metering system prevents overload on low range. E. O. Grafe. diag Control Eng 11:117+ Mr '64

Refine dual range steam metering. diag Heating-Piping 36:124-5 Mr '64

STEAM pipe lines

Faulty underground steam lines pose tough correction problems. F. Hasselriis and A. O. Coco. diag Power 108:58-9 Ja '64

Field investigation of underground heat distribution systems. F. A. Govan and H. A. Borger. ASHRAE J 6:53-8+ My '64

Industrial steam boiler plants and piping. W. J. Tallafuss. ASHRAE J 6:39-44 Jl '64

Nomograph gives steam line size to limit velocity; data sheet. F. Caplan. Heating-Piping 36:153-4 Ap '64

Soap plant observer; steam tracing system. W. J. Beach. diag Soap & Chem Spec 40:151-2 Jl '64

Sound piping design pays off in uninterrupted service. W. E. Turner and E. R. Wilbur. il Heating-Piping 35:149-51 N '63

$30,000 to correct a faulty $100,000 underground steam piping system. S. Elonka. il Power 108:76-80 Ag '64

See also

Piping (power plants)

STEAM pipes

Copter places big pipe on roof. il Eng N 173:29 Jl 30 '64

See also

Pipe fittings
Pipe hangers
Piping (power plants)
Steam flow
Steam heating
Steam traps

Corrosion

Filming amines, positive protection for the condensate return system. Oil & Gas J 62:74 Je 1 '64

Steam and condensate return line corrosion. M. F. Obrecht. il diags Heating-Piping 36:117-20 Jl; 126-9 Ag; 139-43 S; 116-22 O '64

Maintenance and repair

Faulty underground steam lines pose tough correction problems. F. Hasselriis and A. O. Coco. diag Power 108:58-9 Ja '64

$30,000 to correct a faulty $100,000 underground steam piping system. S. Elonka. il Power 108:76-80 Ag '64

Protection

Criteria for selection of underground heat distribution systems. N. M. Demetroulis. ASHRAE J 6:41-3 Ag '64

Select cast iron casing for underground pipe conduit. il Heating-Piping 36:194-5 Ap '64

Tables, calculations, etc.

Calculate flow and velocity through steam piping. C. A. Lee. Chem Eng 71:240 Je 8 '64

STEAM plants

Cardinal plant in Ohio integrates economic and technical advances. P. Sporn and J. A. Tillinghast. il diags Elec World 161:40-6 Mr 9 '64

Co-ops and investor-owned utility jointly building huge plant; Cardinal plant, Ohio power co. and Buckeye power, inc. il map Power Eng 67:36 D '63

New geysers to harness. il map Elec World 160:15-16+ D 9 '63

Planning and design of the Tracy generating station. H. J. Petersen and P. B. Spicer. il plan Eng J 47:23-7 F '64

Ready-reserve power plant. il Mech Eng 86:50 Ja '64

See also

Boiler plants
Boilers
Hydroelectric plants—Combination with steam plants
Piping (power plants)
Power plants
Steam, Natural
Water supply for power plants

Auxiliaries

Zero ambient boosts gas turbines's capability 50 per cent, soaks up waste heat. R. W. Wade and others. diags Elec World 161:24-5 Je 8 '64

STEAM plants—*Continued*

Combined power and process steam

Combined steam and gas turbine plants producing electricity and process steam simultaneously. R. Ecabert. diags Combustion 36:36-41 Ag '64

Utility steam sales offer double dividends. W. J. Fahrner and J. P. Lenihan. flow diag il Power Eng 68:56-7 My '64

Condensate recovery

Current trends in condensate treatment. F. N. Kemmer. bibliog il Power 108:76-9 My '64

Does your condensate tank work properly? F. Hasselris; H. T. Livingston. diag Power 107:163 D '63; 108:164 My '64

External regeneration; a feature of condensate demineralizer. il Water & Sewage Works 111:465 O '64

Ultrapure water for power plants. V. J. Calise and C. Dallman. bibliog diags Mech Eng 86:44-50 S '64

Construction

How U.S. power engineers are building a modern power plant on Okinawa. B. McCaw. il Power Eng 68:60-1 S '64

Noninsulated metal siding provides saving of more than $80,000. L. V. Gibney. diags Power Eng 68:48-9 O '64

Control equipment

Compact local control boards aid plant operation. I. E. Grant. il Elec World 160:67 O 21 '63

Direct energy balance control at Portland power station. J. L. C. Bachofer, jr. and D. R. Whitten. il diags I S A J 10:45-52 O '63

First computer-controlled power plant, Riverside station, Gulf states utilities co. J. A. Reich and T. H. Bloodworth. il Mech Eng 86:40-3 Je '64

Instrument society of America annual conference and exhibit. 18th. Chicago; new control devices in steam power field. il Combustion 35:50-4 N '63

National power instrumentation symposium. 7th. Denver, May 18-20; abstracts of papers. Combustion 36:29-34 Jl '64

On the way to full automation of power plants; three papers. H. Zwetz and others. bibliog diags Combustion 35:31-41 N '63

Quick boiler, turbine start-up helps Tracy station do its job. H. J. Petersen. il diag Power Eng 68:56-9+ Ap '64

Recorded voice warns of plant trouble at Gulf States Utilities. il Power 108:75 S '64

Startup at Riverside. E. J. Kompass. il Control Eng 11:69-73 Ja '64

Steam reducing valves and temperature controllers. diags Engineer 217:125-6 Ja 17 '64

Costs

Fuel costs for steam plants. Chem Eng 71:164 Je 22 '64

Old hydro site proves valuable in new thermal plant project. H. R. Cowles. il Power Eng 68:50-1 Jl '64

Power costs may drop 15 per cent. Elec World 160:79 N 18 '63

Design

American power conference 26th annual meeting. Chicago, April 14-16; abstracts of papers on Keystone station. Combustion 35:39-42 My '64

1964 energy systems design survey; steam plant trends and typical installations. Power 108:sup4-11 O '64

Plant takes special coal-water systems. Elec World 161:128 Mr 23 '64

Steam station design survey, 8th. L. M. Olmsted. il Elec World 162:113-28 O 19 '64 (reprints $1)

Trend toward increased velocities in central station steam and water piping. H. M. Soldan and E. J. Siegel. il plan diags Combustion 35:18-24 My '64

Efficiency

Calculator helps minimize heat rate loss. H. Ferguson. il diag Power 108:64-5 Ag '64

Dynamic optimisation of a boiler. H. Nicholson. bibliog flow diag diags Inst E E Proc 111:1479-99 Ag '64

Equipment

Air-cooled condenser proves out. J. Munro and J. Y. Parce. il Elec World 160:23 D 23 '63

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on Keystone station. Combustion 35:39-42 My '64

Big precipitator program started at Public service co. of Colorado. C. Waselkow. il Power Eng 67:42-3 D '63

Estimating forced evaporation from cooling ponds. G. E. Harbeck, jr. Am Soc C E Proc 90 (PO 3 no 4061):1-9 O '64

External regeneration; a feature of condensate demineralizer. il Water & Sewage Works 111:465 O '64

For steam plant care, chemical cleaning. il Engineering 198:206-7 Ag 14 '64

Free-standing deaerator cuts cost of plant design, New Orleans public service, inc. J. H. Hemsarth. il diag Power Eng 68:55 Je '64

Gas-turbine-supercharged cycle offers steam generator savings. W. P. Gorzegno and R. J. Zoschak. diags Elec World 162:54-7 O 5 '64

How to make total use of steam plants for economic peaking power. J. C. Spahr and D. R. Dobb. il Power Eng 67:55-7 D '63

Large-scale thermionic power generation from fossil fuels. C. V. Barnett and others. bibliog diags Inst E E Proc 110:785-92 Ap '63; Excerpts. Engineer 215:781-3 Ap 26 '63; Discussion. Inst E E Proc 110:2298-300 D '63

List of pumps required to make a big central station function. E. A. Sommerfield. Power Eng 68:58 S '64

1964 energy systems design survey; steam plant trends and typical installations. Power 108:sup4-11 O '64

Northfleet power-station. il Engineer 216:728-30 N 1 '63

Power plant on barge is floated to operating site. T. D. Coyne and F. Mele. il diag Power Eng 67:49-51 N '63

Two supercritical steam units to make station largest west of Mississippi; Pacific gas & electric co. D. V. Kelly and R. M. Laverty. il diag Elec World 162:54-7+ N 2 '64

Wabamun coal handling facilities. Z. Kolisnyk. il diags Eng J 46:46-50 O '63

See also

Coal handling
Condensers (steam)
Feed water heaters
Pumps, Feed water
Steam turbines
Superheaters

Fuel

Fuel costs for steam plants. Chem Eng 71:164 Je 22 '64

Peat power in Ireland. il Mech Eng 85:61 D '63

Sewage gas used to fuel Los Angeles steam plant. Elec World 161:97 Ja 13 '64

Unit train coal delivery; Commonwealth Edison co., Joliet station. H. M. Jensen. il map diags Combustion 36:23-8 Jl '64

Heating and ventilation

Power plant building services design. D. H. Roethenbach. diags Air Cond Heat & Ven 61:91-4 S '64

Power plant heating system design eliminates below 40 F outside air. D. H. Roethenbach. diags Air Cond Heat & Ven 61:42-3 F '64

High pressure

Case for supercritical pressure. E. M. Griffin and others. diags Power 108:63-5 My '64

Steam generation; designing for higher temperatures and pressures; supercritical pressure systems. R. J. Bender. flow diag il diags Power 108:sup24-38 Je '64

3500-psig operation should provide greater reliability; case for supercritical fossil-fueled plants. K. T. Momose. Power Eng 67:37-9 D '63

Location

Old hydro site proves valuable in new thermal plant project. H. R. Cowles. il Power Eng 68:50-1 Jl '64

Maintenance and repair

Critical Path scheduling for maintenance of steam turbine-generators. M. W. Cone. diags Combustion 36:36-43 Jl '64

Large steam plants are equipped to handle all maintenance and repairs. il Power Eng 68:41 O '64

Safety measures

Perils of poor piping. T. E. Bridge. Heating-Piping 36:136 My; 122 Je; 118-19 Ag '64

Recorded voice warns of plant trouble at Gulf States Utilities. il Power 108:75 S '64

STEAM plants, Outdoor

Early planning helps cut steam station construction cost. M. C. Abrahm and H. J. Petersen. il Power Eng 68:34-6 Ja '64

STEAM power plants. See Steam plants

STEAM research

International conference on the properties of steam, 6th, New York. Engineer 217:654-7 Ap 10 '64

See also

Steam—Tables, calculations, etc.

STEAM sampling

Simple method checks sodium content of boiler water. W. B. Gurney. il diag Elec World 161:125 Mr 23 '64

What is the best way to determine steam quality? question and answers. diag Power 108:180-1 Ap '64

STEAM traps

Capsule review of thermostatic traps. W. Roehreke. diag Hydrocarbon Process & Pet Refiner 43:184 Ap '64

How does one design drip legs for steam lines? answer. T. R. Stevens. diags Heating-Piping 35:89-90+ O; 110 N '63; Discussion. 36:88+ Je '64

Industrial steam trapping. R. S. Pollard. il diags Power 108:56-7 Ja; 78-9 Ap; 66-7 My; 72-3 Ag '64 (to be cont)

Poor steam circulation; its causes and cures: reference data. R. E. Bolaffio. diags Air Cond Heat & Ven 61:85-6 Jl '64

Sizing steam traps at air handling units; reference data. R. E. Bolaffio. Air Cond Heat & Ven 60:91-4 N '63

STEAM turbines

Auxiliary turbine drives for boiler feed pumps. A. W. Rankin. il diags Combustion 35:14-22 Ja '64

Combination boiler feed pumps drive economical for big unit. A. W. Rankin. diags Elec World 160:90-2 N 4 '63

Cost of compressor drives. diags Chem Eng 71:116 Ja 6 '64

Geared steam turbine for auxiliary drives. il Engineer 217:625 Ap 3 '64

Large steam turbine alignment problems. P. F. Carson and R. H. Telfer. il diags Engineer 216:680-4 O 25 '63

Research reactor makes use of existing turbine-generator set. il Power Eng 68:49-50 Ja '64

Blades

Automation comes to turbine blade machining. B. C. Brosheer. il diags Am Mach/Metalworking Manuf 107:97-102 D 9 '63

Closing piece for a steam turbine curtis wheel. D. Whitehouse. diags Engineer 217:786-7 My 1 '64

Collecting data off high speed rotors. P. R. Wiese and T. J. David. il diags Engineering 196:829-30 D 27 '63

Flow characteristics in steam turbines. K. W. Todd. il diags Engineering 196:582-4 N 8 '63

Fundamental torsional variations of solid aerofoils. J. C. Maltbaek. Engineer 217:391-2 F 28 '64

High performance low pressure turbine elements. R. O. Brown and others. bibliog il diags A S M E Trans ser A 86:386-91; Discussion. 391-2 Jl '64

Image amplifier for industrial use. il Engineer 217:622 Ap 3 '64

Integral shroud blade. F. S. Lynam. il diags Engineer 217:746-8 Ap 24 '64

Measurement of blade vibration in a steam turbine under load. R. F. Rissoné and H. L. Burrough. il diags Engineer 217:209-15 Ja 31 '64

Medical X-ray image amplifier used on blades. il Engineering 197:455 Mr 27 '64

Oxides erode turbine blades. T. H. Gladney and H. S. Fox. il Elec World 160:38-9+ D 30 '63

Quality-control aid in turbine blade production. il diags Ind Electronics 2:395-6 Ag '64

Role of blade vibration failures in improving steam turbine reliability. G. A. Luck. il diags Engineer 216:674-80 O 25 '63

Something new in watching turbine blades from the inside. F. V. Long. bibliog il diags Gas 40:62-3+ Ap '64; Same. Combustion 35:29-34 My '64

Vibration measurement in steam-turbine blade development. I. Finbow. il diag Ind Electronics 2:14-15 Ja '64

Control

Speed control methods for industrial turbines. R. J. Murphy. il diags Plant Eng 18:152+ Ap '64

Turbine-driven boiler feed pumps respond to precise control. M. Gottlieb and M. Peirpoline. diags Elec World 161:60-4. 160 Ap 6 '64

Turbine operation monitored continuously by radio. F. V. Long. il diag Power 108:78-9 S '64

Corrosion

New way to prevent corrosion in idle equipment. Power 108:129 Ja '64

Design

Design of 1000-mw steam turbine-generator unit for Ravenswood no.3. J. M. Driscoll and others. bibliog il diags A S M E Trans ser A 86:209-18 Ap '64

Flow characteristics in steam turbines. K. W. Todd. il diags Engineering 196:582-4 N 8 '63

High performance low pressure turbine elements. R. O. Brown and others. bibliog il diags A S M E Trans ser A 86:386-91; Discussion. 391-2 Jl '64

Increasing the ratings of single-shaft steam turbines. R. O. Brown. il Westinghouse Eng 24:15-18 Ja '64

900,000-kw turbine-generator for Bull Run station of TVA. C. Schabtach. il A S M E Trans ser A 86:219-24 Ap '64

Practical turbinology. R. C. McLeod. il diags Engineer 216:800-3 N 15 '63; Discussion. G. Broersma. 217:523 Mr 20 '64; Reply. 217:902 My 22 '64

Today's technology puts 700 mw on single-shaft turbine-generator. R. O. Brown and J. E. Donahue. il Elec World 160:102-3 N 4 '63

Turbo/generator uses integral lp cylinder/condenser design. diag Elec World 162:74 Jl 27 '64

Efficiency

Why new turbines are more efficient as a result of recent research. J. Davids. diags Power Eng 68:59-61 My '64

Failure

Thermal cracks in rotor crucial in large-turbine cyclic operation. W. R. Berry and I. Johnson. diags Elec World 161:94-7+ Je 15 '64

Lubrication

Determination of 2,6-di-*tert*-butyl-*p*-cresol in turbine oils. B. Braithwaite and G. Penketh. bibliog Anal Chem 36:185-8 Ja '64

Oxidation stability of steam turbine oils. A. C. M. Wilson. diag Inst Pet J 50:47-57 F '64

Manufacture

Eight-axis nc boring mill machines huge turbine frame. il Mach 71:154-6 S '64

Testing

Collecting data off high speed rotors. P. R. Wiese and T. J. David. il diags Engineering 196:829-30 D 27 '63

Something new in watching turbine blades from the inside. F. V. Long. bibliog il diags Gas 40:62-3+ Ap '64; Same. Combustion 35:29-34 My '64

Test your steam turbine. R. L. Gustafson and J. H. Watson. il diag Mech Eng 86:33-6 Ja '64

Vibration

Fundamental torsional variations of solid aerofoils. J. C. Maltbaek. Engineer 217:391-2 F 28 '64

Measurement of blade vibration in a steam turbine under load. R. F. Rissoné and H. L. Burrough. il diags Engineer 217:209-15 Ja 31 '64

Role of blade vibration failures in improving steam turbine reliability. G. A. Luck. il diags Engineer 216:674-80 O 25 '63

Vibration measurement on some stages of a 120mw steam turbine. L. E. Cave and others. il diags Engineer 218:485-90 S 25 '64

STEAM turbines, Marine

Esso Yorkshire operating fuel rate will be better than 0.49 lb per shp-hr. il Marine Eng/Log 69:32D Ap '64

GE's licensee builds first turbine. il Marine Eng/Log 69:28F O '64

Improved overspeed trip governor for marine turbines. H. E. C. Hims. il diags Engineer 218:499-500 S 25 '64

Turbines are bridge-controlled in Denmark's biggest ship. il Marine Eng/Log 69:54-5 Ag '64

Use of reversing systems for stopping of turbine-powered ships. G. Broersma and G. G. Maclennan. bibliog Naval Eng J 75:909-13 D '63

Work distribution in a high pressure naval turbine. J. H. Potter and J. G. Lynch. bibliog diags Naval Eng J 76:299-304 Ap '64

Testing

Full power testing for steam turbines. il Engineering 196:482 O 18 '63

Prototype steam turbine on test. il Engineer 216:642-3 O 18 '63

STEAMBOAT lines

Alaska

Alaska Steamship inaugurates full vanship service. il Marine Eng/Log 69:32A Jl '64

United States

American owned fleets; tables. Marine Eng/Log 69:185+ Je 15 '64

STEAMBOATS

So long, Stavangerfjord. il Marine Eng/Log 69:22C Ja '64

SS Shalom. il plans Marine Eng/Log 69:27-33 Je '64

See also
Boilers, Marine
Ship propulsion
Steam turbines, Marine

STEARATES

Effect of pH and salt content of the hypophase on molecular area relationships for monomolecular films of quaternary ammonium stearates. J. L. Pauley and others. bibliog J Colloid Sci 19:602-5 S '64

Evaluation of butyl stearate, butyl oleate, butyl ricinoleate, and methyl linoleate as poly(vinyl chloride) plasticizers. G. R. Riser and others. bibliog Am Oil Chem Soc J 41:172-4 Mr '64

Influence of stearates on thermal degradation of PVC. J. Stepek and Z. Vymazal. bibliog Mod Plastics 41:166+ Mr '64

Vulcanization; fate of curing system during sulfur curing of NR accelerated by MBT derivatives and activated by zinc stearate. R. H. Campbell and R. W. Wise. bibliog Rubber Chem & Tech 37:650-67 Jl '64

See also
Methyl stearate

STEARIC acid

Composition of stearic acid monolayers from calcium-containing substrates. J Bagg and others. bibliog Am Chem Soc J 86:2759-63 Jl 20 '64

Enzyme is stereospecific. G. J. Schroepfer, jr. Chem Eng N 42:44 Ja 27 '64

Promotion of dropwise condensation by monolayers of radioactive fatty acids; stearic acid on copper surfaces. D. W. Tanner and others. bibliog il J Ap Chem 14:361-9 S '64

See also
Dihydroxystearic acid

STEARIN

Nutritional evaluation of acetostearins in rats. R. D. Coleman and others. bibliog Am Oil Chem Soc J 40:737-42 D '63

STEEL

Chemical mechanisms contributing to wear of single-crystal sapphire on steel W. R. Brown and others. bibliog il diags Am Cer Soc J 47:157-62 Ap '64

Disintegration of iron and steel while dissolving in acids. M. E. Straumanis and others. bibliog il Electrochem Soc J 111:1292-3 N '64

Effect of pH on anodic behavior of carbon steel in sodium chloride solutions containing ammonia. L. M. Dvoracek and L. L. Neff. bibliog Corrosion 20:303-6 O '64

Effects of tensile stress on the domain structure in grain-oriented 3.25 per cent silicon steel. J. J. Gniewek. bibliog il J Ap Phys 34:3618-22 D '63

Properties of materials; irons and steels; tables. Materials in Design Eng 60:70-107 Mid-O '64

Rotational hysteresis in tungsten steel and in hysteresis motors. J. M. Lommel. bibliog J Ap Phys 35:970-1 pt 2 Mr '64

Urethane foam-steel panels produced at 40 to 50 per cent savings; Sherer-Gillett co. il Mod Plastics 41:108 F '64

Wear of graphite sliding on a steel surface and the influence of an electric current on the rate of wear. J. E. Thompson and M. J. B. Turner. bibliog diags Inst E E Proc 109 pt A:235-42 Je '62; Discussion. 111:149-50 Ja '64

See also
Case hardening
Rolling (metal work)
Sheet steel
Steel, Aircraft
Steel, Structural
Steel construction
Steel forgings
Steel ingots
Steel metallurgy
Steel plates
Tool steel

Aging

Aging reactions in precipitation hardenable stainless steel. K. C. Antony. bibliog il J Metals 15:922-7 D '63

Effect of prestraining on Charpy V-notched impact specimens. H. de Vries. Iron & Steel Inst J 202:375-6 Ap '64

How to select an age-hardening stainless. D. C. Perry. Product Eng 34:50-5 D 23 '63

Precipitation hardening of a Fe 0.9-Cu solution; abstract. E. Hornbogen. Metal Prog 86:272+ O '64

Steels age in five stages. Materials in Design Eng 59:115-18+ Ja '64

Aluminum content

Effect of aluminium additions on forgeability, austenite grain coarsening temperature, and impact properties of steel. L. A. Erasmus. bibliog il Iron & Steel Inst J 202:32-41 Ja '64; Abstract. Metal Prog 85:192+ Je '64

Analysis

At Ashland, metallurgical control means quality. R. H. Gelder. il J Metals 16:650-3 Ag '64

Changing steel technology and the analytical chemist. il Anal Chem 36:sup27A-35A O '64

Combustion, thermal-conductivity analyzer for carbon in steel. L. L. Lewis and M. J. Nardozzi. bibliog diag Anal Chem 36:1329-31 Je '64

Electronic scanner-computer for determining the non-metallic inclusion content of steels. R. A. Bloom and others. il diags Iron & Steel Inst J 202:107-12 F '64; Abstract. Metal Prog 86:162-4 Jl '64

Evaluation of the Cambridge hydrogen in steel analyser. E. W. Gill. il diags Iron & Steel Inst J 201:960-4 N '63

Modified isotope dilution technique for the determination of oxygen in iron and steel. J. P. Burden and C. R. Masson. bibliog diag Iron & Steel Inst J 202:28-31 Ja '64

Sampling of steel turnings and borings. E. E. Brown and J. C. Cline. il J Metals 15:912-13 D '63

Separation of molybdenum in steels by reversed-phase chromatography. J. S. Fritz and C. E. Hedrick. bibliog Anal Chem 36:1324-6 Je '64

Spectrophotometric determination of tungsten in iron and steel. C. L. Luke. Anal Chem 36:1327-9 Je '64

Theoretical study of the solidification of rimming steel. P. Niles. bibliog diags Iron & Steel Inst J 202:601-9 Jl '64

Bibliography

Abstracts of current literature and book notices. Published in monthly numbers of the Journal of the Iron and steel institute

Brittleness

Aging reactions in precipitation hardenable stainless steel. K. C. Antony. bibliog il J Metals 15:922-7 D '63

Appraisal of brittle fracture temperature of rolled armor steel by the NRL drop weight test. V. H. Pagano and C. O. McHugh. bibliog il plan diags Welding J 43:sup 129-39 Mr '64

Austenite grain size and temper brittleness. J. M. Capus. bibliog il Iron & Steel Inst J 200:922-7 N '62; Abstract. Metal Prog 85:166+ Mr '64

Comparison on processes for welding ultrahigh strength sheet steels. R. E. Travis and others. il diags Welding J 42:sup9-17 Ja '63; Abstract. Metal Prog 85:181-2 My '64

Concerted attack on brittle fracture. Metallurgia 70:86 Ag '64

Embrittlement in an ausformed 12 per cent chromium steel. G. T. Brown and others. bibliog il Iron & Steel Inst J 202:660-5 Ag '64

Hydrogen absorption and ductility of mild steel after pickling or cathodic treatment. K. Sachs and M. Odgers. bibliog Metallurgia 69:105-13 Mr '64

Hydrogen damage in a pure-water boiler. A. M. Guy. Mech Eng 86:116-17 Ap '64

Intergranular brittleness of cast chromium-nickel steels. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 200:1060-7 D '62; Discussion. 202:225-35 Mr '64

Is 9-Cr 1-Mo steel temper brittle? industrial experience of an isolated case. H. M. Wilten. bibliog il diag Hydrocarbon Process & Pet Refiner 43:115-18 Ja 64

Methods for minimizing hydrogen embrittlement in electroplated high strength alloy steels. E. E. Dougherty. diag Plating 51:415-22 My '64

STEEL—Brittleness—*Continued*

Notch brittleness in mild steel. J. F. Knott and A. H. Cottrell. bibliog il Iron & Steel Inst J 201:249-60 Mr '63; Discussion. 202: 225-35 Mr '64

Research into brittle fracture. Can Min & Met Bul 57:403 Ap '64

Study of subcritical embrittlement in pressure vessel steels. A. W. Pense and others. bibliog Welding J 42:sup541-6 D '63

Cathodic protection

Cathodic protection for water heaters. R. C. Weast. Am Gas Assn Mo 46:16-17 Mr '64

Electrochemical behavior of steel in concrete. D. A. Hausmann. bibliog il diags Am Concrete Inst J 61:171-88 F '64

Zinc rich epoxy coatings offer cathodic protection. W. R. Ahrberg. diags Plant Eng 18:132-3 S '64

Cleaning

Fluid strainers overcome erratic descaling spray conditions. il diags Iron & Steel Eng 41:185-6 O '64

Grinder zips off billet scale by striking while hot. il Iron Age 194:58-9 Jl 30 '64

What you should know before preparing steel surfaces for painting. D. Fraser Power 108:70 Je '64

Why pay more for blast cleaning? W. J. Bradley. il Eng N 171:103 N 14 '63

Decarburization

Decarburisation-free steel wire and rod. il Engineer 218:191 Jl 31 '64

Grain-oriented silicon iron produced by an oxide decarburizing process. P. N. Richards. bibliog Iron & Steel Inst J 202:647-54 Ag '64

Influence of decarburization on the fatigue properties and the propagation of cracks in silicon steels. B. Spiegler and others. bibliog il diag Iron & Steel Inst J 202:509-17 Je '64

Low-carbon steels; new analyses improve enameling traits. Iron Age 193:66-7 Je 4 '64

Restoring carbon in investment castings of steel. J. Hockin. il Metal Prog 85:79-82 Ap '64

Degassing

See Steel—Gas content

Deoxidation

See Steel—Oxygen content

Descaling

See Steel—Cleaning

Failure

Catastrophic thermoplastic shear. R. F. Recht. bibliog il diags A S M E Trans ser E 31: 189-93 Je '64

Causes and cures for heat treat cracks. il Mill & Factory 74:75 Ap '64

Comparison of fracture toughness of high-strength sheet steel as determined by compliance-gage and fracture-appearance methods. H. W. Maynor, jr. and R. E. Blair. bibliog il Welding J 43:sup358-60 Ag '64

Correlation of laboratory determinations of fracture toughness with the performance of large steel pressure vessels. E. T. Wessel. bibliog il diags Welding J 43:sup415-24 S '64

Crack propagation in low cycle fatigue of mild steel. S. T. Rolfe and W. H. Munse. Metal Prog 85:152+ My '64

Cumulative damage in impulse fatigue tests. S. Tanaka. il diags A S M E Trans ser D 85:535-8 D '63

Do you recognize the main causes of failures in piping systems? H. Thielsch. il Power Eng 68:55-7 S; 50-2 O '64

Effect of desulphurization on the impact properties of some low-alloy steels. A. G. Franklin and W. J. M. Tegart. bibliog il Iron & Steel Inst J 202:588-92 Jl '64

Effect of mode of stressing in fatigue testing. B. Cina. Metal Prog 85:144+ My '64

Failure of King's bridge in Melbourne. il diags Engineer 217:520-2 Mr 20 '64

Fracture toughness and pressure vessel performance. C. M. Carman and others. bibliog il diags A S M E Trans ser A 86:465-71 O '64

Low cycle fatigue damage in pressure-vessel materials. J. G. Sessler and V. Weiss. bibliog diags A S M E Trans ser D 85:539-45; Discussion. 546-7 D '63

Model for crack propagation in steel. G. T. Hahn and others. bibliog il diags Iron & Steel Inst J 202:677-84 Ag '64

Practical considerations in applying laboratory fracture test criteria to the fracture-safe design of pressure vessels. W. S. Pellini and P. P. Puzak. bibliog il diags A S M E Trans ser A 86:429-43 O '64

Principles of stress corrosion cracking as related to steels. J. F. Bates and A. W. Loginow. bibliog il Corrosion 20:189-97 Je '64

Research into brittle fracture. Can Min & Met Bul 57:403 Ap '64

Stress corrosion cracking study of several high strength steels. R. A. Davis and others. bibliog il Corrosion 20:93-103 Mr '64

Study of hot cracking in steels. Engineer 217: 443 Mr 6 '64

Which steel for refinery service? C. H. Samans. bibliog il diag Hydrocarbon Process & Pet Refiner 42:169-73 O; 241-6 N '63

See also

Steel—Brittleness

Finishing

Controlling metal surface texture at Chrysler. H. W. Barclay. il Automotive Ind 129:61-4 N 15 '63

Electropolishing of steel. S. Ramachandran and R. Subramanian. bibliog Metal Finishing 62:68-9+ O '64

Finishing stainless steel. E. S. Kopecki. il Metal Prog 86:152+ Ag '64

Grinding goes faster, safer. R. H. Eshelman. il Iron Age 194:120-1 Ag 27 '64

Plastic coated steel wall cladding. il Engineering 198:401 S 25 '64

Polishing of steel molds for the rubber and plastics industries. R. J. Swan. il diag Rubber Age 94:451-3 D '63

Polishing welds on the Unisphere. il Am Mach 108:110 F 17 '64

Precoated steel gains favor in many areas. il Steel 153:83-4 N 18 '63

Properties of materials: mechanical finishes for aluminum, copper and stainless steel; tables. Materials in Design Eng 60:399 Mid-O '64

Steel finishing. S. A. Crabtree. il Iron & Steel Eng 40:84-7 N '63

Surface finishes and treatments for high speed steel tools. R. G. Kennedy and others. il Mach 70:128-32 Je '64

Gas content

Arc remelting improves vacuum degassed steel. C. R. Weymueller. Metal Prog 86: 178+ S '64

Big stir in vacuum degassing. G. J. McManus. il Iron Age 194:127-34 S 10 '64

Car-type vacuum degassing unit goes online. il Iron & Steel Eng 41:170 O '64

Carbon chokes gases in steel. G. Taylor. il diag Iron Age 194:60-1 Ag 20 '64

Cleaner steel: experimental steel production process. Product Eng 35:56 F 3 '64

Deoxidation and pinhole formation in heavy steel casting. S. Bergh and A. Josefsson. bibliog il diags Iron & Steel Inst J 202:356-66 Ap '64

Direct casting, vacuum degassing score gains. G. J. McManus. Iron Age 193:43 F 6 '64

Jones & Laughlin builds advanced vacuum degasser. Steel 155:51 S 14 '64

Latrobe unveils new vacuum steel facilities. il Steel 154:47 My 25 '64

Molton steel carried by a car through vacuum degassing. il Iron Age 194:62-3 S 3 '64

New technology of iron and steel: vacuum degassing. F. C. Price. diags Chem Eng 71:187-8 S 14 '64

Republic Steel announces plans for vacuum degassing at Chicago. Iron & Steel Eng 41:154 My '64

Tap degassing cuts temperature and alloy losses. il diag Steel 154:32-3 Ja 13 '64

Using argon to degas steel. il Mech Eng 85:47 D '63

Vacuum degassed steel for wire and rods. il Engineer 217:706 Ap 17 '64

Vacuum degassing and induction melting for ultraclean alloys. diag Metal Prog 85:110 Ja '64

Vacuum degassing: key to better steels. C. R. Weymueller. il diags Metal Prog 86:74-80 S '64

Vacuum degassing unit in operation at National Supply's Torrance plant. il Iron & Steel Eng 41:228 S '64

What vacuum degassing means to users of steels. Metal Prog 86:81-3 S '64

See also

Steel—Hydrogen content

Hydrogen content

Delayed cracking in steel weldments. C. G. Interrante and R. D. Stout. bibliog il diags Welding J 43:sup 145-60 Ap '64

STEEL—Hydrogen content—*Continued*

Evaluation of the Cambridge hydrogen in steel analyser. E. W. Gill. il diags Iron & Steel Inst J 201:960-4 N '63

Hydrogen absorption and ductility of mild steel after pickling or cathodic treatment. K. Sachs and M. Odgers. bibliog Metallurgia 69:105-13 Mr '64

Limiting hydrogen absorption by and dissolution of steel during pickling. R. M. Hudson and K. J. Riedy. bibliog Metal Finishing 62:48-52 Jl '64

Hydrogen effect

Concerning the influence of dissolved hydrogen on the pearlite transformation. A. E. Flanigan and R. D. Glasfeld. il Welding J 43:sup 126-8 Mr '64

Gold layer blocks hydrogen penetration. Steel 154:92+ My 25 '64

How hydrogen affects maraging steel. H. R. Gray and A. R. Troiano. il Metal Prog 75-8 Ap '64

Hydrogen adsorption by and dissolution rate of low-carbon steel in sulfuric, hydrochloric, phosphoric and nitric acids. R. M. Hudson. bibliog Corrosion 20:245-51 Ag '64

Hydrogen damage in a pure-water boiler. A. M. Guy. Mech Eng 86:116-17 Ap '64

Methods for minimizing hydrogen embrittlement in electroplated high strength alloy steels. E. E. Dougherty. diag Plating 51:415-22 My '64

Inclusions

Advanced physical techniques for the study of metals. il diag Metallurgia 70:49-52 Jl '64

Analysis of slag inclusions in plain carbon steels by the electron-probe microanalyser. R. Kiessling and others. bibliog il Iron & Steel Inst J 200:914-21; 201:509-15, 965-7 N '62, Je, N '63

Constitution of non-metallic inclusions in steel. R. Kiessling and N. Lange. bibliog il Iron & Steel Inst J 201:1016-24 D '63

Defects in barstock; reference book sheet. S. E. Tyson. diag Am Mach 108:75 Ag 3 '64

Effect of desulphurization on the impact properties of some low-alloy steels. A. G. Franklin and W. J. M. Tegart. bibliog il Iron & Steel Inst J 202:588-92 Jl '64

Effect of inclusions on the properties of one per cent C-Cr bearing steels; abstract. J. D. Murray and R. F. Johnson. Metal Prog 85:156+ Ap '64

Electronic scanner-computer for determining the non-metallic inclusion content of steels. R. A. Bloom and others. il diags Iron & Steel Inst J 202:107-12 F '64; Abstract. Metal Prog 86:162-4 Jl '64

Metallographic reagent for identification of sulphide inclusions. E. Beraha. il Iron & Steel Inst J 202:696-8 Ag '64

Through-hardening steels for ball bearings; effect of inclusions on endurance; abstract. L. O. Uhrus. Metal Prog 85:188+ Mr '64

Lead content

Machinability of leaded stainless. N. L. McClymonds. il Metal Prog 86:166+ Ag '64

Machinability

See Steel cutting

Metallography

Accelerated spheroidization of eutectoid steels by concurrent deformation. J. L. Robbins and others. bibliog il Iron & Steel Inst J 202:804-7 O '64

Aging reactions in precipitation hardenable stainless steel. K. C. Antony. bibliog il J Metals 15:922-7 D '63

Austenite grain size and temper brittleness. J. M. Capus. bibliog il Iron & Steel Inst J 200:922-7 N '62; Abstract. Metal Prog 85:166+ Mr '64

Austenitic decomposition in weld heat-affected zones. M. M. D'Andrea, jr. and C. M. Adams, jr. bibliog il Welding J 42:sup503-11 N '63

Austenitic stainless steels precipitation hardened with titanium. R. Blower and G. Mayer. il Iron & Steel Inst J 201:933-43 N '63

Banding in a 1½ per cent nickel-chromium-molybdenum steel. T. B. Smith and others. bibliog il diags Iron & Steel Inst J 201:602-9 Jl '63; Abstract. Metal Prog 85:180+ Mr '64

Comparison of the elastic anisotropy of two austenitic steels. G. Bradfield. Iron & Steel Inst J 202:616 Jl '64

Concerning the influence of dissolved hydrogen on the pearlite transformation. A. E. Flanigan and R. D. Glasfeld. il Welding J 43:sup 126-8 Mr '64

Constitution of non-metallic inclusions in steel. R. Kiessling and N. Lange. bibliog il Iron & Steel Inst J 201:1016-24 D '63

Constitutional effect of arsenic additions on an austenitic stainless steel. H. J. Goldschmidt and W. M. Ham. bibliog il diags Iron & Steel Inst J 202:347-55 Ap '64

Cooling transformation diagram for AISI 4024; with data sheet. il Metal Prog 84:104+ N '63

Cooling transformation diagram for AISI 4047; with data sheet. il Metal Prog 84:112, 114 D '63

Cooling transformation diagram for AISI 4140; with data sheet. il Metal Prog 85:98+ Ja '64

Cooling transformation diagram for AISI 43BV14; with data sheet. il Metal Prog 85:104+ F '64

Cooling transformation diagram for AISI 4340; with data sheet. il Metal Prog 86:104 S '64

Delta ferrite in austenitic stainless steel. I. Tajiri and others. il Iron & Steel Inst J 202:122-3 F '64

Effect of aluminium additions on forgeability, austenite grain coarsening temperature, and impact properties of steel. L. A. Erasmus. bibliog il Iron & Steel Inst J 202:32-41 Ja '64; Abstract. Metal Prog 85:192+ Je '64

Effect of ausforming on the properties of carbon steel wire. B. M. Armstrong. bibliog il diag Iron & Steel Inst J 202:655-9 Ag '64

Effect of heat treatment, composition and microstructure on corrosion of 18Cr-8Ni-Ti stainless steels in acids. M. A. Streicher. bibliog il Corrosion 20:57-72 F '64

Effect of small additions of vanadium on the austenitic grain size, forgeability, and impact properties of steel. L. A. Erasmus. bibliog Iron & Steel Inst J 202:128-34 F '64

Electron microscope study of the precipitation of M_3Si and σ-phase formation in a 12 per cent Cr-4 per cent Ni steel. J. V. Hardy and G. T. Brown. il Iron & Steel Inst J 202:437-40 My '64

Embrittlement in an ausformed 12 per cent chromium steel. G. T. Brown and others. bibliog il Iron & Steel Inst J 202:660-5 Ag '64

Evaluation of maraging steel sheet. D. L. Corn. bibliog il J Metals 16:814-20 O '64

Grain size and loading rate effects on steel. R. C. Jones and J. A. Hribar. diags Am Soc C E Proc 90 [EM 5 no 4073]:43-69 bibliog(p 166-8) O '64

Grain size effects in silicon steels upon the the ac core loss components R. E. Lenhart. J Ap Phys 35:861-2 pt 2 Mr '64

Heat-affected zone study of an eutectoid ultra-high strength steel. E. F. Nippes and E. W. Emmerich. bibliog il Welding J 42:sup547-56 D '63

Heat flow in welding heavy steel plate. Z. Paley and others. bibliog il diags Welding J 43:sup71-9 F '64

High temperature carburizing; the process works. W. E. Jominy. il Metal Prog 85:70-3 My '64

High-temperature decomposition of austenite in alloys steels. J. McCann and K. A. Ridal. bibliog il Iron & Steel Inst J 202:441-7 My '64

How maraging steel transforms. D. M. Cheney. il Metal Prog 85:92-3 My '64

How to improve dimensional stability in precision metal parts. D. O'Boyle. il diags Machine Design 36:113-17 Ja 30 '64

Impact properties of low carbon bainitic steels. K. J. Irvine and F. B. Pickering. bibliog il Iron & Steel Inst J 201:518-31 Je '63; Discussion. R. B. G. Yeo. 202:373 Ap '64

Inhibition of ammonium nitrate corrosion of mild steel. D. Gherardi and others. bibliog il diag Corrosion 20:73-9 Mr '64

Investigation into the rapid annealing of blackplate. E. W. Williams. bibliog il diag Iron & Steel Inst J 200:535-40 Jl '62; Abstract. Metal Prog 85:188+ F '64

Low-carbon steels with ferrite-pearlite structures. K. J. Irvine and F. B. Pickering. bibliog il Iron & Steel Inst J 201:944-59 N '63

Metal fingerprints. R. C. Anderson. il Naval Eng J 75:999-1002 D '63

Metallographic characterization of an NBS spectrometric low-alloy steel standard. R. E. Michaelis and others. bibliog il J Res Nat Bur Stand 68A:343-54 Jl '64

Metallographic reagent for identification of sulphide inclusions. E. Beraha. il Iron & Steel Inst J 202:696-8 Ag '64

STEEL—Metallography—*Continued*

Metallography sheds new light on steel-mill blind spots. il Iron Age 192:75-7 N 28 '63

Metallurgical guide to machinability. G. B. Troup. diags Am Mach/Metalworking Manuf 107:127-38 O 14 '63 (reprints 45c)

Microstructure and strength of steel. W. J. Murphy. il Tool & Manuf Eng 53:80-1 Ag '64

Nature of precipitating phases in 18/9/Nb steels. V. Čihal and J. Ježek. il Iron & Steel Inst J 202:124-7 F '64

New etchant brings out grain boundaries in martensitic steels. G. A. Dreyer and others. il Metal Prog 86:116-17 Jl '64

New examination of the phenomena of overheating and burning of steels I. S. Brammar. bibliog il Iron & Steel Inst J 201:752-61 S '63; Discussion. 202:225-35 Mr '64

Notch brittleness in mild steel. J. F. Knott and A. H. Cottrell. bibliog il Iron & Steel Inst J 201:249-60 Mr '63; Discussion. 202:225-35 Mr '64

Ordering, stacking faults and stress corrosion cracking in austenitic alloys. D. L. Douglass ad others. bibliog il diags Corrosion 20:15-27; Discussion. 27-8 Ja '64

Predicting casting solidification patterns with a computer. J. G. Henzel, jr. and J. Keverian. il diag Foundry 92:50-3 My '64

Quantitative magnetic technique for determining the martensite content of metastable stainless steels. J. L. Christian and J. F. Watson. bibilog il Welding J 43:sup39-42 Ja '64

Radioisotopes as aids to metallography. A. A. Cochran and V. R. Miller. il J Metals 15:914-17 D '63

Recent advances in the metallurgy of stainless steels: symposium abstract. J Metals 16:258-9 Mr '64

Simplified thermal analysis technique for measuring transformation temperatures of steels. C. M. Hammond and D. L. Burk. diags Materials Res & Stand 4:275-8 Je '64

Some observations on explosive metallurgy. H. P. Tardif. bibliog il diags Can Min & Met Bul 57:253-62 Mr '64

Structure and metallurgical significance of the iron-molybdenum carbide Fe_2MoC (M_aC_b). D. J. Dyson and K. W. Andrews. bibliog il diags Iron & Steel Inst J 202:325-9 Ap '64

Structure anomalies in the surface zone of gas carburized, case hardened steel; abstract. S. Gunnarson. il Metal Prog 85:150+ Ap '64

Structure related to hot ductility of three austenitic steels. J. Barford and J. Myers. bibliog il Iron & Steel Inst J 201:1025-31 D '63

Weldability and heat-affected-zone toughness of HY-150 steel. G. E. Grotke. bibliog diags Welding J 43:sup265-81 Je '64

Welding stainless steel. W. L. Wilcox. il Metal Prog 86:121-4+ Jl '64

What modified M2 offers the user. G. Steven and S. J. Smialek. il Metal Prog 85:80-2 My '64

What weld metal for type 316L stainless steel? R. H. Espy. il diag Metal Prog 86:109-15 S '64

When tools made by electrical discharge machining fail. L. R. Wendell and L. R. Walton. il Am Mach 108:101-2 F 17 '64

Wire manufacture using Stelmor controlled cooled rod. A. B. Dove. bibliog il Wire & Wire Prod 39:1610-15+ O '64

See also

Austenite
Martensite

Niobium content

Columbium treated steel improves construction equipment. G. H. Walter. il Metal Prog 84:82-5 D '63

Determination of niobium in mild steels. N. Jenkins. bibliog Metallurgia 70:95-8 Ag '64

Effect of niobium and tantalum on the tensile and impact properties of mild steel. R. Phillips and others. bibliog il Iron & Steel Inst J 202:593-600 Jl '64

Nature of precipitating phases in 18/9/Nb steels. V. Čihal and J. Ježek. il Iron & Steel Inst J 202:124-7 F '64

Total hemispherical emissivity of 20 per cent Cr:25 per cent Ni:Nb-stabilized steel. D. A. Howl and A. F. Davis. diags Iron & Steel Inst J 202:523-6 Je '64

Nitriding

See Case hardening—Nitriding process

Nitrogen content

Critical evaluation of a platinum-bath vacuum-fusion procedure for the determination of oxygen and nitrogen in steels. V. A. Fassel and others. bibliog Anal Chem 36:2115-20 O '64

Enriched steels show new pep. C. L. Kobrin. Iron Age 193:54-6 Ja 9 '64

Nitride additions lift steel strength. Steel 154:58+ F 17 '64

Oxygen content

Analysis of slag inclusions in plain carbon steels by the electron-probe microanalyser; sulphide inclusions in Al-Si deoxidized steels. R. Kiessling and others. bibliog Iron & Steel Inst J 201:965-7 N '63

Critical evaluation of a platinum-bath, vacuum-fusion procedure for the determination of oxygen and nitrogen in steels. V. A. Fassel and others. bibliog Anal Chem 36:2115-20 O '64

Modified isotope dilution technique for the determination of oxygen in iron and steel. J. P. Burden and C. R. Masson. bibliog diag Iron & Steel Inst J 202:28-31 Ja '64

Oxygen analyzer for determining oxygen content of vacuum degassed steel for ball bearings. il Mech Eng 86:55 Je '64

Phosphorus content

How do sulfur and phosphorus affect cast steel? C. G. Mickelson. il Metal Prog 85:84-6 Ja '64

Prices

Bargain days over for rebars. il Eng N 173:25-6 O 15 '64

Protection

Aluminized steel protects insulation. H. H. Lawson. il Chem Eng 71:94+ Ag 31 '64

Aluminum hot dip coating protects ferrous parts. il Steel 155:103-4 Ag 10 '64

Bentonite films to protect steel from oxidation. S. Ray and W. O. Williamson. bibliog il J Ap Chem 13:509-16 N '63

Best protection of steel combine zinc and paint. E. A. Anderson. il Product Eng 35:66-7 Ap 13 '64

Black plate passes coating test. il Iron Age 193:72 Ja 16 '64

Cassel Sulfinuz process. J. C. Gregory. il Automobile Eng 53:539-42 D '63

Coating of steel with PVC powder compounds. D. W. A. Farmer. bibliog il diag Brit Plastics 37:558-62 O '64

Coatings prevent oxide scale. il Iron Age 193:54-5 Ja 23 '64

Coil coaters boost sales; eye new tonnage markets. Mod Metals 19:62-3 D '63

Continuous coiled strip coating line in California. il Engineer 218:149-50 Jl 24 '64

Conversion coat works overtime. il Iron Age 193:69 Ap 16 '64

Corrosion resistance of iron-zinc coated steel. Engineering 197:280 F 21 '64

Corrosion resistant primers for steel. L. Heard. Ind Finshing 40:101-3 D '63

Durometer can measure coating thickness on steel. E. C. Fetter. diag Chem Eng 70:102 D 23 '63

Electrodeposited coatings of multi-layer nickel plus chromium on steel. Plating 51:324-5 Ap '64

Finishing steel building panels. R. Lambert. il diag Ind Finishing 40:72-5+ N '63

Formable vinyl-clad steel plate resists corrosion. J. W. Pedlow. il Materials in Design Eng 59:86-7 F '64

How to fabricate aluminized steel. R. F. McDonell. il Tool & Manuf Eng 53:52-6 N '64

Identification of intermetallic layers formed on aluminized steel by means of the electron-probe microanalyser. H. J. Lamb and M. J. Wheeler. il Inst Metals J 92:150-2 '63-64

Inland Steel test marketing new alphatized steel. Steel 154:51 My 4 '64

Maintenance guide for glassed steel equipment. C. Knoll. il diags Mill & Factory 74:76-9 F '64

Metallized coatings fight corrosion. A. P. Shephard il Elec World 161:62-3 My 4 '64

More about zinc rich coatings; question and answers. Ind Finishing 40:86-7 O '64

New approach to cutting fence maintenance; resin-clad components. il diags Mod Plastics 42:130 S '64

New galvanized steel; coating problems; question and answer. Ind Finishing 40:96-7 Ap '64

STEEL—Protection—*Continued*

New three-stage cleaning and phosphatizing. Ind Finishing 40:113-14 Ap '64

No oil, yet steel runs against steel; Sulfinuz anti-seize and anti-wear process. il Engineering 196:714-15 D 6 '63

Painting steel shelving and similar products. B. Snider. il Ind Finishing 40:56-8+ Ja '64

Phosphatizing problem; why? new product. P. C. Bardin. Ind Finishing 40:110+ Ap '64

Plastics-protected chain-link fence. il Plastics World 22:24-5 O '64

PE rod sheath. il Plastics World 22:42 Ag '64

Right paints stick to galvanized steel. J. Silinsh. Ind Finishing 40:102-4 Ja '64

Select right finish for galvanized metal. Ind Finishing 40:86-8 F '64

Sprayed, molten aluminum or zinc coatings protect steel plate. il Marine Eng/Log 68:90 N '63

Surface finishes and treatments for high speed steel tools. R. G. Kennedy and others. il Mach 70:128-32 Je '64

Twin lines coat metal strip. il Iron Age 194:144 O 29 '64

Vinyl clad windows. il Plastics World 22:23 F '64

Vinyl coating protects steel windows. il Metal Prog 85:123-4 Mr '64

Wheeling Steel's continuous strip coating setup. R. W. Glaser. il Ind Finishing 40:36-8+ D '63

Where to use galvanized and aluminum coated steel sheets. K. G. Coburn. il Metal Prog 86:184-5+ O '64

Why pay more for blast cleaning? W. J. Bradley. il Eng N 171:103 N 14 '63

Zinc phosphate coating on steel. Ind Finishing 40:115-16 Ja '64

Zinc protects steel against corrosion. A. Ash. bibliog il Can Chem Process 48:71-3 Jl '64

Zinc; versatile corrosion fighter. Plant Eng 17:93-5 D '63

See also
Chromizing
Galvanizing
Steel—Cathodic protection

Rimmed steel

Manganese fade control in open hearth rimmed steel. P. E. Dempsey and L. W. Fleming. il J Metals 16:232-4 Mr '64

Scaling

Role of self-generated atmospheres. F. S. Bloom. il diags Iron & Steel Eng 41:129-32 Mr '64

Silicon content

See Silicon steel

Specifications

Basic oxygen steel and ASTM specifications. Materials Res & Stand 4:325 Je '64

Improved raw materials specifications cut costs. il Steel 154:66 Ap 6 '64

Role of national steel specifications; abstracts of papers. Engineer 218:10-11 Jl 3 '64

SAE simplifies steel selection. Iron Age 194:78-9 Jl 16 '64

Standards

Metallographic characterization of an NBS spectrometric low-alloy steel standard. R. E. Michaelis and others. bibliog il J Res Nat Bur Stand 68A:343-54 Jl '64

Those obsolete AISI standards. Product Eng 35:71 S 14 '64

Strength

Achievement of high fatigue strength in steel. W. E. Duckworth. bibliog Metallurgia 69:53-5 F '64

Assessment of steels for nuclear reactor pressure vessels. A. Cowan and R. W. Nichols. bibliog il A S M E Trans ser A 86:393-401; Discussion. 401-2 O '64

Beam column experiments. R. C. Van Kuren and T. V. Galambos. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3876]:223-56 Ap '64

Choosing a high-strength low-alloy steel. D. H. W. Allan. Am Mach 108:71-5 Jl 6 '64

Columbium treated steel improves construction equipment. G. H. Walter. il Metal Prog 84:82-5 D '63

Comparison of fracture toughness of high-strength sheet steel as determined by compliance-gage and fracture-appearance methods. H. W. Maynor, jr. and R. E. Blair. bibliog il Welding J 43:sup358-60 Ag '64

Comparison of processes for welding ultra-high strength sheet steels. R. E. Travis and others il diags Welding J 42:sup9-17 Ja '63; Abstract. Metal Prog 85:181-2 My '64

Composition controlled, high-strength, ductile, tough, steel weld metals. J. Heuschkel. bibliog il diags Welding J 43:sup361-84 Ag '64

Development of a high-strength, tough, weldable, structural steel. E. T. Wessel and L. E. Hays. bibliog il Welding J 43:sup215-31 My '64

Effect of cross-sectional shape on fatigue strength of steel. M. R. Raghavan. bibliog il diags Materials Res & Stand 4:290-5 Je '64

Effect of stress on the radiation stability of ASTM A 302 grade B pressure-vessel steel. M. B. Reynolds. diag Materials Res & Stand 3:644-5 Ag '63; Same. Naval Eng J 75:965-6 D '63

Effects of porosity in quenched and tempered steel. J. W. Bradley and R. B. McCauley. bibliog il diags Welding J 43:sup408-14 S '64

Fatigue limit and the discontinuity in *S/N* fatigue curves of steels. T. R. F. Williams and J. A. Abdilla. il Engineer 218:325-6 Ag 28 '64

Four new steels for high strength structures. Materials in Design Eng 60:107-9 Ag '64

Fracture characteristics of some high-strength, weldable, structural steels. E. T. Wessel and L. E. Hays. bibliog il diag Welding J 42:sup512-28 N '63

Grain size and loading rate effects on steel. R. C. Jones and J. A. Hribar. diags Am Soc C E Proc 90 [EM 5 no 4073]:43-69 bibliog(p 166-8) O '64

Half million psi steels by ausforming. W. M. Justusson and others. il Materials in Design Eng 59:92-5 My '64

Heat-affected zone study of an eutectoid ultra-high strength steel. E. F. Nippes and E. W. Emmerich. bibliog il Welding J 42:sup547-56 D '63

Heavy duty carburizing steel. Materials in Design Eng 60:147-9 O '64

High-strength steel blasted to shape. il Iron Age 192:160 D 5 '63

High-strength steel spec approved. Eng N 172:51 F 13 '64

High strength steels available as plates. Steel 155:54 Jl 6 '64

How to measure toughness of steel. A. R. Elsea and A. M. Hall. bibliog il diags Product Eng 35:71-6 O 12 '64

Impact properties of low carbon bainitic steels. K. J. Irvine and F. B. Pickering. bibliog il Iron & Steel Inst J 201:518-31 Je '63; Discussion. R. B. G. Yeo. 202:373 Ap '64

Improved properties of extra high-purity steel at tensile strengths up to 150 tons/in^2. C. L. M. Cottrell and others. bibliog il Iron & Steel Inst J 201:1032-7 D '63

Measurement and significance of residual macrostresses in steel. W. E. Littmann. Machine Design 36:166+ F 27 '64

Metal selector; high strength steels. Steel 155:sup S34-9 O 12 '64

Metal selector; high temperature high strength steels. Steel 155:sup S 14 O 12 '64

Metal selector; superstrength steels. Steel 155:sup S 13 O 12 '64

Microstructure and strength of steel. W. J. Murphy. il Tool & Manuf Eng 53:80-1 Ag '64

Mill heat-treated high strength steels. J. F. Robb and J. Z. Briggs. il Materials in Design Eng 59:73-7 F '64

New steels fill strength and use gaps. Eng N 173:107 Ag 6 '64

Nitride additions lift steel strength. Steel 154:58+ F 17 '64

No oil, yet steel runs against steel; Sulfinuz anti-seize and anti-wear process. il Engineering 196:714-15 D 6 '63

Preparation of R. R. Moore fatigue specimens from superstrength steels. J. Tarwater. il Materials Res & Stand 4:289 Je '64

Recent developments in pressure vessel steels; U.S. vs. Europe. J. F. Lancaster. Hydrocarbon Process & Pet Refiner 43:161-70 O '64

Selection of steel by the design engineer. I. M. Park and J. A. Bird. il Iron & Steel Eng 41:129-34 Ap '64

Special purpose and high strength steels. G. H. Klouman. bibliog il diags Chem Eng Prog 60:100-6 Jl '64

Steel structures shed weight. L. S. Beedle. il Iron Age 193:74-5 F 6 '64

Strength and toughness of maraging steels; abstract. S. Floreen and G. R. Speich. Metal Prog 86:268-9 O '64

Working with constructional steels. C. R. Weymueller. il Metal Prog 86:148+ S '64

STEEL—*Continued*

Sulfur content

Effect of desulphurization on the impact properties of some low-alloy steels. A. C. Franklin and W. J. M. Tegart. bibliog il Iron & Steel Inst J 202:588-92 Jl '64

How do sulfur and phosphorus affect cast steel? C. G. Mickelson. il Metal Prog 85: 84-6 Ja '64

Improved properties of extra high-purity steel at tensile strengths up to 150 tons/in^2. C. L. M. Cottrell and others. bibliog il Iron & Steel Inst J 201:1032-7 D '63

Kinetics of desulphurization of steel under vacuum. V. D. Sehgal and A. Mitchell. bibliog Iron & Steel Inst J 202:216-20 Mr '64

Tantalum content

Effect of niobium and tantalum on the tensile and impact properties of mild steel. R. Phillips and others. bibliog il Iron & Steel Inst J 202:593-600 Jl '64

Tellurium content

Tellurium helps bars shed chips. Iron Age 193:104 Ap 9 '64

Testing

Appraisal of brittle fracture temperature of rolled armor steel by the NRL drop weight test. V. H. Pagano and C. O. McHugh. bibliog il plan diags Welding J 43:sup 129-39 Mr '64

Bauschinger effect in explosively loaded mild steel. O. E. Jones and J. R. Holland. bibliog diag J Ap Phys 35:1771-3 Je '64

Comparative behaviour of two aluminium alloys and mild steel in saline river water in a Nigerian river. L. A. Harasimowicz and F. F. Booth. il Metallurgia 69:59-64 F '64

Correlation of laboratory determinations of fracture toughness with the performance of large steel pressure vessels. E. T. Wessel. bibliog il diags Welding J 43:sup415-24 S '64

Double check for steel. il Electronics 37:32 Ag 24 '64

Hot bend test; a tool to predict suitable weldability and high temperature service performance of austenitic steels. H. M. Soldan and G. J. Schnabel. bibliog il diags Welding J 43:sup353-7 Ag '64

How do you test a deep drawing steel? G Pomey. il diags Metal Prog 85:95-8 My '64

How to determine the quench severity of oil and salt baths. W. F. Rushman. il diag Metal Prog 84:91-2 D '63

How to measure toughness of steel. A. R. Elsea and A. M. Hall. bibliog il diags Product Eng 35:71-6 O 12 '64

Rating the performance of free-machining steels. D. W. Murphy. il diag Metal Prog 86:85-9 Jl '64

Rolling fatigue test machine. il diag Automobile Eng 54:106-7 Mr '64

Shear tests of 4340 steel, 6Al-6V-2Sn titanium, and 7075-T6 aluminum. A. A. Iannelli. diags Materials Res & Stand 4:207-10 My '64

Study of subcritical embrittlement in pressure vessel steels. A. W. Pense and others. bibliog Welding J 42:sup541-6 D '63

Triaxial tensile stress fatigue testing. G. Welter and J. A. Choquet. bibliog il Welding J 42:sup565-70 D '63

Ultrasonic attenuation and velocity in three transformation products in steel. E. P. Papadakis. bibliog il diag J Ap Phys 35:1474-82 My '64

Witchcraft in the inspection of steel. W. C. Harmon. il diags Iron & Steel Eng 41:91-7 Ja '64

Temperature effect

Grinding red hot billets doubles removal rates. il Steel 155:80-3 Jl 27 '64

High temperature mercaptan corrosion of steels. A. S. Couper. bibliog Corrosion 19: 396-401 N '63; Discussion. 20:207-8 Je '64

Influence of strength level and heat-affected zone on the brittle fracture temperature (navy drop-weight test) of Mn-Mo armor steel. V. H. Pagano and K. Chesney. bibliog il diag Welding J 43:sup92-6 F '64

New examination of the phenomena of overheating and burning of steels. I. S. Brammar. bibliog il Iron & Steel Inst J 201:752-61 S '63; Discussion. 202:225-35 Mr '64

Overheat deformation studies in mild steel boiler tubes. A. J. Ristaino. il diag Naval Eng J 76:27-34 F '64

Temperature-dependence of the rate of underbead cracking in an arc-welded low-alloy steel. A. E. Flanigan and J. L. Kaae. il Welding J 43:sup80-5 F '64

Unisteel multi-specimen creep testing machine. il diag Engineering 196:526-8 O 25 '63

Weldability and heat-affected-zone toughness of HY-150 steel. G. E. Grotke. bibliog diags Welding J 43:sup265-81 Je '64

Transportation

Economics of alternate methods of distributing flat rolled steel. E. E. Jones. il Iron & Steel Eng 41:105-12 Ja '64

New York Central looks at new cars to boost steel traffic. il Steel 154:31+ F 24 '64

Uranium content

Recovery and segregation of uranium in steel. R. K. Buhr and D. R. Bell. il Can Min & Met Bul 57:525-9 My '64

Uses

Belt steels itself for wear. il Iron Age 194: 64 Jl 30 '64

How to select low temperature steels. C. M. Parker and J. W. W. Sullivan. il Machine Design 36:100-11 Ja 2 '64

Which free-machining chromium stainless steel? W. C. Clarke. Am Mach 108:47-50 Ag 3 '64

Welding

All-position method welds thick plate. il Iron Age 192:102 D 12 '63

Austenitic decomposition in weld heat-affected zones. M. M. D'Andrea, jr. and C. M. Adams, jr. bibliog il Welding J 42: sup503-11 N '63

Automatic unit rolls down tank weld costs 90 per cent. il Steel 155:91 Jl 27 '64

Automatic welding in the vertical position; electroslag and electrogas. J. E. Norcross. il diags Iron & Steel Eng 41:135-43; Discussion. 143:4 Je '64

Automatic welding of nine per cent nickel steel for low temperature service. J. J. Wright and W. B. Sharav. il diags Welding J 43:745-52 S '64

Automatically-welded steel beams. il Engineer 216:1034 D 20 '64

Blades provide comeback for steel tractor wheels. il diag Welding Eng 49:78 O '64

CO$_2$-Mig cuts 50 per cent from weld-time on complex shapes. il Welding Eng 49:115 Ap '64

Composition controlled, high-strength, ductile, tough, steel weld metals. J. Heuschkel. bibliog il diags Welding J 43:sup361-84 Ag '64

Delayed cracking in steel weldments. C. G. Interrante and R. D. Stout. bibliog il diags Welding J 43:sup 145-60 Ap '64

Design for button welding saves 70 per cent in man-hours. il Welding J 43:609 Jl '64

Factors in successful welding of machinery steels. A. W. Taylor. il Welding Eng 49:46-9 S '64

Flux cored wire speeds welding of T-1. il Metal Prog 85:121-2 F '64

Fracture characteristics of some high-strength, weldable, structural steels. E. T. Wessel and L. E. Hays. bibliog il diag Welding J 42:sup512-28 N '63

Friction welding parameter analysis. M. B. Hollander and others. bibliog il diags Welding J 42:sup495-501 N '63

Gas-shielded arc welding of 18 per cent nickel maraging steel. D. A. Corrigan. bibliog il diags Welding J 43:sup289-94 Jl '64

High strength steel needs no post-weld treatment. Space/Aeronautics 41:105 Mr '64

Hot bend test; a tool to predict suitable weldability and high temperature service performance austenitic steels. H. M. Soldan and G. J. Schnabel. bibliog il diags Welding J 43:sup353-7 Ag '64

How planemaker solved hot welding problems. il Steel 154:109 Je 8 '64

Interchangeable dog bars speed automatic milling of various weldments. C. E. Reeb. il Mach 70:128-9 Mr '64

Investigation of the properties of electroslag welds in various steels. R. S. Rote. il diag Welding J 43:421-6 My '64

Massive container to house first floating reactor. il Welding Eng 49:74+ S '64

New approach produces stronger welds. J. Heuschkel. Materials in Design Eng 59: 87-9 Ja '64

New high strength steel is weldable. E. T. Wessel and L. E. Hays. Materials in Design Eng 59:90-1 Ja '64

Open-arc unit increases roller frame welding. il Welding Eng 49:78 Jl '64

STEEL—Welding—*Continued*
Phosphorus and the weldability of high strength steel sheet; abstract. H. V. Huxley. Metal Prog 85:160+ Mr '64
Post-weld heat treatment of high-temperature austenitic steels. R. N. Younger and others. bibliog il Iron & Steel Inst J 201:693-8 Ag '63; Abstract. Metal Prog 86:203+ Ag '64
Republic Steel's no. 5 electric weld pipe mill begins operation. il Iron & Steel Eng 41:161-2 Je '64
Shopping center sign arc welded. il Welding Eng 48:64 D '63
Spiral weld pipe mills. U. G. D. de Salis. il diags Iron & Steel Eng 41:76-80; Discussion. 80-2 Je '64
Steel castings in weldments cut costs. E. J. Wellauer. bibliog il diags Mech Eng 85:28-33 Jl '63; Same. Naval Eng J 76:57-62 F '64
Steel company welds high-strength steel with new electroslag process. il Welding J 43:760 S '64
Steel weldments replace castings to help build low cost into machines. C. Hammon and J. F. Steele. il diag Am Mach 108:146-8 Ap 13 '64
Two redesigns, to CO_2-Mig spot speed production, improve product. il Welding Eng 49:88 Jl '64
Underwater ears are supported by welded buoys. il Welding Eng 49:54-5 F '64
Weldability and heat-affected-zone toughness of HY-150 steel. G. E. Grotke. bibliog diags Welding J 43:sup265-81 Je '64
Welded steel cut bell tower cost 51 per cent. G. A. Crawford and M. W. Jackson. il Welding Eng 49:44 N '64
Welding 18 per cent Ni maraging steel by electron beam. M. L Kohn and C. D. Schaper. il Metal Prog 85:93-4 My '64
Welding of 18 per cent Ni-Co-Mo maraging alloys. C. M. Adams, jr. and R. E. Travis. il diag Welding J 43:sup 193-7 My '64
Welding of modern special property steels. R. A. Kubli and N. D. Freeman. il diags Welding J 43:679-85 Ag '64
Welding speeds construction of special machine. T. F. Vajda. il Tool & Manuf Eng 53:51 N '64
Welding 3½ and 9 per cent nickel steels and 36 per cent nickel-iron alloy for cryogenic service. J. W. Flannery and C. E. Witherall. bibliog diags Materials Res & Stand 4:533-9 O '64
Welding time cut 50 per cent on T-1 steel with new flux-cored filler metal. il Welding J 42:894-5 N '63
Welding time for T-1 steel truck chassis cut in half with semiautomatic equipment. il Welding J 43:693 Ag '64
Welds by thousands in fabrication line for refrigeration units. il diags Welding Eng 48:34-6 D '63
What's behind fine-wire welding? H. B. Cary. il diags Iron Age 194:131-4 O 29 '64
Working with maraging steels; welding. C. E. Witherell and others. il Metal Prog 84:81-3 Jl '63; Discussion. L. N. Hjelm. 84:130+ D '63

See also
Piping (power plants)—Welding

STEEL, Aircraft
Production of helicopters and hovercraft; abstract. E. Mensforth. diag Engineering 197:553 Ap 17 '64
Stainless high speed steel for aerospace applications. B. L. Johnson. il Metal Prog 86:116-18 S '64
Steels and superalloys. H. J. Hucek. Space/Aeronautics 42 no 4:147-50 '64-65
Tinsley Park steel for cars and aircraft. il plan Engineering 196:494-6 O 18 '63
Trends in applications for stainless steels. il Metal Prog 86:78-99 Ag '64

STEEL, Aluminum clad
Continuous cladding of wire via powder metallurgy; abstract. J. G. Kura. Metal Prog 86:271-2 O '64
Corrosion behavior of aluminum-clad wire. P. D. Miller and others. il Wire & Wire Prod 39:217-19+ F '64

STEEL, Automobile
En 16 and En 17, two English automotive steels. G. F. P. Fox. il Metal Prog 85:103-6 Ja '64
Steel courts autos with ideas. H. F. Jones. il Iron Age 193:123 Je 11 '64
Tinsley Park steel for cars and aircraft. il plan Engineering 196:494-6 O 18 '63
Trends in applications for stainless steels. il Metal Prog 86:78-99 Ag '64

STEEL, Clad
Explosive bonding gets biggest job yet; Nooter corp. has completed fabrication of four chemical process vessels for Amoco. il Chem & Eng N 42:46 Ag 31 '64

See also
Steel, Aluminum clad
Steel, Copper clad

STEEL, Cold treatment of
Gears are made stronger with cold treatment. L. E. Arnold. il Metal Prog 86:143-5 O '64

STEEL, Cold working of
Case histories in cold extrusion. R. G. Dermott. il Metal Prog 86:118-23 O '64
Cold extrusion from the practical side. R. A. P. Morgan. il diags Metal Prog 86:124-7 O '64
Cold forming fasteners of high strength steel. J. L. Peterson and R. M. Smith. il Metal Prog 85:91-3 Je '64
Cold swaging of bores. W. B. Fasser. il diags Tool & Manuf Eng 53:57-60 N '64
Cold working operations at Oldsmobile. J. Geschelin. il diag Automotive Ind 131:46-8 O 1 '64
Cryogenically stretch-formed type 301 stainless steel for cryogenic service. R. H. Alper. bibliog il diags Materials Res & Stand 4:525-32 O '64
Effect of plastic deformation on the corrosion of iron and steel. N. D. Greene and G. A. Saltzman. bibliog il Corrosion 20:293-8 S '64
Effects of cold-straining on structural sheet steels. A. Chajes and others. bibliog diags Am Soc C E Proc 89 [ST 2 no 3477]:1-32 Ap '63; Discussion. 89 [ST 5 no 3688]:333-5 O; [ST 6 no 3743]:435-44 D '63; Reply. 90 [ST 3 no 3940]:373-4 Je '64
Elastic behaviour in cold strip rolling at the onset of plasticity. F. J. Loss and others. bibliog diags Inst Metals J 92:104-10 '63-64
Increased capacity for cold-rolled steel strip. il diag Engineer 217:551-2 Mr 27 '64
Influence of alloying elements on the cold deformation of steel; abstract. J. D. Crawford and others. Metal Prog 86:262+ O '64
One-stroke splining paces line. il diag Iron Age 194:58-9 S 3 '64
Proper wiredrawing improves cold heading. F. L. Gill and W. M. Baldwin, jr. il Metal Prog 85:83-5 F '64
Raycarl process; its impact on cold-headed parts. H. F. Phipard. il diags Iron Age 193:61-3 Je 4 '64
Which variables affect extrusion? Iron Age 194:126 O 8 '64

STEEL, Copper clad
Resistance annealing of copper clad steel wire. M. C. Shapiro. il diags Wire & Wire Prod 39:70-3+ Ja '64

STEEL, Corrosion resisting
Bare steel structures; new concept. S. K. Coburn and others. bibliog il Elec Eng 82:666-72 N '63; Excerpts. Power Eng 67:60-2 N '63
Japanese stainless steel with acid resistance. F. Tsukamoto. il Metal Prog 85:107-8 Ja '64
Steels for the chemical industry. W. G. Renshaw; R. R. Christian. bibliog il diag Chem Eng Prog 60:98-105 S; 93-9 O '64
Stop sulfide corrosion cold with new heat-treating method. W. B. Bleakley. il diag Oil & Gas J 62:130-2 Je 8 '64

See also
Chromium nickel steel
Steel, Stainless

STEEL, Galvanized
Australian firm claims new sheet galvanizing technique. il Steel 153:129 D 9 '63
Automated pipe galvanizing line installed at Armco div. plant. il Iron & Steel Eng 41:227-8 S '64
Choose the right zinc coating for large structures. J. R. Daesen. il Metal Prog 86:95-100 S '64
Conversion coat works overtime. il Iron Age 193:69 Ap 16 '64
Modular galvanized swimming pool is fabricated by button welding. il Welding J 43:759 S '64
New galvanized steel; coating problems; question and answer. Ind Finishing 40:96-7 Ap '64
Pipe picks up galvanized coat in continuous flow process. il Iron Age 194-80-1 Jl 16 '64
Range of galvanized steels gives user many choices. il Steel 154:64+ Je 15 '64
Right paints stick to galvanized steel. J. Silinsh. Ind Finishing 40:102-4 Ja '64
Select right finish for galvanized metal. Ind Finishing 40:86-8 F '64

STEEL, Galvanized—*Continued*

Strip galvanizing line allows many variations. il Steel 153:35-6 D 30 '63

What to know and what to do about galvanized steel's new image. C. M. Parker. il Am Mach 108:65-9 Mr 2 '64

When should you paint galvanized steel? Steel 155:59 O 5 '64

When to paint galvanized steel. il diags Safety Maint 128:52-4+ O; 70-3 N '64

Where to use galvanized and aluminum coated steel sheets. K. G. Coburn. il Metal Prog 86:184-5+ O '64

STEEL, Hardening of

Alloying precipitation hardening stainless steels for strength and stability; abstract. D. C. Perry and M. W. Marshall. Metal Prog 86:200+ Ag '64

Austenitic stainless steels precipitation hardened with titanium. R. Blower and G. Mayer. il Iron & Steel Inst J 201:933-43 N '63

Deformation of steel; reference book sheets. diags Am Mach 108:109+ S 14; 97+ S 28; 115+ O 12; 169+ O 26 '64

Drawability of type 301 stainless. C. K. Divers. il Metal Prog 86:115-18 Ag '64

Dynamic plastic analysis of steel frames. B. Rawlings. bibliog diags Am Soc C E Proc 90 [ST 3 no 3954]:265-83 Je '64

Gears; how long a life? Product Eng 34:74 D 9 '63

Half million psi steels by ausforming. W. M. Justusson and others. il Materials in Design Eng 59:92-5 My '64

Hardness conversion for forged steel rolls; with data sheet. A. A. Bradd and W. F. Shore. il Metal Prog 85:102+ Je '64

How to determine the quench severity of oil and salt baths. W. F. Rushman. il diag Metal Prog 84:91-2 D '63

Metal tube hardening plant; Bombrini Parodi-Delfino. il Metallurgia 69:227-8 My '64

Precipitation hardening of a Fe 0,9-Cu solution; abstract. E. Hornbogen. Metal Prog 86:272+ O '64

Radiation hardening in mild and low-alloy steels. D. R. Harries and others. bibliog Iron & Steel Inst J 202:518-22 Je '64

Roll hardening method. il Iron & Steel Eng 40:243-4+ N 63

Short account of the nitriding process. W. H. Cunningham. il Engineer 217:168-70 Ja 24 '64

Temperature variation closely controlled in roll hardening operation. E. Walton and L. A. Begley. il diag Iron & Steel Eng 41:189-90 O '64

Vertical radiant furnace heats rolls uniformly for hardening. R. E. Buckholdt. il Iron & Steel Eng 41:157-8 Ap '64

See also

Case hardening

Steel, Quenching of

STEEL, Heat resisting

Economy in design of furnace binding steel. J. P. Rawlings. diags Glass Ind 45:197+ Ap '64

High-temperature steels. A. M. Hall. il Machine Design 36:136-43 Je 4 '64

Metal selector; high temperature high strength steels. Steel 155:sup S 14 O 12 '64

Metal selector; stainless and heat-resistant steels. Steel 155:sup S23-4 O 12 '64

Properties of metals; high temperature steels; wrought; tables. Materials in Design Eng 60:81 Mid-O '64

See also

Steel—Testing—Temperature effect

STEEL, Heat treatment of

Accelerated spheroidization of eutectoid steels by concurrent deformation. J. L. Robbins and others. bibliog il Iron & Steel Inst J 202:804-7 O '64

Ausformed steels show promise for tool and die applications. W. M. Justusson and others. il Mach 70:150-1 My '64

Ausforming behaviour of En24, En30B, and an experimental three per cent Cr-Ni-Si steel. W. E. Duckworth and others. bibliog il Iron & Steel Inst J 202:135-42 F '64; Abstract. Metal Prog 86:164-6 Jl '64

Austempering in actual practice. Q. D. Mehrkam. il Metal Prog 86:134-7 O '64

Austempering of carbon steel springs. E. S. Harwood. il diag Metallurgia 69:82-3 F '64

Automatic heat-treatment improves quality. B. Strothman. il diag Mach 70:134-6 Mr '64

Causes and cures for heat treat cracks. il Mill & Factory 74:75 Ap '64

Effect of ausforming on the properties of carbon steel wire. B. M. Armstrong. bibliog il diag Iron & Steel Inst J 202:655-9 Ag '64

Effect of heat treatment, composition and microstructure on corrosion of 18Cr-8Ni-Ti stainless steels in acids. M. A. Streicher. bibliog il Corrosion 20:57-72 F '64

Embrittlement in an ausformed 12 per cent chromium steel. G. T. Brown and others. bibliog il Iron & Steel Inst J 202:660-5 Ag '64

Heat treat improves properties of high-strength stainless. R. H. Kaltenhauser. il Iron Age 192:162-3 N 14 '63

Heat treating truck parts in a modern plant. R. A. Grayson. il Metal Prog 86:74-9 Jl '64

Heat-treatment of low-alloy plate. G. L. Stroman and D. Montgomery. Iron & Steel Eng 41:97-100 Mr '64

Heat treatment plant installed at Wolsingham steel co. il Metallurgia 69:9 Ja '64

High heat and pressure may lead to new steels. il Steel 154:58 F 24 '64

High temperature carburizing; users like the process. L. E. Arnold and others. Metal Prog 85:77-9 My '64

Hobbed buttress thread holds closure on rocket motor case. L. W. Collins, jr. il diag Mach 70:93-5 Ag '64

How to heat treat carbon steels. R. H. Hays. il Metal Prog 86:128-33 O '64

Metallurgical response of heat-treated steels to welding. W. D. Doty and E. S. Szekeres. il diag Welding Eng 49:80-3 O; 60+ N '64

Mill heat-treated high strength steels. J. F. Robb and J. Z. Briggs. il Materials in Design Eng 59:73-7 F '64

Missile-tube heat treatment for Italy. il Engineering 197:297 F 21 '64

Modified austempering produces stronger fastener. il Wire & Wire Prod 39:1333+ S '64

Post-weld heat treatment of high-temperature austenitic steels. R. N. Younger and others. bibliog il Iron & Steel Inst J 201:693-8 Ag '63; Abstract. Metal Prog 86:203+ Ag '64

Should we calculate or correct gear distortion? Engineering 196:749 D 13 '64

Steel gains protective blanket during heat treating cycle; Scaleflux. il Iron Age 193:146-7 Je 11 '64

Stress relief of austenitic stainless steels. G. S. Sangdahl. il Metal Prog 86:100-4 Ag '64

Thermomechanical treatment of steel. E. B. Kula and S. V. Radcliffe. bibliog diags J Metals 15:755-62 O '63

Tough steel strip, already heat treated. il Materials in Design Eng 59:100 Ja '64

Ultrasonics check heat treat quality. N. B. Heckler and B. Ostrofsky. il Hydrocarbon Process & Pet Refiner 43:143-7 Ap '64

United States Steel puts bar heat-treat line into operation. il Iron & Steel Eng 40:144 D '63

See also

Annealing

Case hardening—Electric hardening

Steel, Quenching of

Tempering

STEEL, High speed. See Tool steel

STEEL, Lead clad

Use of lead as a shielding material at Trawsfynydd nuclear power station. il Metallurgia 69:209-12 My '64

STEEL, Molten

Continuous temperature measurement of molten steel. J. D. Sharp. il diag J Metals 15:902-3 D '63

Measuring molten steel temperatures. S. Ramachandran and T. R. Acre. bibliog il diags I S A J 11:54-6 Mr '64

STEEL, Nickel clad

Plating teams up with rolling to clad nickel onto steel. J. E. Sandford. il Iron Age 193:63-5 My 28 '64

STEEL, Powdered

Fusion process bonds carbide to steel. il Iron Age 193:92 Mr 19 '64

Spec list issued for stainless powder parts. il Am Mach 108:72 Ap 27 '64

Tool steel strip rolled from powder. il Steel 154:118+ My 4 '64

STEEL, Quenching of

Better quenching for better bearings. P. K. Pearson. diags Am Mach 108:64-5 My 25 '64

How to determine the quench severity of oil and salt baths. W. F. Rushman. il diag Metal Prog 84:91-2 D '63

How to heat treat carbon steels. R. H. Hays. il Metal Prog 86:128-33 O '64

Machine die-quenches big gears. R. H. Eshelman. il diags Iron Age 194:76-7 Ag 13 '64

Magnetic testing of quenching media. il Mach 70:118-19 D '63

STEEL, Quenching of—*Continued*

Quenching lean alloys in normal oils. H. C. Stone. Metal Prog 85:107-8 Je '64

Rapid quenching boosts production at McInnes. il Steel 155:62 O 5 '64

STEEL, Reinforcing

Bargain days over for rebars. il Eng N 173:25-6 O 15 '64

Behavior of concrete columns reinforced with high strength steels. C. E. Todeschini and others. il diags Am Concrete Inst J 61:701-16 Je '64; Supplement to Title 61-40: 1-32 pt 2 '64

Computer details reinforcing. Eng N 173:31 Jl 30 '64

Electrochemical behavior of steel in concrete. D. A. Hausmann. bibliog il diags Am Concrete Inst J 61:171-88 F '64

Glulam timber beams stiffened with steel. il Engineering 198:260 Ag 28 '64

Proposed revision to ACI manual of standard practice for detailing reinforced concrete structures [ACI 315-57]. diags Am Concrete Inst J 61:1073-90 S '64

Reinforcement requirements for girder web openings. E. P. Segner, jr. il diags Am Soc C E Proc 90 [ST 3 no 3919]:147-64 Je '64

Selecting reinforcing for bond requirements. A. J. Hulshizer. diags Am Concrete Inst J 61:603-10 My '64

Ultimate strength with high strength reinforcing steel with an indefinite yield point. N. C. Sinha and P. M. Ferguson. il diags Am Concrete Inst J 61:399-418 Ap '64

See also

Concrete, Reinforced

STEEL, Sheet. See Sheet steel

STEEL, Stainless

Adhesive bonds stainless parts. il Iron Age 192:86-7 D 19 '63

Aging reactions in precipitation hardenable stainless steel. K. C. Antony. bibliog il J Metals 15:922-7 D '63

Alloying precipitation hardening stainless steels for strength and stability; abstract. D. C. Perry and M. W. Marshall. Metal Prog 86:200+ Ag '64

Austenitic stainless steels precipitation hardened with titanium. R. Blower and G. Mayer. il Iron & Steel Inst J 201:933-43 N '63

Bright annealed stainless steel. il diags Engineer 217:303-4 F 14 '64

Bright annealing stainless steel strip. il Engineering 197:222-3 F 7 '64

Britain's first continuous bright annealing line for stainless steel strip. il Metallurgia 69:175-6 Ap '64

Coming; better descriptions for alloy castings surfaces. il Steel 154:53 Je 29 '64

Constitutional effect of arsenic additions on an austenitic stainless steel. H. J. Goldschmidt and W. M. Ham. bibliog il diags Iron & Steel Inst J 202:347-55 Ap '64

Controlling spring back in forming stainless. E. L. Fowler and J. J. Moran. il diag Metal Prog 86:111-14 Ag '64

Corrosion in surgical implants. J. H. Hicks. il Chem & Ind p 1240-6 Jl 11 '64

Corrosion resistance of type 329 stainless steel in nitric acid containing chloride ion. I. I. Tingley. il diag Corrosion 19:408-13 D '63

Delta ferrite in austenitic stainless steel. I. Tajiri and others. il Iron & Steel Inst J 202:122-3 F '64

Drawability of type 301 stainless. C. K. Divers. il Metal Prog 86:115-18 Ag '64

Dual stainless sheets make filter medium. il Steel 154:127+ Mr 30 '64

European developments in high alloy and stainless steels; conference report. R. F. Morral. Metal Prog 86:188+ Ag '64

Exploratory studies of mechanical cycling fatigue behavior of materials for the supersonic transport; abstract. D. N. Gideon and others. Metal Prog 86:206+ Ag '64

Finishing stainless steel. E. S. Kopecki. il Metal Prog 86:152+ Ag '64

Forming of tubular aircraft parts simplified by electrohydraulic shot. K. F. Smith. il diags Mach 71:114-17 S '64

Fundamental studies on anodic protection; alloy 20 in sulfuric acid. Z. A. Foroulis. bibliog Ind & Eng Chem Proc Design 3:84-8 Ja '64

Gage blocks of superior stability; the attainment of ultrastability; abstract. M. R. Meyerson and M. C. Sola. Metal Prog 86:292+ O '64

Gold plating stainless steel; bright deposits on fountain pen nibs. A. Jogarao and others. il Metal Finishing 62:67+ O '64

Heat treat improves properties of high-strength stainless. R. H. Kaltenhauser. il Iron Age 192:162-3 N 14 '63

High strength pressure vessels by stretch forming. S. W. Henderson. il Materials in Design Eng 60:104-6 N '64

How they stamp those new stainless steel razor blades. il Am Mach 108:72-3 Je 8 '64

How to process 17-4 PH stainless steel castings. R. J. Dvorak and J. C. Fritz. il Metal Prog 86:174+ Ag '64

How to select an age-hardening stainless. D. C. Perry. Product Eng 34:50-5 D 23 '63

How to use stainless steel for flashing. D. W. Pettigrew. il diags Arch Rec 134:201-2 N '63

Installation and cleaning of stainless digester heater tubes. W. F. Helber and others. il diags Tappi 47:sup 160A-4A Jl '64

Iron-nickel-chromium baths; deposition of stainless steel. L. Domnikov. bibliog Metal Finishing 62:61-5 Mr '64

Is oxygen suited to stainless? G. J. McManus. Iron Age 194:24-5 Jl 2 '64

Japanese stainless steel with acid resistance. F. Tsukamoto. il Metal Prog 85:107-8 Ja '64

Machinability of leaded stainless. N. L. McClymonds. il Metal Prog 86:166+ Ag '64

Machining of stainless steel. D. M. Blott. il Metal Prog 86:119-24 Ag '64

Machining T-sections from stainless steel strip. J. Kotora, jr. il Tool & Manuf Eng 51:83 N '63

Mechanochemical anodic dissolution of austenitic stainless steel in hot chloride solution at controlled electrode potential. T. P. Hoar and J. C. Scully. bibliog diag Electrochem Soc J 111:348-52 Mr '64

Metal selector; stainless and heat-resistant steels. Steel 155:sup S23-4 O 12 '64

Morphology of stress-corrosion cracks in notched specimens of austenitic stainless steels. J. C. Scully and T. P. Hoar. bibliog il diags Corrosion 20:174-7 My '64

Nature of initial corrosion of stressed austenitic stainless steel by chloride ions; platinum decoration of active sites. N. A. Nielsen. bibliog il Corrosion 20:104-9; Discussion. 109-10 Mr '64

New stainless fights hot acids. Iron Age 193:82 F 6 '64

New stainless offers formability and economy. il Materials in Design Eng 58:133 D '63

New stainless steel resists sulfuric acid. Materials in Design Eng 59:133+ Mr '64

New stainless steel retains high strength to 1200 F. F. C. Hull. il Materials in Design Eng 60:92-3 Ag '64

Now, get corrosion resistance and hardenability; stainless casting alloys. il Product Eng 35:67-71 Jl 6 '64

Oxidizer additives passes first compatibility tests. il Machine Design 36:8 Ja 30 '64

Passivity of chromium and stainless steel in hydrofluoric acid. C. C. Seastrom. bibliog il Corrosion 20:179-83 Je '64

Plasma arc takes thick slices from stainless steel plate. F. R. Romeo. il Iron Age 193:67-9 Ja 16 '64

Post-weld heat treatment of high-temperature austenitic steels. R. N. Younger and others. bibliog il Iron & Steel Inst J 201:693-8 Ag '63; Abstract. Metal Prog 86:203+ Ag '64

Pressure pouring of stainless steel slabs. J. R. Drever and others. il plans diag Iron & Steel Eng 40:123-8 D '63

Pressure pouring unit in operation at Eastern Stainless plant. il Iron & Steel Eng 40:129-30 D '63

Properties of materials; age hardenable stainless steels; wrought; tables. Materials in Design Eng 60:87-8 Mid-O '64

Properties of materials; stainless steels; cast; tables. Materials in Design Eng 60:95-8 Mid-O '64

Properties of tubular stainless steel electrodes. H. N. Farmer, jr. il diag Welding J 43:667-72+ Ag '64

Quantitative magnetic technique for determining the martensite content of metastable stainless steels. J. L. Christian and J. F. Watson. bibliog il Welding J 43:sup39-42 Ja '64

Railroads sparkle with new stainless cars. il Materials in Design Eng 59:170+ Ap '64

Recent advances in the metallurgy of stainless steels; symposium abstracts. J Metals 16:258-9 Mr '64

Recommended practice for preparation of and electroplating on stainless steel; ASTM standard. Plating 51:788-90 Ag '64

STEEL, Stainless—*Continued*

Republic Steel centralizes stainless tube mill equipment. il Iron & Steel Eng 41:187-8+ Mr '64

Roll forming of stainless strip. il Metal Prog 86:170+ Ag '64

Rollability of stainless steels: reference book sheet. D. F. Griffin. il Am Mach/Metalworking Manuf 108:115+ Je 22 '64

St Louis arch in bootstrap erection stage. il diag Welding Eng 49:56+ Ja '64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Slag-metal equilibrium during stainless steel melting. C. W. McCoy and F. C. Langenberg. bibliog diag J Metals 16:421-4 My '64

Spec list issued for stainless powder parts. il Am Mach 108:72 Ap 27 '64

Special purpose and high strength steels. G. H. Klouman. bibliog il diags Chem Eng Prog 60:100-6 Jl '64

Stainless high speed steel for aerospace applications. B. L. Johnson. il Metal Prog 86:116-13 S '64

Stainless piping and tubing; reference book sheet. Am Mach 108:75 F 3 '64

Stainless shakes off old image. C. L. Kobrin. il Iron Age 193:87-94 Ja 30 '64

Stainless steel and other ferrous alloys; annual review. W. A. Luce and J. H. Peacock. bibliog Ind & Eng Chem 56:51-4 Ag '64

Stainless steel bumpers by roll forming. Engineering 198:178 Ag 7 '64

Stainless steel flake for use in protective paints. Ind Finishing 40:116-17 Ja '64

Stainless steel for street lamp standards. il Engineering 198:106 Jl 24 '64

Stainless steel; illustrations with text. Engineer 217:104 Ja 10 '64

Stainless steel motor car bumpers. il Metallurgia 70:10-11 Jl '64

Stainless steel solves textile problems. il Engineering 198:416 O 2 '64

Stainless steel strip. Automobile Eng 54:133-4 Ap '64

Stainless tightens its chemistry. il Iron Age 194:121 O 8 '64

Stainless tubes 100 feet long. il Am Mach/Metalworking Manuf 107:88-9 D 9 '63

Stainless tubing; reference sheet. Tool & Manuf Eng 53:74 O '64

Stress corrosion cracking of austenitic stainless steel in uranyl sulfate solutions. J. L. English and J. C. Griess. bibliog il Corrosion 20:138-44 Ap '64

Stress corrosion of type 304 stainless steel in chloride environments. K. C. Thomas and others. bibliog diag Corrosion 20:89-92 Mr '64

Stress corrosion studies of stainless steel. H. L. Logan. Franklin Inst J 276:441 N '63

Stress relief of austenitic stainless steels. G. S. Sangdahl. il Metal Prog 86:100-4 Ag '64

Structure of oxide films formed on individual crystal grains of stainless steels. G. Shimaoka. bibliog il diags Electrochem Soc J 110:1177-82 D '63

Survey of stainless steel overlay experience. W. B. Parker. Tappi 47:sup121A-3A Ag '64

Tool removes dents from stainless steel ducting. H. Stromer. il diag Am Mach/Metalworking Manuf 108:125 Je 22 '64

Trends in applications for stainless steels. il Metal Prog 86:78-99 Ag '64

Tubemaker thrives on tough, unusual jobs. il Steel 153:60-2 N 11 '63

Type 303 stainless machines faster. Steel 155:54 Jl 6 '64

Type 211 stainless steel; reference sheet. Tool & Manuf Eng 53:75-6 S '64

Typical properties and applications for wrought stainless steel; data sheet. Metal Prog 86:107-8 Ag '64

Washington Steel readies pressure pouring mill. il Steel 154:31 Ja 27 '64

What it takes to draw and pierce stainless. Am Mach 108:86-7 S 28 '64

What users think of stainless steels. il Metal Prog 86:74-7 Ag '64

Which free-machining chromium stainless steel? W. C. Clarke. Am Mach 108:47-50 Ag 3 '64

Working the 200 series stainless steels. F. Giordano. diags Tool & Manuf Eng 51:91-4 D '63

Wrought austenitic stainless steels. Materials in Design Eng 60:115-26 O '64 (reprints 35c)

See also

Chromium nickel manganese steel
Chromium nickel steel
Nickel steel
Pipes, Steel
Steel, Corrosion resisting

Failure

Chlorides cause stainless-steel failure. il Oil & Gas J 62:176 Je 22 '64

How to prevent stress corrosion cracking of 300 series stainless steel bellows expansion joints used in steam and htw heating systems. R. B. Hill and A. R. C. Markl. il Heating-Piping 36:103-7 O '64

Initiation of stress corrosion cracking; migration of chloride in oxide films on austenitic stainless steel. C. R. Bergen. bibliog diags Corrosion 20:269-74 S '64

Stress-corrosion cracking of martensitic stainless steels. J. E. Truman and others. bibliog il diags Iron & Steel Inst J 202:745-56 S '64

Stress corrosion cracking susceptibility of stainless steels and nickel-base alloys in polythionic acids and acid copper sulfate solution. C. H. Samans. diags Corrosion 20:256-61; Discussion. 261-2 Ag '64

Theory of stainless steel pitting. W. Schwenk. bibliog il Corrosion 20:129-37 Ap '64

Specifications

Properties of austenitic stainless steel plate four inches and thicker. C. R. Mayne. Welding J 43:sup33-8 Ja '64

Testing

Cryogenically stretch-formed type 301 stainless steel for cryogenic service. R. H. Alper. bibliog il diags Materials Res & Stand 4:525-32 O '64

Electron-probe microanalysis of a nodular scale growth on an austenitic stainless steel. G. C. Wood and others. bibliog il Iron & Steel Inst J 202:685-95 Ag '64

Properties of austenitic stainless steel plate four inches and thicker. C. R. Mayne. Welding J 43:sup33-8 Ja '64

Short-cut tests identify stainless. il Iron Age 194:152-4 S 24 '64

Welding

Exo-Flux welding of stainless steel type alloys. R. A. Long and others. flow sheet il Welding J 43:sup259-64 Je '64

Factors involved in the resistance seam welding of austenitic and hardenable stainless steel. F. B. Nance and others. il diags Welding J 43:sup209-14 My '64

In-place ferrous tube splicer. R. S. Collins. il Mach 70:101-3 Ja '64

Plasma arc welding of stainless tubing is latest in Republic's facilities modernization program. il Iron & Steel Eng 41:144 Ag '64

Polishing welds on the Unisphere. il Am Mach 108:110 F 17 '64

Rods hold tight weld chemistry. il diag Iron Age 193:127 F 20 '64

Roll-spot welds join Atlas fuel tanks. il Welding Eng 49:95 Ap '64

Seam welding defects in austenitic stainless; data sheet. diags Welding Eng 49:61 Ja '64

Seamless, welded stainless tubing and piping index, engineering data sheet. Welding Eng 49:59 F '64

Spot welding defects in austenitic stainless; engineering data sheet. diags Welding Eng 48:61 D '63

Stainless alloy allows industrial use of sulfuric acid. il Welding Eng 49:72+ O '64

Stainless steel mixer ladles require special welding techniques. il diags Iron & Steel Eng 41:119-20+ Ja '64

Swedes use new rw seam welder at New York world's fair. il Welding Eng 49:56 My '64

Tips on welding stainless. il diags Welding Eng 49:98+ Ap '64

Vacuum degassing ladles are welded. il Steel 154:69 Ja 27 '64

Weld overlay protects vessels. il Iron Age 194:82 Ag 13 '64

Welded stainless beam may change future bridges. il Welding Eng 49:50 Jl '64

Welded stainless steel roofs. il Engineer 218:147 Jl 24 '64

Welded stainless tubing cuts valve part production costs. il Steel 155:50-1 Ag 24 '64

STEEL, Stainless—Welding—*Continued*

Welded vessel carries hot fuel. il Welding Eng 49:66 My '64
Welding erects two giant stainless tanks. il diags Welding Eng 49:82+ Jl '64
Welding moves ahead on tracks. il Iron Age 194:83 Jl 16 '64
Welding of 60 chromium-40 nickel alloy to low carbon and stainless steels. H. J. Lander and others. bibliog il diags Welding J 43: sup 198-201 My '64
Welding stainless steel. W. L. Wilcox. il Metal Prog 85:96-101 Je; 86:121-4+ Jl; 140+ Ag '64 (to be cont)
Welding the newer grades; AM-350, AM-355, AM-363 and the muffler alloys. R. H. Kaltenhauser. il Metal Prog 86:125-8 Ag '64
Welding the newer grades PH alloys and manganese stainless steels. R. H. Espy. Metal Prog 86:130+ Ag '64
Welding the world's largest stainless steel bubble chamber. il Welding Eng 49:47-8 N '64
What weld metal for type 316L stainless steel? R. H. Espy. il diag Metal Prog 86: 109-15 S '64

STEEL, Stainless clad

Stainless lining multiplies sulfuric pickle tank life. il diag Steel 154:48+ Je 1 '64
Stainless steel cladding with strip electrode. il Engineer 216:1039 D 20 '63
Weld overlay protects vessels. il Iron Age 194:82 Ag 13 '64
Weld overlay solves corrosion problem. Steel 155:114 N 2 '64

STEEL, Strip

Advantages of direct-fired heating in continuous strip galvanizing. C. A. Turner. il diags Iron & Steel Eng 41:107-13 Mr '64
Black plate passes coating test. il Iron Age 193:72 Ja 16 '64
Bright annealed stainless steel. il diags Engineer 217:303-4 F 14 '64
Bright annealing stainless steel strip. il Engineering 197:222-3 F 7 '64
Britain's first continuous bright annealing line for stainless steel strip. il Metallurgia 69:175-6 Ap '64
Coated coil business booming. Mod Metals 20:27-8+ Je '64
Coil coaters boost sales; eye new tonnage markets. Mod Metals 19:62-3 D '63
Continuous casting steel slabs. E. Plöckinger and B. Tarmann. bibliog il J Metals 15:835-9 N '63
Continuous coiled strip coating line in California. il Engineer 218:149-50 Jl 24 '64
Conversion coat works overtime. il Iron Age 193:69 Ap 16 '64
Efficiency of cold-reduction mills in the rolling of steel strip. R. J. Bentz and W. L. Roberts. bibliog il Iron & Steel Eng 41:101-6 Mr '64
Elastic behaviour in cold strip rolling at the onset of plasticity. F. J. Loss and others. bibliog diags Inst Metals J 92:104-10 '63-64
Electrical equipment for continuous processing lines at Fairless works. R. W. Sheffler. il diag Iron & Steel Eng 40:111-15; Discussion. 115-16 N '63
Factors affecting quality in open coil annealing; abstract. W. H. Minck. Metal Prog 85:156+ Je '64
Gage reads width of hot strip. diag Iron Age 193:61 Ap 2 '64
Hardness gaged as strip flies by. H. J. Hansen, jr. il Iron Age 192:73-5 N 21 '63
How to determine formability of low carbon steel sheet and strip. S A E J 72:62-5 O '64
Increased capacity for cold-rolled steel strip. il diag Engineer 217:551-2 Mr 27 '64
Installation and operation of no. 5 continuous annealing line. L. G. Coscia. il diags Iron & Steel Eng 41:183-92 S '64
Laboratory evaluation of lubricants used in the cold rolling of steel strip. S. N. Vojnovic and others. bibliog il diags Iron & Steel Eng 41:95-100; Discussion. 100-1 My '64
Line pulls wrinkles from coil strip. il Iron Age 192:84 D 19 '63
Math model guides strip rolling. diag Iron Age 193:64-5 Je 4 '64
Precoated steel gains favor in many areas. il Steel 153:83-4 N 18 '63
Roll forming of stainless strip. il Metal Prog 86:170+ Ag '64
Six-stand rolling mill steps up coil stock production rates; U.S. Steel's Fairfield district works. il Iron Age 192:82-3 D 19 '63
Speedy steel strip mill. il diag Mech Eng 86: 64-5 Mr '64
Spiral weld pipe mills. U. G. D. de Salis. il diags Iron & Steel Eng 41:76-80; Discussion. 80-2 Je '64
Stainless steel strip. Automobile Eng 54:133-4 Ap '64
Strip gages feature measurement refinements. il diags Iron & Steel Eng 41:125-6 Ja '64
Strip galvanizing line allows many variations. il Steel 153:35-6 D 30 '63
Strip stiffness as the deciding factor in the choice between different tensiometer principles. E. Angeid. diags Iron & Steel Eng 41:135-43; Discussion. 143-5 Ap '64
Strip welder and peeler. il diag Mech Eng 86:55 My '64
Tool steel strip rolled from powder. il Steel 154:118+ My 4 '64
Tough steel strip, already heat treated. il Materials in Design Eng 59:100 Ja '64
Twin lines coat metal strip. il Iron Age 194: 144 O 29 '64
Unique hot/cold strip width gauge provides non-contact measurement. Franklin Inst J 277:185 F '64
Unit detects welds in strip. il Iron & Steel Eng 41:174 Ap '64
Watch for the difference between sheet and strip steel. D. H. W. Allan. bibliog il diags Product Eng 35:75-80 Mr 30 '64
Wheeling Steel's continuous strip coating setup. R. W. Glaser. il Ind Finishing 40:36-8+ D '63
X-ray mike reads strip thickness. il Iron Age 193:103 Ap 9 '64
X-rays record coating weights; programmed system logs weight of tin on flying strip. il diags Iron Age 193:64-5 Ap 16 '64

STEEL, Structural

Additional Cooper River bridge. F. H. Sterbenz. il plan diags Civil Eng 34:41-5 O '64
Analysis of triangular bracket-type plates. C. G. Salmon. bibliog diags Am Soc C E Proc 88 [EM 6 no 3363]:41-87 D '62; Discussion. B. J. Hartz. 89 [EM 5 no 3687]:97-8 O '63; Reply. 90 [EM 2 no 3882]:229-30 Ap '64
Bare steel structures; new concept. S. K. Coburn and others. bibliog il Elec Eng 82:666-72 N '63; Excerpts. Power Eng 67:60-2 N '63
Combination steel design saves on tank costs. il Iron & Steel Eng 41:158 Ag '64
Die cutting cuts cost of open-web beams. L. Kates. il diags Civil Eng 34:40-2 Jl '64
Drainage details for buildings using standard steel components. il diags Arch Rec 134: 149-50 D '63
Effects of cold-straining on structural sheet steels. A. Chajes and others. bibliog diags Am Soc C E Proc 89 [ST 2 no 3477]:1-32 Ap '63; Discussion. 89 [ST 5 no 3688]: 333-5 O; [ST 6 no 3743]:435-44 D '63; Reply. 90 [ST 3 no 3940]:373-4 Je '64
Fabricators indicted; U.S. says six steel firms rigged bids, allocated jobs. Eng N 172:21 F 20 '64
Four new steels for high strength structures. Materials in Design Eng 60:107-9 Ag '64
Fracture characteristics of some high-strength, weldable, structural steels. E. T. Wessel and L. E. Hays. bibliog il diag Welding J 42:sup512-28 N '63
Multi-steel design gives big tank-investment savings. il Chem Eng 71:94 My 25 '64
Multi-storey frame in high-yield-stress steel. il Engineer 217:173-4 Ja 24 '64
Rust enhances office building. il Eng N 172: 22 Je 25 '64
School costs cut by new components; long-span structure; light folding trusses. B. P. Spring. il diags Arch Forum 120:114 F '64
Selection of steel by the design engineer. I. M. Park and J. A. Bird. il Iron & Steel Eng 41:129-34 Ap '64
Structural design of the Terminal building for Edmonton international airport. E. M. Rensaa. il plans diags Eng J 47:21-7 Je '64; Discussion. 47:78+ S '64
Structural tubes have fine finish. Eng N 172: 52 F 20 '64
Trends in applications for stainless steels. il Metal Prog 86:78-99 Ag '64
Tubewrights' tubular steel fabrications. il Engineering 197:868-70 Je 26 '64
U.S. Steel adds three more structural grades. il Roads & Sts 107:72-3 Jl '64
Universal structural sections are produced on automated rolling mill. W. C. Davidson. il Iron & Steel Eng 41:137-8+ Ag '64
Weathered steel. H. J. Rosen. Prog Arch 44: 150 D '63
Welding stainless steel; applications for welded structures. W. L. Wilcox. il Metal Prog 85:96-101 Je '64

STEEL, Structural—*Continued*
Working with constructional steels. C. R. Weymueller. il Metal Prog 86:148+ S '64
See also
Bridges, Iron and steel
Steel, Aircraft
Steel, Reinforcing
Steel construction

Specifications

High-strength steel spec approved. Eng N 172:51 F 13 '64
Steel design rules questioned. A. Zweig. Eng N 171:81-2 N 14 '63

Testing

Dynamic plastic analysis of steel frames. B. Rawlings. bibliog diags Am Soc C E Proc 90 [ST 3 no 3954]:265-83 Je '64
Flexural fatigue tests of prestressed steel I-beams. W. D. Reneker and C. E. Ekberg, jr. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3868]:131-51 Ap '64; Discussion, J. W. Fisher and B. T. Yen. 90 [ST 4 no 4001]: 341-3 Ag '64
Loading rate effects in structural steel design. R. N. Wright and W. J. Hall. bibliog diags Am Soc C E Proc 90 [ST 5 no 4084]: 11-37 O '64

Welding

Arc welding helps to design guyed tower 3000 feet high. A. Amirikian. il diags Welding J 42:955-62 D '63
Concept of tubular-joint design. J. G. Bouwkamp. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3864]:77-101 Ap '64
Development of a high-strength, tough, weldable, structural steel. E. T. Wessel and L. E. Hays. bibliog il Welding J 43:sup215-31 My '64
Equipment simplicity justifies automation. P. McGonigle. il Welding Eng 49:48-9 Jl '64
Functionality is keynote of welded exhibit structure. R. R. Franceschi and L. F. Greene. il diag Welding Eng 49:45 N '64
How fast can you weld constructional alloy steels? A. F. Billy and others. il Metal Prog 86:152-5 O '64
Kaiser sells automatic beam welder. il diags Eng N 171:47-8 N 28 '63
Longest self-erecting boom is welded of T-1 steel tubing. il Welding Eng 49:78 S '64
Metallurgical response of heat-treated steels to welding. W. D. Doty and E. S. Szekeres. il diag Welding Eng 49:80-3 O; 60+ N '64
Methods to establish procedures for welding low alloy steels. B. J. Bradstreet. bibliog diags Eng J 46:37-41 N '63
Plumbness in high rise structural steel buildings. J. S. Storch. il diags Welding J 43: 753-6 S '64
Prefabricated welded framing helps Wisconsin get to the Fair. il diags Welding Eng 49:45-7 Ag '64
Project for the hobby welder. P. McKinney. il diag Welding Eng 49:62+ Je '64
Stud welding cuts costs in precast concrete panel erection. il Welding J 43:610 Jl '64
Use of stud welded connectors for field bolting of structural steel. il Welding J 43: 518-19 Je '64
Welded connections for space frame joints. R. H. Goldsmith. il plans diags Am Soc C E Proc 90 [ST 5 no 4100]:63-84 O '64
Welded constructional alloy steel plate girders. P. B. Cooper and others. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3784]: 1-36 F '64
Welded steel frames world's largest clear-span domed stadium. T. B. Jefferson. il diags Welding Eng 49:55-7 Je '64
Welded structures: unlimited. F. L. Plummer. il Welding J 43:103-10 F '64
Welded tubular trailer solves transport problem for Atlas missile. T. B. Jefferson. il diag Welding Eng 49:40-3 O '64
Welded Universal beams up to 78 in. deep. il Engineering 197:20 Ja 3 '64
World's longest self-erecting boom welded of tubular T-1 steel. il Welding J 43:758 S '64
See also
Bridges—Welding operations

STEEL alloys
Abrasion-resistant alloys. W. W. Fraser. il Can Min & Met Bul 57:867-9 Ag '64
Alloy steel bars; reference book sheet. Am Mach 108:77+ Mr 30 '64
Cast irons and steels. J. F. Wallace and L. Leonard. bibliog il Machine Design 36: 169-200 Mr 12 '64
Changing picture in alloy steels; with data sheet. C. R. Weymueller. Metal Prog 86: 138+ O '64
Choosing a high-strength low-alloy steel. D. H. W. Allan. Am Mach 108:71-5 Jl 6 '64
Cobalt in high speed steels. F. R. Morral. Metal Prog 85:150+ Je '64
Controlled cooling for alloy steels. Engineer 217:613 Ap 3 '64
Cooling transformation diagram for AISI 4047; with data sheet. il Metal Prog 84:112, 114 D '63
European developments in high alloy and stainless steels; conference report. F. R. Morral. Metal Prog 86:188+ Ag '64
Extraction and spectrophotometric determination of molybdenum and tungsten with 2-thenoyltrifluoroacetone: application to alloy steels. A. K. De and M. S. Rahaman. bibliog Anal Chem 36:685-7 Mr '64
Heat-treatment of low-alloy plate. G. L. Stroman and D. Montgomery. Iron & Steel Eng 41:97-100 Mr '64
High alloy steels conference, Scarborough, June 2-4; abstracts of papers. Metallurgia 70:77-9 Ag '64
High-temperature decomposition of austenite in alloy steels. J. McCann and K. A. Ridal. bibliog il Iron & Steel Inst J 202:441-7 My '64
Hopkins process finds new facets. il Iron Age 193:72-3 F 6 '64
How fast can you weld constructional alloy steels? A. F. Billy and others. il Metal Prog 86:152-5 O '64
How planemaker solved hot welding problems. il Steel 154:109 Je 8 '64
How to work alloy steel tubing. J. F. Beck. Am Mach 108:50-3 Ag 31 '64
Influence of alloying elements on the cold deformation of steel; abstract. J. D. Crawford and others. Metal Prog 86:262+ O '64
Maraging steels. T. H. Turner. Engineer 217: 275 F 7 '64
Metal selector; alloy steels and H-steels. Steel 155:sup S24-6 O 12 '64
Metallographic characterization of an NBS spectrometric low-alloy steel standard. R. E. Michaelis and others. bibliog il J Res Nat Bur Stand 68A:343-54 Jl '64
Methods for minimizing hydrogen embrittlement in electroplated high strength alloy steels. E. E. Dougherty. diag Plating 51: 415-22 My '64
Methods to establish procedures for welding low alloy steels. B. J. Bradstreet. bibliog diags Eng J 46:37-41 N '63
New high strength steel is weldable. E. T. Wessel and L. E. Hays. Materials in Design Eng 59:90-1 Ja '64
Production of helicopters and hovercraft; abstract. E. Mensforth. diag Engineering 197: 553 Ap 17 '64
Quality control in high temperature alloys. T. P. Davis and others. il diags Ind Quality Control 20:9-13 N '63
Quenching lean alloys in normal oils. H. C. Stone. Metal Prog 85:107-8 Je '64
Slag blanket melting means workable steel. Steel 154:60 F 17 '64
Stainless steel and other ferrous alloys; annual review. W. A. Luce and J. H. Peacock. bibliog Ind & Eng Chem 56:51-4 Ag '64
Steel trucks reduce weight to gain sales. H. F. Jones. il Iron Age 192:55 N 21 '63
Stronger steel alloys from Sheffield? il Engineering 198:460 O 9 '64
Thermodynamics of the interaction of atmospheres with alloy steels. R. Littlewood. bibliog Iron & Steel Inst J 202:143-6 F '64
Vacuum degassing and induction melting for ultraclean alloys. diag Metal Prog 85:110 Ja '64
Welded constructional alloy steel plate girders. P. B. Cooper and others. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3784]: 1-36 F '64
What modified M2 offers the user. G. Steven and S. J. Smialek. il Metal Prog 85:80-2 My '64
Which steel for refinery service? C. H. Samans. bibliog il diag Hydrocarbon Process & Pet Refiner 42:169-73 O; 241-6 N '63
See also
Chromium molybdenum steel
Chromium nickel steel
Chromium nickel titanium steel
Manganese steel
Nickel steel
Silicon steel
Steel, Stainless
Steel, Structural
Tool steel
Vanadium steel

STEEL alloys—*Continued*

Testing

- Cast maraging steel evaluated. J. B. Dabney and H. R. Larson. bibliog il diags J Metals 15:907-11 D '63; Abstract. Metal Prog 85:186+ Je '64
- Development of a high-strength, tough, weldable, structural steel. E. T. Wessel and L. E. Hays. bibliog il Welding J 43: sup215-31 My '64

STEEL arches. See Arches, Steel

STEEL bars

- Alloy steel bars; reference book sheet. Am Mach 108:77+ Mr 30 '64
- Automatic steel conditioning, a new horizon for cost reduction. P. DiLella. il Iron & Steel Eng 41:116-19; Discussion. 119-20 O '64
- Chain sling turners aid billet straightening. il Steel 154:62-3 F 3 '64
- Continuous casting at Connors Steel. il Steel 155:144-7 S 14 '64
- Continuous casting of round steel sections. B. Tarmann and W. Poppmeier. il J Metals 16:406-9 My '64
- Continuous casting of steel billets. R. Easton. il Iron & Steel Eng 41:121-3; Discussion. 123-4 Ag '64
- Defects in barstock; reference book sheet. S. E. Tyson. diag Am Mach 108:75 Ag 3 '64
- Gary works producing annealed bar coils. Iron & Steel Eng 40:164+ N '63
- Grinder zips off billet scale by striking while hot. il Iron Age 194:58-9 Jl 30 '64
- Heaters keep scale off billets. il Iron Age 192:157 D 5 '63
- Seamless pipe and tubing from continuously cast steel billets. J. H. Fishburn. il diag J Metals 16:402-5 My '64
- Tellurium helps bars shed chips. Iron Age 193:104 Ap 9 '64

See also

Steel, Reinforcing

Testing

- Electronic inspector checks billets. il Iron Age 192:83 N 21 '63
- Shock absorbers stop 2000-lb. test bars. il Hydraulics & Pneumatics 17:23 O '64
- Sonics unite with magnetic glow for automatic billet testing. il Iron Age 194:55-7 O 15 '64
- To build combination billet test system. Iron & Steel Eng 40:168+ N '63

STEEL billets. See Steel bars

STEEL buildings

- Computer service designs steel buildings. plan Eng N 173:38-9 Ag 27 '64
- Economy highlights county building expansion. il Pub Works 95:110-11 Je '64
- Hub speeds space-frame erection. il Eng N 172:96+ My 21 '64
- Space truss braces huge building for moon rocket. A. Tedesko. il plans diags Eng N 172:24-8 F 6 '64
- Weird and wonderful exhibition structures in steel. il Engineering 197:713 My 22 '64

STEEL castings

- Big steel attacks Chicago with continuous casting. Steel 154:33+ My 11 '64
- Can new technology meet test of specialty steels? G. J. McManus. il Iron Age 194:25-6 Ag 13 '64
- Cast forging dies defy wear. il Iron Age 194: 64-5 O 22 '64
- Cast irons and steels. J. F. Wallace and L. Leonard. bibliog il Machine Design 36:169-200 Mr 12 '64
- Cast maraging steel evaluated. J. B. Dabney and H. R. Larson. bibliog il diags J Metals 15:907-11 D '63; Abstract. Metal Prog 85:186+ Je '64
- Casting properties tailored for job. il Steel 155:78+ Jl 13 '64
- Castings stew in their own gases; self-protecting atmosphere is generated in new heat treating furnace. E. J. Lenar. il Iron Age 194:71-3 Ag 13 '64
- Coming: better descriptions for alloy castings surfaces. il Steel 154:53 Je 29 '64
- Computers open new horizons in casting technology; abstract. J. Zotos. Metal Prog 86: 196+ S '64
- Continuous casting around the world. Iron & Steel Eng 41:67-70 Jl '64
- Continuous casting at Appleby-Frodingham. R. Johnson and others. il diags Iron & Steel Inst J 202:193-208 Mr '64; Excerpts. J Metals 16:352-6 Ap '64
- Continuous casting at Connors Steel. il Steel 155:144-7 S 14 '64
- Continuous casting at Motala, Sweden. il plan Engineer 217:591-2 Mr 27 '64
- Continuous casting at Roanoke electric steel corp. I. Harter, jr. and J. J. Barrett. il diag Iron & Steel Eng 41:73-5; Discussion. 76 Ja '64
- Continuous casting development. il Engineer 217:53 Ja 3 '64
- Continuous casting; experience gives it a stamp of approval. G. J. McManus. il Iron Age 194:55-7 Jl 2 '64
- Continuous casting facilities planned. Iron Age 194:29 S 3 '64
- Continuous casting in decisive period. G. J. McManus. il Iron Age 193:91 F 20 '64
- Continuous casting machine comes of age I. Rossi. il diag Iron & Steel Eng 41:125-9; Discussion. 130 F '64
- Continuous casting of round steel sections. B. Tarmann and W. Poppmeier. il J Metals 16:406-9 My '64
- Continuous casting of steel. L. V. Gallagher and B. S. Old. il diags Sci Am 209:74-88 D '63
- Continuous casting of steel billets. R. Easton. il Iron & Steel Eng 41:121-3; Discussion. 123-4 Ag '64
- Continuous casting of steel billets in western Canada; abstract. L. J. Gibson. Metal Prog 85:168+ Mr '64
- Continuous casting of wide slabs. K. Saigo. il diags Iron & Steel Eng 41:71-6; Discussion. 76-7 Ap '64
- Continuous casting round the bend. il Engineering 197:57 Ja 10 '64
- Continuous casting takes cues from strategic controls. J. F. Paparella. il diag Iron Age 194:62-3 Ag 6 '64
- Curved mould continuous casting. il diag Engineer 217:608-9 Ap 3 '64
- Deoxidation and pinhole formation in heavy steel castings. S. Bergh and A. Josefsson. bibliog il diags Iron & Steel Inst J 202:356-66 Ap '64
- Direct casting, vacuum degassing score gains. G. J. McManus. Iron Age 193:43 F 6 '64
- Engineering problems involved in direct casting steels. E. V. Akerlow. diags Iron & Steel Eng 41:79-85 Mr '64
- Exothermics keep metal flowing to increase casting yields. il Iron Age 192:78-9 N 21 '63
- Flaws no key to casting failures. diags Materials in Design Eng 58:88-9 N '63
- Four years' research on steel castings. il Engineering 198:90 Jl 17 '64
- Future of continuous casting. F. L. Byrom. il Iron & Steel Eng 40:73-6 N '63
- Hardfacing saves furnace bell. J. K. Wilson. il Welding Eng 49:80-1 N '64
- How to process 17-4 PH stainless steel castings. R. J. Dvorak and J. C. Fritz. il Metal Prog 86:174+ Ag '64
- How we'll make metals tomorrow. il diags Steel 154:88-97 F 10 '64
- Intergranular brittleness of cast chromium-nickel steels. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 200:1060-7 D '62; Discussion. 202:225-35 Mr '64
- Materials battle is tug-of-war. H. R. Neal. il Iron Age 193:104-6 F 20 '64
- Metal selector; ferrous castings. Steel 155: sup S 15-17 O 12 '64
- Mould casting vacuum furnace. il Engineer 217:1164 Je 26 '64
- Mold coating raises quality of as-cast steel finishes. il diag Iron Age 192:80-1 D 19 '63
- Mould lubrication for continuous casting of steel. diags Engineer 217:310 F 14 '64
- Mould lubrication in continuous casting. Engineering 197:91 Ja 17 '64
- New moldmaking process shears costs; N-Process. il Steel 154:69 Ja 27 '64
- New technology of iron and steel; continuous casting of steel. F. C. Price. diags Chem Eng 71:189-90 S 14 '64
- New USS strip mill fed by continuous casting. Iron Age 193:47 My 7 '64
- Now, get corrosion resistance and hardenability; stainless casting alloys. il Product Eng 35:67-71 Jl 6 '64
- Overseas steel castings industry is entering a growth period. R. H. Herrmann. il diag Foundry 92:85+ Ag '64
- Pilot steelmaking and continuous casting plant at Brierley Hill laboratory. il plan Engineer 217:72-4 Ja 10 '64
- Present status of continuous casting in the steel industry. D. L. McBride. bibliog diags Iron & Steel Eng 41:69-75 Je '64
- Pressure casting facility utilizes fused load breaker switches. C. L. Moore. il diags Iron & Steel Eng 41:249-50 S '64
- Pressure pouring of stainless steel slabs. J. R. Drever and others. il plans diag Iron & Steel Eng 40:123-8 D '63

STEEL castings—*Continued*

Pressure pouring unit in operation at Eastern Stainless plant. il Iron & Steel Eng 40:129-30 D '63

Progress at Shelton. il Engineer 218:3-5 Jl 3 '64

Progress in curved continuous casting. il diag Engineering 197:453-5 Mr 27 '64

Recent developments in direct casting of steels in Sweden; Motala Verkstad. E. V. Akerlow. il Iron & Steel Eng 40:89-94 N '63

Reinforced epoxy tooling technology. il Plastics World 22:58 O '64

Restoring carbon in investment castings of steel. J. Hockin. il Metal Prog 85:79-82 Ap '64

Seamless pipe and tubing from continuously cast steel billets. J. H. Fishburn. il diag J Metals 16:402-5 My '64

Some practical concepts of continuous casting. B. M. Hamilton. bibliog il diags Iron & Steel Eng 41:85-92 S '64

Steel casting research here and abroad. C. W. Briggs. il Foundry 92:52-6 Ja '64

Steel casting research; some activities of the B.S.C.R.A. reviewed. Metallurgia 70:83-6 Ag '64

Steel castings; AFS congress; abstracts of papers. Foundry 92:140+ Jl '64

Steel castings in weldments cut costs. E. J. Wellauer. bibliog il diags Mech Eng 85:28-33 Jl '63; Same. Naval Eng J 76:57-62 F '64

SFSA provides data on steel casting design. il Foundry 91:156+ N '63

Steel foundry designs compact molding line. E. Bremer. il plan Foundry 92:78-81 N '64

Steel sand castings capture aerospace applications. il Foundry 92:72-5 My '64

Steel's one per cent; continuous casting. il plan Engineering 197:26-7 Ja 3 '64

Steelworks closest to continuous process; Shelton iron & steel limited. il Engineering 198:15 Jl 3 '64

Survey of continuous casting. Engineer 217:280 F 7 '64

Tape-controlled lathe machines five-ft diameter cast-steel rolls. A. R. Kommel. il Iron & Steel Eng 41:147-8 Ag '64

Track rings for Kaldo converters. il Engineer 216:857 N 22 '63

Tube Investments' new pilot plant for steelmaking and continuous casting. il Metallurgia 69:80-1 F '64

Washington praises pressure casting. G. J. McManus. il Iron Age 193:25 Ja 23 '64

Washington Steel readies pressure pouring mill. il Steel 154:31 Ja 27 '64

World's "most continuous" continuous casting facility. il diag J Metals 16:390-1 My '64

See also
Steel ingots

Specifications

Specifications; seen spur to steel casting use. il Foundry 92:176+ O '64

Testing

Evaluating investment castings of maraging steel. R. J. Wilcox. il Metal Prog 85:87-90 Ja '64

How do sulfur and phosphorus affect cast steel? C. G. Mickelson. il Metal Prog 85:84-6 Ja '64

Present status of non-destructive testing in steel foundries. C. M. Stoch and J. D. Lavender. bibliog Metallurgia 70:25-30 Jl '64

31mev betatron for the radiography of steel castings. il Engineer 216:779 N 8 '63

STEEL chimneys. See Chimneys, Steel

STEEL coal cars. See Coal cars, Steel

STEEL columns. See Columns, Steel

STEEL construction

Adaptable house dramatizes use of steel. il plan diag Arch Rec 135:58-61 Mid-My '64

Bold and direct, using metal in a strong, basic way; Eero Saarinen's design for the Deere & company Administrative center. il plans diags Arch Rec 136:135-42 Jl '64

Choosing the best structural fastener. H. J. Stetina. il diags Civil Eng 33:50-3 N '63

Giant composite girders roof underground hotel ballroom. il Eng N 171:40-1 N 28 '63

Huge steel iceberg to seek oil. R. R. Kay. il Iron Age 193:42 Je 4 '64

Industrialized building for industry. il diags Engineering 198:464-5 O 9 '64

John Deere's sticks of steel. il plans diags Arch Forum 121:76-85 Jl '64

Riveted and bolted joints; truss-type tensile connections. E. Chesson, jr. and W. H. Munse. bibliog il diags Am Soc C E Proc 89 [ST 1 no 3412]:67-106 F '63; Discussion. A. J. Francis. 89 [ST 5 no 3688]:329-30 O '63; Reply. 90 [ST 2 no 3886]:351-2 Ap '64

Saarinen's Deere building opens. il Prog Arch 45:67 Jl '64

Size is no barrier to precision assembly; giant ferris wheel at New York worlds fair. il Mill & Factory 74:80-1 Ap '64

Space frames span sports arena. il diag Eng N 172:56 Mr 19 '64

Steel framed cantilever for Royal Ascot grandstand. il Engineering 197:875 Je 26 '64

Tallest steel bearing walls. il diags Arch Rec 135:194-6 My '64

Tracy generating station steel superstructure. R. H. Carrier and others. diags Eng J 47:28-31 F '64

Tubular steel review. il diags Prog Arch 44:173-6 N '63

See also
Arches, Steel
Bridges, Iron and steel
Columns, Steel
Riveted joints
Standpipes, Steel
Steel, Structural
Steel buildings
Strains and stresses
Towers, Steel

Concrete composite

Behavior of prestressed composite steel beams. P. G. Hoadley. diags Am Soc C E Proc 89 [ST 3 no 3534]:21-34 Je '63; Discussion. 89 [ST 6 no 3743]:453 D '63; 90 [ST 1 no 3812]:231-3 F '64

Composite construction with new steels. J. B. Scalzi. diags Prog Arch 45:192-4 S '64

Composite design lowers county bridge costs. il diag Eng N 172:22-3 Mr 26 '64

Concrete-in-steel fence posts. il Engineering 198:467 O 9 '64

Construction resumed on St Louis arch. il Eng N 172:20 Ja 30 '64

Pile-supported plate girders soar over New Orleans waterway. il Eng N 172:26-8 Ap 23 '64

Plate girders curve for 550 ft. il Eng N 172:21 Ap 9 '64

Railroad prefabricates bridge spans. il Eng N 172:91 My 21 '64

Redesign cuts steel weight 24 per cent. il Eng N 172:178-9 Je 18 '64

Tripod supports bandshell roof. il Eng N 172:30 F 6 '64

Design

Fast design of steel rigid frames. I. Hooper and P. C. Wang. diags Eng N 171:97+ N 14 '63

Integrated structural steel design program. A. H Palmer and others. bibliog diags Am Soc C E Proc 89 [PO 1 no 3649]:67-82 S '63; Discussion. M. Zar. 90 [PO 1 no 3849]:107-8 Mr '64; Reply. 90 [PO 2 no 3977]:29-30 Jl '64

Steel structures shed weight. L. S. Beedle. il Iron Age 193:74-5 F 6 '64

Structure designs governed by limited deformations. J. Solomon. il diags Am Soc C E Proc 89 [ST 6 no 3718]:71-99 D '63; Discussion. 90 [ST 4 no 4001]:291-6 Ag '64

Uncambered truss cuts stresses. il plan Eng N 172:138+ Mr 19 '64

Failure

Failure of steel structures. R. Weck. Engineer 217:1028-9 Je 12 '64

Welding

Machining a guided weapon launcher. il Engineer 217:394-5 F 28 '64

New welding code for buildings. A. Amirikian. diags Civil Eng 34:56-8 Ag '64

Project; build an Hawaiian flying saucer. T. B. Jefferson. il diags Welding Eng 49:44-6 Mr '64

Welded city in a cave. T. B. Jefferson. il Welding Eng 49:44-5 My '64

Welding at the Fair. T. Jefferson. il Welding Eng 49:51-5, cover Ap '64

Welding in construction. T. B. Jefferson. il diags Welding Eng 49:35-40 My '64 (reprints 50c)

See also
Bridges—Welding operations

STEEL cutting

Cutting steel and iron with cemented carbide tools. E. M. Trent. bibliog il diags Iron & Steel Inst J 201:847-55, 923-32, 1001-15 O-D '63

Dual-flow plasma torch. J. A. Browning. il diags Welding J 43:275-9 Ap '64

Faster cutoff of tool steels with dry abrasive wheels. C. H. Wick. il Mach 70:99-101 N '63

Grinding red hot billets doubles removal rates. il Steel 155:80-3 Jl 27 '64

Machinability of leaded stainless. N. L. McClymonds. il Metal Prog 86:166+ Ag '64

Machining a guided weapon launcher. il Engineer 217:394-5 F 28 '64

Machining H11 tool steel. A. Zimmerman. il Am Mach 108:127-30 Ap 13 '64

Machining of stainless steel. D. M. Blott. il Metal Prog 86:119-24 Ag '64

Machining T-sections from stainless steel strip. J. Kotora, jr. il Tool & Manuf Eng 51:83 N '63

Metallurgical guide to machinability. G. B. Troup. diags Am Mach/Metalworking Manuf 107:127-38 O 14 '63 (reprints 45c)

More machinable steels, copper and aluminum alloys; round table discussion. Metal Prog 86:108-17 O '64

Plasma arc takes thick slices from stainless steel plate. F. R. Romeo. il Iron Age 193: 67-9 Ja 16 '64

Rating the performance of free-machining steels. D. W. Murphy. il diag Metal Prog 86:85-9 Jl '64

Tape machining of steel beams. G. DeGroat. il Am Mach 108:66-7 Ja 6 '64

STEEL foil

Steel foil may wrap up new sale. G. J. McManus. il Iron Age 193:60-1 Ap 23 '63

Tin-coated steel foil now available for packaging. Chem & Eng N 42:59 Ap 27 '64

STEEL forgings

Deformation of steel; reference book sheets. diags Am Mach 108:109+ S 14; 97+ S 28; 115+ O 12; 169+ O 26 '64

Fully-hardened forged steel rolls. il Engineer 217:755 Ap 24 '64

Hardness conversion for forged steel rolls; with data sheet. A. A. Bradd and W. F. Shore. il Metal Prog 85:102+ Je '64

High quality steels and forgings. il Engineering 198:265 Ag 28 '64

New facilities for finishing forged steel rolls. il Engineering 197:585 Ap 24 '64

Weldless forged and rolled steel rings. il Engineering 197:578-80 Ap 24 '64

STEEL founders society of America

Annual meeting, 62d, Chicago, March 9-10. Foundry 92:109+ My '64

Annual technical and operating conference, 18th, Cleveland, Nov. 11-13. Foundry 92: 142 Ja '64

Fall meeting, 61st, Hot Springs, Va. Sept. 23-24; abstracts of papers. Foundry 91:188+ N '63

Fall meeting, 62d, Hot Springs, Va., Sept. 21-22. Foundry 92:176+ N '64

STEEL handling

Coil handling machine does several jobs. E. Loeffel. diags Am Mach 108:145 My 11 '64

Economics of alternate methods of distributing flat rolled steel. E. E. Jones. il Iron & Steel Eng 41:105-12 Ja '64

Handling's vital role in steel's economic survival; special report. il diags Mod Materials Handling 19:39-64 O '64

Influence of material handling on steel mill layout. F. C. Wier. il Iron & Steel Eng 40:136-40; Discussion. 140-1 N '63

Magnets speed press loading. il Am Mach 108:72 Ja 6 '64

Magnets speed sheet stacking. il diag Iron Age 192:150-1 D 5 '63

Sky grab shrinks storage yard. J. W. Bridges and G. J. Drango. il Mod Materials Handling 19:47 Ag '64

STEEL industry and trade

Ahead for steel: more welding, shop work. Eng N 172:58 My 21 '64

Developments in the iron and steel industry during 1963. I. E. Madsen. il diag Iron & Steel Eng 41:supD 1-60 Ja '64

Economics of process selection in the iron and steel industry. M. D. J. Brisby and others. bibliog flow diags diags Iron & Steel Inst J 202:721-9; Discussion. 729-34 S '64

How we cut our steel costs. R. L. Biddle. Am Mach 108:145 Ap 13 '64

Iron ore and steel, 1963. A. W. Knoerr. Eng & Min J 165:108-10 F '64

New steel industry by 1975. Steel 155:130-1 S 14 '64

New technology of iron and steel. F. C. Price. flow diag il diags Chem Eng 71:179-94, cover S 14 '64 (reprints 75c)

Progress, prestige and profits. W. R. Hough. Iron & Steel Eng 41:91-2; Discussion. 92-3 Mr '64

Review of the specialty steel industry. E. J. Hanley. Iron & Steel Eng 40:81-4 N '63

Steel industry opens Century Two with press tour. il Iron & Steel Eng 41:158-9 O '64

Steel is ready for the future. il Iron Age 194: 27 S 24 '64

Steel use will increase five per cent. il Iron Age 192:55-64 D 26 '63

Threat is now a fact; abstract. S. S. Cort. Automation 11:135-6 Ag '64

See also

Iron industry and trade

Steel, Structural

Finance

Supra economics in steel investment. C. H. Williams. Iron & Steel Eng 41:86-90 Mr '64

Canada

Economics of primary iron and steel production on the West Coast from local iron ores via the H-iron direct reduction process. W. J. Dyck and others. bibliog flow diags diags Can Min & Met Bul 56: 888-94 D '63

Processing rod and wire in a specialty steel plant. J. R. Mills. il diag Wire & Wire Prod 38:1835-6+ D '63

China

Chinese steel industry. J Metals 16:215-16 Mr '64

Czechoslovakia

Czechoslovakia's iron and steel industry. J. Krejci. il map J Metals 16:576-81 Jl '64

Europe

European developments in high alloy and stainless steels; conference report. F. R. Morral. Metal Prog 86:188+ Ag '64

Overseas steel castings industry is entering a growth period. R. H. Herrmann. il diag Foundry 92:85+ Ag '64

Using basic oxygen steel in Europe. H. O. Hauttmann. il diag Metal Prog 85:118-21 Ap '64

See also

European coal and steel community

Great Britain

En 16 and En 17, two English automotive steels. G. F. P. Fox. il Metal Prog 85:103-6 Ja '64

Research in the iron and steel industry. Engineer 216:1049-50 D 27 '63

Steel research; who pays? Engineering 196: 770 D 20 '63

Steelmakers; angels or computers? Engineering 197:35 Ja 10 '64

Where does all the steel go? Engineering 196: 738 D 13 '63

Italy

Refractories in Italy's steel industry. F. Savioli. il map Am Cer Soc Bul 43:214-15 Mr '64

Japan

Japanese stainless steel with acid resistance. F. Tsukamoto. il Metal Prog 85:107-8 Ja '64

Rising giant in world steel. T. Campbell. il Iron Age 194:28-9 O 29 '64

Latin America

Steelmaking in Latin America, 1963-1964. C. Prieto. J Metals 16:835-6 O '64

Mexico

Mexican steel industry, a giant step forward. Steel 154:63+ F 17 '64

Steel in Mexico: no more mañana. I. Villasenor and G. Galaz. il map plans Iron & Steel Eng 41:116-20; Discussion. 121-2 Mr '64

Sweden

Swedish iron and steel in 1963. Metallurgia 70:123 S '64

STEEL ingots

Ingot and bloom weighing. il Engineer 217:480 Mr 13 '64

Production of wire rods. il diags Wire & Wire Prod 39:862-7+, 1017-23+, 1168-72+, 1316-19+ Je-S '64

Top pouring ingots for direct rolling seamless tubes. J. A. Petroskas. il Iron & Steel Eng 41:111-15 O '64

STEEL ingots—*Continued*

Molds

Crumbling insulation cuts ingot handling. il Iron Age 192:169 N 14 '63

Manufacturing and performance experience with ingots molds and steels. K. E. Kansikas. il diags Iron & Steel Eng 41:174-80; Discussion. 181-2 S '64

Octagonal mold shapes up tool steel structure. C. Bryant and R. F. Harvey. il Iron Age 194:138-9 O 29 '64

Paradox, steelmen save money as materials vanish. il Steel 153:98+ N 25 '63

STEEL metallurgy

Can new technology meet test of specialty steels? G. J. McManus. il Iron Age 194:25-6 Ag 13 '64

Changing steel technology and the analytical chemist. il Anal Chem 36:sup27A-35A O '64

Cleaner steel; experimental steel production process. Product Eng 35:56 F 3 '64

Engineering problems involved in direct casting steels. E. V. Akerlow. diags Iron & Steel Eng 41:79-85 Mr '64

Hot metal, vacuum produce huge heats. G. J. McManus. Iron Age 193:37 My 28 '64

How we'll make metals tomorrow. il diags Steel 154:88-97 F 10 '64

How we'll make steel in the year 2000. il diag Steel 155:129-47 S 14 '64

Latrobe unveils new vacuum steel facilities. il Steel 154:47 My 25 '64

Making the steel the customer wants; Steel, Peech and Tozer ltd. il Engineering 197: 678 My 15 '64

Metallurgy of oriented silicon steels. G. W. Wiener. bibliog il diags J Ap Phys 35:856-60 pt 2 Mr '64

New type steels reach full acceptance for wire usage. R. de Bie. bibliog diags Wire & Wire Prod 38:1863-7+ D '63

Optimum conditions for steelmaking determined by mass spectrometer. il Iron & Steel Eng 41:209-10 Jl '64

Paradox, steelmen save money as materials vanish. il Steel 153:98+ N 25 '63

Production of wire rods. il diags Wire & Wire Prod 39:862-7+ Je '64

Recent advances in ferrous metallurgy; symposium series abstracts. Chem Eng Prog 60:88+ My '64

Steel made directly from all-cold scrap. Iron & Steel Eng 40:196+ D '63

Steel process eyes all-cold charges; called FOS (fuel-oxygen-scrap). il Iron Age 192: 82 N 21 '63

Technological advances in steelmaking. W. J. Stephens. il Iron & Steel Eng 40:77-80 N '63

Theoretical study of the solidification of rimming steel. P. Nilles. bibliog il diags Iron & Steel Inst J 202:601-9 Jl '64

Vacuum process steels raise product service. il diag Steel 154:110+ Je 8 '64

See also

Case hardening
Furnaces, Steel making
Open hearth furnaces
Open hearth process
Steel castings
Steel ingots

Electrometallurgy

AIME electric furnace conference, 21st, Chicago, Dec. 4-6; with program. J Metals 15:892-900 D '63

Annual electric furnace conference, 21st, Chicago, Dec. 4-6; with abstracts of papers. Foundry 92:150+ F '64

Kaldo and electric steelmaking. flow diag il Engineer 218:44-7 Jl 10 '64

Latrobe installs hot metal vacuum induction steel unit. il Iron & Steel Eng 40:167-8 D '63

Latrobe Steel's vacuum induction melting furnace on-stream. il J Metals 16:472 Je '64

Uses of the electroslag remelting process. A. C. Williams. bibliog il Iron & Steel Inst J 202:581-7 Jl '64

See also

Electric furnaces, Steel making

History

Colorado state historical society given CF&I's Pueblo steel exhibit. il Wire & Wire Prod 38:1871+ D '63

Oxygen processes

Allegheny Ludlum reveals plans for basic oxygen units. Steel 154:31 Je 29 '64

Annual conference of the Cleveland section of the National open hearth and basic oxygen steel committee; 3d, Cleveland, Sept 20; abstracts of papers. J Metals 16:63+ Ja '64

Armco shows its new blast furnace, oxygen facilities. Steel 153:31+ D 2 '63

At Ashland, latest development oxygen steelmaking. T. J. Murray and others. il plan diags J Metals 16:644-50 Ag '64

Basic oxygen furnaces and Kaldo highlights in Europe. W. Riedel and G. Weiler. il diag Iron & Steel Eng 41:80-5 My '64

Basic oxygen operations at August Thyssen Hutte. K. F. Behrens and J. Koenitzer. plan diags J Metals 16:821-6 O '64

Basic oxygen steel and ASTM specifications. Materials Res & Stand 4:325 Je '64

Basic oxygen steel furnaces get big plant; Bethlehem steel co.'s new Lackawanna plant near Buffalo. il Eng N 173:38-9 O 15 '64

Basic oxygen steelmaking teems in the United States. il plans diags J Metals 16:487-500 Je '64

BISRA reports promise with fuel-oxygen-scrap steelmaking process. diag Iron & Steel Eng 41:165-6 Mr '64

Coal chemicals production to increase; will result from oxygen steelmaking processes, which require more pig iron and less scrap metal. il Chem & Eng N 42:59-60 My 25 '64

Comments and questions on basic oxygen steel. Wire & Wire Prod 39:408+ Mr '64

Computer control of the basic oxygen process. K. Katsura and others. bibliog diags J Metals 16:340-5 Ap '64

Continuous carbon determination in the basic oxygen processes. J. Dumont-Fillon and others. il diag J Metals 16:508-11 Je '64

Continuous determination of bath carbon in the basic oxygen process. D. A. Dukelow and others. diag Iron & Steel Eng 41:67-71 O '64

Continuous temperature measurement for basic oxygen steelmaking. W. A. Fischer and H. J. Fleischer. diags J Metals 16:483-4 Je '64

Control; where seconds count. il diag Mod Materials Handling 19:56-7 O '64

Direct reduction experiments using a small Kaldo converter. T. F. Pearson and others. bibliog il diags Iron & Steel Inst J 202:1-10 Ja '64

Economic evaluation of the FOS process. J. W. D. Pictor and P. A. Young. J Metals 16:516-19 Je '64

Economy in planning and designing of BOF waste gas-cooling and dust-collecting plants. R. Kemmetmuller. flow diag il diags Iron & Steel Eng 41:203-17 S '64

Effluent gas analysis for end-point carbon control. D. MacFarlane. diag J Metals 16: 715-17 S '64

Engineering aspects of the basic oxygen furnace plant at Great Lakes Steel. M. A. Jones. flow diag il plan diag Iron & Steel Eng 41:123-8 Mr '64

Feedback signals link melter to oxygen steelmaking. B. Blum. il Iron Age 192:84-5 N 21 '63

Flux control automated for oxygen converters. Steel 155:156+ S 14 '64

French research work and achievements in oxygen steel refining. il diags Metallurgia 70:124-8 S '64

Fuel-oxygen-scrap steelmaking process. diag Metallurgia 69:129-30 Mr '64

Fuji circular converter is step toward continuous steelmaking. diags Steel 155:148+ S 14 '64

Good BOF operation aided by auxiliary equipment. il diags Iron & Steel Eng 41:169-70 Je '64

Hot model studies of the basic oxygen process. G. C. Smith and D. A. Dukelow. bibliog il diag J Metals 16:357-61 Ap '64

International oxygen steel congress, Le Touquet, France, Sept. 23-25. Iron & Steel Eng 41:181-2+ Mr '64

Is oxygen suited to stainless? G. J. McManus. Iron Age 194:24-5 Jl 2 '64

Kaldo and electric steelmaking. flow diag il Engineer 218:44-7 Jl 10 '64

Making steel from all-cold charges. il diag Engineering 197:40 Ja 10 '64

Modernization program at Duquesne works marked by completion of two 150-ton OSM furnaces. il Iron & Steel Eng 41:201+ Jl '64

National open hearth and basic oxygen steel conference, 47th and 23d ironmaking conference, Pittsburgh, April 13-15; combined program, list of officers and local section reports. J Metals 16:297-317 Ap '64

New BISRA process; making steel from all-cold charges called the FOS (fuel-oxygen-scrap) process. Metallurgia 68:278 D '63

New concept of steelmaking, hot-blast cupola with an oxygen converter. D. H. Tessmer. diags Iron & Steel Eng 41:189+ Jl '64

STEEL metallurgy—Oxygen processes—*Cont.*

New developments in basic oxygen furnaces in America. C. F. Simmers. diags Iron & Steel Eng 41:65-76; Discussion. 76-80 My '64

New techniques and automation update giant steel plant; process flowsheet. V. Bashian. Chem Eng 71:72-4 F 3 '64

New technology of iron and steel; oxygen in steel making. F. C. Price. diags Chem Eng 71:184-7 S 14 '64

New T. I. steelworks; Kaldo and computer. il diag Engineering 198:44-7 Jl 10 '64

Operating results of Jones & Laughlin steel corp.'s new 230-ton basic oxygen furnace shop at the Cleveland works. J. A. Glasgow. diags Iron & Steel Eng 40:117-21 D '63

Oxygen converters in existing open hearth buildings. R. P. Krause. il diags Iron & Steel Eng 41:121-30 Jl '64

Oxygen-fuel steel process. Engineer 216:704 O 25 '63

Oxygen furnaces, mill improve steel making. il Welding Eng 48:41 D '63

Oxygen process leaps ahead. G. J. McManus. il Iron Age 192:48-9 N 28 '63

Oxygen process posts world-wide gains. Iron Age 194:28 S 24 '64

Oxygen steelmaking in the USSR; tr. by W. Carroll. I. I. Barnatzkii and N. A. Tereshchenko. J Metals 16:611-12 Ag '64

Physical aids to control of the LD and LDAC processes. A. E. Parsons and D. Shewring. bibliog diag Iron & Steel Inst J 202:401-5 My '64

Progress at Shelton. il Engineer 218:3-5 Jl 3 '64

Relationship of furnace geometry and top blowing procedures. J. Reichmayr. diags Iron & Steel Eng 41:146-9 Ap '64

Russian 500-ton oxygen steel converter. Engineering 198:179 Ag 7 '64

Static and dynamic control of the basic oxygen process. H. W. Meyer and others. bibliog J Metals 16:501-7 Je '64

Steel from ore in one direct process. T. H. Turner. diags Engineer 217:430-1 Mr 6 '64

Steel process keeps winning many converts. Chem Eng 70:126 N 11 '63

Steelmaking with tandem furnaces. diags Engineer 217:290 F 7 '64

Tandem furnace process of the South African iron and steel industrial corp. E. Klein and K. Gebhard. diag Iron & Steel Inst J 201:1050-1 D '63

Ten years of oxygen steelmaking at Dofasco. F. J. McMulkin. il Can Min & Met Bul 57:1029-32 O '64

Track rings for Kaldo converters. il Engineer 216:857 N 22 '63

Transfer car reduces investment in BOF vessels. R. B. McCready and K. W. Forster. diags Iron & Steel Eng 41:176-7 Jl '64

U.S. Steel hails new oxygen facilities. Steel 154:47+ My 25 '64

Using basic oxygen steel in Europe. H. O. Hauttmann. il diag Metal Prog 85:118-21 Ap '64

STEEL piling. See Sheet piling

STEEL pipes. See Pipes, Steel; Water pipes, Steel

STEEL plates

Alloys strengthen plate sales. K. W. Bennett. il Iron Age 193:90-1 F 20 '64

Analysis of orthotropic plate bridges. R. J. Clifton and others. bibliog diags Am Soc C E Proc 89 [ST 5 no 3675]:133-71 O '63; Discussion. 90 [ST 2 no 3886]:395-9 Ap; [ST 3 no 3940]:393-401 Je '64; Reply. 90 [ST 6 no 4157]:297-308 D '64

Coast guard cutters to have HY-80 flight decks. il Welding Eng 49:75 Ap '64

Electroslag solves a head-forming problem. il Welding Eng 49:70 Jl '64

Formable vinyl-clad steel plate resists corrosion. J. W. Pedlow. il Materials in Design Eng 59:86-7 F '64

Heat flow in welding heavy steel plate. Z. Paley and others. bibliog il diags Welding J 43:sup71-9 F '64

Heat-treatment of low-alloy plate. G. L. Stroman and D. Montgomery. Iron & Steel Eng 41:97-100 Mr '64

High strength steels available as plates. Steel 155:54 Jl 6 '64

Laboratory investigation of unstiffened triangular bracket plates. C. G. Salmon and others. diags Am Soc C E Proc 90 [ST 2 no 3879]:257-78 Ap '64

Mill heat-treated high strength steels. J. F. Robb and J. Z. Briggs. il Materials in Design Eng 59:73-7 F '64

Mill rolls circular steel plate. C. L. Kobrin. il Iron Age 193:80-1 F 6 '64

Profile flame cutting machine. il Engineer 217:788 My 1 '64

Properties of austenitic stainless steel plate four inches and thicker. C. R. Mayne. Welding J 43:sup33-8 Ja '64

Relief of residual stresses by heating patterns. T. H. Lin and L. M. Lackman. bibliog diags Am Soc C E Proc 90 [EM 3 no 3937]:87-110 Je '64

Steel plate levelling line at Patent shaft steel works. il Engineer 216:906-7 N 29 '63

Use of T-1 steel for Oahe spiral cases. W. J. Rheingans. il Am Soc C E Proc 88 [PO 4 no 3339]:1-13 D '62; Discussion. 89 [PO 1 no 3652]:147-9 S '63; Reply. 90 [PO 1 no 3849]:77-8 Mr '64

Welders stack plates 260-ft high. il Eng N 173:50 S 10 '64

Widest steel plates; Gary, Ind. works of U.S. Steel. il Mech Eng 86:48-9 O '64

See also

Armor plate

Ship plates

Testing

Residual stresses in welded plates; a theoretical study. L. Tall. bibliog diags Welding J 43:sup 10-23 Ja '64

Steel bridge decks sound after 27 years. R. Wolchuk. il Eng N 172:54 Je 11 '64

STEEL poles. See Poles, Steel

STEEL powders. See Steel, Powdered

STEEL research

Four years' research on steel castings. il Engineering 198:90 Jl 17 '64

French research work and achievements in oxygen steel refining. il diags Metallurgia 70:124-8 S '64

Making the steel the customer wants; Steel, Peech and Tozer ltd. il Engineering 197:678 My 15 '64

New research laboratories at Steel, Peech & Tozer. il Metallurgia 69:296-300 Je '64

Refining the skill of the steel makers; Tube Investments new research instrument. il diags Engineering 198:6-7 Jl 3 '64

Research and development in steel. F. H. Saniter. il Iron & Steel Inst J 202:481-8 Je '64; Abstract. Metallurgia 69:252+ Je '64

Research in the iron and steel industry. Engineer 216:1049-50 D 27 '63

Steel casting research; some activities of the B.S.C.R.A. reviewed. Metallurgia 70:83-6 Ag '64

Steel quality control and development; Steel, Peech and Tozer works. il Engineer 217:851-2 My 15 '64

Steel research: who pays? Engineering 196:770 D 20 '63

Swinden laboratories research on carburising steels. Engineer 216:916 N 29 '63

Technical centre of the British oxygen co. Engineer 217:481 Mr 13 '64

Youngstown sheet and tube co. dedicates new research laboratories. il Iron & Steel Eng 41:126-8 Ag '64

Youngstown Sheet and Tube's new research center. il J Metals 16:554-5 Jl '64

STEEL rings. See Rings, Steel

STEEL roads. See Roads, Steel

STEEL rods. See Rods, Steel

STEEL roofs. See Roofs, Steel

STEEL scaffolding. See Scaffolding, Steel

STEEL shelving. See Shelving, Steel

STEEL slabs

Continuous casting of wide slabs. K. Saigo. il diags Iron & Steel Eng 41:71-6; Discussion. 76-7 Ap '64

Continuous casting steel slabs. E. Plöckinger and B. Tarmann. bibliog il J Metals 15:835-9 N '63

Impact of new slab casting processes on reheating furnace design. C. Cone. diags Iron & Steel Eng 41:137-43; Discussion. 143-4 O '64

Present status of continuous casting in the steel industry. D. L. McBride. bibliog diags Iron & Steel Eng 41:69-75 Je '64

Pressure pouring of stainless steel slabs. J. R. Drever and others. il plans diag Iron & Steel Eng 40:123-8 D '63

Pressure pouring steel shapes now on stream; Amsted's controlled pressure pouring process. il J Metals 15:814 N '63

Pressure pouring unit in operation at Eastern Stainless plant. il Iron & Steel Eng 40:129-30 D '63

Washington praises pressure casting. G. J. McManus. il Iron Age 193:25 Ja 23 '64

Washington Steel readies pressure pouring mill. il Steel 154:31 Ja 27 '64

STEEL straps

Steel strapping cuts handling costs. il Foundry 92:173-4 Ag '64

Three head strapper doubles output with same crew. il Steel 153:86 D 16 '63

STEEL tanks. See Tanks, Steel

STEEL towers. See Towers, Steel

STEEL tubes. See Tubes, Steel

STEEL walls. See Walls, Steel

STEEL waste

BISRA reports promise with fuel-oxygen-scrap steelmaking process. diag Iron & Steel Eng 41:165-6 Mr '64

Dual-hearth furnace offers great promise. W. M. Mathias. diag Iron & Steel Eng 41:177-8+ Ap '64

Fuel-oxygen-scrap steelmaking process. diag Metallurgia 69:129-30 Mr '64

Sampling of steel turnings and borings. E. E. Brown and J. C. Cline. il J Metals 15:912-13 D '63

Scrap melting by the fuel-oxygen-scrap process. J. Pearson. J Metals 15:818 N '63

Steel made directly from all-cold scrap. Iron & Steel Eng 40:196+ D '63

STEEL wheels. See Wheels, Steel

STEEL window frames. See Window frames, Steel

STEEL wire. See Wire, Steel

STEEL work

Developments in steel extrusion. R. M. L. Elkan; R. Cox. bibliog il diags Iron & Steel Inst J 202:236-60 Mr '64; Discussion. 202:757-62 S '64

Don't overlook steel extrusions. J. J. Barrett. il diags Materials in Design Eng 60:96-8 S '64

How to design steel parts for porcelain enameling. R. S. Sheldon. diags Cer Ind 84:59-61 Jl '64

How to determine formability of low carbon steel sheet and strip. S A E J 72:62-5 O '64

How to fabricate aluminized steel. R. F. McDonell. il Tool & Manuf Eng 53:52-6 N '64

Rubber rolls out cylinders. il diag Iron Age 194:74-5 Ag 13 '64

Scale-free ferrous metal treating and forming at elevated temperatures; induction applications. H. B. Osborn, jr. il Iron & Steel Eng 41:83-91; Discussion. 91-2 Je '64

Stamping and welding Pontiac chassis frames. J. Geschelin. il Automotive Ind 130:59-62 Ja 15 '64

STEEL workers

Recruitment and training at Park Gate. il Engineer 218:85-6 Jl 17 '64

Wages in a time of technological change; Steel company of Wales. Engineering 197:180 Ja 31 '64

STEEL works

Armco's Ashland works; a showcase of rapidly advancing iron and steel technology. il map plans diags J Metals 16:625-58 Ag '64

Bethlehem marks Century Two by unveiling new 12 and 14-in. bar mill. il Iron & Steel Eng 41:196 O '64

Development of the small integrated steel plant. R. Easton. bibliog diag Iron & Steel Eng 41:131-6 O '64

Kaiser Steel announces $119,000,000 expansion program. plan Iron & Steel Eng 41:175 O '64

Weirton to build steel plant of the future. Iron & Steel Eng 41:150 Ap '64

See also

Coke oven gas
Foundries
Rolling mills

Construction

Copter places big pipe on roof. il Eng N 173:29 Jl 30 '64

Steel plant's huge foundations call for round-the-clock work. il diag Eng N 172:28-30 Je 4 '64

Control equipment

Automation's new challenge, linking process computers to business direction. G. J. Hess and R. W. Kirkland. il diags Iron & Steel Eng 41:133-43 Mr '64

Bethlehem automates mill at Johnstown. Iron & Steel Eng 40:160+ N '63

Computer control of steelworks production. J. T. Jones and N. J. Williams. il plan diags Inst E E Proc 111:1183-92 Je '64

Control is central theme in new era of technology. il diag Steel 155:135-43 S 14 '64

Electronics in a new steel plant. il Ind Electronics 2:419-20 S '64

Engineers plot to control steel. T. M. Rohan. il Iron Age 194:26-7 O 1 '64

In-process handling; adding precise control to materials movement. il diags Mod Materials Handling 19:50-7 O '64

Japanese steelmen hedge on computer processing. Electronics 37:73 F 7 '64

Kaldos, computers to help Park Gate double capacity. il Steel 155:54+ Ag 3 '64

New computer line expands control capabilities. il Iron & Steel Eng 41:147-8+ My '64

New T. I. steelworks; Kaldo and computer. il diag Engineering 198:44-7 Jl 10 '64

OSCAR will control steelmaking. il Ind Electronics 2:17 Ja '64

Park Gate steel works expansion utilizes integrated production control. Iron & Steel Eng 41:237-8+ S '64

Physical aids to control of the LD and LDAC processes. A. E. Parsons and D. Shewring. bibliog diag Iron & Steel Inst J 202:401-5 My '64

Power-demand predicting computer control system for Sheffield div. of Armo Steel. K. E. Alexander and M. Maczuzak. il diag Iron & Steel Eng 41:102-8 My '64; Excerpts. Power Eng 68:36-8 My '64; Discussion. Iron & Steel Eng 41:108-10 My '64

Programmer runs vacuum melting. il Iron Age 193:80 Ja 16 '64

Sampling controllers pace Japanese sintering mill. K. Togino. il diags Control Eng 11:86-94 My '64

Steel plant automation overseas; evaluation of concepts of papers and discussion at 2d International congress on automatic control. W. E. Miller. bibliog il diags Iron & Steel Eng 41:98-104 Je '64

Steelmaker betters specs. C. D. Martens. il I S A J 10:22-3 D '63

Where are pneumatics headed? il diag Iron Age 194:74-5 N 5 '64

Wiring installation methods in static switching, analog and digital control. F. Geisheimer. bibliog diags Iron & Steel Eng 41:131-8; Discussion. 138-40 Jl '64

Costs

Economic evaluation of the FOS process. J. W. D. Pictor and P. A. Young. J Metals 16:516-19 Je '64

Economics of process selection in the iron and steel industry. M. D. J. Brisby and others. bibliog flow diags diags Iron & Steel Inst J 202:721-9; Discussion. 729-34 S '64

Electric equipment

Electric cable reels on transfer cars. il diag Iron & Steel Eng 41:153-4 Mr '64

Electrical aspects of arc furnaces. K. S. Kuka. diags Iron & Steel Eng 40:137-48 O '63; Discussion. 40:109-10 D '63

Electrostatic precipitator primer. J. Katz. bibliog diags Iron & Steel Eng 41:124-30 My '64

Pressure casting facility utilizes fused load breaker switches. C. L. Moore. il diags Iron & Steel Eng 41:249-50 S '64

Silicon rectifiers; their selection, application, installation and maintenance. V. E. Oswald and J. A. Viola. il Iron & Steel Eng 41:78-81; Discussion. 81-2 Ap '64

Trends in the use of electricity in the iron and steel industry. J. H. Groocock. Inst E E Proc 111:583-4 Mr '64

Employees

See Steel workers

Equipment

Armco's Ashland works practically rebuilt in last ten years. il diag Iron & Steel Eng 40:133-4+ D '63

Automatic steel conditioning, a new horizon for cost reduction. P. DiLella. il Iron & Steel Eng 41:116-19; Discussion. 119-20 O '64

Belgium and its new steelmaking facilities. F. W. Starratt. il diags J Metals 16:37-41 Ja '64

Beta radiation hardness gage. W. A. Wilson. bibliog il diag I S A J 10:64-8 D '63

Big welds by Bethlehem. L. Nickert. il Comp Air Mag 69:6-9 My '64

Can steel's suppliers shift with time? G. J. McManus. Iron Age 192:62-3 N 28 '63

Close-up of a revamped steel giant; Armco steel corp. N. P. Chopey. il Chem Eng 71:30-1 Ja 6 '64

Communications in a steel mill. Electronic Eng 36:553 Ag '64

Continuous casting at Appleby-Frodingham. R. Johnson and others. il diags Iron & Steel Inst J 202:193-208 Mr '64; Excerpts. J Metals 16:352-6 Ap '64

STEEL works—Equipment—*Continued*

Continuous casting at Roanoke electric steel corp. I. Harter, jr. and J. J. Barrett. il diag Iron & Steel Eng 41:73-5; Discussion. 76 Ja '64
Continuously measures hardness of steel. il Automation 11:12 F '64
Controlled cooling for alloy steels. Engineer 217:613 Ap 3 '64
Developments at Park Gate. flow diag il plan Engineer 218:43-8, 83-6 Jl 10-17 '64
Developments in steel extrusion; review of steel extrusion plant developments. R. M. L. Elkan. il diags Iron & Steel Inst J 202: 236-45 Mr '64; Discussion. 202:757-62 S '64
E.S.C.'s large scale quality steel production at Tinsley Park. il Metallurgia 68:207-20 N '63
Equipment news. Published in monthly numbers of Iron and steel engineer
German cranes today; new design policy. il diags Engineering 197:350-1 Mr 6 '64
Great Lakes Steel puts new facilities into full operation. il diags Iron & Steel Eng 40:103-9 D '63
Handling's vital role in steel's economic survival; special report. il diags Mod Materials Handling 19:39-64 O '64
Heavy duty straightening press. il diag Engineer 217:232-3 Ja 31 '64
Improved casting bay operations; Steel company of Wales ltd. il Engineer 218:139 Jl 24 '64
Influence of material handling on steel mill layout. F. C. Wier. il Iron & Steel Eng 40:136-40; Discussion. 140-1 N '63
Ingot and bloom weighing. il Engineer 217:480 Mr 13 '64
Installation and mechanical and operating features of the 240-in. flanging machine at Sparrows Point. M. Whitmore and R. D. Romeril. il diags Iron & Steel Eng 41:116-23 Je '64
Installation and operation of no. 5 continuous annealing line. L. G. Coscia. il diags Iron & Steel Eng 41:183-92 S '64
Jones & Laughlin dedicates blast furnace at Cleveland works. il Iron & Steel Eng 41: 115-16 Ja '64
Kaldos, computers to help Park Gate double capacity. il Steel 155:54+ Ag 3 '64
Large alloy steel plant. il plan Engineer 216: 623-6, 690-1 O 18-25 '63
Measuring molten steel temperatures. S. Ramachandran and T. R. Acre. bibliog il diags I S A J 11:54-6 Mr '64
Modernization program at Duquesne works marked by completion of two 150-ton OSM furnaces. il Iron & Steel Eng 41:201+ Jl '64
Modification of Geneva Works steel ladles. R. F. Anderson. il diags Iron & Steel Eng 41:147-50 S '64
New steel giant is born; Taranto plant of Italsider. W. N. Redstreake. il Iron Age 194:60-2 Jl 9 '64
New techniques and automation update giant steel plant; process flowsheet. V. Bashian. Chem Eng 71:72-4 F 3 '64
Oxygen converters in existing open hearth buildings. R. P. Krause. il diags Iron & Steel Eng 41:121-30 Jl '64
Oxygen furnaces, mill improve steel making. il Welding Eng 48:41 D '63
Progress at Shelton. il Engineer 218:3-5 Jl 3 '64
Republic's $50,000,000 improvement program at Canton to be completed in 1967. il diag Iron & Steel Eng 41:162+ O '64
Royal Netherlands blast furnaces and steelworks. A. Drijver. il map plan diags Iron & Steel Eng 40:53-84 D '63
Stainless steel mixer ladles require special welding techniques. il diags Iron & Steel Eng 41:119-20+ Ja '64
Steelworks closest to continuous process; Shelton iron & steel limited. il Engineering 198:15 Jl 3 '64
Tap degassing cuts temperature and alloy losses. il diag Steel 154:32-3 Ja 13 '64
Tinsley Park steel for cars and aircraft. il plan Engineering 196:494-6 O 18 '63
U.S. Steel gives go-ahead for hot strip mill and continuous casting unit at Gary. il Iron & Steel Eng 41:153 Je '64
United States Steel puts bar heat-treat line into operation. il Iron & Steel Eng 40:144 D '63
Vacuum degassing ladles are welded. il Steel 154:69 Ja 27 '64
Washington Steel starts operations at Houston, Pa. plant. il Iron & Steel Eng 41:132 F '64
What's new at Ashland. G. H. Todd. il map J Metals 16:630-4 Ag '64
Wheeling Steel's continuous strip coating setup. R. W. Glaser. il Ind Finishing 40: 36-8+ D '63

See also
Blast furnaces—Charging

Experimental plants

Pilot steelmaking and continuous casting plant at Brierley Hill laboratory. il plan Engineer 217:72-4 Ja 10 '64

Fuel

Gas recovery aids steelmakers. il diag Iron Age 194:63 Jl 30 '64

Heating and ventilation

612 infra-red heaters warm galvanizing mill. il Gas 40:118-20 Ja '64

Layout

Engineering aspects of the basic oxygen furnace plant at Great Lakes Steel. M. A. Jones. flow diag il plan diag Iron & Steel Eng 41:123-8 Mr '64
Influence of material handling on steel mill layout. F. C. Wier. il Iron & Steel Eng 40:136-40; Discussion. 140-1 N '63
Steel at the Sault; story of the Algoma steel corp. T. J. Ess. il plans Iron & Steel Eng 41:A2-31 Ag '64

Maintenance and repair

Engineering maintenance at Park Gate. il Engineer 218:84-5 Jl 17 '64
Maintenance shop scheduling at Lukens steel co. K. E. Buffington. Iron & Steel Eng 41: 126-31 S '64
Planned maintenance program at Lukens Steel. W. J. Metcalf. il Iron & Steel Eng 41:120-5 S '64
Planned maintenance simplified. D. L. Torlay. diags Iron & Steel Eng 41:132-8 S '64
Spencer works' shear breakage, and repair. il Engineering 198:91 Jl 17 '64
Utilities department operation and maintenance at Alan Wood steel co. H. W. Vanaman. il plan Iron & Steel Eng 41:81-8 Ja '64

Management

How a management team reshaped a steel company; Acme steel co. il Steel 155:42-5 O 5 '64

Power

Excess demand warning system for steelmaking plant. Ind Electronics 1:782 D '63
Ferranti excess demand warning system for large electric steel plant. Metallurgia 68: 177 O '63
High power variable ratio epicyclic gear: Margam B power station of the Steel company of Wales. il diag Engineering 196:681 N 29 '63
Power-demand predicting computer control system for Sheffield div. of Armco Steel. K. E. Alexander and M. Maczuzak. il diag Iron & Steel Eng 41:102-8 My '64; Excerpts. Power Eng 68:36-8 My '64; Discussion. Iron & Steel Eng 41:108-10 My '64
Power demand predicting computer reduces plant power cost. Iron & Steel Eng 41:231-2 S '64
Utilities department operation and maintenance at Alan Wood steel co. H. W. Vanaman. il plan Iron & Steel Eng 41:81-8 Ja '64

Quality control

Graphical method of appraising sheet steel drawing performance. J. Steen. Iron & Steel Eng 41:128-32 Je '64
Quality control in high temperature alloys. T. P. Davis and others. il diags Ind Quality Control 20:9-13 N '63
Steel quality control and development; Steel, Peech and Tozer works. il Engineer 217: 851-2 My 15 '64

Safety measures

Asbestos gets tough; new safety garments for molten metal handlers. il Safety Maint 128:25-6 N '64
Portable units aid gas detection at Bethlehem plant. il Iron & Steel Eng 41:135-6 Ja '64

Waste

Conference on fume arrestment in steelmaking processes, London, Nov. 26-27; abstracts of papers. Engineer 217:49-50 Ja 3 '64
Grinding coolant sheds waste. il diag Iron Age 193:95-6 Ja 30 '64
Mill scale recovery system reduces stream pollution. il Iron & Steel Eng 40:148 D '63
Water resources and the steel industry. R. D. Hoak. Iron & Steel Eng 41:87-90; Discussion. 90-1 My '64

STEEL works—*Continued*

Belgium

Belgium and its new steelmaking facilities. F. W. Starratt. il diags J Metals 16:37-41 Ja '64

Canada

History of controlled cooling of rod at Stelco. D. W. McLean. il diags Wire & Wire Prod 39:1606-9 O '64

Steel at the Sault; story of the Algoma steel corp. T. J. Ess. il plans Iron & Steel Eng 41:A2-31 Ag '64

Ten years of oxygen steelmaking at Defasco. F. J. McMulkin. bibliog il Can Min & Met Bul 57:1029-32 O '64

Germany

Basic oxygen operations at August Thyssen Hutte. K. F. Behrens and J. Koenitzer. plan diags J Metals 16:821-6 O '64

Great Britain

E.S.C.'s large scale quality steel production at Tinsley Park. il Metallurgia 68:207-20 N '63

Large alloy steel plant. il plan Engineer 216: 623-6, 690-1 O 18-25 '63

Park Gate expansion completed; new steelmaking plant and rolling mills. il Metallurgia 70:64-70 Ag '64

Progress in blast-furnace stove operation at Appleby-Frodingham. S. H. Brooks and F. Fitzgerald. bibliog diags Iron & Steel Inst J 202:818-32; Discussion. 849-55 O '64

Rod mill developments in Britain. E. A. Henselman. il plan Iron & Steel Eng 41:57-66; Discussion. 67-8 Ag '64

Thirty years at Corby; illustrations with text. Engineer 218:210 Ag 7 '64

Tube Investments' new pilot plant for steelmaking and continuous casting. il Metallurgia 69:80-1 F '64

India

Bokaro steel plant; project reports. Engineer 217:191-2 Ja 24 '64

Italy

New steel giant is born: Taranto plant of Italsider. W. N. Redstreake. il Iron Age 194:60-2 Jl 9 '64

Japan

Pelletizing process of Kawasaki steel corp. S. Harada. flow sheet il Min Cong J 50:106-10 Ap '64

3500-ton per day blast furnace starts operation in Japan. il Iron & Steel Eng 41:182 O '64

Tokai readies stack in step toward integration. il Steel 155:71 Ag 17 '64

Netherlands

Royal Netherlands blast furnaces and steelworks. A. Drijver. il map plan diags Iron & Steel Eng 40:53-84 D '63

Portugal

Making steel in a hot climate: Portugal's first cold rolling steel mill. il Engineering 198:364 S 18 '64

Steel in Portugal. il Engineer 218:466-8 S 18 '64

Russia

Oxygen steelmaking in the USSR; tr. by W. Carroll. I. I. Barnatzkii and N. A. Tereschchenko. J Metals 16:611-12 Ag '64

Soviet three-bell blast furnace, a success? S. Henkel. diags J Metals 15:733-4 O '63

Sweden

Recent developments in direct casting of steels in Sweden; Motala Verkstad. E. V. Akerlow. il Iron & Steel Eng 40:89-94 N '63

Some outstanding features in new Swedish rolling mill installations. E. Norlindh. il diags Iron & Steel Inst J 202:261-76 Mr '64; Discussion. 202:762-9 S '64

World's "most continuous" continuous casting facility. il diag J Metals 16:390-1 My '64

STEELE, Richard O.

1964 AATCC Olney medal award winner; with list of his publications. pors Am Dyestuff Rep 53:689, 773-5 Ag 3, 31 '64

STEEPLES. See Spires

STEERING gear

Active rudder aids ship maneuverability. Naval Eng J 76:218 Ap '64

Bow thrusters are powered by Westinghouse motors. Marine Eng/Log 69:103-4 Ap '64

First Schottel bow propulsion units installed in United States. il Marine Eng/Log 69:78 Ja '64

Versatile system for ship control. il Engineering 197:42-3 Ja 10 '64

See also

Automobiles—Steering gear

STEIN, William H.

ACS award in chromatography and electrophoresis. por Chem & Eng N 42:80 F 10 '64

STELLITE

Influence of nickel and molybdenum on the mechanical properties of cast Stellite cobalt base alloys. H. Griffiths and R. E. Phelps. il Metallurgia 69:203-5 My '64

STENCIL work

Metal stencils for decorative finishing. P. C. Bardin. il Ind Finishing 40:70+ Ap '64

STEPHENSON, Lloyd William

Memorial; with bibliography of his publications. W. H. Monroe. por Geol Soc Bul 75:sup83-9 My '64

STERCULIA

Fragrant flowers and leaves. E. S. Maurer. Am Perfumer 79:55-7 My '64

STERCULIC acid

Addition of mercaptans to methyl sterculate and sterculene; an hypothesis concerning the nature of the biological activity exhibited by cyclopropene derivatives. H. W. Kircher. bibliog Am Oil Chem Soc J 41: 4-8 Ja '64

STEREOCHEMISTRY

Absolute configuration and chemical topology. S. J. Tauber. diags J Res Nat Bur Stand 67A:591-9 N '63

Absolute configuration of dendrobine. Y. Inubushi and others. bibliog Chem & Ind p 1689-90 O 3 '64

Absolute configuration of menthyl arenesulfinates. E. B. Fleischer and others. bibliog diag Am Chem Soc J 86:3395-6 Ag 20 '64

Absolute configuration of (-)-*N*-(1-methyl-2-piperidinoethyl)propionanilide. P. S. Portoghese. bibliog Chem & Ind p582 Ap 4 '64

Absolute configuration of pentadiendioic acid. W. C. Agosta. bibliog Am Chem Soc J 86: 2638-42 Jl 5 '64

Absolute configuration of streptidine in streptomycin. J. R. Dyer and A. W. Todd. bibliog Am Chem Soc J 85:3896-7 D 5 '63

Absolute configuration of *trans*-cyclooctene. A. C. Cope and A. S. Mehta. bibliog Am Chem Soc J 86:1268-9 Mr 20 '64

Absolute configurations of free phenolic forms of diastereoisomeric flavan-3,4-diols related to (+)-mollisacacidin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1555 S 5 '64

Absolute configurations of 2-phenyl-butan-2-ol, 2-hydroxy-2-phenylbutyric acid and 3-phenylbutane-1,3-diol. S. Mitsui and others. bibliog Chem & Ind p233-4 F 8 '64

Absolute configurations of the carvomenthols. E. E. Royals and J. C. Leffingwell. bibliog Am Chem Soc J 86:2067-8 My 20 '64

Absolute configurations of virosecurinine, securinine and allosecurinine. T. Nakano and others. bibliog Chem & Ind p 1763-4 N 2 '63

Betaines of 3-hydroxyproline; assignment of configuration and inhibition of acetylcholinesterase. F. Sakiyama and others. bibliog Am Chem Soc J 86:1842-4 My 5 '64

$B_{10}H_8(N_2)_2$ used to make disubstituted derivatives of polyhedral boranes. Chem & Eng N 42:45-6 Ja 27 '64

Buxus alkaloids; the configuration of cyclobuxine and its interrelation with cycloeucalenol. K. S. Brown, jr. and S. M. Kupchan. bibliog Am Chem Soc J 86:4424-30 O 20 '64

Chemical determination of the absolute configuration of aporphines; the reductive cleavage of proaporphines. M. P. Cava and others. bibliog Chem & Ind p282-3 F 15 '64

Computer search for active site configurations. M. O. Dayhoff. diag Am Chem Soc J 86:2295-7 Je 5 '64

Configuration of C_8F_{12}, a saturated dimer of hexafluorobutadiene. I. L. Karle and others. diag Am Chem Soc J 86:2523 Je 20 '64

Configuration of isocarvomenthylamine and the carvyl- and carvotanacetylamines. S. Schroeter and E. L. Eliel. bibliog Am Chem Soc J 86:2066-7 My 20 '64

Configurations in unsymmetrically N,N-disubstituted amides. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 85: 3728-30 D 5 '63

Configurations of the complex dithiocyanatobis(triethylphosphine)cobalt(II). A. Turco and others. Am Chem Soc J 85:3510-11 N 5 '63

STEREOCHEMISTRY—*Continued*

Conformational analysis; the conformations of cyclohexanone rings. N. L. Allinger and others. bibliog Am Chem Soc J 86:4061-7 O 5 '64

Conformational analysis; use of the chemical shift of the hydroxyl proton in conformational analysis. R. J. Ouellette. bibliog Am Chem Soc J 86:4378-80 O 20 '64

Conformational studies; intramolecular hydrogen bonding in nonchair conformations of *cis,cis,cis*-2,5-dialkyl-1,4-cyclohexanediols. R. D. Stolow and others. bibliog Am Chem Soc J 86:2165-70 Je 5 '64

Conformational studies; *p*-menthane-2,5-diols and the relative size of the isopropyl group. R. D. Stolow. bibliog Am Chem Soc J 86:2170-3 Je 5 '64

Conformational studies; predominance of intramolecularly hydrogen bonded nonchair conformations of *cis,cis,cis*-2,5-di-*t*-alkyl-1,4-cyclohexanediols. R. D. Stolow and M. M. Bonaventura. bibliog diags Am Chem Soc J 85:3636-41 N 20 '63

Electrophilic addition to olefins; the stereochemistry of addition of deuterium bromide to 1-phenylpropene. M. J. S. Dewar and R. C. Fahey. bibliog Am Chem Soc J 85:3645-8 N 20 '63

Electrophilic displacement with inversion. D. S. Matteson and J. O. Waldbillig. bibliog Am Chem Soc J 86:3778-81 S 20 '64

Enzyme is stereospecific. G. J. Schroepfer, jr. Chem & Eng N 42:44 Ja 27 '64

General characteristics of magneto-optical rotation spectra. V. E. Shashoua. bibliog diag Am Chem Soc J 86:2109-15 Je 5 '64

Hibaene model. E. Wenkert and others. bibliog Am Chem Soc J 86:2218-24 Je 5 '64

Hydroboration; the reaction of diisopinocampheylborane with representative *trans* and hindered olefins; triisopinocampheyldiborane as a reagent for the configurational assignment of alcohols and olefins via hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:1071-6 Mr 20 '64

Internal rotation and conformation of linear high polymers. S. I. Mizushima and T. Shimanouchi. diags Am Chem Soc J 86:3521-4 S 5 '64

Mass spectrometry in structural and stereochemical problems. C. Beard and others. bibliog Am Chem Soc J 85:3688-99; 86:269-87, 877-9, 1386-9, 2620-8, 2825-45, 3722-9 N 20 '63, Ja 20, Mr 5, Ap 5, Jl 5-20, S 20 '64

More evidence supports crevice concept. A. H. Corwin. diags Chem & Eng N 41:42 D 2 '63

Norbornene forms cis adducts with NOCl. J. Meinwald and others. Chem & Eng N 42:40-2 O 12 '64

Polymer confcrmation based on configuration. M. Goodman and others. Chem & Eng N 42:38+ Jl 20 '64

Preparation of organolithium compounds by the transmetalation reaction; *cis*- and *trans*-propenyllithium; the stereochemistry of the transmetalation reaction; isopropenyllithium. D. Seyferth and L. G. Vaughan. bibliog Am Chem Soc J 86:883-90 Mr 5 '64

Some stereoregular polymerizations of conjugated dienes. M. H. Lehr. Rubber Chem & Tech 36:1571-82 bibliog(p 1581-2) D '63

Spectra and stereochemistry; a nuclear magnetic resonance spectral study of some 16-substituted pregnenes and 17 α-pregnenes. A. D. Cross and P. Crabbé. bibliog Am Chem Soc J 86:1221-4 Mr 20 '64

Stereochemical assignments for β-ketols formed by aldol addition of three simple ketones to *p*-nitrobenzaldehyde. M. Stiles and others. bibliog diags Am Chem Soc J 86:3337-42 Ag 20 '64

Stereochemical consequences of ion-pair formation involving carbanions. D. J. Cram and L. Gosser. Am Chem Soc J 85:3890-1 D 5 '63

Stereochemical evidence for bridged radicals; photobromination of *cis*- and *trans*-4-bromo-*t*-butylcyclohexane. P. S. Skell and P. D. Readio. bibliog diags Am Chem Soc J 86:3334-7 Ag 20 '64

Stereochemical identification and synthesis of amicetose and the stereochemical identification of rhodinose and the sugar from streptolydigin. C. L. Stevens and others. bibliog Am Chem Soc J 86:3592-4 S 5 '64

Stereochemical theory of odor. J. E. Amoore and others. il diags Sci Am 210:42-9 F '64

Stereochemistry and bromo-isofenchone. P. P. Williams. diag Chem & Ind p 1583 S 12 '64

Stereochemistry and the mechanism of catalytic hydrogenation of cycloalkenes; isomers of dimethylcyclopentene. S. Siegel and B. Dmuchovsky. bibliog Am Chem Soc J 86:2192-8 Je 5 '64

Stereochemistry of allylic rearrangements; ion-pair return associated with the solvolysis of *cis*-5-methyl-2-cyclohexenyl *p*-nitrobenzoate in aqueous acetone. H. L. Goering and others. bibliog diag Am Chem Soc J 86:1951-7 My 20 '64

Stereochemistry of asymmetric silicon. L. H. Sommer and others. bibliog Am Chem Soc J 85:3712-13; 86:3271-83 N 20 '63, Ag 20 '64

Stereochemistry of chlorohydrin formation. M. J. Collis and G. T. Merrall. bibliog diags Chem & Ind p711-12 Ap 25 '64

Stereochemistry of complex inorganic compounds; the Walden inversion in the base hydrolysis of optically active cobalt(III) complexes. L. J. Boucher and others. bibliog diag Am Chem Soc J 86:3656-60 S 20 '64

Stereochemistry of doubly bridged biphenyls; synthesis, spectral properties, and optical stability. K. Mislow and others. bibliog Am Chem Soc J 86:1710-33 My 5 '64

Stereochemistry of homoenolization. A. Nickon and others. bibliog diags Am Chem Soc J 85:3713-14 N 20 '63

Stereochemistry of humulene. A. T. McPhail and others. bibliog Chem & Ind p976-7 Je 6 '64

Stereochemistry of metal chelates with multidentate ligands. B. Das Sarma and others. Am Chem Soc J 86:14-16 Ja 5 '64

Stereochemistry of nimbin. C. R. Narayanan and others. Chem & Ind p324 F 22 '64

Stereochemistry of no-mechanism reactions; transfer of asymmetry in the reaction of olefins with dienophiles. R. K. Hill and M. Rabinovitz. bibliog Am Chem Soc J 86:965-6 Mr 5 '64

Stereochemistry of some cyclic compounds containing phosphorous. H. Goldwhite. bibliog Chem & Ind p494-5 Mr 21 '64

Stereochemistry of the copper-salt-catalyzed reaction of *t*-butyl perbenzoate with optically active bicyclo[3.2.1]octene-2. H. L. Goering and U. Mayer. bibliog Am Chem Soc J 86:3753-6 S 20 '64

Stereochemistry of the 1,2-diaminocyclohexane-N,N′-tetraacetatoaquoferrate(III) ion, $Fe(OH_2)Z^-$. G. H. Cohen and J. L. Hoard. diag Am Chem Soc J 86:2749-50 Jl 5 '64

Stereochemistry of the lithium-ammonia reduction of α,β-unsaturated ketones. G. Stork and S. D. Darling. bibliog Am Chem Soc J 86:1761-8 My 5 '64

Stereochemistry of the reaction of benzal chloride with olefins. J. E. Hodgkins and others. bibliog Am Chem Soc J 86:4080-5 O 5 '64

Stereochemistry of the replacement of chlorine atoms in alkyl halides by chlorine-38 activated in the (n,γ) process. C. M. Wai and others. bibliog Am Chem Soc J 86:2525-6 Je 20 '64

Stereospecific influences in metal complexes containing optically active ligands; the equilibrium ratios and isolation of some of the isomers in the mixture tris-((±)-propylenediamine)-cobalt(III) chloride. F. P. Dwyer and others. Am Chem Soc J 86:590-2 F 20 '64

Steroids; spectra and stereochemistry. A. D. Cross and P. W. Landis. bibliog Am Chem Soc J 86:4005-16 O 5 '64

Structural studies by nuclear magnetic resonance; configurations and conformations of N-nitrosamines. G. J. Karabatsos and R. A. Taller. bibliog Am Chem Soc J 86:4373-8 O 20 '64

Structure and stereochemistry of α-caryophyllene alcohol. A. Nickon and others. bibliog Am Chem Soc J 86:1437-8 Ap 5 '64

Structure effects and related polymer properties in polybutadiene; preparation and characterization. M. Berger and D. J. Buckley. bibliog il Rubber Chem & Tech 37:169-85 Ja '64

Structure of crystalline tetraphenylporphine; the stereochemical nature of the porphine skeleton. M. J. Hamor and others. bibliog Am Chem Soc J 86:1938-42 My 20 '64

Structure of eseramine. B. Robinson and G. Spiteller. bibliog Chem & Ind p459-60 Mr 14 '64

STEREOCHEMISTRY—*Continued*

Structure of nimbin. C. R. Narayanan and others. bibliog Chem & Ind p322-4 F 22 '64

Survey of modern chemistry. G. T. Austin and H. F. Austin. bibliog diags Chem Eng 71:91-6 Mr 2 '64

Synthesis and configuration of C-nor-D-homotestosterone acetate. S. M. Kupchan and S. D. Levine. bibliog Am Chem Soc J 86:701-8 F 20 '64

Synthesis and stereochemistry of indolizidine and pyrrolizidine methosalts. W. L. Meyer and N. Sapianchiay. bibliog Am Chem Soc J 86:3343-50 Ag 20 '64

Synthesis of 1,9-*cis*-diacetoxy-$\Delta^{5,10}$-octalone-6; stereochemical course of the Robinson annelation reaction. T. A. Spencer and others. bibliog Am Chem Soc J 85:3785-93 D 5 '63

Synthesis of three monodeuterionorbornanes, and the stereochemistry of acid-catalyzed cleavage of nortricyclene. A. Nickon and J. H. Hammons. bibliog diags Am Chem Soc J 86:3322-8 Ag 20 '64

Use of lone pairs in conformational analysis. T. A. Claxton. bibliog Chem & Ind p 1713-14 O 10 '64

See also

Isomerization

STEREOGRAPHIC projection. See Projection, Stereographic

STEREOPHONIC phonograph records. See Phonograph records—Stereophonic records

STEREOPHONIC radio broadcasting. See Radio broadcasting—Stereophonic programs

STEREOPHONIC sound. See Moving picture sound recording—Stereophonic recording; Sound—Stereophonic recording and reproducing

STEREOSCOPIC photography. See Photography, Stereoscopic

STEREOSCOPIC radiography. See Radiography, Stereoscopic

STEREOSCOPY

Stereoscopy in space. J. H. Waddell. il Res/Develop 15:30-1 My '64

STERIC hindrance

Evaluation of the relative importance of charge-dipole interactions and steric strain acceleration in conformationally mobile systems. H. Kwart and T. Takeshita. bibliog diags Am Chem Soc J 86:1161-6 Mr 20 '64

Polarography of organic halogen compounds; sterically hindered alicyclic bromides. F. L. Lambert and others. Am Chem Soc J 86:3155-6 Ag 5 '64

Simplified modification of Wolff-Kishner reduction for hindered or masked carbonyl groups. W. Nagata and H. Itazaki. bibliog Chem & Ind p 1194-5 Je 27 '64

Steric effects on the near-ultraviolet absorption (Soret band) of porphyrins. A. H. Corwin and others. bibliog Am Chem Soc J 85:3621-4 N 20 '63

Steric isotope effects; the isotope effect on the racemization of 2,2′-dibromo-4′-dicarboxybiphenyl. L. Melander and R. E. Carter. Am Chem Soc J 86:295-6 Ja 20 '64

Study of free energy relationships in hindered phenols; correlation of spectral properties with substituent constants. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3402-6 N 5 '63

Study of free energy relationships in hindered phenols; linear dependence for solvation effects in ionization. L. A. Cohen and W. M. Jones. bibliog Am Chem Soc J 85:3397-402 N 5 '63

Study of steric effects by electron spin resonance spectroscopy and polarography; substituted nitrobenzenes and nitroanilines. D. H. Geske and others. bibliog diags Am Chem Soc J 86:987-1002 Mr 20 '64

STERILIZATION

Sterile filtration. G. P. Vogel. il Am Perfumer 79:65-6 Je '64

See also

Food preservation—Radiation sterilization
Milk—Sterilization
Radiation sterilization

STERILIZERS

Test new electric incinerator design for sterilizing laboratory air. G. J. Harris and others. bibliog diag Heating-Piping 36:94-5 F '64

STERN tubes. See Ships—Stern tubes

STEROIDS

Another steroid synthesis may go commercial. L. Velluz and others. il Chem & Eng N 42:42-3 Mr 2 '64

Approach to an improved antiinflammatory steroid; the synthesis of 11β,17-dihydroxy-3,20-dione-1,4-pregnadien-21-yl 2-acetamido-2-deoxy-β-D-glucopyranoside. R. Hirschmann and others. bibliog Am Chem Soc J 86:3903-4 S 20 '64

Binding of steroids to proteins. U. Westphal. bibliog diag Am Oil Chem Soc J 41:481-90 Jl '64

Buxus alkaloids; the constitution of cyclobuxamine, a 4β-monomethyl cyclosteroid alkaloid. K. S. Brown, jr. and S. M. Kupchan. Am Chem Soc J 86:4430-3 O 20 '64

Buxus alkaloids; the structure of cyclobuxine. K. S. Brown, jr. and S. M. Kupchan. bibliog Am Chem Soc J 86:4414-24 O 20 '64

Evidence that cholesterol sulfate is a precursor of steroid hormones. K. D. Roberts and others. bibliog Am Chem Soc J 86:958-9 Mr 5 '64

Heterocyclics may separate steroid activities. R. Pappo and C. J. Jung. Chem & Eng N 42:46-7 Ap 20 '64

Ionic method aromatizes steroid's A, B, rings. il Chem & Eng N 42:42+ Je 15 '64

Isocardanolides. K. R. Pettit and others. bibliog Chem & Ind p 1265-6 Jl 11 '64

Isomerisation of keto-ethers to spiroketals; synthesis of 26-alkyl steroidal sapogenins. R. D. Youssefyeh and others. bibliog Chem & Ind p421-3 Mr 7 '64

Mass spectrometry in structural and stereochemical problems; a study of the hydrogen transfer reactions accompanying fragmentation processes of 1-keto steroids; synthesis of deuterated 5α-androstan-1-ones. H. Powell and others. bibliog Am Chem Soc J 86:2623-8 Jl 5 '64

Mass spectrometry in structural and stereochemical problems; fragmentation and hydrogen migration reactions of α,β-unsaturated 3-keto steroids. R. H. Shapiro and C. Djerassi. bibliog Am Chem Soc J 86:2825-32 Jl 20 '64

Mass spectrometry in structural and stereochemical problems; fragmentation and hydrogen transfer reactions of a typical 3-keto steroid, 5α-androstan-3-one. R. H. Shapiro and others. bibliog Am Chem Soc J 86:2837-45 Jl 20 '64

Mass spectrometry in structural and stereochemical problems; mass spectrometric fragmentation and hydrogen transfer reactions in 16-keto steroids; a novel synthesis of side chain labeled cholestanes. C. Beard and others. bibliog Am Chem Soc J 86:269-84 Ja 20 '64

New steroids for old; abstract and discussion. C. L. Hewett. Chem & Ind p755-6 My 2 '64

Novel steroid aromatization reaction. M. Heller and others. bibliog Am Chem Soc J 86:2309-10 Je 5 '64

Ointment vs. cream; abstract. J. Bleiberg and R. H. Brodkin. Drug & Cosmetic Ind 94:774 My '64

Protection of the 4,5-epoxy-3-oxo-moiety in steroids. D. J. Collins and J. J. Hobbs. bibliog Chem & Ind p 1063-4 Je 20 '64

Reactions at position 19 in the steroid nucleus; a convenient synthesis of 19-norsteroids. M. Akhtar and D. H. R. Barton. bibliog Am Chem Soc J 86:1528-36 Ap 20 '64

Steroid absorption. Drug & Cosmetic Ind 93:893 D '63

Steroid synthesis based on oxonium intermediates; application to 20-ketosteroids. J. P. Dusza and others. bibliog Am Chem Soc J 86:3908-9 S 20 '64

Steroidal cyclic ketals: the preparation of steroidal Δ^4-3-ethyleneketals. J. J. Brown and others. bibliog Am Chem Soc J 86:2183-7 Je 5 '64

Steroids containing ring A aromatic; mechanism of dienone-phenol rearrangement. E. Caspi and others. bibliog Am Chem Soc J 86:2463-7 Je 20 '64

Steroids; spectra and stereochemistry. A. D. Cross and P. W. Landis. bibliog Am Chem Soc J 86:4005-16 O 5 '64

Synthesis and structure of steroidal pregn-4-eno- and 5α-pregnano[3,2-c]pyrazoles; a novel class of potent anti-inflammatory steroids. R. Hirschmann and others. bibliog Am Chem Soc J 86:1520-7 Ap 20 '64

Synthesis of a novel steroid heterocyclic system. E. W. Cantrall and others. Am Chem Soc J 86:2943-4 Jl 20 '64

Topical betamethasone. A. W. McKenzie and R. M. Atkinson. Drug & Cosmetic Ind 94:935-6 Je '64

STEROIDS—*Continued*
Topical corticosteroid; abstract. D. I. Williams and others. Drug & Cosmetic Ind 95:122 Jl '64
See also
Fluorosteroids
Homosteroids
Testosterone

Analysis

New method for elution of conjugated steroids from paper strips. L. Kornel. bibliog diags Anal Chem 36:443-4 F '64
New spectrophotometric determination of unsaturated 3-keto steroids using 4-aminoantipyrine hydrochloride reagent. E. P. Schulz and others. Anal Chem 36:1624-7 Jl '64
Programmed gradient elution chromatography with the steroid analyzer. D. Francois and others. Anal Chem 35:2019-22 D '63

STEROLS
Studies of the phospholipids, glycolipids and sterols of wheat endosperm. M. E. McKillican. bibliog Am Oil Chem Soc J 41:554-7 Ag '64
See also
Cholesterol

STEVENS, J. P. and company, inc.
Stevens finds its 150th anniversary celebration is money well spent. Textile Ind 128:64-6+ Ja '64

STIBINE
Electrolytic stibine formation. L. Tomlinson. bibliog Electrochem Soc J 111:592-6 My '64

STIBIOTANTALITE
Synthesis and stability of bismutotantalite, stibiotantalite and chemically similar ABO_4 compounds. R. S. Roth and J. L. Waring. bibliog Am Mineralogist 48:1348-56 N '63

STICK-slip. See Friction

STIFFNESS
Buckling load of bars with variable stiffness; simple numerical method. A. V. Srinivasan. AIAA J 2:139-40 Ja '64
Buckling of longitudinally stiffened cylinders. J. C. Shang and others. bibliog il diags Am Soc C E Proc 90 [ST 5 no 4115]:161-95 O '64
Comparisons of materials; specific stiffness; tables. Materials in Design Eng 60:25 Mid-O '64
Constant shear moment distribution. M. Jordan. bibliog diags Am Soc C E Proc 89 [ST 6 no 3717]:43-70 D '63
Derivation of element stiffness matrices. T. H. H. Pian. AIAA J 2:576-7, 1333-6 Mr, Jl '64; Discussion. B. Irons and K. Draper. 2:1677-8 S '64
Direct stiffness solution for folded plates. A. DeFries-Skene and A. C. Scordelis. bibliog diags Am Soc C E Proc 90 [ST 4 no 3994]:15-47 Ag '64
Generalization of the direct-stiffness method of structural analysis. R. E. Jones. bibliog diags AIAA J 2:821-6 My '64
How to design stiffening ribs for sheet-metal stampings. F. Strasser. diags Iron Age 193:90-1 Mr 19 '64
Machine tool behavior; stiffness and damping. J. Tlusty. diags Am Mach 108:86-7 Mr 2 '64
Mechanical behavior of fabrics. F. C. Brenner and D. G. Britt. bibliog Textile Res J 34:754-8 S '64
Nonwoven fabric studies; dependence of fabric stiffness and drape on the properties of the constituent fiber and binder. J. W. S. Hearle and others. bibliog diags Textile Res J 34:275-82 Ap '64
Reduction of torsional stiffness due to thermal stress in thin, solid wings. D. J. Johns. diag AIAA J 2:1850-2 O '64
Rigid and stiff airport pavement. H. P. Carothers. bibliog diags Am Soc C E Proc 90 [AT 1 no 3893]:17-39 My '64
Series solution of skewed stiffened plates. J. B. Kennedy and M. W. Huggins. bibliog diag Am Soc C E Proc 90 [EM 1 no 3795]:1-22 F '64; Discussion. A. Coull. 90 [EM 4 no 4000]:179-80 Ag '64
Simplified formulation of stiffness matrices. P. M. Wright. diags Am Soc C E Proc 89 [ST 2 no 3478]:33-48 Ap '63; Discussion. S. S. Tezcan. 89 [ST 6 no 3743]:445-9 D '63
Structural analysis of multistory buildings. R. W. Clough and others. diags Am Soc C E Proc 90 [ST 3 no 3925]:19-34 Je '64
Testing machine stiffness problem. P. B. Hinde. diags Engineer 217:1124-7 Je 26 '64

Tables, calculations, etc.

Basis for derivation of matrices for the direct stiffness method. R. J. Melosh. bibliog diags AIAA J 1:1631-7 Jl '63; Discussion. 2:403-4, 1161 F, Je '64

STILBENE
Electron transfer equilibria; disproportionation of monoalkali adducts of stilbene. E. R. Zabolotny and J. F. Garst. bibliog Am Chem Soc J 86:1645-6 Ap 20 '64
Mechanism of the acid-catalyzed isomerization of *cis*-stilbene. D. S. Noyce and others. Am Chem Soc J 86:3583-4 S 5 '64
Photochemistry of stilbenes; some aspects of the mechanism of photocyclization to phenanthrenes. F. B. Mallory and others. bibliog Am Chem Soc J 86:3094-102 Ag 5 '64

STILLING basins
Energy dissipators for spillways and outlet works; progress report. bibliog diags Am Soc C E Proc 90 [HY 1 no 3762]:121-47 Ja '64; Discussion. il 90 [HY 4 no 3980]:359-63 Jl; [HY 5 no 4050]:201-22 S '64
Experience with prototype energy dissipators. R. H. Berryhill. bibliog il Am Soc C E Proc 89 [HY 3 no 3521]:181-201 My '63; Discussion. 89 [HY 5 no 3656]:179-80 S; [HY 6 no 3708]:287 N '63; 90 [HY 1 no 3783]:293-8 Ja '64; Reply. 90 [HY 4 no 3980]:235 Jl '64
Pressure cell observations-Garrison dam project. H. A. Sikso and C. V. Johnson. il plans diags Am Soc C E Proc 90 [SM 5 no 4023]:157-79 S '64
Rebound in redesign of Oahe Dam hydraulic structures. L. B. Underwood and others. bibliog il maps plans diags Am Soc C E Proc 90 [SM 2 no 3820]:65-86 Mr '64

Design

Shapes for appurtenances in stilling basins. N. N. Pillai and T. E. Unny. bibliog diags Am Soc C E Proc 90 [HY 3 no 3888]:1-21 My '64

STILLWELL, Frank Leslie
Memorial; with list of his publications. G. Baker. por Geol Soc Bul 75:sup45-51 Mr '64

STIMULUS and response
Chemical stimulation of the brain. A. E. Fisher. il diags Sci Am 210:60-8 Je '64
Some current developments in models of learning for a continuum of responses. P. Suppes. bibliog IEEE Trans Applications & Ind 83:297-305 S '64
Some current problems in discrete models of learning. F. Restle. bibliog IEEE Trans Applications & Ind 83:277-84 S '64

STIRLING external combustion engine. See Heat engines

STIRLING numbers
Tables of the generalized Stirling numbers of the first kind. W. F. Pickard. Assn for Computing Mach J 11:70-8 Ja '64

STIRRERS
Stirrer speed remains constant despite viscosity changes. Chem & Eng N 42:46 Je 29 '64
Use of magnetic stirrers in microbiological analyses. D. E. Carter and J. H. Nelson. Food Tech 18:1497 S '64
Vibration-stirred microhydrogenation. M. J. D. Low and others. diags Am Oil Chem Soc J 41:433-4 Je '64
See also
Agitators

STOCHASTIC process. See Probabilities

STOCKDALE, Paris Buell
Memorial; with bibliography of his publications. E. R. Cumings and H. J. Klepser. por Geol Soc Bul 75:sup 11-15 Ja '64

STOCKHOLM

Rapid transit

Rapid transit expansion. G. M. Gottfeld. 3pls Traffic Q 18:576-88 O '64

STOCKPILING
Industry opposes stockpile disposal bill. Chem & Eng N 42:34-5 F 3 '64
Metals industry eyes stockpile surplus. Chem & Eng N 42:31 Je 29 '64
Stockpiles; OEP outlines objectives for support of a conventional war. Eng & Min J 165:92+ Jl '64

STOCKS
See also
Chemical industries—Securities

STOCKYARDS
P/A eleventh annual design awards; Falcon livestock auction co., Zapata County, Tex. plans diag Prog Arch 45:124-5 Ja '64

STOICHIOMETRY

Computer calculation of stoichiometry and errors in scrambling reactions. L. C. D. Groenweghe and others. bibliog Anal Chem 36:303-7 F '64

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

Stoichiometry of the coagulation of color-causing organic compounds with ferric sulfate. A. P. Black and others. bibliog Am Water Works Assn J 55:1347-66 O '63; Abstract. Pub Works 95:130 Ja '64

Thermal conductivity, thermoelectric power, and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

STOMACH

Ulcers

Clinical management of peptic ulcer; nutritional aspects; symposium. bibliog il diags Am J Clinical Nutrition 15:193-245 O '64

Peptic ulcer mystery; editorial. H. P. Potter, jr. Archives Environmental Health 8:539 Ap '64

STONE, Edward Durell

Recent work of E. D. Stone. il plans Arch Rec 136:149-60 O '64

STONE

Detachment of the stone from the binder under the influence of water in road surface dressings. H. Karius and G. L. Dalton. bibliog Inst Pet J 50:1-14 Ja '64

See also

Gravel

Marble

Quarries and quarrying

Rocks

Sandstone

STONE, Crushed

Crushed granite blending installation in British plant. il Pit & Quarry 56:105+ N '63

Crushed stone plant increases facilities to meet stringent specifications; Dolese bros. Oklahoma plant. S. Levine. il Rock Prod 67:92-5 S '64

Davon, inc. operates two adjacent quarries and plants. W. E. Trauffer. il Pit & Quarry 57:84-8+ Ag '64

Eastern Rock Products adds new plant. B. C. Herod. flow diag il Pit & Quarry 56:118-22+ D '63

Eight job aggregates from one novel crushing site. il diags Roads & Sts 107:68-72 F '64

Industry leader adds to market service; American aggregates corp. B. C. Herod. flow diag il diag Pit & Quarry 56:118-23 F '64

New photocell-conveyor concept tested on crushed rock sorting. diag Pit & Quarry 56:38 Ap '64

New Virginia crushed stone plant. W. E. Trauffer. il diags Pit & Quarry 57:88-90+ O '64

1964 forecast; crushed stone. il Rock Prod 67:62-3 Ja '64

Oregon Portland develops unusual barge-unloading system. il Pit & Quarry 56:119-20+ Mr '64

Problem of ups and downs; getting bulk off a barge. il Mod Materials Handling 19:52-3 Jl '64

Production of defluorinated stone. W. Windle. il diag Ind Chem 40:121-5 Mr '64

Racing conveyors, barges form speed-bridge between Kosmos Portland's quarry and plant. il Rock Prod 66:66-8 N '63

Road contractor adds crushed stone plant, then agstone and pulverizing setup; Hodges and co. W. E. Trauffer. il Pit & Quarry 56:145-7 My '64

St Eustache quarries ltd., operates outstanding crushed stone plant. W. E. Trauffer. il Pit & Quarry 57:123-5+ S '64

Stockbridge Stone's fourth plant in Atlanta area. W. E. Trauffer. flow diag il plan Pit & Quarry 56:78-83+ D '63

Superior's Pomona, N.C., crushed granite plant. W. E. Trauffer. il diags Pit & Quarry 56:84-9+ Je '64

Tyrone Rock captures an expanding market. R. J. Mitchell. il diag Rock Prod 67:76-9 Jl '64

Unique stone plant designed around conveyors and surge piles. il diag Roads & Sts 107:48-53 Ag '64

See also

National crushed stone association

STONE age

Neolithic city in Turkey. J. Mellaart. il map plan diag Sci Am 210:94-104 Ap '64

Solutrean culture. P. E. L. Smith. il map diags Sci Am 211:86-94 Ag '64

STONE construction

Big stones face little bridge. il Eng N 171:32+ N 28 '63

STONE cutting

Confederate heroes ride despite probe. il diag Eng N 173:21 Jl 23 '64

STOOKEY, S. Donald

1964 Toledo glass and ceramic award winner; with list of his patents and published works. F. S. Child. Glass Ind 45:13-16+ Ja '64

STOP mechanism

Stop motion for loom cloth roll lap-up. diags Textile Ind 127:133+ D '63

STOPING methods. See Mining methods

STORAGE

Covered storage for salt supplies prevent leaching of chlorides. il Pub Works 95:78 N '64

Graph finds space needed for piled bulk materials. J. D. Constance. Chem Eng 71:148 O 26 '64

Handling and storage of flexible packaging materials. D. L. McCready. il Plastics World 22:24-5 Je '64

See also

Coal storage

Cold storage

Grain storage

Oil storage

Racks

Shelving, Steel

Stores systems

Warehousing

Water storage

Wood storage

also subdivision Storage under special subjects, e.g.

Apples

Chemicals

Cotton

Eggs

Fish as food

Food

Food, Frozen

Fruit

Gas, Natural

Liquefied petroleum gas

Methane, Liquid

Propane

Propellants

Rock products

Sugar

STORAGE batteries

Accuracy you can get with polystyrene. il Engineering 197:553 Ap 17 '64

Batteries supply emergency power for critical pipeline needs. il diags Power 108:76-7 S '64

Batteries supply many primary and standby power needs for Colonial. G. Kinney. il Oil & Gas J 62:86-8 Mr 9 '64

Battery-operated mine locomotives. il Engineer 216:817 N 15 '63

Battery vehicle control system. il Engineer 217:244 Ja 31 '64

Bromine-zinc secondary cells. S. Barnartt and D. A. Forejt. bibliog il diags Electrochem Soc J 111:1201-4 N '64

Built-in diodes protect nickel-cadmium cells. diag Electronics 36:50+ D 13 '63

Factors affecting the transport of silver in silver-alkaline batteries. T. P. Dirkse and L. A. Vander Lugt. diags Electrochem Soc J 111:629-32 Je '64

Lead for batteries. T. H. Turner. Engineer 217:612-13 Ap 3 '64

Morphology of PbO_2 in the positive plates of lead acid cells. J. Burbank. bibliog il Electrochem Soc J 111:765-8 Jl '64

Novel technique for predicting battery performance. P. L. Howard. il Product Eng 35:85-92 O 26 '64

Putting the heat on. il Product Eng 35:53 Ag 31 '64

Research powers battery sales. P. J. Cathey. il Iron Age 193:62 Ap 23 '64

Role of antimony in positive plate behavior in the lead-acid cell. J. Burbank. bibliog il Electrochem Soc J 111:1112-16 O '64

Sealed wet cells start into production. Machine Design 36:14 Ag 27 '64

Storage battery applications in a power plant. G. G. Law. diag Power Eng 68:44-6 O '64

Charging

New for Ni-Cd batteries; fast charging and deep discharging. diag Machine Design 36:10 F 13 '64

Walking man powers battery charger. il diag Machine Design 36:178-9 O 22 '64

STORAGE tanks. See Tanks

STORAGE tubes

Automatic radar data extraction by storage tube and delay line techniques. J. C. Plowman. il diags Radio & Electronic Eng 26:317-26: Discussion. 327-8 O '63

Cathode-ray storage devices; television by telephone line. A. E. Cawkell. bibliog il diags Electronic Eng 36:142-9 Mr '64

Conductive memory points to new displays. M. F. Wolff. il diags Electronics 36:10-11 N 8 '63

Storage orthicon holds image for hours. K. Odagawa and Y. Nakayama. il diags Electronics 37:36-9 Mr 6 '64

Storage tube holds television image. Electronics 37:83 Mr 13 '64

Manufacture

Equating $1500 against a 12 inch weld in electronic tubes. il Welding J 43:428-9 My '64

STORE buildings

Abacus gifts in Pasadena. il plan Prog Arch 45:174-5 Ap '64

Current construction trends; store building; faster growth this year? H. C. F. Arnold. Arch Rec 135:26 Je '64

Split-level showcase in Manhattan; Design research, inc. il diag Arch Forum 120:118-21 Ap '64

Stores; building types study. il plans diags Arch Rec 135:157-76 Je '64

See also

Department stores

Shoe stores

Shopping centers

Air conditioning

Air conditioning for shopping centers. B. S. Hattis. il Heating-Piping 36:136-41 Jl '64

Get 1350 tons of cooling from 875 hp in shopping-parking facility. H. A. Wolfberg. il diags Heating-Piping 36:148-55 My '64

Helicopter, walkie-talkies save contractor time, money. il Heating-Piping 36:182-3 Je '64

Tractor dealer runs shop with on-site generation system. il Gas 40:112 Ag '64

Utilities set on the roof of Phoenix shopping center. il plan diags Arch Rec 134:136-8 D '63

World's largest gas heat pump air conditions shopping center. il Gas 40:sup3-5, cover S; sup6+ O '64

Heating and ventilation

Discount store cashes in on total energy. il plan Gas Age 131:24-6 Ap '64

Do-all power system for shopping center. B. Sterrett. il Gas 40:114-17 F '64

Lighting

Attention/attraction for a liquor store. il Illum Eng 59:220-1 Ap '64

Interior brightness for a glass front store. il Illum Eng 59:124-5 F '64

Lighting for carpet display and sales; data sheet. J. C. Epperson. il Illum Eng 59:499-500 Jl '64

Many faces of Yardley's showroom. il Illum Eng 59:428-31 Je '64

Nighttime street scenes; smartly lighted stores. il Illum Eng 59:120-2 F '64

See also

Drug stores—Lighting

Womens apparel shops—Lighting

STORES (retail trade)

See also

Drug stores

Grocery stores

Shoe stores

STORES systems

Automatic storage uses 80 per cent less space. G. Phillips. il Steel 154:96+ My 25 '64

Cutting costs through inventory control. T. R. Wolf. Foundry 92:85-7 Je '64

Data processing at Ordnance depot. Engineer 216:703-4 O 25 '63

GM's small-parts storage: space misers fill the cube. J. A. Eaton. il Mod Materials Handling 19:40-3 Ag '64

Inventory index proposed for testing apparatus. M. D. Morris. Civil Eng 34:52-3 Jl '64

New hope for the job shop; an end to in-process mess! J. A. Eaton. il plan Mod Materials Handling 19:47-51 Jl '64

Novel storing-moving system; containers that come alive. il Mod Materials Handling 19:42-3 Jl '64

Reduced-scale lofting system cuts storage space to 1/4. il Product Eng 35:58 Mr 16 '64

Sky grab shrinks storage yard. J. W. Bridges and G. J. Drango. il Mod Materials Handling 19:47 Ag '64

Sophisticated communications, plus Trukveyor optimize Con Ed's stores operation. il diag Elec World 162:68-9 N 2 '64

Systems boost service, save warehouse space. il Mod Materials Handling 19:67 Jl '64

Tooling up tool storage saves time. il Mod Materials Handling 18:57 N '63

See also

Coal mines and mining—Stores systems

Inventories

Receiving departments

Storage

Textile mills—Stores systems

Tool rooms

STORMS

Sea station spies storm startup. il Machine Design 36:12 F 27 '64

See also

Electric lines—Damage from storms

Hurricanes

Snow storms

Thunderstorms

Tornadoes

STOVES

See also

Electronic stoves

STOVES, Electric. See Electric stoves

STRAIGHTENING machines

Beam straightener has overhung rollers. il Engineering 196:825 D 27 '63

Chain sling turners aid. billet straightening il Steel 154:62-3 F 3 '64

Egan combination straightener and cradle. il Mach 70:146 F '64

Heavy duty straightening press. il diag Engineer 217:232-3 Ja 31 '64

Line pulls wrinkles from coil strip. il Iron Age 192:84 D 19 '63

Machine straightens blanked parts. T. W. Black. il diags Tool & Manuf Eng 52:78-80 F '64

Mechanized straightening trims precision tube costs. A. L. Long. il Mach 70:126-7 Mr '64

What you should know about press feeds and unloaders. R. Le Grand. il diags Am Mach 108:113-32, cover My 11 '64 (reprints 50c)

STRAIN gages

Automatic recording of wide-range strain or displacement data. M. L. Rudee and others. diag Materials Res & Stand 4:61-2 F '64

Convert recorder for strain-gage readout. R. Hantzsch and J. Peters. il Elec World 161:99-100 Ap 6 '64

Foil gauge of electrodeposited copper; abstract. H. Okubo and K. Hosono. il Engineering 197:232 F 7 '64

Gaged press avoids overloading. R. A. Gibbons. il Iron Age 192:164-5 N 14 '63

Gages read pressure-vessel strain. il Iron Age 194:104 Jl 23 '64

Heat and radiation force ceramic gage bonding. Steel 155:154+ S 14 '64

High-temperature strain gages. B. R. Anderson. il diags I S A J 11:72-4 My '64

Load cell weighbridge. diag Engineer 217:340-1 F 21 '64

Load transfer in a step-taper pile. E. D'Appolonia and J. A. Hribar. bibliog diags Am Soc C E Proc 89 [SM 6 no 3700]:57-77 N '63; Discussion. K. V. Swaminathan. 90 [SM 4 no 3979]:199-202 Jl '64

Measurement of *in-situ* rock stresses. il Engineer 216:1051-2 D 27 '63

Performance of electrical resistance strain gages at cryogenic temperatures; abstract. A. Kaufman. Metal Prog 85:179+ F '64

Protective coating for strain gages. R. J. Whitehead. bibliog I S A J 11:71-3 Mr '64

Recent advances in strain gauges. G. R. Higson. bibliog diags J Sci Instr 41:405-14 Jl '64

Remote measurement of rock stress under development in South Africa. E. R. Leeman. bibliog il diags Eng & Min J 165:104-7 S '64

Semiconductor strain-gage pressure sensors. J. C. Sanchez. bibliog il Instruments & Control Systems 36:117-20 N '63

Semiconductor strain gauges. Engineering 198:474 O 9 '64

Simple, high-performance series stabilizer. D. J. Collins. il diags Electronic Eng 36:330-1 My '64

Some results of the Oklahoma City sonic boom tests. J. K. Power. il Materials Res & Stand 4:617-23 N '64

Strain and temperature measurement. il Engineer 217:666 Ap 10 '64

STRAIN gages—*Continued*

Strain-gage analysis for uncased pipeline crossings. diags Am Soc C E Proc 90 [PL 1 no 3777]:49-87 Ja '64

Strain gauge logger for concrete models. Engineering 197:558 Ap 17 '64

Strain gage readings. P. K. Stein, ed. il diags Instruments & Control Systems 37: 132-7 Ap; 131-6 My; 135-8 Je; 125-7 Jl; 115-18 Ag; 155-9 S; 131-5 O; 131-9 N '64

Strain gage tests add more science to heavy drives. il diags Steel 154:56-8+ Ap 6 '64

Strain gages. il Iron & Steel Eng 40:232+ N '63

Strain gages for cryogenics. S. P. Wnuk, jr. diags I S A J 11:67-71 My '64

Strain gaging at cryogenic temperatures. O. L. Gillette. il I S A J 11:51-4 Ja '64

Strain gaging studs for Saturn. W. B. Cruise. il I S A J 10:70-1 D '63

Strain measurements in a reinforced concrete winding tower. L. J. Thomas. bibliog il diags Engineer 218:491-6 S 25 '64

STRAINERS

Fluid strainers overcome erratic descaling spray conditions. il diags Iron & Steel Eng 41:185-6 O '64

Straining thick paints. G. Conrad. Ind Finishing 40:93-6 Je '64

Using fire hydrants to survey nuisance organisms. A. A. Hirsch. il diags Water & Sewage Works 111:357-9 Ag '64

STRAINS and stresses

Analysis and design of struts with tension ties. K. H. Chu and S. S. Berge. il diags Am Soc C E Proc 89 [ST 1 no 3414]:127-63 F '63; Reply. 90 [ST 2 no 3886]:355-6 Ap '64

Analysis of folded plate structures. G. G. Goble. bibliog diags Am Soc C E Proc 90 [ST 1 no 3797]:93-124 F '64; Discussion. B. Barbarito. 90 [ST 5 no 4066]:213-16 O '64

Analysis of orthotropic plate bridges. R. J. Clifton and others. bibliog diags Am Soc C E Proc 89 [ST 5 no 3675]:133-71 O '63: Discussion. 90 [ST 2 no 3886]:395-9 Ap; [ST 3 no 3940]:393-401 Je '64; Reply. 90 [ST 6 no 4157]:297-308 D '64

Analysis of stress-wave propagation by photoviscoelastic techniques. C. W. Ferguson. bibliog diags SMPTE J 73:782-7 S '64

Anisotropic stress effect on the excess current in tunnel diodes. W. Bernard and others. bibliog J Ap Phys 35:1860-2 Je '64

Application of integral equations to the flexural vibration of a wedge with rotary inertia and shear. H. C. Lee and K. E. Bisshopp. Franklin Inst J 277:327-36 Ap '64

Approximate distribution of stress in a finite plate having a stress-free circular cut-out. H. Waters. bibliog diags Roy Aeronautical Soc J 68:204-8 Mr '64

Automatic area compensator for constant stress cycling. C. E. Feltner and J. Jackobs. diags R Sci Instr 34:1360-3 D '63

Avoid overstressed piping through flexible layout. E. W. Bramley. diags Heating-Piping 36:125-7 Ap '64

Behavior of prestressed composite steel beams. P. G. Hoadley. diags Am Soc C E Proc 89 [ST 3 no 3534]:21-34 Je '63; Discussion. 89 [ST 6 no 3743]:453 D '63; 90 [ST 1 no 3812]:231-3 F '64

Bend test for measuring the strain limit of surfaces. A. F. Mohrnheim. bibliog diags Plating 50:1094-9 D '63

Bond stress in cylindrical shells subjected to an end velocity step. R. G. Payton. bibliog diags J Math & Phys 43:169-90 S '64

Boundary shear stresses in curved trapezoidal channels. A. T. Ippen and P. A. Drinker. il diags Am Soc C E Proc 88 [HY 5 no 3273]:143-79 bibliog(p 176-7) S '62: Discussion. 89 [HY 2 no 3468]:189-91 Mr; [HY 3 no 3529]:327-45 My '63; Reply. 90 [HY 2 no 3853]:351-6 Mr '64

Buckling of a prestressed circular ring. J. E. Goldberg and J. L. Bogdanoff. diags Am Soc C E Proc 90 [ST 4 no 4018]:235-50 Ag '64

Change of stress in reinforcement with time. J. M. Plowman. il diags Engineer 217:335-40 F 21 '64

Comparisons of materials: stress-rupture strength of high temperature alloys; tables. Materials in Design Eng 60:36-7 Mid-O '64

Comparisons of one and two-specimen cohesion-friction-strain tests. J. H. Schmertmann. bibliog diag Am Soc C E Proc 88 [SM 6 no 3372]:169-205 D '62: Discussion. T. H. Wu. 89 [SM 4 no 3578]:229-31 Jl '63; Reply. 90 [SM 1 no 3781]:107-8 Ja '64

Compliances of pipe components. J. E. Brock. bibliog diags Naval Eng J 76:535-8 Ag '64

Constant shear moment distribution. M. Jordan. bibliog diags Am Soc C E Proc 89 [ST 6 no 3717]:43-70 D '63

Continuity of prismatic northlight sheds through their window planes. A. Ghali. diags Am Concrete Inst J 61:1009-20 Ag '64

Deformations and stresses in an axially restrained beam. H. Switzky. AIAA J 2:109-10 Ja '64

Determination of the dynamic shear modulus of a composite solid propellant. L. H. Layton and others. bibliog il R Sci Instr 34:1333-40 D '63

Determination of unloading behavior of uniaxially strained 6061-T6 aluminum from residual strain measurements. W. F. Hartman. bibliog diag J Ap Phys 35:2090-6 Jl '64

Development of preferred orientation in copper electrodeposits by cyclic stressing. M. Suzuki. bibliog il diags Inst Metals J 92: 141-5 '63-64

Developments in stress analysis; course at University college of Swansea. il Engineer 217:167-8 Ja 24 '64

Dislocation multipoles and their role in strain-hardening. H. S. Chen and others. bibliog diags J Ap Phys 35:2502-14 Ag '64

Dynamic response of aluminum. L. M. Barker and others. bibliog diags J Ap Phys 35:1203-12 Ap '64

Dynamic stresses and displacements around cylindrical discontinuities due to plane harmonic shear waves. C. C. Mow and L. J. Mente. bibliog diags A S M E Trans ser E 30:598-604 D '63

Effect of alternating strain upon the internal oxidation of some copper-silicon alloys. J. A. Kilpatrick and J. W. Martin. bibliog il Metallurgia 70:21-3 Jl '64

Effect of law-temperature precompression on the ductility of iron. A. W. Sleeswyk and others. bibliog il Iron & Steel Inst J 202: 330-4 Ap '64

Effect of mechanical stress on *p-n* junction device characteristics. J. J. Wortman and others. bibliog diags J Ap Phys 35:2122-31 Jl '64

Effect of mode of stressing in fatigue testing. B. Cina. Metal Prog 85:144+ My '64

Effect of rotatory inertia and shear in beam vibration. W. C. Hurty and M. F. Rubinstein. diag Franklin Inst J 278:124-32 Ag '64

Effect of some variations in prestrain treatment on the creep and fracture properties of pure nickel and a dilute nickel alloy. P. W. Davies and others. bibliog il Metallurgia 68:259-63 D '63

Effect of strain rate and temperature on the resistance to deformation of aluminium, two aluminium alloys, and lead. J. A. Bailey and A. R. E. Singer. Inst Metals J 92:404-8 '63-64

Effect of stress applied during drying on some of the properties of individual pulp fibers. C. A. Jentzen. bibliog il Tappi 47: 412-18 Jl '64

Effect of stress on the radiation stability of ASTM A 302 grade B pressure-vessel steel. M. B. Reynolds. diag Materials Res & Stand 3:644-5 Ag '63; Same. Naval Eng J 75:965-6 D '63

Effective shear modulus of honeycomb cellular structure. J. Penzien and T. Didriksson. il diags AIAA J 2:531-5 Mr '64; Discussion. R. A. Gellatly. 2:1518; Reply. 1519 Ag '64

Effectiveness of shearing stresses in accelerating solid phase reactions at low temperatures and high pressures. F. Dachille and R. Roy. bibliog J Geol 72:243-7 Mr '64

Effects of tensile stress on the domain structure in grain-oriented 3.25 per cent silicon steel. J. J. Gniewek. bibliog il J Ap Phys 34:3618-22 D '63

Elastic stress analysis of jointed half-planes. K. T. Sundara Raja Iyengar and R. S. Alwar. Franklin Inst J 278:267-79 O '64

Elastostatic problem of a perforated square plate. A. L. Schlack and R. W. Little. bibliog diags Am Soc C E Proc 90 [EM 5 no 4089]:171-87 O '64

Elongation, strain and minimum bend radius of rod and wire. A. F. Mohrnheim. bibliog diags Wire & Wire Prod 39:1182-6+ Ag '64

Equation for the stress-strain curve of concrete. P. Desayi and S. Krishnan. bibliog diag Am Concrete Inst J 61:345-50 Mr '64; Discussion. 61:1227-38; Reply. 1238-9 S '64

Estimating stress relaxation from creep data. T. C. Hansen. bibliog Materials Res & Stand 4:12-14 Ja '64: Discussion. 4:490-3 S '64

STRAINS and stresses—*Continued*

Estimation of slip strain during creep. J. H. Hensler and R. C. Gifkins. Inst Metals J 92:340 '63-64

Evaluation and location of critical stresses in pretensioned structures. K. Csibi. diags Am Concrete Inst J 60:391-431 Mr '63; Correction. 61:sup5+ pt 2 Je '64

Experimental analysis of the strain distribution in the neck of a tensile specimen. W. Truszkowski and Z. Jasieński. bibliog diags Inst Metals J 92:225-30 '63-64

Experimental determination of air drag on a textile yarn struck transversly by a high-velocity projectile. J. C. Smith and others. bibliog il J Res Nat Bur Stand 68C:177-81 Jl '64

Experimental determination of permeability-stress relationships. L. I. Mendelsohn and others. diags J Ap Phys 35:863-5 pt 2 Mr '64

Experimental solution of elastic-plastic plane-stress problems. P. S. Theocaris. bibliog il A S M E Trans ser E 29:735-43 D '62; Discussion. F. A. McClintock. 30:631; Reply. 632-4 D '63

Extension of iteration method for determining strain distributions to the uniformly stressed plate with a hole. E. A. Davis. A S M E Trans ser E 30:210-14 Je '63; Discussion. 31:362-4 Je '64

Failure criterion for fracture during cleavage. I. Krause. diag J Ap Phys 35:461-2 F '64

Finding stresses within a structure by first finding the moment distribution in an unsymmetrical frame. W. Griffel. diags Product Eng 34:169-72 N 11; 115-18 N 25 '63

Form for the relation between stress and finite elastic and plastic strains under impulsive loading. M. E. Backman. J Ap Phys 35:2524-33 Ag '64

Fracture of plain concrete. J. Glucklich. diag Am Soc C E Proc 89 [EM 6 no 3715]: 127-38 D '63; Discussion. A. Hrennikoff. 90 [EM 4 no 4000]:165-7; Reply. 167-9 Ag '64

Fracture of polymer melts at high shear stress. O. Bartoš. bibliog J Ap Phys 35: 2767-75 S '64

Free edge boundary conditions in skew plates. A. Coull. diags Engineer 217:220-1 Ja 31 '64

Guide to engineering thermoplastics. J. E. Hauck. bibliog il diags Materials in Design Eng 58:105-20 N '63 (reprints 35c)

How do you find answers when several concentrated loads act on a beam? S. Kravitz. Product Eng 35:137-8 F 17 '64

How do you test a deep drawing steel? G. Pomey. il diags Metal Prog 85:95-8 My '64

How to calculate and design for stress in preloaded bolts. A. G. Hopper and G. V. Thompson. diags Product Eng 35:81-4+ S 14 '64

How to determine maximum stress in spring-restrained columns; data sheet. M. Forray. diag Machine Design 36:169-70 My 7 '64

Hyperbolic stress-strain response; cohesive soils. R. L. Kondner. bibliog diags Am Soc C E Proc 89 [SM 1 no 3429]:115-43 F '63; Discussion. 89 [SM 3 no 3528]:203-4 My; [SM 4 no 3578]:241-2 Jl '63; Reply. 90 [SM 1 no 3781]:121-6 Ja '64

Impulsive loading theorems for rigid-plastic continua. J. B. Martin. bibliog diags Am Soc C E Proc 90 [EM 5 no 4072]:27-42 O '64

Influence of ageing processes on the fatigue limit of a body-centred-cubic iron. P. O. Kettunen. bibliog il diags Iron & Steel Inst J 202:209-15 Mr '64

Influence of initial stress on the vibrations of simply supported circular cylindrical shells. A. E. Armenàkas. bibliog AIAA J 2:1607-12 S '64

Influence of stress history on time-dependent spall in metals. B. M. Butcher and others. il diags AIAA J 2:977-90 bibliog (p989-90) Je '64

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Inner-outer expansion method for couple-stress effects. S. H. Lam and D. C. Leigh. AIAA J 2:1511-12 Ag '64

Layered systems subjected to surface shears. R. A. Westmann. Am Soc C E Proc 89 [EM 6 no 3725]:177-91 D '63; Discussion. 90 [EM 4 no 4000]:175-6 Ag '64

Limit analysis of circular orthotropic plates. T. Mura and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4109]:375-95 O '64

Loading rate effects in structural steel design. R. N. Wright and W. J. Hall. bibliog diags Am Soc C E Proc 90 [ST 5 no 4084]: 11-37 O '64

Logging strains at Oldbury. il Engineering 197:783 Je 5 '64

Lowering the breakdown voltage of silicon *p-n* junctions by stress. A. Goetzberger and R. H. Finch. il diag J Ap Phys 35: 1851-4 Je '64

Mathematical determination of stresses and displacements in star-perforated grains. H. B. Wilson, jr. bibliog diag AIAA J 2: 1247-53 Jl '64

Measurement of *in-situ* rock stresses. il Engineer 216:1051-2 D 27 '63

Measuring rock stresses faster and cheaper. N. Landon. il Coal Age 69:26+ F '64

Measuring strain at 7000°F. diags Iron Age 193:89 Mr 19 '64

Mechanics of metal cutting for a material of variable flow stress. P. L. B. Oxley. bibliog diags A S M E Trans ser B 85:339-45 N '63

Membrane stresses in laminated anisotropic shells. S. B. Dong. bibliog Am Soc C E Proc 90 [EM 3 no 3931]:53-69 Je '64; Discussion. G. Wempner. 90 [EM 5 no 4093]:463 O '64

Method for the remote measurement of force in a moving machine member. K. D. Broadfoot and R. E. Belin. diags J Sci Instr 40:589-91 D '63

Method of calculating stiffener-plating section moduli; with nomographs. K. Keays. diags Naval Eng J 76:563-8 Ag '64

Microstrain yield stress in neutron-irradiated copper single crystals. T. J. Koppenaal. bibliog J Ap Phys 35:2750-3 S '64

Model for crack propagation in steel. G. T. Hahn and others. bibliog il diags Iron & Steel Inst J 202:677-84 Ag '64

New tooth shape distributes stresses in spiral bevel gears. il Machine Design 36:10 Je 4 '64

Nomograph for the maximum stress for extension and compression spring wire. R. L. Peters. Wire & Wire Prod 39:565+ Ap '64

Nomograph quickly finds shear modulus. R. L. Peters. Product Eng 34:140 D 9 '63

Nonhomogeneous straining and fracture mechanism in a filled elastomer. M. Ronay. il diag J Ap Phys 35:629-36 Mr '64

Nonlinear pressure coupling in cylindrical shell analysis. P. E. Wilson and E. E. Spier. bibliog diag AIAA J 2:370-2 F '64

Nonlinear pressure vessel stress analysis using the optimum programming approach. C. Hwang. diag AIAA J 1:2830-40 D '63

Normal stress effects in second-order fluids. B. D. Coleman and H. Markovitz. bibliog J Ap Phys 35:1-9 Ja '64

Origin of stress failure in glass reinforced plastics. P. E. Throckmorton and others. il Mod Plastics 41:140+ N '63

Orthotropic beams under polynomial loads. I. K. Silverman. diags Am Soc C E Proc 90 [EM 5 no 4101]:293-319 O '64

Oscillatory behavior of normal stresses in viscoelastic fluids. M. C. Williams and R. B. Bird. bibliog diags Ind & Eng Chem Fundamentals 3:42-9 F '64

Outer and inner bounds on Tresca limit loads of cylindrical shells. S. L. Lee and B. J. Thorn. bibliog diags Franklin Inst J 277:517-33 Je '64

Parameters in the distribution of fatigue life. E. J. Gumbel. bibliog Am Soc C E Proc 89 [EM 5 no 3667]:45-63 O '63; Correction. 90 [EM 3 no 3936]:285 Je '64

Periodic response of a general yielding structure. P. C. Jennings. bibliog Am Soc C E Proc 90 [EM 2 no 3871]:131-66 Ap '64

Photo-elastic analysis: quick, thorough aid for stress research. H. Cook. il Res/Develop 15:32-6 N '64

Physical properties of wool fibers at various regains; further experiments on recovery from 20 percent extension. A. R. Haly and J. W. Snaith. bibliog diag Textile Res J 34:1-5 Ja '64

Planar stress field of a dislocation in an anisotropic plate. Y. T. Chou. bibliog J Ap Phys 34:3608-14 D '63

Planar wound filamentary pressure vessels. R. F. Hartung. diag AIAA J 1:2842-4 D '63

Plane stress analysis. C. W. McCormick. bibliog diags Am Soc C E Proc 89 [ST 4 no 3581]:37-54 Ag '63; Discussion. 90 [ST 1 no 3812]:243-5 F; [ST 2 no 3886]:365-6 Ap '64; Reply. 90 [ST 4 no 4001]:257-8 Ag '64

Plane stress yield condition for oblique coordinate systems. T. H. H. Pian. diags A S M E Trans ser E 31:145-6 Mr '64

STRAINS and stresses—*Continued*
Plastic analysis of orthotropic circular plates. J. Markowitz and L. W. Hu. bibliog diags Am Soc C E Proc 90 [EM 5 no 4098]:251-92 O '64
Power-function creep analysis for rotating solid disks having variable thickness and temperature. B. M. Ma. bibliog diags Franklin Inst J 277:593-612 Je '64
Prediction of wall shear stress distribution in the eccentric annulus. W. T. Snyder. diag A I Ch E J 10:418-19 My '64
Pressurized star crack. R. A. Westmann. J Math & Phys 43:191-8 S '64
Prismatic folded plates; simplified procedure of analysis. E. Traum. bibliog diags Am Concrete Inst J 61:1285-303 O '64
Radiation hardening in mild and low-alloy steels. D. R. Harries and others. bibliog Iron & Steel Inst J 202:518-22 Je '64
Radiation-induced stress relaxation in quartz and vitreous silica. W. Primak. bibliog diags J Ap Phys 35:1342-7 Ap '64
Rate of strain effect in metal cutting. P. L. B. Oxley. diags A S M E Trans ser B 85:335-8 N '63
Reinforcement requirements for girder web openings. E. P. Segner, jr. il diags Am Soc C E Proc 90 [ST 3 no 3919]:147-64 Je '64
Relaxation of pearlitic cast iron. V. D. Davies and others. bibliog diags Iron & Steel Inst J 202:343-6 Ap '64
Remarks on variational principles in elastodynamics. Y. Chen. bibliog Franklin Inst J 278:1-7 Jl '64
Remote measurement of rock stress under development in South Africa. E. R. Leeman. bibliog il diags Eng & Min J 165:104-7 S '64
Response of a prestressed elastic plate strip to a moving pressure load. H. Reismann. bibliog diags Franklin Inst J 278:8-19 Jl '64
Response of elastic cylinders to plane shear waves. L. J. Mente and F. W. French. diags Am Soc C E Proc 90 [EM 5 no 4083]:103-18 O '64
Review of step-stress testing. D. S. Peck. Bell Lab Rec 42:327-9 O '64
Rheological unit in a high polymer under continuous shear. M. Mooney. bibliog diags Rubber Chem & Tech 37:503-10 Ap '64
Rock stresses induced by block caving. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:401-3 Ap '64
Rock stresses induced by shrinkage stoping. R. G. K. Morrison and L. P. Geldart. diags Can Min & Met Bul 57:506-8 My '64
Scattered light photoelastic polariscope for three-dimensional stress analysis. Y. F. Cheng. il diag R Sci Instr 35:976-7 Ag '64
Shear and velocity distribution in shallow channels. H. Lundgren and I. G. Jonsson. diags Am Soc C E Proc 90 [HY 1 no 3752]:1-21 Ja '64; Discussion. 90 [HY 5 no 4050]:169-75 S '64
Shear measurement technique for rough surfaces. L. S. Hwang and E. M. Laursen. bibliog il diags Am Soc C E Proc 89 [HY 2 no 3451]:19-37 Mr '63; Discussion. P. S. Granville. 89 [HY 5 no 3656]:157-9 S '63; Reply. 90 [HY 4 no 3980]:221-2 Jl '64
Shear of thin plates with flexible edge members. E. R. Bryan and W. M. El-Dakhakhni. bibliog il diags Am Soc C E Proc 90 [ST 4 no 3991]:1-14 Ag '64
Shear strength of an anisotropically consolidated clay. B. B. Broms and M. V. Ratnam. bibliog diags Am Soc C E Proc 89 [SM 6 no 3691]:1-26 N '63; Discussion. T. S. Nagaraj. 90 [SM 4 no 3979]:193-4 Jl '64
Shear tests of 4340 steel, 6Al-6V-2Sn titanium, and 7075-T6 aluminum. A. A. Iannelli. diags Materials Res & Stand 4:207-10 My '64
Simple test for evaluating stress relaxation in bending. A. Fox. diags Materials Res & Stand 4:480-1 S '64
Simplified stress analysis for piping systems. L. Maurer and others. bibliog diags Air Cond Heat & Ven 61:94-8 O '64
Some results of the Oklahoma City sonic boom tests. J. K. Power. il Materials Res & Stand 4:617-23 N '64
Sources of error in X-ray measurements of residual stress. B. D. Cullity. bibliog J Ap Phys 35:1915-17 Je '64
Static stress fatigue and strength of a vitreous silicate. W. C. Levengood. bibliog il diags J Ap Phys 35:424-33 F '64
Strain-gage analysis for uncased pipeline crossings. diags Am Soc C E Proc 90 [PL 1 no 3777]:49-87 Ja '64
Strain measurement in concrete pressure vessels. il Engineer 217:960-1 My 29 '64
Strain measurements in a reinforced concrete winding tower. L. J. Thomas. bibliog il diags Engineer 218:491-6 S 25 '64
Strength and the stress-strain characteristics of coal in triaxial compression. D. W. Hobbs. bibliog diag J Geol 72:214-31, pl 1 Mr '64
Stress analysis of prestressed suspended roofs. A. Siev and J. Eidelman. Am Soc C E Proc 90 [ST 4 no 4008]:103-21 Ag '64
Stress and modulus nomographs for thermoplastics. R. L. Peters. Materials in Design Eng 60:89-91 Jl '64
Stress and total strain rate distribution in spherical pressure vessels. A. E. Johnson and J. Henderson. Engineer 217:729-39 Ap 24 '64
Stress behavior in the neighborhood of sharp corners. F. C. Karal, jr. and S. N. Karp. diags Geophysics 29:360-9 Je '64
Stress concentration factors for plates with holes. W. Griffel. diags Product Eng 34:98-104 S 16; 104-13 N 11 '63; 35:85-91 Mr 16 '64 (reprints $1)
Stress-dilatancy, earth pressures, and slopes. P. W. Rowe. diags Am Soc C E Proc 89 [SM 3 no 3507]:37-61 My '63; Discussion. 89 [SM 6 no 3701]:127-33 N '63; 90 [SM 1 no 3781]:133-53 Ja '64; Reply. 90 [SM 4 no 3979]:145-80 Jl '64
Stress effects in evaporated permalloy films. H. L. Pinch and A. A. Pinto. bibliog J Ap Phys 35:828-9 pt 2 Mr '64
Stress functions for the axisymmetric, orthotropic, elasticity equations. L. R. Herrmann. AIAA J 2:1822-4 O '64
Stress in radially loaded thick rings; data sheet. J. W. Walker. bibliog diag Machine Design 36:115-18 Jl 30 '64
Stress relaxation and set of wool fibers with particular reference to their structure and mechanical properties. H. Munakata. bibliog diags Textile Res J 34:97-109 F '64
Stress relaxation in crosslinked poly(ethylene tetrasulfide). R. B. Beevers. bibliog J Colloid Sci 19:40-9 Ja '64
Stress relief of austenitic stainless steels. G. S. Sangdahl. il Metal Prog 86:100-4 Ag '64
Stress-strain curves of rubbers in simple shear. M. Mooney. bibliog J Ap Phys 35:23-6 Ja '64
Stress-strain modulus of clay in undrained shear. C. C. Ladd. diags Am Soc C E Proc 90 [SM 5 no 4039]:103-32 bibliog(p 128-30) S '64
Stress-strain relations for concrete under cyclic loading. B. P. Sinha and others. il diags Am Concrete Inst J 61:195-211 F '64
Stress-strain relations of reinforced plastics parallel and normal to their internal filaments. B. W. Shaffer. bibliog diags AIAA J 2:348-52 F '64
Stress-strain relationships in yarns subjected to rapid impact loading (cont). J. C. Smith and others. bibliog il Textile Res J 33:919-34 N '63
Stresses at tunnel intersections. W. F. Riley. bibliog il diags Am Soc C E Proc 90 [EM 2 no 3875]:167-79 Ap '64; Discussion. R. Agarwal. 90 [EM 4 no 4000]:195-7 Ag '64
Stresses in a hydraulic turbine stay ring. J. Parmakian and F. O. Ruud. bibliog il diags A S M E Trans ser A 86:77-82; Discussion. 82-3 Ja '64
Stresses in a layered half-plane. K. T. Sundara Raja Iyengar and R. S. Alwar. diags Am Soc C E Proc 90 [EM 4 no 4004]:79-96 Ag '64
Stresses in an incompressible viscoelastic-plastic thick-walled cylinder. M. Shinozuka. bibliog AIAA J 2:1800-4 O '64
Stresses in anodic films. D. A. Vermilyea. bibliog Electrochem Soc J 110:345-6 Ap '63; Discussion. 110:1289-91; 111:755 D '63, Je '64
Stresses in end blocks of a post-tensioned prestressed beam. T. Huang. bibliog diags Am Concrete Inst J 61:589-602 My '64
Stresses in nonhomogeneous elastic thick-walled cylinders. J. Mahig. diags A S M E Trans ser E 31:343-4 Je '64
Stresses in point supported composite walls. S. Rosenhaupt. bibliog diags Am Concrete Inst J 61:795-810 Jl '64
Stresses in sandwich cylinders; data sheet. R. A. Gellatly and R. H. Gallagher. diags Machine Design 36:197-201 Mr 26 '64
Stresses in the vicinity of boundary discontinuities in bodies of revolution. A. R. Zak. diag A S M E Trans ser E 31:150-2 Mr '64
Surface strains in case-bonded models of rocket motors. D J. Bynum and others. bibliog il diags AIAA J 2:343-7 F '64

STRAINS and stresses—*Continued*

Tables provide short cut for pipe stress analysis. E. W. Bramley. Heating-Piping 36:104-7 Mr '64

Technique for determining the stress-relaxation properties of spring materials. P. J. Howard and P. M. G. Silvester. diags Metallurgia 69:293-6 Je '64

Temperature-dependence of yield and brittle-fracture stresses in polycrystalline molybdenum. A. Wronski. bibliog Inst Metals J 92:376-7 '63-64

Test method checks stability of polymers under stress; abstract. W. H. Haslett, jr. and L. A. Cohen. Chem & Eng N 42:46-7 F 10 '64

Theoretical aspects of high-speed shear in face centered cubic metals. B. F. von Turkovich and K. J. Trigger. bibliog diags A S M E Trans ser B 85:357-64 N '63

Theory of elastic energy in calculating stresses in structures. W. Griffel. diags Product Eng 35:138-40 F 17; 91-3 Mr 2; 159-61 Mr 16; 115-17 Mr 30; 101-2 Ap 13; 301-2 Ap 27 '64

Theory of the interaction of vacancies with stress fields in metals; derivation of basic equations. L. A. Girifalco and D. Kuhlman-Wilsdorf. bibliog J Ap Phys 35:438-43 F '64

Thermal stress behavior of radiation-induced graft polymers of cotton. J. C. Arthur, jr. and others. Textile Res J 33:896-9 N '63

Time-dependent effects in composite concrete beams. D. E. Branson. bibliog diags Am Concrete Inst J 61:213-30 F '64; Discussion. G. J. R. van der Meulen. 61:1207-9 S '64

Use of chip tension to obtain a stress strain curve from metal cutting tests. I. Finnie and J. Wolak. bibliog diags A S M E Trans ser B 85:351-6 N '63

Use of rubber models as a stress aid. A. W. Pope. il diag Rubber Chem & Tech 37:199-203 Ja '64

Use of stress relaxation tests to characterize time dependencies of a composite solid propellant. J. H. Stoker. diags AIAA J 2:1816-18 O '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on material forming. Tool & Manuf Eng 52:81-3 My '64

Yield effect in a zinc-aluminium-cadmium alloy. J. A. Sabato and H. Destaillatz. diags Inst Metals J 92:252 '63-64

Yield points in age-hardening magnesium alloys. K. G. Kent and A. Kelly. Inst Metals J 92:190-1 '63-64

Yielding and locking of confined sand. R. V. Whitman and others. bibliog diags Am Soc C E Proc 90 [SM 4 no 3966]:57-84 Jl '64

Yielding in a cracked plate under longitudinal shear. F. A. Field. bibliog diags A S M E Trans ser E 30:622-3 D '63

See also

Beams and girders
Bending
Bending moment
Bridges—Stresses
Columns
Concrete construction—Design
Corrosion and anti-corrosives—Stress corrosion
Creep of materials
Creep of metals
Creep of plastics
Deformation (mechanics)
Elasticity
Fatigue in metals
Friction, Internal
Glass—Strains and stresses
Hysteresis (mechanics)
Load (mechanics)
Metals—Failure
Notched bar testing
Photoelasticity
Poisson ratio
Soil mechanics
Strain gages
Strength of materials
Structures, Theory of
Torsion
Welding—Stresses
Wind pressure

Residual stresses

Cameron test for determining residual strain in paper. diags Tappi 46:sup 123A D '63

Chemical tempering of glass induces residual stresses for diverse applications. C. B. King. il Res/Develop 15:20-3 Ap '64

Effect of residual stresses on the critical crack length predicted by the Griffith theory. W. E. Jahsman and F. A. Field. bibliog diags A S M E Trans ser E 30:613-16 D '63

Effect of residual stresses on the stress-corrosion properties of the aluminium alloy D.T.D. 5054. G. A. Hawkes. il diags Inst Metals J 92:419-22 '63-64

How residual stress affects fatigue. Iron Age 193:139 Mr 12 '64

Measurement and significance of residual macrostresses in steel. W. E. Littmann. Machine Design 36:166+ F 27 '64

Relief of residual stresses by heating patterns. T. H. Lin and L. M. Lackman. bibliog diags Am Soc C E Proc 90 [EM 3 no 3937]:87-110 Je '64

Residual stresses in metals. Engineering 196:569 N 1 '63

Residual stresses in two-phase systems as determined by changes in transition temperature. E. H. Bogardus and R. Roy. bibliog diags Am Cer Soc J 46:573-6 D '63

Residual stresses in welded plates; a theoretical study. L. Tall. bibliog diags Welding J 43:sup 10-23 Ja '64

Wear considerations in design; residual stresses, contact stresses. C. Lipson. bibliog diags Machine Design 35:182-91 N 21 '63

X-ray determination of residual stresses in electrodeposited coatings. G. W. Bush and H. J. Read. bibliog diags Electrochem Soc J 111:289-96 Mr '64

Thermal stresses

Analogy between three-dimensionally heated plates and generalized plane stress. M. Forray and M. Newman. AIAA J 2:165-6 Ja '64

Buckling of a thin-walled circular cylindrical shell heated along an axial strip. N. J. Hoff and others. diags A S M E Trans ser E 31:253-8 Je '64

Catastrophic thermoplastic shear. R. F. Recht. bibliog il diags A S M E Trans ser E 31:189-93 Je '64

Charts and tables speed calculation of thermal stresses in unsymmetrically heated circular rings; data sheet. M. Newman and M. Forray. diag Machine Design 36:125-9 Ja 2 '63

Clamped plate analogy for thermoelasticity. A. L. Ross. bibliog diag A S M E Trans ser D 85:579-84 D '63

Designing for thermal expansion through piping configuration. J. A. Masek. il diags Heating-Piping 35:123-5 N '63

Elastic energy at fracture and surface energy as design criteria for thermal shock. D. P. H. Hasselman. bibliog Am Cer Soc J 46:535-40 N '63

Employ basic flexibility data to facilitate piping design. J. A. Masek. Heating-Piping 35:100-1 D '63

Extensometer for hot specimen. A. J. Bush. il I S A J 11:49-50 Ag '64

Graphs simplify selection of dimensions to limit post-buckling deflection of heated rectangular plates; data sheet. M. Newman and M. Forray. diag Machine Design 35:163-5 D 5 '63

How to determine free expansions of piping due to pressurization and nonuniform heating. J. E. Brock. diags Heating-Piping 36:152-5 Ja '64

How to determine thermal buckling and post-buckling of circular bulkheads; data sheets. M. Forray. diags Machine Design 36:201-3 Mr 12 '64

Membrane solution for axisymmetric heating of dome-shaped shells of revolution. H. E. Williams. diag AIAA J 2:1491-2 Ag '64

Method of analysis of transient thermal stresses in thermorheologically simple viscoelastic solids. K. C. Valanis and G. Lianis. bibliog A S M E Trans ser E 31:47-53 Mr '64

Photothermoelastic investigation of thermal stress in flat plates. H. Becker and A. Colao. bibliog A S M E Trans ser D 85:566-8 D '63

Prevention of cyclic thermal-stress cracking in steam-turbine rotors. W. R. Berry and I. Johnson. bibliog diags A S M E Trans ser A 86:361-7; Discussion. 367-8 Jl '64

Reduction of torsional stiffness due to thermal stress in thin, solid wings. D. J. Johns. diag AIAA J 2:1850-2 O '64

Relief of residual stresses by heating patterns. T. H. Lin and L. M. Lackman. bibliog diags Am Soc C E Proc 90 [EM 3 no 3937]:87-110 Je '64

Some secondary effects in a simple piping structure under heating. J. E. Brock. diags A S M E Trans ser E 31:88-90 Mr '64

Stress-strain distribution during transient heating of a transversely anisotropic material. B. H. Suzuki and J. Frisch. bibliog il A S M E Trans ser D 85:569-78 D '63

STRAINS and stresses—Thermal stresses —*Continued*

Stresses in an elastic-plastic cylinder due to a dilatational phase transformation. H. G. Landau and J. H. Weiner. diag A S M E Trans ser E 31:148-50 Mr '64

Temperature distribution in a case-bonded cylindrical rocket assembly. M. Levitsky and B. W. Shaffer. bibliog diag AIAA J 1:2870-2 D '63

Temperature distributions downstream of a moving heat sink. A. F. Emery. diag AIAA J 2:779-81 Ap '64

Temperature stresses in tall reinforced concrete buildings. P. Weidlinger. il diags Civil Eng 34:58-61 Ag '64

Thermal cracks in rotor crucial in large-turbine cyclic operation. W. R. Berry and I. Johnsson. diags Elec World 161:94-7+ Je 15 '64

Thermal stresses and fatigue in silicon power rectifiers. N. Klein. bibliog diags IEEE Trans Com & Electronics p208-16; Discussion. 216-19 Mr '64

Thermal stresses in a viscoelastic cylinder with temperature dependent properties. K. C. Valanis and G. Lianis. AIAA J 2:1642-4 S '64

Thermoelasticity of heterogeneous aeolotropic plates. Y. Stavsky. bibliog Am Soc C E Proc 89 [EM 2 no 3486]:89-105 Ap '63; Discussion. R. Schmidt. 89 [EM 4 no 3616]:97 Ag '63; Reply. 90 [EM 1 no 3811]:161-2 F '64

Thin plates and shallow cylindrical shells subjected to hot spots. A. Jahanshahi. diags A S M E Trans ser E 31:79-82 Mr '64

Transient axisymmetric thermoelastic problem for the solid sphere. W. E. Warren. bibliog diags A S M E Trans ser E 31:348-50 Je '64

STRAPS, Nylon. See Nylon straps

STRAPS, Plastic. See Plastic straps

STRAPS, Rayon. See Rayon straps

STRAPS, Steel. See Steel straps

STRATEGIC air command. See United States—Air force—Strategic air command

STRATEGY

Mathematical model for strategic movement. S. D. Stearns. diags Op Res 12:237-54 Mr '64; Discussion. W. I. Zangwill. 12:634-6 Jl '64

Strategy and conscience. A. Rapoport. Review, by M. G. Raskin. Sci Am 211:109-10+ Ag '64

STRATIFICATION

Intrusion of mobilized tuff, Catron County, New Mexico. R. Greenwood. Geol Soc Bul 74:1505 pl 1 D '63

STRATIGRAPHIC geology. See Geology, Stratigraphic

STRATOSPHERE. See Atmosphere, Upper

STRAWBERRIES

Effect of some fungicides on the flavor of canned strawberries. G. W. Hope. bibliog J Agri & Food Chem 12:189-91 Mr '64

STREAM flow

Accuracy of current meter measurements. R. W. Carter and I. E. Anderson. Am Soc C E Proc 89 [HY 4 no 3572]:105-15 Jl '63; Discussion. 90 [HY 1 no 3783]:349-55 Ja '64; Reply. 90 [HY 3 no 3911]:343-4 My '64

Adaptive, digital river flow predictor for power dispatch. E. B. Dahlin and E. Kindingstad. bibliog diags IEEE Trans Power Apparatus & Systems 83:320-7 Ap '64

Areal variations of mean annual runoff. A. G. Hely. Am Soc C E Proc 90 [HY 5 no 4030]:61-8 S '64

Bod and oxygen relationships in streams. W. E. Dobbins. bibliog Am Soc C E Proc 90 [SA 3 no 3949]:53-78 Je '64; Correction. 90 [SA 6 no 4171]:131-2 D '64

Comparison of probability distributions in the analysis of drought flows. D. J. O'Connor. bibliog map Water & Sewage Works 111:180-5 Ap '64

Effect of stream-ordering technique on Horton's laws of drainage composition. K. L. Bowden and J. R. Wallis. bibliog diags Geol Soc Bul 75:767-73 Ag '64

An electric-powered vehicle for large river measurements. H. H. Stevens, jr. and G. R. Dempster, jr. il Civil Eng 34:74 Je '64

Experiments on small streams in alluvium. P. Ackers. bibliog il Am Soc C E Proc 90 [HY 4 no 3959]:1-37 Jl '64

Low-flow augmentation for water quality control. J. C. Geyer and C. H. J. Hull. bibliog WPCF J 35:1434-42 N '63

Mathematical model for transient river flow. E. Kindingstad. bibliog diags Am Soc C E Proc 90 [HY 3 no 3899]:23-38 My '64

Measurement of suspended matter in stream water. K. Baalsrud and A. Henriksen. Am Water Works Assn J 56:1194-200 bibliog (p 1198-200) S '64

Practical computations of bed-material discharge. B. R. Colby. bibliog Am Soc C E Proc 90 [HY 2 no 3843]:217-46 Mr '64

Predictive techniques for water quality inorganics. J. O. Ledbetter and E. F. Gloyna. bibliog Am Soc C E Proc 90 [SA 1 no 3810]:127-51 F '64; Discussion. 90 [SA 5 no 4097]:63-4 O '64

Regime criteria for alluvial streams. R. J. Garde and K. G. Ranga Raju. bibliog Am Soc C E Proc 89 [HY 6 no 3705]:153-64 N '63; Discussion. 90 [HY 4 no 3980]:331-6 Jl '64

Solving the equations of uniform flow. W. F. Pickard. Am Soc C E Proc 89 [HY 4 no 3567]:23-38 Jl '63; Discussion. 90 [HY 1 no 3783]:319-27 Ja '64; Reply. 90 [HY 4 no 3980]:239-40 Jl '64

Streamflow records by digital computer. E. J. Kennedy. il Am Soc C E Proc 89 [IR 3 no 3625]:29-36 S '63; Discussion. R. C. Rice. 89 [IR 4 no 3746]:71-2 D '63; Reply. 90 [IR 3 no 4028]:75-6 S '64

Time of travel of soluble contaminants in streams. T. J. Buchanan. il map Am Soc C E Proc 90 [SA 3 no 3932]:1-12 Je '64

STREAM pollution. See Water pollution

STREAM surveys

Biological system of stream classification used by the Trent River board. F. S. Woodiwiss. bibliog Chem & Ind p443-7 Mr 14 '64

Heavy duty mounting for maps. A. A. Hirsch. il diag Water & Sewage Works 111:117 Mr '64

STREET cleaning apparatus

We'll try anything: street sweeping operation. il Pub Works 95:118 S '64

STREET lighting

Appearance aspects for a lighted mall. il Illum Eng 59:123 F '64

Capitol lighting: Sacramento's 200-ft-wide capitol mall. il diags Elec Constr & Maint 62:68-9 D '63

Citizen-government cooperation spurs residential street lighting. B. L. Kennedy. il Pub Works 95:123 My '64

City of Beloit has a well-lighted gateway. R. G. Miller. il Pub Works 95:92 Jl '64

Grounding jumper isolates pilot system trouble. S. L. Fontenot. il Elec World 161:63 Ja 27 '64

It's meet me in St Louis where the lights are bright. il Elec World 162:102-3 O 19 '64

Measuring road lighting from the motorist's viewpoint. il Ind Electronics 2:73 F '64

New roadway lighting standard recommends higher footcandles. Elec World 161:152 Ap 6 '64

New street lighting rate at Penn Power & Light gets results. Elec World 162:20-1 S 28 '64

N.Y. world's fair street lighting piped for hi-fi sound system. il Elec World 160:20-1 D 23 '63

Private lighting serves new needs. il Elec World 160:66+ D 30 '63

Public interest spurs better street lighting. J. E. Schotta and W. T. Cantrel. il Elec World 161:113-14+ Ja 27 '64

Shopping district rejuvenated with light. il Illum Eng 59:432 Je '64

Street lighting and public safety. P. C. Box. il Pub Works 95:118-20 Je '64

Street lighting code of practice. Engineer 216:643 O 18 '63

Street lighting experimental station. il Engineer 217:676 Ap 10 '64

Street lighting is good politics in Brazil. il Elec World 162:107 S 21 '64

Wilmington culminates 85 years of lighting progress. R. A. Mitchell. il Pub Works 95:99-100 Ap '64

Control

Pertinence of spectral radiation to outdoor lighting controls. T. I. Marx. diag Elec World 162:58-9 O 5 '64

Photoelectronic unit offers longer lamp life. K. H. Miller. il diag Elec World 161:70 Ap 6 '64

Standards

American standard practice for roadway lighting. il diags Illum Eng 59:73-112 F '64

Behind the scenes of the new roadway standard. T. J. Seburn. il Illum Eng 59:113-17 F '64

STREET lighting fixtures

Lighting fittings today. il Brit Plastics 37:108-13 Mr '64

New light standards are wood laminates. il Elec World 161:150 Mr 23 '64

New luminaire solves hillside roadway lighting problems. il diags Elec Constr & Maint 63:65-7+ Ja '64

Photoelectric controller uses flasher concept. H. Shavel. il diag Elec World 162:67 Ag 10 '64

Roadway lighting luminaire distributions; effect of the new standard practice; abstract. T. Summers, jr. and W. M. Waldbauer. Illum Eng 59:578 S '64

Stainless steel for street lamp standards. il Engineering 198:106 Jl 24 '64

Street lighting refractor standardization; cause and effect; abstract. D. E. Husby. Illum Eng 59:582-3 S '64

Structural aspects of outdoor lighting equipment; abstract. H. A. Van Dusen, jr. and D. Wandler. Illum Eng 59:576-7 S '64

Cleaning

Ultrasonic washer speeds street light cleaning. W. E. Wilson. il Elec World 161:54-5 Mr 9 '64

Maintenance and repair

Economical mercury street lighting maintenance; abstract. F. Clark. Illum Eng 59:586-7 S '64

STREET railroads

Track removal

No foolin way to yank out old street car tracks. il Roads & Sts 107:38-9 Mr '64

STREET traffic

Analysis of pedestrian queueing. G. H. Weiss. bibliog J Res Nat Bur Stand 67B:229-43 O '63

Britons go for three-level traffic segregation. Eng N 172:35 F 6 '64

Comparison of cars and buses in urban areas. R. J. Smeed and J. G. Wardrop. Engineer 217:124-5 Ja 17 '64; Discussion. 217:166 Ja 24 '64

Integration of urban motorways; abstract. T. E. H. Williams. Engineer 216:905 N 29 '63

Lessons of the Buchanan report. C. Buchanan. Engineer 218:51 Jl 10 '64

Low cost solution to traffic congestion. il Pub Works 95:132-3 S '64

Planning to keep the traffic moving; Buchanan report Traffic in towns. il plan Engineering 196:706-7 D 6 '63

Replanning Piccadilly Circus; abstract. C. Buchanan. Engineer 217:77 Ja 10 '64

Traffic in towns; the next steps. C. D. Buchanan. Engineer 217:781 My 1 '64

Truck travel in the Los Angeles metropolitan area. L. A. Hoel. Traffic Q 18:535-53 O '64

Vehicular traffic control poses challenging problems. I S A J 11:25 F '64

See also
Road traffic
Traffic regulations
Traffic signals

STREETS

Coordinating municipal street policies. J. S. Baker. il Pub Works 95:88-90 Ag '64

See also
Curbs
Driveways
Dust prevention
Snow removal
also subdivision Streets under names of places, e.g.
Bangor, Maine
Boston
Bristol, England
Chicago
Cleveland
Detroit
Fresno, California
Grove City, Pennsylvania
Kansas City, Missouri
London
Los Angeles
Milwaukee
New York (city)
Overland Park
Phoenix, Arizona
St Louis
Santa Monica, California
Tokyo
Washington, D.C.
Waukesha, Wisconsin
West Orange, New Jersey
Woodbridge, New Jersey

Maintenance and repair

City streets and the seal coat problem. C. H. McDonald. il Pub Works 95:98-100 Jl '64

Do-it-yourself carpet coating. C. C. Fagerlind. il Pub Works 95:106-7 Ag '64

No foolin way to yank out old street car tracks. il Roads & Sts 107:38-9 Mr '64

Pennsylvania Avenue gets new surface. W. F. Reynolds. il Pub Works 95:92-4 Ja '64

Reducing street maintenance costs. D. M. Winton. il Pub Works 95:127-8 O '64

Street and alley maintenance. Pub Works 94:170+ D '63

Street maintenance by contract. S. C. Palmer. il Pub Works 94:104-6 N '63

Street maintenance supervision, training and academic requirements; abstract. R. E. Cron, jr. Pub Works 95:130-1 Mr '64

STRENGTH of materials

Basic structural analysis. F. A. Eckman. bibliog diags Electro-Tech 73:67-90 My '64 (reprints $1)

Bending strength in the plastic range; data sheet. R. Gavalis. diags Machine Design 36:129-33 Jl 2 '64

Comparisons of materials; specific strength of metals and plastics; tables. Materials in Design Eng 60:27 Mid-O '64

Comparisons of materials; yield strength of metals; tables. Materials in Design Eng 60:26 Mid-O '64

Creep, strength, expansion, and elastic moduli of sintered BeO as a function of grain size, porosity, and grain orientation. R. E. Fryxell and B. A. Chandler. bibliog Am Cer Soc J 47:283-91 Je '64

Effective shear modulus of honeycomb cellular structure. J. Penzien and T. Didriksson. il diags AIAA J 2:531-5 Mr '64; Discussion. R. A. Gellatly. 2:1518; Reply. 1519 Ag '64

How strong is molybdenum sheet? A. K. Hegedus. il Metal Prog 85:115-17 My '64

New basis for strength of materials; system for the mechanical properties. A. C. Vivian. bibliog diag Metallurgia 69:13-24 Ja '64

New specimen design for plane-strain fracture toughness tests. A. M. Sullivan. diags Materials Res & Stand 4:20-4 Ja '64

Parameters in the distribution of fatigue life. E. J. Gumbel. bibliog Am Soc C E Proc 89 [EM 5 no 3667]:45-63 O '63; Correction. 90 [EM 3 no 3936]:285 Je '64

Selecting materials for lightweight structures. H. Switzky. il Materials in Design Eng 59:78-80 Mr '64

Shear forming; how it affects properties. diag Am Mach 108:57-9 Jl 6 '64

Strength and the stress-strain characteristics of coal in triaxial compression. D. W. Hobbs. bibliog diag J Geol 72:214-31, pl 1 Mr '64

Strength constant specification for bronze sinterings. H. R. Biehl. diags Materials Res & Stand 4:422-5 Ag '64

Strength of elastically stabilized beams. R. W. Haussler. bibliog diags Am Soc C E Proc 90 [ST 3 no 3951]:219-64 Je '64; Correction. 90 [ST 5 no 4066]:247 O '64

Strength of thick-walled cylindrical pressure vessels. J. Marin and T. L. Weng. bibliog il diags A S M E Trans ser B 85:405-16 N '63

Study of strength characteristics of an andesite. G. Zahary. bibliog il diags Can Min & Met Bul 56:874-6 D '63

Thermal conditioning of ceramic materials. C. J. Phillips and S. Divita. Am Cer Soc Bul 43:6-8 Ja '64

Where ten defense metals will be by '70. Steel 155:140+ O 12 '64

See also
Deformation (mechanics)
Elasticity
Fatigue in metals
Hardness
Impact
Metals—Failure
Stiffness
Strains and stresses
Structures, Theory of
Tensile strength
Torsion
also subdivision Strength under special subjects, e.g.
Cast iron
Concrete
Glass
Paper
Plastics
Steel
Textile fibers

STREPTOCOCCI

Detection and sanitary significance of fecal streptococci in water. L. W. Slanetz and C. H. Bartley. bibliog Am J Pub Health 54:609-14 Ap '64

Dissolved oxygen and survival of coliform organisms and enterococci. N. B. Hanes and others diag Am Water Works Assn J 56:441-6 Ap '64

Evaluation of a streptococcal control program. S. Johnson and others bibliog Am J Pub Health 54:487-500 Mr '64

Evaluation of the recovery of beta hemolytic streptococci from two mail-in methods. A. D. Lattimer and others. bibliog Am J Pub Health 53:1594-602 O '63

Experiences with a controlled community rheumatic fever prophylaxis program. C. G. Alexson and others. bibliog Am J Pub Health 54:1580-7 S '64

STREPTOLIC acid. See Acids, Organic

STREPTOLYDIGIN. See Antibiotics

STREPTOMYCES

Metabolites of streptomyces noursei; some new metabolites and the structure of albonoursin. M. Vondráček and Z. Vaněk. bibliog Chem & Ind p 1686-7 O 3 '64

Microbiologic degradation of rubber. K. W. H. Leeflang. bibliog il map diag Am Water Works Assn J 55:1523-35 D '63

Structure of cervicarcin. S. Marumo and others. bibliog Am Chem Soc J 86:4507-8 O 20 '64

STREPTOMYCIN

Absolute configuration of streptidine in streptomycin. J. R. Dyer and A. W. Todd. bibliog Am Chem Soc J 85:3896-7 D 5 '63

Streptomycin and the genetic code. Sci Am 211:44-6 Jl '64

STRESS (physiology)

Drugs and lipid transport. M. G. Horning and others. bibliog Am Oil Chem Soc J 41:697-701 O '64

Protein reserves; evidence for their utilization under nutritional and disease stress conditions. H. Fisher and others. bibliog J Nutrition 83:165-70 Je '64

Stress of life; new focal point for understanding accidents. H. Selye. Ind Med 33:621-5 S '64

Work physiology. D. Minard. bibliog Archives Environmental Health 8:427-36 Mr '64

STRESSES. See Strains and stresses

STRETCH fabrics. See Elastic fabrics

STRETCHING

Formability of sheet metals for product design; linear contouring and plane contouring. W. W. Wood. diags Materials in Design Eng 59:93-9 Je '64

High strength pressure vessels by stretch forming. S. W. Henderson. il Materials in Design Eng 60:104-6 N '64

Hot stretching shapes cylinders. A. W. Young. il Iron Age 194:64-5 Jl 2 '64

Will it stretch form? C. J. Sawey and T. P. Jolly. il diags Am Mach 108:105-8 O 26 '64

See also

Rubber—Stretching

STRETCHING machines

To stress-relieve alloy plates; stretch. il Engineering 197:873 Je 26 '64

STRETFORD process. See Petroleum refining—Sulfur removal

STRIKE and dip, Determination of. See Dip and strike, Determination of

STRINGED instruments

See also

Harp

STRINGS

Motions of a stretched string carrying a moving mass particle. C. E. Smith. bibliog diags A S M E Trans ser E 31:29-37 Mr '64

Response of a loaded nonlinear string to random excitation. S. T. Ariaratnam. A S M E Trans ser E 29:483-5 S '62; Discussion. 30:634-6 D '63

STRIP aluminum. See Aluminum, Strip

STRIP metals. See Metals, Strip

STRIP steel. See Steel, Strip

STRIPPING of dyes. See Dyes and dyeing—Stripping

STRIPPING of metals. See Metal cleaning

STRIPPING operations. See Coal mines and mining—Stripping operations; Mining methods—Stripping operations

STROBOSCOPIC instruments

Closed-circuit television and the stroboscope. N. L. Glew. il Ind Electronics 1:711-12 N '63

Simple electronic stroboscope. J. D. Pye. il diags Wireless World 70:339-42 Jl '64

Tachlite for measuring speed and analyzing motion of rotating or reciprocating objects. il Mach 70:143 N '63

See also

Vibroscope

STROMATOLITES. See Algae, Fossil

STRONTIUM

Adsorption and migration of Sr on W. B. E. Barnaby and others. bibliog il J Ap Phys 35:1759-63 Je '64

Anion exchange separation of calcium and strontium. J. S. Fritz and others. bibliog Anal Chem 36:900-3 Ap '64

Strontium, magnesium, and manganese in fossil foraminiferal carbonates. P. J. Wangersky and O. Joensuu. bibliog J Geol 72:477-83 Jl '64

Analysis

Flame photometric determination of stable strontium in environmental media. L. A. Elfers and others. bibliog Anal Chem 36:540-3 Mr '64

Isotopes

ACS Gulf Coast sections collect baby teeth. il Chem & Eng N 41:54-5 D 23 '63

Factors affecting Sr-85 and I-131 removal by runoff water. E. R. Graham. Water & Sewage Works 110:407-10 N '63

Improved determination of strontium-90 in milk by an ion exchange method. C. R. Porter and B. Kahn. bibliog Anal Chem 36:676-8 Mr '64

Radioactive fallout. M. Sonenberg. Archives Environmental Health 7:712-14 D '63

Separation of calcium and strontium by liquid ion exchange; determination of total radiostrontium in milk. F. E. Butler. bibliog Anal Chem 35:2069-71 D '63

3M improves strontium-90 irradiator. T. N. Lahr and J. J. Keers. il Chem & Eng N 42:158 S 7 '64

STRONTIUM in the body

Calcium, strontium and phosphorus utilization by chicks as influenced by nutritional and endocrine variations. P. E. Waibel and F. R. Mraz. bibliog J Nutrition 84:58-64 S '64

STRONTIUM oxides

Epr of exchange-coupled pairs of Eu^{2+} in CaO and SrO. B. A. Calhoun and J. Overmeyer. J Ap Phys 35:989-90 pt 2 Mr '64

STRONTIUM scandates

Preparation and crystallographic properties of $A^{2+}B_2^{3+}O_4$ type calcium and strontium scandates. J. R. Carter and R. S. Feigelson. bibliog Am Cer Soc J 47:141-4 Mr '64

STRONTIUM stearate

Multilayer membrane electrodes; activity of magnesium and strontium salts in mixed electrolytes. H. P. Gregor and others. bibliog Am Chem Soc J 85:3926-8 D 20 '63

STRONTIUM titanate

Dielectric breakdown of single-crystal strontium titanate. H. H. Barrett. bibliog il diags J Ap Phys 35:1420-5 My '64

X-ray diffractometry of low-temperature phase transformations in strontium titanate. F. W. Lytle. bibliog il diags J Ap Phys 35:2212-15, cover Jl '64

STRUCTURAL aluminum. See Aluminum, Structural

STRUCTURAL engineering

Aluminum in structural engineering; symposium. il diags Mod Metals 19:26-34 Jl; 41+ Ag; 60+ S; 42+ O; 60+ N '63; 47-8+ Ja; 20:56+ Jl '64

Analysis and design of struts with tension ties. K. H. Chu and S. S. Berge. il diags Am Soc C E Proc 89 [ST 1 no 3414]:127-63 F '63; Reply. 90 [ST 2 no 3886]:355-6 Ap '64

Analysis of short span folded plates. K. Seetharamulu and M. G. Kulkarni. diags Am Soc C E Proc 90 [ST 3 no 3939]:165-78 Je '64

Analysis of triangular bracket-type plates. C. G. Salmon. bibliog diags Am Soc C E Proc 88 [EM 6 no 3363]:41-87 D '62; Discussion. B. J. Hartz. 89 [EM 5 no 3687]:97-8 O '63; Reply. 90 [EM 2 no 3832]:229-30 Ap '64

Consider pre-engineered materials and techniques. P. M. Green. il Food Eng 36:83-4 S '64

Measuring structural behavior of Glen Canyon dam. J. T. Richardson. bibliog il map plan diags Am Soc C E Proc 90 [SU 2 no 3987]:133-52 Jl '64

Phase one report on folded plate construction; report of the task committee. il diags Am Soc C E Proc 89 [ST 6 no 3741]:365-406 bibliog(p401-6) D '63; Discussion. 90 [ST 2 no 3886]:421-6 Ap; [ST 3 no 3940]:421-2 Je '64

STRUCTURAL engineering—*Continued*
Resonance testing of full-scale structures. D. E. Hudson. il diags Am Soc C E Proc 90 [EM 3 no 3923]:1-19 Je '64; Discussion. R. E. Kaplan and L. P. Petak. 90 [EM 5 no 4093]:1453-7 O '64
20th century engineering exhibition, New York. il Arch Rec 136:16-17 S '64
U.S. progress in preassembly. il plans diags Prog Arch 45:201-20 O '64

See also
Building
Calculating machines—Structural engineering applications
Columns
Concrete construction
Foundations
Retaining walls
Shells (structural engineering)
Steel construction
Strains and stresses
Wind pressure

Design

Basic structural analysis. F. A. Eckman. bibliog diags Electro-Tech 73:67-90 My '64 (reprints $1)
Computer calls the design shots for structural fabrication. G. Peery. il Iron Age 194:64-5 Ag 6 '64
Design considerations for horizontal space frames. il diags Arch Rec 136:152-5 Ag '64
Design to prevent buckling in rectangular plates; data sheet. R. W. Peach. Machine Design 35:145-7 D 19 '63
Direct design of plate and shell structures. J. F. Brotchie. bibliog diags Am Soc C E Proc 88 [ST 6 no 3345]:127-48 D '62; Discussion. 89 [ST 3 no 3560]:203-5 Je; [ST 5 no 3688]:279-83 O '63; Reply. 90 [ST 3 no 3940]:339-47 Je '64
Laboratory investigation of unstiffened triangular bracket plates. C. G. Salmon and others. diags Am Soc C E Proc 90 [ST 2 no 3879]:257-78 Ap '64
Partial fixity method for designing beams in structures; abstract. W. J. Sutcliffe. diag Engineering 196:510 O 18 '63
Philosophy of engineering design of structures. M. S. Gregory. bibliog diags Am Soc C E Proc 89 [ST 6 no 3722]:119-35 D '63; Discussion. 90 [ST 3 no 3940]:413-14 Je; [ST 4 no 4001]:299-307 Ag '64
Shakedown analyses of some typical one-story bents. E. P. Popov and E. Becker. bibliog diags Am Soc C E Proc 90 [ST 5 no 4069]:1-9 O '64
Structural design practices for tainter crest gates. C. C. H. Tommerup. il diags Am Soc C E Proc 88 [PO 4 no 3348]:47-67 D '62; Discussion. 89 [PO 1 no 3652]:153-62 S '63; Reply. 90 [PO 1 no 3849]:79-86 Mr '64
Tetrahedron elements in the matrix force method of structural analysis. J. S. Przemieniecki. diags AIAA J 2:1152-4 Je '64

See also
Beams and girders
Bridge design
Concrete construction—Design
Steel construction—Design

Model testing

Accuracy of models used in research on reinforced concrete. Z. Y. Alami and P. M. Ferguson. bibliog il diags Am Concrete Inst J 60:1643-63 N '63; Discussion. 61:2067-9; Reply. 2070 pt 2 Je '64

Collapse of cylindrical elastic shells under wind loading. R. F. Rish. il Engineer 216:669-72 O 25 '63

Design of Karadj Arch dam. J. A. Veltrop and R. P. Wengler. bibliog il plan diags Am Soc C E Proc 90 [PO 1 no 3827]:1-32 Mr '64

Dynamic similitude of underground structures. D. F. Young and G. Murphy. il diags Am Soc C E Proc 90 [EM 3 no 3938]:111-33 Je '64

Elastic instability of relatively thick circular cylindrical shells subjected to hydrostatic pressure. T. M. Barry and L. D. Ballow. bibliog il diags Naval Eng J 76:621-31 Ag '64

Helicoidal staircase study. A. R. Cusens and S. Trirojna. bibliog il diags Am Concrete Inst J 61:85-102 Ja '64; Discussion. 61:1191-4; Reply. 1195-6 S '64

Model studies of beams resting on a silt subgrade. A. B. Vesić and W. H. Johnson. bibliog il diags Am Soc C E Proc 89 [SM 1 no 3406]:1-31 F '63; Correction. 89 [SM 4 no 3578]:237 Jl '63; Discussion. H. Grasshoff. 89 [SM 5 no 3654]:101-2 S '63; Reply. 90 [SM 3 no 3907]:159-61 My '64
Model tests of coastal protective structures in USSR. O. W. Kabelac. diags Am Soc C E Proc 89 [WW 1 no 3433]:21-34 F '63; Discussion. P. P. Goldstern. 89 [WW 4 no 3703]:99-102 N '63; Reply. 90 [WW 2 no 3917]:29-32 My '64
Rocket firm tests building model. il Eng N 172:53 Mr 19 '64
Strain gauge logger for concrete models. Engineering 197:558 Ap 17 '64
Use of models in structural design. il Engineering 197:413-16 Mr 20 '64

Study and teaching

Developments in stress analysis; course at University college of Swansea. il Engineer 217:167-8 Ja 24 '64

Tables, calculations, etc.

Analysis of an inelastic column. J. V. Huddleston. diags Am Soc C E Proc 90 [EM 4 no 3992]:1-21 Ag '64
Analysis of folded plate structures. G. G. Goble. bibliog diags Am Soc C E Proc 90 [ST 1 no 3797]:93-124 F '64; Discussion. B. Barbarito. 90 [ST 5 no 4066]:213-16 O '64
Deflection and slope of beams with varying I. O. Ondra. diags Am Soc C E Proc 89 [ST 1 no 3409]:25-48 F '63; Discussion. 89 [ST 3 no 3560]:217-21 Je; [ST 5 no 3688]:301-27 O; [ST 6 no 3743:429-33 D '63; Reply. 90 [ST 3 no 3940]:349-71 Je '64
Direct stress analysis of orthotropic bridge slabs. A. Coull. diag Am Soc C E Proc 90 [ST 2 no 3856]:1-12 Ap '64
Dynamic response of lattice-type structures. B. S. Berger and S. Shore. diag Am Soc C E Proc 89 [EM 2 no 3484]:47-70 Ap '63; Correction. 90 [EM 1 no 3811]:159 F '64
Elastica supported at midpoint by a spring. G. E. Sliter and A. P. Boresi. bibliog diags Am Soc C E Proc 90 [EM 2 no 3854]:1-15 Ap '64; Discussion. R. L. de Neufville. 90 [EM 4 no 4000]:193-4 Ag '64
Energy absorption of structures under cyclic loading. K. Medearis and D. H. Young. bibliog il diags Am Soc C E Proc 90 [ST 1 no 3791]:61-91 F '64; Discussion. 90 [ST 5 no 4066]:207-11 O '64
Fast design of steel rigid frames. I. Hooper and P. C. Wang. diags Eng N 171:97+ N 14 '63
Finding stresses within a structure by first finding the moment distribution in an unsymmetrical frame. W. Griffel. diags Product Eng 34:169-72 N 11; 115-18 N 25 '63
Finite element solution for axisymmetrical shells. E. P. Popov and others. bibliog diags Am Soc C E Proc 90 [EM 5 no 4085]:119-45 O '64
Flexibility method of coupling redundant complex structures. C. J. Meissner and R. S. Levy. bibliog diags Am Soc C E Proc 89 [ST 6 no 3742]:325-64 D '63; Correction. 90 [ST 4 no 4001]:333-5 Ag '64
Flexural calculation of nonuniform members. S. L. Wang. bibliog diags Am Soc C E Proc 89 [ST 6 no 3735]:271-95 D '63; Discussion. 90 [ST 4 no 4001]:325-32 Ag '64; Reply. 90 [ST 6 no 4157]:315-17 D '64
Frames of solid bars of varying cross sections. E. J. Krynicki and Z. E. Mazurkiewicz. Am Soc C E Proc 90 [ST 4 no 4010]:145-74 Ag '64
Generalization of the direct-stiffness method of structural analysis. R. E. Jones. bibliog diags AIAA J 2:821-6 My '64
How do you find answers when several concentrated loads act on a beam? S. Kravitz. Product Eng 35:137-8 F 17 '64
Improved portal method for frame analysis. F. C. McCormick. Engineering 198:440 O 2 '64
Impulsive loading theorems for rigid-plastic continua. J. B. Martin. bibliog diags Am Soc C E Proc 90 [EM 5 no 4072]:27-42 O '64

Influence-line spectrum by graphical construction. C. G. Salmon and D. R. Buettner. diags Civil Eng 34:54-5 Jl '64

Interaction of sheer walls and frames. F. R. Khan and J. A. Sbarounis. bibliog diags Am Soc C E Proc 90 [ST 3 no 3957]:285-335 Je '64

Layered systems subjected to surface shears. R. A. Westmann. Am Soc C E Proc 89 [EM 6 no 3725]:177-91 D '63; Discussion. 90 [EM 4 no 4000]:175-6 Ag '64

Matrix solution of force relaxation method. C. C. Feng. diags Am Soc C E Proc 89 [ST 3 no 3532]:1-19 Je '63; Discussion. S. Shore. 90 [ST 1 no 3812]:229-30 F '64; Reply. 90 [ST 3 no 3940]:377 Je '64

Method of calculating stiffener-plating section moduli; with nomographs. K. Keays. diags Naval Eng J 76:563-8 Ag '64

STRUCTURAL engineering—Tables, calculations, etc.—*Continued*

Natural frequencies of uniform grillages. T. Wah. diags A S M E Trans ser E 30:571-8 D '63

Natural periods of vibration of buildings. G. W. Housner and A. G. Brady. bibliog diags Am Soc C E Proc 89 [EM 4 no 3613]:31-65 Ag '63; Discussion. 89 [EM 6 no 3774]:279-82 D '63; 90 [EM 2 no 3882]:245-53 Ap '64; Reply. 90 [EM 4 no 4000]:161-2 Ag '64

Network analogy for linear structures. W. R. Spillers. bibliog diags Am Soc C E Proc 89 [EM 4 no 3601]:21-9 Ag '63; Discussion. 89 [EM 6 no 3774]:277-8 D '63; 90 [EM 1 no 3811]:175-6 F '64; Reply. 90 [EM 4 no 4000]:159 Ag '64

Network-topological formation of structural analysis. S. J. Fenves and F. H. Branin, jr. bibliog diags Am Soc C E Proc 89 [ST 4 no 3611]:483-514 Ag '63; Discussion. 90 [ST 1 no 3812]:261-70 F '64; Reply. 90 [ST 4 no 4001]:273-5 Ag '64

New formulas for fasteners loaded off center. T. R. Higgins. diags Eng N 172:102-4 My 21 '64

Nomographs for analyzing rigid gable frames. J. W. Gillespie. bibliog diags Civil Eng 34:57-8 Ja '64

Numerical method for structural shock response. G. J. O'Hara and P. F. Cunniff. diags Am Soc C E Proc 90 [EM 2 no 3866]:51-82 Ap '64

Optical tooling for precise structural measurements. G. C. Ward and J. F. Ely. il diags Am Soc C E Proc 90 [ST 3 no 3944]:179-200 Je '64

Parameters in the distribution of fatigue life. E. J. Gumbel. bibliog Am Soc C E Proc 89 [EM 5 no 3667]:45-63 O '63; Correction. 90 [EM 3 no 3936]:285 Je '64

Periodic response of a general yielding structure. P. C. Jennings. bibliog Am Soc C E Proc 90 [EM 2 no 3871]:131-66 Ap '64

Predicting structural behavior analytically. E. O. Pfrang and C. P. Siess. diags Am Soc C E Proc 90 [ST 5 no 4110]:99-111 O '64

Probability of structural failure under random loading. M. Shinozuka. bibliog Am Soc C E Proc 90 [EM 5 no 4088]:147-70 O '64

Response of structures to triangular pulse loading. T. Huang. bibliog diags Am Soc C E Proc 90 [ST 2 no 3862]:55-76 Ap '64

Solution of buckling problems by reduction method. P. Shuleshko. diags Am Soc C E Proc 90 [EM 3 no 3945]:147-69 Je '64

Stability of frames under primary bending moments. L. W. Lu. bibliog il diags Am Soc C E Proc 89 [ST 3 no 3547]:35-62 Je '63; Discussion. 89 [ST 5 no 3688]:367-71 O; [ST 6 no 3743]:455-8 D '63; 90 [ST 1 no 3812]:235-9 F '64; Reply. 90 [ST 4 no 4001]:255-6 Ag '64

Stresses in a layered half-plane. K. T. Sundara Raja Iyengar and R. S. Alwar. diags Am Soc C E Proc 90 [EM 4 no 4004]:79-96 Ag '64

Symmetrical frame solution by computer. E. Litton and J. S. Roper. Engineering 197:82 Ja 17 '64

Theory of elastic energy in calculating stresses in structures. W. Griffel. diags Product Eng 35:138-40 F 17; 91-3 Mr 2; 159-61 Mr 16; 115-17 Mr 30; 101-2 Ap 13; 301-2 Ap 27 '64

Thermal expansion of complex beams. R. Isakower. Product Eng 35:172-4 O 26 '64

Three-dimensional elasticity solution for continuous beams. L. R. Herrmann. bibliog diags Franklin Inst J 278:75-83 Ag '64

Transient response of nonlinear systems. P. F. Cunniff. diags Am Soc C E Proc 89 [EM 2 no 3474]:19-46 Ap '63; Correction. 90 [EM 1 no 3811]:157 F '64

Two-hinged arches; digital computer analysis and design. I. Hooper and P. C. Wang. diags Civil Eng 33:67-8 D '63

Unsymmetrical bending made easy by new formula. E. Czerniak. Eng N 172:146-7 Mr 19 '64

Vibrational transfer from shear buildings to ground. L. S. Jacobsen. bibliog diags Am Soc C E Proc 90 [EM 3 no 3924]:21-38 Je '64

Wind loads on dish shaped structures. R. G. Redwood. diag Eng J 47:43-5 S '64

Zero sidesway axis of rigid frames. A. J. Celis and P. Glockner. Am Soc C E Proc 89 [ST 5 no 3662]:65-89 O '63; Discussion. 90 [ST 1 no 3812]:271-80 F; [ST 2 no 3886]:389-91 Ap '64; Reply. 90 [ST 4 no 4001]:281-3 Ag '64

See also

Concrete construction—Design

STRUCTURAL geology. See Geology, Structural

STRUCTURAL steel. See Steel, Structural

STRUCTURES, Theory of

Buckling of cylindrical shells under dynamic loads. J. D. Wood and L. R. Koval. bibliog il diags AIAA J 1:2576-82 N '63

Cumulative damage in impulse fatigue tests. S. Tanaka. il diags A S M E Trans ser D 85:535-8 D '63

Final shape of dynamically loaded elastic-plastic redundant structure. H. C. Schjelderup and R. E. Ball. diag AIAA J 2:958 My '64

Motions of a stretched string carrying a moving mass particle. C. E. Smith. bibliog diags A S M E Trans ser E 31:29-37 Mr '64

Predicting fatigue life of structures for random and sinusoidal vibrations; data sheet. J. J. Frank. diag Machine Design 36:203-6 Je 18 '64

Statistical methods in vibration analysis. R. H. Lyon and G. Maidanik. bibliog diags AIAA J 2:1015-24 Je '64

Structural dynamics. W. R. Laidlaw. bibliog Astronautics & Aerospace Eng 1:118-20 N '63

Structural synthesis capability for integrally stiffened waffle plates. L. A. Schmit, jr. and others. bibliog diags AIAA J 1:2820-36 D '63

See also

Load (mechanics)

STRUTS

Analysis and design of struts with tension ties. K. H. Chu and S. S. Berge. il diags Am Soc C E Proc 89 [ST 1 no 3414]:127-63 F '63; Reply. 90 [ST 2 no 3886]:355-6 Ap '64

Elastica supported at midpoint by a spring. G. E. Sliter and A. P. Boresi. bibliog diags Am Soc C E Proc 90 [EM 2 no 3854]:1-15 Ap '64; Discussion. R. L. de Neufville. 90 [EM 4 no 4000]:193-4 Ag '64

Minimization of wave drag on struts, using Mathieu functions. H. S. Bluston. bibliog diag A S M E Trans ser E 31:341-2 Je '64

STRUVERITE

Re-examination of struverite from Salek North, Malaya. B. H. Flinter. bibliog il Am Mineralogist 44:620-32; 49:792-4 My '59, My '64

STUART, Herbert Akroyd

Centenary of the birth of H. A. Stuart. por Engineer 217:170-1 Ja 24 '64

STUD welding. See Electric welding, Arc

STUDENTS

See also

Chemistry students
Engineering students
Physics students
Science students

STUDENTS, Interchange of

See also

International association for the exchange of students for technical experience

STUDIOS

See also

Moving picture studios

STUFFING boxes

Stuffing-box leak sensor shuts down pumping unit. diag Oil & Gas J 62:71 Je 15 '64

Stuffing boxes and glands for rotating shafts. L. C. Nuttall. diags Engineer 217:957-8 My 29 '64

STYLUSES, Phonograph. See Phonograph needles

STYRENE (and polymers)

Accuracy you can get with polystyrene. il Engineering 197:553 Ap 17 '64

Analysis of bound styrene-butadiene content of copolymers by infrared absorbance ratio method. A. S. Wexler. Anal Chem 36:1829-31 Ag '64

Appliance makers step up use of plastics. il Chem & Eng N 42:24-5 Ag 31 '64

Butadiene-styrene block copolymer for molded and extruded goods. H. E. Railsback and others. Rubber Age 94:583-9 Ja '64

Cement mortars modified by SB latexes with variable bound styrene. Y. Ōhama and others. bibliog Rubber Chem & Tech 37:758-69 Jl '64

Column chromatography with a polynitrostyrene resin stationary phase. J. T. Ayres and C. K. Mann. Anal Chem 36:2185-6 O '64

Composition of foam structures from expandable polystyrene beads. A. R. Ingram and H. A. Wright. il Mod Plastics 41:152+ N '63

Determination of 2,6,-di-*tert*-butyl-*p*-cresol and 2(2′-hydroxy, 5′-methylphenyl) benzotriazole in polystryrene by gas liquid chromatography. C. B. Roberts and J. D. Swank. Anal Chem 36:271-3 F '64

STYRENE (and polymers)—*Continued*

Determination of residual monomers and other volatile components in styrene based polymers by gas chromatography. P. Shapras and G. C. Claver. bibliog Anal Chem 36:2282-3 N '64

Developing ABS resin technology brings forth new varieties. il Chem & Eng N 42:42-3 Mr 30 '64

Evaluation of fatty vinyl ether polymers and styrenated polymers for metal coatings. B. G. Brand and others. Am Oil Chem Soc J 41:597-9 S '64

50°C transition in polystyrene. B. Wunderlich and D. M. Bodily. bibliog J Ap Phys 35:103-4 Ja '64

Foam panel core; concrete panels insulated with expanded polystyrene. il Plastics World 22:12 S '64

Foam strand pack; substantial savings result from use of spaghetti form polystyrene. il Plastics World 21:23 N '63

Impact styrene out-performs metal. il diag Mod Plastics 41:88-9+ D '63

Insulate pavement to prevent frost heave. il Eng N 172:38 Je 25 '64

Keeping the warmth in. il diags Engineering 197:816 Je 12 '64

Kinetics of anionic polymerization and copolymerization of the vinylnaphthalenes and styrene; the intramolecular charge-transfer complexes. F. Bahsteter and others. bibliog Am Chem Soc J 85:3909-18 D 20 '63

Markets, not prices, summon new styrene capacity. il Chem Eng 71:86+ Ap 27 '64

Multiple scattering effects in polystyrene latex dispersions. D. H. Napper and R. H. Ottewill. bibliog J Colloid Sci 19:72-80 Ja '64

New day for thin-wall containers. il Mod Plastics 41:84-8+ My '64

New machinery for PS foam molding. R. C. Hosford. flow chart Plastics Tech 10:28-32 Jl '64

New system speeds erection of polystyrene foam structures. il Mod Plastics 41:116 Ag '64

Pace quickens for styrene resins. Chem & Eng N 41:25-6 D 16 '63

Packaging material in cellular Netlon. il Engineering 197:759 Je 5 '64

Permanent antistatic treatment of polystyrene. A. E. Sherwood. il Brit Plastics 37:252-4 My '64

Polymer association; solution behavior and rheology of neutralized styrene-methacrylic acid copolymers. N. Z. Erdi and H. Morawetz. bibliog J Colloid Sci 19:708-21 O '64

Polystyrene foam core panel generates new design ideas. il Mod Plastics 41:110 Jl '64

Polystyrene foam floor cores bring insulation, reduce building cost. il Mod Plastics 42:126 S '64

Polystyrene patterns for investment casting. H. Hamel. il Plastics World 22:42-3 S '64

Polystyrenes. R. G. Otting. il diag Machine Design 36:96-100 S 17 '64

Preparation of substituted styrenes by cracking of diarylethanes. E. M. Smolin and others. bibliog Ind & Eng Chem Product Res & Develop 3:16-19 Mr '64

Properties of materials; polystyrenes and modified polystyrenes; molded, extruded; tables. Materials in Design Eng 60:229 Mid-O '64

Radiation-induced graft polymers of cotton cellulose and styrene. J. C. Arthur, jr. and D. J. Daigle. Textile Res J 34:653-4 Jl '64

Rates of adsorption and desorption of polystyrene on chrome surface. R. R. Stromberg and others. bibliog J Res Nat Bur Stand 68A:391-9 Jl '64

Refrigerator liner. il Plastics World 22:20 O '64

Sedimentation of monodisperse polystyrene latex spheres in water. D. H. Woodward. J Colloid Sci 19:238-44 Mr '64

Snap fasteners for polystyrene. E. Burns. diags Product Eng 35:94-5 Mr 16 '64

Styrenated isophthalic alkyds. W. K. Seifert and D. F. Percival. bibliog Ind & Eng Chem Product Res & Develop 3:222-5 S '64

Styrene-acrylonitrile price hike in doubt. il Chem & Eng N 42:23 F 17 '64

Styrene can be grafted to wool; abstract. V. Stannett and others. Chem & Eng N 42:47-8 Ap 20 '64

Styrenes. Mod Plastics 41:95-6+ Ja '64

Theory and measurements of the glass-transformation interval of polystyrene. B. Wunderlich and others. bibliog J Ap Phys 35:95-102 Ja '64

Theory behind the performance of expandable polystyrene. G. A. Pogany. bibliog Brit Plastics 37:506-9 S '64

Tritium β-decay induced reactions in the polystyrene fluff. J. Y. Yang and R. B. Ingalls. bibliog Am Chem Soc J 85:3920-3 D 20 '63

See also

Methyl styrene

Manufacture

Amoco enters styrene business. Chem & Eng N 42:14 Ja 6 '64

Digital computer applied to styrene cracking. V. S. Morello. il diags Oil & Gas J 62:90-3 F 24 '64

Styrene; Cosden oil and chemical co. diag Hydrocarbon Process & Pet Refiner 42:220 N '63

SUBAQUEOUS blasting. See Blasting, Subaqueous

SUBAQUEOUS construction. See Marine structures

SUBAQUEOUS mining. See Mining methods—Subaqueous operations

SUBAQUEOUS pipe laying. See Pipe laying, Subaqueous

SUBAQUEOUS pipe lines. See Pipe lines, Subaqueous

SUBCONTRACTING. See Contracts—Subcontracting; Contracts, Government—Subcontracting

SUBLIMATION

Device to prepare sodium chloride of high reactivity and surface area by vacuum sublimation. R. J. Adams and L. G. Harrison. diag R Sci Instr 34:1410-11 D '63

Epitaxial growth of silicon by vacuum sublimation. E. T. Handelman and E. I. Povilonis. bibliog il diags Electrochem Soc J 111:201-6 F '64

Evaporation coefficients from exposure of a solid to laser radiation. S. S. Penner. diag AIAA J 2:1664-6 S '64

Purification of CdS by partial sublimation in a gas flow. A. Vecht and others. diags Electrochem Soc J 111:666-8 Je '64

Sublimation and ion pumping in getter-ion pumps. R. G. Herb and others. bibliog diags R Sci Instr 35:573-7 My '64

SUBLIMATION, Heat of

Torsion effusion study of the vapor pressure and heat of sublimation of gallium. Z. A. Munir and A. W. Searcy. bibliog diag Electrochem Soc J 111:1170-3 O '64

SUBLIMATION apparatus

Repeating vacuum sublimer. R. J. J. Simkins and I. C. P. Smith. diag Chem & Ind p926 My 30 '64

SUBMARINE boats

Aluminaut, first all aluminum submarine. il Light Metal Age 22:22 Ap '64

Aluminaut is launched; test dives begin. il Machine Design 36:6+ S 24 '64

Aluminaut may open wealth of seas. Steel 155:28 S 7 '64

Aluminaut progress report. Mech Eng 86:52-3 My '64

Aluminum metalworking advances developed in aluminum sub project. il Mod Metals 20:60+ Ap '64

Aluminum submarine to explore ocean depths. il Engineering 198:378 S 18 '64

Alvin. E. Boyd. il diag Comp Air Mag 69:12-14 Ag '64

Alvin, ocean research submarine. J. B. Walsh and W. O. Rainnie, jr. il plan diags Mech Eng 86:22-6 Ag '64; Discussion. 86:83 D '64

Dream of ASME member Edward Wenk, jr. comes true; Aluminaut submarine will explore 60 percent of ocean's floor. il Mech Eng 86:122 O '64

Electroslag welding of submarine bulkheads. il diag Am Mach 108:96-7 Mr 16 '64

First aluminum sub to explore ocean three miles down. il Welding Eng 49:44-5 S '64

Glass and ceramics for underwater vehicles. J. D. Stachiw. il diag Glass Ind 45:469-72+ S '64

Improved submarine Diesel engine run-in procedure. A. M. Woolley. Naval Eng J 76:439-42 Je '64

Insulation for submarine pressure hull. I. Resnick. diag Materials in Design Eng 59:136-7 Ap '64

Putting the pressure on aluminum. R. A. Coccola. il Am Mach 108:104-5 My 11 '64

Pyroceram hull designed for deep-sea vehicle. il Machine Design 36:6 Ag 27 '64

Reynolds unveils aluminum sub for deep sea exploration; Aluminaut. il Steel 154:44 Mr 16 '64

Shell takes shape; Aluminaut readies for sea. il Machine Design 36:6 Mr 26 '64

SUBMARINE boats—*Continued*

Skillful metalworking team launches research sub. E. E. Ellwood. il Iron Age 194:58-9 Jl 9 '64

Soucoupe and Aluminaut. il Product Eng 35: 53-4 Mr 30 '64

Submarines; Dace is the newest addition to the Atlantic fleet. il diag Product Eng 35: 48-9 My 11 '64

Under-sea mining; new research aimed at tapping nature's biggest resource. J. Keene. il Eng & Min J 165:114-17 Je '64

Underwater propulsion. S. Barnes. il diags Machine Design 36:140-5 Ag 27 '64

Accidents

Thresher disaster spurs ocean engineering work. Steel 153:27-8 N 18 '63

Thresher post-mortem. Sci Am 209:66+ N '63

Air conditioning

Development of a thermoelectric air conditioner for submarine application. G. D. Hudelson and others. il ASHRAE J 6:29-34+ Mr '64

Control

Electric vacuum gyro; pinpoint for Polaris launching. H. W. Knoebel. il diags Control Eng 11:70-3 F '64

Crews

Sealed environments in relation to health and disease. J. H. Schulte. bibliog flow diag Archives Environmental Health 8:438-52 Mr '64

Unique test chamber used in navy's Project Genesis undersea test. il Naval Eng J 75: 924 D '63

Electronic equipment

Polaris sonar system. Electronics 37:32+ My 18 '64

USS Dace, portrait of a killer. J. M. Carroll. il plans diag Electronics 37:99-104 Je 15 '64

Vehicles to probe the ocean's depths. J. M. Carroll and H. C. Hood. il diags Electronics 37:77-84 Jl 13 '64

Environmental control systems

Concepts of atmosphere control in submarines. J. E. Stark. Archives Environmental Health 9:315-19 S '64

Environmental physiology of submarines and spacecraft. K. E. Schaefer. Archives Environmental Health 9:320-31 bibliog(p330-1) S '64

Equipment

Underwater navigation. il Mech Eng 85:69 N '63

Rescue and escape

Escape. E. M. Avallone. Naval Eng J 76:539-41 Ag '64

SUBMARINE cables. See Electric cables, Submarine

SUBMARINE canyons. See Canyons, Submarine

SUBMARINE detectors

Surveillance of a region by detection and tracking operations. J. M. Dobbie. Op Res 12:379-94 My '64

Underwater-sound reminiscences; mostly binaural. R. D. Fay. il diags Sound 2:37-42 N '63

SUBMARINE geology

Congo submarine canyon. B. C. Heezen and others. bibliog il maps diags Am Assn Pet Geologists Bul 48:1126-49 Jl '64

Foraminiferal biofacies in sediments of Gulf of Batabano, Cuba, and their geologic significance. O. L. Bandy. bibliog maps Am Assn Pet Geologists Bul 48:1666-79 O '64

Lower cretaceous-upper Jurassic stratigraphy of Umm Shaif field, Abu Dhabi marine areas, Trucial Coast, Arabia. F. T. Banner and G. V. Wood. bibliog map diags Am Assn Pet Geologists Bul 48:191-206 F '64

Sedimentary framework of continental terrace off Norfolk, Va. and Newport, R.I. D. G. Moore and J. R. Curray. bibliog map diags Am Assn Pet Geologists Bul 47:2051-4 D '63

Seismic refraction profiles, Narragansett Bay, Rhode Island. J. W. Berg, jr. bibliog maps Geol Soc Bul 74:1305-12 N '63

Umm Shaif oilfield; history of exploration and development. S. Elder. maps diags Inst Pet J 49:308-14; Discussion. 314-15 O '63

SUBMARINE photography. See Photography, Submarine

SUBMARINE telephone. See Telephone, Submarine

SUBMARINE warfare

Integrated weapons systems for anti-submarine warfare. T. D. McGrath. Naval Eng J 76:529-33 Ag '64

Marine systems. E. G. Stout. il Astronautics & Aerospace Eng 1:36-8 N '63

Task force trains ashore. J. M. Carroll. il Electronics 36:40-1 N 22 '63

See also

Guided missiles—Launching from submarines

Submarine detectors

SUBMERGED arc welding. See Electric welding, Arc—Submerged arc

SUBMERGIBLE pumps. See Pumps, Submergible

SUBSCRIPTION programs. See Television broadcasting—Subscription programs

SUBSIDENCES (earth movements)

Consolidation test for undisturbed sands. W. B. Bull. il diags Materials Res & Stand 4:347-51 Jl '64

Earth shifts wrecked reservoir. Eng N 172: 22-3 F 27 '64

Land subsidence caused failure of Baldwin Hills reservoir. Eng N 173:60 Jl 2 '64

Land subsidence problems. R. F. Dawson. il maps diags Am Soc C E Proc 89 [SU 2 no 3531]:1-12 Je '63; Discussion. 89 [SU 3 no 3684]:217-23 O '63; 90 [SU 1 no 3885]:73-9 Ap '64

Subsidence blamed in earth dam failure. il Eng N 171:50 D 19 '63

SUBSIDIES

Coal industry blasts atomic power subsidy; abstract. J. E. Moody. Chem & Eng N 42: 34 Mr 16 '64

SUBSTATIONS, Electric. See Electric substations

SUBSTITUTION (chemistry)

Anion substitution and structure of $12CaO \cdot 7Al_2O_3$. J. Jeevaratnam and others. bibliog Am Cer Soc J 47:105-6 F '64

Aromatic nucleophilic substitution rules apply to hydrated electron reactions. E. J. Hart and M. Anbar. il Chem & Eng N 42: 50+ S 14 '64

Aromatic substitution. G. A. Olah and others. bibliog Am Chem Soc J 86:1039-70, 2198-209 Mr 20, Je 5 '64

Binding of silver ion by adenine and substituted adenines. K. Gillen and others. bibliog Am Chem Soc J 86:2792-6 Jl 20 '64

$B_{10}H_8(N_2)_2$ used to make disubstituted derivatives of polyhedral boranes. Chem & Eng N 42:45-6 Ja 27 '64

Chronopotentiometric studies of ferrocene derivatives; directly substituted ferrocenes. W. F. Little and others. bibliog Am Chem Soc J 86:1382-6 Ap 5 '64

Competitive elimination-substitution reactions; some dramatic differences between bromides and tosylates. P. Veeravagu and others. bibliog Am Chem Soc J 86:3072-5 Ag 5 '64

Configurations in unsymmetrically N,N-disubstituted amides. L. A. LaPlanche and M. T. Rogers. bibliog Am Chem Soc J 85:3728-30 D 5 '63

Cumulative influence of conjugated substituents on the π-system properties of aromatic hydrocarbons; the methoxybenzenes. A. Zweig and others. bibliog Am Chem Soc J 85:3933-6 D 20 '63

Cyclopentane conformations; solvolysis of 3-substituted tosylates. I. Lillien and K. Khaleeluddin. bibliog Chem & Ind p 1028-9 Je 13 '64

Dependency of vicinal coupling constants on the configuration of electronegative substituents. D. H. Williams and N. S. Bhacca. bibliog Am Chem Soc J 86:2742-3 Jl 5 '64

Directive effects in aliphatic substitutions; reactivity of aralkanes, aralkenes, and benzylic ethers toward peroxy radicals. G. A. Russell and R. C. Williamson, jr. bibliog Am Chem Soc J 86:2364-7 Je 20 '64

Effects of deuterium substitution on the rates of organic reactions; the solvolyses of 4-chloro-4-methyl-2-pentyne and its deuterated analogs. V. J. Shiner, jr. and G. S. Kriz, jr. bibliog Am Chem Soc J 86:2643-5 Jl 5 '64

Electrical effects of *ortho*-substituents in pyridines and quinolines. M. Charton. bibliog Am Chem Soc J 86:2033-7 My 20 '64

Electronic and steric effects in monosubstituted ferrocenes as determined by relative site reactivities and desilylation. R. A. Benkeser and others. bibliog Am Chem Soc J 86:3742-6 S 20 '64

Electrophilic substitution of aromatic fourteen-membered ring cyclic conjugated systems. Y. Gaoni and F. Sondheimer. Am Chem Soc J 86:521-2 F 5 '64

SUBSTITUTION (chemistry)—*Continued*

Equilibration of 4-substituted thiane 1-oxides. C. R. Johnson and D. McCants, jr. bibliog Am Chem Soc J 86:2935-6 Jl 20 '64

Exchange of parts between molecules at equilibrium; α,ω-disubstituted polydimethylsiloxanes. K. Moedritzer and J. R. Van Wazer. bibliog Am Chem Soc J 86:802-7 Mr 5 '64

Formation of biphenyls from derivatives of benzene-1,4-diazooxide; electrophilic substitution. M. J. S. Dewar and K. Narayanaswami. bibliog Am Chem Soc J 86:2422-7 Je 20 '64

Hammett-Taft study of the addition of the trichloromethyl radical to substituted alkenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:242-4 Ja 20 '64

Importance of steric factors in substitution reactions of metal complexes; a pseudo-octahedral complex. W. H. Baddley and F. Basolo. il Am Chem Soc J 86:2075-6 My 20 '64

Influence of unsaturation and of fluorine substitution on ketone-alcohol equilibrium constants; a measure of α,β-unsaturated ketone resonance energy and of halogen destabilization. H. J. Ringold and others. bibliog Am Chem Soc J 86:4510-12 O 20 '64

Investigation on the occurrence of tetrahedral forms of substituted bis(N-alklylsalicylaldimino)nickel(II) complexes. L. Sacconi and others. bibliog Am Chem Soc J 86:819-23 Mr 5 '64

Ionization constants of 3,5-dimethyl 4-substituted benzoic acids. J. P. Schaefer and T. J. Miraglia. bibliog Am Chem Soc J 86:64-7 Ja 5 '64

Isolation of intermediate alkali salt in *ortho*-substitution rearrangement of benzyltrimethylammonium ion as benzophenone adduct. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1105-7 Mr 20 '64

Mechanisms of substitution reactions at phosphorus; the Wittig reaction and the decomposition of quaternary phosphonium hydroxides. W. E. McEwen and others. bibliog Am Chem Soc J 86:2378-84 Je 20 '64

New emphasis put on aromatic substitution. C. Ingold and others. Chem & Eng N 42:42-4+ S 28 '64

New linear law and effects relating the ultraviolet spectra of substituted benzenes and the migration (spectroscopic) moment. M. Ballester and others. bibliog Am Chem Soc J 86:4276-82 O 20 '64

New method of aromatic substitution yielding unusual orientation; amination with N-haloamines catalyzed by aluminum chloride. P. Kovacic and others. bibliog Am Chem Soi J 86:1650-1 Ap 20 '64

Nuclear magnetic resonance spectra of substituted ethanes; *meso-* and *dl*-2,5-diphenylhexanediol-2,5. D. Jung and A. A. Bothner-By. bibliog Am Chem Soc J 86:4025-7 O 5 '64

Ortho-substitution rearrangement and other reactions of α-substituted benzyltrimethylammonium ion-alcohols with potassium amide in liquid ammonia. W. H. Puterbaugh and C. R. Hauser. bibliog Am Chem Soc J 86:1394-8 Ap 5 '64

Phosphonitrilic trifluorethoxide high polymer. M. V. Lenton and others. Chem & Ind p 1387-8 Ag 1 '64

Photo-induced nucleophilic aromatic substitution. R. L. Letsinger and O. B. Ramsay. Am Chem Soc J 86:1447-8 Ap 5 '64

Preparation of substituted styrenes by cracking of diarylethanes. E. M. Smolin and others. bibliog Ind & Eng Chem Product Res & Develop 3:16-19 Mr '64

Protonation and substitution studies on cyclopenta[c]thiapyran and 2-phenyl-2-pyrindine. A. G. Anderson, jr. and W. F. Harrison. bibliog Am Chem Soc J 86:708-14 F 20 '64

Question of a benzene cation insertion reaction; a novel intramolecular electrophilic substitution. T. Cohen and J. Lipowitz. bibliog Am Chem Soc J 86:2515-16 Je 20 '64

Racemization and oxygen exchange of trisubstituted phosphine oxides. D. B. Denney and others. Am Chem Soc J 86:4486-7 O 20 '64

Radical anions as intermediates in substitution reactions; carbon alkylation of nitroparaffin salts. R. C. Kerber and others. bibliog Am Chem Soc J 86:3904-5 S 20 '64

Rates and mechanism of substitution reactions of palladium(II)-acetylacetonate complexes. R. G. Pearson and D. A. Johnson. bibliog Am Chem Soc J 86:3983-9 O 5 '64

Rates of substitution reactions of square-planar platinum(II) complexes; reactions of *trans*-dichlorobis(piperidine)platinum(II). U. Belluco and others. bibliog Am Chem Soc J 86:3257-61 Ag 20 '64

Rates of substitution reactions of square-planar platinum(II) complexes; the reaction of *trans*-dichloro-bis-(triethylphosphine)-platinum(II) with radiochloride and nitrite ions. U. Belluco and others. bibliog Am Chem Soc J 86:226-9 Ja 20 '64

Relative reactivities of positions on biphenyl in the generation of reactive species by electron irradiation and in subsequent ring substitution. W. M. Hutchinson and others. bibliog Am Chem Soc J 85:3358-62 N 5 '63

Solvents of low nucleophilicity; the effect of remote substituents in the addition of trifluoroacetic acid to substituted alkenes. P. E. Peterson and G. Allen. bibliog Am Chem Soc J 85:3608-13 N 20 '63

Steric difference between the substitution reaction products of lithium alkyls and Grignard reagents with α-aminonitriles; an asymmetric reproduction. J. Yoshimura and others. bibliog Am Chem Soc J 86:3858-62 S 20 '64

Substituent effects; correlation of ^{13}C-F and ^{29}Si-H couplings by pairwise interactions. E. R. Malinowski and T. Vladimiroff. bibliog Am Chem Soc J 86:3575-6 S 5 '64

Substituent effects on nuclear magnetic resonance chemical shifts in *para*-substituted phenylhexachlorobicyclo[2.2.1]heptenes and ethylbenzenes. K. L. Williamson and others. bibliog Am Chem Soc J 86:4021-5 O 5 '64

Survey of modern chemistry; reaction mechanisms. G. T. Austin and H. F. Austin. diags Chem Eng 71:143-6+ My 25 '64

Three methods for the determination of the degree of substitution at protein-amino groups with special reference to substituted gelatins. W. G. Cobbett and others. bibliog J Ap Chem 14:296-302 Jl '64

See also
Methyl group

SUBURBAN development

An answer to the fringe area problem; annexation by ordinance. R. W. Nielson. map Pub Works 95:97-9 Ag '64

Effect of ribbon development on traffic flow. R. I. Wolfe. 2pls diags Traffic Q 18:105-17 Ja '64

House numbers for urban and fringe areas. J. H. Vogel. plans Pub Works 94:121-3 D '63

Staged development of sewerage facilities for a suburban area. L. W. Weller. flow diag il map Pub Works 94:90-4 D '63

Suburban town centers. M. L. Hancock and W. O. Billing. pl Traffic Q 18:233-49 Ap '64

Two communities planned as suburbs of Washington. Eng N 171:61 N 14 '63

SUBWAYS

See also subdivision Subways under names of cities, e.g.
London
Montreal
New York (city)
Rotterdam
Toronto
Washington, D.C.

Construction

Concrete tubes float through a city to make a subway. il Eng N 173:46-8 O 15 '64

Crane uses fingertip in tunnel. il Eng N 172:39 Ja 16 '64

Progress of the Victoria line. Engineer 217:780 My 1 '64

Two Canadian cities go separate ways in building their subways. il maps Eng N 173:86-90 Ag 6 '64

Unusual method of shaft sinking. il Engineering 197:581 Ap 24 '64

Victoria subway sparks new tunnel making methods. il plan Eng N 172:26-9 Ap 30 '64

Costs

New York subway cut and cover; unit prices. plans Eng N 172:114+ Mr 19 '64

Subway goes under St Lawrence River; unit prices. map plan diag Eng N 173:125 S 17 '64

Fires and fire protection

Construction comes to the rescue. il Eng N 172:13-14 Ap 30 '64

Subway fire buckles columns under New York street. il Civil Eng 34:99 Je '64

Stations

Electronic fare collector. diag Product Eng 35:40-1 Jl 6 '64

Electronic ticket barrier control. diag Engineer 217:580 Mr 27 '64

SUBWAYS—Stations—*Continued*

Electronic ticket barrier for the underground. il Engineering 197:446 Mr 27 '64

Electronic ticket inspection. il Engineer 217:106 Ja 10 '64

Track cleaning machinery

World's largest vacuum cleaner on New York subways. il diag Comp Air Mag 69:28 Je '64

Ventilation

Temperature and ventilation in the Toronto subway. W. G. Brown. il diags Engineer 218:321-4 Ag 28 '64

SUCARYL. See Sweetening agents

SUCCINATES

Buffer solutions of potassium dihydrogen phosphate and sodium succinate at 25°C. M. Paabo and others. bibliog J Res Nat Bur Stand 67A:573-6 N '63

See also

Sodium succinate

SUCCINIC dehydrogenase. See Dehydrogenases

SUCCINIMIDE

Stability of the succinimidyl radical; decomposition of *t*-butyl N-succinimideper-carboxylate. E. Hedaya and others. bibliog Am Chem Soc J 86:2727-8 Jl 5 '64

Use of esters of N-hydroxysuccinimide in peptide synthesis. G. W. Anderson and others. bibliog Am Chem Soc J 86:1839-42 My 5 '64

SUCCINOXIDASE. See Oxidases

SUCROSE. See Sugar

SUDAN

See also

Hydroelectric plants—Sudan

SUFFOCATION. See Asphyxia

SUGAR

Alkyloxymethyl ethers of sucrose and glucose as surfactants. G. R. Ames and others. bibliog J Ap Chem 14:245-9 Je '64

Chemical factors influencing host selection by the Mexican bean beetle epilachna varivestis muls. J. B. LaPidus and others. bibliog J Agri & Food Chem 11:462-3 N '63

Chromatographic analysis of sucrose esters of long chain fatty acids. H. Mima and N. Kitamori. bibliog Am Oil Chem Soc J 41:198-200 Mr '64

Measurement of the diffusion coefficients of sucrose in very dilute aqueous solutions using Jamin interference optics at 25°. A. Chatterjee. bibliog Am Chem Soc J 86:793-5 Mr 5 '64

Phase equilibria in sugar solutions; the ternary system sucrose-butanol-water. F. H. C. Kelly and J. M. Rolls. J Ap Chem 13:496-8 N '63

Study of the activity on the skin of sugar esters, sucroglycerides and derivatives when used as detergents and emulsifiers in cosmetics. L. Nobile and others. bibliog Am Perfumer 79:19-28 Jl '64

Sugar absorption in the fruit candying process. D. R. MacGregor and others. il Food Tech 18:1219-21 Ag '64

Sugar ousts acid from solutions. Chem Eng 71:58+ F 17 '64

Sugar replaces formaldehyde in denitration. il Chem & Eng N 42:50-1 Ja 27 '64

Thiol interactions in sugar-amine systems. D. L. Ingles. bibliog Chem & Ind p 1901-2 N 30 '63

See also

Blood—Sugar

Sirups

Sugars

Manufacture and refining

New developments in beet sugar: process flowsheet. C. R. Havighorst. il Chem Eng 71:72-4 Mr 30; 162-4 Ap 13 '64

By-products

See also

Bagasse

Storage

Tied ribs resist sugar pressure. il Eng N 173:37 Jl 16 '64

SUGAR, invert

Ion exchange resin catalysis of sucrose inversion in fixed beds. E. W. Reed and J. S. Dranoff. bibliog Ind & Eng Chem Fundamentals 3:304-7 N '64

Some properties of concentrated solutions of invert sugar and urea. H. H. Hatt and A. C. K. Triffett. bibliog J Ap Chem 14:195-202 My '64

SUGAR analysis

Analysis of mixtures of sugars and mixtures of amino acids by dialysis based on differential kinetics. S. Siggia and others. bibliog Anal Chem 36:638-9 Mr '64

Chromatographic separations of acetylated sugars. C. D. Hurd and H. T. Miles. bibliog Anal Chem 36:1375-8 Je '64

Colorimetric determination of glucose, fructose, and sucrose in plant materials using a combination of enzymatic and chemical methods. G. Johnson and others. bibliog J Agri & Food Chem 12:216-19 My '64

Desalting by high voltage electrophoresis. H. Y. T. Yang and M. R. Shetlar. il diag Anal Chem 35:2224 D '63

Gas chromatographic determination of the carbonyl forms of sugars. E. Bayer and R. Widder. bibliog Anal Chem 36:1452-5 Jl '64

Quantitative analysis of glucose and fructose in potatoes. A. M. Furuholmen and others. bibliog J Agri & Food Chem 12:109-12 Mr '64

See also

Saccharimeters

SUGAR cane

See also

Bagasse

SUGAR factories

Waste

See also

Bagasse

SUGARS

Adenine nucleosides of 4-thioribofuranose. E. J. Reist and others. Chem & Ind p 1364-5 Jl 25 '64

Anomeric purine nucleoside derivatives of 2-amino-2-deoxy-d-glucose. M. L. **Wolfrom** and others. bibliog Chem & Ind p930 My 30 '64

Behavior of esters in liquid hydrogen fluoride; some glycitol esters. E. J. Hedgley and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:1583-6 Ap 20 '64

Bisulphite addition compounds of amino-sugars. D. L. Ingles. bibliog Chem & Ind p927-8 My 30 '64

Complete oxidation of sugars by 1-methyl-phenylhydrazine; the alkazones. O. L. Chapman and others. Am Chem Soc J 86:732-3 F 20 '64

Configurational inversion within a furanoside ring by anchimerically assisted displacement; 5-deoxy-d-ribose from 5-deoxy-d-xylose. K. J. Ryan and others. bibliog Am Chem Soc J 86:2497-503 Je 20 '64

Effect of barbituric acid, chlortetracycline and carbohydrates upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 82:93-8 Ja '64

Formation and hydroboration of an olefinic sugar. H. Arzoumanian and others. bibliog Am Chem Soc J 86:74-7 Ja 5 '64

Formation of 2,5-D-*threo*-diketohexose. G. C. Whiting and R. A. Coggins. bibliog Chem & Ind p 1925-6 D 7 '63

New crystalline derivatives of sugars; *p*-benzoylaminobenzoyl esters. J. Kiss. Chem & Ind p32 Ja 4 '64

Oxidations of sugar derivatives with bromocarbamide. J. Kiss. Chem & Ind p73 Ja 11 '64

Reaction of methyl 2,3-anhydro-β-D-lyxofuranoside with sodium benzyl mercaptide. G. Casini and L. Goodman. bibliog Am Chem Soc J 86:1427-31 Ap 5 '64

6-*S*-acetyl-5-deoxy-1,2-*O*-isopropylidene-6-thio-α-D-xylo-hexofuranose; photocatalysed addition of thiolacetic acid to an unsaturated sugar. D. Horton and W. N. Turner. bibliog Chem & Ind p76 Ja 11 '64

Some nonfermentable free sugars in the leaf-petiole fraction of alfalfa (medicago sativa). V. V. Rendig and others. bibliog J Agri & Food Chem 12:421-3 S '64

Stereochemical identification and synthesis of amicetose and the stereochemical identification of rhodinose and the sugar from streptolydigin. C. L. Stevens and others. bibliog Am Chem Soc J 86:3592-4 S 5 '64

Structure of 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranosyl cyanide and some derivatives therefrom; synthesis of 1-deoxy-D-galacto-heptulose. B. Coxon and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:922-6 Mr 5 '64

Studies in the 3-deoxy-3-fluoropentose series. S. Cohen and others. Chem & Ind p 1802-3 O 24 '64

Sugar thiosemicarbazones. J. R. Holker. bibliog Chem & Ind p546 Mr 28 '64

SUGARS—*Continued*

Synthesis of 4-amino-4,6-dideoxy-D-galactose and identification with the 4-amino-4,6-dideoxyhexose from escherichia coli strain Y-10. C. L. Stevens and others. bibliog Am Chem Soc J 86:2937-8 Jl 20 '64

Synthesis of branched-chain amino-sugars. S. W. Gunner and others. Chem & Ind p 1523 Ag 29 '64

Synthesis of homoribose (5-deoxy-d-allose) and homoadenosine. K. J. Ryan and others. bibliog Am Chem Soc J 86:2503-8 Je 20 '64

Synthesis of viosamine (4-amino-4,6-dideoxy-D-glucose) by double inversion at C-4 and identification with the 4-amino-4,6-dideoxyhexose from escherichia coli strain B. C. L. Stevens and others. bibliog Am Chem Soc J 86:2939-40 Jl 20 '64

4-Thio-L-ribose; a thiofuranose sugar. E. J. Reist and others. bibliog Am Chem Soc J 85:3715 N 20 '63

See also

Aldoses
Carbohydrates
Fructose
Glucose
Ketoses
Lactose
Polysaccharides
Saccharides
Sugar, Invert

SUGGESTION systems

Incentive technique in work simplification. W. A. Schumacher and J. V. Ziemba. Food Eng 35:41-3 N '63

Suggestion plan can produce profit-making ideas. Inland Ptr/Am Lithogr 153:48-9 Jl '64

SUICIDE

Cyanide poisoning. F. G. Hirsch. bibliog Archives Environmental Health 8:622-4 Ap '64

SULFAMIC acid

Binary alloys of indium with zinc or cadmium; deposition from sulfamic acid baths. L. Domnikov. bibliog Metal Finishing 62:73-5+ S '64

Electrodeposition of iron-cobalt alloys from the sulfamate bath. S. S. Misra and T. L. Rama Char. bibliog il Plating 51:423-8 My '64

Electrodeposition of iron-zinc alloys; production from sulfamate baths. S. S. Misra and T. L. Rama Char. bibliog il Metal Finishing 62:88-93 Je '64

Sulfamic acid in a multiple stage kraft bleaching sequence. H. M. Love. Tappi 47:sup 163A-5A Je '64

Use of sulfamic acid in bleaching kraft pulps. R. G. Guide and R. R. Holmes. bibliog Tappi 47:515-18 Ag '64

SULFATE process. See Paper making—Sulfate process

SULFATE-reducing bacteria. See Sulfur bacteria

SULFATES

Effect of pH, sulfates, and chlorides on behavior of sodium chromate and nitrite as passivators for steel. S. Matsuda and H. H. Uhlig. diags Electrochem Soc J 111:156-61 F '64

Effect of sulphate solutions on normal and sulphate-resisting portland cement. L. Heller and M. Ben-Yair. bibliog J Ap Chem 14:20-30 Ja '64

Effect of the copper status of the rat on the copper-molybdenum-sulfate interaction. L. F. Gray and L. J. Daniel. bibliog J Nutrition 84:31-7 S '64

Molar volume and surface tension of fused metaphosphate-sulfate systems. B. B. Owens and S. W. Mayer. bibliog Am Cer Soc J 47:47:347-51 Jl '64

Preparation of the sulfates of 5-fluorodeoxyuridine with pyridine-sulfur trioxide. P. W. Wigler and H. U. Choi. bibliog Am Chem Soc J 86:1636-9 Ap 20 '64

Study of the cerium(IV)-oxalate reaction in acidic sulfate media. Y. A. El-Tantawy and G. A. Rechnitz. bibliog Anal Chem 36:1774-7 Ag '64

Sulfate resistance of asbestos-cement pipe. P. W. Manson and L. R. Blair. bibliog il diag Materials Res & Stand 2:828-35 O '62; Discussion. 3:918-21 N '63

Sulfates in the passive iron layer. O. L. Riggs, jr. bibliog il diags Corrosion 20:275-81 S '64

See also

Ammonium sulfate
Chromium sulfates
Cobalt sulfate
Copper sulfate
Thorium sulfates

Analysis

Analytical procedures for nitrogen fertilizers containing phosphates and sulfates. H. G. Graham, jr. and T. C. McRight. bibliog J Agri & Food Chem 12:140-3 Mr '64

Applications of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

Determination of diethyl sulfate, ethyl hydrogen sulfate, and sulfuric acid in mixtures. D. K. Banerjee and others. bibliog Anal Chem 36:2016-29 S '64

Estimation and determination of sulphate in soils and various other siliceous and calcareous materials. C. J. Keattch. bibliog J Ap Chem 14:218-20 My '64

Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64

Titrimetric determination of semimicro amounts of sulfate in presence of phosphate. B. Jaselskis and S. F. Vas. Anal Chem 36:1965-7 S '64

SULFENAMIDES

Behavior of sulfenamide accelerators under adverse processing conditions. A. Dibbo and others. Rubber Chem & Tech 36:911-21 O '63

Thermostability of sulfenamide accelerators in tire compounds. W. Kleeman and G. Erben. bibliog Rubber Chem & Tech 37:204-9 Ja '64

SULFENES. See Sulfur compounds

SULFENIC acids

Molecular structure of the methyl ester of *o*-nitrobenzenesulfenic acid. W. C. Hamilton and S. J. LaPlaca. bibliog Am Chem Soc J 86:2289-90 Je 5 '64

SULFENYL chlorides

Photochemically-induced reactions of sulphenyl chlorides. N. Kharasch and Z. S. Ariyan. bibliog Chem & Ind p929-30 My 30 '64

SULFIDES

Analysis of slag inclusions in plain carbon steels by the electron-probe microanalyser; sulphide inclusions in Al-Si deoxidized steels. R. Kiessling and others. bibliog Iron & Steel Inst J 201:965-7 N '63

Chemical observations in some anoxic, sulfide-bearing basins and fjords; abstract. F. A. Richards. WPCF J 36:324 Mr '64

Conversion of metallic oxide mineral surfaces to sulphides. R. G. Bautista and others. bibliog il Eng & Min J 163:81-3 N '62; 165:122-4 Je '64

Direct determination of hydrocarbon sulfides in kraft gases by gas-liquid chromatography. E. W. Thomas. bibliog Tappi 47:587-8 S '64

Exchange of parts between molecules at equilibrium; alkyl-terminated chain polysulfides and polyselenides. D. Grant and J. R. Van Wazer. bibliog Am Chem Soc J 86:3012-17 Ag 5 '64

Factors affecting yield increase and fiber quality in polysulfide pulping of loblolly pine, other softwoods, and red oak. N. Sanyer and J. F. Laundrie. bibliog Tappi 47:640-52 O '64; Abstract. Chem & Eng N 42:82 S 14 '64

Fire assay for osmium in sulfide concentrates. J. C. Van Loon and F. E. Beamish. bibliog diag Anal Chem 36:872-5 Ap '64

Formation of sulphides at grain boundaries in some pure iron alloys. I. S. Brammar and R. W. K. Honeycombe. il Iron & Steel Inst J 202:335-42 Ap '64

Fundamentals of fluid bed roasting of sulphides. J. L. Stollery. bibliog flow sheet il diag Eng & Min J 165:96-101 O '64

Geothermometric measurements of sufide minerals, Mosabhoni copper mine, Singbhum district, Bihar. K. K. Rao. Econ Geol 59:136-41 Ja '64

High molecular weight boron sulfides; identification, relative intensities, appearance potentials, and origins of the ions. F. T. Greene and P. W. Filles. bibliog Am Chem Soc J 86:3964-9 O 5 '64

Kinetics of the exchange of sulfur-35 between thiosulfate and sulfide. E. Ciuffarin and W. A. Pryor. bibliog Am Chem Soc J 86:3621-6 S 20 '64

Mechanisms of reactions of sulfinic acids; the mechanism of the alkyl sulfide-sulfinic acid reaction. J. L. Kice and E. H. Morkved. bibliog Am Chem Soc J 85:3472-8 N 5 '63

Mercury halo method of exploration. S. H. Williston. Eng & Min J 165:98-101 My '64

SULFIDES—*Continued*

Microbial production of sulfides in coastal and estuarine regions; abstract. Y. Hata and others. WPCF J 36:327-8 Mr '64

New preparative technique for certain sulfides and other semiconducting compounds. J. C. Angus. diag R Sci Instr 35:750-1 Je '64

Reaction of sulphides with *N*-bromosuccinimide; oxidation of sulphide to sulphoxide. W. Tagaki and others. bibliog Chem & Ind p 1624-6 S 19 '64

Re-examination of some suggested mechanisms for remobilization of sulfide orebodies. A. H. Sorenson. Econ Geol 58:1071-88 bibliog(p 1087-8) N '63; Discussion. A. W. Smith. 59:930-5 Ag '64

Silver corrosion by aviation turbine fuel. S. A. W. Thompson and others. il plan diag Inst Pet J 50:61-8; Discussion. 68-72 Mr '64

Syngenesis of sulfide ores; desorption of adsorbed metal ions and their precipitation as sulfides. K. L. Temple and N. W. Le Roux. bibliog il diags Econ Geol 59:647-55 Je '64

Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64

Thermal metamorphism of the sulfide minerals at Zawar mines, Rajasthan, India. A. Mookherjee. Econ Geol 59:498-500 My '64

Vibrational spectra and structures of digermyl ether and digermyl sulfide. T. D. Goldfarb and S. Sujishi. bibliog Am Chem Soc J 86:1679-83 My 5 '64

See also

Bornite
Cadmium sulfide
Carbon disulfide
Cobalt sulfides
Copper sulfides
Disulfides
Galena
Hydrogen sulfide
Lead sulfide
Molybdenite
Nickel sulfides
Pyrrhotite
Selenium sulfides
Thorium sulfides
Uranium sulfides
Zinc sulfide

Analysis

Argentometric titration of sulfide in alkaline solutions. C. H. Liu and S. Shen. bibliog Anal Chem 36:1652-4 Jl '64

Metallographic reagent for identification of sulphide inclusions. E. Beraha. il Iron & Steel Inst J 202:696-8 Ag '64

Rapid volumetric determination of sulfide in estuarine and sea waters. C. R. Johnson and others. il Anal Chem 36:300-2 F '64

SULFINES. See Sulfonium compounds

SULFINIC acids

Mechanisms of reactions of sulfinic acids; the mechanism of the alkyl sulfide-sulfinic acid reaction. J. L. Kice and E. H. Morkved. bibliog Am Chem Soc J 85:3472-8 N 5 '63

Mechanisms of reactions of sulfinic acids; the mechanism of the disulfide-sulfinic acid reaction. J. L. Kice and E. H. Morkved. bibliog Am Chem Soc J 86:2270-8 Je 5 '64

Methylene proton splitting in the nuclear magnetic resonance spectra of sulphinic esters. J. W. Wilt and W. J. Wagner. bibliog Chem & Ind p 1389-90 Ag 1 '64

SULFINUZ process. See Steel—Protection

SULFITE liquor

Biochemical oxygen demand reduction of sulfite waste liquor. S. A. Zieminski and B. T. Coyle. bibliog diag Tappi 47:138-42 Mr '64

Dissolution of wood components under different conditions of sulfite pulping. K. Forss and K. E. Fremer. bibliog Tappi 47:485-93 Ag '64

Spectrophotometric determination of the dissolution of lignin during sulfite cooking. E. Sjöstrom and P. Haglund. bibliog Tappi 47:286-91 My '64

Studies on the chemistry of aspenwood; the ether-insoluble, water-soluble components of aspen spent sulfite liquor. I. A. Pearl and D. L. Beyer. bibliog Tappi 47:458-62 Ag '64

Treatment of neutral sulfite semichemical spent liquors in a fluidized-bed reactor. G. G. Copeland and J. E. Hanway, jr. flow sheet il diags Tappi 47:sup 175A-84A Je '64

SULFITE process. See Paper making—Sulfite process

SULFITES

Bisulphite addition compounds of aminosugars. D. L. Ingles. bibliog Chem & Ind p927-8 My 30 '64

Conformational equilibria in trimethylene sulphite and related compounds. D. G. Hellier and others. bibliog Chem & Ind p 1956-7 D 14 '63

Cyclic sulphite ester of glucose. D. L. Ingles. Chem & Ind p366-7 F 29 '64

Kinetics of displacement of halides from substituted quinones by sulfite. C. A. Bishop and others. bibliog Am Chem Soc J 85:3991-8 D 20 '63

Liquor-making eased for magnesia-base pulp mills. flow diag il Chem Eng 71:80-1 Jl 20 '64

Mechanism of inhibition of non-enzymic browning by sulphite. E. F. L. J. Anet and D. L. Ingles. bibliog Chem & Ind p 1319 Jl 18 '64

Methyl azelaaldehydate purification via the bisulfite compound. W. R. Miller and others. Am Oil Chem Soc J 40:720-1 D '63

SULFOLANE. See Sulfones

SULFONAMIDES

Colorimetric procedure for the microdetermination of sulfonamides in animal tissues. R. P. Mooney and N. R. Pasarela. J Agri & Food Chem 12:123-7 Mr '64

Medicine's debt to the sulphonamide group. F. L. Rose. bibliog Chem & Ind p858-65 My 23 '64

Ortho-(*p*-toluenesulfonamido) aniline (T-sulfonamidine) as a new type of analytical reagent: spectrophotometric determination of cupric ion. J. H. Billman and R. Chernin. bibliog Anal Chem 36:552-4 Mr '64

Solvolysis of 7-*anti*-bromo-2-*exo*-benzenesulfonamidobicyclo[2.2.1]heptane; an example of solvolytic ring opening. L. H. Zalkow and A. C. Oehlschlager. bibliog Am Chem Soc J 86:4208-9 O 5 '64

Sulfacetamide eye drops. Drug & Cosmetic Ind 94:272 F '64

SULFONATES

Absolute configuration of menthyl arenesulfinates. E. B. Fleischer and others. bibliog diag Am Chem Soc J 86:3395-6 Ag 20 '64

Detergent makers switch to linear alkylated sulfonates. P. J. Weaver. bibliog Hydrocarbon Process & Pet Refiner 43:101-3 Mr '64

Hydroxy-1,2,5-thiadiazoles; formation of substituted aminomethanesulfonates by aqueous bisulfite reduction. J. M. Ross. bibliog Am Chem Soc J 86:2869-74 Jl 20 '64

LAS syndets pass degradability field test. Soap & Chem Spec 40:183 Mr '64

Ring closure to the bicyclooctyl system in the solvolysis of 3-(Δ^2-cyclopentenyl) propyl brosylate. W. D. Closson and G. T. Kwiatkowski. Am Chem Soc J 86:1887-8 My 5 '64

Secondary α-deuterium isotope effects in acetolyses of *endo*- and *exo*-norbornyl and 2-(Δ^3-cyclopentenyl)ethyl arenesulfonates. C. C. Lee and E. W. C. Wong. bibliog Am Chem Soc J 86:2752-3 Jl 5 '64

True molecular weight of sulfonate soaps. G. Metzger. bibliog Am Oil Chem Soc J 41:495-6 Jl '64

See also

Bromobenzene sulfonates
Lignosulfonates

Manufacture

Alkyl aryl sulfonates; Continental oil co. diag Hydrocarbon Process & Pet Refiner 42:142 N '63

SULFONATION

Continuous sulfonation techniques. S. J. Silvis and M. Ballestra. flow diag Am Oil Chem Soc J 40:618-20 N '63

Continuous sulphur trioxide sulphonation plant for detergents. flow diag il Ind Chem 40:197-8 Ap '64

Detergent sulfonation with SO_3. W. Carasik and J. R. Hughey. diags Soap & Chem Spec 40:49-52 Je '64

Detergents via new SO_3 process. diag Soap & Chem Spec 40:189 O '64

Pocket-size sulphur trioxide plant for sulphonation. A. Davidsohn. flow diag il Ind Chem 39:592-6 N '63

Sulfonation and dehydrogenation as an aid to gas chromatography in evaluating 90° to 150°C. petroleum fractions. W. J. Hines and D. E. Smith. bibliog diag Anal Chem 36:2250-4 N '64

Undiluted sulfur trioxide used in sulfonation process; Jergens process. Chem & Eng N 42:156-7 S 7 '64

SULFONES

Anation of the *trans*-aquonitrobis-(ethylenediamine)-cobalt(III) ion in a tetramethylene sulfone-water mixture. C. H. Langford and M. P. Johnson. Am Chem Soc J 86:229-32 Ja 20 '64

Cross-linking cotton cellulose with long-chain reactants. E. I. Valko and others. bibliog Textile Res J 34:849-57 O '64

α-Halosulfones. L. A. Paquette. bibliog Am Chem Soc J 86:4085-92, 4383-5 O 5-20 '64

Mass spectra of diaryl sulfones. S. Meyerson and others. bibliog Anal Chem 36:1294-300 Je '64

Photolytic decomposition of some sulfones by an internally sensitized path. M. P. Cava and others. bibliog Am Chem Soc J 86:3173-4 Ag 5 '64

Solvent effects in organic chemistry: sulfolane, a weakly basic aprotic solvent of high dielectric constant. E. M. Arnett and C. F. Douty. bibliog Am Chem Soc J 86:409-12 F 5 '64

Sulfolane finds new uses in extraction. Chem & Eng N 42:50+ My 18 '64

Vinyl sulphone finishes; abstract and discussion. F. Burkitt. Chem & Ind p587-8 Ap 4 '64

SULFONIC acids

Chemistry of boranes; amination of $B_{10}H_{10}^{-2}$ and $B_{12}H_{12}^{-2}$ with hydroxylamine-O-sulfonic acid. W. R. Hertler and M. S. Raasch. bibliog diags Am Chem Soc J 86:3661-8 S 20 '64

Determination of phenoxyacetic acids with J and phenyl J acids. O. M. Aly and S. D. Faust. Anal Chem 36:2200-1 O '64

Reaction of organoboranes with chloramine and with hydroxylamine-O-sulfonic acid; a convenient synthesis of amines from olefins *via* hydroboration. H. C. Brown and others. bibliog Am Chem Soc J 86:3565-6 S 5 '64

Reactions of hydroxylamine-O-sulfonic acids with water and with hydriodic acid. P. A. S. Smith and others. bibliog Am Chem Soc J 86:1139-45 Mr 20 '64

Spectrophotometric determination of unsymmetrical dimethylhydrazine employing chromotropic acid. N. V. Sutton. bibliog Anal Chem 36:2120-1 O '64

Analysis

Ultraviolet spectrometric determination of mixtures of arylsulfonic acids. J. M. Arends and others. bibliog Anal Chem 36:1802-5 Ag '64

SULFONIUM compounds

Chemistry of ylids; diphenylsulfonium alkylides, a stereoselective synthesis of epoxides. A. W. Johnson and others. bibliog Am Chem Soc J 86:918-22 Mr 5 '64

Cross-linking of cellulose by vinyl sulfonium compounds. F. H. Burkitt. Textile Res J 34:336-40 Ap '64

Mechanisms of α-elimination; *p*-nitrobenzylsulfonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. bibliog Am Chem Soc J 86:3302-6 Ag 20 '64

Mechanisms of elimination reactions; sulfur isotope effects in some reactions of *t*-butyldimethylsulfonium iodide. W. H. Saunders, jr. and S. E. Zimmerman. Am Chem Soc J 86:3789-91 S 20 '64

Normal and inverse secondary α-deuterium isotope effects with trimethylsulphonium ions. C. Y. Wu and R. E. Robertson. Chem & Ind p 1803-4 O 24 '64

Sulfines. W. A. Sheppard and J. Diekmann. bibliog Am Chem Soc J 86:1891-2 My 5 '64

Transfer of alkyl-substituted methylenes from sulfonium alkylides to carbonyl groups. E. J. Corey and W. Oppolzer. bibliog Am Chem Soc J 86:1899-900 My 5 '64

SULFONYL chloride

Crosslinking chlorosulfonated polyethylenes. J. T. Maynard and P. R. Johnson. bibliog Rubber Chem & Tech 36:963-74 O '63

Sulfene, an intermediate in the alcoholysis of methanesulfonyl chloride. W. E. Truce and others. Am Chem Soc J 86:288 Ja 20 '64

SULFONYL compounds

Tolbutamide-induced hypoglycemia. J. D. Brown and D. B. Stone. bibliog Am J Clinical Nutrition 15:144-8 S '64

SULFONYL group

Electronic effects of the sulfonyl group in aromatic systems; relationships between inductive and d-orbital resonance contributions. C. Y. Meyers and others. bibliog Am Chem Soc J 86:2944-5 Jl 20 '64

SULFOXIDES

Asymmetric reduction of sulphoxides with optically active thiols. K. Balenović and N. Bregant. bibliog Chem & Ind p 1577-8 S 12 '64

Base-catalysed autoxidation of hydrocarbons in diphenyl sulphoxide. T. J. Wallace and others. bibliog Chem & Ind p 1316-17 Jl 18 '64

Conformational equilibria and solvolyses of six-membered ring sulfoxide derivatives. J. C. Martin and J. J. Uebel. Am Chem Soc J 86:2936-7 Jl 20 '64

Equilibration of 4-substituted thiane 1-oxides. C. R. Johnson and D. McCants, jr. bibliog Am Chem Soc J 86:2935-6 Jl 20 '64

Hydrogen chloride-catalyzed racemization of sulfoxides. K. Mislow and others. bibliog Am Chem Soc J 86:1452-3 Ap 5 '64

Preparation and Pummerer rearrangement of β-ketosulfoxides. H. D. Becker and others. bibliog Am Chem Soc J 85:3410-14 N 5 '63

Reaction of sulphides with *N*-bromosuccinimide; oxidation of sulphide to sulphoxide. W. Tagaki and others. bibliog Chem & Ind p 1624-6 S 19 '64

Reactions of thiols with sulfoxides; kinetics and mechanistic implications. T. J. Wallace and J. J. Mahon. bibliog Am Chem Soc J 86:4099-103 O 5 '64

Reactions of thiols with sulfoxides; scope of the reaction and synthetic applications. J. J. Wallace. bibliog Am Chem Soc J 86:2018-21 My 20 '64

Relation of proton exchange to tautomerism in unsaturated sulfoxides. D. E. O'Connor and C. D. Broaddus. bibliog Am Chem Soc J 86:2267-70 Je 5 '64

Spontaneous reaction aromatic thiols with sulphoxides. T. J. Wallace. Chem & Ind p501-2 Mr 21 '64

Stereoisometric thianthrene sulfoxides; configurational assignments and thermal equilibrations. K. Mislow and others. bibliog Am Chem Soc J 86:2957-8 Jl 20 '64

See also

Methyl sulfoxide

SULFUR

Amount of π-bonding in phosphorus-oxygen and sulfur-oxygen bonds. P. Haake and others. bibliog Am Chem Soc J 86:3577-8 S 5 '64

Diffusion of sulfur, selenium, and tellurium in gallium arsenide. T. H. Yeh. bibliog il Electrochem Soc J 111:253-5 F '64

Does the sulphur content of blast furnace slag backfills render them corrosive? J. C. Hudson. bibliog Iron & Steel Inst J 201:702-4 Ag '63; Discussion. G. M. Wagstaffe and A. M. Edwards. 202:374 Ap '64

Experimental determination of the reaction chalcopyrite + sulfur = pyrite + bornite from 350 to 500° C. P. B. Barton, jr. and P. Toulmin, 3d. bibliog diags Econ Geol 59:747-52 Ag '64

Fraction of effective sulfur crosslinking in high sulfur-natural rubber vulcanizers. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37:225-8 Ja '64

Fraction of effective sulfur crosslinking in SBR vulcanizates. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37:221-4 Ja '64

New sulfur-curable ethylene-propylene rubber. H. E. Haxo, jr. and others. bibliog il Rubber Age 94:255-67 N '63

Polymeric sulfur and other polysulfide polymers. A. V. Tobolsky. bibliog Am Scientist 52:358-64 S '64

Reaction of sulphur, selenium and tellurium halogenated compounds with Wittig reagents. N. Petragnani and M. D. Campos. Chem & Ind p 1461 Ag 15 '64

Reactions of sulfur atoms; further investigations of the insertion reaction. A. R. Knight and others. bibliog Am Chem Soc J 86:4243-8 O 20 '64

Role of the methionine-13 sulfur in pancreatic ribonuclease. J. M. Parks and others. bibliog Am Chem Soc J 85:3519-21 N 5 '63

Significance of sulphur in atmospheric corrosion. T. H. Turner. Engineer 217:274-5 F 7 '64

Sulfur outlook brightens. Chem & Eng N 42:15 Ja 6 '64

Sulfur-rich bornites. R. Brett and R. A. Yund. bibliog il diags Am Mineralogist 49:1084-98 Jl '64

Synthesis of the methyl glycoside of a derivative of a sulphur-containing analogue of gentiobiose; 6-*S*-β-D-glucopyranosyl-6-thio-α-D-glucopyranoside hepta-acetate. D. H. Hutson. bibliog Chem & Ind p750-1 My 2 '64

SULFUR—*Continued*

Thermal conductivity of α-sulfur. Y. Yoshizawa and others. J Ap Phys 35:1354-5 Ap '64

Thionosulfites; a new class of cyclic esters containing branch-bonded sulfur. Q. E. Thompson and others. bibliog Am Chem Soc J 86:3891-2 S 20 '64

Transfer of sulphur from gas to molten oxide systems. A. S. Alwan and P. M. Bills. bibliog Iron & Steel Inst J 202:367-72 Ap '64

Vulcanization; fate of curing system during the sulfur vulcanization of natural rubber accelerated by benzothiazole derivatives. R. H. Campbell and R. W. Wise. bibliog diag Rubber Chem & Tech 37:635-49 Jl '64

Vulcanization of poly(vinyl alkyl ethers) with dicumyl peroxide and sulfur. J. Lal and J. E. McGrath. bibliog Rubber Chem & Tech 36:1159-72 O '63

Vulcanization; the formation of crosslinks in the system; natural rubber-sulfur-MBT-zinc ion. A. Y. Coran. bibliog Rubber Chem & Tech 37:679-88 Jl '64

See also
Petroleum refining—Sulfur removal
also subdivision Sulfur content under special subjects, e.g.
Coal
Copper
Gas, Natural
Gasoline
Iron
Oil fuel
Petroleum
Steel

Analysis

Combined radiochemical-neutron activation analysis method for the determination of sulfur and phosphorus in high-purity paper and beer. A. G. Souliotis. bibliog diags Anal Chem 36:811-14 Ap '64

Combustion-gas chromatographic method for the simultaneous determination of carbon and sulfur in ferrous metals. W. K. Stuckey and J. M. Walker. diag Anal Chem 35:2015-17 D '63

Combustion separation of phosphorus in the microdetermination of sulfur. J. M. Corliss and E. J. W. Rhodes. bibliog il diag Anal Chem 36:394-7 F '64

Determination of microgram amounts of total sulfur in rocks; combustion method. J. G. Sen Gupta. bibliog diag Anal Chem 35:1971-3 N '63

Determination of molybdenum and sulfur in solid lubricants. I. L. Kalnin. bibliog Anal Chem 36:886-8 Ap '64

Determination of sulphur content of hydrocarbons by bremsstrahlung absorption measurement. T. B. Rowley. bibliog diags Radio & Electronic Eng 26:298-304 O '63

Determination of total sulfur in benzene. bibliog diags Anal Chem 36:339-42 F '64

Direct determination of sulfur forms in Green River oil shale. J. W. Smith and others. bibliog diag Anal Chem 36:618-22 Mr '64

Rapid method for the determination of micro amounts of sulfur in selenium. L. Acs and S. Barabas. bibliog diag Anal Chem 36:1825-9 Ag '64

Simultaneous determination of sulfur and phosphorus in water by neutron activation analysis. C. H. Wayman. Anal Chem 36:665-6 Mr '64

Spectrophotometric micro and submicro determination of sulfur in organic substances with barium chloranilate. P. Stoffyn and W. Keane. Anal Chem 36:397-400 F '64

Isotopes

Kinetics of the exchange of sulfur-35 between thiosulfate and sulfide. E. Ciuffarin and W. A. Pryor. bibliog Am Chem Soc J 86:3621-6 S 20 '64

Mechanisms of elimination reactions; sulfur isotope effects in some reactions of *t*-butyldimethylsulfonium iodide. W. H. Saunders, jr. and S. E. Zimmerman. Am Chem Soc J 86:3789-91 S 20 '64

P^{32}- and S^{35}-labeled *S,S,S*-tributylphosphorotrithioate defoliant residue in cottonseed. F. R. H. Katterman and W. C. Hall. bibliog J Agri & Food Chem 12:187-9 Mr '64

Problem of radioactive radiation of sulfur-35 influencing the catalytic dehydration of cyclohexanol. A. A. Balandin and others. bibliog Am Chem Soc J 86:299-300 Ja 20 '64

Uptake of sulfur from plating brighteners by copper and nickel. J. J. Hoekstra and D. Trivich. bibliog il Electrochem Soc J 111:162-8 F '64

Manufacture

Metavanadates scrub manufactured gas; process flowsheet. P. Ellwood. Chem Eng 71:128-30 Jl 20 '64

New look at sulfur plants. A. R. Valdes. flow sheet diags Hydrocarbon Process & Pet Refiner 43:104-8 Mr; 122-4 Ap '64

Selected process flow sheets for petrochemicals; sulfur recovery. Oil & Gas J 62:117 S 7 '64

SULFUR, Liquid

Liquid sulphur from Coleshill alkazid plant. il Ind Chem 40:9-12 Ja '64

Sulfidity control using liquid sulfur in the kraft recovery furnace. R. E. Peach and R. E. Petersen. diags Tappi 47:sup 167A-70A Je '64

Transportation

Launch first molten-sulfur carrier, the Naess Texas for Sulfur carriers, ltd. il Marine Eng/Log 69:32F Ap '64

Molten sulphur carrier Naess Texas. il Engineer 217:864 My 15 '64

SULFUR bacteria

Aviation gasoline corrosiveness caused by sulfate-reducing bacteria; prevention by growth inhibitors. A. M. Wachs and others. bibliog Ind & Eng Chem Proc Design 3:65-9 Ja '64

Microbial production of sulfides in coastal and estuarine regions; abstract. Y. Hata and others. WPCF J 36:327-8 Mr '64

New miners; acid-loving bacteria. il Can Chem Process 48:55-7 Jl '64

Syngenesis of sulfide ores; sulfate-reducing bacteria and copper toxicity. K. L. Temple and N. W. LeRoux. diag Econ Geol 59:271-8 Mr '64; Discussion. C. F. Davidson. 59:938-9 Ag '64

SULFUR compounds

Aminolysis of thioacyl and selenoacyl analogs. H. G. Mautner and others. bibliog Am Chem Soc J 85:3458-62 N 5 '63

Chemistry of some sulfur compounds derived from lignin. D. W. Goheen. bibliog Tappi 47:sup 14A+ Je '64

Cycloaddition reactions of sulfenes. I. J. Borowitz. bibliog Am Chem Soc J 86:1146-9 Mr 20 '64

Donor properties of some sulfur compounds. R. J. Niedzielski and others. bibliog Am Chem Soc J 86:1694-7 My 5 '64

Effect of thiocompounds on the structure of copper electrodeposits. S. C. Barnes. bibliog il Electrochem Soc J 111:296-9 Mr '64

Evaluation of sulfur donors in ethylene-propylene rubber. J. F. Quirk and others. Rubber Age 94:733-6 F '64

Existence of sulfenes. J. F. King and T. Durst. bibliog Am Chem Soc J 86:287-8 Ja 20 '64

New types of organosulfur derivatives of metal carbonyls. R. B. King and M. B. Bisnette. bibliog Am Chem Soc J 86:1267-8 Mr 20 '64

Organic sulfur compounds: free-radical addition of thiols to phenylacetylene. A. A. Oswald and others. bibliog Am Chem Soc J 86:2877-84 Jl 20 '64

Organic sulfur compounds; oxidative addition of thiol acids to unsaturated hydrocarbons; cooxidation of thiolacetic acid and indene by molecular oxygen. A. A. Oswald and others. bibliog Am Chem Soc J 86:3791-5 S 20 '64

Polarography of 2-aminoethanethiosulfuric acid and 2-aminoethaneselenosulfuric acid. W. Stricks and R. G. Mueller. bibliog Anal Chem 36:40-4 Ja '64

Raney nickel desulphurisation of catechol thionocarbonate; a new synthesis of methylenedioxybenzene. M. H. Benn and J. May. Chem & Ind p499-500 Mr 21 '64

Series of water-soluble sulfur dyestuffs to be produced in US. il Am Dyestuff Rep 53:393-4 My 11 '64

Sulfur vulcanizable ethylene-propylene rubbers. G. Natta and others. bibliog diags Rubber Chem & Tech 36:988-99 O '63

Synthesis and chemistry of SF_5Cl. C. W. Tullock and others. bibliog Am Chem Soc J 86:357-61 F 5 '64

4-Thio-L-ribose; a thiofuranose sugar. E. J. Reist and others. bibliog Am Chem Soc J 85:3715 N 20 '63

Ultraviolet spectra of sulphoximines; *d*-orbital interactions. M. Barash. Chem & Ind p 1261-2 Jl 11 '64

SULFUR compounds—*Continued*

Volatile sulfur compounds in potatoes. M. R. Gumbmann and H. K. Burr. bibliog J Agri & Food Chem 12:404-8 S '64

See also

Cystine

Mercaptans

Oil fuel—Sulfur content

Sulfones

Thionic acids

Analysis

Analysis of sulfur compounds with electron capture/hydrogen flame dual channel gas chromatography. D. M. Oaks and others. bibliog diag Anal Chem 36:1560-5 Jl '64

Aseptic canning of foods; hematin and volatile sulfur compounds in strained beef. B. S. Luh and others. bibliog Food Tech 18:216-18 F '64

SULFUR dioxide

Application of gas chromatography to the determination of sulphur dioxide and sulphur trioxide. R. L. Bond and others. bibliog diag Chem & Ind p 1902-3 N 30 '63

Atmospheric pollution by SO_2 from an isolated chimney. E. Zielinski. il diags Combustion 35:16-25 F '64

Effect of vanadium pentoxide on gas-phase combustion; the carbon monoxide-sulphur dioxide-oxygen system. C. F. H. Tipper and B. H. Williams. bibliog J Ap Chem 14:315-24 Ag '64

Fading of pastel colours on wool by light and sulphur dioxide. S. M. Jaeckel and C. D. Ward. bibliog Soc Dyers & Col J 80:72-82 F '64

Hydroxy-1,2,5-thiadiazoles; a novel route from potassium cyanide and sulfur dioxide. J. M. Ross and W. C. Smith. bibliog Am Chem Soc J 86:2861-8 Jl 20 '64

Kinetic study of sulfur dioxide in aqueous solution with radioactive tracers. J. C. Wang and D. M. Himmelblau. bibliog diags A I Ch E J 10:574-80 Jl '64

Kinetics of the catalytic oxidation of sulfur dioxide. B. Davidson and G. Thodos. bibliog diag A I Ch E J 10:568-73 Jl '64

New technique for assay of oxygen-18 in sulfur dioxide. T. M. Spittler and J. L. Huston. bibliog diag Anal Chem 36:575-7 Mr '64

Portable sulphur dioxide recorder. D. A. Lloyd and M. Madden. diags J Sci Instr 41:622-5 O '64

Removal of sulfur oxides from flue gas with alkalized alumina at elevated temperatures. D. Bienstock and others. bibliog flow sheet il diags A S M E Trans ser A 86:353-8; Discussion. 358-60 Jl '64

Simple modification of a commercial sulphur dioxide meter for the determination of other atmospheric pollutants. P. N. R. Nichols. bibliog diag Chem & Ind p 1654-5 S 26 '64

Sulfochlorination of cyclohexane induced by gamma radiation. A. Schneider and J. C. Chu. bibliog il diags Ind & Eng Chem Proc Design 3:164-9 Ap '64

SO_2 absorption in the respiratory tract. L. G. Strandberg. bibliog diags Archives Environmental Health 9:160-6 Ag '64

Sulfur-smoke removal system. flow diag il Mech Eng 86:58 Ag '64

System eliminates solids and sulphur fumes from stack discharge. diag Iron & Steel Eng 41:167 My '64

Thermal coalescence of the lignin phase in wood. T. N. Kleinert and L. M. Marraccini. bibliog Tappi 47:605-9 O '64

Water vapor and SO_2 are prime factors in low-temperature corrosion. Power 107:76-7 D '63

Analysis

Equilibrium effects in determination of sulfur dioxide with pararosaniline and formaldehyde. H. A. Huitt and J. P. Lodge, jr. bibliog Anal Chem 36:1305-8 Je '64

Here's how to watch H_2S and SO_2 content. diag Can Chem Process 48:106+ Je '64

Spectrophotometric determination of sulfur dioxide suitable for atmospheric analysis. B. G. Stephens and F. Lindstrom. diag Anal Chem 36:1308-12 Je '64

Time constant of a Thomas autometer and significance of indicated response. H. P. Sanderson and others. diag Anal Chem 36:2296-301 N '64

Physiological effect

American power conference 26th annual meeting, Chicago, April 14-16; abstracts of papers on air pollution. Combustion 35:40-1 Je '64

Danger level of sulfur dioxide is disputed. Chem & Eng N 42:58-9 Jl 13 '64

SULFUR dioxide, Liquid

γ-ray decomposition of pure liquid sulfur dioxide. W. G. Rothschild. bibliog Am Chem Soc J 86:1307-9 Ap 5 '64

SULFUR fluorides

Breakdown strengths of a perfluorocarbon vapor (FC-75) and mixtures of the vapor with SF_6. A. H. Sharbaugh and P. K. Watson. bibliog il diags IEEE Trans Power Apparatus & Systems p 131-6 F '64

Hydrates of methane and sulphur hexafluoride. L. D. Sortland and D. B. Robinson. bibliog diag Can J Chem Eng 42:38-42 F '64

Mass and microwave spectra, structures, and dipole moments of the isomers of sulfur monofluoride. R. L. Kuczkowski. bibliog diags Am Chem Soc J 86:3617-21 S 20 '64

Preparation of amino-derivatives of sulphur tetrafluoride and phosphorus pentafluoride by silicon-nitrogen bond cleavage reactions. G. C. Remitras and others. Chem & Ind p 1712 O 10 '64

69-kv SF_6 common-tank breaker rated 5,000 mva. R. E. Kane and R. G. Colclaser, jr. il diag IEEE Trans Power Apparatus & Systems p 1076-81; Discussion. 1081-2 D '63

SF_6 breakers designed for rating flexibility. il Westinghouse Eng 24:152-3 S '64

Thermistor measures dielectric gas content. E. B. Murphy. diags Electronics 37:54-5 O 19 '64

VEPCO project to use 500-kv SF6 power circuit breakers. Elec World 162:38 Jl 6 '64

SULFUR hexafluoride. See Sulfur fluorides

SULFUR in the body

Effect of magnesium and sulfur upon cellulose digestion of purified rations by cattle and sheep. J. E. Martin and others. bibliog J Nutrition 83:60-4 My '64

Effect of selenium, sulfur and sulfur amino acids on nutritional muscular dystrophy in the lamb. H. F. Hintz and D. E. Hogue. bibliog J Nutrition 82:495-8 Ap '64

SULFUR industry and trade

Sulphur, 1963. L. B. Gittinger, jr. Eng & Min J 165:150-2 F '64

Sulphur, 1963. G. P. Giusti. il Min Cong J 50:103-7 F '64

Alberta

Demand is gaining on Alberta's sulfur output. Oil & Gas J 62:69 Ag 17 '64

Canada

Canada's sulfur sales climb. Oil & Gas J 62:55 Ja 20 '64

SULFUR oxides

See also

Sulfur dioxide

Sulfur trioxide

SULFUR tetrafluoride. See Sulfur fluorides

SULFUR trioxide

Application of gas chromatography to the determination of sulphur dioxide and sulphur trioxide. R. L. Bond and others. bibliog diag Chem & Ind p 1902-3 N 30 '63

Battle is shaping up in liquid syndets. diags Can Chem Process 48:71-2+ Je '64

Continuous sulphur trioxide sulphonation plant for detergents. flow diag il Ind Chem 40:197-8 Ap '64

Detergent sulfonation with SO_3. W. Carasik and J. R. Hughey. il diags Soap & Chem Spec 40:49-52 Je '64

Detergents via new SO_3 process. diag Soap & Chem Spec 40:189 O '64

Pocket-size sulphur trioxide plant for sulphonation. A. Davidsohn. flow diag il Ind Chem 39:592-6 N '63

Preparation of the sulfates of 5-fluorodeoxyuridine with pyridine-sulfur trioxide. P. W. Wigler and H. U. Choi. bibliog Am Chem Soc J 86:1636-9 Ap 20 '64

Undiluted sulfur trioxide used in sulfonation process: Jergens process. Chem & Eng N 42:156-7 S 7 '64

SULFURIC acid

Anodic potentiostatic polarization of iron in sulfuric acid: effect of chloride ions. K. Nobe and R. F. Tobias. bibliog diag Corrosion 20:263-6 Ag '64

Carbonium ions; the fate of the *t*-butyl cation in 96 per cent H_2SO_4. N. C. Deno and others. Am Chem Soc J 86:1745-8 My 5 '64

Cascade sulfuric acid alkylation; M. W. Kellogg co. flow diag Hydrocarbon Process & Pet Refiner 43:167 S '64

Critical and passive current densities for copper-nickel-zinc alloys in sulfuric acid. N. D. Stolica and H. H. Uhlig. Electrochem Soc J 110:1215-18 D '63

SULFURIC acid—*Continued*

Crystallization of anhydrous copper sulfate from sulfuric acid; ammonium sulfate mixtures. P. M. Gruzensky. il J Res Nat Bur Stand 68A:313-15 My '64

Design and operating pointers in sulfuric acid anodizing. G. R. Darrow. il diags Plating 51:212-18 Mr '64

Effect of metal dissolution on the rest potential in the palladium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:610-15 My '64

Effect of velocity and oxygen on corrosion of iron in sulfuric acid. Z. A. Foroulis and H. H. Uhlig. bibliog diags Electrochem Soc J 111:13-17 Ja '64

Electrode reactions of aromatic compounds in strong acid solutions; chronopotentiometric and spectrometric studies of the *p*-hydroquinone-H_2SO_4 system at platinum electrodes. H. B. Mark, jr. and C. L. Atkin. bibliog Anal Chem 36:514-20 Mr '64

5- and 8-chlorination of quinoline in concentrated sulphuric acid. M. K. Din and A. K. Choudhury. bibliog Chem & Ind p 1840 N 16 '63

Fundamental studies on anodic protection; alloy 20 in sulfuric acid. Z. A. Foroulis. bibliog Ind & Eng Chem Proc Design 3:84-8 Ja '64

Kinetics of the anodic dissolution of nickel in sulfuric acid solutions. N. Sato and G. Okamoto. bibliog Electrochem Soc J 111:897-903 Ag '64

Kinetics of the reaction of cyclohexyl aryl ketones with nitrous acid in sulfuric acid. Y. Ogata and others. Am Chem Soc J 85:3649-50 N 20 '63

Mixed potentials observed in the iridium-oxygen-acid system. J. P. Hoare. bibliog Electrochem Soc J 111:988-92 Ag '64

New stainless fights hot acids. Iron Age 193:82 F 6 '64

New stainless steel resists sulfuric acid. Materials in Design Eng 59:133+ Mr '64

Nuclear magnetic resonance study of the products from an unusual reaction of norbornadiene; the ionic addition of N-chlorodiethylamine in sulfuric acid-acetic acid. R. S. Neale and E. B. Whipple. bibliog Am Chem Soc J 86:3130-7 Ag 5 '64

Pd/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. Electrochem Soc J 111:369-72 Mr '64

Pt/O_2 electrode in sulfuric acid solution. S. Schuldiner and R. M. Roe. il Electrochem Soc J 110:1142-6 N '63

Rapid semi-micro method for preparation of methyl esters from triglycerides using chloroform, methanol, sulphuric acid. K. V. Peisker. Am Oil Chem Soc J 41:87-8 Ja '64

Reversible oxygen electrodes. N. Watanabe and M. A. V. Devanathan. bibliog diag Electrochem Soc J 111:615-19 My '64

Some correlations between the hydrolysis of glycylglycine and of wool in sulphuric acid. R. S. Asquith and T. Shaw. bibliog Soc Dyers & Col J 79:524-6 N '63

Spectrophotometric determination of titanium using salicylic acid in H_2SO_4 medium. A. E. Hultquist. Anal Chem 36:149-51 Ja '64

Stainless alloy allows industrial use of sulfuric acid. il Welding Eng 49:72+ O '64

Vapor-liquid equilibria for aqueous sulfuric acid. J. I. Gmitro and T. Vermeulen. bibliog A I Ch E J 10:740-6 S '64

Vent for carbon steel sulfuric acid tanks. H. Heller. diag Chem Eng 71:154 S 28 '64

Viscosity reduction of cellulose esters in aliphatic acid-anhydride solution with free and combined sulfuric acid catalyst. C. J. Malm and others. bibliog Tappi 47:533-9 S '64

Analysis

Determination of diethyl sulfate, ethyl hydrogen sulfate, and sulfuric acid in mixtures. D. K. Banerjee and others. bibliog Anal Chem 36:2016-20 S '64

Manufacture

Fifty years of Mills-Packard vitriol chambers. M. Schofield. il Ind Chem 40:149-51 Mr '64

Flue-gas purification unit makes byproduct acid. il diag Chem Eng 71:92+ Je 8 '64

Process cuts pollution, gives marketable acid. diag Steel 154:47 Ap 20 '64

SULFURYL fluoride

Fate of sulfuryl fluoride in wheat flour. R. W. Meikle. bibliog diags J Agri & Food Chem 12:464-7 S '64

SULTONES

Propanesultone. R. F. Fischer. bibliog Ind & Eng Chem 56:41-5 Mr '64

SUMATRA

See also

Petroleum—Sumatra

SUN

Antarctic programme during the IQSY. il Engineering 197:335-6 F 28 '64

IQSY; attack on the sun. M. A. Pomerantz. bibliog il Astronautics & Aeronautics 2:60-5 Ja '64

IQSY; International years of the quiet sun. Phys Today 17:78-9 F '64

Solar-altitude azimuth. P. Hartman. bibliog diags Am Soc C E Proc 89 [SU 1 no 3410]: 1-12 F '63; Discussion. W. H. Eldridge. 89 [SU 3 no 3684]:181-3 O '63; Reply. 90 [SU 1 no 3885]:63-4 Ap '64

Solar corpuscular activity and ionization density in the *F2* layer of the ionosphere. C. Lal. bibliog IEEE Proc 51:1471-4 N '63

Solar influence on satellite motion near the stable earth-moon libration points. B. D. Tapley and J. M. Lewallen. bibliog diags AIAA J 2:728-32 Ap '64

See also

Solar heating
Solar power
Solar radiation
Solar system
Sunlight

Corona

Dynamics of the solar wind. F. L. Scarf and L. M. Noble. bibliog AIAA J 2:1158-60 Je '64

Interaction between the solar plasma wind and the geomagnetic cavity. L. Lees. bibliog diags AIAA J 2:1576-82 S '64

Mathematical model devised on origin of solar winds. Franklin Inst J 277:621-2 Je '64

Solar wind. E. N. Parker. il diags Sci Am 210:66-76 Ap '64

Prominences

Scanning the sun for solar flares. N. Gutlove and S. Morrison. bibliog il diags Electronics 37:31-5 F 14 '64

Solar-flare proton data. W. R. Webber. bibliog diag Nucleonics 21:154-7 Ag '63

Tv warns astronauts of solar-flare eruptions. Machine Design 36:15 Je 18 '64

Wanted; solar-flare predictors. J. A. Strasser. diag Electronics 37:40-3 Ja 10 '64

SUN breaks

Block grill shields laboratory. il Eng N 172:22 F 27 '64

Experimental analysis of solar heat gain through insulating glass with indoor shading. C. W. Pennington and others. bibliog il diag ASHRAE J 6:27-39 F '64

Precast sunshade; Western Washington state college; selected detail. Prog Arch 45:207 S '64

Solar heat gain factors and shading coefficients. D. J. Vild. ASHRAE J 6:47-50 O '64

Solar heat gain through double glass with between-glass shading. W. A. Smith and C. W. Pennington. bibliog ASHRAE J 6:50-3 O '64

Sun louvers cut 20 tons off air-conditioning load. J. Molnar. il diags Heating-Piping 36:109-12 F '64

Tropical cilmate control techniques. B. Polk. il plan diags Arch Rec 135:208-10 Ap '64

Typhoon-proof louvers screen tropical sun; Philippine American life insurance company building. il plan diags Arch Rec 134:139-41 D '63

SUN burn. See Sunburn

SUNBURN

Irradiation and tanning. Drug & Cosmetic Ind 93:893 D '63

Red vet pet sunscreen. Drug & Cosmetic Ind 94:773 My '64

SUNDAY school buildings

Well balanced Sunday school. il plans diags Arch Forum 119:114-17 D '63

SUNDIALS

Amateur scientist; a sundial that tells clock time. C. J. Merchant. diags Sci Am 210:136+ Mr '64

SUNLIGHT

Fused silica optics for solar simulator. Franklin Inst J 278:71 Jl '64

Studies in wool yellowing: processes for retarding yellowing by sunlight. B. Milligan and D. J. Tucker. bibliog Textile Res J 34:681-91 Ag '64

SUNSHADING devices. See Sun breaks

SUNSPOTS

Evershed effect. C. E. R. Bruce. il diag Franklin Inst J 276:407-10 N '63

SUPERCHARGERS

Gas-turbine-supercharged cycle offers steam generator savings. W. P. Gorzegno and R. J. Zoschak. diags Elec World 162:54-7 O 5 '64

New turbo aids efficient operation. il Diesel Equip Supt 42:44 F '64

Numerically controlled lathe cuts cost of producing turbosupercharger components. F. W. Heurlin. il Mach 70:84-5 Ag '64

See also

Airplanes—Cabins—Supercharging

Automobile engines—Superchargers

Diesel engines—Superchargers

Internal combustion engines—Superchargers

SUPERCONDUCTIVITY

Alternating current power losses in superconducting Nb-Zr alloys. W. R. Wisseman and others. bibliog diag J Ap Phys 35:2649-55 S '64

Alternating current resistance of nonideal superconductors. J. L. Zar. bibliog diags J Ap Phys 35:1610-15 My '64

Analysis and performance of superconductive coaxial transmission lines. R. J. Allen and N. S. Nahman. bibliog il diags IEEE Proc 52:1147-54 O '64

Apparatus for electron beam studies at liquid helium temperatures. A. E. Curzon and A. T. Pawlowicz. bibliog il diags J Sci Instr 41:552-4 S '64

Apparatus for measuring characteristics of superconducting tunnel junctions. J. S. Rogers and others. bibliog diags R Sci Instr 35:208-13 F '64

Application of the Garrett method to calculation of coil geometries for generating homogeneous magnetic fields in superconducting solenoids. H. L. Marshall and H. E. Weaver. diags J Ap Phys 34:3175-8 N '63

Applications of superconducting materials; symposium. diags Inst E E Proc 111:407-13; Discussion. 413-20 F '64

Calculation of the current and field distribution and the magnetization curves for high-field, superconducting materials in the form of sheet. H. Riemersma. bibliog diags J Ap Phys 35:1802-6 Je '64

Critical alternating currents in superconductors. F. J. Young and H. L. Schenk. J Ap Phys 35:980-1 pt 2 Mr '64

Cryogenic d-c power supply. diag Electro-Tech 74:125-6 Ag '64

Crystals; drop by drop; ultra-fast cooling device. il Electronics 37:32 Ag 10 '64

Currents theory reappraised in recent study. Elec Eng 82:745 D '63

Effect of motion on Pb-Pb superconducting contacts. J. H. Simons and G. W. Farnell. IEEE Proc 52:216 F '64

Electric flux pump. il Mech Eng 86:66-7 Jl '64

Electric generator of flat plates of superconducting metal. diag Product Eng 35:54-5 Mr 30 '64

Elimination of the edge effect in superconducting indium and tin films. I. Ames and H. Seki. bibliog diag J Ap Phys 35:2066-8 Jl '64

Fast-acting superconducting power switches. D. L. Ameen and P. R. Wiederhold. bibliog il diags R Sci Instr 35:733-7 Je '64

Ferromagnetism and incipient superconductivity in a $CeRu_2$+7.3 per cent $GdRu_2$ alloy. J. J. Drautman and others. bibliog J Ap Phys 35:974-5 pt 2 Mr '64

Flux jumping in Nb+25 per cent Zr wire. M. S. Lubell and others. bibliog J Ap Phys 35:956-8 pt 2 Mr '64

GE's electric flux pump opens door for 100,000 Gauss super magnets. il diag Eng & Min J 165:128 Ap '64

Generating high magnetic fields. il Electronics 37:83-4 Je 29 '64

Getter sputtering for the preparation of thin films of superconducting elements and compounds. H. C. Theuerer and J. J. Hauser. diags J Ap Phys 35:554-5 Mr '64

Hard superconducting films from exploding wires. M. Garbuny and others. J Ap Phys 34:3642-3 D '63

High-field superconductors. Engineer 217:783 My 1 '64

High magnetic field achieved in electric power research. Franklin Inst J 277:296 Mr '64

Image properties of a superconducting ground plane. A. R. Sass. diags J Ap Phys 35:516-21 Mr '64

Inductive behavior of superconducting magnets. C. F. Hempstead and others. bibliog diags J Ap Phys 34:3226-36 N '63

International superconductivity conference, Hamilton, N.Y. Aug. 26-29, 1963. Phys Today 17:31-4+ F '64

Long superconductive delay lines. R. J. Allen. il IEEE Proc 52:615-16 My '64

Magnetic behavior of high-field superconductors; abstract. C. P. Bean. bibliog J Ap Phys 35:759 pt 2 Mr '64

Magnetic shielding by a superconducting cylinder. L. L. Vant-Hull and J. E. Mercereau. bibliog diags R Sci Instr 34:1238-42 N '63

Magnetics research turns up new designs, applications. S. B. Ruth. il Electronic Ind 23:30-4+ F '64

Magnetization and a superconducting solenoid. P. R. Aron. bibliog diags R Sci Instr 35:33-9 Ja '64

Magnetization of superconducting niobium-zirconium alloys. J. P. McEvoy, jr. and R. F. Decell. J Ap Phys 35:982-3 pt 2 Mr '64

Magnets punch holes to generate huge currents. diag Machine Design 36:12 Ap 9 '64

Maximum average energy density as the criterion for phase transition in thin superconductive films. K. L. Cheng. bibliog J Ap Phys 35:1302-5 Ap '64

Metastable resistance states in the intermediate region of superconductors. B. Lalevic. bibliog J Ap Phys 35:1785-9 Je '64

Microwave amplification with superconductors. A. S. Clorfeine. il diag IEEE Proc 52:844-5 Jl '64

Microwave properties of superconductors. J. I. Gittleman and B. Rosenblum. bibliog diags IEEE Proc 52:1138-47 O '64

New electric flux pump. Franklin Inst J 277:625 Je '64

New powerful superconductive magnet. Franklin Inst J 278:157-8 Ag '64

New superconducting energy storage system. Franklin Inst J 277:180-1 F '64

New theory called atom breakthrough. Steel 155:102+ Jl 27 '64

1960's: superconductivity's decade? E. Leslie. il diag Radio-Electronics 35:29 Ag '64

100-kilogauss practical field. W. E. Shoupp. il Machine Design 36:12 Mr 26 '64

Operation of the cryogenic continuous film memory cell. J. D. Barnard and others. bibliog il diags IEEE Proc 52:1177-81 O '64

Preparation and properties of thin-film hard superconductors. J. Edgecumbe and others. bibliog diags J Ap Phys 35:2198-202 Jl '64

Properties of superconducting niobium films made by asymmetric ac sputtering. R. Frerichs and C. J. Kircher. bibliog diag J Ap Phys 34:3541-3 D '63

Resource letter Scy-1 on superconductivity. D. M. Ginsberg. Am J Phys 32:85-9 F '64

Ryotron, a new cryogenic device. R. A. Gange. bibliog diags IEEE Proc 52:1216-23 O '64

Ryotron, a variable inductance cryogenic device. J. C. Miller and others. il plans diags IEEE Proc 52:1223-33 O '64

Stronger fields from new superconductor. il Materials in Design Eng 59:130+ F '64

Superconducting behavior of pressure-induced zirconium polymorph. B. Tittmann and others. bibliog J Ap Phys 35:732-3 Mr '64

Superconducting coils. R. H. Levy and Z. J. J. Stekly. bibliog il Astronautics & Aeronautics 2:30-8 F '64

Superconducting electric generator. Engineering 197:591 Ap 24 '64

Superconducting generator. diag Mech Eng 86:60 My '64

Superconducting generators for superconducting magnets. diag Westinghouse Eng 24:114 Jl '64

Superconducting Helmholtz pair. J. M. Younse and N. G. Einspruch. diags IEEE Proc 52:1238-9 O '64

Superconducting level gauges, vanadium and tinned constantan. B. F. Figgins and others. J Sci Instr 41:520 Ag '64

Superconducting magnet design. J. D. A. Day. diag J Sci Instr 40:583-5 D '63

Superconducting magnet has uniform field. Chem & Eng N 42:55-6 Je 8 '64

Superconducting magnets. M. Tanenbaum. diags Machine Design 36:203+ Mr 26 '64

Superconducting magnets and hard superconductivity. Y. B. Kim. il diags Phys Today 17:21-30 S '64

Superconducting magnets and the L.1000 cryomagnetic system. M. Wood. diag J Sci Instr 41:269-70 My '64

Superconducting magnets now become working tools. il Elec Eng 82:696 N '63

Superconducting material. il Mech Eng 86:53 Je '64

Superconducting niobium films by vacuum deposition. P. Fowler. bibliog diags J Ap Phys 34:3538-40 D '63

SUPERCONDUCTIVITY—*Continued*

Superconducting niobium stannide; special report. bibliog il diags RCA R 25:333-61 S '64

Superconducting semiconductors. Sci Am 210: 56+ Je '64

Superconducting thin films of niobium, tantalum, tantalum nitride, tantalum carbide, and niobium nitride. D. Gerstenberg and P. M. Hall. bibliog diag Electrochem Soc J 111:936-42 Ag '64

Superconducting-to-normally conducting transitions in strip transmission line structures. A. R. Sass and F. J. Friedlaender. bibliog diags J Ap Phys 35:1494-500 My '64

Superconductive columbium-tin wire. L. C. Shaheen. Electro-Tech 72:11-12 N '63

Superconductive tunneling. M. D. Fiske and I. Giaever. bibliog diags IEEE Proc 52:1155-63 O '64

Superconductive windings in power transformers. K. J. R. Wilkinson. diags Inst E E Proc 110:2271-9 D '63; Discussion. 111:1195-8 Je '64

Superconductive wire. P. J. Ottowitz. Wire & Wire Prod 39:407+ Mr '64

Superconductivity and solid-state devices. Electro-Tech 72:13 N '63

Superconductivity in the high-pressure InSb-beta-Sn system. S. D. Nye and others. bibliog J Ap Phys 35:1361-2 Ap '64

Superconductivity; rapid cooling causes gold and germanium mix to become superconductors. Product Eng 35:54 Ag 17 '64

Superconductivity; what do we know? il diag Engineering 198:394-5 S 25 '64

Superconductors. D. K. Fox. il diags Tool & Manuf Eng 53:47-50 S '64

Superconductors in instrumentation. D. H. Parkinson. bibliog diags J Sci Instr 41:68-77 F '64

Superconductors not for transformers. Elec World 161:181 Mr 23 '64

Supercooled coils promise inductive energy storage. P. R. Wiederhold and D. L. Ameen. il diag Electronics 37:75-6+ Mr 13 '64

Supercooled magnet yields repeatable 100 kilogauss. W. T. Reynolds. Electronics 37:47 F 28 '64

Three-phase superconducting motor. J. D. Jones and P. W. Matthews. diags R Sci Instr 35:630-3 My '64

Vapor-deposited superconductive films of Nb, Ta, and V. C. A. Neugebauer and R. A. Ekvall. bibliog il diag J Ap Phys 35:547-53 Mr '64

World's most powerful superconducting magnet. G. Corfield. Gas 40:15 O '64

SUPERCRITICAL steam pressure plants. See Steam plants—High pressure

SUPERHEATED steam

Corrosion of steels and nickel alloys in superheated steam. W. E. Ruther and S. Greenberg. bibliog il diag Electrochem Soc J 111: 1116-21 O '64

Critical flow function for superheated steam. J. W. Murdock and J. M. Bauman. bibliog A S M E Trans ser D 86:507-16 S '64; Abstract. Combustion 35:23-4 Ja '64; Discussion. A S M E Trans ser D 86:517-18 S '64

Steam cycles for advanced gas-cooled magnox reactors. N. G. Worley. Engineer 217:307-9 F 14 '64

Vacuum-spray evaporator. W. Schultz. il diags Food Eng 36:62-3 Ag '64

Viscosity of superheated steam up to 275 deg C.; a refined determination. J. Kestin and P. D. Richardson. bibliog A S M E Trans ser C 85:295-302 N '63

SUPERHEATERS

Steam generation; designing for higher temperatures and pressures. R. J. Bender. il diags Power 108:sup24-34 Je '64

SUPERMARKETS

Machines for shops and supermarkets. il Engineering 197:627 My 8 '64

Lighting

Quality, for sales appeal in a supermarket. il Illum Eng 59:217-18 Ap '64

Sign lighting as an integral part of a structure. D. W. King. il Illum Eng 59:126 F '64

SUPERPRESSURE plants. See Steam plants—High pressure

SUPERSONIC aerodynamics. See Aerodynamics, Supersonic

SUPERSONIC airplanes. See Airplanes, Supersonic

SUPERVISORY control. See subdivision Supervisory control under special subjects, e.g. Electric distribution; Electric plants (central stations); Gas distribution; Water distribution

SUPERVISORY workers

Expression: leadership's major test. W. Wiesman. Hydrocarbon Process & Pet Refiner 43:102-4 Ag '64

Getting answers the easy way. W. G. Shepherd. Textile World 114:127-8 Je '64

Learn to use the managerial grid. C. H. Vervalin. Hydrocarbon Process & Pet Refiner 43:191-4 Ap; 184+ My '64

Psychology of supervision. G. A. Lessells. bibliog Chem Eng 71:176+ My 11; 152+ My 25 '64

Relationships with management. Machine Design 36:132-5 S 24; 140-3 O 8; 164-6 O 22 '64

Seventh-year review of the safety program for the first-level supervisor. A. C. Rener. Am Water Works Assn J 55:1450-4 N '63

Yes, you can remember. W. G. Shepherd. Textile World 114:83-4 Ap '64

You can keep 'em on the payroll. M. E. Lynch and C. B. Lepak. Hydrocarbon Process & Pet Refiner 43:185-8+ O '64

See also

Foremen

Rating

Relationships with management; engineers rate their supervisors. Machine Design 36: 140-3 O 8 '64

Training

In-service training for maintenance supervisors. B. C. Parker. Pub Works 95:142-4 Ag '64

What progress in supervisor training? Engineering 198:48 Jl 10 '64

See also

Foremen—Training

SUPPLIER relations. See Purchasing—Supplier relations

SUPREME court. See United States—Supreme court

SURFACE active substances

Adsorption of some organic surfactants on rutile surfaces; electron microscope studies. G. D. Cheever and E. G. Bobalek. bibliog il Ind & Eng Chem Fundamentals 3:89-94 My '64

Alkyloxymethyl ethers of sucrose and glucose as surfactants. G. R. Ames and others. bibliog J Ap Chem 14:245-9 Je '64

Alpha-olefins in the surfactant industry. T. H. Liddicoet. bibliog Am Oil Chem Soc J 40:631-6 N '63

Analytical separation of surface active agents. E. W. Blank and R. M. Kelley. bibliog Am Oil Chem Soc J 41:137-9 F '64

Anionic phosphate surfactants. R. S. Cooper. Am Oil Chem Soc J 40:642-5 N '63

Armour markets amine oxides as surface-active agents. Chem & Eng N 42:86-7 Mr 9 '64

Automatic determination of cloud points of nonionic surfactants. H. Baum and others. il Materials Res & Stand 4:26-8 Ja '64

Detergency; micellar relationships of an anionic-nonionic surfactant mixture. A. M. Mankowich. bibliog Am Oil Chem Soc J 41: 449-52 Je '64

Detergents and surface active agents. L. Raphael. bibliog diags Manuf Chem 32:270-2, 554-7; 33:114-16, 323-6 Je, D '61, Mr, Ag '62; 35:59-60+ Mr; 57-9 O '64

Determination of hydrophile-lipophile balance by gas-liquid chromatography. P. Becher and R. L. Birkmeier. bibliog flow diag diag Am Oil Chem Soc J 41:169-72 Mr '64

Developments in cosmetic emulsifiers; Crodafos. Manuf Chem 35:46-8 Jl '64

Effect of surface active agents on the stability of falling liquid films. S. Whitaker. bibliog diags Ind & Eng Chem Fundamentals 3:132-42 My '64

Fatty amine oxides. E. Jungermann and M. E. Ginn. bibliog Soap & Chem Spec 40: 59-62 S '64

Flotation with insoluble reagents; effects of surface-active reagents on the spreading of oil at coal-water interfaces. A. R. Burkin and J. V. Bramley. J Ap Chem 13:417-22 O '63

General method for the chromatographic separation of nonionic surface-active agents and related materials. M. J. Rosen. bibliog Anal Chem 35:2074-7 D '63

Houdry markets surfactant for urethane. R. A. Blomquist. il Chem & Eng N 42:46 Je 1 '64

Interaction between some acid wool dyes and nonylphenol-ethylene oxide derivatives; diffusion coefficients of dyes in aqueous solutions containing surfactants. B. R. Craven and A. Datyner. Soc Dyers & Col J 79: 515-19 N '63

SURFACE active substances—*Continued*

Leveling agents for wool; abstract. H. Abel. Am Dyestuff Rep 52:949 N 25 '63

Light scattering study of sodium 2,6-di-*n*-alkylnaphthalene-1-sulfonates. I. J. Heilweil. bibliog J Colloid Sci 19:105-12 F '64

Molecular weight distribution of nonionic surfactants; foam, wetting, detergency, emulsification and solubility properties of normal distribution and homogeneous p,t-octylphenoxyethoxyethanols. E. H. Crook and others. bibliog Am Oil Chem Soc J 41:231-7 Mr '64

Nonionic surface-active agents. B. A. Mulley and A. D. Metcalf. bibliog diag J Colloid Sci 17:523-30; 19:201-12, 501-15 Ag '62, Mr, Ag '64

Nonionic surface-active compounds; interfacial tensions of solutions of nonionic surface-active agents. P. Becher. bibliog diag J Colloid Sci 18:665-73 S '63

Non-ionic surfactants and water absorption. R. W. Mendes and others. bibliog Drug & Cosmetic Ind 95:34-5+ Jl '64

Physical chemistry of nonionic detergents. M. J. Schick. bibliog Am Oil Chem Soc J 40:680-7 N '63

Preparation of a series of molecularly homogeneous para-*t*-octylphenoxypoly (ethoxy) ethanols. R. C. Mansfield and J. E. Locke. bibliog il Am Oil Chem Soc J 41:267-72 Ap '64

Quantitative applications of high-resolution proton magnetic resonance measurements in the characterization of detergent chemicals. M. M. Crutchfield and others. bibliog Am Oil Chem Soc J 41:129-32 F '64

Recent advances in fatty amine oxides. D. B. Lake and others. bibliog Am Oil Chem Soc J 40:628-31, 640-2 N '63

Relation of structure of ethylene oxide ether-type nonionic surfactants to herbicidal activity of water-soluble herbicides. L. L. Jansen. bibliog diags J Agri & Food Chem 12:223-7 My '64

Secondary factors in processing wool with water-soluble lubricants. J. T. Taylor and J. J. Benischeck. bibliog Am Dyestuff Rep 53:222-8 Mr 16 '64

Separate determinations of the surface excesses of surface-active ions and of gegenions at the air-solution interface. K. Shinoda and H. Nakayama. bibliog J Colloid Sci 18:705-12 O '63; Discussion. E. H. Lucassen-Reynders. 19:584-5 Ag '64

Sodium dialkyl phosphates; surfactant properties and use in heavy duty detergents. R. S. Cooper and A. D. Urfer. Am Oil Chem Soc J 41:337-40 My '64

Surface active agents, their behavior and industrial use. E. G. Schwarz and W. G. Reid. bibliog Ind & Eng Chem 56:26-31 S '64

Surface activity of symmetrical and unsymmetrical mono- and di-glycerides. L. Hartman. bibliog Am Oil Chem Soc J 41:519-20 Jl '64

Syndets with alcohol derivatives. T. P. Matson. Soap & Chem Spec 39:52-4+ N '63

Use of surface active agents in chemical processes. C. D. Moore and R. B. Hardwick. bibliog Ind Chem 40:145-7 Mr '64

See also

Cleaning compositions

Shampoos

Analysis

Identification of surface active agents in admixture by thin layer chromatography. C. T. Desmond and W. T. Borden. bibliog Am Oil Chem Soc J 41:552-3 Ag '64

Microdetermination of polyoxyethylene and polyoxypropylene surface active agents. J. L. Williams and H. D. Graham. bibliog diag Anal Chem 36:1345-9 Je '64

Radiometric determination of adsorption isotherms from solution on organic substrate. J. Haberman and T. C. Castorina. bibliog Anal Chem 36:1917-20 S '64

Recent advances in the analysis of surface-active agents by non-instrumental methods. M. J. Rosen. bibliog diag Am Oil Chem Soc J 40:687-91 N '63

Testing

Automatic instrument for measuring surface activity. T. B. Hilton and others. bibliog il diags Soap & Chem Spec 40:48-51 Mr '64

SURFACE area of particles. See Surfaces—Areas and volumes

SURFACE energy

Cleavage surface energy of {100} magnesium oxide. A. R. C. Westwood and D. L. Goldheim. bibliog il diags J Ap Phys 34:3335-9 N '63

Effect of Co-60 gamma irradiation on surface energy of KCl. T. K. Bhattacharya and others. J Ap Phys 35:1352-3 Ap '64

Effect of surface energy on the wear process. E. Rabinowicz and R. G. Foster. bibliog diags A S M E Trans ser D 86:306-10; Discussion. 310-12 Je '64

Elastic energy at fracture and surface energy as design criteria for thermal shock. D. P. H. Hasselman. bibliog Am Cer Soc J 46:535-40 N '63

SURFACE phenomena

Calculation of the potential distribution at the surface of an intrinsic semiconductor. R. B. McQuistan. J Ap Phys 34:3626-8 D '63

Cesium migration may give clue to new family of electronic devices. il Elec Eng 82:741 D '63

Comparison of the photoelectric properties of cleaved, heated, and sputtered silicon surfaces. F. G. Allen and G. W. Gobeli. bibliog diags Ap Phys 35:597-605 Mr '64

Defect structures on polished quartz surfaces as seen by X-ray diffraction microscopy. J. B. Newkirk and others. il J Ap Phys 35:1362-3 Ap '64

Effect of collision focusing on monocrystalline sputtering yield theory. H. P. Smith, jr. bibliog diag J Ap Phys 35:2522-4 Ag '64

Effect of rougher-than-rough surfaces on molecular flow through short ducts. D. H. Davis and others. bibliog diags J Ap Phys 35:529-32 Mr '64

Effect of surface polishing on the linewidth and high-power properties of single-crystal spheres of ZnY. S. Dixon, jr. bibliog J Ap Phys 34:3441-2 D '63

Effects of γ-radiation on the surface properties of silica as studied by the infrared spectra of adsorbed molecules. D. J. C. Yates and P. J. Lucchesi. bibliog Am Chem Soc J 86:4258-65 O 20 '64

Electric stresses at conducting surfaces located in the field between plane parallel electrodes. B. Salvage. Inst E E Proc 111:1173-6 Je '64

Energy distribution of sputtered Cu atoms. R. V. Stuart and G. K. Wehner. bibliog diag J Ap Phys 35:1819-24 Je '64

Extinction of gas-shock luminosity against transparent surfaces. R. A. Plauson and H. D. Mallory. bibliog il diag J Ap Phys 35:502-7 Mr '64

Fermi surface of nickel from galvanomagnetic measurements. W. A. Reed and E. Fawcett. bibliog diag J Ap Phys 35:754-9 pt 2 Mr '64

Fracture processes in polymeric materials; further studies on the topography of fracture surface. J. P. Berry. bibliog il J Ap Phys 35:1355-6 Ap '64

GaP surface-barrier diodes. H. G. White and R. A. Logan. bibliog diag J Ap Phys 34:1990-7 Jl '63; Discussion. M. Cowley and H. Heffner. 35:255-6 Ja '64

Generation of elastic waves by transient surface heating. R. M. White. bibliog il diags J Ap Phys 34:3559-67 D '63

Heating effect of an electron beam impinging on a solid surface, allowing for penetration. J. Vine and P. A. Einstein. bibliog il diags Inst E E Proc 111:921-30 My '64

InSb diodes under controlled surface conditions. K. N. Maffitt and R. K. Mueller. bibliog J Ap Phys 35:1563-4 My '64

Influence of oxygen on the surface mobility of tin atoms in thin films. H. L. Caswell and Y. Budo. bibliog il J Ap Phys 35:644-7 Mr '64

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Instrument measuring the decay of height differences in the surface of a layer of viscous liquid. U. Zorll. il diags J Sci Instr 41:290-4 My '64

Interferometer for testing extended surfaces such as surface plates and precision ways. J. B. Saunders and J. V. McDermott. il diag J Res Nat Bur Stand 68C:83-4 Ap '64

Investigation of the patch effect in uranium carbide. G. A. Haas and R. E. Thomas. bibliog il diag J Ap Phys 34:3457-65 D '63

Large differences in surface ionization efficiencies between K and its halides on the contaminated surface of a Pt alloy (8 per cent W) wire. T. R. Touw and J. W. Trischka. J Ap Phys 34:3635-6 D '63

Low-energy electron diffraction studies of gas adsorption on platinum (100), (110), and (111) surfaces. C. W. Tucker, jr. bibliog il diags J Ap Phys 35:1897-905 Je '64

SURFACE phenomena—*Continued*

Mass spectrometric study of neutral particles sputtered from Cu by O- to 100-eV Ar ions. J. R. Woodyard and C. B. Cooper. bibliog diags J Ap Phys 53:1107-17 Ap '64

Mathematical treatment of competitive surface and volume diffusion processes. H. Amar and J. B. Drew. diags J Ap Phys 35: 533-5 Mr '64

Measurement of dielectric losses and surface conductivity of dielectrics in parallel plane test capacitors. L. Frenkel. diags J Res Nat Bur Stand 68A:185-8 Mr '64

New England regional conference on metallic surfaces, their behavior properties, and protection, Schenectady, May 14-15; abstracts of papers. J Metals 16:735-6 S '64

New surface phenomenon in thermoplastic layers and its use in recording information. F. H. Nicoll. bibliog il diags RCA R 25:209-31 Je '64

Outline of random surface theory and applications. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1035-9 S '64

Photocontrolled surface conductance in anodized InSb. R. K. Mueller and R. L. Jacobson. bibliog diags J Ap Phys 35:1524-9 My '64

Preparation of uniaxial permalloy films by cathodic sputtering on glass and metal substrates. B. L. Flur and J. Riseman. bibliog J Ap Phys 35:344-7 F '64

Properties of superconducting niobium films made by asymmetric ac sputtering. R. Frerichs and C. J. Kircher. bibliog diag J Ap Phys 34:3541-3 D '63

Radiation-induced cavities and exfoliation. W. Primak. bibliog J Ap Phys 34:3630-1 D '63

Secondary positive ion emission from a tantalum surface. J. A. McHugh and J. C. Sheffield. bibliog diag J Ap Phys 35:512-15 Mr '64

Selected area X-ray diffraction studies of surface damage in sliding on single-crystal copper. D. D. Roshon, jr. bibliog il diag J Ap Phys 35:1262-9 Ap '64

Simple technique for examination of sputtering patterns. R. E. Nielsen and W. B. Shepherd. R Sci Instr 35:123-4 Ja '64

Slow surface relaxation of germanium. M. H. Pilkuhn. bibliog J Ap Phys 34:3302-5 N '63

Spreading of organo-bentonites on water. W. H. Slabaugh. J Colloid Sci 19:165-72 F '64

Sputtering in the upper atmosphere. D. McKeown and others. AIAA J 2:400-1 F '64; Discussion. 2:1678-9 S '64

Sputtering ion sources for solids. H. J. Liebl and R. F. K. Herzog. bibliog diag J Ap Phys 34:2893-6 S '63; Discussion. H. P. Smith, jr. 35:3067 O '64

Sputtering of metals by hydrogen ions. C. E. KenKnight and G. K. Wehner. bibliog il diag J Ap Phys 35:322-6 F '64

Sputtering of polycrystalline copper and silver by 30-170 kev argon ions. C. E. Ramer and others. bibliog diag J Ap Phys 35:1673-80 Je '64

Sputtering yields of single crystals bombarded by one- to ten-kev Ar^+ ions. G. D. Magnuson and C. E. Carlston. bibliog diags J Ap Phys 34:3267-73 N '63

Statistical surface thermodynamics of simple liquid mixtures. C. A. Eckert and J. M. Prausnitz. bibliog A I Ch E J 10:677-83 S '64

Surface activity and preferential ablation. B. Steverding. bibliog AIAA J 2:549-51 Mr '64

Surface analysis; interdisciplinary aspects of surface phenomena; symposium. il Ind & Eng Chem 56:40-3 Jl '64

Surface charge of alumina and magnesia in aqueous media. M. Robinson and others. bibliog diag Am Cer Soc J 47:516-20 O '64

Surface forces and the stability of colloids and disperse systems. B. V. Derjaguin and others. il diags J Colloid Sci 19:113-35 bibliog(p 134-5) F '64

Surface properties and flow behavior of kaolinite. R. J. Hunter and A. E. Alexander. bibliog J Colloid Sci 18:820-62 D '63

Surface properties of silica; abstract and discussion. J. A. Hockey. Chem & Ind p984 Je 6 '64

Surface-sensitive mechanical properties. A. R. C. Westwood. bibliog il diags Ind & Eng Chem 56:14-25 S '64

Temperature dependence of ejection patterns in Ge sputtering. G. S. Anderson and others. il J Ap Phys 34:3492-5 D '63

See also

Adhesion
Adsorption
Catalysis
Contact angle
Electric contacts
Electric double layer
Films
Friction
Interfaces
Specific surface
Wetting

SURFACE plates

Surface plate inspection platforms slide on air. il Product Eng 35:65 Mr 30 '64

SURFACE tension

Computation of surface tension and of contact angle by the sessile-drop method. D. N. Staicopolus. bibliog J Colloid Sci 17:439-47; 18:793-4 Je '62, O '63

Discharge method for surface-tension measurements. V. de L. Davies and J. M. West. bibliog diags Inst Metals J 92:246-7 '63-64

Effect of surface active agents on the stability of falling liquid films. S Whitaker. bibliog diags Ind & Eng Chem Fundamentals 3:132-42 My '64

Effect of surface tension on factors in boiling heat transfer. J. B. Roll and J. E. Myers. bibliog A I Ch E J 10:530-4 Jl '64

Influence of small additions of sodium on the surface tension of aluminium and aluminium-silicon alloys. V. D. Davies and J. M. West. bibliog diag Inst Metals J 92:208-10 '63-64

Molar volume and surface tension of fused metaphosphate-sulfate systems. B. B. Owens and S. W. Mayer. bibliog Am Cer Soc J 47: 347-51 Jl '64

Separate determinations of the surface excesses of surface-active ions and of gegenions at the air-solution interface. K. Shinoda and H. Nakayama. bibliog J Colloid Sci 18:705-12 O '63; Discussion. E. H. Lucassen-Reynders. 19:584-5 Ag '64

Surface balance for production of rapid changes of surface area with continuous measurement of surface tension. R. M. Mendenhall and A. L. Mendenhall, jr. bibliog il diags R Sci Instr 34:1350-2 D '63

Surface tension and the morphology of halloysite. E. W. Hope and J. A. Kittrick. bibliog il Am Mineralogist 49:859-66 Jl '64

Theoretical approach helps explain surface tension of solids. G. C. Benson and K. S. Yun. Chem & Eng N 42:44+ S 7 '64

See also

Interfacial tension

SURFACES

Adhesion of printing inks and adhesives on pretreated polyolefin surfaces. K. F. Büchel. bibliog il Brit Plastics 37:142-5 Mr '64

Dependence of the reliability of electrical connections and joints on the microtopography of the mating surfaces. J. B. P. Williamson. il diag Machine Design 36:172+ My 7 '64

Diffusionally controlled surface reactions in tube-wall reactors. R. S. Alwitt and R. S. Kapner. A I Ch E J 10:417+ My '64

Effect of surface preparation on cracking and structure of chromium deposits. D. W. Hardesty. bibliog il diags Electrochem Soc J 111:912-19 Ag '64

Electric stresses at conducting surfaces located in the field between plane parallel electrodes; experiments with an electrolytic tank. M. M. Sakr and B. Salvage. Inst E E Proc 111:1179-81 Je '64

Ellipsometry; valuable tool in surface research. K. H. Zaininger and A. G. Revesz. diags RCA R 25:85-115 bibliog(p 112-15) Mr '64

Fission-fragment tracks and directional effects in the surface of LiF crystals. T. G. Knorr. bibliog il diag J Ap Phys 35:2753-60 S '64

Fracture mechanism of wool fibers under tension. M. W. Andrews. bibliog il diags Textile Res J 34:831-5 O '64

Heat transfer and forces for free-molecule flow on a concave cylindrical surface. E. M. Sparrow and others. bibliog diags A S M E Trans ser C 86:1-9; Discussion. 9-11 F '64

How to prepare surfaces for adhesive bonding. il Materials in Design Eng 58:100-1 N '63

Interaction of water with iron and titanium oxide surfaces; goethite, hematite, and anatase. J. J. Jurinak. bibliog J Colloid Sci 19:477-87 Je '64

Interactions of gas molecules with an ideal crystal surface. R. A. Oman and others. bibliog il diags AIAA J 2:1722-30 O '64

Interferometric observation of flat surfaces and multiple-beam Edser-Butler bands. D. B. Keck and C. D. Hause. il diags Am J Phys 32:707-11 S '64

SURFACES—*Continued*

Mass transfer from a flat surface to an impinging turbulent jet. V. V. Rao and O. Trass. bibliog diags Can J Chem Eng 42:95-9 Je '64

Mechanism of heat transfer to a fixed surface in a fluidized bed. E. N. Ziegler and W. T. Brazelton. bibliog diag Ind & Eng Chem Fundamentals 3:94-8 My '64

Micromorphology and appearance of plastics. R. J. Clark and G. W. Ingle. il diags Materials Res & Stand 4:76-9 F '64

Microwave measurement of surface conductance of semiconductors. C. K. Chatterji and others. diag IEEE Proc 52:873-4 Jl '64

Non-destructive direct carbon-replica method for examination of Si surfaces. R. Stickler. bibliog il J Sci Instr 41:523-4 Ag '64

Non-Newtonian gravity flow along inclined plane surfaces. G. Astarita and others. bibliog diags Ind & Eng Chem Fundamentals 3:333-9 N '64

Optical systems for observing surface topography by frustrated total internal reflection and by interference. C. W. McCutchen. bibliog il diags R Sci Instr 35:1340-5 O '64

Points and surfaces checked by probes. il Iron Age 192:172 N 14 '63

Preparation and evaluation of clean metal surfaces. H. B. Linford. bibliog il Corrosion 20: 213-17 Jl '64

Problem of drainage of fluids on vertical surfaces. C. Gutfinger and J. A. Tallmadge. A I Ch E J 10:774+ S '64

Radiation heat transfer in semigray enclosures with specularly and diffusely reflecting surfaces. R. P. Bobco. bibliog diags A S M E Trans ser C 86:123-30 F '64

Relation between molecular force calculations and observed strengths of enamel-metal interfaces. W. J. O'Brien and G. Ryge. bibliog il diags Am Cer Soc J 47:5-8 Ja '64

Role of displaced metal in the sliding of flat metal surfaces. M. Cocks. bibliog il diags J Ap Phys 35:1807-14 Je '64

Simple method for the single or repeated replication of selected areas of surfaces in electron microscopy. I. M. Watt. diag J Sci Instr 41:107-8 F '64

Spotted surfaces give high heat-transfer coefficients. Chem & Eng N 42:39 Ag 24 '64

Statistical problems in electromagnetics; rough surface. W. S. Ament. bibliog J Res Nat Bur Stand 68D:451-4 Ap '64

Statistics of random surfaces. I. Kay and P. Swerling. bibliog J Res Nat Bur Stand 68D:1035-47 S '64

Theory of gas-solid chromatography; potential for analytical use and the study of surface kinetics. J. C. Giddings. bibliog Anal Chem 36:1170-5 Je '64

Transport from extended surfaces. S. K. Stynes and J. E. Myers. bibliog diags A I Ch E J 10:437-44 Jl '64

Wear of graphite sliding on a steel surface and the influence of an electric current on the rate of wear. J. E. Thompson and M. J. B. Turner. bibliog diags Inst E E Proc 109 pt A:235-42 Je '62; Discussion. 111:149-50 Ja '64

See also

Boundary value problems
Curvature
Films
Glass—Surface
Interfaces
Metal finishing
Specific surface

Areas and volumes

Effect of abrasion on the specific surface area of metals and glass. R. J. Adams and others. bibliog il Electrochem Soc J 111:774-80 Jl '64

Investigation of manganese dioxides; surface area and water content. R. F. Amlie and A. Tvarusko. bibliog Electrochem Soc J 111:496-501 My '64

Measurement of the specific surface of fly ash. S. K. Chopra and S. N. Narain. bibliog Materials Res & Stand 4:487-90 S '64

Monolayer capacity in the physical adsorption of gases on solids. K. S. W. Sing. bibliog Chem & Ind p321-2 F 22 '64

Preparation and surface area measurements of platinized-platinum electrodes. M. J. Joncich and N. Hackerman. bibliog diags Electrochem Soc J 111:1286-9 N '64

Rapid and precise method for determining surface areas. J. H. Atkin. flow diag il Anal Chem 36:579-83 Mr '64

Surface area measurements and adsorption of soils. M. J. Suess. bibliog il Am Soc C E Proc 90 [IR 1 no 3841]:87-108 Mr '64

Surface area of nonporous carbon blacks and area of the adsorbed nitrogen molecule. A. Voet. bibliog Rubber Chem & Tech 37:630-4 Jl '64

Thermal decomposition of cerous oxalate and variation of surface area of the products. V. V. Subba Rao and others. bibliog Am Cer Soc J 47:356-60 Jl '64

Volume change with constant specific surface area; a topological remark. T. Katsurai and M. Ariyama. diags J Colloid Sci 19: 585-9 Ag '64

Smoothness testing

Effect of aging on surface roughness of thin films. R. J. Prosen and others. bibliog il Electrochem Soc J 111:488-91 Ap '64

Effect of surface roughness on the total hemispherical and specular reflectance of metallic surfaces. R. C. Birkebak and and others. bibliog il diags A S M E Trans ser C 86:193-9 My '64

Evaluating surface finishes. H. L. Seekins. bibliog il diags I S A J 10:51-6 F '63; Abstract. Metal Prog 85:150+ My '64

Helicopter spar gauging methods. il Engineering 198:126 Jl 24 '64

Investigations on the nature of surface finish and its variation with cutting speed. K. L. Chandiramani and N. H. Cook. bibliog il diags A S M E Trans ser B 86:134-40 My '64

Measurement of smooth surface finishes. H. E. Bennett. bibliog il diags Ind Quality Control 20:18-23 F '64

Measuring surface finish; state-of-the-art report. J. B. Bryan and others. bibliog il diags Mech Eng 85:42-6 D '63

Measuring texture and contact area of endwood surfaces. C. W. Maxey. diags Materials Res & Stand 4:279-85 Je '64

New methods devised to evaluate effectiveness of boundary lubricants; abstract. E. Rabinowicz and R. G. Foster. S A E J 72: 89 F '64

Statistical methods in radar astronomy; determination of surface roughness. H. S. Hayre. bibliog J Res Nat Bur Stand 67D: 763-4 N '63

Studies of the surface geometry of fibers. S. C. Scheier and W. J. Lyons. il diags Textile Res J 34:410-16 My '64

Survey of hull and propeller roughness data. F. Wellman. bibliog diags Naval Eng J 76:101-8 F '64

With acrylic auto finishes, what's underneath counts. A. S. Kasper. il S A E J 72:62-5 Jl '64

World manufacturing research; CIRP meeting, Cincinnati; abstracts of papers on surface finishes. Tool & Manuf Eng 53:65-8 Jl '64

SURFACTANTS. See Surface active substances

SURGE tanks

Comparative experiments on surge tank performance. I. S. Pearsall. bibliog il diags Inst Mech Eng Proc 177 no 35:951-66; Discussion. 967-70; Reply. 971 '63

SURGERY

Corrosion in surgical implants. J. H. Hicks. il Chem & Ind p 1240-6 Jl 11 '64

Inguinal herniorrhaphy: immediate return to unrestricted work; surgical techniques using local anesthesia. C. J. Bellis. bibliog il Ind Med 33:721-5 O '64

See also

Ear—Surgery
Hospitals—Operating rooms

SURGES, Electric. See Electric transient phenomena

SURGES, Hydraulic. See Water hammer

SURGICAL apparatus and instruments

Electronic monitoring system for surgery at the National institutes of health. il Anal Chem 36:sup31A-4A+ My '64

SURGICAL supplies

Bet your life on tricot. O. Engelhard. il diag Textile Ind 128:74-7 Ap '64

SURINAM

See also

Mines and mineral resources—Surinam

SURVEYING

Computation of offsets from curves. J. J. Durkin. diags Civil Eng 34:67 S '64

Control traverses and their adjustment. E. D. Morse. bibliog maps diags Am Soc C E Proc 89 [SU 2 no 3546]:39-53 Je '63; Discussion. 89 [SU 3 no 3684]:225-8 O '63; 90 [SU 1 no 3885]:81-4 Ap '64

SURVEYING—*Continued*

Orthonormal equations for surveying adjustment. H. L. Su. bibliog diags Am Soc C E Proc 89 [SU 1 no 3438]:77-90 F '63; Discussion. 89 [SU 3 no 3648]:201-12 O '63; Reply. 90 [SU 2 no 3978]:171-3 Jl '64

Professional practice of surveying and mapping within civil engineering. Civil Eng 33:56-8 N '63

Punched cards replace survey notebook. P. D. Spindel. il Eng N 173:166 S 17 '64

Role of surveying in civil engineering education. M. O. Schmidt. Am Soc C E Proc 89 [SU 1 no 3420]:27-33 F '63; Discussion. 89 [SU 2 no 3563]:95-6 Je; [SU 3 no 3684]: 185-9 O '63; Reply. 90 [SU 1 no 3885]:65-6 Ap '64

Solar-altitude azimuth. P. Hartman. bibliog diags Am Soc C E Proc 89 [SU 1 no 3410]: 1-12 F '63; Discussion. W. H. Eldridge. 89 [SU 3 no 3684]:181-3 O '63; Reply. 90 [SU 1 no 3885]:63-4 Ap'64

Surveying and mapping for water-resource planning. K. W. Bauer. maps Am Soc C E Proc 90 [SU 1 no 3855]:1-15 Ap '64; Excerpts. Pub Works 95:120-2 My '64

Surveyors shoot at moving targets. Eng N 172:105 Ap 2 '64

Wire stakes facilitate survey crew work. il Elec World 162:94 O 5 '64

See also

Geodesy
Mapping
Mine surveying
Photogrammetry
Radar—Surveying use
Roads—Surveying
Topographical maps

Study and teaching

Case of the missing curriculum. K. S. Curtis. Am Soc C E Proc 90 [SU 2 no 3963]:27-48 bibliog(p45-8) Jl '64

SURVEYING, Aerial

Aeromagnetics. M. S. Reford and J. S. Sumner. il maps diags Geophysics 29:482-516 bibliog(p515-16) Ag '64

Low-amplitude aeromagnetic anomalies in southeastern Missouri. J. W. Allingham. bibliog maps diags Geophysics 29:537-52 Ag '64

Magnetic anomalies over thin sheets. M. S. Reford. bibliog diags Geophysics 29:532-6 Ag '64

Magnetic investigations of a ring dike, Buell Park, Ariz. R. L. Dubois and W. W. Carey. bibliog maps diags Geophysics 29:553-64 Ag '64

Mapping the world with the Air photographic and charting service. H. W. Hunt. il diags Civil Eng 34:36-9 F '64

Surveying and mapping, and environmental engineering. W. T. Pryor. il Am Soc C E Proc 90 [SU 2 no 3961]:1-15 Jl '64

See also

Mapping, Aerial

SURVEYING, Magnetic. See Magnetic surveying

SURVEYING instruments

Electronic surveying quickly spots pipeline route in south Louisiana. H. C. Bozeman. il map Oil & Gas J 62:110:11 My 11 '64

Surveying and mapping, and environmental engineering. W. T. Pryor. il Am Soc C E Proc 90 [SU 2 no 3961]:1-15 Jl '64

See also

Theodolites

SURVEYS, Traffic. See Traffic surveys

SUSPENDED railroads. See Railroads, Suspended

SUSPENSION bridges. See Bridges, Suspension

SUSPENSIONS

Analytical treatment of the laminar flow of annulus forming fibrous suspensions in vertical pipes. H. Meyer. bibliog diag Tappi 47:78-84 F '64

Boiling burnout heat flux measurements in a non-Newtonian suspension. D. M. Eissenberg. bibliog diags A I Ch E J 10:684-7 S '64

Concentration and mass flow distributions in a gas-solid suspension. S. L. Soo and others. bibliog diags Ind & Eng Chem Fundamentals 3:98-106 My '64

Device for producing droplet samples of suspensions for electron microscopy and especially for quantitative particle assay. W. J. Harris. diag J Sci Instr 41:636-7 O '64

Filtration and electrophoretic mobility studies of flocculated silica suspensions. J. C. Kane and others. bibliog Am Chem Soc J 86:3450-3 S 5 '64

Flow of clay-water suspensions. C. D. D. Howard. Am Soc C E Proc 89 [HY 5 no 3641]:89-97 S '63; Discussion. 90 [HY 1 no 3783]:367-9 Ja; [HY 2 no 3853]:393-6 Mr '64; Reply. 90 [HY 4 no 3980]:269-74 Jl '64

Gas-solid suspensions at high temperatures. E. M. Barston. J Ap Phys 35:2550-1 Ag '64

High viscosity suspensions. D. C. Chappelear and K. R. Nickolls. bibliog Chem Eng Prog 60:45-9 Ag '64

Inclined settling of dispersed suspensions of spherical particles in square-section tubes. D. R. Oliver and V. G. Jenson. bibliog diags Can J Chem Eng 42:191-5 O '64

Infrared analysis of suspended particulates with millipore filters and attenuated total reflection. R. W. Hannah and J. L. Dwyer. il Anal Chem 36:2341-4 N '64

Internal mutual flocculation in clay suspensions. H. van Olphen. bibliog J Colloid Sci 19:313-22 Ap '64

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures. D. M. Eissenberg. bibliog diag A I Ch E J 10:403-7 My '64

Measurement of suspended matter in stream water. K. Baalsrud and A. Henriksen. Am Water Works Assn J 56:1194-200 bibliog(p 1198-200) S '64

Number of particles in colloidal suspensions of silver bromide. E. J. Meehan and G. Chiu. Am Chem Soc J 86:1443-4 Ap 5 '64

Rheological factors for bentonite suspensions. W. F. Gabrysh and others. bibliog diags Am Cer Soc J 46:523-9 N '63

Rheology of emulsions and suspensions. J. G. Oldroyd. bibliog Am Perfumer 79:85-7 Je '64

Sediment transportation mechanics; suspension of sediment; progress report. diags Am Soc C E Proc 89 [HY 5 no 3636]:45-76 bibliog(p74-6) S '63; Discussion. 90 [HY 1 no 3783]:361-3 Ja; [HY 4 no 3980]:257-65 Jl '64; Reply. 90 [HY 5 no 4050]:155-7 S '64

Silver chloride disk technique for infrared spectra of aqueous polymer suspensions. R. K. Metzler. bibliog Anal Chem 36:2378-9 N '64

Surface composition of hydroxylapatite derived from solution behavior of aqueous suspensions. V. R. Deitz and others. bibliog J Colloid Sci 19:87-101 Ja '64

Suspended solids level recorder. il Engineering 197:192 Ja 31 '64

Suspension process for reservoir evaporation control. R. G. Dressler. bibliog Ind & Eng Chem 56:36-9 Jl '64

Transport characteristics of suspensions: representation of periodic phenomena on a flow regime diagram for dilute suspension transport. D. G. Thomas. bibliog diag A I Ch E J 10:303-8 My '64

Turbulent disruption of flocs in small particle size suspensions. D. G. Thomas. bibliog A I Ch E J 10:517-23 Jl '64

Turbulent flow with suspended particles. M. Hino. bibliog Am Soc C E Proc 89 [HY 4 no 3579]:161-85 Jl '63; Correction. 90 [HY 2 no 3853]:389-90 Mr '64

Velocity profiles of thoria suspensions in turbulent pipe flow. D. M. Eissenberg and D. C. Bogue. bibliog diag A I Ch E J 10:723-7 S '64

See also

Sedimentation

SUSQUEHANNA RIVER

Pattern of folded folds in the Appalachian Piedmont along Susquehanna River. J. Freedman and others. bibliog maps diags Geol Soc Bul 75:621-38. pl 1-5 Jl '64

Power utilization

Utilities launch Susquehanna River Basin study. il map Elec World 162:20-1 Jl 20 '64

SWAGING

American rotary swaging introduced here. il diags Engineering 197:90 Ja 17 '64

Pilot valve controls fluid in tube expander. B. Mazis. diag Hydraulics & Pneumatics 17: 78-9 Ap '64

SWAGING machines

Cold swaging of bores. W. B. Fasser. il diags Tool & Manuf Eng 53:57-60 N '64

SWAMPS. See Marshes

SWANN, Peter R.

P. R. Swann named for Hardy gold medal. por J Metals 16:190 F '64

SWEAT. See Perspiration

SWEATERS

Manufacture

High-style sweaters, the simple way; Rubinger Originals. il Textile World 114:68-9 F '64

SWEATERS—Manufacture—*Continued*

More and better full-fashioned outerwear Alba-Waldensian's Pons plant. il plan Textile Ind 128:96-7+ Jl '64

SWEDEN

See also subdivision Sweden under special subjects, e.g.

Architecture
Architecture, Domestic
Atomic power plants
Automobile industry and trade
Bridges
Electricity supply
Hydroelectric plants
Iron industry and trade
Paper and pulp mills
Shipbuilding
Steel industry and trade
Steel works
Television broadcasting
Textile industry
Youth

SWEET potatoes

Nutrition studies in New Guinea. R. Luyken and others. il map Am J Clinical Nutrition 14:13-27 bibliog(p26-7) Ja '64

SWEET potatoes, Dried

Effect of temperature, antioxidant, and oxygen on the stability of precooked dehydrated sweetpotato flakes. H. J. Deobald and T. A. McLemore. bibliog Food Tech 18:739-42 My '64

Instant sweetpotato flakes. Food Tech 18:48 Ja '64

Quick-cooking dehydrated sweet potatoes. J. F. Sullivan and others. bibliog il Food Eng 35:59-60 N '63

SWEETENING agents

Breakthrough; third synthetic sweetener. R. Cordell and D. Short. Food Eng 36:63-5 My '64

Medical publication questions sweeteners as health hazard. Chem & Eng N 42:35 S 21 '64

Monsanto increases saccharin capacity. Chem & Eng N 41:36 D 9 '63

Storage stability of tomato ketchup with various sweeteners. R. M. Pangborn and B. S. Luh. bibliog Food Tech 18:576-83 Ap '64

Sweeteners ride out growing controversies. il Chem & Eng N 42:23-5 O 12 '64

Sweetening chemicals challenge sucrose. B. Weinberg. Can Chem Process 48:77+ Ap '64

Synthetic sweetening agents; survey of the materials available, including cyclamates. R. T. Bottle. bibliog il Manuf Chem 35:60-5 Ja '64

See also
Saccharin

SWELLING

Immersion cell for the quantitative determination of liquid absorption, swelling, and density of porous solids. I. G. Fels. diags R Sci Instr 35:1357-9 O '64

See also
Rubber—Swelling
Rubber, Artificial—Swelling
Textile fibers—Swelling

SWIFT, George P.

Obituary. por Plating 51:706 Jl '64

SWIMMING pools

Coliform standards for recreational waters; progress report. Am Soc C E Proc 89 [SA 4 no 3617]:57-94 bibliog(p91-4) Ag '63; Discussion. 89 [SA 6 no 3745]:77-8 D '63; 90 [SA 1 no 3813]:173 F; [SA 2 no 3884]:39-46 Ap '64; Reply. 90 [SA 5 no 4097]:47-9 O '64

Eliminating pests from a pool facility. il Pub Works 95:132 O '64

Heat inflated swimming pool shelter. il Heating-Piping 36:48 S '64

Modular galvanized swimming pool is fabricated by button welding. il Welding J 43:759 S '64

Retractable housing opens pool in summer. il diags Arch Rec 134:142-3 D '63

Swimming pools so durable you can let them freeze in winter for ice skating rinks are made of Tedlar coated aluminum. il Mod Metals 20:64+ Je '64

Transparent dome. il Plastics World 22:52-3 My '64

See also
Water purification—Swimming pool water

Heating

How to prevent condensation in heating this swimming pool? D. H. Snyder. il diags Heating-Piping 35:126-8 N '63

Lighting

Community swimming pool. il Illum Eng 59:389 sec 2 My '64

Electric shock hazard of underwater swimming pool lighting fixtures. A. W. Smoot and C. A. Bentel. bibliog diags IEEE Trans Power Apparatus & Systems 83:945-64 S '64

Lighting an indoor swimming pool; lighting data sheet. G. A. Bishop, 3d. il plan diag Illum Eng 59:161-2 Mr '64

Safety measures

Electric shock hazard of underwater swimming pool lighting fixtures. A. W. Smoot and C. A. Bentel. bibliog diags IEEE Trans Power Apparatus & Systems 83:945-64 S '64

SWINE

Effect of vitamin A and vitamin A acid on cerebrospinal fluid pressure and blood and liver vitamin A concentrations in the pig. E. C. Nelson and others. bibliog J Nutrition 82:283-8 F '64

Feeding

Effect of added lysine in swine diets on lean cuts and enzyme activity in the heart and liver. R. L. Shirley and others. bibliog J Agri & Food Chem 11:530-1 N '63

Effect of feeding colostral and milk components on the cessation of intestinal absorption of large molecules (closure) in neonatal pigs. J. G. Lecce and others. bibliog il J Nutrition 84:43-8 S '64

Effect of iron supplementation of sow rations on the prevention of baby pig anemia. C. H. Chaney and C. E. Barnhart. bibliog J Nutrition 81:187-92 N '63

Effects of feeding frequency on metabolism, rate and efficiency of gain and on carcass quality of pigs. D. W. Friend and H. M. Cunningham. bibliog J Nutrition 83:251-6 Jl '64

Mineral balance studies with the baby pig; effects of dietary phosphorus level upon calcium and phosphorus balance. E. R. Miller and others. bibliog J Nutrition 82:111-14 Ja '64

Phosphorus requirement of the baby pig. E. R. Miller and others. bibliog il J Nutrition 82:34-40 Ja '64

Vitamin A in serum and liver of weanling pigs fed a protein-deficient diet and fixed intakes per unit of live weight of carotene in oil. H. D. Eaton and others. bibliog J Nutrition 82:343-52 Mr '64

Vitamin D_2 requirement of the baby pig. E. R. Miller and others. bibliog il J Nutrition 83:140-8 Je '64

SWITCHBOARDS

Circuit identification code promotes safety. il Elec Constr & Maint 63:110+ Ap '64

Constructing electrical systems; switchboards and panelboards. il diags Elec Constr & Maint 63:117-22 My '64

Special electrical control panel for hospital operating rooms. R. Loeb. il plan Elec Constr & Maint 63:98-9+ Ap '64

Vertical lighting from an indirect cove at Burrard thermal generating station. J. F. Hills. il diag Illum Eng 58:715-17 D '63

SWITCHBOARDS, Telephone. See Telephone switchboards

SWITCHES, Electric. See Electric switchgear

SWITZERLAND

See also subdivision Switzerland under special subjects, e.g.

Architecture
Chemical industries
Electric railroads
Hydroelectric plants
Mines and mineral resources
Roads
Textile industry

SYDNEY, Australia

Bridges

Record concrete span opens; Australia's Gladesville bridge. il Eng N 173:31 O 1 '64

SYDNONES

Proton magnetic resonance spectra of sydnones. F. H. C. Stewart and N. Danieli. bibliog Chem & Ind p 1926-7 D 7 '63

SYENITE

Crystallization P_{O_2} of syenite porphyry from Navajo Mountain, southern Utah. K. C. Condie. bibliog map Geol Soc Bul 75:359-62 Ap '64

SYMBOLICAL and mathematical logic. See Logic, Symbolical and mathematical

SYMBOLS

American standard letter symbols for lubrication problems. Lub Eng 19:445-6 N '63

Committee proposes revised symbols list to SPE membership. E. H. Mayer. J Pet Tech 16:649-56 Je '64; Discussion. G. W. Nabor. 16:894 Ag '64

Fluid power symbols. F. L. Mackin. diags Machine Design 35:11-15 D 12 '63

SYMBOLS—*Continued*

Nondestructive testing symbols; reference sheet. diags Tool & Manuf Eng 51:107-8 N '63

Proposed changes to standardize fluid power symbols. J. J. Pippenger. diags Plant Eng 18:119-21+ My '64

Standard code for lubrication symbols. Engineer 217:872 My 15 '64

See also

Electric symbols

Numbering systems

SYMMETRY

External symmetry of cobalt particles produced by hydrogen reduction of $CoBr_2$. M. A. Gedwill and others. il J Ap Phys 35:2266-7 Jl '64

Symmetry and conservation laws. E. P. Wigner. bibliog Phys Today 17:34-40 Mr '64

Tyger hunting in the Everglades; conference on symmetry principles at high energy. L. M. Brown. Phys Today 17:36-40 Ap '64

SYNAGOGS

Architecture of synagogues. il Prog Arch 44:72 N '63

Big temple for Baltimore. il plans diag Arch Rec 135:147-52 Je '64

Major synagogue by Belluschi; Temple B'rith Kodesh in Rochester, N.Y. il plan diag Arch Rec 134:143-8 N '63

Religious buildings; rural tabernacle. il plans Prog Arch 44:148-51 N '63

Synagogue by Yamasaki, Glencoe, Ill. il plans Arch Rec 136:191-6 S '64

Varied designs from synagogue problem. il plans diags Prog Arch 45:72-3 Mr '64

SYNCHRO. See Selsyn apparatus

SYNCHROCYCLOTRON. See Cyclotron

SYNCHRONIZING

Automatic synchronising equipment for alternators. il diag Engineer 216:919 N 29 '63

Automatic synchronous excitation of suspended systems. F. V. Hunt. diags R Sci Instr 34:1254-7 N '63

B.M.C. gearbox synchronizers. diags Automobile Eng 54:177 My '64

Check synchroniser for alternators up to 5000kva. il diag Engineer 218:110 Jl 17 '64

Check unit synchronizes alternators. D. C. Gilchrist. diag Control Eng 11:130 O '64

Geared motors synchronize telescoping cylinders. G. A. Grappo. il diags Hydraulics & Pneumatics 17:102-3 S '64

Multi-drive conveyors with synchronism. diag Engineering 197:234 F 7 '64

New idea in synchromesh. diags Engineering 196:650-1 N 22 '63

Receiver design technique cuts synchronization time. M. F. Wolff. diags Electronics 37:74+ F 7 '64

Synchronization of two remote atomic time scales. J. A. Barnes and R. L. Fey. IEEE Proc 51:1665 N '63

Time-delay system for sound-picture syncing. H. Dussault. il diags SMPTE J 72:843-8 N '63

SYNCHRONOUS machines. See Electric generators, Synchronous; Electric motors, Synchronous

SYNCHROTRON

Adhesives assemble giant magnet. il Am Mach 108:80 Je 8 '64

Argonne national laboratory's Zero Gradient Synchrotron. il diag J Metals 16:150-1 F '64

Beryllium alloy used in pressure vessel. il Chem & Eng N 42:50+ Je 15 '64

British electron synchrotron. Phys Today 17:65 S '64

British synchrotron. Phys Today 17:67 Ja '64

Choice of betatron oscillation frequencies in a spiral sector FFAG accelerator. G. Parzen and P. Morton. bibliog R Sci Instr 34:1323-7 D '63

Damping of a resistive wall beam instability in the cosmotron. M. Q. Barton and others. il R Sci Instr 35:624-5 My '64

Depth-dose studies with 3-bev and 33-bev proton beams. L. F. Phillips and others. plan diags Nucleonics 21:55-6+ D '63

German electron synchrotron. il diag Engineer 218:387-9 S 4 '64

German machine reaches 6 bev. Phys Today 17:65 S '64

Magnet and vacuum system for Nimrod. il diag Engineer 217:855-6 My 15 '64

Magnet power supply for the 7 GeV proton synchrotron Nimrod. P. Bowles and others. bibliog flow diag plans diags Inst E E Proc 110:561-602 Mr '63; Discussion. 110:2233-6 D '63

New tools for sub-atomic searches at Rutherford high energy laboratory. il plan diags Engineering 197:606-8 My 1 '64

Nimrod reaches design intensity. Engineering 198:460 O 9 '64

Nimrod 7GeV proton synchrotron. il diag Engineer 217:776-7 My 1 '64

Nimrod's protons contained by glass fibre. il diag Engineering 197:633 My 8 '64

Optimization of particle injection into a synchrotron. A. J. Lichtenberg. R Sci Instr 34:1196-9 N '63

Princeton Pennsylvania accelerator. M. G. White. il Phys Today 17:26-9 Ag '64

Time invariance study made on 33-b.e.v. synchrotron. J. H. Christenson and others. Chem & Eng N 42:54 Ag 17 '64

Tool to track down elusive particles; Argonne national laboratory's new Zero gradient synchrotron. il diags Engineering 197:62-3 Ja 10 '64

Zero gradient synchrotron (ZGS). diag Product Eng 35:43 Ja 20 '64

Zero gradient synchrotron particle accelerator in Illinois. il plan diag Engineer 217:61-3, 116-18, 157-8 Ja 3-17 '64

See also

Cyclotron

Cooling

Piping cooling water for new atom smasher. R. W. Vanvalzah. il plan diags Heating-Piping 36:77-84 F '64

SYNERGISM

New pyrethrum synergists. il Soap & Chem Spec 40:73-5+ F '64

Studies in detergency correlation. A. M. Mankowich. bibliog Am Oil Chem Soc J 41:47-50 Ja '64

Synergistic effects in analyses based on differential reaction rates. S. Siggia and J. G. Hanna. Anal Chem 36:228-30 Ja '64

SYNTHESIS

Another steroid synthesis may go commerical. L. Velluz and others. il Chem & Eng N 42:42-3 Mr 2 '64

cis- and *trans*-1,2-diphenylnaphtho[*b*]cyclobutenes; a novel synthesis of a naphthalene nucleus. M. P. Cava and others. bibliog Am Chem Soc J 85:4031-2 D 20 '63

Cubane made from 2-cyclopentenone in five-step synthesis. il diags Chem & Eng N 42:38-9 Mr 23 '64

Effect of calcium phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64

Genetic control of fatty acid biosynthesis in rapeseed (brassica napus L.) R. K. Downey and B. M. Craig. bibliog Am Oil Chem Soc J 41:475-8 Jl '64

Ion exchange in chemical synthesis. R. Kunin. Ind & Eng Chem 56:35-9 Ja '64

Low-temperature syntheses of kaolin minerals. C. DeKimpe and others. bibliog il Am Mineralogist 49:1-16 Ja '64

Microbial synthesis in industry and its relation to microbial physiology. S. J. Pirt. bibliog diags Chem & Ind p 1772-7 O 24 '64

New methods in peptide synthesis; tritylsulfenyl and *o*-nitrophenylsulfenyl groups as N-protecting groups. L. Zervas and others. bibliog Am Chem Soc J 85:3660-6 N 20 '63

New synthesis of ketones. E. J. Corey and M. Chaykovsky. bibliog Am Chem Soc J 86:1639-40 Ap 20 '64

New synthesis of metal, metal bonds. R. S. Nyholm and K. Vrieze. Chem & Ind p318-19 F 22 '64

Organic syntheses by means of noble metal compounds; synthesis of muconic acid. J. Tsuji and others. Am Chem Soc J 86:2095 My 20 '64

Process for the production of lysine by chemical and microbiological synthesis. B. S. Gorton and others. bibliog Ind & Eng Chem Product Res & Develop 2:308-14 D '63

Raschig synthesis of hydrazine; investigation of chloramine formation reaction. S. R. M. Ellis and others. bibliog diag Ind & Eng Chem Proc Design 3:18-22 Ja '64

Syntheses of (±)-methyl dehydrodeisopropylabietate. T. A. Spencer and others. bibliog Chem & Ind p577-8 Ap 4 '64

Synthesis of a clinoptilolite-like zeolite. L. L. Ames, jr. bibliog il Am Mineralogist 48:1374-81 N '63

Synthesis of a degradation product of securinine. Z. Horii and others. bibliog Chem & Ind p664 Ap 18 '64

Synthesis of abietadienoic acids from dehydroabietic acid. A. W. Burgstahler and L. R. Worden. bibliog Am Chem Soc J 86:96-101 Ja 5 '64

SYNTHESIS—*Continued*

Synthesis of arginine-containing peptides through their ornithine analogs; synthesis of arginine vasopressin, arginine vasotocin, and L-histidyl-L-phenylalanyl-L-arginyl-L-tryptophylglycine. M. Bodanszky and others. bibliog Am Chem Soc J 86:4452-9 O 20 '64

Synthesis of cellulose by an enzyme system from a higher plant. A. D. Elbein and others. Am Chem Soc J 86:309-10 Ja 20 '64

Synthesis of *cis*-jasmone. G. Stork and R. Borch. Am Chem Soc J 86:936-7 Mr 5 '64

Synthesis of cysteine peptides. M. Sokolovsky and others. bibliog Am Chem Soc J 86: 1202-6 Mr 20 '64

Synthesis of *O*-α-D-glucopyranosyl-(1→4)-2-amino-2-deoxy-α-D-glucopyranose hydrochloride. M. L. Wolfrom and others. bibliog Chem & Ind p545 Mr 28 '64

Synthesis of isoprene; abstract. M. De Malde. Ind Chem 39:607-8 N '63

Synthesis of 1-methyl-1,2,3,4-tetrahydro-2-carboline and of its 6-methoxy-derivative. B. Meek and others. Chem & Ind p622 Ap 11 '64

Synthesis of testosterone-19-^{14}C. P. N. Rao and L. R. Axelrod. bibliog Chem & Ind p 1838-9 N 16 '63

Synthesis of thiothiophthens and related compounds from dithiolium salts. D. Leaver and D. M. McKinnon. bibliog Chem & Ind p461-2 Mr 14 '64

Synthesis of 26-acetoxy-22-nitro-5-cholesten-3β-ol-20-one. S. V. Kessar and A. L. Rampal. Chem & Ind p 1957-8 D 14 '63

Synthesis process brightens lactic acid picture. il Chem Eng 71:82+ Ja 20 '64

Synthesis, properties, and biological activity of some amino acid derivatives of halogen-substituted phenoxy acids. J. F. Carmichael and others. bibliog J Agri & Food Chem 12: 434-6 S '64

Synthetic lactic acid. il Ind & Eng Chem 56: 55 F '64

Total synthesis of alkaloids seems to follow biogenesis. A. I. Scott and others. il Chem & Eng N 42:40-1 F 24 '64

Total synthesis of *dl*-anatabine. P. M. Quan and others. bibliog Chem & Ind p 1553 S 5 '64

Total synthesis of *dl*-garryine and *dl*-veatchine. W. Nagata and others. Am Chem Soc J 86:929-30 Mr 5 '64

Total synthesis of dihydrocostunolide. E. J. Corey and A. G. Hortmann. bibliog Am Chem Soc J 85:4033-4 D 20 '63

Total synthesis of nepseudin. K. Fukui and M. Nakayama. Chem & Ind p 1843 N 16 '63

2′-*O*-(α-ethoxyethyl)-5′-*O*-acetyluridine 3-′-phosphate, a new key intermediate for oligonucleotide synthesis. S. Chládek and J. Smrt. Chem & Ind p 1719 O 10 '64

Two fungicidally active 5-chloro-4-aryl-1,2-dithiol-3-ones derived from cumene and *p*-cymene. W. R. Diveley and others. bibliog J Agri & Food Chem 12:251-3 My '64

Two syntheses used to make DNA chains. T. M. Jacob. Chem & Eng N 42:42 Ap 27 '64

See also

Fischer-Tropsch process

SYNTHESIS, System. See System simulation

SYNTHETIC products

See also

Acrylonitrile
Resinous products
Rubber, Artificial
Textile fibers, Synthetic

SYPHILIS

Venereal disease situation today; editorial. Am J Pub Health 53:1835-6 N '63

SYRIA

See also

Geology—Syria
Petroleum industry and trade—Syria

SYRINGES

Fast mixing apparatus for studying rapid reaction kinetics. R. Thompson and G. Gordon. bibliog diags J Sci Instr 41:480-1 Jl '64

New technique for functional group analysis in gas chromatography; syringe reactions. J. E. Hoff and E. D. Feit. il diag Anal Chem 36:1002-8 My '64

SYSTEM simulation

Airline system simulation. W. A. Gunn. flow diag diags Op Res 12:206-29 Mr '64

Analysis of sewage treatment systems by simulation. M. M. Montgomery and W. R. Lynn. bibliog diag Am Soc C E Proc 90 [SA 1 no 3807]:73-97 F '64; Discussion. M. B. Fiering. 90 [SA 4 no 4006]:105-6 Ag '64

Analytical synthesis of a class of model-reference time-varying control systems. J. G. Hiza and C. C. Li. bibliog diags IEEE Trans Applications & Ind p356-62 N '63

Application of nonstationary shot noise in the study of system response to a class of nonstationary excitations. Y. K. Lin. diags A S M E Trans ser E 30:555-8 D '63

Asymptotic stability of a time-delayed diffusion system. P. K. C. Wang. bibliog diag A S M E Trans ser E 30:500-4 D '63

Boiler-turbine-generator simulator helps train operators. A. J. Schager. il Power Eng 68: 40 My '64

Design uses analog to predict transient refrigeration load in medical research facilities. G. H. Green. il plan diag Heating-Piping 36:106-11 Je '64

English develop ventilation analogue system featuring mine plan diagram. R. Kirk. il Min Eng 16:64-6 Ap '64

Evaluation of substation transformer loading using simulation techniques. J. P. Fitzgerald and others. bibliog flow diag IEEE Trans Power Apparatus & Systems 83:411-21 Ap '64; Discussion. 83:548-50; Reply. 550-1 My '64

Hybrid computation techniques in simulation; abstracts of papers. diags Instruments & Control Systems 36:149-51+ N 63

Hybrid simulation of multistage system dynamics. R. G. E. Franks bibliog flow diag il diags Chem Eng Prog 60:65-9 Mr '64

Mockup simulates Minuteman controls. T. Maguire. il map Electronics 37:14-15 F 28 '64

Monte Carlo integration of rate equations. L. J. Schaad. flow chart Am Chem Soc J 85:3588-92 N 20 '63

New method of simulating space charge in the electrolytic tank. B. C. Gregory and K. F. Sander. bibliog diags Inst E E Proc 111:1766-70 O '64

Nuclear simulation. il Product Eng 35:51 Ag 17 '64

One man, many machines. N. H. Winters. bibliog il diags Engineering 196:566-7 N 1 '63

Optimized feedback control of dead-time plants by complementary feedback. W. Giloi. diags IEEE Trans Applications & Ind 83:183-9 My '64

Power spectrum identification for adaptive systems. K. Steiglitz. bibliog IEEE Trans Applications & Ind 83:195-7 My '64

Product testing; simulating the field conditions. W. M. Cade and R. N. Coleman. il diag Mech Eng 86:32-5 F '64

Simulation and optimal control of chemical processes. E. B. Dahlin and J. M. Nelson. diags Chem Eng Prog 60:49-56 Mr '64

Simulation; good way to cut risks in management decisions. F. C. Wilson. bibliog Textile World 114:60-3 Ag '64

Simulator for Eurocontrol. Engineer 217:290 F 7 '64

Simulator pre-checks 120-kv switching orders. P. K. Peden. il diag Elec World 161:101 Je 1 '64

Simulator trains plant operators. R. T. Garrett and A. H. Van Sickle. il diag Elec World 161:73-5 Je 1 '64

Tests are given under simulated ocean floor conditions. il Elec Eng 82:741-2 D '63

Three-dimensional track simulator. M. B. M'Clements Lambie. diag J Sci Instr 41: 643-4 O '64

See also

Calculating machines—Simulation programs

SYSTEMS engineering

Analysis of piecewise linear systems by the method of integral equations. C. N. Shen and H. Wang. diags A S M E Trans ser D 86:139-44 Mr '64

Applications of the functional equation to complex-system reliability problems. B. C. Roberts and E. G. Frankel. bibliog diag Naval Eng J 76:289-95 Ap '64

Dynamics of process control. C. A. Dyer. diags Plant Eng 18:147-8+ F '64

Estuarine water quality management and forecasting. R. V. Thomann and M. J. Sobel. Am Soc C E Proc 90 [SA 5 no 4116]: 9-36 O '64

Evaluation of warehousing methods. H. A. Zollinger. il diags Automation 11:62-7 Jl '64

How Du Pont attacks distribution costs. il maps diags Mod Materials Handling 19:36-43 S '64

Inspection and testing as a problem in man-machine systems control engineering. H. A. Thompson and E. A. Reynolds. bibliog Ind Quality Control 21:21-3 Jl '64

Linear digital control. F. J. Mullin and J. de Barbeyrac. bibliog A S M E Trans ser D 86:61-6 Mr '64

Machine tools production systems in transition. J. C. Keebler. Automation 11:48-56 F '64

SYSTEMS engineering—*Continued*

New method for calculating system performance measures. J. E. Diamessis. IEEE Proc 52:1240 O '64

New method of locating the maximum point of arbitrary multipeak curve in the presence of noise. H. J. Kushner. bibliog diags A S M E Trans ser D 86:97-106 Mr '64

One way to link production with energy systems engineering. J. J. Novotny. il Power 107:62-3 N '63

Optimum control of distributed-parameter systems. P. K. C. Wang and F. Tung. bibliog diags A S M E Trans ser D 86:67-79 Mr '64

Process systems engineering: symposium series abstracts. C. E. Huckaba and G. Monet, eds. Chem Eng Prog 60:88+ Je '64

Shaping and controlling human behaviour in man-machine systems. L. C. Silvern. bibliog il diags Inst Mech Eng Proc 177 no 34: 935-47 '63; Same. Naval Eng J 76:595-604 Ag '64; Discussion. Inst Mech Eng Proc 177 no 34:948-9; Reply. 949-50 '63

Some applications of the maximum principle to second-order systems, subject to input saturation, minimizing error, and effort. G. Boyadjieff and others. bibliog diags A S M E Trans ser D 86:11-21; Discussion. 21-2 Mr '64

Some techniques of optimization. A. Lavi. bibliog IEEE Trans Com & Electronics p 116-20 Ja '64

State-variable techniques for control systems. M. G. Rekoff, jr. diags Electro-Tech 73:36-47 My '64

Survey of analytical techniques in reliability engineering. L. C. Thomas. bibliog Eng J 47:29-32 Ap '64

Systems analysis for arterial street operation. C. Pinnell and G. T. Satterly, jr. diags Am Soc C E Proc 89 [EM 6 no 3728]:67-95 D '63

Systems approach; a better way to buy any capital equipment. diags Steel 154:34-43 Je 1 '64

Systems concept; another management revolution? Steel 154:25-7 Je 15 '64

Systems concept gets big boost. il Iron Age 193:67 Je 18 '64

Systems view of producibility. P. Rosenthal and H. T. McAdams. il diags Space/Aeronautics 41:100-7 Ap '64

U.S. will turn to industry for socioeconomic solutions. G. McDaniel. Steel 154:49 Je 29 '64

Upgrading a company's information systems. J. E. Ryan. flow diag Automation 11:48-52 My '64

When is a linear control system optimal? R. E. Kalman. bibliog A S M E Trans ser D 86:51-60 Mr '64

Study and teaching

Novel approach to the study of engineering systems. A. C. Soudack and F. G. Berry. il diags Eng J 47:32-5 Ap '64

SZILARD, Leo

Obituary. por Phys Today 17:89 O '64

T

TNT. See Trinitrotoluene

TVA. See Tennessee Valley authority

2,4-D. See Dichlorophenoxyacetic acid

TABERNANTHE iboga

Synthesis of iboga alkaloids via a novel transannular cyclization reaction. J. P. Kutney and others. bibliog Am Chem Soc J 86:2287-8 Je 5 '64

TABLETS (medicine)

Manufacture

Diluent tablet granulation. K. P. Perlman and others. bibliog Drug & Cosmetic Ind 94:660-2+ My '64

Tablet coating. Drug & Cosmetic Ind 95:430 S '64

TABLEWARE, Plastic

Foils for decorating thermosets. C. L. Keller. il diags Plastics Tech 10:38-40 Ja '64

TACHOMETERS

Continuous measurement of engine power: design and development of transmission dynamometer, capable of multiplying engine torque and speed. A. W. Pocock. il diags Engineering 196:718-19 D 6 '63

Method of analysing the properties of 2-phase servo-motors and a.c. tachometers. D. E. Hesmondhalgh and E. R. Laithwaite. bibliog diags Inst E E Proc 110:2039-54 N '63

Tachlite for measuring speed and analyzing motion of rotating or reciprocating objects. il Mach 70:143 N '63

Tachometers for speed control. M. Mandl. il diags Radio-Electronics 35:50-2 Jl '64

Tachometers-generators. J. M. Mason. il diags Machine Design 36:154-7 O 8 '64

Tachometry in industry. E. K. Elphee. il diags Ind Electronics 1:713-15 N '63

TACHYSTEROL

Dietary production of parathyroid cysts. H. Selye and others. il J Nutrition 84:97-9 O '64

TACONITE

Excavating the West's toughest taconite: Atlantic City ore mine. R. Day. il Min Cong J 50:76-9 Je '64

TAGS

One tag system controls it all. il Textile World 114:80-2 S '64

Ticket to cost-cutting. il Textile Ind 128:112 Mr '64

TAHOE, Lake

Waste disposal and the future at Lake Tahoe. H. F. Ludwig and others. flow diag maps diag Am Soc C E Proc 90 [SA 3 no 3947]: 27-51 Je '64

TAILINGS

Automatic X-ray determination of lead and zinc in the tailings of an ore dressing plant. G. J. Sundkvist and others. diags Anal Chem 36:2091-4 O '64

Graphs simplify determination of launder size and slope. C. W. Matthews. il Eng & Min J 165:176-8 Je '64

TAINTER gates. See Gates, Hydraulic

TAIWAN

See also

Architecture—Taiwan
Harbors—Taiwan
Hydroelectric plants—Taiwan
Population—Taiwan

TAKE-off. See Airplanes—Take-off

TALC

Cosmetic talcs. H. T. Mulryan. il diags Am Perfumer 79:85-7 O '64

Lazurite, talc and chlorite in the Green River formation of Wyoming. W. H. Bradley. Am Mineralogist 49:778-81 My '64

Mineralogy and ceramic properties of some California talcs. H. Heystek and E. Planz. bibliog Am Cer Soc Bul 43:555-61 Ag '64

Solid state reactions in high-talc bodies. E. Planz. bibliog flow diag diags Am Cer Soc Bul 43:443-7 Je '64

Talc as an auxiliary flux in plastically formed ceramics. E. W. Emrich and R. C. Hannon. bibliog Am Cer Soc Bul 43:186-90 Mr '64

Talc dusting by electrostatic spray. il Rubber World 150:99 My '64

TALL buildings. See High buildings

TALL oil

Automated batch type acidulation plants. J. P. Krumbein. flow diag Tappi 47:sup 142A-3A My '64

Chemicals from trees. W. M. Hearon. bibliog il Chem Eng Prog 60:91-6 S '64

Fractionation of West Coast tall oil. W. J. Janes, jr. Tappi 47:sup 122A-4A My '64

Potash soap manufacture from tall oil. Soap & Chem Spec 40:199 O '64

TALLOW

Experiments in the formulation of heavy duty liquid detergents from tallow. R. G. Bistline, jr. and A. J. Stirton. bibliog Am Oil Chem Soc J 41:654-6 O '64

TAMPING machines

Tamper jumps from a firm base. il Eng N 173: 53 Ag 20 '64

Tamping machines. il Engineer 218:425 S 11 '64

TANGANYIKA

See also

Kilimanjaro

TANK barges

Beth-Beaumont delivers two liquid-propane barges. il Marine Eng/Log 69:67 F '64

Union Barge adds five tank barges totaling 53,500 bbl. to growing fleet. il Marine Eng/Log 68:94 D '63

TANK cars

Chemical carriers shave distribution costs. il Chem & Eng N 42:25 F 10 '64

Chemical rolling stock on the upswing. Chem & Eng N 42:26 F 17 '64

Compounds in heated cars. Plastics World 21:19 D '63

Electrically heated tank car. il Ind & Eng Chem 55:63 D '63

TANK cars—*Continued*
Handling chlorine; tank car quantities. G. L. Danielson. il Chem Eng Prog 60:86-7 S '64
In-transit heater car speeds cargo unloading. il Food Eng 35:116 N '63
Painting setup for railroad tank cars. J. Krohne. il Ind Finishing 40:42-4 F '64
Protects temperature-sensitive liquids; thermos insulated tank car. il Food Eng 36:130 Mr '64
Railroad tank car. C. V. Little. il Materials in Design Eng 59:122-3 Ap '64
Tank cars line caisson foundations. il diag Eng N 173:84-5 Jl 2 '64

TANK ships
Annual tanker conference, Absecon, N.J. Marine Eng/Log 69:51-2 Jl '64
Atlantic voyage of a guinea-pig tanker. il Engineering 198:18-20 Jl 3 '64
B.P. oil tanker, British Mariner. il Engineer 216:804-6 N 15 '63
Big in remote controls; Regent Pembroke. il Marine Eng/Log 69:71 O '64
Blast cleaning ship's tanks before painting. W. E. Hill. il Ind Finishing 40:84+ Je '64
Bow mooring for berthing tankers. L. E. Van Houten and G. A. McCammon. il Civil Eng 34:60-2 Mr '64
British Mariner, largest tanker completed in the U.K. il Engineering 196:655 N 22 '63
Coastal tanker, Hamble. il Engineer 217:1040 Je 12 '64
Design and construction of large tankers in Japan. M. Yoshiki. bibliog il plans diags Inst Mech Eng Proc 177:1147-71 '63
Distinctive ships; automated tanker Takaminesan Maru. il Marine Eng/Log 68:81+ D '63
Distinctive ships; motor tanker Sinclair Venezuela. il Marine Eng/Log 68:78-9+ D '63
Distinctive ships; ore-oil carrier San Juan Pioneer. il Marine Eng/Log 68:84-5 D '63
Distinctive ships; Sinclair Texas first bridge-aft tanker built in United States. il Marine Eng/Log 68:66-7+ D '63
Esso Yorkshire operating fuel rate will be better than 0.49 lb per shp-hr. il Marine Eng/Log 69:32D Ap '64
Expanding tanks raise tanker capacity. il Oil & Gas J 61:38+ D 23 '63
Former tanker now builds offshore drill rigs. il Marine Eng/Log 69:62-3 F '64
French launch LNG tanker. il Oil & Gas J 62:100 S 14 '64
Gulf's automated tanker slices costs. il Oil & Gas J 62:84-5 My 18 '64
Launch first molten-sulfur carrier, the Naess Texas for Sulfur carriers, ltd. il Marine Eng/Log 69:32F Ap '64
LNG tankers; still a good investment? Oil & Gas J 62:81-2 F 24 '64
Liquid petroleum gas carrier; the Abbas. il Engineering 197:288 F 21 '64
Methane tanker nears finish. il Oil & Gas J 62:92 F 3 '64
Mitsubishi's proposed 116,000-dwt tanker will be a standard ship. Marine Eng/Log 69:16B Jl '64
Mitsui tanker manned by crew of 33. il Marine Eng/Log 69:22D Ja '64
Mobil Brilliant, Europe's biggest to date. il Marine Eng/Log 69:24D F '64
Molten sulphur carrier Naess Texas. il Engineer 217:864 My 15 '64
Novel jumboizing will make two ships supertankers. Oil & Gas J 62:53 Mr 23 '64
Offshore mooring island for supertankers. V. Blancato and J. H. Finger. il diags Am Soc C E Proc 88 [WW 4 no 3311]:1-17 N '62; Discussion. 89 [WW 2 no 3527]:99-104 My '63; Reply. 90 [WW 2 no 3917]:21-6 My '64
Oil tanker performance data. Engineer 217:238 Ja 31 '64
Oil tanker Samnanger. il Engineer 217:291 F 7 '64
Oil tankers; illustrations with text. Engineer 217:32-3 Ja 3 '64
Overseas LP-gas markets lure Phillips. il Oil & Gas J 61:40-1 N 25 '63
Overseas transportation of liquefied gas. P. Amalric. il Comp Air Mag 68:16-19 N '63
Ralph O. Rhoades, a rung on the ladder. il Marine Eng/Log 69:54-5 Jl '64
Remote monitoring of tanker performance. il Marine Eng/Log 69:53 Jl '64
Representative delivery and launching at IHI of Japan. il Marine Eng/Log 69:16F Jl '64
Rimfonn is completed by Harland and Wolff. il Marine Eng/Log 69:16D Mr '64
Safer tankers. Safety Maint 127:22+ My '64
Seagoing data transmitted to London. Engineering 197:303 F 21 '64
Socony trims foreign tanker shipping costs by 35 per cent. il Oil & Gas J 61:52-3 D 16 '63
SS British Mariner. il plans diags Marine Eng/Log 69:43-9 F '64
Study spotlights plight of U.S. tankers. Marine Eng/Log 69:59 O '64
Tanker hazard study completed. Marine Eng/Log 68:63 N '63
Tanker smashes Venezuela's Lake Maracaibo bridge. il diag Civil Eng 34:79 My '64
Tankers clean up oil slops at sea. Oil & Gas J 62:124 Je 22 '64
32,500-hp Fiat Diesel in big motortanker launched at Monfalcone. il Marine Eng/Log 69:58-9 Ap '64
U.K.-built Norwegian tanker has unusual appearance. il Marine Eng/Log 69:63-6 Ap '64
Use of reversing systems for stopping of turbine-powered ships. G. Broersma and G. G. Maclennan. bibliog Naval Eng J 75:909-13 D '63
World tanker total rises, U.S. slips. Oil & Gas J 62:58-9 Ag 24 '64
World's first refrigerated ammonia tanker delivered by Verolme's Rotterdam shipyard. il Marine Eng/Log 69:62-3 O '64
See also
Loading and unloading—Tank ships
Tank barges

Cleaning

Tank pollution attacked by Standard of New Jersey. il Chem Eng Prog 60:98 Ag '64

Costs

How do new INTA tanker rates relate to older USMC or ATRS rates? W. L. Nelson. Oil & Gas J 61:102-3 O 21 '63
Two new products reduce tanker costs. il Welding Eng 49:70-1 Ja '64

Equipment

Electric circuits for hazardous spaces. J. M. Dorsey. il Marine Eng/Log 69:56-7 Ag '64
Filter improvements simplify lube oil clarifying. Marine Eng/Log 70:84+ My '64
Liquefied petroleum gas carrier Paul Endacott. il Engineer 218:259-61 Ag 14 '64
LPG ship carries split cargo. il Marine Eng/Log 69:45-7 Ag '64
Merchant marine pipes controls aboard. D. Aronson. il Control Eng 11:20-2 Mr '64
Remote control for tanker's valves. il Hydraulics & Pneumatics 17:18 O '64
Turbines are bridge-controlled in Denmark's biggest ship. il Marine Eng/Log 69:54-5 Ag '64

TANK trucks
British tankers for Austria. il Engineer 217:406-7 F 28 '64
Chemical carriers shave distribution costs. il Chem & Eng N 42:25 F 10 '64
Diesel-powered fuel oil trucks. il Diesel Equip Supt 42:29 Ag '64
Enjay offers liquid ethylene in double-duty bulk trailers. il Chem & Eng N 42:30 Je 22 '64
New approach to testing large tank trucks improves safety and quality control. il Automotive Ind 131:61 Ag 1 '64
New hose for tank-truck cleaning. il Oil & Gas J 61:78 N 25 '63
Scottish built road tanks enter service for milk collection. il Metallurgia 69:126 Mr '64
Tanker truck with collapsible rubber containers. il Engineer 217:632 Ap 3 '64
What is the future for plastics in tank trucks? J. M. Brady. il Plastics World 21:54-5 N '63
Where are the errors in metering residual fuel for truck shipments? H. R. Stover. diags Oil & Gas J 62:76-7 S 28 '64
See also
Loading and unloading—Tank trucks

Safety measures

Petroleum transport borrows a safety idea from the process industries. G. J. Grabowski. diags Oil & Gas J 62:118-19 My 18 '64

TANKERS. See Tank ships

TANKS
Aluminum floating deck. il Light Metal Age 22:24 Ag '64
Breathing vibrations of a partially filled cylindrical tank, linear theory. W. H. Chu. bibliog diags A S M E Trans ser E 30:532-6 D '63
Cryo tank for space. Franklin Inst J 277:184 F '64
Fiber-glass tanks. E. C. Young. il diags Mech Eng 86:36-41 O '64
Infrared heating for outdoor tanks. J. Molnar. il diags Elec Constr & Maint 63:82-3 Jl '64
Large ice storage systems for process water. W. J. Davis. diag ASHRAE J 6:66-9+ F '64

TANKS—*Continued*

New light on stress-relieving large vessels. il diag Oil & Gas J 62:82-3 S 28 '64

Preventing evaporation losses from atmospheric storage tanks. J. G Devys. il diags Chem Eng 71:87-90 Mr 30 '64

Road-rail transfer of tanks. il Engineer 217:1095 Je 19 '64

See also

Airplanes, Jet propelled—Fuel tanks
Electric transformers—Tanks
Milk tanks
Oil tanks
Pressure vessels
Septic tanks
Settling tanks
Sewage tanks
Surge tanks
Tank cars
Water tanks

Cleaning

New hose for tank-truck cleaning. il Oil & Gas J 61:78 N 25 '63

Peter Hand brewing co. programs tank cleaning. V. Ecimovich and others. il diag Food Eng 35:44-5 N '63

Lining

Designing monolithic refractory vessel linings. J. F. Wygant and M. S. Crowley. bibliog diags Am Cer Soc Bul 43:173-82 Mr '64

Economy in lined tanks. H. W. Gripton and B. W. Rider. Plating 51:695 Jl '64

Expanding tanks raise tanker capacity. il Oil & Gas J 61:38+ D 23 '63

Liquid adhesion barrier boosts pickler life; Pliosil. il Steel 155:88 S 28 '64

Reinforced polyesters cut maintenance costs. il Oil & Gas J 61:132-3 N 4 '63

Saving seal for unsafe, leaking tanks. il diag Engineering 197:556-7 Ap 17 '64

Stainless lining multiplies sulfuric pickle tank life. il diag Steel 154:48+ Je 1 '64

Tanks lined with phenol-epoxy. il Engineering 198:342 S 11 '64

Tile linings and process vessels in the deinking plant. B. Thomas. il diags Tappi 47:sup 184A-8A F '64

Maintenance and repair

Blast cleaning ship's tanks before painting. W. E. Hill. il Ind Finishing 40:84+ Je '64

Epoxy cement repairs nitrogen tank. il Safety Maint 126:61-2 D '63

Testing

New approach to testing large tank trucks improves safety and quality control. il Automotive Ind 131:61 Ag 1 '64

TANKS, Aluminum

Aluminium for liquid methane project. il Engineering 196:792 D 20 '63

Cryogenics; aluminum advantages in field assembly. il Light Metal Age 22:10 Je '64

Largest welded aluminum project nears completion. il Welding Eng 49:106-7 Ap '64

Sahara gas shipped to Britain. il Mod Metals 20:54+ F '64

TANKS, Concrete

Analysis of long rectangular tanks resting on flat rigid supports. J. D. Davies. diags Am Concrete Inst J 60:487-99 Ap '63; Discussion. 60:1775-82 D '63

Concrete solution for fuel storage woes. il Chem Eng 71:96 Mr 16 '64

LNG growth prospects look better. diag Oil & Gas J 61:51-2 D 16 '63

Storing liquefied natural gas underground. L. Critides. diags Ind & Eng Chem 56:9-10 Ja '64

See also

Sewage tanks, Concrete
Water tanks, Concrete

TANKS, Gas. See Gas tanks

TANKS, Gasoline. See Gasoline tanks

TANKS, Military

Automotive ride control. I. L. Smith. diags Automotive Ind 130:79 F 15 '64

Trends in tank transporter concepts. P. D. Denn and T. J. Bischoff. il Automotive Ind 129:46-9 D 1 '63

Control

Chieftain gun control equipment. R. N. Evans. il diag Engineer 218:170-1 Jl 31 '64

Design

Developments in tank design. R. M. Ogorkiewicz. il diags Engineer 216:663-8, 723-6, 767-9 O 25-N 8 '63

Low-profile Swedish tank has no turret; silhouette reduced by as much as 50 per cent. il diags Automotive Ind 129:35 D 1 '63

New British battle tank. D. Scott. il diag Automotive Ind 129:33-4 D 1 '63

Swedish tank design discards tradition. il diags Machine Design 36:170-1 My 21 '64

Testing

Combat vehicle power; where needed and how much. H. L. Hayter and M. Gilvydis. diag S A E J 72:68-71 Jl '64

TANKS, Plastic

Antifouling afloat. il Plastics World 22:47 O '64

Reinforced-plastics storage tank. il Plastics World 22:23 Mr '64

Storing oil in bottom-less sea tanks. Engineer 218:567 O 2 '64

What is the future for plastics in tank trucks? J. M. Brady. il Plastics World 21:54-5 N '63

Testing

Plastic, glass tanks under test. Oil & Gas J 62:75 F 10 '64

TANKS, Rubber

Pillow tanks measure snowpack. il Eng N 172:92 Ap 2 '64

Truck stores transformer oil in rubber tank. il Elec World 162:76 Ag 10 '64

TANKS, Steel

Liquid methane's metal; nine per cent nickel steel. R. E. Petsinger. bibliog diags Gas 40:65-73 O '64

New cryogenic vessels are called biggest ever. il Chem Eng 71:102 Je 8 '64

Nine per cent nickel steel used in French LNG project reviewed. Gas 40:166 O '64

Vent for carbon steel sulfuric acid tanks. H. Heller. diag Chem Eng 71:154 S 28 '64

See also

Water tanks, Steel

Manufacture

Automatic unit rolls down tank weld costs 90 per cent. il Steel 155:91 Jl 27 '64

Girth seam welding of tank farm cuts construction time. il Welding Eng 49:68+ O '64

Visible-arc CO_2 welding speeds girth seam welding on large storage tanks. il Welding J 43:125-6 F '64

Welding erects two giant stainless tanks. il diags Welding Eng 49:82+ Jl '64

Protection

Improved coatings protect steel tanks from acid. il Materials in Design Eng 59:169-70 Mr '64

Testing

Nickel-steel tank tests at minus 320. L. P. Zick and others. il diags Mech Eng 85:40-4 Jl '63; Discussion. 85:75-7 D '63

TANTALATES

High-temperature transitions in rare-earth niobates and tantalates. V. S. Stubičan. bibliog diags Am Cer Soc J 47:55-8 F '64

Rare-earth niobates and tantalates of defect fluorite- and weberite-type structures. H. P. Rooksby and E. A. D. White. Am Cer Soc J 47:94-6 F '64

Self-activated luminescence of M^{2+} niobates and tantalates. A. Wachtel. bibliog Electrochem Soc J 111:534-8 My '64

TANTALUM

Anodic oxidation of tantalum in formic acid electrolytes. D. M. Cheseldine. bibliog Electrochem Soc J 111:1128-32 O '64

Chlorination of ores and concentrates as applied to extracting tantalum, columbium, and tungsten. A. W. Henderson. diags J Metals 16:155-60 F '64

Columbium and tantalum minerals, 1963. R. B. Brackin. Eng & Min J 165:120-1 F '64

Controlled grain growth. il Product Eng 35:67 Ag 3 '64

Critical temperature of niobium and tantalum films. J. R. Rairden and C. A. Neugebauer. bibliog diags IEEE Proc 52:1234-8 O '64

Deposition of tantalum films with an open-ended vacuum system. J. W. Balde and others. bibliog il diag Bell System Tech J 43:127-42 Ja '64

Determination of the density of Ta, Nb, and anodically formed Ta_2O_5 and Nb_2O_5. A. J. Schrijner and A. Middelhoek. bibliog diag Electrochem Soc J 111:1167-9 O '64

Effects of nitrogen, methane, and oxygen on structure and electrical properties of thin tantalum films. D. Gerstenberg and C. J. Calbick. bibliog il J Ap Phys 35:402-7 F '64

Heat-treatment of anodic oxide films on tantalum. D. M. Smyth and others. bibliog diags Electrochem Soc J 110:1264-76 D '63; Discussion. G. J. Korinek. 111:762-3; Reply. 763-4 Je '64

TANTALUM—*Continued*

Improved tantalum has stable grain size. il Materials in Design Eng 60:162+ O '64

Kinetics of recombination of Frenkel defects in anodic oxide films on tantalum. L. Young. bibliog Electrochem Soc J 111:1289-92 N '64

Procedure for stripping anodic oxide films from tantalum and niobium. R. E. Pawel. R Sci Instr 35:1066-7 Ag '64

Properties of materials; tantalum, tungsten, molybdenum; wrought; tables. Materials in Design Eng 60:137 Mid-O '64

Secondary positive ion emission from a tantalum surface. J. A. McHugh and J. C. Sheffield. bibliog diag J Ap Phys 35:512-15 Mr '64

Semiconducting behavior of substituted tungsten diselenide and its analogues. W. T. Hicks. bibliog diag Electrochem Soc J 111:1058-65 S '64

Solid tantalum capacitor production. il diag Ind Electronics 2:195-8 Ap '64

Solid tantalum capacitors. il diag Engineer 217:341-3 F 21 '64

Solid tantalum capacitors made in bulk. il diags Engineering 197:332-3 F 28 '64

Study of the thermal oxidation of tantalum and niobium by means of electron-diffraction and capacity measurements. J. Harvey and P. H. G. Draper. bibliog il Inst Metals J 92:136-40 '63-64

Submicron sectioning technique for analyzing diffusion specimens of tantalum and niobium. R. E. Pawel and T. S. Lundy. bibliog J Ap Phys 35:435-8 F '64

Tantalum grains resist growth. il Iron Age 194:63 Jl 9 '64

Tin-tantalum-lithium pegmatites of the São João Del Rei district, Minas Gerais, Brazil. E. W. Heinrich. bibliog il maps Econ Geol 59:982-1002 S '64

Vapor-deposited superconductive films of Nb, Ta, and V. C. A. Neugebauer and R. A. Ekvall. bibliog il diag J Ap Phys 35:547-53 Mr '64

Work function of the (110) face of tantalum in a cesium vapor. W. T. Norris. diag J Ap Phys 35:467-9 Mr '64

Analysis

Amine extraction-spectrographic determination of tantalum in plutonium. R. Ko. bibliog Anal Chem 36:1290-1 Je '64

Anion exchange study of a number of elements in nitric-hydrofluoric acid mixtures. E. A. Huff. bibliog diags Anal Chem 36:1921-3 S '64

Determination of silver, cadmium, indium, tantalum, rhenium, gold, and rare earths at low concentration by neutron activation and radiochemical analysis. C. E. Gleit and others. bibliog Anal Chem 36:2067-72 O '64

Simultaneous determination of niobium and tantalum by neutron activation using niobium-94*m* and tantalum-182*m* and rapid radiochemical separations. C. K. Kim and W. W. Meinke. bibliog Anal Chem 35:2135-8 D '63

TANTALUM alloys

General Electric reveals new tantalum alloy for hi temp uses. il Steel 153:29+ D 16 '63

Paramagnetic susceptibility, electrical resistivity, and lattice parameters of nickel-rich nickel-tantalum alloys. H. Chessin and others. bibliog J Ap Phys 35:2419-23 Ag '64

Superconducting properties of the $(Nb,Ta,V)_3$ Sn system. G. D. Cody and others. diags RCA R 25:338-41 S '64

Tantalum alloy sheet in pilot production. D. J. Maykuth and others. il J Metals 16:180-4 F '64

Tantalum-base alloy has high strength-weight ratio. Materials in Design Eng 60:140+ N '64

TANTALUM carbide

Hot-pressing mixed carbides of Ta, Hf, and Zr. J. J. Fischer. bibliog il Am Cer Soc Bul 43:183-5 Mr '64

Tantalum carbide helps cut high strength steels. Engineering 197:780 Je 5 '64

TANTALUM compounds

σ-bonded alkyl compounds of niobium and tantalum; trimethyldichloroniobium and trimethyldichlorotantalum. G. L. Juvinall. Am Chem Soc J 86:4202-3 O 5 '64

Superconducting thin films of niobium, tantalum, tantalum nitride, tantalum carbide, and niobium nitride. D. Gerstenberg and P. M. Hall. bibliog diag Electrochem Soc J 111:936-42 Ag '64

TANTALUM oxides

Charge storage effects in tantalum oxide films. R. Dreiner. bibliog diag Electrochem Soc J 111:27-34 Ja '64

Conduction through thin tantalum oxide films. C. L. Standley and L. I. Maissel. bibliog J Ap Phys 35:1530-4 My '64

Determination of the density of Ta, Nb, and anodically formed Ta_2O_5 and Nb_2O_5. A. J. Schrijner and A. Middelhoek. bibliog diag Electrochem Soc J 111:1167-9 O '64

Electron microscope observations of the crystallization of anodically formed tantalum and niobium oxide films. R. E. Pawel and J. J. Campbell. bibliog il Electrochem Soc J 111:1230-4 N '64

Flaws in anodic Ta_2O_5 films. D. A. Vermilyea. bibliog il diags Electrochem Soc J 110:250-62 Ap '63; Discussion. K. Huber. 110:1286-9 D '63

Pores in tantalum oxide films and their influence on the photoresponse. R. Dreiner and J. Schimmel. bibliog Electrochem Soc J 111:453-6 Ap '64

Ta_2O_5 films formed with nonsteady potentials. D. A. Vermilyea. il Electrochem Soc J 111:883-4 Jl '64

TAPE

Dry-tape battery prototype shows promise. il diag Chem & Eng N 42:42+ F 24 '64

TAPE, Adhesive. See Adhesive tape

TAPE, Insulating. See Insulating tape

TAPE, Magnetic. See Magnetic tape

TAPE, Plastic

Epoxy tape used in cable terminals. P. L. Betz and O. W. Lusby. il Elec World 162:23+ S 28 '64

Glass banding of traction motor armatures. il Engineering 198:171 Ag 7 '64

Glass-bonded traction motor armatures. il Engineer 218:255 Ag 14 '64

Nuclepore tape filters. il Product Eng 35:62 O 12 '64

Pushbuttons bundle copper tubes. il Iron Age 194:87 S 17 '64

Shrinkable tape; modified polyester film tape. Plastics World 22:21 Ja '64

TAPE recorders. See Sound—Recording and reproducing—Magnetic recording

TAPIOCA

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals; supplementary value to a maize-tapioca diet. S. Korula and others. bibliog il Food Tech 18:903-6 Je '64

TAPPI (periodical)

TAPPI's publishing dilemma. P. E. Nethercut. Tappi 47:sup97A-8A Jl '64

TAPPING machines

Automatic pipe-coupling tapping machine. il Mach 70:147 D '63

Precision threading and tapping machine. il Mach 70:149 Mr '64

Single machine eliminates 140 tooling arrangements. il Steel 154:53 Ja 20 '64

Tap resetter increases efficiency of bar automatic. il Tool & Manuf Eng 52:96 Mr '64

Tapping machine designed for torque control. il diag Tool & Manuf Eng 52:95 Mr '64

Tapping problems causes and cures; reference book sheets. il Am Mach/Metalworking Manuf 107:101+ N 25; 103+ D 9 '63

TAPS

Carbide-clad tap defies wear. il Iron Age 193:106 Je 18 '64

Carbide taps for difficult materials. il Engineering 198:298 S 4 '64

Fundamentals of HSS cutting tools. il Am Mach 108:155 Ap 13 '64

TAR

How hydrogen will be used to upgrade Athabasca tar to sweet crude oil. A. D. Hoskins. diags Oil & Gas J 62:122-4 My 18 '64; Same. Hydrocarbon Process & Pet Refiner 43:122-4 My '64

Million-yard runway tar seal job; Boston's Logan international airport. il Roads & Sts 107:120-2+ Ap '64

Rehabilitation of light traffic roads with tar stabilization; abstract. J. E. Dowling. Pub Works 95:134+ My '64

See also

Coal tar

Testing

Ring-and-ball softening point test for asphalts, pitches, and tars. Materials Res & Stand 4:417-21 Ag '64

TAR sand. See Bituminous sand

TARGETS

Approximate circular and noncircular offset probabilities of hitting. F. E. Grubbs. bibliog diag Op Res 12:51-62 Ja '64

TARGETS—*Continued*

Cumulative probability of detection for targets approaching a uniformly scanning search radar. J. D. Mallett and L. E. Brennan. IEEE Proc 51:596-601 Ap '63; Correction. 52:708-9 Je '64

Interception of high-speed target by beam rider missile. O. R. S. Elnan and H. Lo. diag AIAA J 1:1637-9 Jl '63; Discussion. N. X. Vinh. 2:409 F '64

Planning by resource allocation methods; illustrated by military applications. J. L. Taylor and J. E. Walsh. Op Res 12:693-706 S '64

Procedure for the determination of impact probabilities. D. R. Cruise. AIAA J 1:2668-9 N '63

Theoretical penetration of hypervelocity projectiles into massive targets. J. K. Wall. bibliog AIAA J 2:1242-6 Jl '64

TARIFF

Trade, tariffs, and chemicals. E. V. Anderson. il Chem & Eng N 42:60-84+ Ag 24 '64

Canada

Three T's; taxes, tariffs and trade. V. C. Wansbrough. Can Min & Met Bul 57:834-6 Ag '64

Chemicals

Problem for GATT, non-tariff barriers. J. Miller. Can Chem Process 48:49-50+ Je '64

Europe

Aluminum

Aluminum producers seek a fair shake in tariffs. Mod Metals 20:56+ Mr '64

Great Britain

Chemicals

Relief, concern follow Britain's import curb. Chem & Eng N 42:25-6 N 2 '64

United States

Chemicals

Benzenoid-chemical imports rise despite tariff. Chem Eng 71:104 S 14 '64

Chemical firms file briefs on tariff talks. Chem & Eng N 42:29 Ja 27 '64

Chemical groups fight to keep tariffs as selling price system sparks debate. Chem & Eng N 42:27-9 F 10 '64

Chemical industry sees loss in trade talks. Chem & Eng N 42:23-4 F 3 '64

Manufacturers air their fears of impending lowered tariffs. Chem Eng 71:44 Mr 2 '64

Report on the trade hearings. il Am Dyestuff Rep 53:125-30+ F 17 '64

Glass

Report to the U.S. tariff commission. R. F. Barker. Glass Ind 45:426-7+ Ag '64

Lead

U.S. lead-zinc quotas, pro and con; E&MJ forum. Eng & Min J 165:95-103 S '64

Zinc

U.S. lead-zinc quotas, pro and con; E&MJ forum. Eng & Min J 165:95-103 S '64

TARPAULINS

Covers provide protection for equipment. il Elec World 161:94 F 10 '64

TARTRATES

Anion exchange separations of iron(II) and iron(III) in tartrate medium. G. P. Morie and T. R. Sweet. bibliog Anal Chem 36:140-2 Ja '64

Polarimetric investigation of *d*-tartrateorthotellurate complex. J. G. Lanese and B. Jaselskis. bibliog Anal Chem 35:1878-80 N '63

TASLAN yarn. See Yarn

TASMANIA

See also

Copper mines and mining—Tasmania
Hydroelectric plants—Tasmania
Zinc mines and mining—Tasmania

TASTE

Beer flavor and problems of beer tasting. B. Trolle. bibliog il diag Food Tech 18:641-9 My '64

Taste, its sensory and motivating properties. C. Pfaffmann. il diags Am Scientist 52:187-206 bibliog(p205-6) Je '64

See also

Flavor
Water purification—Taste and odor removal

TASTE (esthetics). See Esthetics

TAURINE

Taurine as reference standard in chromatography of plant material extracts. J. G. Karas and others. bibliog Anal Chem 36:1671-2 Jl '64

TAUTOMERISM

Keto-enol tautomerism in β-dicarbonyls studied by nuclear magnetic resonance spectroscopy; proton chemical shifts and equilibrium constants of pure compounds. J. L. Burdett and M. T. Rogers. bibliog Am Chem Soc J 86:2105-9 Je 5 '64

Photochemical and thermal valence tautomerization of 2,3-diphenylindenone oxide. E. F. Ullman and J. E. Milks. bibliog Am Chem Soc J 86:3814-19 S 20 '64

Photochemical valence tautomerization of 2,4,6-triphenylpyrylium 3-oxide. E. F. Ullman. bibliog Am Chem Soc J 85:3529-30 N 5 '63

Photolysis of cyclic dienes; an example of a dual path light-induced valence tautomerism. G. J. Fonken and K. Mehrotra. Chem & Ind p 1025 Je 13 '64

Relation of proton exchange to tautomerism in unsaturated sulfoxides. D. E. O'Connor and C. D. Broaddus. bibliog Am Chem Soc J 86:2267-70 Je 5 '64

Tautomeric equilibria; substituent effects in dimethylaminoazobenzes. M. Isaks and H. H. Jaffé. bibliog Am Chem Soc J 86:2209-13 Je 5 '64

Tautomerism in diazoaminobenzenes. T. Mitsuhashi and O. Simamura. Chem & Ind p587-9 Ap 4 '64

Thermal and photochemical valence tautomerism of bicyclo[6,1,0]-nona-2,4,6-triene derivatives. G. J. Fonken and W. Moran. bibliog Chem & Ind p 1841-2 N 16 '63

TAXATION

New York court upholds tax on Seagram Tower. il Arch Forum 121:5+ Jl '64

Seagram building tax upheld. B. Tomson and N. Coplan. Prog Arch 45:252 O '64

Tax reforms face tough congressional battle. J. N. Bell. Rock Prod 66:58-62 N '63

See also

Mine taxation

also subdivision Taxation under special subjects, e.g.

Chemical industries
Gas companies
Metal working industries
Petroleum industry and trade
Rock products industry

TCHEBYCHEFF approximations. See Approximate computation

TEA

Flavour of black tea. R. L. Wickremasinghe and T. Swain. bibliog Chem & Ind p 1574-5 S 12 '64

Improved tea pack; polyester film replaces fiber string on tea bags. il Plastics World 22:26-7 Ap '64

TEACHERS

Teacher ratings in psychiatric case-finding. A. Goldfarb. bibliog Am J Pub Health 53:1919-27 D '63

See also

Engineering teachers
Physics teachers
Science teachers

TEACHERS, Training of

Experimental 8mm film production workshop for teachers. L. T. Wise. SMPTE J 73:773-4 S '64

TEACHING

See also

Kindergarten

Aids and devices

Aids to technical training. Engineer 218:458 S 18 '64

Audio-visual devices: capabilities and needs. J. Flory. SMPTE J 72:938-42 D '63

Automated maintenance class room. il Safety Maint 128:55 O '64

Education by telephone. Bell Lab Rec 42:19 Ja '64

Educational cathode-ray tubes D. M. Sutherland. il diags Ind Electronics 2:143-6 Mr '64

Electricity is fun in this classroom. il Elec World 160:48 O 21 '63

Evaluating and using programmed instruction. G. A. Keluche. il Electronic Ind 23:123-9 Jl '64

Furniture for a language laboratory. N. Green. il diags Engineer 218:584-6 O 9 '64

Institute of physics and the Physical society annual exhibition of scientific apparatus and instruments, 48th, London. il diags Engineering 197:70-1 Ja 17 '64

Instruments for education. il I S A J 11:26+ Ap '64

Language laboratory given to college. il Engineering 197:21 Ja 3 '64

Language laboratory system. il Engineer 216:706 O 25 '63

Mathematics by teaching machine. Engineer 217:662 Ap 10 '64

TEACHING—Aids and devices—*Continued*

Motion pictures, television and education. bibliog il diags SMPTE J 73:753-77 S '64
Programed instruction and its usefulness for the health professions. S. Shindell. bibliog Am J Pub Health 54:982-90 Je '64
Programed instruction simplifies study of electronics. H. G. Rice. il diags Plant Eng 18:128-30 My '64
Programmed instruction system. Engineer 217:1004 Je 5 '64
Programed instruction trims training time. Steel 154:28 Je 22 '64
Programed learning in today's hydrocarbon processing industry. C. H. Vervalin. bibliog Hydrocarbon Process & Pet Refiner 43:158+ Mr '64
Programmed learning reaches the oil industry. P. C. Lauinger, jr. Oil & Gas J 62:73:5 Ja 20 '64
Progress in programmed instruction. M. Van Auken. il Chem Eng 71:145-50 Ap 27 '64
Reading and writing via the talking typewriter. il Mech Eng 86:92 Jl '64
Shaping and controlling human behaviour in man-machine systems. L. C. Silvern. bibliog il diags Inst Mech Eng Proc 177 no 34:935-47 '63; Same. Naval Eng J 76:595-604 Ag '64; Discussion. Inst Mech Eng Proc 177 no 34:948-9; Reply. 949-50 '63
Survey of digital-logic training devices. S. B. Gray. il Electronics 37:71-83 Ag 24 '64
Talking typewriter teaches reading and spelling. il Machine Design 36:14 Je 18 '64
Teaching aid in control engineering. il Engineering 198:419 O 2 '64
Teaching system that saves time and talk. il Ind Phot 13:59-61 Ap '64
Visual display trainers. il Ind Electronics 2:420 S '64
See also
Moving pictures in education

TEAK
To finish teak wood. Ind Finishing 40:104+ Ap '64

TEARS
Tears and the lacrimal gland. S. Y. Botelho. il diags Sci Am 211:78-84+ O '64

TECHNETIUM
Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64
Technetium in quanity. Nucleonics 22:86 Ap '64

Analysis

Separation and spectrophotometric determination of technetium in fissium. R. J. Meyer and others. bibliog diag Anal Chem 36:1975-9 S '64

TECHNETIUM alloys
Magnetic susceptibilities of Mo-Tc binary alloys. D. J. Lam and others. bibliog J Ap Phys 35:976-7 pt 2 Mr '64

TECHNETIUM compounds
Behavior of technetium species with cupferron. G. B. S. Salaria and others. bibliog Anal Chem 36:146-9 Ja '64

TECHNICAL assistance
Summary of symposia on food standards and overseas technical aid. Food Tech 18:972-4 Jl '64
Technical co-operation project in development of the Kosmet. Chem & Ind p985 Je 6 '64
Volunteer organization, Data International for technical assistance. Product Eng 35:46-7 Ja 6 '64
Why don't we use U.S. manpower in American aid projects overseas? G. E. Fischer. Eng N 171:127-8 N 14 '63
See also
United States—Peace corps

TECHNICAL association of the pulp and paper industry
Annual meeting, 49th, New York, Feb. 23-27; with program and floor plans, and abstracts of papers. Tappi 47:sup73A-80A Ja; sup91A-3A F; sup79A-106A Mr '64
Coating conference, 15th, New Orleans, May 4-6; with program and abstracts of papers. Tappi 47:sup94A+ Ap; sup 104C-104J Je '64
Engineering conference, 18th, New Orleans, Oct. 28-31; with abstracts of papers. Tappi 47:sup91A-107A Ja '64
Engineering conference, 19th, Seattle, July 27-30; with program and abstracts of papers. Tappi 47:sup85C-85G My; sup75B-75F+ Ag '64
Forest biology conference, Mobile, Ala. Nov. 20-21; with abstracts of papers. Tappi 47:sup95A-102A F '64
Graphic arts conference, 1st, New York, Aug. 26-28; with abstracts of papers. Tappi 47:sup 110A-17A+ O '64
International pulp bleaching conference, 3d, Seattle, Aug. 17-20; program. Tappi 47:sup85G-85H My '64
International sulphite pulping conference, Chicago, June 15-18; program. Tappi 47:sup85A-85B My '64
Plastics paper conference, 18th, Cleveland, Oct. 14-15; with abstracts of papers. Tappi 46:sup96A-101A D '63
Roster of divisions and committees. Tappi 47:sup 133A-5A Ja '64
TAPPI's place in international graphic arts. H. M. Annis. Tappi 47:sup 16A+ O '64
Testing conference, 15th, New Orleans, Nov. 12-14; with abstracts of papers. Tappi 47:sup 108A-14A Ja '64
Water conference, 1st, Cincinnati, June 4-6; texts of papers. Tappi 47:sup 139A-91A Ja '64
Water conference, 2d, Green Bay, Wis. May 18-20; with program and abstracts of papers. Tappi 47:sup97A-8A Ap; sup88A-92A Jl '64

TECHNICAL associations
See also
Engineering societies
Trade associations

TECHNICAL education
Company technical meetings promote sales. il Chem & Eng N 42:32-3 N 2 '64
Is technical education lagging? R. H. Eshelman. il Iron Age 193:43 Ap 16 '64
Skilled instrument technicians are needed. R. H. Müller. Anal Chem 35:sup 111A-12A N '63
Training revolution. J. Wellens. Review, by J. S. Gourlay. Chem & Ind p516-17 Mr 28 '64
Who is responsible for professional growth? P. E. Nethercut. Tappi 46:sup 60A+ D '63
See also
Apprentices
Employees, Training of
Engineering education
Foundry practice—Study and teaching
Metallurgical education
Northwestern university
Paper making—Study and teaching
Printing, Practical—Study and teaching
Textile schools
Vocational education
Welding—Study and teaching

Great Britain

Bristol aeroplane technical college under industry's wing. il Engineering 197:754-5 Je 5 '64
City of Liverpool college of technology regional college. il Chem & Ind p992-1006 Je 13 '64
College of advanced technology, Birmingham. Chem & Ind p657-8 Ap 18 '64
Diplomat in technology considered as a saleable product. Chem & Ind p311-14 F 22 '64
Further education staff college, Blagdon, Somerset. il Engineering 197:44-5 Ja 10 '64
Industry turns on Robbins; BACIE conference. Engineering 197:178 Ja 31 '64
Mechanical engineers' view of Robbins. Engineering 197:148-9 Ja 24 '64
National council for technological awards express approval of Robbins. Engineer 217:138-9 Ja 17 '64
National productivity year, a launching pad into the future? Engineering 196:692-3 N 29 '63
Reflections on the Robbins report. Engineering 196:546-7 N 1 '63
Teaching aircraft design in the postgraduate course at the College of Aeronautics, Cranfield. A. F. Newell and D. Howe. il diags Aircraft Eng 36:330-2 O '64
Technological education and the system of further education; recommendations of the Robbin's report on higher education. Engineer 216:737 N 1 '63
What use is block release? J. Doyle. Engineering 197:281 F 21 '64

Russia

Soviet still pushing enrollments in science. il Chem & Eng N 42:15-17 Ag 31 '64
What BACIE saw in Russia. il Engineering 197:308 F 28 '64

TECHNICAL information
American standard reference data system, plans Engineering 196:671-2 N 22 '63
Automated approach to technical information retrieval. J. J. Nicolaus. bibliog diags Naval Eng J 76:715-27 O '64
Bell system business communications seminar, uses the most unusual little theater in the world. il plan Ind Phot 13:62-5 Ja '64
Champions of conversation. Product Eng 34:74-5 N 11 '63

TECHNICAL information—*Continued*
Department of defense studies use of information. Chem & Eng N 42:30 Mr 23 '64
Fast design of steel rigid frames. I. Hooper and P. C. Wang. diags Eng N 171:97+ N 14 '63
How to keep informed today. W. L. Fleischmann. Metal Prog 84:122-3+ N '63
Information and education under the food and drug laws. J. L. Harvey. Food Tech 18:1566-7+ O '64
Information explosion. Sci Am 209:72+ N '63
Information for the asking; sources of help for the smaller company. J. R. Clew. bibliog Manuf Chem 35:85-6+ S '64
Information in depth. bibliog Res/Develop 15:20-33 Ja '64
Information needs of the technical organization. G. A. Whittington. Res/Develop 15:18-21 My '64
Instant information for Army missile command. il diag Product Eng 35:43-4 Ja 6 '64
Modern approach to literature searching. W. J. Smith. Materials Res & Stand 4:262-3 My '64
National referral center for science and technology. J. F. Stearns. Res/Develop 15:22-5 My '64
Scientific and technical information of the Soviet Union. Review. by P. Greene. Chem & Ind p738-40 My 2 '64
SFSA provides data on steel casting design. il Foundry 91:156+ N '63

TECHNICAL libraries
Frank look at the US(A). F. H. Smith. Engineering 196:636 N 15 '63
New library information service. Franklin Inst J 277:90-1 Ja '64
Some new concepts in library service. W. K. Lowry. il Bell Lab Rec 42:2-7 Ja '64
See also
Engineering libraries
Engineering societies library, New York

TECHNICAL literature
Handbooks to aid underdeveloped areas. A. M. Matt-Arnold. Engineering 197:67 Ja 17 '64
If books can help find oil, here's a Kentucky wonder. F. J. Gardner. map Oil & Gas J 62:147 F 17 '64
Technical literature in continued education. R. J. Schwarz. IEEE Proc 52:755 Jl '64
WADEX; word and author index, a new tool in literature retrieving. E. A. Ripperger and others. bibliog flow chart Mech Eng 86:45-50 Mr '64; Same. Naval Eng J 76:685-90 O '64; Discussion. Mech Eng 86:97-8 N '64
See also
Engineering literature
Technical writing

TECHNICAL products
See also
Automobile parts

TECHNICAL reports
Make manuals more effective with pictures. C. R. Myers. il Plant Eng 18:124-6 Je '64
Microfiche standards adopted. Chem & Eng N 42:54-5 Ag 31 '64

TECHNICAL services, Office of. See United States—Commerce, Department of—Technical services, Office of

TECHNICAL societies
Some important problems of standardizing societies. T. A. Marshall, jr. Materials Res & Stand 4:303-4 Je '64
See also
American vacuum society
Institute of food technologists

TECHNICAL workers
More technicians needed. il Chem Eng Prog 60:14-15 Ag '64
Move to set technician standards gains support. Steel 154:28 My 11 '64
Rising crisis in skills. il Steel 155:38-66 S 7 '64 (reprints $2)
See also
Chemical workers
Mechanics (persons)

Training

Chemical industry may triple technician total. il Chem & Eng N 42:40-1 Ja 13 '64
Chemical technician's certificate. B. W. V. Hawes. Chem & Ind p91-2 Ja 18 '64
Granite City retrains for technology. il Steel 154:56-7 F 17 '64
In-service training for pre-engineering technicians. R. B. MacIndoe. il Pub Works 95:107-8 F '64
Industry and technical obsolescence. D. J. Jenkins. Mech Eng 86:171-2 Ap '64
Research is a part of chemical education; chemists suggest ACS set up training standards for research technicians. Chem & Eng N 42:50-2+ My 25 '64
Teachers are needed to train technicians; membership in ACS might upgrade status. Chem & Eng N 42:42+ Mr 23 '64
Technician shortage stirs new action. Iron Age 193:53 Mr 19 '64

TECHNICAL writing
Engineers lost for words? A. J. Kirkman. Engineer 217:889 My 22 '64; Discussion. D. L. Reeves. 218:800 N 13 '64
Professional English. H. A. Turner. Soc Dyers & Col J 80:248-50 My '64
Quality control for engineering authorship. R. M. D'Aprix. Machine Design 36:154-7 S 10 '64
Technical reading, writing and editing (cont). M. H. Aronson and R. C. Nelson. Instruments & Control Systems 36:91-2 N; 73-5 D '63
See also
Abstracts
Engineering reports
Engineering writing
Scientific writing

TECHNOLOGICAL change
Chicago report predicts changes in industries, job skills by 1980. Chem & Eng N 42:25-6 Ag 3 '64
Dynamics of higher education, science, and the paper industry. J. G. Strange. Tappi 46:sup:40A+ N '63
How we'll manufacture tomorrow. il diags Steel 154:120-8 Ja 6 '64
Human factors and plant innovations. L. Lindquist and J. Ganschow. Chem Eng 71:156+ Je 22 '64
Life-long learning, a means for overcoming obsolescence. D. S. Bushnell. Automation 11:264+ Ap '64
Look at the future; special report. il diags Mill & Factory 75:70-118 N '64
Memo to engineers; better keep pace. Steel 155:25-6 Jl 13 '64
Our future and automation. S. Lenher. map Automation 11:174-6+ Ap '64
Quickening transition in technologies. il diags Steel 154:133-42 Ja 6 '64 (reprints $1)
Rising crisis in skills. il Steel 155:38-66 S 7 '64 (reprints $2)
Technical awareness and economic growth. Engineering 197:466 Ap 3 '64
Technical obsolescence. Machine Design 36:148-51 Je 18; 92-5 Jl 2; 124-7 Jl 16 '64
Technological change; its impact on the foundry industry. il Foundry 92:172+ O '64
Technological changes call for management ingenuity. M. C. Rogers. Inland Ptr/Am Lithogr 153:43-5 Ag '64
Technology, the social impact. E. H. Copeland. Mech Eng 86:18-21 Ag '64; Discussion. 86:76-7 O '64
Wages in a time of technological change; Steel company of Wales. Engineering 197:180 Ja 31 '64

TECHNOLOGY
Chemical engineering, by J. M. Coulson and J. F. Richardson and Chemical engineering practice, by H. W. Cremer and S. B. Watkins; review. S. A. Gregory. Chem & Ind p 1794-8 O 24 '64
Do overseas firms lead U.S. in adoption of technology? Steel 154:101-2 Ap 13 '64
Elements in planning for advanced technology. Coal Age 69:110-11 Ag '64
Measurement and technological progress. A. V. Astin. IEEE Proc 52:227 Mr '64
Technical resources neglected by industry? J. H. Hollomon. Mech Eng 86:30-2 Ja '64
Technology spreads its gains. il Chem Eng 71:117-32 Ja 20 '64 (reprints 50c)
See also
Ceramic industries
Engineering
Food technology
Inventions
Paper making
Printing
Technical education
Textile industry

Social aspects

Faster technical advance means economic, social health. H. Ford, 2d. S A E J 72:38-9 Mr '64
Some sociological implications of modern air conditioning. E. J. Overmyer. il ASHRAE J 6:62-5 F '64

Russia

Russians push control hard under new central direction. S. Ramsey. Control Eng 10:31-2+ D '63

TEDLAR. See Vinyl fluoride

TEETH

Replanted teeth. Sci Am 210:72 F '64

Diseases and defects

Protein and lysine as factors in the cariogenicity of a cereal diet. M. L. Dodds. bibliog J Nutrition 82:217-23 F '64

TEFLON

Data on TFE degradation. il Plastics Tech 9:57 D '63

Designing with fluorocarbons for chemical applications. O. H. Fenner. il Mod Plastics 42:148+ O '64

Designing with fluorocarbons for electrical applications. J. Swiss. il Mod Plastics 42:141-4 O '64

Engineering a new valve. H. O'Connor and J. Hawley. il diags Product Eng 35:87-9 S 28 '64

FEP-fluorocarbon film goes commercial. il Chem Eng 71:108+ Ap 13 '64

Fire-safe ball valve result of asbestos-TFE. il Materials in Design Eng 59:172+ Mr '64

Fluorocarbon plastics. il Materials in Design Eng 59:93-104 F '64 (reprints 35c)

Friction variation of PTFE and MoS_2 during thermal vacuum exposure. W. D. Craig, jr. bibliog il diags Lub Eng 20:273-6; Discussion. 276-7 Jl '64

Hard, low-friction surface extends use of aluminum. il Mach 70:126 Jl '64

Improved nucleate boiling heat transfer. R. K. Young and R. L. Hummel. bibliog il diag Chem Eng Prog 60:53-8 Jl '64

Industrial cloth: woven of 100 FEP monoflament for a variety of applications. il Plastics World 21:76 N '63

Materials and designs for nonlube applications. W. C. Arnold and W. J. Eser, jr. diags Machine Design 36:134+ Jl 2 '64

Teflon fabric lubricates bearings. il Iron Age 193:79 F 27 '64

Teflon packing cuts pump-maintenance costs. Oil & Gas J 62:111 Ag 3 '64

Teflon seals aluminum hardcoat. J. E. Sandford. il Iron Age 193:82-3 Mr 19 '64

TFE fluorocarbons for gaskets and packings. G. E. Horvath. il diags Machine Design 36:166-72 S 24 '64

TFE-metal laminate in coils. S. Mulay. il Materials in Design Eng 58:104-5 D '63

TFE/rubber; new fabricating method surmounts difficulties. il Plastics World 22:37 Mr '64

Uniform TFE fluorocarbon moldings. Plastics Tech 10:13 Mr '64

Vacuum depositing TFE film; new way to coat plastics and metals. J. H. Gorrell. il Plastics Tech 10:45-6 O '64

Vapor condensation on a horizontal tube using Teflon to promote dropwise condensation. C. A. Depew and R. L. Reisbig. bibliog diag Ind & Eng Chem Proc Design 3:365-9 O '64

Analysis

Mass spectrometric identification of decomposition products of polytetrafluoroethylene and polyfluoroethylenepropylene. R. E. Kupel and others. bibliog diag Anal Chem 36:386-9 F '64

TEINEITE. See Copper tellurate

TEKTITES

Tektites and impact fragments from the moon. J. A. O'Keefe. il maps diags Sci Am 210:50-7 F '64

TELECOMMUNICATION

Communications in the public service of the United Kingdom. A. Mumford. il Inst E E Proc 111:1-6 Ja '64

Evolution of telephone, telegraph, and telex traffic. E. M. Deloraine. bibliog Elec Com 39 no 2:265-76 '64

Factors affecting the speed and security of a digital data transmission system. E. H. Brothman and others. diags IEEE Trans Com & Electronics p 1-7 Ja '64

Measuring communications intelligibility. diags Mag of Stand 35:207-8 Jl '64

1964 prospects of all engineerings; telecommunications and instrumentation. il Engineering 197:135-7 Ja 17 '64

Research for communications; Standard telecommunication laboratories, ltd. il Engineer 217:857 My 15 '64

Staying in front in telecommunications; Standard telephone laboratories. il Engineering 197:668 My 15 '64

Telecommunications at Marconi display. il Engineering 198:426 O 2 '64

Telecommunications, 1963; illustrations with text. Engineer 217:40-1 Ja 3 '64

See also

Radio telegraph
Telegraph
Telephone
Teletype

TELEGRAPH

Computerized commercial telegraph system. Franklin Inst J 277:371 Ap '64

Computerized telegraph system. il Electronic Ind 23:92 Mr '64

Overall survey of transmission-performance planning. H. Williams. bibliog diags Inst E E Proc 111:727-43 Ap '64

Self-optimizing digital data transmission set. A. Brothman and others. diags IEEE Trans Com & Electronics p7-12 Ja '64

System philosophy and design parameters; broadband switching. A. F. Connery. IEEE Trans Com & Electronics p687-8 N '63

See also

Radio telegraph
Radio telephone

Patents

United States patents issued to International telephone and telegraph system. Elec Com 38 no 4:547-52 '63; 39 no 2:321-5; no 3:458-9 '64

Rates

How to price communications circuits. J. F. Holmes. Control Eng 11:84-7 Ag '64

TELEGRAPH, Carrier current

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. bibliog diags IEEE Proc 52:340-59 Ap '64

TELEMETERING

Advances in telemetry open new roads to testing. O. E. Kienow. il diag S A E J 72:54-5 Jl '64

Aerospace telemetry. L. S. Schwartz. diags Space/Aeronautics 42 no 4:231-4 '64-65

Aerospace telemetry; some recent developments. Wireless World 70:28 Ja '64

Automation at Denver. J. E. Layne. il maps plan diags Water Works & Wastes Eng 1:30-4+, cover Ja '64; Abstract. Pub Works 95:162 Mr '64

Automation of the Rivermines pumping station. P. W. Green. il Water Works & Wastes Eng 1:52-3 Jl '64

Automation, several Big Horn Basin fields monitored from one point. J. K. Walsh. map diags J Pet Tech 16:983-6 S '64

Biomedical flight data collection. H. R. Bratt and M. J. Kuramoto. bibliog il diags I S A J 10:57-62 O '63

Central electricity generating board telemetering system. J. W. Dillow. il map diags Ind Electronics 2:157-60, 209-12 Ap-My '64

Communications, tele-control. F. V. Long. Published in monthly numbers of Gas

Digitel 108, a digital telemetering system. J. Lhoest and B. Mattlet. il diags Elec Com 38 no 4:495-500 '63

Drilling monitored remotely. il Oil & Gas J 62:67 Ag 17 '64

Eastern Gas telemetry system. il diag Ind Electronics 2:492-3 O '64

Expandable system remotely controls 138/34.5-kv substation. S. J. Brocato and A. B. Stevens. il diags Elec World 160:57-9 O 21 '63

For telemetry, advantages of storing data before detection. J. D. Williamson. Electronic Ind 23:61-3 Ag '64

How to achieve stablity in space telemetry. F. L. Carroll. il diags Electronics 37:32-5 Ja 24 '64

Improved predetection recording of telemetry data. E. E. Swanson and V. A. Ratner. diags Space/Aeronautics 40:98+ D '63

Increased profits through low-cost alarm telemetering on producing leases; abstract. R. E. Statton. Control Eng 11:165-6 O '64

Inductive telemetry improves spin-system measurements. H. Baumann. il diags Electronics 36:41-2 N 15 '63

Industrial telemetry. R. C. Griggs. il diags Ind Electronics 2:362-8 Ag '64

Influence of data processing on the design and communication of experiments. S. W. Golomb. J Res Nat Bur Stand 68D:1021-4 S '64

International conference. 1st. London, Sept. 23-27. Wireless World 69:565-7 N '63

International telemetering exhibition. London. il Ind Electronics 1:746-7 N '63

Looking inside reciprocating engines in service. F. V. Long. bibliog il diags Gas 40:109-12 Mr '64

Magnetic amplifier telemetry encoder circuit. B. K. Bose. il diags IEEE Proc 52:1076 S '64

TELEMETERING—*Continued*

Novel microwave solutions to some telemetry problems; abstract. E. Jamieson and G. Wanless. Engineer 218:5 Jl 3 '64
180 miles of buried pipeline to be used for telemetering. il diag Oil & Gas J 62:129+ Jl 6 '64
Processing UK2's findings. il Engineering 197: 558 Ap 17 '64
Pcm instrumentation. S. Wald. diags Instruments & Control Systems 37:93-6 Ap '64
Radio-linked tide gauges in the Thames estuary. il diags Engineer 216:849-50 N 22 '63
Remote control, next step beyond lease automation. E. E. Hogwood, jr. bibliog il diags Oil & Gas J 62:81-3 Mr 23; 81-4 Mr 30; 152-5 Ap 6 '64
Remote meter reading trial termed success. il Elec World 162:36 S 28 '64
Remote metering; some try it, others look on. Elec World 161:110 Ap 20 '64
Remote reading of large volume customers; Milwaukee Gas Light. L. R. Weber. il diag Gas Age 130:22-5 N '63
Should Pasadena expand telemetering? J. L. Behner. il Water Works & Wastes Eng 1:88-9+ My '64
Simple fm subcarrier oscillator suitable for physiological telemetry. N. Z. Lupu. diags IEEE Proc 51:1621-2 N '63
Simplified approach to digital telemetering. B. C. Joyce. il diags Gas 40:86-8 Ag '64
Simplified central control of sub-stations. Engineering 198:457 O 9 '64
Solid-state transmitter ready for uhf telemetry. N. Downs and B. van Sutphin. il diags Electronics 37:76-80 Je 1 '64
Something new in watching turbine blades from the inside. F. V. Long. bibliog il diags Gas 40:62-3+ Ap '64; Same. Combustion 35:29-34 My '64
Subsurface telemetry problem, a practical solution. J. J. Arps and J. L. Arps. bibliog diags J Pet Tech 16:487-93 My '64
Tank level telemetering. H. Dickinson. il diags Instruments & Control Systems 37: 105-7 Ap '64
Telemetering and commingling save at Duson. W. B. Bleakley. il diag Oil & Gas J 61:76-8 D 23 '63
Telemetering at Public Service. J. C. Domnik. il Gas 39:53-7 N '63
Telemetry for the power field. il map diags Power Eng 68:T1-36 Mr '64
Telemetry sampling phenomena. S. Poole. diags Electronic Eng 36:296-9 My '64
Testing tires by telemetry. il Comp Air Mag 69:22 Ag '64
Tests of automatic remote meter reading termed successful. Gas 40:99 N '64
Time division multiplexing for industrial applications. J. L. Haynes. il diags Instruments & Control Systems 37:98-102 Ap '64
Turbine operation monitored continuously by radio. F. V. Long. il diag Power 108:78-9 S '64
Vibration measurement on some stages of a 120mw steam turbine. L. E. Cave and others. il diags Engineer 218:485-90 S 25 '64

Terminology

Telemetry terms you should know. Power Eng 68:T3 Mr '64

TELEPHONE

Digital audio-conversion systems. H. Grunstein and H. Van Gelder. diags Electro-Tech 73:108-9 F '64
Digital troposcatter transmission and modulation theory. E. D. Sunde. bibliog diags Bell System Tech J 43:143-214 Ja '64
Education by telephone. Bell Lab Rec 42:19 Ja '64
Linear time-varying circuits; matrix manipulations, power relations, and some bounds on stability. S. Darlington. bibliog diags Bell System Tech J 42:2575-608 N '63
Local area integrated pcm telephone network. C. Dumousseau. diags IEEE Trans Com & Electronics p 158-62 Mr '64
Markov processes representing traffic in connecting networks. V. E. Beneš. bibliog diag Bell System Tech J 42:2795-837 N '63
One-man multifrequency transmission measurements. E. H. B. Bartelink and others. il diags IEEE Trans Com & Electronics 83: 238-44 My '64
Optimal rearrangeable multistage connecting networks. V. E. Beneš. diags Bell System Tech J 43:1641-56 pt 2 Jl '64
Optimization of network configurations through queueing theory. F. P. Randazzo. bibliog diags Elec Com 38 no 4:511-23 '63
Overall survey of transmission-performance planning. H. Williams. bibliog diags Inst E E Proc 111:727-43 Ap '64
Overflow traffic from a trunk group with balking. P. Linhart. bibliog Bell System Tech J 43:45-89 Ja '64
Permutation decoding of systematic codes. J. MacWilliams. Bell System Tech J 43:485-505 pt 2 Ja '64
Permutation groups, complexes, and rearrangeable connecting networks. V. E. Beneš. bibliog diags Bell System Tech J 43:1619-40 pt 2 Jl '64
Properties of some systems that distort signals. I. W. Sandberg. bibliog diags Bell System Tech J 42:2033-46; 43:91-112 S '63, Ja '64
Some bandwidth compression systems for speech transmission. J. S. Williams. bibliog diags Radio & Electronic Eng 27:459-71; Discussion. 471-2 Je '64
System philosophy and design parameters; broadband switching. A. F. Connery. IEEE Trans Com & Electronics p687-8 N '63
System testing of the No. one electronic switching system. G. Haugk and others. il diags Bell System Tech J 43:2575-92 pt 2 S '64
Theory of syllabic compandors. R. O. Carter. diags Inst E E Proc 111:503-13 Mr '64
Traffic simulation and its application in telephony. G. Dietrich and H. Wagner. bibliog diags Elec Com 38 no 4:524-33 '63
See also
Mine telephone
Radio telephone

Apparatus and supplies

Automated 20-20,000-cps transmission measuring set for laboratory use. G. D. Haynie and P. E. Rosenfeld. il diags Bell System Tech J 42:2501-31 N '63
Designing the traffic service position console. R. H. Funck. il diag Bell Lab Rec 42:208-12 Je '64
Dial TWX station facilities. H. M. Zydney. il diags IEEE Trans Com & Electronics p 142-8 Mr '64
Expanding the telephone. il Engineering 197: 32 Ja 3 '64
15A resettable message register. H. E. Ehrich. il diags Bell Lab Rec 42:94-8 Mr '64
Flexible printed wiring. il Bell Lab Rec 42: 75 F '64
Gold-epitaxial silicon high-frequency diodes. D. Kahng and L. A. D'Asaro. bibliog diags Bell System Tech J 43:225-32 Ja '64
Au-n-type GaAs Schottky barrier and its varactor application. D. Kahng. bibliog Bell System Tech J 43:215-24 Ja '64
Handsets with transistor amplifiers. K. E. Hammer. il diags Bell Lab Rec 42:159-64 My '64
Improved ferreed switch for phone system. il Engineering 197:352 Mr 6 '64
Local networks. E. W. Anderson. bibliog diags Inst E E Proc 111:713-26 Ap '64
Magazine-loaded tape recorder stores instant phone numbers. il diag Machine Design 36:130-1 F 27 '64
Mechanical development of the touch-tone calling receiver. W. H. Newton. il diag Bell Lab Rec 41:359-62 O '63
N2 carrier equipment. L. H. Steiff. il Bell Lab Rec 42:172-8 My '64
New type of high-strength laminate developed. il Bell Lab Rec 42:164-5 My '64
No. one electronic call processing. D. H. Carbaugh and others. flow charts diags Bell System Tech J 43:2483-531 pt 2 S '64
No. one electronic switching system apparatus and equipment. J. G. Ferguson and others. il plan diags Bell System Tech J 43:2355-439 pt 2 S '64
Packaged N2 carrier telephone terminals. E. R. Taylor. diags Bell Lab Rec 42:195-9 Je '64
Polaroid and the Princess: a tale of two concepts. J. Proctor. il Product Eng 35: 110-13 Je 22 '64
Portable 23A transmission measuring set. P. J. Snyder. il diags Bell Lab Rec 41:408-10 N '63
Quality assurance. E. G. D. Paterson. il Bell Lab Rec 41:419-23 D '63
Register-sender capabilities; broadband switching system. I. V. Coleman. IEEE Trans Com & Electronics p 167-70 Mr '64
Reliability and quality in communications. E. G. D. Paterson. diags Ind Quality Control 20:15-23+ bibliog(p37-8) Mr '64
Spectral characteristics of digit-simulating speech sounds. D. P. Borenstein. diag Bell System Tech J 42:2839-47 N '63
Testing the touch-tone telephone set. T. A. Schmader. il diags Bell Lab Rec 41:354-8, cover O '63

TELEPHONE—Apparatus and supplies—*Cont.*

Transistorized time delay circuit. M. E. Krom. il diags Bell Lab Rec 42:58-60 F '64

Transmission reliability problems of a broadband switching system. R. A. Eiser. il diags IEEE Trans Com & Electronics p 163-7 Mr '64

Transmission systems for trunk and junction circuits. R. H. Franklin. bibliog il Inst E E Proc 111:700-12 Ap '64

Vibrating reed selector for Bellboy service. S. D. White. il diag Bell Lab Rec 42:134-7 Ap '64

Wide-range carrier-frequency noise-measuring set. W. C. Freeman, jr. and R. A. Klodt. il diags IEEE Trans Com & Electronics p61-7 Ja '64

See also
Telephone switchboards

Data transmission systems

Communications cuts inventory levels. il diags Mod Materials Handling 19:77 N '64

Data transmission on telephone circuits. il Engineer 216:858-9 N 22 '63

Data transmission over a self-contained error detection and retransmission channel. F. E. Froehlich and R. R. Anderson. bibliog diags Bell System Tech J 43:375-98 pt 2 Ja '64

Data transmission system. il Engineer 217:583 Mr 27 '64

Developmental line-switched teletypewriter service. R. R. MacLaughlin. il map diags IEEE Trans Com & Electronics 83:349-56 Jl '64

Dial a document; utilities company transmits safety material over telephone. il Safety Maint 128:29-31 N '64

Digital computer simulation of a four-phase data transmission system. M. A. Rappeport. bibliog diags Bell System Tech J 43:927-64 My '64

Electronic meter reading. G. Ruger. il Gas Age 131:28-9 S '64

Increased profits through low-cost alarm telemetering on producing leases; abstract. R. E. Statton. Control Eng 11:165-6 O '64

Machines talk to machines to speed distribution. il Mod Materials Handling 19:52 Ap '64

Phase modulation data transmission system for use over the telephone network. A. P. Clark. bibliog diags Radio & Electronic Eng 27:181-95 Mr '64

Remote control by telephone. il Ind Electronics 2:148 Mr '64

Univac device puts high price computers on phone. Steel 153:74 N 11 '63

Weather by wire. Electronics 37:36 Ag 10 '64

Emergency use

Conference arrangement for NORAD. N. Lazo. diags Bell Lab Rec 42:253-7 Jl-Ag '64

Safety communications system for new span; Verrazano-Narrows bridge. il Safety Maint 128:13+ Jl '64

Theft, fire or flood warning equipment. Ind Electronics 2:493 O '64

History

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. bibliog diags IEEE Proc 52:340-59 Ap '64

Intercommunicating systems

See Intercommunicating systems

Long distance

Crossbar tandem TSP. R. M. Morris. il diag Bell Lab Rec 42:146-51 My '64

Demodulation of wideband, low-power fm signals. S. Darlington. bibliog diags Bell System Tech J 43:339-74 pt 2 Ja '64

Echo suppressor design in telephone communications. P. T. Brady and G. K. Helder. diags Bell System Tech J 42:2893-917 N '63

Effects of time delay and echoes on telephone conversations J. W. Emling and D. Mitchell. diags Bell System Tech J 42:2869-91 N '63

Multi-channel open-wire carrier telephone system: Salisbury (Southern Rhodesia) to Kitwe (Northern Rhodesia). A. Munro and others. bibliog il map diags Radio & Electronic Eng 28:75-86 Ag '64

New multiplex for long distance service. J. J. Mahoney, jr. il diag Bell Lab Rec 42:32-8 Ja '64

New 12-channel carrier system for extended-area trunk and subscriber service. O. A. Jorgensen. il diags IEEE Trans Com & Electronics p643-7 N '63

1962 survey of noise and loss on toll connections. I. Nåsell. bibliog il Bell System Tech J 43:697-718 Mr '64

Protection switching for the L3 carrier system. G. P. Marki. diags Bell Lab Rec 41:381-7 N '63

761A PBX. R. J. Braund. il diags Bell Lab Rec 42:247-51 Jl-Ag '64

Subjective evaluation of delay and echo suppressors in telephone communications. R. R. Riesz and E. T. Klemmer. diags Bell System Tech J 42:2919-41 N '63

Technical aspects of the design of communication-satellite systems. W. J. Bray. bibliog maps diags Inst E E Proc 111:744-58 Ap '64

Telephone channel capacity of transmission lines. D. A. Gray. bibliog diags Radio & Electronic Eng 27:229-36 Mr '64

Traffic service position circuits. T. P. McGuinness. il diags Bell Lab Rec 42:258-63 Jl-Ag '64

Transmission performance assessment for telephone network planning. D. L. Richards. bibliog diags Inst E E Proc 111:931-40 My '64

Multiplex system

Experiment in pcm transmission of multiplexed channels. W. G. Bender. il diags Bell Lab Rec 42:240-6 Jl-Ag '64

Pioneering attempt at multiplex telephony. J. Blanchard. IEEE Proc 51:1706-9 D '63

Time division multiplexing simplifies voice-reply switching for the American stock exchange H. A. Kampf. diag Control Eng 11:101 Ja '64

Noise

Method of estimating the 1 per cent minimum crosstalk loss (for voice frequencies) in a paired cable, without empirical data. D. Aviv and M. Landis. diags IEEE Trans Com & Electronics p668-73 N '63

New objective for message circuit noise. D. A. Lewinski. il Bell System Tech J 43:719-40 Mr '64

1962 survey of noise and loss on toll connections. I. Nåsell. bibliog il Bell System Tech J 43:697-718 Mr '64

Speech immunity of push-button tone signaling systems employing tone receivers with guard circuits. L. Gasser and E. Ganitta. bibliog diags Elec Com 39 no 2:220-43 '64

Subjective effects of sidetone during telephone conversation. A. M. Noll. diags IEEE Trans Com & Electronics 83:228-31 My '64

Wide-range carrier-frequency noise-measuring set. W. C. Freeman, jr. and R. A. Klodt. il diags IEEE Trans Com & Electronics p61-7 Ja '64

Patents

Patents. Bell Lab Rec 42:103-5, 213-14, 330-9 Mr, Je, O '64

United States patents issued to International telephone and telegraph system. Elec Com 38 no 4:547-52 '63; 39 no 2:321-5; no 3:458-9 '64

Private wire systems

Time division multiplexing simplifies voice-reply switching for the American stock exchange H. A. Kampf. diag Control Eng 11:101 Ja '64

Recorded announcements

Computer talks on the telephone to answer questions. il Machine Design 36:14 F 27 '64

Repeaters

Cable and repeater handling system. O. D. Grismore. il plan diag Bell System Tech J 43:1373-94 Jl '64

Cable fault localization test sets. E. H. Weber. il diags Bell Lab Rec 42:289-93 S '64

For an ocean cable repeater: long life. il Engineering 198:168 Ag 7 '64

Increasing service life of L3 repeaters. D. M. Fitzgerald. il Bell Lab Rec 42:20-6 Ja '64

Manufacture of rigid repeaters and ocean-block equalizers. S. G. Johansson. il plan diags Bell System Tech J 43:1275-310 Jl '64

Repeater system all r-f. Electronics 36:42 N 29 '63

Repeaters and equalizers for the SD submarine cable system. S. T. Brewer and others. il diags Bell System Tech J 43:1243-73 Jl '64

Selector for underwater cable equalizers. V. F. Bohman and R. W. McKenzie. il diag Bell Lab Rec 42:124-6 Ap '64

Submarine phone cable system has welded-in reliability. L. W. Collins, jr. il Mach 70:136-9 D '63

TELEPHONE—Repeaters—*Continued*

Systematic jitter in a chain of digital regenerators. C. J. Byrne and others. il diags Bell System Tech J 42:2679-714 N '63
Timing errors in a chain of regenerative repeaters. B. K. Kinariwala. bibliog Bell System Tech J 41:1769-97; 43:1481-504 N '62, pt 2 Jl '64
Welding of submarine cable repeaters. H. W. Garbe and P. A. Yeisley. il Welding J 43: 287-95 Ap '64

Statistics

World's telephones, 1962. Elec Com 39 no 2: 314-20 '64
World's telephones, 1963. Elec Com 39 no 3: 451-7 '64

Switchboards

See Telephone switchboards

Switching system

See Telephone exchanges

Tables, calculations, etc.

Method of estimating the 1 per cent minimum crosstalk loss (for voice frequencies) in a paired cable, without empirical data. D. Aviv and M. Landis. diags IEEE Trans Com & Electronics p668-73 N '63

Television combination

Britain's first permanent video-phone link. il Ind Electronics 2:396 Ag '64
Cathode-ray storage devices; television by telephone line. A. E. Cawkell. bibliog il diags Electronic Eng 36:142-9 Mr '64
Experiments with picturephone service. A. D. Hall. il diags Bell Lab Rec 42:114-20 Ap '64
New York to California Picturephone scores hit at World's fair. il Radio-Electronics 35:6 Jl '64
Picturephone. il Electronics 37:29 My 4 '64
Picturephone in your future. H. Gernsback. il Radio-Electronics 35:33+ S '64
Picturephone service inaugurated. Bell Lab Rec 42:257 Jl-Ag '64

Australia

Gateway telephone exchange in Sydney. il Engineer 216:995-6 D 13 '63

Great Britain

First direct submarine cable link between United States and England completed. il map Bell Lab Rec 41:432-3 D '63
Local networks. E. W. Anderson. bibliog diags Inst E E Proc 111:713-26 Ap '64
Post office telecommunications. Engineer 218: 249 Ag 14 '64
Which phone system when? Engineering 196: 674 N 29 '63

India

Indian telephone industries (ITI). Engineer 216:827 N 15 '63

Mexico

Microwave telephone relay network in Mexico. H. Carl. il map Elec Com 39 no 3: 379-82 '64

Rhodesia

Multi-channel open-wire carrier telephone system, Salisbury (Southern Rhodesia) to Kitwe (Northern Rhodesia). A. Munro and others. bibliog il map diags Radio & Electronic Eng 28:75-86 Ag '64

United States

First direct submarine cable link between United States and England completed. il map Bell Lab Rec 41:432-3 D '63

Zambia

Multi-channel open-wire carrier telephone system, Salisbury (Southern Rhodesia) to Kitwe (Northern Rhodesia). A. Munro and others. bibliog il map diags Radio & Electronic Eng 28:75-86 Ag '64

TELEPHONE, Automatic

Bell's $100-million electronic switching system. il Electronics 37:30 N 2 '64
Call diverter for 24-hr service. il Elec World 161:116 F 10 '64
Common control features for the step-by-step system. A. S. Martins. il diags Bell Lab Rec 42:167-71 My '64; Same. IEEE Trans Com & Electronics 83:466-70 S '64
Conference arrangement for NORAD. N. Lazo. diags Bell Lab Rec 42:253-7 Jl-Ag '64
DTWX assistance operator switchboard. T. A. Smith. il diags Bell Lab Rec 42:8-14 Ja '64
Mechanical development of the touch-tone calling receiver. W. H. Newton. il diag Bell Lab Rec 41:359-62 O '63
New era in telephony; electronic switching. A. A. McKenzie. bibliog il diags Electronics 37:71-86, cover O 19 '64
No. one electronic switching system; system organization and objectives. bibliog flow charts il plans diags Bell System Tech J 43:1831-2609 pts 1-2 S '64
Quasi-electronic translator in telephone direct distance dialing. T. Burian and H. Nordsieck. il diags Elec Com 39 no 3:444-50 '64
Speech immunity of push-button tone signaling systems employing tone receivers with guard circuits. L. Gasser and E. Ganitta. bibliog diags Elec Com 39 no 2:220-43 '64
Switching-unit markers for electronic automatic exchange. A. S. Cochran and others. bibliog il diags IEEE Trans Com & Electronics 83:439-45 S '64
Testing the touch-tone telephone set. T. A. Schmader. il diags Bell Lab Rec 41:354-8, cover O '63

TELEPHONE, Carrier current

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. bibliog diags IEEE Proc 52:340-59 Ap '64
Experiment in pcm transmission of multiplexed channels. W. G. Bender. il diags Bell Lab Rec 42:240-6 Jl-Ag '64
Experimental broadband pcm terminal. J. S. Mayo. il diags Bell Lab Rec 42:152-7 My '64
Multi-channel open-wire carrier telephone system, Salisbury (Southern Rhodesia) to Kitwe (Northern Rhodesia). A. Munro and others. bibliog il map diags Radio & Electronic Eng 28:75-86 Ag '64
N2 carrier equipment. L. H. Steiff. il Bell Lab Rec 42:172-8 My '64
N2 carrier solid state circuitry. W. P. Kuebler. diags Bell Lab Rec 42:127-32 Ap '64
Packaged N2 carrier telephone terminals. E. R. Taylor. diags Bell Lab Rec 42:195-9 Je '64
Protection switching for the L3 carrier system. G. P. Marki. diags Bell Lab Rec 41: 381-7 N '63
Underwater acoustic telephone for free-swimming divers. B. K. Gazey and J. C. Morris. bibliog il diags Electronic Eng 36: 364-8 Je '64
Use of insulated ground wires on a transmission line for communication channels. G. E. Farmer. il IEEE Trans Power Apparatus & Systems p884-91 D '63
Wide-range carrier-frequency noise-measuring set. W. C. Freeman, jr. and R. A. Klodt. il diags IEEE Trans Com & Electronics p61-7 Ja '64

TELEPHONE, Military. See Military telephone

TELEPHONE, Submarine

Armorless cable manufacture. B. W. Lerch and J. W. Phelps. il diags Bell System Tech J 43:1209-42 Jl '64
Cable and repeater handling system. O. D. Grismore. il plan diag Bell System Tech J 43:1373-94 Jl '64
Cable fault localization test sets. E. H. Weber. il diags Bell Lab Rec 42:289-93 S '64
Cable laying facility. R. D. Ehrbar. il Bell System Tech J 43:1367-72 Jl '64
Cable payout system. R. W. Gretter. bibliog il diags Bell System Tech J 43:1395-434 Jl '64
Cable power facility. J. D. Bishop and S. Mottel. il diags Bell System Tech J 43: 1339-66 Jl '64
Compac cable inaugurated. il Engineer 216: 939-40 D 6 '63
Design of armorless ocean cable. M. W. Bowker and others. bibliog il diags Bell System Tech J 43:1185-208 Jl '64
Electron tubes for the SD submarine cable system. V. L. Holdaway and others. bibliog il diags Bell System Tech J 43:1311-38 Jl '64
First direct submarine cable link between United States and England completed. il map Bell Lab Rec 41:432-3 D '63
For an ocean cable repeater; long life. il Engineering 198:168 Ag 7 '64
Manufacture of rigid repeaters and ocean-block equalizers. S. G. Johansson. il plan diags Bell System Tech J 43:1275-310 Jl '64
New electron tubes for SD submarine cable systems. V. L. Holdaway and others. il diags Bell Lab Rec 42:226-33 Jl-Ag '64
New United States-Japan cable opened. Bell Lab Rec 42:233 Jl-Ag '64

TELEPHONE, Submarine—*Continued*

Repeaters and equalizers for the SD submarine cable system. S. T. Brewer and others. il diags Bell System Tech J 43:1243-73 Jl '64

SD submarine cable system. R. D. Ehrbar and L. H. Morris. il map diags Bell Lab Rec 42:42-7 F '64

SD submarine cable system. R. D. Ehrbar and others. bibliog il map diags Bell System Tech J 43:1155-84 Jl '64

Selector for underwater cable equalizers. V. F. Bohman and R. W. McKenzie. il diag Bell Lab Rec 42:124-6 Ap '64

Submarine cable laying system. R. D. Ehrbar. il diags Bell Lab Rec 42:86-93 Mr '64

Submarine-coaxial-cable manufacture at Southampton factory 2. E. Baguley. il plan Elec Com 38 no 4:475-86 '63

Submarine phone cable system has welded-in reliability. L. W. Collins, jr. il Mach 70:136-9 D '63

Switching international calls via submarine cable. J. Becker and R. D. Deming. il diag Bell Lab Rec 42:234-9 Jl-Ag '64

Underwater acoustic telephone for free-swimming divers. B. K. Gazey and J. C. Morris. bibliog il diags Electronic Eng 36:364-8 Je '64

Welding of submarine cable repeaters. H. W. Garbe and P. A. Yeisley. il Welding J 43:287-95 Ap '64

Wideband submarine cable system. il Engineer 217:277 F 7 '64

World's longest continuous welding project; armorless deep sea cable. H. O. Jones. il diag Welding J 43:737-44 S '64

TELEPHONE cables

Cable and repeater handling system. O. D. Grismore. il plan diag Bell System Tech J 43:1373-94 Jl '64

Cable payout system. R. W. Gretter. bibliog il diags Bell System Tech J 43:1395-434 Jl '64

Cable with a backbone. il Bell Lab Rec 41:411 N '63

Compac cable inaugurated. il Engineer 216:939-40 D 6 '63

Method of estimating the 1 per cent minimum crosstalk loss (for voice frequencies) in a paired cable, without empirical data. D. Aviv and M. Landis. diags IEEE Trans Com & Electronics p668-73 N '63

New look in aerial cable. F. W. Horn and O. B. Cook. il diag Bell Lab Rec 42:308-14 O '64

New United States-Japan cable opened. Bell Lab Rec 42:233 Jl-Ag '64

Repeaters and equalizers for the SD submarine cable system. S. T. Brewer and others. il diags Bell System Tech J 43:1243-73 Jl '64

SD submarine cable system. R. D. Ehrbar and L. H. Morris. il map diags Bell Lab Rec 42:42-7 F '64

SD submarine cable system. R. D. Ehrbar and others. bibliog il map diags Bell System Tech J 43:1155-84 Jl '64

Selector for underwater cable equalizers. V. F. Bohman and R. W. McKenzie. il diag Bell Lab Rec 42:124-6 Ap '64

Submarine cable laying system. R. D. Ehrbar. il diags Bell Lab Rec 42:86-93 Mr '64

Technical progress in communications wires cables 12th annual symposium, Asbury Park, N.J. Dec. 4-6; abstracts of papers. Rubber Age 94:639-41 Ja '64

Wideband submarine cable system. il Engineer 217:277 F 7 '64

World's longest continuous welding project; armorless deep sea cable. H. O. Jones. il diag Welding J 43:737-44 S '64

See also

Telephone, Submarine

Coaxial cables

Analysis and performance of superconductive coaxial transmission lines. R. J. Allen and N. S. Nahman. bibliog il diags IEEE Proc 52:1147-54 O '64

Armorless cable manufacture. B. W. Lerch and J. W. Phelps. il diags Bell System Tech J 43:1209-42 Jl '64

Cable fault localization test sets. E. H. Weber. il diags Bell Lab Rec 42:289-93 S '64

Cable power facility. J. D. Bishop and S. Mottel. il diags Bell System Tech J 43:1339-66 Jl '64

Design of armorless ocean cable. M. W. Bowker and others. bibliog il diags Bell System Tech J 43:1185-208 Jl '64

Electron tubes for the SD submarine cable system. V. L. Holdaway and others. bibliog il diags Bell System Tech J 43:1311-38 Jl '64

Maintenance and repair

Automatic detection of low gas pressure in exchange cables. F. P. Piccolo. diags Bell Lab Rec 42:15-18 Ja '64

Cable repair ship Cable Enterprise. il Engineer 218:241-2 Ag 14 '64

Manufacture

Armorless cable manufacture. B. W. Lerch and J. W. Phelps. il diags Bell System Tech J 43:1209-42 Jl '64

Plastics insulated cable manufacture. il diag Engineer 216:730-1 N 1 '63

Refrigeration in cable making. il Engineer 216:771 N 8 '63

Submarine-coaxial-cable manufacture at Southampton factory 2. E. Baguley. il plan Elec Com 38 no 4:475-86 '63

Tandem wire drawing and plastic insulation extruding. P. N. Delves-Broughton. il diags Elec Com 39 no 3:435-43 '64

Protection

For optimum wire and cable insulation cellular polypropylene seems best bet. Plastics Tech 10:47 Ja '64

Plastics insulated cable manufacture. il diag Engineer 216:730-1 N 1 '63

Tandem wire drawing and plastic insulation extruding. P. N. Delves-Broughton. il diags Elec Com 39 no 3:435-43 '64

Testing

Cable fault localization test sets. E. H. Weber. il diags Bell Lab Rec 42:289-93 S '64

TELEPHONE companies

See also

Bell telephone system

Accounting

15A resettable message register. H. E. Ehrich. il diags Bell Lab Rec 42:94-8 Mr '64

Telephone accounts by computer. Engineer 218:220 Ag 7 '64

Management

Here's how central work assignment control center helps us keep maintenance costs in line. J. E. George and J. A. McHollan. flow diags il Power 108:68-71 My '64

TELEPHONE company buildings

Air conditioning

Load selective multizone systems condition growing telephone building. M. Meckler. il plan diag Air Cond Heat & Ven 61:95-8 S '64

TELEPHONE exchanges

Automatic switching for telex-equipment. P. J. Clemens. il diags Elec Com 38 no 4:539-41 '63

Automatic switching for telex-operation. H. L. Horwitz. bibliog il Elec Com 38 no 4:534-8 '63

Centrex system for areas served by independent telephone companies. J. S. Young. il diags Elec Eng 82:728-32 D '63

Choice of a telephone switching system. E. M. Deloraine. Elec Com 39 no 2:305-13 '64

Computer techniques applied to exchange outside plant engineering. R. W. Amory and R. A. Trachy. diags IEEE Trans Com & Electronics p46-54 Ja '64

Control center for electronic automatic exchange. W. R. Wedmore. bibliog diags IEEE Trans Com & Electronics 83:453-8 S '64

Local networks. E. W. Anderson. bibliog diags Inst E E Proc 111:713-26 Ap '64

Memory and logic system for an electronic private branch exchange. E. A. Irland and J. H. Vogelsong. bibliog diags IEEE Trans Com & Electronics 83:332-8 Jl '64

NEASIM: a general-purpose computer simulation program for load-loss analysis of multistage central office switching networks. R. F. Grantges and N. R. Sinowitz. diags Bell System Tech J 43:965-1004 bibliog(p1003-4) My '64

New era in telephony; electronic switching. A. A. McKenzie. bibliog il diags Electronics 37:71-86, cover O 19 '64

Traffic simulation. W. O. Turner. il diags Bell Lab Rec 41:346-50 O '63

Traffic simulation and its application in telephony. G. Dietrich and H. Wagner. bibliog diags Elec Com 38 no 4:524-33 '63

Which phone system when? Engineering 196:674 N 29 '63

TELEPHONE exchanges—*Continued*

Air conditioning

How equipment heat gain warms telephone building. G. C. Blackaller. plans diag Air Cond Heat & Ven 61:94-5 Jl '64

Equipment

Automatic traffic data processing. V. L. Ransom. il diags Bell Lab Rec 42:302-7 O '64

Bell's $100-million electronic switching system. il Electronics 37:30 N 2 '64

Broadband matrix switching and terminating equipment. R. M. Schildgen. bibliog il diags IEEE Trans Com & Electronics p679-82 N '63

Common control features for the step-by-step system. A. S. Martins. il diags Bell Lab Rec 42:167-71 My '64; Same. IEEE Trans Com & Electronics 83:466-70 S '64

Common control for an electronic private branch exchange. E. L. Seley and F. S. Vigliante. il diags IEEE Trans Com & Electronics 83:321-9 Jl '64

Crossbar tandem TSP. R. M. Morris. il diag Bell Lab Rec 42:146-51 My '64

DTWX assistance operator switchboard. T. A. Smith. il diags Bell Lab Rec 42:8-14 Ja '64

Electronic-private-branch-exchange telephone switching system. W. A. Depp and M. A. Townsend. diags IEEE Trans Com & Electronics 83:329-31 Jl '64

Experimental broadband pcm terminal. J. S. Mayo. il diags Bell Lab Rec 42:152-7 My '64

Ferreed. A. Feiner. bibliog il diags Bell System Tech J 43:1-14 Ja '64; Same. IEEE Trans Com & Electronics p73-8 Ja '64

Ferreed. A. Feiner and R. L. Peek, jr. il diags Bell Lab Rec 42:70-4 F '64

Gateway telephone exchange in Sydney. il Engineer 216:995-6 D 13 '63

High-speed electronic switch has relay-like mechanical contacts. il diag Automation 11:13 Mr '64

How equipment heat gain warms telephone building. G. C. Blackaller. plans diag Air Cond Heat & Ven 61:94-5 Jl '64

Magnetic latching wire spring relays. T. G. Grau and A. K. Spiegler. il Bell Lab Rec 42:139-40 Ap '64

New crossbar link design for step-by-step common control. G. Riddell. diags IEEE Trans Com & Electronics 83:446-53 S '64; Same cond. il Bell Lab Rec 42:285-8 S '64

New miniaturized dry reed glass sealed contacts. I. S. Rafuse. il Bell Lab Rec 42:99-100 Mr '64

New multiplex for long distance service. J. J. Mahoney, jr. il diag Bell Lab Rec 42:32-8 Ja '64

No. one electronic switching system; system organization and objectives. bibliog flow charts il plans diags Bell System Tech J 43:1831-2609 pts 1-2 S '64

No. 101 electronic switching system. O. H. Williford. il diags Bell Lab Rec 41:374-80 N '63

No. 101 ESS control unit. E. G. Hughes and R. G. Taylor. il diag Bell Lab Rec 42:61-6 F '64

No. 101 ESS; the time-division switch unit. R. M. Averill and R. C. Stone. il diags Bell Lab Rec 41:425-31 D '63

Originating and terminating markers; broadband switching system. L. L. Smith. diags IEEE Trans Com & Electronics p674-9 N '63

Quasi-electronic telephone switching system HE-60. H. Schönemeyer. il diags Elec Com 39 no 2:244-59 '64

Quasi-electronic translator in telephone direct distance dialing. T. Burian and H. Nordsieck. il diags Elec Com 39 no 3:444-50 '64

Recent developments in Bell System relays; particularly sealed contact and miniature relays. A. C. Keller. bibliog il diags Bell System Tech J 43:15-44 Ja '64; Same. IEEE Trans Com & Electronics p79-87 Ja '64

Register sender capabilities for electronic automatic exchange. K. E. Prescher and others. diags IEEE Trans Com & Electronics 83:232-7 My '64

Signalling problems associated with register-controlled automatic telephone exchanges. S. Welch. bibliog diags Inst E E Proc 109 pt B:465-75 N '62; Discussion. 109 pt B:476-80; 110:1948-9 N '62, N '63

Switching international calls via submarine cable. J. Becker and R. D. Deming. il diag Bell Lab Rec 42:234-9 Jl-Ag '64

Switching-unit markers for electronic automatic exchange. A. S. Cochran and others. bibliog il diags IEEE Trans Com & Electronics 83:439-45 S '64

System equipment design for growth and flexibility. J. V. Smith. Bell Lab Rec 42:27-31 Ja '64

Traffic service position circuits. T. P. McGuinness. il diags Bell Lab Rec 42:258-63 Jl-Ag '64

Versatility in translating; broadband switching system. W. A. Rust. diags IEEE Trans Com & Electronics p682-6 N '63

Maintenance and repair

Improving maintenance in panel offices. J. L. Bertels and R. I. Nolan. diags Bell Lab Rec 41:401-6 N '63

No. one electronic switching system maintenance plan. R. W. Downing and others. bibliog diags Bell System Tech J 43:1961-2019 S '64

No. one electronic switching system master control center. H. J. Dougherty and others. il diags Bell System Tech J 43:2283-319 pt 2 S '64

TELEPHONE laboratories

Research for communications; Standard telecommunication laboratories, ltd. il Engineer 217:857 My 15 '64

Equipment

Automated 20-20,000-cps transmission measuring set for laboratory use. G. D. Haynie and P. E. Rosenfeld. il diags Bell System Tech J 42:2501-31 N '63

TELEPHONE lines

Imperfections in active transmission lines. H. E. Rowe. diags Bell System Tech J 43:261-92 Ja '64

Model for relating coupled power equations to coupled amplitude equations. D. T. Young. Bell System Tech J 42:2761-4 N '63

Nature of and system inferences of delay distortion due to mode conversion in multimode transmission systems. S. E. Miller. bibliog diags Bell System Tech J 42:2741-60 N '63

No. one electronic switching system bus system. J. B. Connell and others. diags Bell System Tech J 43:2021-54 S '64

Stability of active transmission lines with arbitrary imperfections. H. E. Rowe. bibliog diags Bell System Tech J 43:293-328 Ja '64

Telephone channel capacity of transmission lines. D. A. Gray. bibliog diags Radio & Electronic Eng 27:229-36 Mr '64

Three-conductor elementary Clogston coaxial transmission line; calculation, fabrication and experiment. J. M. Manley. bibliog il diags Bell System Tech J 42:2551-74 N '63

See also

Telephone cables

Underground lines

New aspect of buried urban telephone distribution. G. L. Chilberg. il plans diags IEEE Trans Com & Electronics p37-46 Ja '64

New aspects of buried urban telephone distribution. G. L. Chilberg. il plans diags Elec Eng 82:677-83 N '63

TELEPHONE lines, Underground. See Telephone lines—Underground lines

TELEPHONE repeaters. See Telephone—Repeaters

TELEPHONE research

Analog computer simulation. C. F. Simone. il diags Bell Lab Rec 42:182-7 Je '64

Experimental transmission system designed for high-speed facsimile. il Bell Lab Rec 42:158 My '64

Experimental transmission system designed for high-speed facsimile. Franklin Inst J 277:508-9 My '64

Statistical properties of speech signals. D. L. Richards. bibliog Inst E E Proc 111:941-9 My '64

Subjective effects of sidetone during telephone conversation. A. M. Noll. diags IEEE Trans Com & Electronics 83:228-31 My '64

Transmission performance assessment for telephone network planning. D. L. Richards. bibliog diags Inst E E Proc 111:931-40 My '64

TELEPHONE switchboards

761A PBX. R. J. Braund. il diags Bell Lab Rec 42:247-51 Jl-Ag '64

Time division switch for an electronic private branch exchange. J. A. Herndon and F. H. Tendick, jr. il diags IEEE Trans Com & Electronics 83:338-45 Jl '64

TELEPRINTER. See Teletype

TELESCOPE

Aurorascope. D. Tomcik. il diags Q S T 48: 43-5 Jl '64

First flight of Stratoscope II. R. E. Danielson. bibliog il diags Am Scientist 51:375-99 D '63

Star temperatures found low by infrared telescope. Franklin Inst J 276:575 D '63

Stratoscope II television system. L. E. Flory and others. il diags SMPTE J 73:3-8 Ja '64

Mirrors

Amateur scientist; how to grind, polish and test an aluminum telescope mirror. W. C. Peterson. diags Sci Am 209:159-60+ N '63

Second Stratoscope II flight uses fused silica mirror. Franklin Inst J 277:185-6 F '64

TELESCOPE, Radio. See Radio telescope

TELETYPE

Automatic switching for telex-equipment. P. J. Clemens. il diags Elec Com 38 no 4: 539-41 '63

Automatic switching for telex-operation. H. L. Horwitz. bibliog il Elec Com 38 no 4: 534-8 '63

Character builder. diag Electronics 37:27-8 Jl 13 '64

Developmental line-switched teletypewriter service. R. R. MacLaughlin. il map diags IEEE Trans Com & Electronics 83:349-56 Jl '64

DTWX assistance operator switchboard. T. A. Smith. il diags Bell Lab Rec 42:8-14 Ja '64

Dial TWX station facilities. H. M. Zydney. il diags IEEE Trans Com & Electronics p 142-8 Mr '64

Error-detection equipment for Telex. il Ind Electronics 2:349 Jl '64

How to price communications circuits. J. F. Holmes. Control Eng 11:84-7 Ag '64

Mechanization of TWX. E. J. Tyberghein. il diags IEEE Trans Com & Electronics 83:345-9 Jl '64

Message route control in a large teletype network. M. Pollack. bibliog diags Assn for Computing Mach J 11:104-16 Ja '64

New line of low-cost light-duty teletypewriter equipment. N. A. Jacobs. il diags IEEE Trans Com & Electronics 83:225-7 My '64

New standard code for teletypewriters. J. F. Auwaerter. il diags Bell Lab Rec 41:394-400 N '63

No. one electronic switching system master control center. H. J. Dougherty and others. il diags Bell System Tech J 43:2283-319 pt 2 S '64

Performance of v.f. f.m. teleprinter circuits operating over a tropospheric-scatter link. H. B. Wood. diag Inst E E Proc 110:1933-40 N '63

Recent developments in automatic error correction. P. R. Keller. bibliog il diag Wireless World 70:62-6 F; 118-21 Mr '64

Teletype relay system. Electronic Ind 23:158 Ag '64

TELETYPEWRITER. See Teletype

TELEVISION

Storage tube holds television image. Electronics 37:83 Mr 13 '64

World of wireless. Published in monthly numbers of Wireless world

Bibliography

Books received. Published in monthly numbers of Wireless world

New books. Published in monthly numbers of Radio-electronics

Closed circuit

Cables for educational tv systems. J. Kreutzberg and R. A. Kempf. il diag Bell Lab Rec 42:200-4 Je '64

Closed circuit television. il Engineer 217:529 Mr 20 '64

Closed-circuit television and the stroboscope. N. L. Glew. il Ind Electronics 1:711-12 N '63

Energy vista. J. J. Kennedy. diag Am Gas Assn Mo 46:24+ My '64

Energy Vista telecast. il Am Gas Assn Mo 46:26-7 Jl-Ag '64

Industrial television in the generating industry. R. E. Blythe. il Ind Electronics 1: 707-9 N '63

New techniques in closed-circuit television for dental teaching. S. A. DiSanto. il SMPTE J 73:770-2 S '64

Remote control of closed-circuit television systems. D. G. A. Davies. il Ind Electronics 1:703-6 N '63

Tv warns astronauts of solar-flare eruptions. Machine Design 36:15 Je 18 '64

See also

Television—Industrial applications

Television—Medical applications

Television—Military applications

Television in education

Color

ART; new colour system. diags Wireless World 70:307-8 Je '64

Color display; Data Color. il Electronics 37: 25 Ag 24 '64

Color tv in Rio. Electronics 37:120 N 2 '64

Comparative effect of components in the bandshared spectrum of NTSC-type colour-television signals. I. Macwhirter. bibliog diags Inst E E Proc 111:1199-207 Jl '64

Considerations in color film production for color television. SMPTE J 73:411-14 My '64

Microsurgery on color tv; fiber-optics bundle allows a color camera to peer through microscope. L. D. Shergalis. il Electronics 37:106-7+ Jl 27 '64

New optical system and camera for color television. H. Nomura. il diag SMPTE J 73:120-4 F '64

New tube shrinks color tv camera. Electronics 36:17 D 6 '63

PAL: colour television system with phase-error cancellation. M. Cox. diags Wireless World 69:584-6 D '63

Progress committee report for 1963: color television. il SMPTE J 73:388 My '64

Work of the E.B.U. Ad-hoc group on colour television. R. Theile. diags SMPTE J 72: 860-2 N '63

See also

Television receiving apparatus—Color receivers

Industrial applications

Automated gravel plant adds tv. il Rock Prod 67:96+ F '64

Better and faster design by machine. L. S. Gomolak. il diags Electronics 37:64-71 Je 1 '64

Closed-circuit television; applications. R. K. Evans. il diags Power 108:155-60 Jl '64 (reprints 25c)

Closed circuit tv camera. il Engineer 216: 921 N 29 '63

Closed-circuit tv checks dual 250-ft-deep crossing. il diag Oil & Gas J 61:106-8 O 28 '63

Closed circuit tv for borehole inspection. il Engineering 196:525 O 25 '63

Closed circuit tv inspects underground sewage pipe. il Water & Sewage Works 110: 387-8 N '63

Closed-circuit tv spies on distillation-column performance. il Oil & Gas J 62:128 Mr 2 '64

Conveyor system monitored by closed-circuit television; White pine copper co. il Min Cong J 49:46-7 N '63

Electron microscope goes on tv. il Iron Age 194:72 O 1 '64

Electronic dispatching cuts loading time. il Pit & Quarry 57:72+ Jl '64

Image amplifier for industrial use. il Engineer 217:622 Ap 3 '64

Inside Citroen; electronic controls and tv monitors used. D. Scott. il diag Automotive Ind 131:63-7 Ag 15 '64

Kiln-cooler operations smoothed with aid of dual tv monitor system. il Pit & Quarry 57:40 S '64

Medical X-ray image amplifier used on blades. il Engineering 197:455 Mr 27 '64

Microscope televises nonmetallic flaws. diag Iron Age 193:93 My 14 '64

Pipelining with air and television. J. L. Russell. il Comp Air Mag 69:24-6 S '64

Quality-control aid in turbine blade production. il diags Ind Electronics 2:395-6 Ag '64

Remote viewing system for Dragon reactor. il diag Engineer 217:644-6 Ap 10 '64

Sewer pipe documentaries please tv audience, get top ratings. il Eng N 173:26-8 Ag 13 '64

Sewer repairs by travelling mole with tv camera. diag Engineering 197:427 Mr 20 '64

Television comes of age in the lime and cement industries. P. L. Gantt. il diag Rock Prod 67:99-100+ S '64

Tv keeps safety eye on operations; Great Lakes storage & contracting co. il Safety Maint 128:21 Ag '64

Television microscope mechanizes measuring. Steel 153:90 D 16 '63

Tv monitor simplifies welding of vessels. J. Giron. il Mach 70:132-5 N '63

TELEVISION—Industrial applications—*Cont.*

Television primary part of plant instrumentation at the Clinchfield plant of Penn-Dixie cement corp. P. L. Gantt. il plan Rock Prod 67:84+ Ja '64

Tunnel borer and shaft drill teamed at American gilsonite co.'s hydraulic mining operation. il diag Eng & Min J 165:68-70 Jl '64

Ultrasonic image converter. J. Powers. il diags Res/Develop 14:24-7 N '63

Video film; industrial possibilities? R. B. Steel. il Ind Phot 13:20-2 Mr '64

Medical applications

Microsurgery on color tv; fiber-optics bundle allows a color camera to peer through microscope. L. D. Shergalis. il Electronics 37:106-7+ Jl 27 '64

Motion pictures and television in medicine; symposium. bibliog il diags SMPTE J 73:617-42 Ag '64

Television X-ray-intensifier sensitivity. E. Garthwaite and others. bibliog il diags Inst E E Proc 110:1975-8 N '63

Military applications

Photographic positive-negative viewer. Electronic Eng 36:681 O '64

Photographic aspects

Automatic picture detail detection in the presence of random noise. M. H. Kubba. bibliog diags IEEE Proc 51:1518-23 N '63

Considerations in color film production for color television. SMPTE J 73:411-14 My '64

Experimental study of the possible bandwidth compression of visual image signals. C. Cherry and others. bibliog il diags IEEE Proc 51:1507-17 N '63

Factors affecting determination of monochrome television film exposure and speed indexing. H. Wright. bibliog il diags SMPTE J 73:305-13 Ap '64

New crispener circuit for television images. E. F. Brown. bibliog il diags SMPTE J 72:849-53 N '63

Objective method for rating picture sharpness: system modulation transfer acutance. E. M. Crane. bibliog il SMPTE J 73:643-7 Ag '64

Recent developments of electronic special effects in television. U. Messerschmid. il diags SMPTE J 73:468-72 Jl '64

Television picture black-level. P. L. Mothersole. il diags Wireless World 70:212-16 My '64; Discussion. 70:357-9, 397-8 Jl-Ag '64

Reception

See Television reception

Scientific applications

Automatic tv tracker keeps eye on missiles. J. R. Kruse. il diags Electronics 37:82-7 Ap 6 '64

Electron microscopes; television attachment increases magnification power to two million times. il Product Eng 35:64 O 12 '64

Integrating video microdensitometer. G. Will and others. il diags R Sci Instr 34:1328-32 D '63

Moon pictures don't upset Apollo. il I S A J 11:26+ S '64

Photographic positive/negative viewer. il Engineer 218:423 S 11 '64

Picture processing in the TIROS project. il diag Product Eng 35:54-5 Ja 20 '64

Prospects of stereo tv from Mars orbiter. V. J. Young. diag Space/Aeronautics 42:66-7 O '64

Quantitative television microscope. il Engineer 216:918 N 29 '63

Scanning the sun for solar flares. N. Gutlove and S. Morrison. bibliog il diags Electronics 37:31-5 F 14 '64

Space probe that tried and tried. il Electronics 37:29-30 Ag 10 '64

Stratoscope II television system. L. E. Flory and others. il diags SMPTE J 73:3-8 Ja '64

Television from space. F. Leary. il Space/Aeronautics 41:70-9 Mr '64

Tv helps astronomers put Stratoscope II on target. W. S. Pike. Electronics 36:49 N 22 '63

Weather satellite developments; automatic picture transmission from Tiros 8. C. E. Goodison. il Wireless World 70:411-12 Ag '64

Telephone combination

See Telephone—Television combination

Traffic control use

Closed-circuit t.v. at Dover car ferry terminal. il Engineer 218:186 Jl 31 '64

Control traffic; don't let traffic control you. A. F. Malo. il Pub Works 95:96-7 Jl '64

States back tv-monitored highway. Eng N 171:58 N 14 '63

TELEVISION advertising

Gas in tv and movie. il Am Gas Assn Mo 46:18-19 F '64

Ozzie and Harriet give gas a tv hit. il Am Gas Assn Mo 46:20-1 Ap '64

Tv bureau cites A.G.A. for outstanding performance in advertising. Am Gas Assn Mo 46:12 Mr '64

Two Boston electric utilities take to tv to battle competitive fuels. J. V. MacDonald and P. S. Mansfield. il Elec World 161:50-1 Ja 27 '64

TELEVISION aids to aviation

Simulating the moving perspective view from an aircraft. P. M. Carey. il diags SMPTE J 73:854-7 O '64

TELEVISION antennas

Amplified indoor antennas for fm and tv. P. E. Sutheim. il diags Radio-Electronics 35:32-4 O '64

Antennas and boosters for color tv. A. Cunningham. il diags Radio-Electronics 34:44-6 D '63

Calculation and measurement of the gains of end-fire v.h.f. and u.h.f. aerials. R. G. Manton. diags Electronic Eng 36:8-11 Ja '64

G-line. O. G. Patrick. il diags Radio-Electronics 35:46-8 F '64

How to repair rotators. H. L. Davidson. il diags Radio-Electronics 35:26-8 Ag; 50-1 O '64

Logarithmic aerial for bands IV and V. M. F. Radford. bibliog il diags Wireless World 70:424-6, 526-8 S-O '64

Transistor aerial pre-amplifier. M. V. Callendar. il diags Wireless World 69:580-3 D '63

U.h.f. loft aerial. N. W. Brown. il diags Wireless World 70:10-11 Ja '64

See also

Television masts

TELEVISION apparatus

Big brother is watching you; truck loaded with $60,000 worth of electronics snooping gear records how many tv sets are tuned to each channel. il Product Eng 35:90-1 Ap 27 '64

Big brother; mobile television snooper. il Electronics 37:27-8 Ap 20 '64

Character builder. diag Electronics 37:27-8 Jl 13 '64

Manufacturers' products; new electronic equipment and accessories. Published in monthly numbers of Wireless world

New products and developments. Published in monthly numbers of Journal of the Society of motion picture and television engineers

9A video distortion measuring set. J. O. Israel. il diags Bell Lab Rec 42:121-3 Ap '64

See also

Television cameras

Television receiving apparatus

Exhibitions

International products seen at London shows. il Wireless World 70:492-4 O '64

National television and radio show, London, Aug. 24-Sept. 5; with list of exhibitors. Wireless World 70:438-47, 484-91 S-O '64

Television and radio show, London, Aug. 24-Sept 5. Engineer 218:334 Ag 28 '64

Power supply

Tv power supply troubles. J. Darr. il diags Radio-Electronics 35:31-3 F '64

Testing

U.h.f. oscillator. R. H. Bradsell and M. Grimshaw. il diags Wireless World 70:305-7 Je '64

TELEVISION apparatus industry

Consumer electronics. L. H. Dulberger and others. il Electronics 37:48-9 Ja 3 '64

Tinyvision market big. D. Smith. Electronics 36:10-11 D 6 '63

Japan

Progress committee report for 1963: Japan. il SMPTE J 73:399-401 My '64

TELEVISION apparatus on ships

Precision berthing by television. Engineer 217:244 Ja 31 '64

TELEVISION broadcasting

Quality grading of impaired television pictures. R. D. Prosser and others. bibliog Inst E E Proc 111:491-502 Mr '64

TELEVISION broadcasting—*Continued*

Educational programs

Mobile video-tape production for educational television. R. Morash. il SMPTE J 73:764-6 S '64

International aspects

International agreements put focus on satellite tv. A. G. Haley. il Astronautics & Aeronautics 2:82-5 S '64

Moving pictures

Animation editing on video tape. H. Mantel. diags SMPTE J 73:561-5 Jl '64

Factors affecting determination of monochrome television film exposure and speed indexing. H. Wright. bibliog il diags SMPTE J 73:305-13 Ap '64

Nontheatrical films; interim report no. 5. T. W. Hope. SMPTE J 73:675-8 Ag '64

Review of telecine systems. D. R. Morse. bibliog diags SMPTE J 73:548-60 Jl '64

Viscous-layer processing of variable-area sound negatives. J. F. Finkle and R. J. Wilson. SMPTE J 73:125-8 F '64

Political conventions

Cow-palace closeups. A. A. McKenzie. il Electronics 37:94-5 Jl 13 '64

Program recording

Animation editing on video tape. H. Mantel. diags SMPTE J 73:561-5 Jl '64

Audio records for 2-in. video magnetic tape recordings; American standard specifications C98.3-1963. SMPTE J 72:956 D '63

Crt recording has wide bandwidth. il Electronics 36:60+ N 15 '63

Compare the new Fairchild videotape recorder with the Cinerama-Telcan. R. N. Angus. il Mod Phot 28:50+ Jl '64

Design parameters for a portable broadcast television tape recorder. D. A. Horstkorta. diag SMPTE J 73:476-8 Je '64

Development of a feasibility model of an electron beam film recorder. W. J. Poch. il diag SMPTE J 73:778-82 S '64

Dimensions of 2-in. video magnetic tape; American standard C98.1-1963. diag SMPTE J 72:954 D '63

Filming of speech therapy clinic sessions via tape-to-film process. L. J. Schram. SMPTE J 73:774 S '64

Home tv tape recorder; it really works. A. A. McKenzie and D. Smith. il Electronics 36:10-11 D 27 '63

Is the Telcan homevideo system all its cracked up to be? R. N. Angus. il Mod Phot 28:48+ Mr '64

Mobile video-tape production for educational television. R. Morash. il SMPTE J 73:764-6 S '64

Monochrome video magnetic tape leader; American standard specifications C98.2-1963. diags SMPTE J 72:955 D '63

Speed of 2-in. video magnetic tape; American standard C98.4-1963. SMPTE J 72:956 D '63

Programs

See also
Television broadcasting—Subscription programs

Subscription programs

Pay as you see. diag Electronics 37:28-9 My 18 '63

Pay television by wire. P. Bass. il diags Radio & Electronic Eng 27:209-12 Mr '64

Progress committee report for 1963; pay television. il SMPTE J 73:388-9 My '64

Standardization of signal specifications for pay television systems. D. W. Heightman. diags Radio & Electronic Eng 27:213-18 Mr '64

Africa

Progress committee report for 1963; Republic of South Africa and the Rhodesias. SMPTE J 73:393 My '64

Australia

Progress committee report for 1963; Australia. il SMPTE J 73:393-4 My '64

Brazil

Color tv in Rio. Electronics 37:120 N 2 '64

Canada

Progress committee report for 1963; Canada. SMPTE J 73:394-5 My '64

Europe

Progress committee report for 1963; European television community. il SMPTE J 73:391-3 My '64

Toward all-Europe tv. Electronics 37:32 Ag 24 '64

Germany

Progress committee report for 1963; German Federal Republic. il SMPTE J 73:396-7 My '64

Great Britain

Comparative effect of components in the bandshared spectrum of NTSC-type colour-television signals. I. Macwhirter. bibliog diags Inst E E Proc 111:1199-207 Jl '64

Engineers and television. P. J. Wallace. Engineer 218:309-10 Ag 28 '64

Getting BBC-2 on the air on time. il maps plan diags Engineering 197:507-12 Ap 10 '64

Predicting and planning television service areas. O. M. Murray. bibliog maps Wireless World 70:191-5 Ap '64

Progress committee report for 1963; United Kingdom. il SMPTE J 73:404-6 My '64

Japan

Progress committee report for 1963; Japan. il SMPTE J 73:399-401 My '64

Latin America

Latin America's communications network nears completion. W. Perry. il map Electronics 37:10-11 Ja 3 '64

Sweden

Progress committee report for 1963; Sweden. SMPTE J 73:401-2 My '64

TELEVISION cabinets

Painting and finishing

Graining and finishing hardboard tv cabinets. P. C. Bardin. il Ind Finishing 40:104-6+ My '64

Hot airless spray used in finishing tv cabinets. G. Albrecht. il Ind Finishing 40:46-8+ D '63

Production finishing of tv and hi-fi cabinets. R. W. Comingore. il diag Ind Finishing 40:60-2+ N '63

TELEVISION cables

Cables for educational tv systems. J. Kreutzberg and R. A. Kempf. il diag Bell Lab Rec 42:200-4 Je '64

G-line. O. G. Patrick. il diags Radio-Electronics 35:46-8 F '64

Why coaxial cables? diags Wireless World 69:570-3 N '63

TELEVISION cameras

Automatic picture transmission tv camera system for meteorological satellites. R. A. Stampfl and W. G. Stroud. il diags SMPTE J 73:130-4 F '64

Effect of scanning speed on the signal/noise ratio of camera tubes. W. F. Schreiber. IEEE Proc 52:217 F '64

New optical system and camera for color television. H. Nomura. il diag SMPTE J 73:120-4 F '64

New tv camera tube can see in the dark. Westinghouse Eng 24:56 Mr '64

New tube shrinks color tv camera. Electronics 36:17 D 6 '63

Photography in space of the ejection of a capsule containing a television camera and transmitter. B. H. Mollberg. bibliog il diag SMPTE J 73:481-90 Je '64

Plumbicon; camera tube with a photoconductive lead oxide layer. E. F. De Haan and A. G. Van Doorn. il diags SMPTE J 73:473-6 Je '64; Abstract. Electronics 37:159 My 18 '64

Secondary electron conduction (SEC) for signal amplification and storage in camera tubes. G. W. Goetze and A. H. Boerio. il diags IEEE Proc 52:1007-12 S '64

Space astronomy and the slow-scan vidicon. L. R. Malling. bibliog il diags SMPTE J 72:872-5 N '63

Spark chamber data-handling system using television cameras. H. L. Anderson and A. Barna. il diags R Sci Instr 35:492-5 Ap '64

Special types of vidicon camera tubes. A. C. Dawe. il diag Ind Electronics 1:738-42 N '63

Storage orthicon holds image for hours. K. Odagawa and Y. Nakayama. il diags Electronics 37:36-9 Mr 6 '64

Study of noise in television camera preamplifiers. K. Sadashige. diags SMPTE J 73:202-6 Mr '64

Super snooper; one-man, cordless, portable tv camera-transistor. il Product Eng 35:60 F 3 '64

Television camera tube with few limitations. Engineering 196:702 N 29 '63

Video circuits for transistor television cameras. D. Bray and G. E. Hayden-Pigg. bibliog il diags SMPTE J 72:853-9 N '63

Vinten's Heron tv camera crane. il diags Engineering 198:50-2 Jl 10 '64

TELEVISION cameras—*Continued*

Control

Remote control of closed-circuit television systems. D. G. A. Davies. il Ind Electronics 1:703-6 N '63

Two applications using electronic counters for shuttering scanned image and display devices. W. Rial and S. Bailey. il diags SMPTE J 73:876-9 O '64

Power supply

Static inverter drives for telerecording. il Engineering 198:139 Jl 31 '64

Testing

Measurement of noise in image orthicon. K. Odagawa. diag IEEE Proc 52:445 Ap '64

Use of an optical pulse-and-bar pattern for testing television cameras. J. B. Potter. bibliog Inst E E Proc 111:1219-26 Jl '64; Discussion. 111:1695-6 O '64

TELEVISION circuits

Characteristics of flywheel synchronizing circuits in television receivers. D. Maurice. il diags Electronic Eng 34:77-81 F '62; Discussion. 36:266 Ap '64

Demodulation circuits for PAL colour television receivers. W. Bruch. bibliog il diags Electronic Eng 36:512-18, 606-11 Ag-S '64

Noteworthy circuits. Published in monthly numbers of Radio-electronics

Sync clippers; how and why. J. Daar. diags Radio-Electronics 35:47-9 N '64

Design

Highlights of small-signal circuit design. L. E. Clark and others. bibliog diags Electronics 36:46-51 D 6 '63

TELEVISION education. See Television in education

TELEVISION engineers, Society of motion picture and. See Society of motion picture and television engineers

TELEVISION in education

Cables for educational tv systems. J. Kreutzberg and R. A. Kempf. il diag Bell Lab Rec 42:200-4 Je '64

Closed circuit Ph.D.s. Electronics 37:30 Ag 24 '64

Developments in school television program preparation. A. R. Stephenson. il SMPTE J 73:767-9 S '64

Engineers go to grad school on tv. map Eng N 173:34 O 1 '64

Method for time compression of instructional television materials. J. Loper. il SMPTE J 73:753-5 S '64

New techniques in closed-circuit television for dental teaching. S. A. DiSanto. il SMPTE J 73:770-2 S '64

Professional or amateur television? C. A. Callaci. SMPTE J 73:769-70 S '64

See also

Television broadcasting—Educational programs

TELEVISION industry

See also

Society of motion picture and television engineers

TELEVISION interference. See Television transmission—Interference

TELEVISION lines. See Television cables

TELEVISION masts

Tv mast tested above Chicago. il Welding Eng 49:79 O '64

Television masts for u.h.f. Engineer 217:138 Ja 17 '64

TELEVISION receiving apparatus

Characteristics of flywheel synchronizing circuits in television receivers. D. Maurice. il diags Electronic Eng 34:77-81 F '62; Discussion. 36:266 Ap '64

Design of cathode rejectors for television receivers. P. Visontai. diag Wireless World 70:408-10 Ag '64

Gain controlled band-pass amplifiers. M. D. Wood. bibliog diags Electronic Eng 36:150-3, 234-7 Mr-Ap '64

Line scanning transistor: dissipation during switch-off. F. D. Bate. diags Electronic Eng 36:170-2 Mr '64

More on multiplex video. il diag Radio-Electronics 35:48-9 Ag '64

New crispener circuit for television images. E. F. Brown. bibliog il diags SMPTE J 72:849-53 N '63

Private brands, who makes 'em? L. A. James. il Radio-Electronics 35:32-3 Jl '64

Pulse distribution amplifier with new pulse re-forming technique. A. J. Banks. il diags SMPTE J 72:931-7 D '63

Remote display unit; operation of a television tube at a distance from the chassis. B. W. Hicks. il diag Wireless World 70:427 S '64

"S" correction. F. D. Bate. diags Wireless World 70:219-22 My '64

Television picture black-level. P. L. Mothersole. il diags Wireless World 70:212-16 My '64; Discussion. 70:357-9, 397-8 Jl-Ag '64

Versatile converters for the uhf. il diags Radio-Electronics 35:52 Jl '64

Color receivers

Antennas and boosters for color tv. A. Cunningham. il diags Radio-Electronics 34:44-6 D '63

Appraisal of some decoding systems for three-gun N.T.S.C. colour television receivers. D. R. Birt and K. G. Freeman. bibliog diags Radio & Electronic Eng 28:33-53 Jl '64

Color tv service is simple. J. Fitzgibbon. diags Radio-Electronics 34:39-41 D '63

Color tv today and tomorrow! D. Lachenbruch. il Radio-Electronics 34:36-8 D '63

Color test equipment for 1964. R. F. Scott. il Radio-Electronics 34:50-2 D '63

Cross-colour and luminance twinkle in N.T.S.C. colour receivers with various display devices. K. G. Freeman. bibliog diags Radio & Electronics Eng 27:247-54 Ap '64

Demodulation circuits for PAL colour television receivers. W. Bruch. bibliog il diags Electronic Eng 36:512-18, 606-11 Ag-S '64

Design of a linear-phase i.f. amplifier for colour television receivers. J. O. Scanlan. diags Radio & Electronic Eng 27:255-60 Ap '64

Do-it-yourself color tv. il diags Radio-Electronics 35:40-1, cover Ag '64

Dynamic reconvergence of electron beams in c.r.t. deflection systems; its application to colour displays. E. W. Bull and R. D. Galloway. diags Inst E E Proc 111:1212-18 Jl '64

Japan aims one-gun tube at U.S. color tv market. C. Cohen. il diags Electronics 37:86-9 Je 1 '64

Mockup speeds color service. H. L. Davidson. il diags Radio-Electronics 35:38-9 O '64

New tubes for color tv. P. E. Sutheim. il diags Radio-Electronics 34:42-3 D '63

1964: color tv roundup. W. Lemons. il diags Radio-Electronics 34:32-5 D '63

One-gun picture tube. Electronics 37:38 S 21 '64

RCA's newest color chassis. A. Hilderbrand. il diags Radio-Electronics 34:47-9 D '63

Replacing your first color tv tube? H. L. Davidson. il diags Radio-Electronics 34:28-31 D '63

Some aspects of SECAM colour television receiver design. P. Cassagne and G. Melchior. diags Electronic Eng 36:676-81 O '64

Testing

Fabrics for colour television testing. Ind Electronics 2:149 Mr '64

Control

Two applications using electronic counters for shuttering scanned image and display devices. W. Rial and S. Bailey. il diags SMPTE J 73:876-9 O '64

Design

Some aspects of SECAM colour television receiver design. P. Cassagne and G. Melchior. diags Electronic Eng 36:676-81 O '64

Maintenance and repair

Aligning tv intermediate frequencies. J. Darr. diags Radio-Electronics 35:48-9 Je '64

Color generator (Sencore CG 126). J. Darr. il Radio-Electronics 35:66 Ap '64

Color tv service is simple. J. Fitzgibbon. diags Radio-Electronics 34:39-41 D '63

Color test equipment for 1964. R. F. Scott. il Radio-Electronics 34:50-2 D '63

How to repair rotators. H. L. Davidson. il diags Radio-Electronics 35:26-8 Ag; 50-1 O '64

In and around the video i.f. J. Darr. il diags Radio-Electronics 35:44-5 My '64

Installing and troubleshooting uhf. H. L. Davidson. il diags Radio-Electronics 35:32-3 My; 44-5 Je '64

Mockup speeds color service. H. L. Davidson. il diags Radio-Electronics 35:38-9 O '64

Peewee learns sound reasoning. M. Wayne. il diag Radio-Electronics 35:58-9 S '64

Reconditioning tv sets for profit. W. R. McCarty. il Radio-Electronics 35:34-6 Je '64

TELEVISION receiving apparatus—Maintenance and repair—*Continued*
Replacing your first color tv tube? H. L. Davidson. il diags Radio-Electronics 34: 28-31 D '63
Service clinic. J. Darr. Published in monthly numbers of Radio-electronics
Sweep aligning tv intermediate frequencies. J. Darr. il Radio-Electronics 35:34-6 Jl '64
Sync clippers; how and why. J. Darr. diags Radio-Electronics 35:47-9 N '64
Technotes. Published in monthly numbers of Radio-electronics
Tv power supply troubles. J. Darr. il diags Radio-Electronics 35:31-3 F '64
Use the right equipment, and save time. G. M. Roberts. il diags Radio-Electronics 35:53-5 N '64
Vertical sweep and sync troubles. J. Darr. il diags Radio-Electronics 35:53-5 S '64
Video troubles can be simple. J. Darr. il diags Radio-Electronics 35:46-8 Ap '64

Manufacture
Ceramic toroid splitting device for deflection yokes for television receivers. J. H. Weis. il Am Cer Soc Bul 43:628-9 S '64
Chemical aspects of the production of television-tube screens, reaction of potassium silicate in solution; effect of impurities. F. Lines. bibliog J Ap Chem 14:369-76 S '64

Testing
Flexible pix-tube tester. J. Darr. il Radio-Electronics 35:68 F '64

Transistor receivers
Picture tubes for television displays using quadrupole scan magnification. K. E. Johnson. il diags Radio & Electronic Eng 28:115-28 Ag '64
Scr's for 19-inch tv. L. D. Shergalis. diags Electronics 37:97-8 Ag 24 '64
Transistors compete at vacuum-tube prices. il Machine Design 36:12 Jl 16 '64

Tuning
Alignment of u.h.f. television tuners. il Ind Electronics 2:440 S '64
Low-cost oscillator transistors revamp uhf tuner design. L. H. Dulberger. il diags Electronics 37:90-4 Ap 20 '64
New designs in uhf-tv tuners. diags Electronic Ind 23:75-6 Ja '64
New uhf tuners. E. D. Lucas, jr. il diags Radio-Electronics 35:26-8 Ap '64
Standard Kollsman VUT-1 vhf-to-uhf translator. W. Lemons. il diag Radio-Electronics 35:65+ N '64
Transistors instead of relays tune tv volume. J. H. Phelps. il diag Electronics 37:32-3 F 28 '64

TELEVISION receiving apparatus, Portable
Japan aims one-gun tube at U.S. color tv market. C. Cohen. il diags Electronics 37: 86-9 Je 1 '64

TELEVISION reception
Automatic picture detail detection in the presence of random noise. M. H. Kubba. bibliog diags IEEE Proc 51:1518-23 N '63

TELEVISION relay systems
Bell System ground station receives tv via Syncom II. Bell Lab Rec 41:362 O '63
Demodulation of wideband, low-power fm signals. S. Darlington. bibliog diags Bell System Tech J 43:339-74 pt 2 Ja '64
International agreements put focus on satellite tv. A. G. Haley. il Astronautics & Aeronautics 2:82-5 S '64
Pay television by wire. P. Bass. il diags Radio & Electronic Eng 27:209-12 Mr '64
SHF high-density r-f heterodyne repeater microwave system. C. I. McDowell. il diags IEEE Trans Com & Electronics p664-8 N '63
Some results at Pleumeur-Bodou during transmission tests using the Telstar satellite. J. P. Houssin. Inst E E Proc 111:1407-10 Ag '64
Technical aspects of the design of communication-satellite systems. W. J. Bray. bibliog maps diags Inst E E Proc 111:744-58 Ap '64
Transmission systems for trunk and junction circuits. R. H. Franklin. bibliog il Inst E E Proc 111:700-12 Ap '64

TELEVISION service shops
Start an audio service business? L. Eugene. il Radio-Electronics 35:40-2, cover Je '64
Try this one. Published in monthly numbers of Radio-electronics

Equipment
Color test equipment for 1964. R. F. Scott. il Radio-Electronics 34:50-2 D '63
Ease service and sales; with a test crt. A. Margolis. il diags Radio-Electronics 35: 32-3 Ja '64
Electronic organ service bench. J. Kirk. bibliog il diags Radio-Electronics 35:58+ Ja '64
Test compactrons on your checker. W. G. Eslick. diags Radio-Electronics 35:36-7 My '64
Use the right equipment, and save time. G. M. Roberts. il diags Radio-Electronics 35:53-5 N '64

TELEVISION servicemen
Technicians' news. Published in monthly numbers of Radio-electronics

TELEVISION standards
Audio records for 2-in. video magnetic tape recordings; American standard specifications C98.3-1963. SMPTE J 72:956 D '63
Dimensions of 2-in. video magnetic tape; American standard C98.1-1963. diag SMPTE J 72:954 D '63
Electronics color codes. diags Electronics 36: 37-40 N 15 '63
Monochrome video magnetic tape leader; American standard specifications C98.2-1963. diags SMPTE J 72:955 D '63
Safe action for tv transmission; recommended practice RP 13-1963. diag SMPTE J 72: 953-4 D '63
Speed of 2-in. video magnetic tape; American standard C98.4-1963. SMPTE J 72:956 D '63
Standardization of signal specifications for pay television systems. D. W. Heightman diags Radio & Electronic Eng 27:213-18 Mr '64

TELEVISION stations
Home is a dome, for prairie tv. il Eng N 172: 71 Mr 19 '64
Kling designs a round Triangle. il Prog Arch 45:85 Je '64
See also
Television towers

Equipment
Almost endless applications. il Ind Phot 13: 53-6+ Ap '64
Recent developments of electronic special effects in television. U. Messerschmid. il diags SMPTE J 73:468-72 Je '64
See also
Television antennas

TELEVISION stations, Portable
Mobile video-tape production for educational television. R. Morash. il SMPTE J 73:764-6 S '64

TELEVISION studios

Air conditioning
Air conditioning of television studios. A. Greenberg. il Arch Rec 135:180-1 Je '64
Gas conquers hard-to-handle heating-cooling job. il Gas 40:110-11 Ag '64

Equipment
Getting BBC-2 on the air on time. il maps plan diags Engineering 197:507-12 Ap 10 '64
New solid-state sound-mixing equipment for television. D. B. Manning. il diags SMPTE J 73:788-91 S '64
New television switching equipment using uniselectors. H. Mirzwinski. il diags SMPTE J 73:465-7 Je '64
Progress committee report for 1963: television broadcasting equipment. il SMPTE J 73:389-91 My '64
Vinten's Heron tv camera crane. il diags Engineering 198:50-2 Jl 10 '64

TELEVISION towers
Tea will be served atop London tower. il diag Eng N 172:42+ Ap 9 '64

TELEVISION transmission
Compact slow-scan tv monitor. C. Macdonald. il diags Q S T 48:43-8 Mr '64
Extraction of luminance from the SECAM composite signal. G. Melchior and J. P. Doury. diags Electronic Eng 36:464-5 Jl '64
Light-emitting diode; its application to a short-path television link. A. J. Goss and A. E. Sarson. bibliog il diags Wireless World 70:377-81 Ag '64
Nonadditive mixing of television signals. W. L. Hurford. diags SMPTE J 73:658-60 Ag '64
Overall survey of transmission-performance planning. H. Williams. bibliog diags Inst E E Proc 111:727-43 Ap '64
Safe action area for tv transmission; recommended practice RP 13-1963. diag SMPTE J 72:953-4 D '63

TELEVISION transmission—*Continued*

Unity bit coding method for negative feedback. H. Inose and Y. Yasuda. bibliog il diags IEEE Proc 51:1524-35 N '63

See also

Television relay systems

Interference

9A video distortion measuring set. J. O. Israel. il diags Bell Lab Rec 42:121-3 Ap '64

Visibility of small luminance perturbations in television displays. G. F. Newell and W. K. E. Geddes. bibliog il Inst E E Proc 110:1979-84 N '63

Wire line system

Television distribution by wire. R. I. Kinross. bibliog il diags Wireless World 70:495-502, 555-9 O-N '64

TELEVISION transmitters

Automatic picture transmission tv camera system for meteorological satellites. R. A. Stampfl and W. G. Stroud. il diags SMPTE J 73:130-4 F '64

Photography in space of the ejecting of a capsule containing a television camera and transmitter. B. H. Mollberg. bibliog il diag SMPTE J 73:481-90 Je '64

TELLURATES

New Perovskite-type compounds A_2BTeO_6. G. Bayer. bibliog Am Cer Soc J 46:604-5 D '63

Polarimetric determination of semimicro amounts of orthotellurate. J. G. Lanese and B. Jaselskis. Anal Chem 35:1880-1 N '63

Polarimetric investigation of *d*-tartrate-orthotellurate complex. J. G. Lanese and B. Jaselskis. bibliog Anal Chem 35:1878-80 N '63

Supposed uronium pentachlorotellurate (IV). I. R. Beattie and others. bibliog Chem & Ind p 1842-3 N 16 '63

See also

Copper tellurate

TELLURIDES

See also

Antimony telluride
Bismuth telluride
Cadmium telluride
Indium telluride
Lead telluride
Silver telluride
Zinc telluride

TELLURIUM

Diffusion of sulfur, selenium, and tellurium in gallium arsenide. T. H. Yeh. bibliog il Electrochem Soc J 111:253-5 F '64

Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64

Noise in single-crystal tellurium from thermal or optical excitation. V. A. Vis. bibliog J Ap Phys 35:365-8 F '64

Photoconductivity in single-crystal tellurium. V. A. Vis. bibliog diag J Ap Phys 35:360-4 F '64

p-type tellurium thin-film transistor. P. K. Weimer. bibliog il IEEE Proc 52:608-9 My '64

Promote catalysis with tellurium. V. Kollonitsch and C. H. Kline. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Je '64

Reaction of sulphur, selenium and tellurium halogenated compounds with Wittig reagents. N. Petragnani and M. D. Campos. Chem & Ind p 1461 Ag 15 '64

Vapor liquid equilibria at high temperatures: the selenium-tellurium system. J. C. Yannopoulos and N. J. Themelis. bibliog diag Can J Chem Eng 42:219-21 O '64

See also

Steel—Tellurium content

Analysis

Spectrophotometric determination of copper in tellurium and related thermoelectric compounds of the bismuth telluride type with 2,9-dimethyl-1,10-phenanthroline. B. Nebesar. bibliog Anal Chem 36:1961-5 S '64

TELLURIUM alloys

Optical and electrical properties of selenium-tellurium alloys. H. P. D. Lanyon. bibliog J Ap Phys 35:1516-23 My '64

Some properties of GaSb-Ga_2Se_3 and GaSb-Ga_2Te_3 alloys. J. C. Woolley and K. W. Blazey. bibliog Electrochem Soc J 111:951-4 Ag '64

TELLURIUM oxides

Equilibrium in the glass-forming system TeO_2-V_2O_5. G. A. Chase and C. J. Phillips. Am Cer Soc J 47:467 S '64

TELLUROMETER. See Radar—Surveying use

TELSTAR. See Satellites, Artificial—Communication applications

TEMPERATURE

Adaptation of an Optica CF4 spectrophotometer for spectral measurements over a range of temperature. F. M. Hall and I. H. Reece. diags J Sci Instr 41:240-1 Ap '64

Calibration system with microinch precision at temperatures to 500°C. J. C. Spanner and B. B. Brenden. il diags R Sci Instr 35:944-9 Ag '64

Configuration of the poly-(dimethylsiloxane) chain; the temperature coefficient of the unperturbed extension. J. E. Mark and P. J. Flory. bibliog Am Chem Soc J 86:138-41 Ja 20 '64

Correlation of some gas adsorption data extending to low pressures and supercritical temperatures. R. J. Grant and M. Manes. bibliog Ind & Eng Chem Fundamentals 3:221-4 Ag '64

Cylindrical high temperature, high pressure apparatus. W. J. Witteman and T. Werkman. bibliog diags R Sci Instr 35:461-5 Ap '64

Effect of pH adjustment and high-temperature short-time processing on color and pigment retention in spinach purée. S. M. Gupte and F. J. Francis. bibliog Food Tech 18:1645-8 O '64

Effect of postharvest temperature of fresh peas on the quality of the canned peas. K. G. Weckel and others. bibliog Food Tech 18:1207-10 Ag '64

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Effect of temperature, antioxidant, and oxygen on the stability of precooked dehydrated sweetpotato flakes. H. J. Deobald and T. A. McLemore. bibliog Food Tech 18:739-42 My '64

Effect of temperature driving force on heat transfer to a nonequilibrium chemically reacting gas. P. L. T. Brian and S. W. Bodman. bibliog Ind & Eng Chem Fundamentals 3:339-46 N '64

Effect of temperature on photo-exoemission. J. F. Young and D. J. Williams. bibliog J Ap Phys 35:2279-82 Ag '64

Effect of temperature on the charge on kaolinite particles in water. D. D. Button and W. G. Lawrence. bibliog il diags Am Cer Soc J 47:503-9 O '64

Effect of temperature on the critical micelle concentration of dodecylpyridinium bromide. J. E. Adderson and H. Taylor. bibliog J Colloid Sci 19:495-500 Ag '64

Effect of temperature on the spoilage of wet white fish. R. Spencer and C. R. Baines. bibliog Food Tech 18:769-73 My '64

Effect of temperature on water solubility of phorate and disulfoton. K. A. Lord and P. E. Burt. bibliog Chem & Ind p 1262-3 Jl 11 '64

Electrical conduction and breakdown in argon and helium at temperatures from 1500°K to 2500°K. D. W. George. bibliog il diags Inst E E Proc 110:2063-72 N '63

Equations give quick estimates of friction temperatures. E. Rabinowicz. il diags Product Eng 35:97-9 Mr 30 '64

Equilibrium pressures of oxygen over Mn_2O_3-Mn_3O_4 at various temperatures. E. M. Otto. bibliog diags Electrochem Soc J 111:88-92 Ja '64

Fast-acting valve which operates at temperatures up to 400°C. H. K. Forsen. il diag R Sci Instr 35:1362-3 O '64

Flow method for measuring transport properties at flame temperatures. G. Ember and others. bibliog diags A I Ch E J 10:68-73 Ja '64

Gas-solid suspensions at high temperatures. E. M. Barston. J Ap Phys 35:2550-1 Ag '64

Heat-treatment of anodic oxide films on tantalum; temperature dependence of capacitance. D. M. Smyth and T. B. Tripp. diag Electrochem Soc J 110:1271-6 D '63

High temperature catalytic effects on polyphenyls. D. A. Scola and R. J. Wineman. bibliog Ind & Eng Chem Product Res & Develop 2:322-8 D '63

High-temperature electrical conductivity in the systems CaO-ZrO_2 and CaO-HfO_2. H. A. Johansen and J. G. Cleary. bibliog Electrochem Soc J 111:100-3 Ja '64

TEMPERATURE—*Continued*

High-temperature phase equilibrium and superconductivity in the system niobium-tin. L. J. Vieland. bibliog il RCA R 25:366-78 S '64

High-temperature reaction between formaldehyde and cellulose. E. Klein and B. E. M. Bingham. bibliog diag Textile Res J 34:585-93 Jl '64

High temperatures trigger preignition; abstract. B. Brewster and R. V. Kerley. S A E J 71:86-7 D '63

How to predict temperature increases in rolling bearings. T. A. Harris. il diags Product Eng 34:89-98 D 9 '63

Influence of depth, temperature, and geologic age on porosity of quartzose sandstone. J. C. Maxwell. bibliog Am Assn Pet Geologists Bul 48:697-709 My '64

Influence of temperature, stain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Initial temperatures of zirconia phase changes and solid-solution reactions. T. W. Smoot and J. R. Ryan. bibliog Am Cer Soc J 46:597-600 D '63

Irradiation cross linking of polyethylene; the temperature dependence of cross linking in the crystalline and amorphous states. R. Kitamaru and L. Mandelkern. bibliog Am Chem Soc J 86:3529-34 S 5 '64

Isothermal bulk modulus of selected fluids to 700 F and 10,000 psig. V. Hopkins and others. A S M E Trans ser D 86:463-8 S '64

Line shift in a spectrograph due to variations of atmospheric pressure, and a compensation method. C. G. Carlsson. diag J Sci Instr 41:475-6 Jl '64

Measured temperatures of strong shock waves in argon. J. Roth. bibliog il diags J Ap Phys 35:1429-33 My '64

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures. D. M. Eissenberg. bibliog diag A I Ch E J 10:403-7 My '64

Mechanical behavior of magnesium oxide at high temperatures. R. B. Day and R. J. Stokes. bibliog il diags Am Cer Soc J 47:493-503 O '64

Mechanical properties of pure, dense aluminum oxide as a function of temperature and grain size. R. M. Spriggs and others. bibliog il Am Cer Soc J 47:323-7 Jl '64

Mechanism of fluorination; the effect of temperature and of fluorine concentration upon the olefin dimerization reaction; a new fluorination apparatus. W. T. Miller, jr. and others. bibliog diags Am Chem Soc J 86:51-6 Ja 5 '64

Mechanism of oxidation of zirconium in the temperature range 400°-850°C. R. J. Hussey and W. W. Smeltzer. bibliog Electrochem Soc J 111:1221-4 N '64

Mechanism of the high-temperature oxidation of iron-chromium alloys in water vapor. C. T. Fujii and R. A. Meussner. bibliog il diag Electrochem Soc J 111:1215-21 N '64

New shear apparatus for temperatures of 1000°C and pressures of 50 kilobars. R. E. Riecker. il diags R Sci Instr 35:596-9 My '64

1010° and 800°C isothermal sections in the system Na_3AlF_6-Al_2O_3-SiO_2. D. F. Weill and W. S. Fyfe. bibliog Electrochem Soc J 111:582-5 My '64

Optical extinction of anorthite at high temperatures. F. D. Bloss. bibliog Am Mineralogist 49:1125-31 Jl '64

Oxidation kinetics of zirconium diboride and zirconium carbide at high temperatures. A. K. Kuriakose and J. L. Margrave. bibliog diags Electrochem Soc J 111:827-31 Jl '64

Oxidation kinetics of zirconium in the temperature range 400°-600°C. R. J. Hussey and W. W. Smeltzer. bibliog il Electrochem Soc J 111:564-8 My '64

Oxidation of pyrolytic carbon 100° to 1500°C and oxygen pressures of 2 to 38 torr. E. A. Gulbransen and others. Electrochem Soc J 111:626-7 My '64

Physical chemistry of protein solutions; the effects of temperature and hydroxide ion on the binding of small anions to human serum albumin. G. Scatchard and W. T. Yap. bibliog diags Am Chem Soc J 86:3434-8 S 5 '64

Precise measurement and prediction of bulk-modulus values for fluids and lubricants. E. E. Klaus and J. A. O'Brien. bibliog A S M E Trans ser D 86:469-74 S '64

Prediction of temperature in a rolling contact bearing assembly. T. A. Harris. bibliog diag Lub Eng 20:145-9; Discussion. 149-50 Ap '64

Progress in high temperature technology; newer materials; symposium abstracts. Metal Prog 86:212+ Ag '64

Protect electric motors from high temperatures with aid of nomograph; data sheet. F. Caplan. Heating-Piping 35:147-8 N '63

Recent advances in the high-temperature finishing of paperboard. W. O. Kroeschell. bibliog diag Tappi 46:sup 170A-2A N '63

Relation between the rubbing interface temperature distribution and dynamic thermocouple temperature. H. H. H. Shu and others. bibliog diags A S M E Trans ser D 86:417-22 S '64

Relation of single-crystal elastic constants to polycrystalline isotropic elastic moduli of MgO; temperature dependence. D. H. Chung and W. G. Lawrence. bibliog Am Cer Soc J 47:448-55 S '64

Retention of swelling ability in cotton cross-linked with high-temperature curing. A. G. Pierce, jr. and others. bibliog il Textile Res J 34:552-8 Je '64

Similarity solutions of the plane melting problem with temperature-dependent thermal properties. T. D. Hamill and S. G. Bankoff. Ind & Eng Chem Fundamentals 3:177-9 My '64

Superconducting energy gap and net electron drift velocity as functions of temperature and Cooper-pair drift velocity. R. H. Parmenter and L. J. Berton. RCA R 25:596-612 S '64

System Al_2SiO_5 at high temperatures and pressures. R. C. DeVries. bibliog il diag Am Cer Soc J 47:230-7 My '64

Temperature dependence of domain wall creep in thin Ni-Fe magnetic film. M. E. Sweet. J Ap Phys 35:814-15 pt 2 Mr '64

Temperature dependence of ejection patterns in Ge sputtering. G. S. Anderson and others. il J Ap Phys 34:3492-5 D '63

Temperature dependence of light scattering in some alkali halides. C. A. Plint and M. L. Breig. bibliog J Ap Phys 35:2745-9 S '64

Temperature dependence of 180° domain wall velocity in $BaTiO_3$. H. L. Stadler and P. J. Zachmanidis. bibliog il J Ap Phys 35:2895-9 O '64

Temperature distribution and heat transfer in annular two-phase (liquid-liquid) flow. M. Bentwich and S. Sideman. bibliog Can J Chem Eng 42:9-13 F '64

Temperature effect on Langmuir probe measurement. C. J. Chen. bibliog diag J Ap Phys 35:1130-3 Ap '64

Temperature limitations of stationary phases in gas chromatography. S. J. Hawkes and E. F. Mooney. bibliog Anal Chem 36:1473-7 Jl '64

Temperature required to produce asphalt by distillation. W. L. Nelson. Oil & Gas J 61:159 D 2 '63

Temperature variation of gamma for various gases; a student experiment. D. J. Cronin. diag Am J Phys 32:700-4 S '64

Temperatures generated by the flow of liquids in pipes. I. J. Gruntfest and others. bibliog J Ap Phys 35:18-22 Ja '64

Theory and analysis of peel adhesion; rate-temperature dependence of viscoelastic interlayers. D. H. Kaelble. bibliog J Colloid Sci 19:413-24 Je '64

Thermal decomposition of cerous oxalate and variation of surface area of the products. V. V. Subba Rao and others. bibliog Am Cer Soc J 47:356-60 Jl '64

Thermal effects on completely mixed anaerobic digestion. J. F. Malina, jr. bibliog diag Water & Sewage Works 111:52-6 Ja '64

Thermal stability apparatus for liquid propellants. L. Stiefel and E. D. Grossman. diags R Sci Instr 35:727-8 Je '64

Thermal stress behavior of radiation-induced graft polymers of cotton. J. C. Arthur, jr. and others. Textile Res J 33:896-9 N '63

Thin-walled specimen container for neutron scattering studies of liquids at high temperatures and pressures. S. J. Cocking and A. R. Ball. diag J Sci Instr 41:376-8 Je '64

Transient temperature variation in a thermally orthotropic cylindrical shell. K. J. Touryan. diag AIAA J 2:124-6 Ja '64

Transition temperature of niobium stannide. J. L. Cooper. bibliog RCA R 25:405-13 S '64

Transition temperatures in the four-ball wear tester. V. Hopkins and D. R. Wilson. bibliog diags Lub Eng 20:305-9; Discussion. 309-10 Ag '64

TEMPERATURE—*Continued*

Transmission of electrolytically deposited hydrogen through a palladium membrane electrode; pressure and temperature dependence. P. L. Damour and G. W. Castellan. diag Electrochem Soc J 111:1280-3 N '64

Use of a shock tube for exploratory studies of high temperature equilibrium and reaction rates; hydrogen-deuterium exchange. M. E. Gluckstein and S. W. Churchill. bibliog diags A I Ch E J 9:821-6 N '63

Vapor-liquid equilibria at high temperatures; the selenium-tellurium system. J. C. Yannopoulos and N. J. Themelis. bibliog diag Can J Chem Eng 42:219-21 O '64

Vapor pressure measurements at high temperatures using a recording microbalance. P. D. Zavitsanos. diags R Sci Instr 35:1061-3 Ag '64

Velocity, temperature, and concentration distributions during fiber spinning. R. M. Griffith. diags Ind & Eng Chem Fundamentals 3:245-50 Ag '64

Viscosity-temperature-pressure relationship of lubricating oils and its correlation with chemical constitution. C. J. A. Roelands and others. bibliog A S M E Trans ser D 85:601-7; Discussion. 607-8; Reply. 608-10 D '63

Wide-temperature-range ferrite cores for computer memories. H. P. Lemaire and others. bibliog diags RCA R 25:308-18 Je '64

See also

Air conditioning
Concrete—Temperature effect
Cooling
Curie point
Earth temperature
Electric cables—Temperature
Metals—Temperature effect
Petroleum—Well temperature
Softening points
Stars—Temperature
Temperature, Low
Thermal analysis
Transistors—Temperature effect
Ventilation
Water—Temperature

Control

See Temperature—Regulation

Measurement

Backside temperatures of an internal insulator in a solid-propellant motor. J. W. Kordig. diag AIAA J 2:1475-6 Ag '64

Bonding of electrical leads to germanium for ultrahigh-vacuum and high-temperature measurements. R. M. Chappel. bibliog diag J Ap Phys 35:2783-4 S '64

British standard recommendations for temperature units. Y. R. Mayhew and G. F. C. Rogers. Engineer 216:997 D 13 '63; Discussion. 217:178, 313 Ja 24, F 14 '64

Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:50-8 F '64

Chemical kinetic analysis of rocket exhaust temperature measurements. F. P. Boynton. AIAA J 2:577-8 Mr '64

Clutch temperatures. T. P. Newcomb. bibliog diags Automobile Eng 54:145-7 Ap '64

Continuous temperature measurement for basic oxygen steelmaking. W. A. Fischer and H. J. Fleischer. diags J Metals 16:483-4 Je '64

Continuous temperature measurement of molten steel. J. D. Sharp. il diag J Metals 15:902-3 D '63

Design, calibration, and application of a miniature total temperature probe. W. S. Bradfield and others. bibliog il diag A S M E Trans ser C 86:462-4 Ag '64

Determining emissivity. B. Bernard. il diags Instruments & Control Systems 37:87-9 My '64

Distance detector manometer for measurement and control of liquid helium temperatures in magnetic fields. E. W. Hornung and G. E. Brodale. bibliog diag R Sci Instr 35:499-502 Ap '64

Double-probe method for unstable plasmas. F. F. Chen. bibliog il diags R Sci Instr 35:1208-12 S '64

Effect of cyclic loading on the temperature in viscoelastic media with variable properties. R. A. Schapery. bibliog diags AIAA J 2:827-35 My '64

Effect of temperature on pressure measurements. G. D. Arney, j. and A. B. Bailey. diag AIAA J 1:2863-4 D '63

Experimental study of the use of a Langmuir probe to measure electron temperatures and densities in afterglows. G. R. Court and J. Sayers. bibliog J Sci Instr 41:462-4 Jl '64

Flue gas temperature measurement procedures. W. B. Kirk. diags ASHRAE J 6:40-4 Je '64

Hydraulic bridge for measuring small temperature difference. A. A. R. El Agib. diags J Sci Instr 41:596-8 O '64

Infrared temperature measurement and its application to textile finishing operations. R. H. Kennedy. bibliog il diags Am Dyestuff Rep 53:56-63 Ja 20 '64

Investigation of the physical properties of gases at high temperatures. K. C. Lapworth. bibliog il diags Roy Aeronautical Soc J 68:189-97 Mr '64

Mass flow by temperature measurement. il diags Instruments & Control Systems 37:95-7 Mr '64

Measurement of electron temperature in low-pressure cesium thermionic energy converters. R. A. Chapman and others. bibliog diags J Ap Phys 35:2813-25 O '64

Measurement of pointwise juncture condition of temperature at the interface of two bodies in sliding contact. F. F. Ling and T. E. Simkins. bibliog il diags A S M E Trans ser D 85:481-5; Discussion. 486-7 D '63

Measurement of transient exhaust temperatures in internal combustion engines. R. S. Benson. diag Engineer 217:377-83 F 28 '64

Measuring molten steel temperatures. S. Ramachandran and T. R. Acre. bibliog il diags I S A J 11:54-6 Mr '64

Pair ratio method of measuring small temperature difference. A. A. R. El Agib. diags J Sci Instr 41:592-5 O '64

Piston zone temperature measurement. H. C. Tsien. bibliog il diag Instruments & Control Systems 37:105-7 My '64

Process temperature measurement. J. Conison. Instruments & Control Systems 37:141-2 Je '64

Recording temperatures in deep boreholes. G. S. Marshall and R. H. Henderson. il Engineering 196:540 O 25 '63

Simplified thermal analysis technique for measuring transformation temperatures of steels. C. M. Hammond and D. L. Burk. diags Materials Res & Stand 4:275-8 Je '64

Strain and temperature measurement. il Engineer 217:666 Ap 10 '64

Techniques for p-v-t measurements. R. T. Ellington and B. E. Easkin. bibliog il diags Chem Eng Prog 59:80-8 N '63

Temperature measurement in a chemical shock tube by sodium-line reversal and C_2 reversal methods. D. H. Napier and others. AIAA J 2:1136-8 Je '64

Temperature measurements using small quantities of cerium magnesium nitrate. W. R. Abel and others. bibliog diags R Sci Instr 35:44-9 Ap '64

Temperature recorder for decorating lehr. Glass Ind 45:556 O '64

Temperature sensor for strain-gage transducer. S. Meieran. diag Electronics 37:77-8 My 4 '64

Thermal-imaging device locates conductor hot spots visually. S. N. Bobo. il diag Power Eng 68:42-3 O '64

Thermal method of determining the rate of flow in pipes. il diags Naval Eng J 76:305-9 Ap '64

Thermodynamic and practical temperature scales. Instruments & Control Systems 37:85 My '64

Transducers for measurement; temperature from one extreme to the other. L. E. Bollinger. diags I S A J 11:73-80 O '64

Use of relative humidity and heat indicator. Ind Finishing 40:107 F '64

Vacuum-deposited thin-film thermocouples for accurate measurement of substrate surface temperature. L. H. Bullis. diags J Sci Instr 40:592-3 D '63

Yarn temperatures attained during cyclic straining and the heat transfer properties of yarns. R. L. Hamilton and C. H. Miller, jr. il diag Textile Res J 34:20-3 Ja '64

See also

Bolometers
Calorimeters and calorimetry
Pyrometers and pyrometry
Thermocouples
Thermometers and thermometry

Physiological effect

Artificial temperature control and disease in America. A. Montagu. Archives Environmental Health 9:403-7 S '64

TEMPERATURE—Physiological effect—*Cont.*

Asthma and temperature change. L. Greenburg and others. Archives Environmental Health 8:642-7 My '64

Calculating human comfort. P. Kranz. bibliog diag ASHRAE J 6:68-77 S '64

Effect of thyroxine, thiouracil and ambient temperature on the utilization of vitamin A by vitamin A-deficient rats. T. A. Anderson and others. bibliog J Nutrition 82:457-62 Ap '64

Human responses to heat stress; simulation by analog computer. P. E. Smith, jr. and E. W. James, 2d. bibliog diags Archives Environmental Health 9:332-42 S '64

Mean radiant and operative temperature for high-temperature sources of radiant heat. A. P. Gagge and others. bibliog il ASHRAE J 6:67-71 O '64

Tissue distribution of α-aminoisobutyric acid and nitrogen metabolism in the rat; effects of environmental temperature and dietary imbalance. L. A. Bavetta and M. E. Nimni. J Nutrition 82:379-84 Mr '64

See also

Cold—Physiological effect

Regulation

Cryostat design permitting localized temperature control from 20 to 870°K. J. C. Robinson. diags R Sci Instr 35:1017-20 Ag '64

Distance detector manometer for measurement and control of liquid helium temperatures in magnetic fields. E. W. Hornung and G. E. Brodale. bibliog diag R Sci Instr 35:499-502 Ap '64

Don't compromise on constant temperature room design. E. D. Scribner. il plan diags Heating-Piping 36:101-6 Jl '64

Dual-thermocouple temperature control. W. P. Heitzman. diags Instruments & Control Systems 37:109 My '64

Fluidized coal bed temperature control. diags Engineering 197:489 Ap 3 '64

Greenhouse temperature. il Engineering 198: 412 S 25 '64

How oil temperature is controlled. W. P. Bartz. il diag Hydraulics & Pneumatics 17: 46 F '64

Maintenance of controlled temperature differences using a thermoelectric heat pump. L. Guczi and H. J. V. Tyrrell. diags J Sci Instr 41:468-9 Jl '64

Monitors temperature with an alarm. M. B. Golber. il Food Eng 36:70+ Ag '64

Multiposition discontinuous temperature control in the electric space heating process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p 38-50; Discussion. 63-4; Reply. 64-9 Ja '64

New approach to positive temperature control of gas water heaters. C. D. Coffey and R. E. Solomon. il diag Gas 40:74-7 N '64

Precise temperature control lightens, strengthens welds. D. L. Ayers. il Welding Eng 49:52 Mr '64

Quasi-continuous temperature control in the electric space heating process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p50-63; Discussion. 63-4; Reply. 64-9 Ja '64

Steam reducing valves and temperature controllers. diags Engineer 217:125-6 Ja 17 '64

Survey of discontinuous temperature control methods for electric space heating and cooling processes. W. K. Roots and J. M. Nightingale. diags IEEE Trans Applications & Ind p 1-16 bibliog(p 13-16); Discussion. 63-4; Reply. 64-9 Ja '64

Temperature control centralized. Eng N 172: 52 F 20 '64

Temperature control helium refrigerator. Engineering 196:767 D 13 '63

Temperature control of a space vehicle instrument unit. F. Huneidi. diag ASHRAE J 6:80-2 My '64

Temperature controller. il Engineer 217:707 Ap 17 '64

Transistor becomes sensor in temperature regulator. S. Greenblatt. diag Electronics 37:65 N 2 '64

Two-position discontinuous temperature control in electric space heating and cooling processes; control system; controlled process. W. K. Roots and J. M. Nightingale. bibliog diags IEEE Trans Applications & Ind p 17-38; Discussion. 63-4; Reply. 64-9 Ja '64

See also

Cryostats

Thermostats

TEMPERATURE, Animal and human

Estimating heat produced by laboratory animals. N. R. Brewer. bibliog Heating-Piping 36:139-41 O '64

Total emittance of animal integuments. R. C. Birkebak and others. diags A S M E Trans ser C 86:287-8 My '64

TEMPERATURE, Low

Air condensing cryogenic fluids; how to use them safely. R. M. Neary. il diags Safety Maint 127:20-4+ Je '64

Aluminum alloys for cryogenic service. J. E. Campbell. bibliog Materials Res & Stand 4:540-8 O '64

Analysis for oxygen by gas-phase polarography at low temperatures and low pressures; a prototype assembly. G. Halpert and others. il diags R Sci Instr 35:950-2 Ag '64

Analysis of frost phenomena on a cryosurface. Franklin Inst J 277:293-4 Mr '64

Axial fatigue testing of sheet materials down to —423 F. R. D. Keys and F. R. Schwartzberg. il diag Materials Res & Stand 4:222-4 My '64

Chemical purity by dielectric cryometry. G. S. Ross and L. J. Frolen. bibliog diag J Res Nat Bur Stand 67A:607-14 N '63

Comparing costs of materials for cryogenic containers. Chem Eng 70:136+ N 25 '63

Cool world of components. R. J. Allen and E. Niehenke. diag Electronics 37:75-9 Je 15 '64

Copper alloys for extreme temperatures. C. L. Bulow. Chem Eng 71:162+ Ja 20 '64

Cryogenic bearings. H. Hanau. bibliog il diags Machine Design 36:122-8 Je 4 '64

Cryogenic characteristics of alloy wires. A. B. Kaufman. il Instruments & Control Systems 37:119-21 Mr '64

Cryogenic electronics. R. W. Schmitt. IEEE Proc 52:1091 O '64

Cryogenic four-port circulator using single crystal yttrium iron garnet. R. L. Comstock. bibliog diag IEEE Proc 51:1768-9 D '63

Cryogenic in-ground storage. R. C. Proctor. diag J Pet Tech 16:393-4 Ap '64

Cryogenic liquid level detector employing thermistors. J. D. Lewin. diag J Sci Instr 40:539-40 N '63

Cryogenic memory systems. H. H. Doemland and W. D. McCaa. il diag IEEE Proc 51: 1767-8 D '63

Cryogenic solid state research at Hirst research centre. il Engineering 196:669 N 22 '63

Cryogenic storage system for space vehicles. Franklin Inst J 277:98-9 Ja '64

Cryogenic storage vessels are made to stringent requirements. V. L. Potter. il Mach 70:117-21 Ap '64

Cryogenic system for the production of very thin targets. P. B. Parks and others. bibliog diags R Sci Instr 35:549-57 My '64

Cryogenic techniques find new roles in natural-gas processing. Oil & Gas J 62:121-2 Jl 6 '64

Cryogenic tests on nickel steel. il diag Engineer 218:138 Jl 24 '64

Cryogenically cooled motors. J. H. Redmond and F. W. Bott. il diags Electro-Tech 74:83-9 Jl '64

Cryogenically stretch-formed type 301 stainless steel for cryogenic service. R. H. Alper. bibliog il diags Materials Res & Stand 4: 525-32 O '64

Cryogenics comes to construction. Eng N 172:24 F 27 '64

Cryogenics demands top-quality items. Can Chem Process 48:63-4 F '64

Cryogenics makes economic sense. R. W. Temple. il Pet Management 36:110+ My '64

Cryogenics plus demands of outer space trigger new insulation systems. S. Elonka. il diag Power 108:sup 14-15 Mr '64

Cryosorption system for vacuum pumping. Franklin Inst J 277:623-4 Je '64

Crystal structure and cryogenic properties. R. G. Broadwell and R. A. Wood. il Materials Res & Stand 4:523-4 O '64

Detonation of hydrogen-oxygen at low temperature and high pressure. K. W. Ragland and others. AIAA J 2:142-4 Ja '64

Disintegration of wool at low temperature and its fractionation by density difference. J. J. Bartulovich. bibliog il Textile Res J 34:461-3 My '64

Distance detector manometer for measurement and control of liquid helium temperatures in magnetic fields. E. W. Hornung and G. E. Brodale. bibliog diag R Sci Instr 35:499-502 Ap '64

Dry cryogenics aids machining of exotics. Mach 70:143 Ap '64

TEMPERATURE, Low—*Continued*

Electrical lead seals for cryogenic applications. W. R. Roach and others. bibliog il diags R Sci Instr 35:634-6 My '64

Electromagnetic gas pump for low temperature service. F. B. Canfield and others. diags R Sci Instr 34:1431-3 D '63

Engineering the ultra-cold. Engineering 197: 239 F 7 '64

Epitaxial silicon varactors at low temperatures and microwave frequencies. H. J. Fink and R. L. Rulison. bibliog diag IEEE Proc 52:420 Ap '64

Epoxy resin seals to copper and nylon for cryogenic applications. J. C. Wheatley. bibliog diags R Sci Instr 35:765-7 Je '64

Equipment and techniques for low temperature electron irradiations. L. F. Lowe and others. diags R Sci Instr 34:1348-50 D '63

Flexible metal hose handles vibration, expansion in cryogenic piping. il diag Heating-Piping 35:115-18, cover N '63

Flow characteristics of cryogenic fluids in vacuum. il diag Res/Develop 15:64 Mr '64

Flux reversal at low temperatures. F. B. Humphrey. bibliog J Ap Phys 35:911-12 pt 2 Mr '64

Four large pumps for liquid methane. diag Engineering 196:804-5 D 27 '63

Frost on a cryo-surface. il Engineering 197: 61 Ja 10 '64

Fully automatic thermostat of five litres working space for the range 0°C to —40°C. E. A. Boucher. diags J Sci Instr 41:541-3 S '64

Graphite oxidation at low temperature. E. Effron and H. E. Hoelscher. bibliog flow diag A I Ch E J 10:389-92 My '64

Heat flow through cryogenic insulation. il diag Engineering 197:164 Ja 24 '64

Heat leaks through rarefied gases S. D. Probert and T. Thomas. J Sci Instr 41: 182-3 Mr '64

High-frequency properties of epitaxial silicon *p-n* junctions at low temperatures. H. J. Fink. bibliog J Ap Phys 35:1883-9 Je '64

High pressure, low temperature, differential-pressure probe. J. G. McCreary and G. W. Swift. il diags R Sci Instr 35:1366-8 O '64

High pressure, low temperature, glass-to-metal seal. T. S. Huang and others. diags R Sci Instr 35:637-8 My '64

High strength pressure vessels by stretch forming. S. W. Henderson. il Materials in Design Eng 60:104-6 N '64

How to select low temperature steels. C. M. Parker and J. W. W. Sullivan. il Machine Design 36:100-11 Ja 2 '64

Hygrometer for use at low temperatures. J. Latham and C. D. Stow. diags J Sci Instr 41:324-6 My '64

Introduction to cryogenics. R. W. Vance. bibliog flow diag il diags Machine Design 36:169-92 O 8 '64

Isopentane bond for low temperature ultrasonics. R. Stern and others. R Sci Instr 35:1077-8 Ag '64

Isotope can be used as low-temperature standard. Chem & Eng N 42:51-2 Ja 27 '64

Kerr-McGee takes deeper step in cryogenics field. il diag Oil & Gas J 62:50-1 Ag 10 '64

Large cryogenic storage vessels. L. Adams. il ASHRAE J 6:48-9 Jl '64

Linear thermal expansion of elastomers in the range 300° to 76°K. R. F. Robbins and others. bibliog diag Rubber Chem & Tech 37:154-68 Ja '64

Local ordering in Cu_3Au at low temperatures. L. H. Schwartz and J. B. Cohen. bibliog J Ap Phys 35:2260-2 Jl '64

Low frequency dielectric dissipation in Mylar at liquid helium temperature. M. Gottlieb and M. Garbuny. il R Sci Instr 35:641-2 My '64

Low-temperature elastic constants of indium arsenide. D. Gerlich. J Ap Phys 35:3062 O '64

Low-temperature elastic moduli of aluminum. G. N. Kamm and G. A. Alers. bibliog J Ap Phys 35:327-30 F '64

Low-temperature fatigue testing machine. M. A. Wilkov and L. E. Murr. il diag Materials Res & Stand 4:285-7 Je '64

Low temperature metals. A. Hurlich. bibliog il Chem Eng 70:104-12 N 25 '63

Low temperature passivation of silicon devices using evaporated lead film. T. Tokuyama. IEEE Proc 52:723-4 Je '64

Low-temperature properties of a Heisenberg antiferromagnet. A. B. Harris. bibliog J Ap Phys 35:798-9 pt 2 Mr '64

Low-temperature properties of dilute ferromagnets in copper. M. W. Klein. bibliog J Ap Phys 35:944-5 pt 2 Mr '64

Low-temperature properties of evaporated lead films. H. L. Caswell and others. bibliog il diag J Ap Phys 34:3261-6 N '63

Low temperature tests on airborne equipment. il Engineering 196:669 N 22 '63

Low temperature thermometry. I S A J 10:72 N '63

Magnetic properties of cupron wire at low temperatures. E. Lerner and others. R Sci Instr 35:117 Ja '64

Magnetic susceptibilities of several salts at liquid-He^3 temperatures. S. A. Friedberg and J. T. Schriempf. bibliog J Ap Phys 35:1000-1 pt 2 Mr '64

Magnetization of permalloy at low temperatures. B. E. Argyle and S. H. Charap. J Ap Phys 35:802-3 pt 2 Mr '64

Magnetoresistance effect in Advance and Evanohm wires at low temperatures in fields up to 50 kG. E. Lerner and J. G. Daunt. R Sci Instr 35:1069-70 Ag '64

Measuring precisely near absolute zero; helium-3 and low-temperature thermometry. W. J. Hauback and W. L. Taylor. il diags Res/Develop 15:19-23 S '64

Mechanical design for low temperature piping and vessels; special report. il diags Hydrocarbon Process & Pet Refiner 43:115-32 Je '64

Method of mounting powdered phosphors for low temperature optical studies. D. I. Promish. R Sci Instr 35:1356 O '64

Miniature closed-cycle cooler produces 25°K reliably. C. R. Whetstone. il diags Electronics 36:46-7 D 27 '63

More alloys expand working environment. il Iron Age 194:25 Jl 2 '64

New breed who work in cryogenics; Dr Louis Pogorski of Chemical projects ltd. il Can Chem Process 48:51-3+ F '64

New cryogenic vessels are called biggest ever. il Chem Eng 71:102 Je 8 '64

New high field cryogenic magnet. Franklin Inst J 276:545 D '63

New type of flux meter for the measurement of high magnetic fields at low temperatures. J. R. Houck and R. Bowers. bibliog diags R Sci Instr 35:1170-2 S '64

Nickel-steel tank tests at minus 320. L. P. Zick and others. il diags Mech Eng 85: 40-4 Jl '63; Discussion. 85:75-7 D '63

Oguchi transformation. R. A. Tahir-Kheli and H. B. Callen. bibliog J Ap Phys 35: 948-9 pt 2 Mr '64

Performance of electrical resistance strain gages at cryogenic temperatures; abstract. A. Kaufman. Metal Prog 85:179+ F '64

Problems in cryogenics; abstract. L. B. Nesbitt. Machine Design 36:179-81 My 7 '64

Proper pre-weld practice produces better aluminum cryogenic bellows. R. H. Raymond. il Mod Metals 19:46+ N '63

Purify hydrogen by auto-refrigeration. R. G. Graven and S. G. Greco. diag Hydrocarbon Process & Pet Refiner 43:243-4 S '64

Rapid depressurization of a gas storage cylinder. W. R. Byrnes and others. diags Ind & Eng Chem Proc Design 3:206-9 Jl '64

Refrigeration at cryogenic temperatures. H. M. Long. diags Machine Design 36:206+ Ja 16 '64

Ryotron, a new cryogenic device. R. A. Gange. bibliog diags IEEE Proc 52:1216-23 O '64

Semiconductors at cryogenic temperatures. A. K. Jonscher. bibliog diags IEEE Proc 52: 1092-104 O '64

Short cut method checks specific heat at low temperatures. J. O. Thieme and R. L. Every. diag Hydrocarbon Process & Pet Refiner 43:168+ Ag '64

Silicon dioxide films grown at low temperatures. il Bell Lab Rec 42:205 Je '64

Simple biological freezer provides controlled-rate cryogenic cooling. Franklin Inst J 277:95 Ja '64

Simple diaphragm pressure regulator for cryogenic bath temperatures. M. M. Kreitman. diag R Sci Instr 35:749-50 Je '64

Simple heat switch for low temperature use. J. G. Dash and J. Siegwarth. diags R Sci Instr 34:1276-7 N '63

Simple specimen holder for low temperature X-ray diffraction studies. B. Roessler and G. F. Bolling. diag R Sci Instr 35:230-1 F '64

Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D. I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64

Specific heats of materials at low temperatures; nomographs. R. L. Peters. Materials in Design Eng 59:87 My '64

TEMPERATURE, Low—*Continued*
Speer Carbon resistors as thermometers for use below 1°K. W. C. Black, jr. and others. bibliog R Sci Instr 35:587-91 My '64
Strain gages for cryogenics. S. P. Wnuk, jr. diags I S A J 11:67-71 My '64
Strain gaging at cryogenic temperatures. O. L. Gillette. il I S A J 11:51-4 Ja '64
Structure of a cryogenic associative processor. J. D. Barnard and others. bibliog diags IEEE Proc 52:1182-90 O '64
Structure of a phase formed in copper-aluminum alloys at low temperatures. J. S. L. Leach. bibliog Inst Metals J 92:93-4 '63-64
Substrates for low temperatures. A. R. Hoffman. R Sci Instr 34:1430-1 D '63
Superconducting magnets and the L.1000 cryomagnetic system. M. Wood. diag J Sci Instr 41:269-70 My '64
Susceptibility thermometer for use at very low temperatures. D. S. Betts and others. bibliog J Sci Instr 41:515-16 Ag '64
Ten years of cryogenic research in USA. il Engineering 198:534 O 23 '64
Tensile behaviour of the intermetallic compound AgMg at low temperatures. J. C. Terry and R. E. Smallman. bibliog Inst Metals J 92:334-6 '63-64
Thermal conductivity of some amorphous dielectric solids below 1°K. A. C. Anderson and others. bibliog diags R Sci Instr 34:1386-90 D '63
Titanium alloys for cryogenic service. R. G. Broadwell and R. A. Wood. bibliog Materials Res & Stand 4:549-54 O '64
Ultrasonic attenuation in Al_2O_3 at ultrahigh frequencies and low temperatures. T. M. Fitzgerald and others. il J Ap Phys 35:2647-8 S '64
Use of low-temperature deposited silicon dioxide films as diffusion masks in GaAs. S. W. Ing, jr. and W. Davern. il Electrochem Soc J 111:120-2 Ja '64
Welding 3½ and 9 per cent nickel steels and 36 per cent nickel-iron alloy for cryogenic service. J. W. Flannery and C. E. Witherell. bibliog diags Materials Res & Stand 4:533-9 O '64
Which metals for cryogenic applications? H. Hamilton and M. Katcher. il Materials in Design Eng 59:83-6 My '64
Who's who in cryogenic equipment. diag Can Chem Process 48:54-5 F '64
Xe flash system for low temperatures. P. H. Wendland. diags R Sci Instr 35:1233-4 S '64
See also
Cold storage
Cryostats
Metals, Cold working of
Refrigeration and refrigerating machinery

TEMPERATURE control. See Temperature—Regulation

TEMPERATURE measurement. See Temperature—Measurement

TEMPERATURE regulators
Constant-temperature alkali metal reservoir for demountable vacuum systems. R. E. Skinner. diag R Sci Instr 34:1282-3 N '63
Proportional temperature controller for thermoelectric coolers. R. Dobkin. diag R Sci Instr 34:1277-8 N '63
Proportional thermoregulator using thyristors. G. Johansson. diag J Sci Instr 41:382-3 Je '64
Simple phototransistor temperature controller. G. H. Cockett and R. Harris. diag J Sci Instr 41:186-7 Mr '64
Simple temperature controller for induction heating. T. L. Donnelly and others. il R Sci Instr 35:115-16 Ja '64
See also
Temperature—Regulation
Thermostats

TEMPERING
Automatic induction hardening line. il Metal Prog 85:121-2 Je '64
Fifth stage of tempering. A. Kasak and others. il Metal Prog 84:82-4 N '63
Stronger copper-nickel can cut costs. Materials in Design Eng 58:90 D '63
See also
Steel, Heat treatment of

TEMPERING of glass. See Glass manufacture

TEMPLES

Egypt

Finally it's moving day for Egypt's Abu Simbel temples. il Eng N 172:64-5 Je 18 '64
Salvaging Abu Simbel. il Engineer 218:195 Jl 31 '64

TEMPLETS
Accurate location of chemically etched areas. J. W. Tunwall. il Tool & Manuf Eng 53:61-3 N '64
Photo templets grow up. il Am Mach/Metalworking Manuf 108:88-9 Je 22 '64
Vertical curve plotting. J. W. O. Baker. il diags Am Soc C E Proc 89 [HW 1 no 3476]:1-11 Ap '63; Discussion. 90 [HW 1 no 3780]:113-15 Ja '64; Reply. 90 [HW 2 no 3997]:13-14 Ag '64

TEMPORARY buildings. See Buildings, Temporary

TENDONS
Hand disability due to tenosynovitis. A. P. Kelly, jr. and H. S. Jacobson. bibliog il Ind Med 33:570-4 Ag '64

TENNESSEE
See also subdivision Tennessee under special subjects, e.g.
Atomic power plants
Electric lines
Gas, Natural
Petroleum
Petroleum industry and trade
Roads
Zinc mines and mining

TENNESSEE RIVER
Clam pests in Tennessee water supplies. R. M. Sinclair. bibliog il diags Am Water Works Assn J 56:592-9 My '64

TENNESSEE VALLEY authority
Flood plain management improves man's environment. J. E. Goddard. il maps plan diag Am Soc C E Proc 89 [WW 4 no 3702]:67-84 N '63; Discussion. T. Dalrymple. 90 [WW 2 no 3917]:39-46 My '64; Reply. 90 [WW 4 no 4117]:149-56 N '64
How a waterway improvement changed environment. R. B. Nichols. il map Am Soc C E Proc 89 [WW 4 no 3690]:1-12 N '63; Discussion. 90 [WW 1 no 3814]:171-2 F; [WW 2 no 3917]:33-4 My '64
Navigation locks: TVA's multiport lock filling and emptying system. R. A. Elder and others. diags Am Soc C E Proc 90 [WW 1 no 3788]:31-46 F '64
No TVA power involved in dispute. K. Holum. Elec World 160:76 D 30 '63
Progress of the Tennessee Valley authority. il diags Engineer 217:716-18, 769-70, 806-8, 844-6 Ap 17-My 8 '64
TVA will start Nickajack dam. Eng N 172:18 Ja 9 '64
Tests verify design for TVA's 500-kv towers. G. M. Wilhoite. il map diags Am Soc C E Proc 90 [PO 3 no 4082]:81-90 O '64

TENNIS courts, Indoor
Plastic permits tennis all year. il Eng N 172:50 F 13 '64

Lighting

Lighting for indoor tennis: installation at Norwalk tennis center; lighting data sheet. J. F. LeCause. il Illum Eng 58:705 N '63

TENOSYNOVITIS. See Tendons

TENSILE strength
Additives strengthen plastic films; abstract. W. J. Jackson, jr. and J. R. Caldwell. Chem & Eng N 42:78 Ap 20 '64
Analysis of the diametral-compression test. A. Rudnick and others. bibliog il diags Materials Res & Stand 3:283-9 Ap '63; Discussion. 4:24-5, 481-2 Ja, S '64
Automatic proof-stress indicator for use in tensile testing. H. E. Hoteko and A. J. Elkington. il diag Inst Metals J 92:118-20 '63-64
Cast irons and steels: strength. J. F. Wallace and L. Leonard. il Machine Design 36:172-87 Mr 12 '64
Comparisons of materials: tensile strength; tables. Materials in Design Eng 60:28-9 Mid-O '64
Computing high-rate tensile strength from static strength data. S. Goldfein. Mod Plastics 41:149+ Ag '64
Determination of the refractive indices, birefringence, and tensile properties of normal viscose rayon fibers. N. Barakat and A. M. Hindeleh. bibliog il Textile Res J 34:581-4 Jl '64
Determines graphite tensile strength to 6000 F. il diag Res/Develop 15:9 Ag '64
Dispersion strengthened lead; a new structural material. D. J. I. Evans and others. il Materials in Design Eng 59:105-7 Ap '64
Effect of carbon content on corrosion and tensile properties of Zircaloy-2. S. Kass and J. D. Grozier. il diags Corrosion 20:158-65 My '64
Effect of carbon equivalence and section size on tensile strengths of gray irons. J. F. Wallace. bibliog il diags Foundry 91:40-4 D '63
Effect of initial span on the measured tensile properties of paper. W. A. Wink and others. bibliog Tappi 47:47-54 Ja '64

TENSILE strength—*Continued*

Effects of neutron irradiation at 250°C on the tensile and impact properties of a one per cent Cr-0.5 per cent Mo pressure vessel steel. D. R. Harries and others. bibliog il diags Iron & Steel Inst J 202:448-53 My '64

Elongation characteristics of cylindrical titanium and copper alloy tensile specimens with reference to B.S.I. and I.S.O. recommendations for new gauge lengths. R. J. Parker and R. K. Marston. Metallurgia 69:3-6 Ja '64

Evaluating investment castings of maraging steel. R. J. Wilcox. il Metal Prog 85:87-90 Ja '64

Experimental analysis of the strain distribution in the neck of a tensile specimen. W. Truszkowski and Z. Jasieński. bibliog diags Inst Metals J 92:225-30 '63-64

Fiber and pulp properties; shear strength of single-fiber crossings. A. P. Schniewind and others. bibliog Tappi 47:244-8 Ap '64

Fracture of wool fibres. P. Mason. bibliog Textile Res J 34:747-54 S '64

Improved properties of extra high-purity steel at tensile strengths up to 150 tons/in^2. C. L. M. Cottrell and others. bibliog il Iron & Steel Inst J 201:1032-7 D '63

Increasing tensile strength of terrazzo. A. M. Neville. Am Concrete Inst J 61:335-43 Mr '64; Discussion. C. C. Agbim. 61:1225-6 S '64

Influences of fiber properties on yarn twists. L. C. Weiss and others. bibliog Textile Res J 34:605-11 Jl '64

Interlaboratory study of cutting plastic film tension specimens. G. D. Patterson, jr. il Materials Res & Stand 4:159-61 Ap '64

Measurement of the strain properties of shipping sack kraft. W. E. Carlson. il Tappi 47:310-12 My '64

Molecular theory for the tensile strength of gum elastomers. F. Bueche and J. C. Halpin. bibliog J Ap Phys 35:36-41 Ja '64

New stainless steel retains high strength to 1200 F. F. C. Hull. il Materials in Design Eng 60:92-3 Ag '64

Patenting process during the manufacture of high tensile steel wires for ACSR core. S. N. Nayar and J. Thomas. diags Wire & Wire Prod 39:556-8+ Ap '64

Post-irradiation stability of some properties of cotton cellulose. J. C. Arthur, jr. and F. A. Blouin. bibliog Textile Res J 34:733-4 Ag '64

Rectangular tensile sheet with symmetric edge cracks. O. L. Bowie. bibliog diags A S M E Trans ser E 31:208-12 Je '64

Relation between Vickers hardness and tensile strength. D. S. Dugdale and J. S. Hozgart. bibliog Metallurgia 69:127-9 Mr '64

Small tension-test specimen for plastics. M. M. Karnowsky and J. L. Colp. bibliog il diags Materials Res & Stand 4:351-4 Jl '64

Strength of papermaking fibers. K. W. Britt and P. N. Yiannos. bibliog diag Tappi 47:427-31 Jl '64

Studies in nonwoven fabrics: prediction of tensile properties. J. W. S. Hearle and P. J. Stevenson. bibliog diags Textile Res J 34:181-91 Mr '64

Tensile behavior of polypropylene textile fibers. D. Poller and R. I. McDougall. bibliog Textile Res J 34:117-23 F '64

Tensile behaviour of the intermetallic compound AgMg at low temperatures. J. C. Terry and R. E. Smallman. bibliog Inst Metals J 92:334-6 '63-64

Tensile energy absorption of paper. Tappi 46:sup 138A-9A D '63

Tensile machine for small specimens. R. K. MacCrone and others. il diags R Sci Instr 35:356-9 Mr '64

Tensile recovery and structure modification in crosslinked cottons. bibliog il Am Dyestuff Rep 52:952-64 N 25 '63

Tensile strength distribution and creep failure of cellulosic filaments. H. C. Cheung. bibliog Textile Res J 34:597-604 Jl '64

Tensile strength of a silica fibre reinforced aluminium alloy. D. Cratchley and A. A. Baker. bibliog il diags Metallurgia 69:153-9 Ap '64

Tensile strength of concrete. D. J. McNeely and S. D. Lash. bibliog il diag Am Concrete Inst J 60:751-61 Je '63; Discussion. 60:1883-90; Reply. 1890-1 D '63

Tensile strength of concrete affected by uniformly distributed and closely spaced short lengths of wire reinforcement. J. P. Romualdi and J. A. Mandel. Am Concrete Inst J 61:657-71 Je '64

Tensile strengths of dense polycrystalline ceramics by the diametral-compression test. R. M. Spriggs and others. diags Materials Res & Stand 4:218-20 My '64

Testing small tubing. J. D. Bean. il Metal Prog 85:102-4 Ap '64

Triaxial tensile stress fatigue testing. G. Welter and J. A. Choquet. bibliog il Welding J 42:sup565-70 D '63

TENSIOMETERS

Automatic instrument for measuring surface actvity. T. B. Hilton and others. bibliog il diags Soap & Chem Spec 40:48-51 Mr '64

Strip stiffness as the deciding factor in the choice between different tensiometer principles. E. Angeid. diags Iron & Steel Eng 41:135-43; Discussion. 143-5 Ap '64

TENSION control. See Winding machines—Tension control

TENSORS

Components of the two-band resistivity tensor in semiconductors. R. G. Moore and J. A. Stamper. bibliog J Ap Phys 35:1545-9 My '64

Dielectric susceptibility tensor for an atomic vapor. R. L. Fork. J Ap Phys 35:134-6 Ja '64

Tensors in illuminating engineering. D. E. Spencer. bibliog diags Illum Eng 59:345-54; Discussion. 354-6 My '64

TERBIUM

Fluorescence of the europium and terbium dibenzoylmethides. M. Metlay. bibliog Electrochem Soc J 111:1253-5 N '64

TERBIUM compounds

Neutron diffraction investigation of the magnetic structure of $TbMn_2$. L. M. Corliss and J. M. Hastings. diag J Ap Phys 35:1051-3 pt 2 Mr '64

TEREPHTHALIC acid

Kinetics and mechanism of the rearrangement of potassium isophthalate to terephthalate. Y. Ogata and K. Sakamoto. bibliog Chem & Ind p749-50 My 2 '64

Polarographic determination of isophthalic acid in the presence of terephthalic acid in polyester fibers. L. Beníšek. bibliog il Textile Res J 32:539-48; 34:456-7 Jl '62, My '64

Manufacture

Benzoic acid, dimethyl terephthalate and terephthalic acid; Mid-Century corp. diags Hydrocarbon Process & Pet Refiner 42:152 N '63

Terephthalic acid; Bergbau-Forschung. diag Hydrocarbon Process & Pet Refiner 42:226 N '63

Terephthalic acid (Raecke process); Henkel & cie. diag Hydrocarbon Process & Pet Refiner 42:227 N '63

TERMINALS

Closed-circuit t.v. at Dover car ferry terminal. il Engineer 218:186 Jl 31 '64

Complete New York newsprint terminal. il Tappi 47:sup119A F '64

New barge-rail facility on Flint River built on solid limestone river bottom. il Marine Eng/Log 69:55 Ja '64

San Francisco builds big ocean terminal. Marine Eng/Log 68:34A-34B N '63

Trucking terminal and home office. il plan Arch Rec 134:130-1 D '63

See also

Airlines—Terminals
Airport buildings
Petroleum products pipe lines—Terminals
Petroleum shipping terminals
Ports

Costs

California ports expand facilities; unit prices. Eng N 171:162 N 14 '63

TERMINALS (electric cables). See Electric cables—Terminals

TERMINOLOGY

Vehicle directional control behavior described in more precise terms. diags S A E J 72:26-33 F '64

See also

Moving picture photography—Terminology
Textile industry—Terminology

TERPENES

Hydroboration of terpenes; the hydroboration of α- and β-pinene, the absolute configuration of the dialkylborane from the hydroboration of α-pinene. G. Zweifel and H. C. Brown. bibliog Am Chem Soc J 86:393-7 F 5 '64

Structure of nimbin. C. R. Narayanan and others. bibliog Chem & Ind p322-4 F 22 '64

Synthetic resins: the backbone of modern finishes; terpene type resins. H. P. Preuss. Metal Finishing 62:63-5 Ag '64

TERPENES—*Continued*
Terpenes; synthesis of patchouli alcohol. G. Büchi and others. bibliog Am Chem Soc J 86:4438-44 O 20 '64
Thermal rearrangements of the 7-carbomethoxy-Δ^2-norcarenes. J. A. Berson and E. S. Hand. bibliog Am Chem Soc J 86: 1978-88 My 20 '64
See also
Diterpenes

TERPENOIDS
Isolation of stachene and two related alcohols. R. D. H. Murray and R. McCrindle. bibliog Chem & Ind p500-1 Mr 21 '64
Total synthesis of helminthosporal. E. J. Corey and S. Nozoe. bibliog Am Chem Soc J 85:3527-8 N 5 '63
Two minor diterpenoid constituents of ricinocarpus stylosus. C. A. Henrick and P. R. Jefferies. Chem & Ind p 1802 N 9 '63

TERRACING
Shaping arable land to hold water. Engineering 197:775 Je 5 '64

TERRAZZO
Increasing tensile strength of terrazzo. A. M. Neville. Am Concrete Inst J 61:335-43 Mr '64; Discussion. C. C. Agbim. 61:1225-6 S '64

TERRESTRIAL magnetism. See Magnetism, Terrestrial

TERZAGHI, Karl
Karl Terzaghi's last writings on soils. pors Eng N 171:39-40 N 21 '63
Obituary. por Engineer 216:772 N 8 '63

TESTING
Acceptance standards for nondestructive tests. H. Migel. diags Mech Eng 86:118-20 Ap '64
How Dow applies nondestructive testing. L. G. Seitsinger. il Oil & Gas J 62:84-6 Ja 6 '64
Inspecting with filtered and electrified particles. E. T. Hughes and D. R. Powers. il diags Metal Prog 84:85-9 N '63
Mean time between failure confidence limits. T. A. Simonds. Ind Quality Control 20:21-7 D '63
Microwaves; new vistas for gaging, testing, analysis. il Steel 155:60-1 Jl 20 '64
Nondestructive testing symbols; reference sheet. diags Tool & Manuf Eng 51:107-8 N '63
Objectives of acceptance testing. J. A. Coleman. Am Perfumer 78:29-31 N '63
Optimum test procedure under stress. H. Greenberg. bibliog Op Res 12:689-92 S '64
Predicting test-program failures. R. H. Carlson. il Machine Design 36:134-7 Ja 16 '64
Reliability sequential testing. E. L. Eagle. diag Ind Quality Control 20:48-52 My '64
Research vs testing in the mineral industries. R. J. Anderson. il Min Cong J 50: 38-40 Mr '64
Symposium on physics and nondestructive testing; abstracts of papers. il Metal Prog 85:130+ My '64
Testing using infrared. L. E. Florant. bibliog il diags I S A J 11:61-4 Jl '64
Thermographic methods for special applications. N. L. Carroll. il diag Metal Prog 84:117-19 D '63
See also
American society for testing and materials
Impact
Laboratories
Magnetic testing
Testing machines
also subdivision Testing under special subjects, e.g.
Aeronautic instruments
Airplane engines
Airplane parts
Airplanes, Military
Automobile parts
Beams and girders
Bearings, Ball
Bridges, Concrete
Building materials
Castings
Ceramic materials
Concrete
Corrosion and anti-corrosives
Corrosion resisting materials
Cotton fibers
Drying apparatus
Electric apparatus and appliances
Electric apparatus and appliances, Domestic
Electric cables
Electric equipment
Electric generators
Electric lines
Electric resistors
Electric welding
Finishing materials
Foundation soils
Gages
Gas engines
Gas meters
Gas turbines, Aircraft
Gasoline
Glass
Guided missiles
Hardness
Hydraulic machinery
Internal combustion engines
Joints
Lenses
Lubricating greases
Materials
Metals
Mortar
Mothproofing preparations
Nuclear reactors
Paint
Paper
Pipes, Steel
Pitch
Plastics
Polyethylene
Polymers
Radio apparatus
Rubber
Rubber, Artificial
Steam turbines, Marine
Steel castings
Television receiving apparatus
Titanium alloys
Trade waste
Transistors
Tubes
Tubes, Steel
Water
Watt hour meters

TESTING and materials, American society for. See American society for testing and materials

TESTING laboratories
Equipment maker opens unique test lab. il Roads & Sts 107:56 Ag '64
Independent photometric laboratory. il Engineer 216:685-7 O 25 '63
Lab evaluates dryer performance. il Eng N 172:180 Je 18 '64
New test laboratory to improve lighting. il Engineering 196:508-9 O 18 '63
Quebec asbestos mining association research testing laboratory and its relation to the asbestos mining industry. J. J. Paré. bibliog Can Min & Met Bul 57:1045-9 O '64
Ranking laboratories and evaluating methods of measurement in round-robin tests. T. W. Lashof. bibliog Materials Res & Stand 4:397-407 Ag '64
Three buildings are cheaper than one. il Eng N 173:78-9 Jl 2 '64
See also
Electric laboratories
Engineering laboratories
Sound laboratories
Underwriters laboratories, inc

Electric equipment

New Underwriters' Laboratories testing station. J. H. Watt. il diag Elec Constr & Maint 63:90-3 Mr '64

Environmental chambers

Atmosphere chamber creates wide range of temperatures, humidities. il Res/Develop 14:40 N '63
Controlled weather for dynamometer engine tests. il diag Automotive Ind 131:62-3 Ag 1 '64
Facts of life on the ocean floor. il Comp Air Mag 69:23 Ja '64
Simulating the Arctic. il Product Eng 35:64-5 O 12 '64

Equipment

ASTM materials testing exhibit; 16th; Chicago, June 22-26; products on display. il Materials Res & Stand 4:326-7 Je '64
Automatic Vicat-type heat-distortion and softening-range apparatus. G. F. L. Ehlers and W. M. Powers. il diag Materials Res & Stand 4:298-300 Je '64
Elwell-Parker opens new test facility. il Iron & Steel Eng 41:234 S '64
Gas gun lofts test package to test weightless fuel. il diags Machine Design 36: 124-5 Ap 9 '64
Measurement of damping capacity and Young's modulus of elasticity. il diag Metallurgia 69:247-9 My '64
New plant for the big fatigue test; British Railways fatigue laboratory. il diags Engineering 197:665-7 My 15 '64
New York state's new Public Works test labs are mechanized and automated. il Eng N 172:24-6+ Ja 16 '64
Product testing: simulating the field conditions. W. M. Cade and R. N. Coleman. il diag Mech Eng 86:32-5 F '64

TESTING laboratories—*Continued*

Vacuum chambers

Achieves interplanetary vacuum. il Res/Develop 15:54-5 Je '64

Engineering a ultra high vacuum system for space simulation. B. Kietzman and L. Patrucci. il diag Res/Develop 15:46-9 My '64

Films ten atoms thick, grown inside an ultrahigh vacuum chamber. il Mech Eng 85:52 D '63

Leak tests star trackers under high vacuum. il Res/Develop 14:56-7 N '63

New lows in ultra-high vacuum space simulation chambers. il Space/Aeronautics 42: 77-8 Jl '64

Piston valve for decompression research. il Engineering 197:559-60 Ap 17 '64

Rating performance of a space-simulation chamber. R. L. Chuan. diags Res/Develop 15:44-6 Ja '64

Space system goes to Houston. il Engineering 197:749 My 29 '64

Testing and instrumentation; environmental simulation. R. E. Gaumer and V. A. Plaskett. Space/Aeronautics 42 no 4:187-90 '64-65

Valve aids in simulating conditions on moon. Steel 153:69 N 11 '63

Weather rooms

See Testing laboratories—Environmental chambers

TESTING machines

Apparatus for stress-rupture testing of filaments in a controlled environment. R. W. Jech and others. il R Sci Instr 35:314-15 Mr '64

Automatic area compensator for constant stress cycling. C. E. Feltner and J. Jackobs. diags R Sci Instr 34:1360-3 D '63

Automatic high-speed measuring systems for complex products and shapes. J. A. Sargrove. bibliog il diags Radio & Electronic Eng 27:337-48 My '64

Automatic proof-stress indicator for use in tensile testing. H. E. Hoteko and A. J. Elkington. il diag Inst Metals J 92:118-20 '63-64

Calibration system with microinch precision at temperatures to 500°C. J. C. Spanner and B. B. Brenden. il diag R Sci Instr 35:944-9 Ag '64

Controlled atmosphere fatigue machine. K. U. Snowden. bibliog il diag J Sci Instr 41: 470-1 Jl '64

Creep in thermoplastics; review of apparatus for creep measurements. C. M. R. Dunn and others. il diags Brit Plastics 37:386-92 Jl '64

Cyclic loading machine for slow fatigue tests. P. W. Turner and R. Royles. il diags Engineer 217:264-6 F 7 '64

Dynamic testing of resolver error. S. Harac. il diag Control Eng 10:123 N '63

Electronic impact testing machine. il Engineer 218:469 S 18 '64

Flexcracking of polymers. F. H. D. Akkerman. il diags Rubber Chem & Tech 37:186-98 Ja '64

Hydrodynamic bearing test apparatus. N. H. Cook. il diags Lub Eng 20:178-9 My '64

Impact testing with an instrumented machine. H. P. Tardif and H. Marquis. il diag Metal Prog 85:79-82 F '64

Improved hydraulic strain tests. il Engineering 198:251 Ag 21 '64

Instruments for research and evaluation. il Brit Plastics 37:92-7 F '64

Looking inside reciprocating engines in service. F. V. Long. bibliog il diags Gas 40:109-12 Mr '64

Low-temperature fatigue testing machine. M. A. Wilkov and L. E. Murr. il diag Materials Res & Stand 4:285-7 Je '64

Machine accurately measures vehicle acceleration. il Engineering 197:216 F 7 '64

Machine for measuring dynamic friction. H. P. Sponseller and F. M. Gavan. bibliog il diag Materials Res & Stand 3:992-5 D '63

Machine for producing square torsion pulses of microsecond duration. D. P. Pope and others. bibliog il diags R Sci Instr 35:1351-5 O '64

Materials, testing and analysis. T. Mulvey. bibliog J Sci Instr 41:248-50 My '64

Measuring materials' elastic properties. il diag Engineering 196:765 D 13 '63

Multiple creep-testing machine. il Engineer 217:355 F 21 '64

NPL's improved force measuring device. B. Swindells and E. P. Goymour. il diags Engineering 198:185 Ag 7 '64

New bearing fatigue testing machine from Distington. il diag Metallurgia 69:50 Ja '64

Pneumatic gauging machine checks lip seals. il diag Hydraulics & Pneumatics 16:90-1 D '63

Profiler tests burst strength. W. T. Dyer. diag Control Eng 11:130 O '64

RCA machine that uses precision air-to-electronic gaging for checking brake drums. il Mach 70:148-9 F '64

Recoil exercising mechanism tests guns at four elevations. il Product Eng 35:58 Mr 30 '64

Rolling fatigue test machine. il diag Automobile Eng 54:106-7 Mr '64

Rolling fatigue testing machine. il Engineering 197:41 Ja 10 '64

Servo-controlled testing machine. Product Eng 35:31-2 Mr 2 '64

Softening-range tester for powdered samples. C. D. Doyle. il Materials Res & Stand 3: 915-17 N '63

Tensile machine for small specimens. R. K. MacCrone and others. il diags R Sci Instr 35:356-9 Mr '64

Testing machine stiffness problem. P. B. Hinde. diags Engineer 217:1124-7 Je 26 '64

Testing tires by telemetry. il Comp Air Mag 69:22 Ag '64

Torque tension tester insures quality il Steel 154:81 Ja 27 '64

Transition temperatures in the fourball wear tester. V. Hopkins and D. R. Wilson. bibliog diags Lub Eng 20:305-9; Discussion. 309-10 Ag '64

Triaxial tensile stress fatigue testing. G. Welter and J. A. Choquet. bibliog il Welding J 42:sup565-70 D '63

Two-pressure circuit tests aircraft valves. L. Edwards and T. Geddes. il diag Hydraulics & Pneumatics 17:76-7 Mr '64

Ultrasonic image converter. J. Powers. il diags Res/Develop 14:24-7 N '63

Unisteel multi-specimen creep testing machine. il diag Engineering 196:526-8 O 25 '63

Universal mechanical testing machine for teaching purposes. A. Beaumont and others il diag Engineer 217:299-300 F 14 '64

Vacuum fatigue tester. B. Steverding. diag R Sci Instr 35:565-8 My '64

Water-leakage test for window sections. H. R. Trechsel. diags Materials Res & Stand 4:483-5 S '64

See also

Dynamometers

Gear testing machines

Textile testing machines

Numerical control

Machines evaluate, assemble components. il Steel 155:115 O 19 '64

New quality control techniques with programmed data; abstract. T. E. Shipley, jr. Automation 11:143-4 Ag '64

Programming fatigue tests. il Engineering 198:535 O 23 '64

Tools that make total quality control work. B. Sussman. il Ind Quality Control 21:10-16 Jl '64

TESTOSTERONE

Photochemical isomerization of B-nor-1-dehydrotestosterone acetate in dioxane solution. G. Bozzato and others. Am Chem Soc J 86:2073-5 My 20 '64

Synthesis and configuration of C-nor-D-homotestosterone acetate. S. M. Kupchan and S. D. Levine. bibliog Am Chem Soc J 86:701-8 F 20 '64

Synthesis of testosterone-19-^{14}C. P. N. Rao and L. R. Axelrod. bibliog Chem & Ind p 1838-9 N 16 '63

TETANUS

Active immunization against tetanus. E. S. Stafford. bibliog Archives Environmental Health 8:742-5 My '64

Current status of tetanus immunization. G. Edsall. Archives Environmental Health 8: 731-41 bibliog(p740-1) My '64

Guard against tetanus; editorial. M. A. Hinrichs. Archives Environmental Health 8:634-5 My '64

Long-term immunity to tetanus; a statistical evaluation and its clinical implications. S. Gottlieb and others. bibliog Am J Pub Health 54:961-71 Je '64

Tetanus. F. H. Top and others. bibliog Ind Med 33:311-14 My '64

Statistics

Tetanus in the United States, 1950-1960. C. W. Heath, jr. and others. bibliog maps Am J Pub Health 54:769-79 My '64

TETRAAMINOETHYLENE
Tetraaminoethylenes; the question of dissociation. D. M. Lemal and others. bibliog Am Chem Soc J 86:2518-19 Je 20 '64

TETRACENE (explosive)
Non-aqueous potentiometric determination of tetracene. J. S. Hetman. Chem & Ind p232 F 8 '64

TETRACHLOROETHYLENE
Colour fastness to dry-cleaning. W. K. Rhodes. bibliog 2pls Soc Dyers & Col J 80:20-33 Ja '64
New dry cleaning solvent system under field test. il Chem & Eng N 41:57 N 25 '63

TETRACYANOETHYLENE
Du Pont to be granted cyanoethylene patent. Chem & Eng N 42:23-4 Mr 23 '64
Ionization potentials of substituted benzenes and their charge-transfer spectra with tetracyanoethylene. E. M. Voigt and C. Reid. bibliog diags Am Chem Soc J 86:3930-4 O 5 '64
Multiple charge-transfer bands in complexes involving aromatic donors. E. M. Voight. bibliog diags Am Chem Soc J 86:3611-17 S 20 '64
π-complex interactions; methyl substituted benzenes and naphthalenes with tetracyanoethylene. A. R. Lepley. bibliog Am Chem Soc J 86:2545-9 Jl 5 '64
Picric acid and tetracyanoethylene complexes of some benzocycloalkenes. J. B. F. Lloyd and P. A. Ongley. Chem & Ind p 1267-8 Jl 11 '64

TETRACYCLINE
Effect of barbituric acid, chlortetracycline and carbohydrates upon growth and gastrointestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 82:93-8 Ja '64
Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64
Legal action on tetracycline piles up. Chem & Eng N 42:21-2 Jl 20 '64
6-Methylenetetracyclines; preparation and properties. R. K. Blackwood and others. bibliog Am Chem Soc J 85:3943-53 D 20 '63
New class of tetracyclines made. Chem & Eng N 42:46+ S 28 '64
Novel C-4 modified tetracycline derivatives. R. K. Blackwood and C. R. Stephens. Am Chem Soc J 86:2736-7 Jl 5 '64
Tetracycline production licensing ordered. Chem & Eng N 42:23 Ja 13 '64
Tetracycloxides; a new class of tetracycline derivatives. R. C. Esse and others. bibliog Am Chem Soc J 86:3874-5 S 20 '64
Tetracycloxides; transformations at the C-4 position. R. C. Esse and others. bibliog Am Chem Soc J 86:3875-7 S 20 '64

Analysis

Automated method for determining tetracycline in broth. J. Bomstein and others. bibliog flow diag Anal Chem 36:1149-50 My '64

TETRAETHYL lead
Illustration of industrial hygiene. R. A. Kehoe. bibliog Archives Environmental Health 8:378-83 Mr '64
Tetraethyllead and tetramethyllead; comparative experimental pathology. G. W. H. Schepers. Archives Environmental Health 8:277-95 F '64
Tetraethyllead intoxication. L. W. Sanders. Archives Environmental Health 8:270-7 F '64

TETRAFLUOROETHYLENE
Polymeric peroxide of tetrafluoroethylene. A. Pajaczkowski and J. W. Spoors. Chem & Ind p659 Ap 18 '64

TETRAFLUOROMETHANE. See Carbon tetrafluoride

TETRAHYDROFURAN
Behavior of esters in liquid hydrogen fluoride; Walden inversions and ring cleavage in tetrahydrofuran derivatives. E. J. Hedgley and H. G. Fletcher, jr. bibliog Am Chem Soc J 86:1576-82 Ap 20 '64
Influence of tetrahydrofuran on the reaction of *n*-butyllithium with benzyl chloride; halogen-metal interconversion vs. α-hydrogen-metal interconversion. D. F. Hoeg and D. I. Lusk. Am Chem Soc J 86:928-9 Mr 5 '64
Time dependent rheology of the tetrahydrofuran-hydrogen sulphide gas hydrate slurry. K. L. Pinder. bibliog il diag Can J Chem Eng 42:132-8 Je '64

TETRAMETHYLBENZENE
Syntheses of the three isomeric diethyl- and dineopentyltetramethylbenzenes. M. S. Newman and others. bibliog Am Chem Soc J 86:868-72 Mr 5 '64

TETRAMETHYL lead
Tetraethyllead and tetramethyllead; comparative experimental pathology. G. W. H. Schepers. Archives Environmental Health 8:277-95 F '64

TETRAPHENYLARSONIUM chloride
Gravimetric determination of hexafluorophosphate as tetraphenylarsonium hexafluorophosphate. H. E. Affsprung and V. S. Archer. Anal Chem 35:1912-13 N '63

TETRAPHENYLETHYLENE
Disproportionation of monosodium tetraphenylethylene. J. F. Garst and others. bibliog Am Chem Soc J 86:2257-61 Je 5 '64

TETRAZINE

Analysis

Titration characteristics of hexahydro-1,3,5-trinitro-*s*-triazine and octahydra-1,3,5,7-tetranitro-*s*-tetrazine in nonaqueous solvents. M. I. Fauth and others. Anal Chem 36:380-2 F '64

TETRAZOLES
Studies on the azidoazomethine-tetrazole equilibrium. C. Temple, jr. and J. A. Montgomery. bibliog Am Chem Soc J 86:2946-8 Jl 20 '64

TEXACO. See Texas company

TEXAS
See also subdivision Texas under special subjects, e.g.
Electric utilities
Fertilizer industry
Gas, Natural
Gas, Natural—Pipe lines
Geology
Hydroelectric plants
Irrigation
Petroleum
Petroleum industry and trade
Petroleum laws and regulations
Petroleum pipe lines
Water supply

TEXAS company
Texaco dickers with Superior again; negotiations for purchase of Superior's Lama field in Lake Maracaibo. map Oil & Gas J 62:60-1 Ja 13 '64
Texaco paid $125.4 million for Superior Oil's Lake Maracaibo properties. Oil & Gas J 62:46 F 3 '64

TEXTILE analysis
Estimation of copper-8-quinolinolate in treated material by potentiometric titration of 8-hydroxyquinoline. J. C. Chapin. bibliog Am Dyestuff Rep 53:164-6 Mr 2 '64
Identification of metals in dyed and printed protein and cellulose textiles. B. C. Burdett. bibliog Soc Dyers & Col J 80:370-4 Jl '64
See also
Wool—Analysis

TEXTILE associations
See also
American association of textile chemists and colorists

TEXTILE chemicals
Alphabetical list of new products developed since Nov. 1962. Am Dyestuff Rep 52:976-89 D 9 '63
Arkansas Chemical's sixty years of service. Mod Textiles Mag 45:27-8 F '64
Blend your own waxes. S. M. Cauble, jr. il Textile Ind 128:144-5+ O '64
Directory of European sources of textile chemicals and dyes. Am Dyestuff Rep 53:533-8 Je 22 '64
Experimental ultraviolet absorbers for cotton. Textile Ind 128:109 Ja '64
How new reducing agents speed vat dyeing and printing. A. J. Hall. Textile World 114:113-14 Mr '64
Marketing textile chemical specialties in the United States and in Europe. P. J. Scott. Am Dyestuff Rep 53:529-32 Je 22 '64
Model systems in the study of chemical finishing. G. C. Tesoro. bibliog Am Dyestuff Rep 52:1022-6 D 9 '63
News about textile chemicals. Published in monthly numbers of Textile world
Recent developments in chemical finishing; abstract. J. G. Roberts. Am Dyestuff Rep 53:593+ Jl 6 '64

TEXTILE chemistry
See also
Bleaching
Cotton—Chemistry
Cotton finishing
Dyes and dyeing—Chemistry
Fireproofing of textiles

TEXTILE chemistry—See also—*Continued*
Rayon finishing
Resinous products—Textile uses
Sizing (textiles)
Textile fibers, Synthetic
Wool—Chemistry

TEXTILE chemists and colorists, American association of. See American association of textile chemists and colorists

TEXTILE design
Only 22 days from fabric idea to customer's shelf at M. Lowenstein & sons, illustrations with text. Textile World 114:78-81 Je '64
See also
Textile printing

TEXTILE drying
Drying today. R. W. Pinault. il diag Textile World 113:98-100+ D '63
Influence of drying temperature and humidity on the internal structure of acrylic fiber during drying. H. Takeda and Y. Nukushina. bibliog Textile Res J 34:173-5 F '64
Near-infrared Thermosol systems installed at several mills. il Am Dyestuff Rep 53:942 O 26 '64
Package unit solves drying problems of spandex producer. il Am Dyestuff Rep 53:276-7 Mr 30 '64
See also
Drying apparatus—Textiles

TEXTILE education
See also
Textile schools

TEXTILE fabrics
Cut strapping costs 30 per cent; new method of baling grey goods. il Textile Ind 128:87-8 F '64
Expanding potential for flocked fabrics. T. W. Qualman. Mod Textiles Mag 45:37-8 Ag '64
Fabric manufacturing; complex, controlled. R. B. Pressley. diag Textile World 114:72-9 My '64
Fanciful fabric forms for Triennale. il Prog Arch 45:220-3 S '64
Fiber and fabric at the Fair. N. Helmbold. il Textile World 114:40-7 Je '64
Flocking: new enthusiasm for an old process. T. Henke. il diags Mod Textiles Mag 45:31-3+ Je '64
Flocking up-to-date. S. M. Suchecki. il diags Textile Ind 128:59-70 My '64
Modern cloth room practices. W. F. Woodward. il Textile Ind 127:53-8 O; 122-7+ N; 88-90+ D '63; 128:85-7+ Ja '64
New class of structural materials; Airmat, three-dimensional fabrics. il Product Eng 35:54-5 Je 8 '64
New glamour for flocked fabrics. diags Textile Ind 128:88-9 S '64
Only 22 days from fabric idea to customer's shelf at M. Lowenstein & sons, illustrations with text. Textile World 114:78-81 Je '64
Plastics for weaving fabric. R. B. Pressley. il Textile World 114:55-8 Je '64
Recent technical and commercial developments. J. B. Goldberg. Published in monthly numbers of Textile industries
Testing of fabric filter and hydraulic dust removers. W. Pichel. il diags ASHRAE J 6:87-93 Je '64
Ultrasonic seam bonding; abstract. Am Dyestuff Rep 53:364+ My 11 '64
What's new about fibers and yarns. Published in monthly numbers of Textile world
Woven fabrics; their properties and uses. S. Ehlers. il diags Materials in Design Eng 59:88-91 My '64
See also
Bleaching
Carpets
Crimping of textiles
Drapery
Elastic fabrics
Felt
Fireproofing of textiles
Knit goods
Military fabrics
Napping of textiles
Nylon fabrics
Pile fabrics
Rubberized fabrics
Textile finishing
Textile industry
Textile printing
Tire fabrics
Underwear
Upholstery
Waterproofing of textiles
Woolen and worsted fabrics

Antiseptic treatment

Attractive sales potential exists for biocidal finishes. P. W. Sherwood. Mod Textiles Mag 45:32+ O '64
How can textiles be treated so that, when wet, they will remain barriers to bacteria? W. C. Beck. Textile Res J 34:816-17 S '64
Role of bacteria in the development of perspiration odor on fabrics. bibliog il Am Dyestuff Rep 52:1010-13 D 9 '63

Bonded web

Fact file 1964; nonwovens. Textile World 114:98+ Jl '64
Forward look at nonwoven fabrics. F. M. Buresh. il Mod Textiles Mag 44:49-53 N '63
New bonded fabrics give woven a scrubbing. il Materials in Design Eng 59:115+ F '64
Nonwoven fabric studies. R. I. C. Michie and others. bibliog il diags Textile Res J 33:325-9, 403-11, 877-88; 34:181-91, 275-82 My-Je, N '63, Mr-Ap '64
Nonwoven fabrics gain strength. il diag Iron Age 192:85 D 19 '63
Nonwovens. J. W. Howden. il Textile Ind 127:79-82 D '63
Nonwovens; materials, methods, marketing (cont). J. W. Howden. flow diag il diag Textile Ind 127:120-7+ Ap; 104-6+ Jl; 100+ N '63; 128:69-71 Mr; 79-80+ Jl '64
Properties of nonwoven fabrics bonded with acrylate emulsion polymers. V. J. Moser. bibliog Am Dyestuff Rep 53:406-11 My 25 '64
Wet-forming nonwoven fiber webs. D. B. Wicker. il diags Mod Textiles Mag 45:42-4 Jl '64

Cleaning

See Cleaning

Coating

Extruded film-cloth; lightweight cloth with extruded polyethylene coat has wide market. il Plastics World 22:31 Ap '64
Protective clothes; PVC coated rayon safeguards men who spray and dust insecticides. il Plastics World 21:56 N '63
See also
Nylon fabrics—Coating

Creasing

See Creasing of textiles

Heat setting

Continuous thermofix dyeing of blended polyester/cotton fabrics. J. C. King. bibliog Am Dyestuff Rep 53:132-4 F 17 '64

Heat transmission

Comfort properties of blankets; thermal resistance of some typical blankets. R. J. Rowlands. Textile Res J 34:459-61 My '64
Cotton leno warms 'em up. il Textile Ind 128:66-8 Mr '64
Flame-contact studies of fabrics. A. M. Stoll and others. bibliog il A S M E Trans ser C 86:449-56 Ag '64
Thermal conductivity of a multilayer sample of underwear material under a variety of experimental conditions. H. J. Hoge and G. F. Fonseca. Textile Res J 34:401-10 My '64

Inflammability

Fire hazards of fabrics; abstract. D. L. Simms. Am Dyestuff Rep 53:403 My 25 '64
Flammability testing; recent developments in testing and law enforcement. C. A. Baker. bibliog Am Dyestuff Rep 53:259-61 Mr 30 '64
Two new Canadian test methods for measuring the flammability of fabrics; abstract. H. R. Richards. Am Dyestuff Rep 53:110 F 3 '64

Moisture absorption

Rates of regain change of cloth with relative humidity. H. G. David. Textile Res J 33:83-4 Ja '63; Discussion. 34:85-6 Ja '64
See also
Cotton fabrics—Moisture absorption

Nonwoven

See Textile fabrics—Bonded web

Permeability

Air flow through textile fabrics. A. C. Goodings. diags Textile Res J 34:713-24 Ag '64
Behavior of liquids on various cords for seams in chemical and biological protective overgarments. P. P. Hall. bibliog diags Textile Res J 34:617-27 Jl '64

TEXTILE fabrics—*Continued*

Protection

Insect resistance test methods. D. J. Ott. bibliog Am Dyestuff Rep 52:1068-72 D 23 '63

See also

Rotproofing of textiles

Soiling

See Soiling of textiles

Strength

Energy storage in an axially and laterally loaded filament. G. D. Moskowitz and E. W. Suppiger. diags Textile Res J 34:34-9 Ja '64; Discussion. 34:805-6 S '64

Interlaboratory evaluation of procedures for tongue-tearing strength of woven fabrics. E. B. Randall, jr. bibliog Materials Res & Stand 4:53-60 F '64

Testing

Assessment of tests for the evaluation of thermal endurance of varnished fabrics. A. G. Day. bibliog il Inst E E Proc 110: 2248-56 D '63

Avril-cotton slacks tested in actual use. Mod Textiles Mag 44:27 N '63

Celanese programs for fabric performance testing and identification; texts of papers. il Mod Textiles Mag 45:61-9 Mr; 36-40+ Ap '64

Correlation of laboratory abrasion testers. L. I. Weiner and C. J. Pope. diags Textile Res J 33:761-4; 34:371-2 S '63, Ap '64

Determination of light fastness of coloured materials faster than standard 8. Soc Dyers & Col J 80:147-8 Mr '64

Interlaboratory evaluation of procedures for tongue-tearing strength of woven fabrics. E. B. Randall, jr. bibliog Materials Res & Stand 4:53-60 F '64

Measurement of fabric aesthetics. R. H. Brand. diags Textile Res J 34:791-804 S '64

Mechanical behavior of fabrics. F. C. Brenner and C. S. Chen. bibliog il diags Textile Res J 34:505-17, 754-8 Je, S '64

Review of the fading effects of modern light sources on modern fabrics. W. B. DeLaney and A. Makulec. il Illum Eng 58:676-84 N '63; Discussion. 58:684; 59:206-7 N '63, Mr '64

Revision of tentative test method; appearance of fabrics in wash and wear items after home launderings. Am Dyestuff Rep 53:657 Jl 20 '64

Rough road for apparel fabrics; the tests they must meet and why. L. Szponder. bibliog il Textile Ind 128:51-7 F '64

See also

Woolen and worsted fabrics—Testing

Washability

Revision of tentative test method; appearance of fabrics in wash and wear items after home launderings. Am Dyestuff Rep 53:657 Jl 20 '64

Wash-and-wear progress as the cutter sees it. G. W. Edwards. Textile Ind 128:145-6 Je '64

See also

Cotton fabrics—Washability

Woolen and worsted fabrics—Washability

Weathering

Smog attacks; abstract. Am Dyestuff Rep 53: 110-11 F 3 '64

Weathering properties of selected water repellents and their substrates. bibliog Am Dyestuff Rep 53:46-55 Ja 20 '64

See also

Cotton fabrics—Weathering

TEXTILE fabrics, Laminated

Cast-in textures for vinyls. D. W. Howard and J. O. Markward. il diag Mod Plastics 41:84-6+ N '63

Evolution of substrate fabrics. G. W. Ewald. il Rubber Age 95:754-8 Ag '64

Internal characteristics of orthotropic laminates. S. K. Clark. diags Textile Res J 33:935-53 N '63

Laminates; their status today. H. S. Howard. il Mod Textiles Mag 45:47-8+ My '64

One-step foam-backs. N. S. Newman. bibliog il diags Textile Ind 128:93+ Ja '64

See also

Rubberized fabrics

TEXTILE fibers

Correlation of molecular orientation parameters derived from optical birefringence and sonic velocity methods. I. M. Ward. Textile Res J 34:806-7 S '64

Fact file 1964; fibers and yarns. Textile World 114:54-6 Jl '64

Fiber and fabric at the Fair. N. Heimbold. il Textile World 114:40-7 Je '64

Fibers; varied, blended, tailor-made. T. B. Sevison, jr. Textile World 114:79-81 My '64

Properties of materials; natural fibers; tables. Materials in Design Eng 60:355 Mid-O '64

Studies of the surface geometry of fibers. S. C. Scheier and W. J. Lyons. il diags Textile Res J 34:410-16 My '64

What's new about fibers and yarns. Published in monthly numbers of Textile world

See also

Cotton fibers

Crimping of textiles

Flax

Jute

Ramie

Wool

Blending

Computed colour catalogue of fibre blends and its use in match prediction. A. Miller and others. bibliog flow diag Soc Dyers & Col J 79:604-12 D '63

Engineering and chemistry of polyester/cellulosic blend fabrics; abstract. R. C. Forrester and J. L. Davison. Textile Ind 127:116+ D '63

Printing of polyester/cotton blends. A. H. Wyld. Am Dyestuff Rep 53:862-4 S 28 '64

Moisture content

Heat setting of protein and cellulosic fibers. J. Lindberg and others. bibliog il Textile Res J 34:23-8 Ja '64

See also

Cotton—Moisture content

Wool—Moisture content

Strength

Cotton fiber strength tests at ⅛-inch gauge with Pressley and Stelometer instruments. J. T. Rouse. Textile Res J 34:908-10 O '64

Decay in tenacity in relation to structural changes in monofils during fatiguing by biaxial rotation. D. C. Prevorsek and W. J. Lyons. il Textile Res J 34:271-3 Mr '64

Fatigue in textile fibers. W. J. Lyons. bibliog il diags Textile Res J 32:448-59, 553-60, 750-61; 34:881-8 Je-Jl, S '62, O '64

Intrinsic tenacities of natural cellulosic fibers. L. B. DeLuca. bibliog Textile Res J 34:110-16 F '64

Post-yield region and the structure of keratin. M. Feughelman. bibliog diags Textile Res J 34:539-45 Je '64

Structural properties of cotton fibers; interspecies relationship between convolution angle and strength. S. M. Betrabet and R. L. N. Iyengar. bibliog Textile Res J 34:46-52 Ja '64

Swelling

Independence of dry crease recovery and fiber swelling in cross-linked cotton fabric. J. G. Frick, jr. and A. G. Pierce, jr. bibliog Textile Res J 34:904-6 O '64

Retention of swelling ability in cotton cross-linked with high-temperature curing. A. G. Pierce, jr. and others. bibliog il Textile Res J 34:552-8 Je '64

Testing

Decay in tenacity in relation to structural changes in monofils during fatiguing by biaxial rotation. D. C. Prevorsek and W. J. Lyons. il Textile Res J 34:271-3 Mr '64

Dynamic analysis of coplanar crimped elastic filaments. W. D. Freeston, jr. and others. bibliog il diags Textile Res J 33:993-9 D '63

Fatigue in textile fibers. W. J. Lyons. bibliog il diags Textile Res J 32:448-59, 553-60, 750-61; 34:881-8 Je-Jl, S '62, O '64

Measurement of dynamic Young's modulus of staple fibers. V. S. Joshi. diag Textile Res J 34:732 Ag '64

Mechanics of elastic performance of textile materials; filament bending recovery. W. D. Freeston, jr. and M. M. Platt. il diags Textile Res J 34:308-19 Ap '64; Discussion. B. Olofsson. 34:902-3; Reply. 903-4 O '64

Semi-automatic system for the measurement of cohesion test results, using the West Point cohesion tester. D. R. Gentry. diags Textile Res J 34:813-14 S '64

See also

Wool—Testing

TEXTILE fibers, Effect of light on

Chemical effects of light on cotton cellulose and related compounds. G. O. Phillips and J. C. Arthur, jr. bibliog Textile Res J 34: 497-505, 572-80 Je-Jl '64

TEXTILE fibers, Effect of temperature on

Effect of fiber-forming conditions on the microstructure of acrylic fiber. M. Takashi and others. bibliog il Textile Res J 34:87-97 F '64

Heat setting of protein and cellulosic fibers. J. Lindberg and others. bibliog il Textile Res J 34:23-8 Ja '64

Influence of drying temperature and humidity on the internal structure of acrylic fiber during drying. H. Takeda and Y. Nukushina. bibliog Textile Res J 34:173-5 F '64

Yarn temperatures attained during cyclic straining and the heat transfer properties of yarns. R. L. Hamilton and C. H. Miller, jr. il diag Textile Res J 34:20-3 Ja '64

TEXTILE fibers, Metallic

Metal fabrics for the deceleration of reentry vehicles. W. D. Freeston and J. W. Gardella. il Am Dyestuff Rep 53:370-5 My 11 '64

TEXTILE fibers, Synthetic

American Enka reports growth: nylon and polyester output expands. il Mod Textiles Mag 45:72-3 Je '64

Bet your life on tricot. O. Engelhard. il diag Textile Ind 128:74-7 Ap '64

Better pirns faster from new redraw winders. il Textile Ind 128:74 My '64

Crystallization habit and fiber formation. P. H. Lindenmeyer. bibliog il Textile Res J 34:825-30 O '64

Development of the polyester tire. F. J. Kovac and T. M. Kersker. bibliog diag Textile Res J 34:69-79 Ja '64

Emphasis: man-mades; Cartex div. of Carlton yarn mills. il plan Textile Ind 128:64-6 Jl '64

Engineered yarns; Textralized yarns for Ban-Lon. C. L. Killeen and G. K. Papazian. il diag Textile Ind 128:73-7+ Ag '64

Fiber makers ride off in all directions. F. Arne. il diags Chem Eng 70:52-4+ N 25 '63

Fibers of the future. J. B. Goldberg. Am Dyestuff Rep 53:683-4 Ag 3 '64

Fibers; varied, blended, tailor-made. T. B. Sevison, jr. Textile World 114:79-81 My '64

First choice for soft slings; the new test tube fibres. il diags Mod Materials Handling 18:48-53 N '63

For manmade fiber producers, growth and still more growth. il Mod Textiles Mag 45: 29+ S '64

How to stop those creases in your filament fabrics. R. B. Pressley. il Textile World 114:62-4 Ap '64

How to tuft Herculon. P. C. Kochhar. il Textile Ind 127:130-2 N '63

Industrial cloth: woven of 100 FEP monofilament for a variety of applications. il Plastics World 21:76 N '63

Interference microscopy in polymer research. V. G. Peck and W. L Carter. bibliog il diags Textile Res J 34:40-5, pl 1 Ja '64

Manmade fiber deskbook. Mod Textiles Mag 45:45-60 Mr '64 (reprints $1)

Manmade fiber use rises in all areas. Mod Textiles Mag 45:60 Mr '64

Manmade fibers in Canada. S. J. Hungerford. Mod Textiles Mag 45:67-8 Je '64

Napping synthetic fibers. K. D. Houser. Am Dyestuff Rep 53:892-4 O 12 '64

New progress in the chemical fiber industry in the USA: abstract. H. Mark. Am Dyestuff Rep 53:287 Ap 13 '64

1963 review/64 preview; another boom year for synthetic fibers. Can Chem Process 48:44 Ja '64

1964 chart of man-made fiber properties, trademarks, and sources. Textile Ind 128: 99-106 Ag '64

1964 man-made-fiber chart. il Textile World 114:181-98 Jl '64 (reprints $1)

Nylon's younger sisters. J. Campbell. il Mod Textiles Mag 45:56-8+ Ja '64

Polarographic determination of isophthalic acid in the presence of terephthalic acid in polyester fibers. L. Beníšek. bibliog il Textile Res J 32:539-48; 34:456-7 Jl '62, My '64

Polymer chemistry underlies fiber properties and utility. Chem & Eng N 41:40-2 N 18 '63

Properties of materials: synthetic fibers; tables. Materials in Design Eng 60:356-9 Mid-O '64

Recent technical and commercial developments. J. B. Goldberg. Published in monthly numbers of Textile industries

Report on DuPont's Lycra spandex fiber. il Mod Textiles Mag 45:24-30+ O '64

Semiannual inventory of new plants and facilities; plastics, resins and synthetic fibers. Chem Eng 71:156-7 Ap 27; 122-3 O 26 '64

Small-scale fiber plants popular abroad. il Chem & Eng N 42:26-7 O 12 '64

Synthetic fibers improve felt properties. il diag Materials in Design Eng 60:100-3 N '64

Synthetic lines offer mooring advantages. R. J. Laureti. Marine Eng/Log 70:49-51 My '64

Thickeners for printing polyester blends. S. Tessler. il Textile Ind 128:78-84 Ag '64

U.S. armed forces like manmade fiber garments. il Mod Textiles Mag 44:42-3 D '63

Use of manmade fiber felts in the paper industry. D. B. Wicker. Mod Textiles Mag 45:39-41 F '64

Wet spinning of high-strength, low-elongation polyvinyl alcohol fibers. M. M. Zwick and C. van Bochove. bibliog il diags Textile Res J 34:417-30 My '64

Working out a new way to print polyester blends: Stafford printers, inc. il Textile World 114:101-2 F '64

Woven fabrics; their properties and uses. S. Ehlers. il diags Materials in Design Eng 59:88-91 My '64

See also

Acrylic fibers
Cellulose acetate fibers
Dacron
Dyes and dyeing—Synthetic fibers
Nylon
Nylon fibers
Polypropylene fibers
Rayon fibers

Blending

Engineering and chemistry of polyester/cellulosic blend fabrics. R. C. Forrester and J. L. Davison. flow diag il Am Dyestuff Rep 53:135-41 F 17 '64

Keep these pointers in mind when mercerizing cotton-synthetic blends. S. M. Edelstein. Mod Textiles Mag 45:26+ Ap '64

Polyester blends grow fast; here's help in using them. Textile World 113:75-6 D '63

Why the boom in blends. Textile World 113: 78 D '63

Identification

Celanese programs for fabric performance testing and identification: texts of papers. il Mod Textiles Mag 45:61-9 Mr; 36-40+ Ap '64

Manufacture

Art and science of fibre-making. M. M. Zwick. bibliog flow sheets il diags Chem & Ind p953-60 Je 6 '64

For manmade fiber making, a proposal for satellite plants. R. H. Carter. Mod Textiles Mag 45:19-21 Ag '64

New device permits controlled heating of draw roll. G. A. Pettit. il Mod Textiles Mag 45:25-6 Ag '64

Moisture content

Time, temperature, and stress relationships in wet-gel acrylic fibers. W. C. Schneider and G. K. Klausner. Textile Res J 34:819-25 O '64

Strength

Statistical treatment of data and extreme-value theory in relation to fatigue in textiles. D. Prevorsek and others. bibliog diags Textile Res J 33:963-73 D '63

Study of factors influencing the tensile fatigue behavior of yarns. F. Frank and R. W. Singleton. bibliog il Textile Res J 34:11-19 Ja '64

Tables, calculations, etc.

Deniers and filaments of U.S. manmade fibers and yarns, 1964: tables. Mod Textiles Mag 45:75-94 S '64 (reprints $1)

Testing

Celanese programs for fabric performance testing and identification: texts of papers. il Mod Textiles Mag 45:61-9 Mr; 36-40+ Ap '64

TEXTILE finishing

AATCC's convention: abstracts of papers. Mod Textiles Mag 45:41-2+ O '64

Canadian textile seminar, Kingston, Ontario, Aug. 24-26: abstracts of papers. Am Dyestuff Rep 53:875-6 S 28 '64

Choosing your tension control system. H. Klepadlo. il Textile Ind 128:104+ Jl '64

Coloring, bleaching, and finishing developments. Published in monthly numbers of Textile industries

Dryer efficiency boosted at Clearwater. il Textile Ind 128:101-2 Jl '64

Dyeing and finishing core-spun Lycra fabrics. D. M. Frame. il Mod Textiles Mag 45:92+ O '64

TEXTILE finishing—*Continued*
European wet-processing; special report. il Am Dyestuff Rep 54:479-538+ Je 22 '64
Expanding to catch new markets; Indian Head mills. il Textile World 114:91-2 O '64
Fact file 1964; chemical treatment and finishing. diags Textile World 114:224-6+ Jl '64
Finishing and stabilization of knit goods. B. Blagman. bibliog Am Dyestuff Rep 53:895-9 O 12 '64
Finishing plant of tomorrow; speedy, programed, automatic. R. W. Pinault. diags Textile World 114:104-6+ My '64
Finishing powernet fabrics at Cooper textile mills. il Textile World 111:91-2 N '63
Further applications of chromatography in dyeing and finishing. J. C. Brown. bibliog 2pls Soc Dyers & Col J 80:185-95 Ap '64
Getting high-quality interfacings. il Textile World 114:113-14+ Je '64
How to finish glamor goods. il Textile World 114:119-20+ Ap '64
Infrared temperature measurement and its application to textile finishing operations. R. H. Kennedy. bibliog il diags Am Dyestuff Rep 53:56-63 Ja 20 '64
Making quality control pay. il Textile World 114:106+ Ap '64
Model systems in the study of chemical finishing. G. C. Tesoro. bibliog Am Dyestuff Rep 52:1022-6 D 9 '63
Move or modernize? modernize, this finishing company says; Ankokas dyeing & processing co. il Textile World 114:102-4 Ap '64
Nonstop route to a better finish; continuous starch cooker. il Textile Ind 128:205+ O '64
Nonwovens; finishers' challenge. J. W. Howden. il diag Textile Ind 127:100+ N '63
Pile fabrics. D. Frishman. il diag Textile Ind 128:70-2+ S '64
Recent developments in chemical finishing; abstract. J. G. Roberts. Am Dyestuff Rep 53:593+ Jl 6 '64
Silicones: production aids, too. F. L. Dennett. il Textile Ind 128:137+ Je '64
Tips for finishing Arnel/cotton stripe and check fabrics. Textile Ind 128:129 Je '64
Total preventive maintenance: key to lower finishing costs. Textile World 114:107-8+ Mr '64
Warm, lofty cotton fabrics; some exploratory studies. J. F. Krasny and others. bibliog il Textile Res J 33:889-96 N '63
Waste control in finishing saves $50,000 a year. C. G. Buckle. il Textile World 114:50-2 Ap '64
Wet processing. il Textile Ind 127:74-8 D '63
Wet processing review; with new product factgrams for dyes, finishes and textile auxiliaries. il Mod Textiles Mag 45:47-8+ S '64
What's ahead in wet processing. il diags Textile Ind 128:54-7 S '64
See also
Cotton finishing
Creasing of textiles
Fireproofing of textiles
Napping of textiles
Rayon finishing
Resinous products—Textile uses
Sizing (textiles)
Waterproofing of textiles
Woolen and worsted finishing

TEXTILE finishing machines
Review of the most important automatic screen printing machines. F. Raff. il Am Dyestuff Rep 53:550-6 Je 22 '64
See also
Dyeing machines

Numerical control

Programming for automatic screen printing of large designs. F. Perutz. il Am Dyestuff Rep 53:542-6 Je 22 '64

TEXTILE industry
American textile manufacturers institute; a fabric woven by 7500 mills. Textile Ind 128:54-9 Ja '64
Broad look at the future. Textile World 114:70-1 My '64
Changing character of textiles outlined to chemical men; abstract. F. L. Linton. Am Dyestuff Rep 53:235 Mr 16 '64
Economic climate; sunny, brisk. D. Greenwald. Textile World 114:81-3 My '64
Executive views. Published in monthly numbers of Textile industries
Improved arbitration now in view for textiles. M. Stone. il Mod Textiles Mag 45:38-9+ Jl '64
Mills find defense contract production tests costly; Riegel textile corp. Textile Ind 128:97 F '64
Nonwovens; materials, methods, marketing (cont). J. W. Howden. flow diag il diag Textile Ind 127:120-7+ Ap; 104-6+ Jl; 100+ N '63; 128:69-71 Mr; 79-80+ Jl '64
Outlook bright for home furnishing fabrics. il Mod Textiles Mag 45:15-20 F '64
Profit potential for flameproofing finishes. P. W. Sherwood. Mod Textiles Mag 45:23-4 F '64
Purchasing research. H. Fearon. il Textile Ind 128:97-100+ Je '64
Role of AATCC in the total textile industry. F. Fortess. diag Am Dyestuff Rep 53:609-12 Jl 6 '64
Strategy of nylon's growth; create new markets. J. P. Yale. Mod Textiles Mag 45:32-3+ F '64
U.S. millman scores foreign inroads. Mod Textiles Mag 44:46 D '63
See also
Color in the textile industry
Dyes and dyeing
Knit goods industry
Textile fibers
Textile fibers, Synthetic
Textile finishing

Finance

Our ten-cent dollars. Textile Ind 127:27+ N '63
Planning a merger? A. A. Imberman. Textile Ind 127:117-18+ N '63

History

Nylon; how it all began. T. Henke. il Mod Textiles Mag 45:23-4+ Ja '64
Nylon; 25 years of finishing progress. H. C. Borghetty. Mod Textiles Mag 45:82+ Ja '64
Nylon; years of growth. il Mod Textiles Mag 45:41-2+ Ja '64

Statistics

Biggest year yet; with charts and tables. Textile World 114:17-24 F '64
European wet-processing; special report. il Am Dyestuff Rep 53:479-538+ Je 22 '64
Growth patterns in the U.S. carpet industry. W. A. Reynolds. Am Dyestuff Rep 53:451-4 Je 8 '64

Terminology

Some observations on mixed terminology. A. G. Scroggie. Textile Res J 34:180 F '64

Austria

Austrian textile finishing industry. F. Staininger. Am Dyestuff Rep 53:483 Je 22 '64

Belgium

Belgian textile finishing industry. A. Lanoye. Am Dyestuff Rep 53:484 Je 22 '64

Canada

Canada's textile industry; its different. S. Laing. Mod Textile Mag 45:69-70 Je '64
Manmade fibers in Canada. S. J. Hungerford. Mod Textiles Mag 45:67-8 Je '64

Denmark

Dyeing, printing and finishing in Denmark. E. Franck. Am Dyestuff Rep 53:485-6 Je 22 '64

Egypt

In textiles Egypt is catching up. A. S. Keshen. il Mod Textiles Mag 45:31+ O '64

Europe

Western Europe could be a big market for you. L. H. Hodges. il Textile World 114:50-4 N '64

Finland

Some aspects of dyeing and finishing in Finland's cotton and wool dyeing and finishing industries. R. Borgstrom; E. Talantera. il Am Dyestuff Rep 53:486-8 Je 22 '64

France

European wet-processing; France. Am Dyestuff Rep 53:489-93+ Je 22 '64

Germany

From Germany; latest word in worsted technology. R. Mikton. il Textile World 113:64-7 N '63
Textile wet-processing in Germany. G. Dierkes and H. Brocher. il diags Am Dyestuff Rep 53:497-502+ Je 22 '64

Great Britain

British needle; tufted fabrics. P. Abbenheim. il Textile Ind 128:84-7+ My '64
British textile finishing industry. G. R. Taylor. Am Dyestuff Rep 53:509 Je 22 '64
Help wanted on wool mill problems; wool textile research in England. K. G. Ponting il diag Textile Ind 128:101-5 Ap '64

TEXTILE industry—Great Britain—*Continued*

Survey of the textile wet processing industry in the United Kingdom. D. Burnham. bibliog Am Dyestuff Rep 53:503-8 Je 22 '64

Japan

Japan, second largest producer of synthetic fibers; abstract. Am Dyestuff Rep 53:73 Ja 20 '64

Netherlands

Netherlands' cotton, rayon and linen industry. W. Kats. il Am Dyestuff Rep 53:511-12 Je 22 '64

Norway

Survey of the dyeing and finishing industry in Norway. G. A. Holmebakk. il Am Dyestuff Rep 53:512-15 Je 22 '64

Russia

Managing a textile mill; Soviet style. S. Ramsey. il Textile World 113:56-9 D '63

Textile industry in the USSR; a few observations. H. B. Goldstein. Am Dyestuff Rep 53:527-8 Je 22 '64

Spain

Dyeing and finishing industry in Spain. J. C. Sanchez. il Am Dyestuff Rep 53:516-22 Je 22 '64

Sweden

Textile industry in Sweden. S. G. Malmberg. Am Dyestuff Rep 53:522-3 Je 22 '64

Switzerland

Textile finishing in Switzerland. H. O. Wegst. Am Dyestuff Rep 53:525-6 Je 22 '64

TEXTILE laboratories

Equipment

Automatic dye units free lab personnel for production work. il Am Dyestuff Rep 53:352 Ap 27 '64

Laboratory device for stretching cloth in two directions. J. D. Reid and others. bibliog il Am Dyestuff Rep 53:399-403 My 25 '64

1964 buyer's guide. Textile Ind 128:^{1}187-92 Mid-S '64

TEXTILE machinery

Better pirns faster from new redraw winders. il Textile Ind 128:74 My '64

Classified list of companies supplying products and services to the textile industry. Textile World 114:317-412 Jl '64

Development of stretch fabrics by use of the F R L compactor. K. R. Fox and L. N. Backer. bibliog il diag Am Dyestuff Rep 53:412-17 My 25 '64

Directory of European wet-processing machinery manufacturers. il Am Dyestuff Rep 53:558+ Je 22 '64

Equipment and supply news. Published in monthly numbers of Textile world

Fabric manufacturing; complex, controlled. R. B. Pressley. diag Textile World 114:72-9 My '64

Machinery for nylon. P. M. Thomas. il Mod Textiles Mag 45:95-8+ Ja '64

Method for the remote measurement of force in a moving machine member. K. D. Broadfoot and R. E. Belin. diags J Sci Instr 40:589-91 D '63

Netherlands firm develops new weft straightening device. il Am Dyestuff Rep 53:842 S 14 '64

New Long Island plant is tailor-made for screen printing. il Am Dyestuff Rep 53:446-9 Je 8 '64

New Mali technology; existing fabrics and machines; abstract. Am Dyestuff Rep 52:904-5 N 11 '63

1964 buyer's guide. Textile Ind 128:^{1}31-230, ^{2}1-108 Mid-S '64

No shake, rattle, and roar at Woodside's new Beattie plant, thanks to fibrous base pads under the machinery. il Textile Ind 128:117 O '64

Plastics today, how they help you; special report. R. B. Pressley. il Textile World 114:52-9 Je '64

Recent technical and commercial developments. J. B. Goldberg. Published in monthly numbers of Textile industries

Stainless steel solves textile problems. il Engineering 198:416 O 2 '64

Trends in machinery, equipment, services. il Mod Textiles Mag 45:31 F; 37 Mr; 12 Ap; 56-7 My '64

Updating for still higher-quality yarn and more of it, too. il Textile World 114:62-5 Ja '64

See also

Bobbins
Dyeing machines
Knitting machines
Looms
Rolls (textile machinery)
Slashers (textile mills)
Spinning machinery
Textile testing machines
Twisting machines
Warping machines
Winding machines
Woolen and worsted machinery

Control

Differential capacitor clears yarn slubs. H. Locher. il diag Control Eng 10:125+ N '63

Exhibitions

International exhibition of textile machinery, 4th, Hanover, Germany. Am Dyestuff Rep 52:944-5 N 25 '63; il Mod Textiles Mag 44:28+ N; 33-4+ D '63; Textile Ind 127:59-82 D '63; Textile World 113:54-8 N '63

Southern textile exposition, 23d, Greenville, S.C. Oct. 12-16; preview with list of exhibitors. il diag Am Dyestuff Rep 53:846-54 S 28 '64; plan Textile World 114:129-32+ O; 55-61 N '64

Southern textile exposition, 23d, Greenville, S.C. Oct. 12-16; with floor plans and list of exhibitors. il Mod Textiles Mag 45:73-86 O '64; Textile Ind 128:67-112 O '64

Maintenance and repair

Silicones; production aids, too. F. L. Dennett. il Textile Ind 128:137+ Je '64

Tension devices

Choosing your tension control system. H. Klepadlo. il Textile Ind 128:104+ Jl '64

Filling tension control. il Textile Ind 128:70-3 Ja '64

Hupp winder; new precision take-up machine for textile use. W. P. Goodman. il Mod Textiles Mag 45:54-5+ My '64

Laboratory device for stretching cloth in two directions. J. D. Reid and others. bibliog il Am Dyestuff Rep 53:399-403 My 25 '64

TEXTILE mills

Fact file 1964. diags Textile World 114:53-246 Jl '64

Madison story; growing big with stretch yarn. il Textile World 114:44-9+ S '64

See also

Cotton mills
Hosiery mills
Knitting mills
Stevens, J.P. and company, inc.
Textile industry
Woolen and worsted mills

Accounting

Direct costing; shortcut in decision making. W. Wright. Textile World 114:82-5 Je '64

Air conditioning

Air conditioned textile mill has automated control. il Heating-Piping 36:156-62 Ja '64

Air conditioning in a nylon spinning factory. L. G. Williams. diags Engineer 216:799-800 N 15 '63

Aluminum cuts air-conditioning load. il Textile Ind 127:169+ N '63

Don't compromise on constant temperature room design. E. D. Scribner. il plan diags Heating-Piping 36:101-6 Jl '64

82 tips on maintaining your air-conditioning system. W. J. Wren. il Textile World 114:60-4 F '64

Evaporative cooling for textile mills. J. T. Lang. diags Heating-Piping 36:138-42 Ap '64; Discussion. D. Stimson. 36:90 N '64

Twin plants story; engineering air, top to bottom. R. B. Pressley and W. G. Ashmore. il Textile World 113:45-8 N '63

Cleaning

See also

Cotton mills—Cleaning

Control equipment

Here's how Pepperell Mfg. uses controls to ease work. il Textile World 114:56-9 F '64

Lyman to install process computer system early next year. Am Dyestuff Rep 53:944 O 26 '64

Costs

Now, a fast, easy way to predict you carpet-yarn costs. S. I. Kelen. diags Textile World 114:66-9 N '64

TEXTILE mills—*Continued*

Electric equipment

Electricity in the processing of jute. K. J. McConnell. Inst E E Proc 111:585 Mr '64

Get more from your motors. D. K. Russell. Textile World 114:67-9 Ag '64

Managing electrical maintenance. L. LaValley. il diags Textile Ind 128:51-3 Ja; 71-2+ F; 88+ Mr; 120-2+ Ap; 117-19 My; 85-7 Jl; 96+ N '64

New NEMA motor standards; what they mean to you. il diags Textile World 114:54-5 O '64

Seven symptoms of approaching trouble in your electric system. W. R. Crawford. Textile World 114:65-6 Ap '64

Employees

See Textile workers

Equipment

Alphabetical list of new products developed since Nov. 1962. il Am Dyestuff Rep 52:998-1007+ D 9 '63

Bearing down on bearings. M. D. Rochelle. il Textile World 114:79-80 Ja '64

Classified list of companies supplying products and services to the textile industry. Textile World 114:317-412 Jl '64

Cost cutters. Published in monthly numbers of Textile world

Efficient mill experimentation. N. L. Enrick. il diags Textile Ind 127:63-7 Je; 77+ Jl; 77-80 S; 95+ O; 133-5 N '63; 128:67-9 Ja; 79+ F '64

Emphasis; man-mades; Cartex div. of Carlton yarn mills. il plan Textile Ind 128:64-6 Jl '64

Equipment and supply news. Published in monthly numbers of Textile world

Four steps to better yarn handling and control. M. W. Scott. il Textile World 114:62-4 S '64

Heany's new ceramic guides. il diag Mod Textiles Mag 45:87-8+ O '64

How others manage. Published in monthly numbers of Textile industries

Improving yarn quality with new equipment. il Textile World 114:64-6 Ag '64

Mezzanine solved finisher's storage problem. il Textile Ind 128:155 S '64

Mill of tomorrow. diags Textile World 114:48-83+, 104-6+ My '64

Modern cloth room practices. W. F. Woodward. il Textile Ind 127:53-8 O; 122-7+ N; 88-90+ D '63; 128:85-7+ Ja '64

Modernizing for better quality, increased production at Russell mfg. co. il Textile World 113:60-3 N '63

Near-infrared Thermosol systems installed at several mills. il Am Dyestuff Rep 53:942 O 26 '64

New product parade. Published in monthly numbers of Textile industries

1964 buyer's guide. Textile Ind 128:^{1}31-230, ^{2}1-108 Mid-S '64

Nonstop route to a better finish; continuous starch cooker. il Textile Ind 128:205+ O '64

Operating a low-maintenance compressed-air system. J. C. Guffy. il diags Textile World 114:80-2 Ap '64

Plastics today, how they help you; special report. R. B. Pressley. il Textile World 114:52-9 Je '64

Principles of weft straightening, plus a new instrument. G. A. Burklund. il diags Textile Ind 128:105-6+ F '64

Process piping systems are major effort in rushed textile plant construction. il Heating-Piping 36:103-7 S '64

Small-scale fiber plants popular abroad. il Chem & Eng N 42:26-7 O 12 '64

Southern textile exposition, 23d, Greenville, S.C. Oct. 12-16; preview with list of exhibitors. il diag Am Dyestuff Rep 53:846-54 S 28 '64; plan Textile World 114:129-32+ O; 55-61 N '64

Southern textile exposition, 23d, Greenville, S.C. Oct. 12-16; with floor plans and list of exhibitors. il Mod Textiles Mag 45:73-86 O '64; Textile Ind 128:67-112 O '64

Spinning weather; so-called Condifil process, spreads an air curtain on both sides of a spinning frame. il diag Product Eng 35:55 Ag 17 '64

Symposium on automated textile processing. il diags Textile Res J 33:1035-54 D '63

Trends in machinery, equipment, services. il Mod Textiles Mag 45:31 F; 37 Mr; 12 Ap; 56-7 My '64

We changed from cotton to acrylics; Ledbetter manufacturing co. il Textile Ind 128:72-5 Mr '64

See also

Carpet factories—Equipment

Textile machinery

Heating and ventilation

Automated cleaning. R. H. Hocutt. Textile Res J 33:1049-54 D '63

Is your plant air-starved? L. F. Crouse. il diags Textile Ind 128:119+ Mr '64

Lighting

How's your lighting? il Textile Ind 128:60-3 Jl '64

Pacolet lights up with mercury; Magnolia finishing plant. il diag Textile Ind 128:191+ O '64

Location

For manmade fiber making, a proposal for satellite plants. R. H. Carter. Mod Textiles Mag 45:19-21 Ag '64

Maintenance and repair

Evaluating your maintenance. Textile World 114:55 Ap '64

Fact file 1964; engineering. Textile World 114:102+ Jl '64

Maintenance today. il Textile World 114:38-58, 74-80 Ja '64

Total preventive maintenance; key to lower finishing costs. Textile World 114:107-8+ Mr '64

See also

Cotton mills—Maintenance and repair

Management

Beware of creeping paralysis. W. G. Shepherd. Textile World 114:85-6 My '64

Business ratios; how you can use them to run your business better. W. J. Brown. Textile World 114:84-6 N '64

Carolina Throwing has multiplied its sales in ten years a fabulous 15 times. il Textile Ind 128:139-40+ S '64

Direct costing; shortcut in decision making. W. Wright. Textile World 114:82-5 Je '64

Easy way to control production lot routing. N. L. Enrick. diag Textile World 114:59-61 Ja '64

Front office cost cutters. F. H. Drewes. Textile Ind 128:67-8+ F '64

Getting answers the easy way. W. G. Shepherd. Textile World 114:127-8 Je '64

How to pick a winner. W. G. Shepherd. Textile World 114:131-2 N '64

How to play politics. W. G. Shepherd. Textile World 114:115+ O '64

Improve your profit picture. N. L. Enrick. il Textile Ind 128:111-15+ Ap '64

Inventory-production balance. R. F. Ward. Textile Ind 128:125-6+ O '64 (to be cont)

Making follow-up a habit. W. G. Shepherd. Textile World 114:109-10 Ja '64

Management: bold, imaginative, decisive. Textile World 114:62-7 My '64

Managing a textile mill; Soviet style. S. Ramsey. il Textile World 113:56-9 D '63

Managing company profits all the way at Avondale mills. il Textile World 114:56-60 Ap '64

Millions and millions of garments for millions and millions of people; Colonial corp. of America. T. Henke. il Mod Textiles Mag 45:20-2+ Jl '64

Modern inventory management. N. L. Enrick. Textile World 114:51-5 F; 83-5 Mr; 67-71 Ap; 62-5 Je '64 (reprints $1)

New way to forecast sales. F. C. Wilson and W. W. Hines. bibliog Textile World 114:63-8 O '64

Personnel practices in textiles. H. E. Steele. Textile World 114:64-70 Mr '64

Rebirth and a new life; for Fieldcrest mills. il Mod Textiles Mag 45:20-3 O '64

Simulation; good way to cut risks in management decisions. F. C. Wilson. bibliog Textile World 114:60-3 Ag '64

Ticket to cost-cutting. il Textile Ind 128:112 Mr '64

To merge or not to merge. E. P. Fillion, jr. Mod Textiles Mag 45:22-4 My '64

Yes, you can remember. W. G. Shepherd. Textile World 114:83-4 Ap '64

See also

Carpet factories—Management

Cotton mills—Management

Knitting mills—Management

Woolen and worsted mills—Management

Quality control

Adding statistics to measurement. H. Locher. il diags Control Eng 11:88-90 Ap '64

First survey on card web regularity. A. Barella and others. diag Textile Res J 34:559-61 Je '64

Getting rid of bow and skew at Sayles Biltmore. il Mod Textiles Mag 44:40+ N '63

TEXTILE mills—Quality control—*Continued*

Making quality control pay. il Textile World 114:106+ Ap '64

Modern quality control units pay dividends at Sayles Biltmore. il Am Dyestuff Rep 53:151+ F 17 '64

Primer for supervisors on quality control statistics. F. Vogel. Textile Ind 128:148-50 Ap; 119+ Jl; 157-8 S '64 (to be cont)

Quality control sparks interest Georgia TOE meeting. Textile World 114:86 Je '64

Quality control; 22 pointers on making it work. W. A. Thomason. il Textile World 114:69-71 O '64

Quick, new way to check exacting specifications; control charts. N. L. Enrick. Textile World 113:68-70 D '63

Top quality; a five-way approach. il Textile World 114:56-60 Mr '64

Weaveroom quality control today; special report. R. B. Pressley. il Textile World 113: 42-55 D '63

See also

Cotton mills—Quality control

Safety measures

Case for off-the-job safety and how to start a program in your mill. C. L. Henkel. Textile Ind 128:100 F '64

Safety ranks with production at Graniteville. R. P. Timmerman. il Textile Ind 128:138-9+ My '64

Stores systems

Bearing down on bearings. M. D. Rochelle. il Textile World 114:79-80 Ja '64

Waste

Costs less to burn it. il Textile Ind 128:131+ Ja '64

New way to calculate standard soft-thread waste. F. C. Wilson. Textile World 114:65-7 F '64

Stream pollution and effluent treatment, with special reference to textile and paper mill effluents. L. Klein. bibliog Chem & Ind p866-73 My 23 '64

Waste control today; special report. W. G. Ashmore and others. il Textile World 114: 44-54 Ap '64

Waste disposal systems; how they shape up today. R. W. Pinault. il Textile World 114: 100-2+ Je '64

Water and wastes system for an instant factory. il Water & Sewage Works 111:186-90 Ap '64

See also

Cotton mills—Waste

Water supply

See Water supply for textile mills

TEXTILE oils

Secondary factors in processing wool with water-soluble lubricants. J. T. Taylor and J. J. Benischeck. bibliog Am Dyestuff Rep 53:222-8 Mr 16 '64

TEXTILE patents

Abstracts from British and foreign journals and patents. Published in monthly numbers of Journal of the Society of dyers and colourists

Stretch yarn lawsuits settled. Mod Textiles Mag 45:46 Je '64

TEXTILE printing

Barwick mills, producer of tufted carpets and rugs, enters the contract field with Colorset; a continuous printing and finishing process. il Textile Ind 128:79-80 My '64

Castle Creek package. il Textile Ind 127:95+ N '63

Developments in roller printing. R. J. Verlik. Am Dyestuff Rep 53:859-61 S 28 '64

No U-turns for fabrics printed here; Bernard screen printing corp. il Textile Ind 128: 136-7+ Ag '64

Printing of azoics. C. Streck. bibliog Am Dyestuff Rep 53:865-8+ S 28 '64

Printing of polyester/cotton blends. A. H. Wyld. Am Dyestuff Rep 53:862-4 S 28 '64

Printing of Tricel cellulose triacetate fabrics. K. Consterdine. Soc Dyers & Col J 80:469-73 S '64

Printing polyester/cotton blends? diags Textile Ind 128:120-1+ Je '64

Printing up-to-date. S. M. Suchecki. il diags Textile Ind 128:68-9+ S '64

Role of pigments in current day textile printing. A. Booth. Am Dyestuff Rep 53:904 O 12 '64

Roller printing; are its prospects diminishing? S. M. Suchecki. Textile Ind 127:79-80+ N '63

Rotary screen printer runs at high speed. il Mod Textiles Mag 45:30 F '64

Thickeners for printing polyester blends. S. Tessler. il Textile Ind 128:78-84 Ag '64

Working out a new way to print polyester blends; Stafford printers, inc. il Textile World 114:101-2 F '64

See also

Silk screen printing

Bibliography

New books and publications. Published in monthly numbers of Journal of the Society of dyers and colourists

TEXTILE research

AATCC's convention; abstracts of papers. Mod Textiles Mag 45:41-2+ O '64

Applications of differential thermal analysis and dynamic thermogravimetric analysis in textile research. R. F. Schwenker, jr. and others. bibliog Am Dyestuff Rep 53: 817-27 S 14 '64

Division of textile industry of the Commonwealth scientific and industrial research organisation, Geelong, Australia. M. Lipson. il Chem & Ind p208-14 F 8 '64

Help wanted on wool mill problems; wool textile research in England. K. G. Ponting. il diag Textile Ind 128:101-5 Ap '64

New programs for textile technology. J. H. Hollomon. Materials Res & Stand 4:232-3 My '64

Nylon; how it all began. T. Henke. il Mod Textiles Mag 45:23-4+ Ja '64

Textile research achievements in 1963. J. B. Goldberg. il Textile Ind 128:77-83 Ja; 111-12+ F '64

See also

Cotton research

Textile fibers, Effect of light on

Wool research

TEXTILE research institute

Annual meeting, New York, April 8-10; with abstracts of papers. Am Dyestuff Rep 53:331-2+ Ap 27 '64

TEXTILE samples

Swatched sample cards help clinch the sale. il Mod Textiles Mag 45:46-7 Jl '64

TEXTILE schools

Clemson college's changing textile education program. T. D. Efland. Mod Textiles Mag 45:40-1 Jl '64

TEXTILE sizing. See Sizing (textiles)

TEXTILE standards

Government role in developing standards detailed to ASTM. J. H. Hollomon. Am Dyestuff Rep 53:275 Mr 30 '64

TEXTILE testing

Test procedures offered for elastic garments. Mod Textiles Mag 45:76 Je '64

Textile resistance test; Chemical specialties manufacturers association; latest revision. bibliog Soap & Chem Spec Blue Book p233-6 '64

See also

Cotton yarn—Testing

Dye testing

Knit goods—Testing

Textile fabrics—Testing

Yarn—Testing

TEXTILE testing machines

Correlation of laboratory abrasion testers. L. I. Weiner and C. J. Pope. diags Textile Res J 33:761-4; 34:371-2 S '63, Ap '64

Double your miniature spinning tests. il Textile Ind 128:167-8+ Ag '64

Evaluation of the SRRL non-lint tester for determining the trash content of lint cotton. R. A. Rusca and others. il Textile Res J 34:61-8 Ja '64

Machine for determining the stress-strain curve of fine yarns over a wide range of temperature and strain rate. I. H. Hall. bibliog il diag J Sci Instr 41:210-14 Ap '64

Semi-automatic system for the measurement of cohesion test results, using the West Point cohesion tester. D. R. Gentry. diags Textile Res J 34:813-14 S '64

Strength of cotton fibers as measured by the Pressley tester and the stelometer. R. Lawson. bibliog il Textile Res J 34:725-31 Ag '64

TEXTILE workers

How to pick a winner. W. G. Shepherd. Textile World 114:131-2 N '64

How's your employee morale? E. J. Benge. il Textile Ind 128:61-5 Mr '64

Recreation; key to good employee relations. il Textile World 114:56-9 O '64

See also

Hosiery mills—Employees

Training

Massive training program cuts waste up to 70 per cent. il Textile World 114:47-8 Ap '64

THAILAND
See also
Hydroelectric plants—Thailand

THALLIUM
Analysis
Dead-stop titration of thallium. R. B. Williams and H. Frye. Anal Chem 36:945-6 Ap '64

THALLIUM acetates
Cleavage of cyclopropanes by thallium triacetate. R. J. Ouellette and others. Am Chem Soc J 86:2744-5 Jl 5 '64

THALLIUM compounds
Pentafluorophenyl derivatives of thallium. G. B. Deacon and R. S. Nyholm. Chem & Ind p 1803 N 9 '63

THALLIUM triacetate. See Thallium acetates

THAMES RIVER
Helping shipping up the Thames by radar. il map Engineering 197:500-1 Ap 10 '64
Methods of predicting conditions of a polluted estuary; abstract. W. S. Preddy and others. WPCF J 36:320-1 Mr '64
Radio-linked tide gauges in the Thames estuary. il diags Engineer 216:849-50 N 22 '63

THAUMASITE
Oriented overgrowths of thaumasite on ettringite. A. B. Carpenter. bibliog il Am Mineralogist 48:1394-6 N '63

THAWING
Formation, nature, and prevention of precipitates in frozen and thawed beers. G. J. Haas and A. I. Fleischman. J Agri & Food Chem 12:409-11 S '64
Minnegasco goes full speed with hot rod. il Gas Age 131:32-3 Ja '64
This winter, don't let one giant ice cube knock out your plant; prevent water storage tanks from freezing. J. M. Bass. diags Power 107:63-5 D '63

THAWING, Electric
Radiant thawers minimize cost-hazards in unit trainloads. il Elec World 162:84-5 O 5 '64
Thawing of wells in frozen ground by electrical means. E. R. Eaton. diags Water & Sewage Works 111:350-3 Ag '64

THAWING of coal. See Coal—Freezing

THEATERS
ANTA repertory theater opens temporary quarters. il plan Prog Arch 45:68 Mr '64
Critical trialogue on Johnson's Lincoln Center theater. I. M. Reese and others. il Prog Arch 45:58-9 My '64
Grotto theater is part of Tokyo office block. il diag Arch Forum 120:120-1 F '64
Many-faceted stage for the performing arts; Clowes memorial hall, Butler university, Indianapolis. il plans Arch Forum 119:98-105 D '63
Movable structures for stages. O. Sööt. il Prog Arch 45:196-200 S '64
Products for Tyrone Guthrie theater. il Prog Arch 44:69 D '63
Saddle shell roof for theater. il plan diag Arch Rec 135:155-8 Mr '64
Shells cast for Met opera house. il Eng N 173:27 O 15 '64
Theater glamour again: Lincoln Center's newest theater. il plans diags Arch Rec 135:137-44 My '64
Theatre reconstructed within original shell. il Engineering 197:459 Mr 27 '64
Theater without a back door. il diag Prog Arch 44:57 D '63
Two down, four to go in Lincoln Center. il Eng N 172:52 Ap 2 '64
Tyrone Guthrie theater. il plans diags Prog Arch 44:98-105 D '63
See also
Moving picture theaters

Air conditioning
Lack of air saps theater's new system. A. D. Sullivan. Heating-Piping 36:163-5 Ja '64

Electric equipment
Electrical installation at Munich National theatre. il Engineer 216:869 N 22 '63

Lighting
Architectural lighting for a college theater. il Illum Eng 59:382-3 sec 2 My '64
Electrical installation at Munich National theatre. il Engineer 216:869 N 22 '63

Stage setting and scenery
Mobile sets for an advanced stage show. il Engineering 196:654 N 22 '63
Stage installations at Frankfurt theatre. Engineer 217:715 Ap 17 '64

THEFT
Emergency lights prevent panic and pilfering. il Safety Maint 127:23 My '64
Internal theft and fraud, a human relations problem specialist warns. Drug & Cosmetic Ind 94:503+ Ap '64

THENOYLTRIFLUOROACETONE. See Trifluoroacetone

THEODOLITES
Electronic theodolite. A. McDonald. diags J Sci Instr 41:263-4 My '64
Gyro-theodolite and its value in modern surveying practice. A. Falter. bibliog il diags Can Min & Met Bul 57:413-20 Ap '64

THEORY of errors. See Errors, Theory of

THEORY of games. See Games, Theory of

THEORY of similarity. See Similarity, Theory of

THERAPEUTICS
Therapeutics (cont). S. J. Hopkins. bibliog Manuf Chem 34:534-7 N '63; 35:47-8+ F; 49-52 Jl; 60+ O '64
See also
Chemotherapy
X rays—Therapeutic use

THERMAL analysis
Apparatus for controlled-atmosphere differential thermal analysis of corrosive materials. R. J. Pickering. bibliog il Am Mineralogist 48:1383-8 N '63
Applications of differential thermal analysis and dynamic thermogravimetric analysis in textile research. R. F. Schwenker, jr. and others. bibliog Am Dyestuff Rep 53:817-27 S 14 '64
Calorimetric studies by differential thermal analysis. E. M. Barrall, 2d and others. bibliog diag Anal Chem 36:2172-4 O '64
Determination of specific heat and heat of fusion by differential thermal analysis. D. J. David. bibliog diags Anal Chem 36:2162-6 O '64
Differential scanning calorimeter for quantitative differential thermal analysis. E. S. Watson and others. bibliog il diag Anal Chem 36:1233-8 Je '64
Differential thermal analysis and Mössbauer studies in rare-earth orthoferrites. M. Eibschütz and others. bibliog J Ap Phys 35:1071-2 pt 2 Mr '64
Electronics in thermal analysis. il Ind Electronics 1:769 D '63
Improved precision of calorimetric measurements by differential thermal analysis. E M. Barrall and L. B. Rogers. Anal Chem 36:1405-6 Je '64
Micro and semimicro differential thermal analysis (μDTA). C. Mazieres. bibliog diags Anal Chem 36:602-5 Mr '64
New differential thermal analysis technique for measuring isothermal crystallization rates of high polymers. J. Chiu. bibliog diags Anal Chem 36:2058-61 O '64
Preparation and thermal analysis of mixed magnesium-manganese-iron oxalates and hydrated oxides. P. K. Gallagher and F. Schrey. bibliog Am Cer Soc J 47:434-7 S '64
Review of fundamental developments in analysis. C. B. Murphy. diag Anal Chem 36 [no 5]:347R-54R bibliog(p352R-4R) Ap '64
Simplified thermal analysis technique for measuring transformation temperatures of steels. C. M. Hammond and D. L. Burk. diags Materials Res & Stand 4:275-8 Je '64
Simultaneous TGA and DTA analysis. H. P. Vaughan. il diags Res/Develop 15:38-41 S '64
Study of the fritting reaction of zircon sand with sodium hydroxide using differential thermal analysis and X-ray techniques. H. S. Choi and H. Cross. bibliog il Can Min & Met Bul 57:966-72 S '64
Thermal analysis conference, Newcastle upon Tyne, Jan. 31-Feb. 1; abstracts of papers. Chem & Ind p476-8 Mr 21 '64
Thermal analysis of hydraulic systems. J. D. Parker and F. C. McQuiston. bibliog diags Hydraulics & Pneumatics 17:57-61 Ag; 112-16 O '64
Thermal expansion apparatus for use with differential thermal analysis equipment. E. M. Barrall, 2d and others. bibliog diags Anal Chem 36:2316-18 N '64
Thermal methods symposium. bibliog il diags Anal Chem 35:1834-52 N '63
Thermoanalysis of some inorganic fluorides and silicofluorides. E. S. Freeman and V. D. Hogan. bibliog Anal Chem 36:2337-40 N '64
Thermoparticulate analysis takes in more applications. F. W. Van Luik, jr. Chem & Eng N 42:47 N 2 '64

THERMAL conductivity. See Heat conductivity

THERMAL diffusivity. See Heat conductivity

THERMAL expansion. See Expansion (heat)

THERMAL insulation. See Insulation (heat)

THERMAL radiation. See Heat radiation

THERMAL stresses. See Strains and stresses—Thermal stresses

THERMIONIC converters

Development status of thermionics in industry. F. G. Block. il diags Naval Eng J 76:179-84 Ap '64

Estimation of contact potential differences in thermionic converters. H. J. Caulfield. bibliog diag J Ap Phys 35:2862-9 O '64

Ion acoustic oscillations in plasma thermionic energy converters. J. S. Chivian. bibliog diags J Ap Phys 35:302-8 F '64

Ionization mechanism and electron temperature in cesium arcs. J. R. Fendley, jr. and K. G. Hernqvist. bibliog IEEE Proc 52:964 Ag '64

Large-scale thermionic power generation from fossil fuels. C. V. Barnett and others. bibliog diags Inst E E Proc 110:785-92 Ap '63; Excerpts. Engineer 215:781-3 Ap 26 '63; Discussion. Inst E E Proc 110:2298-300 D '63

Measurement of electron temperature in low-pressure cesium thermionic energy converters. R. A. Chapman and others. bibliog diags J Ap Phys 35:2813-25 O '64

Module ups voltages of thermionic converters. Steel 154:62 Je 15 '64

New thermionic energy converter. Franklin Inst J 278:158 Ag '64

Nonexistence of dc states in low-pressure thermionic converters. P. Burger. bibliog J Ap Phys 35:3048-9 O '64

Optimization of the magnetic triode-type thermionic converter. M. Zgorzelski. diag J Ap Phys 35:197-201 Ja '64

Theory and experiment of a capillary-type emitter. D. L. Dresser and others. bibliog il diags AIAA J 2:52-8 Ja '64

Thermionic a-c generation. C. L. Eisen and A. Schock. diags IEEE Trans Com & Electronics 83:260-6 My '64

THERMIONIC emission. See Electrons—Thermionic emission

THERMISTORS. See Electric resistors

THERMIT process. See Welding—Thermit process

THERMOCHEMISTRY

Approximate heats of explosion using differential thermal analysis. R. L. Bohon. bibliog diags Anal Chem 35:1845-52 N '63

Direct enthalpimetry, a new thermochemical approach to quantitative analysis. J. C. Wasilewski and others. bibliog Anal Chem 36:2131-3 O '64

Heat generation by radioactive wastes. E. F. Gloyna and others. bibliog Am Soc C E Proc 90 [SA 1 no 3793]:43-66 F '64; Discussion. R. L. Bradshaw. 90 [SA 5 no 4097]:55-7 O '64

Heats of solution, transition, and formation of three crystalline forms of metaboric acid. M. V. Kilday and E. J. Prosen. bibliog il diag J Res Nat Bur Stand 68A:127-37 Ja '64

Strain energies in hydrocarbons from heats of combustion; concerning the possibility of a transannular interaction in 1,8-cyclotetradecadiyne. M. A. Frisch and others. bibliog Am Chem Soc J 86:335-6 F 5 '64

Studies of the hard rubber reaction; heat of reaction. M. L. Bhaumik and others. bibliog diags Rubber Chem & Tech 36:1059-70 O '63

Thermal condensation polymerizations of inorganic monomers in platinum-metal crucibles. M. C. Miller and others. bibliog il Ind Chem 40:183-7 Ap '64

Thermochemistry of alkyl polyoxides and their radicals. S. W. Benson. bibliog Am Chem Soc J 86:3922-4 O 5 '64

See also

Combustion, Heat of
Evaporation
Fusion, Heat of
Specific heat
Thermal analysis
Vaporization, Heat of

THERMOCOUPLES

Automatic switching of sensitive thermocouples. J. L. Goldberg and H. M. King. il diags Electronic Eng 36:591-5 S '64

Catalytic effects of thermocouple materials; abstract. L. O. Olsen. Metal Prog 85:139-41 Ja '64

Continuous immersion thermocouple aids blast furnace control. Iron & Steel Eng 41:179-80+ Jl '64

Dual-thermocouple temperature control. W. P. Heitzman. diags Instruments & Control Systems 37:109 My '64

Generation of thermocouple reference tables. R. P. Benedict. bibliog Electro-Tech 72:80-2 N '63

Guideposts to keep thermocouple users out of hot water. L. O. Olsen and others. bibliog S A E J 72:82-4 Ag '64

Manufacture of fine wire thermocouple probes. G. H. Gelb and others. il diags R Sci Instr 35:80-1 Ja '64

Microfurnace for high temperature microscopy and X-ray analysis up to 2150°C. W. Gutt. bibliog diags J Sci Instr 41:393-4 Je '64

Open-probe thermocouple control of radio-frequency heating. A. W. Ruff, jr. diag R Sci Instr 35:760-1 Je '64

Preheating and stress relieving of hydraulic actuator assemblies. il Metallurgia 69:173-4 Ap '64

Pulse technique extends range of Chromel-Alumel to 7000° F. A. F. Wormser and R. A. Pfuntner. il diags Instruments & Control Systems 37:101-3 My '64

Reference tables for platinum 20 per cent rhodium/platinum 5 per cent rhodium thermocouples. R. E. Bedford. bibliog diags R Sci Instr 35:1177-90 S '64

Reference tables for thermocouples of iridium-rhodium alloys versus iridium. G. F. Blackburn and F. R. Caldwell. bibliog J Res Nat Bur Stand 68C:41-59 Ja '64

Relation between the rubbing interface temperature distribution and dynamic thermocouple temperature. H. H. H. Shu and others. bibliog diags A S M E Trans ser D 86:417-22 S '64

Reliable d.c.-amplifier for thermocouple vacuum gauges. U. Tallgren and U. Kracht. diags Electronic Eng 36:671-5 O '64

Response of a thermocouple junction to shock waves in copper. E. P. Palmer and G. H. Turner. diag J Ap Phys 35:3055-6 O '64

Sealing a stainless-steel-sheathed thermocouple into a Magnox end-cap. P. M. Knowlson and P. M. Bartle. bibliog il diags Inst Metals J 93:52-6 '64-65

Simple cryoscope for molecular weight determinations using a thermal detector and phenyl ether as solvent. R. H. Campbell and others. diag Anal Chem 35:1989-90 N '63

Studies on the tungsten-rhenium thermocouple to 2000°C. D. B. Thomas. bibliog J Res Nat Bur Stand 67C:337-52 O '63

Thermal and hydrostatic behavior of miniature platinum resistance elements. C. M. Knobler and others. R Sci Instr 34:1437-8 D '63

Thermal properties of thermocouples. J. Nanigian. il Instruments & Control Systems 36:87-8 O '63

Thermocouple for the measurement of gas temperatures up to 2000° C. R. J. Bertodo. bibliog il diag Inst Mech Eng Proc 177 no 22:603-14; Discussion. 615-16 '63

Thermocouple for vacuum tests minimizes errors. R. C. Turner and G. D. Gordon. diag Space/Aeronautics 41:256 Ja '64

Vacuum-deposited thin-film thermocouples for accurate measurement of substrate surface temperature. L. H. Bullis. diags J Sci Instr 40:592-3 D '63

See also

Temperature—Measurement

Testing

Automatic thermocouple comparator. il Instruments & Control Systems 37:91-2 My '64

Making and testing small surface thermocouples for fast response. A. Kovács and R. B. Mesler. bibliog diags R Sci Instr 35:485-8 Ap '64

THERMODYNAMICS

Activity of silicon in liquid iron solutions. G. Smith and J. Taylor. bibliog Iron & Steel Inst J 202:577-80 Jl '64

Analytical approximations of thermodynamic functions of air. V. V. Mikhailov. bibliog AIAA J 1:2692-6 N '63

Analytical representation of the thermodynamic functions of dissociating air. V. V. Mikhailov. AIAA J 1:2689-92 N '63

Apparatus for measuring magnetothermodynamic properties to high fields at low temperatures. W. F. Giauque and others. bibliog il diags R Sci Instr 35:213-25 F '64

Application of thermodynamics to thermo-mechanical, fracture, and birefringent phenomena in viscoelastic media. R. A. Schapery. bibliog J Ap Phys 35:1451-65 My '64

Bode fillet in amplifier design. T. Roddam. diags Wireless World 70:101-5 F '64

Calculation of the partial molal enthalpy of vaporization of a component out of multicomponent mixtures. N. G. O'Brien. bibliog Ind & Eng Chem Fundamentals 3:352-4 N '64

THERMODYNAMICS—*Continued*

Calculation of thermal diffusion factors for the methane-n-butane system in the critical and liquid regions. W. M. Rutherford. bibliog A I Ch E J 9:841-3 N '63

Chemical engineering problems in the pulp and paper industry. Tappi 47:sup 171A Jl '64

Conformer populations and thermodynamic data from temperature dependent circular dichroism measurements. A. Moscowitz and others. Am Chem Soc J 85:3515-16 N 5 '63

Control the real variable. G. T. Byer. bibliog il diags Chem Eng 71:125-30 Jl 6 '64

Correlation of thermodynamic properties of amine-water solutions with molecular structure. R. R. Davison and others. bibliog A I Ch E J 10:471-4 Jl '64

Design of a high enthalpy, radio frequency, gas discharge volume. A. Mironer. il diag AIAA J 1:2638-9 N '63

Effect of partition function cutoff upon the thermodynamic properties of atomic hydrogen and helium to 100 000°K. J. C. Hester and K. G. Sewell. bibliog J Ap Phys 35:729-30 Mr '64

Effect of transverse enthalpy gradient on blunt body pressure distributions in hypersonic flow. D. Brooke and R. E. Thomas. AIAA J 2:1829 O '64

Efficiencies, thermodynamics and the by-pass engine. N. L. Filleul. flow diag Roy Aeronautical Soc J 67:736-7 N '63

Electrical conductivity, and the thermodynamic and structural properties of molten $AgCl-Ag_2S$ mixtures. M. C. Bell and S. N. Flengas. bibliog diags Electrochem Soc J 111:569-81 My '64

Electron donor ability of 7-oxabicyclo[2.2.1] heptane. M. Tamres and others. bibliog Am Chem Soc J 86:3934-6 O 5 '64

Enthalpy of transformation, δ-Al_2O_3 to α-Al_2O_3. O. J. Kleppa and T. Yokokawa. Am Chem Soc J 86:2749 Jl 5 '64

Enthalpy values for hypothetical fluids from vapor-liquid equilibrium data. J. R. Welker and others. bibliog A I Ch E J 10:380-2 My '64

Excess of proton donor gives thermodynamic control of substitution leading to meta products. D. E. Pearson. Chem & Eng N 42:44 S 28 '64

Feed enthalpy computer control of a distillation column. diags Instruments & Control Systems 37:147 Mr '64

Galvanic cell measurement of the thermodynamic interaction between cadmium and tin in liquid bismuth. W. M. Boorstein and R. D. Pehlke. bibliog diag Electrochem Soc J 111:1269-72 N '64

Hydrogen bonding studies; the thermodynamics of hydrogen bonding of phenol to ethers and related compounds. R. West and others. Am Chem Soc J 86:3227-9 Ag 20 '64

Inequality of Clausius. J. H. Potter. bibliog diags Combustion 35:31-6 Je '64

Intermolecular-force effects on the thermodynamic properties of helium with application. E. F. Harrison. bibliog AIAA J 2:1854-6 O '64

Intermolecular-force effects on the thermodynamic properties of nitrogen. C. E. Smith, jr. bibliog AIAA J 2:183-5 Ja '64

Isothermal changes of enthalpy, entropy, and heat capacity based on modified reduced Berthelot equation. C. T. Hsu. bibliog A I Ch E J 9:854-5+ N '63

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Non equilibrium thermodynamics. A. Katchalsky. diags Naval Eng J 76:77-83 F '64

Oxidation of 80Ni-20Cr alloys in carbon monoxide at high temperatures. K. Osthagen. bibliog Corrosion 20:252-5 Ag '64

Partial molal enthalpies of adsorption of hydrogen and oxygen on platinum and on carbon-supported platinum. J. G. Aston and others. bibliog diag Am Chem Soc J 86:2097-101 Je 5 '64

Properties of soda aluminosilicate glasses; relative acidities and some thermodynamic properties. P. W. L. Graham and G. E. Rindone. bibliog Am Cer Soc J 47:19-24 Ja '64

Richard Mollier 100th anniversary. L. M. K. Boelter and E. L. Knuth. Mech Eng 85:38-9 D '63

Second and third virial coefficients for hydrogen. R. D. Goodwin and others. bibliog J Res Nat Bur Stand 68A:121-6 Ja '64

Silica reduction reaction in the blast furnace. J. Taylor. bibliog Iron & Steel Inst J 202:420-3 My '64

Simple treatment of thermodynamic efficiency. E. M. Kelly. Am J Phys 32:643 Ag '64

Sorption of water on compacts of bottle-hydrated cement; thermodynamic considerations and theory of volume change. R. F. Feldman and P. J. Sereda. bibliog J Ap Chem 14:93-104 F '64

Statistical surface thermodynamics of simple liquid mixtures. C. A. Eckert and J. M. Prausnitz. bibliog A I Ch E J 10:677-83 S '64

Statistical thermodynamics of chain molecule liquids. P. J. Flory and others. bibliog Am Chem Soc J 86:3507-20 S 5 '64

Study of the Clapeyron equation as applied to interfacial phase transitions. A. E. Alexander and F. C. Goodrich. J Colloid Sci 19:473-6 Je '64

Survey of modern chemistry; thermodynamics of chemical reactions. G. T. Austin and H. F. Austin. bibliog Chem Eng 71:101-4 Mr 30 '64

Tabulation for deriving procedural rate constants from dynamic thermograms. J. A. Magnuson. Anal Chem 36:1807-10 Ag '64

Temperature-entropy diagram of monomethylhydrazine. F. Bizjak and F. F. Stai. bibliog AIAA J 2:954-6 My '64

Theoretical solubility of H_2O in silicate melts; quasi-crystalline models. H. R. Shaw. J Geol 72:601-17 bibliog(p617) S '64

Thermal choking of partially ionized gases. K. T. Yen. AIAA J 1:2171-2 S '63; Discussion. 2:1866-8 O '64

Thermally activated deformation of metals. H. Conrad. bibliog il diags J Metals 16:582-8 Jl '64

Thermo properties of hydrocarbons (cont). L. N. Canjar and others. bibliog Hydrocarbon Process & Pet Refiner 43:177-80 Je '64

Thermodynamic analyses of open tube germanium disproportionation reactions. A. Reisman and S. A. Alyanakyan. bibliog Electrochem Soc J 111:1154-64 O '64

Thermodynamic and practical temperature scales. Instruments & Control Systems 37:85 My '64

Thermodynamic aspects of biological oxidation and synthesis. J. A. Servizi and R. H. Bogan. WPCF J 36:607-18 bibliog(p617-18) My '64

Thermodynamic comparison of large-scale liquefaction of air, hydrogen, and helium. R. E. Latimer and R. A. Mostello. bibliog A I Ch E J 10:407-15 My '64

Thermodynamic cycles for recovery of water by solvent extraction. R. R. Davison and D. W. Hood. bibliog flow sheet diag Ind & Eng Chem Proc Design 3:399-404 O '64

Thermodynamic properties for imperfect air and nitrogen to 15,000°K. C. H. Lewis and C. A. Neel. bibliog AAIA J 2:1847-9 O '64

Thermodynamic properties of cesium chlorotitanates. R. L. Lister and S. N. Flengas. bibliog diag Electrochem Soc J 111:343-8 Mr '64

Thermodynamic properties of methyl chloride. C. C. Hsu and J. J. McKetta. bibliog A I Ch E J 9:794-6 N '63

Thermodynamic properties of nonpolar mixtures of small molecules. P. J. Flory and A. Abe. Am Chem Soc J 86:3563-5 S 5 '64

Thermodynamic properties of some methylphosphonyl dihalides from 15 to 335°K. G. T. Furukawa and others. bibliog J Res Nat Bur Stand 68A:367-79 Jl '64

Thermodynamic studies of ternary liquid metallic systems containing miscibility gaps. T. C. Wilder and J. F. Elliott. bibliog diags Electrochem Soc J 111:352-62 Mr '64

Thermodynamics. J. M. Smith and others. Ind & Eng Chem 56:41-52 bibliog(p49-52) S '64

Thermodynamics and interfacial tension of multicomponent liquid-liquid interfaces. S. A. Shain and J. M. Prausnitz. bibliog diag A I Ch E J 10:766-73 S '64

Thermodynamics of a reacting gas. M. S. Vardya. Am J Phys 32:520-5 Jl '64

Thermodynamics of biological synthesis and growth; abstract. P. L. McCarty. WPCF J 36:299-300 Mr '64

Thermodynamics of elasticity of natural rubber. G. Allen and others. bibliog diag Rubber Chem & Tech 37:606-16 Jl '64

Thermodynamics of formation of $ThMg_2$. D. B. Novotny and J. F. Smith. bibliog Inst Metals J 92:122 '63-64

THERMODYNAMICS—*Continued*

Thermodynamics of gas solubility in mixed solvents. J. P. O'Connell and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:347-51 N '64

Thermodynamics of hydrides. J. H. E. Jeffes and H. McKerrell. bibliog Iron & Steel Inst J 202:666-76 Ag '64

Thermodynamics of leather dyeing. M. P. Coward and H. E. Nursten. bibliog diag Soc Dyers & Col J 80:405-15 Ag '64

Thermodynamics of perfect elastic fluids. B. Bernstein and others. bibliog J Res Nat Bur Stand 68B:103-13 Jl '64

Thermodynamics of polymer solubility in polar and nonpolar systems. R. F. Blanks and J. M. Prausnitz. bibliog Ind & Eng Chem Fundamentals 3:1-8 F '64

Thermodynamics of protein denaturation. J. F. Brandts. bibliog diag Am Chem Soc J 86:4291-314 O 20 '64

Thermodynamics of the dehydrogenation of propane by iodine vapor. P. S. Nangia and S. W. Benson bibliog Am Chem Soc J 86: 2770-3 Jl 20 '64

Thermodynamics of the interaction of atmospheres with alloy steels. R. Littlewood. bibliog Iron & Steel Inst J 202:143-6 F '64

Thermodynamics of the thermal decomposition of acetic acid in the vapor phase. W. C. Child, jr. and A. J. Hay. bibliog Am Chem Soc J 86:182-7 Ja 20 '64

Thermodynamics; symposium series abstracts. W. C. Edmister, ed. il Chem Eng Prog 60: 82+ Je '64

Thermomechanical studies of amorphous and crystalline polymers. A. V. Sidorovich and E. V. Kuvshinskii. bibliog diags Rubber Chem & Tech 37:355-64 Ap '64

Thermomechanical study of polyisobutylene by stretching and indentation. B. A. Fomenko and others. bibliog Rubber Chem & Tech 37:365-9 Ap '64

Thermophysics. R. E. Gaumer. Astronautics & Aerospace Eng 1:79-80 N '63

Variable-state methods of measuring the thermal properties of solids. T. Z. Harmathy. bibliog diags J Ap Phys 35:1190-200 Ap '64

Viscous flow and flow temperature of polymers. T. I. Sogolova and others. bibliog Rubber Chem & Tech 37:627-9 Jl '64

Wetting and adhesion. J. R. Huntsberger. bibliog il Chem & Eng N 42:82-7 N 2 '64; Discussion. 42:4-5 D 14 '64

Zener's maximum efficiency derived from irreversible thermodynamics. J. M. Borrego. IEEE Proc 52:95 Ja '64

See also

Carnot cycle
Dynamics
Entropy
Equation of state
Free energy
Joule-Thomson effect
Mollier diagrams
Peltier effect
Radiation
Specific heat
Statistical mechanics
Steam
Transition points
Vapor pressure

Study and teaching

Students learn generality of thermodynamics quickly. J. L. Dye. Chem & Eng N 42: 149 S 7 '64

Tables, calculations, etc.

Activation energy calculation from a linearly-increasing-temperature experiment. T. R. Ingraham and P. Marier. bibliog Can J Chem Eng 42:161-3 Ag '64

Heat and gas laws; simplified outline; data sheet. W. V. Henry. diags Machine Design 36:151-3 Je 4 '64

Macroscopic approach to irreversible thermodynamics. C. M. Sliepcevich and D. Finn. Ind & Eng Chem Fundamentals 2:249-51 N '63; Discussion. 2:325-6; 3:272-6 N '63, Ag '64; Reply. 3:276-7 Ag '64

Production of fresh water from sea water without metallic transfer surfaces: thermodynamic analysis of a flash distillation method. E. L. Knuth. bibliog diags Ind & Eng Chem Proc Design 3:55-60 Ja '64

Thermodynamic derivatives without tables. J. S. Thomsen. Am J Phys 32:666-71 S '64

Thermodynamic properties of high-temperature helium. J. C. Hester and K. G. Sewell. bibliog AIAA J 2:1329-32 Jl '64

THERMOELASTICITY. See Elasticity

THERMOELECTRICITY

Applying thermoelectric generation to cathodic protection. R. E. Hodge. il Gas 40:108+ O '64

Choosing current for thermoelectric cooling Electro-Tech 72:108+ D '63

Coefficient of performance of thermoelectric cooling devices. W. M. Pritchard. diag IEEE Proc 52:442-3 Ap '64

Colloidal electrohydrodynamic energy converter. A. L. Cox. bibliog il diags AIAA J 1:2491-7 N '63

Corrections used in the adiabetic measurement of thermal conductivity using the Peltier effect. A. W. Penn. J Sci Instr 41:626-8 O '64

Development of a thermoelectric air conditioner for submarine application. G. D. Hudelson and others. il ASHRAE J 6:29-34+ Mr '64

Development of filters for a thermoelectric colorimeter. S. H. Emara and R. P. Teele. bibliog diags J Res Nat Bur Stand 67C:319-25 O '63

Developments in the field of thermo-electricity. G. Gramburg and H. G. Flust. bibliog il diags Naval Eng J 75:925-36 D '63

Dew point meter based on thermoelectric cooling. O. G. Griffin and C. M. Stringfield. diag J Sci Instr 41:241 Ap '64

Electrical generating device increases power density. Franklin Inst J 277:378 Ap '64

Experiments with a fission-heated plasma diode. P. D. Dunn and others. bibliog il diags Inst E E Proc 110:2285-91 D '63

First satellite powered by nuclear energy. il Engineering 196:541 O 25 '63

First use of thermoelectricity for commercial air conditioning. il diags Eng N 172: 23 My 7 '64

Ge-Si thermoelectric power generator. L. Abeles and R. W. Cohen. J Ap Phys 35: 247-8 Ja '64

Heat, cool 28 offices thermoelectrically. il diag Heating-Piping 36:48+ Je '64

High-performance control and power supply for thermoelectric heat-pumping air-conditioning systems. A. A. Beck. diags IEEE Trans Applications & Ind 83:201-6 Jl '64

Iron disilicide as a thermoelectric generator material. R. M. Ware and D. J. McNeill. bibliog il Inst E E Proc 111:178-82 Ja '64: Discussion. 111:1369-70 Jl '64

Johnson's Wax gets first commercial thermoelectric air conditioning system. il diag Air Cond Heat & Ven 62:88-9 Je '64

Magnetoplasmadynamic generation of electricity. il Metallurgia 69:216-17 My '64

Magnetothermoelectricity. G. Corfield. Gas 40: 15 N '64

Magnetothermoelectricity. R. Wolfe. il diags Sci Am 210:70-6+ Je '64

Maintenance of controlled temperature differences using a thermoelectric heat pump. L. Guczi and H. J. V. Tyrrell. diags J Sci Instr 41:468-9 Jl '64

Model for a diffusive magnetothermoelectric generator. A. W. Riddiford and J. A. Krumhansl. bibliog diags J Ap Phys 34: 3572-80 D '63

More widespread use seen for thermoelectric generators. L. C. Hill. il Oil & Gas J 62: 158-60 Jl 27 '64

Power sources draw attention at Geneva; fast-neutron reactor. il Chem & Eng N 42: 56-7 S 21 '64

Precision controlled thermoelectric temperature chamber. A. L. Wennerberg. diag R Sci Instr 35:1191-3 S '64

Pressure theory of the thermoelectric and photovoltaic effects. M. Green. bibliog diags J Ap Phys 35:2689-94 S '64

Quiet thermoelectric cooling has no moving parts. il diag Plant Eng 18:139 Jl '64

Radioactive material generates electricity for new satellite signals. Franklin Inst J 276: 540-1 D '63

SNAP 3's descendants. il Engineering 197:590 Ap 24 '64

Status of thermoelectrics and thermionics. L. W. Perry. Machine Design 36:196+ F 13 '64

Thermal conductivity, thermoelectric power, and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

Thermoelectric air conditioners. il diag Mech Eng 86:69 Jl '64

Thermoelectric air conditioners installed at Johnson's Wax. il Elec World 161:148 Je 1 '64

Thermoelectric air conditioners used commercially. il diag Arch Rec 136:195 Jl '64

Thermoelectric air conditioning. il diags Dom Eng 204:78-9+ S '64

THERMOELECTRICITY—*Continued*

Thermoelectric air conditioning for all-year climate control. il diag Power 108:104 Jl '64

Thermoelectric and thermomagnetic heat pumps. B. Varga and others. bibliog diag J Ap Phys 34:3430-41 D '63

Thermoelectric cooling applied to the absolute measurement of microwave power. A. G. Heaton. diags Inst E E Proc 111:642-6 Ap '64

Thermoelectric figure of merit in silver selenide powders. A. S. Epstein. bibliog diag J Ap Phys 34:3587-90 D '63

Thermoelectric generator protects remote Montana pipeline. D. P. Price and R. Schwede. il map diag Gas 40:83-4+ Jl '64

Thermoelectric generators fill unique protective role. R. D. Carlton. Oil & Gas J 62:88-9 Ja 6 '64

Thermoelectric-hydromagnetic pump. J. F. Osterle and S. W. Angrist. diags A S M E Trans ser C 86:166-8 My '64

Thermoelectric peaks in off-stoichiometric CuInTe$_2$. S. M. Zalar. J Ap Phys 35:1988-90 Je '64

Thermoelectric power of hot carriers. J. Zucker. bibliog diag J Ap Phys 35:618-21 Mr '64

Thermoelectric properties of uranium monosulfide, thorium monosulfide, and US-ThS solid solutions. M. Tetenbaum. J Ap Phys 35:2468-72 Ag '64

Thermoelectric systems of cooling and heating. A. B. Newton. il diags Heating-Piping 35:123-7 O; 152-4 N; 125-8 D '63

Thermogalvanic cells with silver iodide as a solid electrolyte. J. L. Weininger. bibliog il diags Electrochem Soc J 111:769-74 Jl '64

Unconventional methods of electric power generation. L. G. Sanders. bibliog diags Ind Chem 40:92-6, 137-43 F-Mr '64

Zener's maximum efficiency derived from irreversible thermodynamics. J. M. Borrego. IEEE Proc 52:95 Ja '64

See also
Peltier effect
Seebeck effect
Thermionic converters
Thermocouples

THERMOLUMINESCENCE. See Luminescence

THERMOMAGNETISM

Boundedness of the dimensionless index of performance of a Nernst effect generator. S. W. Angrist. bibliog A S M E Trans ser E 30:291-4 Je '63; Discussion. 31:158 Mr '64

Magnetocaloric power. E. L. Resler, jr. and R. E. Rosenweig. diags AIAA J 2:1418-22 Ag '64

Refined treatment of the theory pertaining to operating characteristics of anisotropic Nernst-Ettingshausen devices. J. M. Honig and B. M. Tarmy. J Ap Phys 35:722-3 Mr '64

Thermomagnetic figure of merit; bismuth. R. B. Horst. bibliog J Ap Phys 34:3246-54 N '63

THERMOMETERS and thermometry

Colour strip thermometer. il Engineer 217:447 Mr 6 '64

Cryogenic characteristics of alloy wires. A. B. Kaufman. il Instruments & Control Systems 37:119-21 Mr '64

Device for the precise measurement of small temperature changes. R. C. La Force and others. diags R Sci Instr 35:729-32 Je '64

Digital thermometer covers wide range. il diag Electronics 37:113 My 4 '64

Further consideration of emergent column correction in mercury thermometry. L. H. Pemberton. J Sci Instr 41:234-6 Ap '64

Linearization of resistance thermometer output. F. J. Goldwater. diag J Sci Instr 41:46-7 Ja '64

Low temperature thermometry. I S A J 10:72 N '63

Measuring precisely near absolute zero; helium-3 and low-temperature thermometry. W. J. Hauback and W. L. Taylor. il diags Res/Develop 15:19-23 S '64

Mercury freezing-point cell. C. O. Dengler. bibliog il diags Instruments & Control Systems 36:119-21 D '63

Principles of cryometric impurity determination as applied to samples of small sizes. C. P. Saylor and G. S. Ross. il diags J Res Nat Bur Stand 68C:35-9 Ja '64

Speer Carbon resistors as thermometers for use below 1°K. W. C. Black, jr. and others. bibliog R Sci Instr 35:587-91 My '64

Stable copper resistance thermometer for field use. R. C. Langlands. diag J Sci Instr 41:478 Jl '64

Susceptibility thermometer for use at very low temperatures. D. S. Betts and others. bibliog J Sci Instr 41:515-16 Ag '64

Thin-film radiative heat-transfer gage. R. M. Nerem and G. H. Stickford. bibliog diag AIAA J 2:1647-9 S '64

Transient response of wire resistance thermometers. A. Quarmby. Roy Aeronautical Soc J 68:696-8 O '64

See also
Calorimeters and calorimetry
Cryoscope
Pryometers and pyrometry
Temperature—Measurement

THERMONUCLEAR reactions. See Nuclear reactions—Fusion

THERMOPILES

Long thermopile. E. L. Long. il diag Civil Eng 34:36-9 Ap '64; Abstract. Eng N 171:62 N 14 '63

Refrigerated pile permits heat flow from but not into the ground. Eng N 171:62 N 14 '63

THERMOPLASTIC recording

New surface phenomenon in thermoplastic layers and its use in recording information. F. H. Nicoll. bibliog il diags RCA R 25:209-31 Je '64

Photoconductive thermoplastic recording system. N. E. Wolff. bibliog il diags RCA R 25:200-8 Je '64

THERMOPLASTICS

ABS thermoplastics. J. L. Whitney. il Machine Design 36:47-50 S 17 '64

Are you evaluating thermoplastics properly? L. A. Cohen. Materials in Design Eng 59:105-7+ Je '64

Characteristics of Kynar polyvinylidene fluoride as an insulating material. A. A. Dukert and N. T. Hall. Wire & Wire Prod 39:235-9+ F '64

Chemistry of Surlyn A ionomers. R. W. Rees. Mod Plastics 42:209-10 S '64

Chlorinated polyethers. R. D. Hanna. il Machine Design 36:65-6 S 17 '64

Creep in thermoplastics. S. Turner and others. bibliog il diags Brit Plastics 37:322-4, 386-92, 440-4, 501-5, 567-8, 607-10 Je-N '64

Effects of fabrication on design properties of materials. B. Bennett. bibliog Electro-Tech 72:108-11 N '63

Elastomeric thermoplastic ethylene copolymers; Ultrathene. il diags Chem Eng 71:98+ Ap 27 '64

Elastomers broaden plastics market base. il Mod Plastics 41:86-90+ Je '64

Engineering industrial plastics. C. A. Vandervell. il Brit Plastics 37:317-21 Je '64

Ethylene copolymers. il Plastics World 22:58-9 My '64

Fluid thermoplastic systems. R. A. Park. il Plastics Tech 9:44-6 D '63

Graph matching locates the proper thermoplastic. il Machine Design 36:8 O 8 '64

Guide to engineering thermoplastics. J. E. Hauck. bibliog il diags Materials in Design Eng 58:105-20 N '63 (reprints 35c)

High-price resin brings economies. il Mod Plastics 41:99+ Mr '64

High speed rotating disc dot dash coding apparatus for application of vinyl ink marks on PVC insulated conductors. H. L. Woellner. il diags Wire & Wire Prod 39:1026-8+ Jl '64

Hot melt adhesives. Engineering 197:249 F 14 '64

How specifications for thermoplastics are applied at Ford; interview with Travis H. Meister. Metal Prog 86:146-51 O '64

How structure determines properties of plastics. R. M. Kell and P. B. Stickney. diags Materials in Design Eng 59:79-82 My '64

Hydrostatic strength and design stresses for thermoplastic pipe. F. W. Reinhart. Mod Plastics 42:162+ S '64

Ionomer, a new thermoplastic; Surlyn A. il Mod Plastics 42:98-9+ S '64

Ionomers. Ind & Eng Chem 56:13 O '64

Ionomers; forceful polyolefins. il Plastics World 22:44-5 S '64

Joining rigid thermoplastics with ultrasonics. il diag Product Eng 35:59-60 Mr 30 '64

Major advances broaden the market potential of metal-plated thermoplastics. il Plastics World 22:34+ My '64

Metal ions hold together a new type of plastic. il Machine Design 36:10 S 24 '64

New addition to the olefin family; clear-as-glass ionomer. il Plastics Tech 10:11-12 S '64

New high-performance plastic-metal assemblies. W. J. Ehner. il diags Machine Design 36:189-90+ S 24 '64

New polymers combine covalent, ionic bonds. il Chem & Eng N 42:25 S 7 '64

New strength, new life, with reinforced thermoplastics. A. R. Gardner. il Product Eng 35:132-8 Ap 27 '64

THERMOPLASTICS—*Continued*

New tough, transparent plastics: ionomers. il Materials in Design Eng 60:106-7 S '64

Phenoxies play tight game with molding tolerances. il Iron Age 194:64-5 O 1 '64

Plastic fixtures for little parts. C. A. Eaves and others. il Am Mach 108:76-7 Mr 2 '64

Plastics versus ferrous metals. R. Sen. Brit Plastics 37:124-6 Mr '64

Plastics world contemporary thermoplastics and thermosetting materials, property and price chart. Plastics World 22:198-9, 202-3 O '64

Polyacetal aerosol containers. J. J. May. il diags Soap & Chem Spec 40:135-6+ Ag '64

Polycarbonate caster is stronger than spoked steel wheel, costs less. il Mod Plastics 42:109 O '64

Polycarbonate improves sewing machine lamp. il Materials in Design Eng 60:150+ N '64

Polycarbonates. C. G. McCubbin. il Machine Design 36:80-2 S 17 '64

Polyimides. N. W. Todd and others. il Machine Design 36:87-91 S 17 '64

Polymer chemistry advances into ionomers. il Chem Eng 71:90 O 26 '64

Reinforced and filled thermoplastics. T. P. Murphy. il Machine Design 36:42-6 S 17 '64

Repeatable cycles at lower temperatures. il Plastics World 22:46 O '64

Royalite truck parts. Automotive Ind 130:122+ Je 15 '64

Rubber's newest competitor. S d'Adolf. il Rubber World 150:80-4 Je '64

See-through toughness: Surlyn A. Product Eng 35:71-2 S 14 '64

Strengthened thermoplastics bid for body applications. T. P. Murphy and others. il S A E J 72:83-7 Je '64

Stress and modulus nomographs for thermoplastics. R. L. Peters. Materials in Design Eng 60:89-91 Jl '64

Synthetic resins, the backbone of modern finishes; chlorinated polyether resins. H. P. Preuss. bibliog Metal Finishing 62:76-8 S '64

Synthetic resins; the backbone of modern finishes; polyamide resins. H. P. Preuss. bibliog il Metal Finishing 62:75-81+ Je '64

Test determines service life cost of pavement markings. L. B. Morrill. il Pub Works 95:129-30 S '64

Testing thermoplastic parts in a resin laboratory. D. P. Norris and H. M. Quackenbos. il diags Mod Plastics 42:155-6+ S '64

Thermoplastic phenoxy coatings match many thermosets. P. West. il Materials in Design Eng 60:86-8 Jl '64

Thermoplastics pipe. D. W. Baird. il Plastics World 22:16 S '64

3-D sheet produces unique optical effects. il Plastics World 22:19 Ap '64

Tough polyallomer thermoplastics are available in many forms. il Materials in Design Eng 60:110+ Ag '64

Ultrasonic sealer joins and seals rigid thermoplastics. il diag Plastics World 22:37 F '64

Vacuum-forming thermoplastics. il Engineer 216:1002 D 13 '63

Water soluble plastic finds new uses. il Materials in Design Eng 60:121+ N '64

Wet soiling of cotton; effect of thermoplastic finishes. J. Berch and others. Textile Res J 34:844-9 O '64

What about flow molding? W. B. Evans. diags Plastics Tech 10:42-3 O '64

Testing

Mechanics of orthogonal cutting of Delrin and Zytel plastics. U. M. Rao and others. bibliog il diags A S M E Trans ser B 86:117-21 My '64

THERMOS bottles

Thermistor bridge reveals defective vacuum bottles. F. Schumann and B. Ross. il diags Control Eng 11:103 F '64

THERMOSTATS

Bridge thermostat with a differential of 0·001°C. W. Tempest. il diags Electronic Eng 35:814-16 D '63

Differential thermostat. il Engineer 216:861 N 22 '63

Fully automatic thermostat of five litres working space for the range 0°C to —40°C. E. A. Boucher. diags J Sci Instr 41:541-3 S '64

Fundamentals of thermostat metals. R. M. Sears. diags Materials Res & Stand 3:981-6 D '63

Mercury-in-glass controller. P. G. Salerno. il diags Instruments & Control Systems 37:123-5 Je '64

Series of thermostats utilizing the thermal gradient along a metal bar. G. Butler. J Sci Instr 40:545 N '63

Thermostat control unit for a polarizing microscope. J. N. Hay. il diags J Sci Instr 41:465-7 Jl '64

Thermostat operates with 0.01°C differential. R. G. Ferrie. diag Electronics 37:65-6 O 5 '64

See also

Temperature—Regulation

THERMOWELLS

Thermowell design for process piping. J. A. Masek. flow sheet diags Hydrocarbon Process & Pet Refiner 43:139-42 F; 119-24 Mr; 165-72 Ap '64

THÉVENIN theorem

Thévenin and Norton. diags Wireless World 70:35-8 Ja '64; Discussion. 70:295-6, 561-2 Je, N '64

THIADIAZOLES

Hydroxy-1,2,5-thiadiazoles. J. M. Ross and W. C. Smith. bibliog Am Chem Soc J 86:2861-74 Jl 20 '64

Microwave spectrum, structure, dipole moment, and quadrupole coupling constants of 1,2,5-thiadiazole. V. Dobyns and L. Pierce. bibliog Am Chem Soc J 85:3553-6 N 20 '63

Structure of 1,2,5-thiadiazole as determined by gas electron diffraction. F. A. Momany and R. A. Bonham. bibliog Am Chem Soc J 86:162-4 Ja 20 '64

THIAMINE. See Vitamins—Vitamin B_1

THIANAPHTHENE

Improved preparative method for thianaphthene and its 2-substituted derivatives. N. Kucharczyk and V. Horák. Chem & Ind p976 Je 6 '64

THIAPYRAN

Syntheses of cyclopenta[c]thiapyran and 2-phenyl-2-pyrindine. A. G. Anderson, jr. and others. bibliog Am Chem Soc 85:3448-53 N 5 '63

THIAZOLES

Chemistry of thiazoles and dithiocarbamates as antioxidants. L. A. Brooks. bibliog Rubber Chem & Tech 36:887-910 O '63

Comparison of thiazoles and oxazoles. P. Haake and W. B. Miller. bibliog Am Chem Soc J 85:4044-5 D 20 '63

THICKENERS

Analysis of thickener operation. V. C. Behn and J. C. Liebman. bibliog Am Soc C E Proc 89 [SA 3 no 3535]:1-15 Je '63; Discussion. J. L. Alderton. 89 [SA 6 no 3745]:57-9 D '63; Reply. 90 [SA 3 no 3935]:133-4 Je '64

Concentrations in a continuous thickener. N. J. Hassett. il diag Ind Chem 40:29-33 Ja '64

See also

Centrifuges

THICKENING agents

Low-methoxyl pectin used as thickening agent for frozen gravies. R. H. Waters and M. P. Hood. bibliog Food Tech 18:1074-7 Jl '64

Polymeric thickeners are o.k. in aircraft piston-engine oils. C. K. Bransford and H. A. Poitz. S A E J 72:84 Ap '64

Submicron size boron nitride as a grease thickener. R. D. Allen and others. il diag Lub Eng 20:339-44 S '64

Thickeners for continuous pad dyeing. S. Tessler. il diags Textile Ind 128:185+ O '64

Thickeners for printing polyester blends. S. Tessler. il Textile Ind 128:78-84 Ag '64

THICKNESS measurement

Applying digital techniques to thin tin automatic gage control. T. E. Bryan and P. L. McMath. il diags Iron & Steel Eng 40:91-7; Discussion. 97-8 D '63

Automatic gauge control of Tandem cold-rolling mills. Engineer 217:139 Ja 17 '64

Beta gauge measures thin metallic films. diag Can Chem Process 48:73+ Ap '64

Classifies coating thickness without contact. il Steel 153:115 N 11 '63

Contacting device for sheet and film. L. L. Scheiner. il Plastics Tech 10:36 Jl '64

Controlling extruded tube or pipe wall thickness. A. Halegua. il diag Plastics Tech 10:37-40 Jl '64

Determination of metal foil thickness and orientation in electron microscopy. M. von Heimendahl. il diags J Ap Phys 35:457-8 F '64

Durometer can measure coating thickness on steel. E. C. Fetter. diag Chem Eng 70:102 D 23 '63

Electronic gage automatically selects washers of correct thickness. il Mach 70:124 D '63

Fundamentals of strip mill automatic gage control systems. J. W. Wallace. diags Iron & Steel Eng 41:193-202 S '64

THICKNESS measurement—*Continued*

Generation and behavior of X-rays in thickness measurements. W. R. Baarck. Iron & Steel Eng 40:108-10 N '63

Method for the continuous measurement of thickness and deposition rate of conducting films during a vacuum evaporation. J. A. Turner and others. il diags J Sci Instr 40: 557-61 D '63

Non-destructive thickness measurement; beta-ray back-scatter method. B. B. Joffe and R. S. Modjeska. diags Metal Finishing 61:44-9 D '63

Ohmart beta gage system inspects sheet thickness or basis weight continuously. il Am Mach/Metalworking Manuf 107:117 N 25 '63

Optical thickness gauge for transparent material. il Engineering 196:683 N 29 '63

Pocket thickness gauge. il Engineer 217:488 Mr 13 '64

Preparation of a microscopic mount for measuring thickness of gold plate. P. C. Baldwin. il diag Plating 50:1006-8 N '63

Radar waves bounce to gage thickness. diag Iron Age 193:74 Je 4 '64

Radioisotopes speed measurement of precious metal plating thickness. G. A. Goethner. il Plating 51:429-32 My '64

Richard Thomas and Baldwin's mechanical-magnetic gauge control. Engineering 196: 764 D 13 '63

Specimen holder for film thickness measurement. P. A. Gould and U. Pick. diags J Sci Instr 41:474 Jl '64

Strip gages feature measurement refinements. il diags Iron & Steel Eng 41:125-6 Ja '64

Thickness and apparent density of paper. D. L. Taylor. Tappi 47:sup 165A-7A Jl '64

Thickness measurement of polymer films for infrared spectrometry by beta-ray absorption. T. A. Veerkamp and others. Anal Chem 36:2277-8 N '64

Ultrasonic measurement of casting section thickness. il Foundry 92:143+ Mr '64

Ultrasonic thickness measuring instrument using transistor logic techniques. B. L. Elliot. diags Electronic Eng 35:738-41 N '63

Warren paper thickness profiler. W. S. Richardson and C. P. Grant. il diag Tappi 46: sup 199A-202A D '63

X-ray measurement of plastics film coatings. W. Arnold and D. Darnell. il diag Plastics World 22:32-3 Ja '64

X-ray mike reads strip thickness. il Iron Age 193:103 Ap 9 '64

X-rays check thickness. il Product Eng 35: 52 Jl 20 '64

Zinc and cadmium thickness determination; weight-area method employing EDTA. S. Konishi. Metal Finishing 62:84-6 My '64

THINKING. See Thought and thinking

THIOACETAMIDE. See Mercaptoacetamide

THIOBARBITURIC acids

Further observations on the 2-thiobarbituric acid method for the measurement of oxidative rancidity. T. C. Yu and R. O. Sinnhuber. bibliog Am Oil Chem Soc J 41:540-3 Ag '64

Relationship of peroxide value and thiobarbituric acid value to development of undesirable flavor characteristics in fats. W. D. Pohle and others. Am Oil Chem Soc J 41:649-50 O '64

Study of the applicability of a modified thiobarbituric acid test to flavor evaluation of fats and oils. G. A. Jacobson and others. bibliog Am Oil Chem Soc J 41:124-8 F '64

THIOCYANATES

Anion exchange separation of rhenium from molybdenum and technetium in thiocyanate-chloride media. H. Hamaguchi and others. bibliog Anal Chem 36:1654-6 Jl '64

Chemistry of aliphatic disulfides; cyanide cleavage in the presence of thiocyanates. R. G. Hiskey and D. N. Harpp. bibliog Am Chem Soc J 86:2014-18 My 20 '64

Glass-electrode titration of indium in the presence of thiocyanate. E. D. Moorhead and G. M. Frame, 2d. bibliog Anal Chem 35:1875-8 N '63

New approach to separation of trivalent actinide elements from lanthanide elements. F. L. Moore. bibliog Anal Chem 36:2158-62 O '64

Reaction of methyl 2,3-anhydro-D-ribofuranosides with thiocyanate ion. L. Goodman. bibliog Am Chem Soc J 86:4167-71 O 5 '64

Analysis

Separation, identification, and spectra of the anionic chromium(III)-thiocyanate complexes. S. Kaufman and L. S. Keyes. Anal Chem 36:1777-8 Ag '64

THIOGLYCOLATES. See Mercaptoacetates

THIOL group. See Mercapto group

THIOLACETIC acid. See Mercaptoacetic acid

THIOLS. See Mercaptans

THIONATES

Optically active *O*-ethyl ethylphosphonochloridothionates; a new route to optically active organophosphorus compounds. J. Michalski and M. Mikolajczyk. Chem & Ind p661-2 Ap 18 '64

THIONIC acids

Stress corrosion cracking susceptibility of stainless steels and nickel-base alloys in polythionic acids and acid copper sulfate solution. C. H. Samans. diags Corrosion 20: 256-61; Discussion. 261-2 Ag '64

THIONYL chloride

Thionyl chloride and dimethylformamide; their application as a dehydrating agent. J. C. Thurman. bibliog Chem & Ind p752 My 2 '64

THIOPHOSPHATES

See also

Parathion

THIOSEMICARBAZONES

Structural studies by nuclear magnetic resonance; ring-substituted phenylhydrazones, semicarbazones, and thiosemicarbazones. G. J. Karabatsos and others. Am Chem Soc J 86:3351-7 Ag 20 '64

Sugar thiosemicarbazones. J. R. Holker. bibliog Chem & Ind p546 Mr 28 '64

THIOSTREPTON. See Antibiotics

THIOSULFATES

Kinetics of the exchange of sulfur-35 between thiosulfate and sulfide. E. Ciuffarin and W. A. Pryor. bibliog Am Chem Soc J 86: 3621-6 S 20 '64

THIOURACIL

Effect of thyroxine, thiouracil and ambient temperature on the utilization of vitamin A by vitamin A-deficient rats. T. A. Anderson and others. bibliog J Nutrition 82:457-62 Ap '64

THIOUREA

Bis(urea) and thiourea adducts of the tetrachloroindate (III) anion. D. G. Tuck and E. J. Woodhouse. bibliog Chem & Ind p 1363-4 Jl 25 '64

Some transition metal complexes of substituted thioureas; nickel(II). S. L. Holt, jr. and R. L. Carlin. bibliog Am Chem Soc J 86:3017-24 Ag 5 '64

Spectrophotometric determination of urea, thiourea, and certain of their substitution products with *p*-dimethylaminobenzaldehyde and diacetylmonoxime. R. C. Hoseney and K. F. Finney. bibliog Anal Chem 36:2145-8 O '64

Thiourea as substrate for gas chromatography of fluorocarbons. J. C. Mailen and others. Anal Chem 36:1883 Ag '64

Uptake of sulfur from plating brighteners by copper and nickel. J. J. Hoekstra and D. Trivich. bibliog il Electrochem Soc J 111: 162-8 F '64

THIURAM compounds

Displacement reactions; the reaction of cyanide ion with tetramethylthiuram disulfide. R. E. Davis and A. Cohen. bibliog Am Chem Soc J 86:440-3 F 5 '64

THIXOTROPY

Quick clay. P. F. Kerr. il maps diags Sci Am 209:132-8+ N '63

Thixotropic epoxy resin. Engineering 198:62 Jl 10 '64

THOLEIITE. See Basalt

THORIA. See Thorium oxides

THORITE

Thorite→huttonite phase transformation as determined by growth of synthetic thorite and huttonite single crystals. C. B. Finch and others. il diag Am Mineralogist 49:782-5 My '64

THORIUM

Critical phenomena with thorium adsorbed on single crystal tungsten. J. Anderson and W. E. Danforth. Electrochem Soc J 111: 1297-8 N '64

Extraction of thorium from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:41-6 Ja '64

Largest sample of important isotope of thorium-uranium fuel cycle isolated. Franklin Inst J 277:506-7 My '64

Properties of materials; hafnium, thorium, uranium, vanadium, beryllium: wrought; tables. Materials in Design Eng 60:180 Mid-O '64

Thorium interaction with the silanol group, water, and nitrate in the pores of silica gel. J. Stanton and R. W. Maatman. bibliog J Colloidal Sci 18:878-85 D '63

Thorium, 1963. C. T. Baroch. Eng & Min J 165:121-2 F '64

THORIUM—*Continued*

Analysis

Precipitation of submicrogram quantities of thorium by barium sulfate and application to fluorometric determination of thorium in mineralogical and biological samples. C. W. Sill and C. P. Willis. bibliog Anal Chem 36:622-30 Mr '64

Separation of uranium, thorium, and the rare earth elements by anion exchange. J. Korkisch and G. Arrhenius. bibliog Anal Chem 36:850-4 Ap '64

Isotopes

Absolute dating of deep-sea cores by the Pa^{231}/Th^{230} (ionium) method. J. N. Rosholt and others. J Geol 69:162-85 bibliog(p 183-5) Mr '61; Discussion. G. A. Rusnak. 71:809-10 N '63

Preparation of carrier-free thorium-234 tracer. C. W. Sill. Anal Chem 36:675-6 Mr '64

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Radiochemical determination of radium-228 and thorium-228 in biological and mineral samples. H. G. Petrow and others. Anal Chem 36:1600-3 Jl '64

THORIUM alloys

Work function in the system thorium-rhenium. E. P. Gyftopoulos. J Ap Phys 35:464 F '64

THORIUM carbides

Monoclinic-cubic transformation in thorium dicarbide. N. A. Hill and O. B. Cavin. il Am Cer Soc J 47:360-1 Jl '64

THORIUM compounds

Detection of submicrogram amounts of fluoride on the ring oven with thorium chloranilate. J. E. Barney. 2d. bibliog diags Anal Chem 36:247-8 Ja '64

Determination of molecular weights of polynuclear zirconium and thorium chelates by nonequilibrium ultracentrifugation. R. L. Gustafson and A. E. Martell. bibliog Am Chem Soc J 86:344-9 F 5 '64

Thermodynamics of formation of $ThMg_2$. D. B. Novotny and J. F. Smith. bibliog Inst Metals J 92:122 '63-64

THORIUM nitrate

Decontamination of thorium; direct precipitation of thorium sulfate from thorium nitrate solutions in tributyl phosphate. K. J. Bril and P. G. De Sabóia Araújo. bibliog Ind & Eng Chem Proc Design 3:8-10 Ja '64

THORIUM oxides

Crystal defects in two ceramic oxides. il Engineering 197:238 F 7 '64

Investigation of a new nickel alloy strengthened by dispersed thoria; abstract. C. R. Manning, jr. and others. Metal Prog 85:182+ Je '64

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures. D. M. Eissenberg. bibliog diag A I Ch E J 10:403-7 My '64

Oxidation of $Ni\text{-}2ThO_2$ between 900° and 1400°C. F. S. Pettit and E. J. Felten. bibliog il Electrochem Soc J 111:135-9 F '64

Phase equilibrium studies in the system $ThO_2\text{-}B_2O_3$. D. E. Rase and G. Lane. il Am Cer Soc J 47:48-9 Ja '64

Synthesis of thorianite crystals from bismuth oxide-lead fluoride melts. A. B. Chase and J. A. Osmer. il Am Mineralogist 49:1469-71 S '64

Thermal expansion measurements on thoria and hafnia to 4500°F. B. Ohnysty and F. K. Rose. bibliog diag Am Cer Soc J 47:398-400 Ag '64

Thorian intermediate member of the britholite-apatite series; physical and chemical studies. M. R. Hughson and J. G. Sen Gupta. bibliog il Am Mineralogist 49:937-51 Jl '64

Velocity profiles of thoria suspensions in turbulent pipe flow. D. M. Eissenberg and D. C. Bogue. bibliog diag A I Ch E J 10:723-7 S '64

THORIUM phosphates

Copper-activated thorium phosphate phosphors. W. F. Schmid and R. W. Mooney. bibliog Electrochem Soc J 111:668-73 Je '64

THORIUM sulfates

Decontamination of thorium; direct precipitation of thorium sulfate from thorium nitrate solutions in tributyl phosphate. K. J. Bril and F. G. De Sabóia Araújo. bibliog Ind & Eng Chem Proc Design 3:8-10 Ja '64

THORIUM sulfides

Thermoelectric properties of uranium monosulfide, thorium monosulfide, and US-ThS solid solutions. M. Tetenbaum. J Ap Phys 35:2468-72 Ag '64

THOUGHT and thinking

Information processing in computer and man. H. A. Simon and A. Newell. bibliog Am Scientist 52:281-300 S '64

Thinking unlimited. H. C. Reel. Mech Eng 86:30-1 F '64

Today's new challenge, breaking the bonds on handling thought. G. C. Thomas. il Mod Materials Handling 18:38-41 N '63

See also

Problem solving

THREAD

Top quality; a five-way approach. il Textile World 114:56-60 Mr '64

Twist direction not important in this case. diag Textile Ind 128:150 Ap '64

THREAD cutting

Change gears for metric threads; reference book sheet. J. H. Wilson. diags Am Mach/Metalworking Manuf 107:73 D 23 '63

Cutting threads in glassware molds. il Am Mach 108:65 My 25 '64

Thread milling of tapered screws. A. W. Williams. diags Tool & Manuf Eng 52:97-8 F '64

See also

Taps

THREAD rolling

High-speed thread-rolling machine. il Mach 70:190 Mr '64

Job-lot rolling of splines and threads on mass-production equipment. D. Clark. il diag Mach 70:119-21 Mr '64

Rollability of copper alloys; reference book sheet. D. F. Griffin. Am Mach 108:79+ Jl 6 '64

Thread-roll dies; reference book sheet. R. Carpenter. diags Am Mach 108:123+ Mr 16 '64

Thread-rolling attachment completes large studs on automatic bar machine. il Mach 70:144 Mr '64

Threads and splines cold-rolled on a single machine. il Mach 70:96 D '63

THREADING machines

Added hydraulics boost efficiency of threading machine. il Mach 71:123 O '64

Air permits design of compact high speed clutch. K. Schubert. il diags Hydraulics & Pneumatics 17:94 Jl '64

High-speed infeed rolling machine. il Mach 71:218+ O '64

Lees-Bradner thread milling machine makes any type of internal or external thread. il Am Mach/Metalworking Manuf 107:116 D 9 '63

Modified two-inch threader handles up to four-inch pipe. il Plant Eng 18:160 My '64

Precision threading and tapping machine. il Mach 70:149 Mr '64

Reed two-die thread-rolling machine. il Mach 70:145 D '63

Thread milling machine equipped to produce taper threads. il Mach 70:212 Ap '64

THREE-dimensional problems. See Projection, Stereographic

THREONINE

Chemical pathology of acute amino acid deficiencies; influence of fat intake on the morphologic and biochemical changes in young rats force-fed a threonine-devoid diet. H. Sidransky and E. Verney. bibliog J Nutrition 82:269-76 F '64

Effect of delayed supplementation of wheat gluten with lysine and threonine on its capacity to promote growth in the weanling rat. E. E. Howe and C. L. Dooley. bibliog J Nutrition 81:379-82 D '63

Effects of the α-hydroxy analogues of isoleucine, lysine, threonine and tryptophan and the α-keto analogue of tryptophan and the level of the corresponding amino acids on growth of rats. W. G. Pond and others. bibliog J Nutrition 83:85-93 Je '64

Some biochemical lesions associated with liver fat accumulation in threonine-deficient rats. D. Arata and others. bibliog J Nutrition 82:150-6 Ja '64

THROMBOSIS

Effect of dietary protein level on cholesterolemia, thrombosis, atherosclerosis and hypertension in the rat. S. Renaud and C. Allard. bibliog il J Nutrition 83:149-57 Je '64

Incidence of coronary artery disease in patients treated with the Sippy diet. W. S. Hartroft. bibliog Am J Clinical Nutrition 15:205-10 O '64

THRUST augmentation. See Gas turbines, Aircraft—Thrust augmentation

THRUST bearings. See Bearings, Thrust

THUJOPSENE

Photochemical reactions: a total synthesis of (+)-thujopsene. G. Büchi and J. D. White. bibliog Am Chem Soc J 86:2884-7 Jl 20 '64

THUJOPSENE—*Continued*

Total synthesis of (±)-thujopsene. W. G. Dauben and A. C. Ashcraft. bibliog Am Chem Soc J 85:3673-6 N 20 '63

THULIUM

Atomic absorption spectra of europium, thulium, and ytterbium using a flame as line source. R. K. Skogerboe and R. A. Woodriff. Anal Chem 35:1977 N '63

THUNDERSTORMS

Spring thunderstorms over Bangalore. S. V. C. Aiya and B. S. Sonde. bibliog IEEE Proc 51:1493-501; 52:1062 N '63, S '64

THYMIDINE

Reaction of 5′-thymidylic acid with the condensation product of phosphorus pentoxide and ethyl ether. F. N. Hayes and E. Hansbury. bibliog Am Chem Soc J 86:4172-5 O 5 '64

Studies on polynucleotides; the stepwise synthesis of specific deoxyribopolynucleotides; the synthesis of polynucleotides containing deoxycytidine and deoxyguanosine in specific sequences and of homologous deoxycytidine polynucleotides terminating in thymidine. H. Schaller and H. G. Khorana. bibliog Am Chem Soc J 85:3841-51 D 5 '63

Studies on polynucleotides: the stepwise synthesis of specific deoxyribopolynucleotides: the synthesis of thymidylyl-(3′→5′)-deoxyadenylyl-(3′→5′)-thymidylyl-(3′→5′)-thymidylyl-(3′→5′)-thymidine and of polynucleotides containing thymidine and deoxyadenosine in alternating sequence. G. Weimann and others. Am Chem Soc J 85:3835-41 D 5 '63

THYMUS gland

Thymus hormone. R. H. Levey. il diags Sci Am 211:66-71+ Jl '64

THYRATRON

Cathode-current dependence on pulse width for hydrogen thyratrons. J. E. Creedon. diag IEEE Trans Com & Electronics 83:582-5 S '64

High voltage pulse generator for a Kerr cell shutter. A. Hrisoho and B. Souček. diags J Sci Instr 41:482-3 Jl '64

New hydrogen thyratron. Franklin Inst J 277:298 Mr '64

Time response of a feedback thyratron controlled d-c motor with a nonlinear load. J. Miro. diags IEEE Trans Applications & Ind p76-80 Mr '64

THYROID gland

Antithyrotoxic assay based upon the response of rat liver α-glycerophosphate dehydrogenase. D. A. Richert and others. bibliog J Nutrition 83:332-42 Ag '64

Glutathione and the antithyrotoxic effect of methionine. L. W. Charkey and D. F. Hougham. bibliog J Nutrition 81:255-62 N '63

Iodine-131 in bovine thyroid glands from 1957 through 1961. C. Blincoe and others. bibliog J Agri & Food Chem 12:414-19 S '64

Thyroxine and antithyrotoxic effects in the chick. W. W. Westerfeld and others. bibliog J Nutrition 83:325-31 Ag '64

See also

Goiter

THYROXINE

Effect of thyroxine, thiouracil and ambient temperature on the utilization of vitamin A by vitamin A-deficient rats. T. A. Anderson and others. bibliog J Nutrition 82:457-62 Ap '64

Thyroxine and antithyrotoxic effects in the chick. W. W. Westerfeld and others. bibliog J Nutrition 83:325-31 Ag '64

TICKET offices. See Airlines—Ticket offices

TIDAL power

Constructors harness the tides in France. W. G. Bowman. il diag Eng N 173:32-3+ S 10 '64

TIDES

Biological and chemical features of tidal estuaries. H. F. Frolander. bibliog map diags WPCF J 36:1037-48 Ag '64

Estimation of flushing rates from tide height and current data in an inshore marine channel of the Canadian Pacific Coast: abstract. M. Waldichuk. WPCF J 36:318-19 Mr '64

Lunar semi-diurnal tides in *h'F* and their influence on transequatorial radio propagation. J. A. Thomas. bibliog J Res Nat Bur Stand 68D:419-27 Ap '64

Model simulation of salinity intrusion in tidal estuaries. D. I. H. Barr. bibliog diags Engineer 216:885-93 N 29 '63

Photogrammetric measurement of tidal currents. J. E. Waugh. il maps diags Am Soc C E Proc 90 [SU 1 no 3857]:17-29 Ap '64

Radio-linked tide gauges in the Thames estuary. il diags Engineer 216:849-50 N 22 '63

Tidal strain as a possible cause of microseisms and rock jointing. C. D. Holmes. bibliog Geol Soc Bul 74:1411-12 N '63

Waste disposal in tidal waters. A. N. Diachishin. Am Soc C E Proc 89 [SA 4 no 3602]:23-43 Ag '63; Discussion. J. S. Gladwell. 90 [SA 1 no 3813]:167-72 F '64; Reply. 90 [SA 5 no 4097]:39-45 O '64

TIG welding. See Electric welding, Arc—Inert gas shielding

TILES

Ceramic tile's advantages. il Safety Maint 128:52-4 S '64

See also

Drain tile

Flooring, Tile

Manufacture

Automating ceramic wall tile production. F. S. Carpenter. il diags Automation 11:50-4 Jl '64

European tile plants are highly mechanized. Am Cer Soc Bul 42:759 D '63

TILLS. See Drift

TIMBER

Response of timber joints with metal fasteners to lateral impact loads. C. A. Jordan. il Materials Res & Stand 3:368-76 My '63; Discussion. 3:914 N '63

TIME

Matching of initial behavior in time domain approximation. B. Liu. bibliog diags Franklin Inst J 277:107-18 F '64

Method for time compression of instructional television materials. J. Loper. il SMPTE J 73:753-5 S '64

Shared-time integrator. E. Wiegmann. il diag Instruments & Control Systems 37:111 O '64

Spectral matrix for analysis of time-varying networks. C. Kurth. bibliog diags Elec Com 39 no 2:277-92 '64

Statistics of time in photomultiplication. R. Euling. bibliog diags J Ap Phys 35:1391-403 My '64

Step-analysis method of finding time constant. N. A. Anderson. il diags Instruments & Control Systems 36:130-5 N '63

Synchronization of two remote atomic time scales. J. A. Barnes and R. L. Fey. IEEE Proc 51:1665 N '63

Time-assignment speech interpolation in time-compression-multiplex transmission. J. E. Flood and D. I. Urquhart-Pullen. bibliog diag Inst E E Proc 111:675-83; Discussion. 683-4 Ap '64

Time-controlled multipoint recorder. N. K. Person, jr. il diag Instruments & Control Systems 37:113 Jl '64

Time dependence of ruby laser emission at 78°K. A. Szabo. bibliog il J Ap Phys 35:2263-4 Jl '64

Time dependent solutions to the (*s*,S) inventory problem. H. Greenberg. bibliog diag Op Res 12:725-35 S '64

Time division switch for an electronic private branch exchange. J. A. Herndon and F. H. Tendick, jr. il diags IEEE Trans Com & Electronics 83:338-45 Jl '64

Time ratio control with combined scr and sr commutation. R. E. Morgan. bibliog diags IEEE Trans Com & Electronics 83:366-71 Jl '64

Time resolution of streak cameras equipped with rotating mirrors of beryllium. J. K. Landré. il diags R Sci Instr 35:796-801 Jl '64

Transit-time considerations in *p-i-n* diodes. G. Lucovsky and others. bibliog diags J Ap Phys 35:622-8 Mr '64

TIME, Geological. See Geological time

TIME keeping

What's going on in the tool room? W. C. Cooling. flow chart diags Mill & Factory 73:44-9 D '63

TIME-lapse photography. See Photography, Time-lapse

TIME limit relays. See Relays, Time limit

TIME measurement

Atomic frequency and time interval standards. R. C. Mockler. J Res Nat Bur Stand 68D:523-7 bibliog(p525-7) My '64

Equivalence of pulse and step residence time measurements in a trickle-phase bed. L. B. Rothfeld and J. L. Ralph. diag A I Ch E J 9:852-3+ N '63

Quinary scalers; measure time intervals digitally. R. Engelmann. il diags Electronics 37:34-6 Ja 31 '64

See also

Chronometers

Sundials

Timing devices

TIME series
See also
Probabilities

TIME signals, Radio
Comparison of the TA₁ and the NBS-A atomic time scales. J. Bonanomi and others. IEEE Proc 52:439 Ap '64
WWV and WWVH standard frequency and time transmissions. Published in monthly numbers of Proceedings of the IEEE

TIME standards
Atomic frequency and time interval standards. R. C. Mockler. J Res Nat Bur Stand 68D:523-7 bibliog(p525-7) My '64
Comparison of the TA₁ and the NBS-A atomic time scales. J. Bonanomi and others. IEEE Proc 52:439 Ap '64
Second defined in terms of energy transition. il diag Chem & Eng N 42:142-4 O 26 '64

TIME study
Homebuilding cost study counts nickels and dimes. il Eng N 171:40-1 D 12 '63
Why Charlie can't leave. W. Ruchti. il Chem Eng 70:250+ N 11 '63
See also
Work sampling

TIME study (of machinery)
How to estimate time requirements for cavity dies. R. Anter. diags Tool & Manuf Eng 51:79-82 N '63
Processors and combined function times for 16 more medium to large computers. Control Eng 11:77-83 Jl '64

TIMEKEEPING. See Time keeping

TIMEPIECES
See also
Clocks
Watches

TIMES building, New York. See New York Times building

TIMING devices
Binary time programs. J. P. O'Meara. il diag Instruments & Control Systems 37:129 Je '64
Digitima; decimal multi-turn time digitizer. D. S. Evans. il diags Electronic Eng 35:712-16 N '63
Electric motors; timing and stepper motors. R. J. Kavanaugh and R. W. Perkins. il diags Machine Design 36:126-33 Mr 19 '64
Electronic timer. il Engineer 217:667 Ap 10 '64
Low-cost time delay controls recorder. T. H. Charters. diag Electronics 37:84 Je 15 '64
Master timer. W. G. Dilley. il diag Audio 48:19-20+ F '64
Neon-bulb keyer. H. J. Gensler, jr. il diags Q S T 48:38-42 S '64
Squeeze time in your home movies. M. A. Matzkin. il Mod Phot 28:90-1+ S '64
Time switch for process control. il Engineer 217:487 Mr 13 '64
Time system features versatile school facilities programing at multi-building Eden Sawyer junior high school in Cincinnati. J. P. Goode and G. W. Archiable. il diags Elec Constr & Maint 63:91-3 Ag '64
Timer for resistance welding machine. il Engineer 217:1044 Je 12 '64
Timing slow pulses for fast coincidence measurements. M. G. Strauss. diags R Sci Instr 34:1248-53 N '63
Undergraduate laboratory timer. B. E. Clotfelter. Am J Phys 31:885 N '63
Universal counter/timer. Engineer 217:250-1 Ja 31 '64
Welding machine timer. il Engineer 218:289 Ag 21 '64
See also
Fuses

Manufacture

Timer gear wheels processed automatically. il Engineering 197:91 Ja 17 '64

TIMOSHENKO, Stephen
Interview with Professor S. Timoshenko. E. M'Ewen. pors Naval Eng J 76:185-9 Ap '64

TIN
Bolivian tin mineralization and orogenic evolution. P. Ljunggren. maps Econ Geol 57:978-81 S '62; Discussion. A. Schneider-Scherbina. 58:456-9 My '63; Reply. 58:1348-51 D '63
Effect of alloying elements on the oxidation of tin. W. E. Boggs and others. bibliog il Electrochem Soc J 110:4-11 Ja '63; Abstract. Metal Prog 84:175+ D '63
Effect of crystallographic orientation on the oxidation of tin. W. E. Boggs and others. bibliog il diags Electrochem Soc J 111:636-46 Je '64
Electron diffraction diffuse streaks from single-crystal tin films. R. W. Vook and A. Baltz. bibliog il diag J Ap Phys 35:1952-5 Je '64
Elimination of the edge effect in superconducting indium and tin films. I. Ames and H. Seki. bibliog diag J Ap Phys 35:2066-8 Jl '64
Floating glass on tin. diag Comp Air Mag 69:20 My '64
Galvanic cell measurement of the thermodynamic interaction between cadmium and tin in liquid bismuth. W. M. Boorstein and R. D. Pehlke. bibliog diag Electrochem Soc J 111:1269-72 N '64
High-temperature phase equilibrium and superconductivity in the system niobiumtin. L. J. Vieland. bibliog il RCA R 25:366-78 S '64
Hypothesis for the change in potential of iron on uncoupling from tin in citric acid solution. W. R. Buck, 3d and others. il Electrochem Soc J 111:386-92 Ap '64
Influence of lead, iron, tin, and copper on the oxidation of lubricating oils. N. K. Chakravarty. bibliog Inst Pet J 48:196-8; 49:353-8 Je '62, N '63
Influence of oxygen on the surface mobility of tin atoms in thin films. H. L. Caswell and Y. Budo. bibliog il J Ap Phys 35:644-7 Mr '64
Properties of materials; tin and its alloys; cast, wrought; tables. Materials in Design Eng 60:173-5 Mid-O '64
Protonolysis of the tin-hydrogen bond; kinetics and mechanism. H. G. Kuivila and P. L. Levins. bibliog Am Chem Soc J 86:23-7 Ja 5 '64
Tin additions boost gray iron strength. J. B. Long. il S A E J 72:86-9 Ap '64
Tin becomes new middle man for plating on aluminum. il Iron Age 194:78-9 Ag 13 '64
Tin research institute. E. S. Hedges. il Chem & Ind p252-8 F 15 '64
Tin-tantalum-lithium pegmatites of the São João Del Rei district, Minas Gerais, Brazil. E. W. Heinrich. bibliog il maps Econ Geol 59:982-1002 S '64

Analysis

Intensity ratio technique for X-ray spectrometric analysis of binary samples. E. P. Bertin. bibliog Anal Chem 36:826-32 Ap '64
Spectrophotometric determination of tin(IV) by extraction of stannic iodide into ethyl iodide. A. D. Paul and J. A. Gibson, jr. bibliog Anal Chem 36:2321-4 N '64

Isotopes

Half-lives of tin-119, iron-57 prolonged; Westinghouse scientists use physical means to imprison radiation. diag Chem & Eng N 42:43-4 Je 22 '64
Selective liquid-liquid extraction of radiotin with 2-thenoyltrifluoroacetone. J. R. Stokeley and F. L. Moore. bibliog Anal Chem 36:1203-6 Je '64

Metallography

Investigation into the rapid annealing of blackplate. E. W. Williams. bibliog il diag Iron & Steel Inst J 200:535-40 Jl '62; Abstract. Metal Prog 85:188+ F '64
Lattice spacings and densities of some tin solid solutions. N. Ridley. Inst Metals J 92:123-4 '63-64

Prices

Tin prices spiral to a near high. il Chem & Eng N 42:32-3 Ag 24 '64

TIN, Molten
Float process gives glass industry a new look. P. Elwood. il diag Chem Eng 71:38-40 F 3 '64
Removal of copper and nickel from germanium by vacuum annealing with tin and chlorinated hydrocarbons. G. Conrad and others. bibliog diag Electrochem Soc J 111:1260-3 N '64

TIN alloys
Constitution of solid tin-rich aluminium-cadmium-tin alloys. A. J. Perry and H. J. Bray. Inst Metals J 92:152 '63-64
Dendrite spacing in tin-lead alloys. J. A. E Bell and W. C. Winegard. bibliog il diags Inst Metals J 92:357-9 '63-64
Detection of lattice deformation and recovery in epsilon phase silver-tin alloys. R. M. Waterstrat and G. E. Hicho. bibliog il J Res Nat Bur Stand 68A:317-23 My '64
Gold plating to improve solderability on tin-nickel. A. W. Castillero. bibliog Metal Finishing 62:61 F '64
Plating of lead-tin-antimony ternary alloys. D. L. Cox. Plating 51:976-7 O '64
Properties of materials; tin and its alloys; cast, wrought; tables. Materials in Design Eng 60:173-5 Mid-O '64

TIN alloys—*Continued*

Superconducting properties of the (Nb,Ta,V)$_3$ Sn system. G. D. Cody and others. diags RCA R 25:338-41 S '64

Transition from plane to cellular interface in solidifying tin-lead-antimony alloys. G. S. Cole and W. C. Winegard. bibliog il diag Inst Metals J 92:322-6 '63-64

TIN coating

Deep drawn steel saves steps. il Steel 154:45 Mr 9 '64

Excellent antigalvanic corrosion capacity of tin on light metals. Light Metal Age 22:10 Je '64

TIN compounds

Assisted acetolysis of tributyltin hydride. R. E. Dessy and others. bibliog Am Chem Soc J 86:28-32 Ja 5 '64

Concerning the mechanism of addition of simple olefins to organotin dihydrides. C. Barnetson and others. bibliog Chem & Ind p458-9 Mr 14 '64

Crystal and molecular structure of bis(pentacarbonylmanganese)diphenyltin. B. T. Kilbourn and H. M. Powell. bibliog Chem & Ind p 1578 S 12 '64

Mechanism of reduction of alkyl halides by organotin hydrides. L. W. Menapace and H. G. Kuivila. bibliog Am Chem Soc J 86: 3047-51 Ag 5 '64

Mössbauer spectra give new structural data. R. H. Herber and H. A. Stöckler. Chem & Eng N 42:66-7 Jl 13 '64

Organic compounds of tin; abstract. G. J. M. van der Kerk. Ind Chem 40:47-8 Ja '64

Pfizer enters organotins. il Plastics Tech 10: 23 F '64

Properties of the intermetallic phases in the system Au-Sn. M. B. McNeil. bibliog Electrochem Soc J 110:1169-70 N '63

Recent developments in the organotin stabilizer field. H. V. Smith. bibliog Brit Plastics 37:445-7 Ag '64

Tetrakis(triphenylstannyl)-stannane. H. Gilman and F. K. Cartledge. Chem & Ind p 1231-2 Jl 4 '64

Triphenyl tin compounds in insect control. Soap & Chem Spec 40:223 O '64

TIN halides

Complex formation between zinc and tin halides and nitrogen bases in solution. J. L. Wardell and D. P. N. Satchell. Chem & Ind p2011 D 28 '63

TIN industry and trade

Current tin situation. N. Cleaveland. Min Eng 16:50 O '64

Tin mining; will there be enough? il Eng & Min J 165:124 O '64

Tin, 1963. K. A. Friedlander. Eng & Min J 165:98-9 F '64

TIN iodides

Spectrophotometric determination of tin(IV) by extraction of stannic iodide into ethyl iodide. A. D. Paul and J. A. Gibson, jr. bibliog Anal Chem 36:2321-4 N '64

TIN metallurgy

Better methods could boost tin supply. Steel 155:156-7 O 12 '64

TIN mines and mining

New Brunswick

Can tin be mined for profit in North America? C. Law. map Chem Eng 70:30-2 D 23 '63

New Brunswick tin mine shapes up as major find. il diag Can Chem Process 47:36-9 N '63

TIN ores

See also

Cassiterite

TIN plate

Systems requirements for thin tin mills. P. L. McMath and T. E. Bryan. il diags Iron & Steel Eng 41:145-51 Je '64

Manufacture

Applying digital techniques to thin tin automatic gage control. T. E. Bryan and P. L. McMath. il diags Iron & Steel Eng 40:91-7; Discussion. 97-8 D '63

Compact lead-bismuth annealing plant. W. N. Jenkins; D. W. Games. bibliog il diags Iron & Steel Eng 41:106-14; Discussion. 114-16 Jl '64

Electrical drive systems for thin tin-plate mills. A. F. Kenyon. il diags Iron & Steel Eng 41:69-77; Discussion. 78-9 F '64

TIN plating

Electric systems design for metal processing lines. R. K. Bennett and J. E. Peebles. bibliog il diags Iron & Steel Eng 41:69-88 Ag '64

Investigation into the rapid annealing of blackplate. E. W. Williams. bibliog il diag Iron & Steel Inst J 200:535-40 Jl '62; Abstract. Metal Prog 85:188+ F '64

Tin coating copper and brass. R. L. Seth and others. bibliog Metal Finishing 62:66 Ag '64

Tin plating of lead by immersion. F. A. Lowenheim. Plating 51:551-3 Je '64

Tin plating wins a fresh outlet in oil. il Chem Eng 70:96+ D 9 '63

X-rays record coating weights; programmed system logs weight of tin on flying strip. il diags Iron Age 193:64-5 Ap 16 '64

TINEA capitis. See Ringworm

TIRE fabrics

Chemstrand has process to prevent tire flatspotting. Chem & Eng N 42:19-20 Ag 31 '64

Development of the polyester tire. F. J. Kovac and T. M. Kersker. bibliog diag Textile Res J 34:69-79 Ja '64

Ethylene-propylene elastomers can now invade tires. L. Critides. il Ind & Eng Chem 56:9-10 F '64

Expanders help in weaving tire cord fabrics. diag Textile Ind 128:126+ F '64

Giant machine processes tire fabric. diag Rubber Age 94:437 D '63

Glass fibers chemically bonded with rubber. B. M. Vanderbilt and R. E. Clayton. il Chem & Eng N 42:48+ Je 15 '64

Glass fibers reinforce tires. il Ind & Eng Chem 56:12 Ag '64

Internal characteristics of orthotropic laminates. S. K. Clark. diags Textile Res J 33:935-53 N '63

Joining the hard ones; chemically bonding a rubbery composition around the individual glass fibers. il Product Eng 35: 46 Jl 6 '64

New test tube fibers to improve tire life. Rubber Age 95:479 Je '64

Polyolefins show promise for tire cord. il Chem & Eng N 42:28 F 3 '64

See also

Nylon cords

Rayon cords

Testing

Goodyear tests new fibers for tires. il Mod Textiles Mag 45:28 Je '64

TIRE factories

Equipment

Automation; BFG's road to tire profits. il Can Chem Process 48:60-2 Ja '64

Giant machine processes tire fabric. diag Rubber Age 94:437 D '63

TIRE industry and trade

Racing tire race. il Rubber World 150:22-3 Jl '64

Canada

Automation; BFG's road to tire profits. il Can Chem Process 48:60-2 Ja '64

TIRE valves

Tyre valve production in northern Ireland. il Engineer 217:67-9 Ja 10 '64

TIRES, Airplane

Glass fibers chemically bonded with rubber. B. M. Vanderbilt and R. E. Clayton. il Chem & Eng N 42:48+ Je 15 '64

Supersonic transport-tire design poses no new problems. il Machine Design 36:6 Jl 16 '64

Testing

V/stol landings smoothed by letting air out of tires. J. A. Hoess and others. il diag S A E J 72:58-9 Ap '64

TIRES, Automobile

Firestone introduces radial-ply tires. il Chem & Eng N 42:70+ N 9 '64

Ice-gripping studs go on production tires. il Machine Design 36:6 O 22 '64

Radial-ply tires blur tire cord picture. il Chem & Eng N 42:48+ O 19 '64

Radial-ply tyre from Dunlop. il Engineering 198:463 O 9 '64

Safe tire legislation. il Rubber World 150:27 Ag '64

Studs gain grip on snow tire market. il Chem & Eng N 42:30-1 F 10 '64

Two-ply tires gain in use. R. F. Tomkinson. Rubber Age 94:469 D '63

Tyres so good cars are built round them. il diags Engineering 197:726-7 My 29 '64

Vehicle directional control behavior described in more precise terms. diags S A E J 72: 26-33 F '64

See also

Rubber, Artificial—Tire use

Tire fabrics

Manufacture

Now they're making tires without natural rubber. il Oil & Gas J 62:142-3 Ag 17 '64

TIRES, Automobile—*Continued*

Retreading and recapping

Sufficient air for a tire recapping shop. il diags Comp Air Mag 69:12-15 Jl '64

TIRES, Motor truck

Floatation tires protect lawns. H. S. Kern. il Elec World 161:110 F 10 '64

Inflating system maintains tire pressure. il diag Hydraulics & Pneumatics 16:59 N '63

Negative camber produces positive results. A. F. Weber and others. il diags S A E J 72:82-3 Mr '64

New flurries over fuels and tires. Diesel Equip Supt 42:32-3 Ag '64

Planned tyre maintenance for heavy equipment. il Engineering 197:521 Ap 10 '64

Track or tires for low-cost dirt? il Rock Prod 67:100-2+ F '64

Why the sudden shift to polyurethane wheels. il Mod Materials Handling 19:44-6 Ag '64

TIRES, Rubber

Big tires lick swamp problems. il Oil & Gas J 62:190-2 Ag 17 '64

Blowout-proof segmented tire. il Product Eng 35:60-1 Ag 17 '64

Cost-conscious tire program results in tire life approaching 200,000 miles. il Diesel Equip Supt 42:30-3 O '64

Making off-highway tires last longer. il Coal Age 69:112-13 S '64

Pneumatic-tyred roller. il Engineer 217:874 My 15 '64

Radial ply tire with fiberglass cords held promising by Owens-Corning aide. Automotive Ind 131:78 Ag 17 '64

Self-propelled wheel drives itself by differentially-inflated tire segments. D. Scott. il Automotive Ind 130:136-7+ Je 15 '64

Service-induced diffusion and nodule formation in rubber stocks. R. W. Smith and A. L. Black. bibliog il Rubber Chem & Tech 37:338-47 Ap '64

Thermostability of sulfenamide accelerators in tire compounds. W. Kleeman and G. Erben. bibliog Rubber Chem & Tech 37:204-9 Ja '64

Tire maintenance specialists; Goodyear tire & rubber co. il Diesel Equip Supt 42:20-2 My '64

Tire makers adopt uniform standards. Rubber Age 95:786 Ag '64

Tyres so good cars are built round them. il diags Engineering 197:726-7 My 29 '64

See also

Rubber, Artificial—Tire use

Repair

Isbell's pampered tires see little down time. il Roads & Sts 107:60-2 F '64

Novel package for aerosol tire inflator-sealant. il Soap & Chem Spec 40:133-4 S '64

Quick and to-the-point; big tire maintenance tips. il Roads & Sts 107:70-1 Jl '64

Retreading and recapping

How big tires are retreaded for lower earthmoving costs. il Roads & Sts 106:36-8+ N '63

Tire treaders. il diag Product Eng 35:92 Ap 27 '64

Testing

Factors affecting skid resistance of polybutadiene. G. J. Briggs and others. bibliog il Rubber World 150:41-53 S '64

Lighting for tire testing. il Illum Eng 59:551-2 Ag '64

Looking at the trouble spot where the rubber meets the road. W. E. Meyer. il S A E J 72:36-40 O '64

Proposed method for wet-skid evaluation. R. W. Hallman and C. A. Brunot. il Rubber Age 95:886-9 S '64

Testing tires by telemetry. il Comp Air Mag 69:22 Ag '64

Whole-tire road tests. L. R. Sperberg. Rubber Age 95:582-3 Jl '64

TISSUES

Effect of dietary carbohydrate on glucokinase and mannokinase activities of various rat tissues. S. Abraham and others. bibliog J Nutrition 83:273-88 Jl '64

Freeze-fixing of cells and tissues to preserve life. il Res/Develop 15:63 N '64

Placental transfer and fetal tissue iron utilization in sheep. F. H. Hoskins and S. L. Hansard. bibliog J Nutrition 83:10-14 My '64

See also

Cells
Connective tissues
Muscle

Analysis

Colorimetric procedure for the microdetermination of sulfonamides in animal tissues. R. P. Mooney and N. R. Pasarela. J Agri & Food Chem 12:123-7 Mr '64

Effects of high levels of dietary vitamin A acetate on tissue tocopherol and some related analytical observations. W. J. Pudelkiewicz and others. bibliog J Nutrition 84:113-17 O '64

Micro-homogenizer. F. J. Wray and J. A. Richardson. il diag J Sci Instr 41:575-6 S '64

Statistical analysis of lung trace element levels. I. H. Tipton and J. J. Shafer. bibliog Archives Environmental Health 8:58-67; Discussion. 110-14 Ja '64

TITANATES

Thermodynamic properties of cesium chlorotitanates. R. L. Lister and S. N. Flengas. bibliog diag Electrochem Soc J 111:343-8 Mr '64

See also

Barium titanate
Lead titanate
Magnesium titanates
Strontium titanate

TITANIUM

Aluminum, titanium studied for space platform. Mod Metals 20:82 Ap '64

Anodic oxidation of titanium in formic acid electrolytes. D. M. Cheseldine. Electrochem Soc J 111:1005-7 Ag '64

Austenitic stainless steels precipitation hardened with titanium. R. Blower and G. Mayer. il Iron & Steel Inst J 201:933-43 N '63

Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64

Corrosion resistant metals. L. W. Gleekman. il Chem Eng 70:217-24 N 11 '63

Electrolytic titanium from $TiCl_4$. M. J. Rand and L. J. Reimert. bibliog diag Electrochem Soc J 111:429-37 Ap '64

Future of titanium in everyday uses. W. W. Minkler. il Metal Prog 86:170+ O '64

Metal selector; titanium. Steel 155:sup S39-40 O 12 '64

Method of applying a jewelry finish on titanium. Light Metal Age 22:15 Je '64

Nicotinylhydroxamic acid chelates of uranium and titanium(IV). R. Rowland and C. E. Meloan. Anal Chem 36:2376 N '64

Properties of materials; titanium and its alloys; wrought; tables. Materials in Design Eng 60:176-7 Mid-O '64

Reverse-current chronopotentiometric study of the catalytic reduction of titanium(IV) in the presence of hydroxylamine. J. H. Christie and G. Lauer. bibliog Anal Chem 36:2037-8 S '64

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Titanium content key to zinc alloy improvement. Steel 155:108 N 2 '64

Titanium found too fickle for use with LOX. il Materials in Design Eng 59:128+ F '64

Titanium; mañana metal. Product Eng 35:64 Jl 20 '64

Titanium, 1963. M. Elgo. Eng & Min J 165:130-1 F '64

With the A-11, titanium comes of age. Steel 154:25-6 Mr 9 '64

See also

Rutile

Analysis

Determination of microgram quantities of chloride in high purity titanium by X-ray spectrochemical analysis. J. S. Rudolph and R. J. Nadalin. Anal Chem 36:1815-17 Ag '64

Extraction of titanium with dioctyl methylenebisphosphonic acid and direct spectrophotometric determination of titanium in the organic phase. H. Gorican and D. Grdenic. bibliog Anal Chem 36:330-2 F '64

Spectrophotometric determination of titanium using salicylic acid in H_2SO_4 medium. A. E. Hultquist. Anal Chem 36:149-51 Ja '64

Volumetric determination of titanium and iron in titaniferrous material. J. P. R. Fonseka and N. R. de Silva. bibliog Anal Chem 36:437-8 F '64

Failure

Catastrophic thermoplastic shear. R. F. Recht. bibliog il diags A S M E Trans ser E 31:189-93 Je '64

TITANIUM—*Continued*

Hydrogen effect

Hydrogen embrittlement of titanium alloys. D. N. Williams. bibliog il Inst Metals J 91:147-52 '62-63; Abstract. Metal Prog 85:154+ Mr '64

Protection

Electroplating on titanium and titanium alloys. W. B. Harding. bibliog il Plating 50:131-5 F '63; Abstract. Metal Prog 86:167-8 Jl '64

Testing

Fatique crack propagation characteristics of titanium and two titanium alloys. N. E. Frost and K. Denton. diags Metallurgia 70:113-20 S '64

Uses

Titanium for chemical construction; annual review. H. B. Bomberger. bibliog Ind & Eng Chem 56:55-8 Ag '64

Titanium; ready for commercial breakthrough. il Steel 155:105-14, cover O 19 '64

Titanium today. il diag Space/Aeronautics 41: 92-9 Ap '64

Welding

A-11 jet is a product of titanium and welding technology. il diag Welding Eng 49:70 Ap '64

Aluminum foil shields aid titanium welding. il Light Metal Age 22:17 Je '64

How to weld Ti-6Al-4V rocket cases. G. L. Vonnegut and others. il diags Metal Prog 86:119-23 S '64

Out-of-chamber welding of thick titanium. B. M. Glasgal and Z. Kalajian. il diags Welding J 43:405-8+ My '64

Titanium fabrication now a job-shop reality. il Plant Eng 17:131-3 D '63

Titanium joins the family of commonly used metals. M. M. Johnson and P. Roseman. il diag Welding J 43:267-74 Ap '64

TITANIUM alloys

Electroplating on titanium and titanium alloys. W. B. Harding. bibliog il Plating 50:131-5 F '63; Abstract. Metal Prog 86:167-8 Jl '64

Elongation characteristics of cylindrical titanium and copper alloy tensile specimens with reference to B.S.I. and I.S.O. recommendations for new gauge lengths. R. J. Parker and R. K. Marston. Metallurgia 69:3-6 Ja '64

Exploratory studies of mechanical cycling fatigue behavior of materials for the supersonic transport; abstract. D. N. Gideon and others. Metal Prog 86:206+ Ag '64

Fatigue crack propagation characteristics of titanium and two titanium alloys. N. E. Frost and K. Denton. diags Metallurgia 70:113-20 S '64

Flutter characteristics of titanium alloys. J. Genin and R. P. Peloubet. AIAA J 2:1482-3 Ag '64

Graphitizing effect of titanium. A. De Sy. il diag Foundry 92:43-7 F '64

Heat treatment and fabrication of wrought titanium alloys; data sheet. Metal Prog 85:106 Ap '64

Hydrogen embrittlement of titanium alloys. D. N. Williams. bibliog il Inst Metals J 91:147-52 '62-63; Abstract. Metal Prog 85:154+ Mr '64

Metal selector; titanium. Steel 155:sup S39-40 O 12 '64

Properties of materials; titanium and its alloys; wrought; tables. Materials in Design Eng 60:176-7 Mid-O '64

Properties, specifications and applications for wrought titanium alloys; data sheet. Metal Prog 85:106 Mr '64

Sikorsky turns to titanium forgings for high-performance helicopters. H. W. Bredin. il Mach 70:88-93 Jl '64

Stronger titanium fasteners for high temperatures. C. Hood. Space/Aeronautics 40:105 N '63

Supercooled magnet yields repeatable 100 kilogauss. W. T. Reynolds. Electronics 37:47 F 28 '64

Thermal conductivity, thermoelectric power, and the electrical resistivity of stoichiometric TiNi in the 3° to 300°K temperature range. J. F. Goff. bibliog il diag J Ap Phys 35:2919-27 O '64

Titanium alloys for cryogenic service. R. G. Broadwell and R. A. Wood. bibliog Materials Res & Stand 4:549-54 O '64

Titanium today. il diag Space/Aeronautics 41:92-9 Ap '64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

See also

Iron alloys—Titanium alloys

Testing

Shear tests of 4340 steel, 6Al-6V-2Sn titanium, and 7075-T6 aluminum. A. A. Iannelli. diags Materials Res & Stand 4:207-10 My '64

TITANIUM carbide

Carbide takes the vapor route for coating metal tools. il Iron Age 194:82-3 S 17 '64

Depositing a hard surface. Product Eng 35:42 Ag 31 '64

Thermal conductivity of titanium carbide, zirconium carbide, and titanium nitride at high temperatures. R. E. Taylor and J. Morreale. bibliog Am Cer Soc J 47:69-73 F '64

TiC coating boosts press tooling life. Am Mach 108:57 Ag 31 '64

TITANIUM chlorides

Electrolytic titanium from $TiCl_4$. M. J. Rand and L. J. Reimert. bibliog diag Electrochem Soc J 111:429-37 Ap '64

New route to $TiCl_2$ may help makers of sulfate-route TiO_2. Chem & Eng N 42:47 Mr 23 '64

Oxidation of $TiCl_3$ in hydrocarbon and aqueous media. G. P. Belonovskaya and others. bibliog Rubber Chem & Tech 37:128-33 Ja '64

Polarography in acetonitrile of titanium tetrachloride and tetraiodide in various supporting electrolytes. I. M. Kolthoff and F. G. Thomas. bibliog Electrochem Soc J 111:1065-74 S '64

TITANIUM dioxide. See Titanium oxides

TITANIUM halides

Tritertiary arsine complexes of titanium(IV) halides. G. A. Barclay and others. Chem & Ind p 1710-11 O 10 '64

TITANIUM in the body

Chromium, lead, cadmium, nickel and titanium in mice: effect on mortality, tumors and tissue levels. H. A. Schroeder and others. bibliog J Nutrition 83:239-50 Jl '64

TITANIUM industry and trade

Titanium; on the rebound. A. G. Rosenthal. il Mod Metals 20:27-8+ My '64

Titanium shipments drop more than five per cent. il Chem & Eng N 42:28-9 Ja 20 '64

TITANIUM metallurgy

Mastery of the metallurgy and fabrication of titanium. J Metals 16:322-3 Ap '64

TITANIUM nitride

Thermal conductivity of titanium carbide, zirconium carbide, and titanium nitride at high temperatures. R. E. Taylor and J. Morreale. bibliog Am Cer Soc J 47:69-73 F '64

TITANIUM ores

Mineralogy and origin of the titaniferous deposit at Pluma Hidalgo, Oaxaca, Mex. E. G. Paulson. bibliog il maps Econ Geol 59:753-67 Ag '64

TITANIUM oxides

Antimony in titanium dioxide. R. J. M. Ratcliffe and S. G. E. Stevens. bibliog Manuf Chem 35:83-4 S '64

Crystal defects in two ceramic oxides. il Engineering 197:238 F 7 '64

Effects of titanium dioxide in glass. M. D. Beals and J. H. Strimple. bibliog Glass Ind 44:495-501+, 569-73+, 625-9+, 679-83+ S-D '63

Gloss of baked alkyd urea-formaldehyde finishes pigmented with titanium dioxide. M. B. Alpert and others. bibliog il diag Ind & Eng Chem Product Res & Develop 2:264-9 D '63

Interaction of water with iron and titanium oxide surfaces; goethite, hematite, and anatase. J. J. Jurinak. bibliog J Colloid Sci 19:477-87 Je '64

Make-up products containing titanium dioxide, with comments on their manufacturer and some problems. I. C. R. Bews and N. R. Fisk. il Am Perfumer 79:89-90+ O '64

New laboratories to make white whiter. il Engineering 196:571 N 1 '63

New route to $TiCl_4$ may help makers of sulfate-route TiO_2. Chem & Eng N 42:47 Mr 23 '64

Phase equilibria in the system $FeO-Fe_2O_3-TiO_2$ at 1300° C. R. W. Taylor. bibliog diags Am Mineralogist 49:1016-30 Jl '64

Properties and structure of glasses in the binary systems alkali-TiO_2. B. V. J. Rao. bibliog il Am Cer Soc J 47:455-63 S '64

TITANIUM oxides—*Continued*
Sintering of titanium dioxide. A. G. Grotyohann and K. Herrington. il Am Cer Soc J 47:53-4 Ja '64
Titanium dioxide in paper making. H. B. Clark. bibliog diags Paper Ind 46:393-5 Ag '64
Titanium dioxide; its effect on the transmission of various glasses. J. H. Strimple. Glass Ind 45:193-6 Ap '64
Titanium dioxide; valuable pigment. Ind Finishing 40:96-7 Je '64
Titanium makes bottles tougher. Product Eng 35:65 Mr 16 '64
See also
Anatase
Rutile

Manufacture

Cabot opens new TiO_2 complex. Plastics Tech 9:25 N '63
Flame process produces titanium pigments. flow diag il Automation 11:57-9 F '64
Pittsburgh Plate Glass mines world's largest rutile reserves in Sierra Leone. il Chem & Eng N 42:41-2 Jl 13 '64

TITANIUM tubes. See Tubes, Titanium

TITANIUM work
Boeing applies planing techniques to titanium. il Steel 155:112 Ag 17 64
Boeing mills titanium at 500 sfpm. il Steel 154:63-4 Je 22 '64
Cement holds titanium during hot machining. il Steel 154:63 Je 15 '64
Designing with titanium forgings. R. B. Sparks and J. J. Zecco, jr. il diags Materials in Design Eng 60:91-5 N '64
Easy way to age form titanium. R. E. Layton. il Am Mach 108:77-9 S 14 '64
Fabricating titanium for aerospace applications. L. M. Limbach. il Mod Metals 20:53-4 S '64
Forged titanium components for helicopters. il Light Metal Age 22:25 Je '64
Mastery of the metallurgy and fabrication of titanium. J Metals 16:322-3 Ap '64
Titanium fabrication now a job-shop reality. il Plant Eng 17:131-3 D '63
Titanium formed cold with epoxy tooling. il Steel 154:85 N 25 '64
Titanium shows cost savings in filter application. il Light Metal Age 22:19 Je '64

TITLES, Moving picture. See Moving pictures—Titles

TITRATION. See Volumetric analysis

TOBACCO
Biosynthesis of the nicotiana alkaloids: the incorporation of glycerol-2-4-C^{14} into the pyridine ring of anabasine. E. Leete and A. R. Friedman. bibliog Am Chem Soc J 86:1224-6 Mr 20 '64
Detection of compounds that inhibit vegetative bud growth of tobacco. P. C. Marth and J. W. Mitchell. bibliog il J Agri & Food Chem 12:61-4 Ja '64
Producing continuous Microflake tobacco strips. il Automation 10:78-9 D '63
Total synthesis of *dl*-anatabine. P. M. Quan and others. bibliog Chem & Ind p 1553 S 5 '64
See also
Cigars

Diseases and pests

See also
Tobacco mosaic virus

Physiological effect

Familial factors in human lung cancer and smoking. G. K. Tokuhata. bibliog diag Am J Pub Health 54:24-32 Ja '64
No immediate antismoking campaign ahead. Chem & Eng N 42:24 Ja 20 '64
Smoke of death; editorial. Am J Pub Health 54:1330-1 Ag '64
Smoking report. Sci Am 210:66-7 F '64
See also
Smoking

TOBACCO mosaic virus
Genetic code of a virus. H. Fraenkel-Conrat. il diags Sci Am 211:46-54 O '64

TOBACCO smoke
Effect of tobacco smoke solutions on paramecium. W. Weiss and W. A. Weiss. bibliog Archives Environmental Health 9:500-4 O '64

Analysis

Separation and identification of the steam volatile phenols present in cigarette smoke condensate by capillary column gas liquid chromatography. G. A. L. Smith and D. A. King. bibliog Chem & Ind p540-1 Mr 28 '64
Some hydrocarbons of the gas phase of cigarette smoke. R. J. Philippe and others. bibliog Anal Chem 36:859-65 Ap '64

TOCOPHEROL. See Vitamins—Vitamin E

TOEPLER pump. See Vacuum pumps

TOILET goods
Aerosol bath powders. il Soap & Chem Spec 40:105-7 O '64
Comparative differences in formulations between professional products and consumer products. A. Shansky. Am Perfumer 79:31-3 S; 53-5 O '64
Cosmetics and toilet preparations (cont). W. W. Myddleton. bibliog il Manuf Chem 34:479-80; 35:71-2+ O '63, Ap '64
Packaging challenge in men's toiletries. il Drug & Cosmetic Ind 95:358-60+ S '64
Turn-about packaging for denture cleanser. il Drug & Cosmetic Ind 95:515 O '64
UK sales of pesticides and toiletries. Manuf Chem 35:102 Jl '64
What motivates a man to buy? M. Blumenfeld. Drug & Cosmetic Ind 94:44-5 Ja '64
See also
Cosmetics
Hair preparations

TOILET goods association
Annual convention, 29th, Dixville Notch, N.H., June 24-28. Drug & Cosmetic Ind 95:180-1+ Ag '64
Annual convention, 29th, Dixville Notch, N.H. June 24-28; with abstracts of papers. Soap & Chem Spec 40:55-6+ Jl '64
Scientific section meeting, New York, Dec. 4; with abstracts of papers. Drug & Cosmetic Ind 94:42-3+ Ja '64; Soap & Chem Spec 40:57-8 Ja '64
Scientific section meeting, New York, May 14. Soap & Chem Spec 40:55+ Je '64
Scientific section meeting, New York, May 14; with abstracts of papers. Drug & Cosmetic Ind 94:826-7+ Je '64

TOKYO

Architecture

New work, a new style; bold masses in Tokyo. il plan Arch Forum 121:156-7 Ag-S '64
New work, a new style; clean sweep in Olympics. il Arch Forum 121:158-61 Ag-S '64
Perils of Frank Lloyd Wright; his Tokyo Imperial hotel threatened. il Prog Arch 45:89+ S '64
Tokyo's Olympic buildings reach last lap. il Eng N 173:24-5 S 24 '64

Rapid transit

Long Tokyo monorail opens next week. il Eng N 173:47+ S 10 '64

Streets

Parking in Tokyo. I. Koshimidzu. 4pls Traffic Q 18:169-87 Ap '64

TOLBUTAMIDE. See Sulfonyl compounds

TOLEDO, Ohio

Sewerage

Ranch-style treatment plant serves Toledo suburb. J. E. Frook and others. il Water Works & Wastes Eng 1:56-7 Ja '64

TOLERANCE
Air gages pull in tolerances. R. Johnston. il diags Iron Age 193:80-1 F 13 '64
Assignment of tolerances by dynamic programing. W. A. Moy. diag Machine Design 36:215-18 My 21 '64
Castings; limits defined. il diag Product Eng 35:47-8 Ag 17 '64
Designers trim production costs by clarifying blueprints. P. D. Prudden. diags Iron Age 193:74-6 Ja 16 '64
Determining co-ordinate tolerances; data sheet. F. Eaton. diag Machine Design 36:185 Ag 27 '64
Dimensional tolerances for malleable-iron castings. diags Machine Design 36:140-2 Ag 13 '64
Equations for manipulating tolerances; engineer's notebook. G. H. Ashbridge. Electronic Ind 23:83 Mr '64
For reliable interchangeability use these clearance hole tables. L. D. Skonnord. diags Product Eng 35:110-15 My 25 '64
Geometric and positional tolerance symbol system. H. A. Pohs. diags Machine Design 36:102-8 Ja 30 '64
Googolth machine; metalworking in the billionths range. J. Cupler. il(cover) Steel 155:41-2 Ag 31 '64
Guidelines set for malleable tolerances. il Steel 155:68+ Ag 17 '64
Hand scraping on a surface grinder; Thompson Hydrail. Am Mach 108:65 Jl 6 '64
How to specify tolerances for precision bearings. R. W. Moran. diag Tool & Manuf Eng 52:69-71 Ja '64

TOLERANCE—*Continued*

Machining to tool room specs. il Iron Age 193:82 F 27 '64

Mill holds tight rod tolerances. diags Iron Age 194:82 Jl 16 '64

Model shop accuracy at production line speeds; International business machines corp. R. F. Boadecker and A. C. Turits. il Am Mach 108:91-3 Mr 16 '64

Nominal clearance of the foil bearing. H. K. Baumeister. diags Lub Eng 20:377-80 O '64

Optics for precise machining. A. Waigandt. il Am Mach 108:70-1 Jl 20 '64

Precise machining tightens up in controlled pre-fab room. R. H. Eshelman. il Iron Age 192:76-7 N 21 '63

Rule for efficient true-position tolerancing. J. V. Liggett. diags Product Eng 35:117-18 Mr 30 '64

SCAT (simple capability acceptance test); sequential test on ranges. H. M. Wies, jr. and I. W. Burr. Ind Quality Control 21:266-8 N '64

Size and location tolerancing. R. E. Stanley. diags Machine Design 36:160-5 S 24 '64

Sizing small holes to millionths. J. E. Lovret. il diags Am Mach/Metalworking Manuf 107:110-11 O 14 '63

Throw away that separate go gage! E. S. Roth. diags Tool & Manuf Eng 53:70 N '64

Tolerances for cold-rolled sheets; reference book sheet. Am Mach 108:107+ Je 8 '64

Tolerances for hot-rolled sheets; reference book sheet. Am Mach 108:91+ Ap 27 '64

Tolerances obtainable on malleable castings. il diag Foundry 92:158+ O '64

Tolerances thrive on controlled air. il Iron Age 194:72 O 22 '64

Tough tolerances are held on big missile housings. il Steel 153:84 N 18 '63

True-position dimensioning. H. A. Pohs. diags Machine Design 36:124-8 Jl 2 '64

Where accuracy is a fetish; measuring machines guaranteed to 35 millionths are end products of new concepts in linear standards and gages. R. Le Grand. il Am Mach 108:88-91 S 28 '64

See also

Fits (machinery)

TOLIDINE

Metabolism of N,N′-di(acetoacetyl)-*o*-tolidine. H. M. L. Dieteren. bibliog diags Archives Environmental Health 9:167-8 Ag '64

TOLL plazas. See Roads—Toll plazas

TOLL roads

Toll facilities in the '60s and '70s. L. A. Rubin. il Pub Works 95:85-6+ N '64

Tollway requires well-planned maintenance program. R. W. Kress. il Pub Works 94:92-5 N '63

TOLUENE

Acidity of hydrocarbons; exchange rates of ring-substituted toluene-α-*t*'s with lithium cyclohexylamide in cyclohexylamine. A. Streitwieser, jr. and H. F. Koch. bibliog Am Chem Soc J 86:404-9 F 5 '64

Aromatic substitution; Friedel-Crafts *t*-butylation of benzene and methylbenzenes with *t*-butyl bromide and isobutylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1060-4 Mr 20 '64

Aromatic substitution; Friedel-Crafts isopropylation of benzene and methylbenzenes with isopropyl bromide and propylene. G. A. Olah and others. bibliog Am Chem Soc J 86:1046-54 Mr 20 '64

Benzene-from-toluene units being expanded. il Chem & Eng N 42:23-4 Jl 20 '64

Hydrogen carrier technique for the pyrolysis of toluene. J. G. Burr and others. bibliog diag Am Chem Soc J 86:3846-50 S 20 '64

Intermediates in the hydrolysis of *p*-toluenediazonium ion. E. S. Lewis and J. M. Insole. diags Am Chem Soc J 86:34-8 Ja 5 '64

Mechanism of the pyrolysis of bicyclo[2.2.1] heptadiene; kinetics of the bicyclo[2.2.1] heptadiene to toluene isomerization. W. C. Herndon and L. L. Lowry. bibliog Am Chem Soc J 86:1922-6 My 20 '64

Now proved; phenol from air-oxidation of toluene; process flowsheet. il diag Chem Eng 71:106-8 S 28 '64

Organic ions in the gas phase; cycloheptatriene-7-*d*; decomposition of $C_7H_8^+$ and $C_7H_8^{++}$ from cycloheptatriene and toluene. S. Meyerson. bibliog Am Chem Soc J 85:3340-4 N 5 '63

Organic peroxides; the mechanism of the thermal decomposition of 6-heptenoyl peroxide in toluene; the rearrangements of the 5-hexenyl radical. R. C. Lamb and others. bibliog Am Chem Soc J 85:3483-6 N 5 '63

Steric effects of the nitro group on the uncatalyzed halogenation of methylbenzenes. E. Baciocchi and G. Illuminati. bibliog Am Chem Soc J 86:2677-80 Jl 5 '64

Thermal demethylation of toluene. C. C. Zimmerman and R. York. bibliog diags Ind & Eng Chem Proc Design 3:254-8 Jl '64

Toluene amination gives m-toluidine. P. Kovacic and others. il Chem & Eng N 42:56 S 14 '64

See also

Chlorotoluene

Nitrotoluene

Manufacture

Litol; Houdry process & chemical co. diag Hydrocarbon Process & Pet Refiner 42:192 N '63

TOLUENE diisocyanate

High-performance toluene diisocyanate-polypropylene glycol castable elastoplastics. S. E. Berger and W. Szukiewicz. bibliog Ind & Eng Chem Product Res & Develop 3:129-32 Je '64

Urethane elastomers prepared from dipropylene glycol-tolylene diisocyanate adducts. H. R. Bylsma. bibliog il Ind & Eng Chem Product Res & Develop 3:204-9 S '64

Manufacture

Toluene diisocyanate; the Leonard process co. diag Hydrocarbon Process & Pet Refiner 42:230-1 N '63

Physiological effect

Respiratory irritation from toluene diisocyanate. F. C. Maxon, jr. Archives Environmental Health 8:755-8 My '64

TOLUENE sulfonate

Azide group as a neighboring group; acetolysis of *trans*-2-azidocyclohexyl *p*-toluenesulfonate. A. Streitwieser, jr. and S. Pulver. bibliog Am Chem Soc J 86:1587-8 Ap 20 '64

Chemical behavior of charge-transfer complexes; phenanthrene catalysis in acetolysis of 2,4,7-trinitro-9-fluorenyl *p*-toluenesulfonate. A. K. Colter and others. bibliog Am Chem Soc J 86:3106-13 Ag 5 '64

Hydroboration; the reaction of unsaturated alkyl chlorides and *p*-toluenesulfonates with diborane and disiamylborane. H. C. Brown and K. A. Keblys. bibliog Am Chem Soc J 86:1791-5 My 5 '64

Mechanisms of α-elimination; nitrobenzylsulfonium, -ammonium, and -phosphonium ions reacting with aqueous hydroxide. I. Rothberg and E. R. Thornton. Am Chem Soc J 86:3296-301 Ag 20 '64

Manufacture

Hydrotropes; solubilising agents for detergent powders; manufacture of sodium p-toluene sulphonate. M. A. Phillips. bibliog diags Manuf Chem 34:575-7 D '63

TOLUENESULFONYL compounds

Base-induced pyrolysis of tosylhydrazones of α,β-unsaturated aldehydes and ketones; a convenient synthesis of some alkylcyclopropenes. G. L. Closs and others. bibliog Am Chem Soc J 85:3796-800 D 5 '63

Competitive elimination-substitution reactions; some dramatic differences between bromides and tosylates. P. Veeravagu and others. bibliog Am Chem Soc J 86:3072-5 Ag 5 '64

Conversion of oleyl and elaidyl tosylates to aldehydes. V. Mahadevan. Am Oil Chem Soc J 41:520 Jl '64

Deuterium tracer studies on the elimination reactions of norbornyl tosylate and bromide. H. Kwart and others. bibliog Am Chem Soc J 86:2606-11 Jl 5 '64

Evaluation of the relative importance of charge-dipole interactions and steric strain acceleration in conformationally mobile systems. H. Kwart and T. Takeshita. bibliog diags Am Chem Soc J 86:1161-6 Mr 20 '64

Oxime tosylates react with Grignard reagents; abstract. A. A. Pelosi, jr. and R. E. Lyle. Chem & Eng N 42:45 Ap '64

Proximity effects; stereospecific synthesis and acetolysis of *cis*- and *trans*-5-methylcyclooctyl tosylates. A. C. Cope and D. M. Gale. bibliog Am Chem Soc J 85:3743-7 D 5 '63

Radiochemical study of the acetolysis of 3-phenyl-2-butyl tosylate. W. B. Smith and M. Showalter. Am Chem Soc J 86:4136-9 O 5 '64

Small-ring compounds; the formolysis of allylcarbinyl tosylate. K. L. Servis and J. D. Roberts. bibliog Am Chem Soc J 86:3773-7 S 20 '64

TOLUENESULFONYL compounds—*Continued*

Stereochemistry of asymmetric silicon; carboxylate and tosylate leaving groups. L. H. Sommer and others. bibliog Am Chem Soc J 86:3280-3 Ag 20 '64

Synthesis of deoxy-compounds from carbohydrate toluene-*p*-sulphonylhydrazones. A. N. de Belder and H. Weigel. Chem & Ind p 1689 O 3 '64

TOLUIDINE

Separation of isomeric toluidines by gas liquid partition chromatography using Ucon oil as stationary phase. J. S. Parsons and J. C. Morath. Anal Chem 36:237-8 Ja '64

Toluene amination gives m-toluidine. P. Kovacic and others. il Chem & Eng N 42:56 S 14 '64

TOMATINE

Tomatine and digitonin as precipitating agents in the estimation of cholesterol. C. H. Edwards and others. bibliog Anal Chem 36:420-1 F '64

TOMATO catsup

Storage stability of tomato ketchup with various sweeteners. R. M. Pangborn and B. S. Luh. bibliog Food Tech 18:576-83 Ap '64

TOMATO juice

Evaluation of two methods of tomato juice concentration. J. Kopelman and H. C. Mannheim. bibliog il Food Tech 18:907-14 Je '64

TOMATO ketchup. See Tomato catsup

TOMATO paste

Factors influencing storage stability of canned tomato paste. B. S. Luh and others. bibliog Food Tech 18:561-4 Ap '64

TOMATOES

Delaying spoilage of tomatoes. J. C. Ayres and others. bibliog il Food Tech 18:1210-13 Ag '64

Determination of amiben in tomatoes by electron affinity gas chromatography. C. A. Bache and others. bibliog J Agri & Food Chem 12:185-7 Mr '64

Exciting breakthrough; freezing sliced tomatoes. il Food Eng 36:56-7 Ja '64

Pest control, chemical residues, and the quality of the finished product. E. F. Stier. Food Tech 18:168-71 F '64

Production of tomato powder; abstract. F. Albanese. Chem & Ind p 1299 Jl 18 '64

Sanitation in mechanical harvesting and bulk handling of canning tomatoes. G. K. York and others. bibliog Food Tech 18:97-100 Ja '64

Tomatoes for Thanksgiving; with gas heat. il Gas Age 130:32-3 N '63

Varietal and location influence on acid composition of tomato fruit. D. B. Bradley. bibliog J Agri & Food Chem 12:213-16 My '64

Testing

Fate of amiben in tomato plants. S. R. Colby and others. bibliog J Agri & Food Chem 12:320-1 Jl '64

TONES

Preliminary experiment on the perceptual basis for musical instrument families. M. Clark, jr. and others. diag Audio Eng Soc J 12:199-203 Jl '64

TOOL and manufacturing engineers, American society of. See American society of tool and manufacturing engineers

TOOL engineering

Manufacturing abroad. M. Kronenberg. Published in monthly numbers of Tool and manufacturing engineer

Tech digests. Published in monthly numbers of Tool and manufacturing engineer

Tool engineering ideas. Published in monthly numbers of Machinery

Tool engineering management and exploding technology. T. F. Vajda. Automation 10:124-5 D '63

Bibliography

Bookshelf. Published in monthly numbers of Tool and manufacturing engineer

Study and teaching

Continuing education, your pathway to professional progress. B. G. Davis. Tool & Manuf Eng 51:69-71 N '63

TOOL rooms

Tooling up tool storage saves time. il Mod Materials Handling 18:57 N '63

What's going on in the tool room? W. C. Cooling. flow chart diags Mill & Factory 73:44-9 D '63

TOOL steel

Cobalt in high speed steels. F. R. Morral. Metal Prog 85:150+ Je '64

Faster cutoff of tool steels with dry abrasive wheels. C. H. Wick. il Mach 70:99-101 N '63

High speed tool steel: Dannemora Brilliant WKE 4. il Automobile Eng 54:411 S '64

Machining H11 tool steel. A. Zimmerman. il Am Mach 108:127-30 Ap 13 '64

Modified high speed steels increase tool life. G. Steven and S. Smialek. il Tool & Manuf Eng 51:75-8 N '63

Octagonal mold shapes up tool steel structure. C. Bryant and R. F. Harvey. il Iron Age 194:138-9 O 29 '64

Properties of materials: tool steels; wrought; tables. Materials in Design Eng 60:102-6 Mid-O '64

Surface finishes and treatments for high speed steel tools. R. G. Kennedy and others. il Mach 70:128-32 Je '64

Tool steel strip rolled from powder. il Steel 154:118+ My 4 '64

Testing

When tools made by electrical discharge machining fail. L. R. Wendell and L. R. Walton. il Am Mach 108:101-2 F 17 '64

TOOLS

Aids for home workers. il Engineering 197:624 My 1 '64

Carbide takes the vapor route for coating metal tools. il Iron Age 194:82-3 S 17 '64

Designing tools for electrical porcelain is a fine art; interview with Albert J. Pointon. A. C. Allen. Cer Ind 83:100-1 S '64

Sparks from hand tools? Gas Age 131:33 Jl '64

See also

Bits
Electric wiring tools
Files and rasps
Gages
Garden tools
Machine tools
Wrenches

Exhibitions

Tool exposition and engineering conference, Detroit, April 20-24; with list of exhibitions, equipment on display. Automotive Ind 130:66-8 Ap 1 '64; plan Am Mach 108:181-91+ Ap 13 '64

Tool show report; ASTME conference and exposition, Detroit. il Am Mach 108:106-9 My 11 '64

TOOLS, Plastic

Epoxy tooling; time and money are saved in the spinning of aluminum reflectors. il Plastics World 22:29 S '64

For short-run production of rp parts, try hot plastic tooling. M. S. Vuksanovich. diags Plastics Tech 9:49-50 N '63

Honeycomb in plastic tooling. A. C. Marshall. il diags Tool & Manuf Eng 52:75-7 Ja '64

Low-density foams for nonmetallic tooling. J. Delmonte. il Tool & Manuf Eng 53:71-2 S '64

Spray layup of plastic tooling. D. G. Prideaux. il Tool & Manuf Eng 52:87-9 Ap '64

Manufacture

Electroforming + room temperature vulcanizing silicone rubber = new process for plastics tooling. il Plastics Tech 10:16-17 Ag '64

Fabricating integrally heated reinforced plastics tools. L. F. Hesse. il diags Plastics World 22:36-40 S '64

TOOLS, Pneumatic. See Pneumatic tools

TOOLS, Powder actuated. See Power cartridge

TOOTH paste and powder. See Dentifrices

TOOTHBRUSHES, Electric

For personal use. il Engineering 197:336 F 28 '64

TOPAZ

Errors in the measurement of 2V with the universal stage. M. Munro. bibliog diags Am Mineralogist 48:308-23 Mr '63; Discussion. A. C. Tobi. 49:812-13; Reply. 813-15 My '64

TOPOGRAPHICAL maps

Use of color film in manufacture of color map transparencies for radar trainers. E. E. Griffith. il diags SMPTE J 73:849-53 O '64

TOPOGRAPHICAL surveying

See also

Photogrammetry

TOPOGRAPHY

Camera for X-ray diffraction topography. W. J. Spencer and E. J. Brown. bibliog il diags R Sci Instr 34:1420-2 D '63

TOPOGRAPHY—*Continued*

Diffractometer attachment for fast X-ray topography. L. S. Birks and B. K. Grant. il diag R Sci Instr 35:1075-6 Ag '64

Moiré patterns of isopachics. P. S. Theocaris. bibliog il diags J Sci Instr 41:133-8 Mr '64

Reservoir topography by shoreline plotting. D. L. Crandall. il maps Am Soc C E Proc 90 [SU 1 no 3874]:39-56 Ap '64

Three-dimensional X-ray topographic studies of internal dislocation sources in silicon. A. Authier and A. R. Lang. bibliog il diags J Ap Phys 35:1956-9 Je '64

TOPOLOGY

Absolute configuration and chemical topology. S. J. Tauber. diags J Res Nat Bur Stand 67A:591-9 N '63

Multivariable curve interpolation. J. Ferguson. il diags Assn for Computing Mach J 11:221-8 Ap '64

Network analogy for linear structures. W. R. Spillers. bibliog diags Am Soc C E Proc 89 [EM 4 no 3601]:21-9 Ag '63; Discussion. 89 [EM 6 no 3774]:277-8 D '63; 90 [EM 1 no 3811]:175-6 F '64; Reply. 90 [EM 4 no 4000]:159 Ag '64

Network-topological formation of structural analysis. S. J. Fenves and F. H. Branin, jr. bibliog diags Am Soc C E Proc 89 [ST 4 no 3611]:483-514 Ag '63; Discussion. 90 [ST 1 no 3812]:261-70 F '64; Reply. 90 [ST 4 no 4001]:273-5 Ag '64

No. one electronic switching system switching network plan. A. Feiner and W. S. Hayward. diags Bell System Tech J 43:2193-220 pt 2 S '64

Topological analysis of non-recurrent ladder networks. F. Walker. diag IEEE Proc 52:860-1 Jl '64

TORCHES

Are you making full use of your gas torches? E. A. Daniels. il Welding Eng 49:42-4 F '64

Better control achieved with new surfacing torch. il Welding J 43:757-8 S '64

TORNADOES

Tornado destroys TVA yard, towers. il Elec World 161:119 Mr 23 '64

TORONTO

See also

Building—Toronto

Architecture

Seagram buildings for Toronto. il Prog Arch 45:61 My '64

Subways

Temperature and ventilation in the Toronto subway. W. G. Brown. il diags Engineer 218:321-4 Ag 28 '64

Two Canadian cities go separate ways in building their subways. il maps Eng N 173:86-90 Ag 6 '64

Water supply

Progress report on the metropolitan Toronto supply. F. J. Horgan. Am Water Works Assn J 56:1297-302 O '64

Toronto's water system; is water works progress personified! R. L. Clark. il Water Works & Wastes Eng 1:82-4 My '64

TORPEDOES

Astor, a deadly undersea weapon; illustrations with text. Westinghouse Eng 24:54-5 Mr '64

TORQUE

Application characteristics of torque motors. S. Noodleman. diags Automation 10:69-72 N '63

Astronaut tool's floating motor minimizes reaction torque. il diags Machine Design 36:154-5 F 13 '64

Correct fastener tightening prevents unscheduled downtime. T. Green. il diags Plant Eng 18:118-21 O '64

Electric motors: torque motors. S. L. Pop and R. C. Hughes. Machine Design 36:113-15 Mr 19 '64

Fastener tension and torque. T. Green. il diags Instruments & Control Systems 37:99-100 F '64

Full-flow swivel coupling with low torque. diag Engineering 197:629 My 8 '64

Horsepower measurement via force. D. B. Kendall. il diag Instruments & Control Systems 37:102-4 F '64

Load-torque analysis is basis for legal stop ability design. G. P. Mathews. diag S A E J 72:60-5 Ja '64

Measuring low torque. W. W. Williams. il diags Instruments & Control Systems 37:94-7 F '64

On-line motor performance testing. B. G. Hall. diags Instruments & Control Systems 37:107 F '64

Predicting bearing torque in large-diameter, thin-section bearings. L. Burgmeier. bibliog il Machine Design 36:118-23 Ja 30 '64

Relative magnitudes of the space-environment torques on a satellite. L. E. Wiggins. bibliog diag AIAA J 2:770-1 Ap '64

Roll torque and normal force generation in acoustically unstable rocket motors. G. A. Flandro. diags AIAA J 2:1303-6 Jl '64

Rotational hysteresis in tungsten steel and in hysteresis motors. J. M. Lommel. bibliog J Ap Phys 35:970-1 pt 2 Mr '64

Space tool corrals bucking torque. diags Iron Age 193:57 Ja 23 '64

Tapping machine designed for torque control. il diag Tool & Manuf Eng 52:95 Mr '64

Torque and rotational hysteresis in fcc single-crystal cobalt films. W. D. Doyle. bibliog J Ap Phys 35:929-30 pt 2 Mr '64

Torque and thermal resistance. W. E. Goldman. il diag Electronics 37:104-6 S 7 '64

Torque-controlled drive evaluated for turning operations. il Mach 70:113-15 Jl '64

Torque measuring equipment. il diag Instruments & Control Systems 37:90-2 F '64

Torque motor as a separate servovalve component. N. D. Trbovich. il diags Hydraulics & Pneumatics 17:103-4+ My '64

Torque motor for quantity production. J. MacFarlane. il diags Engineer 217:866-8 My 15 '64

Torque operates sensing device. il diag Tool & Manuf Eng 52:76 F '64

Torque reversing drive for light dc target motor. A. V. Feltman and J. G. Cottingham. diags R Sci Instr 35:814-15 Jl '64

Torque tension tester insures quality. il Steel 154:81 Ja 27 '64

Torquing with air. A. G. Ringer. il diag Instruments & Control Systems 37:111-13 Mr '64

Transfer of moment of inertia. M. F. Spotts. diags Product Eng 35:109-12 Ja 6 '64

TORQUE converters

New heavy duty torque converter does the work of automatic transmission. C. J. Kelly. il Automotive Ind 130:65 Mr 1 '64

Test rigs for torque converters. H. J. Bunker. il diags Ind Electronics 1:759-66 D '63

TORQUE meters

Determining instrument bearing torque. P. A. Christopher. diags Machine Design 36:197-9 O 22 '64

Electronic torque meter. il Engineer 218:255 Ag 14 '64

In-flight torquemeters aid in utility aircraft-engine development; abstract. L. F. Monts. S A E J 72:84-5 F '64

Lever-shaft torque measurement. J. Guthrie. il diags Instruments & Control Systems 37:116-18 Ag '64

New torque meter or torque magnetometer. R. R. Birss and P. M. Wallis. bibliog plan diags J Sci Instr 40:551-6 D '63

Power measurement by a digital technique. G. White and W. A. Evans. il diags Engineer 217:388-91 F 28 '64

Toothed wheels measure torque. S. Van Manen. diag Control Eng 11:117 Mr '64

Torque measurement by magnetic pickups. R. P. Benedict and V. Donato. Electro-Tech 74:118-20 Ag '64

TORSION

Analysis and design of a cantilever staircase. P. L. Gould. il diags Am Concrete Inst J 60:881-99 Jl '63; Discussion. 61:1945-8 Mr '64

Deformation of polycrystalline zinc by hot torsion. G. P. Lewis and W. J. M. Tegart. bibliog il Inst Metals J 92:249-51 '63-64

Fundamental torsional variations of solid aerofoils. J. C. Maltbaek. Engineer 217:391-2 F 28 '64

Impact torsional vibration of direct-current hot strip mill drive motors. S. R. Petersen. diags Iron & Steel Eng 41:105-10 O '64

Influence of stress and deformation on the structure of the cotton fibers. J. Isings. bibliog il Textile Res J 43:236-46 Mr '64

Machine for producing square torsion pulses of microsecond duration. D. P. Pope and others. bibliog il diags R Sci Instr 35:1351-5 O '64

Metal fatigue in near-safe specimens, illustrated by copper and brass under alternating torsion. W. A. Wood and others. il Inst Metals J 91:391-4 '62-63; Abstract. Metal Prog 85:176+ Je '64

Method for the automatic measurement of internal friction by a torsion pendulum. T. Lindveit and others. diags J Sci Instr 41:564-5 S '64

Noncircular shafts in torsion; data sheet. L. W. Singleton. Machine Design 36:183-6 S 24 '64

Reduction of torsional stiffness due to thermal stress in thin, solid wings. D. J. Johns. diag AIAA J 2:1850-2 O '64

TORSION—*Continued*

Review of code requirements for torsion design. G. P. Fisher and P. Zia. diags Am Concrete Inst J 61:1-44 bibliog(p20-2) Ja '64; Discussion. 61:1163-73; Reply. 1173-4 S '64

Stability of internally pressurized conical shells under torsion. V. I. Weingarten. bibliog il diag AIAA J 2:1782-8 O '64

Torsion of a circular cylinder. H. D. Conway and J. R. Moynihan. diags A S M E Trans ser E 31:346-8 Je '64

Torsion of bars with isosceles triangular and diamond sections. N. A. Gloumakoff and Y. Y. Yu. diags A S M E Trans ser E 31: 332-4 Je '64

Torsion of nonhomogeneous bars. Y. Chen. Franklin Inst J 277:50-4 Ja '64

Torsion pendulum photometer. M. Stimler and others. diags R Sci Instr 35:311-13 Mr '64

Torsional properties of single wool fibers; disulfide reduced and permanently set wool fibers. M. Feughelman and T. Mitchell. diag Textile Res J 34:593-7 Jl '64

TORSION balances

Electrostatic torsion balance for magnetic film measurements. W. T. Siegle and W. R. Beam. diags R Sci Instr 35:1173-5 S '64

TOSYLATES. See Toluenesulfonyl compounds

TOUCH

Computer-aided instrumentation system for studies in tactual perception; abstract. J. C. Bliss and H. D. Crane. Electronics 37:116-17 Je 29 '64

Information from air jets; tactile perception method. il Comp Air Mag 69:22 Ja '64

TOURIST camps, hostels, etc.

See also

Motels

TOURMALINE

Electron diffraction study of a pyroelectric tourmaline crystal. S. Yamaguchi. il J Ap Phys 35:1654-5 My '64

Piezoelectric sensitivity and reproducibility of Z-cut tourmaline to 7 kbar. J. R. Hearst and others. il diags J Ap Phys 35:2145-50 Jl '64

TOWBOATS

Deep-sea salvage tug Britonia. il Marine Eng/Log 69:52-3 Mr '64

Distinctive ships; high-speed towboat Joseph M. Jones. il Marine Eng/Log 68:76 D '63

Distinctive ships; Smit's new flagship Zwarte Zee. il Marine Eng/Log 68:73+ D '63

Dual-purpose twin-screw tug Tradesman. il Engineer 218:283 Ag 21 '64

Extensive aluminum fabrication used in new coast guard integrated tow. il Marine Eng/Log 69:42 Je '64

Flywheel brake system for a tug. Naval Eng J 75:963-4 D '63

McAllister twins have lots of pull. il Marine Eng/Log 69:72-3 O '64

Nashville Bridge delivers another Lady to Inland Oil. il Marine Eng/Log 69:60 Mr '64

Needed; a revolution in towboat design. W. L. Craig. Marine Eng/Log 69:84+ S '64

New concept in marine transportation utilizing a nuclear-powered tug. P. N. Garay. diags Naval Eng J 75:955-63 D '63

New efficiency from old tug achieved when engine is replaced. il Marine Eng/Log 69: 78A Ag '64

New 4,000-hp Soviet pusher tug under construction. Y. Moralevich. il Marine Eng/Log 69:60-1 Ag '64

New towboat is highly maneuverable; MV Ann King. il Marine Eng/Log 69:76+ O '64

Outwitting the sea with Wysmuller tugs; Werkspoor power. il Marine Eng/Log 69: 28F S '64

Pacific Inland increases tug power. il Marine Eng/Log 70:66A My '64

St Louis ship delivers two fleeting-class towboats. il Marine Eng/Log 70:60 My '64

Shrouded prop drives supertug. R. J. Corcoran. il diags Mech Eng 86:54-5 F '64

Towboat John H. MacMillan jr. il Marine Eng/Log 69:56-7 Jl '64

Tug that is also a tender. il Engineering 197: 571 Ap 24 '64

Twenty Grand twins delivered by Burton. il Marine Eng/Log 69:62 Ag '64

Twin-screw tug/tender Calshot. il Engineer 217:704 Ap 17 '64

U.S. flag's most powerful tugboat; Margaret Moran. il Marine Eng/Log 69:46-7 Ja '64

What does tomorrow hold for towboats? il Marine Eng/Log 69:171-2+ Je 15 '64

TOWELS

Manufacture

Key to towel finishing; simple, effective processing. il Textile World 114:83-4 Ja '64

TOWER buildings. See High buildings

TOWER clocks

Big Ben's big brother. W. C. Kuhnke. il Illum Eng 59:420-1 Je '64

TOWERS

See also

Bell towers

Electric lines—Poles and towers

Radio towers

Television towers

TOWERS, Aluminum

Guyed aluminum V-tower faults corrected. E. S. Zobel and C. P. Zimmerman. il diags Elec World 161:28-9 Ja 6 '64

Lone guyed-V aluminum tower makes crossover. D. Wiese. il Elec World 162:62-3 Ag 10 '64

New aluminum X-braced 345-kv H-frame carries severe test loadings. il Elec World 160: 30-1 D 16 '63

Optimized aluminum structures save on maintenance; with nomographs. P. T. Coffin. Elec World 161:56-9+ Ap 6 '64

Vandalism, storm bring down towers. il Elec World 162:19-20 Ag 31 '64

TOWERS, Concrete

Power tower is actually a thin arch dam. il diag Eng N 171:92-3 N 14 '63

Revolving restaurant for post office tower. il diag Engineer 216:985-6 D 13 '63

Slip forming New York State World's fair pavilion. M. Madison. il Am Concrete Inst J 61:755-62 Jl '64

Strain measurements in a reinforced concrete winding tower. L. J. Thomas. bibliog il diags Engineer 218:491-6 S 25 '64

TOWERS, Steel

Arc welding helps to design guyed tower 3000 feet high. A. Amirikian. il diags Welding J 42:955-62 D '63

Box members slim structures. R. L. Gregg. il diags Elec World 161:18-19 F 3 '64

Evaluate design for SCEC 500 kv. J. D. Phillips and F. A. Denbrock. il diags Elec World 161:53-5+ Ap 6 '64

High-elastic steel members strengthen tall towers. A. A. Osipovitch. il diags Elec World 161:98-100 Je 15 '64

High-strength steel helps reduce tower cost. diag Power Eng 68:40 Ap '64

Tests verify design for TVA's 500-kv towers. G. M. Wilhoite. il map diags Am Soc C E Proc 90 [PO 3 no 4082]:81-90 O '64

Vibration of towers as related to wind pulses. A. N. L. Chiu and others. bibliog diags Am Soc C E Proc 90 [ST 5 no 4114]: 137-60 O '64

Welded steel cut bell tower cost 51 per cent. G. A. Crawford and M. W. Jackson. il Welding Eng 49:44 N '64

Welders stack plates 260-ft high. il Eng N 173:50 S 10 '64

TOWNES, Charles H.

Harrison Howe award to Townes. por Chem & Eng N 41:109 N 18 '63

TOXINS and antitoxins

Bacterial endotoxins. A. I. Braude. il Sci Am 210:36-45 Mr '64

Tetrodotoxin has hemilactal structure. Chem & Eng N 42:42-3 Je 8 '64

Toxin production by moulds; abstracts of four papers. Chem & Ind p 1222-3 Jl 4 '64

TOYS

Larry the lion speaks. il Product Eng 35:54 Ap 13 '64

Science toys make future engineers. H. Ruchlis. il Mech Eng 85:46-9 N '63

See also

Automobiles, Toy

Manufacture

How industry designs toys with sound and fury; Mattel, inc. W. B. Wallace. il Product Eng 35:108-11 S 14 '64

TOYS, Plastic

Wide use of plastics in miniature typewriter. il Brit Plastics 36:681 D '63

See also

Dolls, Plastic

TRACE elements

Analytical technique detects and measures trace metals; abstract. F. J. Berlandi and H. B. Mark, jr. Chem & Eng N 42:84 S 14 '64

Application of di-β-naphthylthiocarbazone as a quantitative trace heavy metal spectrophotometric reagent. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1316-20 Je '64

Chromatographic method for determination of trace impurities in grade-A helium. A. Purer and C. A. Seitz. diags Anal Chem 36:1694-5 Jl '64

TRACE elements—*Continued*

Comparison of electron capture and hydrogen flame detectors for gas chromatographic determination of trace amounts of metal chelates. D. K. Albert. bibliog Anal Chem 36:2034-5 S '64

Cornell trace analysis laboratory aids materials research. il Anal Chem 36:sup 101A-3A O '64

Determination of trace elements in electroplating solutions by atomic absorption spectroscopy. C. M. Whittington and J. B. Willis. bibliog il Plating 51:767-73 Ag '64; Discussion. 51:1197 D '64

Di-β-naphthylthiocarbazone (dinaphthizone) compared with dithizone as an analytical reagent for the determination of trace metals in natural waters. O. W. Lombardi. bibliog Anal Chem 36:415-18 F '64

Effect of solution trace impurities on I-V characteristics of electrodeposited surface barrier diodes. G. M. Krembs and M. M. Schlacter. bibliog il diag Electrochem Soc J 111:417-20 Ap '64

Environmental factors involved in studying the relationship between soil elements and disease. R. W. Armstrong. bibliog diag Am J Pub Health 54:1536-44 S '64

Gas chromatographic determination of microgram amounts of carbon in sodium metal. T. G. Mungall and others. diags Anal Chem 36:70-2 Ja '64

Investigation of trace impurities in solids by electron paramagnetic resonance; distribution of manganese in calcium carbonate. S. Fujiwara. bibliog Anal Chem 36:2259-61 N '64

Minor element release from organic-N fertilizer materials in laboratory and field studies. J. G. Fiskell and others. bibliog J Agri & Food Chem 12:363-7 Jl '64

Natural occurrence of lead. R. T. P. de Treville. Archives Environmental Health 8:212-21 bibliog(p220-1) F '64

New digestion reagent for the determination of microgram quantities of phosphorus in organic compounds. P. M. Saliman. Anal Chem 36:112-14 Ja '64

Problems of direct determination of trace nickel in oil by X-ray emission spectrography. E. L. Gunn. bibliog Anal Chem 36:2086-90 O '64

Rapid direct-reading spectrochemical method for the determination of trace metals in the ash from catalytic feed stocks. D. Hoggan and others. Anal Chem 36:1955-7 S '64

Sensitive and selective spectrophotometric reaction for determination of trace amounts of calcium. M. Herrero-Lancina and T. S. West. bibliog Anal Chem 35:2131-5 D '63

Separation and determination of trace quantities of uranium in presence of plutonium. R. J. Baltisberger. Anal Chem 36:2369-70 N '64

Separation of traces of zinc with triisooctylamine and its spectrophotometric determination in electrolytic nickel. W. L. Ott and others. bibliog Anal Chem 36:363-4 F '64

Some properties of the trace heavy metals spectrophotometric reagent, di-β-naphthylthiocarbazone. R. J. DuBois and S. B. Knight. bibliog Anal Chem 36:1313-16 Je '64

Spectrographic analysis of air-dried sewage sludge. R. N. Thompson and others. bibliog WPCF J 36:752-9 Je '64

Spectrographic method for determination of trace elements in milk. J. L. Voth. Anal Chem 35:1957-8 N '63

Spectrophotometric determination of trace amounts of zirconium, titanium, and molybdenum in tungsten using anion exchange separations. K. F. Sugawara. Anal Chem 36:1373-4 Je '64

Spectrophotometric determination of trace concentrations of carbonyl compounds. D. E. Jordan and F. C. Veatch. Anal Chem 36:120-4 Ja '64

Spectrophotometric determination of trace fluoride in organic compounds following combustion in oxyhydrogen flame-quartz combustion tube. D. E. Willis and W. T. Cave. bibliog diags Anal Chem 36:1821-5 Ag '64

Statistical analysis of lung trace element levels. I. H. Tipton and J. J. Shafer. bibliog Archives Environmental Health 8:58-67; Discussion. 110-14 Ja '64

Stochastic behavior of trace substances. J. S. Rustagi. bibliog Archives Environmental Health 8:68-76; Discussion. 110-14 Ja '64

Systematic neutron activation technique for the determination of trace metals in petroleum. U. P. Colombo and others. diags Anal Chem 36:802-7 Ap '64

Trace element determinations in soils and stream sediments by an internal standard spectrographic procedure. E. F. Cruft. bibliog il Econ Geol 59:458-64 My '64

Trace metal levels in human serum and blood. E. M. Butt and others. bibliog Archives Environmental Health 8:52-7; Discussion. 110-14 Ja '64

Trace metals boost gasoline performance. W. F. Schoen and F. L. Voelz. il Chem & Eng N 42:40+ Ag 31 '64

Ultratrace analysis of metals with a curved crystal X-ray milliprobe. C. L. Luke. Anal Chem 36:318-22 F '64

TRACER control. See Machine work—Copying processes

TRACERS, Radioactive. See Radioactive tracers

TRACHOMA. See Conjunctivitis

TRACK layer motor vehicles. See Motor vehicles—Track layer types

TRACKING of artificial satellites. See Satellites, Artificial—Tracking

TRACKING of guided missiles. See Guided missiles—Tracking

TRACTORS

'Copter-transportable equipment; BAT, army's all-purpose tractor, can be carried in sections. E. J. Rodrick. il Automotive Ind 130:31-3 Ap 1 '64

Hydraulic front-wheel drive ups tractor pull. il diags Machine Design 36:150-1 O 8 '64

L.P.G.-fuelled tractor. Engineer 218:519 S 25 '64

New Dodge tilt-cab offers many options. il Diesel Equip Supt 42:38 Jl '64

Turbine truck unveiled. il diags Machine Design 36:168-73 O 22 '64

Wheeled tractor has eight speeds. il Eng N 172:49 Ap 9 '64

Control

Clutch/converter/transmission combination offers many advantages. diags Diesel Equip Supt 42:32-3 Ja '64

Hydraulic control is versatile. diag Eng N 173:44+ Jl 16 '64

Design

Airborne earthmover; Universal engineer tractor. il Mod Metals 19:72 N '63

Seats

Cool and comfortable; Nordel seats. il Product Eng 35:79 O 26 '64

Steering gear

Hydraulic system provides full-time, two-speed high-maneuverability power steering for two-wheel tractors. R. D. Johnson. diags S A E J 72:70-1 Ja '64

New positive steering system. D. R. Buerschinger and J. H. Hyler. il diags S A E J 72:80-1 Mr '64

Transmission

Clutch/converter/transmission combination offers many advantages. diags Diesel Equip Supt 42:32-3 Ja '64

Dynamometer test system insures high quality of International Harvester heavy duty tractor transmissions. C. J. Kelly. il Automotive Ind 129:54 N 1 '63

Fuller's twin-countershaft transmissions. il diags Diesel Equip Supt 42:41-3 F '64

Hydraulic transmission control maintains nonslip shifting. il diags Machine Design 36:214-15 Ap 23 '64

Hydrostatic drives for aircraft tow-tractors. il Product Eng 35:43 Ag 31 '64

Hydrostatic tractor tows plane. il Hydraulics & Pneumatics 17:26 S '64

Wheels with transmissions. il diags Mech Eng 86:60-1 Mr '64

TRACTORS, Crawler. See Motor vehicles—Track layer types

TRACTORS, Farm

Blades provide comeback for steel tractor wheels. il diag Welding Eng 49:78 O '64

Direct injection combine and tractor engine. il Engineering 196:816 D 27 '63

Improved agricultural tractors. il Engineer 218:558 O 2 '64

New farm tractor. Automotive Ind 131:124 O 15 '64

Two-wheeled tractors. il Engineer 218:520 S 25 '64

Design

Comfort counts in tractor design. M. D. Hill. Automotive Ind 130:57-8 Je 15 '64

Tractor noise and safety cabs; abstracts of papers. Engineer 217:271-2 F 7 '64

20 practical pointers for tractor power-shift transmission designers. K. J. Harris and J. K. Jensen. il S A E J 71:40-1 D '63

TRACTORS, Farm—*Continued*

Hydraulic equipment

Universal or specialized oils for the farm. J. D. Savage and others. bibliog S A E J 72:73-5 Ap '64

Lubrication

Universal or specialized oils for the farm. J. D. Savage and others. bibliog S A E J 72:73-5 Ap '64

Noise

Tractor noise and safety cabs; abstracts of papers. Engineer 217:271-2 F 7 '64

TRACTORS, Garden

Garden tractor output up. C. J. Kelly. il Automotive Ind 131:73-6 Ag 15 '64

Miniature tractors. il Engineer 218:382 S 4 '64

Reinforced plastics tractor body. il Plastics World 22:43 Ag '64

Tractor pivots instead of turning. il diag Product Eng 35:48-9 Ja 20 '64

TRACTORS, Industrial

Boom in small Diesel tractors. il Diesel Equip Supt 42:21-6 Ja '64

How to select size of tow tractors. R. L. Brown, jr. Iron & Steel Eng 41:201-2+ O '64

Control

Handling's automatic pilot the driverless tractor. il Mod Materials Handling 19:46-9 S '64

TRADE agreements

See also

Collective bargaining

TRADE associations

Antitrust laws and standardization. Mag of Stand 34:368-71 D '63

Trade associations that serve the public works field (cont). il Pub Works 95:112-13 Jl '64

See also

American ceramic society

American concrete institute

American iron and steel institute

American petroleum institute

Electric heating association

International association of printing house craftsmen

Malleable founders society

National electrical manufacturers association

National lime association

New York state association of electrical contractors and dealers

Non-ferrous founders society

Rubber manufacturers association

Wire association

TRADE directories

Adhesive bonding directory. Mod Metals 20:62+ S '64

Directory section; materials suppliers and addresses. Materials in Design Eng 60:551-614 Mid-O '64

Manufacturers and distributors of safety equipment. Am Water Works Assn J 55:sup50+ N '63

Manufacturers index; names and addresses of manufacturers of products for fluid powered systems. Hydraulics & Pneumatics 17:124-8 Ja '64

Water works buyers' guide of safety equipment. Am Water Works Assn J 55:sup40+ N '63

See also subdivision Directories under special subjects, e.g.

Aerospace industries

Air conditioning industries

Atomic power equipment industry

Ceramic industries

Chemical industries

Control equipment

Electronics industry

Equipment industries

Gas appliance industry

Heating industry

Machine tool industry

Machinery industry

Printing supplies industry

Radio apparatus industry

TRADE fairs. See Exhibitions

TRADE marks

American manmade fiber tradenames. Mod Textiles Mag 45:54-60 Mr '64

Condensed review of some recently developed materials; arranged alphabetically by trade names. Mach 71:147-55 O '64

Electrical products guide; trade name directory. Elec Constr & Maint 63:252-62 S '64

Heating, piping, and air conditioning equipment for industrial and all other large buildings; trade names. Heating-Piping 36:sup 152d-85d Ja '64

New trade marks. Published in monthly numbers of Soap and chemical specialties

1964 chart of man-made fiber properties, trademarks, and sources. Textile Ind 128:99-106 Ag '64

1964 equipment directory; trade names. Mod Materials Handling 19:71-84 My '64

Patents and trademarks. T. Cifelli, jr. Published in monthly numbers of Drug and cosmetic industry

Trade mark applications. Published in monthly numbers of Manufacturing chemist

Trade marks. Published in monthly numbers of British plastics

Trade name index of products useful to those in the welding field. Welding Eng 49:95-128 Mid-yr '64

Trade name index; products in or related to the field of electronics. Electronics 37:P227-42 Jl 25 '64

Trade names; processes, equipment and materials used in pollution control, and their manufacturers. Water Works & Wastes Eng 1:102-6 S '64

Trade names; processes, equipment and materials used in the water works field and their manufacturers. Water Works & Wastes Eng 1:146-8 My '64

Using grade designations as casting trademarks. A. W. Gray. Foundry 92:194+ S '64

See also

Patents

TRADE names

Materials of construction, 21st biennial report; trade name index. Chem Eng 71:209-10 N 9 '64

Trade name index; products in or related to the field of electronics. Electronics 37:P227-42 Jl 25 '64

TRADE schools

Courses for the meat trade; abstract. A. V. Pettit. Chem & Ind p397-8 Mr 7 '64

Craft training; abstract. I. F. Goodhand. Chem & Ind p394-5 Mr 7 '64

See also

Textile schools

TRADE secrets

Equity and employment contracts. A. S. Davis, jr. Chem Eng 71:148+ Je 22 '64

Human bondage and trade secrets. F. V. Long. Gas 40:93 S '64

Two convicted in Merck trade secrets case. Chem & Eng N 42:28 Jl 6 '64

TRADE unions

AFL-CIO starts new anti-bias drive. Eng N 173:28-9 S 10 '64

Automation and the CPI labor unions. A. E. Adams. il Chem Eng 71:224+ O 12 '64

Chemical labor unions face big decisions. Chem & Eng N 42:25-6 Ja 27 '64

Foreman vs. the union organizer. J. W. Whittlesey. Chem Eng 71:108+ Ja 6 '64

Labor interests. A. E. Brown. Archives Environmental Health 8:415-17 Mr '64

Labor views automation. Automation 11:84-6, 90-1 Ap '64

Trade unionists and occupational health. il Engineering 196:788-9 D 20 '63

Union man discusses unionism. Textile Ind 127:27+ D '63

Unions: have they lost their sects appeal? A. N. Wecksler. Mill & Factory 75:74-6 S '64

Utility-union relations in San Francisco. K. R. Boyd. Am Water Works Assn J 56:1117-20 S '64

See also

Collective bargaining

Engineers—Unions

International chemical workers union

Oil, chemical and atomic workers international union

United rubber, cork, linoleum and plastic workers of America

Benefit funds

See also

Trade unions—Health service

Cooperation with management

How an industry was saved. Automation 11:96-100+ Ap '64

Health service

Voluntary organizations in medical care planning; labor, management, and hospitals. M. Cherkasky. Am J Pub Health 54:447-50 Mr '64

See also

Medical service, Industrial

Great Britain

Trade unions in trouble. E. Mitchell. Engineer 217:577-8 Mr 27 '64

Trade unions stronger? Engineering 197:530 Ap 17 '64

Trades union congress of 1963. L. G. Rule. Engineering 197:34 Ja 10 '64

TRADE waste
See also
Acid waste
Fumes
Mine water
Oil waste
Petroleum waste
Refuse, Utilization of
Sulfite liquor
Trade waste disposal
Waste, Utilization of
also subdivision Waste under special subjects, e.g.
Chemical plants
Food factories
Metal working plants
Paper and pulp mills
Petroleum refineries
Plating shops
Poultry processing plants
Rolling mills
Steel works
Textile mills
Woolen and worsted mills

Radioactive waste

See also
Uranium works—Waste

Testing

Cod method suitable for the analysis of highly saline waters. J. M. Cripps and D. Jenkins. WPCF J 35:1240-6 O '64
New test quickly determines refinery-waste oxygen demand. A. W. Busch. bibliog diag Oil & Gas J 62:120+ O 19 '64
Technique for evaluating the biological treatability of industrial wastes. J. C. Lamb. 3d and others. bibliog diags WPCF J 36:1263-84 O '64
Treatability of an industrial waste. diag Pub Works 95:142 N '64

TRADE waste disposal
Automated phosphoric acid plant controls pollution. H. O. Grant. il Water Works & Wastes Eng 1:54-6 O '64
Careful effluent treatment reduces water pollution. R. F. Henshaw. il diag Plant Eng 18:146-7 O '64
Collector removes floating solids from waste stream. G. Van Cleve. diag Chem Eng 71:150 S 28 '64
Deep well disposal of nylon waste water. M. E. Batz. il diags Chem Eng Prog 60:85-8 O '64
Deep well method of industrial waste disposal. J. S. Talbot and P. Beardon. il Chem Eng Prog 60:49-52 Ja '64
Development of a modern petroleum refinery waste treatment program. B. V. Prather. bibliog flow diag il WPCF J 36:96-102 Ja '64
Economic aspect of industrial effluent treatment. A. L. Caron. Tappi 47:sup62A+ S '64
Factors affecting selection of equipment for treatment of deinking waste. W. L. Carpenter. Tappi 47:sup 144A-6A My '64
Food processing waste disposal. W. W. Fisk. il Water & Sewage Works 111:417-20 S '64
Gambusia: industrial effluent monitors. R. C. Davis. Water & Sewage Works 111:259-61 Je '64
Gravity reclaims coolant, aids sludge removal. flow diag il Plant Eng 18:111-12 F '64
High-temperature combustion of chemical residues solves pollution problem. il Lub Eng 20:371 O '64
Industrial waste control in metropolitan Winnipeg. N. S. Bubbis. WPCF J 35:1403-9 N '63
Industrial water and effluents group conversazione, Jan. 23. Chem & Ind p473-5 Mr 21 '64
Industry approach to pollution abatement. R. F. Rocheleau and E. F. Taylor. diag WPCF J 36:1185-94 O '64
Industry-government teamup suggested for war on pollution; abstract. K. R. Bendetsen. Chem Eng 71:76 Jl 6 '64
Joint municipal-industrial treatment of combined wastes. J. F. Byrd and J. H. Walter. bibliog il diag Chem Eng Prog 60:44-8 Ja '64
Joint vs. separate treatment of municipal and industrial wastes; symposium. bibliog WPCF J 36:345-61 Mr '64
Lagooning and spray irrigation system solves Nestle's instant coffee-tea wastes problems. D. J. Molloy. il Water Works & Wastes Eng 1:68-70 F '64
Low-flow augmentation for water quality control. J. C. Geyer and C. H. J. Hull. bibliog WPCF J 35:1434-42 N '63
Modesto's pollution explosion. J. O. Cessna. il diag Water Works & Wastes Eng 1:50-2 F '64
Municipality and industry join in sewerage project. flow diag il Pub Works 95:112 Ap '64
Neutralizing acid waste before dumping; question and answer. Dom Eng 203:118 Je '64
New concepts in industrial sewage collection. E. D. Munson. WPCF J 36:1146-51 S '64
Ontario industrial waste conference, 11th, Lake-of-Bays, Ont.; abstracts of papers. Water & Sewage Works 111:468-9 O '64
Operating costs of wastes treatment at General Motors plants. R. J. Brink. Water & Sewage Works 111:378-80 Ag '64
Pilot plant testing for domestic and industrial waste treatment. R. H. Culver. WPCF J 35:1455-63 N '63
Process waste burner destroys liquid organic chemical wastes safely. R. E. Mills. il diag Water & Sewage Works 111:337-40 Jl '64
Public meeting on joint municipal-industrial waste treatment. WPCF J 36:135-67 F '64
Sodium compounds in water and waste treatment. G. E. Symons. bibliog Pub Works 94:105-9 D '63
Stream pollution and effluent treatment, with special reference to textile and paper mill effluents. L. Klein. bibliog Chem & Ind p866-73 My 23 '64
Successful start-up of Hammermill no. 1; a deep disposal well. il diag Paper Ind 46:366-7 Ag '64
Systems recover chromate from cooling tower water discharge. il Chem & Eng N 42:43-4+ Mr 30 '64
Taking a well-planned approach to waste disposal. Chem Eng 71:48+ Mr 2 '64
Waste dispersion in receiving waters. L. L. Falk. bibliog il diags WPCF J 35:1464-73 N '63
Waste disposal systems; how they shape up today. R. W. Pinault. il Textile World 114:100-2+ Je '64
Waste-treatment study subject. J. F. Byrd and others. Oil & Gas J 62:95 F 24 '64
Waste water treatment. R. J. Lunebach. Tappi 47:sup 155A-6A F '64
Wastewater treatment at McClennan air force base. R. V. Daigh. il map WPCF J 36:895-900 Jl '64
Water-lift and disposal operations in low-pressure shallow gas wells. C. G. Melton and R. L. Cook. diag J Pet Tech 16:619-22 Je '64
Water resources and regional economics. F. A. Clarenbach. Tappi 47:sup 183A-6A O '64
Wet air oxidation. G. H. Teletzke. flow diags il diags Chem Eng Prog 60:33-8 Ja '64
See also
Coal mines and mining—Waste disposal
Refuse disposal
Water pollution

Activated sludge method

Activated sludge treatment of citrus waste. M. H. Dougherty. bibliog il diag WPCF J 36:72-9 Ja '64
Complete waste treatment for a paperboard company. J. G. Peters and J. A. MacNeal. il diag Pub Works 94:99-102 D '63
Waste disposal systems; how they shape up today; using activated sludge. il Textile World 114:108+ Je '64
Whippany expands tri-mill treatment complex. L. L. Klinger. flow sheet il Water Works & Wastes Eng 1:60-5+ Ja '64

Aeration

American Oil cleans up wastes in aerated lagoons. J. C. Lamkin and L. V. Sorg. diags Hydrocarbon Process & Pet Refiner 43:133-6 My '64; Same cond. il Oil & Gas J 62:84-6 Jl 13 '64
Purifying refinery waste water. B. V. Prather and A. F. Gaudy, jr. bibliog flow sheet Oil & Gas J 62:96-9 Ag 10 '64
Supplemental aeration of oxidation lagoons with surface aerators. H. R. Amberg and others. bibliog diags Tappi 47:sup27A+ O '64
Waste disposal systems; how they shape up today; using forced aeration. R. W. Pinault. il Textile World 114:106+ Je '64

Bibliography

Review of the literature of 1963 on wastewater and water pollution control; industrial wastes. bibliog WPCF J 36:659-93 Je '64

TRADE waste disposal—*Continued*

Biological treatment

Anaerobic waste treatment fundamentals. P. L. McCarty. bibliog diags Pub Works 95:107-12 S; 123-6 O; 91-4 N '64 (to be cont)

Biological treatment of protein water from manufacture of potato starch. J. C. Buzzell, jr. and others. bibliog flow diag Water & Sewage Works 111:327-30, 360-5 Jl-Ag '64

Cooling towers used for waste treatment. R. M. Smith. flow diag Oil & Gas J 62:115-16 S 14 '64

Here's how petrochemical companies dispose of wastes. H. S. Pylant. il diags Oil & Gas J 61:118-20 N 4 '63

How Shell treats Oakville effluent. G. C. Campbell and G. R. Scoullar. diags Hydrocarbon Process & Pet Refiner 43:137-40 My '64

New test quickly determines refinery-waste oxygen demand. A. W. Busch. bibliog diag Oil & Gas J 62:120+ O 19 '64

Technique for evaluating the biological treatability of industrial wastes. J. C. Lamb, 3d and others. bibliog diags WPCF J 36:1263-84 O '64

Chemical treatment

Oxidation of phenolic wastes. H. R. Eisenhauer. bibliog WPCF J 36:1116-28 S '64

Systematic waste treatment tames seven solutions. C. E. Shroyer. il diag Plant Eng 18:132-4 Ag '64

Treatment of nickel-chromium effluents. R. W. Crain. il diags Metal Finishing 62:50-3 Ap '64

Waste disposal systems; how they shape up today; using chemical control. R. W. Pinault. il Textile World 114:104+ Je '64

Chlorination

Oxidation of phenolic wastes; oxidation with chlorine. H. R. Eisenhauer. bibliog WPCF J 36:1124-8 S '64

Filtration

Biofilter cleans waste water. il Pet Management 35:197 D '63

Shell's filter system borrows from nature. H. C. Bozeman. il Oil & Gas J 62:92-4 Mr 23 '64

Flotation process

Grinding coolant sheds waste. il diag Iron Age 193:95-6 Ja 30 '64

Incinerators

See Incinerators

Lagoons

American Oil cleans up wastes in aerated lagoons. J. C. Lamkin and L. V. Sorg. diags Hydrocarbon Process & Pet Refiner 43:133-6 My '64; Same cond. il Oil & Gas J 62:84-6 Jl 13 '64

Causal factors of population variations of algae in a paper mill waste water pond system. K. H. Oliver, jr. and T. C. Dorris. bibliog map Tappi 47:7-12 Ja '64

Humble uses ponds to improve waste-water quality. il Oil & Gas J 62:96 Ag 24 '64

Soybean and mixed-feed plant processing wastes. R. S. Engelbrecht and others. flow diag il plan diag WPCF J 36:434-42 Ap '64

Supplemental aeration of oxidation lagoons with surface aerators. H. R. Amberg and others. bibliog diags Tappi 47:sup27A+ O '64

Treatment of nickel-chromium effluents. R. W. Crain. il diags Metal Finishing 62:50-3 Ap '64

Laws and regulations

Impact of recent legislation on trade effluent treatment; abstract and discussion. C. Lumb. Chem & Ind p756-7 My 2 '64

Oil and grease removal

Batch process removes oil, fat, grease. J. P. Tassoney and others. flow diag il Water Works & Wastes Eng 1:38-40+ Ag '64

Treatment of wastes containing emulsified oils and greases. W. E. Hoover, jr. and others. flow diag il Lub Eng 20:195-200 My '64

Radioactive waste disposal

See also

Nuclear reactors—Waste

Water purification—Radioactive waste removal

Bibliography

Review of the literature of 1963 on waste-water and water pollution control; industrial wastes, radioactive. bibliog WPCF J 36:693-711 Je '64

TRADE waste irrigation

Irrigation and land disposal of pulp mill effluents. R. O. Blosser and E. L. Owens. bibliog il Water & Sewage Works 111:424-32 S '64

TRADING stamps

Trading in on safety. il Safety Maint 128:17-19+ O '64

TRAFFIC, Street. See Street traffic

TRAFFIC engineering

Algorithm for computing interzonal transfers using the gravity model. D. A. D'Esopo and B. Lefkowitz. bibliog diag Op Res 11:901-7 N '63

Analytical methods in transportation; symposium. bibliog il diags Am Soc C E Proc 89 [EM 6]:1-126 D '63

Consider the four-way stop. S. H. Conner. il Pub Works 95:104-5 N '64

Control traffic; don't let traffic control you. A. F. Malo. il Pub Works 95:96-7 Jl '64

Electronic guidance for highway safety. J. J. O'Mara. Civil Eng 34:38-40 O '64

How to make highways work harder. Eng N 173:23 S 24 '64

Lessons of the Buchanan report. C. Buchanan. Engineer 218:51 Jl 10 '64

Mr Traffic heads road research; Wilbur S. Smith. Eng N 172:40-1 Ja 16 '64

New signs ease traffic snarls at shopping centers. il Pub Works 95:107-8 Mr '64

New ways to see land use and transportation. J. D. Carroll, jr. Civil Eng 34:62-3 Ag '64

Planning to keep the traffic moving; Buchanan report Traffic in towns. il plan Engineering 196:706-7 D 6 '63

Probability problem arising in reliability and traffic studies. D. P. Gaver, jr. Op Res 12:534-42 Jl '64

Seattle plans reversible traffic lanes. plan Eng N 173:97 Jl 2 '64

Town planning in the age of the car. J. A. Proudlove. il plans diags Engineering 198:311-13 S 4 '64

Traffic improvements in Madras. R. Thillainayagam. il maps diags Traffic Q 18:449-56 Jl '64

Transportation engineering group of the Institution of civil engineers meeting, April 23. Engineer 217:861 My 15 '64

Urban change and planning. A. T. Row, jr. and H. S. Levinson. Traffic Q 18:5-16 Ja '64

Various simultaneous equations for interzonal divergences and link assignments. L. F. Butas. diags Traffic Q 18:383-405 Jl '64

See also

Calculating machines—Traffic engineering applications

TRAFFIC lines

Crosswalks marked with striping tape. il Pub Works 95:132 Jl '64

Extruded plastic car park markers. il Engineering 198:514 O 23 '64

Ingenious machines aid in painting highway markings. W. H. Kay. il Pub Works 95:89 Ap '64

Test determines service life cost of pavement markings. L. B. Morrill. il Pub Works 95:129-30 S '64

TRAFFIC regulations

Cooperation for greater traffic safety. W. F. Tempest. 2pls Traffic Q 18:275-81 Ap '64

Driver improvement or system improvement? R. Myrick and L. E. Schlesinger. diags Traffic Q 18:92-104 Ja '64

Police; pivot for highway safety efforts. Q. Tamm. Traffic Q 18:250-64 Ap '64

See also

Electronics—Traffic control use

Road traffic

Television—Traffic control use

Japan

Recent developments in prosecuting traffic offenses in Japan. M. Shikita. Traffic Q 18:63-76 Ja '64

TRAFFIC research

Developments in traffic simulation and control. R. F. Baker. il diag Pub Works 95:98-101 Mr '64

Distribution of headways in a platoon. A. Daou. Op Res 12:360-1 Mr '64

Effect of ribbon development on traffic flow. R. I. Wolfe. 2pls diags Traffic Q 18:105-17 Ja '64

Evaluation of a new model split procedure. A. B. Sosslau and others. map diags Pub Roads 33:5-9+; Discussion. 17-19 Ap '64

TRAFFIC research—*Continued*

Theory of the diffusion of traffic platoons. M. J. Grace and R. B. Potts. bibliog diags Op Res 12:255-75 Mr '64

Traffic in towns; a study of the long term problems of traffic in urban areas; reports of the Steering group and Working group appointed by the Minister of transport, London; review. F. Gutheim. Arch Rec 135:78+ Je '64

Traffic in towns; the next steps. C. D. Buchanan. Engineer 217:781 My 1 '64

Vehicular traffic flow. R. Herman and K. Gardels. il diags Sci Am 209:35-43, cover D '63

TRAFFIC signals

Theory of the diffusion of traffic platoons. M. J. Grace and R. B. Potts. bibliog diags Op Res 12:255-75 Mr '64

Tidal flow controlled by overhead signs. il Engineering 198:211 Ag 14 '64

Wrong way warning system. il Pub Works 95:112 N '64

Control

Automatic Telephone and Electric's type 54 traffic controller. il diags Engineering 198:422-3 O 2 '64

Computer control of traffic signals. il Engineer 217:405-6 F 28 '64

Problems in effecting uniform traffic signal controls. J. M. Galeota. il Pub Works 95:90-1 Ag '64

Traffic signals in Toronto. Engineer 216:955 D 6 '63

TRAFFIC signs

Clearing out the traffic sign jungle. il Pub Works 94:102-3 N '63

Consider the four-way stop. S. H. Conner. il Pub Works 95:104-5 N '64

New signs ease traffic snarls at shopping centers. il Pub Works 95:107-8 Mr '64

New signs for Britain's highways. Engineer 217:650 Ap 10 '64

TRAFFIC surveys

Capacity of urban transportation modes. W. S. Rainville, jr. and W. S. Homburger. diag Am Soc C E Proc 89 [HW 1 no 3489]: 37-55 Ap '63; Discussion. T. J. Owens. 90 [HW 1 no 3780]:119-20 Ja '64; Reply. 90 [HW 2 no 3997]:17-18 Ag '64

London girds for traffic surge. Eng N 173: 84-5 O 8 '64

Travel in London. Engineer 218:180 Jl 31 '64

Truck travel in the Los Angeles metropolitan area. L. A. Hoel. Traffic Q 18:535-53 O '64

TRAILERS

Bulk trailers serve batch plant. il Eng N 173:49-50 Jl 16 '64

Collapsible foredeck semi-trailer. il Engineer 217:1005 Je 5 '64

Dimensions and weights of highway trailer combinations and trucks, 1959. M. F. Kent and H. Stevens. Pub Roads 32:269-85 F '64

Dump truck tows dump trailer, trailer body transfers, truck dumps trailer body. il Eng N 172:47 Mr 5 '64

First 12-axle trailer train hauls aggregates. il Rock Prod 67:71 O '64

Forward-loading semi-trailer. il Engineer 218:252 Ag 14 '64

Guaranteed performance marks advance in insulated trailers. G. Chieger and K. W. Tantlinger. S A E J 72:65 Je '64

Heavy duty trailer rig hauls, dumps molten slag. il Steel 154:50-1 Ja 20 '64

Improved traction. il Product Eng 34:82 N 11 '63

Lift trailers are custom built. il Eng N 173: 172 S 17 '64

Lightweight semi-trailer vehicles. il Engineer 218:70 Jl 10 '64

Multi-cargo bulk carrying vehicles. il Engineer 217:963 My 29 '64

Multi-purpose moving-floor trailer. il Engineer 216:862 N 22 '63

Ninety-six-wheel trailer for road transportation. il diags Engineer 216:692-4 O 25 '63

Refuse collection train improves service. C. B. Tyson. il Pub Works 95:99-100 Ja '64

Repairing trailers; plywood re-faced with thixotropic polyester on woven glass roving. il Plastics World 21:102 N '63

Self-unloading trailers expedite lime stabilization. il Roads & Sts 107:55 My '64

Special-purpose heavy-duty trailer. il Engineer 217:79 Ja 10 '64

Tractor and semi-trailer handling. F. Jindra. bibliog diags Automobile Eng 53:438-46 O '63; Discussion. 54:94-7 Mr '64

Trailer drives itself through mud. il Eng N 172:178-80 Je 18 '64

Trailer proportions concrete on job. il Eng N 173:49 S 24 '64

Trailers reduce 400-hour machinery move to 50 hours. J. G. Lancello and B. F. Reinhart. il Plant Eng 18:122-3 My '64

Turbine truck unveiled. il diags Machine Design 36:168-73 O 22 '64

Unique multi-deck system insures maximum payloads. il diags Diesel Equip Supt 42:42-3 O '64

See also

Automobile trailers

Manufacture

Welded tubular trailer solves transport problem for Atlas missile. T. B. Jefferson. il diag Welding Eng 49:40-3 O '64

Springs and suspension

Pitt tandem suspension. diags Automobile Eng 54:320-1 Jl '64

TRAIN ferries

M. V. Cambridge Ferry. G. W. Tripp. il Engineer 217:123-4 Ja 17 '64

One ferry, eight Diesels. plan Marine Eng/Log 69:66 O '64

TRAINING of teachers. See Teachers, Training of

TRAINS. See Railroads—Trains

TRAJECTORIES

Design analysis of earth-lunar trajectories: launch and transfer characteristics. J. E. Michaels. bibliog diags AIAA J 1:1342-50 Je '63; Discussion. R. L. Robertson. 2:969-71 My '64

Determination of extreme entry angles into a planetary atmosphere. J. Warga and W. C. Hailey. diags AIAA J 2:335-8 F '64

Determination of maximum range for an unpowered atmospheric vehicle. D. J. Bell. Roy Aeronautical Soc J 68:111-16 F '64

General theory on space and re-entry similar trajectories. L. Broglio. bibliog diags AIAA J 2:1774-81 O '64

Improved calculation of vacuum vertical trajectories. L. B. Schlegel and P. J. Bonomo. AIAA J 2:1487-9 Ag '64

Iterative analog determination of burning time and weight distribution in a two-stage rocket. K. S. Cook. il diags Instruments & Control Systems 36:129+ D '63

Manned Mars missions. B. Kovit. il diags Space/Aeronautics 40:65-71 N '63

Mars nonstop round-trip trajectories. R. W. Luidens. diags AIAA J 2:368-70 F '64

Modification of Weierstrass-Erdmann corner conditions in space navigations. R. N. Bhattacharya and M. Bhattacharjee. AIAA J 2:1145-7 Je '64

New approach to steepest-ascent trajectory optimization. R. T. Stancil. bibliog diag AIAA J 2:1365-70 Ag '64

New approach to the plotting of phase-plane trajectories. B. L. Deekshatulu and I. Suryanarayana Murthy. bibliog diags Inst E E Proc 111:1771-4 O '64

Optimal trajectories and linear control of nonlinear systems. A. H. Jazwinski. bibliog AIAA J 2:1371-9 Ag '64

Powered-flight trajectories of rockets under constant transverse thrust. C. H. Zee. A S M E Trans ser E 30:559-61 D '63

Range and angle prediction tracking of objects with definable trajectories. T. T. Kumagai. diags AIAA J 2:557-9 Mr '64

Simulating projectile trajectory. H. H. Hara. diag Instruments & Control Systems 37: 145-6 My '64

Skip-impact criteria of a re-entry trajectory with negative lift. C. J. Ruger. AIAA J 2:585-7 Mr '64

Trajectories with constant normal force starting from a circular orbit. R. R. Auelmann. diags AIAA J 2:561-3 Mr '64

Use of the adjoint system in the solution of two-point boundary value problems. O. T. Schultz. AIAA J 1:2673-4 N '63

TRAMWAYS. See Cableways

TRANSAMINASES

Blood cell transaminase activity in human vitamin B_6 deficiency. N. Raica, jr. and H. E. Sauberlich. bibliog Am J Clinical Nutrition 15:67-72 Ag '64

Interaction of glutamic-aspartic transaminase with pseudo substrates. G. G. Hammes and P. Fasella. bibliog Am Chem Soc J 85:3929-32 D 20 '63

TRANSCENDENTAL functions. See Functions, Transcendental

TRANSCENDENTAL numbers. See Numbers, Irrational

TRANSDUCERS

Analysis of the depletion layer transducer. W. Strauss. bibliog diags J Ap Phys 35:2106-11 Jl '64

Five uses for Hall transducers. G. W. Heumann. il diags Control Eng 11:57-60 Ja '64

High frequency transducers. il Product Eng 35:44-5 Ap 13 '64

Instrument to measure velocity electrical conductivity of arc plasmajets. A. E. Fuhs. bibliog il diags AIAA J 2:667-73 Ap '64

Magnetic core four-quadrant multiplier circuit and watt transducer. B. W. Lee and W. S. Pritchett. il diags IEEE Trans Power Apparatus & Systems 83:692-5 Jl '64

Measurement for control. il diags Instruments & Control Systems 37:103-12 Ag '64

New ultrasonic transducers offer increased bandwidth. N. F. Foster. Chem & Eng N 42:46 Mr 30 '64

Nuclear-resonance sensing of mechanical noise. R. Zito, jr. bibliog diags Electro-Tech 73:43-51 Je '64

Plasma sheath transducer for axisymmetric re-entry vehicles. A. E. Fuhs and O. L. Gibb. bibliog il AIAA J 2:773-5 Ap '64

Power measurement by a digital technique. G. White and W. A. Evans. il diags Engineer 217:388-91 F 28 '64

Problem; standardizing instruments, solution; digital systems. D. Gertz and L. Leavitt. il diags Electronics 37:65-70 O 19 '64

Production and properties of high-intensity ultrasonics. B. Brown. il Ind Electronics 2:44-6 Ja '64

Rethink for transducers. I S A J 11:30-2 S '64

Telemetry transducers to be solid-state. J. C. Sanchez. il Space/Aeronautics 41:88+ F '64

Temperature sensor for strain-gage transducer. S. Meieran. diag Electronics 37:77-8 My 4 '64

Transducers and energy relationships. P. K. Stein. Instruments & Control Systems 37:132-6 My '64

Transducers for measurement. L. E. Bollinger. diags I S A J 11:45-8 Ag; 65-70 S; 73-80 O '64 (to be cont)

Ultrasonic transducers for interference experiments. il Am J Phys 32:sup3 Ag '64

See also

Electroacoustic transducers

Electromechanical transducers

Testing

Dynamic error in transducers; data sheet. H. Weiss. Machine Design 36:127-8 Ja 30 '64

TRANSFER functions

Active nonreciprocal realisation of the compact symmetrical network for transfer-function synthesis. A. W. Keen. bibliog diags Inst E E Proc 111:1075-9 Je '64

Amplitude frequency response analysis and synthesis of unfactored transfer functions. J. S. Ausman. diags A S M E Trans ser D 86:32-6 Mr '64

Controller settings and loop performance; a rapid estimate. P. S. Buckley. diags Control Eng 11:81-2 Ag '64

Determination of a simplified transfer function. J. E. Doninger and W. F. Stevens. Can J Chem Eng 42:85-6 Ap '64

Formulas for the terminal impedances and transfer functions of general multimesh ladder networks. S. C. Dutta Roy. bibliog IEEE Proc 52:738-9 Je '64; Discussion. 52:1366-7 N '64

Measurement of turboalternator transfer functions using normal operating data. K. N. Stanton. bibliog diag Inst E E Proc 110:2001-7 N '63

Realisation of fourth-order rational transfer functions with adjustable coefficients. R. J. A. Paul. diags Inst E E Proc 111:877-82 My '64

Selecting ac servomotor compensation. A. F. Clarke, jr. diags Control Eng 11:99-105 O '64

Simplification of hydraulic line dynamics by use of infinite products. R. Oldenburger and R. E. Goodson. bibliog diags A S M E Trans ser D 86:1-8; Discussion. 9-10 Mr '64

Simulation by a single operational amplifier of third-order transfer functions having a pole at the origin. L. K. Wadhwa. bibliog diags Radio & Electronic Eng 27:373-80 My '64

Simulation of higher-order linear systems with single operational amplifiers. C. E. Cohn. diag IEEE Proc 52:874 Jl '64

Stability of closed-loop control systems. A. W. Langill. diags Electro-Tech 73:77-86 F '64

Terminal impedances and transfer functions of ladder networks. S. C. Dutta Roy. bibliog diags Inst EE Proc 111:1653-8 O '64

Testing for plant transfer functions in presence of noise and nonlinearity. T. Hennig. bibliog diags Control Eng 10:67-70 Je; 119-24 S '63; 11:95-100 Mr '64

Time-to-frequency-domain matrix formulation. W. D. Stanley. IEEE Proc 52:874-5 Jl '64

Transfer-function synthesis wih nonreciprocal constant-resistance two-port networks. A. W. Keen. bibliog diags Inst E E Proc 111:883-90 My '64

Transfer function tracking of a linear time-varying system by means of auxiliary simple lag networks. N. N. Puri and C. N. Weygandt. bibliog diags IEEE Trans Applications & Ind p70-2 Ja '64; Discussion. 83:263-4 Jl '64

Transfer functions from frequency response; data file. N. G. Meadows. diags Control Eng 11:95-6 Je '64

TRANSFER mechanisms

Automated weld line builds VW Beetles. il diag Steel 154:54-5 F 17 '64

Automatic assembling and precision reaming on a transfer machine. il Mach 70:104-5 D '63

Automatic assembly of passenger-car bodies at VW. C. A. Weinert. il diags Automotive Ind 130:77-80 Ap 15; 54-6 My 1 '64

Automatic straightening of rear-axle shafts. il Mach 70:110-11 D '63

Automatic transfer machine for processing four- and six-cylinder engine blocks. il Mach 70:150-1 Mr '64

Automation in assembling Volkswagen body shells. W. E. Stalhuth. il diags Automation 11:69-75 F '64

Car axles get high speed cold extrusion. il Engineering 198:537 O 23 '64

Citroen are not only forward in drive. il plan Engineering 197:822-3 Je 19 '64

Cold-forming of spark-plug shells provides 70 per cent material saving. il Mach 70:92-3 D '63

Continental car assembly line; illustrations with text. Engineer 217:972-3 My 29 '64

East German transfer line for aircooled cylinders. D. Scott. il Automotive Ind 130:82-3 F 15 '64

Ex-Cell-O thirty-four-station transfer machines for processing aluminum pistons. il Mach 71:171-2 O '64

Fiat automated welding line. il diag Automobile Eng 54:192-7 My '64

Free transfer technique being used in machining of differential carriers. J. Geschelin. Automotive Ind 130:344-6 Mr 15 '64

Lathes float along assembly flowline. il diag Engineering 197:804-5 Je 12 '64

Line blends men and machines to cut assembly costs. R. H. Eshelman. il Iron Age 194:78-9 N 5 '64

Machine for processing two- or four-barrel intake manifolds. il Mach 70:172 D '63

Machining hypoid pinions. il diags Automobile Eng 53:490-3 N '63

Mechanization cuts costs for producing paint spray guns. W. A. Delger. flow diag il Automation 11:68-9 S '64

One-stroke splining paces line. il diag Iron Age 194:58-9 S 3 '64

Simplified head for Russian transfer machine. D. Scott. il Automotive Ind 130:45-6 Je 1 '64

Special transfer machine for processing rear axle housings. il Mach 71:188 S '64

Tapping replaces hobbing in transfer machining of ball nuts. il Mach 70:103-4 D '63

Three-dimensional transfer unit increases versatility of cold extrusion. il Mach 70:93-4 D '63

Transfer line created from modular units. F. M. O'Neil. il diags Automation 10:80-1 D '63

Transfer machine with several special features processes clutch housings. il Mach 70:144 Jl '64

Transfer machining of differential carriers. il Mach 70:108-9 D '63

Transfer-matic for processing differential carrier assemblies. il Mach 70:216 Ap '64

Transfer techniques link wheel finishing operations. R. W. Miklitsch. il diag Automation 11:57-61 My '64

Valve tappet guide holes finished on new machine. il Mach 70:144 D '63

Vauxhall automatic assembly. il diags Automobile Eng 54:446-50 O '64

Versatile production lines for GMC engines. J. Geschelin. il Automotive Ind 131:57-60 Jl 15 '64

TRANSFER mechanisms—*Continued*

Numerical control

Control advances sparked by users in search of economy. il Automation 11:22-3 Ag '64
N/c blends with transfer lines. R. H. Eshelman. Iron Age 193:65 Mr 19 '64
N/c joins with line transfer to make versatile machine. R. H. Eshelman. il Iron Age 192:166-8 N 14 '63
Numerically controlled transfer machine for processing variety of hydraulic valve bodies. il Mach 70:137-8 Ja '64

TRANSFORMATIONS (mathematics)

Chaplygin's transformation applied to magnetogasdynamics. E. V. Laitone. bibliog AIAA J 2:1856-7 O '64
Converting process equations for analog computer control. G. Platt. diags Control Eng 11:65-8 F '64
Coordinate transformation to an accelerated frame of reference. J. E. Romain. bibliog Am J Phys 32:279-85 Ap '64
Determination of an upper bound of the lowest natural frequency of a star shaped membrane. P. A. Laura. Roy Aeronautical Soc J 68:703 O '64
Determination of the natural frequency of a star-shaped membrane. P. A. Laura. diag Roy Aeronautical Soc J 68:274-5 Ap '64
General solutions of the Hamilton-Jacobi equation. S. T. Epstein. Am J Phys 32:688-90 S '64
Incorporation of step functions and ramp functions into a linear programming model. B. A. Schoomer. bibliog Op Res 12:773-7 S '64
Relative field gradient at the edge of an electrode in a four-electrode system. P. D. Agarwal. bibliog flow chart diags IEEE Trans Com & Electronics 83:502-9 S '64
Remark concerning a non-linear sequence-to-sequence transform. I. Marx. J Math & Phys 42:334-5 D '63
Transformation for wake analyses. R. H. Page and R. J. Dixon. AIAA J 2:1464-5 Ag '64
Transformations in the analysis of non-uniform transmission lines. R. F. Schwartz. bibliog Franklin Inst J 278:163-72 S '64
Transformations of the compressible turbulent boundary layer with heat exchange. L. Crocco. bibliog AIAA J 1:2723-31 D '63
Truth table logic speeds binary-coded-decimal, binary conversions. D. Cohen. diags Control Eng 11:78-81 Mr '64
Two new classes of algorithms for finding the eigenvalues and eigenvectors of real symmetric matrices. C. D. La Budde. Assn for Computing Mach J 11:53-8 Ja '64
Von Mises transformation for boundary layer theory. C. S. Song. bibliog diags Am Soc C E Proc 90 [EM 2 no 3861]:17-32 Ap '64
Watson transformation and mode theory. L. A. Berry. bibliog diags J Res Nat Bur Stand 68D:59-66 Ja '64

See also
Laplace transformation
Linear programming
Lorentz transformation

TRANSFORMER oil. See Insulating oil

TRANSFORMERS, Electric. See Electric transformers

TRANSFORMERS, Radio. See Radio transformers

TRANSIENT phenomena, Electric. See Electric transient phenomena

TRANSISTOR amplifiers. See Amplifiers, Transistor

TRANSISTOR oscillators. See Oscillators, Transistor

TRANSISTOR voltmeters. See Voltmeters, Transistor

TRANSISTORS

Added transistor decreases multivibrator reset time. S. A. Bell. diags Electronics 37:72-3 Jl 27 '64
Amplitude modulation of light by reverse biased *p-n* junctions. C. A. Renton. IEEE Proc 52:93-4 Ja '64
Analysis of the gain-bandwidth limitations of solid-state triodes. A. Rose. bibliog diags RCA R 24:627-40 D '63
Audio signal generator; transistor design with simplified calibration. il diags Wireless World 69:530-6 N '63
Breakdown and hysteresis in forward biased p-n GaAs luminescent junctions. R. C. C. Leite and A. Yariv. IEEE Proc 52:191-2 F '64
Charge-control equivalent circuit for predicting transient radiation effects in transistors. C. R. Rosenberg and others. diags IEEE Trans Com & Electronics 83:494-501 S '64
Chip transistors. il Electronics 37:30 Je 1 '64
Choosing an a-c power supply. P. F. Swain. diag Electro-Tech 74:106-8 S '64
Clocks; transistorized time. il diags Product Eng 35:58 Ag 17 '64
Comparison of large signal models for junction transistors. D. J. Hamilton and others. bibliog diags IEEE Proc 52:239-48 Mr '64
Complementary shaper replaces Schmitt trigger. L. L. Kleinberg. diag Electronics 37:66-7 O 5 '64
Controlling transmission by transistors. il Engineering 197:686 My 15 '64
Coplanar-electrode insulated-gate thin-film transistors. P. K. Weimer and others. bibliog il diags RCA R 24:661-75 D '63
Depositing active and passive thin-film elements on one chip. H. Borkan. bibliog il diags Electronics 37:53-60 Ap 20 '64
Design of transistor-resistor logic circuits by graphical means. C. W. M. Barrow. bibliog diags Electronic Eng 36:660-5 O '64
Developments in semiconductor devices in the United States for the period 1960-1963. A. van der Ziel. bibliog J Res Nat Bur Stand 68D:660-1 My '64
Direct approach to Q-point stabilization. F. W. Brands. diags Audio 48:44+ Ap '64
Effects of rectifying contacts on the characteristics of the thin-film transistor. W. A. Gutierrez and H. L. Wilson. il diag IEEE Proc 52:607 My '64
Effects of the field distribution in the collector space charge layer of junction transistor. O. Nakahara. IEEE Proc 51:1061-2 Jl '63; Discussion. 52:86-7 Ja '64
Elements of transistor pulse circuits. T. D. Towers. diags Wireless World 70:2-8, 74-80, 128-32, 199-203, 242-6, 351-7, 403-7, 463-70, 534-9, 634-9 Ja-My, Jl-O, D '64; Discussion. 70:560-1, 617-19 N-D '64
Evaluation of cadmium selenide films for use in thin-film transistors. F. V. Shallcross. bibliog diags RCA R 24:676-87 D '63
Field-effect transistor; a review. J. T. Wallmark. il diags RCA R 24:641-60 bibliog (p657-60) D '63
Field-effect transistor with forward biased gate-channel junction. R. S. C. Cobbold and F. N. Trofimenkoff. diag IEEE Proc 52:1073 S '64
Fet's synthesize negative resistance. C. E. Holland, jr. diags Electro-Tech 73:124-6 Ap '64
Forward step in microcircuits; thin-film transistors form scanning generator. M. F. Wolff. il diag Electronics 37:23-5 F 21 '64
Helpful transistor analog; four-layer pnpn device. R. A. Stasior. il diags Electronics 37:66-73 Ag 10 '64
High-gain micropower transistors. M. N. Giuliano and others. IEEE Proc 52:712 Je '64
High-performance field-effect transistors formed by redistribution. D. A. Hodges. diag IEEE Proc 52:89-90 Ja '64
Holley's new transistorized ignition system. il Automotive Ind 130:50 F 1 '64
Home-made transistor signal source. il diag Ind Electronics 2:229 My '64
Internal thermal feedback in four-poles especially in transistors. O. Mueller. bibliog diags IEEE Proc 52:924-30 Ag '64
Introduction to practical transistor circuit design. G. P. Hobbs. diags Wireless World 70:433-7, 518-22 S-O '64; Discussion. 70:560 N '64
Junction problem solved. Electronics 37:32 Mr 23 '64
Line scanning transistor; dissipation during switch-off. F. D. Bate. diags Electronic Eng 36:170-2 Mr '64
Low-cost power booster. diag Electronics 37:29-30 Ap 20 '64
Low-frequency integrated circuits achieved with thermal transfer. W. T. Matzen and R. A. Meadows. il diags Electronics 37:54-7 Jl 27 '64
Metal base transistor pushes back the frequency barrier. D. V. Geppert and R. A. Mueller. bibliog il diags Electronics 37:42-6 Mr 13 '64
Microcircuit uses matched input transistors. il diags Electronics 37:135 S 7 '64
Micro-transistors. il Electronic Ind 23:31 Ap '64
Minority carrier storage effect in the collector region and the storage time of transistors. H. Yanai and others. diag IEEE Proc 52:312-14 Mr '64

TRANSISTORS—*Continued*

Modified representation for thin-film triodes. D. Abraham and T. O. Poehler. IEEE Proc 52:416-17 Ap '64

Molybdenum mon amour; new use in transistors. Product Eng 35:43 Ja 6 '64

Multichannel field-effect transistor. R. Zuleeg and V. O. Hinkle. il diag IEEE Proc 52:1245-6 O '64

Mutual interaction between microplasmas in silicon p-n junctions. I. Ruge and G. Keil. bibliog il diags J Ap Phys 34:3306-8 N '63

N2 carrier equipment. L. H. Steiff. il Bell Lab Rec 42:172-8 My '64

Negative resistance with composited thin-film active devices. R. Zuleeg and H. G. Dill. il diag IEEE Proc 52:195 F '64

New approach to transistor circuit design. I. M. Gottlieb. diag Radio-Electronics 35:76+ F '64

New field effect device may aid integrated circuit design. H. C. Nathanson and others. diags Electronics 36:44+ N 29 '63

New low-noise transistor circuit for electrostatic microphones. P. J. Baxandall. bibliog il diags Wireless World 69:538-42, 593-7 N-D '63

New package for microtransistor. il diags Electronics 36:75 N 8 '63

New technology sparks an expansion for germanium. K. B. Landress. diags Electronics 37:62-5 Ap 6 '64

p-type tellurium thin-film transistor. P. K. Weimer. bibliog il IEEE Proc 52:608-9 My '64

Planar transistors as grounded collector stages. R. D. Ryan. diags Electronic Eng 36:412 Je '64

Regulator elements using transistors. J. W. McPherson. diags Electronic Eng 36:162-5 Mr '64

Result of general validity for abrupt p-i and n-i junctions. M. Nicolet. IEEE Proc 51:1789 D '63

Secondary breakdown in transistors. H. Melchior and M. J. O. Strutt. bibliog IEEE Proc 52:439-40 Ap '64

Selecting transistors for coil drivers. K. Hermann. diags Electro-Tech 72:106-7 D '63

Semiconductors; industrial giants in small packages. K. H. Sueker. diags Plant Eng 18:106-10 Jl '64

Silicon insulated-gate field-effect transistor. S. R. Hofstein and F. P. Heiman. bibliog diags IEEE Proc 51:1190-202 S '63; Discussion. 52:414-51 Ap '64

Silicon MOS field effect transistors using impurity redistribution during oxidation. A. Chopra and L. Vadasz. IEEE Proc 52:985-6 Ag '64

Silicon replacing germanium as power transistors get bigger. S. Levine. il diags Electronics 37:42-9 N 2 '64

Simulation of diodes with transistors. E. D. Merkl and P. G. Griffith. diags IEEE Proc 52:1071-2 S '64

Single transistor provides low-cost phase shifter. J. J. Collins. diag Electronics 37:92 My 18 '64

Solid-state low-frequency filter. diags Electro-Tech 74:34-7 S '64

Staircase generator triggers a unijunction transistor. J. J. Panico. diags Electronics 37:80-2 S 7 '64

Trading off radiation resistance and second-breakdown performance. B. Reich and E. B. Hakim. il diag Electronics 37:48-51 O 19 '64

Transfer characteristics of field-effect transistors. W. A. Bösenberg. diags RCA R 24:688-704 D '63

Transient response of junction transistor to base current pulse. L. J. Giacoletto. diag IEEE Proc 52:627-8 My '64

Transistor becomes sensor in temperature regulator. S. Greenblatt. diag Electronics 37:65 N 2 '64

Transistor bridge switches microvolts. M. V. Kalfaian. diag Electronics 37:60 Ja 3 '64

Transistor car ignition system. J. H. Willis. diags Wireless World 70:151-2 Mr '64; Discussion. 70:187-8 Ap '64

Transistor circuit for adapting a multichannel analyzer to neurophysiological work. O. D. Sittler and P. Tsao. il diags R Sci Instr 35:872-4 Jl '64

Transistor cut-off frequencies; frequency symbols explained. D. N. Tilsley. diags Wireless World 69:453-5 S '63; Correction. 69:545-6 N '63

Transistor operating conditions. W. Tusting. diags Ind Electronics 2:132-4, 171-3, 230-2, 288-91 Mr-Je '64

Transistor-switched ignition systems. J. Nawracaj. diags Electro-Tech 73:112-13 My '64

Transistor voltage limitations. diag Q S T 48:31 N '64

Transistorised gyro compass. il Engineer 217:583 Mr 27 '64

Transistors as rectifiers. J. L. L. Hood. diag Electronic Eng 36:48 Ja '64; Discussion. 36:184 Mr '64

Transistors keep a roof on. J. K. Bach. diags Radio-Electronics 35:53-4 Jl '64

Transistors save your breaker points. J. R. Gyorki. il diags Radio-Electronics 35:53-5 Ap '64; Discussion. 35:60 Je '64

Transistors streamline control for multilease LACT. G. DeLozier. il Oil & Gas J 62:204-5+ O 12 '64

Two-way radio flexibility from silicon transistors. Eng N 173:30-1 Jl 30 '64

Ultra-cold transistors yield usable gain. Electronics 37:44-5 F 21 '64

Unijunction transistor in relaxation circuits. B. Crawford and R. T. Dean. bibliog diags Electro-Tech 73:34-8 F; 40-5 Mr '64

Unijunction transistor: its operation and applications. H. R. Henly. diags Wireless World 70:110-12 Mr '64

Use of the transistor as a switch in precise analogue-digital-convertor circuits. A. J. Uphill. bibliog diags Inst E E Proc 111:1385-92 Ag '64

Video circuits for transistor television cameras. D. Bray and G. E. Hayden-Pigg. bibliog il diags SMPTE J 72:853-9 N '63

Voltage controls solid-state nonlinear resistance. F. D. Neu. diag Electronics 37:36+ F 21 '64

Zenerless transistor ignition. W. C. King. il diags Radio-Electronics 35:34-5 S '64

See also

Amplifiers, Transistor

Germanium

Oscillators, Transistor

Radio receiving apparatus—Transistor receivers

Radio transmitters—Transistor transmitters

Television receiving apparatus—Transistor receivers

Control uses

Bridge thermostat with a differential of 0·001°C. W. Tempest. il diags Electronic Eng 35:814-16 D '63

Economical silicon switching transistor and its use in ring counters. J. Palmer. diags Electronic Eng 36:519-23 Ag '64

Electronic method of ignition advance for automobiles. A. R. Hayes. bibliog il diags Electronic Eng 36:369-73 Je '64

Experiences with transistorized static control. E. A. Albert and R. E. Johnson. Automation 11:136+ Ag '64

Field-effect transistor controls pulse oscillator. T. C. Ross. diags Electronics 37:80-1 Je 15 '64

50-nanosecond printed circuit linear gate using transistors. A. Barna and J. H. Marshall. bibliog il diags R Sci Instr 35:881-5 Jl '64

Inverter for use with very low input voltages. T. G. Wilson and E. T. Moore. bibliog diags IEEE Trans Com & Electronics 83:424 Jl '64

Method of driving uniselectors by transistors. K. J. Gough. diags Electronic Eng 36:632-3 S '64

Product Engineering fifth annual master design awards: transistor-controlled pack camera. il diag Product Eng 35:113 Ap 27 '64

Proportional thermoregulator using thyristors. G. Johansson. diag J Sci Instr 41:382-3 Je '64

Simple phototransistor temperature controller. G. H. Cockett and R. Harris. diag J Sci Instr 41:186-7 Mr '64

Solid-state devices are heart of new adjustable-frequency drives. N. Peach. il diags Power 108:177-82 My '64 (reprints 25c)

Solid statement of the control facts: Morgan the logical. E. L. Rudisill. diags Product Eng 35:114-21 Je 22 '64

Switching speed of a tunnel-diode transistor logic inverter. H. C. Joseph. diags Electro-Tech 74:52-6 Ag '64

Thyristor control of Ward Leonard drives. B. J. Hodgskiss. il diags Ind Electronics 2:105-9 Mr '64

Transistor audio-frequency phasemeter. F. Butler. il diags Wireless World 70:453-9 S '64

Transistor circuit for xenon flash tube operation. P. G. M. Dawe. diags Electronic Eng 36:220-1 Ap '64

TRANSISTORS—Control uses—*Continued*

Transistor current-switching circuits. Y. N. Bapat. bibliog diags Radio & Electronic Eng 27:353-64 My '64

Transistor frequency multiplier. N. Owen. il diag Electronic Eng 36:558 Ag '64

Transistor instrumented nuclear reactor. Electronic Eng 36:626 S '64

Transistor time-delay circuit. diags Electro-Tech 74:114 S '64

Transistorized high current stabilizer and field sweep for an electromagnet. J. B. Cook and others. diags J Sci Instr 41:390-2 Je '64

Transistorized high-voltage regulator using a.c. control. I. Izumi and M. Kokubu. diags Electronic Eng 36:554-6 Ag '64

Transistors control high-power dc. A. F. Rymsha. il diags Radio-Electronics 35:37-9 Je '64

Transistors instead of relays tune tv volume. J. H. Phelps. il diag Electronics 37:32-3 F 28 '64

Transistor's stored charge controls pulse delay. R. H. Blumenthal and F. E. Williams. diags Electronics 37:52-3 Je 29 '64

Tunnel-diode applications. T. Mollinga. bibliog diags Electro-Tech 74:48-53 S '64

Who needs transistors? A. Lujic. diags Product Eng 35:96-101 Mr 16 '64

Wide-range speed control for small motors. J. C. Taylor and F. P. Weigold. il diag Westinghouse Eng 24:146-9 S '64

Cooling

Liquid cooling. J. H. Sununu. flow diag il diags Electronics 37:101-3 S 7 '64

Transistor heat dissipators; special report. bibliog il diags Electronics 37:83-106 S 7 '64 (reprints 50c)

Failure

Ensuring the reliability of transistors used in logic circuits. H. Brändle. Naval Eng J 76:377-86 Je '64

Insurance against transistor failure. H. Epstein and C. Flanagan. il diags Electronics 37:72-3 S 21 '64

Preventing second breakdown in transistor circuits. P. Schiff. il diags Electronics 37:66-74 Je 15 '64

Manufacture

Improved transistor production process. il Engineer 217:834 My 8 '64

Impurity atom distribution from a two-step diffusion process. D. P. Kennedy and P. C. Murley. IEEE Proc 52:620-1 My '64

New transistor assembly technique is faster. il Engineering 197:618 My 1 '64

Measurement uses

Transistorized millivolt discriminator. M. Birnbaum and V. Comanescu. diags Electronic Eng 36:110-13 F '64

Transistors and voltage measurements. D. R. Anderson. il diags Radio-Electronics 35:38-9 Ag '64

Ultrasonic thickness measuring instrument using transistor logic techniques. B. L. Elliot. diags Electronic Eng 35:738-41 N '63

Noise

Carrier density fluctuation noise in field-effect transistors. A. van der Ziel. IEEE Proc 51:1670-1 N '63

Designing noise immunity into high-speed circuits. D. R. Gipp. diags Electronics 37:66-72 S 7 '64

Excess noise in field-effect transistors. H. E. Halladay and W. C. Bruncke. IEEE Proc 51:1671 N '63

Noise behavior in semiconductor devices. E. G. Fonda. bibliog diags Electronic Ind 23:72-8 Ap '64

Theory of low-frequency generation noise in junction-gate field-effect transistors. C. T. Sah. bibliog diags IEEE Proc 52:795-814 Jl '64

Protection

New silicone-packaged transistor battles heat and moisture. il Machine Design 36:14 Mr 12 '64

100V 100mA regulated power supply using transistors. R. E. Aitchison and W. S. Lamond. diags Electronic Eng 36:604-5 S '64

Tables, calculations, etc.

Transistor *h* parameters. D. N. Tilsley. diags Wireless World 70:229-32 My '64

Temperature effect

Effect of temperature on field-effect transistor characteristics. L. J. Sevin. bibliog diag Electro-Tech 73:103-7 Ap '64

Temperature dependence multivibrators. W. F. Miller. diags Electro-Tech 74:38-41+ Ag '64

Temperature effects in low-level choppers. diags Electro-Tech 73:14-15 Ja '64

Testing

Better scope transistor checker. R. G. Warner. diag Radio-Electronics 35:49 S '64

Biasing field-effect transistors for zero d-c drift. L. E. Evans. diags Electro-Tech 74:93-6 Ag '64

Dynamic conductance tube and transistor tester (Eico 667). E. C. Carlson. il diags Radio-Electronics 35:65+ Mr '64

Extrapolating component life tests. C. Toye. diags Electro-Tech 74:36-9 O '64

Field effect transistors under nuclear radiation. A. B. Kaufman. bibliog il diag Electronic Ind 23:94-7 Mr '64

Heathkit model IM-30 transistor tester. il Audio 47:38 D '63

Power-time voltage testing of transistors. J. G. Naborowski. diags Electronic Ind 23:147-51 My '64

Preventing second breakdown in transistor circuits. P. Schiff. il diags Electronics 37:66-74 Je 15 '64

Testing transistors in-circuit. A. T. Ashby and others. bibliog il diags Electronics 37:53-6 Je 1 '64

Transistor tester. M. F. Sizmur. il diags Wireless World 70:253-7 My '64; Discussion. 70:524-5 O '64

Use of an analogue computer to calculate rise-times in transistor logic stages. E. M. Stafford. diags Electronic Eng 36:49 Ja '64

Valve and transistor characteristic tracer. A. W. Gooder and M. H. N. Potok. il diags Electronic Eng 35:722-5 N '63

TRANSITION elements

Base-catalyzed oxidation of mercaptans in the presence of inorganic transition metal complexes. T. J. Wallace and others. bibliog diag Ind & Eng Chem Proc Design 3:237-41 Jl '64

Borane complexes of transition metals. G. W. Parshall. bibliog Am Chem Soc J 86:361-4 F 5 '64

Equilibrium studies on the solvent extraction of some transition metals with naphthenic acid. A. W. Fletcher and D. S. Flett. bibliog J Ap Chem 14:250-7 Je '64

Extractability of selected metal ions with high molecular weight amines. B. E. McClellan and V. M. Benson. bibliog Anal Chem 36:1985-7 S '64

Homogeneous hydrogenation in the absence of transition-metal catalysts. C. Walling and L. Bollyky. bibliog Am Chem Soc J 86:3750-2 S 20 '64

Influence of temperature, strain rate, surface condition, and composition on the plasticity of transition-metal carbide crystals. W. S. Williams. bibliog il diag J Ap Phys 35:1329-38 Ap '64

Infrared spectra of transition metal alkoxides. C. T. Lynch and others. bibliog Anal Chem 36:2332-7 N '64

Lewis basicity of a transition metal; a boron trifluoride adduct of biscyclopentadienyltungsten dihydride. D. F. Shriver. diag Am Chem Soc J 85:3509-10 N 5 '63

Pentafluorophenyl derivatives. Chem & Eng N 42:40-1 F 10 '64

Reactions of coordinated ligands; the reactions of alkyl halides with mercapto groups in transition metal complexes of mercaptoamines. D. H. Busch and others. bibliog Am Chem Soc J 86:3642-50 S 20 '64

Reduction of multiple bonds by low-valent transition metal ions; the homogeneous reduction of acetylenes by chromous sulfate. C. E. Castro and R. O. Stephens. bibliog Am Chem Soc J 86:4358-63 O 20 '64

Some considerations on the magnetic carriers in ferromagnetic transition metals. T. Izuyama and R. Kubo. bibliog diags J Ap Phys 35:1074-81 pt 2 Mr '64

Some transition metal complexes of substituted thioureas; nickel(II). S. L. Holt, jr. and R. L. Carlin. bibliog Am Chem Soc J 86:3017-24 Ag 5 '64

Transition metal complexes with aliphatic Schiff bases; compounds formed by the reaction of copper(II) and nickel(II) ethylenediamine and triethylenetetramine complexes with some aliphatic aldehydes. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86:1331-4 Ap 5 '64

TRANSITION elements—*Continued*
Transition metal complexes with aliphatic Schiff bases; copper(II) and nickel(II) complexes of 1,3-propanediamine and their reactions with acetone. D. A. House and N. F. Curtis. bibliog Am Chem Soc J 86: 223-5 Ja 20 '64

TRANSITION points
Effect of temperature on polymer based floor polishes. R. H. Cahill and F. L. McCarthy. il diag Soap & Chem Spec 40:88-90+ Ap '64
Model for the transition regime in hypersonic rarefied gasdynamics. B. B. Hamel. bibliog diag AIAA J 2:1047-54 Je '64
New device speeds and simplifies transition measurements of polymers. N. Brenner and V. J. Bartolot, jr. diags Plastics Tech 10: 56-9 S '64
Relation of transition temperatures to chemical structure in high polymers. R. F. Boyer. diags Rubber Chem & Tech 36:1303-1421 bibliog(p 1418-21) D '63
Superconducting penetration depth of niobium stannide. C. Cody. bibliog diags RCA R 25:414-32 S '64
Transition temperature of niobium stannide. J. L. Cooper. bibliog RCA R 25:405-13 S '64
Transition time of electrode reactions without supporting electrolytes. P. Bro. Electrochem Soc J 111:1104-5 S '64

TRANSLATING machines
Solvability of machine mappings of regular sets to regular sets. S. Ginsburg and T. N. Hibbard. Assn for Computing Mach J 11: 302-12 Jl '64
Technical translations by computer. il diag Electronic Ind 22:76-8 D '63

TRANSLATION
Functionalized listening facility for the multilingual auditorium. D. D. Jones. diags Audio Eng Soc J 12:245-7 Jl '64
Translation project on Soviet lecture demonstrations in physics. H. A. Robinson. Am J Phys 32:56-8 Ja '64
Translations for the U.S. scientist. K. Gingold. bibliog Chem & Eng N 42:88-9+ Ag 17 '64

TRANSLOCATION in plants. See Plants—Translocation

TRANSLUCENT plastics. See Plastics, Translucent

TRANSMISSION, Electric. See Electric transmission

TRANSMISSION towers. See Electric lines—Poles and towers

TRANSMITTERS, Radio. See Radio transmitters

TRANSMUTATION (chemistry)
Neutron transmutations dope semiconductors. C. N. Klahr and M. S. Cohen. il diags Nucleonics 22:62-5 Ap '64

TRANSPARENCIES
Multiexposure transparencies for the laboratory and classroom. Am J Phys 32:sup 13 S '64
Use of color film in manufacture of color map transparencies for radar trainers. E. E. Griffith. il diags SMPTE J 73:849-53 O '64

TRANSPARENT packages. See Package goods—Transparent packages

TRANSPARENT plastics. See Plastics, Transparent

TRANSPONDERS (aviation). See Radar aids to aviation

TRANSPORTATION
Analytical methods in transportation; symposium. bibliog il diags Am Soc C E Proc 89 [EM 6]:1-126 D '63
Application of the discrete maximum principle to a transportation problem. L. T. Fan and C. S. Wang. diag J Math & Phys 43: 255-60 S '64
Automobile in American daily life. T. A. Bostick. bibliog map Pub Roads 32:241-55 D '63
Barge industry plays major role in Tennessee Valley economy. B. B. Carr. Marine Eng/Log 68:95 D '63
Capacity of urban transportation modes. W. S. Rainville, jr. and W. S. Homburger. diag Am Soc C E Proc 89 [HW 1 no 3489]:37-55 Ap '63; Discussion. T. J. Owens. 90 [HW 1 no 3780]:119-20 Ja '64; Reply. 90 [HW 2 no 3997]:17-18 Ag '64
Computer aids in urban transportation planning. I. E. Granville. il Pub Works 95: 128-9 O '64
Demand considerations in urban transportation. G. M. Smerk. Traffic Q 18:421-32 Jl '64
Federal urban transportation demonstration program. J. C. Kohl. Traffic Q 18:299-309 Jl '64
Future role of the automobile in urban transportation. R. E. Singer. 2pls Traffic Q 18:156-68 Ap '64
Get rolling on urban transport. Eng N 172: 19-20 F 27 '64
Ground transportation in the years ahead. D. K. Chacey. maps Traffic Q 18:188-201 Ap '64
Human side of urban transportation. P. Johnson. Traffic Q 18:321-34 Jl '64
Materials (people) handling at the World's fair. H. Balfour and M. Barrangon. il diags Mech Eng 86:46-54 Ag '64
Move the people we must; National conference on urban passenger transportation. Civil Eng 34:92 Mr '64
Municipal role in urban transportation planning. D. G. Mickle. map Pub Works 95:105-6+ F '64
New idea in urban transportation. E. H. Harlow. il Pub Works 94:119-20 D '63
New ways to see land use and transportation. J. D. Carroll, jr. Civil Eng 34:62-3 Ag '64
Planning, transportation, and the small city. R. A. Gakenheimer. Traffic Q 18:282-95 Ap '64
Predicting the modal split in Pittsburgh. L. E. Keefer. flow diag Am Soc C E Proc 89 [HW 1 no 3469]:13-25 Ap '63; Discussion. 90 [HW 1 no 3780]:109-12 Ja '64; Reply. 90 [HW 2 no 3997]:11-12 Ag '64
Problems of off-road transportation. L. J. Goodman and R. A. Liston. il diags Am Soc C E Proc 90 [HW 1 no 3761]:1-18 Ja '64
Queens-Long Island corridor; urban transportation laboratory. J. M. Leiper. map Traffic Q 18:335-48 Jl '64
Research needs in urban transportation. Civil Eng 34:34-5 Ap '64
Roger H. Gilman and the Tri-State transportation committee. map Eng N 172:122-3+ F 13 '64
Shaping the demand for mass transportation. L. E. Keefer. Traffic Q 18:589-96 O '64
Transport loans aid five nations. Eng N 173: 37 Ag 13 '64
Transportation and urban development. W. R. McGrath. Traffic Q 18:491-501 O '64
Urban change and planning. A. T. Row, jr. and H. S. Levinson. Traffic Q 18:5-16 Ja '64
Urban transportation will hold the spotlight in 1964. il Eng N 172:70-2 Ja 23 '64
Use of public transportation in Milwaukee, Wis. J. K. Hadden. Traffic Q 18:219-32 Ap '64

See also
Airlines
Automobiles
Conveying machinery (long distance)
Electric vehicles
Ferry bridges
Ferryboats
Freight cars
Highway transportation
Mechanical handling
Mine haulage
Motor trucks
Motor vehicles
Ore transportation
Packing for shipment
Petroleum pipe lines
Ports
Railroads
Rapid transit
River traffic
Shipping

also subdivision Transportation under special subjects, e.g.
Cement
Coal
Food
Gas, Natural
Liquefied petroleum gas
Lumber
Milk
Motor vehicles, Military
Petroleum
Rock products
Rubber

Costs

Constructive mileage. E. A. Mohr. il maps Traffic Q 18:433-48 Jl '64
Financing street and highway improvements in urban areas. T. R. Todd. Traffic Q 18: 502-22 O '64
Integer program for a delivery problem. M. L. Balinski and R. E. Quandt. bibliog diag Op Res 12:300-4 Mr '64

History

Some aspects of traveling in Stuart England. E. Field. Traffic Q 18:406-20 Jl '64

TRANSPORTATION—*Continued*

Laws and regulations

ICC regulation extension to water carriers dangerous. B. B. Carr. Marine Eng/Log 68:68 N '63

Central America

Look at the Pan American highway system. W. Kurylo. 4pls Traffic Q 18:143-55 Ap '64

Germany

Role of public transportation in Hamburg, Germany. V. R. Vuchic. bibliog 4pls Traffic Q 18:118-40 Ja '64

Great Britain

Some aspects of traveling in Stuart England. E. Field. Traffic Q 18:406-20 Jl '64

Transport policy. E. Marples. Engineer 218: 86-8 Jl 17 '64

Maryland

Maryland plan for progress in transportation. W. J. Addison. Traffic Q 18:265-74 Ap '64

Nepal

Nepalese carried components to erect a tramway by hand. il Eng N 173:35 Jl 23 '64

TRANSPORTATION, Military
See also
Airplanes, Military transport

TRANSURANIUM elements
Reactor produces rare elements in quantity. Franklin Inst J 276:542-3 D '63
Recent research on the transuranium elements. G. T. Seaborg. il diags Franklin Inst J 276: 459-74 D '63

TRAPS, Steam. See Steam traps

TRAUMA
Wringer washing machine injuries. E. Press and others. bibliog Am J Pub Health 54: 812-22 My '64

TRAVEL
$X00,000 saving by sampling paperwork. W. J. Hickey, jr. Ind Quality Control 20:6-9 Je '64

TRAVELING exhibits. See Exhibits, Traveling

TRAVELING salesmen problem (operations research). See Sequencing problems

TRAVELING wave masers. See Amplifiers

TRAVELING wave tubes. See Vacuum tubes—Traveling wave tubes

TRAYS (containers)
Building-block system cuts distribution costs. J. A. Eaton. il diags Mod Materials Handling 19:44-7 Mr '64

TRAYS, Plastic
This forming line is different. il diag Mod Plastics 41:96-7 Jl '64

TREE growth
Correlation of fibril angle with wall thickness of tracheids in summerwood of slash and loblolly pine. C. H. Hiller. bibliog Tappi 47: 125-8 F '64
Growth chamber study of plus tree progeny. W. R. Wyatt and W. L. Beers, jr. bibliog il Tappi 47:305-9 My '64
Growth chamber study of superior tree progeny. W. R. Wyatt and W. L. Beers, jr. il Paper Ind 45:546-7 Ja '64
Pine growth aided by nitrogen in North Carolina experiments. Paper Ind 46:498 S '64
Tracheid length variation patterns in Douglas-fir and selection of extreme variants. J. W. Duffield. bibliog Tappi 47:122-4 F '64
Variation in growth characteristics and wood properties of Norway spruce. F. Mergen and others. bibliog Tappi 47:499-504 Ag '64

TREE planting
See also
Roadside planting

TREES
See also
Aspen
Balsa
Birch
Cedar
Conifers
Hemlock
Metasequoia
Pine
Spruce

Diseases and pests

See also
Elm—Diseases and pests

TRENCHES
Cave-ins are out when jack is in; hydraulic jack protects gas company street crews. il Gas Age 131:33 O '64
Plastic surgery on irrigation arteries. K. S. Ehrman. il diags Am Soc C E Proc 90 [CO 1 no 3837]:47-57 Mr '64

TRENCHING
Sliding trench shields can prevent tragic cave-ins. il diags Roads & Sts 106:42-5+ N '63

TRENCHING machinery
Ditcher feels way along string. il Eng N 171: 61 D 5 '63
Ditcher has four-wheel drive. il Eng N 172: 50 My 14 '64
Hardfaced heat hardens trencher's teeth. il Welding Eng 49:48 Ag '64

TRESTLES
Sub-arc welds desert railroad trestle. il Welding Eng 49:82 Ap '64

TRIAFULVENE. See Methylene cyclopropene

TRIANGULATION
Analogue aerial triangulation. H. S. Williams. bibliog diags Am Soc C E Proc 90 [SU 2 no 3968]:49-73 Jl '64
Measuring structural behavior of Glen Canyon dam. J. T. Richardson. bibliog il map plan diags Am Soc C E Proc 90 [SU 2 no 3987]:133-52 Jl '64
Planning and design of aerotriangulation projects. H. M. Karara. bibliog diags Am Soc C E Proc 90 [SU 2 no 3986]:117-32 Jl '64
Simultaneous relative orientation of multiple cameras. H. M. Karara and A. A. Elassal. bibliog diag Am Soc C E Proc 90 [SU 2 no 3982]:109-16 Jl '64
Use of photographic triangulation in determining the positions of objects in large-scale experiments. D. E. Phillips. flow chart il diags SMPTE J 72:869-71 N '63

TRIASSIC period. See Geology, Stratigraphic—Triassic

TRIAZINES
Metabolism of triazine herbicides by plants. M. L. Montgomery and V. H. Freed. bibliog J Agri & Food Chem 12:11-14 Ja '64
Nitrification of triazine nitrogen. R. D. Hauck and H. F. Stephenson. bibliog J Agri & Food Chem 12:147-51 Mr '64
Reaction mechanism and fixation of monochloro-*s*-triazine dyes on cellulose using tertiary amine catalysts. T. L. Dawson. pl Soc Dyers & Col J 80:134-43 Mr '64
Tolerance of several grass species to 2-chloro-*s*-triazine herbicides in relation to degradation and content of benzoxazinone derivatives. R. H. Hamilton. bibliog J Agri & Food Chem 12:14-17 Ja '64

Analysis

Determination of hexahydro-1,3,5-trinitro-*S*-triazine in admixture with octahydro-1,3,5,7-tetranitro-*S*-tetrazine by nonaqueous titration in mixtures. S. K. Sinha and others. bibliog Anal Chem 36:894-5 Ap '64
Titration characteristics of hexahydro-1,3,5-trinitro-*s*-triazine and octahydra-1,3,5,7-tetranitro-*s*-tetrazine in nonaqueous solvents. M. I. Fauth and others. Anal Chem 36:380-2 F '64

TRIAZOLES
Azidotriazoles lose N_2 without cyclization. P. A. S. Smith and others. Chem & Eng N 42: 40-1 Je 1 '64
Complexes of 3-amino-1,2,4-triazole in plant metabolism. A. W. Naylor. bibliog il J Agri & Food Chem 12:21-5 Ja '64
Fate of 3-amino-1,2,4-triazole in soils. C. D. Ercegovich and D. E. H. Frear. bibliog J Agri & Food Chem 12:26-9 Ja '64
Isolation of primary decomposition products of azides; 1,4-diphenyl-5-azido-1,2,3-triazole. P. A. S. Smith and others. bibliog Am Chem Soc J 86:2025-33 My 20 '64
Metabolism and translocation of 3-amino-1,2,4-triazole by Canada thistle. R. A. Herrett and W. P. Bagley. bibliog diag J Agri & Food Chem 12:17-20 Ja '64
See also
Aminotriazole

TRIBUTYL phosphate
Decontamination of thorium; direct precipitation of thorium sulfate from thorium nitrate solutions in tributyl phosphate. K. J. Bril and P. G. De Sabóia Araújo. bibliog Ind & Eng Chem Proc Design 3:8-10 Ja '64
Distribution of nitric acid between tri-n-butyl phosphate and water. P. E. Burns and C. Hanson. bibliog J Ap Chem 14:117-21 Mr '64
Separation of technetium from mixed fission products by solvent extraction with tributyl phosphate. M. H. Campbell. bibliog Anal Chem 35:2052-4 D '63

TRICHLOROACETIC acid

Gasometric analysis of alkyl azides with sodium iodide-trichloroacetic acid. W. R. Carpenter. bibliog Anal Chem 36:2352-3 N '64

Sorption of orange II dye acid from mixtures with hydrochloric acid and with trichloroacetic acid. P. Larose and R. Donovan. Soc Dyers & Col J 80:322-6 Je '64

TRICHLOROBENZENE

Experiments for the determination of limit of allowable concentration of trichlorobenzene in water reservoirs; abstract. K. F. Meleschenko. Pub Works 94:148 N '63

TRICHLOROETHANE

Use of trifluorotrichloroethane-methylene chloride in adsorption elution chromatography. J. A. Attaway. Anal Chem 36:2224 O '64

TRICHLOROETHYLENE

New cold dip painting improves coating, shaves costs; Black Trilac 22. il Mod Metals 20:82 F '64

Trichloroethylene conveys heat in air source heat pump serving office building complex; Detroit Edison co. R. E. Polkinghorne. il diag Heating-Piping 35:133-6 My '63; Discussion. 35:85-6 O; 104+ N '63

Two-stage trichlor finishing. J. Schmadebeck and O. Lindemann. il Metal Finishing 61: 68-70 D '63

Physiological effect

Chronic effects of trichloroethylene on rat behavior. K. Battig and E. Grandjean. bibliog il Archives Environmental Health 7: 694-9 D '63

TRICHLOROMETHYL group

Addition of the trichloromethyl radical to ω-phenylalkenes. M. M. Martin and G. J. Gleicher. bibliog diag Am Chem Soc J 86: 238-41 Ja 20 '64

Addition of the trichloromethyl radical to substituted 3-phenyl-1-propenes and 4-phenyl-1-butenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:233-8 Ja 20 '64

Hammett-Taft study of the addition of the trichloromethyl radical to substituted alkenes. M. M. Martin and G. J. Gleicher. bibliog Am Chem Soc J 86:242-4 Ja 20 '64

Trichloromethyllithium, an electrophilic reagent. W. T. Miller, jr. and D. M. Whalen. bibliog Am Chem Soc J 86:2089-90 My 20 '64

TRICHLOROSILANE

Kinetics of epitaxial growth of silicon from the trichlorosilane-hydrogen reaction. A. M. Stein. bibliog diag Electrochem Soc J 111: 483-4 Ap '64

TRICKLING filters. See Sewage disposal—Filtration

TRICOT. See Knit goods

TRICYCLODECANE

Bridgehead adamantane carbonium ion reactivities. R. C. Fort, jr. and P. V. Schleyer. bibliog Am Chem Soc J 86:4194-5 O 5 '64

TRICYCLODECANOL

Stereospecific synthesis of tricyclo $[7.1.0.0^{5,7}]$ decan-3-ol. P. Radlick and S. Winstein. Am Chem Soc J 86:1866-7 My 5 '64

TRICYCLOOCTANE

Dipole moments, configuration, and conformation of tricyclo$[5.1.0.0^{3,5}]$octane derivatives and related compounds. W. D. Kumler and others. Am Chem Soc J 86:3126-30 Ag 5 '64

Thermal decomposition processes in the system tricyclo $[3.3.0.0.^{2,6}]$octane-1,5-cyclooctadiene. R. Srinivasan and A. A. Levi. bibliog Am Chem Soc J 86:3756-9 S 20 '64

TRIDYMITE

Tridymite-cristobalite relations and stable solid solutions. D. M. Roy and R. Roy. bibliog diags Am Mineralogist 49:952-62 Jl '64

TRIETHYLAMINE

Interaction of alkyllithium compounds with base; complex formation between ethyllithium and triethylamine in benzene. T. L. Brown and others. bibliog diags Am Chem Soc J 86:2135-41 Je 5 '64

Molecular addition compounds of amines and iodine; evidence for the existence of a 2 : 1 triethylamine-iodine complex. C. D. Schmulbach and D. M. Hart. bibliog Am Chem Soc J 86:2347-51 Je 20 '64

New reactions of phosphonitrilic chloride trimer; substitution and cleavage reactions with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 85:4050-1 D 20 '63

Phosphonitrilic compounds; reactions of phosphonitrilic chlorides with catechol and triethylamine. H. R. Allcock. bibliog Am Chem Soc J 86:2591-5 Jl 5 '64

Spectrophotometric determination of ethyl-, diethyl-, and triethylamine in aqueous solution. G. Dahlgren. bibliog Anal Chem 36: 596-9 Mr '64

TRIETHYLENE glycol. See Glycols

TRIFLUOROACETATES

General base catalyzed ethanolysis of ethyl trifluoroacetate. S. L. Johnson. bibliog diags Am Chem Soc J 86:3819-24 S 20 '64

Separation and analysis of methylated phenols as their trifluoroacetate ester derivatives. A. T. Shulgin. bibliog Anal Chem 36:920-1 Ap '64

TRIFLUOROACETIC acid

1,4-Chlorine shift and an estimate of the rate enhancement owing to chlorine participation in the addition of trifluoroacetic acid to 5-chloro-1-hexene. P. E. Peterson and E. V. P. Tao. Am Chem Soc J 86:4503-4 O 20 '64

Colorimetric determination of vitamin A and its derivatives with trifluoroacetic acid. R. E. Dugan and others. bibliog Anal Chem 36:114-17 Ja '64

Solvents of low nucleophilicity; the effect of remote substituents in the addition of trifluoroacetic acid to substituted alkenes. P. E. Peterson and G. Allen. bibliog Am Chem Soc J 85:3608-13 N 20 '63

TRIFLUOROACETONE

Extraction and spectrophotometric determination of molybdenum and tungsten with 2-thenoyltrifluoroacetone; application to alloy steels. A. K. De and M. S. Rahaman. bibliog Anal Chem 36:685-7 Mr '64

Liquid-liquid extraction of cesium with 2-thenoyltrifluoroacetone. P. Crother and F. L. Moore. bibliog Anal Chem 35:2081-5 D '63

Selective liquid-liquid extraction of radiotin with 2-thenoyltrifluoroacetone. J. R. Stokeley and F. L. Moore. bibliog Anal Chem 36:1203-6 Je '64

Spectrophotometric determination of cerium with thenoyltrifluoroacetone. H. Onishi and C. V. Banks. Anal Chem 35:1887-9 N '63

Spectrophotometric determination of cerium with thenoyltrifluoroacetone after cupferron-chloroform extraction. H. Onishi and Y. Toita. Anal Chem 36:1867-9 Ag '64

TRIFLUOROMETHYL compounds

Structure of vinyl fluoride-trifluoro-methyl iodide telomers. T. J. Dougherty. bibliog Am Chem Soc J 86:460-3 F 5 '64

TRIFLUOROTOLUENE

Benzotrifluoride and related compounds. G. Fuller. bibliog Manuf Chem 35:43-6+ My; 45-9 Je '64

TRIGLYCERIDES. See Glycerides

TRIGLYCINE sulfate

Some aspects of polarization reversal in ferroelectric TGS. H. H. Wieder. bibliog J Ap Phys 35:1224-7 Ap '64

Temperature autostabilizing nonlinear dielectric element (TANDEL); construction of TGS; element and its properties. A. Glanc and others. bibliog il diag J Ap Phys 35: 1870-5 Je '64

Temperature autostabilizing nonlinear dielectric element (TANDEL); explanation of its function. V. Dvořák and others. J Ap Phys 35:1875-8 Je '64

Ultrasonic relaxation near the Curie temperature of ferroelectric triglycine sulfate. E. J. O'Brien and T. A. Litovitz. bibliog il diag J Ap Phys 35:180-6 Ja '64

TRIMETHYL aluminum

Complex formation between trimethylaluminium and amino-compounds. T. Mole. Chem & Ind p281-2 F 15 '64

TRIMETHYLAMINE

Detection of green-meat tuna before cooking. C. Nagaoka and N. Suzuki. bibliog Food Tech 18:777-81 My '64

Irradiation preservation of Pacific Coast shellfish; relation of bacterial counts, trimethylamine and total volatile base to sensory evaluation of irradiated king crab meat. J. Spinelli and others. bibliog Food Tech 18:933-7 Je '64

TRIMETHYL compounds

Normal and inverse secondary α-deuterium isotope effects with trimethylsulphonium ions. C. Y. Wu and R. E. Robertson. Chem & Ind p 1803-4 O 24 '64

Stability of di- and trimethyl-1-1,5-benzodiazepines and their salts. J. O. Halford and R. M. Fitch. bibliog Am Chem Soc J 85:3354-8 N 5 '63

Trimethylphenylammonium iodide as a quantitative precipitant for gold. W. W. White and J. R. Zuber. bibliog Anal Chem 36: 2363-4 N '64

TRIMETHYL pentane

Quaternary liquid system benzene-furfural-iso-octane-cyclohexane. C. J. Henty and others. bibliog diag J Ap Chem 14:148-55 Ap '64

TRIMETHYLPENTANEDIOL. See Glycols

TRIMETHYLSILYL group

Einstein viscosity-concentration relationship; application to true solutions of the large spherical molecule tetrakis (trimethylsilyl) methane. R. L. Merker and M. J. Scott. bibliog J Colloid Sci 19:245-51 Mr '64

Quantitative analysis of low-boling phenols by capillary column separation of trimethylsilyl ethers. R. W. Freedman and G. O. Charlier. bibliog Anal Chem 36:1880-1 Ag '64

Quantitative gas liquid chromatography of phenols by complete trimethylsilylation of hindered phenols in presence of acidic oxides. R. W. Freedman and P. P. Croitoru. bibliog Anal Chem 36:1389-90 Je '64

TRINIDAD

See also

Chemical industries—Trinidad

TRINITROBENZENE

Chromatographic separation of polycyclic aromatic hydrocarbons on columns containing *s*-trinitrobenzene. R. Tye and Z. Bell. Anal Chem 36:1612-15 Jl '64

TRINITROTOLUENE

New design; continuous seven-stage nitration for TNT; process flowsheet. H. C. Prime. il Chem Eng 71:126-8 Mr 16 '64

TRIODES. See Vacuum tubes

TRIPARANOL

Richardson-Merrell fined $80,000; research scientists put on probation. Chem & Eng N 42:26-7 Je 15 '64

TRIPHENYLCHLOROMETHANE

Determination of primary alcohol groups in polyglycols using triphenylchloromethane. J. G. Hendrickson. bibliog Anal Chem 36:126-8 Ja '64

TRIPHENYLETHYLENE

Expoxidation of ethylenic linkages by chromic acid; oxidation of triphenyl(tolyl) ethylene by chromic oxide. G. E. M. Moussa. bibliog J Ap Chem 13:470-2 O '63

TRIPHENYLMETHANE

Anodic oxidation of triphenylmethane dyes. Z. Galus and R. N. Adams. bibliog diags Am Chem Soc J 86:1666-71 My 5 '64

Metalation of triphenylmethane by organolithium compounds. R. Waack and P. West. bibliog Am Chem Soc J 86:4494-6 O 20 '64

TRIPHENYLMETHYL group

Ion pairs and dissociated ions from trityl benzoate in moist acetone. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2720-1 Jl 5 '64

Ion pairs in reactions of trityl benzoate. S. Winstein and B. R. Appel. bibliog Am Chem Soc J 86:2718-20 Jl 5 '64

TRIPHENYLPHOSPHINE

Reaction of triphenylphosphine oxide with alkyllithium and Grignard reagents. D. Seyferth and others. bibliog Am Chem Soc J 86:1100-5 Mr 20 '64

Reduction of aromatic disulfides with triphenylphosphine. R. E. Humphrey and J. M. Hawkins. bibliog Anal Chem 36:1812-14 Ag '64

Triphenylphosphine derivatives of π-cyclopentenonylcobalt tricarbonyls and their dehydrogenation to π-cyclopentadienonecobalt dicarbonyl triphenylphosphine cations. R. F. Heck. bibliog Am Chem Soc J 85:3387-90 N 5 '63

TRIPODS. See Camera tripods

TRITERPENES

Constitution of ocotillol. C. M. M. Halls and E. W. Warnhoff. bibliog Chem & Ind p 1986 D 21 '63

Mass spectrometry in structural and stereochemical problems; pentacyclic triterpenes. H. Budzikiewicz and others. bibliog Am Chem Soc J 85:3688-99 N 20 '63

Total synthesis of polycyclic triterpenes; the total synthesis of (+)-α-onocerin. G. Stork and others. bibliog Am Chem Soc J 85:3419-25 N 25 '63

Transformations of eburicoic acid; side-chain degradation to 14-methylpregnane derivatives. D. Rosenthal and others. bibliog Am Chem Soc J 85:3971-9 D 20 '63

TRITIUM

Accessibility of wood and wood carbohydrates measured with tritiated water. Y. Sumi and others. bibliog Tappi 47:621-4 O '64

Autoradiography of tritium-containing thin layer chromatograms. H. Sheppard and W. H. Tsien. il Anal Chem 35:1992 N '63

Determination of hydrogen in sodium by isotopic dilution with tritium. C. Evans and J. Herrington. diags Anal Chem 35:1907-10 N '63

Geological survey finds new high levels of tritium in rain water. Water & Sewage Works 110:401 N '63

Improved techniques for routinely counting low levels of tritium and krypton-85. M. L. Curtis and H. L. Rook. diags Anal Chem 36:3047-8 S '64

Mercury-photosensitized reactions between paraffins and tritium; a simple, rapid, and selective tritiation technique. P. L. Gant and K. Yang. bibliog Am Chem Soc J 86:2954-6 Jl 20 '64

Ortho- and paratritium. E. W. Albers and others. bibliog diag Am Chem Soc J 86:204-9 Ja 20 '64

Preparation of carbon-14 and tritium labelled compounds by hydroboration procedures. R. W. Numrich and others. Chem & Ind p 1269 Jl 11 '64

Recoil tritium reactions; methyl chloride. Y. N. Tang and others. bibliog Am Chem Soc J 86:1280-6 Ap 5 '64

Removal of tritium from He^3. K. L. Erdman and others. diag R Sci Instr 34:1280-1 N '63

Simple technique for tritiation of aromatic insecticides. B. D. Hilton and R. D. O'Brien. bibliog diag J Agri & Food Chem 12:236-8 My '64

Tritium β-decay induced reactions in the polystyrene fluff. J. Y. Yang and R. B. Ingalls. bibliog Am Chem Soc J 85:3920-3 D 20 '63

Tritium-labeled compounds: determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-*l-t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

Tritium-labeled compounds; isotope effects in the oxidation of aldoses-*l-t* with bromine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:145-51 Mr '64

Tritium-labeled compounds; mechanism for the oxidation of aldehydes and aldoses-*1-t* with sodium chlorite. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 68A:301-4 My '64

Tritium nuclear magnetic resonance spectroscopy; observation of high-resolution signals from the methyl and methylene groups of ethylbenzene; the nonradiochemical use of tritium as a tracer. G. V. D. Tiers and others. bibliog Am Chem Soc J 86:2526-7 Je 20 '64

TRITYL group. See Triphenylmethyl group

TROILITE. See Iron sulfides

TRONA

Safety evaluation of underground Diesel equipment. R. F. Love and J. H. Furse. il Min Cong J 50:58-61 Ap '64

TROPICAL products institute. See Great Britain—Scientific and industrial research, Department of

TROPICS

See also

Architecture—Tropics
Jungle

Diseases and hygiene

Epidemiological aspects of Coxsackie and Echo virus infections in tropical areas. J. P. Fox. bibliog Am J Pub Health 54:1134-42 Jl '64

TROPOSPHERE. See Atmosphere

TROPYLIUM ion. See Cycloheptatriene

TROY, New York

Water supply

What's new in Troy's filter plant? P. W. Prendiville. diag Water Works & Wastes Eng 1:80-1+ My '64

TRUCKS

Choose casters and wheels for the job. G. J. Berkwitt. Mill & Factory 73:52-3 D '63

Jigs, fixtures aid cylinder truck production. L. J. Hendrich. il Welding Eng 49:40-1 Ag '64

1964 materials handling and packaging directory; non-powered floor equipment. il Mod Materials Handling 19:151-66 My '64

See also

Electric trucks
Electric trucks, Industrial
Motor trucks

TRUSSES

Friction supports 14-story building. il diags Eng N 173:46-9 Ag 20 '64

Matrix solution of force relaxation method. C. C. Feng. diags Am Soc C E Proc 89 [ST 3 no 3532]:1-19 Je '63; Discussion. S. Shore. 90 [St 1 no 3812]:229-30 F '64; Reply. 90 [ST 3 no 3940]:377 Je '64

Monolithic slab for roof decks. il diags Prog Arch 45:97 Ap '64

School costs cut by new components; long-span structure; light folding trusses. B. P. Spring il diags Arch Forum 120:114 F '64

Space trusses roof tube plant. il Eng N 172:18 Mr 26 '64

Structure designs governed by limited deformations. J. Solomon. il diags Am Soc C E Proc 89 [ST 6 no 3718]:71-99 D '63; Discussion. 90 [ST 4 no 4001]:291-6 Ag '64

Uncambered truss cuts stresses. il plan Eng N 172:138+ Mr 19 '64

TRUSTS, Industrial

Colombia drug probe still hangs fire. Chem & Eng N 42:47-8 Ap 13 '64

Depletion becomes issue in San Francisco trial. Oil & Gas J 62:77-9 Mr 2 '64

Fabricators indicted; U.S. says six steel firms rigged bids, allocated jobs. Eng N 172:21 F 20 '64

Justice aims big guns at mergers. C. J. Lawrence. Oil & Gas J 62:59-62 F 23 '64

Justice, FTC attack big oil. Oil & Gas J 62:41-3 Ap 13 '64

Morton Salt and Diamond lose civil antitrust case. Chem & Eng N 42:34 Ag 17 '64

Salt companies sued again. Chem & Eng N 42:38+ O 26 '64

Supreme court reopens Penn-Olin case; says lower court erred in dismissing antitrust charges against joint venture. Chem & Eng N 42:25 Je 29 '64

Trustbusters move on Mobay Chemicals. Chem & Eng N 42:23 Ap 20 '64

Trustbusters shift to phosphate fertilizers. Chem & Eng N 42:23-4 My 11 '64

Law

Antitrust; flooring firms indicted. Eng N 172:14 Ja 9 '64

Antitrust laws and standardization. Mag of Stand 34:368-71 D '63

Antitrust laws and standardization of future design or performance. Mag of Stand 35:166-8 Je '64

Can a company afford to fight an antitrust suit? D. Peterkin, jr. Chem & Eng N 42:27 Je 8 '64

Do antimerger policies curb competition; interview with R. H. Bork. Oil & Gas J 62:29-31 Je 1 '64

El Paso outlines divestiture plan. Oil & Gas J 62:53 Jl 13 '64

Fertilizer producers face antitrust suits. Chem & Eng N 42:24 F 24 '64

Humble-Tidewater hearing delayed. Oil & Gas J 62:80 Ap 27 '64

Justice meets setback on merger views. Oil & Gas J 62:42-3 Je 29 '64

Justice seeks to freeze big firms. Oil & Gas J 62:59-60 Ap 20 '64

Justice's claims in Honolulu case attacked. Oil & Gas J 62:76-7 Mr 16 '64

Patents, licenses, and the antitrust laws. A. W. Gray. bibliog Machine Design 36:158-9 S 10 '64

Philadelphia utilities antitrust damage award to be appealed. Elec World 161:87-8+ Je 15 '64

Study to redefine antitrust objectives proposed. J. J. Scott. Oil & Gas J 62:44-5 Mr 9 '64

Tidewater's George Getty comments on plans and business vs. regulation. Oil & Gas 62:96-8 Je 8 '64

TRYPSIN

Effect of soybean trypsin inhibitor on methionine and cystine utilization. E. Kwong and R. H. Barnes. bibliog J Nutrition 81:392-8 D '63

Mechanism of interaction between dietary protein levels and coccidiosis in chicks. W. M. Britton and others. bibliog J Nutrition 82:306-10 Mr '64

Simple test for trypsin inhibitors in soybeans. J. Ilany-Feigenbaum. bibliog Food Tech 18:884-5 Je '64

TRYPTAMINE

Gas chromatographic studies of catecholamines, tryptamines, and other biological amines. C. J. W. Brooks and others. bibliog Anal Chem 36:1540-9 Jl '64

New route to tryptamine derivatives. C. R. Ganellin and H. F. Ridley. bibliog Chem & Ind p 1388-9 Ag 1 '64

TRYPTOPHAN

Acylation of α-chymotrypsin by N-acetyl-l-tryptophan. F. J. Kézdy and M. L. Bender. bibliog Am Chem Soc J 86:938-40 Mr 5 '64

Amino acid balance in the adult; high nitrogen-low tryptophan diets. H. Fisher and others. bibliog J Nutrition 81:230-4 N '63

Differential oxidation of protein-bound tryptophan and tyrosine by N-bromosuccinimide in urea solution. M. Funatsu and others. Am Chem Soc J 86:1846-8 My 5 '64

Effects of the α-hydroxy analogues of isoleucine, lysine, threonine and tryptophan and the α-keto analogue of tryptophan and the level of the corresponding amino acids on growth of rats. W. G. Pond and others. bibliog J Nutrition 83:85-93 Je '64

Environmentally-sensitive reagent with selectivity for the tryptophan residue in proteins. D. E. Koshland, jr, and others. bibliog Am Chem Soc J 86:1448-50 Ap 5 '64

Recommendations for standardization of the tryptophan load test. D. B. Coursin. Am J Clinical Nutrition 14:56-61 bibliog(p60-1) Ja '64

Relationship between tryptophan; niacin metabolism and changes in nitrogen balance. V. M. Vivian. bibliog J Nutrition 82:395-400 Mr '64

TUBE bending

Bending copper alloy tubes; reference sheet. il Tool & Manuf Eng 53:91-2 Ag '64

How to bend copper, copper alloy tube. Heating-Piping 36:204-5 O '64

How to bend titanium tubing. L. L. Kollmorgen. il diag Tool & Manuf Eng 52:90-2 Ap '64

How to bend tubing efficiently. il Iron Age 193:146-7 Mr 12 '64

New method of producing tight radius bends. J. F. Bedford. il diags Naval Eng J 76:89-92 F '64

Use of frozen benzene as a filler while bending thin wall metal tubing. A. L. Blancett and F. B. Canfield. R Sci Instr 35:1088 Ag '64

When you are bending copper tubes. il Steel 154:47 Mr 23 '64

TUBE bending machines

Tooling solves difficult bending problem. H. Carlson. il diags Tool & Manuf Eng 52:107-8 Ap '64

Numerical control

Numerically controlled bending machine. il Automation 11:89 F '64

Pines numerically controlled tube-bending machine. il Mach 70:142 D '63

Tape controlled bender cuts setup costs 75 per cent. il Steel 153:31+ N 18 '63

Tube bender maker automates equipment. il Iron Age 192:49 N 21 '63

TUBE mills

See also

Ball mills

Crushing machinery

TUBERCLE bacilli

Bacterial lipids, structure and biological activity. E. Lederer. Chem & Ind p936-7 My 30 '64

TUBERCULOSIS

Contact investigation; a practical approach to tuberculosis eradication. K. H-K. Hsu. diag Am J Pub Health 53:1761-9 N '63

Fight against tuberculosis goes on; editorial. Am J Pub Health 54:660-2 Ap '64

Relations of pneumoconiosis and pulmonary tuberculosis. R. P. O'Neill and E. D. Robin. bibliog Archives Environmental Health 8:873-81 Je '64

Response to treatment in silicotuberculosis. K. S. Howlett, jr. and F. C. Warring, jr. bibliog il Archives Environmental Health 9:343-54 S '64

Silicosis and tuberculosis. G. W. H. Schepers. Ind Med 33:381-99 Je '64

Tuberculosis contact follow-up in the Los Angeles city health department. J. B. Swayne and L. Tepper. Am J Pub Health 54:1270-81 Ag '64

Tuberculosis; its prevention and management with special reference to silicosis. S. Grzybowski. il Ind Med 33:57-61 F '64

World tuberculosis problem today; editorial. H. Wunderly. Archives Environmental Health 8:359-60 Mr '64

TUBES

Angle factors for radiant interchange between parallel-oriented tubes. E. M. Sparrow and V. K. Jonsson. diags A S M E Trans ser C 85:382-4 N '63

Flow resistance with boiling refrigerants. B. Pierre. diags ASHRAE J 6:58-65 S; 73-7 O '64

TUBES—*Continued*

Heat transfer for turbulent flow in rectangular ducts with two heated and two unheated walls. J. L. Novotny and others. bibliog diag A I Ch E J 10:466-70 Jl '64

Impact tube size in fluid velocity measurement. I. B. Goldman and J. M. Marchello. bibliog A I Ch E J 10:775+ S '64

Inclined settling of dispersed suspensions of spherical particles in square-section tubes. D. R. Oliver and V. G. Jenson. bibliog diags Can J Chem Eng 42:191-5 O '64

Laminar flow of a heat-generating fluid in a parallel-plate channel. E. M. Sparrow and others. bibliog A I Ch E J 9:797-804 N '63

Liquid helium transfer tube. M. W. Dowley and R. D. Knight. diag R Sci Instr 34:1449-50 D '63

Mathematical solution for the condensation of vapors from noncondensing gases in laminar flow inside vertical cylinders. W. D. Baasel and J. C. Smith. bibliog A I Ch E J 9:826-30 N '63

Measurements of turbulent flow development in tubes and annuli with square or rounded entrances. R. M. Olson and E. M. Sparrow. bibliog diags A I Ch E J 9:766-70 N '63

Method of sealing evacuated wide bore silica tubing. D. E. Hill and G. D. King. diags J Sci Instr 41:187-8 Mr '64

New flared tube fitting cuts leakage. R. E. Roberston and W. F. Britt. S A E J 72:85 Ap '64

Non-Newtonian fluids; tube entrance region flow. E. B. Christiansen. bibliog Chem Eng Prog 60:49-52 Ag '64

Painting tubular parts on conveyor lines. H. Chase. il Ind Finishing 40:60-2+ My '64

Pipe-tube connections; reference sheet. W. J. Quinn. diags Tool & Manuf Eng 53:73 O '64

Pipe, tubing, and fittings. J. Nicol. diags Machine Design 35:99-105 D 12 '63

Problem of pneumatic pressure lag; flow in a tubing system. A. L. Ducoffe and F. M. White, jr. bibliog diags A S M E Trans ser D 86:234-46 Je '64

Slow viscous flow of rarefied gases through short tubes. R. W. Hanks and H. L. Weissberg. bibliog J Ap Phys 35:142-4 Ja '64

Transport of radiant energy through tapered tubes or tapered gaps. E. M. Sparrow and V. K. Jonsson. A S M E Trans ser C 86:132 F '64

Tube and port fittings; fluid power component selection charts. Hydraulics & Pneumatics 17:120 Ja '64

Tubing and solid shafts of equal strength; nomogram; data sheet. H. W. Hamm. Power 108:86 Ag '64

Weights of tubing; engineering data sheet. Welding Eng 49:52 N '64

Welding machine for tube sealing. il Engineer 217:488 Mr 13 '64

See also
Pipes

Manufacture

Advantages of high-frequency induction resistance welding. D. L. Robinson. diag Welding Eng 49:53-4 Ag '64

Cold shear forming of large tubes in Michigan. il Engineer 217:456-8 Mr 6 '64

Draw bench tools size square tubes. A. A. Denst. il diags Am Mach 108:58-9 F 3 '64

Extruding nonferrous metal tubes. il Automation 11:70 My '64

Extrusion forms tungsten tubes. il diags Iron Age 193:78-9 Ja 16 '64

High energy rate forming makes impossible tubing. J. L. Bird. il Am Mach 108:74 Jl 20 '64

Incompatible-metal tubes welded explosively. R. J. Carlson. il Nucleonics 21:59 D '63

Maximum reduction in power spinning of tubes. S. Kalpakcioglu. bibliog il diags A S M E Trans ser B 86:49-54 F '64

Metal tube hardening plant; Bombrini Parodi-Delfino. il Metallurgia 69:227-8 My '64

New solution to a tube welding problem. C. Hansen and others. il Tool & Manuf Eng 52:85-7 F '64

Parform makes precision, thin-wall, one-piece tubing. il Product Eng 35:55 Ja 6 '64

Rolls shear-form giant tubes. il Iron Age 192:89-91 D 12 '63

Shear-forming of thin-wall seamless tubes up to 26.5-inch diameter by 100 feet long. il Mach 70:120-1 Ja '64

Tube drawing through straight-tapered and curved dies. T. Z. Blazynski. diags Engineer 217:222-4 Ja 31 '64

Tubes extruded under water. il Iron Age 193:73 Ja 16 '64

Specifications

Seamless, welded stainless tubing and piping index; engineering data sheet. Welding Eng 49:59 F '64

Testing

Buckling of thin walled tubes under axial impact. R. G. Redwood. il Roy Aeronautical Soc J 68:418-19 Je '64

Crushing of a tube between rigid plates. J. A. DeRuntz, jr. and P. G. Hodge, jr. bibliog il diags A S M E Trans ser E 30:391-5 S '63; Discussion. 31:357-8 Je '64

Eddy current tester finds tubing flaws. diag Tool & Manuf Eng 52:99 Ja '64

Film boiling on a horizontal tube in increased gravity fields. M. L. Pomerantz. bibliog il diags A S M E Trans ser C 86:213-18; Discussion. 218-19 My '64

Probes down the hole. il Product Eng 35:70-1 Mr 16 '64

Scope reconstructs flaws in tubes. il Iron Age 192:101 D 12 '63

Testing small tubing. J. D. Bean. il Metal Prog 85:102-4 Ap '64

Tube testing; eddy current method. il diag Light Metal Age 22:14 Je '64

TUBES (containers)

Color standards for collapsible metal tubes. G. Waleck. il Drug & Cosmetic Ind 94:54-5+ Ja '64

TUBES, Aluminum

Adhesive bonding aluminum mast. il diag Light Metal Age 22:11 Je '64

Aluminium heat exchangers. il Metallurgia 70:23 Jl '64

Moveable masts made of extruded aluminum tube. il Mod Metals 20:70 Ag '64

New aluminum shapes improve product appearance. il Materials in Design Eng 60:168+ N '64

Manufacture

Tube forming by the Par Form process. il Light Metal Age 21:8 D '63

Tubes made from continuous cast strips. il Engineering 196:762-3 D 13 '63

TUBES, Boiler. See Boiler tubes

TUBES, Brass

Dezincification of alpha brasses. C. Breckon and P. T. Gilbert. il Chem & Ind p35-6 Ja 4 '64

TUBES, Bronze

Manufacture

Improved bronze tubes for stern bearings. il Engineering 196:775-6 D 20 '63

TUBES, Copper

Bending copper alloy tubes; reference sheet. il Tool & Manuf Eng 53:91-2 Ag '64

Direct under water extrusion of copper tubes produces large coils, eliminates pickling and saves cold drawing. A. I. Nussbaum. il Wire & Wire Prod 39:737+ My '64

How to bend copper, copper alloy tube. Heating-Piping 36:204-5 O '64

Installation of copper tube for oxygen service; abstract. A. I. Heim. Air Cond Heat & Ven 61:63-4 F '64

New brazing system reduces rejects of copper tube condensers. E. H. Conway. il Welding Eng 48:46-7 N '63

Plain and extended surface copper alloy tubes. A. F. Duffie. il diag Chem Eng Prog 60:47-52 Jl '64

Pushbuttons bundle copper tubes. il Iron Age 194:87 S 17 '64

Up ampacity, save space with water-cooled hollow copper conductors. C. E. Glatz. il Elec World 161:78-9 My 4 '64

When you are bending copper tubes. il Steel 154:47 Mr 23 '64

See also
Water pipes, Copper

Manufacture

Equipment innovations, improved layout speed copper tube drawing. il Steel 154:46-50 F 24 '64

Extrusion into water or inert gas. il Metallurgia 69:253-4 Je '64

Scale-free extrusion of copper. il Engineer 217:978 My 29 '64

TUBES, Flexible

Flexible metal hose handles vibration, expansion in cryogenic piping. il diag Heating-Piping 35:115-18, cover N '63

Picking metal tubing for flexing uses. C. C. Mathews. il Materials in Design Eng 59:98-100 My '64

Plastics supersedure; composition advance in reinforced tubing. il Plastics World 22:35 O '64

TUBES, Glass. See Glass tubing

TUBES, Heat exchanger. See Heat exchangers

TUBES, Molybdenum
How ductile is molybdenum tubing? L. C. Shaheen. il Metal Prog 85:112-14 My '64

TUBES, Plastic
Glass is best. il Iron Age 192:25 N 14 '63
Plastics supersedure; composition advance in reinforced tubing. il Plastics World 22:35 O '64
Shrinkable vinyl tubing improves products. il Materials in Design Eng 60:178+ O '64

TUBES, Rubber
Flexible light pipes. N. W. Reay and L. M. Preston. R Sci Instr 35:519 Ap '64

TUBES, Steam condenser. See Condensers (steam)

TUBES, Steel
Cables prestress 18-ft window-wall. il Eng N 172:50 Je 11 '64
Design 69-kv substation and line in tubular steel. P. A. Millerbernd. il Elec World 162: 60-1 S 7 '64
Fuel oil tubing. il Plastics World 22:28-9 Ap '64
In-place ferrous tube splicer. R. S. Collins. il Mach 70:101-3 Ja '64
Longest self-erecting boom is welded of T-1 steel tubing. il Welding Eng 49:78 S '64
Painting tubular steel parts electrostatically. R. K. Underwood. il Ind Finishing 40:44-6+ Jl '64
Round steel tubing; how to select and specify. R. W. Carson. il Product Eng 35: 59-68 S 28 '64
Seamless steel tubing. il Mech Eng 85:54 D '63
Stainless piping and tubing; reference book sheet. Am Mach 108:75 F 3 '64
Stainless steel tubes hold sea water coolant. il Elec World 162:36 N 9 '64
Stainless tubing; reference sheet. Tool & Manuf Eng 53:74 O '64
Structural tubes have fine finish. Eng N 172:52 F 20 '64
Tubewrights' tubular steel fabrications. il Engineering 197:868-70 Je 26 '64
Tubular steel review. il diags Prog Arch 44: 173-6 N '63
Welding looped tubing cuts cost, saves space. diag Welding Eng 49:72 S '64
See also
Pipes, Steel

Manufacture

Centrifugally cast tubes; users comment. il Engineering 197:344 Mr 6 '64
Drives for continuous weld tube mills at Corby. R. G. Rayden. il diag Engineer 216: 897-9 N 29 '63
Explosive forming of thin-wall tubing. T. W. Black. il diags Tool & Manuf Eng 53:59-61 S '64
Extrusion and stretch reducing of tubular products. A. Klein and others. il diags Iron & Steel Eng 41:97-103; Discussion. 103-5 Jl '64
Extrusion of thin wall tubes eliminates machining. W. G. McEwan. il diags Tool & Manuf Eng 51:89-90 D '63
Floturn makes fuel lines for Saturn. il Tool & Manuf Eng 52:77 F '64
Forming tubes for boilers. il Engineering 198: 368 S 18 '64
How to work alloy steel tubing. J. F. Beck. Am Mach 108:50-3 Ag 31 '64
Mechanized straightening trims precision tube costs. A. L. Long. il Mach 70:126-7 Mr '64
Mill speeds high pressure tubing output. il Steel 153:71-2 N 11 '63
New machine shear spins long missile fuel tubes. il Steel 153:47+ D 9 '63
Plasma arc welding of stainless tubing is latest in Republic's facilities modernization program. il Iron & Steel Eng 41:144 Ag '64
Press centers red hot billets. il Iron Age 193:60 Ja 23 '64
Production of long tubes for heat exchangers. il Engineer 218:65 Jl 10 '64
Republic Steel centralizes stainless tube mill equipment. il Iron & Steel Eng 41:187-8+ Mr '64
Resistance welding method adapted to tapered tubing manufacture. il Iron & Steel Eng 41:165 My '64
Resistance welding speeds tapered tube production. il Steel 154:63 My 18 '64
Resistance welding: tapered tubes at 35 ft per minute. il Welding Eng 49:72 Je '64
Seamless pipe and tubing from continuously cast steel billets. J. H. Fishburn. il diag J Metals 16:402-5 My '64
Stainless tubes 100 feet long. il Am Mach/ Metalworking Manuf 107:88-9 D 9 '63
Steel's one per cent: continuous casting. il plan Engineering 197:26-7 Ja 3 '64
Top pouring ingots for direct rolling seamless tubes. J. A. Petroskas. il Iron & Steel Eng 41:111-15 O '64
Tubemaker thrives on tough, unusual jobs. il Steel 153:60-2 N 11 '63
Welded stainless tubing cuts valve part production costs. il Steel 155:50-1 Ag 24 '64

Testing

Behavior of mortar filled steel tubes in compression. H. J. Salani and J. R. Sims. bibliog Am Concrete Inst J 61:1271-83 O '64
Concept of tubular-joint design. J. G. Bouwkamp. bibliog il diags Am Soc C E Proc 90 [ST 2 no 3864]:77-101 Ap '64
Continuous and complete testing of tubes. il diags Engineering 197:845-6 Je 19 '64
Flattening test results may give false picture. H. M. Wilten. il Hydrocarbon Process & Pet Refiner 43:176 Mr '64

TUBES, Titanium
How to bend titanium tubing. L. L. Kollmorgen. il diag Tool & Manuf Eng 52:90-2 Ap '64
Titanium joins the family of commonly used metals. M. M. Johnson and P. Roseman. il diag Welding J 43:267-74 Ap '64

Manufacture

Method cuts production costs of titanium tubing. il Steel 154:31+ Mr 23 '64

TUBES, Tungsten
Small-diameter tungsten tubing made by extrusion process. Chem & Eng N 42:40 Ag 10 '64

TUBES, Vacuum. See Vacuum tubes

TUBES, Venturi. See Venturi tubes

TUBING. See Tubes

TUFF. See Volcanic ash, tuff, etc.

TUFTED fabrics. See Pile fabrics

TUG boats. See Towboats

TUMBLING barrels
Improved barrel de-burring process. il Engineering 196:748-9 D 13 '63
Tumbling drum lining; a plastic coating. il Ind Finishing 40:118-19 Ap '64
Two-way spin speeds deburring. J. E. Sandford. il diag Iron Age 194:55-7 Jl 9 '64
See also
Plating barrels

TUMORS
See also
Cancer
Sarcoidosis

TUNA fish
Detection of green-meat tuna before cooking. C. Nagaoka and N. Suzuki. bibliog Food Tech 18:777-81 My '64
Phospholipids of tuna white muscle. C. Y. Shuster and others. bibliog Am Oil Chem Soc J 41:36-41 Ja '64

TUNG oil
Feeding tung oil to chickens. H. M. Edwards, jr. bibliog J Nutrition 83:365-8 Ag '64

TUNGSTATES
See also
Rare earth tungstates
Zinc tungstates

TUNGSTEN
Adsorption and migration of Sr on W. B. E. Barnaby and others. bibliog il J Ap Phys 35:1759-63 Je '64
Bombardment of tungsten with 20-keV helium atoms in a field ion microscope. M. K. Sinha and E. W. Müller. bibliog il diags J Ap Phys 35:1256-61 Ap '64
Chlorination of ores and concentrates as applied to extracting tantalum, columbium, and tungsten. A. W. Henderson. diags J Metals 16:155-60 F '64
Comparison of commercial, spherical powder, and wire bundle tungsten ionizers. G. Kuskevics and B. L. Thompson. bibliog il diags AIAA J 2:284-94 F '64
Comparison of the contact ionization of cesium on tungsten with that of molybdenum, tantalum, and rhenium surfaces. O. K. Husmann. bibliog AIAA J 1:2607-14 N '63
Critical phenomena with thorium adsorbed on single crystal tungsten. J. Anderson and W. E. Danforth. Electrochem Soc J 111: 1297-8 N '64
Deformation twins in tungsten. J. L. Taylor. il Metal Prog 84:126+ D '63

TUNGSTEN—*Continued*

Improved thermionic emitter using uniaxially oriented tungsten. I. Weissman and M. L. Kinter. bibliog il diags J Ap Phys 34:3187-94 N '63

Kinetics of oxidation of pure tungsten, 1150°-1615°C. E. A. Gulbransen and others. bibliog il diag Electrochem Soc J 111:103-9 Ja '64

Life testing of ac heated tungsten filaments in strong magnetic fields. G. Martin. bibliog R Sci Instr 35:640-1 My '64

Metallic lubricant aids cutting. il Iron Age 194:63 Jl 2 '64

Metallurgical bonding of plasma sprayed tungsten on hot molybdenum substrates. W. A. Spitzig and S. J. Grisaffe. il Welding J 43:sup425-7 S '64

New tungsten process produces tougher structural material. il Space/Aeronautics 40:97 D '63

Physical and mechanical properties of tungsten and tungsten base alloys. V. D. Barth. Metal Prog 84:165-9 D '63

Plating on tungsten. C. Marzano. bibliog il Plating 51:207-11 Mr '64

Preliminary investigation of melting, extruding and mechanical properties of electron beam melted tungsten; abstract. W. R. Witzke and others. Metal Prog 85:186+ Ap '64

Preparation of thin single-crystal tungsten ribbons. G. Tibbetts and F. M. Propst. il R Sci Instr 34:1268-9 N '63

Properties of materials; tantalum, tungsten, molybdenum; wrought; tables. Materials in Design Eng 60:137 Mid-O '64

Protective coatings for tungsten. C. D. Dickinson and others. bibliog il J Metals 15:787-92 O '63

Pyrolytic tungsten parts and coatings resist heat. M. Basche. il diag Materials in Design Eng 60:82-5 Ag '64

Rotational hysteresis in tungsten steel and in hysteresis motors. J. M. Lommel. bibliog J Ap Phys 35:970-1 pt 2 Mr '64

Solid-state bonding of refractory metals. A. T. D'Annessa. bibliog il diags Welding J 43:sup232-40 My '64

Studies on the tungsten-rhenium thermocouple to 2000°C. D. B. Thomas. bibliog J Res Nat Bur Stand 67C:337-52 O '63

Tungsten, 1963. J. M. Forbes. Eng & Min J 165:136-7 F '64

Analysis

Combustion, conductometric determination of less than ten p.p.m. carbon in tungsten. W. A. Gordon and others. bibliog Anal Chem 36:1396-8 Je '64

Extraction and spectrophotometric determination of molybdenum and tungsten with 2-thenoyltrifluoroacetone: application to alloy steels. A. K. De and S. Rahaman. bibliog Anal Chem 36:685-7 Mr '64

Fluorometric determination of tungsten with flavanol. R. S. Bottei and B. A. Trusk. Anal Chem 35:1910-12 N '63

Ion exchange separation and determination of silicon in silver-infiltrated tungsten. C. H. Toy and R. T. Van Santen. bibliog diag Anal Chem 36:151-3 Ja '64

Spectrophotometric determination of trace amounts of zirconium, titanium, and molybdenum in tungsten using anion exchange separations. K. F. Sugawara. Anal Chem 36:1373-4 Je '64

Spectrophotometric determination of tungsten in iron and steel. C. L. Luke. Anal Chem 36:1327-9 Je '64

Metallography

Kinetics of yield-point return in unalloyed tungsten. W. R. Baird and C. S. Hartley. bibliog il Inst Metals J 92:181-2 '63-64

Preparing infiltrated tungsten for examination. R. E. Matt and I. Yoshioka. il Metal Prog 85:95-6 Ap '64

Spectra

Second spectrum of tungsten (W II). D. D. Laun. bibliog J Res Nat Bur Stand 68A: 207-52 Mr '64

Welding

Electron beam welds tungsten; the unweldable. W. P. McGregor. il Mach 70:97-102 Jl '64

TUNGSTEN, Powdered

Cold powder extrusion shapes tungsten. il Iron Age 194:140 S 10 '64

Diffusion mechanism for tungsten sintering kinetics. T. Vasilos and J. T. Smith. bibliog J Ap Phys 35:215-17 Ja '64

Extrusion forms tungsten tubes. il diags Iron Age 193:78-9 Ja 16 '64

Impregnated tungsten for rocket nozzles. A. Eisenlohr. Metal Prog 85:94-5 Ap '64

Tungsten granules make strong sheet. D. J. Maykuth and others. il Metal Prog 85:109-12 Je '64

TUNGSTEN alloys

Castable cobalt-tungsten alloys for high temperature service. J. C. Freche and R. L. Ashbrook. il Foundry 92:76-9 O '64

Deposition of nickel-tungsten alloys; acid peroxide solutions. L. Domnikov. bibliog Metal Finishing 62:68-71 Ap '64

Determination of rhenium in tungsten and molybdenum alloys. T. M. Cotton and A. A. Woolf. Anal Chem 36:248-9 Ja '64

How to machine hard-to-machine refractory metals; tungsten and its alloys. I. J. Stewart and P. R. Arzt. S A E J 71:70-5 D '63

New tungsten alloys show high hot strength. Materials in Design Eng 59:115 My '64

Physical and mechanical properties of tungsten and tungsten base alloys. V. D. Barth. Metal Prog 84:165-9 D '63

Tungsten alloy has good ductility. il Materials in Design Eng 60:121 N '64

Tungsten-rhenium alloy has room temperature ductility. Steel 155:55 S 21 '64

TUNGSTEN carbide

Carbide-clad tap defies wear. il Iron Age 193: 106 Je 18 '64

Carbide taps for difficult materials. il Engineering 198:298 S 4 '64

Form grinding of carbides; electrical discharge machining versus diamond wheel. A. E. Chambers. il Tool & Manuf Eng 52: 93-5 Ap '64

Special tungsten carbide tools flush machine aluminum rivets. il Light Metal Age 22:20-1 Ap '64

Stiff spindle speeds cutting. R. H. Eshelman. il diag Iron Age 193:78-9 Je 25 '64

Studs gain grip on snow tire market. il Chem & Eng N 42:30-1 F 10 '64

See also
Cutting tools, Carbide

TUNGSTEN carbide coating

Effective tooling for flame plating. F. F. Humbarger. il diags Mach 70:132-6 F '64

Electrode coats tools with hard carbide. il Iron Age 193:56 Ja 23 '64

Tiny welds of carbide make wear resistant coat. il Steel 154:31 F 3 '64

Tungsten carbide coating by flame spraying. il Engineering 198:208 Ag 14 '64

Tungsten carbide coating of extrusion dies. Light Metal Age 21:12+ D '63

Tungsten carbide coating of tools and dies. R. Fellom. il Light Metal Age 22:6-7 Ap '64

Tungsten carbide powder hardfaces aluminum. Materials in Design Eng 58:156+ N '63

Tungsten carbide solves tough wear problems; epoxy resin adhesives in hard surfacing. J. M. Stokes. il Power 107:67 N '63

TUNGSTEN carbonyls

Conducting film formed by electron bombardment of tungsten hexacarbonyl vapor in vacuum. O. G. Fritz, jr. J Ap Phys 35:2272 Jl '64

Novel acetylene tungsten carbonyl complexes. D. P. Tate and others. bibliog diags Am Chem Soc J 86:3261-5 Ag 20 '64

TUNGSTEN coating

Preliminary investigation of particle-substrate bonding of plasma-sprayed materials; abstract. S. J. Grisaffe and W. A. Spitzig. Metal Prog 86:166-7 Jl '64

TUNGSTEN compounds

Electrical properties of the $MoTe_2$-WTe_2 and $MoSe_2$-WSe_2 systems. E. Revolinsky and D. Beerntsen. bibliog J Ap Phys 35:2086-9 Jl '64

TUNGSTEN lamps. See Electric lamps, Tungsten

TUNGSTEN mines and mining

California

Pillar blasting at the Pine Creek mine. L. A. Wright. il plans diags Min Eng 16:79-83 My '64

Korea

Geology and origin of Sangdong tungsten mine, Republic of Korea. Y. W. John. bibliog il plan diags Econ Geol 58:1285-300 D '63

TUNGSTEN ores

See also
Scheelite

TUNGSTEN oxides

Preparation, high temperature properties, and analytical uses of tungsten trioxide. M. A. Carey and others. bibliog Anal Chem 36: 1166-7 My '64

Thermal expansion characteristics of polycrystalline tungsten oxides. T. Takamori. bibliog Am Cer Soc J 47:534-5 O '64

TUNGSTEN plating

Nickel-tungsten electroless deposition; preliminary report. F. Pearlstein and others. Metal Finishing 61:77 N '63

TUNGSTEN selenide

Semiconducting behavior of substituted tungsten diselenide and its analogues. W. T. Hicks. bibliog diag Electrochem Soc J 111: 1058-65 S '64

TUNGSTEN tubes. See Tubes, Tungsten

TUNING

All-electronic method for tuning organs and pianos. A. M. Seybold. il diags Audio 47: 28+ F; 20-2+ My '63; 48:22-4+ Mr '64

TUNING forks

Amateur scientist; a tuning fork with electric drive can make an inexpensive and highly accurate clock. C. L. Stong. diags Sci Am 210:136-7+ Ap '64

TUNISIA

See also
Petroleum—Tunisia

Economic policy

Tunisia wants U.S. methods, not money. Eng N 172:21 Mr 12 '64

TUNNEL cleaning

London County council's tunnel washing machine; abstract. Pub Works 95:132+ Mr '64

Tunnel washing machine cuts costs all round. Engineering 196:711 D 6 '63

TUNNEL diodes. See Crystal diodes

TUNNEL lighting

Improved tunnel lighting will eliminate the Black Hole. E. O. Webber. il Pub Works 95:113-15 S '64

Tunnel with indirect lighting. il diags Elec Constr & Maint 62:104-7 N '63

TUNNEL lining

Concrete sprayer has a long reach. il Eng N 172:34 Ap 30 '64

Fast tunnelling by mechanized shuttering. il diags Engineering 197:518 Ap 10 '64

Subway tunnel construction in New York City. G. B. Knight. il diags Am Soc C E Proc 90 [CO 2 no 4032]:15-36 S '64

Tunnel needed fast, special lining forms to rescue. il diag Roads & Sts 107:50-1 Ap '64

Victoria subway sparks new tunnel making methods. il plan Eng N 172:26-9 Ap 30 '64

TUNNEL shields

Shield is far faster than jumbo in boring rotten rock. il Eng N 172:30-1 Ap 9 '64

TUNNEL ventilation

Air pollution checked in vehicle tunnel. il Safety Maint 127:51-2 Ap '64

Galvanized steel spiral ducting for tunnel air. il Engineering 196:782 D 20 '63

Keeping the underpass free from fumes. Engineering 197:261 F 14 '64

Open-type electric motors chosen for tunnel ventilation fans. A. E. Lambert, jr. il Air Cond Heat & Ven 61:90 Je '64

See also
Subways—Ventilation

TUNNELING machines

Machine tunneling in Chicago clays. R. S. Mayo. il diags Civil Eng 34:60-1 F '64

Machine will bore hardrock tunnel. il Eng N 172:24-5 Mr 12 '64

Super mechanized rock tunneling machine. il Roads & Sts 107:73 Jl '64

TUNNELS and tunneling

Blue Mesa project is a dam site full of holes. il diag Eng N 172:36-8+ Mr 12 '64

Contractor casts two-mile tunnel with 80-ft-long forms. il Eng N 172:82-3 Je 18 '64

Contractor's view on unlined tunnels. A. M. Petrofsky. bibliog Am Soc C E Proc 90 [PO 3 no 4086]:91-104 O '64

Design and performance of Mammoth Pool power tunnel. B. R. Laverty and K. R. Ludwig. il maps plans diags Am Soc C E Proc 89 [PO 1 no 3642]:9-43 S '63; Discussion. 90 [PO 1 no 3849]:97-105 Mr; 90 [PO 2 no 3977]:25-8 Jl '64

Fast tunneling salvages blocked railroad project. il diag Eng N 172:38-40 F 27 '64

Gravel fouls London subway job. Eng N 173:24 O 22 '64

Instant erosion; Minneapolis storm drain tunnel. R. L. Moxey. il plan diag Comp Air Mag 69:10-15 My '64

Rapid spoil removal from tunnel face. plan Engineering 197:735 My 29 '64

Rock trap experience in unlined tunnels. J. J. Mattimoe and others. il diags Am Soc C E Proc 90 [PO 3 no 4067]:29-45 O '64

Storm sewer tunnel threads the needle between highway bents. W. D. Murphy. il Pub Works 95:95-6 Ag '64; Same. Civil Eng 34: 44-5 S '64

Stresses at tunnel intersections. W. F. Riley. bibliog il diags Am Soc C E Proc 90 [EM 2 no 3875]:167-79 Ap '64; Discussion. R. Agarwal. 90 [EM 4 no 4000]:195-7 Ag '64

Subway tunnel construction in New York City. G. B. Knight. il diags Am Soc C E Proc 90 [CO 2 no 4032]:15-36 S '64

Tunnel beneath Cicero. P. Meyer. il diag Comp Air Mag 69:8-9 Ag '64

Tunnel eliminates open cut along hillside. R. R. Cook. il Water & Sewage Works 111: 82-3 F '64

Tunnel of Eupalinus. J. Goodfield. il maps diags Sci Am 210:104-10+ Je '64

Tunnels for hydroelectric power in Tasmania. H. H. Thomas and L. S. Whitham. bibliog il diags Am Soc C E Proc 90 [PO 3 no 4065]:11-28 O '64

Twin tunnels will drain and ventilate flooded Peruvian mine. il diag Eng N 173:24-5 S 3 '64

Unlined tunnels of the Snowy Mountains hydro-electric authority, Australia. H. E. Dann and others. bibliog il maps diags Am Soc C E Proc 90 [PO 3 no 4071]:47-79 O '64

Unlined tunnels of the Southern California Edison company. R. W. Spencer and others. il maps plans Am Soc C E Proc 90 [PO 3 no 4087]:105-32 O '64

See also
Drilling and boring (earth and rocks)
Intakes
New York (city)—Tunnels
Subways—Construction
Tunnel lining
Tunnel shields

Costs

Azotea tunnel, New Mexico; unit prices. map Eng N 172:79 Ap 16 '64

16 bids on DeGray tunnel; unit prices. Eng N 172:54 F 27 '64

$3-million twin highway tunnel; unit prices. Eng N 173:48 S 3 '64

Tunnelers to get shape option; unit prices. Eng N 172:132 Je 18 '64

Vehicular tunnels

Alpine tunnel will serve Austrian town. il plan Eng N 173:40 S 24 '64

Alps' first big highway tunnel opens. map Eng N 172:19 Mr 26 '64

Chesapeake Bay bridge-tunnel project; symposium. il Civil Eng 33:44-52 D '63

Dartford-Purfleet tunnel; illustrations with text. Engineer 216:839 N 22 '63

Historical bridge-tunnel route. il map diag Comp Air Mag 69:22-4 Ap '64

Improved tunnel lighting will eliminate the Black Hole. E. O. Webber. il Pub Works 95:113-15 S '64

Manpower, machines and concrete conquer stormy Chesapeake Bay. il diags Eng N 171:24-6+ N 28 '63

Open-type electric motors chosen for tunnel ventilation fans. A. E. Lambert, jr. il Air Cond Heat & Ven 62:90 Je '64

Opening of Great St Bernhard road tunnel. il map plan Engineer 217:588-90 Mr 27 '64

Operations research in tunnel traffic control. L. C. Edie. il diag Am Soc C E Proc 89 [EM 6 no 3716]:15-28 D '63

Patrol cars ride tunnel catwalk. il Pub Works 95:150 F '64

Pilot bore is laboratory for twin road tunnels. il diag Eng N 173:38-9 Ag 13 '64

17.6-mile bridge-tunnel opened. il map Eng N 172:25 Ap 16 '64

Shield is far faster than jumbo in boring rotten rock. il Eng N 172:30-1 Ap 9 '64

Soil stabilizing in the Dartford tunnel. il map diags Engineering 196:686-7 N 29 '63

Spanish pierce a high traffic barrier. E. A. Soast. il map Eng N 171:86-8 N 14 '63

Switzerland to Italy under the mountains. il map diag Engineering 197:619-20 My 1 '64

Tunnel under Rockies designed from record site studies. il diags Roads & Sts 106:26-8 N '63

Underwater road bore is unlined; Musco tunnel, 35 miles south of Sweden's capital, Stockholm. il map Eng N 173:144-6+ S 17 '64

TUNNELS and tunneling, Subaqueous

Channel tunnel could walk into place. il Eng N 172:16 Mr 26 '64

Chesapeake Bay bridge-tunnel project; symposium. il Civil Eng 33:44-52 D '63

Concrete in the Chesapeake Bay bridge-tunnel. il Am Concrete Inst J 61:sup3-5 Jl '64

Dartford-Purfleet tunnel; illustrations with text. Engineer 216:839 N 22 '63

English Channel crossing. J. O. Bickel. il maps diags Civil Eng 34:35-9, cover Jl '64

Historical bridge-tunnel route. il map diags Comp Air Mag 69:22-4 Ap '64

Machine will bore hardrock tunnel. il Eng N 172:24-5 Mr 12 '64

Manpower, machines and concrete conquer stormy Chesapeake Bay. il diags Eng N 171:24-6+ N 28 '63

17.6-mile bridge-tunnel opened. il map Eng N 172:25 Ap 16 '64

Soil stabilizing in the Dartford tunnel. il map diags Engineering 196:686-7 N 29 '63

Underwater road bore is unlined; Musco tunnel, 35 miles south of Sweden's capital, Stockholm. il map Eng N 173:144-6+ S 17 '64

See also

English Channel tunnel

TURBIDIMETRIC analysis

Principles of turbidimetric and nephelometric titrations. E. J. Meehan and G. Chiu. bibliog Anal Chem 36:536-40 Mr '64

TURBIDITY

Chemical puts mud to rout; Zimmite. il Iron Age 194:124-5 O 8 '64

Electrophoretic studies of turbidity removal with ferric sulfate. A. P. Black and J. V. Walters. bibliog Am Water Works Assn J 56:99-110 Ja '64

Grand Banks slump. B. C. Heezen and C. L. Drake. bibliog maps Am Assn Pet Geologists Bul 48:221-5 F '64

Influence of solvent vapors on the occurrence of turbidity during color development with the Nessler reagent. R. F. Moore, jr. and D. L. Harris. Anal Chem 36:249-50 Ja '64

Measurement of suspended matter in stream water. K. Baalsrud and A. Henriksen. Am Water Works Assn J 56:1194-200 bibliog(p 1198-200) S '64

On-line instrument measures filtering agents' efficiency. il Food Tech 18:330 Mr '64

Simple method for particle size determination by turbidity measurement. G. Deželić and others. bibliog J Colloid Sci 18:888-92 D '63

Turbidities and topography of north end of San Diego Trough, Calif. B. M. Hand and K. O. Emery. bibliog maps J Geol 72:526-42, pl 1-5 S '64

TURBINE pumps. See Pumps, Turbine

TURBINES

See also

Gas turbines

Steam turbines

Blades

Specials make turbine blades. R. L. Hatschek. il Am Mach 108:84-6 O 12 '64

Control

Developments in turbine governing. M. Gottlieb. il diags Tappi 47:sup 126A-30A Je '64

Design

Nature of self-excitation in the flow-induced vibration of flat plates. P. S. Eagleson and others. bibliog diags A S M E Trans ser D 86:599-606 S '64

Theoretical design of a high-head axial-flow reversible pump-turbine. R. Baldur. diags A S M E Trans ser A 86:84-8 Ja '64

Manufacture

Eight numerical control motions do it all. il Am Mach 108:56-7 Ag 3 '64

Tables, calculations, etc.

Analysis of Reynolds number and scale effects `on performance of turbomachinery. R. O. Bullock. bibliog A S M E Trans ser A 86:247-56 Jl '64

Low Reynolds-number experiments in an axial-flow turbomachine. J. Neustein. bibliog il diags A S M E Trans ser A 86:257-95 Jl '64

Stresses in a hydraulic turbine stay ring. J. Parmakian and F. O. Ruud. bibliog il diags A S M E Trans ser A 86:77-82; Discussion. 82-3 Ja '64

Study on Reynolds number effects in turbomachines. O. E. Baljé. bibliog diags A S M E Trans ser A 86:227-35 Jl '64

TURBINES, Gas. See Gas turbines

TURBINES, Steam. See Steam turbines

TURBOCHARGERS. See Superchargers

TURBODRILL. See Drills, Oil well

TURBULENCE

Axisymmetrical turbulent jet; Tollmien's problem extended. Z. Rotem. AIAA J 1:2633-5 N '63

CAT and SCAT. E. R. Reiter. bibliog il diags Astronautics & Aeronautics 2:60-5 My '64

Condensing heat transfer in steam-air mixtures in turbulent flow. P. B. Stewart and others. bibliog flow diag diag Ind & Eng Chem Proc Design 3:48-54 Ja '64

Correlation of boost phase turbulent heating flight data. M. G. Dunn. bibliog AIAA J 2:122-4 Ja '64

Disintegration of a turbulent water jet. T. F. Chen and J. R. Davis. il diags Am Soc C E Proc 90 [HY 1 no 3772]:175-206 bibliog(p204-6) Ja '64; Correction. 90 [HY 6 no 4130]:273 N '64

Effect of acoustic turbulence on mass transfer at a column wall. D. I. R. Low and J. W. Hodgins. bibliog diag Can J Chem Eng 41:241-5 D '63

Electron fluctuations in an equilibrium turbulent plasma. A. Demetriades. bibliog AIAA J 2:1347-9 Jl '64

Equilibrium turbulent boundary layers. G. L. Mellor. AIAA J 2:1650-1 S '64

Experiments on turbulent mixing in a partially ionized gas. J. Grey and P. F. Jacobs. bibliog il diags AIAA J 2:433-8 Mr '64

Finite-difference calculation of hypersonic wakes. S. L. Zeiberg and G. D. Bleich. bibliog diag AIAA J 2:1396-402 Ag '64

Flow characteristics of axisymmetric expansions. M. C. Chaturvedi. bibliog il diag Am Soc C E Proc 89 [HY 3 no 3515]:61-92 My '63; Discussion. 89 [HY 5 no 3656]:173-7 S '63; 90 [HY 1 no 3783]:277-85 Ja '64; Reply. 90 [HY 5 no 4050]:147-8 S '64

Fluctuations in the local rate of turbulent mass transfer to a pipe wall. P. Van Shaw and T. J. Hanratty. bibliog diags A I Ch E J 10:475-82 Jl '64

Friction and forced convection heat-transfer characteristics in tubes with twisted tape swirl generators. E. Smithberg and F. Landis. bibliog il diags A S M E Trans ser C 86:39-49 F '64

Friction and heat-transfer measurements to turbulent pipe flow of water (Pr = 7 and 8) at uniform wall heat flux. R. W. Allen and E. R. G. Eckert. bibliog diags A S M E Trans ser C 86:301-10 Ag '64

Friction factors for fully developed turbulent flow in ducts with and without heat transfer. G. W. Maurer and B. W. LeTourneau. bibliog il diags A S M E Trans ser D 86:627-36 S '64

Gas lubrication to turbulent regime. V. N. Constantinescu. bibliog diags A S M E Trans ser D 86:475-82 S '64

Growth of the turbulent inner wake behind 3-in.-diam. spheres. R. Knystautas. AIAAJ 2:1485-6 Ag '64

Heat transfer for turbulent flow in rectangular ducts with two heated and two unheated walls. J. L. Novotny and others. bibliog diag A I Ch E J 10:466-70 Jl '64

Heat transfer in the critical region; temperature and velocity profiles in turbulent flow. R. D. Wood and J. M. Smith. bibliog diags A I Ch E J 10:180-6 Mr '64

Heat transfer to the turbulent separated flow of air downstream of a step in the surface of a plate. R. A. Seban. bibliog A S M E Trans ser C 86:259-64 My '64

Hot-wire measurements in the hypersonic wakes of slender bodies. A. Demetriades. bibliog il diag AIAA J 2:245-50 F '64

Hot-wire measurements of turbulence correlations in a triangular duct. C. J. Cremers and E. R. G. Eckert. bibliog diags A S M E Trans ser E 29:609-14 D '62; Discussion. 30:636-7 D '63

Idealized theory for turbulent mixing in vessels. R. E. Rosensweig. bibliog diags A I Ch E J 10:91-7 Ja '64

Laminar and turbulent flow of water through sand. M. Anandakrishnan and G. H. Varadarajulu. bibliog diags Am Soc C E Proc 89 [SM 5 no 3631]:1-15 S '63; Discussion. 90 [SM 2 no 3850]:205-7 Mr; [SM 3 no 3907]:171-6 My '64

Laminar, transitional, and turbulent heat transfer after a sharp convex corner. V. Zakkay and others. bibliog diag AIAA J 2:1389-95 Ag '64

Mass transfer from a flat surface to an impinging turbulent jet. V. V. Rao and O. Trass. bibliog diags Can J Chem Eng 42:95-9 Je '64

TURBULENCE—*Continued*

Measurement and correlation of turbulent friction factors of thoria suspensions at elevated temperatures. D. M. Eissenberg. bibliog diag A I Ch E J 10:403-7 My '64

Measurements of turbulent flow development in tubes and annuli with square or rounded entrances. R. M. Olson and E. M. Sparrow. bibliog diags A I Ch E J 9:766-70 N '63

Momentum and heat transfer correlations for a reacting gas in turbulent pipe flow. M. J. Callaghan and D. M. Mason. bibliog A I Ch E J 10:52-5 Ja '64

Numerical method for the solution of the energy equation for steady turbulent heat transfer. M. R. Strunk and F. F. Tao. bibliog A I Ch E J 10:269-73 Mr '64

Passage of a turbulent stream through honeycomb of large length-to-diameter ratio. J. L. Lumley. A S M E Trans ser D 86:218-20 Je '64

Plotting a plasma's profile. il Chem Eng 71:32 Ag 31 '64

Quasi-one-dimensional treatment of chemical reactions in turbulent wakes of hypersonic objects. S. C. Lin and J. E. Hayes. bibliog AIAA J 2:1214-22 Jl '64

Radiometeorological study; new turbulence parameter. B. R. Bean and others. J Res Nat Bur Stand 67D:605-8 N '63

Scattering of radar waves by an underdense turbulent plasma. J. Menkes. AIAA J 2:1154-6 Je '64

Separation, reattachment, and redevelopment of incompressible turbulent shear flow. T. J. Mueller and others. bibliog A S M E Trans ser D 86:221-5; Discussion. 225-6 Je '64

Shock tube test time limitation due to turbulent-wall boundary layer. H. Mirels. bibliog diags AIAA J 2:84-93 Ja '64

Statistical behavior of a turbulent multicomponent mixture with first-order reactions. Y. H. Pao. bibliog diag AIAA J 2:1550-9 S '64

Studies of the luminous hypersonic wake. R. L. Taylor and others. bibliog il diag AIAA J 2:1731-8 O '64

Study of the incompressible turbulent boundary layer with pressure gradient. P. A. Libby and others. bibliog AIAA J 2:445-52 Mr '64

Technique for preparing hot wires. D. A. Van Meel and H. Vermij. diags J Sci Instr 40:607 D '63

Transformations of the compressible turbulent boundary layer with heat exchange. L. Crocco. bibliog AIAA J 1:2723-31 D '63

Transpiration cooling of a turbulent boundary layer in an axisymmetric nozzle. J. Librizzi and R. J. Cresci. bibliog diag AIAA J 2:617-24 Ap '64

Turbulence energy and intensity spectra in a baffled, stirred vessel. W. J. Kim and F. S. Manning. bibliog diags A I Ch E J 10:747-52 S '64

Turbulent boundary layers with transpiration. T. N. Stevenson. bibliog AIAA J 2:1500-2 Ag '64

Turbulent disruption of flocs in small particle size suspensions. D. G. Thomas. bibliog A I Ch E J 10:517-23 Jl '64

Turbulent film condensation. J. Lee. bibliog diags A I Ch E J 10:540-4 Jl '64

Turbulent flow at the plane of symmetry of a collateral three-dimensional boundary layer. F. J. Pierce. bibliog diags A S M E Trans ser D 86:227-33 Je '64

Turbulent flow in porous media. J. C. Ward. bibliog Am Soc C E Proc 90 [HY 5 no 4019]:1-12 S '64

Turbulent flow in rectangular ducts. H. J. Leutheusser. bibliog diags Am Soc C E Proc 89 [HY 3 no 3508]:1-19 My '63; Discussion. R. E. Nece. 90 [HY 1 no 3783]:271-2 Ja '64; Reply. 90 [HY 4 no 3980]:229 Jl '64

Turbulent flow with suspended particles. M. Hino. bibliog Am Soc C E Proc 89 [HY 4 no 3579]:161-85 Jl '63; Correction. 90 [HY 2 no 3853]:389-90 Mr '64

Turbulent mixing of coaxial jets. L. J. Alpinieri. bibliog diags AIAA J 2:1560-7 S '64

Turbulent motion and mixing in a pipe. J. Lee and R. S. Brodkey. bibliog diags A I Ch E J 10:187-93 Mr '64

Turbulent pipe flow heat transfer with a simultaneous chemical reaction of finite rate. P. L. T. Brian. bibliog A I Ch E J 9:831-41 N '63

Turbulent wake characteristics with different eddy viscosity coefficients. K. S. Wan. bibliog AIAA J 2:121-2 Ja '64

Velocity defect law for a transpired turbulent boundary layer. H. S. Mickley and others. AIAA J 1:1685; 2:173-4 Jl '63, Ja '64; Discussion. 1:2676-7; 2:414-15 N '63, F '64

Velocity profiles of thoria suspensions in turbulent pipe flow. D. M. Eissenberg and D. C. Bogue. bibliog diag A I Ch E J 10:723-7 S '64

Wanted: ways to spot rough air. A. A. McKenzie. il diags Electronics 37:49-51 F 7 '64

See also

Atmospheric turbulence

TURING computers. See Calculating machines—Digital computers

TURKEY

See also

Hydroelectric plants—Turkey

Mines and mineral resources—Turkey

Petroleum—Turkey

Antiquities

Neolithic city in Turkey. J. Mellaart. il map plan diag Sci Am 210:94-104 Ap '64

TURKEYS

Factors affecting the quality of roasted turkey rolls. C. G. Marquess and others. bibliog il diags Food Tech 17:1582-6+ D '63

TURKEYS, Frozen

Acceptability of blast-frozen and liquid-frozen turkey hens and toms. P. J. Barrie and others. bibliog Food Tech 18:565-7 Ap '64

TURNER, Frank

Bureau of public roads anchor man. pors Eng N 173:32+ Jl 30 '64

TURNING

Brown & Sharpe spherical turning machine equipped with hydrostatic bearings to achieve high precision. il Mach 70:132 Ja '64

Computer cuts corners in turning. il Iron Age 193:108-9 Mr 26 '64

Tooling to machine spheres. B. C. Brosheer. il Am Mach 108:98-100, cover Mr 16 '64

Turning superalloys; with data sheet. C. T. Olofson. Metal Prog 86:104+ Jl '64

What's new in turning? Am Mach/Metalworking Manuf 107:122-5 N 11 '63

See also

Lathes

TURNIPS

Relation of ascorbic acid to nitrate content of turnip greens and to methemoglobin formation. L. Kilgore and others. bibliog Am J Clinical Nutrition 14:52-5 Ja '64

TURNPIKES. See Expressways

TURNSTILES, Fare collecting

Electronic fare collector. diag Product Eng 35:40-1 Jl 6 '64

Electronic ticket barrier control. diag Engineer 217:580 Mr 27 '64

Electronic ticket barrier for the underground. il Engineering 197:446 Mr 27 '64

Electronic ticket inspection. il Engineer 217:106 Ja 10 '64

TURNTABLES

Movable structures for stages. O. Sööt. il Prog Arch 45:196-200 S '64

34-ft-dia rotary table to be used in machining, inspecting Saturn sections. il Am Mach 108:225 S 14 '64

TURNTABLES, Phonograph. See Phonograph—Turntables

TURPENTINE

Composition of turpentine from pinus khasya. G. S. Fisher. bibliog Chem & Ind p 1761 N 2 '63

TWINNING of crystals. See Crystallization

TWINS

Statistical study of twins: methods. A. Gittelsohn and S. Milham. Am J Pub Health 54:286-94 F '64

TWIST (mechanics). See Torque

TWISTING machines

Fact file 1964; winding, twisting, covering, warping. diag Textile World 114:76+ Jl '64

Twister for space fabrics. il Mod Textiles Mag 45:91+ O '64

TYNDALL effect

Prediction of minima and maxima in intensities of scattered light and of higher order Tyndall spectra. P. E. Pierce and S. H. Maron. bibliog J Colloid Sci 19:658-72 S '64

TYPESETTING

Computers could lead to new standards of typesetting. A. Lawson. Inland Ptr/Am Lithogr 153:70-1 Je '64

How to cut typesetting costs. H. J. Reilley. il Inland Ptr/Am Lithogr 153:54-5 Je '64

TYPESETTING—*Continued*
National cold type composition conference, 1st, New York, Oct. 4-5. Inland Ptr/Am Lithogr 152:106+ N '63
See also
Phototypesetting
Printing

TYPESETTING machines
C&EN using teletypesetter. il Chem & Eng N 42:68 Je 8 '64
Manufacturers offer wide variety of hot metal and film typesetting equipment. il Inland Ptr/Am Lithogr 153:64-6+ Je '64
Your slugcasting machine problems. L. Brewington. Inland Ptr/Am Lithogr 150:111 O '62; 151:64 Jl; 82 Ag; 158 S; 152:144 D '63; 154:138 O; 130 N '64

Numerical control
First fully automatic computer-directed typesetting system. il Inland Ptr/Am Lithogr 152:63 F '64
In the newspapers; typesetting by computer. Electronics 37:27-8 Ap 6 '64
Modern inventions have not made compositor a dead duck. A. Lawson. Inland Ptr/Am Lithogr 153:78-9 S '64
Punched tape perforator for typesetting. il Engineer 216:966 D 6 '63
Simple computer and crt display expedite typesetting. C. Y. Chu. il diag Control Eng 11:97 Ap '64

TYPEWRITERS
Braille typewriter. il Plastics World 22:28 My '64
Magnetic tape typewriter. il Engineer 218:143 Jl 24 '64
New aid for the typist; magnetic tape. il Engineering 198:196 Ag 14 '64
Pneumatic typewriter. il diags Comp Air Mag 68:12-13 D '63
Typewriters; K-keyboard. diag Product Eng 35:54 F 3 '64
Typing on tape. il Engineer 218:250 Ag 14 '64

Manufacture
How engineering plastics upgrade a product and cut costs. il Mod Plastics 41:96-8 Je '64
Redesign for automation pays off. il Steel 154:69 Je 15 '64
Tiny nylon parts cut typewriter wear. li Materials in Design Eng 58:159-60 N '63
Wide use of plastics in miniature typewriter. il Brit Plastics 36:681 D '63

TYPEWRITERS, Electric
Magnetic tape Selectric typewriter. il Product Eng 35:56-7 Jl 20 '64
New Selectric typewriter. Franklin Inst J 278:156 Ag '64
Reading and writing via the talking typewriter. il Mech Eng 86:92 Jl '64

TYPHOID carriers. See Carriers of infection

TYPHOID fever
Challenge to the validity of the Vi test for the detection of chronic typhoid carriers. V. Bokkenheuser and others. bibliog Am J Pub Health 54:1507-13 S '64

TYPHOONS
Guam typhoon tears out hospital windows. H. V. Ehlers. il plan diags Civil Eng 34:56-7 Jl '64

TYPOGRAPHY. See Printing—Typography

TYROSINE
Analogs of oxytocin containing glycine in place of tyrosine, isoleucine, or glutamine. S. Drabarek. bibliog Am Chem Soc J 86::4477-81 O 20 '64
Cleavage of tyrosyl-peptide bonds by electrolytic oxidation. H. Iwasaki and others. Am Chem Soc J 85:3701-2 N 20 '63
Differential oxidation of protein-bound tryptophan and tyrosine by N-bromosuccinimide in urea solution. M. Funatsu and others. Am Chem Soc J 86:1846-8 My 5 '64
Electrooxidation of tyrosyl derivatives; a model for coumarin biosynthesis. A. I. Scott and others. bibliog Am Chem Soc J 85:3702-4 N 20 '63
Phenylalanine requirements with different levels of tyrosine. L. M. Burrill and C. Schuck. J Nutrition 83:202-8 Jl '64

U

URSI. See International scientific radio union

U.R.W. See United rubber, cork, linoleum and plastic workers of America

ULCERS
See also
Duodenum—Ulcers
Stomach—Ulcers

ULTRAFINING process. See Petroleum refining—Sulfur removal

ULTRAFORMING process. See Gasoline—Manufacture

ULTRASONIC cleaning
Automatic ultrasonic cleaner. il Engineer 218:591 O 9 '64
Automatic ultrasonic cleaning plant. il Metallurgia 70:24 Jl '64
Cleaning radioactive parts. D. L. Collins. il diags Am Mach 108:72-3 Jl 20 '64
Detergent effects of ultrasonics. O. E. Ford. bibliog Am Oil Chem Soc J 41:543-5 Ag '64
Multi-frequency transducers improve ultrasonic cleaning. E. G. Cook. il Electronics 36:54+ N 22 '63
Solid-state high-power ultrasonic cleaning generator. il Mach 70:200 My '64
Ultrasonic cleaning. B. Brown. il diags Ind Electronics 2:69-72 F '64
Ultrasonic cleaning and pickling. S. Spring. bibliog il diag Metal Finishing 62:66-71 Mr '64
Ultrasonic cleaning works six ways. il Iron Age 193:57 Ja 9 '64
Ultrasonic power speeds cleaning in large conveyorized lines. il Iron Age 194:64-5 S 3 '64
Ultrasonic washer speeds street light cleaning. W. E. Wilson. il Elec World 161:54-5 Mr 9 '64

ULTRASONIC cutting
Controlled vibration; aid to metalworking? il Tool & Manuf Eng 51:64 D '63
Metallurgical applications of high intensity ultrasonics. B. Brown. il diags Ind Electronics 2:113-16 Mr '64
Micro tool lightens machining load. R. R. Irving. il Iron Age 194:66-7 O 22 '64

ULTRASONIC waves
Acoustic waves from a laser beam. Sci Am 211:40 Ag '64
Behavior of thin-film coupled ultrasonic delay lines. J. E. Lovell and A. Yelon. bibliog il diags IEEE Trans Com & Electronics 83:524-8 S '64
Dislocation contribution to ultrasonic harmonic generation. A. D. Brailsford. J Ap Phys 35:2256-7 Jl '64
Elastic moduli of silicon vs hydrostatic pressure at 25.0°C and —195.8°C. H. J. McSkimin and P. Andreatch, jr. J Ap Phys 35:2161-5 Jl '64
Exo-electron emission due to ultrasonic irradiation. J. A. M. Langenecker and D. B. Ray. bibliog diag J Ap Phys 35:2586-8 S '64
Generating ultrasonics at microwave frequencies. W. Brouillette and S. Wanuga. il diags Electronic Ind 22:93-5 N '63
Instrument for continuous high resolution measurement of changes in the velocity of ultrasound. R. J. Blume. bibliog diags R Sci Instr 34:1400-7 D '63
New ultrasonic transducers offer increased bandwidth. N. F. Foster. Chem & Eng N 42:46 Mr 30 '64
Optically-induced ultrasonic waves in transparent dielectrics. A. J. DeMaria. bibliog il IEEE Proc 52:96-7 Ja '64
Production and properties of high-intensity ultrasonics. B. Brown. il Ind Electronics 2:44-6 Ja '64
Sonac sensing and switching devices. il diag Engineering 198:270-1 Ag 28 '64
Stroboscopic schlieren system for the visual observation of pulsed ultrasonic waves. H. H. Hunter and others. il IEEE Proc 52:744-5 Je '64
Transistorized ultrasonic probe. il Ind Electronics 2:43 Ja '64
Ultrasonic approach to data storage. J. W. Gratian and R. W. Freytag. il diags Electronics 37:67-72 My 4 '64
Ultrasonic delay lines used to store digital data. A. H. Meitzler. diags Bell Lab Rec 42:315-19 O '64
Ultrasonic generator operates at 800,000 cycles per second. Chem & Eng N 42:50 O 19 '64
Ultrasonic loss in fused silica below 100°K. J. T. Krause. Am Cer Soc J 47:103 F '64
Ultrasonic relaxation loss in OH-free SiO_2. R. E. Strakna and H. T. Savage. J Ap Phys 35:1363 Ap '64
Ultrasonic relaxation loss in SiO_2, GeO_2, B_2O_3, and As_2O_3 glass. R. E. Strakna and H. T. Savage. bibliog J Ap Phys 35:1445-50 My '64
Ultrasonic relaxation near the Curie temperature of ferroelectric triglycine sulfate. E. J. O'Brien and T. A. Litovitz. bibliog il diag J Ap Phys 35:180-6 Ja '64

ULTRASONIC waves—*Continued*
Ultrasonics symposium; Arlington, Dec. 4-6. bibliog Phys Today 17:36-9 Je '64
Use of the interaction of thermal and ultrasonic waves to study radiation-induced defects in quartz. T. M. Fitzgerald and others. bibliog J Ap Phys 35:1639-40 My '64
See also
Shock waves
Sound—Velocity

Absorption

Absorption measurements of ultrasonic waves in plastic sheets. Y. Nakamura. bibliog diags J Ap Phys 34:3288-90 N '63
Pulse apparatus for the measurement of ultrasonic absorption in solutions from 1 to 60 mc. G. Atkinson and others. bibliog diags R Sci Instr 35:1270-3 O '64

Attenuation

Brief review of ultrasonic attenuation with some emphasis on work at ultrahigh frequency. R. Dignum. bibliog diags Am J Phys 32:507-19 Jl '64
Dislocation damping due to kink motion. T. Suzuki and C. Elbaum. bibliog diag J Ap Phys 35:1539-44 My '64
From micrograph to grain-size distribution with ultrasonic applications. E. P. Papadakis. bibliog diags J Ap Phys 35:1586-94 My '64
Ultrasonic attenuation and velocity in three transformation products in steel. E. P. Papadakis. bibliog il diag J Ap Phys 35:1474-82 My '64
Ultrasonic attenuation in Al_2O_3 at ultrahigh frequencies and low temperatures. T. M. Fitzgerald and others. il J Ap Phys 35:2647-8 S '64
Ultrasonic attenuation in cadmium sulphide above room temperature. R. Truell and others. bibliog J Ap Phys 35:1483-5 My '64
Ultrasonic specimen holder with two degrees of freedom. J. B. Ketterson and Y. Eckstein. bibliog diags R Sci Instr 35:1368-9 O '64

Industrial applications

Angled sound waves find flaws. il diag Iron Age 193:87 F 13 '64
Arsenal double checks X-ray with ultrasonics. il Steel 155:100 S 28 '64
Chemical and biological applications of high-intensity ultrasonics. B. Brown. bibliog il diags Ind Electronics 2:191-4 Ap '64
Colored acrylic sheet; via ultrasonics. il Mod Plastics 41:95 Ag '64
Continuous and complete testing of tubes. il diags Engineering 197:845-6 Je 19 '64
Controlled vibration; aid to metalworking? il Tool & Manuf Eng 51:64 D '63
Developments are coming fast in ultrasonic metalworking. L. Balamuth. il diag Am Mach 108:136-8 Ap 13 '64
Dielectric, induction and ultrasonic bonding. E. G. Castagna; L. L. Scheiner. diags Plastics Tech 10:32-6 Mr; 45-50 Ap '64
Electrodeposition of chromium; influence of ultrasonic vibrations. L. Domnikov. bibliog Metal Finishing 61:55-8 D '63
High power ultrasonics. il Ind & Eng Chem 56:53 Ja '64
Joining rigid thermoplastics with ultrasonics. il diag Product Eng 35:59-60 Mr 30 '64
Machinery flags its own troubles; ultrasonic noise acts as early warning system. il Iron Age 194:62-3 O 22 '64
Metallurgical applications of high intensity ultrasonics. B. Brown. il diags Ind Electronics 2:113-16 Mr '64
New concepts in ultrasonic sealing. R. S. Soloff. il diags Mod Plastics 41:125-9 Mr '64
New job for ultrasonics; checking pipe welds at 60 fpm. E. H. Uecker. il diags Am Mach/Metalworking Manuf 107:59-61 D 23 '63
New ultra sonic method for inspecting thin sheet. il Light Metal Age 22:16 F '64
Prediction of fatigue failure using ultrasonic surface waves; abstract. J. G. Rasmussen. diag Metal Prog 84:168+ N '63
Silent sound finds more uses on production line. Steel 153:90+ N 18 '63
Soap plant observer; use of ultrasound for blending chemical specialties. W. J. Beach. il Soap & Chem Spec 40:251-2 My '64
Sonic method pinpoints pipeline leaks. H. C. Bozeman. il diag Oil & Gas J 62:126-7 Ap 27 '64
Sonics unite with magnetic glow for automatic billet testing. il Iron Age 194:55-7 O 15 '64
Tests insure sound castings. il Iron Age 193:128-9 F 20 '64
Tidewater uses ultrasonics to detect leaks. il Oil & Gas J 62:114 Jl 13 '64
Today we quickly find tiny leaks with an ultrasonic device. J. T. Evans. il Power 108:162 My '64
Ultrasonic contour gaging inspects sheet at 3200 fpm. diag Steel 154:29 Je 29 '64
Ultrasonic detector is versatile testing tool. il Elec World 162:106+ O 5 '64
Ultrasonic emulsification. W. W. McCarthy. il Drug & Cosmetic Ind 94:821-4+ Je '64
Ultrasonic image converter. J. Powers. il diags Res/Develop 14:24-7 N '63
Ultrasonic in-process testing of cold-formed transmission shafts. Mach 70:126-7 D '63
Ultrasonic instrument locates leaky valves. il Hydraulics & Pneumatics 17:24 O '64
Ultrasonic method detects leaks in pressure and vacuum systems. il Safety Maint 128:55-6 Ag '64
Ultrasonic sealer joins and seals rigid thermoplastics. il diag Plastics World 22:37 F '64
Ultrasonic sealing. il Plastics World 22:52 S '64
Ultrasonic seam bonding; abstract. Am Dyestuff Rep 53:364+ My 11 '64
Ultrasonic techniques for plastics inspection. J. B. Ramsey. il diags Brit Plastics 37:63-7 F '64
Ultrasonic testing of compression moulded insulators. Electronic Eng 35:825 D '63
Ultrasonic unit checks by Lamb wave method. il Steel 154:266-7 Ja 6 '64
Ultrasonics; an aid to metal forming? B. Langenecker and others. il diags Metal Prog 85:97-101 Ap '64
Ultrasonics check heat treat quality. N. B. Heckler and B. Ostrofsky. il Hydrocarbon Process & Pet Refiner 43:143-7 Ap '64
Ultrasonics for homogenisation and dispersion. K. Marshall. bibliog il diags Manuf Chem 34:562-6 D '63
Ultrasonics hunt oxygen leaks. il Safety Maint 127:45-6 My '64
Ultrasonics solve a problem in polyester storage. Mod Plastics 42:126 S '64
Ultrasonics stops burglars! J. H. Fasal. il diags Radio-Electronics 35:25-7 My '64
Ultrasound maps flaws in bonds. W. N. Redstreake. il diags Iron Age 193:58-9 Ja 23 '64
Welding rigid spheres; good application for ultrasonic bonding. il diags Plastics Tech 10:11 My '64
See also
Ultrasonic cleaning
Ultrasonic welding

Measurement uses

New ultrasonic measuring device. Franklin Inst J 277:294-5 Mr '64
Performance and characteristics of an ultrasonic gas chromatograph effluent detector. F. W. Noble and others. bibliog diags Anal Chem 36:1421-7 Jl '64
To build combination billet test system. Iron & Steel Eng 40:168+ N '63
Ultrasonic level measurement. il Engineer 218:340 Ag 28 '64
Ultrasonic measurement of casting section thickness. il Foundry 92:143+ Mr '64
Ultrasonic thickness measuring instrument using transistor logic techniques. B. L. Elliot. diags Electronic Eng 35:738-41 N '63
Ultrasonics gaging; its applications, accuracy, and dependability. J. E. Bobbin. Automation 11:110-12 Ja '64

Medical applications

Brain sonar; ultrasonic medical equipment. il Electronics 37:34 Ap 6 '64
Radar and sonar techniques detect brain and heart damage. il Product Eng 35:46-7 Ap 13 '64
Special ultrasound eye probe. il Electronics 37:30+ O 5 '64

Velocity

Physical properties of fatty acid methyl esters; ultrasonic sound velocity. T. H. Gouw and J. C. Vlugter. bibliog Am Oil Chem Soc J 41:524-6 Ag '64

ULTRASONIC welding
Metallurgical applications of high intensity ultrasonics. B. Brown. il diags Ind Electronics 2:113-16 Mr '64
New technique for metals joining in the space age; by ultrasonics. E. Nippes and J. B. Jones. il diags J Metals 16:244-5 Mr '64
Ultrasonic welding. il diag Machine Design 36:130-7 Ap 9 '64
Ultrasonics make ring welds. il diag Iron Age 193:140 Ap 30 '64

ULTRAVIOLET rays
Effect of light upon wool; post-irradiation loss of color in the dark after Germicidal uv exposure. H. F. Launer. bibliog diag Textile Res J 33:910-18 N '63
Effects of ultraviolet irradiation of egg liquids on salmonella destruction and performance quality with emphasis on egg white. K. Ijichi and others. bibliog Food Tech 18:1628-32 O '64
Electric insect control could help assure noisy spring. Elec World 160:14 N 11 '63
Experimental ultraviolet absorbers for cotton. Textile Ind 128:109 Ja '64
How to select uv stabilizers for plastics. A. L. Baseman. il Plastics Tech 10:30-5 Ap '64
Ionization chambers for the vacuum ultraviolet. J. H. Carver and P. Mitchell. bibliog diags J Sci Instr 41:555-7 S '64
Irradiation and tanning. Drug & Cosmetic Ind 93:893 D '63
Monochromatic ultraviolet restores DNA activity. R. B. Setlow. il Chem & Eng N 42:41 S 7 '64
Ultraviolet-induced dimerization of free and metal-complexed orotic acid. A. Haug. Am Chem Soc J 86:3381-4 Ag 20 '64

Absorption

See Absorption of rays

Apparatus

High temperature ultraviolet radiometer. M. Weiss. il diags Instruments & Control Systems 37:95-9 My '64
New tool for exploring atomic structure. Franklin Inst J 277:507-8 My '64
Silicon photodiode vacuum ultraviolet detector. A. J. Tuzzolino. bibliog diags R Sci Instr 35:1332-5 O '64
Ultraviolet spectrometer for orbiting solar observatory. il diags Space/Aeronautics 41:121+ Ap '64

Lamps

Current regulator for ultraviolet light source. W. J. Scouler and E. D. Mills. diags R Sci Instr 35:489-92 Ap '64
Ultraviolet lamp for the generation of intense, constant-shape pulses in the subnanosecond region. J. T. D'Alessio and others. bibliog diags R Sci Instr 35:1015-17 Ag '64

ULTRAVIOLET spectrum. See Spectrum, Ultraviolet

UNCERTAINTY principle
Currents theory reappraised in recent study. Elec Eng 82:745 D '63

UNDERDEVELOPED areas
Agricultural aviation potentials for Asia. E. C. S. Little. il maps plan diags Roy Aeronautical Soc J 68:127-33 F '64
Desalting plants for the developing countries? Chem Eng 71:98+ S 14 '64
Developing countries need more chemistry teachers. il Chem & Eng N 42:68-72 Ap 13 '64
Engineer looks at foreign aid. I. B. Joralemon. Min Eng 16:25+ Ap '64
Food preservation and processing in developing countries. C. R. Pascual. flow sheet il map Food Tech 18:1021-4 Jl '64
Fordilla faucet may make the village well obsolete. R. V. Ford. il Eng N 171:36-7 N 21 '63
Fundamental research in underdeveloped countries. M. J. Moravcsik. il Phys Today 17:21-5 Ja '64; Discussion. H. Schenck, jr. 17:75+ Jl '64
Handbooks to aid underdeveloped areas. A. M. Hatt-Arnold. Engineering 197:67 Ja 17 '64
Investment capital and mineral development. L. C. Raymond. Min Eng 16:39-43 Ag '64
Location and newsreel motion-picture equipment. R. P. Rigg. il SMPTE J 73:775-7 S '64
Man on bicycle symbolizes power in undeveloped lands. R. C. Hamilton. diags S A E J 72:68-71 O '64
New concept in water service for developing countries. E. K. G. Borjesson and C. M. Bobeda. il diags Am Water Works Assn J 56:853-62 Jl '64
Novel U.N. plan for aid via trade. Chem Eng 71:40 Mr 30 '64
Opening foreign markets; one way. G. W. Volckhausen. flow chart il Wire & Wire Prod 39:1330+ S '64
Small refineries in developing countries. K. L. Hagemans and R. E. Ingall. Oil & Gas J 61:98-9 O 21 '63
System of sanitation for low-cost high density housing. L. J. Vincent and others. Pub Works 95:166+ F '64
Urban water supplies in developing countries: WHO report. Am Water Works Assn J 56:939-46 Ag '64
World-wide importance of protein malnutrition and progress toward its prevention. N. S. Scrimshaw. bibliog Am J Pub Health 53:1781-8 N '63

UNDERGROUND construction
Buildings inside a mountain rise on springs in tight space; NORAD underground control center. il diag Eng N 171:34-6 D 5 '63
Dynamic similitude of underground structures. D. F. Young and G. Murphy. il diags Am Soc C E Proc 90 [EM 3 no3938]:111-33 Je '64
First underground wall by Terrephragm. Engineering 197:361 Mr 6 '64
NORAD's underground Command center. T. O. Blaschke. il plan diags Civil Eng 34:36-9 My '64
Underground home of the future debuts at Fair. plan Elec World 161:165 Ap 20 '64
Underground noise control; abstract. O. Lundquist. Safety Maint 127:52+ Ap '64
See also
Concrete construction, Underground
Electric substations, Underground
Houses, Underground
Subways—Construction

UNDERGROUND electric lines. See Electric lines—Underground lines

UNDERGROUND storage of gas. See Gas, Natural—Storage

UNDERGROUND telephone lines. See Telephone lines—Underground lines

UNDERGROUND water. See Water, Underground

UNDERPASSES
Not so much piling for town underpass. il diag Engineering 196:622 N 15 '63
Railway dive-under for freight traffic. Engineering 196:688 N 29 '63

Costs

Washington, D.C. underpass; unit prices. Eng N 171:59 D 12 '63

Lighting

New solution for effectively lighting underpasses. N. Falk. il Illum Eng 59:127-31 F '64

UNDERPINNING. See Shoring and underpinning

UNDERWEAR
Thermal conductivity of a multilayer sample of underwear material under a variety of experimental conditions. H. J. Hoge and G. F. Fonseca. Textile Res J 34:401-10 My '64

UNDERWRITERS laboratories, inc.
New Underwriters' Laboratories testing station. J. H. Watt. il diag Elec Constr & Maint 63:90-3 Mr '64

UNEMPLOYMENT
Automation and people. R. A. Beaumont and R. B. Helfgott. Automation 11:158-60+ Ap '64
Job hunting over 40. il Chem Eng 71:147-8+ Jl 6 '64
Look at the future; people; symposium. il Mill & Factory 75:70-80 N '64
LBJ seeks overtime pay hike to spread jobs; but industry says it won't work. Dom Eng 203:79-81+ F '64
Problems of a contracting mining community; European experience. F. M. Vinck. Min Eng 16:57-9 Je '64
Problems of a contracting mining community; Pennsylvania experience. G. F. Deasy and P. R. Griess. maps Min Eng 16:62-4 Je '64
Understanding the unemployment rate. Automation 11:47 Ap '64
Unemployed; a lost natural resource. J. F. Oates, jr. Am Gas Assn Mo 45:17-18+ N '63
Unemployment; responsibility of the engineer? J. Harrington, jr. Automation 11:154-5 Ap '64
Unemployment; stop blaming automation; interview with I. T. Ellis. G. C. Thomas. il Mod Materials Handling 19:38-43 Mr '64
See also
Employment

UNIFINING process. See Petroleum refining—Sulfur removal

UNION oil of California
Union is still merger-minded, Rubel and Hartley agree. Oil & Gas J 62:68-9 F 17 '64

UNIROYAL. See United States rubber company

UNIT construction of machine tools. See Machine tools—Unit construction

UNIT heaters. See Heaters

UNIT packaging. See Packaging—Unit packaging

UNIT processes

Technology spreads its gains; new methods vie with updated ones in better use of unit operations. il Chem Eng 71:130-1 Ja 20 '64

Theory of grinding operations. L. G. Austin and R. R. Klimpel. bibliog diag Ind & Eng Chem 56:18-29 N '64

Unit operations; annual reviews. bibliog Ind & Eng Chem 56:37-70 O '64

See also

Adsorption

UNITED nations educational, scientific and cultural organization

Establishment of official relations between OECD and UNESCO. Chem & Ind p536 Mr 28 '64

UNITED nations, food and agriculture organization of. See Food and agriculture organization of the United nations

UNITED nations food conference, 1963

World food congress, Washington, June 4-18. Food Tech 18:856+ Je '64

UNITED rubber, cork, linoleum and plastic workers of America

Union shows signs of age. O. Scott. Rubber World 150:56-9 My '64

UNITED STATES

See also subdivision United States under special subjects, e.g.

Agriculture
Electricity supply
Paper industry and trade
Steamboat lines
Water supply
Waterways

Advanced research projects agency

See United States—Defense, Department of—Advanced research projects agency

Agriculture, Department of

USDA may inspect some pesticide plants. Chem & Eng N 42:32-3 My 4 '64

National animal disease laboratory

Safety highlights design of animal disease laboratory. R. M. D'Jerf. il plans Heating-Piping 36:110-13 Jl '64

Air force

Strategic air command

SAC gets ultrafast system for information handling. il Steel 155:29+ Jl 20 '64

Air force bases

See Air bases, Military

Air service, Navy

Recollections of the early history of naval aviation. G. Fulton. Naval Eng J 76:742-52 O '64

Appropriations and expenditures

Defense and space money tighter. S. Payne and H. Chesire. Electronics 37:10-11 F 24 '64

Research and development; government, industry and schools question its role. I S A J 11:28+ F '64

Armed forces

Equipment and supplies

Electronics in the Mekong Delta. J. F. Mason. il Electronics 37:114+ S 7 '64

Fuel requirements

Military demand to top 800,000 b/d. G. T. Kinney. Oil & Gas J 62:28-9 N 2 '64

Textile requirements

U.S. armed forces like manmade fiber garments. il Mod Textiles Mag 44:42-3 D '63

Army

U.S. army cold regions research and engineering laboratory (USA CREEL). Naval Eng J 76:76 F '64

Engineer corps

Army's top engineer heads big civilian force; General Walter K. Wilson, jr. il Eng N 173:42-4+ Jl 23 '64

Corps of engineers under fire. Eng N 172:71 Je 18 '64

Equipment and supplies

Army wants surveillance, armament gear for air arm. J. F. Mason. il Electronics 36:10-11 N 29 '63

Development of the Lycoming S&H multifuel engines. P. H. Schweitzer and others. diags Automotive Ind 130:43-7 Ap 1 '64

Lycoming-S&H multifuel engine developed for army is light and simple. bibliog il diags S A E J 72:36-49 Jl '64

Medical and sanitary affairs

Army's role in occupational health; detection and control of health hazards in research, development, and production. E. J. Dehne. il Ind Med 33:235-9 Ap '64

Ordnance and ordnance stores

Casting applications for ordnance broaden. W. G. Gude. Foundry 92:207-8+ Je '64

Current ordnance mission. il Automotive Ind 130:59 Ap 1 '64

Atomic energy commission

See Atomic energy commission (United States)

Capitol

Engineered period lighting in the United States Capitol; east front extension. S. W. Bruun. il plan diags Illum Eng 58:665-73 N '63

Coast guard

Design and construction of the United States coast guard 44-foot motor lifeboat. R. W. Witter. il plans diags Naval Eng J 76:93-100 F '64

Fire safety at sea is coast guard's business. il Safety Maint 128:32-4 Ag '64

National academy of sciences to help coast guard define hazardous materials. il Chem & Eng N 42:21-2 Mr 30 '64

Commerce

See also

Export trade
Imports

Commerce, Department of

Department of commerce most optimistic about '64. L. D. Farrar. Paper Ind 45:577-8 F '64

Government role in developing standards detailed to ASTM. J. H. Hollomon. Am Dyestuff Rep 53:275 Mr 30 '64

Technical services, Office of

Information in depth; OTS; Federal technical information center. D. A. Schon. Res/Develop 15:23-5 Ja '64

Congress

Apportionment of the U.S. House of representatives; a minimum range, integer solution allocation problem. O. R. Burt and C. C. Harris, jr. bibliog Op Res 11:648-52 Jl '63; Discussion. E. J. Gilbert and J. A. Schatz. 12:768-73 S '64

Congress adjourns with solid record. il Chem & Eng N 42:30-1 O 12 '64

Congress lacks science advisers. Chem & Eng N 41:24-6 D 30 '63

Congress ponders budget details. Chem & Eng N 42:27 Ja 27 '64

Constitution

Educational series on government; national constitution. Gas 40:65-7 N '64

Defense, Department of

Aerospace in perspective; leadership. il fold chart diags Space/Aeronautics 41:60-70 Ja '64

Chemistry's status in defense r&d deplored. Chem & Eng N 41:23-4 N 25 '63

Concentration of defense r&d unavoidable. Chem & Eng N 42:34-5 S 21 '64

DOD studies use of information. Chem & Eng N 42:30 Mr 23 '64

Fine Italian hand at the Pentagon; Eugene G. Fubini. S. Powell and others. Electronics 37:102-4+ O 5 '64

Managing the U.S. investment in military r&d. R. L. Gilpatric. Chem Eng 71:133-6 Ja 20 '64

Advanced research projects agency

ARPA loses chemistry programs; closing of energy conversion work follows loss of high-energy propellant program. Chem & Eng N 42:32 Ja 13 '64

Defenses

Lagrange multipliers and the optimal allocation of defense resources. G. E. Pugh. Op Res 12:543-67 Jl '64

National security and the nuclear-test ban. J. B. Wiesner and H. F. York. diags Sci Am 211:27-35 O '64

New military telephone network for North American air defense. map Bell Lab Rec 42:84-5 Mr '64

UNITED STATES—Defenses—*Continued*

Through the political fog; hard facts about our military communications. il map Electronics 37:93-6 O 19 '64
Welded city in a cave. T. B. Jefferson. il Welding Eng 49:44-5 My '64
See also
Civil defense
Guided missiles—Defenses
Radar—Military use

Economic conditions

Faster technical advance means economic, social health. H. Ford, 2d. S A E J 72:38-9 Mr '64
Impact of the foreign market on the United States economy. C. W. Eurenius. Paper Ind 46:389-90 Ag '64
Patterns of growth in the United States economy. A. H. Johnson. bibliog Am Water Works Assn J 56:667-84 Je '64
Posture of our economy. L. A. Jennings. il Min Cong J 50:63-5 Jl '64

Economic policy

Challenge to affluence. G. Myrdal. Review, by L. H. Keyserling. Sci Am 210:141-2+ Ja '64

Federal aviation agency

National airspace system takes shape. Control Eng 11:23-5 Ja '64

Federal power commission

See Federal power commission

Federal trade commission

See Federal trade commission

Food and drug administration

Approved new drugs. Drug & Cosmetic Ind 93:302-3, 805 S, D '63
Drug makers dispute FDA rules. Chem & Eng N 42:33-4 Ag 3 '64
Drug safety is relative, FDA says; benefits must be weighed against risks in approving new drugs for market. Chem & Eng N 42:34-5 Ap 6 '64
FDA begins effectiveness review of drugs. J. F. Sadusk, jr. Chem & Eng N 42:30 O 19 '64
FDA expands lab facilities. il Food Eng 36:73-5 My '64
FDA organization. Drug & Cosmetic Ind 95:502-3 O '64
FDA revamp stresses science and education. Chem & Eng N 41:21-2 N 11 '63
FDA revamping its scientific data system. Chem & Eng N 42:32-4 S 14 '64
FDA to increase competency of staff. Chem & Eng N 41:36 D 16 '63
FDA upgrades field labs. il Chem & Eng N 42:28-9 Jl 20 '64
Impact of food and drug regulations on world health; editorial. H. G. S. van Raalte. bibliog Archives Environmental Health 8:771-4 Je '64
New drug act. Drug & Cosmetic Ind 94:347-8+ Mr '64
Nutrition, confidence and FDA aid. Food Tech 18:1565-7+ O '64
Summons from FDA; or how to conduct yourself at an FDA hearing; one-act drama. T. L. Hugé. Food Eng 35:41-4 D '63; 36:85-6+ Ja '64
Tolerances: amendment and fact. W. E. Baier. Food Tech 18:53-5 Ja '64
25th anniversary of Federal food, drug, and cosmetic act observed. Food Tech 18:535-6 Ap '64
What FDA expects good manufacturing practices to be. R. E. Duggan. Drug & Cosmetic Ind 93:623+ N '63

Government printing office

Should the government printing office build a new plant? interviews with J. L. Harrison and D. E. Sommer. J. D. Phelan. il Inland Ptr/Am Lithogr 153:60-1+ S '64

History

Civil war

Air arm a century ago. H. Stagnito. il diags Comp Air Mag 69:10-13 Je '64

Industries and resources

U.S. industry: create or stagnate. R. H. Rines. Eng N 173:33 O 1 '64

Interior, Department of

Coal research, Office of

Office of coal research: progress report. G. Fumich, jr. Min Cong J 49:55-7 D '63

Mines, Bureau of

Bureau of mines aided industry 50 years. Pet Management 36:177-8+ My '64

National aeronautics and space administration

Aerospace in perspective; leadership. il fold chart diags Space/Aeronautics 41:60-70 Ja '64
Fringe benefits from space. diags Mech Eng 86:133 Ap '64
Hitchhiking on space technology. il Steel 153:26-30 D 23 '63
NASA claims 1000 spin-offs, but where are they? Space/Aeronautics 41:13+ F '64
NASA defends university programs. Chem & Eng N 41:24 D 2 '63
NASA needs lion's share of liquid gases. E. E. Halmos, jr. Pet Management 36:134 F '64
NASA outlines its toughest space materials problems; seeks solutions. diags Steel 153:70-2 N 18 '63
Streamlining space construction; NASA's Robert W. Long. il Eng N 172:33-5 Ja 2 '64
See also
Space flight centers

National park service

Borate land withdrawal draws fire. map plan Chem & Eng N 42:24-7 My 18 '64

Navy

Engineering opportunities; go navy. Naval Eng J 75:891-6 D '63
Merit of maintainability (a light discussion on why it must prosper). R. L. Hess. Naval Eng J 76:63-6 F '64
Navy's most promising asset; man. K. E. Belieu. Naval Eng J 76:343-6 Je '64
U.S. naval school of deep sea diving. E. Boyd. il Comp Air Mag 69:26-7 Ap '64
U.S. navy leads in ocean research. il Marine Eng/Log 69:65-7 Je 15 '64
U.S. navy's XMR-1 the Hydroskimmer, America's first big hovercraft. il Marine Eng/Log 68:54-5 N '63
See also
Airplane carriers
United States—Air service, Navy

Construction battalions

Seabees play a Peace corps role. il map Eng N 172:68-9 Je 18 '64

Equipment and supplies

Buoyant textiles and body armor; symposium. Mod Textiles Mag 45:60-6+ O '64
Evolution of thermosets for the navy's ships. H. P. Walker. bibliog il Plastics World 22:30-3 My '64
Naval material support establishment and the new Office of naval material. W. A. Schoech. Naval Eng J 76:347-50 Je '64
Next for navy: integrated avionics. J. F. Mason. Electronics 37:43 F 28 '64
Single naval-material agency. F. S. Craven. diags Naval Eng J 76:521-7, 789-93 Ag, O '64

History

Recollections of the early history of naval aviation. G. Fulton. Naval Eng J 76:742-52 O '64

Navy department

Single naval-material agency. F. S. Craven. diags Naval Eng J 76:521-7, 789-93 Ag, O '64

Patent office

Broad changes sweep patent office. il Chem & Eng N 42:31-4 Je 22 '64
Information in depth: yesterday's know-how saves research dollars today; patents on file. I. Fleischmann. Res/Develop 15:26-8+ Ja '64
See also
Patent laws and regulations

Peace corps

Peace corps architect in Peru. il plan Prog Arch 45:104 O '64
Peace corps engineer. il Mech Eng 86:96-8 F '64
Peace corps volunteers teach printing in Afghanistan. Inland Ptr/Am Lithogr 152:122+ Mr '64
Peace corpsman asks industry for help. D. Goldsmith. Drug & Cosmetic Ind 93:791 D '63
Retired engineer in the Peace corps; Ralph Cole. P. D. Hardberger. il Civil Eng 33:54-5 N '63
Tunisia wants U.S. methods, not money. Eng N 172:21 Mr 12 '64

UNITED STATES—*Continued*

Politics and government

Educational series on government. Gas 40:65-7 N '64 (to be cont)

Presidents science advisory committee

President chooses new science adviser; Donald F. Hornig to succeed Dr Jerome Wiesner. Chem & Eng N 41:25-6 N 18 '63

White House superstructure for science. Chem & Eng N 42:78-90+ O 19 '64

Public health service

Daly backs USPHS control of water pollution. Water & Sewage Works 110:441 D '63

Pesticide residue problems probed. il Chem & Eng N 42:32-3 Ap 20 '64

Public health service extends pollution sleuthing. Eng N 172:160 Mr 19 '64

PHS plans enlarged program to monitor Mississippi. Chem & Eng N 42:58 Je 8 '64

USPHS activities and the water industry. C. H. Atkins. Am Water Works Assn J 56:1290-6 O '64

See also

Public health workers

Division of occupational health

Commemorative meeting; 50th anniversary. Division of occupational health, U.S. public health service, Washington, Feb. 6. Ind Med 33:153-6 Mr '64

Occupational health in the local health department, a status report. H. N. Doyle. Am J Pub Health 53:1883-5 D '63

Occupational health, Public health service. L. L. Terry. Archives Environmental Health 8:410-14 Mr '64

Public housing administration

GAO report attacks PHA for design excesses. Arch Rec 136:10 S '64

Public roads, Bureau of

BPR restates product policies. Eng N 172: 17 Ja 2 '64

Frank Turner; BPR's anchor man. Eng N 173: 32+ Jl 30 '64

How a government agency trains and supports its engineers; abstract. H. T. Rosenberger. Pub Works 95:154+ S '64

Science and technology, Office of

Hornig takes over as science advisor to the President. Space/Aeronautics 41:11+ Mr '64

White House superstructure for science. Chem & Eng N 42:78-90+ O 19 '64

Small business administration

Set asides remain a fixture. Eng N 173:25-6 Ag 20 '64

Standards, National bureau of

Agencies back metric study. Chem & Eng N 42:26 Ja 20 '64

Answer to the measurements pinch. C. M. Whitt. il Mag of Stand 35:238-9 Ag '64

Antarctic programme of the National bureau of standards. il Engineer 218:232-3 Ag 7 '64

Information in depth: technical information service of the National bureau of standards. A. V. Astin. bibliog Res/Develop 15:29-33 Ja '64

NBS determines compressibility of rubber. il diag Rubber Age 95:618-19 Jl '64

Standards bureau reorganizes. Chem & Eng N 42:34 F 17 '64

Supreme court

Supreme court's function. Gas 39:78-9 D '63

UNITED STATES rubber company

UniRoyal, new synonym for U.S. Rubber. O. Scott. il Rubber World 150:39-52 Ag '64

UniRoyal; processing progress. il Rubber World 150:28 Ag '64

U.S. Rubber adopts UniRoyal trademark world-wide. G. R. Vila. il Rubber Age 95: 928 S '64

UNITS

International system of units adopted by National bureau of standards; engineering data sheet. Welding Eng 49:59 Jl '64

NBS adopts International system of units. Electro-Tech 73:13 My '64

NBS adopts International system of units. Instruments & Control Systems 37:131 Ap '64

UNITS, Electric. See Electric units

UNIVERSAL joints. See Joints, Universal

UNIVERSE

See also

Life on other planets

Solar system

Stars

UNSATURATED compounds

Appraisal of the management of peptic ulcer including comparative studies of the value of a polyunsaturated fat nutritional preparation in the management of gastric hypersecretion. H. C. Laureta and others. bibliog Am J Clinical Nutrition 15:211-17 O '64

Base-induced pyrolysis of tosylhydrazones of α,β-unsaturated aldehydes and ketones; a convenient synthesis of some alkylcyclopropenes. G. L. Closs and others. bibliog Am Chem Soc J 85:3796-800 D 5 '63

Blood lipid responses to feedings of a polyunsaturated fat nutritional preparation and milk-cream mixture. D. Berkowitz. bibliog Am J Clinical Nutrition 15:218-22 O '64

Chemistry of conjugate anions and enols; the kinetically controlled enolization of α,β-unsaturated ketones and the nature of the transition state. S. K. Malhotra and H. J. Ringold. bibliog Am Chem Soc J 86:1997-2003 My 20 '64

Chlorination studies of unsaturated materials in nonpolar media; solvent effects on radical addition of chlorine to chloroethylenes. M. L. Poutsma and R. L. Hinman. bibliog Am Chem Soc J 86:3807-14 S 20 '64

Determination of double bond position in unsaturated triglycerides by analysis of the oxidation products by gas liquid chromatography. A. P. Tulloch and B. M. Craig. bibliog Am Oil Chem Soc J 41:322-6 Ap '64

Determination of olefinic unsaturation. B. Fleet. bibliog Ind Chem 39:601-3, 657-9 N-D '63

Effect of degree of fatty acid unsaturation in tocopherol deficiency-induced creatinuria. L. A. Witting and M. K. Horwitt. bibliog J Nutrition 82:19-33 Ja '64

Effect of polyunsaturated fat diet on serum lipids of hypercholesteremic patients with peptic ulcer. G. McHardy and others. bibliog Am J Clinical Nutrition 15:229-34 O '64

Electrolytic reductive coupling; derivatives of mono-olefinic α, β-unsaturated acids. M. M. Baizer and J. D. Anderson. bibliog Electrochem Soc J 111:223-6 F '64

Electron-transfer processes; the scope of the reaction between carbanions or nitranions and unsaturated electron acceptors. G. A. Russell and others. bibliog diags Am Chem Soc J 86:1807-14 My 5 '64

Experiences with a polyunsaturated fat nutritional preparation in the dietary management of patients with peptic ulcer. D. Cayer and J. M. Ruffin. Am J Clinical Nutrition 15:227-8 O '64

1H-cyclohepta [*d,e*]-1-pyrindine; a new conjugate-unsaturated heterocyclic system. L. L. Replogle. bibliog Am Chem Soc J 86:3137-42 Ag 5 '64

Homogeneous catalytic hydrogenation of unsaturated fats; iron pentacarbonyl. E. N. Frankel and others. bibliog Am Oil Chem Soc J 41:186-91 Mr '64

Hydroboration; the reaction of unsaturated esters with diborane and disiamylborane. H. C. Brown and K. A. Keblys. bibliog Am Chem Soc J 86:1795-801 My 5 '64

Hydroxy-unsaturated oils and meal from dimorphotheca and lesquerella seed. R. E. Knowles and others. J Agri & Food Chem 12:390-2 S '64

Hydroxy unsaturated oils; preparation and characterization of methyl dimorphecolate and methyl lesquerolate from dimorphotheca and lesquerella oils. M. J. Diamond and others. bibliog Am Oil Chem Soc J 41: 430-3 Je '64

Identification of the major polyunsaturated C_{18} acids of marine oils by GLC separation factors on normal and organosilicone polyesters. R. G. Ackman and P. M. Jangaard. bibliog Am Oil Chem Soc J 40:744-5 D '63

Metabolism of *trans, trans*-octadecadienoic acid; incorporation of *trans, trans*-octadecadienoic acid into the C_{20} polyunsaturated acids of the rat. W. G. Knipprath and J. F. Mead. bibliog Am Oil Chem Soc J 41: 437-40 Je '64

Organic sulfur compounds; oxidative addition of thiol acids to unsaturated hydrocarbons; cooxidation of thiolacetic acid and indene by molecular oxygen. A. A. Oswald and others. bibliog Am Chem Soc J 86:3791-5 S 20 '64

UNSATURATED compounds—*Continued*

Oxidation of a highly unsaturated herring oil. H. Astrup. Chem & Ind p 107 Ja 18 '64

Radiochemical investigation of polymer unsaturation; reaction of butyl rubber with radiochlorine. I. C. McNeill. bibliog diag Rubber Chem & Tech 36:1071-80 O '63

Reactions of unsaturated free radicals with nitric oxide; radical-induced scission of carbon-carbon triple bonds. A. G. Sherwood and H. H. Gunning. Am Chem Soc J 85:3506-8 N 5 '63

Relation of proton exchange to tautomerism in unsaturated sulfoxides. D. E. O'Connor and C. D. Broaddus. bibliog Am Chem Soc J 86:2267-70 Je 5 '64

Spectrophotometric determination of organic peroxides in unsaturates. D. K. Banerjee and C. C. Budke. Anal Chem 36:2367-8 N '64

Spot tests for aromatic and α,β-unsaturated aldehydes. F. Feigl and E. Libergott. bibliog Anal Chem 36:132-3 Ja '64

Studies of the metabolism of polyunsaturated acids by short-term experiments. J. J. Rahm and R. T. Holman. bibliog J Nutrition 84:149-54 O '64

Study of the hypocholesterolemic activity of the ethyl esters of the polyunsaturated fatty acids of cod liver oil in the rat. S. G. Kahn. bibliog J Nutrition 83:262-6 Jl '64

Unsaturated dietary fats; editorial. L. W. Kinsell. Am J Clinical Nutrition 14:125-7 Mr '64

Unsaturated heterocyclic systems. L. A. Paquette. bibliog Am Chem Soc J 86:4092-9 O 5 '64

Unsaturated polyester resins from epoxides and anhydrides. H. G. Waddill and others. bibliog Ind & Eng Chem Product Res & Develop 3:53-5 Mr '64

Unsaturation determined on Micro scale. il Chem & Eng N 42:79 N 9 '64

UPHOLSTERY

Outlook bright for home furnishing fabrics. il Mod Textiles Mag 45:15-20 F '64

UPPER atmosphere. See Atmosphere, Upper

URACIL

Monochromatic ultraviolet restores DNA activity. R. B. Setlow. il Chem & Eng N 42:41 S 7 '64

URANINITE

Studies on contact angles at uraninite surfaces. T. R. Madhavan and K. K. Majumdar. bibliog Can Min & Met Bul 57:31-2 Ja '64

URANIUM

Alteration of Chinle siltstone and uranium emplacement, Arizona and Utah. A. M. Abdel-Gawad and P. F. Kerr. map diags Geol Soc Bul 74:23-46, pl 1-2 bibliog(p44-6) Ja '63; Discussion. H. S. Johnson, jr. 75:775-6; Reply. 777-80 Ag '64

Effect of certain gases on the rate of oxidation of uranium by water vapour. S. Orman. bibliog Chem & Ind p 1692-3 O 19 '63

Emission spectrographic determination of boron in plutonium and uranium nitrate solutions following cation exchange separation. A. W. Wenzel and C. E. Pietri. bibliog Anal Chem 36:2083-6 O '64

Gas chromatographic and gravimetric studies of uranium oxidation mechanism. T. Kondo and others. bibliog il diags Corrosion 20:314-20 O '64

Incorporation of uranium and silver by hydrothermally synthesized galena. J. J. Hutta and H. D. Wright. bibliog il Econ Geol 59:1003-24 S '64

Largest sample of important isotope of thorium-uranium fuel cycle isolated. Franklin Inst J 277:506-7 My '64

Method of increasing the production of uranium ions in a mass spectrometer source. N. C. Fenner. J Sci Instr 41:48-9 Ja '64

Minimizing corrosion in uranium extraction solutions by application of anodic protection. F. P. A. Robinson and L. Golante. bibliog diag Corrosion 20:239-44 Ag '64

Nicotinylhydroxamic acid chelates of uranium and titanium(IV). R. Rowland and C. E. Meloan. Anal Chem 36:2376 N '64

Phase relations in the system uranium-carbon-oxygen. R. F. Stoops and J. V. Hamme. bibliog diag Am Cer Soc J 47:59-62 F '64

Phase relations in the system uranium-nitrogen. J. Bugl and A. A. Bauer. bibliog il diags Am Cer Soc J 47:425-9 S '64

Plutonium, uranium cutback to idle 2900. Chem & Eng N 42:25 Ja 20 '64

Properties of materials; hafnium, thorium, uranium, vanadium, beryllium; wrought; tables. Materials in Design Eng 60:180 Mid-O '64

Rolling uranium; abstract. N. Davies. Metal Prog 85:182-3 My '64

Uranium in 1963. J. T. Sherman. il Min Cong J 50:115-16 F '64

Uranium, 1963. R. W. Bernick. Eng & Min J 165:116-18+ F '64

X-ray fluorescence spectrometric determination of zirconium and molybdenum in the presence of uranium. E. A. Hakkila and others. Anal Chem 36:2094-6 O '64

See also

Steel—Uranium content

Transuranium elements

Analysis

Amperometric titration of uranium(IV) with cerium(IV) utilizing pyrolytic graphite electrode. H. E. Zittel and F. J. Miller. bibliog diag Anal Chem 36:45-7 Ja '64

Fluorometric determination of uranium with rhodamine B. N. R. Andersen and D. M. Hercules. bibliog Anal Chem 36:2138-41 O '64

Potentiometric titration of free acid and uranium in uranium(VI) solutions with alkali. K. Motojima and K. Izawa. bibliog Anal Chem 36:733-5 Ap '64

Separation and determination of trace quantities of uranium in presence of plutonium. R. J. Baltisberger. Anal Chem 36:2369-70 N '64

Separation and determination of uranium in high zirconium alloys. R. F. Rolf. Anal Chem 36:1398-400 Je '64

Separation of uranium, thorium, and the rare earth elements by anion exchange. J. Korkisch and G. Arrhenius. bibliog Anal Chem 36:850-4 Ap '64

Corrosion

Corrosion of uranium, zirconium, and some alloys in alkaline solutions. J. S. L. Leach and A. Y. Nehru. bibliog Electrochem Soc J 111:781-7 Jl '64

Isotopes

Babcock & Wilcox banks on need for newer fuels. il Chem & Eng N 42:52-3 F 3 '64

Isotopic fractionation of uranium related to roll features in sandstone, Shirley Basin, Wyo. J. N. Rosholt and others. bibliog diags Econ Geol 59:570-85 Je '64

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Uranium isotope investigations by atomic absorption. J. A. Goleb. diag Anal Chem 35:1978 N '63

Uranium-lead isotopic variations in zircons; a case study. L. T. Silver and S. Deutsch. bibliog maps diags J Geol 71:721-58, pl 1-2 N '63

Protection

Surface treatments and electroplated coatings on uranium. J. K. Gore and R. Seegmiller. bibliog il Plating 50:215-20 Mr '63; Discussion. 50:1012-13 N '63

Spectra

Spectra confirm energy level for U(V); abstract. D. G. Karraker. Chem & Eng N 42:58+ Ap 13 '64

URANIUM alloys

Appearance of columnar grains in a uranium-chromium alloy. A. Bar-Or and P. Wynblatt. bibliog il Inst Metals J 92:183-4 '63-64

How irradiation at 1,100-1,800°F affects niobium-uranium alloys. J. A. De Mastry and others. il Nucleonics 21:86+ O '63

Mechanism of the oxidation of a uranium-one weight per cent copper alloy. J. E. Antill and K. A. Peakall. diags Electrochem Soc J 110:1146-8 N '63

Palladium-uranium phase diagram up to 25 at.-per cent uranium. G. P. Pells. il Inst Metals J 92:416-18 '63-64

Uranium-molybdenum-carbon equilibrium diagram. F. G. Streets and J. J. Stobo. bibliog il Inst Metals J 92:171-4 '63-64

Analysis

Separation and spectrophotometric determination of technetium in fissium. R. J. Meyer and others. bibliog diag Anal Chem 36:1975-9 S '64

URANIUM carbide

Evaluating coated particles of nuclear fuel. R. W. McClung and others. il Metal Prog 86:90-3 Jl '64

Fission-gas release from uranium carbide. Nucleonics 21:72 O '63

URANIUM carbide—*Continued*

Investigation of the patch effect in uranium carbide. G. A. Haas and R. E. Thomas. bibliog il diag J Ap Phys 34:3457-65 D '63

Release of xenon from uranium carbide at low temperatures. A. Auskern. bibliog Am Cer Soc J 47:390-4 Ag '64

Thermal expansion of uranium monocarbide. R. Méndez-Peñalosa and R. E. Taylor. Am Cer Soc J 47:101-2 F '64

Thermal expansion of uranium sesquicarbide. R. Méndez-Peñalosa and R. E. Taylor. bibliog il Am Cer Soc J 47:416-17 Ag '64

URANIUM compounds

Thermionic studies of various uranium compounds. G. A. Haas and J. T. Jensen, jr. bibliog J Ap Phys 34:3451-7 D '63

See also

Uranyl compounds

URANIUM dioxide. See Uranium oxides

URANIUM fluorides

Production of uranium hexafluoride in a fluidized bed reactor by the reaction of uranium tetrafluoride with oxygen. C. D. Scott and others. bibliog il diags Ind & Eng Chem Proc Design 3:266-70 Jl '64

URANIUM hexafluoride. See Uranium fluorides

URANIUM metallurgy

Extraction of uranium(vi) from nitric acid solutions by some cyclohexyl- and benzylalkylamines. T. Sato. bibliog J Ap Chem 14:176-80 Ap '64

Yugoslavs claim full recovery of uranium. J. Peters. il Eng & Min J 165:90-1 Mr '64

URANIUM mines and mining

Australia

Copper development bolsters Rum Jungle. il Min Eng 16:94 O '64

Canada

Future of Canada's uranium mining industry. W. M. Gilchrist. Can Min & Met Bul 57:521-4 My '64

Ontario

Measurement and control of air contaminants in Ontario uranium mines. G. R. Yourt. bibliog Ind Med 33:222-9 Ap '64

Western states

Uranium output slows. J. T. Sherman. il Chem Eng Prog 60:30-3 O '64

Wyoming

Pullshovel with hydraulic wrist improves selective mining at Lucky Mc. il diags Eng & Eng J 165:158-60 Je '64

URANIUM nitrides

Implications of U-N phase system for UN fuel. J. Bugl and A. A. Bauer. Nucleonics 22:64 Ja '64

Phase relations in the system uranium-nitrogen. J. Bugl and A. A. Bauer. bibliog il diags Am Cer Soc J 47:425-9 S '64

URANIUM ores

Conceptual uranium ore roll and its significance in uranium exploration. H. H. Adler. bibliog diags Econ Geol 59:46-53 Ja '64

Description and origin of uranium deposits in Shirley Basin, Wyo. R. E. Melin. maps diags Econ Geol 59:835-49 Ag '64

Distribution of uranium deposits in the White Canyon-Monument Valley district, Utah-Arizona. R. G. Young. bibliog il maps diags Econ Geol 59:850-73 Ag '64

Isotopic fractionation of uranium related to roll features in sandstone, Shirley Basin, Wyo. J. N. Rosholt and others. bibliog diags Econ Geol 59:570-85 Je '64

Radioactive disequilibrium studies of roll features, Shirley Basin, Wyo. J. R. Dooley, jr. and others. bibliog Econ Geol 59:586-95 Je '64

Radioelement dispersion in a sedimentary environment and its effect on uranium exploration. R. M. Moxham. maps Econ Geol 59:309-21 bibliog(p320-1) Mr '64

Recovery of protactinium-231 from a uranium refinery residue. J. J. Hillary and A. R. Morgan. flow diag il diags Ind Chem 40:131-6 Mr '64

Re-examination of isotopic relationships in Colorado Front Range uranium ores. P. O. Banks and L. T. Silver. bibliog Geol Soc Bul 75:469-76 My '64

Uran v drevnykh konglomeratakh. V. N. Kotlyar, ed. Review. by C. F. Davidson. bibliog Econ Geol 59:168-77 Ja '64

See also

Uraninite

URANIUM oxides

Betatron radiographs irradiated UO_2 fuels. H. Nagami and others. il diag Nucleonics 21:66+ D '63

Bonding of metals to uranium dioxide. A. Milner and C. R. Tottle. bibliog il diags Inst Metals J 93:48-52 '64-65

Developments in producing high-density UO_2 powders. R. J. Carlson and S. W. Porembka. il Nucleonics 22:106 Jl '64

Electronic conduction in single crystals of uranium dioxide. P. Nagels and others. bibliog il J Ap Phys 35:1175-80 Ap '64

Gas-solid reaction in a fluidized bed. P. N. Rowe. bibliog il diags Chem Eng Prog 60:75-80 Mr '64

Hot extrusion of UO_2 fuel elements. J. Hunt and P. Loewenstein. il diags Am Cer Soc Bul 43:562-5 Ag '64

Melting behavior in the system UO_2-PuO_2. T. D. Chikalla. bibliog il Am Cer Soc J 46:323-8 Jl '63; Discussion. 47:308-9 Je '64

Phase relations in the system UO_2-UO_3-Y_2O_3. S. F. Bartram and others. bibliog diags Am Cer Soc J 47:171-5 Ap '64

Production of uranium dioxide by flame denitration. W. H. Hedley and others. bibliog flow diag diags Ind & Eng Chem Proc Design 3:11-14 Ja '64

Sintering alumina-urania compositions. I. Amato and others. bibliog il Am Cer Soc Bul 43:125-7 F '64

Thermal expansion and change in volume of uranium dioxide on melting. J. A. Christensen. il Am Cer Soc J 46:607-8 D '63

Understanding UO_2 thermal conductivity. D. R. de Halas. bibliog Nucleonics 21:92-4 O '63

UO_2 fuel capability extended above melting point. M. F. Lyons and others. bibliog il Nucleonics 22:102 My '64

UO_2 molten zone identified. il Nucleonics 21:68 S '63

X-ray study of oxidized uranium surfaces. L. Leibowitz and others. bibliog Electrochem Soc J 111:248-9 F '64

URANIUM sulfides

Galvanomagnetic properties of ferromagnetic uranium monosulfide: abstracts. M. A. Kanter and C. W. Kazmierowicz. J Ap Phys 35:1053 pt 2 Mr '64

Thermoelectric properties of uranium monosulfide, thorium monosulfide, and US-ThS solid solutions. M. Tetenbaum. J Ap Phys 35:2468-72 Ag '64

URANIUM tetrafluoride. See Uranium fluorides

URANIUM works

Waste

Solvent extraction recovers vanadium from waste stream; process flowsheet. F. A. Seeton. Chem Eng 71:112-14 F 17 '64

URANYL compounds

Cathodic action of the uranyl-malate complexes at the dropping mercury electrode. T. T. Lai and S. J. Wey. bibliog Electrochem Soc J 111:1283-6 N '64

Cathodic action of the uranyl-itaconate complex at the dropping mercury electrode. T. T. Lai and B. C. Wang. Anal Chem 36:26-8 Ja '64

Mn, Ni, Co, and UO_2 perchlorate complexes made. D. K. Straub and Y. M. Yung. Chem & Eng N 42:53-5 S 21 '64

URANYL nitrate

Production of uranium dioxide by flame denitration. W. H. Hedley and others. bibliog flow diag diags Ind & Eng Chem Proc Design 3:11-14 Ja '64

Thermal decomposition of uranyl nitrate hexahydrate. S. Hartland and R. J. Nesbitt. bibliog il J Ap Chem 14:406-12 S '64

URANYL sulfate

Stress corrosion cracking of austenitic stainless steel in uranyl sulfate solutions. J. L. English and J. C. Griess. bibliog il Corrosion 20:138-44 Ap '64

URAZIL

Spectrophotometric studies of nucleic acid derivatives and related compounds; on the structure of certain 5- and 6-halogenouracils and -cytosines. I. Wempen and J. J. Fox. bibliog Am Chem Soc J 86:2474-7 Je 20 '64

URBAN planning. See City planning

URBAN renewal. See Municipal improvement

URBAN transit. See Rapid transit

URBANIZATION

Motor road; forerunner of the universal city. C. T. Larson. maps Traffic Q 18:459-90 O '64

Trend and probable future of cities in relation to health. A. J. Harmon. Am J Pub Health 54:699-703 My '64

Urbanization and human needs. L. J. Duhl. Am J Pub Health 54:721-8 My '64

UREA

Crop response to urea and urea pyrolysis products. G. L. Terman and others. J Agri & Food Chem 12:151-4 Mr '64

Differential oxidation of protein-bound tryptophan and tyrosine by N-bromosuccinimide in urea solution. M. Funatsu and others. Am Chem Soc J 86:1846-8 My 5 '64

Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64

Effects of solutions of urea and of ammonium and potassium salts on the germination of kale, barley and wheat. J. K. R. Gasser. Chem & Ind p 1687-9 O 3 '64

Electron spin resonance study of X-irradiated fumaric acid-urea crystals. O. H. Griffith and A. L. Kwiram. bibliog diags Am Chem Soc J 86:3937-41 O 5 '64

Generation of 2,2-diphenyldiazocyclopropane and 2,2-diphenylcyclopropylidene from the thermal decomposition of N-nitroso-N-(2,2-diphenylcyclopropyl)-urea. W. M. Jones and others. bibliog Am Chem Soc J 86:912-14 Mr 5 '64

Gloss of baked alkyd urea-formaldehyde finishes pigmented with titanium dioxide. M. B. Alpert and others. bibliog il diag Ind & Eng Chem Product Res & Develop 2:264-9 D '63

Interaction of urea and acetamide with polyglycine. J. A. Rupley and M. Praissman. Am Chem Soc J 85:3526-7 N 5 '63

Isothermal unfolding of globular proteins in aqueous urea solutions. C. Tanford. bibliog diag Am Chem Soc J 86:2050-9 My 20 '64

Metabolic aspects of urea utilization by ruminant animals. W. Chalupa and others. bibliog J Nutrition 84:77-82 S '64

N,N'-bis(2-dimethylaminoethyl)urea; preparation and pyrolysis of the di-*N*-oxide and the quaternary ammonium hydroxide derivatives. A. Crawshaw and A. N. Mason. Chem & Ind p365 F 29 '64

Nonpolar group participation in the denaturation of proteins by urea and guanidinium salts; model compound studies. D. B. Wetlaufer and others. bibliog Am Chem Soc J 86:508-14 F 5 '64

Properties of materials; ureas; molded; tables. Materials in Design Eng 60:238 Mid-O '64

Reaction between urea and cellulose. A. C. Nuessle. Am Dyestuff Rep 53:43-4 Ja 20 '64

Review of disappearance of substituted urea herbicides from soil. T. J. Sheets. bibliog J Agri & Food Chem 12:30-3 Ja '64

Some properties of concentrated solutions of invert sugar and urea. H. H. Hatt and A. C. K. Triffett. bibliog J Ap Chem 14:195-202 My '64

Structure-property relationships in one-step urea-urethane elastomers. K. W. Rausch and others. bibliog Ind & Eng Chem Product Res & Develop 3:125-9 Je '64

Supposed uronium pentachlorotellurate (IV). I. R. Beattie and others. bibliog Chem & Ind p 1842-3 N 16 '63

Urea adduction process in semicontinuous fixed bed. E. C. Makin and others. bibliog flow sheet il Ind & Eng Chem Proc Design 3:226-9 Jl '64

Urea and melamine. Mod Plastics 41:102+ Ja '64

Urea breakdown activity in cottonseed. J. K. Sikes. bibliog Am Oil Chem Soc J 41:69-71 Ja '64

Urea derivatives of aminophosphonitriles. G. Tesi and others. Chem & Ind p623 Ap 11 '64

Analysis

Fluorometric method for the determination of urea in blood. J. E. McCleskey. bibliog Anal Chem 36:1646-8 Jl '64

Gas chromatographic determination of alkyl substituted ureas. R. W. Reiser. Anal Chem 36:96-8 Ja '64

Spectrophotometric determination of urea-formaldehyde with anthrone. R. G. Westenhouse. Anal Chem 36:1875-6 Ag '64

Spectrophotometric determination of urea, thiourea, and certain of their substitution products with *p*-dimethylaminobenzaldehyde and diacetylmonoxime. R. C. Hoseney and K. F. Finney. bibliog Anal Chem 36:2145-8 O '64

Manufacture

Recent developments in urea manufacture; abstract. P. Scaglione. Ind Chem 40:215 Ap '64

Urea; Chemical construction corp. diag Hydrocarbon Process & Pet Refiner 42:233 N '63

Urea; Foster Wheeler corp. diag Hydrocarbon Process & Pet Refiner 42:234 N '63

Urea (Lonza-Lummus); the Lummus co. flow diag Hydrocarbon Process & Pet Refiner 42:236 N '63

Urea; Montecatini. diag Hydrocarbon Process & Pet Refiner 42:237 N '63

Urea (Toyo Koatsu process); Girdler corp. diag Hydrocarbon Process & Pet Refiner 42:235 N '63

UREASE

Effect of barbituric acid, chlortetracycline and carbohydrates upon growth and gastro-intestinal urease activity of chicks. A. P. Alvares and others. bibliog J Nutrition 82:93-8 Ja '64

URETHANS

Acoustic urethane. il Plastics World 22:62 Ja '64

Acoustical covering; urethane in nursery helps keep babies germ-free as well as quiet. il Plastics World 21:63 N '63

Chemically stable joint sealer; asphalt-impregnated polyurethane foam. il diag Plastics World 21:98-9 N '63

Crosslinking study of millable polyurethane elastomers with phenolic resins. O. C. Elmer and A. E. Schmucker. bibliog Rubber Age 94:438-45 D '63

Development machine for urethane foam-block. il Engineer 217:235-6 Ja 31 '64

Discount offered to urethane foam makers. Chem & Eng N 42:24 Ja 13 '64

Failure criteria for some polyurethane propellants. W. T. Milloway and J. H. Wiegand. Rubber Chem & Tech 37:511-23 Ap '64

Five urethane blocks take place of 300 female dies; Dahlstrom mfg. co. il Steel 154:75 Je 15 '64

Foam absorbs pavement expansion. il Eng N 171:55 D 5 '63

Foam rescues pile driver. il Plastics World 22:52 O '64

Formulating a urethan casting compound. L. I. Johnson. bibliog Rubber Age 94:268-71 N '63

Frothing rigid urethane foams. J. B. Smith. il diag Plastics Tech 10:35-7 Ja '64

Houdry markets surfactant for urethane. R. A. Blomquist. il Chem & Eng N 42:46 Je 1 '64

How to handle a huge foaming job. il Mod Plastics 42:92-4+ O '64

How to make polyurethanes. I. A. Eldib. bibliog diags Hydrocarbon Process & Pet Refiner 42:121-7 D '63

Joint filler solves complex expansion problem. il Pub Works 95:158 Ag '64

Latex-held urethane rug backing. il Textile Ind 128:91+ My '64

Longer lasting laundry equipment. il Mod Plastics 41:92-3+ Ap '64

Low-density foams for nonmetallic tooling. J. Delmonte. il Tool & Manuf Eng 53:71-2 S '64

Moulding flexible polyurethane foam. J. C. Parkinson. il Brit Plastics 37:146-7 Mr '64

New belt material rolls with the punches. il Mod Materials Handling 18:43 D '63

New dimer-acid based urethane coatings. Plastics Tech 9:11 N '63

New machinery for urethane foams. R. C. Hosford. il Plastics Tech 9:36-41 N '63

One-part urethane coatings are tough and attractive. R. P. Stout. il Materials in Design Eng 59:87-9 Mr '64

One-shot rigid urethane foam molding reduces costs, improves properties. M. Kaplan. il diags Plastics Tech 10:38-41 Ag '64

Pittsburgh Plate Glass develops process for spraying rigid urethane foam. Chem & Eng N 42:42 Ag 31 '64

Plastic turf wins football tryout to oppose the rain. il Chem Eng 71:96 N 9 '64

Polypropylene glycol cuts urethane polymer cost. il Chem Eng 71:108 S 14 '64

Polyurethane elastomers set for growth. H. W. Holly. Chem & Eng N 42:34-5 Mr 2 '64

Polyurethane resin has long pot life. il Materials in Design Eng 60:133 S '64

Polyurethanes cure at room temperature; abstract. L. Montesano. Chem & Eng N 42:79 Ap 20 '64

Process developed for rigid urea foam. Oil & Gas J 62:138+ O 5 '64

Refrigerator liner. il Plastics World 22:20 O '64

Retention of flame properties of rigid polyurethane foams. J. J. Anderson. bibliog Ind & Eng Chem Product Res & Develop 2:260-3 D '63

Rigid urethane foams from blown castor oils. C. K. Lyon and others. bibliog Am Oil Chem Soc J 41:23-5 Ja '64

URETHANS—*Continued*

Rigid urethane foams from glycoside polyethers. F. H. Otey and others. bibliog Ind & Eng Chem Product Res & Develop 2:256-9 D '63
Room temperature-curing polyurethane casting compounds. L. Montesano. il Ind & Eng Chem Product Res & Develop 3:133-7 Je '64
Sealer, insulator is foamed into and seals curtain wall joints. il Plant Eng 18:94 Jl '64
Sprayed-on urethane foam tested for heated-fuel-oil-tank insulation. D. H. Stormont. il Oil & Gas J 62:90-1 Mr 9 '64
Structure-property relationships in one-step urea-urethane elastomers. K. W. Rausch and others. bibliog Ind & Eng Chem Product Res & Develop 3:125-9 Je '64
Technology of super soft flexible urethane foams. F. J. Dwyer and others. bibliog diags Mod Plastics 41:139-40+ My '64
To salvage a Texas tower. il Plastics World 22:22-3 O '64
Urethane coatings for industrial finishers. K. G. Meades. Ind Finishing 40:54+ Je '64
Urethane elastomers prepared from dipropylene glycol-tolylene diisocyanate adducts. H. R. Bylsma. bibliog il Ind & Eng Chem Product Res & Develop 3:204-9 S '64
Urethane foam helps to salvage a Texas tower. Chem Eng 71:108 O 12 '64
Urethane foam insulates building columns. il Chem Eng Prog 60:121 O '64
Urethane foam seal. il Plastics World 22:47 Jl '64
Urethane foam-steel panels produced at 40 to 50 per cent savings; Sherer-Gillett co. il Mod Plastics 41:108 F '64
Urethane foams based on castor polyols. A. Ehrlich and T. C. Patton. bibliog Mod Plastics 41:154+ Mr '64
Urethane sealant has bright promise; Isosealz. il diags Can Chem Process 48:71-2 Mr '64
Urethane spincasting technique for paraboloidal, short wavelength antenna reflectors. il Plastics Tech 9:12 N '63
Urethane tooling. H. S. Achler. il diags Mach 70:135-47 Je '64
Urethanes. J. K. Backus and E. C. Haag. Machine Design 36:130-3 S 17 '64
Varying the (foamblock) mix at will. il Engineering 197:233 F 7 '64
Why the sudden shift to polyurethane wheels. il Mod Materials Handling 19:44-6 Ag '64

Analysis

Analytical chemistry of plastics; analysis of rubberlike mixed polyurethans. E. Schröder. bibliog diags Rubber Chem & Tech 37:146-53 Ja '64
Determination of trimethylolpropane in polyesters and polyurethane foams. R. E. Wittendorfer. Anal Chem 36:930-1 Ap '64

URIC acid

Effects of dietary antibiotics and uric acid on the growth of chicks. L. N. Bare and others. bibliog J Nutrition 83:27-33 My '64
Selective separation of polycyclic aromatic compounds by countercurrent distribution with a solvent system containing tetramethyluric acid. J. D. Mold and others. bibliog Anal Chem 35:2071-4 D '63

URIDINE

Crystal and molecular structure of β-adenosine-2'-β-uridine-5'-phosphoric acid. E. Shefter and others. Am Chem Soc J 86:1872-4 My 5 '64
Interaction and association of bases and nucleosides in aqueous solutions; association of 6-methylpurine and 5-bromouridine and treatment of multiple equilibria. P. O. P. Ts'o and S. I. Chan. bibliog Am Chem Soc J 86:4176-81 O 5 '64
Preparation of the sulfates of 5-fluorodeoxyuridine with pyridine-sulfur trioxide. P. W. Wigler and H. U. Choi. bibliog Am Chem Soc J 86:1636-9 Ap 20 '64
Studies on polynucleotides; the specific synthesis of C_3'-C_5'-linked ribooligonucleotides; the stepwise synthesis of uridylyl-(3'→5')-adenylyl-(3'→5')-uridylyl-(3'→5')-uridine. Y. Lapidot and H. G. Khorana. bibliog Am Chem Soc J 85:3852-7 D 5 '63
Studies on polynucleotides; the specific synthesis of $C_{3'}$-$C_{5'}$-linked ribopolynucleotides (6); a further study of the synthesis of uridine polynucleotides. C. Coutsogeorgopoulos and H. G. Khorana. bibliog Am Chem Soc J 86:2926-32 Jl 20 '64

See also
Pseudouridine

URINE

Aminoaciduria after dietary loading in human subjects. G. V. Mann and N. Perry. bibliog Am J Clinical Nutrition 14:163-8 Mr '64
Effect of the quality of dietary protein on nitrogen compounds in the urine of rats. S. Kiriyama and K. Ashida. bibliog J Nutrition 82:127-34 Ja '64
Effect of water intake on nitrogen metabolism in dogs. R. Bressani and J. E. Braham. bibliog J Nutrition 82:469-74 Ap '64
Elevated riboflavin levels in urine of fasting human subjects. H. G. Windmueller and others. bibliog Am J Clinical Nutrition 15:73-6 Ag '64
Patterns of urinary iodine excretion in goitrous and nongoitrous areas. R. H. Follis, jr. bibliog Am J Clinical Nutrition 14:253-68 My '64
Potable water recovered from urine by filtration. il Chem & Eng N 42:50-1 Ap 6 '64
Significant bacteriuria and duration of pregnancy. M. Henderson. bibliog Archives Environmental Health 8:527-30 Ap '64
Studies of thiamine metabolism in the rat; isolation and identification of 2-methyl-4-amino-5-pyrimidinecarboxylic acid as a metabolite of thiamine in rat urine. R. A. Neal and W. N. Pearson. bibliog J Nutrition 83:351-7 Ag '64
Urinary excretion of paranitrophenol by volunteers following dermal exposure to parathion at different ambient temperatures. A. J. Funckes and others. J Agri & Food Chem 11:455-7 N '63

Analysis

Determination of estrogens in low and high titer urines using thin layer and gas liquid chromatography. H. H. Wotiz and S. C. Chattoraj. bibliog Anal Chem 36:1466-72 Jl '64
Identification of metabolites of Zectran insecticide in dog urine. E. Williams and others. bibliog J Agri & Food Chem 12:457-61 S '64

UROLITHIASIS. See Calculi, Urinary

USED car lots. See Automobile sales buildings—Used car lots

USED machine tools. See Machine tools, Used

UTAH

See also subdivision Utah under special subjects, e.g.
Coal mines and mining
Gas, Natural
Geology
Iron mines and mining
Mines and mineral resources
Petroleum
Petroleum industry and trade

UTERUS

Diseases

Effect of cytologic program on pelvic examinations. I. N. Dubin and others. Archives Environmental Health 9:514-20 O '64

V

V-belts. See Belting

VTOL airplanes. See Airplanes, Vertical takeoff

VACATION houses

Special place; vacation house; Boulder Creek, Calif. il plans Prog Arch 45:154-9 My '64
Three vacation houses by Wurster. il plans Arch Rec 136:221-4 S '64

VACCINATION

Efficacy of immunization reminder cards. E. Fowinkle and others. Archives Environmental Health 8:471-3 Mr '64
Legal requirements for immunizations; survey of state laws and regulations. F. V. Hein and W. W. Bauer. Archives Environmental Health 9:82-5 Jl '64

VACCINES

Prevention of trachoma with vaccine. J. T. Grayston and others. bibliog il Archives Environmental Health 8:518-26 Ap '64
Respiratory virus vaccines; abstract. J. Holper. Ind Med 33:709 O '64

See also
Influenza—Vaccines
Poliomyelitis—Vaccines
Rabies—Vaccines

VACUUM

Anomalous residual currents in the ultrahigh vacuum use of Bayard-Alpert ionization gauges. T. E. Hartman. bibliog diags R Sci Instr 34:1190-5 N '63
Bearing capacity of simulated lunar surfaces in vacuum. E. C. Bernett and others. flow diag diag AIAA J 2:93-8 Ja '64
Behavior of plastics in space environments. A. F. Ringwood. Mod Plastics 41:173-4+ Ja '64
Better copper wire by vacuum annealing. il diag Engineering 197:201 Ja 31 '64
Comparative study of outgassing charcoals in vacuum and in a stream of nitrogen. B. R. Puri and K. M. Bedi. bibliog Chem & Ind p 1899-900 N 30 '63
Conducting film formed by electron bombardment of tungsten hexacarbonyl vapor in vacuum. O. G. Fritz, jr. J Ap Phys 35:2272 Jl '64
Dry film lubrication of highly loaded bearings in vacuum. E. C. McKannan and K. E. Demorest. il Lub Eng 20:134-41 Ap '64
Effects on elastomers of gamma irradiation and high vacuum. C. A. Cassola and A. F. Bonanni. il Rubber Age 95:414-19 Je '64
Fatigue of metals accelerated by prolonged exposure to high vacuum; abstract. R. H. Christensen. Metal Prog 86:296 O '64
Field emission from vacuum-deposited metallic film and its role in electric breakdown in vacuum. R. N. Sudan and F. Gonzalez-Perez. bibliog diag J Ap Phys 35:2269-70 Jl '64
Flow characteristics of cryogenic fluids in vacuum. il diag Res/Develop 15:64 Mr '64
Getting residual air out of vacuum diecasting dies. H. K. Barton. diags Foundry 92:100-1+ Ja '64
Homemade high vacuum techniques. il Am J Phys 32:483-90 Je '64
Improved techniques for vacuum cooling vegetables. J. M. Harvey. ASHRAE J 5:41-4 N '63
Performance of a small rotating substrate holder for vacuum deposition. C. D. Hopkins and others. diags J Sci Instr 41:167-8 Mr '64
Sealing techniques for rotation in vacuum. W. Courtney and others. bibliog diags Astronautics & Aeronautics 2:40-4 F '64
Smart handling fosters smooth flow of polymer. il diag Chem Eng 71:110 O 12 '64
Studies of field emission and electrical breakdown between extended nickel surfaces in vacuum. I. Brodie. il diags J Ap Phys 35:2324-32 Ag '64
Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and in cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64
Ultra-high vacuum mass spectrometry. D. Lichtman. bibliog il diags Res/Develop 15:52-6 F '64
Vacuum-deposited thin-film thermocouples for accurate measurement of substrate surface temperature. L. H. Bullis. diags J Sci Instr 40:592-3 D '63
Vacuum filling of one entrace apparatus. D. R. Ellis. diag J Sci Instr 40:604 D '64
Vacuum insulation of high voltages utilizing dielectric coated electrodes. L. Jedynak. bibliog diag J Ap Phys 35:1727-33 Je '64
Vacuum sizing of plastics pipe. J. L. Vermillion. diag Mod Plastics 42:130-1 O '64

See also

Electric furnaces. Vacuum melting

VACUUM apparatus

Absolute leak. B. R. Sundheim. diag R Sci Instr 35:228-9 F '64
All-glass sorption vacuum trap. F. B. Haller. diags R Sci Instr 35:1356-7 O '64
Apparatus for observing phase transitions of incandescent materials. G. N. Rupert. bibliog diags R Sci Instr 34:1183-7 N '63
Apparatus to measure the thermal conductivity of powders in vacuum from 120 to 350°K. K. Watson and C. A. Bauman. diags R Sci Instr 34:1235-8 N '63
Big stir in vacuum degassing. G. J. McManus. il Iron Age 194:127-34 S 10 '64
Biggest waste loss? could be vacuum intake. F. C. Wilson. Textile World 114:52-4 Ap '64
Car-type vacuum degassing unit goes on-line. il Iron & Steel Eng 41:170 O '64
Carbon chokes gases in steel. G. Taylor. il diag Iron Age 194:60-1 Ag 20 '64
Ceramic-metal sealing techniques for a bakeable, multiple electrical lead-through in metal ultra high vacuum systems. G. Comsa and C. Simionescu. diags J Sci Instr 41:352-3 My '64
Combined sputtering and evaporation plant. il Metallurgia 69:206-7 My '64
Constant-temperature alkali metal reservoir for demountable vacuum systems. R. E. Skinner. diag R Sci Instr 34:1282-3 N '63
Controlled atmosphere fatigue machine. K. U. Snowden. bibliog il diag J Sci Instr 41:470-1 Jl '64
Deposition of tantalum films with an open-ended vacuum system. J. W. Balde and others. bibliog il diag Bell System Tech J 43:127-42 Ja '64
Device to prepare sodium chloride of high reactivity and surface area by vacuum sublimation. R. J. Adams and L. G. Harrison. diag R Sci Instr 34:1410-11 D '63
Ejector vacuum systems. C. F. Sweet. diag Food Eng 36:70-4 Ja '64
Feedthroughs for uhv systems; their research, development and application. H. Schwartz. diags Res/Develop 15:42-4 Ag '64
Hard-to-get-at snow removed by suction. F. Matthews. il Pub Works 95:119-20 S '64
High vacuum bakeable tap. diag Engineer 216:1072 D 27 '63
Improved Knudsen-cell vapor source for vacuum depositions. C. A. Escoffery. il diags R Sci Instr 35:913-14 Jl '64
Indicator/controller programs high-vacuum cycle. A. Gewirtz. il Automation 11:88 Je '64
Inexpensive, nonelectrical, liquid nitrogen, constant level control system for ultrahigh vacuum trapping. J. R. Woodyard and C. B. Cooper. diag R Sci Instr 35:1082 Ag '64
Internal vacuum eases handling. il Food Eng 36:105 Je '64
Jones & Laughlin builds advanced vacuum degasser. Steel 155:51 S 14 '64
Large transparent vacuum melting apparatus. T. J. Neubert and S. Susman. diag R Sci Instr 34:1436-7 D '63
Leak-resistant rotation seal for vacuum applications. F. L. Howard. diags J Res Nat Bur Stand 67C:335-6 O '63
Magnet and vacuum system for Nimrod. il diag Engineer 217:855-6 My 15 '64
Megampere, high vacuum, low inductance current feedthrough. R. S. Lowder and R. W. Waniek. diag R Sci Instr 35:1070-1 Ag '64
Metal microscope and Dewar system for field emission studies. W. R. Savage and F. J. Low. bibliog il diags R Sci Instr 35:848-50 Jl '64
Molten steel carried by a car through vacuum degassing. il Iron Age 194:62-3 S 3 '64
National vacuum symposium, 10th, Boston, Oct. 16-18; abstracts of papers. Phys Today 17:41-4+ Jl '64
New high vacuum rotary feedthrough for liquid nitrogen. P. M. Chirlian. diag R Sci Instr 35:1078-9 Ag '64
New look in vacuum equipment. H. A. Steinherz. il Res/Develop 15:62-3 Mr '64
New technology of iron and steel; vacuum degassing. F. C. Price. diags Chem Eng 71:187-8 S 14 '64
New tools open new fields for electron-beam welding. J. R. King. il diag Am Mach 108:63-5 Ap 27 '64
Nitriding, sintering and brazing by glow discharge. C. K. Jones and S. W. Martin. il diag Metal Prog 85:94-8 F '64
Perfectly constant level liquid nitrogen glass trap for ultrahigh vacuum application. J. R. Woodyard and C. B. Cooper. diag R Sci Instr 35:753-4 Je '64
Preformed brazing rings maintain integrity of vacuum units. il Welding Eng 49:68 My '64
Pseudowindow for use in production of soft ultrahigh vacuum with vacuum ultraviolet and soft X-ray monochromators. N. N. Axelrod. bibliog diag R Sci Instr 35:918-19 Jl '64
Reduction of warm-up rate within a Dewar system by helium desorption. P. D. Gianino. R Sci Instr 35:910 Jl '64
Republic Steel announces plans for vacuum degassing at Chicago. Iron & Steel Eng 41:154 My '64
Simple, bakeable, thin vacuum window. R. A. Tobin. diags R Sci Instr 34:1450-1 D '63
Simple safety interlock stops vacuum upsets. F. J. Krawiec, jr. diag Chem Eng 71:156 Jl 6 '64
Specialization in ceramic-to-metal bonding to create high vacuum seals. il Welding J 43:517-18 Je '64
Sun power from Sunflower; aluminum and silicon-oxide films deposited in same vacuum cycle. L. W. Collins, jr. il Mach 70:95-100 Ja '64

VACUUM apparatus—*Continued*
Trouble shooting vacuum systems with a mass spectrometer. R. P. Ellman. il Res/Develop 15:45-7 Jl '64
Two versions of a sliding bar vacuum lock. A. J. H. Boerboom and others. il diags R Sci Instr 35:301-2 Mr '64
Ultrahigh vacuum system for use with a polarizing spectrometer. J. F. Dettorre and others. bibliog il diags R Sci Instr 35:503-6 Ap '64
Uses laser beam for thin-film evaporation at 2° K. F. L. Bonem. il diag Res/Develop 15:50-2 Je '64
Vacuum brazing of honeycomb panel structures. C. M. Marshall and N. R. Williams. il diag Mach 71:158-61 O '64
Vacuum-cast refractory castables. D. J. Damiano. diags Am Soc C E Proc 90 [ST 5 no 4107]:85-98 O '64
Vacuum degassing; key to better steels. C. R. Weymueller. il diags Metal Prog 86:74-80 S '64
Vacuum degassing unit in operation at National Supply's torrance plant. il Iron & Steel Eng 41:228 S '64
Vacuum fatigue tester. B. Steverding. diag R Sci Instr 35:565-8 My '64
Vacuum-lifting truck cuts unloading time. il Mod Materials Handling 19:69 Ap '64
Vacuum manifold. E. J. Trueblood. diags Water & Sewage Works 111:366-7 Ag '64
Vacuum-spray evaporator. W. Schultz. il diags Food Eng 36:62-3 Ag '64
Vacuum system for microcircuit production. il Engineer 217:317 F 14 '64
Versatile high vacuum rotary feedthrough. H. M. Greenhouse and W. C. Vergara. il diag R Sci Instr 35:129-30 Ja '64
Walking seal for electron-beam welds. il diags Am Mach/Metalworking Manuf 108:90-1 Je 22 '64
What vacuum degassing means to users of steels. Metal Prog 86:81-3 S '64
Where to locate vacuum breakers for air heating coils. J. M. Thompson. diags Heating-Piping 35:140-1 N '63
World's largest impregnator safeguards die-cast aluminum transmission cases. il diag Foundry 91:114-15+ N '63

Testing

Leak detector for vacuum equipment. il Engineering 196:831 D 27 '63
Self-extracting search gas probe for the location of leaks in vacuum apparatus. D. J. Pacey. diag J Sci Instr 41:398 Je '64
Ultrasonic method detects leaks in pressure and vacuum systems. il Safety Maint 128:55-6 Ag '64

VACUUM chambers. See Testing laboratories—Vacuum chambers

VACUUM cleaners
How to specify for top performance. il diag Mod Plastics 41:106-7 Ap '64
Vacuum cleaner base. il Plastics World 22:87 S '64
World's largest vacuum cleaner on New York subways. il diag Comp Air Mag 69:28 Je '64

VACUUM cleaning
Underground vacuum cleaning plant for collieries. il Engineer 218:288 Ag 21 '64

VACUUM containers
See also
Thermos bottles

VACUUM forming. See Molding

VACUUM gages
Calibrating thermal conductivity gauges. J. M. Benson. il Instruments & Control Systems 37:115-17 S '64
Calibrating vacuum gauges below 10^9 Torr. W. Kreisman. il diag Res/Develop 14:58-60 D '63
How to measure vacuum. D. B. Arlidge. il diag Instruments & Control Systems 36:109-11 D '63
International conference on fundamental problems of low pressure measurements; abstracts of papers. Engineering 198:533 O 23 '64
Ionization-type vacuum gauge with electron multiplier output. J. B. Hudson and others. diags R Sci Instr 35:127-9 Ja '64
Ionization vacuum gauge measures absolute pressure up to 1 mm Hg. R. J. Melling. diags Instruments & Control Systems 37:119-21 S '64
Power supply for Penning vacuum gauge. J. Orsula. diag Am J Phys 32:504 Je '64
Reliable d.c.-amplifier for thermocouple vacuum gauges. U. Tallgren and U. Kracht. diags Electronic Eng 36:671-5 O '64
Simple partial pressure gauge. L. Goldstone. bibliog il diags R Sci Instr 35:1265-7 O '64
Some interactions between vacuum gauges. F. T. Worrell. diags R Sci Instr 34:1352-5 D '63
Tube is own vacuum gage. F. Kohler. diags Electronics 37:89-91 Ja 3 '64
Vacuum instrumentation; with tabular listing of manufacturers and instruments. il diags Instruments & Control Systems 37:110-14 S; 113-18 O '64
See also
Ionization gages

VACUUM metallizing. See Metal coating

VACUUM pumps
Air cylinder converted to vacuum pump. W. N. Stanton and G. S. Dillin. il diags Hydraulics & Pneumatics 17:120-1 O '64
Automatic Toepler pump with built-in gas quantity meter. R. Gilissen and others. il diag R Sci Instr 35:855-7 Jl '64
Characteristics of the steam-jet vacuum pump; abstract. L. S. Harris and A. S. Fischer. Combustion 35:24-5 Ja '64
Circulation pump for vacuum systems. C. Eden. diag J Sci Instr 41:572 S '64
Clean up of inert gases in a Penning discharge studied by a tracer technique. K. Kawasaki and others. bibliog il diags J Ap Phys 35:479-82 Mr '64
Cryosorption system for vacuum pumping. Franklin Inst J 277:623-4 Je '64
Developing a chemical adsorption cryopump. J. L. Perry il diag Res/Develop 14:58-9 N '63
Electrostatic plasma containment system and electron motion through grids. R. G. Herb. diags R Sci Instr 35:569-72 My '64
Engineering a ultra high vacuum system for space simulation. B. Kietzman and L. Patrucci. il diag Res/Develop 15:46-9 My '64
How full felt width suction cleaning benefits papermakers. F. J. McGrath. diags Paper Ind 45:663-4 Mr '64
Mechanical vacuum pump cold trap. R. W. Bailey. il R Sci Instr 35:644 My '64
Molecular pumps back up SNAP-8 shaft seals. diag Machine Design 36:14-15 O 22 '64
Reach 1 x 10^{-10} torr with mechanical pumping. G. E. Osterstrom. il diags Res/Develop 15:62-5 S '64
Sputter-ion pumps with thermionic electron injection. E. H. Hirsch. diag J Sci Instr 41:426-30 Jl '64
Sublimation and ion pumping in getter-ion pumps. R. G. Herb and others. bibliog diags R Sci Instr 35:573-7 My '64
Vacuum pump can replace steam jet. I. H. Rolih and R., C. Angell. Marine Eng/Log 69:70-1+ Ap '64
Vacuum pumping with steam jets. L. S. Harris. il diags Res/Develop 15:53-6 Ap '64
Vapour-diffusion vacuum pump. il Engineer 217:320 F 14 '64

VACUUM tube amplifiers. See Amplfiers, Vacuum tube

VACUUM tube voltmeters. See Voltmeters, Vacuum tube

VACUUM tubes
Analogue multiplication with the space-charge-limited surface-channel triode. G. T. Wright. bibliog il Radio & Electronic Eng 28:13-15 Jl '64
Cesium-impregnated inert gas diodes. R. Forman and J. R. Reiss. diags J Ap Phys 35:2885-6 O '64
Choosing an a-c power supply. P. F. Swain. diag Electro-Tech 74:106-8 S '64
Compensated reversed field focusing of electron beams. P. F. C. Burke. bibliog diags IEEE Proc 51:1653-9 N '63
Cylindrical coding tube for 8-digit code. H. Heynisch. bibliog il diags IEEE Proc 51:1536-41 N '63
Electric field excitation of electrons from shallow traps in CdSe thin-film triodes. T. O. Poehler and D. Abraham. J Ap Phys 35:2452-5 Ag '64
Electron tubes for the SD submarine cable system. V. L. Holdaway and others. bibliog il diags Bell System Tech J 43:1311-38 Jl '64
Enetron, a new light source. diag Electronic Ind 23:79 Ap '64
Experiences with solder glass and students. J. G. King. diag Am J Phys 32:473-8 Je '64
Experiments on the origin of moving striations. A. W. Cooper. bibliog il diags J Ap Phys 35:2877-84 O '64
Experiments with a fission-heated plasma diode. P. D. Dunn and others. bibliog il diags Inst E E Proc 110:2285-91 D '63
Fields excited by periodic beam currents in a cavity-loaded tube. F. J. Kriegler and others. diag J Ap Phys 35:1721-6 Je '64

VACUUM tubes—*Continued*

Glow discharges in diodes containing oxide-coated cathodes. M. D. Jones and C. H. B. Mee. bibliog Inst E E Proc 111:1421-2 Ag '64

High efficiency light generator: Enetron. W. H. Long. il diags Electronic Ind 23:73-4 F '64

High-speed pcm coding tube. H. G. Cooper and others. il diags Bell Lab Rec 42:266-72 S '64

IEEE electron devices meeting. Oct. 31-Nov. 1; abstracts of papers. Electronics 36:57-8 N 15 '63

Mechanism of afterglow in neon flashtubes. P. D. Johnson and others. bibliog J Ap Phys 35:1128-30 Ap '64

Mercury-arc valves for high-voltage d.c. transmission. U. Lamm. il diags Inst E E Proc 111:1747-53 O '64

Microwave diodes; a progress report. L. Riebman. il diag Electronic Ind 22:86-8+ N '63

New electron tubes for SD submarine cable systems. V. L. Holdaway and others. il diags Bell Lab Rec 42:226-33 Jl-Ag '64

New gas-filled trigger tube for logical functions. G. Kerr. diags Radio & Electronic Eng 28:207-15 S '64

New hydrogen-filled diode tube. Franklin Inst J 277:294 Mr '64

New poly-anode counting tube, the Polyatron. Y. Hatta and others. bibliog il diags Radio & Electronic Eng 26:383-7 N '63

New semiconductors and tubes. Published in monthly numbers of Radio-electronics

New tubes for color tv. P. E. Sutheim. il diags Radio-Electronics 34:42-3 D '63

One-mc/s bidirectional gas-filled counting tube. K. Apel. bibliog il diags Radio & Electronic Eng 28:147-52 S '64

Plumbicon; camera tube with a photoconductive lead oxide layer. E. F. De Haan and A. G. Van Doorn. il diags SMPTE J 73:473-6 Je '64

Powerful new cw microwave tube. Franklin Inst J 276:453-4 N '63

Progress in microwave power tubes. J. Feinstein. bibliog J Res Nat Bur Stand 68D: 655-6 My '64

Simple cylindrical wire-grid. H. G. Franke. diags J Sci Instr 41:348-50 My '64

Single electron generated current pulse in a vacuum diode. E. Winter and J. Gal. IEEE Proc 52:1271 O '64

Space-charge equations with negative ion emission in collisionless diodes. C. H. Skeen. bibliog J Ap Phys 35:2262-3 Jl '64

Studies of field emission and electrical breakdown between extended nickel surfaces in vacuum. I. Brodie. il diags J Ap Phys 35: 2324-32 Ag '64

Studies of the properties of the hollow cathode glow discharge in helium and neon. D. J. Sturges and H. J. Oskam. bibliog diag J Ap Phys 35:2887-94 O '64

Study of coding with multiple-anode glow discharge tubes. H. E. Seifert. il diags Radio & Electronic Eng 28:201-6 S '64

Superpower triodes. il Electronics 37:32 Jl 27 '64

Superpower tubes; their capabilities and limitations. L. F. Eastman. il Electronics 37: 48-54 Jl 13 '64

Surface-wave resonance phenomena on dielectric tubes. A. L. Cullen and others. bibliog diags Inst E E Proc 111:215-21 F '64

Theoretical current-voltage curve in low-pressure cesium diode for electron-rich emission. C. M. Goldstein. diag J Ap Phys 35:728-9 Mr '64

Tube amplifies light 500,000 times. il diag Electronics 37:80+ Mr 13 '64

Tube is own vacuum gage. F. Kohler. diags Electronics 37:89-91 Ja 3 '64

Tubes. J. Feinstein. Space/Aeronautics 42 no 4:87-8 '64-65

Use of silver chloride seals for cesium vapor devices. A. L. Eichenbaum and others. il R Sci Instr 35:1056-7 Ag '64

Versatile 6BN6. L. G. Sands. il diags Radio-Electronics 35:54-6 Je '64

See also

Amplifiers, Vacuum tube
Cathode followers
Cathode ray tubes
Electron multipliers
Klystron
Magnetron
Multivibrators
Radio detectors
Radio rectifiers
Storage tubes
Television receiving apparatus
Thyratron
X-ray tubes

Ceramic tubes

Attractive alternative at uhf; the ceramic vacuum tube. J. W. Rush, jr. il diags Electronics 37:50-5 Ag 24 '64

Ceramic hydrogen diode withstands hard radiation. Franklin Inst J 277:510-11 My '64

Half-inch ceramic tube delivers 40 watts. il Electronics 36:53 N 22 '63

Longer life for ceramic transmitting tubes. E. H. Marriner. Radio-Electronics 35:52 N '64

R.f. amplifiers for 420 and 1215 mc. with planar ceramic triodes. J. W. Rush. il diags Q S T 48:39-45 My '64

Cold cathode tubes

Cold-cathode gas tubes switch high voltage fast. R. E. Daniels and A. D. Cook. il diag Electronics 37:72-3 Ap 20 '64

Cold cathode tubes and their applications; Brit.I.R.E. symposium, March 16-19; program and abstracts of papers. Radio & Electronic Eng 27:117-24 F '64; diags Ind Electronics 2:284-7 Je '64

Cold-cathode valve binary delay line. D. Q. Mayne. diags Electronic Eng 36:557 Ag '64

Survey of cold cathode discharge tubes. D. M. Neale. bibliog il Radio & Electronic Eng 27:87-97 F '64

Trigger mechanism and sensitivity in cold-cathode tubes. G. F. Weston. bibliog diags Inst E E Proc 111:1546-50 S '64

Voltage stabilizer for cold-cathode tube circuits. A. J. Oxley. diags Electronic Eng 36: 548-9 Ag '64

Control uses

Laser excited by nuclear heat. F. M. Johnson. bibliog diags Nucleonics 22:57-60 Ap '64

Failure

Onset of breakdown at voltages below ionization potential in high-pressure thermionic diodes. R. Forman. bibliog diags J Ap Phys 35:261-4 F '64

Vacuum voltage breakdown as a thermal instability of the emitting protrusion. G. E. Vibrans. bibliog J Ap Phys 35:2855-7 O '64

Industrial applications

Latest developments in high frequency welding; abstract. H. B. Osborn, jr. Automation 11:126-7 My '64

Manufacture

Brazing holds close tolerances in electron tubes. il Metal Prog 86:124+ S '64

Double-glass seal diode. il Mech Eng 86:54 Je '64

Five hundred million valves produced by the Blackburn factory of Mullard ltd.; illustrations with text. Engineer 216:901 N 29 '63

New developments in manufacture of electron tubes. W. H. Kohl. il Metal Prog 85: 83-8 My '64

Measurement uses

Measurements of noise power with the square law dielectric diode. P. Webb and G. T. Wright. J Sci Instr 41:169-71 Mr '64

See also

Volt meters, Vacuum tube

Noise

Effect of scanning speed on the signal/noise ratio of camera tubes. W. F. Schreiber. IEEE Proc 52:217 F '64

Flicker noise in oxide cathodes arising from diffusion and drift of ionized donors. K. M. van Vliet and R. R. Johnson. bibliog J Ap Phys 35:2039-51 Jl '64

Measurement of noise in image orthicon. K. Odagawa. diag IEEE Proc 52:445 Ap '64

Microwave tubes get cheaper, less noisy. J. Froom and others. Electronics 36:52-3 D 13 '63

Minimizing electron tube hum. W. Austin. bibliog diags Electronic Ind 23:83-4+ Je '64

1960-1963 advances in the state-of-the-art of low-noise beam-type microwave tubes. R. W. Peter. J Res Nat Bur Stand 68D: 657-9 bibliog(p658-9) My '64

Noise in Adler tubes. A. Frohlich. IEEE Proc 52:868 Jl '64

Noise in magnetron injection guns. R. P. Wadhwa. diag IEEE Proc 52:79 Ja '64

Traveling-wave-tube noise figures of 1.0 db at *S*-band. J. M. Hammer and E. E. Thomas. IEEE Proc 52:207 F '64

VACUUM tubes—*Continued*

Testing

Development of eddy-current testing techniques for tube inspection. D. Terry. bibliog il diags Radio & Electronic Eng 26:373-82 N '63

Dynamic conductance tube and transistor tester (Eico 667). E. C. Carlson. il diags Radio-Electronics 35:65+ Mr '64

GC electronics automatic tube tester model 36-802. il Radio-Electronics 35:63 Je '64

Stabilizer tube test set. D. T. Smith. diag Electronic Eng 36:260 Ap '64

Test compactrons on your checker. W. G. Eslick. diags Radio-Electronics 35:36-7 My '64

Updating the I-177 surplus tube tester. W. T. Bradley. il diags Q S T 48:21-3 N '64

Valve and transistor characteristic tracer. A. W. Gooder and M. H. N. Potok. il diags Electronic Eng 35:722-5 N '63

Traveling wave tubes

Cutoff frequencies of the dielectrically loaded comb structure as used in traveling-wave masers. S. E. Harris and others. bibliog diags Bell System Tech J 43:437-84 pt 2 Ja '64

Electron beam-plasma interaction in a traveling-wave tube. K. R. U. Weimer and H. Bodt. IEEE Proc 52:965-6 Ag '64

Ferromagnetic plastics as r-f attenuators in traveling-wave tubes. il Electro-Tech 74:134+ Jl '64

Induced forces in annular magneto-fluid dynamic traveling wave devices. J. L. Neuringer. bibliog diag AIAA J 2:267-74 F '64

Investigations of traveling-wave separators for the Stanford two-mile linear accelerator. O. H. Altenmueller and others. bibliog il diags R Sci Instr 35:438-42 Ap '64

Pulse sharpening and gain saturation in traveling-wave masers. E. O. Schulz-DuBois. bibliog Bell System Tech J 43:625-58 Mr '64

Superregenerative backward wave amplifiers for millimeter waves. W. R. Day, jr. il IEEE Proc 52:711-12 Je '64

Traveling-wave masers employing iron-doped rutile. L. C. Morris and D. J. Miller. IEEE Proc 52:410 Ap '64

Traveling-wave-tube noise figures of 1.0 db at *S*-band. J. M. Hammer and E. E. Thomas. IEEE Proc 52:207 F '64

Ultra-low-noise traveling-wave-tube gun with two beam-forming electrodes. A. L. Eichenbaum. diags IEEE Proc 52:613-14 My '64

VALENCE

Fast paper chromatography of different valence states of mercury and antimony. M. Qureshi and M. A. Khan. Anal Chem 35:2050-2 D '63

Photochemical and thermal valence tautomerization of 2,3-diphenylindenone oxide. E. F. Ullman and J. E. Milks. bibliog Am Chem Soc J 86:3814-19 S 20 '64

Photochemical valence tautomerization of 2,4,6-triphenylpyrylium 3-oxide. E. F. Ullman. bibliog Am Chem Soc J 85:3529-30 N 5 '63

See also

Chemical bonds

VALINE

Effect of pyridoxine deficiency upon valine incorporation into tissue proteins of the rat. A. C. Trakatellis and A. E. Axelrod. bibliog J Nutrition 82:483-8 Ap '64

Gramicidin A; primary sequence of valine and isoleucine gramicidin A. R. Sarges and B. Witkop. bibliog Am Chem Soc J 86:1862-3 My 5 '64

Nutrition of salmonoid fishes; isoleucine, leucine, valine and phenylalanine requirements of chinook salmon and interrelations between isoleucine and leucine for growth. R. E. Chance and others. bibliog J Nutrition 83:177-85 Jl '64

VALUATION

See also

Land values

VALUE analysis

Apply value analysis and keep costs down. J. W. Locke. Power Eng 68:60+ Ag '64

Design for value! H. E. Trucks. Tool & Manuf Eng 53:65-8 Ag '64

Design guide to value. H. L. G. Leslie; H. Frick. diags Product Eng 34:80-9 O 28 '63; 35:45-53 Mr 2 '64

Effective value engineering. J. J. Kaufman. flow chart diags Mech Eng 86:21-5 O '64

Engineer can be key to industry profits. M. J. Kittler. il S A E J 72:28-32 Ap '64

How Martin saved $65 million via total value analysis. il diags Steel 154:98-101 Je 8 '64

How you can buy by the numbers; Value rating system. diag Eng N 172:155 Mr 19 '64

Purchasing research in the CPI. H. Fearon. il Chem Eng Prog 60:20-5 Ag '64

Putting value engineering to work in manufacturing. S. Taub. il Tool & Manuf Eng 53:45-7 N '64

Systematic approach to buying; value rating system. diags Water & Sewage Works 111:57-61 Ja '64

Value analysis in package development. H. A. Richards. Drug & Cosmetic Ind 94:198-9+ F '64

Value analysis is design step. J. L. Elliott. Iron Age 193:88 My 28 '64

Value analysts earn as they learn. T. M. Rohan. Iron Age 193:122-3 My 21 '64

Value engineering. Automotive Ind 130:150+ Je 15 '64

Value engineering. W. F. Ruggles and others. il diags Product Eng 34:43-9 D 23 '63; 35:90-6 Mr 30; 91-101 Je 22 '64

Value engineering collars more dollars. R. R. Kay. il Iron Age 192:60 D 19 '63

Value engineering; functional attack on costs. C. C. Van Vechten. Mech Eng 85:35-7 N '63

Value engineering hits contracting. Eng N 172:23-5 My 14 '64

Value engineering in perspective. W. Bowser, jr. il diag Machine Design 36:122-9 My 7 '64

Value engineering job plan eliminates excessive costs. A. D. Laurito. Tool & Manuf Eng 52:61-2 F '64

Value engineering; six techniques illustrated. A. J. Wojtowicz. il diags S A E J 72:62-4 Je '64

Value engineering's profit potential raised. Eng N 173:17-18 N 5 '64

Value rating system, a systematic approach to product buying. Water Works & Wastes Eng 1:54-7 F '64

Value vs. reliability. Ind Quality Control 20:6-10 F '64

What is a value specialist and the job he does? A. C. Flackbert. Naval Eng J 76:543-6 Ag '64

What value engineering means today. R. G. Woodward. il diag Metal Prog 86:7-11 O '64

VALVES

Aerosol vs. pump. Drug & Cosmetic Ind 95:427 S '64

Application of a diaphragm valve for safe glass blowing on apparatus contaminated with radioactive or toxic materials. P. S. Rudolph. diag R Sci Instr 35:1237 S '64

Body of a high pressure valve. A. Wierzbicki. il diags Engineer 217:700-1 Ap 17 '64

Bubble-proof air relief valves. il Engineer 218:144 Jl 24 '64

Building-block valve concept increases versatility of air control. R. Dickey. diags Mach 70:148-50 Je '64

Butterfly type valves profit detergent maker. il Soap & Chem Spec 39:251+ D '63

Clutch/brake double valves. diags Hydraulics & Pneumatics 16:108-9 D '63

Compressed air tapping; stationary or on the run. il diag Tool & Manuf Eng 53:60-1 Jl '64

Control valve sizing. J. R. Grabill. Instruments & Control Systems 37:120-1 F '64

Design features should guide ball valve selection. J. E. Piccardo. il diags Plant Eng 18:126-9 Ag '64

Designing a 5500°F gas valve. J. T. Herbert. il diags Hydraulics & Pneumatics 17:81-4 Ag '64

Designing a pressure intensifier. J. Morando. diags Hydraulics & Pneumatics 16:85-8 D '63

Directional control valves; fluid power component selection charts. Hydraulics & Pneumatics 17:84-9 Ja '64

Droop: nemesis of regulator valves. G. A. Groh. diags Automation 11:78-80 Jl '64

Emptying valves for fluid couplings. J. Bilton. diags Engineer 217:576-7 Mr 27 '64

Engineering a new valve. H. O'Connor and J. Hawley. il diags Product Eng 35:87-9 S 28 '64

Evaluation of a stabilizer charged gas lift valve for multiple-phase flow using graphical techniques. V. L. Forsythe. bibliog diags J Pet Tech 16:Trans 683-98 Je '64; Discussion. 16:Trans 698-700, 1187-93 Je, O '64

Evolution of a free-safe valve. il Pet Management 35:204-5 D '63

Fast-acting valve which operates at temperatures up to 400°C. H. K. Forsen. il diag R Sci Instr 35:1362-3 O '64

VALVES—*Continued*

Fire-safe ball valve result of asbestos-TFE. il Materials in Design Eng 59:172+ Mr '64
Float for an automatic drain valve. C. J. Kirk. diags Engineer 217:1036-7 Je 12 '64
Flow control valves; fluid power component selection charts. Hydraulics & Pneumatics 17:90-3 Ja '64
Flow control valves reduce flow requirement, eliminate pump. R. E. Stauffer. il diags Hydraulics & Pneumatics 17:105-8+ O '64
Free-floating piston controls flow through valve. il diags Product Eng 35:136-7 O 26 '64
Guide to the selection of control valves for slurry and viscous services. B. G. Liptak. diags Chem Eng 71:185-92 Ap 13 '64
Hydraulic systems; selecting control valves. R. Henke. diags Machine Design 36:172-4 Jl 16 '64
Improved greaseless valves. P. R. Sewell. diags Chem & Ind p 1834 N 16 '63
Line-blind valves. J. W. Gates. diags Power 108:76-7 F '64
Lockheed inertia valve resists rear wheel locking. il Engineering 198:341 S 11 '64
Low-pressure safety valve offers poppet plus emergency eutectic and other relief features. il diags Power 107:108 N '63
Lower-cost servo valve easier to service. il diag Product Eng 35:100 Ag 17 '64
Magnet detents air valve. il diags Product Eng 35:98 Ag 17 '64
Martonair pneumatic valves. il diags Engineering 197:50-1 Ja 10 '64
Membrane valve serves as simple level controller. W. G. B. Mandersloot. diag Chem Eng 71:208 Ap 13 '64
New type of valve has no moving parts. il diags Chem Eng 70:116+ D 9 '63
Nomograph for valve flow coefficient. F. Caplan. Water & Sewage Works 111:298 Je '64
Nomograph solves valve sizing formulas for liquid flow; data sheet. F. Caplan. Heating-Piping 36:135-6 Ag '64
Nomograph solves valve sizing formulas for saturated steam; data sheet. F. Caplan. Heating-Piping 36:151-2 S '64
One way to bypass a large sewer; novel plug valve permits overflow, prevents infiltration and tampering. C. A. Manganaro. il plan diag Water Works & Wastes Eng 1:46-7 Jl '64
Pilot valve controls fluid in tube expander. B. Mazis. diag Hydraulics & Pneumatics 17:78-9 Ap '64
Plug valves. il diag Engineering 197:290-1 F 21 '64
Pneumatic valves. D. A. Di Tirro. diags Machine Design 35:137-43 D 12 '63
Pressure control valves; fluid power component selection charts. Hydraulics & Pneumatics 17:84-9 Ja '64
Pressure helps operate solenoid valve. il diags Product Eng 35:99 Ag 17 '64
Pulse-bleed control valves simplify assembly circuit. J. V. Patton and J. N. Magaw. il diags Hydraulics & Pneumatics 17:89 Ap '64
Quick acting shut-off valve. diag Engineering 197:576 Ap 24 '64
Runnerless valves for automated multicavity injection. il Plastics World 22:70 Ap '64
Selection, installation and care of steam pressure reducing valves. W. R. Kelley. il diags Plant Eng 18:136-40 O '64
Self-sequencing valve has magnetic detent. il diags Hydraulics & Pneumatics 17:44 S '64
Shock wave valves. J. C. Muirhead and W. A. Jones. diags R Sci Instr 35:119-20 Ja '64
Simple high pressure valves. S. E. Babb, jr. bibliog diag R Sci Instr 35:917-18 Jl '64
Simplified valve design increases aerosol filling rate. Chem & Eng N 41:50-1 D 2 '63
Sizing butterfly valves for critical flow. H. D. Baumann. il diag I S A J 10:53-6 O '63; Excerpts. Instruments & Control Systems 37:92-3 Mr '64
Sizing butterfly valves for normal service; abstract. W. J. Bestman. Instruments & Control Systems 37:91-2 Mr '64
Sizing pressure regulating valves. C. D. Orth. ASHRAE J 6:72-5 Ap '64
Steam reducing valves and temperature controllers. diags Engineer 217:125-6 Ja 17 '64
Ten inch, 300-lb valve that will handle fluids up to 450 F and a pressure drop of 400 psi. il Product Eng 35:38 Mr 2 '64
Time delay relief valve. P. Barkan and U. R. Tognella. diag Hydraulics & Pneumatics 17:118-19 O '64
Totally enclosed gate valve. G. Munday. diags J Sci Instr 40:603-4 D '63
Ultrasonic instrument locates leaky valves. il Hydraulics & Pneumatics 17:24 O '64
Update your thinking on diaphragm valves. R. H. Calef. diags Chem Eng 71:125-8 O 26 '64
Using pressure-compensated flow control valves. E. E. Dyal. diags Hydraulics & Pneumatics 17:81-3 Ap '64
Valve aids in simulating conditions on moon. Steel 153:69 N 11 '63
Valve design permits sealing despite misalignment. diag Oil & Gas J 62:73 Ag 31 '64
Valve flow characteristics. O. P. Lovett, jr. bibliog diags I S A J 11:65-7 Ap '64
Valve stroking to control water hammer. V. L. Streeter. bibliog diags Am Soc C E Proc 89 [HY 2 no 3452]:39-66 Mr '63; Discussion. 89 [HY 5 no 3656]:161-6 S '63; Reply. 90 [HY 1 no 3783]:269-70 Ja '64
Valves for controlling the vapor jet of liquid propellants. il diag Product Eng 35:79 Je 22 '64
Valves for water based insecticides. J. Pizzurro. Soap & Chem Spec 40:163-4 O '64
Valves; new system with double-safety factor. diags Product Eng 34:27 D 23 '63
Valving enhances standby steam boiler protection. A. Krapek. diags Heating-Piping 36:113-15 Ap '64
Water softener valve. D. Mahlstedt and C. Lyall. il Materials in Design Eng 59:129 Ap '64
What's the reason behind the crazy performance of valves in a tankless water heating system? question and answer. diag Dom Eng 202:64-5 D '63
Why use velocity limits in selecting valves? P. Wing, jr. il diags I S A J 11:53-6 Ag '64
Wide aperture valve for evacuating shock tubes. R. H. Collins and D. H. Napier. diags J Sci Instr 41:567-8 S '64

See also
Automobile engines—Valves
Safety valves
Slide valves
Tire valves

Control

Diverting valves cool burners. C. L. Mamzic and B. L. Johnson. il diag Control Eng 11:94-5 S '64
Lobes and crank pin actuate valves. il diag Product Eng 35:97 S 28 '64
Preformed ceramic cores improve fluid flow control. J. Webb. il diag Space/Aeronautics 41:254-5 Ja '64
Remote control for tanker's valves. il Hydraulics & Pneumatics 17:18 O '64
Remote control of valve actuators. il Engineer 217:797 My 1 '64
Remote-control valve system on modern oil tankers. il Mech Eng 86:70 Jl '64
Remotely controlled valve actuators. il Engineering 197:629 My 8 '64
Single-ported valve body. il Engineer 217:668 Ap 10 '64
Valve actuators. il Engineer 217:148 Ja 17 '64

Electric control

Actuator with Steromotor control. il Engineering 196:752 D 13 '63
K. B. Rexford. bibliog diags Hydraulics & Pneumatics 17:69-72 Mr '64
Power-operated relief valves. il diags Power 108:66-8 Ap '64
Valve positioner. il diag Product Eng 35:66 Mr 16 '64

Maintenance and repair

This air valve operates without air supply. A. J. Chadillon. diags Power 107:142 N '63; Discussion. C. A. Peerman. 108:184 Ap '64

Manufacture

Automatic bar machine cuts production costs 32 per cent. E. Karie. il diags Mach 70:109-11 N '63
Cold-heading produces stronger and lighter-weight valve-spring retainers at lower cost. il Mach 70:97 D '63
Continuous automatic grinding of contoured parts from hardened bar stock. il diags Mach 70:145-7 Ap '64
Electron-beam welding rejuvenates design of down-to-earth products; glove valves. A. W. Young. il Iron Age 194:58-9 Jl 2 '64
N/c joins with line transfer to make versatile machine. R. H. Eshelman. il Iron Age 192:166-8 N 14 '63
Pneumatic production for valve construction. il diag Comp Air Mag 69:28 My '64
Precision lighting aids precision work at Marotta valve corp. R. L. Zahour. il Elec Constr & Maint 63:78-9 Ja '64
Resin clad valves; fluidized bed process. il Plastics World 21:44-5 N '63
Welded stainless tubing cuts valve part production costs. il Steel 155:50-1 Ag 24 '64

VALVES—*Continued*

Standards

Modern approach to design of high-pressure butt-welding valves. E. C. Petrie. Power 108:66-7 Ag '64

VALVES, Hydraulic

Butterfly valves for cooling water systems in large power-stations. il Engineer 217: 759 Ap 24 '64

Butterfly valves for hydro stations, Mattmark, Switzerland. J. F. Petree. il Mech Eng 85:74 N '63

Control valve capacities. D. Probert. Engineering 196:709 D 6 '63

Direction-control valves. D. R. Sweeney. il diags Machine Design 35:75-80 D 12 '63

Fast-operating hydraulic valves actuated from central system. J. P. O'Donnell. il diag Oil & Gas J 62:112-13 F 10 '64

Four pilot-operated check valves control closing speed of plastic molding press. il diags Hydraulics & Pneumatics 17:82-3 Mr '64

Hydraulic flow-control valves. E. A. Di Bartolo. diags Machine Design 35:68-74 D 12 '63

Hydraulic pressure-control valves. J. J. Pippenger. diags Machine Design 35:63-7 D 12 '63

Hydraulic servovalves. D. R. Sweeney and A. H. Delmedge. diags Machine Design 35: 81-8 D 12 '63

Hydraulic valves. il Engineer 216:784 N 8 '63

Navigation locks; navigation lock gates and valves. G. C. Richardson. bibliog il diags Am Soc C E Proc 90 [WW 1 no 3799]:79-102 F '64

Poppet valve stability. J. E. Funk. diags A S M E Trans ser D 86:207-12 Je '64

Servovalves; fluid power component selection charts. Hydraulics & Pneumatics 17:119 Ja '64

Spool valve times hydraulic flow. W. J. Millard. il diags Hydraulics & Pneumatics 17:96-7 My '64

Ten ways to use pilot-operated relief valves. M. J. Quinto and S. G. Taylor. diags Hydraulics & Pneumatics 17:87-9 My '64

Control

Measurements of auto-oscillation in a hydroelectric supply tunnel and penstock system. H. F. Abbott and others. diags A S M E Trans ser D 85:625-30 D '63

Testing

Large facility checks out rocket booster injector valves. R. D. Witter. il diags Control Eng 11:111 Je '64

Two-pressure circuit tests aircraft valves. L. Edwards and T. Geddes. il diag Hydraulics & Pneumatics 17:76-7 Mr '64

VANADATES

Metavanadates scrub manufactured gas; process flowsheet. P. Ellwood. Chem Eng 71: 128-30 Jl 20 '64

Separated rare earth finds commercial use. Chem & Eng N 42:67 N 9 '64

Structure of the decavanadate ion. H. T. Evans, jr. and others. il Am Chem Soc J 86:4209-10 O 5 '64

See also

Sodium vanadate

VANADIUM

Ferrimagnetic garnets containing pentavalent vanadium. S. Geller and others. bibliog J Ap Phys 35:570-2 Mr '64

Kinetics of the reduction of some cobalt(III) complexes by chromium(II), vanadium(II), and europium(II). J. P. Candlin and others. bibliog Am Chem Soc J 86:1019-22 Mr 20 '64

Oxidation of vanadium(IV) by chromium(VI) in acidic solution. J. H. Espenson. Am Chem Soc J 86:1883-4 My 5 '64

Properties of materials: hafnium, thorium, uranium, vanadium, beryllium; wrought; tables. Materials in Design Eng 60:180 Mid-O '64

Vanadium, 1963. B. Burwell. Eng & Min J 165:140-3 F '64

Vapor-deposited superconductive films of Nb, Ta, and V. C. A. Neugebauer and R. A. Ekvall. bibliog il diag J Ap Phys 35: 547-53 Mr '64

Analysis

Catalytic determination of vanadium in water. M. J. Fishman and M. W. Skougstad. bibliog Anal Chem 36:1643-6 Jl '64

Colorimetric detection and spectrophotometric determination of vanadium using a specific reaction. P. L. Sarma. bibliog Anal Chem 36:1076-8 My '64

Spectrophotometric determination of vanadium in ethylene-propylene rubber solutions with 3,3′-diaminobenzidine. A. J. Smith. Anal Chem 36:944-5 Ap '64

Spot test for the detection of vanadium(V). S. G. Tandon and S. C. Bhattacharyya. Anal Chem 36:1378-9 Je '64

Vanadium and nickel test accuracy improves. Oil & Gas J 62:177 Je 22 '64

VANADIUM alloys

Initial susceptibility of ferromagnetic iron and iron-vanadium alloys just above their Curie temperatures. J. E. Noakes and A. Arrott. J Ap Phys 35:931-2 pt 2 Mr '64

New ductile magnetic alloy has highest known remanence; Remendur. Bell Lab Rec 42:102 Mr '64

Preparation of single crystals of V_3Si. E. S. Greiner and H. Mason, jr. il J Ap Phys 35:3058-9 O '64

Superconducting properties of the $(Nb,Ta,V)_3Sn$ system. G. D. Cody and others. diags RCA R 25:338-41 S '64

VANADIUM compounds

Tris(*cis*-1,2-stilbenedithiolato)vanadium(VI) or tris(dithiobenzil)vanadium(0); a novel vanadium complex. J. H. Waters and others. bibliog Am Chem Soc J 86:4198-9 O 5 '64

Analysis

Determination of the stoichiometry of submilligram samples of sodium-vanadium bronzes by instrumental neutron activation analysis. M. N. Soltys and G. H. Morrison. bibliog Anal Chem 36:293-6 F '64

VANADIUM in the body

Vanadium toxicity and distribution in chicks and rats. J. N. Hathcock and others. bibliog J Nutrition 82:106-10 Ja '64

VANADIUM metallurgy

Solvent extraction gains in hydrometallurgy. il Chem & Eng N 42:48-50 Ap 6 '64

VANADIUM ores

Goldmanite, a vanadium garnet from Laguna, New Mexico. R. H. Moench and R. Meyrowitz. bibliog maps Am Mineralogist 49:644-55 My '64

VANADIUM oxides

Effect of vanadium pentoxide on gas-phase combustion; the carbon monoxide-sulphur dioxide-oxygen system. C. F. H. Tipper and B. H. Williams. bibliog J Ap Chem 14:315-24 Ag '64

Equilibrium in the glass-forming system TeO_2-V_2O_5. G. A. Chase and C. J. Phillips. Am Cer Soc J 47:467 S '64

Solvent extraction recovers vanadium from waste stream; process flowsheet. F. A. Seeton. Chem Eng 71:112-14 F 17 '64

VANADIUM pentoxide. See **Vanadium oxides**

VANADIUM steel

Effect of small additions of vanadium on the austenitic grain size, forgeability, and impact properties of steel. L. A. Erasmus. bibliog Iron & Steel Inst J 202:128-34 F '64

VAN DE GRAAFF accelerator. See Accelerators (particles)

VANILLA

FDA standards for vanilla products. Food Tech 18:718 My '64

Analysis

Paper chromatography of monohydroxyphenols in vanilla extract. M. H. Anwar. Anal Chem 35:1974-6 N '63

VAPOR baths. See Baths, Vapor

VAPOR pressure

Device for the stabilization of the vapour pressure above a liquid helium bath. H. M. Gijsman and P. J. Meeusen. diag J Sci Instr 41:56 Ja '64

Estimating vapor pressures; a comparison of equations. D. G. Miller. bibliog Ind & Eng Chem 56:46-57 Mr '64

Mechanism of the vapor lubrication of graphite. P. Cannon. bibliog J Ap Phys 35:2928-9 O '64

New basic form for vapor pressure equations. R. C. Hall. bibliog Can J Chem Eng 42:152-4 Ag '64

Physical foundations in perfumery. L. Appell. bibliog diags Am Perfumer 79:29-41 My '64

Selection, installation and care of steam pressure reducing valves. W. R. Kelley. il diags Plant Eng 18:136-40 O '64

Sodium vapor pressure to 25 atmospheres; data sheet. E. S. Sowa. Nucleonics 21:76-7 O '63

VAPOR pressure—*Continued*

Torsion effusion study of the vapor pressure and heat of sublimation of gallium. Z. A. Munir and A. W. Searcy. bibliog diag Electrochem Soc J 111:1170-3 O '64

Vacuum-freezing and vapor-compression for desalting seawater; process flowsheet. R.R. Bridge. il Chem Eng 71:114-16 Je 22 '64

Vapor pressure measurements at high temperatures using a recording microbalance. P. D. Zavitsanos. diags R Sci Instr 35:1061-3 Ag '64

Vapor pressure nomograph for CO_2 and H_2S over MEA. G. E. Mapstone. Hydrocarbon Process & Pet Refiner 43:196+ My '64

Vapor pressure of magnesium fluoride. R. R. Hammer and J. A. Pask. bibliog diags Am Cer Soc J 47:264-7 Je '64

Vapor pressure of stationary phases over gas chromatographic supports. S. J. Hawkes and J. C. Giddings. bibliog Anal Chem 36:2229-30 N '64

Vapor pressure tables for water. O. C. Bridgeman and E. W. Aldrich. A S M E Trans ser C 86:279-86 My '64

Vapor pressures of Rankine-cycle fluids. G. C. Szego. Nucleonics 21:158 Ag '63

Vapor pressures of ruthenium and osmium. N. J. Carrera and others. bibliog J Res Nat Bur Stand 68A:325-30 My '64

Vapor pressures of solvents and propellant mixtures. L. T. Flanner and R. I. Risacher. diags Soap & Chem Spec 40:108+ Ja '64

VAPORIZATION

Aerosol propellant vaporization. E. C. Burgard. Soap & Chem Spec 40:151-2 Je '64

Analytical applications and construction of long-tube vaporizers. B. D. Ash. diags Anal Chem 36:1363-5 Je '64

Calculation of the partial molal enthalpy of vaporization of a component out of multicomponent mixtures. N. G. O'Brien. bibliog Ind & Eng Chem Fundamentals 3:352-4 N '64

Countercurrent heat exchange with vaporizing immiscible transfer agent. P. Harriott and H. Wiegandt. bibliog diags A I Ch E J 10:755-8 S '64

Easy way to figure equilibrium flash vaporization and true boiling point. M. Van Winkle. bibliog Hydrocarbon Process & Pet Refiner 43:139-42 Ap '64

Growth of (Ga_xIn_{1-x}) As single cystals by vapor phase reaction. R. Sirrine. il Electrochem Soc J 111:750-1 Je '64

Some characteristics of arc vaporized submicron particulates. J. D. Holmgren and others. il Electrochem Soc J 111:362-9 Mr '64

Study of the vaporization of crude oil by carbon dioxide repressuring. D. E. Menzie and R. F. Nielsen. bibliog flow diag diags J Pet Tech 15:Trans 1247-52 N '63

System for vaporizing samples directly in ion source of a mass spectrometer. G. L. Kearns. bibliog diags Anal Chem 36:1402-3 Je '64

Visual and photographic study of the inception of vaporization in adiabatic flow. E. P. Mikol and J. C. Dudley. bibliog il diag A S M E Trans ser D 86:257-61; Discussion. 261-4 Je '64

See also
Evaporation
Plasma jet
Sublimation

VAPORIZATION, Heat of

Estimate physical properties accurately; latent heat of vaporization. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:147-8 Je '64

Estimation of latent heats of vaporization. B. C.-Y. Lu. bibliog Can J Chem Eng 42:123-5 Je '64

Latent heats of vaporization from distillation rate data. J. G. Hanna and S. Siggia. Anal Chem 35:2208-9 D '63

VAPORS

Alternate method for vapor heat capacity. M. S. Kothari and L. K. Doraiswamy. bibliog Hydrocarbon Process & Pet Refiner 43:133-7 Mr '64

Calculation of vapour velocities in plate columns; nomograph. G. Narsimhan. Ind Chem 40:40 Ja '64

Cathode particle vapors in a glow discharge in pulsed diodes. F. T. Worrell and H. A. Pike. J Ap Phys 34:3491-2 D '63

Cesium vapor dispenser. A. L. Eichenbaum and M. E. Moi. diags R Sci Instr 35:691-3 Je '64

Continuous pumping of cesium vapor devices. J. R. Fendley, jr. diags R Sci Instr 35:905-6 Jl '64

Controlling the liquid-vapor interface under weightlessness. D. A. Petrash and E. W. Otto. diags Astronautics & Aeronautics 2:56-9+ Mr '64

Danger, explosive vapors. E. E. Miller. il Mech Eng 85:31-3 D '63

Detection and lifetime of enol-acetone in the photolysis of 2-pentanone vapor. G. R. McMillan and others. bibliog Am Chem Soc J 86:3602-5 S 20 '64

Dielectric susceptibility tensor for an atomic vapor. R. L. Fork. J Ap Phys 35:134-6 Ja '64

Diffusion of Zn into GaAs under the presence of excess arsenic vapor. H. Rupprecht and C. Z. LeMay. bibliog il J Ap Phys 35:1970-3 Je '64

Ellipsometer investigation of vapor adsorption on etched silicon. B. H. Claussen. bibliog Electrochem Soc J 111:646-52 Je '64

Enthalpy values for hypothetical fluids from vapor-liquid equilibrium data. J. R. Welker and others. bibliog A I Ch E J 10:380-2 My '64

Epitaxial growth of GaP by a Ga_2O vapor transport mechanism. C. J. Frosch. bibliog il diag Electrochem Soc J 111:180-4 F '64

Estimate heat capacity for vapors; with nomographs. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:129-32 Mr '64

Estimate physical properties accurately; thermal conductivity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:127-8 Ag '64

Estimate physical properties accurately; viscosity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:146-8 Jl '64

Fluorescence of carbon disulfide vapor. J. Heicklen. bibliog diag Am Chem Soc J 85:3562-5 N 20 '63

Gas chromatograph device detects polar vapors. Chem & Eng N 42:59 Je 8 '64

Improved Knudsen-cell vapor source for vacuum depositions. C. A. Escoffery. il diags R Sci Instr 35:913-14 Jl '64

Influence of alkali-vapor atmospheres on pyrometrically determined temperatures; cesium and potassium. M. Lapp and L. P. Harris. bibliog diag J Ap Phys 34:3622-5 D '63

Influence of solvent vapors on the occurrence of turbidity during color development with the Nessler reagent. R. F. Moore, jr. and D. L. Harris. Anal Chem 36:249-50 Ja '64

Influence of vapor composition on the growth rate and morphology of gallium arsenide epitaxial films. R. E. Ewing and P. E. Greene. il diags Electrochem Soc J 111:1266-9 N '64

Kinetics of dehydrogenation of propane by iodine vapor and the heat of formation of the isopropyl radical. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2773-7 Jl 20 '64

Loss in fracture strength of borosilicate glass in vapors of differing dipole moments. J. H. Lunsford. bibliog Am Cer Soc J 47:309 Je '64

Mathematical solution for the condensation of vapors from noncondensing gases in laminar flow inside vertical cylinders. W. D. Baasel and J. C. Smith. bibliog A I Ch E J 9:826-30 N '63

Measurement of fat autoxidation and browning aldehydes in food vapors by direct vapor injection gas-liquid chromatography. R. G. Buttery and R. Teranishi. bibliog J Agri & Food Chem 11:504-7 N '63

Method of determining saturated liquid and saturated vapor entropy. M. A. Walker. AIAA J 1:2636-8 N '63

New technique for functional group analysis in gas chromatography; syringe reactions. J. E. Hoff and E. D. Feit. il diag Anal Chem 36:1002-8 My '64

Photolysis of $\Delta^{2,5}$-bicyclo[2.2.1]heptadiene in the vapor phase. B. C. Roquitte. Am Chem Soc J 85:3700 N 20 '63

Refrigerant vapor heating-cooling system. O. S. Lieberg. il diag Air Cond Heat & Ven 61:62-4 S '64

Save and use waste vapor from vapor degreasers. Ind Finishing 40:104-5 O '64

Selectivity factor in vapor-phase hydrocarbon oxidation catalysis. J. L. Callahan and R. K. Grasselli. bibliog diags A I Ch E J 9:755-60 N '63

Solubilities of vapours in relatively involatile liquids. G. Burrows and F. H. Preece. bibliog diag J Ap Chem 13:430-43 O '63

Study of the filamentary growth of silicon crystals from the vapor. R. S. Wagner and others. bibliog il diags J Ap Phys 35:2993-3000 O '64

VAPORS—*Continued*
Testing the consistency of vapor-liquid equilibrium data. L. C. Tao. bibliog flow chart Ind & Eng Chem 56:36-41 F '64
Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and in cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64
Thermodynamics of the dehydrogenation of propane by iodine vapor. P. S. Nangia and S. W. Benson. bibliog Am Chem Soc J 86:2770-3 Jl 20 '64
Thermodynamics of the thermal decomposition of acetic acid in the vapor phase. W C. Child, jr. and A. J. Hay. bibliog Am Chem Soc J 86:182-7 Ja 20 '64
Transport of gallium arsenide by a close-spaced technique. P. H. Robinson. bibilog il diag RCA R 24:574-84 D '63
Transport of gallium arsenide in the vapor phase by chemical reaction. R. R. Fergusson and T. Gabor. bibliog diag Electrochem Soc J 111:585-92 My '64
Use of silver chloride seals for cesium vapor devices. A. L. Eichenbaum and others. il R Sci Instr 35:1056-7 Ag '64
Vapor condensation in the mixing zone of a jet. G. M. Hidy and S. K. Friedlander. bibliog il diag A I Ch E J 10:115-24 Ja '64
Vapor condensation on a horizontal tube using Teflon to promote dropwise condensation. C. A. Depew and R. L. Reisbig. bibliog diag Ind & Eng Chem Proc Design 3:365-9 O '64
Vapor deposition of sodium chloride whiskers. E. G. Bylander. il J Ap Phys 35:1988 Je '64
Vapor-liquid equilibrium. G. Scatchard and others. bibliog diags Am Chem Soc J 86:125-37 Ja 20 '64
Vapor-liquid equilibrium data for the benzene-cyclohexane-2-propanol system at 760 mm. of Hg. I. Nagata. bibliog diags Can J Chem Eng 42:82-4 Ap '64
Vapor-liquid equilibrium determination by a new apparatus. S. Yerazunis and others. bibliog diags A I Ch E J 10:660-5 S '64
Vapor-phase dyeing of cellulose acetate. F. Jones and R. Seddon. bibliog il diag Textile Res J 34:373-80 My '64
Vapor-phase synthesis and epitaxial growth of gallium arsenide. N. Goldsmith and W. Oshinsky. bibliog diag RCA R 24:546-54 D '63
Vapor phase vinylation of aliphatic monohydric alcohols. V. A. Sims and J. F. Vitcha. bibliog diag Ind & Eng Chem Product Res & Develop 2:293-6 D '63
Work function of the (110) face of tantalum in a cesium vapor. W. T. Norris. diag J Ap Phys 35:467-9 Mr '64
See also
Condensation
Equation of state
Evaporation
Fumigants
Steam
Vapor pressure
Water vapor

VARACTOR. See Crystal diodes

VARIABLE stars. See Stars, Variable

VARIABLES (mathematics)
Analytic classification and quadriplanar charting of analyses with nine or more components. J. B. Mertie, jr. bibliog diags Am Mineralogist 46:613-28 My '61; Discussion. J. J. Pieterse and G. D. de Kock. 49:808-12 My '64
Characterization of multiple variable linear systems from random inputs. R. M. Angus and L. Lapidus. bibliog diags A I Ch E J 9:810-20 N '63
Continuous foam fractionation; the effect of operating variables on separation. R. B. Grieves and R. K. Wood. bibliog flow diag A I Ch E J 10:456-60 Jl '64
Effect of misclassification on estimated relative prevalence of a characteristic; errors in two variables. A. Keys and J. K. Kihlberg. diag Am J Pub Health 53:1661-5 O '63
Efficient mill experimentation. N. L. Enrick. Textile Ind 127:133-5 N '63; 128:67-9 Ja; 79+ F '64
Modified gaussian distributions for slightly nonlinear variables. M. S. Longuet-Higgins. bibliog J Res Nat Bur Stand 68D:1049-62 S '64
Optimization by a gradient technique. E. S. Lee. bibliog diags Ind & Eng Chem Fundamentals 3:373-80 N '64
Primal-dual method for bounded variables. K. Eisemann. diags Op Res 12:110-21 Ja '64
Second variation test for singular extremals. H. J. Kelley. bibliog AIAA J 2:1380-2 Ag '64
Some variables affecting the rate of crystal growth in aqueous solutions. J. A. Palermo and C. S. Grove, jr. bibliog A I Ch E J 10:351-6 My '64
Systems of one-port linear components containing through-across type drivers. W. A. Blackwell and L. L. Grigsby. Franklin Inst J 278:237-47 O '64
Uncertainties in measurement. R. P. Benedict. Electro-Tech 74:51-3 O '64
Variable-factors theory of bearing capacity. G. C. Y. Hu. bibliog diag Am Soc C E Proc 90 [SM 4 no 3969]:85-95 Jl '64
Zeros of polynomials in several variables and fractional order differences of their coefficients. B. Mond and O. Shisha. J Res Nat Bur Stand 68B:115-18 Jl '64

VARIANCE analysis
Algebraic specification of statistical models for analysis of variance computations. W. J. Hemmerle. Assn for Computing Mach J 11:234-9 Ap '64
Components of variance in a fixed model; problem and reply. C. R. Hicks. Ind Quality Control 20:37+ N '63
Estimate of variations; questions and answers. Ind Quality Control 21:158+ S '64
Revised tables for determining significance of differences. A. Kramer. Food Tech 17:1596-7 D '63

VARIATIONS, Calculus of. See Calculus of variations

VARNISH, Insulating
Assessment of tests for the evaluation of thermal endurance of varnished fabrics. A. G. Day. bibliog il Inst E E Proc 110:2248-56 D '63

VASCULAR system
See also
Arteries

Diseases

Cardiovascular lesions in experimental copper deficiency in chickens. W. W. Carlton and W. Henderson. bibliog il J Nutrition 81:200-8 N '63
Hypertension and cardiovascular abnormalities in starved-refed swine. G. S. Smith and others. bibliog il J Nutrition 82:173-82 F '64

VATS
Stevens inlet vat. R. T. Drummond. diags Paper Ind 46:618-20 O '64

VAULTS
These features are essential in fire-safe vaults. G. M. Betz. il Plant Eng 18:148-9 S '64

VAULTS (architecture)
Contemporary town house uses vaulted roofs. il plans diag Arch Rec 135:54-7 Mid-My '64
Precast concrete toroidal vault. R. R. Bradshaw. il diags Am Concrete Inst J 61:257-64 Mr '64
Precast vaults support a pour; Burndy library, Norwalk, Conn. il plans diags Prog Arch 45:162-5 S '64

VEATCHINE
Total synthesis of *dl*-garryine and *dl*-veatchine. W. Nagata and others. Am Chem Soc J 86:929-30 Mr 5 '64

VECTOR analysis
New method of measuring small radar cross sections by digital vector-field subtraction. P. C. Fritsch and F. E. Heart. diag IEEE Proc 52:628-9 My '64
Remark on the eigenvectors of angular momentum operators. H. A. Buchdahl. bibliog Am J Phys 31:829-34 N '63
Scalar and vector potentials of the infinite sheath helical aerial. T. S. M. Maclean. bibliog diag Radio & Electronic Eng 27:21-5 Ja '64
See also
Linear programming
Tensors

VEGETABLE handling
Optical filters sort fresh produce. V. Harris. il Control Eng 11:114 Je '64
Sanitation in mechanical harvesting and bulk handling of canning tomatoes. G. K. York and others. bibliog Food Tech 18:97-100 Ja '64

VEGETABLES
All-vegetable protein mixtures for human feeding. R. Bressani and others. bibliog J Nutrition 83:209-17 Jl '64
Amount and chemical form of selenium in vegetable plants. J. W. Hamilton and O. A. Beath. bibliog J Agri & Food Chem 12:371-4 Jl '64

VEGETABLES—*Continued*

Compares vegetable costs: fresh-product equivalents of various dehydrates. Food Eng 36:90 F '64

Definition of texture and its measurement in vegetable products. A. Kramer. bibliog Food Tech 18:304-7 Mr '64

General application of near-infrared moisture analysis to fruit and vegetable materials. H. J. Gold. Food Tech 18:586-7 Ap '64

Libby redesigns canning lines for greater flexibility. J. V. Ziemba. il diags Food Eng 36:44-6 F '64

Other vegetables; abstract. J. S. Gill. Chem & Ind p 1300 Jl 18 '64

See also

Asparagus
Peas
Potatoes
Spinach
Sweet potatoes
Tomatoes

Prepackaging

Plastics still gain in produce packaging. il Chem & Eng N 42:36 O 26 '64

Preservation

Delaying spoilage of tomatoes. J. C. Ayres and others. bibliog il Food Tech 18:1210-13 Ag '64

Storage

Effect of postharvest temperature of fresh peas on the quality of the canned peas. K. G. Weckel and others. bibliog Food Tech 18:1207-10 Ag '64

VEGETABLES, Dried

Compares vegetable costs: fresh-product equivalents of various dehydrates. Food Eng 36:90 F '64

Production of tomato powder; abstract. F. Albanese. Chem & Ind p 1299 Jl 18 '64

Stability studies with cooked legume powders. M. M. Boggs and others. Food Tech 18:1618-21 O '64

See also

Onions, Dried

VEGETABLES, Frozen

Exciting breakthrough; freezing sliced tomatoes. il Food Eng 36:56-7 Ja '64

Mobile system freezes on site. il Food Eng 36:96 Ag '64

Significance of coliforms in frozen vegetables. D. F. Splittstoesser and W. P. Wettergreen. bibliog Food Tech 18:392-4 Mr '64

Tear-strip carton for convenience products. A. E. Weber and S. W. Drake. il Food Eng 36:49-51 Mr '64

VEGETARIANISM

Serum vitamin B_{12} and folic acid activity in lactovegetarian and nonvegetarian healthy adult Indians. B. M. Mehta and others. Am J Clinical Nutrition 15:77-84 bibliog(p83-4) Ag '64

VEHICLES

See also

Automobiles
Bicycles
Electric vehicles
Motor buses
Motor trucks
Motor vehicles
Vehicles, Extraterrestrial

VEHICLES, Extraterrestrial

Lunar lifeboat. il Product Eng 35:55-6 O 12 '64

Lunar surface vehicles. il Product Eng 35:69-70 Ag 3 '64

Moon stroller. il diags Product Eng 35:79-80 Je 22 '64

Picture-taking robot would tumble over the moon. il Machine Design 36:8 Mr 26 '64

Role of unmanned systems in lunar exploration. H. A. Lassen and R. A. Park. bibliog il map diags Astronautics & Aeronautics 2:12-19 Mr '64

Vehicle drive for travel on the moon's surface. diags Product Eng 35:51-2 Mr 30 '64

VEHICULAR tunnels. See Tunnels and tunneling—Vehicular tunnels

VELOCITY

Acoustic probe for hypersonic air data sensing. R. R. Berlot. bibliog AIAA J 1:2646-8 N '63

Application of pressure and velocity criteria to the design of a centrifugal-pump impeller and inlet. P. Cooper. bibliog il A S M E Trans ser A 86:181-90 Ap '64

Confirmation of Gambill-Greene straight-flow burnout heat flux equation at higher flow velocity. J. Mayersak and others. il A S M E Trans ser C 86:297-8 My '64

Determination of the density of spherical submicrogram specimens by the terminal velocity method. R. C. Wrigley and C. E. Gleit. bibliog diag Anal Chem 36:307-9 F '64

Effect of gravity on velocity dispersion and amplitude attenuation of plane capillary waves on viscoelastic films. R. S. Hansen. J Ap Phys 35:1983 Je '64

Impact tube size in fluid velocity measurement. I. B. Goldman and J. M. Marchello. bibliog A I Ch E J 10:775+ S '64

Instrument for measuring low fluid velocities. B. R. Clayton and E. G. Farmer. il diags J Sci Instr 40:579-82 D '63

Instrument to measure velocity/electrical conductivity of arc plasmajets. A. E. Fuhs. bibliog il diags AIAA J 2:667-73 Ap '64

Method for accelerating flat plates to high velocity. A. S. Balchan and G. R. Cowan. il diags R Sci Instr 35:937-44 Ag '64

Method for determination of velocity distribution in a thin liquid film. S. L. Persson. AIAA J 2:372-3 F '64; Discussion. 2:1865-6 O '64

Method of measuring the velocity of a continuously flowing plasma. J. A. Cooney. il diag R Sci Instr 35:442-4 Ap '64

Non-Newtonian fluids; tube entrance region flow. E. B. Christiansen. bibliog Chem Eng Prog 60:49-52 Ag '64

Relation between velocity and velocity pressure for air and other gases; reference data. J. K. Brasch. Air Cond Heat & Ven 61:109-10 Ja '64

Shear and velocity distribution in shallow channels. H. Lundgren and I. G. Jonsson. diags Am Soc C E Proc 90 [HY 1 no 3752]:1-21 Ja '64; Discussion. 90 [HY 5 no 4050]:169-75 S '64

Thermal velocity limit to current density in a beam. A. J. Lichtenberg. bibliog diags J Ap Phys 35:315-19 F '64

Tracer-spark technique for velocity mapping of hypersonic flow fields. J. B. Kyser. il diag AIAA J 2:393-4 F '64; Discussion. 2:1517-18 Ag '64

Velocity controlled electrolytic tank field plotter. J. M. Richards and J. C. H. Geisow. bibliog diags J Sci Instr 41:28-33 Ja '64

Velocity distributions in two-dimensional laminar liquid-into-liquid jets in power-law fluids. C. Gutfinger and R. Shinnar. bibliog diags A I Ch E J 10:631-9 S '64

Velocity effects in transverse mode liquid propellant rocket combustion instability. F. H. Reardon and others. bibliog diags AIAA J 2:1631-41 S '64

Velocity of a water-hammer wave in an elastic pipe. A. R. Halliwell. bibliog diags Am Soc C E Proc 89 [HY 4 no 3565]:1-21 Jl '63; Discussion. 89 [HY 6 no 3708]:295-6 N '63; 90 [HY 1 no 3783]:315-17 Ja; [HY 3 no 3911]:333-41 My '64; Reply. 90 [HY 5 no 4050]:149-51 S '64

Velocity profiles of thoria suspensions in turbulent pipe flow. D. M. Eissenberg and D. C. Bogue. bibliog diag A I Ch E J 10:723-7 S '64

Velocity, temperature, and concentration distributions during fiber spinning. R. M. Griffith. diags Ind & Eng Chem Fundamentals 3:245-50 Ag '64

Why use velocity limits in selecting valves? P. Wing, jr. diags I S A J 11:53-6 Ag '64

See also

Acceleration
Electrons—Velocity
Rotation
Ultrasonic waves—Velocity

VELOCITY of light. See Light—Velocity

VENDING machines

Nix-Pik lock for vending and coin-operated machines. il diags Product Eng 35:81 Je 22 '64

Packaging for machine vending. F. J. Serdahely. il Food Eng 36:58-9 F '64

Vending; kwhr plum for utilities. Elec World 161:31-4 My 25 '64

Painting and finishing

New vending machine plant includes well equipped finishing system. J. Nathan. il Metal Finishing 62:100-2 My '64

Painting parts for vending machines. H. Chase. il Ind Finishing 40:50-2+ Jl '64

VENDOR rating system. See Purchasing—Supplier relations

VENEREAL diseases

Current status of venereal disease in New York city; a survey of 6,649 physicians in solo practice. A. C. Gelman and others. bibliog Am J Pub Health 53:1903-18 D '63

See also

Syphilis

VENEZUELA
See also subdivision Venezuela under special subjects, e.g.
Geology
Hydroelectric plants
Mines and mineral resources
Petroleum industry and trade
Roads

VENNESLAND, Birgit
Garvan medal to B. Vennesland. por Chem & Eng N 42:98 F 17 '64

VENTILATION
American industrial hygiene conference, Philadelphia, April 26-30; abstracts of papers. Air Cond Heat & Ven 61:70-1 Je '64
Applying static pressure control in building areas and duct systems. C. J. Busch. il diags Air Cond Heat & Ven 61:56-9 Ap '64
Can we employ ventilating ceilings with confidence? answers. Heating-Piping 36:99-100 Ap; 103-4+ My; 89-90 Ag; 96 S '64
Freeze protection for ventilation and air conditioning symposium, New York, Feb. 11-14. ASHRAE J 6:50-6 Jl '64
International heating, ventilation and air-conditioning exhibition, London, April 20-25. il Engineer 217:789-90, 823-5 My 1-8 '64
Quiet in man's indoor environment. L. L. Beranek. bibliog diags ASHRAE J 6:30-8 Jl '64
Ventilation effectiveness for indoor air cleaning. P. Kranz. bibliog ASHRAE J 5:27-31 S '63; Discussion. P. M. Engle and and R. H. Avery. diag 5:30-3; Reply. 33-5+ D '63
See also
Air conditioning
Air filters
Air pollution
American society of heating, refrigerating and air-conditioning engineers
Cooling
Dust removal
Electric fans
Exhaust systems
Fans, Mechanical
Mine ventilation
Tunnel ventilation
also subdivision Heating and ventilation or Ventilation under special subjects, e.g.
Air raid shelters
Apartment houses
Automobiles
Barns and stables
Chemical laboratories
Churches
College buildings
Factories
Gas appliances
Greenhouses
Hospitals
Laboratories
Library buildings
Motels
Moving picture theaters
Office buildings
Post offices
School buildings
Steam plants
Steel works
Store buildings
Subways

Tables, calculations, etc.

How to size gravity-type roof ventilation. J. D. Constance. Chem Eng 71:156+ Jl 6 '64

VENTILATORS
Annual equipment specification digest; air distribution. il Air Cond Heat & Ven 61:63-4+ Ja '64
Finishing Kich-N-Vent ventilating equipment. J. E. Stalker. il Ind Finishing 40:24-8 Ap '64
Instruments and procedures for testing air distribution systems. J. C. Barrett. diags Air Cond Heat & Ven 61:71-80 Ap '64
Roof venting of industrial fires. il Engineer 217:374-6 F 28 '64
See also
Electric fans

Control

Adapting damper to system. H. W. Alyea and N. J. Janisse. Air Cond Heat & Ven 61:82-4 Mr '64
Matching damper to system by damper characteristic. H. W. Alyea and N. J. Janisse. diags Air Cond Heat & Ven 60:31-3 D '63
Right size damper. H. W. Alyea and N. J. Janisse. Air Cond Heat & Ven 61:43-6 F '64

VENTURA COUNTY, California
See also
Water supply—Ventura County, California

VENTURI flumes
See also
Parshall flume

VENTURI scrubbers
Ejector Venturi scrubber. L. S. Harris and G. R. Haun. il diag Chem Eng Prog 60:100-3 My '64

VENTURI tubes
Consistency of coefficients in small Venturi nozzles. R. H. Hawley. il diags Instruments & Control Systems 37:99-101 Mr '64
Effect of a cavitating Venturi on wave propagation in a duct. L. R. Iwanicki and O. W. Dykema. bibliog diags AIAA J 2:753-5 Ap '64
Scale-up of a Venturi aerator. M. L. Jackson and W. D. Collins. bibliog il diags Ind & Eng Chem Proc Design 3:386-93 O '64
Void fraction measurements in a cavitating Venturi. W. Smith and others. bibliog il diags A S M E Trans ser D 86:265-74 Je '64

VENUS (planet)
Experimental heat-transfer studies of hypervelocity flight in planetary atmospheres. J. S. Gruszczynski and W. R. Warren, jr. bibliog il diags AIAA J 2:1542-50 S '64
Experimental study of radiative transport from hot gases simulating in composition the atmospheres of Mars and Venus. C. S. James. bibliog il diag AIAA J 2:470-5 Mr '64
New evidence of water vapor on Venus. Franklin Inst J 277:622-3 Je '64
Spectrum of shock-heated gases simulating the Venus atmosphere. A. R. Fairbairn. bibliog il AIAA J 2:1004-7 Je '64

VERMICULITE
Occurrence of regularly interstratified chlorite-vermiculite as a weathering product of chlorite in a soil. L. J. Johnson. bibliog il Am Mineralogist 49:556-72 My '64
Vermiculite insulating concrete; pumped and sprayed. C. T. Grimm. il Civil Eng 33:67-9 N '63
Vermiculite, 1963. W. S. Steele. Eng & Min J 165:149 F '64

VERMICULITE institute
Annual meeting, 23d, Chandler, Ariz. March 15-19. Pit & Quarry 56:34+ My '64; Rock Prod 67:144 My '64

VERMILYE medal
Presentation of the Vermilye medal to Thomas B. McCabe and acceptance speech. Franklin Inst J 277:162-72 F '64

VERMONT
See also
Geology—Vermont
Petroleum—Vermont

VERNIERS
Potentiometer features built-in vernier. il Radio-Electronics 35:43 S '64
Vernier tuning improves comfort from heating. R. F. Stephan. diags Heating-Piping 36:104-6 Ag '64

VERNOLIC acid
Lipolysis of trivernolin by pancreatic lipase. J. Sampugna and others. bibliog Am Oil Chem Soc J 41:132-3 F '64
Satisfactory gas-liquid chromatography column for the determination of epoxyoleic acid in seed oils. S. F. Herb and others. bibliog Am Oil Chem Soc J 41:222-4 Mr '64
Vernonia anthelmintica (L.) Willd: extraction of oil or trivernolin from the seed. C. F. Krewson and W. E. Scott. Am Oil Chem Soc J 41:422-6 Je '64

VERNON, California

Water supply

Application of engineering to well construction and development. J. W. Williams. bibliog Am Water Works Assn J 56:899-906 Jl '64

VERRAZANO-NARROWS bridge. See New York (city)—Bridges

VERTEBRATES, Fossil
Tertiary non-marine vertebrates in Alaska; the lack thereof. J. A. Dorr, jr. bibliog maps Am Assn Pet Geologists Bul 48:1198-203 Jl '64

VETERINARY medicine
Aerosol review, 1964: veterinary products Manuf Chem 35:134+ Mr '64
Determination of furaltadone in milk. P. L. Cox and J. P. Heotis. J Agri & Food Chem 11:499-501 N '63
Lambing kit uses aerosols. il Manuf Chem 35:78-9 F '64

VIBRATING reed indicators. See Reed indicators

VIBRATION

Aeroelastic vibration of a steel arch. R. R. Bradshaw. il diags Am Soc C E Proc 90 [ST 3 no 3921]:1-17 Je '64; Discussion. 90 [ST 5 no 4066]:243-4 O '64

Application of air bearings to an electrodynamic vibration standard. T. Dimoff and B. F. Payne. bibliog J Res Nat Bur Stand 67C:327-33 O '63

Application of integral equations to the flexural vibration of a wedge with rotary inertia and shear. H. C. Lee and K. E. Bisshopp. Franklin Inst J 277:327-36 Ap '64

Application of signal flow graphs to vibrating systems. D. J. Sanger. diags Engineer 218:172-5 Jl 31 '64

Axisymmetric nonlinear vibration of circular plates. P. Z. Bulkeley. A S M E Trans ser E 30:630-1 D '63

Breathing vibrations of a partially filled cylindrical tank, linear theory. W. H. Chu. bibliog diags A S M E Trans ser E 30:532-6 D '63

Chemical and vibrational relaxation of an inviscid hypersonic flow. A. D. Wood and others. bibliog diag AIAA J 2:1697-705 O '64

Damping of phonograph styli. B. B. Bauer. diags Audio Eng Soc J 12:210-13 Jl '64

Dissipation of elastic wave energy in granular soils. J. R. Hall, jr. and F. E. Richart, jr. bibliog il diags Am Soc C E Proc 89 [SM 6 no 3698]:27-56 N '63; Discussion. 90 [SM 3 no 3907]:181-3 My; [SM 4 no 3979]:195-7 Jl '64

Effect of mechanical vibrations on fruit damage during transportation with special reference to cling peaches. M. O'Brien and others. bibliog Food Tech 17:1578+ D '63

Effect of third harmonic vibratory force on a linear spring-mass system. C. L. Kirk. diags Roy Aeronautical Soc J 67:799-803 D '63

Free vibration of thin cylindrical shells. V. I. Weingarten. bibliog il AIAA J 2:717-22 Ap '64

Frequency cross-over of simply-supported circular ring segments. F. C. Nelson. diags Franklin Inst J 278:20-7 Jl '64

Frequency-phase method for measuring material damping. G. M. Smith and H. D. Berns. diags Materials Res & Stand 4:225-7 My '64

High-efficiency low-frequency power source for vibration excitation. B. H. Venning. bibliog diags Radio & Electronic Eng 27:55-63 Ja '64

How to correct regulator pulsation and vibration. H. J. Schneider. Gas 39:75-7 D '63

Influence of initial stress on the vibrations of simply supported circular cylindrical shells. A. E. Armenàkas. bibliog AIAA J 2:1607-12 S '64

Insulation exhibition and convention, London, Feb. 25-28. Chem & Ind p570 Ap 4 '64

Kind of hysteretic damping. E. Rosenblueth and I. Herrera. bibliog diags Am Soc C E Proc 90 [EM 4 no 3999]:37-48 Ag '64

Large-amplitude oscillations of oblique panels with an initial curvature. J. L. Nowinski. bibliog diags AIAA J 2:1025-31 Je '64

Large-amplitude vibration and response of curved panels. B. E. Cummings. diags AIAA J 2:709-16 Ap '64

Linear vibration analysis. J. Sklerov. diags Electro-Tech 73:103-9 Je '64

Mechanical, fluid, and gas vibrations; their generation, transmission, and suppression. R. E. W. Harrison. il diags Naval Eng J 75:1023-34 D '63

Mechanism of surface waves generated by a vibrating table roll. K. I. Beitinjaneh. Tappi 47:263-5 My '64

Multiple accelerometer vibration control system. P. Longrigg. il diags Electronic Eng 35:817-21 D '63

Natural frequencies of clamped ring segments; data sheet. I. U. Ojalvo and M. Newman. diags Machine Design 36:219-22 My 21 '64

Natural frequencies of meridional vibration in thin conical shells. R. E. Keeffe. diag AIAA J 2:1825-7 O '64

Natural frequencies of uniform grillages. T. Wah. diags A S M E Trans ser E 30:571-8 D '63

Nature of self-excitation in the flow-induced vibration of flat plates. P. S. Eagleson and others. bibliog diags A S M E Trans ser D 86:599-606 S '64

New light on blasting vibration effects. H. H. White. il Civil Eng 34:61-3 Ap '64

Nondimensional solutions of flows with vibrational relaxation. R. Phinney. bibliog AIAA J 2:240-4 F '64

Nonlinear transverse vibrations of a spinning disk. J. L. Nowinski. bibliog diags A S M E Trans ser E 31:72-8 Mr '64

Nonlinear vibrating system having infinitely many limit cycles. K. Klotter and E. Kreyszig. A S M E Trans Ser E 31:321-4 Je '64

Nonlinear vibration of thin cylindrical shells. D. A. Evensen. bibliog diag AIAA J 1:2857-8 D '63

Nonsimilar normal mode vibrations of nonlinear systems having two degrees of freedom. R. M. Rosenberg and J. K. Kuo. bibliog diags A S M E Trans ser E 31:283-90 Je '64

Normal modes of vibration of certain nonlinear continuous systems. T. Wah. A S M E Trans ser E 31:139-40 Mr '64

Particle damping of a plane acoustic wave in solid propellant combustion gases. D. W. Blair. bibliog AIAA J 1:2625-6 N '63

Predicting fatigue life of structures for random and sinusoidal vibrations; data sheet. J. J. Frank. diag Machine Design 36:203-6 Je 18 '64

Reflections on shock and vibration technology. C. T. Morrow. Machine Design 36:208+ Je 18 '64

Representation of the mechanical damping possessed by rubberlike materials and structures. J. C. Snowdon. bibliog diags Rubber Chem & Tech 37:370-85 Ap '64

Review on vortex streets, periodic wakes, and induced vibration phenomena. A. W. Marris. bibliog diags A S M E Trans ser D 86:185-93; Discussion 193-5; Reply. 195-6 Je '64

Rotating mirror vibration. M. A. Winkler. diag R Sci Instr 35:790-2 Jl '64

Simplified vibration damper problem and its solution. A. W. Morley. diags Roy Aeronautical Soc J 68:565-7 Ag '64

Statistical methods in vibration analysis. R. H. Lyon and G. Maidanik. bibliog diags AIAA J 2:1015-24 Je '64

Thermoelastic dissipation in vibrating plates. J. Tasi. bibliog A S M E Trans ser E 30:562-7 D '63

Transmission matrices for vibration and their relation to admittance and impedance. S. Rubin. bibliog A S M E Trans ser B 86:9-21 F '64

Vibration flow test for cement mortars. S. L. Weinland and L. A. Weinland. bibliog il Materials Res & Stand 4:165-7 Ap '64

Vibration isolation of knife-edge balances. J. A. Macinante and J. Waldersee. bibliog diags J Sci Instr 41:1-6 Ja '64

Vibration method for the elastic constants of small plates. C. D. Bopp. diags R Sci Instr 35:703-7 Je '64

Vibration of towers as related to wind pulses. A. N. L. Chiu and others. bibliog diags Am Soc C E Proc 90 [ST 5 no 4114]:137-60 O '64

Vibrational transfer from sheer buildings to ground. L. S. Jacobsen. bibliog diags Am Soc C E Proc 90 [EM 3 no 3924]:21-38 Je '64

Vibrations of elastic spherical shells. P. M. Naghdi and A. Kalnins. bibliog A S M E Trans ser E 29:65-72 Mr '62; Correction. 31:331 Je '64

Viscoelastic composite curbs noise, cuts fatigue. il Chem Eng 71:40+ Ag 31 '64

See also subdivision Vibration under special subjects, e.g.
Automobiles
Beams and girders
Boilers
Buildings
Compressors
Electric lines
Electronic appartus and instruments
Gas turbines, Aircraft
Instruments
Machinery
Motor vehicles
Oscillations
Piping
Ships
Steam turbines

Measurement

Adapt multi-point recorder for vibration analysis. R. Hantzsch and J. Peters. diag Elec World 161:72 Ap 6 '64

Audible noise and vibration measurement. J. A. Jensen. diags Electro-Tech 74:101+ O '64

VIBRATION—Measurement—*Continued*

Determination of an upper bound of the lowest natural frequency of a star shaped membrane. P. A. Laura. Roy Aeronautical Soc J 68:703 O '64

Determination of the natural frequency of a star-shaped membrane. P. A. Laura. diag Roy Aeronautical Soc J 68:274-5 Ap '64

Dynamic analysis of coplanar crimped elastic filaments. W. D. Freeston, jr. and others. bibliog il diags Textile Res J 33:993-9 D '63

Ground vibration from shallow sub-surface blasts. B. Davies and others. bibliog il diags Engineer 217:553-9 Mr 27 '64

Hybrid cathode follower for vibration pickups. H. M. Nelson. diag J Sci Instr 41:114-15 F '64

International progress on mechanical vibration and shock. Mag of Stand 35:232-3 Ag '64

Measuring the sonic boom and its effect on buildings. C. W. Newberry. il diags Materials Res & Stand 4:601-11 N '64

Mechanical impedance; the language of shock and vibration. S. Levy. il Mag of Stand 35:198-201 Jl '64

Noncontacting, self-calibrating, mechanical-motion- and vibration-measuring instrument by RayData corp. il Sound 2:49-50 N '63

Non-contacting self-calibrating vibration transducer. G. B. Foster. il diag Instruments & Control Systems 36:83-4 D '63

Optical-wedge technique for measuring angular vibration. A. Degenholtz. diag Machine Design 36:167-8 Mr 12 '64

Recording the DT's; portable, battery-powered vibrograph. diag Product Eng 34:75 D 9 '63

Resonance testing of full-scale structures. D. E. Hudson. il diags Am Soc C E Proc 90 [EM 3 no 3923]:1-19 Je '64; Discussion. R. E. Kaplan and L. P. Petak. 90 [EM 5 no 4093]:453-7 O '64

Thumbtack accelerometer for the 1.5-150 kc range. P. Hertelendy and P. Reynard. diags R Sci Instr 35:1305-6 O '64

Use these statistical tools for random vibrations. P. H. Wirsching. diags Product Eng 35:104-9 Je 22 '64

Vibration analysis can keep your plant humming. R. H. Nittinger. diags Chem Eng 71:152+ Ag 17 '64

Vibration measurement in steam-turbine blade development. I. Finbow. il diag Ind Electronics 2:14-15 Ja '64

Vibration measurement on some stages of a 120mw steam turbine. L. E. Cave and others il diags Engineer 218:485-90 S 25 '64

Vibration monitoring equipment for industrial plant. il Ind Electronics 2:68 F '64

Vibration of a 45° right triangular cantilever plate by a gridwork method. R. M. Christensen. bibliog diags AIAA J 1:1790-5 Ag '63; Discussion. 2:1870-1 O '64

See also

Vibroscope

VIBRATION absorbers

Air springs, engine tests, and belt tests. il Comp Air Mag 69:24 Ja '64

Damped vibration absorber as a problem in closed loop control. J. I. James. diags Roy Aeronautical Soc J 68:694-6 O '64

Flexible rubber block couplings. il Engineer 218:69 Jl 10 '64

Isolation systems for gyro test platforms. diags Product Eng 35:63-4 Ag 3 '64

Mechanical, fluid, and gas vibrations; their generation, transmission, and suppression. R. E. W. Harrison. il diags Naval Eng J 75:1023-34 D '63

New designs in shock and vibration protection. R. Butler. diags Electronic Ind 23:164-6+ Je '64

New viscoelastic damping material flattens the resonance curve. il Machine Design 36:12 Ag 13 '64

No shake, rattle, and roar at Woodside's new Beattie plant, thanks to fibrous base pads under the machinery. il Textile Ind 128:117 O '64

Nonlinear aspects of the performance of centrifugal pendulum vibration absorbers. D. E. Newland. bibliog diags A S M E Trans ser B 86:257-63 Ag '64

Try fibrous-base pads for quieter, smoother molding. il Plastics Tech 10:41 Mr '64

Vibration control in oil drilling. il Safety Maint 128:43-4 Jl '64

VIBRATION of molecules. See Molecules—Vibration

VIBRATORS

Automobile vibration techniques. il Engineer 218:140 Jl 24 '64

Dowty Rotol vibration equipment. il diag Automobile Eng 54:57-9 F '64

Equalizer for an electro-magnetic vibrator system employing analogue computing techniques. E. J. Ellis. bibliog il diags Radio & Electronic Eng 27:125-32 F '64

New look at vibratory finishing. W. E. Brandt. il Metal Prog 84:96-100+ N '63

Parts gain controlled finish in continuous vibrator. R. H. Eshelman. il Iron Age 193:86-7 Je 25 '64

Physiological vibrator. il Engineering 198:117 Jl 24 '64

Simple hydraulic vibrator. S. Stockwell. diag Hydraulics & Pneumatics 17:98 S '64

Stabilizing the subsoil by vibro-replacement. il Engineering 198:466 O 9 '64

Vibrators; longest stroke and highest thrust. il Aircraft Eng 36:213 Jl '64

Vibratory deburring improves product reliability. il Mach 70:138-40 My '64

Vibratory feeders and conveyors. A. Musschoot. il diags Mech Eng 86:51-3 S '64

Vibratory finishing goes automatic. T. W. Black. il diags Tool & Manuf Eng 53:53-6 Jl; 72-6 Ag '64

VIBROSCOPE

Meter read-out for vibroscopes. D. D. Snyder and J. K. Marsh. diag R Sci Instr 35:232 F '64

VIDEO tape recording. See Television broadcasting—Program recording

VIDICON. See Television cameras

VIET NAM

See also

Hydroelectric plants—Viet Nam

VINCA

Total synthesis of vincamine. M. E. Kuehne. bibliog Am Chem Soc J 86:2946 Jl 20 '64

Vinca alkaloids; the structures of the oncolytic alkaloids vinblastine (VLB) and vincristine (VCR). N. Neuss and others. bibliog Am Chem Soc J 86:1440-2 Ap 5 '64

VINCAMINE. See Alkaloids

VINYL acetate

Elastomeric thermoplastic ethylene copolymers; Ultrathene. il diags Chem Eng 71:98+ Ap 27 '64

New EVA copolymers. Plastics Tech 10:11 Ap '64

New family of tough, rubber-like plastics. il Materials in Design Eng 59:96-7 My '64

Polyvinyl acetate use to grow nine per cent a year. Chem & Eng N 42:25-6 Mr 23 '64

Analysis

High resolution nuclear magnetic resonance analysis of vinyl acetate copolymers. M. W. Dietrich and R. E. Keller. bibliog Anal Chem 36:2174-7 O '64

Quantitative determination of vinyl acetate content of ethylene-vinyl acetate copolymers by high-resolution nuclear magnetic resonance. H. Y. Chen and M. E. Lewis. Anal Chem 36:1394-6 Je '64

Manufacture

Distillers, British Celanese to make vinyl acetate jointly. Chem & Eng N 42:29 Ja 27 '64

ICI will make vinyl acetate at Wilton. il Chem & Eng N 42:53 Mr 30 '64

Vinyl acetate; Celanese corp. of America. diag Hydrocarbon Process & Pet Refiner 42:238 N '63

VINYL alcohol

Adsorption of polyvinyl alcohols by montmorillonite. D. J. Greenland. bibliog J Colloid Sci 18:647-64 S '63

Dielectric properties of cyanothylated polyvinyl alcohol. L. C. Flowers and D. Berg. bibliog Electrochem Soc J 111:1239-43 N '64

Mill experience using polyvinyl alcohol as a coating binder. G. P. Colgan and J. J. Latimer. il diags Tappi 47:sup 146A-50A Jl '64

Properties of materials; polyvinyl chloride and copolymers; polyvinyl alcohol, butyral and formal; molded; extruded; tables. Materials in Design Eng 60:234-5 Mid-O '64

Wet spinning of high-strength, low-elongation polyvinyl alcohol fibers. M. M. Zwick and C. van Bochove. bibliog il diags Textile Res J 34:417-30 My '64

VINYL chloride

Antifouling afloat. il Plastics World 22:47 O '64

Are we missing a good bet; on plastics. il Power Eng 68:51-2 Ja '64

VINYL chloride—*Continued*
Barrier component; polyvinylidene chloride latex for packaging fresh foods. S. Moss. il Plastics World 22:40-1 Ap '64
Bonding in ceric-ion initiated graft polymers of polyvinyl chloride on cellulose. F. K. Guthrie. bibliog Tappi 46:656-61 N '63
Bonding vinyl-foam protective padding. il Plastics World 22:48-9 Ap '64
Brassylic acid esters as plasticizers for poly (vinyl chloride). H. J. Nieschlag and others. Ind & Eng Chem Product Res & Develop 3:147-9 Je '64
Cast-in textures for vinyls. D. W. Howard and J. O. Markward. diag il Mod Plastics 41:84-6+ N '63
Chlorinated polyethylene as impact modifier for rigid PVC. J. L. O'Toole and others. Mod Plastics 41:149-50+ Mr '64
Compacts for improved molding, extruding of rigid PVC. il Plastics Tech 10:42-4 Mr '64
Cumberland moves up in polyvinyl chloride. il Chem & Eng N 42:28-9 Je 22 '64
Extruded unplasticized vinyl packaging film. R. L. Van Boskirk. Mod Plastics 41:194+ Ag '64
Flat die vinyl film extrusion. G. J. Koch and B. M. O'Rear. il plan Mod Plastics 41: 138+ Je '64
Flexible PVC pipe. il Plastics World 21:113 N '63
For better vinyl products. C. F. Huber and J. D. Farr. bibliog il Mod Plastics 41:91-4+ Ag '64
Guarantee for PVC structural products. R. L. Van Boskirk. Mod Plastics 41:206+ N '63
Incorporation of isobutylene-isoprene copolymer latex in polyvinylidene chloride systems for paper. J. R. Condon and R. E. Nash. il Tappi 47:sup 141A-3A+ Jl '64
Influence of resin on plastisol fusion. A. J. Heinrichs. bibliog Mod Plastics 41:164+ Ap '64
Influence of stearates on thermal degradation of PVC. J. Stepek and Z. Vymazal. bibliog Mod Plastics 41:166+ Mr '64
Lacquer marring by plasticizer migration from PVC. J. B. De Coste. diag Mod Plastics 42:169+ S '64
Magnetizable vinyl. il Mod Plastics 41:102-3 F '64
New method of producing poly(vinyl chloride) flexible foam. K. M. Deal and others. flow chart il Ind & Eng Chem Product Res & Develop 3:209-13 S '64
Oil refineries using more thermoplastic cable; polyvinylchloride. Power Eng 68:36 Ap '64
Plasticization of PVC by polyisoprene SKN-40. V. A. Byl'ev and V. A. Voskresenskii. bibliog Rubber Chem & Tech 37:770-3 Jl '64
Plasticized PVC for high temperature service. I. Phillips. bibliog Brit Plastics 37:261-5, 325-9 My-Je '64
Polyvinyl chloride as a metallographic mounting resin. C. W. Weaver. bibliog il Metallurgia 69:195-6 Ap '64
PVC compositions for matched die moulds. il Brit Plastics 36:690 D '63
PVC covered metal sheet on the move. il Brit Plastics 37:542-5 O '64
PVC glazed greenhouse. il Plastics World 22:40 Je '64
Polyvinyl chloride output at capacity. Chem & Eng N 42:26-7 F 3 '64
PVC poised for sudden spurt in usage. il Can Chem Process 48:51-3 Jl '64
Post-forming rigid PVC shapes. il Plastics Tech 10:42-3 Ag '64
Production and properties of rigid PVC bottles. H. A. Williams. il diags Brit Plastics 37:198-201 Ap '64
Properties of materials; polyvinyl chloride and copolymers; polyvinyl alcohol, butyral and formal; molded, extruded; tables. Materials in Design Eng 60:234-5 Mid-O '64
Protective clothes; PVC coated rayon safeguards men who spray and dust insecticides. il Plastics World 21:56 N '63
Rigid PVC sheet as wall cladding. il Brit Plastics 36:680 D '63
Rising polyvinyl chloride demand attracts petroleum and chemical companies. Oil & Gas J 62:50-1 S 28 '64
Unplasticized calendered PVC film on the move. R. L. Van Boskirk. Mod Plastics 41: 186+ Jl '64
Use of vinyl chloride monomer as a constituent of aerosol propellants. Manuf Chem 35:91-2 Ja '64
Vinyl automotive trim. Plastics Tech 10:53 F '64
Vinyl-by-the-mile replaces monitor sash. D. W. Wegrich. il Plant Eng 18:136-7 Ag '64
Vinyl chloride. Mod Plastics 41:92-4+ Ja '64
Vinyl chloride operation converts to ethylene feed. il Chem Eng 71:112 O 12 '64
Vinyl chloride production switched to ethylene base. K. W. Brooks. il diag Oil & Gas J 62:118-19 O 19 '64
Vinyl coating protects steel windows. il Metal Prog 85:123-4 Mr '64
Vinyl house siding. il Plastics World 22:72-3 Ap '64
Vinyl siding makers gear for battle. il Chem & Eng N 42:26-7 O 19 '64
Why epoxy plasticizers spew. J. W. Little and others. Plastics Tech 9:42-4 N '63

Manufacture

Vinyl chloride monomer; Kureha chemical industry co., Chioda chemical engineering & construction co. diag Hydrocarbon Process & Pet Refiner 42:239 N '63
Vinyl chloride (N.O.C. process); Societe belge de l'azote. diag Hydrocarbon Process & Pet Refiner 42:240 N '63

VINYL compounds
Anionic stereospecific polymerisation of N-disubstituted acrylamides and some vinyl ketones; abstract and discussion. P. R. Thomas. Chem & Ind p 1831 N 16 '63
Esterolytic catalysis of poly-4(5)-vinylimidazole and poly-5(6)-vinylbenzimidazole. C. G. Overberger and others. bibliog Am Chem Soc J 85:3513-15 N 5 '63
Graft polymerization onto cellulose; reactions of sodium cellulosate and alkali cellulose with vinyl monomers. R. F. Schwenker, jr. and E. Pacsu. Tappi 46:665-72 N '63
Grafting mixtures of vinyl monomers onto cellulose. W. H. Rapson and E. Kvasnicka. bibliog Tappi 46:662-4 N '63
Kinetics of anionic polymerization and copolymerization of the vinylnaphthalenes and styrene; the intramolecular charge-transfer complexes. F. Bahsteter and others. bibliog Am Chem Soc J 85:3909-18 D 20 '63
Liquid vinyl molding compound. il Plastics Tech 10:13 Je '64
Mechanism of autoxidation of three vinyl polymers; polypropylene, ethylene-propylene rubber, and poly(ethyl acrylate). A. V. Tobolsky and others. bibliog Am Chem Soc J 86:3925-30 O 5 '64
Multistage process for the synthesis of vinyl chloroacetate. P. J. Paré and others. bibliog Ind & Eng Chem Product Res & Develop 3:239-43 S '64
Optically active vinyl polymers; synthesis of optically active poly-α-olefins from racemic monomers by asymmetric catalysts. P. Pino and others. bibliog Am Chem Soc J 85:3888-90 D 5 '63
Polymerisation of *N*-vinylcarbazole by π-complex-forming electron acceptors. L. P. Ellinger. bibliog Chem & Ind p 1982-3 D 21 '63
Reaction of vinylmercuric iodide with nonhalogen acid. M. M. Kreevoy and R. A. Kretchmer. bibliog Am Chem Soc J 86: 2435-40 Je 20 '64
Rigid vinyls from plastisols. M. R. Whitley and D. L. Valentine. Mod Plastics 41:159-61+ Ja '64
Starch vinylation; determination of optimum conditions by response surface designs. J. W. Berry and others. bibliog Ind & Eng Chem Proc Design 2:318-22 O '63; Discussion. I. Klein and D. I. Marshall. 3: 287-8 Jl '64
Synthetic resins; the backbone of modern finishes; vinyl resins. H. P. Preuss. bibliog il Metal Finishing 61:68-71+ S; 71-7 O; 58-64+ N; 59-65 D '63
Vinyl finishes. L. Heard. Ind Finishing 40: 40+ N '63
Vinyl gaskets. il Plastics World 22:16-17 Je '64
Vinyl isocyanate gives ladder polymers. C. G. Overberger and others. Chem & Eng N 41:33-4 D 30 '63
Vinyl sulphone finishes; abstract and discussion. F. Burkitt. Chem & Ind p587-8 Ap 4 '64
Vinyls. C. W. Bulkley. Machine Design 36: 101-6 S 17 '64

VINYL ethers
End-use evaluation of some copolymers and terpolymers of vinyl ethers of linseed conjugated fatty alcohols. R. H. Dent and others. bibliog Am Oil Chem Soc J 40:713-16 D '63
Evaluation of fatty vinyl ether polymer, and styrenated polymers for metal coatings. B. G. Brand and others. Am Oil Chem Soc J 41:597-9 S '64

VINYL ethers—*Continued*

Reaction of divinyl ethers with cotton. D. M. Jones and N. F. Wood. Chem & Ind p2009-10 D 28 '63

Vapor phase vinylation of aliphatic monohydric alcohols. V. A. Sims and J. F. Vitcha. bibliog diag Ind & Eng Chem Product Res & Develop 2:293-6 D '63

Vinyl ethers of diethylene glycol. R. L. Zimmerman and others. bibliog flow sheet Ind & Eng Chem Product Res & Develop 2: 296-303 D '63

Vulcanization of poly(vinyl alkyl ethers) with dicumyl peroxide and sulfur. J. Lal and J. E. McGrath. bibliog Rubber Chem & Tech 36:1159-72 O '63

VINYL fluoride

Fluorine-bearing films get set for bigger markets. il Chem Eng 71:90-1 My 11 '64

Structure of vinyl fluoride-trifluoromethyl iodide telomers. T. J. Dougherty. bibliog Am Chem Soc J 86:460-3 F 5 '64

VINYL group

Cis-trans isomerization in vinyl radicals; gas phase radical-chain addition of hydrogen bromide to propyne. P. S. Skell and R. G. Allen. bibliog Am Chem Soc J 86:1559-60 Ap 20 '64

VINYL halides

Stereospecific route to *trans-* and *cis-* 1,2-vinylenebis(diphenylphosphine). A. M. Aguiar and D. Daigle. bibliog Am Chem Soc J 86:299-300 Je 5 '64

VINYL lithium

Reaction of vinyllithium with tetraphenylphosphonium bromide and the formation of phosphinemethylenes by RLi addition to vinylphosphonium halides. D. Seyferth and others. bibliog Am Chem Soc J 86:307-8 Ja 20 '64

VINYL pyridine

Redox-initiated polymerisation of *N*-vinylcarbazole and 4-vinylpyridine by metal ions. C. H. Wang. Chem & Ind p751-2 My 2 '64

Vinylpyridine rubber (PBR)-filler interactions. W. F. Brucksch, jr. bibliog diag Rubber Chem & Tech 36:975-87 O '63

VINYLIDENE chloride. See Dichloroethylene

VIOLENCE

Effects of observing violence. L. Berkowitz. il diags Sci Am 210:35-41 F '64; Discussion. 210:8 Je '64

VIRGINIA

See also

Coal mines and mining—Virginia

Hydroelectric plants—Virginia

Petroleum products pipe lines—Virginia

VIRIAL coefficients

Generalized virial equation of state derived from experimental data. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:625-31 S '64

Second and third virial coefficients for hydrogen. R. D. Goodwin and others. bibliog J Res Nat Bur Stand 68A:121-6 Ja '64

Virial coefficients for argon, methane, nitrogen, and xenon. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:621-5 S '64

VIROALLOSECURININE. See Alkaloids

VIROSECURININE. See Alkaloids

VIROSINE. See Alkaloids

VIRUSES

Air sampling in viral respiratory disease. M. S. Artenstein and F. C. Cadigan, jr. bibliog Archives Environmental Health 9:58-60 Jl '64

Attenuated polioviruses in sewage. S. Kelly and W. W. Sanderson. bibliog WPCF J 36: 905-13 Jl '64

Contamination of water by viruses. D. M. McLean. bibliog Am Water Works Assn J 56:585-91 My '64

Correlation of coliform and fecal streptococcus indices with the presence of salmonella and enteric viruses in polluted seawater and shellfish; abstract. L. W. Slanetz and others. WPCF J 36:310-11 Mr '64

Defective cancer virus; the Rous sarcoma virus is uniquely efficient in producing tumors. R. Rubin. il diags Sci Am 210:46-52 Je '64

Epidemiologic study of diarrhea in an alien student population in Cairo, Egypt. J. E. Banta and others. bibliog Am J Pub Health 54:940-6 Je '64

Epidemiological aspects of Coxsackie and Echo virus infections in tropical areas. J. P. Fox. bibliog Am J Pub Health 54:1134-42 Jl '64

Reovirus infections in children and young adults. F. M. El-Rai and A. S. Evans. bibliog Archives Environmental Health 7:700-4 D '63

Sensitivity of grivet monkey kidney cell line BS-C-1 for propagation and isolation of certain human viruses. N. J. Schmidt and others. bibliog Am J Pub Health 54: 1522-30 S '64

Symposium on applied virology, Boca Raton, Florida, Nov. 30-Dec. 2; with program and abstracts of papers. Ind Med 33:701-18 O '64

Virus-like particles offer new leads to studies of leukemia. il Chem & Eng N 42:40-2 O 19 '64

See also

Arboviruses

Hepatitis virus

Newcastle disease

VIRUSES, Plant

Control of algae with viruses. R. S. Safferman and M. E. Morris. bibliog il Am Water Works Assn J 56:1217-24 S '64

See also

Tobacco mosaic virus

VISCOELASTICITY. See Elasticity

VISCOMETERS. See Viscosimeters

VISCOPLASTICITY. See Plasticity

VISCOSE

Importance of small particles in tire yarn viscose. K. L. Gray and others. bibliog Tappi 46:735-9 D '63

VISCOSIMETERS

Calibration of kinematic viscometers. L. A. Holcomb. bibliog il diags Instruments & Control Systems 37:109-15 F '64

Capillary viscometer for non-Newtonian liquids. A. Ram and A. Tamir. bibliog diags Ind & Eng Chem 56:47-53 F '64

Concentric cylinder viscometer for the measurement of flow birefringence and viscosity in concentrated polymer solutions. A. Kaye and D. W. Saunders. bibliog diags J Sci Instr 41:139-44 Mr '64

High shear capillary rheometer. G. G. Zahler and G. R. Murfitt. il diag Brit Plastics 36: 698-701 D '63

Improved restrained sphere viscometer. J. E. Fenstermacher and R. J. Ryder. bibliog diag Am Cer Soc Bul 43:136-9 F '64

Limitations on measuring flow rates of polyethylene and ethylene copolymers by extrusion plastometer. A. A. Harban and R. M. McGlamery. bibliog diag Materials Res & Stand 3:906-9 N '63

Methods of predicting the processing characteristics of rubber and plastics. A. D. Varenelli. bibliog diags Wire & Wire Prod 39:1598-603+ O '64

Predicting the transfer forming characteristics of butyl using the Mooney viscometer. J. F. Quirk and H. F. Minter. il diags Rubber Age 95:251-5 My '64

Rheological measurements on polymer melts using very small samples. J. J. Benbow and P. Lamb. il diags J Sci Instr 41:203-5 Ap '64

Rheological properties of two unvulcanized rubber compounds as determined on an extrusion and a rotational viscometer. F. E. Devine and J. A. Ross. bibliog il Rubber Chem & Tech 37:491-502 Ap '64

Rheological study of high-solids calcium carbonate slurries using high-shear rotational viscometers. C. W. Leaf and I. C. MacGugan. il Tappi 47:162-7 Mr '64

Vibrating wire viscometer. J. T. Tough and others. diags R Sci Instr 35:1345-8 O '64

Viscurometer, an instrument to assess processing characteristics. A. E. Juve and others. bibliog il diags Rubber World 149:42-9 D '63; Same. Rubber Chem & Tech 37:434-45 Ap '64

VISCOSITY

Approximate degrees of polymerization of cellulose esters from intrinsic viscosities. L. B. Genung. bibliog Anal Chem 36:1817-21 Ag '64

Calculating viscosities of reservoir fluids from their compositions. J. Lohrenz and others. bibliog flow sheet J Pet Tech 16:Trans 1171-6 O '64

Computer calculation of pressure drop. P. Taylor. il Chem Eng Prog 60:67-70 Ap '64

Convert viscosity with these nomographs. R. L. Peters. Hydraulics & Pneumatics 17:118-19 My '64

Correlation of the viscosity of light paraffin hydrocarbons and their mixtures in the liquid and gaseous regions. J. G. Giddings and R. Kobayashi. bibliog J Pet Tech 16: Trans 679-82 Je '64

VISCOSITY—*Continued*

Design considerations for pumping viscous liquids. D. Meier. diags Heating-Piping 35: 134-9 N; 108-13 D '63

Developments in elasto-hydrodynamic lubrication. A. W. Crook. bibliog il diags Inst Pet J 49:295-304; Discussion. 304-7 O '63

Dynamic stability of rotating shafts in viscous fluids. W. H. Walston and others. bibliog il diags A S M E Trans ser E 31: 291-9 Je '64

Effect of liquid viscosity in two-phase vertical flow. A. R. Hagedorn and K. E. Brown. bibliog diags J Pet Tech 16:Trans 203-10 F '64

Effect of piperidine on rubber solutions. A. Soininen and others. bibliog Rubber Chem & Tech 37:477-85 Ap '64

Effect of surface active agents on the stability of falling liquid films. S. Whitaker. bibliog diags Ind & Eng Chem Fundamentals 3:132-42 My '64

Effect of viscosity on the internal deactivation modes of the triplet state. S. J. Ladner and R. S. Becker. Am Chem Soc J 86: 4205-6 O 5 '64

Einstein viscosity-concentration relationship; application to true solutions of the large spherical molecule tetrakis (trimethylsilyl) methane. R. L. Merker and M. J. Scott. bibliog J Colloid Sci 19:245-51 Mr '64

Estimate physical properties accurately; viscosity of vapors and liquids. F. E. McKelvey. Hydrocarbon Process & Pet Refiner 43:146-8 Jl '64

Flow of viscous fluids over weirs. E. W. Slocum. diag Can J Chem Eng 42:196-200 O '64

General relationships for polymer-petroleum oil blends. W. A. Wright and W. W. Crouse. bibliog Ind & Eng Chem Product Res & Develop 3:153-8 Je '64

Guide to the selection of control valves for slurry and viscous services. B. G. Liptak. diags Chem Eng 71:185-92 Ap 13 '64

High viscosity suspensions. D. C. Chappelear and K. R. Nickolls. bibliog Chem Eng Prog 60:45-9 Ag '64

Hypersonic viscous drag effects on blunt slender cones. J. D. Whitfield and B. J. Griffith. bibliog il diags AIAA J 2:1714-22 O '64

Improving the paste viscosity of dried, gelatinised wheat flour. G. H. Edwards. Chem & Ind p 1428-9 Ag 8 '64

Influence of channel curvature on flow, pressure distribution, and power requirements of screw pumps and melt extruders. M. L. Booy. bibliog diags A S M E Trans ser B 86:22-30 F '64

Initial instability of a viscous fluid interface. W. E. Ranz and W. M. Dreier, jr. bibliog il diags Ind & Eng Chem Fundamentals 3:53-60 F '64

Intrinsic viscosity-molecular weight relationship for *cis*-1,4-polyisoprene. W. H. Beattie and C. Booth. bibliog Rubber Chem & Tech 36:1035-41 O '63

Magnetohydrodynamic hypersonic viscous flow past a blunt body. M. C. Smith and C. S. Wu. diags AIAA J 2:963-5 My '64

New viscosity index for 100 and above; nomograph. Hydrocarbon Process & Pet Refiner 43:141-2 My '64

Non-Newtonian viscosity of polybutadiene solutions. G. R. Seely. bibliog A I Ch E J 10:56-60 Ja '64

Photomechanical law for stereospecific polybutadiene. H. Becker and H. Hamilton. il diag J Ap Phys 35:1651-2 My '64

Prediction of the viscosity of nonpolar binary gaseous mixtures at atmospheric pressure. M. R. Strunk and others. bibliog A I Ch E J 10:483-6 Jl '64

Prevent loss of solvent; keep viscosity right. Ind Finishing 40:98-9 My '64

Pumping non-Newtonian fluids. G. E. Alves. bibliog Chem Eng Prog 60:39-40 Ag '64

Solids vs viscosity in finishing materials. K. G. Meades. Ind Finishing 40:102-3 Ag '64

Solutions of equations $\Psi xx+{}^{1}/_{x}\Psi x+Kx^{n}e^{\Psi}=0$. E. A. Kearsley. bibliog J Res Nat Bur Stand 67B:245-7 O '63

Sophomore-laboratory experiment on the viscosity of air. F. Oppenheimer. il diag Am J Phys 32:526-8 Jl '64

Stability of a viscous flow between two rotating coaxial cylinders. Y. S. Yu. bibliog Franklin Inst J 277:140-9 F '64

Stirrer speed remains constant despite viscosity changes. Chem & Eng N 42:46 Je 29 '64

Structure of borosilicate and borogermanate melts at 1300°C; a viscosity and density study. E. F. Riebling. bibliog Am Cer Soc J 47:478-83 O '64

Temperature limitations of stationary phases in gas chromatography. S. J. Hawkes and E. F. Mooney. bibliog Anal Chem 36:1473-7 Jl '64

Viscosities of cellulosic polyelectrolytes in organic solvents containing potassium iodide. M. E. Rowley and E. K. Gruschow. Anal Chem 36:616-18 Mr '64

Viscosity and solubilization studies on weak anionic polysoaps in nonaqueous solvents. K. Ito and Y. Yamashita. bibliog J Colloid Sci 19:152-64 F '64

Viscosity and solubilization studies on weak anionic polysoaps in water; effect of the counter-ion. K. Ito and others. bibliog J Colloid Sci 19:28-39 Ja '64

Viscosity correlation for light hydrocarbon systems. A. L. Lee and others. bibliog A I Ch E J 10:694-7 S '64

Viscosity correlations for nonpolar dense fluids. K. E. Starling and R. T. Ellington. bibliog A I Ch E J 10:11-15 Ja '64

Viscosity of material changes when it cools. Ind Finishing 40:80-1 Ag '64

Viscosity of oil-refrigerant mixtures at evaporator conditions. H. M. Parmelee. ASHRAE J 6:46 O '64

Viscosity of partially ionized gaseous cesium. C. A. Robinson and I. R. McNab. bibliog J Ap Phys 35:1742-5 Je '64

Viscosity of polar substances in the dense gaseous and liquid regions. L. I. Stiel and G. Thodos. bibliog A I Ch E J 10:275-7 Mr '64

Viscosity of small particle, electrolyte- and soap-deficient synthetic latex gels. C. F. Fryling. bibliog J Colloid Sci 18:713-32 O '63

Viscosity of superheated steam up to 275 deg C.; a refined determination. J. Kestin and P. D. Richardson. bibliog A S M E Trans ser C 85:295-302 N '63

Viscosity of synthetic latex gels. J. G. Brodnyan and E. L. Kelley. J Colloid Sci 19:488-90 Je '64

Viscosity reduction of cellulose esters in aliphatic acid-anhydride solution with free and combined sulfuric acid catalyst. C. J. Malm and others. bibliog Tappi 47:533-9 S '64

Viscosity-temperature-pressure relationship of lubricating oils and its correlation with chemical constitution. C. J. A. Roelands and others. bibliog A S M E Trans ser D 85:601-7; Discussion. 607-8; Reply. 608-10 D '63

Viscous and boundary effects on virtual mass. N. L. Ackermann and A. Arbhabhirama. diag Am Soc C E Proc 90 [EM 4 no 4014]: 123-30 Ag '64

Viscous and nonviscous nonequilibrium nozzle flows. J. J. Brainerd and E. S. Levinsky. bibliog diags AIAA J 1:2474-81 N '63

Viscous flow and flow temperature of polymers. T. I. Sogolova and others. bibliog Rubber Chem & Tech 37:627-9 Jl '64

Viscous flow around fluid spheres at intermediate Reynolds numbers. A. E. Hamielec and A. I. Johnson. bibliog Can J Chem Eng 40:41-5; 41:246-51 Ap '62, D '63

Viscous fluid flow under the influence of a resonant acoustic field. K. R. Purdy and others. bibliog il diags A S M E Trans ser C 86:97-106 F '64

Viscous interaction effects on a static pressure probe at $M=6$. W. Behrens. bibliog diags AIAA J 1:2864-6 D '63

Viscous jets from nonnarrow orifices. A. Pozzi. bibliog AIAA J 2:949-51 My '64

Which oil extends EPT rubbers best? W. G. Whitehouse and others. Hydrocarbon Process & Pet Refiner 43:235-8 S '64

See also
Plasticity
Prandtl number
Rheology
Surface tension

Measurement

Marshmallows: viscosity and elasticity. P. J. Tiemstra. bibliog il diags Food Tech 18:921-7 Je '64

Techniques for p-v-t- measurements. R. T. Ellington and B. E. Eakin. bibliog il diags Chem Eng Prog 59:80-8 N '63

Two instruments for measuring the low-shear viscosity of polymer melts. R. M. McGlamery and A. A. Harban. bibliog il diags Materials Res & Stand 3:1003-7 D '63

Viscometric tests of excluded volume theories. G. C. Berry and T. G. Fox. bibliog Am Chem Soc J 86:3540-4 S 5 '64

VISCOSITY—Measurement—*Continued*

Viscosities in silicate slag systems. P. M. Bills. bibliog Iron & Steel Inst J 201:133-40 F '63; Discussion. 202:221-4 Mr '64

Viscosity of a standard soda-lime-silica glass. A. Napolitano and E. G. Hawkins. bibliog il diags J Res Nat Bur Stand 68A:439-48 S '64

See also

Viscosimeters

VISCOSITY index. See Lubricating oils—Viscosity index

VISCUROMETER. See Viscosimeters

VISES

Fixture holds bearing shells in bench vise. M. H. Day. diag Am Mach/Metalworking Manuf 107:154 N 11 '63

VISIBILITY

Night visibility for opposing drivers with high and low headlight beams; abstract. R. N. Schwab. Illum Eng 59:584-5 S '64

100-ft barrier. G. B. Litchford. bibliog diags Astronautics & Aeronautics 2:58-65 Jl '64

Visibility and illumination variables in roadway visual tasks. H. R. Blackwell and others. bibliog il diags Illum Eng 59:277-308 My '64

Visibility distance as affected by roadway lighting parameters; abstract. G. G. Bonvallet and others. il Illum Eng 59:583-4 S '64

VISION. See Sight

VISITORS

Foreign visitors get first-hand report on how a U.S. dye firm is run. il Am Dyestuff Rep 53:404+ My 25 '64

Planning advice for hosts and visitors. M. A. Williamson. Res/Develop 15:57-8 Ap '64

VISUAL instruction

New method visual aids preparation. R. H. Sullivan. il Pub Works 95:188 Je '64

Preparing slides for lecture use. Food Tech 18:27+ Ja '64

See also

Moving pictures in education

Slide films

VISUAL perception. See Perception

VISUAL pigments. See Retina

VITAL statistics

Use of vital records for blindness research. I. D. Goldberg and others. bibliog Am J Pub Health 54:278-85 F '64

See also

Diseases—Statistics

Infant mortality—Statistics

Mortality—Statistics

VITAMINS

Amino-acid and vitamin contents of bombacopsis glabra kernels. R. J. Abbott and others. bibliog Chem & Ind p 1390-1 Ag 1 '64

Enrichment of lime-treated corn flour with proteins, lysine and tryptophan, and vitamins. R. Bressani and E. Marenco. bibliog J Agri & Food Chem 11:517-22 N '63

Fortschritte der chemie organischer naturstoff. generalregister I-XX, 1938-1962 and vol. XXI. L. Zechmeister, ed. Review, by C. A. Finch. Chem & Ind p 1793-4 O 24 '64

Preservation of fresh unfrozen fishery products by low-level radiation; effects of radiation pasteurization on amino acids and vitamins in clams. R. O. Brooke and others. bibliog Food Tech 18:1060-4 Jl '64

Studies on a spray-dried infant food based on peanut protein isolate and full-fat soy flour and fortified with DL-methionine and certain vitamins and minerals. S. R. Shurpalekar and others. bibliog flow diag il Food Tech 18:898-906 Je '64

Vitamin content and amino acid composition of some African game animals. I. Mann. bibliog J Agri & Food Chem 12:374-6 Jl '64

See also

Food, Enriched

Analysis

Gas-liquid chromatography of fat soluble vitamins. K. K. Carroll and D. C. Herting. bibliog Am Oil Chem Soc J 41:473-4 Jl '64

Vitamin A

Absorption preformed vitamin A from ligatured poultry intestinal sections. T. E. Shellenberger and others. bibliog J Nutrition 82:99-105 Ja '64

Action of vitamin A on liver homogenate oxidation of tricarboxylic acid cycle intermediates. H. F. DeLuca and others. bibliog J Nutrition 81:383-6 D '63

Apo-carotenal, a potent color. G. K. Parman and B. Borenstein. Food Eng 36:77-8 My '64

Colorimetric determination of vitamin A and its derivatives with trifluoroacetic acid. R. E. Dugan and others. bibliog Anal Chem 36:114-17 Ja '64

Corrections for background in spectrophotometry using difference-in-absorbance values; application to vitamin-A. J. B. Wilkie. bibliog Anal Chem 36:896-900 Ap '64

Effect of dietary α-tocopherol on protein metabolism in vitamin A-deficient rats. O. A. Roels and others. bibliog J Nutrition 84:161-6 O '64

Effect of stress from high protein diets on vitamin A metabolism in chicks. G. S. Stoewsand and M. L. Scott. bibliog il J Nutrition 82:188-96 F '64

Effect of thyroxine, thiouracil and ambient temperature on the utilization of vitamin A by vitamin A-deficient rats. T. A. Anderson and others. bibliog J Nutrition 82:457-62 Ap '64

Effect of vitamin A and vitamin A acid on cerebrospinal fluid pressure and blood and liver vitamin A concentrations in the pig. E. C. Nelson and others. bibliog J Nutrition 82:263-8 F '64

Effects of high levels of dietary vitamin A acetate on tissue tocopherol and some related analytical observations. W. J. Pudelkiewicz and others. bibliog J Nutrition 84:113-17 O '64

Gas liquid chromatography of retinol (vitamin A) derivatives. P. E. Dunagin, jr. and J. A. Olson. bibliog Anal Chem 36:756-9 Ap '64

In vitro destruction of vitamin A by abomasal and ruminal contents. F. J. Klatte and others. bibliog J Agri & Food Chem 12:420-1 S '64

Influence of high protein diets on vitamin A metabolism and adrenal hypertrophy in the chick. G. S. Stoewsand and M. L. Scott. bibliog J Nutrition 82:139-44 Ja '64

Nutrient content of variety meats; effects of cooking on vitamin A, ascorbic acid, iron, and proximate composition. L. Kizlaitis and others. Food Tech 18:103-4 Ja '64

Rat liver storage of vitamin A from fortified nonfat dried milk. R. A. Rasmussen and others. bibliog J Agri & Food Chem 12:413-14 S '64

Vitamin A activity of acidulated soybean soapstocks in chicks. P. Budowski and others. bibliog Am Oil Chem Soc J 41:441-5 Je '64

Vitamin A in serum and liver of weanling pigs fed a protein-deficient diet and fixed intakes per unit of live weight of carotene in oil. H. D. Eaton and others. bibliog J Nutrition 82:343-52 Mr '64

Analysis

Column partition chromatography of vitamins A and D on Fluoropak 80. P. S. Chen, jr. and others. Anal Chem 35:2030-2 D '63

Thin layer chromatography of vitamin A and related compounds. T. N. R. Varma and others. bibliog diags Anal Chem 36:1864-5 Ag '64

Vitamin B complex

Effect of hepatic disease on liver B-complex vitamin titers. H. Baker and others. bibliog diags Am J Clinical Nutrition 14:1-6 Ja '64

Effect of three years of freezer storage on the thiamine, riboflavin, and niacin content of ripened and unripened beef. B. Meyer and others. bibliog J Agri & Food Chem 11:525-7 N '63

Effects of processing on B-vitamin and mineral contents of bulgur. J. W. Pence and others. bibliog Food Tech 18:765-8 My '64

Periodic B-vitamin supplementation of growing rats fed a vitamin-free diet. W. J. Stielau and J. H. Meyer. bibliog J Nutrition 81:330-4 D '63

Vitamin unresponsiveness; progression of classic signs of neuropathy and pellagra during therapy. L. Zieve and E. Hill. bibliog Am J Clinical Nutrition 13:312-17 N '63

See also

Folic acid

Pantothenic acid

Vitamin B_1

Antimetabolites in the nutrition of aedes aegypti L. larvae: thiamine, riboflavin, and pantothenic acid antagonists. S. Akov and K. Guggenheim. bibliog J Nutrition 81:419-26 D '63

Aseptic canning of foods; thiamine retention as influenced by processing method, storage time and temperature, and type of container. G. J. Everson and others. bibliog Food Tech 18:84-6 Ja '64

VITAMINS—Vitamin B_1—*Continued*

Availability of microbially synthesized thiamine in the rat. J. Yudkin. bibliog J Nutrition 81:183-6 N '63

Effect of calcium, phosphorus and manganese on the intestinal synthesis of thiamine in rats. S. K. Meghal and M. C. Nath. bibliog J Nutrition 82:121-6 Ja '64

Effect of freeze- drying on the thiamine, riboflavin, and niacin content of chicken muscle. D. M. Rowe and others. bibliog Food Tech 17:1449-50 N '63

Method for assaying thiamine status in man and animals. H. Baker and others. bibliog Am J Clinical Nutrition 14:197-201 Ap '64

Studies of thiamine metabolism in the rat. R. A. Neal and W. N. Pearson. bibliog J Nutrition 83:343-57 Ag '64

Vitamin B_2

Antimetabolites in the nutrition of aedes aegypti L. larvae; thiamine, riboflavin, and pantothenic acid antagonists. S. Akov and K. Guggenheim. bibliog J Nutrition 81:419-26 D '63

Chronopotentiometric measurement of adsorption; riboflavin on a mercury electrode. S. V. Tatwawadi and A. J. Bard. bibliog Anal Chem 36:2-5 Ja '64

Effect of freeze-drying on the thiamine, riboflavin, and niacin content of chicken muscle. D. M. Rowe and others. bibliog Food Tech 17:1449-50 N '63

Elevated riboflavin levels in urine of fasting human subjects. H. G. Windmueller and others. bibliog Am J Clinical Nutrition 15:73-6 Ag '64

Microbiological and enzymatic assays of riboflavin analogues. C. S. Yang and others. bibliog J Nutrition 84:167-72 O '64

Photochemistry of riboflavin; the hydrogen transfer process in the anaerobic photobleaching of flavins. W. M. Moore and others. bibliog Am Chem Soc J 85:3367-72 N 5 '63

Vitamin B_6

Aseptic canning of foods; pyridoxine retention as influenced by processing method, storage time and temperature, and type of container. G. J. Everson and others. bibliog Food Tech 18:87-8 Ja '64

Blood cell transaminase activity in human vitamin B_6 deficiency. N. Raica, jr. and H. E. Sauberlich. bibliog Am J Clinical Nutrition 15:67-72 Ag '64

Carbohydrate and fat metabolism and response to insulin in vitamin B_6-deficient rats. A. M. Huber and others. bibliog J Nutrition 82:371-8 Mr '64

Comparison of vitamin B_6 values of selected food samples by bioassay and microbiological assay. E. W. Toepfer and others. bibliog J Agri & Food Chem 11:523-5 N '63

Effect of pyridoxine deficiency upon valine incorporation into tissue proteins of the rat. A. C. Trakatellis and A. E. Axelrod. bibliog J Nutrition 82:483-8 Ap '64

Free amino acids in plasma and tissues of rats fed a vitamin B_6-deficient diet. M. E. Swendseid and others. bibliog J Nutrition 82:206-8 F '64

Pyridoxine-responsive anemia; description of three patients with megaloblastic erythropoiesis. J. D. Hines and J. W. Harris. bibliog Am J Clinical Nutrition 14:137-46 Mr '64

Recommendations for standardization of the tryptophan load test. D. B. Coursin. Am J Clinical Nutrition 14:56-61 bibliog(p60-1) Ja '64

Vitamin B_6 deficiency and the initial acquisition of behavior. H. N. Sloane, jr. and B. F. Chow. bibliog J Nutrition 83:379-84 Ag '64

Vitamin B_6 requirement for adult men. E. M. Baker and others. bibliog Am J Clinical Nutrition 15:59-66 Ag '64

Vitamin B_{12}

Controlled potential reduction of vitamin B_{12a} (aquocobalamin). H. A. O. Hill and others. bibliog Chem & Ind p 197 F 1 '64

Effect of propionate on the dietary vitamin B_{12}, biotin and folic acid requirement of the rat. D. E. Hogue and J. M. Elliot. bibliog J Nutrition 83:171-5 Je '64

Effect of vitamin B_{12} therapy in a patient with folic acid deficiency. J. B. Alperin. bibliog il Am J Clinical Nutrition 15:117-23 S '64

Long-term excretion of Co^{57}-vitamin B_{12} and turnover within the plasma. C. A. Hall and J. G. Hegeman. bibliog Am J Clinical Nutrition 14:156-62 Mr '64

Nature of vitamin B_{12s}. J. W. Collat and J. C. Abbott. Am Chem Soc J 86:2308-9 Je 5 '64

Serum vitamin B_{12} and folic acid activity in lactovegetarian and nonvegetarian healthy adult Indians. B. M. Mehta and others. Am J Clinical Nutrition 15:77-84 bibliog(p83-4) Ag '64

Vitamin B_{12}. E. L. Smith. Review, by R. Bonnett. Chem & Ind p794-6 My 9 '64

Vitamin B_{12} and DNA biogenesis. R. F. Henderson and J. S. Dinning. bibliog J Nutrition 81:372-8 D '63

Vitamin C

Effect of magnesium, fluoride, and ascorbic acid on metabolism of connective tissue. D. J. Thompson and others. bibliog J Nutrition 84:27-30 S '64

Interrelationships of ascorbic acid and pantothenic acid in the young guinea pig. C. Pudelkewicz and C. Roderuck. J Nutrition 81:415-18 D '63

Nutrient content of variety meats; effects of cooking on vitamin A, ascorbic acid, iron, and proximate composition. L. Kizlaitis and others. Food Tech 18:103-4 Ja '64

Photoreduction of ethyl chlorophyllide *a* by ascorbic acid in ethanol-pyridine solutions. G. R. Seely and A. Folkmanis. bibliog Am Chem Soc J 86:2763-70 Jl 20 '64

Protection of milk fat tocopherols during saponification with ascorbic acid. V. N. Krukovsky. bibliog J Agri & Food Chem 12:289-92 My '64

Relation of ascorbic acid to nitrate content of turnip greens and to methemoglobin formation. L. Kilgore and others. bibliog Am J Clinical Nutrition 14:52-5 Ja '64

Studies of the photooxidation of nitrosomyoglobin. M. E. Bailey and others. bibliog J Agri & Food Chem 12:89-93 Ja '64

Analysis

Constant current potentiometric titration of ascorbic acid and asorbic acid-glutathione mixtures. C. O. Huber and H. E. Stapelfeldt. diags Anal Chem 36:315-18 F '64

Vitamin D

Anti-rachitic effects of soybean preparations for turkey poults. C. W. Carlson and others. bibliog J Nutrition 82:366-70 Mr '64

Rachitogenic activity of soybean fractions. C. W. Carlson and others. bibliog J Nutrition 82:507-11 Ap '64

Analysis

Column partition chromatography of vitamins A and D on Fluoropak 80. P. S. Chen, jr. and others. Anal Chem 35:2030-2 D '63

Vitamin D_2

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Vitamin D_2 requirement of the baby pig. E. R. Miller and others. bibliog il J Nutrition 83:140-8 Je '64

Vitamin D_3

Concerning the nonphotochemical biosynthesis of vitamin D_3 in fish. G. A. Blondin and others. bibliog Am Chem Soc J 86:2528-9 Je 20 '64

Effect of vitamins D_2 and D_3 on serum calcium and phosphorus in rachitic chicks. P. S. Chen, jr. and H. B. Bosmann. bibliog il J Nutrition 83:133-9 Je '64

Vitamin E

Chemistry of 9-hydroxy-α-tocopherone, a quinone hemiacetal. W. Dürckheimer and L. A. Cohen. bibliog Am Chem Soc J 86:4388-93 O 20 '64

Comparative effects of certain antioxidants on gestational performance and teratogeny in vitamin E-deficient rats. D. W. King. J Nutrition 83:123-32 bibliog(p 131-2) Je '64

Dietary fat and the structure and properties of rat erythrocytes; stability of the erythrocyte. B. L. Walker and F. A. Kummerow. bibliog J Nutrition 82:323-8 Mr '64

Effect of degree of fatty acid unsaturation in tocopherol deficiency-induced creatinuria. L. A. Witing and M. K. Horwitt. bibliog J Nutrition 82:19-33 Ja '64

Effect of dietary α-tocopherol on protein metabolism in vitamin A-deficient rats. O. A. Roels and others. bibliog J Nutrition 84:161-6 O '64

VITAMINS—Vitamin E—*Continued*

Effects of high levels of dietary vitamin A acetate on tissue tocopherol and some related analytical observations. W. J. Pudelkiewicz and others. bibliog J Nutrition 84:113-17 O '64

Gross and microscopic pathology of tocopherol-deficient mink. H. D. Stowe and C. K. Whitehair. bibliog J Nutrition 81:287-300 D '63

Influence of dietary phytol, isophytol, and squalene on the tocopherol content of liver tissue. W. J. Pudelkiewicz and others. J Nutrition 83:111-14 Je '64

Nutrition of salmonoid fishes; the α-tocopherol requirement of chinook salmon. A. N. Woodall and others. bibliog il J Nutrition 84:125-35 O '64

Potassium ferricyanide oxidation product of α-tocopherol. D. McHale and J. Green. bibliog Chem & Ind p366 F 29 '64

Protection of milk fat tocopherols during saponification with ascorbic acid. V. N. Krukovsky. bibliog J Agri & Food Chem 12:289-92 My '64

Quantitative consideration of the effect of polyunsaturated fatty acid content of the diet upon the requirements for vitamin E. P. L. Harris and N. D. Embree. Am J Clinical Nutrition 13:385-92 bibliog(p391-2) D '63

Relative anti-muscular dystrophy activity of the *d*- and *l*-epimers of α-tocopherol and of other tocopherols in the chick. M. L. Scott and I. D. Desai. bibliog J Nutrition 83:39-43 My '64

Selenium-75 metabolism in the gestating ewe and fetal lamb; effects of dietary α-tocopherol and selenium. P. L. Wright and M. C. Bell. bibliog J Nutrition 84:49-57 S '64

Vitamin E content of vegetable oils and fats. D. C. Herting and E.-J. E. Drury. bibliog J Nutrition 81:335-42 D '63

Analysis

Spectrophotometric determination of tocopherol in milk and milk lipides. D. R. Erickson and W. L. Dunkley. bibliog Anal Chem 36:1055-8 My '64

Vitamin K

Synthesis of the new 5-phosphomethyl-6-chromanyl acetate of vitamin $K_{1(20)}$ by a novel cyclization reaction. A. F. Wagner and others. bibliog Am Chem Soc J 85:3793-5 D 5 '63

VITEXIN

Structure of vitexin and isovitexin. R. M. Horowitz and B. Gentili. bibliog Chem & Ind p498-9 Mr 21 '64

VOCATIONAL education

Brown & Sharpe hosts industry-educator meeting on vocational training. Am Mach 108:205+ Mr 16 '64

New skills taught by sight, sound. K. W. Bennett. il Iron Age 194:27-8 Ag 13 '64

Shop training at B. R. DeWitt, inc. assures supply of qualified mechanics. R. Dyment. il Pit & Quarry 57:70-1 Jl '64

See also

Apprentices
Engineering education
Textile schools

Netherlands

Bemetel training scheme. il Engineer 216:751 N 1 '63

VOICE

Converting digital data to voice. J. R. Rawley. diags Electronic Ind 23:84-6 Ap '64

Digital correlator detects voice fundamental. R. B. Stone and G. M. White. bibliog il diags Electronics 36:28-30 N 22 '63

VOLATILITY

Determination of residual monomers and other volatile components in styrene based polymers by gas chromatography. P. Shapras and G. C. Claver. bibliog Anal Chem 36:2282-3 N '64

Development of partially volatile filler alloys for high-temperature brazing. N. Bredzs and others. diags Welding J 43:sup63-70 F '64

Forced volatilization cleanup of butterfat for gas chromatographic evaluation of organochlorine insecticide residues. D. E. Ott and F. A. Gunther. bibliog diags J Agri & Food Chem 12:239-43 My '64

Fungitoxic properties of volatile corrosion inhibitors. D. M. Evans and I. Levisohn. il Chem & Ind p 1386-7 Ag 1 '64

Gas chromatographic evaluation of the formation of volatile substances in stored peas. B. Bengtsson and I. Bosund. bibliog Food Tech 18:773-6 My '64

Gas chromatographic head space techniques for the quantitative determination of volatile components in multicomponent aqueous solutions. R. E. Kepner and others. bibliog Anal Chem 36:77-82 Ja '64

Individual volatile acids in anaerobic treatment. P. L. McCarty and others. bibliog diags WPCF J 35:1501-16 D '63

Physical foundations in perfumery. L. Appell. bibliog diags Am Perfumer 79:25-33 Ja; 43-8 F; 29-41 My '64 (to be cont)

Possible role of volatile metal compounds in ore genesis. K. B. Krauskopf. bibliog Econ Geol 59:22-45 Ja '64

Solubility of volatile gases in hydrocarbon solvents at cryogenic temperatures. H. Cheung and D. I.-J. Wang. bibliog diags Ind & Eng Chem Fundamentals 3:355-61 N '64

Spent sulfite liquor; gas chromatographic analysis of volatile components in spent sulfite liquors. B. F. Hrutfiord and J. L. McCarthy. bibliog Tappi 47:381-6 Jl '64

Ultraviolet absorbancy of volatiles as a measure of oxidative flavor deterioration in egg powders. O. S. Privett and others. bibliog diags Food Tech 18:1485-8 S '64

Use of self-sealing elastomer septums for quantitative operations with volatile solvents. N. Adler. diags Anal Chem 36:2291-5 N '64

Volatile sulfur compounds in potatoes. M. R. Gumbmann and H. K. Burr. bibliog J Agri & Food Chem 12:404-8 S '64

Volatiles in volcanic glasses and their stability relations. C. S. Ross. bibliog Am Mineralogist 49:258-71 Mr '64

Volatility hop constituents; identification of methyl dec-4-enoate and methyl deca-4,8-dienoate. R. G. Buttery and others. bibliog Chem & Ind p 1981-2 D 21 '63

Volatility of antioxidants and antiozonants; pure compounds in absence of rubber. R. B. Spacht and others. diag Rubber Chem & Tech 37:210-20 Ja '64

VOLCANIC ash, tuff, etc.

Intrusion of mobilized tuff, Catron County, New Mexico. R. Greenwood. Geol Soc Bul 74:1505 pl 1 D '63

Officer's Cave, a pseudokarst feature in altered tuff and volcanic ash of the John Day formation in eastern Oregon. G. G. Parker and others. bibliog maps diags Geol Soc Bul 75:393-401 pl 1-2 My '64

Phillipsite of saline lakes and soils. R. L. Hay. bibliog map diags Am Mineralogist 49:1366-87 S '64

Rare alkali and beryllium mineralization in volcanic tuffs, Honey Comb Hills, Juab County, Utah. W. N. McAnulty and A. A. Levinson. map Econ Geol 59:768-74 Ag '64

Volatiles in volcanic glasses and their stability relations. C. S. Ross. bibliog Am Mineralogist 49:258-71 Mr '64

Windborne volcanic ash; a possible index to polar wandering. G. P. Eaton. maps diags J Geol 72:1-35 bibliog(p33-5) Ja '64

VOLCANIC glass. See Perlite

VOLCANIC rocks. See Rocks, Igneous

VOLCANOES

Distribution of active volcanoes; summary of preliminary results of three-dimensional least-squares analysis. J. H. Tatsch. bibliog Geol Soc Bul 75:751-2 Ag '64

Glaciations of Mount Kilimanjaro, northeast Tanganyika. C. Downie. bibliog diags Geol Soc Bul 75:1-16, pl 1-3 Ja '64

Gravity, volcanism, and crustal structure in the southern Cascade Range, Calif. L. C. Pakiser. bibliog maps Geol Soc Bul 75:611-20 Jl '64

See also

Lava

VOLTAGE

Ac-dc radio voltages; pretty constant from set to set. P. Lacy. Radio-Electronics 35:45 S '64

Analysis of power system's power-density spectra. J. L. Cooke. bibliog IEEE Trans Power Apparatus & Systems p34-41 Ja '64

Calculation of transient voltages in a transformer connected to a transmission line. V. Lovass-Nagy and C. Szendy. bibliog diag Inst E E Proc 111:1133-6 Je '64

Carrier-voltage control for improved dynamic range in rectifier modulators. D. P. Howson. bibliog diags Radio & Electronic Eng 26:495-500 D '63

VOLTAGE—*Continued*

Circuit always applies correct operating voltage. L. K. Moyer. diag Electronics 37:77 S 21 '64

Definition and measurement of field effect transistors pinchoff voltage. L. G. Cowles. IEEE Proc 52:200 F '64

Design and performance of high- and low-voltage terminal boxes. K. K. Schwarz. bibliog il diags Inst E E Proc 109 pt A:151-65 Ap '62; Discussion. 109 pt A:165-72, 470-2; 111:143-5 Ap, O '62, Ja '64

Digital computer program speeds voltage-drop calculations. R. G. Myers. diag Elec World 160:44+ D 30 '63

Double injection in deep-lying impurity semiconductors. K. L. Ashley and A. G. Milnes. bibliog J Ap Phys 35:369-74 F '64

Effect of applied voltage on boiling heat transfer. M. Markels, jr. and R. L. Durfee. bibliog il A I Ch E J 10:106-10 Ja '64

Effect of discharge products upon corona discharge and spark breakdown voltage. F. D. A. Boylett and J. S. T. Looms. bibliog diags Inst E E Proc 110:2292-6 D '63

Effect of photocathode-to-first dynode voltage on photomultiplier noise pulses. P. W. Walton. R Sci Instr 35:518-19 Ap '64

Effect of voltage waveshape on the performance of a three-phase induction motor. G. C. Jain. diags IEEE Trans Power Apparatus & Systems 83:561-6 Je '64; Discussion. 83:744-5 Jl '64

Effect of waveform on measurement of voltage and current. W. H. Christiansen. Instruments & Control Systems 37:115-17 Mr '64

Effects of negative ion space charge formation on nonuniform air gaps. W. A. Hixson and R. L. Hoffman. diag Elec Eng 82:710-16 D '63

Finding synchro position from voltage measurements; data file. B. H. Robinson. diags Control Eng 11:107-8 O '64

High-frequency transient voltage measuring techniques. H. W. Lord. il diag IEEE Trans Com & Electronics p602-5 N '63

High photovoltages in silicon and silicon carbide films and their origin from a trap-induced space charge. H. W. Brandhorst, jr. and A. E. Potter, jr. bibliog J Ap Phys 35:1997-2003 Jl '64

Long-term study finds new relations of voltage change to kwhr. J. A. Hughes. il diags Elec World 161:59-61+ My 4 '64

Low voltage, high input impedance hybrid amplifier circuits. F. H. Laishley. diags Electronic Eng 36:309-11 My '64

Lowering the breakdown voltage of silicon *p-n* junctions by stress. A. Goetzberger and R. H. Finch. il diag J Ap Phys 35:1851-4 Je '64

Magnetic saturation and eddy current effect in d-c machine voltage build-up. H. B. Hamilton. diags IEEE Trans Power Apparatus & Systems 83:606-10; Discussion. 650-1 Je '64

Making precision measurements of zener diode voltages. W. G. Eicke, jr. bibliog diags IEEE Trans Com & Electronics 83:433-8 S '64

Measurement of phase shift at audio frequencies using a magslip as a calibrated reference standard. A. G. J. Holt. diags Radio & Electronic Eng 26:305-8 O '63

Measurement of short-duration impulse voltages. F. C. Creed and M. M. C. Collins. bibliog il diags IEEE Trans Com & Electronics p621-9; Discussion. 629-30 N '63

Measuring millimicrovolts with a ballistic galvanometer. K. Schröder and C. E. McCain. R Sci Instr 35:239-40 F '64

Method for comparing small ac voltages in the presence of large dc components. E. J. Rogers. diags R Sci Instr 35:130-2 Ja '64

Method for the generation of a band of discrete harmonically related frequencies. T. W. Butler, jr. and E. M. Aupperle. diags IEEE Trans Com & Electronics p634-9 N '63

100V 100mA regulated power supply using transistors. R. E. Aitchison and W. S. Lamond. diags Electronic Eng 36:604-5 S '64

Precision voltage reference decades. I. Queen. il diag Radio-Electronics 35:70 N '64

Pulsed and cw sinusoidal voltage and current measurements. M. C. Selby. bibliog J Res Nat Bur Stand 68D:533-6 My '64

Speed primary voltage drop studies with new calculator. E. P. McLean. il Elec World 161:26 F 17 '64

Transistors and voltage measurements. D. R. Anderson. il diags Radio-Electronics 35:38-9 Ag '64

True r.m.s. voltage measuring circuit. J. C. Cluley. diags Electronic Eng 36:300-3 My '64

Tunnel diode junction capacitance in the vicinity of built-in voltage. R. P. Nanavati and C. A. Morato de Andrade. diags IEEE Proc 51:1679 N '63

Voltage and impedance conditions for the rapid plugging of induction motors including Saturistor control. W. Shepherd. bibliog diags Inst E E Proc 111:1713-28 O '64

Voltage coefficients of precision capacitors. N. L. Kusters and O. Petersons. bibliog il diags IEEE Trans Com & Electronics p612-21 N '63

Voltage controls dual-pulse scr trigger. T. Wilson. diag Electronics 37:62-3 N 2 '64

Voltage controls solid-state nonlinear resistance. F. D. Neu. diags Electronics 37:36+ F 21 '64

Voltage-current calibrator. Franklin Inst J 277:290-1 Mr '64

Voltage effects of capacitive load on the synchronous generator. J. L. Dineley and K. J. Glover. bibliog diags Inst E E Proc 111:789-95 Ap '64; Discussion. 111:1452-3 Ag '64

Zener diodes used as voltage standards. il diag Engineering 197:9 Ja 3 '64

See also

High voltages

VOLTAGE control. See Voltage regulation

VOLTAGE dividers

Economical decade potential divider. C. A. A. Wass. diags J Sci Instr 41:396 Je '64

VOLTAGE regulation

Calculation of the regulation characteristics of d-c transmission systems. A. Gavrilović and D. G. Taylor. diags IEEE Trans Power Apparatus & Systems 83:215-23 Mr '64

For electric control reliability keep voltage within design tolerances. R. Russo. diags Power 108:90-2 O '64

Low-voltage control for home electric heat. il plan diag Elec Constr & Maint 62:114-16+ N '63

Package unit simplifies series-capacitor application. H. B. Wolf. il diag Elec World 160:96-7 N 18 '63

Reduce underground equipment BIL. H. O. Stoelting and R. T. Kaupie. diag Elec World 161:28-9 Mr 2 '64

Underexcited operations of generators. J. Kekela and L. Firestone. map diag IEEE Trans Power Apparatus & Systems 83:811-15; Discussion. 815-17 Ag '64

VR-tube regulation; why and how. A. Weiss. diags Q S T 48:54-7 O '64

We designed an electric system for precise voltage, continuity. K. Chen. diag Power 108:61-4 F '64

VOLTAGE regulators

Analysis of series regulators as active two-port networks. R. A. Zakarevicius. diags Radio & Electronic Eng 27:237-43 Mr '64

Automatic voltage regulation and efficiency. R. Prior. diags Coal Age 69:78-80 Je '64

Automatic voltage regulator. il Engineer 216:822 N 15 '63

Constructing electrical systems; capacitors and regulators. il diags Elec Constr & Maint 63:185-6+ My '64

Do's and don'ts of voltage regulator installation, service. Diesel Equip Supt 42:36 Mr '64

Feedback corona regulator. J. B. Thomas. bibliog diags R Sci Instr 35:170-2 F '64

High-efficiency voltage regulator. C. Andren. diags Electronics 37:64-5 Ag 24 '64

High performance voltage regulator. A. Dargis. diag Electronics 37:75 Ap 6 '64

How to determine accuracy of your generator voltage regulator. F. Smith. diags Power 108:76-7 Ap '64

Improved control system for a.c. voltage stabilizers. R. G. Ackland and N. M. Buckland. bibliog diags Electronic Eng 36:480-2 Jl '64

Junction diode regulates low-voltage supply. A. K. Scidmore. diags Electronics 37:55-6 O 19 '64

Milestone for the voltage regulator. J. Powers. diag Res/Develop 15:29-31 F '64

Network filters stabilize d-c supply over wide range. J. G. Peddie. diag Electronics 37:83 Je 15 '64

On-load voltage control up to 3,000 kva. il diag Engineering 197:382-3 Mr 13 '64

Power voltage regulator. il diag Engineer 217:448 Mr 6 '64

Precise power-lab models 711-713. E. C. Carlson. il Radio-Electronics 35:70 O '64

Regulator elements using transistors. J. W. McPherson. diags Electronic Eng 36:162-5 Mr '64

VOLTAGE regulators—*Continued*

Should we use mechanical or static generator voltage regulators? R. V. Petershack. il diags Power Eng 68:49-51 Ag '64

Simple voltage regulator limits load current. G. H. P. Kohnke. diag Electronics 37:63-4 N 2 '64

Tips on generator voltage regulation. C. M. Maly. diags Power 107:72-5 D '63

Transistorized high-voltage regulator using a.c. control. I. Izumi and M. Kokubu. diags Electronic Eng 36:554-6 Ag '64

Voltage and current substandards. M. Pacak. diags Electronic Eng 36:550-3 Ag '64

Voltage monitor takes negligible power. D. K. Phillips. diag Control Eng 10:93+ D '63

Voltage regulator; what it is; what it does. il diag Marine Eng/Log 69:83 S '64

Voltage stabilizer for cold-cathode tube circuits. A. J. Oxley. diags Electronic Eng 36:548-9 Ag '64

Zener diode power supplies. J. Nagy, jr. bibliog diags I S A J 11:65-8 Jl '64

VOLTAMMETRY

Adsorption dependent stripping analysis at the graphite electrode. S. P. Perone and T. J. Oyster. Anal Chem 36:235-6 Ja '64

Anodic stripping voltammetry of gold and silver with carbon paste electrodes. E. S. Jacobs. il diag Anal Chem 35:2112-15 D '63

Application of thin layer chronopotentiometry to kinetic studies. C. R. Christensen and F. C. Anson. bibliog Anal Chem 36:495-7 Mr '64

Chronopotentiometric measurement of adsorption by current reversal. H. B. Herman and others. Anal Chem 35:2210-11 D '63

Chronopotentiometric measurement of adsorption; riboflavin on a mercury electrode. S. V. Tatwawadi and A. J. Bard. bibliog Anal Chem 36:2-5 Ja '64

Chronopotentiometric studies of ferrocene derivatives. W. F. Little and others. bibliog Am Chem Soc J 86:1376-86 Ap 5 '64

Chronopotentiometric study of adsorption. H. A. Laitinen and L. M. Chambers. bibliog Anal Chem 36:5-11 Ja '64

Chronopotentiometry and chronoamperometry with unshielded planar electrodes. P. J. Lingane. bibliog Anal Chem 36:1723-6 Ag '64

Chronopotentiometry of the bromide-bromine couple at platinum and carbon paste electrodes. D. G. Davis and M. E. Everhart. bibliog Anal Chem 36:38-40 Ja '64

Convenient cell design for studies employing shielded solid electrodes. H. B. Mark, jr. diags Anal Chem 36:958-9 Ap '64

Cyclic chronopotentiometry; electron transfer with following chemical reaction. H. B. Herman and A. J. Bard. bibliog diag Anal Chem 36:510-14 Mr '64

Cyclic chronopotentiometry; multicomponent systems and stepwise reactions. H. B. Herman and A. J. Bard. bibliog Anal Chem 36:971-5 My '64

Effect of mercury surface curvature on chronopotentiometric transition time constants. S. Bruckenstein and T. O. Rouse. diag Anal Chem 36:2039-40 S '64

Electrochemical fractionation; potentiostatic chromatography and elution voltammetry. D. K. Roe. bibliog diag Anal Chem 36:2371-2 N '64

Electrode reactions of aromatic compounds in strong acid solutions; chronopotentiometric and spectrometric studies of the p-hydroquinone-H_2SO_4 system at platinum electrodes. H. B. Mark, jr. and C. L. Atkin. bibliog Anal Chem 36:514-20 Mr '64

Fabrication and use of pyrolytic graphite electrode for voltammetry in aqueous solutions. F. J. Miller and H. E. Zittel. bibliog il Anal Chem 35:1866-9 N '63

Instrumentation for cyclic and step-function voltammetry using operational amplifier switching modules. R. P. Buck and R. W. Eldridge. diags Anal Chem 35:1829-33 N '63

Model for current reversal chronopotentiometry with second-order kinetic complications. S. W. Feldberg and C. Auerbach. bibliog Anal Chem 36:505-9 Mr '64

New electrodes for chronopotentiometry in thin layers of solution. A. T. Hubbard and F. C. Anson. diags Anal Chem 36:723-6 Ap '64

Polarographic and chronopotentiometric behavior of o-phthalic acid in acidic solutions. R. P. Buck. bibliog diag Anal Chem 35:1853-9 N '63

Power of time and exponential current chronopotentiometry. R. W. Murray. bibliog diags Anal Chem 35:1784-9 N '63

Reinterpretation of chronopotentiometric study of kinetics of a chemical reaction coupled between two charge transfer reactions. D. H. Evans. Anal Chem 36:2027-8 S '64

Reverse-current chronopotentiometric study of the catalytic reduction of titanium(IV) in the presence of hydroxylamine. J. H. Christie and G. Lauer. bibliog Anal Chem 36:2037-8 S '64

Studies on the electroreduction of uranyl (VI) in molten equimolar KCl-NaCl by chronopotentiometric and electrode impedance measurements. R. W. Stromatt. bibliog Electrochem Soc J 110:1277-82 D '63

Theory of diffusion limited charge-transfer processes in electroanalytical techniques. R. P. Buck. bibliog Anal Chem 36:947-9 Ap '64

Voltammetric determination of permanganate at the gold electrode. C. O. Huber. bibliog diag Anal Chem 36:1873-4 Ag '64

Voltammetry and controlled potential oxidation of 3,4-dimethoxypropenylbenzene at a rotating platinum electrode in unbuffered acetonitrile and in acetonitrile-pyridine solution. J. J. O'Connor and I. A. Pearl. bibliog Electrochem Soc J 111:335-43 Mr '64

VOLTMETERS

Alpha-particle voltmeter. L. H. Bettenhausen and W. J. Gallagher. diag Nucleonics 22:70 Je '64

Compact instrument combines six functions. il Electronics 37:121 O 5 '64

Digital electrometer uses dc transformer. W. K. Volkers. il diags Instruments & Control Systems 37:149-52 S '64

Dc microvolt measurements. R. J. Erdman. il diag Instruments & Control Systems 37:91-2 Ja '64

Industrial digital voltmeters. il Engineer 217:805 My 1 '64

Inexpensive digital voltmeter using multiple-anode dekatrons. P. Gleghorn. diags Radio & Electronic Eng 28:107-13 Ag '64

Manufacturing multi-range meters. A. Cattle. il diags Ind Electronics 2:263-6 Je '64

Measuring high frequency voltage with photometric bolometers. K. H. Klarer. il diags I S A J 11:69-72 Jl '64

Meters for beginners. R. G. Middleton. il diags Radio-Electronics 35:44-6 N '64

Modified ramp generator develops high d-c input impedance. R. C. Weinberg. il diags Electronics 37:33-5 F 21 '64

Multirange volt box technique. F. B. Kelleher and R. G. Gorsuch. il diag Instruments & Control Systems 37:89-90 Ja '64

No-assembly-line plan gets nothing but results. il Steel 154:90-1 My 25 '64

Specifying digital systems. R. Bireley. il diags Instruments & Control Systems 37:117-20 Jl '64

Ten ways to get more use from your vom and vtvm. W. Lemons. il diags Radio-Electronics 35:40-3 N '64

Unusual digital voltmeter features and applications. T. E. Nawalinski. il diags Instruments & Control Systems 37:121-3 Jl '64

VOLTMETERS, Transistor

This transistor voltmeter has high input impedance. D. L. Pippen. il diags Radio-Electronics 35:36-8 N '64

VOLTMETERS, Vacuum tube

A.c. millivoltmeter. il diags Wireless World 70:264-70 Je '64

Amplifier improves peak voltmeter response. M. Uno. diag Electronics 37:73 Ap 20 '64

DVM, the digital voltmeter. il Instruments & Control Systems 37:101-7 Je '64

Distortion meter and ac vtvm. J. Marshall. il Radio-Electronics 35:66+ Ap '64

Hybrid dc millivoltmeter. B. J. Hill. il diags Radio-Electronics 34:63-4 D '63

Poor Boy's vacuum-tube voltmeter. P. W. McCreery. il diag Radio-Electronics 35:28-9 Ja '64

Voltmeter displays amplitudes of transients. il diag Electronics 37:107 Mr 23 '64

VOLUME

Air micropycnometer for measuring volumes of small samples of fine powder. A. L. Mular and others. diag Am Cer Soc J 47:156 Mr '64

Constant-volume heat capacity of gaseous tetrafluoromethane. Y. T. Hwang and J. J. Martin. bibliog A I Ch E J 10:89-91 Ja '64

Determining gas-filled pore volume in a water-drive gas-storage reservoir. R. M. Hubbard and J. R. Elenbaas. bibliog diag J Pet Tech 16:383-8 Ap '64

Excluded volume of polyelectrolyte in salt solutions. A. Takahashi and M. Nagasawa. bibliog Am Chem Soc J 86:543-8 F 20 '64

VOLUME—*Continued*

Gas absorption accompanied by a large heat effect and volume change of the liquid phase. S. H. Chiang and H. L. Toor. bibliog diag A I Ch E J 10:398-402 My '64

Gas weights, volume equivalents; engineering data sheet. Welding Eng 49:57 O '64

Molar volume and surface tension of fused metaphosphate-sulfate systems. B. B. Owens and S. W. Mayer. bibliog Am Cer Soc J 47:347-51 Jl '64

Molar volumes of mixed nitrate melts. A. A. K. Al-Mahdi. J Ap Chem 14:269-70 Jl '64

Phase-volume relationship at the point of phase inversion in liquid dispersions. G. C. Yeh and others. bibliog diag A I Ch E J 10:260-5 Mr '64

Sorption of water on compacts of bottle-hydrated cement; thermodynamic considerations and theory of volume change. R. F. Feldman and P. J. Sereda. bibliog J Ap Chem 14:93-104 F '64

Viscometric tests of excluded volume theories. G. C. Berry and T. G. Fox. bibliog Am Chem Soc J 86:3540-4 S 5 '64

Volume changes accompanying the adenosine triphosphate-myosin B interaction. H. Noguchi and others. bibliog Am Chem Soc J 86:2077-8 My 20 '64

Volume changes in mixed-alkali silicate glasses. R. V. Caporali. bibliog Am Cer Soc J 47:412-13 Ag '64

Volume requirement of the unshared pair of electrons in amines. N. W. J. Pumphrey and M. J. T. Robinson. bibliog Chem & Ind p 1903-4 N 30 '63

VOLUME, Specific. See Specific volume

VOLUMETRIC analysis

Absolute differential electrolytic potentiometry as index of poising capacity. E. Bishop and G. D. Short. bibliog Anal Chem 36:730-2 Ap '64

Acid-base method for determining mixtures of either hydrazine-1,1-dimethylhydrazine or monomethylhydrazine-1,1-dimethylhydrazine. H. E. Malone and R. A. Biggers. bibliog Anal Chem 36:1037-9 My '64

Amperometric titration of chromium in mixtures of fluoride salts. R. F. Apple and H. E. Zittel. bibliog Anal Chem 36:983-5 My '64

Amperometric titration of uranium(IV) with cerium(IV) utilizing pyrolytic graphite electrode. H. E. Zittel and F. J. Miller. bibliog diag Anal Chem 36:45-7 Ja '64

Analysis of ammonia-hydrazine mixtures for both components. S. S. Yamamura and J. H. Sikes. bibliog Anal Chem 35:1958-60 N '63

Analytical techniques for determining the composition of niobium stannide. K. L. Cheng and E. P. Bertin. bibliog RCA R 25:379-92 S '64

Application of spectrophotometric titrations to micromolar solutions of calcium, magnesium, oxalate, or sulfate. H. W. Wharton and L. R. Chapman. bibliog Anal Chem 36:1679-81 Jl '64

Aquametric methods in organic analysis. J. Mitchell, jr. bibliog Anal Chem 36:2050-2 O '64

Argentometric titration of sulfide in alkaline solutions. C. H. Liu and S. Shen. bibliog Anal Chem 36:1652-4 Jl '64

Automatic potentiometric method for the determination of the absolute activity of glucose oxidase. H. L. Pardue and others. bibliog Anal Chem 36:735-7 Ap '64

Automatic reagent-addition analyzer utilizing continuous external coulometry. L. R. White and others. il diags Tappi 47:129-34 Mr '64

Chelometric determination of aluminum. K. E. Burke and C. M. Davis. bibliog Anal Chem 36:172-5 Ja '64

Chronopotentiometry and chronoamperometry with unshielded planar electrodes. P. J. Lingane. bibliog Anal Chem 36:1723-6 Ag '64

Combustion, conductometric determination of less than ten p.p.m. carbon in tungsten. W. A. Gordon and others. bibliog Anal Chem 36:1396-8 Je '64

Conductometric determination of carbon using carbonate-saturated barium hydroxide absorbent. E. J. Violante. bibliog Anal Chem 36:856-8 Ap '64

Constant current potentiometric titration of ascorbic acid and ascorbic acid-glutathione mixtures. C. O. Huber and H. E. Stapelfeldt. diags Anal Chem 36:315-18 F '64

Continuous analysis by the amperometric measurement of reaction rate. W. J. Blaedel and C. Olson. diags Anal Chem 36:343-7 F '64

Continuous estimation of acidic gases evolved from polymer systems. B. C. Cox and W. J. Criddle. diags Brit Plastics 37:148-50 Mr '64

Controlled-potential coulometric analysis of *N*-substituted phenothiazine derivatives. F. H. Merkle and C. A. Discher. Anal Chem 36:1639-43 Jl '64

Controlled-potential coulometric determination of hydrazine. G. L. Booman and W. B. Holbrook. Anal Chem 35:1986-7 N '63

Controlled potential coulometry of metals in fused lithium chloride-potassium chloride eutectic. R. D. Caton, jr. and H. Freund. bibliog diags Anal Chem 36:15-19 Ja '64

Coulometric analysis with gas volume measurement. D. M. King and A. J. Bard. diag Anal Chem 36:2351-2 N '64

Coulometric determination of carboxylic acid hydrazides. A. F. Krivis and others. bibliog Anal Chem 35:1955-7 N '63

Coulometric diffusion layer titrations using the ring-disk electrode with amperometric end point detection. S. Bruckenstein and D. C. Johnson. Anal Chem 36:2186-7 O '64

Coulometric titration of ammonia with hypobromite using direct amperometric end point detection. G. D. Christian and others. Anal Chem 35:2217-19 D '63

Coulometric titration of organic acids in acetone. C. A. Streuli and others. bibliog Anal Chem 36:1371-2 Je '64

Coulometric titration of total antimony and antimony(III) in glasses. W. M. Wise and J. P. Williams. Anal Chem 36:1863-4 Ag '64

Coulometric titration of total arsenic and arsenic(III) in glasses. W. M. Wise and J. P. Williams. bibliog Anal Chem 36:19-21 Ja '64

Dead-stop titration of thallium. R. B. Williams and H. Frye. Anal Chem 36:945-6 Ap '64

Determination of butyllithium in hydrocarbons by thermometric titration with butanol. W. L. Everson. Anal Chem 36:854-6 Ap '64

Determination of hexahydro-1,3,5-trinitro-*S*-triazine in admixture with octahydro-1,3,5,7-tetranitro-*S*-tetrazine by nonaqueous titration in mixtures. S. K. Sinha and others. bibliog Anal Chem 36:894-5 Ap '64

Determination of higher alkoxyl groups by direct chemical reaction and nonaqueous titration. S. Ehrlich-Rogozinski and A. Patchornik. bibliog Anal Chem 36:840-3 Ap '64

Determination of iron(III) by (ethylenedinitrilo)tetraacetic acid replacement titrimetry following selective separation by column extraction. S. S. Yamamura. Anal Chem 36:1858-61 Ag '64

Determination of manganese by potentiometric titration. il diag Metallurgia 69:99-102 F '64

Determination of manganese in manganese-rich steelmaking alloys by automatic titrimetry. P. H. Scholes and D. V. Smith. Metallurgia 69:147-50 Mr '64

Determination of mercaptans in sour natural gases by gas liquid chromatography and microcoulometric titration. E. M. Fredericks and G. A. Harlow. bibliog diags Anal Chem 36:263-6 F '64

Determination of methyl ketones and acetaldehyde by titration with hypobromite using Bordeaux indicator. M. H. Hashmi and A. A. Ayaz. bibliog Anal Chem 36:384-6 F '64

Determination of some heavy metal ions by complexometric titration with sodium azide indicator. F. G. Sherif and B. I. Raafat. bibliog Anal Chem 35:2116-17 D '63

Determination of water in red fuming nitric acid by Karl Fischer titration. E. A. Burns and R. F. Muraca. bibliog il Anal Chem 35:1967-70 N '63

Differential electrolytic potentiometric determination of nanogram quantities of halides at extreme dilution by constant current coulometry. E. Bishop and R. G. Dhaneshwar. bibliog diags Anal Chem 36:726-30 Ap '64

Differential potentiometric determination of palladium in the presence of platinum in high grade palladium-platinum materials. S. Barabas and J. Vinaric. bibliog Anal Chem 36:2365-7 N '64

Direct argentometric titration of orthophosphate; application to coulometric titration. G. D. Christian and others. bibliog Anal Chem 35:1869-71 N '63

VOLUMETRIC analysis—*Continued*

Direct coulometric titration with hypobromite ion. A. F. Krivis and others. Anal Chem 35:2216-17 D '63

Direct titration of epoxy compounds and aziridines. R. R. Jay. Anal Chem 36:667-8 Mr '64

Dissolved oxygen measurement by constant-potential derivative coulometry. E. L. Eckfeldt and E. W. Shaffer, jr. bibliog diags Anal Chem 36:2008-13 S '64

Effect of input resistance on potentiometric titrations in nonaqueous solvents. M. L. Cluett. Anal Chem 36:2199 O '64

Enthalpimetric titration of millimolar solutions feasible; direct injunction enthalpimetry (DIE); abstract. Chem & Eng N 42:76 Ap 20 '64

(Ethylenedinitrilo)tetraacetic acid titration of barium in presence of other alkaline earth elements. H. F. Combs and E. L. Grove. Anal Chem 36:400-2 F '64

Glass-electrode titration of indium in the presence of thiocyanate. E. D. Moorhead and G. M. Frame, 2d. bibliog Anal Chem 35:1875-8 N '63

High frequency titrimetric determination of the electron deficiency in lithium alkyls. F. A. Settle and others. bibliog Am Chem Soc J 86:2076-7 My 20 '64

Improved calomel reference electrode for nonaqueous titration of halogen acid salts of organic bases. J. R. Deily and L. Donn. diag Anal Chem 36:952 Ap '64

Indirect volumetric determination of cobalt in ferrous alloys with EDTA as indicated by Eriochrome Black T. G. A. Bauer. Anal Chem 36:691-2 Mr '64

Interpretation of potentiometric titrations of weak acids in methanol-water solvents. K. C. Ong and others. bibliog Anal Chem 36:1971-2 S '64

Method for simultaneous determination of calcium and magnesium. H. Katz and R. Navone. Am Water Works Assn J 56:121-3 Ja '64

Methods for the determination of cyclopropenoid fatty acids; a stepwise hydrogen bromide titration method for cyclopropenoid and epoxy derivatives. J. A. Harris and others. Am Oil Chem Soc J 40:718-20 D '63

Microcoulometric gas chromatographic analysis of grapes and cottonseed for chlorobenzilate residues. H. Beckman and A. Bevenue. J Agri & Food Chem 12:183-5 Mr '64

Mild, rapid, hydroxyl determination for primary alcohols. J. A. Floria and others. bibliog Anal Chem 36:2053-5 O '64

Non-aqueous potentiometric determination of tetracene. J. S. Hetman. Chem & Ind p232 F 8 '64

Nonaqueous titration of acidic groups of lignins; titration in pyridine using potassium methoxide as titrant. S. O. Thompson and G. Chesters. bibliog Anal Chem 36:655-7 Mr '64

Nonaqueous titration of high molecular weight nitrogen compounds. M. E. Puthoff and J. H. Benedict. bibliog Anal Chem 36:2205-7 O '64

Oscillometric titrations of air-sensitive substances. R. E. Cuthrell and J. J. Lagowski. diag Anal Chem 36:2382 N '64

Phase titrations come in for new study. Chem & Eng N 42:42+ Mr 9 '64

Potentiometric determination of orthophosphate. D. H. McColl and T. A. O'Donnell. Anal Chem 36:848-50 Ap '64

Potentiometric titration of free acid and uranium in uranium(VI) solutions with alkali. K. Motojima and K. Izawa. bibliog Anal Chem 36:733-5 Ap '64

Potentiometric titration of metal ions using a silver electrode. J. S. Fritz and B. B. Garralda. Anal Chem 36:737-41 Ap '64

Precision burette for use in concentration-conductance calibration. S. Martin and others. diags J Sci Instr 41:237-8 Ap '64

Rapid determination of binary mixtures by pseudo first-order differential reaction rates; conductometric determination of carbonyl compounds. L. J. Papa and others. Anal Chem 35:1889-91 N '63

Rapid titrimetric determination of sulfate in mixtures of gypsum, anhydrite, calcium oxide, and calcium sulfide using ion exchange. L. A. Robbins and T. D. Wheelock. Anal Chem 36:429-30 F '64

Rapid volumetric determination of sulfide in estuarine and sea waters. C. R. Johnson and others. il Anal Chem 36:300-2 F '64

Recent advances in coulometric analysis. J. Haslam. Chem & Ind p 1996-7 D 28 '63

Reversible internal indicator for sodium nitrite titrations. A. A. Schilt and J. W. Sutherland. bibliog Anal Chem 36:1805-7 Ag '64

Review of fundamental developments in analysis; amperometric titrations. J. T. Stock. Anal Chem 36 [no 5]:355R-62R bibliog (p360R-2R) Ap '64

Review of fundamental developments in analysis; electroanalysis and coulometric analysis. A. J. Bard. Anal Chem 36 [no 5]:70R-9R bibliog(p77R-9R) Ap '64

Review of fundamental developments in analysis; potentiometric titrations. R. W. Murray and C. N. Reilley. Anal Chem 36 [no 5]:370R-80R bibliog(p378R-80R) Ap '64

Review of fundamental developments in analysis; titrations in nonaqueous solvents. C. A. Streuli. Anal Chem 36 [no 5]:363R-9R bibliog(p368R-9R) Ap '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for inorganic compounds. W. H. McCurdy, jr. and D. H. Wilkins. Anal Chem 36 [no 5]:381R-90R bibliog(p388R-90R) Ap '64

Review of fundamental developments in analysis; volumetric and gravimetric analytical methods for organic compounds. W. T. Smith, jr. and others. Anal Chem 36 [no 5]:391R-9R bibliog(p397R-9R) Ap '64

Study of kinetics of iridium(III)-chlorate reaction by steady-state controlled-potential coulometry. G. A. Rechnitz and J. E. McClure. bibliog Anal Chem 36:2265-70 N '64

Thermometric determination of copper by iodometry. E. J. Billingham, jr. and A. H. Reed. Anal Chem 36:1148-9 My '64

Thermometric titrations in glacial acetic acid. H. J. Keily and D. N. Hume. bibliog diag Anal Chem 36:543-51 Mr '64

Three-compartment cell for polarography and coulometry. J. M. Costa and others. diag Anal Chem 36:698-9 Mr '64

Titration characteristics of hexahydro-1,3,5-trinitro-*s*-triazine and octahydra-1,3,5,7-tetranitro-*s*-tetrazine in nonaqueous solvents. M. I. Fauth and others. Anal Chem 36:380-2 F '64

Titration of oxygen and antioxidants using 2,4,6-tri-*tert*-butylphenoxy free radicals. J. P. Paris and others. bibliog Anal Chem 36:1332-4 Je '64

Titrimetric determination of bis(disubstitutedphosphinyl)alkanes and (trisubstituted phosphine) oxides. J. R. Parker and C. V. Banks. Anal Chem 36:2191-2 O '64

Titrimetric determination of semimicro amounts of sulfate in presence of phosphate. B. Jaselskis and S. F. Vas. Anal Chem 36:1965-7 S '64

Titrimetric determination of zinc with tetracyano-mono-1,10-phenanthroline-ferrate (II). A. A. Schilt and A. V. Nowak. bibliog Anal Chem 36:845-8 Ap '64

Use of glass reference electrode in potentiometric titration of halides with silver nitrate in $LiNO_3$-KNO_3 eutectic melt. H. T. Tien. Anal Chem 36:929-30 Ap '64

Use of the Debye-Hückel approximation in the analysis of protein potentiometric titration data. M. Nagasawa and A. Holtzer. bibliog Am Chem Soc J 86:531-8 F 20 '64

Volumetric determination of hypophosphite in electroless nickel plating solutions. J. P. McCloskey. Plating 51:689-92 Jl '64

Volumetric determination of magnesium in aluminium alloys. A. Smart. Metallurgia 69:245-7 My '64

Volumetric determination of perchlorates in pyrotechnics. B. J. Alley and H. W. H. Dykes. Anal Chem 36:1124-6 My '64

Volumetric determination of titanium and iron in titaniferrous material. J P. R. Fonseka and N. R. de Silva. bibliog Anal Chem 36:437-8 F '64

See also
Colorimetric analysis
Turbidimetric analysis

Apparatus

Automatic dissolved oxygen titration apparatus. W. D. Johnson and others. il WPCF J 35:1489-91 N '63

Continuous automated, buretless titrator with direct readout. W. J. Blaedel and R. H. Laessig. diags Anal Chem 36:1617-23 Jl '64

See also
Burets

VORTEX motion

Bistable vortex oscillator. T. Sarpkaya. il diag A S M E Trans ser E 30:629-30 D '63

Effect of base bleed on a periodic wake. C. J. Wood. bibliog diags Roy Aeronautical Soc J 68:477-82 Jl '64

VORTEX motion—*Continued*

Effect of shock-induced vorticity on the compressible boundary layer along a flat plate. L. Ting. bibliog diag AIAA J 2:490-3 Mr '64

Electromagnetic behavior of the vortex sponge. E. M. Kelly. Am J Phys 32:657-65 S '64

Electrostatically induced rotary and vortical motion. P. A. Silberg and G. Goshgarian. il diags IEEE Proc 52:732-3 Je '64

Extension of lifting-line theory to a cascade of split aerofoils. B. Lakshminarayana. diags AIAA J 2:938-40 My '64

Flapping propulsion wake analysis. I. Michelson. AIAA J 1:2658-9 N '63

Flow field in a swirl chamber. D. H. Tsai. diag AIAA J 2:1504-5 Ag '64

Flow measurement with a suspension wire. B. B. Sharp. bibliog diags Am Soc C E Proc 90 [HY 2 no 3821]:37-53 Mr '64

Fuel containment in the gaseous-core nuclear rocket by MHD-driven vortices. J. B. Romero. bibliog diags AIAA J 2:1092-9 Je '64

Generation of secondary vorticity in an incompressible fluid. A. W. Marris. bibliog diags A S M E Trans ser E 30:525-31 D '63

Heat transfer characteristics of fluids moving in a Taylor system of vortices. C. Y. Ho and others. bibliog diags A I Ch E J 10:194-202 Mr '64

Incipient vortex formation in baffled agitated vessels. M. W. Clark and T. Vermeulen. bibliog diag A I Ch E J 10:420-2 My '64

Instability of three-row vortex streets. C. Tung. AIAA J 2:1143-4 Je '64

Lift on an oscillating body of revolution. M. Sevik. bibliog diags AIAA J 2:302-5 F '64

No noise but the wind. J. R. Thomson and others. il diags S A E J 72:72-4 Jl '64

Review on vortex streets, periodic wakes, and induced vibration phenomena. A. W. Marris. bibliog diags A S M E Trans ser D 86: 185-93; Discussion. 193-5; Reply. 195-6 Je '64

Simple device for the qualitative measurement of the vortices. B. Lakshminarayana. il diags AIAA J 2:1353-4 Jl '64

Some experiments with vortex breakdown. M. V. Lowson. bibliog il diags Roy Aeronautical Soc J 68:343-6 My '64

Study of induced vorticity in centrifugal compressors. G. O. Ellis. bibliog il diags A S M E Trans ser A 86:63-73; Discussion. 73-5; Reply. 75-6 Ja '64

Tapered inlets for pipe culverts. J. L. French. bibliog diags Am Soc C E Proc 90 [HY 2 no 3845]:255-99 Mr '64

Velocities induced by the vortex wake of a propeller in a duct. R. Hickling. diags Roy Aeronautical Soc J 67:731-3 N '63

Viscous fluid flow under the influence of a resonant acoustic field. K. R. Purdy and others. bibliog il diags A S M E Trans ser C 86:97-106 F '64

Vortex flow in arc heaters. K. E. Tempelmeyer and L. E. Rittenhouse. bibliog diags AIAA J 2:766-7 Ap '64

Vortex generation in solid propellant rockets. J. Swithenbank and G. Sotter. bibliog diags AIAA J 2:1297-302 Jl '64

VORTEX tube

Air-conditioned clothing cools workers in hot areas. il Oil & Gas J 62:95 Je 15 '64

Development in the ventilation of protective clothing. Engineering 196:703 N 29 '63

Kaiser develops personal air coolers. il Rock Prod 67:63 O '64

Man cooling by a vortex tube device. W. F. Lienhard and others. bibliog il diag Archives Environmental Health 9:377-86 S '64

Suit with coolth. il Safety Maint 128:24 N '64

Vortex senses aircraft pitch rate. J. H. Lindahl. il diags Control Eng 11:99-100 S '64

Vortex tube cools protective clothing. il Product Eng 34:27-8 D 23 '63

Worker wears own air conditioner. il Iron Age 193:143 Mr 12 '64

VOTING machines

Electronic voting machines. il Electronics 37: 24-5 N 2 '64

VULCANIZATION

Accelerated thermomechanical testing of vulcanizates. G. J. Briggs and others. diags Rubber Chem & Tech 37:134-45 Ja '64

Acrylic elastomers; vulcanization with peroxide-coagent system. M. A. Mendelsohn. bibliog Rubber Age 95:584-8 Jl '64

Akron rubber group symposium on recent development in the molding and curing of rubber, April 2; with abstracts of papers. Rubber Age 95:290-1 My '64

Calculation of state of cure in rubber under variable time-temperature conditions. W. E. Claxton and J. W. Liska. bibliog il diags Rubber Age 95:237-44 My '64

Comparison of the vulcanization characteristics of natural and synthetic cis-1,4-polyisoprene. G. R. Himes and R. D. Sullivan. bibliog Rubber Age 95:65-70 Ap '64

Crosslinking study of millable polyurethane elastomers with phenolic resins. O. C. Elmer and A. E. Schmucker. bibliog Rubber Age 94:438-45 D '63

Cure system may overcome EPR problems. L. P. Lenas. Chem & Eng N 42:150-1 S 7 '64

Curing environment and homogeneity of diisocyanate-linked elastomers. A. J. Havlik. bibliog il diag Materials Res & Stand 4: 358-63 Jl '64

Determination of cure time with the Curometer. A. R. Payne. bibliog il diags Rubber Chem & Tech 36:922-30 O '63

Effect of network structure on aging of natural rubber vulcanizates. C. R. Parks and O. Lorenz. bibliog Ind & Eng Chem Product Res & Develop 2:279-84 D '63

Estimation, from swelling, of the structural contribution of chemical reactions to the vulcanization of natural rubber. B. Ellis and others. bibliog diag Rubber Chem & Tech 37:563-80; Discussion. 580-2 Ap '64

Fallacies, fancies, and unexplained facts. E. J. Buckler. Rubber Chem & Tech 37:sup xx-xxv Jl '64

Fluidized bed curing nears commercial stage. il Rubber World 149:57-8 N '63

Fraction of effective sulfur crosslinking in high sulfur-natural rubber vulcanizers. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37:225-8 Ja '64

Fraction of effective sulfur crosslinking in SBR vulcanizates. T. H. Meltzer and others. bibliog Rubber Chem & Tech 37: 221-4 Ja '64

Heat resistance of neoprene vulcanizates. R. O. Becker. Rubber Chem & Tech 37:76-87 Ja '64; Rubber World 149:49-53 Ja '64

Internal field emission in carbon black-loaded natural rubber vulcanizates. L. K. H. van Beek and B. I. C. F. van Pul. il Rubber Chem & Tech 37:348-54 Ap '64

Mechanism of abrasion of vulcanized rubber. A. P. Rudakov and E. V. Kuvshinskiĭ. bibliog diags Rubber Chem & Tech 37:291-6 Ja '64

Modified acrylic elastomers and their vulcanization with a peroxide-coagent system. M. A. Mendelsohn. bibliog Ind & Eng Chem Product Res & Develop 3:67-72 Mr '64

Molecular sieves in the vulcanization of rubber. G. A. Blokh and others. bibliog Rubber Chem & Tech 37:714-19 Jl '64

New rotary curing process. J. Bell. Rubber Age 95:413 Je '64

Phenolic resins cure EPT rubber. il Chem & Eng N 41:50-3 D 16 '63

Poly(alkylene oxide) rubbers. J. G. Hendrickson and others. bibliog Rubber Chem & Tech 37:1-5 Ja '64

Reactions between peroxide and polydiolefins. B. M. E. van der Hoff. bibliog Ind & Eng Chem Product Res & Develop 2:273-8 D '63

Relative contribution of viscoelasticity and aging to the relaxation of cured rubber. P. Thirion and R. Chasset. bibliog il Rubber Chem & Tech 37:617-26 Jl '64

Room temperature-curing polyurethane casting compounds. L. Montesano. il Ind & Eng Chem Product Res & Delevop 3:133-7 Je '64

Room temperature vulcanizing silicone rubber patterns extend Shaw process. D. Giles. il Tool & Manuf Eng 53:69-70 Jl '64

Self-curing acrylics. J. Steusse. Rubber World 150:78-82 My '64

Silicone rubber mechanical goods; with no postcure. C. W. Roush and others. Rubber Age 94:744-7 F '64

Some changes in double-bond structure during the vulcanization of natural rubber. F. J. Linnig and others. bibliog J Res Nat Bur Stand 68A:499-511 S '64

Studies of ozone attack of vulcanizates in a closed system. J. C. McCool. bibliog il diags Rubber Chem & Tech 37:583-605 Jl '64

Sulfur vulcanizable ethylene-propylene rubbers. G. Natta and others. bibliog diags Rubber Chem & Tech 36:988-99 O '63

Swelling of filler-reinforced vulcanizates. G. Kraus. bibliog Rubber Chem & Tech 37:6-13 Ja '64

Swelling studies of filled and unfilled vulcanizates. G. Butenuth. bibliog il Rubber Age 94:737-43 F '64; Same. Rubber Chem & Tech 37:326-37 Ap '64

VULCANIZATION—*Continued*
Symposium on cure rate of rubber by various continuous devices; abstracts of papers. Rubber Age 95:772-6 Ag '64
Ultraviolet absorption spectroscopy in the study of vulcanization. D. W. Huke and C. E. Kendall. Rubber Chem & Tech 37:709-13 Jl '64
Vulcanization. R. H. Campbell and others. bibliog diags Rubber Chem & Tech 37:635-97 Jl '64
Vulcanization of elastomers; experiments to determine the Huggins interaction parameter. K. Hummel. bibliog Rubber Chem & Tech 37:446-50 Ap '64
Vulcanization of elastomers; the kinetics of crosslinking. W. Scheele and K.-H. Hillmer. bibliog Rubber Chem & Tech 37:698-708 Jl '64
Vulcanization of fluoroelastomers with difluorodiazine. J. F. Smith and J. R. Albin. bibliog diag Ind & Eng Chem Product Res & Develop 2:284-6 D '63
Vulcanization of polyisobutylene. P. Viohl and others. bibliog Rubber Age 94:594-7 Ja '64
Vulcanization of poly(vinyl alkyl ethers) with dicumyl peroxide and sulfur. J. Lal and J. E. McGrath. bibliog Rubber Chem & Tech 36:1159-72 O '63
Vulcanization of rubber. A. H. King. bibliog Rubber Chem & Tech 36:sup xxxi-xlii D '63
Vulcanizing efficiency during the scorch period. R. H. Gerke. bibliog Rubber Chem & Tech 36:1153-8 O '63
Zinc ion chelates explain delayed-action rubber cures; abstract A. Y. Coran. Chem & Eng N 42:82 S 14 '64

Accelerators

Accelerators are in for some changes. D. G. Rodenburg. Can Chem Process 48:75-7 My '64
Behavior of sulfenamide accelerators under adverse processing conditions. A. Dibbo and others. Rubber Chem & Tech 36:911-21 O '63
Delayed action accelerators in polybutadiene/SBR blends. A. R. Davis and R. A. Naylor. Rubber World 149:54-7 D '63
Early publication of accelerators. H. L. Trumbull. Rubber Chem & Tech 36:sup xxix-xxx D '63
Evaluation of sulfur donors in ethylene-propylene rubber. J. F. Quirk and others. Rubber Age 94:733-6 F '64
Quenching reaction is key to delayed action curing of rubber. R. H. Campbell and A. Y. Coran. Chem & Eng N 42:40-1 My 18 '64
Spectrophotometry and chromatography for identification of antioxidants and accelerators in rubber mixtures. A. Fiorenza and others. bibliog diag Rubber Chem & Tech 36:1119-28 O '63
Studies on the kinetics of vulcanization of rubber. H. L. Taneja and S. Banerjee. bibliog Rubber Chem & Tech 37:557-62 Ap '64
Techniques of silicone rubber processing. D. C. Youngs and G. M. Konkle. bibliog il diags Rubber Age 95:736-45 Ag '64
Thermostability of sulfenamide accelerators in tire compounds. W. Kleeman and G. Erben. bibliog Rubber Chem & Tech 37:204-9 Ja '64

W

WESCON. See Electronics industry—Western States
WADELL, Hakon
Memorial. J. H. Bretz. por Geol Soc Bul 75:sup53-5 Mr '64
WADSWORTH, Guy W. Jr.
1964-65 president of American gas association. J. F. Ebdon. pors Gas 40:74-8 O '64
WAGE incentives. See Wage payment plans
WAGE payment plans
Employee incentive plans. Dom Eng 204:88-90 Jl '64
How to make an incentive system do what it should; raise productivity. J. R. Boehringer and E. A. Cyrol. Steel 155:90-4 Ag 10 '64
Measured daywork becoming fashionable. Engineering 197:797 Je 12 '64
Which are better for the corrugated industry: incentive standards or day work standards? panel discussion. Tappi 47:sup 160A-70A Ap '64
See also
Overtime

WAGES
Nuclear hazard pay issue heads for utility showdown. Elec World 160:14 N 11 '63
Pins and loops read out miner deployment data. A. J. Spencer. diags Control Eng 11:123 My '64

Laws and regulations

Builders gain in Walsh-Healey fight. Am Mach 108:55 F 3 '64
See also
Overtime

Great Britain

Payment of staff; the Payment of wages act, 1960. E. Mitchell. Engineer 216:848-9 N 22 '63
Wages in a time of technological change; Steel company of Wales. Engineering 197:180 Ja 31 '64
WAGNER-MEERWEIN rearrangements. See Molecular rearrangements
WAITING time. See Queuing theory
WAKE, Laminar. See Fluids
WALES
See also
Hydroelectric plants—Wales
WALKWAYS
See also
Moving platforms
WALL board
Flintrock production expanded with new eastern operation; Flintkote's New Jersey gypsum products plant. B. C. Herod. il Pit & Quarry 57:76-81 Ag '64
Process innovations highlight gypsum plant; Flintkote's Camden installation. J. H. Bergstrom. il Rock Prod 67:58-60 Ag '64
WALL coverings, Plastic
Acoustical covering; urethane in nursery helps keep babies germ-free as well as quiet. il Plastics World 21:63 N '63
Rigid PVC sheet as wall cladding. il Brit Plastics 36:680 D '63
WALLACH rearrangement. See Molecular rearrangements
WALLBOARD. See Wall board
WALLS
Interaction of sheer walls and frames. F. R. Khan and J. A. Sbarounis. bibliog diags Am Soc C E Proc 90 [ST 3 no 3957]:285-335 Je '64
Old walls take new roots. diag Eng N 172:51 Ap 16 '64
Prestressed cables brace big cube; Vertical Assembly building housing the Moon-rocket booster. il Eng N 172:67 Mr 19 '64
Search for architectural principles; Lillibridge elementary school addition, Detroit. il plans diag Prog Arch 45:182-5 S '64
Stresses in point supported composite walls. S. Rosenhaupt. bibliog diags Am Concrete Inst J 61:795-810 Jl '64
Walls become columns, and vice versa. W. C. Wing. il plans diag Arch Rec 135:202-4 Mr '64
Waterproofing damp walls. il Engineering 198:252 Ag 21 '64
See also
Retaining walls
WALLS, Aluminum
Prefab rooms built with insulated aluminum panels. diag Mod Metals 19:70 Ja '64
Steel siding: how great is the threat? F. L. Church. diag Mod Metals 19:58+ D '63
WALLS, Brick
Brick bearing walls emerge in a new form. il plans diags Arch Rec 134:186-91 N '63
WALLS, Concrete
Approximate analysis of shear walls subject to lateral loads. R. Rosman. diags Am Concrete Inst J 61:717-33 Je '64
Barrier walls cut transformer noise. A. R. Compton and A. L. Trice. il diags Elec World 160:82-3+ N 18 '63
Building with concrete blocks. Engineering 197:171 Ja 24 '64
52-ft panels form bearing walls. il Eng N 173:27 S 3 '64
First underground wall by Terrephragm. Engineering 197:361 Mr 6 '64
Formwork: time-saver standards. S. Howard. diags Arch Rec 136:256 S '64
Precast load-bearing exterior wall; Dearborn Towers, Dearborn, Mich. il plan Arch Rec 136:122-3 Ag '64
Precast walls support police headquarters. il Eng N 172:73 Mr 19 '64
Study made on masonry wall reinforcing. il Am Concrete Inst J 61:sup 15 Jl '64
Tests for precast wall panels. Am Concrete Inst J 61:369-82 Ap '64
Thin cutoff goes deep to seal dam foundation. il diag Eng N 173:30-3 Ag 27 '64

WALLS, Glass

Cables prestress 18-ft window-wall. il Eng N 172:50 Je 11 '64

Glassmaker breaks big panels, shatters an old idea. il Eng N 172:30-2 Ja 9 '64

Hanging glass; bigger, better. il diag Eng N 172:37-8 Ja 16 '64

WALLS, Interior

Ceramic tile's advantages. il Safety Maint 128:52-4 S '64

See also

Paneling
Partitions
Plaster and plastering

WALLS, Plastic

Reinforced-plastics in a defense job; panels are nonarcing, weather-resistant. il Plastics World 21:167 N '63

WALLS, Steel

Steel siding; how great is the threat? F. L. Church. diag Mod Metals 19:58+ D '63

Tallest steel bearing walls. il diags Arch Rec 135:194-6 My '64

WAR games

Combat value of intelligence and command control systems. T. S. Schreiber. Op Res 12:507-10 My '64

Electro-optics; modern war game munitions. J. A. Houston. il diags Electronics 37:27-31 Mr 6 '64

Lagrange multipliers and the optimal allocation of defense resources. G. E. Pugh. Op Res 12:543-67 Jl '64

Present state of the Lanchester theory of combat. L. Dolanský. diags Op Res 12:344-58 bibliog(p356-8) Mr '64

Stochastic duels with limited ammunition supply. C. J. Ancker, jr. diags Op Res 12:38-50 Ja '64

Use of Lanchester's theory for prediction. R. L. Helmbold. Op Res 12:778-81 S '64

WAREHOUSES

Adjustable dockboards pave way for automated warehouse. il Safety Maint 128:19+ S '64

Distillery plant and bonded warehouse at Harlow. il Engineer 217:1032-4 Je 12 '64

Hyperbolic-paraboloid shells form clerestories and cantilevered canopies. il Eng N 172:152 Je 18 '64

New bonded warehouse for export whiskey. il Engineering 196:701 N 29 '63

Racking integrated with building structure. il Engineering 197:83 Ja 17 '64

Systems boost service, save warehouse space. il Mod Materials Handling 19:67 Jl '64

Tied ribs resist sugar pressure. il Eng N 173:37 Jl 16 '64

See also

Cold storage warehouses

Equipment

Automatic control for a shoe warehouse. Electronic Eng 36:447 Jl '64

Automatic pallet elevator in warehouse. il Engineering 197:809 Je 12 '64

Buying a stacker crane? W. R. Platte. il diags Plant Eng 18:126-8 F '64

Computer control of materials handling; abstract. R. P. Noonan. Automation 11:146+ Je '64

Computer-run warehousing; blended automation and men. J. A. Eaton. il diag Mod Materials Handling 19:38-42 N '64

Electrical features of a modern warehouse. K. Chen. il diag Elec Constr & Maint 62:111-13 N '63

Enlarged services and new premises for G. W. aluminium co. il Metallurgia 69:181-2 Ap '64

GM's small-parts storage; space misers fill the cube. J. A. Eaton. il Mod Materials Handling 19:40-3 Ag '64

Handling's automatic pilot the driverless tractor. il Mod Materials Handling 19:46-9 S '64

Lightning protection for whiskey warehouse. R. E. Ward. il plan Elec Constr & Maint 63:94-5 Je '64

Maintainance stars in handling profits; illustrations with text. Mill & Factory 74:74-7 Ja '64

Millions of cigars shipped daily from giant mechanized humidor. il Mill & Factory 75:58-60 Jl '64

New clamp-truck study presented to old food warehousemen. il Mod Materials Handling 19:7 S '64

New slant to automatic order picking. il diag Mod Materials Handling 19:46-8 Je '64

Scottish use for a stacker crane. il Engineering 196:764 D 13 '64

Self-guiding platform ups picker's productivity. B. A. Hammann. diag Mod Materials Handling 19:44-5 S '64

Unique manipulators perform handling operations in automated cigar warehouse. flow diag il Automation 11:63-5 O '64

Warehouse computer links order picking with invoicing. C. L. Philps and L. Rowland. il diag Control Eng 11:101-2 Mr '64

Heating and ventilation

Analysis of heating methods for a materials center. J. W. Welsh and R. E. Jenkins. il ASHRAE J 6:35-40+ Mr '64

Lighting

Lighting a large storage area. W. R. Greylak. il Illum Eng 59:472 Je '64

Lighting a storage area; lighting data sheet. G. T. Anderson, jr. il Illum Eng 59:267 Ap '64

WAREHOUSING

Achievement in a warehouse; how Goodyear gets output. D. Paxton. il Mod Materials Handling 19:36-40, cover Je '64

Automated system handles unitized warehouse loads. Chem & Eng N 42:92 Ap 13 '64

Evaluation of warehousing methods. H. A. Zollinger. il diags Automation 11:62-7 Jl '64

Industrial engineering, inventory control, maintenance at Jamaica's mines. M. Eigo. il Eng & Min J 165:112-14 My '64

Mechanized and automated warehousing. H. A. Zollinger. il diags Westinghouse Eng 24:24-9 Ja '64

Mezzanine solved finisher's storage problem. il Textile Ind 128:155 S '64

New; remote control over towline systems. H. P. Thatcher. il diags Mod Materials Handling 19:66-9 O '64

Novel storing-moving system; containers that come alive. il Mod Materials Handling 19:42-3 Jl '64

Offers pushbutton storage. il Food Eng 36:142 My '64

Paper warehouse; bags stored outside keep bulk dry. il Mod Materials Handling 19:52 N '64

Pipe-and-film huts; low-cost protection. il Mod Materials Handling 18:61 D '63

Puerto Rico studies handling; abundance for mañana. il Mod Materials Handling 19:44-5 N '64

Sophisticated communications, plus Trukveyor optimize Con Ed's stores operation. il diag Elec World 162:68-9 N 2 '64

Stacker crane is key to increased efficiency. il Mod Materials Handling 19:78 Mr '64

Warehouse grows 40 percent in same-size building. il Mod Materials Handling 18:54-5 N '63

WARM air heating. See Heating, Warm air

WARPING machines

Hanover textile exhibition; significance for warp knitters. il Textile Ind 127:103-5+ D '63

WARRANTY

Court decisions; mascara causes injury. H. N. Morse. Drug & Cosmetic Ind 93:661 N '63

Equipment and performance guarantees. N. H. Parker. Chem Eng 71:113-16 S 28 '64

Trends in product liability claims. L. F. Senger. Drug & Cosmetic Ind 94:500-2+ Ap '64

WARSHIPS

Distinctive ships; sophisticated missile ship General H. H. Arnold. il Marine Eng/Log 68:88+ D '63

New 177 foot corvettes. E. C. Fisher. il plans diags Naval Eng J 76:583-6 Ag '64

Shipborne missile systems. R. K. Irvine. il Naval Eng J 76:352-8 Je '64

Some development requirements for surface ships. W. A. Brockett. Naval Eng J 76:675-8 O '64

Trends in naval shipboard electrics. A. A. Bergson and J. W. Thornbury. il diags Naval Eng J 76:13-20 F '64

Vosper's new high performance corvette. il diag Engineering 198:137 Jl 31 '64

See also

Airplane carriers
Submarine boats

Electronic equipment

Electrical engineering in the Royal navy. il Engineer 218:208-9 Ag 7 '64

Microelectronics; its impact on naval ships. W. R. Boehm. il diags Naval Eng J 76:365-75 Je '64

Navy's need of electrical officers. il Engineering 198:38-9 Jl 10 '64

Programming a shipboard real-time computer system. G. G. Chapin. il diags Naval Eng J 76:231-40 Ap '64

WARSHIPS—*Continued*

France

New French and Italian warships; illustrations with text. Engineer 217:99 Ja 10 '64

Germany

German navy gets another Deutschland. il Marine Eng/Log 69:24H F '64

Ghana

General purpose corvette for Ghana. il Engineer 218:158-9 Jl 31 '64

Great Britain

HMS Aurora, anti-submarine frigate. il Engineering 197:629 My 8 '64

Names for naval ships. Engineer 218:283 Ag 21 '64

New British warships; illustrations wtih text. Engineer 217:98 Ja 10 '64

Royal navy, 1963. il Engineer 217:4-7 Ja 3 '64

Standardized fleet tenders for the British Royal navy. K. Darling. il Naval Eng J 76:619-20 Ag '64

Italy

New French and Italian warships; illustrations with text. Engineer 217:99 Ja 10 '64

United States

Fiscal '65 navy shipbuilding program. il Marine Eng/Log 69:159+ Je 15 '64

Navy's 110-ton PCH exceeding 45 knots, is first craft with fully submerged foils. il Marine Eng/Log 69:59-61 F '64

New United States warships; illustrations with text. Engineer 217:100-1 Ja 10 '64

Prime contractor details cutter's combined Diesel and gas turbine propulsion plant. il Marine Eng/Log 69:78 Jl '64

Work distribution in a high pressure naval turbine. J. H. Potter and J. G. Lynch. bibliog diags Naval Eng J 76:299-304 Ap '64

WASHERS (machinery)

Design of spring washers; with nomographs. E. Loeffel. il diags Mach 70:115-25 N '63; 107-19 Ja '64

Electronic gage automatically selects washers of correct thickness. il Mach 70:124 D '63

WASHING

Soil removal as a rate process. L. Loeb and others. bibliog Am Oil Chem Soc J 41:120-4 F '64

See also

Laundry

Sand washing

WASHING machine wringers. See Wringers, Washing machine

WASHING machines

New Parnall spinwasher de luxe and the Thermair heated spin dryer. il Engineering 197:496 Ap 3 '64

Control

Computer-controlled washer. G. D. Hatchett. Electronics 37:164+ Ag 10 '64

WASHING machines (for metal parts)

Automatic machine eliminates parts cleaning bottleneck. il Mach 71:162-3 O '64

WASHINGTON, D.C.

See also

Architecture, Domestic—Washington, D.C.

Architecture

Culture center imbroglio. Prog Arch 45:89 Je '64

Master plan proposed for Pennsylvania Avenue. il plan Prog Arch 45:68-9 Jl '64

National geographic society office building. il plan Arch Rec 136:150-3 O '64

Pennsylvania Avenue. il plans Arch Forum 121:65-75 '64

Plan prescribles a grand national axis for redevelopment of Pennsylvania Avenue. il plans Arch Rec 136:23+ Jl '64

Pre-Columbian art in a post-modern museum; Dumbarton Oaks. il plan Arch Forum 120:106-11 Mr '64

Capitol

See United States—Capitol

Streets

Grand style urged for Washington's Pennsylvania Ave. il Eng N 172:22-3 Je 4 '64

Low cost solution to traffic congestion. il Pub Works 95:132-3 S '64

No foolin way to yank out old street car tracks. il Roads & Sts 107:38-9 Mr '64

Pennsylvania Avenue gets new surface. W. F. Reynolds. il Pub Works 95:92-4 Ja '64

Subways

Capital subway trimmed further. map Eng N 172:17 Mr 26 '64

Water supply

New filter and chemical buildings for the District of Columbia water system. J. W. Krasauskas and P. D. Haney. il Water & Sewage Works 111:106-11 F '64; Excerpts. Pub Works 95:166+ My '64

WASHINGTON (state)

See also

Atomic power plants—Washington (state)

Geology—Washington (state)

Petroleum—Washington (state)

WASHROOMS. See Lavatories

WASLEY, William L.

1964 ADR award. por Am Dyestuff Rep 53:912 O 26 '64

WASTE

See also

Coal waste

Metal waste

Scrap metal

Trade waste

Waste fuel

Waste paper

also subdivision Waste under special subjects, e.g.

Hospitals

Paper and pulp mills

Petroleum refineries

Woolen and worsted mills

WASTE, Utilization of

Advanced treatment of wastewaters for reuse. F. M. Middleton. il diag Water & Sewage Works 111:401-9 S '64

Bright dip phosphoric acid recovery system. W. E. Rushton. flow sheets Plating 51:693-4 Jl '64

Comparative study of recovery of zinc and nickel by ion exchange media and chemical precipitation. D. Kantawala and H. D. Tomlinson. bibliog diag Water & Sewage Works 111:192-7 Ap '64

Control of water pollution by wastewater utilization; the role of the WPCF. A. J. Steffen. Water & Sewage Works 111:384-5 S '64

Energy recovery for profit. P. R. Des Jardins. bibliog il diags Chem Eng 71:161-8 My 11 '64

First fluidized solids lime mud recovery system in a paper mill; S. D. Warren co. H. J. Hotz and others. il diag Pit & Quarry 56:116-19+ My '64

Gas recovery aids steelmakers. il diag Iron Age 194:63 Jl 30 '64

Hot briquetting of flue dust. F. J. McMulkin and N. G. Thomas. il diag J Metals 16:246-51 Mr '64

Is the fly ash disposal problem solved? S. Levine. bibliog il Rock Prod 67:60-1 Je '64

Lightweight aggregate from fly ash. A. S. Pearson. il diags Civil Eng 34:50-3 S '64

Management of wastes in the food producing and food processing industries. S. A. Hart and P. H. McGauhey. bibliog il Food Tech 18:432-8 Ap '64

Once-used municipal water as industrial supply in retrospect and prospect. C. H. Connell and M. C. Forbes. bibliog Water & Sewage Works 111:397-400 S '64

Palladium curbs hydrogen waste. il Iron Age 193:86 My 7 '64

Potable water recovered from urine by filtration. il Chem & Eng N 42:50-1 Ap 6 '64

Quality aspects of waste water reclamation. P. R. Bonderson. bibliog Am Soc C E Proc 90 [SA 5 no 4104]:1-8 O '64

Reclamation of process water. D. J. Randall. Water & Sewage Works 111:414-16 S '64

Save and use waste vapor from vapor degreasers. Ind Finishing 40:104-5 O '64

Sewage gas used to fuel Los Angeles steam plant. Elec World 161:97 Ja 13 '64

Sewage treatment plant effluent for water reuse. L. K. Cecil. il Water & Sewage Works 111:421-3 S '64

Sintering profit from a waste-disposal problem. D. MacDonald. il diag Chem Eng 71:34+ Ag 31 '64

Space capsule waste treatment and potable water recovery. W. T. Ingram and others. diags WPCF J 36:38-50 bibliog(p49-50) Ja '64

Turn waste into sales. il Rock Prod 67:121-2 My '64

Use of secondary fibers in top liners of folding boxboard. D. S. Brown. Paper Ind 46:305-6 Jl '64

WASTE, Utilization of—*Continued*

Utilization of materials derived from treatment of wastes from molasses distilleries; abstract. T. R. Bhaskaran. WPCF J 36:292-3 Mr '64

Waste problem whipped at acetylene plants; Airco Chemical. B. C. Herod. il diag Pit & Quarry 56:98-9+ My '64

See also

Refuse, Utilization of
Sewage, Utilization of
Sulfite liquor
Trade waste irrigation

WASTE cans. See Refuse receptacles

WASTE disposal. See Radioactive waste disposal; Trade waste disposal

WASTE fuel

Steam generation; steam generators for special applications; use of energy from gaseous, solid or liquid by-products. R. J. Bender. il diags Power 108:sup 39-41 Je '64

WASTE heat

Can we use waste steam in snow melting coil? answer. H. B. Wayne. diag Heating-Piping 36:95 S '64

Compressor-engine waste heat reconcentrates glycol. C. J. Carmichael. il diags Oil & Gas J 62:72-4 N 2 '64

Gas-turbine-supercharged cycle offers steam generator savings. W. P. Gorzegno and R. J. Zoschak. diags Elec World 162:54-7 O 5 '64

Heat recovery systems prove succesful; heat-pump water heater. G. D. Leach, jr and J. C. Murray. il Elec World 162:118+ Jl 13 '64

Here are some ways to recover energy from refinery streams. diags Oil & Gas J 62:82-3 Ja 6 '64

How cooling systems improve Diesel performance, up thermal efficiency. W. M. Kauffmann. il diags Power 108:71-4 S '64

Incinerator's waste heat to be used in sea water conversion. Chem & Eng N 42:46 Ja 13 '64

New energy systems for building services. R. G. Meschino. bibliog diags Gas 40:112-15 Ja; 107-11 F; 127-30 Mr; 118-21 Ap '64

Service hot water from air conditioning waste heat. J. A. Bedingfield. il diag Air Cond Heat & Ven 60:77-80 N '63

Total energy systems. il diags Dom Eng 204:70-7 Jl '64

Total turbine energy in refrigeration cycles. S. T. Robinson and J. W. Glessner. il diags Gas 40:111-17 Ap '64

Unique incinerator develops power and provides salt water conversion. C. R. Velzy and C. O. Velzy. il diag Pub Works 95:90-5 Ap '64

Warren likes gas turbines. il Pet Management 36:61-3 Ag '64

Waste heat recovery for glass tanks. J. Waitkus. il diags Glass Ind 45:301-6+, 370-1+ Je-Jl '64

Water-cooled membrane hoods for basic oxygen furnaces. E. Durham. il plans diags Iron & Steel Eng 41:108-17; Discussion. 117-18 Ap '64

Water-desalting projects exploit cheap energy. Chem Eng 71:70 F 17 '64

See also

Boilers, Waste heat
Furnaces, Recuperative and regenerative
Heat exchangers
Refuse incinerators—Heat utilization

WASTE paper

Application and use of cyclones in deinking systems. S. Fahlgren. Tappi 47:sup 166A-7A Mr '64

Deinking conference, 8th, Dayton, Oct. 2-4; with abstracts of papers. Tappi 46:sup 90A-3A D '63

Development and manufacture of equipment for handling wastepaper. J. McKela. diags Tappi 46:sup 190A-5A N '63

Experience in defibering high groundwood paper stock. H. E. Corwin and A. Schabowski. il Tappi 47:sup 123A-4A Jl '64

High-speed fiberizing equipment in secondary fiber reclamation. J. Kleinau. il diags Tappi 47:sup 121A-2A Jl '64

New considerations for the use and buying of paper stock. A. U. Claghorn. Tappi 47:sup 166A-7A Je '64

New look at the problem of secondary fibers supply. W. H. Miller. Paper Ind 46:495-8 S '64

New technology in board mill stock preparation. E. M. Root. il diags Tappi 47:sup 160A-7A O '64

Paper stock in the paper industry; a technical analysis. W. H. Miller. Tappi 47:sup36A+ Ap '64

Pulp screening equipment in deinking. D. F. Lehman. Tappi 47:sup 131A-2A Jl '64

Tile linings and process vessels in the deinking plant. B. Thomas. il diags Tappi 47:sup 184A-8A F '64

Top liner deinking for cylinder machines. E. M. Baker. Tappi 47:sup 119A-20A Jl '64

WASTE products

See also

Bagasse
Coal waste
Flue dust
Lignin
Packing houses—By-products
Refuse, Utilization of
Refuse as fertilizer
Scrap metal
Slag
Sulfite liquor
Tailings
Waste, Utilization of
Waste paper

WATCHES

Case of acetal for watches. il Mod Plastics 42:104+ S '64

Timers and timekeepers. il Engineering 197:688 My 15 '64

WATER

Action of water on calcium aluminoferrites. E. T. Carlson. bibliog J Res Nat Bur Stand 68A:453-63 S '64

Activity coefficients at infinite dilution; 2-propanol-water system. E. W. Slocum and B. F. Dodge. bibliog diag A I Ch E J 10:364-8 My '64

Anation of the *trans*-aquonitrobis-(ethylenediamine)-cobalt(III) ion a tetramethylene sulfone-water mixture. C. H. Langford and M. P. Johnson. Am Chem Soc J 86:229-32 Ja 20 '64

Attaining equilibrium in water absorption tests of epoxy casting resins. H. Lee. bibliog Materials Res & Stand 3:910-13 N '63

Catalysis in water and ice. A. R. Butler and T. C. Bruice. bibliog Am Chem Soc J 86:313-19, 4104-8 F 5, O 5 '64

Cation and water positions in faujasite. W. H. Baur. bibliog diag Am Mineralogist 49:697-704 My '64

Coefficient of thermal expansion; reduced state correlation for water in the gaseous and liquid states. K. J. De Witt and G. Thodos. bibliog Can J Chem Eng 41:258-60 D '63

Correlation of thermodynamic properties of amine-water solutions with molecular structure. R. R. Davison and others. bibliog A I Ch E J 10:471-4 Jl '64

Corrosion of iron and steel in NH_4NO_3-NH_3-H_2O solutions. G. Schick and H. H. Uhlig. bibliog il Electrochem Soc J 111:1211-15 N '64

Dehydration series in the system $CaSiO_3$-SiO_2-H_2O. R. I. Harker. bibliog il Am Cer Soc J 47:521-9 O '64

Determination of dissolved oxygen by the Winkler method and the solubility of oxygen in pure water and sea water. H. A. C. Montgomery and others. bibliog diags J Ap Chem 14:280-96 Jl '64

Diffusivities of slightly soluble gases in water. J. E. Vivian and C. J. King. bibliog A I Ch E J 10:220-1 Mr '64

Distribution of nitric acid between tri-n-butyl phosphate and water. P. E. Burns and C. Hanson. bibliog J Ap Chem 14:117-21 Mr '64

Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64

Effect of pressure and temperature upon the optical dispersion of benzene, carbon tetrachloride and water. R. M. Waxler and others. bibliog il J Res Nat Bur Stand 68A:489-98 S '64

Effect of solvent cage around cations on their mobilities depends on anion size. D. F. Evans and others. il Chem & Eng N 42:50-1 S 7 '64

Effect of starting materials on phase relations in the system CaO-Al_2O_3-H_2O. M. S Crowley. bibliog Am Cer Soc J 47:144-8 Mr '64

Effect of temperature on the charge on kaolinite particles in water. D. D. Button and W. G. Lawrence. bibliog il diags Am Cer Soc J 47:503-9 O '64

Effect of water intake on nitrogen metabolism in dogs. R. Bressani and J. E. Braham. bibliog J Nutrition 82:469-74 Ap '64

WATER—*Continued*

Effects of relative humidity and electric charge on the coalescence of curved water surfaces. N. R. Lindblad. bibliog diags J Colloid Sci 19:729-43 O '64

Equilibrium and kinetic studies on the reaction of chromium(III) ion and chloride ion in methanol-water solutions. R. J. Baltisberger and E. L. King. bibliog Am Chem Soc J 86:795-801 Mr 5 '64

Experimental investigation of the inherent uncertainty in pool boiling critical heat fluxes to saturated water. W. Gambill. bibliog diags A I Ch E J 10:502-8 Jl '64

Experimental investigation on the freezing of droplets of water and of aqueous solutions, with particular reference to the influence of the solute. Y. Uzu and others. bibliog diags J Colloid Sci 18:697-704 O '63

Experimental study of surface cooling by bubbles during nucleate boiling of water. T. F. Rogers and R. B. Mesler. bibliog il diag A I Ch E J 10:656-60 S '64

Filler's approach to water-based insecticides. H. C. Cook. Soap & Chem Spec 40:125-6+ Jl '64

How clay and water affect dry strength. B. C. Yearley and J. D. Hedberg. Foundry 92:76-9 Je; 60-2 Jl '64

Hydrates at high pressures: methane-water, argon-water, and nitrogen-water systems. D. R. Marshall and others. bibliog diag A I Ch E J 10:202-5 Mr '64

In vivo intestinal transport of calcium and water from solutions recycled through healed gut loops in dogs. C. F. Cramer. bibliog J Nutrition 84:118-24 O '64

Influence of chemical composition of water on clay blocking of permeability. F. O. Jones, jr. bibliog diags J Pet Tech 16:Trans 441-6 Ap '64

Interaction of water with a Li kaolinite surface. R. A. Kohl and others. bibliog J Colloid Sci 19:699-707 O '64

Interaction of water with iron and titanium oxide surfaces; goethite, hematite, and anatase. J. J. Jurinak. bibliog J Colloid Sci 19:477-87 Je '64

Ion association in polyvalent symmetrical electrolytes; the conductance of manganese (II) sulfate and manganese(II) *m*-benzenedisulfonate in acetone-water mixtures at 25°. G. Atkinson and S. Petrucci. bibliog Am Chem Soc J 86:7-10 Ja 5 '64

Light scattering and the structure of pure water. K. J. Mysels. bibliog Am Chem Soc J 86:3503-5 S 5 '64

Light scattering measurements near the lower critical solution temperature of the 2,6-dimethylpyridine-water system. R. Pancirov and H. Brumberger. bibliog Am Chem Soc J 86:3562-3 S 5 '64

Low pressure solubility of *n*-butane in water. J. G. LeBreton and J. J. McKetta. Hydrocarbon Process & Pet Refiner 43:136-8 Je '64

Medium effects on the dissociation of weak acids in methanol-water solvents. E. E. Sager and others. bibliog J Res Nat Bur Stand 68A:305-12 My '64

Method of diatomics in molecules; general theory and application to H_2O. F. O. Ellison. bibliog Am Chem Soc J 85:3540-4 N 20 '63

Molecular structure in monolayers of saturated triglycerides on water as related to three-dimensional polymorphic forms. D. R. Merker and B. F. Daubert. bibliog Am Chem Soc J 86:1009-12 Mr 20 '64

Organic ions in the gas phase; loss of water from primary alcohols under electron impact. S. Meyerson and L. C. Leitch. bibliog Am Chem Soc J 86:2555-8 Jl 5 '64

Oxide films formed on copper single crystal surfaces in water. J. Kruger and J. P. Calvert. bibliog diags Electrochem Soc J 111:1038-41 S '64

Penetration of water into plastically deformed NaCl. A. T. Kellogg and R. O. Pohl. bibliog J Ap Phys 35:1359-60 Ap '64

Phase-equilibrium relations in the system nepheline-albite-water at 1,000 kg/cm. A. D. Edgar. bibliog J Geol 72:448-60 Jl '64

Pressurized water based space sprays. J. B. Moore and G. J. Baker. Soap & Chem Spec 40:75-8+ Jl '64

Propagation characteristics of capillary ripples; capillary ripple velocity and attenuation dispersion on clean water surfaces and on various monolayers. J. A. Mann, jr. and R. S. Hansen. bibliog J Colloid Sci 18:805-19 D '63

Properties of organic-water mixtures; activity coefficients of sodium chloride, potassium chloride, and barium nitrate in saturated water mixtures of glycol, glycerol, and their acetates; model solutions for hyperfiltration membranes. K. A. Kraus and others. Am Chem Soc J 86:2571-6 Jl 5 '64

Pulse radiolytic determination of p*K* for hydroxyl ionic dissociation in water. J. Rabani and M. S. Matheson. Am Chem Soc J 86:3175-6 Ag 5 '64

Rational equation of state for water and water vapor in the critical region. E. S. Nowak. bibliog A S M E Trans ser C 86:320-6 Ag '64

Reaction between anhydrous ethyleneimine and water. P. F. Pascoe and W. A. Sherbrock-Cox. bibliog diag J Ap Chem 13:564-72 D '63

Reaction of GaP(s) with $H_2O(g)$ and the range of stability of GaP(s) under pressures of Ga_2O and P_2. C. D. Thurmond and C. J. Frosch. bibliog diag Electrochem Soc J 111:184-91 F '64

Relation between H_0 and water activity. C. Perrin. bibliog Am Chem Soc J 86:256-8 Ja 20 '64

Sedimentation of monodisperse polystyrene latex spheres in water. D. H. Woodward. J Colloid Sci 19:238-44 Mr '64

Sodium tri(poly)phosphate in the kaolinite-water system. J. W. Lyons. bibliog J Colloid Sci 19:399-412 Je '64

Solvent effects in organic chemistry; solvation of stable carbonium and ammonium ions in water; the temperature coefficient of the H_R acidity scale. E. M. Arnett and R. D. Bushick. bibliog Am Chem Soc J 86:1564-71 Ap 20 '64

Sorption of water on compacts of bottle-hydrated cement. R. F. Feldman and P. J. Sereda. bibliog J Ap Chem 14:87-104 F '64

Specificity of the electron-impact induced elimination of water from alcohols and related reactions in the mass spectrometer. W. Benz and K. Biemann. bibliog Am Chem Soc J 86:2375-8 Je 20 '64

Surface charge of alumina and magnesia in aqueous media. M. Robinson and others. bibliog diag Am Cer Soc J 47:516-20 O '64

Theoretical solubility of H_2O in silicate melts; quasi-crystalline models. H. R. Shaw. J Geol 72:601-17 bibliog(p617) S '64

Thermal diffusion of salt solutions in single-stage cells and in continuous horizontal columns; the system copper sulfate-cobalt sulfate-water. G. T. Fisher and others. bibliog diags A I Ch E J 9:786-93 N '63

Transport of water through monolayers of long-chain *n*-paraffinic alcohols. V. K. La Mer and others. bibliog J Colloid Sci 19:673-84 O '64

Vapor-liquid equilibrium; the system water-butyl glycol from 5 to 85°. G. Scatchard and G. M. Wilson. bibliog Am Chem Soc J 86:133-7 Ja 20 '64

Water recovery from fuel cells and lunar minerals. F. J. Hendel. bibliog diags Ind & Eng Chem 56:29-31 Mr '64

Water the worst explosive. W. L. Nelson. Oil & Gas J 62:148 Mr 16 '64

See also

Cooling water
Drops
Feed water
Floods
Hydration
Lakes
Mineral waters
Moisture
Ocean
Sea water
Springs
Water supply
Waves

Aeration

Artificial aeration of canals in Chicago. A. J. Kaplovsky and others. bibliog il plan WPCF J 36:463-74 Ap '64

Alkalinity

Simplifying cooling tower make-up treatment. F. N. Kemmer. il ASHRAE J 6:42-3 Ja '64

Analysis

Automatic analysis of water processes. C. W. Slagle. Tappi 47:sup 186A-7A O '64

Automatic dissolved oxygen titration apparatus. W. D. Johnson and others. il WPCF J 35:1489-91 N '63

WATER—Analysis—*Continued*

Catalytic determination of vanadium in water. M. J. Fishman and M. W. Skougstad. bibliog Anal Chem 36:1643-6 Jl '64

Chemical analysis of radioactive materials in water. T. F. Craft and others. Am Water Works Assn J 56:1357-68 O '64

Detection of pesticides in water by biochemical assay. C. W. Weiss and J. H. Gakstatter. bibliog WPCF J 36:240-53 F '64

Determination of permanent gases dissolved in water by gas chromatography. A. A. Kilner and G. A. Ratcliff. flow diag Anal Chem 36:1615-17 Jl '64

Determination of water in granular fertilisers by a modified Karl Fischer method. I. Johnston and E. J. Smith. Chem & Ind p315 F 22 '64

Determination of water in red fuming nitric acid by Karl Fischer titration. E. A. Burns and R. F. Muraca. bibliog il Anal Chem 35:1967-70 N '63

Di-β-naphthylthiocarbazone (dinaphthizone) compared with dithizone as an analytical reagent for the determination of trace metals in natural waters. O. W. Lombardi. bibliog Anal Chem 36:415-18 F '64

Differential dielectric apparatus for determining water added to solvents. W. C. Wolfe. bibliog diag Anal Chem 35:1884-7 N '63

Dissolved oxygen measurement by constant-potential derivative coulometry. E. L. Eckfeldt and E. W. Shaffer, jr. bibliog diags Anal Chem 36:2008-13 S '64

Experiments for the determination of limit of allowable concentration of trichlorobenzene in water reservoirs; abstract. K. F. Meleschenko. Pub Works 94:148 N '63

Fluorometric and spectrophotometric determination of aluminum in industrial water. C. A. Noll and L. J. Stefanelli. Anal Chem 35:1914-16 N '63

Gas chromatographic method for silvex. W. H. Gutenmann and D. J. Lisk. Am Water Works Assn J 56:189-90 F '64

Hydro-chromagraph, a process-type water analyzer combining chromatographic separation and electrolysis cell detection. C. J. Penther and L. J. Notter. il diags Anal Chem 36:283-6 F '64

Identification of organic pollutants by infrared spectroscopy. F. A. Voege and H. L. Vanesche. Am Water Works Assn J 56:1351-6 O '64

New techniques in use of microflash equipment in the analysis of water and wastewater. M. Mayer. il WPCFJ 36:263-4 F '64

Organic micropollution instrumentation and measurement. R. T. Skrinde and H. D. Tomlinson. bibliog diag WPCF J 35:1292-306 O '63; Abstract. Pub Works 95:120 Ja '64

Pollutional effects of outboard motor exhaust; laboratory studies. J. N. English and others. bibliog WPCF J 35:923-31 Jl '63; Correction. 35:1413 N '63

Some aspects of the chemical evolution of cave waters. H. D. Holland and others. bibliog maps diags J Geol 72:36-67 Ja '64

Use of Karl Fischer reagent for the determination of water in condensates of sodium tetraborate and diols. C. B. Jordan. Anal Chem 36:424-5 F '64

Watch on the Raritan monitors water quality. il map Pub Works 95:112-13 My '64

Water determination by gas chromatography. O. F. Bennett. bibliog Anal Chem 36:684 Mr '64

See also
Water—Bacteriology

Bacteriology

Better service through cleaner distribution systems. H. W. Stokes. Am Water Works Assn J 56:393-9 Ap '64

Coliform standards for recreational waters; progress report. Am Soc C E Proc 89 [SA 4 no 3617]:57-94 bibliog(p91-4) Ag '63; Discussion. 89 [SA 6 no 3745]:77-8 D '63; 90 [SA 1 no 3813]:173 F; [SA 2 no 3884]:39-46 Ap '64; Reply. 90 [SA 5 no 4097]:47-9 O '64

Contamination of water by viruses. D. M. McLean. bibliog Am Water Works Assn J 56:585-91 My '64

Correlation of coliform and fecal streptococcus indices with the presence of salmonella and enteric viruses in polluted seawater and shellfish; abstract. L. W. Slanetz and others. WPCF J 36:310-11 Mr '64

Detection and sanitary significance of fecal streptococci in water. L. W. Slanetz and C. H. Bartley. bibliog Am J Pub Health 54:609-14 Ap '64

Dissolved oxygen and survival of coliform organisms and enterococci. N. B. Hanes and others. diag Am Water Works Assn J 56:441-6 Ap '64

Effectiveness of potassium permanganate for disinfection. J. L. Cleasby and others. bibliog il Am Water Works Assn J 56:466-74 Ap '64

Engineering aspects of waterflood bacteriology. R. W. Amstutz and L. C. Reynolds. J Pet Tech 15:1073-6 O '63

Freshwater bacteria in relation to industrial problems; symposium abstracts. Chem & Ind p812-13 My 9 '64

Microbiological and virological aspects of water pollution. L. Coin and others. WPCF J 36:268-9 Mr '64

Observations of coliform bacteria in streams. F. W. Kittrell and S. A. Furfari. bibliog WPCF J 35:1361-85 N '63; Abstract. Pub Works 95:146-7 F '64

Quantitative biological measure of stream pollution. D. L. King and R. C. Ball. bibliog WPCF J 36:650-3 My '64

Rapid carbon test for coliform bacteria in water. R. M. Scott and others. bibliog Am J Pub Health 54:827-33 My '64

Reevaluation of the significance of the coliform bacteria. H. F. Clark and P. W. Kabler. bibliog Am Water Works Assn J 56:931-6 Jl '64

Relationship of recreational use to bacterial densities of Forrest Lake. D. A. Rosebery. bibliog il Am Water Works Assn J 56:43-59 Ja '64

Studies on microbiotic cycles in surface waters. J. K. G. Silvey and A. W. Roach. bibliog Am Water Works Assn J 56:60-72 Ja '64

Bound water

Water recovery in lunar environment. R. N. Rickles. diags Space/Aeronautics 41:103+ Mr '64

Color

Aging of waters in reservoirs of the Piedmont plateau. R. D. Wilroy and R. S. Ingols. bibliog maps Am Water Works Assn J 56:886-90 Jl '64

Deactivation and deaeration

Free-standing deaerator cuts cost of plant design, New Orleans public service, inc. J. H. Hemsarth. il diag Power Eng 68:55 Je '64

Demineralization

See Water purification—Demineralization

Hardness

Correlations between water hardness and cardiovascular deaths in Oklahoma counties. R. D. Lindeman and J. R. Assenzo. bibliog map Am J Pub Health 54:1071-7 Jl '64

Method for simultaneous determination of calcium and magnesium. H. Katz and R. Navone. Am Water Works Assn J 56:121-3 Ja '64

See also
Water softening

Heavy water

Determination of the deuterium content of a sample of deuterium oxide by three methods. M. Goldblatt and W. M. Jones. bibliog diag Anal Chem 36:431-2 F '64

Diffusion flame burner for continuous combustion of hydrogen. D. Gupta and others. bibliog diags Ind & Eng Chem Proc Design 3:70-3 Ja '64

Radical and molecular yields in the γ-radiolysis of D_2O and H_2O vapor. J. H. Baxendale and G. P. Gilbert. Am Chem Soc J 86:516 F 5 '64

Spectrophotometric determination of hydrogen content in heavy water. G. Gordon and H. Yamatera. Anal Chem 36:1866-7 Ag '64

Tritium-labeled compounds; determination of isotope effects in reactions yielding water-*t* from nonvolatile reactants; oxidation of aldoses-1-*t* with iodine. H. S. Isbell and L. T. Sniegoski. bibliog J Res Nat Bur Stand 67A:569-72 N '63

Laws and regulations

See Water laws and regulations

Standards

USPHS activities and the water industry. C. H. Atkins. Am Water Works Assn J 56:1290-6 O '64

WATER—*Continued*

Temperature

Annual variation of stream water temperature. J. C. Ward. flow diag map Am Soc C E Proc 89 [SA 6 no 3710]:1-16 D '63; Discussion. 90 [SA 4 no 4006]:87-100 Ag '64

Influence of water temperature on performance of solids-contact units. C. D. Eaton. bibliog diags Tappi 47:sup 188A-91A O '64

Prediction of temperature in rivers and reservoirs. J. M. Raphael. bibliog Am Soc C E Proc 88 [PO 2 no 3200]:157-81 Jl '62; Discussion. P. B. Boyer. 89 [PO 1 no 3652]: 129-32 S '63; Reply. 90 [PO 2 no 3977]:13 Jl '64

Vapor pressure tables for water. O. C. Bridgeman and E. W. Aldrich. A S M E Trans ser C 86:279-86 My '64

Testing

Bod and oxygen relationships in streams. W. E. Dobbins. bibliog Am Soc C E Proc 90 [SA 3 no 3949]:53-78 Je '64; Correction. 90 [SA 6 no 4171]:131-2 D '64

Bod data retrieval through frozen storage. W. J. Fogarty and M. E. Reeder. bibliog Pub Works 95:88-90 Mr '64

Consistency of results with threshold odor tests. E. A. Sigworth. Am Water Works Assn J 56:297-300 Mr '64

Dissolved oxygen and survival of coliform organisms and enterococci. N. B. Hanes and others. diag Am Water Works Assn J 56:441-6 Ap '64

Dissolved oxygen determinations for field surveys. R. Porges. WPCF J 36:1247-55 O '64

Effects of polyelectrolyte coagulant aids on removal of Missouri River turbidity with ferric sulfate. K. C. Mueller and N. C. Burbank, jr. il Am Water Works Assn J 56:333-46 Mr '64

Experimental use of the spectrophotometric method in determining water purification efficiency at water works stations; abstract. A. V. Bogolyubova. Pub Works 94:164 D '63

Gambusia; industrial effluent monitors. R. C. Davis. Water & Sewage Works 111:259-61 Je '64

How automation plays a part in water-quality surveillance. G. E. McCallum and H. Stierli. il Water Works & Wastes Eng 1:68-70 My '64

Identification of chlorinated hydrocarbon pesticides in river water. A. Goodenkauf and J. Erdei. bibliog Am Water Works Assn J 56:600-6 My '64

Instrumentation and automation. Water Works & Wastes Eng 1:82-8+ S '64

Instrumentation for continuous water quality measurement. A. K. Keyser. il diag Chem Eng Prog 60:53-6 Ap '64

Measurement of suspended matter in stream water. K. Baalsrud and A. Henriksen. Am Water Works Assn J 56:1194-200 bibliog(p 1198-200) S '64

Miniaturized dissolved oxygen field kit. R. H. Scott. il WPCF J 36:342-4 Mr '64

New suspended solids recorder. G. B. Thorpe. il diags Ind Electronics 2:415-18 S '64

New techniques for the evaluation of organic pollutants. D. W. Ryckman and others. bibliog diags Am Water Works Assn J 56:975-83 Ag '64

Odor testing laboratory. R. A. Baker. bibliog il plan diag WPCF J 35:1396-402 N '63

Problems in determination of chlorine dioxide residuals. J. V. Feuss. Am Water Works Assn J 56:607-15 bibliog(p614-15) My '64

Production of high-resistivity water at Texas Instruments. E. C. Rees and others. bibliog il diag Am Water Works Assn J 56: 301-10 Mr '64; Excerpts. Pub Works 95: 168+ My '64

Receiving water monitoring. C. V. Gibbs. il map Water Works & Wastes Eng 1:52-5 S '64

Simple, interference-free determination of fluoride in water. A. T. Palin. Water & Sewage Works 111:461-4 O '64

Taste test taxes theories. R. S. Ingols. il map Water Works & Wastes Eng 1:43-5 O '64

Three-in-one monitor checks DO resources of Raritan Bay. il Water Works & Wastes Eng 1:50-1 Mr '64

Watch on the Raritan monitors water quality. il map Pub Works 95:112-13 My '64

WATER, Distilled

Distilled water supply serves dual purpose at Paradise steam plant. C. W. Boileau. il Power Eng 68:38 Ag '64

Effects of reduced gravity in nucleate boiling bubble dynamics in saturated water. R. Siegel and E. G. Keshock. bibliog diags A I Ch E J 10:509-17 Jl '64

Radiation heat still for pure water. K. Hickman. il diag Anal Chem 36:1404-5 Je '64

See also

Seawater—Desalting

Water purification—Desalting

WATER, Mine. See Mine water

WATER, Saline

Cod method suitable for the analysis of highly saline waters. J. M. Cripps and D. Jenkins. WPCF J 36:1240-6 O '64

WATER, Underground

Aquifer recharging. L. T. Hunziker. il Water & Sewage Works 111:203-5 Ap '64

Cadmium and hexavalent chromium in Nassau County ground water. M. Lieber and others. bibliog il diags Am Water Works Assn J 56:739-47 Je '64

Conjunctive operation of dams and aquifers. N. Buras. bibliog diags Am Soc C E Proc 89 [HY 6 no 3697]:111-31 N '63; Correction. 90 [HY 4 no 3980]:327 Jl '64

Darcy's law. G. W. Horton. diag Am J Phys 32:569 Jl '64

Design and use of radial collector wells. S. V. Spiridonoff. bibliog il diags Am Water Works Assn J 56:689-98 Je '64

Design of tile drainage for falling water tables. J. van Schilfgaarde. bibliog diag Am Soc C E Proc 89 [IR 2 no 3543]:1-11 Je '63; Discussion. 89 [IR 4 no 3746]:53-64 D '63; 90 [IR 1 no 3848]:119-25 Mr '64; Reply. 90 [IR 3 no 4028]:71-3 S '64

Effect of voids and permeability on ground-water flow condition. M. Suter. diags Water Works & Wastes Eng 1:41-5 F '64

Fixed-position device for sampling soil solution in depth. E. E. Haskell, jr. and W. C. Bianchi. il Am Water Works Assn J 56: 664-6 My '64

Formation of ore deposits by water of compaction. E. A. Noble. maps diag Econ Geol 58:1145-56 bibliog(p 1155-6) N '63; Discussion. R. R. Reynolds. 59:723-4 Je '64

Ground water contamination in two New England communities; abstract. R. A. McCracken and H. D. Nickerson. Pub Works 95:162 F '64

Ground water has to be replenished. D. K. Todd. il Chem Eng Prog 59:28-30 N '63

Ground water in Texas. M. L. Klug. maps Am Soc C E Proc 89 [HY 3 no 3519]:153-65 My '63; Discussion. C. D. Curran. 90 [HY 1 no 3783]:289-92 Ja '64

Ground-water management for the Nation's future; ground-water basin operation; symposium bibliog flow charts map diags Am Soc C E Proc 90 [HY 4 no 3985]:51-105 Jl '64

Hydrogeologic electric analog computers. W. C. Walton and T. A. Prickett. bibliog diags Am Soc C E Proc 89 [HY 6 no 3695]:67-91 N '63; Discussion. J. Bear. 90 [HY 4 no 3980]:321-3 Jl '64

Intruded salt-water wedge in porous media. R. R. Rumer, jr. and D. R. F. Harleman. bibliog diags Am Soc C E Proc 89 [HY 6 no 3707]:193-220 N '63; Correction. 90 [HY 4 no 3980]:337 Jl '64

Land subsidence problems. R. F. Dawson. il maps diags Am Soc C E Proc 89 [SU 2 no 3531]:1-12 Je '63; Discussion. 89 [SU 3 no 3684]:217-23 O '63; 90 [SU 1 no 3885]: 73-9 Ap '64

Law of the underground. J. H. Krieger. Civil Eng 34:52-3 Mr '64

Linear aquifer behavior. G. W. Nabor and R. H. Barham. J Pet Tech 16:561-3 My '64

Management aspects of groundwater contamination. H. E. LeGrand. bibliog diags WPCF J 36:1133-45 S '64

Model analysis of groundwater flow around and through lenticular beds. J. H. Lehr. flow diag il WPCF J 36:84-7 Ja '64

Moving interface in coastal aquifers. J. Bear and G. Dagan. il diags Am Soc C E Proc 90 [HY 4 no 3988]:193-216 Jl '64

Origin and occurrence of carbon dioxide and gaseous mineral waters, Variscian platform, central Europe. J. Vrba. bibliog map Econ Geol 59:874-82 Ag '64

Potable water drawn from abandoned oil well. G. W. Sayers. diag Pub Works 95: 79 N '64

Radial collector wells adjacent to the river bank. M. Milojevic. bibliog diags Am Soc C E Proc 89 [HY 6 no 3704]:133-51 N '63; 90 [HY 4 no 3980]:329 Jl '64

Relation of shape of artificial recharge pits to infiltration rate. J. H. Lehr. il Am Water Works Assn J 56:699-702 Je '64

WATER, Underground—*Continued*

Replenishment of aquifers intersected by streams. R. J. M. De Wiest. bibliog map diags Am Soc C E Proc 89 [HY 6 no 3706]: 165-91 N '63; 90 [HY 5 no 4050]:161-8 S '64

Some aspects of the chemical evolution of cave waters. H. D. Holland and others. bibliog maps diags J Geol 72:36-67 Ja '64

Stopping a salt spring. Pub Works 95:146+ N '64

Synopsis on groundwater study. P. O. Bourgeois. il Water & Sewage Works 111:255-8 My '64

System for evaluation of contamination potential of some waste disposal sites. H. E. LeGrand. diags Am Water Works Assn J 56:959-74 Ag '64; Abstract. Pub Works 95: 176 O '64

Unsaturated flow in ground-water hydraulics. H. Bouwer. bibliog diags Am Soc C E Proc 90 [HY 5 no 4057]:121-44 S '64

Waste treatment for groundwater recharge; abstract. A. Amramy. WPCF J 36:296-8 Mr '64

See also

Mine water
Mineral waters
Springs
Wells

Prospecting

Futile search for fresh water by drilling through the sea-bottom at the mouth of Chesapeake Bay. E. E. Halmos, jr. il Water & Sewage Works 111:288-9 Je '64

Planned ground water exploration. C. J. Linck. Am Water Works Assn J 56:418-22 Ap '64

Geophysical methods

Ground water located by electronic gravel detector. C. M. Jensen. il map Pub Works 95:84-6 Mr '64

Hawaii

Research in sea-water encroachment and ground water resources development. L. S. Lau. bibliog il diags Water & Sewage Works 111:308-12 Jl '64

Illinois

Ground water supplies of northeastern Illinois; joint discussion. bibliog maps diags Am Water Works Assn J 56:169-88 F '64

Israel

Relation of temperature distribution to ground-water movement in carbonate rocks of central Israel. R. Schneider. bibliog map diag Geol Soc Bul 75:209-15 Mr '64

Maryland

Geochemistry of iron-rich ground water of southern Maryland. I. Barnes and W. Back. bibliog map diag J Geol 72:435-47 Jl '64

Ohio

Ohio study proposes recharge. diag Water Works Eng 116:896 N '63

WATER analysis. See Water—Analysis

WATER closets

Off-the-floor residential closets, next target: mass housing. N. R. Trout. Dom Eng 204: 52+ O '64

Residential closets; time and cost study. il Dom Eng 203:81-4 Ap '64

Vitreous china water closets; detail sheets. diags Air Cond Heat & Ven 61:99-102 O '64

WATER companies

Customer relations

Comprehensive water study must consider new planning methods and the importance of good public relations. F. G. Goff. il diags Water Works & Wastes Eng 1:48-9+ O '64

Equipment and supplies

Water service-pipe requirements by water utilities, 1950-80. Water & Sewage Works 111:470 O '64

Laws and regulations

American bar association review of developments in water utility law, 1962-63. Am Water Works Assn J 56:23-36 bibliog(p35-6) Ja '64

Management

Management of a small water utility. C. L. Porter. Am Water Works Assn J 56:549-57 My '64

WATER conduits

See also

Flumes

WATER conduits, Concrete

Mid-city stream burial; three contractors, three methods. il diag Roads & Sts 107:32-5 Jl '64

WATER conservation

Economics of leak surveys. H. E. Beckwith. Am Water Works Assn J 56:575-8 My '64

Effects of conservation techniques on yield. U. Stephens. bibliog Am Water Works Assn J 56:991-1000 Ag '64

From pollution prevention of effluent re-use. H. H. Stanbridge. bibliog Water & Sewage Works 111:446-51, 494-9 O-N '64

Industrial re-use of water; opportunity for the West. D. W. Cannon. bibliog Water & Sewage Works 111:250-4 My '64

One plant's efforts toward water conservation. R. A. Schimpf and P. F. Chester. plan Safety Maint 128:47-8 O '64

Underground water loss. R. A. Tolomei. il Water & Sewage Works 111:217-21 My '64; Excerpts. Pub Works 95:136 Jl '64

Waste water reclamation; a practical approach for many water-short areas. R. H. Marks. il diag Power 107:47-50 N '63

Waste-water renovation gets a thorough airing; AIChE symposium. il Chem Eng 70:124-5 N 11 '63

Water conservation by reuse; panel discussion. Tappi 47:sup 180A-3A Ja '64

Water conservation program saved 40 million gallons annually. G. F. Gibbons, jr. diag Plant Eng 17:108-10 N '63

Water management; pollution measurement and control pose complex problems. il Power Eng 68:43 Ag '64

Water resources and regional economics. F. A. Clarenbach. Tappi 47:sup 183A-6A O '64

Water resources conservation in Quebec; new approach. G. Prévost. WPCF J 35:1565-8 D '63

Water use and related costs with cooling towers. B. Berg and others. bibliog Am Water Works Assn J 56:311-29 Mr '64

WATER consumption

Progress report on the residential water use research project. F. P. Linaweaver, jr. and others. map Am Water Works Assn J 56: 1121-8 S '64; Abstract. Pub Works 95:132+ N '64

Residential water use study. M. E. Hartz. il diag Water Works & Wastes Eng 1:62-3 S '64

Unique consumptive use curve related to irrigation practice. V. E. Hansen. bibliog Am Soc C E Proc 89 [IR 1 no 3449]: 43-50 Mr '63; Discussion. 89 [IR 3 no 3655]: 97-105 S; [IR 4 no 3746]:47-51 D '63; Reply. 90 [IR 2 no 3941]:51-2 Je '64

Water and sewage flow rates in public schools. M. E. Reeder and W. J. Fogarty. bibliog Pub Works 95:80-2 N '64

WATER cooling. See Cooling of water

WATER cooling towers. See Cooling towers

WATER departments

Miami utility builds its own office building. W. E. Dinn. il Water & Sewage Works 110: 379-81 N '63

New home for Chester municipal authority. il map Water Works & Wastes Eng 1:55 Ja '64

Portsmouth plans for progress. X. D. Murden. il Water Works & Wastes Eng 1:89-90+ S '64

Water-scarce Ohio area served by county-wide department. N. Watson, jr. il Water Works Eng 116:959-62 D '63

Buildings

Drive-in window speeds water bill payments at Bristol, Conn. J. L. Bean. il Water Works Eng 116:888 N '63

WATER desalting. See Sea water—Desalting; Water purification—Desalting

WATER distillation. See Water, Distilled

WATER distribution

Basic distribution map. A. D. Henderson. map Water Works & Wastes Eng 1:64-5 F '64

Collection and use of distribution operations data. D. Brock. il diag Pub Works 95:127-8 S '64

Command post for complex water system. B. E. Sasse and R. P. Van Dyke. il Pub Works 95:102-4 Je '64

Comprehensive water study must consider new planning methods and the importance of good public relations. F. G. Goff. il diags Water Works & Wastes Eng 1:48-9+ O '64

Dallas water supply planned for year 2000. H. J. Graeser. il map Pub Works 95:90-3 Je '64

Design criteria for water distribution storage. J. E. Kiker, jr. Pub Works 95:102-4 Mr '64

WATER distribution—*Continued*

Distribution designed by new method. E. G. Neigut. diag Water Works & Wastes Eng 1:46-9 Mr '64

Distribution map variations; valve, transmission main and service connection records. A. D. Henderson. plan diag Water Works & Wastes Eng 1:64-5 Mr '64

Ground-water management for the Nation's future; optimum conjunctive operation of ground-water basins. R. Y. D. Chun and others. flow chart diags Am Soc C E Proc 90 [HY 4 no 3965]:79-95 Jl '64

Installation of water mains; round table discussion. Water Works Eng 116:742-3+, 899-900+, 968-9+ S, N-D '63

Master plan permits water system improvements to pace demands. B. L. Heber and E. B. Meier. il Pub Works 95:96-8 Ap '64

New concept in water service for developing countries. E. K. G. Borjesson and C. M. Bobeda. il diags Am Water Works Assn J 56:853-62 Jl '64

Portsmouth plans for progress. X. D. Murden. il Water Works & Wastes Eng 1:89-90+ S '64

Problems in water transmission. R. J. Sweitzer. Tappi 47:sup 143A-5A Ja '64

Water system designed to attract industry; Oregon, Ohio. E. D. L. York and S. J. Wittenberg. il plan Pub Works 95:118-19 My '64

See also

Hydrants
Water hammer
Waterworks

Costs

Distribution main extension policy in the Pacific Northwest. H. S. Barrslag, jr. Am Water Works Assn J 55:1499-505 D '63

Economics of leak surveys. H. E. Beckwith. Am Water Works Assn J 56:575-8 My '64

Low water main bid wins contract; unit prices. Eng N 173:55 Ag 20 '64

60-in. Kansas water pipe line; unit prices. Eng N 172:45 Ja 30 '64

Steel beats concrete for pipeline; unit prices. Eng N 172:146 Je 18 '64

Electric analogies

Analog and digital computers in distribution system analysis. R. C. Loehr. bibliog Am Water Works Assn J 56:1001-8 Ag '64

Direct analogue equipment for the study of water distribution networks. R. W. Williams. il diags Ind Electronics 2:457-9 O '64

Supervisory control

Artful automation does double duty for Minnesota city. M. Kays and B. Mittelsteadt. il diag Water Works & Wastes Eng 1:77-9+ My '64

Automation at Denver. J. E. Layne. il maps plan diags Water Works & Wastes Eng 1:30-4+, cover Ja '64; Abstract. Pub Works 95:162 Mr '64

Instruments and controls in water works operation. H. A. Kelley. il Water Works & Wastes Eng 1:41-3 Ag '64

More efficient water distribution for Salt Lake County. R. B. Hilbert. il Water Works & Wastes Eng 1:46-7 Je '64

More remote control for Brighton Waterworks. il Ind Electronics 2:219 My '64

Pros and cons of instrumentation, control and automation. R. A. Ryder. il map Water Works & Wastes Eng 1:54-6 Je '64

Remote supervisory control. H. Bernstein. diags Water Works & Wastes Eng 1:116-17+ My; 64-6 Je; 130 S; 65-6+ O '64

Santa Ana's control system. W. D. Schraub. bibliog il plan Water Works & Wastes Eng 1:42-5+ Jl '64

Should Pasadena expand telemetering? J. L. Behner. il Water Works & Wastes Eng 1:88-9+ My '64

Tone signals used to monitor and control water system. E. Cedroni. diags Power Eng 68:T28-9 Mr '64

Water by remote control. K. W. Rinard. diag Water Works & Wastes Eng 1:67-8 O '64

Waterworks automation; illustrations with text. Engineer 217:692 Ap 17 '64

Tables, calculations, etc.

Darcy equation for pipe network analysis. K. M. Yao. bibliog diag Am Water Works Assn J 56:703-9 Je '64

WATER flow

Adiabatic, evaporating, two-phase flow of steam and water in horizontal pipe. R. W. Pike and H. C. Ward. bibliog diags A I Ch E J 10:206-13 Mr '64

Analysis of the critical heat-flux condition in high-pressure boiling water flows. F. E. Tippets. bibliog diags A S M E Trans ser C 86:23-33; Discussion. il 33-6; Reply. 36-8 F '64

Bubble boundary layer and temperature profiles for forced convection boiling in channel flow. L. M. Jiji and J. A. Clark. bibliog il diags A S M E Trans ser C 86:50-8 F '64

Construction finishes and high-velocity flow. J. W. Ball. bibliog il diags Am Soc C E Proc 89 [CO 2 no 3646]:91-110 S '63; Discussion. 90 [CO 1 no 3851]:103-5 Mr; [CO 2 no 4051]:65-72 S '64

Control structures for sand-bed channels. F. C. Stepanich and others. bibliog il diags Am Soc C E Proc 90 [WW 2 no 3895]:1-18 My '64

Critical heat flux for nearly saturated water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il diags A S M E Trans ser C 86:59-67 F '64

Critical heat flux for subcooled water flowing normal to a cylinder. G. C. Vliet and G. Leppert. bibliog il A S M E Trans ser C 86:68-74 F '64

Critical heat fluxes and flow patterns in high-pressure boiling water flows. F. E. Tippets. bibliog il diags A S M E Trans ser C 86:12-22 F '64

Darcy's law. G. W. Horton. diag Am J Phys 32:569 Jl '64

Dispersion and adsorption in porous media flow. R. B. Banks. bibliog diags Am Soc C E Proc 90 [HY 5 no 4022]:13-31 S '64

Effect of water flow on leaching rates of antifouling paints; consideration of mechanism and preliminary results of laboratory tests. E. T. Wilkie and A. C. Edwards. bibliog il J Ap Chem 14:155-64 Ap '64

Film boiling of steam-water mixtures in annular flow at 800, 1100, and 1400 psi. E. E. Polomik and others. bibliog il diags A S M E Trans ser C 86:81-7; Discussion. 87-8 F '64

Flow measurement with a suspension wire. B. B. Sharp. bibliog diags Am Soc C E Proc 90 [HY 2 no 3821]:37-53 Mr '64

Flow of clay-water suspensions. C. D. D. Howard. Am Soc C E Proc 89 [HY 5 no 3641]:89-97 S '63; Discussion. 90 [HY 1 no 3783]:367-9 Ja; [HY 2 no 3853]:393-6 Mr '64; Reply. 90 [HY 4 no 3980]:269-74 Jl '64

Flow retardance by channel weeds and their control. J. C. Stephens and others. bibliog Am Soc C E Proc 89 [IR 2 no 3550]:31-53 Je '63; Discussion. M. W. Scrivner and P. J. Tilp. 89 [IR 4 no 3746]:65-9 D '63; Reply. 90 [IR 2 no 3941]:53-4 Je '64

Fluorescent techniques expedite flow tracing. diag Pub Works 95:96 N '64

Laminar and turbulent flow of water through sand. M. Anandakrishnan and G. H. Varadarajulu. bibliog diags Am Soc C E Proc 89 [SM 5 no 3631]:1-15 S '63; Discussion. 90 [SM 2 no 3850]:205-7 Mr; [SM 3 no 3907]: 1716 My '64

Microflowmeter for use with water. R. F. Benseman. diag J Sci Instr 41:100-1 F '64

Model analysis of groundwater flow around and through lenticular beds. J. H. Lehr. flow diag il WPCF J 36:84-7 Ja '64

Natural roughness effects in rigid open channels. A. G. Mirajgoaker and K. L. N. Charlu. bibliog il Am Soc C E Proc 89 [HY 5 no 3630]:29-44 S '63; Discussion. 90 [HY 3 no 3911]:351-61 My '64; Reply. 90 [HY 6 no 4130]:251-4 N '64

Nomograph for head loss due to sudden enlargement. F. Caplan. Water & Sewage Works 111:67 Ja '64

Nomograph for valve flow coefficient. F. Caplan. Water & Sewage Works 111:298 Je '64

Replenishment of aquifers intersected by streams. R. J. M. De Wiest. bibliog map diags Am Soc C E Proc 89 [HY 6 no 3706]: 165-91 N '63; 90 [HY 5 no 4050]:161-8 S '64

Sediment transportation mechanics; density currents; progress report. bibliog il diags Am Soc C E Proc 89 [HY 5 no 3639]:77-87 S '63; Discussion. 90 [HY 1 no 3783]:365-6 Ja; [HY 4 no 3980]:267-8 Jl '64; Reply. 90 [HY 5 no 4050]:159-60 S '64

Solution of highly curvilinear gravity flows. T. S. Strelkoff. bibliog diags Am Soc C E Proc 90 [EM 3 no 3950]:195-221 Je '64; Discussion. H. Rouse. 90 [EM 5 no 4093]:467-70 O '64

Stability aspects of flow in open channels. F. F. Escoffier and M. B. Boyd. diags Am Soc C E Proc 88 [HY 6 no 3331]:145-66 N '62; Discussion. 89 [HY 3 no 3529]:407-8 My; [HY 4 no 3580]:259-73 Jl '63; Reply. 90 [HY 1 no 3783]:261-3 Ja '64

WATER flow—*Continued*
Study of sediment ripple formation. A. J. Raudkivi. bibliog il Am Soc C E Proc 89 [HY 6 no 3692]:15-33 N '63; Discussion. diags 90 [HY 2 no 3853]:397-400 Mr; [HY 4 no 3980]:279-95 Jl '64
Temporary flow measurements in sewers and drains. M. H. Diskin. diags Am Soc C E Proc 89 [HY 4 no 3574]:141-59 Jl '63; Discussion. 90 [HY 2 no 3853]:383-7 Mr; [HY 6 no 4130]:241-4; Reply. 245-7 N '64
Travel time of waves in backwaters. A. L. Simon. Am Soc C E Proc 89 [HY 6 no 3689]: 1-13 N '63; Discussion. 90 [HY 4 no 3980]: 275-7 Jl '64
Trend toward increased velocities in central station steam and water piping. H. M. Soldan and E. J. Siegel. il plan diags Combustion 35:18-24 My '64
Turbulent flow in porous media. J. C. Ward. bibliog Am Soc C E Proc 90 [HY 5 no 4019]:1-12 S '64
Two-dimensional flow over sills in open channels. G. Z. Watters and R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 4 no 3967]: 107-40 Jl '64
Two-dimensional jet and cavity flows. R. L. Street. bibliog diags Am Soc C E Proc 90 [HY 2 no 3831]:141-61 Mr '64
Unsaturated flow in ground-water hydraulics. H. Bouwer. bibliog diags Am Soc C E Proc 90 [HY 5 no 4057]:121-44 S '64
Water table for fluid-flow analysis. H. Tramposch. il diags A S M E Trans ser D 86: 414-16 Je '64
Water transport through ion exchange membranes by hydraulic pressure. P. H. Seaman. bibliog diags J Ap Chem 14:229-35 Je '64

See also
Hydraulic jump
Intakes
Nozzles
Seepage
Stream flow
Surge tanks
Turbulence
Water meters
Weirs (measuring)

WATER gages
Factors influencing the design and operation of soil systems for waste treatment. G. G. Robeck and others. diag WPCF J 36:971-83 Ag '64; Excerpts. Pub Works 95:122+ N '64

WATER hammer
Comparative experiments on surge tank performance. I. S. Pearsall. bibliog il diags Inst Mech Eng Proc 177 no 35:951-66; Discussion. 967-70; Reply. 971 '63
Excess pressure of water hammer; nomograph; data sheet. M. F. Myers. Power 108: 82 Mr '64
Excessive noise in piping system stymies contractor; question and answers. diag Dom Eng 204:46+ Ag '64
Friction noise in the water piping; question and answer. Dom Eng 203:102+ Je '64
Guard against water hammer. T. E. Bridge. Heating-Piping 36:118-19 Ag '64
Measurements of auto-oscillation in a hydroelectric supply tunnel and penstock system. H. F. Abbott and others. diags A S M E Trans ser D 85:625-30 D '63
Nomograph determines pressure rise due to water hammer; data sheet. J. K. O'Hara. Heating-Piping 36:117-18 F '64
Pipeline surges and their effect on pump station design. S. Perliter and E. A. Urbain. il map diag Am Water Works Assn J 56: 891-8 Jl '64
Rigid water-column theory in water-hammer problems. I. Swiecicki. bibliog A S M E Trans ser D 86:583-8 S '64
Theory of resonance in hydropower systems. C. Jaeger. bibliog diags A S M E Trans ser D 85:631-40 D '63
Valve stroking to control water hammer. V. L. Streeter. bibliog diags Am Soc C E Proc 89 [HY 2 no 3452]:39-66 Mr '63; Discussion. 89 [HY 5 no 3656]:161-6 S '63; Reply. 90 [HY 1 no 3783]:269-70 Ja '64
Velocity of a water-hammer wave in an elastic pipe. A. R. Halliwell. bibliog diags Am Soc C E Proc 89 [HY 4 no 3565]:1-21 Jl '63; Discussion. 89 [HY 6 no 3708]:295-6 N '63; 90 [HY 1 no 3783]:315-17 Ja; [HY 3 no 3911]:333-41 My '64; Reply. 90 [HY 5 no 4050]:149-51 S '64
Waterhammer analysis of pipelines. V. L. Streeter. bibliog diags Am Soc C E Proc 90 [HY 4 no 3974]:151-72 Jl '64
Water hammer nomograph. F. Caplan. Water & Sewage Works 110:416 N '63
What causes drum level surges? answers. diags Power 107:158-9 D '63
Why is there hammer in this hot water line? question and answer. Dom Eng 202:60-3 D '63

WATER heaters
Cathodic protection for water heaters. R. C. Weast. Am Gas Assn Mo 46:16-17 Mr '64
Heat recovery systems prove successful; heat-pump water heater. G. D. Leach, jr. and J. C. Murray. il Elec World 162:118+ Jl 13 '64
Heating the water. il Engineering 196:704 N 29 '63
Selecting unit heaters for medium and high temperature water systems. R. E. Lee. diags Air Cond Heat & Ven 61:47-50 Ap '64
Water heater life. E. J. Zimmer. Dom Eng 204:99+ S '64

See also
Electric water heaters
Feed water heaters
Gas water heaters
Hot water supply

Manufacture

Five million feet of automatic welding per year; glass-lined water heaters. E. R. Temme and R. M. Davis. il diag Welding J 42: 881-4 N '63

WATER heaters, Gas. See Gas water heaters

WATER heating
How much steam is required to heat water; data sheet with nomograph. F. Caplan. Heating-Piping 36:169-70 Ja '64

See also
Hot water supply
Swimming pools—Heating

WATER laws and regulations
Bill to alter pollution control act called premature. Eng N 173:56-7 O 8 '64
Desirable features of water rights law. D. S. Jones, jr. Am Soc C E Proc 89 [IR 4 no 3711]:1-6 D '63; Discussion. W. D. Criddle and D. W. Jensen. 90 [IR 2 no 3941]:59-61 Je '64
Ground-water management for the Nation's future; effecting optimum ground-water basin management. V. E. Valantine. bibliog Am Soc C E Proc 90 [HY 4 no 3981]:97-105 Jl '64
Guide to practices in acid-mine-drainage control; practical application of ORSANCO resolution no. 5-60. Coal Age 69:83-4+ My '64
International water problems on the Prairies. M. W. Thompson. map Eng J 47:35-8; Discussion. 48+ S '64
Law of the underground. J. H. Krieger. Civil Eng 34:52-3 Mr '64
Manufacturing chemists' assn. finds fault with proposed water pollution legislation. Chem & Eng N 42:37 Mr 2 '64
Model law; public health or public planning? Dom Eng 204:91-3 Jl '64
People, politics and pollution address. J. C. Daly. WPCF J 36:1-9 Ja '64
Recent developments in resources and utilities law. E. F. Taylor. bibliog Am Water Works Assn J 56:863-80 Jl '64
Recommendations of the legislative analysis committee. WPCF J 36:10-11 Ja '64
Socio-economic aspects of water quality management. A. V. Kneese. bibliog WPCF J 36: 254-62 F '64
Udall mediates as Pacific Southwest water plan gels. Eng N 172:14-15 Ja 9 '64
Water quality management; legal, technical, and administrative aspects. bibliog WPCF J 36:1082-106 S '64
Water right engineering under appropriation system. K. R. Wright. plan Am Soc C E Proc 90 [IR 1 no 3818]:9-15 Mr '64; Discussion. F. A. Bishop. 90 [IR 3 no 4028]:79-80 S '64
Water systems; model law crisis enters new phase. Dom Eng 204:54-5 Ag '64

See also
Water—Standards
Water companies—Laws and regulations

WATER level indicators
Boiler water level indication. W. A. Huss. il diags Combustion 35:45-7 Je '64
Evaporator level indication. W. A. Huss. il diags Combustion 35:36-8 Mr '64
How accurate are modern water-level gages? W. F. Cantieri. diags Power 107:60-1 N '63

See also
Water gages

WATER measurement
See also
Parshall flume
Water gages
Water meters
Weirs (measuring)

WATER meters
Developments in demand metering. M. E. Hartz. il map diag Am Water Works Assn J 56:558-62 My '64
Modernizing old water meters. il Product Eng 35:37-8 Mr 2 '64
Problem of multiple metering. L. A. Jackson. il plans Pub Works 95:85-7 Ag '64
Progress in plastic materials for water meter casings. H. F. Barrett. Am Water Works Assn J 56:1149-52 S '64; Abstract. Pub Works 95:136 N '64
Reduction of unaccounted-for water. W. D. Hudson. Am Water Works Assn J 56:143-8 F '64
Residential water use study. M. E. Hartz. il diag Water Works & Wastes Eng 1:62-3 S '64

Manufacture

Parkinson Cowan metering and measurement. il diags Engineering 197:86-8 Ja 17 '64

Testing

Performance characteristics of elbow flowmeters. J. W. Murdock and others. bibliog A S M E Trans ser D 86:499-503; Discussion. 504-6 S '64

WATER paint. See Paint

WATER pipes
Big-inch waterflood line work starts. Oil & Gas J 62:60 Mr 23 '64
Ductile-iron pipe design. E. C. Sears. bibliog il diags Am Water Works Assn J 56:4-22 Ja '64
Excessive noise in piping system stymies contractor; question and answers. diag Dom Eng 204:46+ Ag '64
Friction noise in the water piping; question and answer. Dom Eng 203:102+ Je '64
Outside piping and duct systems to serve building's perimeter zones. il Heating-Piping 36:46 O '64
Pendleton's pipeline; a tortuous route. il Water Works & Wastes Eng 1:50-1 O '64
Pipe-laying speed halves Critical path method schedule. J. S. Miller. il diag Civil Eng 34:52-3 Ap '64
Pipe system of bulk water storage. il Engineering 198:373 S 18 '64
Pumping station piping provides challenge for mechanical contractor. W. R. Stevens. il Heating-Piping 36:125-8 My '64
Shifting bed; hazard to river crossing. S. A. Mason. il diag Water Works & Wastes Eng 1:58-9+ Mr '64
Sudden enlargements in pipelines. J. W. Ball. il diags Am Soc C E Proc 88 [PO 4 no 3340]:15-27 D '62; Discussion. E. R. Tinney. 89 [PO 1 no 3652]:151-2 S '63; Reply. 90 [PO 2 no 3977]:15-16 Jl '64
Thin wall pipe in distribution systems. J. W. Pierce. Am Soc C E Proc 89 [PL 1 no 3390]:23-47 Ja '63; Discussion. L. J. Timms, jr. 90 [PL 1 no 3778]:185-6 Ja '64
Winter water utility construction in Canada. N. S. Bubbis. bibliog Am Water Works Assn J 56:1303-14 O '64; Excerpts. Pub Works 95:124+ D '64
See also
Hot water heating
Penstocks
Pipe fittings
Pipes
Water distribution
Water hammer
Waterworks

Cathodic protection

Cathodic protection required for steel pipelines in Tulsa. Water & Sewage Works 110:384 N '63
Zinc line galvanic anode cuts costs, ups protection. il Eng N 173:46 S 24 '64

Cleaning

Better service through cleaner distribution systems. H. W. Stokes. Am Water Works Assn J 56:393-9 Ap '64

Corrosion

Evaluation of corrosion in distribution systems. C. R. Schneider and W. Stumm. bibliog Am Water Works Assn J 56:621-32 My '64
Exterior corrosion of cast-iron pipe. M. Romanoff. il Am Water Works Assn J 56:1129-43 S '64

Freezing

Calculate bleed required to protect pipe from freezing. J. D. Constance. Chem Eng 71:120+ Ag 3 '64
Chart gives bleed rates to freeze protect bare water pipe; data sheet. J. D. Constance. Heating-Piping 36:139-40 Mr '64
Water system freeze-ups can be prevented. K. R. Wright. il Pub Works 95:109-11+ Ap '64

Leakage

Leak-finding survey saves 300 mg per year. L. LaPointe. il Pub Works 95:84-5 Ap '64
Underground water loss. R. A. Tolomei. il Water & Sewage Works 111:217-21 My '64; Excerpts. Pub Works 95:136 Jl '64

Lining

Plastics protection for water main. il Engineering 197:693 My 22 '64

Maintenance and repair

Field unit for ferreting. il Engineering 197:303 F 21 '64

Protection

How would you protect piped utilities at the North Pole? N. J. Staihar. il diags Power Eng 68:46-8 Ag '64
See also
Water pipes—Freezing

Service pipes

Study of service line sizing. K. E. Bender. bibliog il diag Water Works & Wastes Eng 1:52-6 Ap '64
Water service-pipe requirements by water utilities, 1950-80. Water & Sewage Works 111:470 O '64

Specifications

Study of service line sizing. K. E. Bender. bibliog il diag Water Works & Wastes Eng 1:52-6 Ap '64

Tables, calculations, etc.

Standard practice for the selection of asbestos-cement water pipe. diags Am Water Works Assn J 56:639-63 My '64
Two-dimensional slide rule for computing pipe networks. E. Kally. diags Water & Sewage Works 111:235-9 My '64
Velocity of a water-hammer wave in an elastic pipe. A. R. Halliwell. bibliog diags Am Soc C E Proc 89 [HY 4 no 3565]:1-21 Jl '63; Discussion. 89 [HY 6 no 3708]:295-6 N '63; 90 [HY 1 no 3783]:315-17 Ja; [HY 3 no 3911]:333-41 My '64; Reply. 90 [HY 5 no 4050]:149-51 S '64
Waterhammer analysis of pipelines. V. L. Streeter. bibliog diags Am Soc C E Proc 90 [HY 4 no 3974]:151-72 Jl '64

WATER pipes, Asbestos cement

Standards

Standard practice for the selection of asbestos-cement water pipe. diags Am Water Works Assn J 56:639-63 My '64
Tentative AWWA standard for installation of asbestos-cement water pipe. Am Water Works Assn J 56:809-22 Je '64

WATER pipes, Cast iron
Exterior corrosion of cast-iron pipe. M. Romanoff. il Am Water Works Assn J 56:1129-43 S '64
Plastics protection for water main. il Engineering 197:693 My 22 '64

WATER pipes, Concrete
Intake with a future for crib with a past. P. J. Russo. il Water Works & Wastes Eng 1:35 Ja '64
Tampers pace pipe setters. il Roads & Sts 107:56-8 Ja '64

WATER pipes, Copper
How about an all-purpose copper tube? H. E. Voegeli. Air Cond Heat & Ven 61:76-7 S '64

WATER pipes, Plastic
Longest polypropylene line handles salt-water disposal. H. C. Bozeman. il Oil & Gas J 61:163-4 D 2 '63
PVC solves river crossing problem. il Engineering 198:171 Ag 7 '64

WATER pipes, Steel
Earth loads on steel pipe; discussion. M. G. Spangler. Am Water Works Assn J 56:519-20 Ap '64
How Olean, N.Y., ended its distribution system woes. C. H. Weathcrell. il Water Works Eng 116:963+ D '63
Monongahela River, B&O railroad and steep, rocky slope traversed in 600 feet of transmission main. A. F. Robinson. il Water Works Eng 116:806 O '63; Same. Pub Works 94:99 N '63

WATER pollution
Acid mine-drainage control; principles and practices guide; case histories. bibliog il plan diags Coal Age 69:81-4+ My; 72-7 Je '64
Analytical reference service. H. P. Kramer. Am J Pub Health 54:1531-5 S '64
Are our criteria for bathing-water pollution valid? D. L. Muss. Civil Eng 33:37-8 N '63
Avoidance of copper-zinc solutions by young salmon in the laboratory. J. B. Sprague. il diags WPCF J 36:990-1004 bibliog(p 1003-4) Ag '64
Benefit-cost considerations in water quality management. E. J. Cleary. Pub Works 94:66+ D '63
Bill to alter pollution control act called premature. Eng N 173:56-7 O 8 '64
Billion-dollar river clean-up. E. J. Cleary. Am Soc C E Proc 88 [SA 6 no 3333]:97-104 N '62; Discussion. 89 [SA 3 no 3556]:89-98 Je; [SA 4 no 3618]:133-4 Ag '63; Reply. 90 [SA 1 no 3813]:155-8 F '64
Bod and oxygen relationships in streams. W. E. Dobbins. bibliog Am Soc C E Proc 90 [SA 3 no 3949]:53-78 Je '64; Correction. 90 [SA 6 no 4171]:131-2 D '64
Biological measurement of water pollution. T. W. Beak. bibliog il maps Chem Eng Prog 60:39-43 Ja '64
Biological system of stream classification used by the Trent River board. F. S. Woodiwiss. bibliog Chem & Ind p443-7 Mr 14 '64
Boston district attacks water pollution problems. il map diag Eng N 172:42-4 F 20 '64
British pollution research. Pub Works 95: 176+ My; 180+ Je '64
British synthetic detergent report. Soap & Chem Spec 39:48-51+ N '63
Chemical oxidation of selected organic pesticides. C. A. Buescher and others. bibliog diag WPCF J 36:1005-14 Ag '64
Compact shipboard device designed to end inshore pollution by oily ballast and bilge water. diag Marine Eng/Log 68:118 D '63
Comparison of membrane filter counts and most probable numbers of coliform in San Diego's sewage and receiving waters. D. A. Hoffman and others. map WPCF J 36:109-17 Ja '64
Control of water pollution by wastewater utilization; the role of the WPCF. A. J. Steffen. Water & Sewage Works 111:384-5 S '64
DDT persistence and its effect on aquatic insects and fish after an aerial application. E. B. Welch and J. C. Spindler. bibliog map WPCF J 36:1285-92 O '64
Daly backs USPHS control of water pollution. Water & Sewage Works 110:441 D '63
Data gathering and monitoring equipment in water supply and water pollution control programs. R. S. Green. diags Am J Pub Health 53:1963-71 D '63
Detection of pesticides in water by biochemical assay. C. M. Weiss and H. H. Gakstatter. bibliog WPCF J 36:240-53 F '64
Determination of carbon in wastewaters by high-temperature wet oxidation. W. J. Weber, jr. and J. C. Morris. bibliog il diag WPCF J 36:573-86 My '64
Determination of stream use. S. S. Baxter. Am Water Works Assn J 56:1285-9 O '64
Dissolved oxygen determinations for field surveys. R. Porges. WPCF J 36:1247-55 O '64
Ecological basis for the biological assessment of river pollution. H. A. Hawkes. bibliog diags Chem & Ind p437-42 Mr 14 '64
Economics of pollution control. Eng & Min J 165:189-90 Je '64
Effects of detergents on surface and ground water problems. W. A. Kline. bibliog il Am Oil Chem Soc J 40:656-9 N '63
Effluent treatment and stream pollution; abstract and discussion. L. Klein. Chem & Ind p 115 Ja 18 '64
Evaluation of the extent and nature of pesticide and detergent involvement in surface waters of a selected watershed. Pub Works 95:142+ N '64
Experiments for the determination of limit of allowable concentration of trichlorobenzene in water reservoirs; abstract. K. F. Meleschenko. Pub Works 94:148 N '63
Extensive sewerage will curb pollution of a bay. F. E. Potter. maps Pub Works 95:104-5 O '64
Factors influencing the design and operation of soil systems for waste treatment. G. G. Robeck and others. diag WPCF J 36:971-83 Ag '64; Excerpts. Pub Works 95:122+ N '64
Farm use of pesticides not to blame for massive river fish kills. Chem & Eng N 42:23-4 Je 8 '64
Federal role in water quality control in the United States. C. H. Atkins. Am Water Works Assn J 56:37-42 Ja '64
From pollution prevention to effluent re-use. H. H. Stanbridge. bibliog Water & Sewage Works 111:446-51, 494-9 O-N '64
Future of pollution control in Florida. V. D. Patton and D. B. Lee. WPCF J 36:1129-32 S '64
Ground water contamination in two New England communities; abstract. R. A. McCracken and H. D. Nickerson. Pub Works 95:162 F '64
Hawaii; survey of the water supply and water pollution problems of our 50th state. R. L. Smith, jr.; A. Q. Y. Tom. maps plan diags Water & Sewage Works 111:318-26 Jl '64
How do you purify the Mississippi? Eng N 172:15 Ap 30 '64
Hygienic principles underlying the determination of allowable concentration limits of flotoreagents in water basins; abstract. Y. T. Loshakov. Pub Works 94:148+ N '63
Identification of organic pollutants by infrared spectroscopy. F. A. Voege and H. L. Vanesche. Am Water Works Assn J 56:1351-6 O '64
Industry approach to pollution abatement. R. F. Rocheleau and E. E. Taylor. diag WPCF J 36:1185-94 O '64
Industry-government teamup suggested for war on pollution; abstract. K. R. Bendetsen. Chem Eng 71:76 Jl 6 '64
Instrumentation and automation; Ft Lauderdale pollution control system. F. C. Funnell. il Water Works & Wastes Eng 1:64-5+ S '64
Instrumentation and automation in pollution control at Boulder, Colo. E. M. Hamilton. il Water Works & Wastes Eng 1:91-2+ S '64
Instrumentation and automation; water quality monitoring; comments by pollution control agencies. Water Works & Wastes Eng 1:82-8+ S '64
International conference on water pollution research, 2d, Tokyo, Aug. 24-28; with program and abstracts of papers. WPCF J 36:124-9, 265-331, 1316-19 Ja, Mr, O '64
Interstate cooperation in water pollution control. R. D. Hoak and H. C. Bramer. bibliog Archives Environmental Health 8:368-72 Mr '64
Joint action assists pollution control. J. W. Townsend and A. L. Haberling. il Pub Works 95:122-3 S '64
Kerosene contamination of river supply at Atlanta. P. Weir. Am Water Works Assn J 56:1323-5 O '64
Lake's response to its environment. R. O. Sylvester and G. C. Anderson. bibliog maps Am Soc C E Proc 90 [SA 1 no 3786]:1-22 F '64
Louisiana battling brine pollution. maps Oil & Gas J 62:45 Je 1 '64
Management aspects of groundwater contamination. H. E. LeGrand. bibliog diags WPCF J 36:1133-45 S '64
Manufacturing chemists' assn. finds fault with proposed water pollution legislation. Chem & Eng N 42:37 Mr 2 '64
Mill scale recovery system reduces stream pollution. il Iron & Steel Eng 40:148 D '63
Municipal and agricultural pollution now and in the future. R. C. Loehr. bibliog map Pub Works 95:94-6+ Je '64
Nation's water pollution problem; detergent's role in it. M. M. Cohn. Am Oil Chem Soc J 40:645-8 N '63
Needs for effective operation. W. E. Long, jr. WPCF J 36:103-8 Ja '64
New suspended solids recorder. G. B. Thorpe. il diags Ind Electronics 2:415-18 S '64
New techniques for the evaluation of organic pollutants. D. W. Ryckman and others. bibilog diags Am Water Works Assn J 56:975-83 Ag '64
New vessel sweeps up oil. il Oil & Gas J 62:68 Jl 20 '64
Nomograph for the solution of stream pollution equations. N. H. Harley. Water & Sewage Works 111:144-6 Mr '64
Observations of coliform bacteria in streams. F. W. Kittrell and S. A. Furfari. bibliog WPCF J 35:1361-85 N '63; Abstract. Pub Works 95:146-7 F '64
Oceanographic study of sewage discharge into Kailua (Hawaii) Bay. R. M. Belt. il maps Water & Sewage Works 111:368-73 Ag '64
Oil boom facilitates control of oil spillage. il Marine Eng/Log 68:98+ N '63
Oil moves to the attack on pollution. Oil & Gas J 62:78 F 24 '64

WATER pollution—*Continued*

Operator looks at acid mine drainage. W. Bellano. bibliog il maps diags Min Cong J 50:66-74 Ag '64
Organic micropollution instrumentation and measurement. R. T. Skrinde and H. D. Tomlinson. bibliog diag WPCF J 35:1292-306 O '63; Abstract. Pub Works 95:120 Ja '64
Oxygen relationships in the Sacramento River. C. G. Gunnerson and T. E. Bailey. bibliog map Am Soc C E Proc 89 [SA 4 no 3619]:95-124 Ag '63; Discussion. 90 [SA 1 no 3813]:175-83 F; [SA 2 no 3884]:47-50 Ap '64; Reply. 90 [SA 4 no 4006]:79-85 Ag '64
Pennsylvania acts on mine drainage. WPCF J 36:1320 O '64
People, politics and pollution; address. J. C. Daly. WPCF J 36:1-9 Ja '64
Pesticide levels low in West Coast fish; abstract. D. M. DeVries and others. Chem & Eng N 42:71 Ap 20 '64
Pesticides get tangled in net of dead fish. map Chem Eng 71:82+ Je 22 '64
Pollution abatement in Puerto Rico. J. Labadie-Eurite. il Water Works & Wastes Eng 1:66-8 S '64; Abstract. Pub Works 95: 128+ N '64
Pollution abatement program helped by abandoned water line. L. W. Weller. il Pub Works 95:112-14 Je '64
Pollution abatement progress in Ohio. il Pub Works 95:100-1+ S '64
Pollution conference blames endrin for fish kills. Chem & Eng N 42:28 My 18 '64
Pollution prevention in relation to agricultural effluents. H. Fish. Chem & Ind p354-6 F 29 '64
Pollution study of a future tidal estuary; Dominguez Channel. Los Angeles. C. A. Rambow. bibliog map diag WPCF J 36:520-8 Ap '64
Pollutional effects of outboard motor exhaust; laboratory studies. J. N. English and others. bibliog WPCF J 35:923-31 Jl '63; Correction. 35:1413 N '63
Progress in protection of air and water. J. O. Julson. il Paper Ind 46:621-3 O '64
Public health service extends pollution sleuthing. Eng N 172:160 Mr 19 '64
Public health service plans enlarged program to monitor Mississippi. Chem & Eng N 42: 58 Je 8 '64
Public meeting on joint municipal-industrial waste treatment. WPCF J 36:135-67 F '64
Quantitative biological measure of stream pollution. D. L. King and R. C. Ball. bibliog WPCF J 36:650-3 My '64
Receiving water monitoring. C. V. Gibbs. il map Water Works & Wastes Eng 1: 52-5 S '64
Reevaluation of the significance of the coliform bacteria. H. F. Clark and P. W. Kabler. bibliog Am Water Works Assn J 56:931-6 Jl '64
Resume of pollution of streams, ponds, and ocean water on Oahu. R. Lam. il maps WPCF J 36:1152-8 S '64
Separation of oil from oil/water dispersions by coagulation; abstract and discussion. F. H. H. Valentin and R. Farley. Chem & Ind p 1976-7 D 21 '63
Shipboard extended-aeration waste-water treatment plant design. M J. Stewart and H. F. Ludwig. bibliog il Naval Eng J 75: 985-92 D '63
Source and persistence of nematodes in surface waters. N. Chaudhuri and others. bibliog map Am Water Works Assn J 56:73-88 Ja '64
South African studies; National institute for water research, Council for scientific and industrial research report. Pub Works 95:178+ Ap '64
Statement of policy on water pollution control in the United States. WPCF J 36:12-13 Ja '64
Stream pollution and effluent treatment, with special reference to textile and paper mill effluents. L. Klein. bibliog Chem & Ind p866-73 My 23 '64
Symposium on ecology and the industrial society, Swansea, April 13-16; abstracts of papers. Chem & Ind p 1256-8 Jl 11 '64
System for evaluation of contamination potential of some waste disposal sites. H. E. LeGrand. diags Am Water Works Assn J 56:959-74 Ag '64; Abstract. Pub Works 95: 176 O '64
Tank pollution attacked by Standard of New Jersey. il Chem Eng Prog 60:98 Ag '64
Taste and odor production in reservoirs by blue-green algae. A. R. Gaufin. bibliog Am Water Works Assn J 56:1345-50 O '64
Three-in-one monitor checks DO resources of Raritan Bay. il Water Works & Wastes Eng 1:50-1 Mr '64
Time of travel of soluble contaminants in streams. T. J. Buchanan. il map Am Soc C E Proc 90 [SA 3 no 3932]:1-12 Je '64
Toxicity of petrochemicals in the aquatic environment. J. F. Malina, jr. bibliog Water & Sewage Works 111:457-60 O '64
USPHS activities and the water industry. C. H. Atkins. Am Water Works Assn J 56: 1290-6 O '64
USPHS insists endrin is fish killer. Chem & Eng N 42:25-6 Jl 6 '64
Urban land runoff as a factor in stream pollution. S. R. Weibel and others. bibliog il map WPCF J 36:914-24 Jl '64
Use of biology in the study of water pollution. H. B. N. Hynes. Chem & Ind p435-6 Mr 14 '64
Using fire hydrants to survey nuisance organisms. A. A. Hirsch. il diags Water & Sewage Works 111:357-9 Ag '64
Water management; pollution measurement and control pose complex problems. il Power Eng 68:43 Ag '64
Water pollution by organic pesticides. S. D. Faust and O. M. Aly. Am Water Works Assn J 56:267-79 bibliog(p277-9) Mr '64; Correction. 56:666 My '64
Water pollution research laboratory Department of scientific and industrial research. B. A. Southgate. il Chem & Ind p560-8 Ap 4 '64
Water pollution research 1963. Chem & Ind p793 My 9 '64
Water quality management; legal, technical, and administrative aspects. bibliog WPCF J 36:1082-106 S '64
Water renovation what it means to you. bibliog il Chem Eng Prog 59:19-40 N '63
Water resources; techniques and trends. il Eng N 172:88-9+ Ja 23 '64
Waterborne-disease outbreaks, 1946-60. S. R. Weibel and others. bibliog Am Water Works Assn J 56:947-58 Ag '64
Who will control pollution in Texas? Oil & Gas J 62:68 F 10 '64

See also
Sewage disposal
Trade waste disposal
Water—Bacteriology
Water laws and regulations
Water purification
Water supply—Salt water intrusion

Bibliography

Review of the literature of 1963 on wastewater and water pollution control. bibliog WPCF J 36:535-72, 659-711, 791-863 My-Jl '64
Reviews and abstracts (cont). WPCF J 35: 550-1, 678-9, 1085-6, 1224; 36:658, 1060 Ap-My, Ag-S '63, My, Ag '64

Radioactive pollution

Accumulation of mixed fission products by marine organisms; abstract. T. R. Rice and others. WPCF J 36:326 Mr '64
Action guides for radioactive effluents from plutonium recycle test reactor. R. F. Foster and others. map diags Am Soc C E Proc 89 [SA 6 no 3733]:17-35 D '63
Chemical analysis of radioactive materials in water. T. F. Craft and others. Am Water Works Assn J 56:1357-68 O '64
Diffusion phenomena in coastal areas; abstract. M. Fukuda and others. WPCF J 36: 322-3 Mr '64
Factors affecting Sr-85 and I-131 removal by runoff water. E. R. Graham. Water & Sewage Works 110:407-10 N '63
Method for the measurement of the radioactive content of wastewater. F. J. Haughey and R. M. Manganelli. bibliog WPCF J 36: 88-95 Ja '64
Radioactive fallout problems in food, water, and clothing. M Eisenbud. bibliog Archives Environmental Health 8:606-12 Ap '64
Radium contamination at the Jordan River delta of the Great Salt Lake. R. C. Pendleton and others. map WPCF J 36:925-7 Jl '64
Reliability of measurements of gross beta radioactivity in water. L. R. Setter. Am Water Works Assn J 56:228-36 F '64

See also
Water purification—Radioactive waste removal

WATER pollution control federation

Annual meeting, 36th, Seattle. WPCF J 35: 1593-610 D '63
Annual meeting, 36th, Seattle, Oct. 6-10; with abstracts of papers. Water & Sewage Works 110:442-5 D '63

WATER pollution control federation—*Continued*

Annual meeting, 37th, Bal Harbour, Fla. Sept. 27-Oct. 1; with program and list of exhibitors. WPCF J 36:1164-83 S '64; Water Works & Wastes Eng 1:79-81 S '64

Directory and yearbook, 1964. WPCF J 36:1-248 pt 2 Mr '64

1964 honors and awards. il WPCF J 36:1303-15 O '64

Recommendations of the legislative analysis committee. WPCF J 36:10-11 Ja '64

Statement of policy on water pollution control in the United States. WPCF J 36:12-13 Ja '64

WATER power

See also

Hydroelectric plants

Hydroelectric power

Tidal power

Turbines

WATER prospecting. See Water, Underground—Prospecting

WATER purification

Adsorption in heterogeneous aqueous systems. W. J. Weber, jr. and J. C. Morris. bibliog Am Water Works Assn J 56:447-56 Ap '64

Benefit-cost considerations in water quality management. E. J. Cleary. Pub Works 94:66+ D '63

Caustic soda in water treatment. J. Hosty. Water Works Eng 116:898 N '63

Challenges of quality water. A. P. Black. bibliog Am Water Works Assn J 56:1279-84 O '64

Chromatographic evaluation of activated carbon. R. A. Baker. bibliog Am Water Works Assn J 56:92-8 Ja '64

Effects of physiochemical processes in removing organic contaminants. J. N. Dornbush and D. W. Ryckman. bibliog il diag WPCF J 35:1325-38 O '63; Abstract. Pub Works 95:122 Ja '64

Influence of water temperature on performance of solids-contact units. C. D. Eaton. bibliog diags Tappi 47:sup 188A-91A O '64

Microfloc process in water treatment. A. H. Rice and W. R. Conley. il diags Tappi 47:sup 167A-71A Ja '64

Monroe County's water treatment plant. il plan Water & Sewage Works 110:446-7 D '63

New solvent system for improved extraction of activated charcoal. C. E. Hamilton. Water & Sewage Works 110:422-3 D '63

New water treatment methods serve Richland. R. L. Culp. il diag Pub Works 95:86-90 Jl '64

Potassium permanganate solves a problem at Charlottesville, Va. C. G. Haney. Water & Sewage Works 111:341-2 Jl '64

Production of high-resistivity water at Texas Instruments. E. C. Rees and others. bibliog il diag Am Water Works Assn J 56:301-10 Mr '64; Excerpts. Pub Works 95:168+ My '64

Recent developments in water treatment equipment; panel discussion. Tappi 47:sup 148A-67A Ja '64

Relation of raw-water quality to treatment plant design. R. L. Woodward. bibliog Am Water Works Assn J 56:432-40 Ap '64

Removal of alkyl benzene sulfonate from raw water and sewage effluents; abstract. F. H. Conrad. Pub Works 94:164+ D '63

Should we specify water treatment? S. A. Littmann. diags Air Cond Heat & Vent 61:74-8 O '64

Simple, effective water treatment with two-valve diatomite filter. il diag Pub Works 95:108-9 Ag '64

Simplifying cooling tower make-up treatment. F. N. Kemmer. il ASHRAE J 6:42-3 Ja '64

Sodium compounds in water and waste treatment. G. E. Symons. bibliog Pub Works 94:105-9 D '63

Taste test taxes theories. R. S. Ingols. il map Water Works & Wastes Eng 1:43-5 O '64

Treatment studies in Ontario. A. J. Harris and A. Oda. diag Am Water Works Assn J 56:1315-22 O '64

Use of copper sulfate in water and waste treatment. A. A. Hirsch. bibliog Pub Works 95:95-7 Ja '64

Use of potassium permanganate in water treatment. A. E. Griffin. Pub Works 95:112-13 F '64

Your water supply. R. Hetherington. bibliog diags Textile World 114:86-8+ F '64

See also

Feed water purification

Resinous products—Water treatment

Settling basins

Water—Deactivation and deaeration

Water softening

Water supply for factories

Water supply for power plants

Chlorination

Cutting chlorination costs. J. T. Monscvitz. il Water Works & Wastes Eng 1:39-41 Mr '64

How to program chlorine deliveries. A. A. Hirsch. Water Works & Wastes Eng 1:66-7 F '64

Mobile chlorination plant from a shelter. il Engineering 198:474 O 9 '64

Safe disinfection for household water systems. E. R. Baumann. bibliog Pub Works 95:95-8+ My '64

Swimming pool chlorine stabilizers. L. S. Stuart and L. F. Ortenzio. il Soap & Chem Spec 40:79-82+ Ag '64

Coagulation

Cationic coagulant for water treatment is cyclic polymer. Chem & Eng N 42:46 F 24 '64

Chemical additive clears mud from water lines; Zimmite. il Steel 155:54+ Ag 31 '64

Coagulation and sedimentation equipment. J. W. Pratt. Tappi 47:sup 148A-51A Ja '64

Economics of coagulants. E. B. Besselievre. Water Works & Wastes Eng 1:39-41 O; 57-8+ N '64 (to be cont)

Effects of polyelectrolyte coagulant aids on removal of Missouri River turbidity with ferric sulfate. K. C. Mueller and N. C. Burbank, jr. il Am Water Works Assn J 56:333-46 Mr '64

Electrophoretic studies of turbidity removal with ferric sulfate. A. P. Black and J. V. Walters. bibliog Am Water Works Assn J 56:99-110 Ja '64

Jar tests help in selection of water coagulants. J. Agnew. il Oil & Gas J 62:108-10 O 19 '64

Revised list of acceptable coagulant aids. Water Works Eng 116:896 N '63

Role of the zeta potential in coagulation involving hydrous oxides. T. M. Riddick. il diags Tappi 47:sup 171A-9A Ja '64

Stoichiometry of the coagulation of color-causing organic compounds with ferric sulfate. A. P. Black and others. bibliog Am Water Works Assn J 55:1347-66 O '63; Abstract. Pub Works 95:130 Ja '64

Use of acid-treated sodium silicate in coagulation. J. R. Baylis and A. E. Mrva. diag Am Water Works Assn J 55:1536-52 D '63

Zeta potential controlled plant treats a difficult water. diag Pub Works 95:102-3 S '64

Zeta potential measurements in the control of coagulation chemical doses. E. L. Bean and others. bibliog Am Water Works Assn J 56:214-24; Discussion. R. W. Ockershausen and C. J. Peterman. 224-7 F '64

Color removal

Color suppression in the Hollywood, Fla. water supply. G. W. Laurie, jr. and F. Southwell. Am Water Works Assn J 56:1153-9 S '64

Stoichiometry of the coagulation of color-causing organic compounds with ferric sulfate. A. P. Black and others. bibliog Am Water Works Assn J 55:1347-66 O '63; Abstract. Pub Works 95:130 Ja '64

Corrosion control

Review of anticorrosion water treatment. J. F. Dye. bibliog Am Water Works Assn J 56:457-65 Ap '64

See also

Water supply—Corrosiveness

Demineralization

Conversion to quality water results in water conservation. K. G. Barnhill. bibliog flow sheet Pub Works 95:106-8 O '64

Effect of impurities on precipitation of calcium. E. Schonfeld. bibliog Am Water Works Assn J 56:767-73 Je '64

Polarization characteristics of electrodialytic demineralization. S. A. Weiner and others. bibliog diag Ind & Eng Chem Proc Design 3:126-9 Ap '64

Desalting

Condensing heat transfer in steam-air mixtures in turbulent flow. P. B. Stewart and others. bibliog flow diag diag Ind & Eng Chem Proc Design 3:48-54 Ja '64

Desalination brine waste disposal. W. Viessman, jr. Pub Works 94:117-18 D '63

Developments in saline-water conversion, 1963. Am Water Works Assn J 56:358-60 Mr '64

WATER purification—Desalting—*Continued*
Nuclear distillery. Phys Today 17:69 Jl '64
Saline water conversion via extraction. B. B. Carr. flow diags il diags Chem Eng Prog 59:59-62 D '63
Thermodynamic cycles for recovery of water by solvent extraction. R. R. Davison and D. W. Hood. bibliog flow sheet diag Ind & Eng Chem Proc Design 3:399-404 O '64
Vapor reheat process for water desalination. D. F. Othmer and others. flow sheet il Chem Eng Prog 59:63-8 D '63
Water conversion shows promise of growing at a faster pace. il diag Power Eng 68:39-42 Ag '64
See also
Sea water—Desalting

Distillation
See Water, Distilled

Electrolytic treatment
Effects of polyelectrolyte coagulant aids on removal of Missouri River turbidity with ferric sulfate. K. C. Mueller and N. C. Burbank, jr. il Am Water Works Assn J 56:333-46 Mr '64
Zeta potential controlled plant treats a difficult water. diag Pub Works 95:102-3 S '64

Filtration
See Filters and filtration; Filtration plants

Hydrogen sulfide removal
Removal of hydrogen sulfide with potassium permanganate. B. F. Willey and others. diag Am Water Works Assn J 56:475-9 Ap '64

Iron removal
How can we remove dissolved iron from well water? answers. diags Power 108:208-9 Je '64
How to manage small water systems; iron and manganese removal. A. D. Henderson. diags Water Works Eng 116:893-5+ N '63
New filter system removes iron from municipal water supply. flow diag il diag Water & Sewage Works 111:284-6 Je '64
Valveless filter installed for iron removal. J. R. Gardner and A. J. Stika. il diag Pub Works 95:109-10 Mr '64

Lime treatment
Modern cold lime treatment plant design. J. F. Locke and V. J. Calise. bibliog il diags Tappi 47:sup 151A-7A Ja '64
Use and handling of lime in water and waste treatment. W. S. Mahlie. bibliog Pub Works 94:96-8 N '63

Manganese removal
How to manage small water systems; iron and manganese removal. A. D. Henderson. diags Water Works Eng 116:983-5+ N '63

Odor removal
See Water purification—Taste and odor removal

Radioactive waste removal
Effect of impurities on precipitation of calcium. E. Schonfeld. bibliog Am Water Works Assn J 56:767-73 Je '64

Swimming pool water
Swimming pool chlorine stabilizers. L. S. Stuart and L. F. Ortenzio. il Soap & Chem Spec 40:79-82+ Ag '64

Taste and odor removal
Advances in taste and odor removal with granular carbon filters. M. E. Flentje and D. G. Hager. bibliog il diag Water & Sewage Works 111:76-9 F '64
Control of taste and odor in Missouri River water. J. F. Erdei. bibliog il diag Am Water Works Assn J 55:1506-22 D '63
Granular-activated-carbon beds for odor removal. R. L. Woodward and others. bibliog flow diag diags Am Water Works Assn J 56:287-95 Mr '64
Oxidation of phenolic wastes. H. R. Eisenhauer. bibliog WPCF J 36:1116-28 S '64
Problem, musty water; the culprit, actinomycetes. R. E. Hansen. il map Water Works & Wastes Eng 1:45-9 Ja '64
Reevaluation of granular-carbon filters for taste and odor control. M. E. Flentje and D. G. Hager. bibliog Am Water Works Assn J 56:191-7 F '64
See also
Water purification—Chlorination

WATER rates
New price policies for municipal water service. J. W. Milliman. bibliog Am Water Works Assn J 56:125-31 F '64
Price policy and urban water supplies. J. W. Milliman. bibliog diag Water & Sewage Works 110:389-94 N '63
Use of peak demands in determination of residential rates. F. P. Linaweaver, jr. and J. C. Geyer. Am Water Works Assn J 56:403-10 Ap '64

WATER repellants
Weathering properties of selected water repellents and their substrates. bibliog Am Dyestuff Rep 53:46-55 Ja 20 '64
See also
Waterproofing of textiles

WATER resources. See Water supply

WATER sampling
Alternative sampling device for the carbon adsorption method. F. B. Taylor and others. il diags Am Water Works Assn J 56:774-80 Je '64
Automatic analysis of water processes. C. W. Slagle. Tappi 47:sup 186A-7A O '64
Data gathering and monitoring equipment in water supply and water pollution control programs. R. S. Green. diags Am J Pub Health 53:1963-71 D '63
Dissolved oxygen determinations for field surveys. R. Porges. WPCF J 36:1247-55 O '64
Miniaturized dissolved oxygen field kit. R. H. Scott. il WPCF J 36:342-4 Mr '64
Receiving water monitoring. C. V. Gibbs. il map Water Works & Wastes Eng 1:52-5 S '64
Three-in-one monitor checks DO resources of Raritan Bay. il Water Works & Wastes Eng 1:50-1 Mr '64

WATER seepage. See Seepage

WATER skis
Water ski trainer. il Engineering 198:380 S 18 '64

WATER softeners
Water softener valve. D. Mahlstedt and C. Lyall. il Materials in Design Eng 59:129 Ap '64
Will water softener rinse upset the performance of a septic tank? Dom Eng 203:106 My '64

WATER softeners, Domestic
Plastics lower cost of water conditioner. il Materials in Design Eng 59:82-3 F '64

WATER softening
Caustic soda for corrosion control. J. A. Hosty. il Water Works & Wastes Eng 1:44-5 Ap '64
Effects of synthetic detergents on lime-soda ash treatment. J. F. Malina, jr. and S. Tiyaporn. bibliog Am Water Works Assn J 56:727-38 Je '64
Ion-exchange equilibrium data in the design of a cyclic sea water softening process. G. Klein and others. bibliog Ind & Eng Chem Proc Design 3:280-7 Jl '64
Lima water softening plant. L. G. Williams. il plan diag Water & Sewage Works 111:46-9 Ja '64
Modern cold lime treatment plant design. J. F. Locke and V. J. Calise. bibliog il diags Tappi 47:sup 151A-7A Ja '64
Natural gas aids water supply. il Gas Age 130:36+ D '63
Pilot water softening plant. diag Water & Sewage Works 110:sup80A N '63
Recovering carbonate water softening sludge with kraft causticizing mud. M. M. Schirtzinger and H. A. Smith. flow diag Tappi 47:sup 184A-6A Ja '64
See also
Feed water purification
Water—Hardness

WATER storage
Design criteria for water distribution storage. J. E. Kiker, jr. Pub Works 95:102-4 Mr '64
Pipe system of bulk water storage. il Engineering 198:373 S 18 '64
See also
Dams
Reservoirs
Water tanks

WATER supply
Aging of waters in reservoirs of the Piedmont plateau. R. D. Wilroy and R. S. Ingols. bibliog maps Am Water Works Assn J 56:886-90 Jl '64
Challenges of quality water. A. P. Black. bibliog Am Water Works Assn J 56:1279-84 O '64
Conjunctive operation of dams and aquifers. N. Buras. bibliog diags Am Soc C E Proc 89 [HY 6 no 3697]:111-31 N '63; Correction. 90 [HY 4 no 3980]:327 Jl '64

WATER supply—*Continued*

Data gathering and monitoring equipment in water supply and water pollution control programs. R. S. Green. diags Am J Pub Health 53:1963-71 D '63
Decision-making in water resource development. L K. Fox. Pub Works 95:54+ Ja '64
Development, management, and operation of water resources in Miami (Ohio) conservancy district. M. L. Mitchell. Tappi 47: sup 139A-42A Ja '64
Estuarine water quality management and forecasting. R. V. Thomann and M. J. Sobel. Am Soc C E Proc 90 [SA 5 no 4116]: 9-36 O '64
High tide for equipment makers as water needs keep mounting. K. W. Bennett. il Iron Age 194:23-5 S 10 '64
International water supply association, Congress, 6th, Stockholm. Water Works & Wastes Eng 1:43+ Ag '64
Law of the underground. J. H. Krieger. Civil Eng 34:52-3 Mr '64
Lost River system, a water quality management study. G. T. Orlob and P. C. Woods. bibliog flow diags map plan Am Soc C E Proc 90 [HY 2 no 3815]:1-22 Mr '64
Major water supply and sanitation projects. il map Eng N 172:188+ Ja 23 '64
Planning for water supply development. D. A. Okun. bibliog Am J Pub Health 54:900-7 Je '64
Price policy and urban water supplies. J. W. Milliman. bibliog diag Water & Sewage Works 110:389-94 N '63
Progress report on the residential water use research project. F. P. Linaweaver, jr. and others. map Am Water Works Assn J 56:1121-8 S '64; Abstract. Pub Works 95:132+ N '64
Quality water, quality paper. M. U. Priester. Tappi 47:sup 145A-8A Ja '64
Research information retrieval system for water supply and pollution control. H. A. Faber and K. Taylor. diags Am Water Works Assn J 55:1477-84 D '63
Selected data on public supplies of the 100 largest cities in the United States, 1962. C. N. Durfor and E. Becker. bibliog Am Water Works Assn J 56:237-46 Mr '64
Socio-economic aspects of water quality management. A. V. Kneese. bibliog WPCF J 36:254-62 F '64
Studies on microbiotic cycles in surface waters. J. K. G. Silvey and A. W. Roach. bibliog Am Water Works Assn J 56:60-72 Ja '64
Study of municipal and irrigation water shortages. C. B. Thompson. Am Soc C E Proc 89 [IR 4 no 3714]:7-13 D '63; Discussion. K. Özal and F. M. Warnick. 90 [IR 3 no 4028]:77-8 S '64
Surveying and mapping for water-resource planning. K. W. Bauer. maps Am Soc C E Proc 90 [SU 1 no 3855]:1-15 Ap '64
Urban water supplies in developing countries; WHO report. Am Water Works Assn J 56:939-46 Ag '64
Use of the Critical-path method in a pollution control project. R. D. Vaughan. bibliog Am Water Works Assn J 56:1092-6 S '64; Excerpts. Pub Works 95:138+ N '64
Water quality changes in Elephant Butte reservoir. J. M. Bliss. Am Soc C E Proc 89 [IR 3 no 3637]:53-76 S '63; Discussion. 90 [IR 1 no 3848]:131-8 Mr '64
Water quality management; legal, technical, and administrative aspects. bibliog WPCF J 36:1082-106 S '64
Water renovation; what it means to you. bibliog il Chem Eng Prog 59:19-40 N '63
Water resource control. F. G. Goff. Water & Sewage Works 110:402-4 N '63; Abstract. Pub Works 95:156+ F '64
Water resources and regional economics. F. A. Clarenbach. Tappi 47:sup 183A-6A O '64
Water resources problems of the Great Lakes. W. Q. Kehr and C. R. Ownbey. Am Water Works Assn J 56:1167-72 S '64

See also
Filters and filtration
Filtration plants
Hot water supply
Reservoirs
Water, Underground
Water conservation
Water consumption
Water distribution
Water purification
Water storage
Water supply engineering
Water tanks
Water waste
Watersheds
Waterworks
Wells
also subdivision Water supply under names of places, e.g.
Albion, New York
Atlanta
Auburn, Maine
Augusta, Wisconsin
Beaufort, South Carolina
Bellevue, Nebraska
Boston
Brawley, California
Buckeye, Arizona
Chester, Pennsylvania
Chicago
Dallas
Denver
Eugene, Oregon
Foster City, California
Gladstone, Oregon
Grand Rapids, Michigan
Greenville, Illinois
Hollywood, Florida
Jackson, Mississippi
Lima, Ohio
London
Los Angeles
Manchester, England
Naval bases
New York (city)
Oak Harbor, Washington
Oregon, Ohio
Pasadena, California
Pendleton, Oregon
Phoenix, Arizona
Portsmouth, Virginia
Rapid City, South Dakota
Richland, Washington
Richmond, Indiana
Rio de Janeiro
Rivermines, Missouri
San Antonio, Texas
San Francisco
Santa Ana, California
Seattle
Toronto
Troy, New York
Vernon, California
Washington, D.C.
Wauwatosa, Wisconsin
Winston-Salem, North Carolina
York, Pennsylvania

Cadmium content

Cadmium and hexavalent chromium in Nassau County ground water. M. Lieber and others. bibliog diags Am Water Works Assn J 56: 739-47 Je '64

Chromium content

Cadmium and hexavalent chromium in Nassau County ground water. M. Lieber and others. bibliog diags Am Water Works Assn J 56:739-47 Je '64

Cleaning compositions content

Biodegradation of nonionics. F. A. Blankenship and V. M. Piccolini. bibliog Soap & Chem Spec 39:75-8+ D '63
Biodegradation of some tallow-based surface active agents in river water. J. K. Weil and A. J. Stirton. bibliog Am Oil Chem Soc J 41:355-8 My '64
Effects of detergents on surface and ground water problems. W. A. Kline. bibliog il Am Oil Chem Soc J 40:656-9 N '63
Effects of synthetic detergents on lime-soda ash treatment. J. F. Malina, jr. and S. Tiyaporn. bibliog Am Water Works Assn J 56: 727-38 Je '64
Evaluation of the extent and nature of pesticide and detergent involvement in surface waters of a selected watershed. Pub Works 95:142+ N '64
Health effects of detergents in water. R. L. Woodward and others. bibliog Archives Environmental Health 8:584-8 Ap '64
Nation's water pollution problem; detergent's role in it. M. M. Cohn. Am Oil Chem Soc J 40:645-8 N '63
Retardation of ABS in different aquifers. M. J. Suess. bibliog Am Water Works Assn J 56:89-91 Ja '64
Study of ground water supplies in two Massachusetts communities as related to synthetic detergents; abstract. R. M. Sturtevant and E. V. Brimley. Pub Works 95: 164+ F '64
Syndet problem after five years of progress. C. E. Keefer. bibliog flow diag diag Pub Works 95:82-91+ Ja '64
Transient intermediates in the biodegradation of straight chain ABS. R. D. Swisher. bibliog WPCF J 35:1557-64 D '63

WATER supply—*Continued*

Conservation

See Water conservation

Copper content

Avoidance of copper-zinc solutions by young salmon in the laboratory. J. B. Sprague. il diags WPCF J 36:990-1004 bibliog(p 1003-4) Ag '64

Corrosiveness

Artificial pits for quantitative studies of corrosion of aluminum alloys in natural waters. G. A. Murray. bibliog il diags Corrosion 20:329-34 O '64
Caustic soda for corrosion control. J. A. Hosty. il Water Works & Wastes Eng 1:44-5 Ap '64
Control of corrosion in water systems. J. A. Lehmann. diags Am Water Works Assn J 56:1009-18 Ag '64
Evaluation of corrosion in distribution systems. C. R. Schneider and W. Stumm. bibliog Am Water Works Assn J 56:621-32 My '64
Should we specify water treatment? S. A. Littmann. diags Air Cond Heat & Ven 61:74-8 O '64

Fluorine content

Fluoridation in the 25 largest cities of the United States. Am Water Works Assn J 56:296 Mr '64
Fluoridation pro and con (cont). Water Works Eng 116;195, 572, 897 Mr, Jl, N '63
Fluoridation; the Philadelphia story. D. A. Soricelli. Archives Environmental Health 8:752-4 My '64
Ion-exchange method for determination of fluoride in potable waters. F. S. Kelso and others. bibliog Anal Chem 36:577-9 Mr '64
Possible effect of aluminum on the availability of fluoride in potable water. Pub Works 95:190+ O '64
Simple, interference-free determination of fluoride in water. A. T. Palin. Water & Sewage Works 111:461-4 O '64
Status and prospects of fluoridation in Europe. E. Auermann and H. Lingelbach. Am J Pub Health 54:1545-50 S '64
Status of fluoridation in the United States and Canada, 1962. Am Water Works Assn J 56:111-20 Ja '64

Iron content

Effect of yellow organic acids on iron and other metals in water. J. Shapiro. bibliog Am Water Works Assn J 56:1062-82 Ag '64

Mineral content

Predictive techniques for water quality inorganics. J. O. Ledbetter and E. F. Gloyna. bibliog Am Soc C E Proc 90 [SA 1 no 3810]:127-51 F '64; Discussion. 90 [SA 5 no 4097]:63-4 O '64
Water composition and cardiovascular health. bibliog Am Water Works Assn J 56:369-77 Ap '64

Nitrate content

Brucine method for determination of nitrate in ocean, estuarine, and fresh waters. D. Jenkins and L. L. Medsker. Anal Chem 36:610-12 Mr '64
Chemical reduction of nitrate in water. G. K. Young and others. bibliog WPCF J 36:395-8 Mr '64
Diazotization method for nitrate and nitrite. M. J. Fishman and others. bibliog Am Water Works Assn J 56:633-8 My '64
Proposed method for nitrate in potable waters. R. Navone. Am Water Works Assn J 56:781-3 Je '64

Radium content

See Water pollution—Radioactive pollution

Salt water intrusion

Freshening of Deer Point Lake, Bay County, Fla. L. G. Toler and others. map Am Water Works Assn J 56:984-90 Ag '64
Industry helps handle brine problems. Oil & Gas J 61:60-1 D 16 '63
Intruded salt-water wedge in porous media. R. R. Rumer, jr. and D. R. F. Harleman. bibliog diags Am Soc C E Proc 89 [HY 6 no 3707]:193-220 N '63; Correction. 90 [HY 4 no 3980]:337 Jl '64
Moving interface in coastal aquifers. J. Bear and G. Dagan. il diags Am Soc C E Proc 90 [HY 4 no 3988]:193-216 Jl '64
Pneumatic reduction of salt intrusion through locks. G. Abraham and P. v. d. Burgh. il diags Am Soc C E Proc 90 [HY 1 no 3759]:83-119 Ja '64; Discussion. D. I. H. Barr. 90 [HY 5 no 4050]:197-9 S '64
Recharge wells keep salt water out of underground reservoir. il map Eng N 172:32-4 Je 4 '64
Research in sea-water encroachment and ground water resources development. L. S. Lau. bibliog il diags Water & Sewage Works 111:308-12 Jl '64
Stopping a salt spring. Pub Works 95:146+ N '64
Subsurface water distribution in surface irrigation. E. T. Smerdon. bibliog Am Soc C E Proc 89 [IR 1 no 3445]:1-15 Mr '63; Discussion. J. R. Davis. 89 [IR 3 no 3655]:91-5 S '63; Reply. 90 [IR 1 no 3848]:117-18 Mr '64

Standards

Alternative sampling device for the carbon adsorption method. F. B. Taylor and others. il diags Am Water Works Assn J 56:774-80 Je '64
Consistency of results with threshold odor tests. E. A. Sigworth. Am Water Works Assn J 56:297-300 Mr '64
Federal role in water quality control in the United States. C. H. Atkins. Am Water Works Assn J 56:37-42 Ja '64
Surface water quality; panel discussion. bibliog Am Water Works Assn J 56:521-34 My '64

Zinc content

Avoidance of copper-zinc solutions by young salmon in the laboratory. J. B. Sprague. il diags WPCF J 36:990-1004 bibliog(p 1003-4) Ag '64
Soluble-adsorbed zinc equilibrium in natural waters. J. T. O'Connor and C. E. Renn. Am Water Works Assn J 56:1055-61 Ag '64
Zinc concentrations in rivers of the Chesapeake Bay region. J. T. O'Connor and others. bibliog Am Water Works Assn J 56:280-6 Mr '64

Arizona

Arizona plan for Colorado River water. O. C. Stout. map Water Works & Wastes Eng 1:66 Mr '64

Australia

Development of Australia's water resources with particular reference to irrigation. W. Hudson. maps Engineer 217:1114-16 Je 26 '64

California

Briones dam near completion. il Water & Sewage Works 111:149 Mr '64
California rethinks Udall water plan. il Eng N 171:22 D 12 '63
California state water project. I. B. Mackintosh. map Engineering 196:740 D 13 '63
California will divert Eel River. map Eng N 172:64-5 Mr 19 '64
Ground-water management for the Nation's future; ground-water basin operation; symposium. bibliog flow charts map diags Am Soc C E Proc 90 [HY 4 no 3985]:51-105 Jl '64
New water treatment facility for southern California; Robert B. Diemer filtration plant, Yorba Linda. A. E. Bowers and E. L. Griffith. il map plan diags Water & Sewage Works 111:433-45 O '64
Progress report on the California water project. A. R. Golze. map Am Water Works Assn J 56:247-56 Mr '64
Yuba River award could be highest single contract. Eng N 173:13 Jl 30 '64

Canada

International water problems on the Prairies. M. W. Thompson. map Eng J 47:35-8; Discussion. 48+ S '64
Status of fluoridation in the United States and Canada, 1962. Am Water Works Assn J 56:111-20 Ja '64
Surface water quality in major drainage basins and northern areas of Canada. J. F. J. Thomas. bibliog maps Am Water Works Assn J 56:1173-93 S '64
Water resources conservation in Quebec: new approach. G. Prévost. WPCF J 35:1565-8 D '63

Colorado

Rockies' diversion plan ready to roll. map Eng N 172:65-6 Ap 2 '64
Two cities tunnel through the continental divide for water. il map Eng N 172:34-5 F 27 '64
Water system freeze-ups can be prevented. K. R. Wright. il Pub Works 95:109-11+ Ap '64

WATER supply—*Continued*

Eastern states

Water supply economics in the Potomac River Basin. R. K. Davis. bibliog Am Water Works Assn J 56:257-66 Mr '64

Europe

Problem of water in Europe. C. J. Jackson. maps Chem & Ind p 1468-74 Ag 22 '64

Fairfax County, Virginia

Recent developments in the Fairfax County water authority. J. J. Corbalis, jr. Am Water Works Assn J 56:411-17 Ap '64

Florida

Freshening of Deer Point Lake, Bay County. L. G. Toler and others. map Am Water Works Assn J 56:984-90 Ag '64

Future of pollution control in Florida. V. D. Patton and D. B. Lee. WPCF J 36:1129-32 S '64

Great Britain

Finding more water for the farmer. il maps diags Engineering 198:529-32 O 23 '64

Water research association, 8th annual report. D. A. Okun. Pub Works 95:140+ Jl '64

Hawaii

Hawaii: survey of the water supply and water pollution problems of our 50th state. bibliog il maps plan diags Water & Sewage Works 111:303-26 Jl '64

History and description of the Oahu water plan. E. J. Morgan. Am Water Works Assn J 56:543-8 My '64

Resume of pollution of streams, ponds, and ocean water on Oahu. R. Lam. il maps WPCF J 36:1152-8 S '64

Hong Kong

Fifty per cent more water for Hong Kong. il map diags Engineering 196:820-1 D 27 '63

Hong Kong stores water in sea. il map Eng N 172:26-8 Ja 9 '64

Large sea water distillation plants for Hong Kong. Engineer 217:793 My 1 '64

Shek Pik water supply, Hong Kong; illustrations with text. Engineer 217:92 Ja 10 '64

Thirsty Hong Kong gets some relief. il map Eng N 171:50 D 12 '63

Illinois

Sediment movement and deposition patterns in Illinois impounding reservoirs. J. B. Stall. bibliog diags Am Water Works Assn J 56:755-66 Je '64

Israel

Israel tests Galilee diversion. map Eng N 172:41 My 28 '64

Jordan project becomes focus for old Middle East enmities. J. B. Sullivan. il map Eng N 172:26-30, cover Ja 30 '64

Jordan River water system. M. D. Morris. il map Water Works & Wastes Eng 1:114-15+ S '64

Wanted waters of the River Jordan. maps Engineering 197:147 Ja 24 '64

Jordan

Jordan project becomes focus for old Middle East enmities. J. B. Sullivan. il map Eng N 172:26-30, cover Ja 30 '64

Wanted waters of the River Jordan. maps Engineering 197:147 Ja 24 '64

Knox County, Maine

Water insurance; Maine style, low-cost development of a supplementary pond supply. R. H. Varney. il map Water Works Eng 116:954-5 D '63

Monroe County, New York

Monroe County's water treatment plant. il plan Water & Sewage Works 110:446-7 D '63

Montgomery County, Pennsylvania

North Penn water system planning. H. J. Grossman. map Water Works & Wastes Eng 1:6-7 Mr '64

New York (state)

Cadmium and hexavalent chromium in Nassau County ground water. M. Lieber and others. bibliog il diags Am Water Works Assn J 56:739-47 Je '64

Comparison of probability distributions in the analysis of drought flows. D. J. O'Connor. bibliog map Water & Sewage Works 111:180-5 Ap '64

New York state municipal water and sewage. R. D. Hennigan. map Water & Sewage Works 110:448-52 D '63

Northwestern states

Water resources of the Pacific Northwest. G. H. Fernald, jr. WPCF J 36:1225-8 O '64

Ohio

Pollution abatement progress in Ohio. il Pub Works 95:100-1+ S '64

Ontario

Treatment studies in Ontario. A. J. Harris and A. Oda. diag Am Water Works Assn J 56:1315-22 O '64

Pakistan

Indus Valley-West Pakistan's life line. A. V. Karpov. maps diags Am Soc C E Proc 90 [HY 1 no 3774]:207-42 Ja '64; Discussion. 90 [HY 4 no 3980]:371-89 Jl; [HY 5 no 4050]: 231-51 S '64

Paraquay

Fordilla faucet may make the village well obsolete. R. V. Ford. il Eng N 171:36-7 N 21 '63

New concept in water service for developing countries. E. K. G. Borjesson and C. M. Bobeda. il diags Am Water Works Assn J 56:853-62 Jl '64

Pennsylvania

Joint action assists pollution control. J. W. Townsend and A. L. Heberling. il Pub Works 95:122-3 S '64

Quenching the big thirst. J. H. Murdoch. il Pub Works 95:118-21 F '64

Salt Lake County, Utah

More efficient water distribution for Salt Lake County. R. B. Hilbert. il Water Works & Wastes Eng 1:46-7 Je '64

San Francisco Bay region

Water through automation from sea level up to 1500 feet. J. B. Gilbert. diag Water Works & Wastes Eng 1:93-4+ My '64

Texas

Ground water in Texas. M. L. Klug. maps Am Soc C E Proc 89 [HY 3 no 3519]:153-65 My '63; Discussion. C. D. Curran. 90 [HY 1 no 3783]:289-92 Ja '64

United States

Federal role in water quality control in the United States. C. H. Atkins. Am Water Works Assn J 56:37-42 Ja '64

International water problems on the Prairies. M. W. Thompson. map Eng J 47:35-8; Discussion. 48+ S '64

1962 USPHS summary of municipal water facilities in communities of 25,000 or more. K. H. Jenkins. bibliog Am Water Works Assn J 55:1485-92 D '63

Perspective on national water resources planning. T. M. Schad. bibliog Am Soc C E Proc 88 [HY 4 no 3188]:17-41 Jl '62; Discussion. 88 [HY 5 no 3290]:345-6 S; [HY 6 no 3338]:233-4 N '62; 89 [HY 1 no 3405]: 243-8 Ja '63; Reply. 90 [HY 1 no 3783]:247-8 Ja '64

Status of fluoridation in the United States and Canada, 1962. Am Water Works Assn J 56:111-20 Ja '64

Updating water resources thinking to meet space age requirements. K. S. Watson. il Water & Sewage Works 111:160-4 Ap '64

Water resources challenge. Water Works & Wastes Eng 1:36-41 Ja '64

Ventura County, California

Pipeline surges and their effect on pump station design. S. Perliter and E. A. Urbain. il map diag Am Water Works Assn J 56:891-8 Jl '64

Warren County, Ohio

Water-scarce Ohio area served by countywide department. N. Watson, jr. il Water Works Eng 116:959-62 D '63

Western states

Instead of Udall plan, California utility says Southwest should tap the Snake River. map Eng N 171:56-7 N 14 '63

Recent developments in resources and utilities law. E. F. Taylor. bibliog Am Water Works Assn J 56:863-80 Jl '64

Udall mediates as Pacific Southwest water plan gels. Eng N 172:14-15 Ja 9 '64

WATER supply, Rural

Model law: public health or public planning? Dom Eng 204:91-3 Jl '64

Safe disinfection for household water systems. E. R. Baumann. bibliog Pub Works 95:95-8+ My '64

WATER supply, Rural—*Continued*

Water systems merchandising; seven sins of omission. Dom Eng 204:86-7 S '64

Water systems; model law crisis enters new phase. Dom Eng 204:54-5 Ag '64

Water systems 1964. Dom Eng 203:75-92 Ja; 96-9+ F; 114-15+ Mr '64

WATER supply engineering

Design criteria for water distribution storage. J. E. Kiker, jr. Pub Works 95:102-4 Mr '64

Instrumentation for continuous water quality measurement. A. K. Keyser. il diag Chem Eng Prog 60:53-6 Ap '64

Project yields by a probability method. W. D. Maughan and R. Y. Kawano. bibliog map Am Soc C E Proc 89 [HY 3 no 3513]:41-60 My '63; Correction. 89 HY 5 no 3656]:171 S '63; Discussion. 89 [HY 6 no 3708]:279-86 N '63; 90 [HY 1 no 3783]: 273-6 Ja '64; Reply. 90 [HY 3 no 3911]:327-30 My '64

Trends in water resources education. C. E. Kindsvater. Am Soc C E Proc 90 [PP 2 no 3889]:1-6 My '64

UN group launches ten-year world-wide water quest. Eng N 173:31 O 1 '64

Water management. il diag Power Eng 68: 36-45 Ag '64

Water management planning for the Columbia River Basin. W. W. Towne and others. bibliog WPCF J 36:380-94 Mr '64

Water resources; techniques and trends. il Eng N 172:88-9+ Ja 23 '64

Water right engineering under appropriation system. K. R. Wright. plan Am Soc C E Proc 90 [IR 1 no 3818]:9-15 Mr '64; Discussion. F. A. Bishop. 90 [IR 3 no 4028]:79-80 S '64

See also

Intakes
Irrigation
Irrigation water
Pipe laying
Reservoirs
Water distribution
Water hammer
Water storage
Waterworks
Wells

Tables, calculations, etc.

Analog and digital computers in distribution system analysis. R. C. Loehr. bibliog Am Water Works Assn J 56:1001-8 Ag '64

Distribution designed by new method. E. G. Neigut. diag Water Works & Wastes Eng 1:46-9 Mr '64

WATER supply engineers

Educational requirements for water resource engineers. A. R. Golzé. Am Soc C E Proc 90 [PP 2 no 3890]:7-13 My '64

Engineer may lose his managing role. Eng N 172:26-7 Je 11 '64

WATER supply for factories

Industrial re-use of water; opportunity for the West. D. W. Cannon. bibliog Water & Sewage Works 111:250-4 My '64

Large mechanical draft towers show many recent improvements. J. B. Dickey, jr. il Power Eng 68:30-3 Ja '64

Once-used municipal water as industrial supply in retrospect and prospect. C. H. Connell and M. C. Forbes. bibliog Water & Sewage Works 111:397-400 S '64

One plant's efforts toward water conservation. R. A. Schimpf and P. F. Chester. plan Safety Maint 128:47-8 O '64

Physical characteristics of recirculated waters as related to their sanitary condition. W. A. Mercer. il diags Food Tech 18:335-40+ Mr '64

Production of high-resistivity water at Texas Instruments. E. C. Rees and others. bibliog il diag Am Water Works Assn J 56:301-10 Mr '64; Excerpts. Pub Works 95:168+ My '64

Small town creates new water system for new industry. D. Larsen and W. Osborn. il diag Water Works Eng 16:966-7+ D '63; Abstract. Pub Works 95:154+ F '64

Tailored water treatments keep troublemakers under control. il Plant Eng 18:127 Jl '64

Technology spreads its gains; water problems engage the talents of growing numbers of engineers. il Chem Eng 71:131-2 Ja 20 '64

Water chilling equipment for plastics processing. C. Waters. il diags Plastics World 22: 30-3 O '64

Water conservation program saved 40 million gallons annually. G. F. Gibbons, jr. diag Plant Eng 17:108-10 N '63

Water for ICI works. J. L. Hewson. Chem & Ind p850 My 16 '64

Water resources and the steel industry. R. D. Hoak. Iron & Steel Eng 41:87-90; Discussion. 90-1 My '64

Water treatment records help diagnose trouble. R. Hetherington and F. Zunino. diags Plant Eng 18:121-3 F '64

See also

Cooling water

WATER supply for guided missile bases

Missile base water and waste facilities. E. E. Halmos, jr. il plan Water & Sewage Works 111:176-9 Ap '64

WATER supply for hospitals

Hospital engineering; piping for hospital distribution systems. G. Kasin. Air Cond Heat & Ven 61:77-82 Jl '64

WATER supply for paper and pulp mills

Multiple water use for the pulp and paper industry. W. M. Van Horn. Tappi 47:sup 50A+ S '64

Problems in water transmission. R. J. Sweitzer. Tappi 47:sup 143A-5A Ja '64

Quality water, quality paper. M. U. Priester. Tappi 47:sup 145A-8A Ja '64

Reclamation of process water. D. J. Randall. Water & Sewage Works 111:414-16 S '64

Tight white water system; its operation and problems. R. C. Whisler. Tappi 47:sup 181A-3A O '64

Water resources and the pulp and paper industry. J. C. Wollwage. Tappi 47:sup 16A+ Jl '64

WATER supply for petroleum industry

Are these bugs infesting your water-treating system; drawings with text. Oil & Gas J 62:58-63 Je 1 '64

Big-Inch waterflood line work starts. Oil & Gas J 62:60 Mr 23 '64

Engineering aspects of waterflood bacteriology. R. W. Amstutz and L. C. Reynolds. J Pet Tech 15:1073-6 O '63

Five chemical treatments condition NCRA's boiler and cooling water. il Oil & Gas J 62:150-1 Mr 16 '64

Jar tests help in selection of water coagulants. J. Agnew. il Oil & Gas J 62: 108-10 O 19 '64

Water-plant success by design. A. L. Holland, jr. Pet Management 35:108+ N '63

WATER supply for power plants

Cooling pond proves to be the economic choice at Four Corners. A. E. Derrick. il plan diag Power Eng 67:46-7 N '63

Distilled water supply serves dual purpose at Paradise steam plant. C. W. Bolieu. il Power Eng 68:38 Ag '64

Engineers society of western Pennsylvania 24th annual water conference, Pittsburgh, Oct. 28-30; abstracts of papers. Combustion 35:33-7 D '63

Packaged water treatment controls. C. S. Bilisoly. flow diag il diags Power 108:76-8 O '64

Problems in using seawater for condenser cooling in thermal power stations; abstract. M. Yamazaki. WPCF J 36:317 Mr '64

Production of hypochlorite by direct electrolysis of sea water; electrode materials and design of cells for the process. A. F. Adamson and others. diags J Ap Chem 13:483-95 N '63

Southern California Edison's gigantic cooling towers. A. L. Guidero. il Power Eng 68: 28-9 Ja '64

Tests on new 500-mw unit complicated by two turbine-driven boiler feed pumps. R. H. Dunham. il diag Elec World 160:86-8 D 2 '63

See also

Cooling water
Feed water

WATER supply for textile mills

Water and wastes system for an instant factory. il Water & Sewage Works 111:186-90 Ap '64

Your water supply. R. Hetherington. bibliog diags Textile World 114:86-8+ F '64

WATER systems council

Model law; public health or public planning? Dom Eng 204:91-3 Jl '64

Water systems; model law crisis enters new phase. Dom Eng 204:54-5 Ag '64

WATER tanks

Portable water towers load 10,000 gallon sprinklers. il Roads & Sts 107:59+ Ja '64

Simplify compression tank sizing. J. Bass. diags Heating-Piping 36:112-13 Je '64

Soil engineering saves elevated tank costs. D. Newton and J. B. Thompson. il Pub Works 94:86-7 D '63

This winter, don't let one giant ice cube knock out your plant; prevent water storage tanks from freezing. J. M. Bass. diags Power 107:63-5 D '63

WATER tanks, Concrete

Bad joints caused tank collapse. il Eng N 172:48-9 F 13 '64

WATER tanks, Steel

Combination steel design saves on tank costs. il Iron & Steel Eng 41:158 Ag '64

Low-cost steel reservoir. P. C. Bucknam. il Water Works & Wastes Eng 1:50-1+ Jl '64

Multi-steel design gives big tank-investment savings. il Chem Eng 71:94 My 25 '64

Spheroidal steel water tower. il Engineering 198:86 Jl 17 '64

Painting

Protective coatings for steel water tanks. L. H. Clouser. Am Water Works Assn J 56:1144-8 S '64

WATER towers

Spheroidal steel water tower. il Engineering 198:86 Jl 17 '64

This winter, don't let one giant ice cube knock out your plant; prevent water storage tanks from freezing. J. M. Bass. diags Power 107:63-5 D '63

Water tower level control. W. M. Newman. diag I S A J 10:71-2 N '63

WATER tube boilers. See Boilers, Water tube

WATER vapor

Adsorption studies of water vapor on porous glass. K. Kawasaki and others. bibliog diags J Colloid Sci 19:144-51 F '64

Determining permeability constants of wire insulation and cable jacket. A. G. Ferrari. bibliog il diags Mod Plastics 41:153-4+ Je '64

Diffusion coefficient for the nylon 6 and water system. T. Asada and S. Onogi. bibliog J Colloid Sci 18:784-92 O '63

Effect of certain gases on the rate of oxidation of uranium by water vapour. S. Orman. bibliog Chem & Ind p 1692-3 O 19 '63

Effect of water vapor on the electrical resistance of anthracene. K. Kawasaki and K. Kanou. J Colloid Sci 18:886-8 D '64

Epitaxial growth of GaAs using water vapor. G. E. Gottlieb and J. F. Corboy. bibliog il diag RCA R 24:585-95 D '63

High-temperature oxidation of zirconium and Zircaloy-2 in oxygen and water vapor. R. E. Westerman. bibliog il diag Electrochem Soc J 111:140-7 F '64

Kinetics of the reaction of niobium pentachloride with water vapor. T. R. Ingraham and B. J. P. Whalley. bibliog diags Can J Chem Eng 41:265-8 D '63

Measurement of water vapor resistance of sack papers using walk-in climatic chamber. R. P. Anderson. il Tappi 47:sup 153A-5A S '64

Mechanism of the high-temperature oxidation of iron-chromium alloys in water vapor. C. T. Fujii and R. A. Meussner. bibliog il diag Electrochem Soc J 111:1215-21 N '64

Method of increasing the water vapor porosity of fat materials; patent. Am Perfumer 78:40-1 D '63

New evidence of water vapor on Venus. Franklin Inst J 277:622-3 Je '64

Radical and molecular yields in the γ-radiolysis of D_2O and H_2O vapor. J. H. Baxendale and G. P. Gilbert. Am Chem Soc J 86:516 F 5 '64

Rational equation of state for water and water vapor in the critical region. E. S. Nowak. bibliog A S M E Trans ser C 86:320-6 Ag '64

Reactions of gallium arsenide with water vapor and hydrogen chloride gas. M. Michelitsch and others. diags Electrochem Soc J 111:1248-53 N '64

Sensitive probe for measuring concentration profiles in water vapor-gaseous mixtures. M. R. Strunk and others. bibliog diag A I Ch E J 10:418+ My '64

Strength reduction and length changes in porous glass caused by water vapor adsorption. K. H. Hiller. bibliog J Ap Phys 35:1622-8 My '64

Vapor adsorption tests with dyed wool. C. H. Giles and others. bibliog Textile Res J 34:839-43 O '64

Vapor transport through paper. R. R. Rounsley. bibliog diag Tappi 47:95-8 F '64

Water vapor and SO_2 are prime factors in low-temperature corrosion. Power 107:76-7 D '63

Water vapor as an etchant for silicon. T. L. Chu and R. L. Tallman. bibliog Electrochem Soc J 111:1306-7 N '64

Water vapor transmission through sacks and sack papers. R. L. Reeves and W. E. Kilgore. bibliog diag Tappi 47:408-12 Jl '64

See also

Humidity

Moisture

Steam

WATER waste

Reduction of unaccounted-for water. W. D. Hudson. Am Water Works Assn J 56:143-8 F '64

See also

Water conservation

WATER works association, American. See American water works association

WATERFORD, Michigan

Water supply

Township system planned; Waterford Township, is to combine 11 subdivision water supplies to create one system. R. L. Braithwaite. plans Water Works Eng 116:802-3+ O '63; Abstract. Pub Works 94:156+ D '63

WATERPROOFING

Criteria for selection of underground heat distribution systems. N. M. Demetroulis. ASHRAE J 6:41-3 Ag '64

Waterproofing damp walls. il Engineering 198:252 Ag 21 '64

WATERPROOFING of textiles

Fluorine-containing polymers for application on wool. A. G. Pittman and W. L. Wasley. bibliog Am Dyestuff Rep 53:366-9 My 11 '64

Influence of contaminants on the water repellency of fabrics. bibliog diags Am Dyestuff Rep 52:1059-67 D 23 '63; Abstract Textile Ind 127:113-14 D '63

Water repellents and their effects on various fibers. E. St Louis. Am Dyestuff Rep 53:709-11 Ag 17 '64

See also

Rubberized fabrics

WATERSHEDS

Decision-making in water resource development. I. K. Fox. Pub Works 95:54+ Ja '64

Design hydrographs for small watersheds in Indiana. I. P. Wu. bibliog Am Soc C E Proc 89 [HY 6 no 3694]:35-66 N '63; Discussion. diags 90 [HY 4 no 3980]:297-320 Jl '64

Effects of nuclear explosions on watersheds. T. F. Craft. bibliog Am Water Works Assn J 56:846-52 Jl '64

Small watershed project eliminates flood hazards. G. S. Smith. il Pub Works 94:103-4 D '63

Watershed management and reservoir use; panel discussion. bibliog Am Water Works Assn J 56:149-68, 1083-6 F, Ag '64

WATERWAYS

All American waterway. R. Dyment. maps Comp Air Mag 68:25 D '63

Along the Potomac; an upstream fight for waterway legislation. Marine Eng/Log 68:69 N '63

AWO launches new safety campaign to cut injuries and costs. Marine Eng/Log 68:93 D '63

Barge industry plays major role in Tennessee Valley economy. B. B. Carr. Marine Eng/Log 68:95 D '63

Highway and air taxes are no argument for waterway charges. il Marine Eng/Log 69:65 F '64

Low countries plan a water link. Eng N 172:140+ Mr 19 '64

See also

River traffic

Rivers

St Lawrence waterway and power project

Louisiana

Greeks grounding in Gulf outlet. Eng N 173:22 S 24 '64

United States

How a waterway improvement changed environment. R. B. Nichols. il map Am Soc C E Proc 89 [WW 4 no 3690]:1-12 N '63; Discussion. 90 [WW 1 no 3814]:171-2 F; [WW 2 no 3917]:33-4 My '64

WATERWORKS

AWWA California section annual conference, 44th, San Francisco, Sept. 24-27. Water & Sewage Works 110:425 D '63

AWWA Chesapeake section annual meeting, 15th, Washington, Nov. 6-8. Water & Sewage Works 111:71 Ja '64

AWWA Michigan section meeting, 24th, Grand Rapids, Sept. 18-20. Water & Sewage Works 110:436-7 D '63

AWWA Southwest section annual conference, 52d, Little Rock, Ark., Oct. 13-16. Water & Sewage Works 110:458 D '63

80 mgd for Phoenix, Arizona; Deer Valley plant features two-stage sedimentation. L. W. Jackson and A. F. Vondrick. flow diag diags Water Works Eng 116:884-7 N '63

King-size auxiliary water supply; Rapid City, S.D. L. P. Stelling. il Water Works & Wastes Eng 1:62-3 Ap '64

WATERWORKS—*Continued*

National water company conference, 64th, Atlantic City, N.J. Oct. 22-25. Water & Sewage Works 111:70 Ja '64

Special double intake header. il diag Civil Eng 34:59-60 My '64

Water and wastes school. Published in monthly numbers of Water works and wastes engineering

Water works round table. Published in monthly numbers of Water works and wastes engineering

Winston-Salem's new water plant. il Water & Sewage Works 111:96-7 F '64

See also

American water works association
Filters and filtration
Filtration plants
Intakes
Pumps, Centrifugal
Water departments
Water distribution
Water purification
Water supply engineering

Accidents

Safety effort of US water industry within the framework of the nationwide effort. H. K. Williford. Am Water Works Assn J 55:1394-6 N '63

Bibliography

Condensation; abstracts of articles. Published in monthly numbers of Journal of the American water works association

Water works digest. Published in monthly numbers of Public works

Costs

Cost indexes for water utility property. H. H. Fick. Am Water Works Assn J 56:1019-22 Ag '64

Cutting chlorination costs. J. T. Monscvitz. il Water Works & Wastes Eng 1:39-41 Mr '64

Four per cent separates bids on waterworks; unit prices. Eng N 172:63 My 14 '64

Quality and cost evaluation of treatment processes for a specific water. L. E. Hanson. bibliog Am Water Works Assn J 56:535-42 My '64

Theoretical aspects of diatomite filtration; cost comparison. E. R. Baumann and others. il Water & Sewage Works 111:229-33 My '64

Water works planning survey apportions 1964 construction funds. il Water Works & Wastes Eng 1:95-7+ My '64

Design

Perpetual construction at Squaw Peak. A. F. Vondrick. il Water Works & Wastes Eng 1:38-40 F '64

Relation of raw-water quality to treatment plant design. R. L. Woodward. bibliog Am Water Works Assn J 56:432-40 Ap '64

Safety as a consideration in water utility design and operation. C. R. Erickson. bibliog Am Water Works Assn J 55:1433-40 N '63

Some comments on water plant design. J. Hornung. il Water & Sewage Works 111:354-6 Ag '64

Township system planned; Waterford Township, Mich., is to combine 11 subdivision water supplies to create one system. R. L. Braithwaite. plans Water Works Eng 116:802-3+ O '63; Abstract. Pub Works 94:156+ D '63

Unique water supply promotes good economic climate. L. J. Blake. il plan Pub Works 94:112-13 D '63

Water plant design provides space for ultimate expansion. R. J. Daverman and E. A. Schewe. il Pub Works 95:98-101 F '64

Water utility protection against fire. K. J. Carl. Am Water Works Assn J 55:1441-9 N '63

Employees

Better men for better service; joint discussion. Am Water Works Assn J 56:825-45 Jl '64

Distribution personnel improvement program at Indianapolis. R. L. Williams. Am Water Works Assn J 56:1105-10 S '64

Essential qualifications of a good manager. R. H. Trester. Am Water Works Assn J 56:1275-8 O '64

Function and value of an automotive safety program. O. W. Summers. Am Water Works Assn J 55:1407-13 N '63

Improvement of work performance through a utility training program. G. C. Sopp. Am Water Works Assn J 56:1097-104 S '64

Methods of personnel recruitment and selection. R. J. McLeod. Am Water Works Assn J 56:1111-16 S '64

On-the-job training in water utilities; panel discussion. Am Water Works Assn J 56:378-86 Ap '64

Responsibility of the manager with report to proposed state legislation. E. R. Healy. Am Water Works Assn J 56:1270-4 O '64

Survey on compensation of water utility managers, 1963; committee report. bibliog map Am Water Works Assn J 56:1245-69 O '64

Utility-union relations in San Francisco. K. R. Boyd. Am Water Works Assn J 56:1117-20 S '64

Varieties of in-service training. J. N. Kraras. il Am Water Works Assn J 56:387-92 Ap '64

Work area protection on highways. G. W. Adrian. il diags Am Water Works Assn J 55:1414-22 N '63

See also

Meter readers

Equipment

Annual photo review; new equipment and installations for 1964. Water & Sewage Works 111:1-33 Ja '64

Artful automation does double duty for Minnesota city. M. Kays and B. Mittelsteadt. il diag Water Works & Wastes Eng 1:77-9+ My '64

Buyer's guide; water works equipment and supplies and directory of manufacturers. Water Works & Wastes Eng 1:135-50 My '64

Chemical distributor trough for Parshall flume. A. A. Hirsch. il diags Water Works & Wastes Eng 1:56+ Jl '64

Cold-weather problems of surface water plants. J. H. King. Am Water Works Assn J 56:1239-42 S '64

Command post for complex water system. B. E. Sasse and R. P. Van Dyke. il Pub Works 95:102-4 Je '64

Consulting engineer looks at water works automation. C. W. Reh. il Water Works & Wastes Eng 1:75-6 My '64

Determination of service life of mass plant items. J. C. Adams, jr. Am Water Works Assn J 56:881-5 Jl '64

Equipment news. Published in monthly numbers of Water and sewage works

Gasket board for chlorinators. A. A. Hirsch. flow diag il Water Works Eng 116:891 N '63

Instrumentation and automation; its role in the water works field as seen by equipment manufacturers. Water Works & Wastes Eng 1:90-2+ My '64

Instruments and controls in water works operation. H. A. Kelley. il Water Works & Wastes Eng 1:41-3 Ag '64

Manufacturers and distributors of safety equipment. Am Water Works Assn J 55:sup50+ N '63

Manufacturers' news. Published in monthly numbers of Water works and wastes engineering

More efficient water distribution for Salt Lake County. R. B. Hilbert. il Water Works & Wastes Eng 1:46-7 Je '64

New filter and chemical buildings for the District of Columbia water system. J. W. Krasauskas and P. D. Haney. il Water & Sewage Works 111:106-11 F '64; Excerpts. Pub Works 95:166+ My '64

New water treatment facility for southern California; Robert B. Diemer filtration plant, Yorba Linda. A. E. Bowers and E. L. Griffith. il map plan diags Water & Sewage Works 111:433-45 O '64

New water treatment methods serve Richland. R. L. Culp. il diag Pub Works 95:86-90 Jl '64

Pipe chemicals for treating city's water. W. R. Stevens. il Heating-Piping 36:122-5 S '64

Planned replacement of water utility plant and equipment; panel discussion. Am Water Works Assn J 56:132-42 F '64

Pros and cons of instrumentation, control and automation. R. A. Ryder. il map Water Works & Wastes Eng 1:54-6 Je '64

Remote supervisory control. H. Bernstein. diags Water Works & Wastes Eng 1:116-17+ My; 64-6 Je; 130 S; 65-6+ O '64

Should Pasadena expand telemetering? J. L. Behner. il Water Works & Wastes Eng 1:88-9+ My '64

Specialist needed by consultants for proper application of instrumentation to the water works field. J. R. Daneker. Water Works & Wastes Eng 1:51-3 Je '64

WATERWORKS—Equipment—*Continued*

Toronto's water system; is water works progress personified! R. L. Clark. il Water Works & Wastes Eng 1:82-4 My '64

Value rating system, a systematic approach to product buying. Water Works & Wastes Eng 1:54-7 F '64

Water by remote control. K. W. Rinard. diag Water Works & Wastes Eng 1:67-8 O '64

Waterworks automation; illustrations with text. Engineer 217:692 Ap 17 '64

Water works buyers' guide of safety equipment. Am Water Works Assn J 55:sup40+ N '63

West Des Moines recarbonation proportional, two-stage application of liquid CO_3 with one V-notch feeder. A. C. Ward. il diag Water Works Eng 116:882-3 N '63

Experimental plants

Pilot water softening plant. diag Water & Sewage Works 110:sup80A N '63

Finance

Water service by fiscal magic. W. H. Kain. map Water Works & Wastes Eng 1:46-9 F '64

Water-sewage bond market. Published in monthly numbers of Water works and wastes engineering

See also

Water rates

Maintenance and repair

Maintenance of clarification equipment. G. E. Symons. Water Works Eng 116:970 D '63; [cont as] Water Works & Wastes Eng 1:66-7 Ja '64

Preventive maintenance program at Dallas. R. E. Morris, jr. Am Water Works Assn J 56:579-84 My '64

Proper protective coating techniques for water and sewage works structures. W. R. Hafling. Water Works & Wastes Eng 1:72-3 F; 70-1 Mr; 66-7 Ap '64

Management

Better men for better service; joint discussion. Am Water Works Assn J 56:825-45 Jl '64

Collection and use of distribution operations data. D. Brock. il diag Pub Works 95:127-8 S '64

Engineer may lose his managing role. Eng N 172:26-7 Je 11 '64

Essential qualifications of a good manager. R. H. Trester. Am Water Works Assn J 56:1275-8 O '64

How to manage small water systems (cont). A. D. Henderson. plan diags Water Works Eng 116:893-5+ N '63; [cont as] Water Works & Wastes Eng 1:58-9 Ja; 64-5 F; 64-5 Mr; 64-5 Ap; 73-4 Je; 57 Jl; 51+ Ag; 62-4 O '64

How to program chlorine deliveries. A. A. Hirsch. Water Works & Wastes Eng 1:66-7 F '64

Increased scope for customer service. L. R. Burzell. Am Water Works Assn J 56:685-8 Je '64

Needs for effective operation. W. E. Long, jr. WPCF J 36:103-8 Ja '64

Responsibility of the manager with respect to proposed state legislation. E. R. Healy. Am Water Works Assn J 56:1270-4 O '64

Peak load

48 inch water line tapped without shutdown at the Savannah water works' new pumping installation. il diag Water & Sewage Works 111:132-3 Mr '64

Use of peak demands in determination of residential rates. F. P. Linaweaver, jr. and J. C. Geyer. Am Water Works Assn J 56:403-10 Ap '64

Power

Miami moves from fuel oil to natural gas at Alexander Orr treatment plant. Water Works Eng 116:987 D '63

Public relations

Improvement of customer relations through public opinion surveys. W. M. Longman. Am Water Works Assn J 56:563-8 My '64

Increased scope for customer service. L. R. Burzell. Am Water Works Assn J 56:685-8 Je '64

Public relations and water utilities. M. F. West. Am Water Works Assn J 55:1493-8 D '63

Purchasing

Function of a water utility purchasing agent. J. T. Bond. Am Water Works Assn J 56:400-2 Ap '64

Specification guardian of the public purse; editorial. V. W. Langworthy. Water & Sewage Works 111:376-7 Ag '64

Records

Collection and use of distribution operations data. D. Brock. il diag Pub Works 95:127-8 S '64

Distribution map variations; valve, transmission main and service connection records. A. D. Henderson. plan diag Water Works & Wastes Eng 1:64-5 Mr '64

Records for a well water supply. R. M. King. diags Water & Sewage Works 111:87-91 F '64

Reports, maps, plans and operating manuals; general. A. D. Henderson. Water Works & Wastes Eng 1:58-9 Ja '64

Safety measures

AWWA safety program. D. B. Preston. Am Water Works Assn J 55:1397-402 N '63

California section progress in safety. C. A. Laughlin. Am Water Works Assn J 55:1403-6 N '63

Cooperative safety program of an industrial water system; Duhernal water system. G. E. Linn. Am Water Works Assn J 55:1455-7 N '63

Developing a successful safety program. G. L. Burt. bibliog WPCF J 36:636-42 My '64

Economics of safety programs. W. W. Anders. Am Water Works Assn J 56:1023-8 Ag '64

General considerations favoring a positive safety program in water utilities. W. R. LaDue. Am Water Works Assn J 55:1391-3 N '63

Inauguration of a utility safety program in the Southwest. R. E. Polenske. Am Water Works Assn J 55:1458-62 N '63

Let employees help in accident prevention. A. J. Webb. Water & Sewage Works 111:222-3 My '64

Minimum standards may not be enough. W. T. Evans. il Water & Sewage Works 110:405-6 N '63

Procedures for setting up a safety program. B. N. Johnson. Am Water Works Assn J 55:1469-75 N '63

Safety as a consideration in water utility design and operation. C. R. Erickson. bibliog Am Water Works Assn J 55:1433-40 N '63

Safety effort of US water industry within the framework of the nationwide effort. H. K. Williford. Am Water Works Assn J 55:1394-6 N '63

Safety equipment for safer utilities. J. B. Stevens. bibliog il Am Water Works Assn J 55:1423-32 N '63; Abstract. Pub Works 95:152+ F '64

Safety program of the East Bay municipal utility district. A. J. Webb. Am Water Works Assn J 55:1463-6 N '63

Seventh-year review of the safety program for the first-level supervisor. A. C. Rener. Am Water Works Assn J 55:1450-4 N '63

Water utility safety program at Long Beach. R. C. McCallister. Am Water Works Assn J 55:1467-8 N '63

Statistics

1962 USPHS summary of municipal water facilities in communities of 25,000 or more. K. H. Jenkins. bibliog Am Water Works Assn J 55:1485-92 D '63

WATT hour meters

Probe and receptacle read meters. A. A. Russell, jr. il Elec World 161:76 Je 29 '64

Static pulse generator is packaged in whr meter. il Elec World 161:58 F 10 '64

Watthour calibrator refers directly to dc volt and amps. R. F. Estoppey. il diags Elec World 160:101+ D 16 '63

Watt-hour meter constants; data sheet. Power 108:72 Ja '64

Manufacture

High-price resin brings economies. il Mod Plastics 41:99+ Mr '64

How Mitsubishi Electric fills meter demand. R. E. Green. il Mach 70:100-5 Mr '64

Testing

Life test board developed for watthour meters. F. J. Levitsky. il Elec World 162:114 O 5 '64

New ratings simplified whr meter testing. il Elec World 160:110 N 4 '63

WATTMETERS

Angular-momentum wattmeter for the 8mm waveband. D. H. Steven and A. L. Cullen. bibliog diags Inst E E Proc 110:1968-74 N '63

Bootstrap ohmic multiplier. W. J. Jirafe. bibliog diags Electronic Eng 35:717-21 N '63

Portable light-beam electrodynamometer. L. W. Pignolet. il diags Instruments & Control Systems 37:115-17 My '64

Simple rf wattmeter for cb. L. E. Greenlee. il diags Radio-Electronics 35:49-50 F '64

600-watt wattmeter calibrator. B. Green and G. Phillips. il diags Instruments & Control Systems 36:98-9 D '63

WAUWATOSA, Wisconsin

Streets

Street and alley maintenance. Pub Works 94: 170+ D '63

Water supply

Water for Wauwatosa through 1980. J. L. Nash. il Pub Works 95:114-15 S '64

WAVE functions

Computation of the eigenfrequencies of nonuniform plasmas. A. F. Kuckes. J Ap Phys 35:3071-2 O '64

Gaussian wave functions for polyatomic molecules; integral formulas. M. Krauss. bibliog J Res Nat Bur Stand 68B:35-41 Ja '64

Improved method of calculating spin properties from spin-polarized wave functions. L. C. Snyder and T. Amos. bibliog Am Chem Soc J 86:1647-8 Ap 20 '64

Rydberg states of molecules. R. S. Mulliken. bibliog Am Chem Soc J 86:3183-97 Ag 20 '64

Time reversibility in doubt. diag Phys Today 17:82-3 O '64

See also

Atomic orbitals

WAVE guides

Admittance of annular slot antennas radiating into a plasma layer. J. Galejs. bibliog diag J Res Nat Bur Stand 68D:317-24 Mr '64

Analysis of wave propagation in a magnetoplasma-filled waveguide. J. E. Willett. J Ap Phys 34:3470-6 D '63

Angular-momentum wattmeter for the 8mm waveband. D. H. Steven and A. L. Cullen. bibliog diags Inst E E Proc 110:1968-74 N '63

Approximate solution of the H plane right-angled corner in overmoded rectangular waveguide, operating in the H_{10} mode. K. C. Kao. bibliog diags Inst E E Proc 111:624-8 Ap '64

Backward-wave surface mode in a plasma waveguide. R. N. Carlile. bibliog il diags J Ap Phys 35:1384-91 My '64

Breakdown in air at very low pressure in a waveguide. A. S. Dunbar. bibliog J Ap Phys 35:3047-8 O '64

Circular electric wave propagation in periodic structures. G. W. Luderer and H. G. Unger. bibliog diags Bell System Tech J 43:755-83 Mr '64

Couplers kill reflected rfi. diags Electronics 36:75-6 N 8 '63

Crystal detector in oversize waveguide. D. L. H. Blomfield. diags J Sci Instr 41:517 Ag '64

Directional control in light-wave guidance. S. E. Miller. bibliog diags Bell System Tech J 43:1727-39 pt 2 Jl '64

Dispersion characteristics of circular waveguides containing isotropic plasma. P. J. B. Clarricoats and J. S. L. Wong. diag Inst E E Proc 111:1087-90 Je '64

Dispersion of a step-modulated carrier wave in waveguide. M. Ito. bibliog il diag IEEE Proc 52:1250 O '64

Effect of iris spacing on the performance of electron linear accelerators. G. Saxon and I. White. bibliog diag Inst E E Proc 111:465-70 Mr '64

Effect of long waveguides on the resonant frequencies of microwave cavities. H. M. Altschuler. diags R Sci Instr 34:1441-3 D '63

Effects of wall perturbations in multimode waveguides. S. W. Maley and E. Bahar. bibliog il diags J Res Nat Bur Stand 68D: 35-42 Ja '64

Electric and magnetic fields. A. Glaser. bibliog diags Electro-Tech 72:83-104b N '63 (reprints $1)

Experimental observation of travelling backward waves in dielectric-loaded circular waveguide. P. J. B. Clarricoats and K. R. Slinn. diag Inst E E Proc 111:1090-2 Je '64

Harmonic absorbing filters in waveguide. J. Paine and H. S. V. Reeves. diags Elec Com 39 no 2:260-4 '64

High temperature termination for use at short millimetre wavelengths. Q. V. Davis. diags J Sci Instr 40:524-5 N '63

Hollow metallic and dielectric wave-guides for long distance optical transmission and lasers. E. A. J. Marcatili and R. A. Schmeltzer. bibliog diags Bell System Tech J 43:1783-809 pt 2 Jl '64

Interchannel interference in fm systems produced by continuous random mode conversion in circular electric waveguide. L. H. Enloe. bibliog Bell System Tech J 42: 2765-86 N '63

Introduction to microwave techniques. K. E. Hancock. diags Wireless World 70:428-32 S '64

Microwave propagation in a waveguide containing a semiconductor to which is applied a steady transverse magnetic field. H. E. M. Barlow and R. Koike. bibliog diags Inst E E Proc 110:2177-81 D '63

Millimeter-wave generation with *X*-band tunnel diodes. S. V. Jaskolski and K. Ishii. diag IEEE Proc 52:430-1 Ap '64

Model for relating coupled power equations to coupled amplitude equations. D. T. Young. Bell System Tech J 42:2761-4 N '63

More coaxial cables or waveguides for long-distance communication. H. E. M. Barlow. diags Inst E E Proc 110:902 My '63; Discussion. 111:1417-20 Ag '64

Nature of and system inferences of delay distortion due to mode conversion in multimode transmission systems. S. E. Miller. bibliog diags Bell System Tech J 42:2741-60 N '63

Novel ferrite quarter-wave plate. J. Helszajn. diags Radio & Electronic Eng 27:455-8 Je '64

Over-moded rectangular waveguide for high-power transmission. J. S. Butterworth and others. bibliog diags Inst E E Proc 110:848-58 My '63; Discussion. 111:1417-20 Ag '64

Plasma waveguide cell for afterglow measurements. E. H. Holt and K. C. Stotz. il R Sci Instr 34:1285 N '63

Propagation of light rays through a lens-waveguide with curved axis. D. Marcuse. diags Bell System Tech J 43:741-53 Mr '64

Propagation of microwaves in a plasmafilled waveguide. G. S. Harmon and M. Eisner. bibliog diag J Ap Phys 35:319-21 F '64

Properties of cylindrical waveguides containing isotropic and anisotropic media. P. J. B. Clarricoats and D. E. Chambers. bibliog diags Inst E E Proc 110:2163-73 D '63

Properties of dielectric-rod junctions in circular waveguide. P. J. B. Clarricoats and J. M. W. McBride. bibliog diags Inst E E Proc 111:43-50 Ja '64

Q band ferrite isolator for the circular TE_{01} wave mode. J. M. Hale and H. E. M. Barlow. diags Inst E E Proc 111:1556-61 S '64

Radiation from a ferrite cylinder. J. C. Palais. bibliog J Ap Phys 35:779-81 pt 2 Mr '64

Reactance of a symmetrical pair of strips in rectangular waveguide. L. Lewin. diag Inst E E Proc 111:1382-4 Ag '64

Rectangular-waveguide attenuation at millimetre wavelengths. F. A. Benson and D. H. Steven. bibliog il diag Inst E E Proc 110:1008-14 Je '63; Discussion. 111:1417-20 Ag '64

Relationships between different kinds of network parameters, not assuming reciprocity or equality of the waveguide or transmission line characteristic impedances. R. W. Beatty and D. M. Kerns. diags IEEE Proc 52:84 Ja '64

Self-generating plasma waveguide. D. B. Harris and M. C. Pease. il IEEE Proc 51: 1676-7 N '63

Slow waves in ferrites and their interactions with electron streams. J. Spector and A. W. Trivelpiece. bibliog diags J Ap Phys 35:2030-9 Jl '64

TE- and TM-waves in waveguides of very general cross section. H. H. Meinke and others. bibliog il diags IEEE Proc 51:1436-43 N '63

Temperature rise in rigid waveguides: reference sheet. T. J. Vaughan. Electronics 37:36 Ja 17 '64

Theory and potential applications of backward waves in nonperiodic inhomogenous wave-guides. R. A. Waldron. bibliog Inst E E Proc 111:1659-67 O '64

WAVE guides—*Continued*

Three port tuned microwave reflectometer. M. Brady. bibliog diags J Sci Instr 41:440-4 Jl '64

Transmission and reflection properties of an inhomogeneous semiconductor slab in rectangular waveguide. D. A. Holmes. IEEE Proc 52:201-2 F '64

Two-dimensional treatment of mode theory of the propagation of vlf radio waves. J. R. Wait. bibliog diags J Res Nat Bur Stand 68D:81-93 Ja '64

Useful microwave hybrid circuit. P. C. Butson and G. T. Thompson. diags Inst E E Proc 111:1281-2 Jl '64

Variational integral for the propagation coefficient of a cylindrical waveguide with imperfectly conducting walls. P. N. Robson. diags Inst E E Proc 110:859-64 My '63; Discussion. 111:1417-20 Ag '64

Versatile stark waveguide for microwave spectroscopy. D. R. Lide, jr. diag R Sci Instr 35:1226 S '64

Very highly overmoded waveguides. M. J. King and J. C. Wiltse. diag IEEE Proc 52:198-9 F '64

Waveguide structures for low-loss transmission around sharp bends in circular waveguide. P. A. Vuorinen and H. E. M. Barlow. bibliog diags Inst E E Proc 111:433-44 Mr '64; Discussion. 111:1417-20 Ag '64

Manufacture

Assembly; new job for electroforming. A. G. Buschow. il diags Mach 70:104-6 Ag '64

Redesign of waveguide speeds manufacturing. il Electronics 37:56-7 Mr 6 '64

Safe cutoff for waveguide tube improves shearing quality; Western Electric's North Carolina works. F. J. Fuchs, jr. and H. R. Tillman. il diags Mach 70:112-15 F '64

WAVE mechanics

Amplification of waves due to quanta with negative energy. T. Musha. bibliog J Ap Phys 35:137-41 Ja '64; Correction. 35:3424 N '64

Canonical quantization of the Schrödinger equation. L. J. Tassie. Am J Phys 32:609-11 Ag '64

Constraints in the *Q-T-P-H* space of states and energy. D. G. Shankland. Am J Phys 32:206-7 Mr '64

Foundations of quantum mechanics conference, Cincinnati, Oct. 1-5. Phys Today 17:53-4+ Ja '64

Franck-Condon factors to high vibrational quantum numbers; NO band systems. R. W. Nicholls. bibliog J Res Nat Bur Stand 68A:535-40 S '64

Generation of spin waves in nonuniform dc magnetic fields; calculation of the coupling length. S. Schlömann and R. I. Joseph. J Ap Phys 35:167-70 Ja '64

Identical motion in quantum and classical mechanics. N. Rosen. Am J Phys 32:377-9 My '64

Introduction to dispersion relations. C. H. Holbrow and W. C. Davidon. bibliog diags Am J Phys 32:762-74 O '64

Levinson's theorem (an elementary derivation). M. Wellner. Am J Phys 32:787-9 O '64

Methods of one-dimensional auxiliary problems and of domain partitioning; their application to lower bounds for the eigenvalues of Schrödinger's equation. J. Hersch. bibliog J Math & Phys 43:15-26 Mr '64

Quantum mechanics; electromagnetic and matter-wave analogs. E. J. Schillinger and J. J. Hupert. diags Electro-Tech 73:53+ bibliog(p73-4) F '64 (reprints $1)

Radial kinetic energy term in the Schrödinger equation for a central force. F. S. Crawford, jr. Am J Phys 32:611-14 Ag '64

Relation between classical and quantum mechanics. N. Rosen. Am J Phys 32:597-600 Ag '64

Remarks on the theory of measurement. M. M. Yanase. bibliog Am J Phys 32:208-11 Mr '64

Some aspects of the splitting of ionic energy levels in crystals. H. E. Band. bibliog Am J Phys 32:529-42 Jl '64

WKB method in three dimensions. C. L. Critchfield. Am J Phys 32:542-5 Jl '64

See also
Perturbation theory
Uncertainty principle
Wave functions

WAVE meters. See Wavemeters

WAVE motion, Theory of

Analysis of wave propagation in a magnetoplasma-filled waveguide. J. E. Willett. J Ap Phys 34:3470-6 D '63

Bilinear theories in plasticity and an application to two-dimensional wave propagation. H. R. Aggarwal and others. bibliog diags A S M E Trans ser E 31:181-8 Je '64

Bonding of layers in two-dimensional seismic modeling. M. N. Toksöz and F. Schwab. bibliog diags Geophysics 29:405-13 Je '64

Collective elastic waves in piezoelectric semiconductors. R. W. Damon and others. bibliog il diags IEEE Proc 52:912-21 Ag '64

Complex waves have simple elements. B. G. A. Skrotzki. diag Power 107:154-5 D '63

Converted waves in refraction surveys over markers with variable depth. D. H. Hall. bibliog diags Geophysics 29:733-44 O '64

Effect of vertical barriers on progressing waves. M. Lewin. bibliog diags J Math & Phys 42:287-300 D '63

Elastic wave velocities in granular soils. B. O. Hardin and F. E. Richart, jr. bibliog diags Am Soc C E Proc 89 [SM 1 no 3407]: 33-65 F '63; Discussion. 89 [SM 5 no 3654]: 103-18 S '63; Reply. 90 [SM 1 no 3781]:109-17 Ja '64

Generation of elastic waves by transient surface heating. R. M. White. bibliog il diags J Ap Phys 34:3559-67 D '63

Model for wave motions in axi-symmetric solids. A. H. -S. Ang and J. H. Rainer. bibliog diags Am Soc C E Proc 90 [EM 2 no 3878]:195-223 Ap '64

Prediction of pile capacity by the wave equation. P. W. Forehand and J. L. Reese, jr. bibliog Am Soc C E Proc 90 [SM 2 no 3820]:1-25 Mr '64

Propagation of a pulse in a fluid sphere. Z. Alterman and P. Kornfeld. diags Geophysics 29:259-87 Ap '64

Reflection and refraction of mechanical waves at solid-liquid boundaries. W. G. Mayer. J Ap Phys 34:3286-8 N '63

Response of an elastic plate submerged in a liquid half-space to explosive sound. J. H. Rosenbaum. bibliog diags Geophysics 29:370-93 Je '64

Shear wave propagation in a birefringent viscoelastic medium. G. B. Thurston and J. L. Schrag. bibliog il diags J Ap Phys 35:144-51 Ja '64

Shear waves from explosive sources. J. E. White and R. L. Sengbush. diags Geophysics 28:1001-19 D '63

Signal and noise in deep wells. E. J. Douze. Geophysics 29:721-32 O '64

Uniaxial wave propagation in realistic viscoelastic materials. R. J. Arenz. bibliog A S M E Trans ser E 31:17-21 Mr '64

Wave propagation in a two-layered medium. J. P. Jones. diags A S M E Trans ser E 31:213-22 Je '64

Wave propagation in rotating elastic media. R. L. Huston. AIAA J 2:575-6 Mr '64

Wave propagation in stratified random media. Y. M. Chen. bibliog diag J Res Nat Bur Stand 68D:743-8 Je '64

WAVEMETERS

Indicating wavemeter or how to see r.f. L. G. McCoy. il diag Q S T 48:18-20 N '64

WAVES

Action of waves on monolayers simulated; abstract. V. K. La Mer and T. W. Healy. Chem & Eng N 42:60 Ap 13 '64

Capillary-wave-damping by insoluble organic monolayers. W. D. Garrett and J. D. Bultman. J Colloid Sci 18:798-801 O '63

Comparison of actual with predicted waveheights and periods for the north shore of Lakes Ontario and Erie. A. Brebner and B. P. Sangal. bibliog il Eng J 47:32-6; Discussion. 42+ Mr '64

Flood waves in prismatic channels. F. M. Henderson. Am Soc C E Proc 89 [HY 4 no 3568]:39-67 Jl '63; Discussion. 90 [HY 1 no 3783]:329-35 Ja '64; Reply. 90 [HY 4 no 3980]:241-7 Jl '64

How moving wave trains form standing waves. B. G. A. Skrotzki. diags Power 107: 130-1 N '63

Improved technique for generating mechanical waves in the frequency range 600-1200 mc/s. H. J. Maris. diag J Sci Instr 41:344-5 My '64

Investigation of the statistics of wave heights. R. C. Goodknight and T. L. Russell. bibliog maps diag Am Soc C E Proc 89 [WW 2 no 3524]:29-54 My '63; Discussion. C. L. Bretschneider. 90 [WW 1 no 3814]:153-66 F '64; Reply. 90 [WW 4 no 4117]:135-9 N '64

Long wave modification by linear transitions. R. G. Dean. diags Am Soc C E Proc 90 [WW 1 no 3787]:1-29 F '64

Ocean waves. W. J. Pierson. il diags Naval Eng J 76:770-6 O '64

WAVES—*Continued*

Propagation characteristics of capillary ripples; instrumentation for measurement of ripple velocity and amplitude. J. A. Mann, jr. and R. S. Hansen. bibliog il diag J Colloid Sci 18:757-71; 805-19 O, D '63

Risk criteria. L. E. Borgman. bibliog Am Soc C E Proc 89 [WW 3 no 3607]:1-35 Ag '63; Discussion. C. A. Cornell. 90 [WW 1 no 3814]:167-70 F '64

Self-winding generator harnesses ocean-wave energy. il Machine Design 36:8 S 24 '64

Sliding of composite-type breakwaters by breaking waves. S. Nagai. il plans diags Am Soc C E Proc 89 [WW 1 no 3428]:1-20 F '63; Discussion. T. Hayashi. 89 [WW 4 no 3703]:91-7 N '63; Reply. 90 [WW 2 no 3917]:27 My '64

Some observations on the undular jump. L. E. Jones. bibliog diags Am Soc C E Proc 90 [HY 3 no 3901]:69-82 My '64

Surface waves on a rotating fluid. R. Skalak and J. F. Conly. bibliog AIAA J 2:306-12 F '64

Technique for measuring amplitudes of small surface waves. K. Muenz and J. M. Marchello. bibliog il R Sci Instr 35:953-7 Ag '64

Travel time of waves in backwaters. A. L. Simon. Am Soc C E Proc 89 [HY 6 no 3689]:1-13 N '63; Discussion. 90 [HY 4 no 3980]:275-7 Jl '64

Vertical breakwaters with low coefficients of reflections. R. Boivin. il diags Eng J 46:42-8 N '63

Water wave recording instrument for use in hydraulic models. J. B. Moore. diags J Sci Instr 41:321-3 My '64

Wave breakers on a beach and surges on a dry bed. J. C. Freeman and B. LeMéhauté. bibliog diags Am Soc C E Proc 90 [HY 2 no 3834]:187-216 Mr '64

Wavemeters made in Newport Beach. diag Marine Eng/Log 69:16F-16G Ap '64

See also

Radiation
Radio waves
Vibration

WAVES, Radio. See Radio waves

WAXED paper. See Paper, Waxed

WAXES

Blend your own waxes. S. M. Cauble, jr. il Textile Ind 128:144-5+ O '64

Comparison of pyrolytic carbon film electrode with wax-impregnated graphite electrode. A. L. Beilby and others. bibliog il Anal Chem 36:22-6 Ja '64

Composition of insect waxes. E. Faurot-Bouchet and G. Michel. bibliog Am Oil Chem Soc J 41:418-21 Je '64

Fatty acids, fatty alcohols, wax esters, and methyl esters from crambe abyssinica and lunaria annua seed oils. T. K. Miwa and I. A. Wolff. bibliog Am Oil Chem Soc J 40:742-4 D '63

Multi-branched alkanes, newly identified substances from plant waxes. P. Jarolimek and others. bibliog Chem & Ind p237-8 F 8 '64

Polyethylene wax market grows steadily. Chem & Eng N 42:34-5 Ja 27 '64

Reign and wane of waxes in the polish industry. M. Bloch. Soap & Chem Spec 39:74-6+ N '63

Wax polishes; discussion. Chem & Ind p715 Ap 25 '64

What is ozokerite? Soap & Chem Spec 40:111+ Ap '64

See also

Floor wax
Furniture polishes
Petroleum waxes

Specifications

Specifications for genuine pure candelilla wax. Soap & Chem Spec Blue Book p274 '64

Specifications for genuine pure ouricury wax. Soap & Chem Spec Blue Book p274 '64

WEAPONS

Can rfi control prevent weapons failures? R. J. Sanford. il diags Electronics 36:43-5 N 8 '63

Natural undersea laboratory tests navy's new weapons. J. F. Mason. il map diag Electronics 37:106-7+ Ap 6 '64

New developments in laser weapons. J. De Ment. bibliog il diags Electronic Ind 22:78-82 N '63

See also

Atomic bombs

WEAPONS systems

Developments in tank design. R. M. Ogorkiewicz. il diags Engineer 216:663-8, 723-6 O 25-N 1 '63

Electromagnetic compatibility testing techniques. W. A. Taylor. il Electronic Ind 23:80-3 Ap '64

Evolution of targets for weapons systems evaluation. C. E. Paul. il Bell Lab Rec 42:188-94 Je '64

Integrated weapons system; the TSR-2 military aircraft; illustration with text. Engineer 216:740 N 1 '63

Integrated weapons systems for anti-submarine warfare. T. D. McGrath. Naval Eng J 76:529-33 Ag '64

Planning by resource allocation methods: illustrated by military applications. J. L. Taylor and J. E. Walsh. Op Res 12:693-706 S '64

SUBROC on guard; anti-submarine missile is a water-air-water defense projectile. il Product Eng 34:29 D 23 '63

Shipborne missile systems. R. K. Irvine. il Naval Eng J 76:352-8 Je '64

Spear making updated. B. Pundick. Am Mach 108:58-9 Ag 3 '64

Weapons for limited war. J. F. Mason. il diag Electronics 37:98+ Ag 24 '64

WEAR of materials. See Materials—Wear

WEAR of metals. See Metals—Wear

WEAR of plastics. See Plastics—Wear

WEATHER

A-c corona in foul weather. L. Boulet and B. J. Jakubczyk. bibliog il diag IEEE Trans Power Apparatus & Systems 83:508-12 My '64; Discussion. 83:648-50 Je '64

Effect of weather on performance of an 8mm radar. O. Nourse and S. G. Nicholls. diags Inst E E Proc 111:1523-33 S '64

Employ weather data in method of estimating operating costs. J. S. Blossom. Heating-Piping 36:120-3 My '64

Weather, corona, and the decay of trapped energy on transmission lines. J. E. Beehler. bibliog il diags IEEE Trans Power Apparatus & Systems 83:512-20; Discussion. 552-3; Reply. 553-4 My '64

Weather data for cooling plant design. map diag Engineering 197:190-1 Ja 31 '64

See also

Climatology
Droughts
Meteorology
Rain and rainfall
Thunderstorms
Winds
Winter

Business aspects

Private weather firms help utilities. Ele World 160:39-42 D 9 '63

WEATHER control

Can the weather be changed? G. Corfield. Gas 40:15 Ap '64

Weather modification. R. A. Schleusener. il diags Am Soc C E Proc 90 [HY 1 no 3756]:57-75 bibliog(p72-5) Ja '64; Discussion. F. A. Johnson. 90 [HY 5 no 4050]:187-96 S '64

See also

Meteorological research

WEATHER forecasting

METIFOR, a statistical method for insulation design of ehv lines. J. G. Anderson and L. O. Barthold. bibliog flow chart diags IEEE Trans Power Apparatus & Systems 83:271-80 Mr '64; Discussion. 83:437-40; Reply. 440-1 Ap '64

Talk-along checkout patterned by weathercaster. Electronics 36:82-3 D 6 '63

See also

Radio meteorographs

WEATHERING

Natural weathering of concrete specimens prepared with cements used in the long-time study. W. E. Grieb and G. Werner. bibliog il diags Pub Roads 33:57-67 O '64

Plastics performance in outdoor service. R. B. Seymour. il Plastics World 22:48-53 Je '64

Preparing test panels for exterior exposure. T. E. Poterack. Ind Finishing 40:58+ Mr '64

Stabilizers, pigments, antioxidants give you better polyolefin uv resistance. R. J. Martinovich. Plastics Tech 9:45-8 N '63

Weather-beating plastics wanted for big markets. il Chem Eng 71:104+ O 12 '64

Weather testing proves long life for aluminum porcelain enamel. A. L. Sopp, jr. il Cer Ind 83:80-3 S '64

Weatherability testing: what to make of it. Ind Finishing 40:92 F '64

WEATHERING (rocks)

Bauxite deposits of British Guiana and Surinam in relation to underlying unconsolidated sediments suggesting two-step origin. J. H. Moses and W. D. Michell. il maps diags Econ Geol 58:250-62 Mr '63; Discussion. 58:1002-8. 1160-2; 59:161-2 S-N '63, Ja '64

Nickeliferous laterites in southwestern Oregon and northwestern California. P. E. Hotz. map Econ Geol 59:355-96 bibliog(p394-6) My '64

Occurrence of regularly interstratified chlorite-vermiculite as a weathering product of chlorite in a soil. L. J. Johnson. bibliog il Am Mineralogist 49:556-72 My '64

Rapid curved-path method for weathering and drift corrections. L. Duska. bibliog il diags Geophysics 28:925-47 D '63

WEATHERSTRIPPING

Weather stripping. H. J. Rosen. diags Prog Arch 45:196+ My '64

WEAVER, Paul

Memorial. W. J. Osterhoudt and W. B. Lee, jr. por Geophysics 29:870-2 O '64

WEAVING

Better shuttle check? il Textile Ind 128:109-10+ Ag '64

Fact file 1964. Textile World 114:80+ Jl '64

Happy weaving song; worlds' largest battery of draper shuttleless looms at Cannon mills. il Textile Ind 128:134-5+ S '64

How to stop those creases in your filament fabrics. R. B. Pressley. il Textile World 114:62-4 Ap '64

Plastics for weaving fabric. R. B. Pressley. il Textile World 114:55-8 Je '64

Principles of weft straightening, plus a new instrument. G. A. Burklund. il diags Textile Ind 128:105-6+ F '64

Tips for weaving Dacron Rotoset yarns. Textile Ind 128:99-100 F '64

Weaveroom quality control today; special report. R. B. Pressley. il Textile World 113:42-55 D '63

See also

Bobbins

Looms

WEBBING

Pneumatic system controls web tension. W. Gallahue. il diags Automation 11:71-4 My '64

Specifying sectional drives for continuous web processes. P. A. Anctil. il diags Automation 11:64-8 Ag; 82-8 S '64

WEDGES

Stress behavior in the neighborhood of sharp corners. F. C. Karal, jr. and S. N. Karp. diags Geophysics 29:360-9 Je '64

Symmetric, rotational, supercavitating flow about a slender wedge. R. L. Street. bibliog diags A S M E Trans ser D 86:569-75 S '64

Transonic experiment at hypersonic speed. S. C. Traugott. bibliog diags AIAA J 2:1521-7 S '64

WEEDS

See also

Horehound

Control

Chemical control of vegetation on roads overseas. K. E. Clare. bibliog il Chem & Ind p215-22 F 8 '64

Determination of amiben in tomatoes by electron affinity gas chromatography. C. A. Bache and others. bibliog J Agri & Food Chem 12:185-7 Mr '64

Determination of butoxyethanol ester of 2,4-dichlorophenoxyacetic acid in shellfish and fish. J. E. Coakley and others. bibliog J Agri & Food Chem 12:262-5 My '64

Determination of polychlorinated benzoic acid herbicide residues by gas chromatography. J. J. Kirkland and H. L. Pease. bibliog diag J Agri & Food Chem 12:468-72 S '64

Effective weed control for the petroleum industry. il Pet Management 36:110-11 F '64

Evaluation of potassium permanganate as an algicide for water cooling towers. G. P. Fitzgerald. bibliog il Ind & Eng Chem Product Res & Develop 3:82-5 Je '64

Fate of amiben in tomato plants. S. R. Colby and others. bibliog J Agri & Food Chem 12:320-1 Jl '64

Fate of 2,4-dichlorophenoxyacetic acid in sheep. D. E. Clark and others. bibliog J Agri & Food Chem 12:43-5 Ja '64

Flow retardance by channel weeds and their control. J. C. Stephens and others. bibliog Am Soc C E Proc 89 [IR 2 no 3550]:31-53 Je '63; Discussion. M. W. Scrivner and P. J. Tilp. 89 [IR 4 no 3746]:65-9 D '63; Reply. 90 [IR 2 no 3941]:53-4 Je '64

Metabolism of herbicides; symposium. bibliog il J Agri & Food Chem 12:2-43 Ja '64

Relation of structure of ethylene oxide ether-type nonionic surfactants to herbicidal activity of water-soluble herbicides. L. L. Jansen. bibliog diags J Agri & Food Chem 12:223-7 My '64

Review of herbicide penetration through plant surfaces. C. L. Foy. bibliog J Agri & Food Chem 12:473-6 S '64

Toxicological effects of herbicides on the fish environment. C. R. Walker. bibliog il Water & Sewage Works 111:113-16, 173-5 Mr-Ap '64

Use of herbicides under asphalt. D. W. Rake. il Pub Works 95:110-11 My '64

Whats the best way to keep right-of-way cleared? il Power Eng 68:46 Ja '64

WEIGHING

Deadly chlorine safely weighed. il Safety Maint 128:12 Jl '64

Problems of belt scale weighing. C. D. Cross. il I S A J 11:78-9 F '64

Radioisotopes used to automatically weigh wood chips. il Paper Ind 46:473 S '64

Soap plant observer; substitution weighing. diags Soap & Chem Spec 40:176+ Ap '64

See also

Balances

Coal weighing

WEIGHING machines

Air jets sense position. K. L. Elkins. diag Hydraulics & Pneumatics 17:128 My '64

Automatic continuous weighing equipment. Electronic Eng 36:385 Je '64

Automatic package weight control. T. G. McBrady. il diags I S A J 10:59-63 D '63

Automatic recording of gross, tare and net weights. il Engineer 218:342 Ag 28 '64

Check weighing equipment. J. A. Musto and R. W. Newman. il diags Ind Electronics 2:357-61 Ag '64

Checkweigher sorts plastic preforms. il Automation 11:48 Ja '64

Checkweighs pneumatically. il Food Eng 36:117 Jl '64

Continuous weighing control. il Engineer 217:910 My 22 '64

Continuous weighing of bulk cement. A. Ditcher. il diag Ind Electronics 2:168-70 Ap '64

High-speed checkweigher. il Engineer 217:407 F 28 '64

High speed vehicle weighbridge. il Engineer 217:1044 Je 12 '64

Ingot and bloom weighing. il Engineer 217:480 Mr 13 '64

Load cell weighbridge. diag Engineer 217:340-1 F 21 '64

Process weighing. D. M. Considine. bibliog il diags Chem Eng 71:113-32 Ag 17; 199-206 S 14 '64 (reprints $1)

Removable weighbridge for construction sites. il Engineering 198:467 O 9 '64

Selecting the best scale for in-motion weighing. R. E. Puckett. diags Pub Roads 33:45-7 Ag '64

Soap plant observer; weighing and dispensing devices. W. J. Beach. il diag Soap & Chem Spec 40:163-4 Ag '64

Space-age tool weighs bulk; radioactivity goes to work in combination with a reversible bulk-belt conveyor. il Mod Materials Handling 18:44 D '63

Weighing machine with press-key selection. il Engineer 218:68 Jl 10 '64

Weighing station does double duty. il Eng N 173:105 Ag 6 '64

Weights and measures stamp load cell weighbridge. il Ind Electronics 2:67 F '64

WEIGHT (physiology)

Effect of protein deficiency during gestation and lactation on body weight and composition of offspring. P. S. Wenkatachalam and K. S. Ramanathan. J Nutrition 84:38-42 S '64

Effects of chlortetracycline and isoniazid on body weight gain and intestinal urea hydrolysis of rats. R. F. Hendrickson and others. bibliog J Nutrition 84:65-70 S '64

Infant feeding patterns and oral habits of overweight and underweight children. R. W. Hillman. bibliog Am J Clinical Nutrition 13:326-30 N '63

Studies in infantile malnutrition: effect of protein and calorie intake on weight gain. G. G. Graham and others. bibliog J Nutrition 81:249-54 N '63

Weight-height relationship of young men and women. D. W. Sargent. bibliog Am J Clinical Nutrition 13:318-25 N '63

Weight reduction and serum cholesterol levels. A. B. Caldwell and others. bibliog Am J Clinical Nutrition 12:401-5 Je '63; Discussion. 15:54-5 Jl '64

WEIGHTLESSNESS. See Gravitation

WEIGHTS and measures

Checking net weight of aerosol foam products. Soap & Chem Spec 40:134-5 S '64

Current status of weights and measures problems. G. M. Burditt. Soap & Chem Spec 40:85-7 Ap '64

Meter vs. inch; cold war continues. Steel 155:94-9 N 2 '64

Redefinition of weights and measures. Engineering 197:304 F 21 '64

Selecting materials for minimum weight. Materials in Design Eng 59:75-86 Mr '64 (reprints 35c)

Two years of statistical quality control enforcement under article 5, California weights and measures code. H. N. Couden. Food Tech 18:156+ F '64

Weights of piping materials; reference data. Air Cond Heat & Ven 61:77-80 Mr; 81-4 Ap; 83-6 Je '64

See also
Conversion tables
Metric system
Specific gravity
Weighing
Weighing machines

Standards

Merging with the metric system. M. Mateos. diags Mech Eng 85:50-1 N '63

Regime of weights and measures in Brazil. P. Sá. Mag of Stand 35:39-40 F '64

Soviet metrologists endorse data interchange. Mag of Stand 35:141 My '64

Will Britain go metric? Mag of Stand 35:78 Mr '64

WEIRS (measuring)

Control structures for sand-bed channels. F. C. Stepanich and others. bibliog il diags Am Soc C E Proc 90 [WW 2 no 3895]:1-18 My '64

Flow of viscous fluids over weirs. E. W. Slocum. diag Can J Chem Eng 42:196-200 O '64

Solution of highly curvilinear gravity flows. T. S. Strelkoff. bibliog diags Am Soc C E Proc 90 [EM 3 no 3950]:195-221 Je '64; Discussion. H. Rouse. 90 [EM 5 no 4093]: 467-70 O '64

WELDERS

Training

Basic metallurgy for weldors. Welding Eng 49:60+ My '64

Dow program trains, tests maintenance weldors. R. F. Woollard. il Plant Eng 18:136-8 Jl '64

Junior colleges could provide tomorrow's welding technicians. J. H. Forrer. il Welding Eng 48:62-3 D '63

Welding training at the U.S. army ordnance center and school. G. Canonica. il Welding J 43:780+ S '64

WELDING

American welding society national fall meeting, San Francisco; abstracts of papers. Product Eng 35:75-6 O 26 '64

AWS president-elect assesses future of welding. T. E. Jones. Steel 154:52 Ap 27 '64

Choosing the best structural fastener. H. J. Stetina. il diags Civil Eng 33:50-3 N '63

Commercial laser welding will first be applied to teeny-tiny parts. M. D. Weisinger. S A E J 72:82-4 Ap '64

Electrical terminations; welded connections. W. V. Lane. bibliog il Machine Design 36: 209-14 My 21 '64

Explosive bonding gets biggest job yet; Nooter corp. has completed fabrication of four chemical process vessels for Amoco. il Chem & Eng N 42:46 Ag 31 '64

Friction welding, a natural for production. M. B. Hollander and others. Machine Design 36:212+ Je 18 '64

Friction welding coming to fruition. Engineering 197:331 F 28 '64

Friction welding of high strength structural aluminum alloys. T. H. Hazlett and K. K. Gupta. bibliog il diag Welding J 42:sup490-4 N '63

Friction welding spins its way onto the production floor. il Iron Age 194:59-61 O 1 '64

Get the cobwebs out of your welding design. L. Berner. diags Mach 70:110-15 Mr '64

How to solve most maintenance welding problems. L. D. Richardson. il Welding Eng 49:46-8 Ja; 46-8 F '64

Incompatible-metal tubes welded explosively. R. J. Carlson. il Nucleonics 21:59 D '63

Laser beam fusion welding. R. H. Fairbanks and C. M. Adams, jr. il Welding J 43: sup97-102 Mr '64

Laser goes miniature. D. A. Buddenhagen. il diags S A E J 72:40-5 Mr '64

Laser welders; out of the lab and into the factory. G. Sideris. il Electronics 37:96+ O 19 '64

Laser welding of semiconductor. T. E. Price. diags Ind Electronics 2:478-9 O '64

Laser welding; set for action. il Iron Age 193:64 Ja 23 '64

Lasers as production tools. T. M. Comella. bibliog il diags Automation 11:68-77 Jl '64

Low temperature welding. G. FitzGerald-Lee. Automobile Eng 54:74-5 F '64

Marquette crew again provides Indy welding, charging service. il Welding Eng 49: 50+ My '64

Minimizing distortion in weldments; drawings with text. A. G. Kudelko. Machine Design 36:154-6 F 27 '64

New techniques for metals joining in the space age. R. Bakish and others. bibliog il diags J Metals 16:238-45 Mr '64

North American Aviation offers tips on bimetallic joining. L. F. Gatzek. il Steel 155: 160+ S 14 '64

Precise temperature control lightens, strengthens welds. D. L. Ayers. il Welding Eng 49: 52 Mr '64

Some tips for better welding. diags Welding Eng 49:62-3+ Jl '64

Welding clinic. Published in monthly numbers of Welding engineer

Welding helps Sinclair's Dino go to the Fair. il Welding J 42:975 D '63

Welding spotlighted at SAE meeting, Detroit, March 30-April 3. Am Mach 108: 139 Ap 13 '64

What's ahead for welding. T. B. Jefferson. il Welding Eng 49:11-16 Mid-yr '64

Will the laser make the grade as a proven welding process? R. R. Irving. il Iron Age 193:85-8 Ap 23 '64

Wire cleans up weld problems. il Iron Age 193:71 Je 4 '64

You can cut joining costs as much as 50 per cent. il Steel 154:43-51 Ap 27 '64

See also
Bridges—Welding operations
Electric welding
Electric welding, Arc
Hard facing
Oxyacetylene welding
Shipbuilding—Welding operations
Solder and soldering
Ultrasonic welding
also subdivision Welding under special subjects, e.g.
Aluminum
Beryllium
Cast iron
Copper
Magnesium
Nickel
Niobium
Pipe lines
Piping
Piping (power plants)
Rail joints
Steel
Steel, Stainless
Steel, Structural
Steel construction
Titanium
Tungsten

Bibliography

Current welding literature. Published in monthly numbers of Welding journal

Cold welding

Cold pressure welding ideal for electronic parts. il Automation 11:28 Ag '64

Cold-welding of electronic assemblies simplified with hydraulic presses; Scully-Anthony corp. il Mach 70:125 Ag '64

New twist boosts coldweld quality, reliability. il Steel 154:66-7 My 11 '64

Costs

Define fitup, standardize your time allowances to boost output per man-hour. K. J. Barth. diag Welding Eng 49:56-9 Ap '64

Your fillet welds can cost less. R. K. Lee. il diags Welding Eng 49:86+ Ap '64

Failure

Delayed cracking in steel weldments. C. G. Interrante and R. D. Stout. bibliog il diags Welding J 43:sup 145-60 Ap '64

Do you recognize the main causes of failures in piping systems? H. Thielsch. il Power Eng 68:55-7 S; 50-2 O '64

WELDING—Failure—*Continued*

Factors in successful welding of machinery steels. A. W. Taylor. il Welding Eng 49:46-9 S '64

Influence of strength level and heat-affected zone on the brittle fracture temperature (navy drop-weight test) of Mn-Mo armor steel. V. H. Pagano and K. Chesney. bibliog il diag Welding J 43:sup92-6 F '64

Methods to establish procedures for welding low alloy steels. B. J. Bradstreet. bibliog diags Eng J 46:37-41 N '63

Moisture absorption in low hydrogen electrode coatings and porosity in welds. B. J. Bradstreet. Welding J 43:sup43-8 Ja '64

Porosity; its cause and prevention. L. C. Barr. il Welding Eng 49:47-8 Mr '64

Spot welding defects in austenitic stainless; engineering data sheet. diags Welding Eng 48:61 D '63

Temperature-dependence of the rate of underbead cracking in an arc-welded low-alloy steel. A. E. Flanigan and J. L. Kaae. il Welding J 43:sup80-5 F '64

Hygienic aspects

Are fumes a welding hazard? il Welding Eng 49:35-9 O '64

Joint conference on health aspects of welding, London, Nov. 29; abstracts of papers. Metallurgia 69:7-8 Ja '64

See also
Electric welding, Arc—Hygienic aspects

Patents

Abstracts of current patents (cont). V. L. Oldham. Welding J 43:157 F; 466 My '64

Safety measures

Weldor's disregard for oxygen proves fatal. Welding Eng 48:60 N '63

See also
Helmets, Welders

Standards

Let the foreman prove out welding work standards. R. Miller and H. B. Kelbaugh. il Welding Eng 49:44-6 O '64

New welding code for buildings. A. Amirikian. diags Civil Eng 34:56-8 Ag '64

What can you do to improve the welding codes? Welding Eng 49:74+ Jl '64

What we need is more realism in welding specs. T. Thielsch. il Welding Eng 48:48+ N '63

Stresses

Analysis of rail steel bar welds by two-level factorial design. S. M. Wu. diags Welding J 43:sup 179-83 Ap '64

Biaxial stress-strain properties of welds in high strength alloys. B. L. Baird. Welding J 42:sup571-6 D '63

Field stress relief of process vessels. il Welding Eng 49:52 Jl '64

Mismatch stresses in pressure vessels. R. H. Johns. diags AIAA J 2:1827-8 O '64

New light on stress-relieving large vessels. il diag Oil & Gas J 62:82-3 S 28 '64

Relief of residual stresses by heating patterns. T. H. Lin and L. M. Lackman. bibliog diags Am Soc C E Proc 90 [EM 3 no 3937]:87-110 Je '64

Residual stresses in a weld with one free surface. O. W. Albritton. bibliog il Welding J 43:sup86-91 F '64

Residual stresses in welded plates; a theoretical study. L. Tall. bibliog diags Welding J 43:sup 10-23 Ja '64

Residual stresses in welded shapes. N. R. Nagaraja Rao and others. bibliog diags Welding J 43:sup295-306 Jl '64

Study and teaching

Junior colleges could provide tomorrow's welding technicians. J. H. Forrer. il Welding Eng 48:62-3 D '63

Welding trade school grows. il Welding Eng 49:97 Ap '64

Testing

Austenitic decomposition in weld heat-affected zones. M. M. D'Andrea, jr. and C. M. Adams, jr. bibliog il Welding J 42:sup503-11 N '63

Biaxial stress-strain properties of welds in high strength alloys. B. L. Baird. Welding J 42:sup571-6 D '63

Delayed cracking in steel weldments. C. G. Interrante and R. D. Stout. bibliog il diags Welding J 43:sup 145-60 Ap '64

Friction welding parameter analysis. M. B. Hollander and others. bibliog il diags Welding J 42:sup495-501 N '63

Mass spectrometer checks welds. il Iron Age 193:98-9 Ja 30 '64

Microstructural factors governing the yield strength of a mild steel weld metal deposited by the metal arc process; abstract. J. M. Wheatley and R. G. Baker. Metal Prog 85:184+ F '64

New approach produces stronger welds. J. Heuschkel. Materials in Design Eng 59:87-9 Ja '64

Properties of X7000-series aluminum alloy weldments. A. T. D'Annessa and R. E. Friend. bibliog il Welding J 43:sup337-43 Ag '64

Residual stresses in a weld with one free surface. O. W. Albritton. bibliog il Welding J 43:sup86-91 F '64

Tv monitor simplifies welding of vessels. J. Giron. il Mach 70:132-5 N '63

Updated weld inspection. D. G. Zimmerman. il Welding J 43:46 Ja '64

Weld tests show year-round capabilities. L. E. Wagner. il Welding Eng 49:50-1+ Ja '64

Welding evaluation of experimental columbium alloys. G. G. Lessmann. bibliog il diag Welding J 43:sup 103-15 Mr '64

What weld metal for type 316L stainless steel? R. H. Espy. il diag Metal Prog 86:109-15 S '64

Thermit process

Continuously welded rails save money. T. H. Turner. Engineer 217:274 F 7 '64

X ray inspection

Effects of porosity in quenched and tempered steel. J. W. Bradley and R. B. McCauley. bibliog il diags Welding J 43:sup408-14 S '64

Film package speeds X-raying of heavy metal sections. il Iron Age 193:138-9 Ap 30 '64

Making sense of welding and casting radiographs. B. Pecora. diags Mill & Factory 75:77-9 S '64

Nondestructive testing; a necessity for welding; engineering data sheet. il Welding Eng 49:41-7 Je '64 (reprints 50c)

WELDING equipment

Adjustable bars back up welds. il Iron Age 192:82-3 N 28 '63

Automatic unit rolls down tank weld costs 90 per cent. il Steel 155:91 Jl 27 '64

How planemaker solved hot welding problems. il Steel 154:109 Je 8 '64

Push-pull wire feeding extends working radius of gas metal-arc process. R. R. Lobosco and E. J. Ruland. il diags Welding J 43:581-4+ Jl '64

Standard welding gear passes rocket test. il Steel 155:63 Jl 20 '64

Successful preventive maintenance. il Welding Eng 49:35-40, 42 Mr '64 (reprints 50c)

Welding moves ahead on tracks. il Iron Age 194:83 Jl 16 '64

WELDING equipment industry

Miller continues to expand. il Welding Eng 49:66 S '64

Directories

Classified product section; trade name index; manufacturers names and addresses. Welding Eng 49:33-7+ Mid-yr '64

Statistics

Welding industry tops $1.5 billion mark; all areas show growth. T. B. Jefferson. Welding Eng 49:7-10 Mid-yr '64

WELDING machines

Friction welding spins its way onto the production floor. il Iron Age 194:59-61 O 1 '64

Welding tractor. il Engineer 218:462 S 18 '64

See also
Electric welding machines

Exhibitions

Spring meeting and exhibition of the Institute of welding, London, April 27-May 1. Engineering 197:537-8 Ap 17 '64

WELDING of glass. See Glass—Joining

WELDING positioners. See Positioners, Welding

WELDING research

Advanced welding for space. W. S. Jones and W. D. Matthews. il Am Mach 108:90-2 O 12 '64

East German welding research. G. E. Claussen. Welding J 42:sup319+; 43:sup23, sup424+ Jl '63, Ja, S '64

Present use, future hopes for plasma, electron beam, laser. il diags Welding Eng 49:35-40; Discussion. 40-2 Ja '64

WELDING research—*Continued*

Research efforts keep welding on the beam. H. F. Jones. il Iron Age 193:66 My 14 '64

Research into brittle fracture. Can Min & Met Bul 57:403 Ap '64

Technical centre of the British oxygen co. Engineer 217:481 Mr 13 '64

Tests speed new uses for high-frequency welding. H. B. Osborn, jr. il diags S A E J 72:76-7 O '64

USSR welding research (cont). G. E. Claussen. Welding J 42:sup502, sup540; 43:sup62, sup 125+, sup 169+, sup231+, sup258+, sup306+ N-D '63, F-Jl '64

Weld tests show year-round capabilities. L. E. Wagner. il Welding Eng 49:50-1+ Ja '64

Welding; its present and future; a Russian viewpoint. B. Paton. Welding Eng 49:43 Ja '64

WELDING rods

Joining and fastening of materials; welding rods and electrodes; tables. Materials in Design Eng 60:539-41 Mid-O '64

WELDING shops

Three generation welding shop. il Welding Eng 49:60 O '64

Equipment

Keeping construction equipment operating. il Welding Eng 49:41-3 My '64

Look to forming equipment for greater welding shop profits. H. Conn. il diags Welding Eng 49:44-5 Ja '64

Management

Define fitup, standardize your time allowances to boost output per man-hour. K. J. Barth. diag Welding Eng 49:56-9 Ap '64

How to assure weld performance. S. A. Greenberg. il Iron Age 193:86-8 Mr 19 '64

Quality control

Updated weld inspection. D. G. Zimmerman. il Welding J 43:46 Ja '64

Safety measures

Are fumes a welding hazard? il Welding Eng 49:35-9 O '64

WELDING society, American. See American welding society

WELFARE, Social. See Social welfare

WELL casing. See Petroleum—Well casing

WELL packers. See Petroleum—Well packers

WELL spacing. See Petroleum—Well spacing

WELL tubing. See Petroleum—Well tubing

WELLS

Application of engineering to well construction and development at Vernon. J. W. Williams. bibliog Am Water Works Assn J 56:899-906 Jl '64

Basic principles of water well design; abstract. Pub Works 94:138+ N '63

Deep well disposal of nylon waste water. M. E. Batz. il diags Chem Eng Prog 60:85-8 O '64

Deep well method of industrial waste disposal. J. S. Talbot and P. Beardon. il Chem Eng Prog 60:49-52 Ja '64

Deep wells handle pulping effluents. diag Tappi 47:sup 131A O '64

Design and use of radial collector wells. S. V. Spiridonoff. bibliog il diags Am Water Works Assn J 56:689-98 Je '64

Dewatering through wells before mine development. R. L. Loofbourow and R. L. Brittain. bibliog il diags Min Cong J 50:43-50 Jl '64

Ground water contamination in two New England communities; abstract. R. A. McCracken and H. D. Nickerson. Pub Works 95:162 F '64

How can we remove dissolved iron from well water? answers. diags Power 108:208-9 Je '64

Potable water drawn from abandoned oil well. G. W. Sayers. diag Pub Works 95:79 N '64

Pump selection. D. Joslyn. il Water & Sewage Works 110:395-9 N '63

Radial collector wells adjacent to the river bank. M. Milojevic. bibliog diags Am Soc C E Proc 89 [HY 6 no 3704]:133-51 N '63; 90 [HY 4 no 3980]:329 Jl '64

Recharge wells keep salt water out of underground reservoir. il map Eng N 172:32-4 Je 4 '64

Records for a well water supply. R. M. King. diags Water & Sewage Works 111:87-91 F '64

Sensitive well takes earthquake's pulse. E. E. Rexin. il diags Plant Eng 18:122-3 O '64

Successful start-up of Hammermill no. 1; a deep disposal well. il diag Paper Ind 46:366-7 Ag '64

Supplement to Peterson's design of replenishment wells. M. S. Hantush. Am Soc C E Proc 90 [IR 1 no 3838]:67-76 Mr '64

Taking a well-planned approach to waste disposal. Chem Eng 71:48+ Mr 2 '64

Thawing of wells in frozen ground by electrical means. E. R. Eaton. diags Water & Sewage Works 111:350-3 Ag '64

Trouble-shooting well and well pump problems. A. D. Henderson. Water Works & Wastes Eng 1:51+ Ag '64

Well and pump maintenance. J. R. Tubman. il Water & Sewage Works 111:147-9 Mr '64

Well grouting and well protection. K. E. Moehrl. bibliog diags Am Water Works Assn J 56:423-31 Ap '64

See also
Gas, Natural—Well drilling
Petroleum—Well drilling
Water, Underground

WEST

See also subdivision Western states under special subjects, e.g.
Building
Electric lines
Electricity supply
Electronics industry
Gas, Natural
Gasoline industry
Geology
Mines and mineral resources
Petroleum
Petroleum industry and trade
Water supply

WEST INDIES

See also
Geology—West Indies

WEST ORANGE, New Jersey

Streets

Contractors blast hard rock to build vital road interchange. il Eng N 173:26-8 Jl 16 '64

WEST VIRGINIA

See also subdivision West Virginia under special subjects, e.g.
Coal mines and mining
Gas, Natural
Geology
Petroleum
Petroleum industry and trade

WESTERN association of state highway officials

Annual conference, 42d, Denver, Sept. 15-20. Roads & Sts 106:29-30 N '63

Annual meeting, San Diego. Roads & Sts 107:54+ Ag '64

WESTERN electronic show and convention. See Electronics industry—Western states

WESTERN metal and tool conference and exposition

Broad technology highlights West Coast ASTME/ASM show. Steel 154:28-9 Mr 23 '64

Conference, 1st, Los Angeles, March 16-20; program preview and list of exhibitors. il Tool & Manuf Eng 52:119-23 Mr '64

WETTING

Frequency response analysis of a wetted wall adiabatic humidifier. D. F. Bruley and J. W. Prados. bibliog diags A I Ch E J 10:612-16 S '64

Wettability of kaolinite treated with ammonia, methylamine, ethylamine, or their corresponding cations. A. Kitahara and W. O. Williamson. bibliog Am Cer Soc J 47:313-17 Jl '64

Wetting and adhesion. J. R. Huntsberger. bibliog il Chem & Eng N 42:82-7 N 2 '64; Discussion. 42:4-5 D 14 '64

Wetting and adhesion in two-component systems. H. K. Livingstone. bibliog J Colloid Sci 19:185-91 F '64

Wetting of beryllium by various pure metals and alloys. R. G. Gilliland. bibliog il diags Welding J 43:sup248-57 Je '64

WETTING agents

See also
Surface active substances

WHALES

Whale of a problem. J. Creisler. Pub Works 95:80-1 Ja '64

WHALING

British whaling; final years. C. E. Ash. Chem & Ind p 1596-601 S 19 '64

WHARVES

See also

Docks

Costs

Concrete pile bids under estimate; unit prices. il Eng N 172:126+ Je 18 '64

New Orleans wharf modernization; unit prices. Eng N 172:153 Ja 23 '64

WHEAT

Chemical constituents of flour from cytologically synthesized and natural cereal species. M. Vaisey and A. M. Unrau. bibliog J Agri & Food Chem 12:84-6 Ja '64

Effects of processing on B-vitamin and mineral contents of bulgur. J. W. Pence and others. bibliog Food Tech 18:765-8 My '64

Endosperm lipids of three Canadian wheats. M. E. McKillican and R. P. A. Sims. bibliog Am Oil Chem Soc J 41:340-4 My '64

Oxidation of wheat starch. B. H. Thewlis. bibliog J Ap Chem 13:464-6 O '63

Studies of the phospholipids, glycolipids and sterols of wheat endosperm. M. E. McKillican. bibliog Am Oil Chem Soc J 41:554-7 Ag '64

See also

Bulgur

WHEATSTONE bridge

D-c Wheatstone bridge for multi-terohm measurements with high accuracy capability. H. A. Sauer and W. H. Shirk, jr. il diags IEEE Trans Com & Electronics p 131-6 Mr '64

Double bridge sensitivity. J. E. Pugh, jr. diags Radio-Electronics 35:36 Je '64

Linearization of the output of bridge networks. I. G. Scott. diag J Sci Instr 41:458-61 Jl '64

Maximum sensitivity of the unbalanced Wheatstone bridge. V. Mitvalský. bibliog diag J Sci Instr 41:454-7 Jl '64

Potentiometer burn-outs caused by use of Wheatstone bridge. B. Erlichman. diag Instruments & Control Systems 37:109 Ja '64

Recent advances in strain gauges. G. R. Higson. bibliog diags J Sci Instr 41:405-14 Jl '64

Thermistor bridge reveals defective vacuum bottles. F. Schumann and B. Ross. il diags Control Eng 11:103 F '64

WHEELS

Choose casters and wheels for the job. G. J. Berkwitt. Mill & Factory 73:52-3 D '63

See also

Airplanes—Wheels
Automobiles—Wheels
Crane wheels
Flywheels
Motor trucks, Industrial—Wheels
Sheaves

WHEELS, Steel

Blades provide comeback for steel tractor wheels. il diag Welding Eng 49:78 O '64

Manufacture

Handling equipment for wheel and tyre plant. il Engineer 216:1032 D 20 '63

WHIRLING of shafts. See Shafts

WHISKEY

Lightning protection for whiskey warehouse. R. E. Ward. il plan Elec Constr & Maint 63:94-5 Je '64

New bonded warehouse for export whisky. il Engineering 196:701 N 29 '63

WHISTLERS. See Radio signals

WHITWELL, Earl Van Dorn

Memorial. L. M. Neumann. por Am Assn Pet Geologists Bul 47:2066-7 D '63

WHYMPER, Robert

Obituary. F. E. Thomas. Chem & Ind p63 Ja 11 '64

WILDLIFE

See also

Game

WILKERSON, Albert Samuel

Memorial; with list of his publications. J. H. C. Martens. por Geol Soc Bul 75:sup 67-9 Ap '64

WILKINS, George Franklin

AAOM award of honor. L. C. McGee. por Archives Environmental Health 9:290-1 S '64

WILL, Fritz G.

F. G. Will to receive Battery division research award for 1963-1964. por Electrochem Soc J 111:sup245C O '64

WILLIAMS, Frank S. G.

Williams and MacLeod receive Standards awards; with acceptance speeches. por Mag of Stand 35:3-5 Ja '64

WILMINGTON, Delaware

Lighting

Wilmington culminates 85 years of lighting progress. R. A. Mitchell. il Pub Works 95:99-100 Ap '64

WINCHES

Adjustable-voltage electric drive for cargo-ship winches. il Marine Eng/Log 69:82+ Mr '64

Constant current propulsion and trawl winch system. il Engineer 218:378 S 4 '64

Hydraulic winch has integral fluid motor. diag Hydraulics & Pneumatics 17:32+ Mr '64

Hydraulic winches on dredger. il Engineer 217:908 My 22 '64

Operational efficiency to be improved in coming utility winches; abstract. S A E J 72:79 F '64

Reversing winches. il Engineer 218:384 S 4 '64

Self-tensioning winches. il Engineer 217:486 Mr 13 '64

Wave-compensating hoist smooths rough-sea lifting. Naval Eng J 76:177 Ap '64

WIND. See Winds

WIND erosion. See Erosion

WIND pressure

Collapse of cylindrical elastic shells under wind loading. R. F. Rish. il Engineer 216:669-72 O 25 '63

Dynamic loads due to wind shear. B. E. Clingan. bibliog diags AIAA J 2:76-83 Ja '64

GM researchers using rocket engine to test crosswind stability of car. Automotive Ind 129:97 D 15 '63

Membrane stresses of parabolic conoid shells. R. Aschenbrenner. diags Am Concrete Inst J 60:1415-27 O '63; Discussion. M. Soare. 61:2033-4 pt 2 Je '64

Transient pressures on structures due to wind gusts. G. A. Bird. A S M E Trans ser E 31:152-3 Mr '64

Vibration of towers as related to wind pulses. A. N. L. Chiu and others. bibliog diags Am Soc C E Proc 90 [ST 5 no 4114]:137-60 O '64

Wind loads on dish shaped structures. R. G. Redwood. diag Eng J 47:43-5 S '64

See also

Anemometers

WIND tunnels

Air in a hurry; Northrop Norair hypersonic wind tunnel facility. H. M. Karaszewski. il Comp Air Mag 68:8-11 D '63

Ames hypervelocity free-flight research. A. Seiff. bibliog il diags Astronautics & Aerospace Eng 1:16-23 D '63

Analytical solution for constant enthalpy MHD accelerator. H. Mirels. diag AIAA J 2:145-6 Ja '64

Applying electric arcs to wind tunnels. P. G. Simpkins. il diags Engineering 196:638-40 N 15 '63

Calorimeter study of a magnetically stabilized arc-heater. R. B. Stewart. diags AIAA J 2:384-6 F '64

Centrifugal hypersonic wind tunnel facility for investigating effects of inertia on ablating bodies. J. S. Ford, 2d and W. H. Horton. bibliog flow diag il diags Roy Aeronautical Soc J 67:745-53 D '63

Condensation studies in hotshot tunnels. B. J. Griffith and others. AIAA J 2:1645-7 S '64

Data-handling equipment for a high-speed wind tunnel. F. Shaw. il diags Ind Electronics 2:316-20 Jl '64

Design of a two-dimensional contracting channel. Y. S. Nanjunda Swamy. J Aerospace Sci 28:500-1; 29:246 Je '61, F '62; Discussion. AIAA J 1:977; 2:191-2 Ap '63, Ja '64

Design of contra-rotating fans. A. R. Collar. bibliog diags Roy Aeronautical Soc J 67:725-30 N '63

Effect of density on air-tunnel measurements. E. Naudascher. diag Roy Aeronautical Soc J 68:419-20 Je '64

Effect of Mach number, incidence and hole position on the static pressure measured by a square ended probe. J. F. Hahn. il diags Roy Aeronautical Soc J 68:54-7 Ja '64

Effect of transverse enthalpy gradient on blunt body pressure distributions in hypersonic flow. D. Brooke and R. E. Thomas. AIAA J 2:1829 O '64

Effects of interface combustion and mixing on shock-tunnel conditions. J. A. Copper. bibliog diags AIAA J 2:1669-71 S '64

Experimental measurement of pitot pressure in the boundary layer on a model in a hypersonic gun tunnel. A. J. Cable. il AIAA J 2:944-5 My '64

WIND tunnels—*Continued*

Flow inclination measurements in hypersonic tunnels. H. H. Album. bibliog diags AIAA J 2:104-5 Ja '64

Heating air for high speed tunnel. il Engineering 197:655 My 8 '64

High-speed photoinstrumentation for a hypersonic wind tunnel. R. L. Leighton. il diags SMPTE J 73:650-3 Ag '64

Hot-wire measurements in the hypersonic wakes of slender bodies. A. Demetriades. bibliog il diag AIAA J 2:245-50 F '64

Hypersonic test facilities at the Royal aircraft establishment. J. M. Shaw. bibliog il diags Roy Aeronautical Soc J 68:179-88 Mr '64

Intermolecular-force effects on the thermodynamic properties of helium with application. E. F. Harrison. bibliog AIAA J 2:1854-6 O '64

Intermolecular-force effects on the thermodynamic properties of nitrogen. C. E. Smith, jr. bibliog AIAA J 2:183-5 Ja '64

Mach 8 to 22 studies of flow separations due to deflected control surfaces. D. S. Miller and others. bibliog il AIAA J 2:312-21 F '64

Magnetic suspension and balance system for wind tunnel application. J. E. Chrisinger and others. bibliog il diags Roy Aeronautical Soc J 67:717-24 N '63

New Cambridge wind tunnel. il Engineering 196:797 D 20 '63

Quadratic effects of frequency on aerodynamic derivatives. K. J. Orlik-Rückemann. AIAA J 2:1507-9 Ag '64

Remote-control wind tunnel platform. il Mech Eng 86:48-9 Ja '64

Review of slotted-wall wind tunnel interference effects on oscillating models in subsonic and transonic flows. K. C. Wight. bibliog diags Roy Aeronautical Soc J 68:670-4 O '64

Secondary injection of gases into a supersonic flow. E. E. Zukoski and F. W. Spaid. bibliog il diags AIAA J 2:1689-96 O '64

Supersonic pitot tube measurements at an angle of attack. S. L. Strack. il diags AIAA J 2:778-9 Ap '64

Thermal testing; hypersonic testing. A. R. Mendelsohn and W. A. Barron. map Space/Aeronautics 42 no 4:196-9 '64-65

Wind-tunnel screens; flow instability and its effect on aerofoil boundary layers. P. Bradshaw. diags Roy Aeronautical Soc J 68:198 Mr '64

WINDING

Improved reliability in mercury lamp ballasts through precision winding. A. Franke and S. Cohen. il diags Illum Eng 59:52-5; Discussion. 55-6 Ja '64

WINDING machines

Automatic bobbin winder. il Engineering 197:796 Je 12 '64

Commercial machines for filament winding. M. Eig. il Plastics Tech 10:36-8 My '64

Drives for center shaft winding process control. A. A. Arterton. diags Rubber Age 95:420-5 Je '64

Lab filament winding unit tests specimens and materials. Chem & Eng N 42:46 F 24 '64

Remote wire dereeling saves space; Penn electric motor co. il diags Elec Constr & Maint 63:127-8 Ag '64

Simple laboratory device for winding fused quartz springs and an improved design of spring for use in sorption balances. C. T. Hawkins and J. W. G. Musty. diags J Sci Instr 40:544-5 N '63

Versatile machine winds potentiometer coils. il diag Automation 11:65-8 F '64

Versatile winder reduces costs. il Electronics 36:80 N 8 '63

See also
Paper winders

Control

Tape control boosts coil winding efficiency. il Elec Constr & Maint 63:100-1 Ag '64

Tension control

Centerwind-tension control system. diags Electro-Tech 72:112+ D '63

Considerations in applying hydraulic winder drives. R. S. Carson. diags Automation 10:78-82 N '63

Here's a new way to automatically control filament tension. il Plastics Tech 9:60 D '63

Hupp winder; new precision take-up machine for textile use. W. P. Goodman. il Mod Textiles Mag 45:54-5+ My '64

Pneumatic system controls web tension. W. Gallahue. il diags Automation 11:71-4 My '64

Servosystem controls tension in winding machine. il Hydraulics & Pneumatics 17:32 Je '64

Wire winding with a simple drive. J. W. St Andre. diag Wire & Wire Prod 39:240-1+ F '64

WINDOW frames, Aluminum

Aluminium windows split frame design. il Engineering 198:87 Jl 17 '64

Anodised aluminium windows for two new London buildings. il Metallurgia 69:258 Je '64

Painted aluminum windows. A. G. Rosenthal. il Mod Metals 20:44+ Jl '64

WINDOW frames, Steel

Adhesive bonds stainless parts. il Iron Age 192:86-7 D 19 '63

Vinyl clad windows. il Plastics World 22:23 F '64

WINDOWLESS construction

No windows on the future. il Illum Eng 59:399-402 sec 2 My '64

WINDOWS

Glass strength test. il Glass Ind 45:80-1 F '64

Guam typhoon tears out hospital windows. H. V. Ehlers. il plan diags Civil Eng 34:56-7 Jl 64

Nested hurricane screens shield windows. il diags Arch Rec 135:186 Je '64

Performance of zipper-type glazing gaskets. R. J. Mazzoni and others. il diags Materials Res & Stand 4:474-9 S '64

Response of glass in windows to sonic booms. R. W. McKinley. bibliog map Materials Res & Stand 4:594-600 N '64

Water-leakage test for window sections. H. R. Trechsel. diags Materials Res & Stand 4:483-5 S '64

Window makers solve design problems with special rivets. il diags Mod Metals 20:52 Ag '64

See also
Skylights
Windowless construction

WINDS

Air leakage and pressure measurements on two occupied houses. G. T. Tamura and A. G. Wilson. bibliog plans ASHRAE J 5:65-73 D '63

Atmosphere and near space. F. S. Johnson and W. L. Webb. bibliog diag Astronautics & Aerospace Eng 1:81-5+ N '63

Circulation of the upper atmosphere. R. E. Newell. il map diags Sci Am 210:62-72+ Mr '64

Effect of wind on buoyant diffusion flames. O. A. Pipkin and C. M. Sliepcevich. bibliog il diag Ind & Eng Chem Fundamentals 3:147-54 My '64

No noise but the wind. J. R. Thomson and others. il diags S A E J 72:72-4 Jl '64

Windborne volcanic ash; a possible index to polar wandering. G. P. Eaton. maps diags J Geol 72:1-35 bibliog(p33-5) Ja '64

See also
Hurricanes
Typhoons
Wind pressure

WINDSHIELDS. See Airplanes—Windshields; Automobiles—Windshields

WINE

Effects of calorically equivalent amounts of ethanol and dry wine on plasma lipids, ketones and blood sugar in diabetic and nondiabetic subjects. G. Schlierf and others. bibliog Am J Clinical Nutrition 15:85-9 Ag '64

Field kit for determining the spirit strength of wines. B. E. Dixon and others. il diag Chem & Ind p 1873-4 N 23 '63

Wine. M. A. Amerine. il map diags Sci Am 211:46-56 Ag '64

Manufacture

Quality wines from New York State. S. M. Parkhill. il diags Comp Air Mag 69:14-19 Je; 6-11 Jl '64

WINNEMUCCA LAKE, Nevada

Evaporation from Pyramid and Winnemucca Lakes, Nevada. S. T. Harding. map Am Soc C E Proc 88 [IR 1 no 3083]:1-13 Mr '62; Discussion. 88 [IR 2 no 3170]:119-23 Je; [IR 3 no 3286]:49-57 S; [IR 4 no 3377]:53-4 D '62; Reply. 89 [IR 2 no 3554]:65-7 Je '63; 90 [IR 1 no 3848]:111-13 Mr '64

WINNIPEG, Manitoba

Metropolitan district

Industrial waste control in metropolitan Winnipeg. N. S. Bubbis. WPCF J 35:1403-9 N '63

WINSTON-SALEM, North Carolina

Water supply

Winston-Salem's new water plant. il Water & Sewage Works 111:96-7 F '64

WINTER

Getting ready for winter. il Coal Age 68: 110+ N '63

Pre-planning for cold weather operation. R. W. Braund and R. E. Durocher. plan diags Min Cong J 49:18-21 N '63

WINTER construction

In winter; under-cover construction speeds projects. R. F. Legget. il Eng N 171:58-61 D 19 '63

Minnegasco goes full speed with hot rod. il Gas Age 131:32-3 Ja '64

Winter water utility construction in Canada. N. S. Bubbis. bibliog Am Water Works Assn J 56:1303-14 O '64; Excerpts. Pub Works 95:124+ D '64

See also

Concrete construction in winter

Construction equipment—Cold weather operation

WINTON, Will McClain

Memorial. F. E. Lozo. bibliog por Am Assn Pet Geologists Bul 48:247-51 F '64

WIRE

Electrical resistances of wires of low temperature coefficient of resistance useful in calorimetry (10°-380°K). G. T. Furukawa and others. R Sci Instr 35:113-14 Ja '64

Flow measurement with a suspension wire. B. B. Sharp. bibliog diags Am Soc C E Proc 90 [HY 2 no 3821]:37-53 Mr '64

Manufacture of fine wire thermocouple probes. G. H. Gelb and others. il diags R Sci Instr 35:80-1 Ja '64

Microjet method for preparation of wire samples for transmission electron microscopy. R. Stickler and R. J. Engle. il diags J Sci Instr 40:518-20 N '63

Superconductive wire. P. J. Ottowitz. Wire & Wire Prod 39:407+ Mr '64

Technique for preparing hot wires. D. A. Van Meel and H. Vermij. diags J Sci Instr 40:607 D '63

Why not use metal wires in filament winding? D. V. Rosato. il Iron Age 193:102-3 Mr 26 '64

Wire kinks. Published in monthly numbers of Wire and wire products

Wire needed for springs; nomographs; reference book sheet. J. W. Diachenko. Am Mach 108:73 F 3 '64

Wire winding with a simple drive. J. W. St Andre. diag Wire & Wire Prod 39:240-1+ F '64

Wires cut crystals accurately. E. H. Lederer. il diag Electronics 36:46 N 1 '63

See also

Exploding wire phenomena

Cleaning

Looped wire swings through baths. A. W. Young. il Iron Age 194:76-7 N 5 '64

Processing of rods and wire through the cleaning line. D. N. Habersack. plan diag Wire & Wire Prod 38:1691-2+ N '63

Shot blasting of wire rods in coils. T. Strand. il diags Wire & Wire Prod 39:211+ F '64

Manufacture

Infrared radiometer improves wire and cable production. L. C. Whitney. il diag Wire & Wire Prod 39:1619+ O '64

Interesting development for wire rolling. il Engineering 197:56 Ja 10 '64

Wire annealing and galvanizing line improves production line efficiency with natural gas-fired nozzle mix-type burners. il Gas 40:76-7 My '64

Wire manufacture using Stelmor controlled cooled rod. A. B. Dove. bibliog il Wire & Wire Prod 39:1610-15+ O '64

See also

Wire drawing

Patents

Review of recent wire patents. Published in monthly numbers of Wire and wire products

Protection

Characteristics of Kynar polyvinylidene fluoride as an insulating material. A. A. Dukert and N. T. Hall. Wire & Wire Prod 39:235-9+ F '64

Extrusion die design to reduce melt fracture. A. G. Ferrari. diags Wire & Wire Prod 39: 1036-8+ Jl '64

Improvement of screw extruder with non-eccentric cross head. N. Okazaki. il diags Wire & Wire Prod 39:881-3+ Je '64

Plastic coatings for corrosion protection of wire and wire products. P. W. Sherwood. Wire & Wire Prod 38:1719+ N '63; Same. Metal Finishing 62:59-60 F '64

Polypropylene foam gains in appeal. Chem & Eng N 42:25-6 Je 15 '64

Testing

Elongation, strain and minimum bend radius of rod and wire. A. F. Mohrnheim. bibliog diags Wire & Wire Prod 39:1182-6+ Ag '64

Optical mike gages hot wire. diags Iron Age 193:121 F 20 '64

WIRE, Aluminum

New aluminum cable developed for Canadian power project. diags Mod Metals 20:73 Jl '64

Manufacture

Production of aluminum welding wire. J. C. Nickels. il Wire & Wire Prod 39:541-4+ Ap '64

WIRE, Brass

Brass pins; wire to finished product. J. R. O'Ravitz. Wire & Wire Prod 39:227-9+ F '64

WIRE, Copper

Alternating-current properties of a copper conductor clad in a magnetic sheath. N. F. Astbury. diag Inst E E Proc 110:2055-62 N '63

Glass-coated microwire. H. J. Wagner. bibliog diags Wire & Wire Prod 39:869-72 Je '64

Stable copper resistance thermometer for field use. R. C. Langlands. diag J Sci Instr 41: 478 Jl '64

Manufacture

Better copper wire by vacuum annealing. il diag Engineering 197:201 Ja 31 '64

Continuous casting and processing of copper base alloy wire and rod. J. D. Berwick. il Wire & Wire Prod 39:1340-2+ S '64

Dip-formed copper rod-pilot to production. R. P. Carreker, jr. and R. Hurst. il diags Wire & Wire Prod 39:1161-3+ Ag '64

Vacuum annealing of copper wire. il Engineer 217:181-2 Ja 24 '64

Vacuum annealing of copper wire. il diag Metallurgia 69:56-8 F '64

Vacuum annealing of copper wire at Frederick Smith and co. il diag Wire & Wire Prod 39:1331-2+ S '64

WIRE, Electric. See Electric wire

WIRE, Steel

Continuous cladding of wire via powder metallurgy; abstract. J. G. Kura. Metal Prog 86:271-2 O '64

Corrosion behavior of aluminum-clad wire. P. D. Miller and others. il Wire & Wire Prod 39:217-19+ F '64

Decarburisation-free steel wire and rod. il Engineer 218:191 Jl 31 '64

Effect of ausforming on the properties of carbon steel wire. B. M. Armstrong. bibliog il diag Iron & Steel Inst J 202:655-9 Ag '64

Handbook on steel wire; chapter two. il diags Wire & Wire Prod 39:701-2+, 862-7+, 1017-23+, 1168-72+, 1316-19+, 1802-3+ My-S, N '64

Looped wire swings through baths. A. W. Young. il Iron Age 194:76-7 N 5 '64

New type steels reach full acceptance for wire usage. F. de Bie. bibliog diags Wire & Wire Prod 38:1863-7+ D '63

Production of wire rods. il diags Wire & Wire Prod 39:701-2+, 862-7+, 1017-23+, 1168-72+ My-Ag '64

Properties and applications of cut wire. W. Zieler and P. U. Schmithals. bibliog il Wire & Wire Prod 38:1842-51+ D '63

Resistance annealing of copper clad steel wire. M. C. Shapiro. il diags Wire & Wire Prod 39:70-3+ Ja '64

Rocket wire springs end musicians' problem. il Steel 154:72+ Ja 27 '64

Manufacture

Drawing steel at elevated temperatures. J. L. Peterson. bibliog Wire & Wire Prod 39:1616-18+ O '64

New plant produces 2,000 tons of weld wire per month. il Welding Eng 49:67 Ja '64

Patenting process during the manufacture of high tensile steel wires for ACSR core. S. N. Nayar and J. Thomas. diags Wire & Wire Prod 39:556-8+ Ap '64

Stainless and alloy steel wire production. il Engineer 217:1093-4 Je 19 '64

WIRE, Steel—*Continued*

Testing

Development of stabilized wire and strand. T. Cahill. bibliog il Wire & Wire Prod 39:1535-7+ O '64
Fatigue properties of steel rope wire. J. N. Kenyon. il Materials Res & Stand 2:553-6 Jl '62; Discussion. 4:425-6 Ag '64
Improved wire and strand for prestressed concrete. R. Martin, 3d. bibliog il Wire & Wire Prod 39:1529-31+ O '64

WIRE, Tungsten
Effect of temperature and heating rate on the secondary recrystallization of doped tungsten wires. M. Mannerkoski. bibliog il Inst Metals J 92:149-50 '63-64
Wire mesh heating element. R. P. Ranger. il Materials in Design Eng 59:135 Ap '64

WIRE association
Annual convention, Chicago, Oct. 14-17. Wire & Wire Prod 39:80-2+ Ja '64
Annual convention, San Francisco, Oct. 12-15; with program. Wire & Wire Prod 39:1579-83 O '64
Electrical conductor and non-ferrous divisions joint meeting, New York, May 14-15. Wire & Wire Prod 39:1194-5 Ag '64
Ferrous division meeting, Peoria, April 30-May 1. Wire & Wire Prod 39:1039-40+ Jl '64

WIRE cloth
Automation applied to wire products. J. McMillan. diags Wire & Wire Prod 39:375-8+ Mr '64
Change of wire boosts screen production. il Wire & Wire Prod 39:1323+ S '64
Flexural cracking in two-way concrete slabs reinforced with high strength welded wire fabric. E. G. Nawy. il diag Am Concrete Inst J 61:997-1008 Ag '64
Fourdrinier wire life progress at Great Northern paper co. A. E. Dentremont. Wire & Wire Prod 38:1715-16+ N '63
Metallic clothing still okay? J. Ellington. il Textile Ind 127:119-21 N '63
Mobile boom-up units cut fabric handling cost. il Roads & Sts 107:40-1+ Mr '64
Phosphor bronze as a Fourdrinier wire material. E. W. Beggs. Wire & Wire Prod 38:1702-3+ N '63
Prediction of gas flow rates through round wire screens. F. O. Smetana. A S M E Trans ser D 85:620-2; Discussion. 622-4 D '63
Steel net saves money as well as lives; repairing the Bourne bridge over Cape Cod canal. il Eng N 173:34-6+ Ag 20 '64
Tempter in Eden is a power-age pest; barriers for repelling reptiles from substations. P. H. Shoun. il Elec World 161:26-7 Je 22 '64
Two-course reinforced concrete pavement built without forms. il Eng N 173:38-40 S 10 '64
Wire mesh heating element. R. P. Ranger. il Materials in Design Eng 59:135 Ap '64
See also
Screens

Manufacture

Steel mesh fabricating plant. il Engineer 218:284 Ag 21 '64
Steel wire mesh from a flowline factory. il diag Engineering 198:216-17 Ag 14 '64

WIRE drawing
Drawing steel at elevated temperatures. J. L. Peterson. bibliog Wire & Wire Prod 39:1616-18+ O '64
New concept of wire making; with roller dies. A. L. Randazzo. il diags Wire & Wire Prod 39:527-8+ Ap '64
Proper wiredrawing improves cold heading. F. L. Gill and W. M. Baldwin, jr. il Metal Prog 85:83-5 F '64
Short history of the wire industry. il Wire & Wire Prod 39:369-70+ Mr '64
Wire drawing works in a national park. il plan Engineering 197:847-8 Je 19 '64

WIRE drawing machines
New B.I.S.R.A. narrow gap capstan improves cooling efficiency on drawing machines. G. M. Sturgeon. il diags Wire & Wire Prod 39:220-5+ F '64

WIRE forming machines
Two slides operated longitudinally and one also crosswise. E. Louden. diags Mach 70:130-1 Ja '64

WIRE handling
Compressing and strapping wire coils. il Automation 11:60 F '64
Hand coiler speeds wire handling. R. G. Remington. il Elec World 161:122 F 10 '64
Looped wire swings through baths. A. W. Young. il Iron Age 194:76-7 N 5 '64
Some new concepts in wire handling. H. L. Kitselman. diags Wire & Wire Prod 39:1573-6 O '64
Three head strapper doubles output with same crew. il Steel 153:86 D 16 '63

WIRE inserts. See Screw threads

WIRE mesh. See Wire cloth

WIRE mills
Brief history of the Keystone steel & wire company. il Wire & Wire Prod 39:1620-1+ O '64
Photography and applied photography in the wire industry. D. Houghton. Wire & Wire Prod 38:1724-6+ N '63
Research in the wire industry. B. W. Gonser. bibliog il diag Wire & Wire Prod 39:57-60+ Ja '64
Short history of the wire industry. il Wire & Wire Prod 39:369-70+ Mr '64

Costs

Approach to manufacturing cost reduction. H. R. Hunter and W. R. Tims. Wire & Wire Prod 39:1173+ Ag '64

Equipment

Development of a computer planning procedure for a three stand high speed rolling mill. H. B. Lit. flow diag Wire & Wire Prod 39:88-90+ Ja '64
Hanover fair exhibits. il Wire & Wire Prod 39:1041+ Jl '64
New annealing and galvanizing lines at Armco's Sheffield division. il Wire & Wire Prod 39:91+ Ja '64
New coatings impart high degree of wear-resistance to surfaces. H. V. Mosby. il Wire & Wire Prod 39:248-9+ F '64
New super speed, multi-head Stranding machine. S. McGonigal. il diags Wire & Wire Prod 39:710-13+ My '64
New wire mill for Samuel Fox. il plan Metallurgia 70:3-6 Jl '64
Opening foreign markets; one way. G. W. Volckhausen. flow chart il Wire & Wire Prod 39:1330+ S '64
Processing rod and wire in a specialty steel plant. J. R. Mills. il diag Wire & Wire Prod 38:1835-6+ D '63
Stainless and alloy steel wire production. il Engineer 217:1093-4 Je 19 '64
Steel mesh fabricating plant. il Engineer 218:284 Ag 21 '64
Twin reel coiler for continuous wire rod production. J. Tranier. il Wire & Wire Prod 39:719-20+ My '64
Wire drawing works in a national park. il plan Engineering 197:847-8 Je 19 '64

Management

Approach to manufacturing cost reduction. H. R. Hunter and W. R. Tims. Wire & Wire Prod 39:1173+ Ag '64
Cost savings by better inventory control in wire production. P. W. Sherwood. Wire & Wire Prod 39:738+ My '64

Quality control

Cold heading as related to wire quality. J. Stalter. il Wire & Wire Prod 39:1009-10+ Jl '64

WIRE products
Brass pins; wire to finished product. J. R. O'Ravitz. Wire & Wire Prod 39:227-9+ F '64
Cold-forming parts from wire. Automation 11:32 My '64
Common wire nail. P. S. Cole. Wire & Wire Prod bibliog 39:546-51+ Ap '64
Fastening wire forms. E. T. Wayne. il diags Machine Design 36:116-18 Jl 2 '64
Wire for cold forming precision products. F. C. Boyd. il diags Wire & Wire Prod 38:1704-5+ N '63
Wire kinks. Published in monthly numbers of Wire and wire products
Wire plating. D. Elliott. Wire & Wire Prod 39:874-5+ Je '64
Wire skeletons; a framework for precision designing. R. R. Irving. il Iron Age 194:53-5 Jl 30 '64
Wire stakes facilitate survey crew work. il Elec World 162:94 O 5 '64

Manufacture

Automation applied to wire products. J. McMillan. diags Wire & Wire Prod 39:375-8+ Mr '64

WIRE rope
8x19 steel rope tension-pulls 345-kv 2,156 MCM conductor. J. Honnan and A. B. Whitlach, jr. il diag Elec World 161:88+ Ap 6 '64

WIRE rope—*Continued*

Few aspects of wire rope choice and design. P. Rajan. bibliog diags Wire & Wire Prod 39:876-9+ Je '64

How to inspect wire-rope boom supports. R. O. Kasten. il diags Coal Age 69:90-1+ My '64

New super speed, multi-head Stranding machine. S. McGonigal. il diags Wire & Wire Prod 39:710-13+ My '64

Proper wire splicing, key to prolonged life. il Safety Maint 127:56-7 Ja '64

Use of computer in wire rope accounting procedures provides accuracy speed and economy. R. T. McCarthy. il Wire & Wire Prod 39:570+ Ap '64

Lubrication

Proper lubrication means longer rope life. R. O. Kasten. il Coal Age 69:114-16+ F '64; Same. Lub Eng 20:180-3 My '64

Proper lubrication of wire rope pays. E. S. Reynolds. diags Pit & Quarry 56:112-15 S '63; Excerpts. Eng & Min J 164:105-6 N '63

Maintenance and repair

Care and feeding of wire rope. il diags Gas Age 131:24-6 S '64

For operating safety, inspect wire rope boom supports. R. O. Kasten. il diags Pit & Quarry 56:115-16+ Je '64; Same. Safety Maint 128:14-16 Ag '64

How to spot and correct trouble in wire rope boom supports. R. O. Kasten. il Eng & Min J 165:119+ Ap '64

Sound splicing is key to long wire rope life. il diag Mod Materials Handling 19:64 N '64

Testing

Fatigue properties of steel rope wire. J. N. Kenyon. il Materials Res & Stand 2:553-6 Jl '62; Discussion. 4:425-6 Ag '64

Inspection of wire rope boom supports for operating safety. R. O. Kasten. il diags Wire & Wire Prod 39:1179-80+ Ag '64

Underground and laboratory tests of slusher cables. G. Anders. diag Can Min & Met Bul 57:404-8 Ap '64

WIRE rope fastenings

How to make an eye splice properly. il Coal Age 68:130+ D '63

WIRE stripping machines

Stripper at work. il Product Eng 35:61-2 Ag 3 '64

WISCONSIN

See also

Roads—Wisconsin

WISCONSIN stage. See Geology, Stratigraphic—Pleistocene

WITTIG reaction

Mechanisms of substitution reactions at phosphorus; the Wittig reaction and the decomposition of quaternary phosphonium hydroxides. W. E. McEwen and others. bibliog Am Chem Soc J 86:2378-84 Je 20 '64

Reaction gives heterocyclics, carbocyclics. E. E. Schweizer and others. il Chem & Eng N 42:68-9 Jl 13 '64

Reaction of sulphur, selenium and tellurium halogenated compounds with Wittig reagents. N. Petragnani and M. D. Campos. Chem & Ind p 1461 Ag 15 '64

Reactions of phosphorus compounds; kinetics and mechanism of the Wittig reaction. A. J. Speziale and D. E. Bissing. bibliog Am Chem Soc J 85:3878-84 D 5 '63

Wittig reaction; synthesis of β,γ-unsaturated acids. H. S. Corey, jr. and others. bibliog Am Chem Soc J 86:1884-5 My 5 '64

WOLFF-KISHNER reaction

Wolff-Kishner reaction of hydrazones. H. H. Szmant and C. M. Harmuth. bibliog Am Chem Soc J 86:2909-14 Jl 20 '64

WOLLASTONITE

Some effects of pressure on the thermoluminescence of amblygonite, pectolite, orthoclase, scapolite and wollastonite. E. E. Engino. bibliog Am Mineralogist 49:387-94 Mr '64

WOMAN

Employment

Sick absence for men and women by marital status. P. E. Enterline. bibliog Archives Environmental Health 8:466-70 Mr '64

Women at work: health and sociomedical problems related to the employment of women. S. Forssman. bibliog Ind Med 33:125-9 Mr '64

WOMEN as chemists

New side of Swedish female is revealed. Chem Eng 71:38 Ag 3 '64

WOMEN as engineers

Increasing role for women in electronic engineering. S. Feldman. il Electronic Ind 23:46-50 F '64

International conference of women engineers and scientists, 1st, New York, June 15-21. ASHRAE J 6:44-5 Ag '64

WOMEN as scientists

International conference of women engineers and scientists, 1st, New York, June 15-21. ASHRAE J 6:44-5 Ag '64

WOMEN in the electronics industry

Increasing role for women in electronic engineering. S. Feldman. il Electronic Ind 23:46-50 F '64

WOMENS apparel shops

Lighting

Light transforms a dreary store space. il Illum Eng 59:222-3 Ap '64

More ideas for a lighting man's file; revitalizing downtown sales. il Illum Eng 59:475-6 Jl '64

WOOD

Properties of materials; woods and wood-base compositions; tables. Materials in Design Eng 60:367 Mid-O '64

Wood technology is giving designers new uses for an age-old material. S. Barnes. il Machine Design 36:78-85 Jl 30 '64

See also

Aspen
Balsa
Birch
Cedar
Cellulose
Eucalyptus
Hemlock
Pine
Spruce
Teak
Wood pulp

Analysis

Replica techniques for electron microscopy of wood and paper. W. A. Côté, jr. and others. bibliog il Tappi 47:477-84 Ag '64

Chemistry

Accessibility of wood and wood carbohydrates measured with tritiated water. Y. Sumi and others. bibliog Tappi 47:621-4 O '64

Cambial chemistry; a way of looking at a stick of pulpwood. R. E. Kremers. bibliog il diag Tappi 47:292-6 My '64

Chemistry of New Zealand grown pinus radiata; prehydrolysis-sulfate pulps. D. J. Brasch and K. W. Free. bibliog Tappi 47:186-9 Ap '64

Dielectric properties of moist wood. A. Venkateswaran and S. Y. Tiwari. bibliog Tappi 47:25-8 Ja '64

Guaiol, α-, β-, γ- eudesmol and cryptomeridiol from callitris columellaris F. Muell. P. Rudman. Chem & Ind p808-9 My 9 '64

Natural diastereoisomeric flavin-3,4-diols related to (+)-mollisacacidin. S. E. Drewes and D. G. Roux. bibliog Chem & Ind p 1799-800 O 24 '64

Pectic substances as an index to the chemistry of wood formation. B. R. Haas and R. E. Kremers. bibliog Tappi 47:568-73 S '64

Studies on the chemistry of aspenwood. I. A. Pearl and others. bibliog flow sheets Tappi 45:107-13; 46:502-5; 47:458-62 F '62, Ag '63, Ag '64

Thermal coalescence of the lignin phase in wood. T. N. Kleinert and L. M. Marraccini. bibliog Tappi 47:605-9 O '64

See also

Lignin

Fireproofing

See Fireproofing

Moisture content

Moisture measurement on flowing wood chips. E. R. Brady. Tappi 47:sup 173A-4A Je '64

Preservation

See Wood preservation

Storage

See Wood storage

Testing

Wood quality studies. H. V. Green and J. Worrall. bibliog il Tappi 47:419-27 Jl '64

WOOD, Compressed

Wood chipboard by the million sq. ft. il Engineering 196:562-3 N 1 '63

WOOD, Irradiated

Wood modified with monomers and γ-rays. E. Keller. Ind & Eng Chem 56:11-12 Mr '64

WOOD, Laminated
Bridges built with new-process treated wood. il Roads & Sts 107:82 My '64
Large timber-built hall. il Engineer 217:538 Mr 20 '64
New light standards are wood laminates. il Elec World 161:150 Mr 23 '64
Prestressed timber beams for consistent behaviour. Engineering 196:525 O 25 '63
Wood for spacecraft nose cones. D. C. Hollman diag Space/Aeronautics 40:97-8 D '63

WOOD as fuel
Hydraulic ram automates wood-chopping chores. il diag Machine Design 36:168-9 Je 18 '64

WOOD chopping. See Wood as fuel

WOOD construction
Fabricator cuts cost of trusses. il Eng N 171:173 D 19 '63
Glulam timber beams stiffened with steel. il Engineering 198:260 Ag 28 '64
Large timber-built hall. il Engineer 217:538 Mr 20 '64
Measuring texture and contact area of end-wood surfaces. C. W. Maxey. diags Materials Res & Stand 4:279-85 Je '64
Rain collapses wood roof girders. il Eng N 172:14 Ja 30 '64
Structural uses for cedar decking. il Engineering 196:623 N 15 '63
345-kv wood/steel structure passes tests. W. G. Finney and C. Kimball. il map Elec World 161:56-8+ Je 1 '64
Timber dome spanned 240ft until guying cables parted. il Eng N 173:14 O 29 '64
Timber holds its place for buildings. diag Engineering 196:524 O 25 '63
See also
Plywood

WOOD finishing
Dries wood finishes at higher heat, safely. Ind Finishing 40:110 S '64
Finishing balsa wood; pinhole trouble; question and answer. Ind Finishing 40:98+ D '63
Finishing basswood; question and answer. Ind Finishing 40:97 Ag '64
Making wood easier to paint. il Chem Eng 71:98 My 11 '64
Oven drying finishes on wood. Ind Finishing 40:70 N '63
Prime coating, drying new cedar siding. il Ind Finishing 40:35 O '64
To finish teak wood. Ind Finishing 40:104+ Ap '64
Wood finish repairing. Ind Finishing 40:105 Jl '64

WOOD floors. See Floors, Wood

WOOD grinders
Grinding of large round wood in great northern grinders. R. Affleck. bibliog Tappi 47:30-9 Ja '64

WOOD measurement
Methods of measuring and estimating tracheid wall thickness of redwood (sequoia sempervirens [D.Don] Endl.). D. M. Smith and R. B. Miller. bibliog il Tappi 47:599-604 O '64

WOOD oil
See also
Tall oil

WOOD preservation
Corrosion of aluminum in contact with wood. R. H. Farmer and F. C. Porter. bibliog il Metallurgia 68:161-7 O '63
Save money by retreating transmission pole lines. P. Naney. il Power Eng 68:48 F '64
Wood impregnation stabilizes the density. Engineering 196:715 D 6 '63
See also
Fireproofing

WOOD products
Chemicals from trees. W. M. Hearon. bibliog il Chem Eng Prog 60:91-6 S '64
See also
Cellulose
Lignin

WOOD pulp
Acetylation celluloses from pulping of wood in acetic acid. L. E. Herdle and others. bibliog Tappi 47:617-20 O '64
Advances in sulfite pulping. A. W. J. Dyck. Paper Ind 46:307 Jl '64
Alkali treatment in the Rauma process. T. H. Ulmanen and others. bibliog flow diag diag Tappi 46:sup 151A-3A N '63
Alkaline sulfite pulping of Douglas-fir and spruce, including the effect of borohydride. N. Sanyer and others. bibliog Tappi 47:323-35 Je '64
Anatomical factors influencing wood specific gravity of slash pines and the implications for the development of a high-quality pulpwood. J. P. van Buijtenen. bibliog Tappi 47:401-4 Jl '64
Apparent cell-wall density of wood and pulp fibers. P. N. Yiannos. bibliog diag Tappi 47:468-71 Ag '64
Behavior of salts of a carboxymethylated eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:170-6 Mr '64
Brightness of high-yield pulps; the effect of pulping pH on brightness and bleaching. P. Luner and D. W. Ferguson. bibliog Tappi 47:205-10 Ap '64
Carboxymethylation of a eucalypt kraft pulp. P. F. Nelson and C. G. Kalkipsakis. bibliog Tappi 47:107-10 F '64
Chemistry of New Zealand grown pinus radiata; prehydrolysis-sulfate pulps. D. J. Brasch and K. W. Free. bibliog Tappi 47:186-9 Ap '64
Comparative neutral sulfite semichemical evaluation of northern hardwoods. F. M. Ernest and J. Potter. Tappi 47:sup 129A-31A Jl '64
Computer-controlled pulping details given. il Chem & Eng N 41:46-7 N 11 '63
Concepts in cooking dissolving pulps. E. J. Howard. Tappi 46:sup 149A-51A N '63
Control of depositable resin in southern hardwood pulp. A. L. Minto and R. L. Lougheed. diags Tappi 47:sup 161A-3A Mr '64
Difference between sulfate and sulfite pulps; aspects from the viewpoint of individual fiber strength. L. G. A. Kull. il diag Tappi 46:sup 198A-202A N '63
Dirt contribution values for natural dirt in red oak chips; sulfate digestion. J. Piper and others. il Tappi 47:368-71 Je '64
Dirt in pulp; proposed revision of tentative standard T 213 m-43. Tappi 47:sup 107A-9A Ag '64
Effect of stress applied during drying on some of the properties of individual pulp fibers. C. A. Jentzen. bibliog il Tappi 47:412-18 Jl '64
Experiences of three years soda-base cooking of dissolving pulps. T. Öhgren. il diags Tappi 46:sup 146A-8A N '63
Factors affecting yield increase and fiber quality in polysulfide pulping of loblolly pine, other softwoods, and red oak. N. Sanyer and J. F. Laundrie. bibliog Tappi 47:640-52 O '64; Abstract. Chem & Eng N 42:82 S 14 '64
Fiber structure and properties of different groundwoods. R. Marton. bibliog Tappi 47:sup205A-8A Ja '64
Grinding of large round wood in great northern grinders. R. Affleck. bibliog Tappi 47:30-9 Ja '64
Haze in cellulose acetate. R. J. Conca and others. bibliog Tappi 46:644-8 N '63
Isolation and properties of a glucomannan from a white spruce pulp. J. M. Vaughan and E. E. Dickey. bibliog Tappi 47:142-3 Mr '64
Kraft pulping kinetics. H. D. Wilder and E. J. Daleski, jr. bibliog Tappi 47:270-5 My '64
Laboratory-spun rayon fibers from birch pulp. B. Hackman and others. il diag Tappi 46:722-6 D '63
Long log chipping operations. E. K. Murphy. il Tappi 47:sup 170A-2A Je '64
Method for determining the average specific filtration resistance of pulps at constant pressure. R. O. Gertjejansen. il Tappi 47:19-21 Ja '64
New system at Nekoosa-Edwards mill for handling purchased chips from sawmills. il Paper Ind 45:490-1 D '63
Pneumatic unloading of purchased chips. J. H. Ross. flow sheet il diag Tappi 47:sup 153A-6A Jl '64
Potential fiber from balsam fir, white pine, hemlock, white birch, and aspen logging residues. H. E. Young and others. Tappi 47:555-7 S '64
Potential of increased pulpwood earnings through efficient use of equipment. T. Walbridge. bibliog diags Paper Ind 46:603-8 O '64
Prehydrolysis-kraft pulping process in the manufacture of dissolving pulps. F. A. Simmonds. bibliog Tappi 46:sup 145A-6A N '63
Pumping of wood chips through a four-inch aluminum pipe-line. A. Brebner. diag Can J Chem Eng 42:139-42 Je '64
Radioisotopes used to automatically weigh wood chips. il Paper Ind 46:473 S '64
Standard cold-soda pulping evaluation of Philippine woods and bamboos. P. M. Nicolas and J. R. Navarro. Tappi 47:98-105 F '64
Study of the porous structure of fibrous sheets using permeability techniques. W. C. Bliesner. bibliog flow diag il diag Tappi 47:392-400 Jl '64

WOOD pulp—*Continued*

TAPPI Fibrary. Tappi 47:sup 106A+ My '64

Tree, the fiber, and the product. O. G. Traczewitz. Tappi 47:sup40A+ F '64

Wood damage and dissolving pulp quality. J. H. Kalisch and others. bibliog il diag Tappi 46:705-16 D '63

Xanthation and dexanthation of some hemicellulose fractions. I. Croon and A. Donetzhuber. bibliog diag Tappi 46:648-51 N '63

See also

Paper

Paper and pulp mills

Analysis

Some chemical and physical properties of pulps prepared by mild oxidative action. N. S. Thompson and O. A. Kaustinen. bibliog il Tappi 47:157-62 Mr '64

Bleaching

Recent developments in the peroxide bleaching of mechanical pulps. R. R. Kindron. Tappi 46:sup 152A-4A D '63

Drying

Effects of drying on pulp properties; abstract. L. Stockman and A. Teder. diags Paper Ind 46:47 Ap '64

Testing

Influence of fiber strength on sheet properties of hardwood pulps. R. M. Kellogg and F. F. Wangaard. bibliog il Tappi 47:361-7 Je '64

Reproducibility of micropulping wood samples. H. S. Gardner and D. W. Einspahr. Tappi 47:432-4 Jl '64

Use of the Bauer-Mead laboratory refiner in pulp evaluations. R. A. Wiseman and H. A. Smith. il diag Tappi 47:sup 180A-3A S '64

Wood characteristics and kraft paper properties of four selected loblolly pines. A. C. Barefoot and others. bibliog Tappi 47:343-56 Je '64

WOOD research

Correlation and heritability of certain wood properties in loblolly pine (pinus taeda L.). J. F. Goggans. bibliog Tappi 47:318-22 Je '64

Swedish wood research centre, Stockholm. B. Lindberg. il Chem & Ind p 1778-84 N 9 '63

Variation in growth characteristics and wood properties of Norway spruce. F. Mergen and others. bibliog Tappi 47:499-504 Ag '64

WOOD sampling

Reproducibility of micropulping wood samples. H. S. Gardner and D. W. Einspahr. Tappi 47:432-4 Jl '64

WOOD storage

Outdoor storage of chips and damage by microorganisms. E. Björkman and G. E. Haeger. bibliog il diags Tappi 46:757-66 D '63

WOOD waste

See also

Bark

WOODBRIDGE, New Jersey

Streets

Stabilized base in municipal street construction. C. W. Beagle. il Pub Works 95:64-6 Ja '64

WOODEN bridges. See Bridges, Wooden

WOODWORKING machinery

Feed mechanism for moulding machines. il Engineer 218:425 S 11 '64

WOODWORKING shops

Equipment

Factory joinery gets air-conditioning. flow diag il Engineering 196:790-1 D 20 '63

WOOL

Density of wool in hydrocarbons. P. Larose. bibliog Textile Res J 34:80-1 Ja '64

Effect of light upon wool. H. F. Launer. bibliog diag Textile Res J 33:258-63, 351-6, 910-18 Ap-My, N '63

Electroosmosis of wet wool. D. Stigter. bibliog diag J Colloid Sci 19:268-78 Mr '64

Fading effect in methylene blue staining of wool fiber sections. J. L. Davies. Textile Res J 33:400-2, 1028-9 My, D '63

Fracture mechanism of wool fibers under tension. M. W. Andrews. bibliog il diags Textile Res J 34:831-5 O '64

Ionic conduction and liquid flow in wet wool. D. Stigter. bibliog diags J Colloid Sci 19:252-67 Mr '64

Physical properties of wool fibers at various regains. M. Feughelman and others. bibliog diags Textile Res J 32:227-36, 966-77; 34:1-5 Mr, D '62, Ja '64

Production and testing of all-wool woven stretch fabrics; abstract. H. Bilbie. Am Dyestuff Rep 53:329-30 Ap 27 '64

Setting properties of keratin fibres. A. D. Jenkins and L. J. Wolfram. bibliog il Soc Dyers & Col J 80:65-8 F '64

Styrene can be grafted to wool; abstract. V. Stannett and others. Chem & Eng N 42:47-8 Ap 20 '64

Suggestions for wool in new forms; abstract. A. Johnson. Am Dyestuff Rep 53:169 Mr 2 '64

See also

Dyes and dyeing—Wool

Analysis

Amino-acid analysis of orthocortex from Lincoln wool. A. R. Haly and A. S. Inglis. bibliog Textile Res J 34:562-3 Je '64

Disintegration of wool at low temperature and its fractionation by density difference. J. J. Bartulovich. bibliog il Textile Res J 34:461-3 My '64

Bleaching

See Bleaching—Wool

Blending

Problems in wool blending? W. F. Neumann. il Textile Ind 128:67-8 Jl '64

Chemistry

Action of alcohol/water mixtures on wool. H. Zahn and G. Blankenburg. bibliog Textile Res J 34:176-7 F '64

Influence of disulfide cross-linkages on the reaction between ninhydrin and wool. P. Mellet. bibliog Textile Res J 34:644-5 Jl '64

Relationship between urea/bisulfite solubility, suint pH, and ninhydrin index of South African Merino wool. T. P. van Wyk and D. F. Louw. bibliog Textile Res J 34:561-2 Je '64

Role of thiol groups in the setting of wool. J. B. Caldwell and others. bibliog Textile Res J 34:627-34 Jl '64

Spreading and adhesion of polymers on wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:634-42 Jl '64

Supercontraction in 9 *M* LiCl at 94°C of chemically modified wool fibers. H. D. Weigmann and L. Rebenfeld. bibliog il Textile Res J 33:985-92 D '63

Wool fibers treated with ninhydrin or formaldehyde; mechanical properties. M. Feughelman and I. C. Watt. diags Textile Res J 34:643-4 Jl '64

Chlorination

Absorption of chlorine by wool. I. C. Watt and R. Morris. bibliog Textile Res J 34:701-5 Ag '64

Color

Studies in wool yellowing. B. Milligan and others. bibliog Textile Res J 32:634-40; 33:431-5, 487-8, 773-80; 34:681-91 Ag '62, Je, O '63, Ag '64

Felting

Effect of temperature on the felting of shrink-resistant wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:199-206 Mr '64

Light microscopy of polymer-treated wool. R. J. Hine and J. R. McPhee. bibliog il Textile Res J 34:659-62 Ag '64

Machine washing and tumble drying of wool fabrics. H. D. Feldtman and J. R. McPhee. bibliog Am Dyestuff Rep 53:199-209 Mr 16 '64

Measurement

Human factor in projection microscope readings of wool fiber diameter. C. C. Kritzinger and others. bibliog Textile Res J 34:518-23 Je '64

Influence of crimp on airflow readings. C. C. Kritzinger and others. bibliog Textile Res J 34:82-3 Ja '64

Moisture content

Action of oxygen on amino-acids in relation to self-heating of moist wool. H. P. Rothbaum. bibliog J Ap Chem 14:165-74 Ap '64

Dielectric constant and conductance changes in wool fibers produced by step changes in the relative humidity. J. E. Algie. bibliog diags Textile Res J 34:477-86 Je '64

Mechanical properties of permanently set and cystine reduced wool fibers at various relative humidities and the structure of wool. M. Feughelman. bibliog diags Textile Res J 33:1013-22 D '63

WOOL—Moisture content—*Continued*

Physical properties of wool fibers at various regains; further experiments on recovery from 20 percent extension. A. R. Haly and J. W. Snaith. bibliog diag Textile Res J 34:1-5 Ja '64

Post-yield region and the structure of keratin. M. Feughelman. bibliog diags Textile Res J 34:539-45 Je '64

Vapor adsorption tests with dyed wool. C. H. Giles and others. bibliog Textile Res J 34:839-43 O '64

Variation of electrical resistance with strain of keratin fibers with constant water content. J. E. Algie. Textile Res J 34:273-4 Mr '64

Shrinkproofing

Chemical anti-felting reaction for wool; discussion. bibliog Textile Res J 34:177-8 F '64

Clearing of weathered wool shrinkproofed by the permanganate/brine process. O. A. Swanepoel and D. P. Veldsman. il Textile Res J 34:457-8 My '64

Dimensional stability of woven wool fabrics; hygral expansion. K. Baird. bibliog diags Textile Res J 33:973-84 D '63

Dyeing of shrink-resistant wool. E. A. Cookson and others. bibliog Soc Dyers & Col J 80:196-202 Ap '64

Effect of temperature on the felting of shrink-resistant wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:199-206 Mr '64

Fiber movement in shrinkproofed worsted fabrics. E. F. Denby. Textile Res J 34:464-5 My '64

Interfacial polymerization; abstract. Am Dyestuff Rep 52:1087+ D 23 '63

Light microscopy of polymer-treated wool. R. J. Hine and J. R. McPhee. bibliog il Textile Res J 34:659-62 Ag '64

Permonosulfate oxidation of wool. V. A. Williams. bibliog Textile Res J 34:79-80 Ja '64

Preferential deposition of resins on wool fiber tips. R. J. Hine and others. bibliog il Textile Res J 34:734-6 Ag '64

Shrinkproofing of wool with basic polyaziridines. G. C. Tesoro and S. B. Sello. bibliog Textile Res J 34:523-32 Je '64

Spreading and adhesion of polymers on wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:634-42 Jl '64

Supercontraction in 9 *M* LiCl at 94°C of chemically modified wool fibers. H. D. Weigmann and L. Rebenfeld. bibliog il Textile Res J 33:985-92 D '63

Wool fabric stabilization by interfacial polymerization. R. E. Whitfield and others. bibliog il diags Textile Res J 31:704-12; 32:743-50; 33:440-4, 752-4, 1029-32; 34:736-8 Ag '61, S '62, Je, S, D '63, Ag '64

Wool shrinkproofing studies. V. A. Williams and others. bibliog il diags Textile Res J 32:977-85; 33:444-52, 705-11 D '62, Je, S '63; Discussion. E. F. Denby and M. W. Andrews. 33:959-60 N '63

Testing

Application of the airflow method to mohair. D. S. Uys. Textile Res J 34:739 Ag '64

Fracture of wool fibers. P. Mason. bibliog Textile Res J 34:747-54 S '64

Mechanical properties of permanently set and cystine reduced wool fibers at various relative humidities and the structure of wool. M. Feughelman. bibliog diags Textile Res J 33:1013-22 D '63

Post-yield region and the structure of keratin. M. Feughelman. bibliog diags Textile Res J 34:539-45 Je '64

Relationship between urea/bisulfite solubility, suint pH, and ninhydrin index of South African Merino wool. T. P. van Wyk and D. F. Louw. bibliog Textile Res J 34:561-2 Je '64

Stress relaxation and set of wool fibers with particular reference to their structure and mechanical properties. H. Munakata. bibliog diags Textile Res J 34:97-109 F '64

Torsional properties of single wool fibers; disulfide reduced and permanently set wool fibers. M. Feughelman and T. Mitchell. diag Textile Res J 34:593-7 Jl '64

WOOL dyeing. See Dyes and dyeing—Wool

WOOL fat

Treatment of wool scour effluent and the recovery of wool grease; abstract. Am Dyestuff Rep 52:949 N 25 '63

WOOL research

Interferometric determination of the refractive indices and birefringence of mohair wool fibers. N. Barakat and A. M. Hindeleh. bibliog il diags Textile Res J 34:357-62 Ap '64

Some correlations between the hydrolysis of glycylglycine and of wool in sulphuric acid. R. S. Asquith and T. Shaw. bibliog Soc Dyers & Col J 79:524-6 N '63

Sorption of acids by wool from mixtures of acids. P. Larose and R. Donovan. bibliog Soc Dyers & Col J 78:24-7; 79:95-7, 418-21; 80:322-6 Ja '62, Mr, S '63, Je '64

WOOL scouring

Treatment of wool scour effluent and the recovery of wool grease; abstract. Am Dyestuff Rep 52:949 N 25 '63

WOOLEN and worsted fabrics

Effect of temperature on the felting of shrink-resistant wool. H. D. Feldtman and J. R. McPhee. bibliog Textile Res J 34:199-206 Mr '64

Fiber movement in shrinkproofed worsted fabrics. E. F. Denby. Textile Res J 34:464-5 My '64

Rates of regain change of cloth with relative humidity. H. G. David. Textile Res J 33:83-4 Ja '63; Discussion. 34:85-6 Ja '64

See also

Felt

Creasing

Setting wool at low extensions in high-temperature steam. R. L. Orwell and others. bibliog Soc Dyers & Col J 80:422-8 Ag '64

Moisture absorption

Buffering action of hygroscopic clothing. H. G. David and R. K. Macpherson. bibliog Textile Res J 34:814-16 S '64

Shrinkage

See Wool—Shrinkproofing

Testing

Wearing qualities of selected New Mexico wools. J. S. Lee and others. bibliog il diags Textile Res J 31:540-50; 33:855-63; 34:124-43 Je '61, O '63, F '64

Washability

Effect of fabric pH on the wash-wear characteristics of set wool fabrics. L. T. Jones and others. bibliog Am Dyestuff Rep 53:359-60 My 11 '64

Machine washable knitted wool garments; engineering the structure of fabric to meet specific requirements. L. R. Gan. Textile Res J 33:961-2 N '63

Machine washing and tumble drying of wool fabrics. H. D. Feldtman and J. R. McPhee. bibliog Am Dyestuff Rep 53:199-209 Mr 16 '64

WOOLEN and worsted finishing

Effect of fabric pH on the wash-wear characteristics of set wool fabrics. L. T. Jones and others. bibliog Am Dyestuff Rep 53:359-60 My 11 '64

Fluorine-containing polymers for application on wool. A. G. Pittman and W. L. Wasley. bibliog Am Dyestuff Rep 53:366-9 My 11 '64

Recent developments in the wool dyeing and finishing industry in Finland. E. Talantera. il Am Dyestuff Rep 53:487-8 Je 22 '64

Secondary factors in processing wool with water-soluble lubricants. J. T. Taylor and J. J. Benischeck. bibliog Am Dyestuff Rep 53:222-8 Mr 16 '64

Use of 1-(perfluoroacyl)aziridines on wool. A. G. Pittman. Textile Res J 33:953-5 N '63

See also

Wool—Chlorination

WOOLEN and worsted machinery

No more sliver can weighing. il Textile World 114:78-80 Mr '64

WOOLEN and worsted manufacture

Help wanted on wool mill problems: wool textile research in England. K. G. Ponting. il diag Textile Ind 128:101-5 Ap '64

No-static blending for worsted tops. il Textile World 113:60-2 D '63

See also

Blankets—Manufacture
Wool scouring
Woolen and worsted mills

WOOLEN and worsted mills

From Germany; latest word in worsted technology. R. Mikton. il Textile World 113:64-7 N '63

Equipment

Auto count troubles solved with intake nozzle. diags Textile Ind 128:134 F '64

Beat the worsted blues. il Textile Ind 127:128-9 N '63

Built with a look ahead; Caron spinning co. il plan Textile World 114:56-9 Ag '64

Pin-wheel pattern for drawing; flexible, efficient, easy to run. D. R. Linville. il diag Textile World 114:52-5 Ag '64

See also

Woolen and worsted machinery

WOOLEN and worsted mills—*Continued*

Layout

Built with a look ahead; Caron spinning co. il plan Textile World 114:56-9 Ag '64

Pin-wheel pattern for drawing; flexible, efficient, easy to run. D. R. Linville. il diag Textile World 114:52-5 Ag '64

Management

New, economical way to control inventories. il Textile World 113:68-9 N '63

Waste

Simple arithmetic saves $40,000 a year in woolen filling waste. il Textile World 114: 49-50 Ap '64

WOOLEN and worsted yarn

No more sliver can weighing. il Textile World 114:78-80 Mr '64

Rating of yarns for short-term unevenness. G. M. Bornet. bibliog Textile Res J 34:381-400 My '64

Versatility; profit key in processing worsted yarn. il diag Textile World 114:96-8 Ja '64

Testing

Some applications of statistical extreme value theory to yarn breakage. R. I. Slinger. bibliog Textile Res J 34:5-10 Ja '64

WORK

Caloric expenditure at two types of factory work. H. A. Bliss and J. S. Graettinger. bibliog Archives Environmental Health 9: 201-5 Ag '64

Human machine, work and environment. F. H. Fuller. bibliog Mech Eng 85:22-6 D '63; Discussion. 86:81-2 Je '64

WORK function

Investigation of the patch effect in uranium carbide. G. A. Haas and R. E. Thomas. bibliog il diag J Ap Phys 34:3457-65 D '63

Thermionic work function of thin-oxide-coated aluminum electrodes in vacuum and in cesium vapor. R. A. Chapman. bibliog diags J Ap Phys 35:2832-43 O '64

Work function in the system thorium-rhenium. E. P. Gyftopoulos. J Ap Phys 35:464 F '64

Work function of the (110) face of tantalum in a cesium vapor. W. T. Norris. diag J Ap Phys 35:467-9 Mr '64

WORK sampling

Cumulative-results plan for small-sample inspection. A. F. Cone and H. F. Dodge. bibliog Ind Quality Control 21:4-9 Jl '64

Design qualification. T. A. Simonds. Ind Quality Control 20:11-13+ F '64

Sample size for specified confidence interval. E. E. Johnson. Ind Quality Control 20:40-1 D '63; Correction. 20:33 Ap '64

Simulating an acceptance sampling plan. P. E. Torgersen and G. B. Thomas. bibliog diags Ind Quality Control 20:27-9+ D '63

Two approaches to AOQ. C. R. Clark and W. J. Zimmer. bibliog Ind Quality Control 20:23-33 Ja '64

WORK simplification. See Efficiency, Industrial

WORK study. See Operations research

WORKMENS compensation

Administration of state compensation programs. A. W. Motley. Archives Environmental Health 9:107-10 Jl '64

Evaluation of disability; panel discussion. Archives Environmental Health 8:889-97 Je '64

Socioeconomc aspects of the pneumoconioses. V. M. Trasko. bibliog Archives Environmental Health 9:521-8 O '64

Successful placement of handicapped workers. W. S. Allan. bibliog Archives Environmental Health 7:621-4 N '63

What's the law? H. M. Grosman, ed. Published in monthly numbers of Safety maintenance

See also

Accidents, Industrial

WORKSHOPS, Home

Larger tools; DeWalt power shop is designed to carry out nearly all working operations. il Engineering 196:832 D 27 '63

WORLD food congress. See United nations food conference, 1963

WORLD magnesium congress

World magnesium congress, 1st, Montreal, Oct. 15-17; abstracts of papers. Engineer 216:832-4, 871-4 N 15-22 '63

WORLD power conference

Sectional meeting, 14th, Lausanne, Switzerland, Sept. 13-17; abstracts of papers. Engineer 218:575-7, 616-18 O 9-16 '64; Elec World 162:52-3 N 2 '64

Struggle against losses in the field of energy economics; sectional meeting. Engineering 198:439 O 2 '64

WORLDS fair. See New York (city)—Worlds fair, 1964

WORM gearing. See Gearing, Worm

WORMS

See also

Nematodes

WORMS, Intestinal and parasitic

Parasites in sewage and the possibilities of their extinction; abstract. H. Liebmann. WPCF J 36:304 Mr '64

WOUND-rotor motors. See Electric motors, Induction

WRAPPING machines

Achieves reliable overwrapping at 260 per min. il Food Eng 36:77 Ja '64

Controlling register on packaging materials. J. J. Larew. il diags Automation 11:66-71 O '64

WRAPPING materials

Cuts twist-wrap costs 33 per cent. F. K. Lawler. il Food Eng 36:102 Je '64

Manufacture and application of coated paper in the packaging and allied industries; abstract and discussion. S. E. Sorrell. Chem & Ind p982-3 Je 6 '64

Sales upped with PVC-wrapped wrenches. il Plastics World 21:171 N '63

See also

Aluminum foil

Paper board

Paper board, Corrugated

Plastic films

WRATHER, William Embry

Memorial; with bibliography of his publications. W. E. Pratt. por Am Assn Pet Geologists Bul 48:1733-8 O '64

Memorial; with list of his publications. J. E. Brantly. por Geol Soc Bul 75:sup71-5 Ap '64

WRECKING

Leaving behind a steel skeleton; stripping the facade from Times Tower building in New York City. R. L. Moxey. il Comp Air Mag 69:4-10 Ap '64

Lipsett brothers; biggest wreckers in the building world. il Arch Forum 120:76-7 Ja '64

Need to get rid of an old coking unit? blow it up! il Hydrocarbon Process & Pet Refiner 43:210 Ap '64

Tall scaffold makes Tower demolition safe. il Eng N 172:24-5 Ap 30 '64

Toppling a Texas tower. il Comp Air Mag 69:4-7 O '64

Safety measures

Fire protection during demolition. Safety Maint 128:32-4 Jl '64

WRENCHES

One-piece ratchet spanner. il Engineering 197: 687 My 15 '64

Three-hp hydraulic tool for baskets. il Elec World 162:99 Ag 10 '64

WRINGERS, Washing machine

Wringer washing machine injuries. E. Press and others. bibliog Am J Pub Health 54: 812-22 My '64

WROUGHT iron

Properties of materials: ingot and wrought irons; tables. Materials in Design Eng 60: 69 Mid-O '64

Roman bloom from Cranbrook, Kent. G. T. Brown. bibliog il Iron & Steel Inst J 202: 502-4 Je '64

Wrought iron; a valediction. W. K. V. Gale. il Engineer 216:880-4 N 29 '63

Testing

William Fairbairn and mechanical properties of materials. A. I. Smith. bibliog diags Engineer 217:1133-6 Je 26 '64

WU, Chien Shiung

National academy of sciences awards. por Phys Today 17:50-1 Je '64

WURTZITE

Cleavages of BeO and other minerals having the wurtzite structure. V. D. Frechette and C. F. Cline. Am Mineralogist 48:1381-3 N '63

WÜSTITE

Dissociation pressure of iron-nickel oxides. G. A. Roeder and W. W. Smeltzer. bibliog il diag Electrochem Soc J 111:1074-8 S '64

WYCKOFF, Ralph D.

R. D. Wyckoff named 1965 Anthony F. Lucas medalist. por J Pet Tech 16:1131 O '64

WYOMING

See also subdivision Wyoming under special subjects, e.g.

Electricity supply

Gas, Natural

Geology

Iron mines and mining

Mines and mineral resources

Petroleum

Petroleum industry and trade

Uranium mines and mining

X

X RAY apparatus

Analyzing minute surface contaminants. H. S. Kartsher. il Mach 70:145-6 My '64

Cigarette pack beams X-rays from radioisotope source. il Machine Design 36:10 My 7 '64

High pressure-high temperature, X-ray diffraction apparatus. J. D. Barnett and H. T. Hall. bibliog il diags R Sci Instr 35:175-82 F '64

Large source of error in absolute X-ray integrated intensity determinations. B. W. Batterman. diag R Sci Instr 35:1374-5 O '64

New solid-state X-ray image converter. T. Kohashi. il diag IEEE Proc 51:1794-5 D '63

Television X-ray-intensifier sensitivity. E. Garthwaite and others. bibliog il diags Inst E E Proc 110:1975-8 N '63

Ultratrace analysis of metals with a curved crystal X-ray milliprobe. C. L. Luke. Anal Chem 36:318-22 F '64

Use of bent-crystal monochromators for isolation of α_1 or α_2. R. E. Scott. R Sci Instr 35:118-19 Ja '64

X-ray analysis equipment. il Engineer 217: 531 Mr 20 '64

X-ray machines have design improvements. il Steel 153:119-20 N 11 '63

X-ray unit made pocket size. il Iron Age 193:60-1 Ja 9 '64

See also

Betatron

X RAY cameras

Air-tight sample holder for a Hägg Guinier-type camera. D. E. Scaife and J. A. Watts. diag J Sci Instr 41:569-70 S '64

Camera for X-ray diffraction topography. W. J. Spencer and E. J. Brown. bibliog il diags R Sci Instr 34:1420-2 D '63

Circular X-ray diffraction camera. D. C. Barnes and A. Franks. il diag Engineering 198:456-7 O 9 '64

New high resolution small-angle X-ray camera. H. Brumberger and R. Deslattes. il diags J Res Nat Bur Stand 68C:173-5 Jl '64

Simple high pressure X-ray powder camera. D. B. McWhan and W. L. Bond. bibliog diags R Sci Instr 35:626-7 My '64

Simple mounting system for X-ray cameras. K. Lindsey. il J Sci Instr 41:477 Jl '64

Split cassette attachment for recording all the reflections on the upper level Weissenberg photographs either as elongated or as contracted spots. S. N. Vaidya. il J Sci Instr 41:501-2 Ag '64

X-ray diffraction camera using Polaroid film. P. H. Schmidt and E. G. Spencer. il diag R Sci Instr 35:957-8 Ag '64

X-ray powder camera attachment for preferred orientation investigations. B. P. Richards. il diag J Sci Instr 41:649 O '64

X RAY films

Film package speeds X-raying of heavy metal sections. il Iron Age 193:138-9 Ap 30 '64

Polyester-based X-ray film. il Plastics Tech 10:23 Jl '64

X RAY microscope

New X-ray microscope. il diag Ind Electronics 1:767-8 D '63

Projection X-ray microscopy of roofing materials. S. B. Newman and S. H. Greenfeld. bibliog il diags Materials Res & Stand 3: 893-8 N '63; Discussion. G. L. Oliensis. 4: 486 S '64

Soft X-ray microscopy of paper. S. B. Newman and D. Fletcher. bibliog il diag Tappi 47:177-80 Ap '64

X-ray microscope. diag Metallurgia 68:285 D '63

X RAY photography. See Radiography

X RAY spectrometers. See Spectrometers, X ray

X RAY spectrum. See Spectrum, X ray

X RAY studies. See Crystallography—X ray studies

X RAY tubes

High-power X-ray eye for air force. il Mach 71:156 S '64

New X-ray tube. Franklin Inst J 278:155-6 Ag '64

X-ray gun fits in pocket. il Mach 71:133 S '64

X RAYS

Color center zonation in quartz. C. J. Ritter and W. H. Dennen. bibliog Geol Soc Bul 75:915-16 S '64

Efficiency of production of characteristic X radiation from pure elements bombarded by electrons. D. B. Brown and R. E. Ogilvie. bibliog diags J Ap Phys 35:309-14 F '64

Excitation of characteristic X rays by protons, electrons, and primary X rays. L. S. Birks and others. diags J Ap Phys 35:2578-81 S '64

Optical constants in the X-ray range. H. R. Philipp and H. Ehrenreich. bibliog J Ap Phys 35:1416-19 My '64

X-ray-induced dislocation generation in sodium chloride. R. L. Wolfe and C. L. Bauer. bibliog il J Ap Phys 35:658-63 Mr '64

Absorption

Compositional analysis of *n* component systems by X-ray absorption method. R. Lefker. Anal Chem 36:1877-8 Ag '64

Effect of absorption and incoherent scattering on X-ray line profiles. R. H. Bragg and C. M. Packer. diags R Sci Instr 34:1202-7 N '63

Simplified routine method for X-ray absorption edge spectrometric analysis. E. P. Bertin and others. bibliog il Anal Chem 36:641-55 Mr '64

Diffraction

Apparatus for X-ray diffraction studies of confined fluids. W. I. Honeywell and others. diags R Sci Instr 35:1216-19 S '64

Appearance of extra lines on X-ray diffractometer traces due to the large window of the scintillation counter. E. G. Boonstra. J Sci Instr 41:566 S '64

Automatic aperture control for balanced filter X-ray diffractometry. S. C. Abrahams. bibliog diags R Sci Instr 34:1279-80 N '63

Determination of metallic platinum in platinum-alumina catalysts by X-ray diffraction. R. A. Van Nordstrand and others. bibliog Anal Chem 36:819-24 Ap '64

Diffractometer attachment for fast X-ray topography. L. S. Birks and B. K. Grant. il diag R Sci Instr 35:1075-6 Ag '64

Effects of electron correlation in X-ray and electron diffraction. L. S. Bartell and R. M. Gavin, jr. bibliog Am Chem Soc J 86:3493-8 S 5 '64

Electrolytic cell for X-ray diffraction studies of electrode phenomena. J. Burbank and C. P. Wales. il diag Electrochem Soc J 111:1002-5 Ag '64

Indexing of tetragonal and hexagonal X-ray powder photographs with the aid of a small computer. R. Lefker. bibliog Anal Chem 36: 332-4 F '64

Modified Polaroid film holder for X-ray and neutron diffraction. H. G. Smith and D. L. Holcomb. diag R Sci Instr 34:1441 D '63

Quantitative diffractometric analysis of X-ray transparent specimens. R. Bergin. bibliog diag J Sci Instr 41:558-60 S '64

Quantitative mineral analysis of kaolin-bearing rocks by X-ray diffraction. E. Niskanen. bibliog Anal Chem 36:1268-71 Je '64

Review of fundamental developments in analysis: X-ray diffraction. L. L. Merritt, jr. and W. E. Streib. Anal Chem 36 [no 5]: 399R-404R bibliog(p402R-4R) Ap '64

Simple diffracted beam monochromators. R. G. Davies. diag R Sci Instr 35:1074-5 Ag '64

Small diameter thin-walled gelatin capillaries for powder X-ray diffraction use. J. M. Williams. R Sci Instr 34:1430 D '63

Study of the fritting reaction of zircon sand with sodium hydroxide using differential thermal analysis and X-ray techniques. H. S. Choi and H. Cross. bibliog il Can Min & Met Bul 57:966-72 S '64

Thin film X-ray standard. J. E. Davey. diags R Sci Instr 35:1372-3 O '64

X-ray diffraction from small crystallites. V. H. Tiensuu and others. bibliog J Ap Phys 35:1718-20 Je '64

X-ray diffraction of fats. C. W. Hoerr. il Am Oil Chem Soc J 41:sup4+ Jl '64

X-ray diffraction studies of the conformation of polymer molecules in solution; *p*-iodopolystyrene. G. W. Brady and R. Salovey. bibliog Am Chem Soc J 86:3499-503 S 5 '64

X-ray diffraction study of nonplanar carbanion structures. C. Bugg and others. Am Chem Soc J 86:3157 Ag 5 '64

X-ray diffractometry of low-temperature phase transformations in strontium titanate. F. W. Lytle. bibliog il diags J Ap Phys 35:2212-15, cover Jl '64

X-ray fluorescence analysis of modified cottons. V. W. Tripp and others. bibliog Textile Res J 34:773-7 S '64

X RAYS—Diffraction—*Continued*

X-ray fluorescence analysis of Roman coins. G. F. Carter. bibliog Anal Chem 36:1264-8 Je '64

X-ray powder diffraction patterns of nickel cyanide-ammonia complex, nickel cyanide-ammonia-benzene clathrate and nitrogen-quinol clathrate. V. M. Bhatnagar and J. A. R. Cloutier. bibliog il Chem & Ind p707-9 Ap 25 '64

X-ray study of a cadmium borate glass. S. Block and others. Am Cer Soc J 46:557 N '63

X-ray study of oxidized uranium surfaces. L. Leibowitz and others. bibliog Electrochem Soc J 111:248-9 F '64

See also

Crystallography—X ray studies

Diffractometers

Industrial applications

Failure analysis system. il Product Eng 35:52-3 Ag 17 '64

Industrial 3-D X-rays. il Electronics 37:26-7 Je 15 '64

NASA checks space craft by X-ray. Welding Eng 49:86 O '64

New era of X-ray analysis and control. J. S. Buhler. il diags Instruments & Control Systems 37:77-9 Ag '64

X-ray shows make-up epoxy coatings. il Plastics Tech 10:44 O '64

X-rays check thickness. il Product Eng 35:52 Jl 20 '64

X-rays on the move. il Mech Eng 85:68-9 N '63

See also

Radiography

Welding—X-ray inspection

Measurement

High-temperature furnace for quantitative X-ray intensity measurements. C. R. Houska and E. J. Keplin. bibliog diags J Sci Instr 41:23-7 Ja '64

Measurement of X-ray beam quality with solid-state detectors. G. Kramer. diags R Sci Instr 35:607-8 My '64

Self-powered dosimeter for gamma and X-radiation. R. Hosemann and H. F. H. Warrikhoff. bibliog diags Nucleonics 22:51-2+ Mr '64

X-ray astronomy. Sci Am 209:67-8 D '63

Measurement uses

Sources of error in X-ray measurements of residual stress. B. D. Cullity. bibliog J Ap Phys 35:1915-17 Je '64

Physiological effect

Radiation dose from diagnostic medical X-ray procedures to the population of New York City. M. B. Heller and others. bibliog diag Am J Pub Health 54:1551-9 S '64

Protection

Review of X-ray safety. il Safety Maint 127:42-3 My '64

Reflection

Adaptation of a linear diffractometer to measure three X-ray reflections quasi-simultaneously. U. W. Arndt and others. bibliog il diag J Sci Instr 41:421-5 Jl '64

Adaptation of an X-ray diffractometer for thin film studies by total reflection of X rays. R. L. Mozzi and O. J. Guentert. bibliog diags R Sci Instr 35:75-9 Ja '64

Scattering

Diffuse scattering of X rays at very low angles from glass fibers. L. Cartz. bibliog J Ap Phys 35:2274-5 Jl '64

Effect of absorption and incoherent scattering on X-ray line profiles. R. H. Bragg and C. M. Packer. diags R Sci Instr 34:1202-7 N '63

Local order X-ray diffuse scattering at small angles. P. S. Rudman. J Ap Phys 35:1987-8 Je '64

Molecular interactions in β-lactoglobulin; small-angle X-ray scattering investigation of the geometry of β-lactoglobulin A tetramerization. J. Witz and others. bibliog diags Am Chem Soc J 86:168-73 Ja 20 '64

Small-angle X-ray scattering study of critical opalescence in nitrogen. J. E. Thomas and P. W. Schmidt. bibliog Am Chem Soc J 86:3554-6 S 5 '64

Therapeutic use

Electronic weapon against cancer; clinical linear accelerator. N. A. Austin. il diags Electronics 37:88-92 Ap 6 '64

XANTHATES

Crystal, molecular, and electronic structures of a binuclear oxomolybdenum(V) xanthate complex. A. B. Blake and others. bibliog diags Am Chem Soc J 86:3024-31 Ag 5 '64

Xanthation and dexanthation of some hemicellulose fractions. I. Croon and A. Donetzhuber. bibliog diag Tappi 46:648-51 N '63

Xanthation of starch by a continuous process. C. L. Swanson and others. bibliog diags Ind & Eng Chem Product Res & Develop 3:22-7 Mr '64

See also

Viscose

XANTHURENIC acid

Recommendations for standardization of the tryptophan load test. D. B. Coursin. Am J Clinical Nutrition 14:56-61 bibliog(p60-1) Ja '64

XENIC acid

Raman spectrum of xenic acid. H. H. Claassen and G. Knapp. Am Chem Soc J 86:2341-2 Je 20 '64

Xenic acid reactions with *vic*-diols. B. Jaselskis and S. Vas. bibliog Am Chem Soc J 86:2078-9 My 20 '64

XENON

Characterization of divalent xenon in aqueous solution. E. H. Appelman and J. G. Malm. bibliog Am Chem Soc J 86:2297-8 Je 5 '64

Diffusion of xenon in ceramic oxides. D. L. Morrison and others. bibliog J Ap Phys 35:1616-22 My '64

Laser action in singly ionized krypton and xenon. W. B. Bridges. IEEE Proc 52:843-4 Jl '64

Laser action in Xe in two distinct current regions of ac and dc discharges. G. E. Courville and others. il J Ap Phys 35:2547-8 Ag '64

Release of xenon from uranium carbide at low temperatures. A. Auskern. bibliog Am Cer Soc J 47:390-4 Ag '64

Virial coefficients for argon, methane, nitrogen, and xenon. D. A. Gyorog and E. F. Obert. bibliog A I Ch E J 10:621-5 S '64

Xenon-radiosensitized deuterium-methane exchange; recombination rate constant for deuterium atoms and methyl radicals. A. Maschke and F. W. Lampe. bibliog Am Chem Soc J 86:569-74 F 20 '64

XENON compounds

Chemistry of the noble gases. H. Selig and others. il diags Sci Am 210:66-77 My '64

Hydrolysis of xenon hexafluoride and the aqueous solution chemistry of xenon. E. H. Appelman and J. G. Malm. bibliog Am Chem Soc J 86:2141-8 Je 5 '64

Noble-gas compounds. H. H. Hyman. Review, by N. Booth. Chem & Ind p 1305-6 Jl 18 '64

XENON electric lamps. See Electric lamps, Xenon

XEROGRAPHY

Blueprints by wire; long distance xerography. diag Product Eng 35:47-8 Je 8 '64

XYLENE

Alkylbenzenes; Friedel-Crafts alkylations of *p*-xylene and mesitylene with propyl halides; concurrent rearrangements and reorientations. R. M. Roberts and D. Shiengthong. bibliog Am Chem Soc J 86:2851-7 Jl 20 '64

Catalytic vapour-phase oxidation of xylenes in fluidised bed. S. K. Bhattacharyya and R. Krishnamurthy. flow diag J Ap Chem 13:547-52 D '63

Kinetics of catalytic xylene hydrodealkylation. A. H. Weiss and L. C. Doelp. bibliog Ind & Eng Chem Proc Design 3:73-8 Ja '64

Manufacture

Clathration; Union oil company of California. flow diag Hydrocarbon Process & Pet Refiner 42:158 N '63

Litol; Houdry process & chemical co. diag Hydrocarbon Process & Pet Refiner 42:192 N '63

Octafining; the Atlantic refining co. diag Hydrocarbon Process & Pet Refiner 42:206 N '63

XYLENOL

Determination of nitrate nitrogen in bovine blood, milk, urine, and rumen liquor. T. Greweling and others. J Agri & Food Chem 12:139-40 Mr '64

Polarographic determination of nitrite as 4-nitroso-2,6-xylenol. A. M. Hartley and R. M. Bly. bibliog Anal Chem 35:2094-100 D '63

XYLIDINE

Separation of isomeric xylidine by gas liquid chromatography. W. Funasaka and others. Anal Chem 36:2214-15 O '64

XYLOPYRANOSE

Synthesis of methyl 3-deoxy-3-fluoro-β-L-xylopyranoside. N. F. Taylor and others. bibliog Chem & Ind p928-9 My 30 '64

XYLOSIDE

Isolation of the four methyl xylosides. R. J. Ferrier and others. Chem & Ind p 1260-1 Jl 11 '64

Y

YACHTS and yachting

Antifouling afloat. il Plastics World 22:47 O '64

See also

Marinas

YALE university

A and A; postscript to the Arts and architecture building. J. D. Lowenfish; R. H. Mutrux. Prog Arch 45:179-80 Jl '64

A building that is an event; Yale's school of art and architecture. il plans diags Arch Forum 120:62-84 F '64

It's building-opening season. il Prog Arch 44:73 N '63

Opposites; expressionism and formalism. I. M. Reese and J. T. Burns, jr. Prog Arch 45:128-9 F '64

P/A eleventh annual design awards; Kline science center. il plans diag Prog Arch 45: 142-4 Ja '64

Rare book library dedicated. il diag Arch Rec 134:12-13 N '63

School for the arts. il plans Arch Rec 135: 111-20 F '64

Yale rare book and manuscript library. il plans Prog Arch 45:130-3 F '64

Yale School of art and architecture. il plans diags Prog Arch 45:109-27 F '64

YAMASAKI, Minoru

Architectural details. il plans diags Arch Rec 136:169-84 S '64

Structure plays leading role in latest Yamasaki designs. il plans diags Arch Rec 134:103-10 D '63

Yamasaki and the Roths, at two ends of the same drafting table, to design the World trade center in New York. pors Eng N 173: 46-50 Jl 9 '64

YARN

Better cotton-nylon core yarn on conventional twisters. Textile Ind 128:60 Mr '64

Condenser yarns for tufting. A. Gartside. il Textile Ind 128:97+ My '64

Core-and-effect yarn by the Taslan texturing process. S. M. Ferrer. il Mod Textiles Mag 45:32+ Ap '64

Core-spun elastic yarns. il diags Textile Ind 128:57-60 Mr '64

Deniers and filaments of U.S. manmade fibers and yarns, 1964; tables. Mod Textiles Mag 45:75-94 S '64 (reprints $1)

Engineered yarns; Textralized yarns for Ban-Lon. C. L. Killeen and G. K. Papazian. il diag Textile Ind 128:73-7+ Ag '64

Fact file 1964; fibers and yarns. Textile World 114:54-6 Jl '64

Four steps to better yarn handling and control. M. W. Scott. il Textile World 114: 62-4 S '64

How to spin stretch yarns. J. L. Clements. il diags Textile Ind 128:85-9 Ag '64

Improving yarn quality with new equipment. il Textile World 114:64-6 Ag '64

Madison story; making stretch yarns successfully. il Textile World 114:44-7 S '64

New device permits controlled heating of draw roll. G. A. Pettit. il Mod Textiles Mag 45:25-6 Ag '64

New knitting yarns; a fiber producer's view. F. Van Horn. Mod Textiles Mag 45:71-4+ S '64

Nix on yarn handling. il Textile Ind 128:76-7 Mr '64

Nomogram for finding yarn diameters. Textile Ind 128:223+ O '64

Operating a low-maintenance compressed-air system. J. C. Guffy. il Textile World 114: 80-2 Ap '64

Outlook for textured yarns. P. W. Carlene and C. M. Shorthouse. il Textile Ind 128: 121+ O '64

Plastics in yarn preparation. R. B. Pressley. il Textile World 114:53-5 Je '64

Quick, new way to check exacting specifications; control charts. N. L. Enrick. Textile World 113:68-70 D '63

Sizing filament yarns. L. M. Calhoun. il diags Textile Ind 128:136-8+ S '64

We changed from cotton to acrylics; Ledbetter manufacturing co. il Textile Ind 128: 72-5 Mr '64

What's new about fibers and yarns. Published in monthly numbers of Textile world

Yarn dyeing done the modern way at American & Efird's Mt Holly plant. il Am Dyestuff Rep 53:905 O 12 '64

See also

Cotton yarn

Nylon yarn

Rayon yarn

Woolen and worsted yarn

Testing

Adding statistics to measurement. H. Locher. il diags Control Eng 11:88-90 Ap '64

Differential capacitor clears yarn slubs. H. Locher. il diag Control Eng 10:125+ N '63

Experimental determination of air drag on a textile yarn struck transversley by a high-velocity projectile. J. C. Smith and others. bibliog il J Res Nat Bur Stand 68C:177-81 Jl '64

Machine for determining the stress-strain curve of fine yarns over a wide range of temperature and strain rate. I. H. Hall. bibliog il diag J Sci Instr 41:210-14 Ap '64

Stress-strain relationships in yarns subjected to rapid impact loading (cont). J. C. Smith and others. bibliog il Textile Res J 33:919-34 N '63

Study of factors influencing the tensile fatigue behavior of yarns. F. Frank and R. W. Singleton. bibliog il Textile Res J 34:11-19 Ja '64

Yarn temperature attained during cyclic straining and the heat transfer properties of yarns. R. L. Hamilton and C. H. Miller, jr. il diag Textile Res J 34:20-3 Ja '64

YDIGINIC acid. See Acids, Organic

YEASTS

Latest yeast products add flavor character and improve nutritional value. N. Lyall. Food Eng 36:98-9 My '64

See also

Fermentation

Manufacture

Granulates yeast extracts. Food Eng 36:134 Mr '64

YELLOWING

Effect of light upon wool; post-irradiation loss of color in the dark after Germicidal uv exposure. H. F. Launer. bibliog diag Textile Res J 33:910-18 N '63

Studies in wool yellowing. B. Milligan and others. bibliog Textile Res J 32:634-40; 33: 431-5, 487-8, 773-8; 34:681-91 Ag '62, Je, O '63, Ag '64

YELLOWSTONE NATIONAL PARK

Petrified forests of Yellowstone Park. E. Dorf. il maps diag Sci Am 210:106-12+ Ap '64

YIELD (stress). See Strains and stresses

YLANGENE. See Sesquiterpenes

YOGURT

Whole-fruit yogurt gains acceptance. F. Lang. Food Eng 36:93 Ag '64

YORK, Pennsylvania

Water supply

Water service by fiscal magic. W. H. Kain. map Water Works & Wastes Eng 1:46-9 F '64

YOUNGS modulus. See Elasticity

YOUTH

Adolescent looks at his health and medical care. R. W. Deisher and C. A. Mills. Am J Pub Health 53:1928-36 D '63

Physical activity of obese and nonobese adolescent girls appraised by motion picture sampling. B. A. Bullen and others. bibliog Am J Clinical Nutrition 14:211-23 Ap '64

Serum iron and iron-binding capacity in adolescents. C. C. Seltzer and others. bibliog Am J Clinical Nutrition 13:343-61 D '63

See also

High school students

Employment

Juvenile workers in Sweden. A. Otterland. bibliog Ind Med 33:201-8 Ap '64

YOUTH—*Continued*

Sweden

Juvenile workers in Sweden. A. Otterland. bibliog Ind Med 33:201-8 Ap '64

YTTERBIUM

Atomic absorption spectra of europium, thulium, and ytterbium using a flame as line source. R. K. Skogerboe and R. A. Woodriff. Anal Chem 35:1977 N '63

Crystal field for Yb^{3+} in garnets; abstract. M. T. Hutchings and W. P. Wolf. bibliog J Ap Phys 35:1060 pt 2 Mr '64

Field dependence of anisotropy in ytterbium-doped yttrium iron garnet. R. F. Pearson and K. Tweedale. J Ap Phys 35:1061-2 pt 2 Mr '64

YTTRIUM

Reversed-phase partition chromatographic separation of several alkaline earths from each other and from yttrium. J. W. O'Laughlin and others. bibliog Anal Chem 36:2110-12 O '64

Separated rare earth finds commercial use. Chem & Eng N 42:67 N 9 '64

YTTRIUM iron garnet. See Garnet

YTTRIUM oxides

Fluorescence and stimulated emission from trivalent europium in yttrium oxide. N. C. Chang. bibliog il J Ap Phys 34:3500-4 D '63

Ionic conductivity of cubic solid solutions in the system $CaO-Y_2O_3-ZrO_2$. D. W. Strickler and W. G. Carlson. bibliog Am Cer Soc J 47:122-7 Mr '64

Luminescent behavior of the rare earths in yttrium oxide and related hosts. K. A. Wickersheim and R. A. Lefever. bibliog diag Electrochem Soc J 111:47-51 Ja '64

Phase relations in the system $UO_2-UO_3Y_2O_3$. S. F. Bartram and others. bibliog diags Am Cer Soc J 47:171-5 Ap '64

Process makes high-grade yttrium oxide particles. J. P. Dietrich. Chem & Eng N 42:62 Ap 27 '64

Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64

Thermal expansion of yttria-stabilized zirconia. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:155 Mr '64

Thermal expansion of yttrium oxide and of magnesium oxide with yttrium oxide. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:256 My '64

YUGOSLAVIA

See also

Earthquakes—Yugoslavia
Hydroelectric plants—Yugoslavia
Roads—Yugoslavia

YUKON

See also

Gold mines and mining—Yukon
Petroleum—Yukon

Z

ZAMBIA

See also

Copper mines and mining—Zambia
Geology—Zambia
Telephone—Zambia

ZAPP, Alfred Dexter

Memorial. J. R. Gill. bibliog por Am Assn Pet Geologists Bul 48:127-9 Ja '64

ZEEMAN effect

Apparatus for high field magneto-optical absorption spectroscopy of solids. M. V. Hobden. diag J Sci Instr 41:95-7 F '64

Group theoretical consideration for the intersection of crystal-ion Zeeman terms. S. A. Marshall and others. bibliog Am J Phys 31:847-53 N '63

Putting Zeeman to work to modulate laser beams. Product Eng 35:54-5 S 28 '64

Zeeman effect and ruby laser polarization. A. S. Badger and T. A. Rabson. diag IEEE Proc 52:1047-8 S '64

Zeeman effect in molecules. C. R. Quade. bibliog Am J Phys 32:634-8 Ag '64

Zeeman effect of nuclear quadrupole resonance in single crystals of sodium bromate and *p*-dibromobenzene. P. Bucci and others. bibliog Am Chem Soc J 86:2513-14 Je 20 '64

ZEIDBERG, Louis David

Obituary. R. W. Quinn. por Archives Environmental Health 8:899-91 Je '64

ZEIN

Amino acids in dog blood and gut contents after feeding zein. E. S. Nasset and others. bibliog J Nutrition 81:343-7 D '63

ZENER diodes. See Crystal diodes

ZEOLITES

Adsorption properties of naturally occurring erionite and its cationic-exchanged forms. P. E. Eberly, jr. bibliog il Am Mineralogist 49:30-40 Ja '64

Authigenic mordenite in the Esmeralda formation, Nevada. R. J. Moiola. bibliog Am Mineralogist 49:1472-4 S '64

Catalysts are made shape-selective; abstract. P. B. Welsz and others. Chem & Eng N 42:45 F 10 '64

Cation and water positions in faujasite. W. H. Baur. bibliog diag Am Mineralogist 49:697-704 My '64

Electron spin resonance of molecules adsorbed on synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:749-57 Mr 5 '64

Paramagnetic resonance absorption of γ-irradiated synthetic zeolites. D. N. Stamires and J. Turkevich. bibliog Am Chem Soc J 86:757-61 Mr 5 '64

Phillipsite of saline lakes and soils. R. L. Hay. bibliog map diags Am Mineralogist 49:1366-87 S '64

Some zeolite equilibria with alkali metal cations. L. L. Ames, jr. Am Mineralogist 49:127-45 bibliog(p 144-5) Ja '64

Some zeolite equilibria with alkaline earth metal cations. L. L. Ames, jr. bibliog Am Mineralogist 49:1099-110 Jl '64

Synthesis of a clinoptilolite-like zeolite. L. L. Ames, jr. bibliog il Am Mineralogist 48:1374-81 N '63

What's ahead for catalytic cracking? D. H. Stormont. Oil & Gas J 62:78-81+ Ag 17 '64 (reprints $1)

Zeolite studies; Na-P zeolites and the ion-exchanged derivatives of tetragonal Na-P. A. M. Taylor and R. Roy. Am Mineralogist 49:656-82 bibliog(p681-2) My '64

ZERO (the number)

Method for finding all the zeros of *f(z)*. R. P. Rich and H. Shaw. diags Assn for Computing Mach J 10:545-9 O '63

Reduction of number range in the use of the Graeffe process. A. A. Grau. Assn for Computing Mach J 10:538-44 O '63

ZETA potential. See Potential, Electric

ZIEGLER, Karl

Share 1963 Nobel chemistry prize. por Rubber Age 94:459 D '63

Ziegler and Natta share Nobel prize. por Chem & Eng N 41:22 N 11 '63

ZIMMERMAN process. See Sewage disposal—Zimmerman process

ZINC

Bromine-zinc secondary cells. S. Barnartt and D. A. Forejt. bibliog il diags Electrochem Soc J 111:1201-4 N '64

CsCl-type compounds in binary alloys of rare-earth metals with zinc and copper. C. C. Chao and others. bibliog J Ap Phys 35:257-8 Ja '64

Deformation of polycrystalline zinc by hot torsion. G. P. Lewis nad W. J. M. Tegart. bibliog il Inst Metals J 92:249-51 '63-64

Diffusion and solubility of zinc in gallium phosphide single crystals. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:374-8 F '64

Diffusion mechanism of Zn in GaAs and GaP based on isoconcentration diffusion experiments. L. L. Chang and G. L. Pearson. bibliog J Ap Phys 35:1960-5 Je '64

Diffusion of Zn into GaAs under the presence of excess arsenic vapor. H. Rupprecht and C. Z. LeMay. bibliog il J Ap Phys 35:1970-3 Je '64

Electrical measurements and X-ray lattice parameter measurements of GaAs doped with Se, Te, Zn, and Cd and the stress effects of these elements as diffusants in GaAs. J. Black and P. Lublin. bibliog il J Ap Phys 35:2462-7 Ag '64

Elimination of small-angle boundaries in high-purity zinc crystals grown from the melt. C. K. Chyung and W. E. Taylor. il J Ap Phys 35:731-2 Mr '64

Incorporation of zinc in vapor grown gallium arsenide. V. J. Silvestri and F. Fang. bibliog il diags Electrochem Soc J 111:1164-7 O '64

Ion exchange on single-crystal silver and zinc. C. V. King and others. bibliog Electrochem Soc J 110:1261-4 D '63

ZINC—*Continued*

Kinetics and mechanism of extraction of zinc, nickel, cobalt, and cadmium with diphenylthiocarbazone, di-o-tolylthiocarbazone, and di-α-naphthylthiocarbazone. B. E. McClellan and H. Freiser. bibliog Anal Chem 36:2262-5 N '64

Nuclear magnetic resonance study of aqueous pyruvate-glycinate-zinc(II) and related systems. D. Leussing and C. K. Stanfield. bibliog Am Chem Soc J 86:2805-10 Jl 20 '64

Polarographic evidence for the binding of zinc to amino-groups of protein. W. U. Malik and Salahuddin. bibliog Chem & Ind p706-7 Ap 25 '64

Ratio of interstitial to substitutional zinc in GaAs and its relation to zinc diffusion. K. Weiser. bibliog J Ap Phys 34:3387-9 N '63

Sub-lethal copper-zinc pollution in a salmon river, a field and laboratory study; abstract. J. B. Sprague and others. WPCF J 36:273 Mr '64

Vulcanization; the formation of crosslinks in the system: natural rubber-sulfur-MBT-zinc ion. A. Y. Coran. bibliog Rubber Chem & Tech 37:679-88 Jl '64

Zinc rich coatings are helped by a top coat. Ind Finishing 40:71-2 Jl '64

Zincian chromite from Outokumpu, Finland. T. P. Thayer and others. bibliog Am Mineralogist 49:1178-83 S '64

See also

Water supply—Zinc content

Analysis

Atomic absorption spectrophotometry and the analysis of silicate rocks for copper and zinc. C. B. Belt, jr. bibliog diag Econ Geol 59:240-58 Mr '64

Automatic X-ray determination of lead and zinc in the tailings of an ore dressing plant. G. J. Sundkvist and others. diags Anal Chem 36:2091-4 O '64

Correlation of electrical measurements with chemical analysis in zinc- and cadmium-diffused GaAs. J. Black. bibliog il diag Electrochem Soc J 111:924-8 Ag '64

Determination of barium, calcium, and zinc in additives and lubricating oils by X-ray fluorescence spectroscopy. R. F. Haycock. diag Inst Pet J 50:123-8 My '64

Determination of calcium, magnesium, copper, and zinc in red blood cells by emission spectrometry. L. S. Valberg and others. bibliog Anal Chem 36:790-2 Ap '64

Determination of zinc, cadmium, and mercury by atomic fluorescence flame spectrometry. J. D. Winefordner and R. A. Staab. Anal Chem 36:165-8 Ja '64

Determination of zinc in ores and mill products by neutron activation analysis. J. M. Bakes and P. G. Jeffery. Anal Chem 36:1594-7 Jl '64

Separation of traces of zinc with triisooctylamine and its spectrophotometric determination in electrolytic nickel. W. L. Ott and others. bibliog Anal Chem 36:363-4 F '64

Titrimetric determination of zinc with tetracyano - mono - 1,10 - phenanthroline-ferrate(II). A. A. Schilt and A. V. Nowak. bibliog Anal Chem 36:845-8 Ap '64

X-ray fluorescence determination of cobalt, zinc, and iron in organic matrices. S. A. Bartkiewicz and E. A. Hammatt. bibliog Anal Chem 36:833-6 Ap '64

Zinc concentrations in rivers of the Chesapeake Bay region. J. T. O'Connor and others. bibliog Am Water Works Assn J 56:280-6 Mr '64

Isotopes

Determination of the zinc-68—zinc-64 ratio in rocks and minerals by neutron activation analysis. R. H. Filby. bibliog Anal Chem 36:1597-600 Jl '64

Effect of zinc nutrition upon uptake and retention of zinc-65 in the chick. T. R. Zeigler and others. bibliog J Nutrition 82:489-94 Ap '64

Nature of zinc-containing substances in the alfalfa plant cell. W. J. Johnson and W. G. Schrenk. J Agri & Food Chem 12:210-13 My '64

Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog il J Nutrition 81:312-20 D '63

Physiological effect

Effect of zinc toxicity on calcium, phosphorus and magnesium metabolism of young rats. A. K. Stewart and A. C. Magee. bibliog J Nutrition 82:287-95 F '64

Prices

Increase in zinc prices rescinded. il Chem & Eng N 42:26 F 10 '64

ZINC alloys

Binary alloys of indium with zinc or cadmium; deposition from sulfamic acid baths. L. Domnikov. bibliog Metal Finishing 62:73-5+ S '64

Corrosion resistance of iron-zinc coated steel. Engineering 197:280 F 21 '64

Critical and passive current densities for copper-nickel-zinc alloys in sulfuric acid. N. D. Stolica and H. H. Uhlig. Electrochem Soc J 110:1215-18 D '63

Effect of vacancy distributions caused by elastic interaction on the growth of Guinier-Preston zones. W. B. Grupen and G. Sines. bibliog diag J Ap Phys 35:3001-8 O '64

High-temperature X-ray diffractometer study of the zinc-aluminium system in the region 40-75 wt.-per cent zinc. G. R. Goldak and J. G. Parr. bibliog Inst Metals J 92:230-3 '63-64

Improved zinc alloy. Automotive Ind 131:110 Jl 15 '64

Influence of small additions of silver on the ageing of aluminum alloys; further observations on Al-Zn-Mg alloys. J. T. Vietz and others. bibliog il Inst Metals J 92:327-33 '63-64

Metal selector; zinc diecasting alloys. Steel 155:sup S30 O 12 '64

Properties of materials: zinc alloys; wrought and cast; tables. Materials in Design Eng 60:178-9 Mid-O '64

Soldering of beryllium metal. E. E. Weismantel and K. C. Taber. il Welding J 43:sup57-62 F '64

Stacking fault probabilities of some alloys of copper and silver with zinc and cadmium. L. F. Vassamillet and T. B. Massalski. bibliog J Ap Phys 34:3398-402 N '63

Tentative specification for electrodeposited coatings of multi-layer nickel plus chromium on zinc and zinc-base alloys. Plating 51:44-5 Ja '64

Titanium content key to zinc alloy improvement. Steel 155:108 N 2 '64

Yield effect in a zinc-aluminium-cadmium alloy. J. A. Sabato and H. Destaillatz. diags Inst Metals J 92:252 '63-64

Zinc-aluminum alloys. O. R. Singleton, jr. il Metal Prog 84:124 N '63

Zincmakers introduce new auto trim alloy. il Iron Age 193:61 Ap 23 '64

See also

Brass

ZINC arsenates

Composition and space group of legrandite. J. J. Finney. bibliog Am Mineralogist 48:1255-7 N '63

Re-examination of legrandite. P. E. Desautels and R. S. Clarke, jr. bibliog diags Am Mineralogist 48:1258-65 N '63

ZINC arsenide

Solid solutions in the system Zn_3As_2-Cd_3As_2. H. J. Naake and S. C. Belcher. J Ap Phys 35:3064-5 O '64

ZINC bromide

Argon improves $ZnBr_2$ shielding windows. W. B. Lane and M. J. Nuckolls. diag Nucleonics 22:88-9 F '64

ZINC chloride

Effect of zinc chloride vulcanization on the structure and properties of cellulose laminate. L. T. C. Lee. bibliog il Tappi 47:386-92 Jl '64

1,2:4,5-di-*O*-isopropylidene-ribitol. K. W. Buck and others. Chem & Ind p 1623-4 S 19 '64

ZINC coating

Best protection of steel combine zinc and paint. E. A. Anderson. il Product Eng 35:66-7 Ap 13 '64

Choose the right zinc coating for large structures. J. R. Daesen. il Metal Prog 86:95-100 S '64

Mechanical plating applies zinc coatings to metal surfaces. Mach 70:123 D '63

Metallized coatings fight corrosion. A. P. Shephard. il Elec World 161:62-3 My 4 '64

Paint and zinc: partners in protection. E. A. Anderson. Ind Finishing 40:114-16 N '63

Sprayed, molten aluminum or zinc coatings protect steel plate. il Marine Eng/Log 68:90 N '63

Zinc phosphate coating on steel. Ind Finishing 40:115-16 Ja '64

Zinc protects steel against corrosion. A. Ash. bibliog il Can Chem Process 48:71-3 Jl '64

ZINC coating—*Continued*

Zinc rich coatings are helped by a top coat. Ind Finishing 40:71-2 Jl '64

Zinc rich epoxy coatings offer cathodic protection. W. R. Ahrberg. diags Plant Eng 18:132-3 S '64

Zinc; versatile corrosion fighter. Plant Eng 17:93-5 D '63

ZINC compounds

Formation constants of nickel(II) and zinc(II) complexes of dithizone and related compounds. K. S. Math and others. bibliog Anal Chem 36:1762-7 Ag '64

Heavy powder in short haul. il Chem Eng 71:102 N 9 '64

Solubility and crystal growth of $ZnAl_2O_4$ and Al_2O_3 in molten PbF_2 solutions. E. A. Giess. Am Cer Soc J 47:388-9 Ag '64

Spectrofluorometric study of (2-methyl-8-quino-linolato)zinc(II) chelates in absolute ethyl alcohol. D. A. Carter and W. E. Ohnesorge. bibliog Anal Chem 36:327-30 F '64

Trace metals boost gasoline performance. W. F. Schoen and F. L. Voelz. il Chem & Eng N 42:40+ Ag 31 '64

Vulcanization; fate of curing system during sulfur curing of NR accelerated by MBT derivatives and activated by zinc stearate. R. H. Campbell and R. W. Wise. bibliog Rubber Chem & Tech 37:650-67 Jl '64

Zinc ion chelates explain delayed-action rubber cures; abstract. A. Y. Coran. Chem & Eng N 42:82 S 14 '64

Spectra

Improvement of the ferromagnetic resonance linewidth of single-crystal ZnY ($Ba_2Zn_2Fe_{12}O_{22}$) by a new growth technique. A. Tauber and others. J Ap Phys 35:1008-9 pt 2 Mr '64

ZINC ferrates

Effect of powder parameters on grain growth in manganese-zinc ferrite. T. Yamaguchi. bibliog il Am Cer Soc J 47:131-3 Mr '64

Effect of surface polishing on the linewidth and high-power properties of single-crystal spheres of ZnY. S. Dixon, jr. bibliog J Ap Phys 34:3441-2 D '63

High-permeability manganese-zinc ferrite reduced in vacuum. Y. Shichijō and others. il J Ap Phys 35:1646-7 My '64

ZINC founding

Autos using more zinc die castings. J. L. Kimberly. Iron Age 194:29 Ag 20 '64

Designers eye diecast zinc for more gearing. il Steel 155:52+ S 21 '64

Die cast zinc can be welded. il Welding Eng 49:82 N '64

Die casting; award-winning designs. il Product Eng 35:45-6 S 28 '64

Du-Wel metal products inc. automates for better quality, lower costs. J. C. Miske. il Foundry 92:140-2+ N '64

36-lb. instrument panel is Zinc diecasting of year. il Foundry 92:161-2 N '64

Zinc die casting uses increase in '64 autos. Automotive Ind 130:52-3 Ja 1 '64

ZINC halides

Complex formation between zinc and tin halides and nitrogen bases in solution. J. L. Wardell and D. P. N. Satchell. Chem & Ind p2011 D 28 '63

ZINC in the body

Effect of phytic acid on the availability of zinc in amino acid and cesium diets fed to chicks. H. J. A. Likuski and R. M. Forbes. bibliog J Nutrition 84:145-8 O '64

Effect of zinc nutrition upon uptake and retention of zinc-65 in the chick. T. R. Zeigler and others. bibliog J Nutrition 82:489-94 Ap '64

Effects of dietary supplements on young rats fed high levels of zinc. A. C. Magee and S. Spahr. bibliog J Nutrition 82:209-16 F '64

Food poisoning involving zine contamination. M. A. Brown and others. bibliog Archives Environmental Health 8:657-60 My '64

Influence of various chelating agents on the availability of zinc. P. Vohra and F. H. Kratzer. J Nutrition 82:249-56 F '64

Mineral utilization in the rat; effects of calcium, phosphorus, lactose and source of protein in zinc-deficient and in zinc-adequate diets. R. M. Forbes. bibliog J Nutrition 83:225-33 Jl '64

Some independent and combined effects of copper, molybdenum, and zinc on the placental transfer of zinc-65 in the rat. K. E. Kinnamon. bibliog il J Nutrition 81:312-20 D '63

Zinc deficiency syndrome in the young lamb. E. A. Ott and others. bibliog il J Nutrition 82:41-50 Ja '64

ZINC industry and trade

Lead-zinc, 1963. R. A. Young. il Min Cong J 50:89-94 F '64

Zinc, 1963. C. R. Ince. Eng & Min J 165:105-8 F '64

ZINC metallurgy

Recent developments in zinc blast-furnace technology. S. W. K. Morgan. il diag J Metals 16:33-6 Ja '64

Zinc mining and concentrating at Rosebery in western Tasmania. il Min Eng 16:78-80 O '64

Electrometallurgy

Cadmium purification practice in zinc smelting; a survey of producers in the Western Hemisphere. R. E. Lund and R. E. Sheppard. il J Metals 16:724-30 S '64

Eastern Canada inaugurates first zinc refinery at Valleyfield, Quebec. il map Eng & Min J 164:112 N '63

Electrothermal recovery of zinc. A. Dietrich. diags J Metals 15:830-4 N '63

How applied research at Josephtown stimulated production and markets. flow sheet il diags Eng & Min J 165:109-14 Ap '64

Modern dc power supply system for an electrochemical zinc refinery. A. Ludbrook. il diags Eng J 47:19-21 Ag '64

Risdon metallurgical works; site of electrolytic zinc refinery. il Min Eng 16:80-1 O '64

Treatment of copper-zinc concentrates by pressure hydrometallurgy. D. J. I. Evans and others. bibliog Can Min & Met Bul 57:857-66 Ag '64

ZINC mines and mining

Argentina

Progress in South America; Cia. minera Aguilar S.A. il plan Eng & Min J 165:115-17 Ap '64

Australia

Broken Hill; living legend. il plan diags Min Eng 16:70-5 O '64

Maine

Maine reenters mining picture; copper-zinc production to start in '66; Black Hawk mining co. il Min Eng 16:60-1 S '64

Pennsylvania

How applied research at Josephtown stimulated production and markets. flow sheet il diags Eng & Min J 165:109-14 Ap '64

Peru

Arch-back stoping at the Cerro de Pasco mine. R. S. Bemis and H. A. Toelle. diags Min Cong J 50:31-3 Mr '64

Quebec (province)

Eastern Canada inaugurates first zinc refinery at Valleyfield, Quebec. il map Eng & Min J 164:112 N '63

Mattagami Lake mines ltd; some aspects of the geology and ore control. R. H. Hallam. bibliog map diags Can Min & Met Bul 57:389-96 Ap '64

Tasmania

Risdon metallurgical works; site of electrolytic zinc refinery. il Min Eng 16:80-1 O '64

Zinc mining and concentrating at Rosebery in western Tasmania. il Min Eng 16:78-80 O '64

Tennessee

Flooding and recovery of the Jefferson City mine. H. W. Miller and D. H. Jolley. il plans diags Min Cong J 50:16-21 Ja '64

Western states

Lead and zinc hope for brighter days. M. P. Romney. Chem Eng Prog 60:38-9 O '64

ZINC nitrates

Influence of ionic strength on polarographic half-wave potentials; the investigation of the reduction of zinc and nickel nitrates and the effect of mixed uni-univalent inert electrolytes on the reduction of cadmium nitrate. N. E. Vanderborgh and D. E. Sellers. Am Chem Soc J 86:2790-2 Jl 20 '64

ZINC ores

Discovery and exploration of the Poirier ore deposit. J. B. Boniwell and R. A. Dujardin. maps diags Can Min & Met Bul 57:945-52 S '64

Enargite in the zinc-lead deposits of the upper Mississippi Valley district. A. V. Heyl. diags Am Mineralogist 49:1458-61 S '64

ZINC ores—*Continued*
Geology of the Zawar lead-zinc mine, Rajasthan, India. A. Mookherjee. il maps Econ Geol 59:656-77 bibliog(p675-7) Je '64; Discussion. J. Pereira. 59:1603-4 D '64
Lead-zinc ore deposition in the light of fluid inclusion studies, Providencia mine, Zacatecas, Mex. F. J. Sawkins. il maps diags Econ Geol 59:883-919 bibliog (917-19) Ag '64

ZINC oxides
Crushing strength of zinc oxide agglomerates. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:202-5 Jl '64
Hydrothermal growth of large sound crystals of zinc oxide. R. A. Laudise and others. bibliog il diags Am Cer Soc J 47:9-12 Ja '64
Ruby-laser-induced photocurrents and luminescence in ZnO. D. R. Hotchkiss. bibliog J Ap Phys 35:2455-7 Ag '64
Spontaneous pelletization in fine powders. H. P. Meissner and others. bibliog Ind & Eng Chem Proc Design 3:197-201 Jl '64

ZINC phosphates
Chemical cleans steel while it coats; Chem-Grip. il Iron Age 194:68 O 15 '64
Phase equilibria and manganese-activated luminescence in portions of the system $Zn(PO_3)_2$-$Cd(PO_3)_2$-$Mg(PO_3)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 111:660-5 Je '64
Phase equilibria and manganese-activated luminescence in the system $Zn_3(PO_4)_2$-$Cd_3(PO_4)_2$. J. J. Brown and F. A. Hummel. Electrochem Soc J 110:1218-23 D '63
Phase equilibria and manganese-activated luminescence in the systems CdO-P_2O_5 and $Zn_2P_2O_7$-$Cd_2P_2O_7$; summary for the system ZnO-CdO-P_2O_5. J. J. Brown and F. A. Hummel. bibliog diags Electrochem Soc J 111:1052-7 S '64

ZINC plating
Bright zinc barrel plating; practical problems and solutions. H. Geduld. bibliog Metal Finishing 62:42-6 F; 56-60 Mr '64
Electrodeposition of iron-zinc alloys; production from sulfamate baths. S. S. Misra and T. L. Rama Char. bibliog il Metal Finishing 62:88-93 Je '64
Plating bath avoids cyanide. Chem & Eng N 41:40 D 30 '63
Practical cyanide zinc plating. E. L. Gabel. Plating 50:1089-93 D '63
Zinc and cadmium thickness determination; weight-area method employing EDTA. S. Konishi. Metal Finishing 62:84-6 My '64
Zinc plating bath avoids cyanide. il Iron Age 193:62 Ja 9 '64
See also
Galvanizing

ZINC selenide
Electron effective mass in ZnSe. D. T. F. Marple. bibliog J Ap Phys 35:1879-82 Je '64
Injection electroluminescence in ZnS and ZnSe. M. Aven and D. A. Cusano. bibliog diags J Ap Phys 35:606-11 Mr '64
Optical dispersion of zinc selenide. W. R. Rambauske. bibliog J Ap Phys 35:2958-9 O '64
Refractive index of ZnSe, ZnTe, and CdTe. D. T. F. Marple. bibliog diag J Ap Phys 35:539-42 Mr '64

ZINC silicates
Morphological analysis of hodgkinsonite. L. A. Hardie and others. bibliog diag Am Mineralogist 49:415-20 Mr '64

ZINC sulfide
Disordering of defects in single crystals of zinc sulfide. L. T. Chadderton and others. bibliog il diags J Ap Phys 35:1582-6 My '64
Effects of quenching on the structural, photo, and electroluminescent properties of ZnS: Cu phosphors. M. J. Presland and others. bibliog Electrochem Soc J 111:168-74 F '64
Exchange coupling of neighboring Mn^{++} ions in Mn^{++}:ZnS crystals. W. H. Brumage and others. bibliog J Ap Phys 35:994-5 pt 2 Mr '64
Influence of copper on structural transformations in ZnS:Cu,Cl. J. Nickerson and others. bibliog Electrochem Soc J 110:1228-30 D '63
Injection electroluminescence in ZnS and ZnSe. M. Aven and D. A. Cusano. bibliog diags J Ap Phys 35:606-11 Mr '64
Iron activated ZnS phosphors. P. M. Jaffe and E. Banks. bibliog il diags Electrochem Soc J 111:52-61 Ja '64
Kinetics of electroluminescent deterioration in some ZnS phosphors. L. A. Rogers. Electrochem Soc J 111:411-12 Ap '64
Optical second-harmonic generation in ZnS-CdS and CdS-CdSe alloys. R. A. Soref and H. W. Moos. bibliog diag J Ap Phys 35:2152-8 Jl '64
Polar properties of ZnS crystals and the anomalous photovoltaic effect. O. Brafman and others. bibliog il diag J Ap Phys 35:1855-60 Je '64
Technique for examining the luminous activity of individual phosphor particles in a functioning electroluminescent lamp. J. I. Gedney. bibliog il diag Electrochem Soc J 111:1093-6 S '64
Yellow and red emitting ZnS: Cu phosphors. M. J. Presland and others. Electrochem Soc J 111:628 My '64

ZINC telluride
Refractive index of ZnSe, ZnTe, and CdTe. D. T. F. Marple. bibliog diag J Ap Phys 35:539-42 Mr '64

ZINC tungstates
Zinc tungstate crystal growth, dislocations, and crystallography. S. O'Hara. bibliog il J Ap Phys 35:1312-16 Ap '64

ZIRCALOY. See Zirconium alloys

ZIRCON
Age studies of zircon and feldspar concentrates from the Franconia sandstone. M. Tatsumoto and C. Patterson. bibliog map J Geol 72:232-42, pl 1 Mr '64
Ages of zircon and feldspar concentrates from North American beach and river sands. D. Ledent and others. bibliog map J Geol 72:112-22 Ja '64
Rutile; zircon mining on East Coast surfing beaches in Australia. il Min Eng 16:109-10 O '64
Studies on zircons from some garnetiferous sillimanite gneisses (khondalites) from Orissa and Andhra Pradesh, India. M. V. N. Murthy and H. N. Siddiquie. bibliog map J Geol 72:123-7, pl 1 Ja '64
Study of the fritting reaction of zircon sand with sodium hydroxide using differential thermal analysis and X-ray techniques. H. S. Choi and H. Cross. bibliog il Can Min & Met Bul 57:966-72 S '64
Uranium-lead isotopic variations in zircons; a case study. L. T. Silver and S. Deutsch. bibliog maps diags J Geol 71:721-58, pl 1-2 N '63
X-ray investigation of zircon crystals containing OH groups. I. Krstanović. bibliog diag Am Mineralogist 49:1146-8 Jl '64

ZIRCONATES
See also
Barium zirconate
Calcium zirconate

ZIRCONIA. See Zirconium oxides

ZIRCONIUM
Cation exchange separation of titanium and zirconium using perchloric acid; application to the analysis of PZT ceramics. R. G. Dosch and F. J. Conrad. bibliog Anal Chem 36:2306-8 N '64
Effect of carbon content on corrosion and tensile properties of Zircaloy-2. S. Kass and J. D. Grozier. il diags Corrosion 20:158-65 My '64
Electrochemistry of the dissolution of zirconium in aqueous solutions of hydrofluoric acid. R. E. Meyer. bibliog diag Electrochem Soc J 111:147-55 F '64
Growth of whiskers due to solid-to-solid phase transformation in zirconium. M. M. Nieto and A. M. Russell. J Ap Phys 35:461 F '64
High-temperature oxidation of zirconium and Zircaloy-2 in oxygen and water vapor. R. E. Westerman. bibliog il diag Electrochem Soc J 111:140-7 F '64
Investigation of the copper-rich portion of the copper-zirconium phase diagram by electron-probe microanalysis. M. J. Donachie, jr. Inst Metals J 92:180 '63-64
Mechanism of oxidation of zirconium in the temperature range 400°-850°C. R. J. Hussey and W. W. Smeltzer. bibliog Electrochem Soc J 111:1221-4 N '64
Oxidation kinetics of zirconium in the temperature range 400°-600°C. R. J. Hussey and W. W. Smeltzer. bibliog il Electrochem Soc J 111:564-8 My '64
Photogalvanic effects with anodized zirconium and niobium electrodes. R. E. Salomon and others. bibliog Electrochem Soc J 110:1163-5 N '63
Properties of materials; zirconium and its alloys; wrought; tables. Materials in Design Eng 60:181 Mid-O '64
Spectrophotometric determination of fluoride by zirconium-eriochrome cyanine R. P. L. Sarma. bibliog Anal Chem 36:1684-5 Jl '64

ZIRCONIUM—*Continued*

Studies on the oxygen gradients in oxidizing metals. J. P. Pemsler. il Electrochem Soc J 111:381-5 Ap '64

Superconducting behavior of pressure-induced zirconium polymorph. B. Tittmann and others. bibliog J Ap Phys 35:732-3 Mr '64

Zirconium and hafnium, 1963. D. E. Eilertsen. Eng & Min J 165:125 F '64

Analysis

Gravimetric determination of zirconium and hafnium by aromatic carboxylic acids. A. K. Mukherji. Anal Chem 36:1064-6 My '64

Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64

X-ray fluorescence spectrometric determination of zirconium and molybdenum in the presence of uranium. E. A. Hakkila and others. Anal Chem 36:2094-6 O '64

Corrosion

Corrosion of uranium, zirconium and some alloys in alkaline solutions. J. S. L. Leach and A. Y. Nehru. bibliog Electrochem Soc J 111:781-7 Jl '64

Effect of carbon content on corrosion and tensile properties of Zircaloy-2. S. Kass and J. D. Grozier. il diags Corrosion 20:158-65 My '64

Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64

Hydrogen content

Effect of oxidation rate on hydriding of zirconium alloys in gas mixtures containing hydrogen. D. W. Shannon. bibliog diags Corrosion 19:414-20 D '63

ZIRCONIUM, Molten

Molten zirconium reacts with N_2 in air. L. S. Nelson. il Chem & Eng N 42:45-6 S 14 '64

ZIRCONIUM alloys

Alternating current power losses in superconducting Nb-Zr alloys. W. R. Wisseman and others. bibliog diag J Ap Phys 35:2649-55 S '64

Autoradiographic location of precipitated hydride in a Zr-two per cent Nb alloy. W. H. Erickson and D. Hardie. il Inst Metals J 92:191-2 '63-64

Effect of carbon content on corrosion and tensile properties of Zircaloy-2. S. Kass and J. D. Grozier. il diags Corrosion 20:158-65 My '64

Effect of dissolved oxygen on the oxidation of Zircaloy-2 by steam. B. Cox and B. R. Harder. bibliog Electrochem Soc J 110:1110-13 N '63

Effect of heat-treatment on the corrosion and hydrogen pickup behavior of a Zr-Sn-Nb alloy in high temperature water and steam. D. L. Douglass and H. A. Fisch. bibliog il Electrochem Soc J 111:787-95 Jl '64

Effect of oxidation rate on hydriding of zirconium alloys in gas mixtures containing hydrogen. D. W. Shannon. bibliog diags Corrosion 19:414-20 D '63

Flux jumping in Nb+25 per cent Zr wire. M. S. Lubell and others. bibliog J Ap Phys 35:956-8 pt 2 Mr '64

High-temperature oxidation of zirconium and Zircaloy-2 in oxygen and water vapor. R. E. Westerman. bibliog il diag Electrochem Soc J 111:140-7 F '64

Investigation of the magnesium-zirconium system. Inst Metals J 92:383-4 '63-64

Magnetization of superconducting niobium-zirconium alloys. J. P. McEvoy, jr, and R. F. Decell. J Ap Phys 35:982-3 pt 2 Mr '64

Metal selector; zirconium. Steel 155:sup S26 O 12 '64

New heat treatment cuts Zircaloy-2 corrosion, hydrogen embrittlement. il Nucleonics 21:70 N '63

Properties of materials; zirconium and its alloys; wrought; tables. Materials in Design Eng 60:181 Mid-O '64

Separation and determination of uranium in high zirconium alloys. R. F. Rolf. Anal Chem 36:1398-400 Je '64

Zirconium-hydride formation in homogenized magnesium-zirconium alloy. J. E. Harris and P. G. Partridge. bibliog il Inst Metals J 93:15-18 '64-65

ZIRCONIUM borides

Oxidation kinetics of zirconium diboride and zirconium carbide at high temperatures. A. K. Kuriakose and J. L. Margrave. bibliog diags Electrochem Soc J 111:827-31 Jl '64

ZIRCONIUM carbide

Hot-pressing mixed carbides of Ta, Hf, and Zr. J. J. Fischer. bibliog il Am Cer Soc Bul 43:183-5 Mr '64

Mechanical properties of hot-pressed zirconium carbide tested to 2600°C. M. H. Leipold and T. H. Nielsen. bibliog il diag Am Cer Soc J 47:419-24 S '64

Oxidation kinetics of zirconium diboride and zirconium carbide at high temperatures. A. K. Kuriakose and J. L. Margrave. bibliog diags Electrochem Soc J 111:827-31 Jl '64

Thermal conductivity of titanium carbide, zirconium carbide, and titanium nitride at high temperatures. R. E. Taylor and J. Morreale. bibliog Am Cer Soc J 47:69-73 F '64

X-ray investigation of polymorphism in ZrC. D. K. Smith and C. F. Cline. Am Cer Soc J 46:566 N '63

ZIRCONIUM compounds

Determination of molecular weights of polynuclear zirconium and thorium chelates by nonequilibrium ultracentrifugation. R. L. Gustafson and A. E. Martell. bibliog Am Chem Soc J 86:344-9 F 5 '64

Oxidation kinetics of $ZrBe_{13}$ and $NbBe_{12}$. G. Ervin, jr. and M. M. Nakata. bibliog il diags Electrochem Soc J 110:1103-10 N '63

Rapid ligand exchange in zirconium(IV) chelates. A. C. Adams and E. M. Larsen. Am Chem Soc J 85:3508-9 N 5 '63

Some microbial-resistant compounds of zirconium and their effect on cotton. C. J. Conner and others. bibliog il Textile Res J 34:347-57 Ap '64

Structure of $ZrF_4.3H_2O$ (di-μ-fluorohexafluorohexaquodizirconium(IV)). T. N. Waters. diag Chem & Ind p713-14 Ap 25 '64

ZIRCONIUM hydrides

Effect of oxidation rate on hydriding of zirconium alloys in gas mixtures containing hydrogen. D. W. Shannon. bibliog diags Corrosion 19:414-20 D '63

Zirconium-hydride formation in homogenized magnesium-zirconium alloy. J. E. Harris and P. G. Partridge. bibliog il Inst Metals J 93:15-18 '64-65

ZIRCONIUM oxides

Dielectric loss spectra of corrosion films on zirconium. P. J. Harrop and J. N. Wanklyn. bibliog Electrochem Soc J 111:1133-6 O '64

Effect of oxidation rate on hydriding of zirconium alloys in gas mixtures containing hydrogen. D. W. Shannon. bibliog diags Corrosion 19:414-20 D '63

Electrical conductivity in the system ZrO_2-$CaZrO_3$. T. Y. Tien. bibliog il Am Cer Soc J 47:430-3 S '64

Grain boundary conductivity of $Zr_{0.84}Ca_{0.16}O_{1.84}$ ceramics. T. Y. Tien. bibliog il J Ap Phys 35:122-4 Ja '64

High-temperature electrical conductivity in the systems CaO-ZrO_2 and CaO-HfO_2. H. A. Johansen and J. G. Cleary. bibliog Electrochem Soc J 111:100-3 Ja '64

Initial temperatures of zirconia phase changes and solid-solution reactions. T. W. Smoot and J. R. Ryan. bibliog Am Cer Soc J 46:597-600 D '63

Introduction of particle-size distribution into kinetics of solid-state reaction. H. Sasaki. bibliog diag Am Cer Soc J 47:512-16 O '64

Ionic conductivity of cubic solid solutions in the system CaO-Y_2O_3-ZrO_2. D. W. Strickler and W. G. Carlson. bibliog Am Cer Soc J 47:122-7 Mr '64

Preparation of stabilized zirconia for microscopic examination. R. M. Slepian. il Am Cer Soc J 47:535-6 O '64

Refractory zirconia fibers for molded aerospace components. il Tool & Manuf Eng 52:88 Mr '64

Separation and determination of zirconium in zirconia-yttria mixtures by precipitation with cupferron. E. J. Maienthal and J. K. Taylor. bibliog Anal Chem 36:1286-7 Je '64

Slip casting calcium fluoride and lime-stabilized zirconia. C. R. Masson and others. bibliog Am Cer Soc Bul 42:745-7 D '63

Thermal expansion of yttria-stabilized zirconia. T. H. Nielsen and M. H. Leipold. Am Cer Soc J 47:155 Mr '64

Transport numbers in stabilized zirconia. D. T. Bray and U. Merten. bibliog Electrochem Soc J 111:447-52 Ap '64

ZIRCONIUM oxides—*Continued*

Zirconia: reinforcing fibers for high temperature applications. il Plastics World 22:33 F '64

Zirconium dioxide-oxygen reactions. T. Smith. bibliog Electrochem Soc J 111:1020-31 S '64

ZONE melting. See Metallurgy—Zone refining; Zone refining

ZONE refining

Analog simulation of zone melting. H. L. Mason. il diags Instruments & Control Systems 37:121-3 Ja '64

Continuous zone-refining apparatus. J. K. Kennedy. bibliog diags R Sci Instr 35:25-8 Ja '64

Floating-zone $BaTiO_3$; preparation and properties. F. Brown and W. H. Todt. bibliog il diags J Ap Phys 35:1594-8 My '64

Governing equation for the shapes of molten zones. R. E. Green, jr. bibliog diag J Ap Phys 35:1297-301 Ap '64

Pure diffusional mass transfer in zone melting. W. R. Wilcox and C. R. Wilke. bibliog diags A I Ch E J 10:160-5 Mr '64

Segregation of benzoic acid-*d* from benzoic acid by zone melting. G. J. Sloan. diag Am Chem Soc J 85:3899-900 D 5 '63

Semiconducting properties of $AgIn_3Te_5$. D. F. O'Kane and D. R. Mason. bibliog Electrochem Soc J 111:546-9 My '64

Significance of the term zone length and the ratio of density of solid to liquid in the mathematics of zone melting. W. G. Pfann. bibliog J Ap Phys 35:258-9 Ja '64

Solution and theoretical evaluation of steady-state equations in continuous zone refining. J. K. Kennedy and N. G. Parke. bibliog diags J Ap Phys 35:2248-53 Jl '64

Some zone-refining calculations on phenanthrene-anthracene system. E. T. Nelson and others. Anal Chem 36:931-2 Ap '64

Spherulitic crystallization from the melt; fractionation and impurity segregation and their influence on crystalline morphology. H. D. Keith and F. J. Padden, jr. bibliog il J Ap Phys 35:1270-85 Ap '64

Spherulitic crystallization from the melt; influence of fractionation and impurity segregation on the kinetics of crystallization. H. D. Keith and F. J. Padden, jr. bibliog il diag J Ap Phys 35:1286-96 Ap '64

Zone-melting apparatus for alkali metal cyanides and alkali metal halides. T. J. Neubert and S. Susman. diag R Sci Instr 35:724-7 Je '64

Zone melting considered as a chromatographic separation technique. W. G. Pfann. bibliog diag Anal Chem 36:2231-4 N '64

See also

Metallurgy—Zone refining

ZONING laws

Drastic zoning reforms urged. Eng N 172:23-4 Ap 16 '64

Rodeffer Industries has the answer to zoning problems. J. N. Bell. il Rock Prod 67:67-70 Ap '64

Zoning ordinance may halt A-plant. Eng N 172:24 Ap 16 '64

See also

Building laws and regulations

ZOOLOGY

See also

Population (zoology)

Shells

ZOONOSES. See Infectious diseases in animals

ZYTEL. See Nylon, Powdered

WITHDRAWN

WITHDRAWN
ENGINEERING